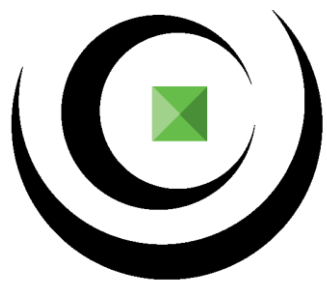




Altis Termite Reticulation System Installation Manual



GREENZONE[®]
TERMITE & INSECT BARRIER

A product by Greenzone

Why is Altis Reticulation the best termite management system?



- Altis reticulation allows constant replenishment for 50 years.
- Handspraying is not a replenishable system and provides only short-term relief but Altis provides a long-term solution, with no messy spraying or drilling when retreatment is required.
- Altis ensures that accurately designed rates of chemical are applied evenly through controlled rate emitters (drippers) thus minimising termiticide usage.
- The emitters are scientifically designed with regulated delivery points which ensure the correct amount of chemical is delivered to all areas being treated.
- The flexible pipes are an advantage in difficult areas such as clay sites, and are laid over a perforated plastic membrane. The evenly distributed chemical prevents any areas being untreated, denying opportunities for termites to enter.



Why is Altis Reticulation the best termite management system?

Continued.

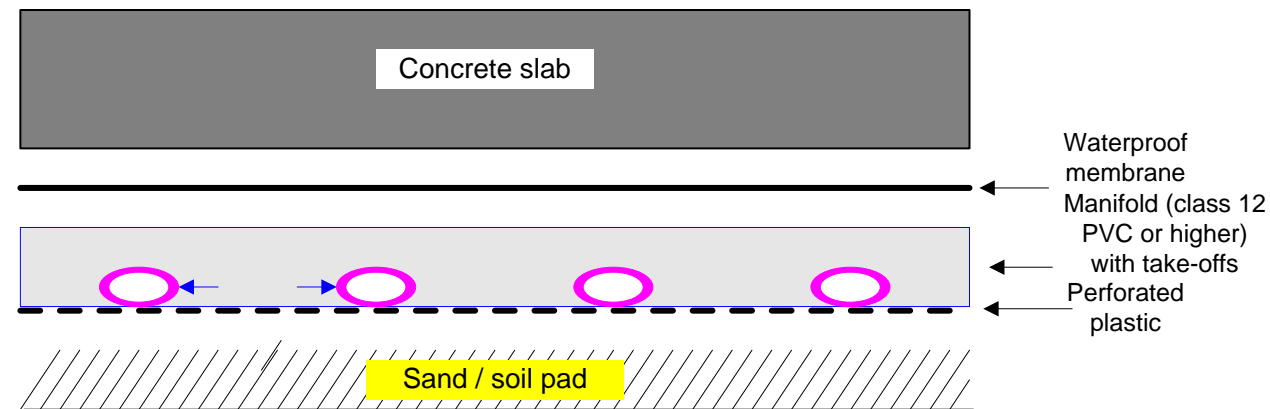
- The termiticide is pumped in to the system at low pressure, which maintains an even distribution at all points along a pipe. Use of emitters ensures no roots from vegetation will clog the pipe and render it ineffective.
- Test results showed over a 50 metre distance a complete and even distribution over the entire length of a single line system.
- The pipe emits at 2.7L/hr with emitters at 150 mm centres to give a fast pump up time even though it is a low pressure system.
- Altis allows for the treatment to be replaced/recharged with no disruption and no unsightly excavation or drilling.
- The cost benefit over time is considerable as recharge costs are significantly lower than a drill and trench retreatment.



- Altis can be used as a complete system to new constructions with the system below the floor and around the perimeter or on established buildings it can be used as an external perimeter only to complement other termite control methods and add convenience of maintenance.
- Maintenance is much more convenient for the customer and the installer when pump up of new chemicals occur from as little as one fill up point.
- Builders do not need to make special provisions for the Altis system during preparation for construction and concreters are not held up due to the speed at which an Altis system can be laid by a practiced installer using pre-assembled materials.
- The pipe is supplied flat and is designed to be slightly elastic so that on filling it rounds up to about the size of a garden hose and then flattens again on release of fluids.
- The reason for it being flat and elastic is that it won't put a circular indentation in the builder's concrete that would happen with a rigid pipe (weakening the concrete) and has the added benefit that in a clay subsidence the elasticity means the system will continue to function.

The Advantages for installing the Altis Reticulation System

Continued.



- From the above illustration under the slab is a builder's membrane, required to prevent moisture from rising and affect the concrete slab.
- The Altis pipe goes under the builder's membrane using emitters spaced 150 mm apart - the emitter faces down.
- Under the pipe goes the Altis pre perforated plastic membrane, which is different from the builders' membrane in that holes are provided for even chemical dispersion. The chemical leaves the pipe emitter, spreads across the plastic and drops through the Altis membrane.

Continued.

- Altis is the ONLY system which can treat 50 lineal metres from ONE pump-up point. By use of a multiple manifold system, additional 50 metre runs or shorter can be installed. The only limitations being the capacity of the delivery pump. As most residences have less than 90 lineal metres circumference the Altis system can be recharged from one pump-up point. This makes for ease of recharging and also making the system less obtrusive.
- Multiple Altis lines do not need to be balanced. They can run differing lengths of lines from the one manifold, simplifying calculations and making the system close to foolproof.
- Altis can be used on sites where there is a 5 metre height difference between pump up point and other sections of the site.
- Brightly coloured purple pipe distinguishes the system from other materials on site.
- Installation can be checked by “Mathematics’” to ensure the system is operating as designed.

Continued.

- Does not require trenches to lay the dripper line.
- No “socks” are needed.
- Joints are easy to use slip joints.
- Flexible ‘emitter’ ribbon (the pipe) allows easy use through undulations. E.g. thickening beams or changed slab levels.
- Materials are partially pre-assembled for greater time savings on the job.
- Altis is a faster installation - keeps you happy, and the builder too.
- There are very few specialised tools - only a remote control pressure unit (RCPU).
- It is a low pressure system that means you do not require a special pump.
- Pump ups are fast due to a 2.7 l/hour flow rate in the emitter.

CHECKING THE SYSTEM PERFORMANCE -THE SYSTEM MATHS



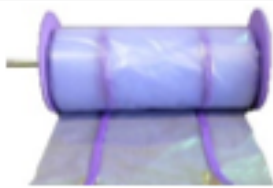




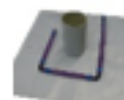
The Altis pipe is fitted with EMITTERS 175mm apart.
The Emitters are rated @ 2.7 litres per hour @ 100 Kpa
Therefore: each metre of Altis pipe delivers
 $1000/175 \times 2.7 = 15.42$ litres per metre @ 100 Kpa.

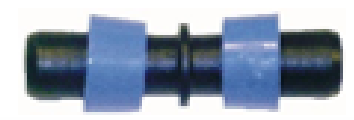

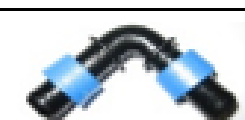


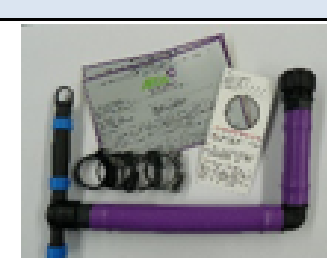
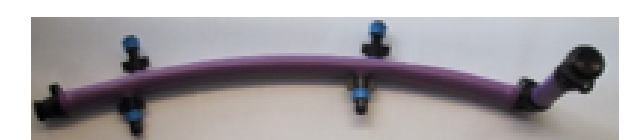

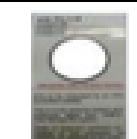
APPLICATION RATES

The treatment rates are at the label rate of 100 litres per cubic meter of soil for treatments to perimeter locations to achieve a continuous barrier 150mm wide to a minimum vertical depth of 80mm. The vertical barrier must continue 50mm below the top of the footing. The horizontal treatment rate of 5 litres per square metre applies for areas under concrete slabs.

CHEMICALS RECOMMENDED

Greenzone Bifenthrin 10 litre
Greenzone Fipronil 5 litre

COMPLETE UNDERSLAB	
<p>Sheet 2m wide per roll 100-200um plastic sheet, 2m wide in a roll length of 50m. Neutral (clear) is the preferred colour. It is perforated to suit the Altis system. The plastic sheet used is manufactured to the requirements as set out for Vapour Barriers in AS2870 of 2000. Suitable for use in full underslabs</p>	
<p>Dripper line per lineal meter The dripper line is of lilac pigment and contains injection moulded emitters spaced 175mm apart. Suitable for use in full underslabs. This dripper line is used in all pre made products.</p>	
INTERNAL PERIMETER PRE-MADE	
<p>600mm x 50m Roll This is a 600mm wide perforated plastic sheet, fitted with 2 (two) runs of the dripper line fixed to the sheet. Each runs of dripper line is spaced at 300mm apart with each run 150mm in from the outer edge. This is in a roll 50m in length. Suitable to form the horizontal barrier of the internal perimeter of slab and cover service penetrations for slab on ground construction. Roller sold separately.</p>	
<p>300mm Perforated x 50m Roll Suitable to form the horizontal barrier of the internal perimeter of slab and cover service penetrations for slab on ground construction. This is a 300mm wide perforated plastic sheet, fitted with 1 (one) run of the dripper line fixed to the sheet. This run of dripper line is in centred with this run 150mm in from the outer edge. This is in a roll 50m in length. Roller sold separately.</p>	
EXTERNAL PERIMETER PRE-MADE	
<p>150mm x 50m Roll This is a 150mm wide perforated sheet, fitted with 1 (one) run of the dripper line fixed to the sheet. The run of dripper line is centred with this run 75mm in from the outer edges. This is in a roll 50m in length. Suitable for barriers at a depth 0 -100mm, using the 150mm perforated in the horizontal plane. Roller sold separately.</p>	
<p>300mm Unperforated x 50m Roll This is a 300mm wide unperforated sheet, fitted with 1 (one) run of the dripper line fixed to the sheet. The run of dripper line is 75mm in from one outer edge. The dripper line can be at the base if the sheet can cover the full trench or on the outer soil wall, being 75mm below the finished soil level. This will form a treatment area 150mm wide and to a depth of 300mm. This is in a roll 50m in length. Suitable for barriers at a depth 100-300mm, using the 300mm unperforated as a dam wall. Roller sold separately.</p>	
PRE-MADE PENETRATIONS	
<p>Internal Pre-Made Penetration 600mm x 600mm perforated plastic sheet with dripper line attached to 3 (three) sides. Suitable to link in with an internal perimeter to cover service penetrations. This is pre made and sold individually. Holes for penetrations need to be cut.</p>	
<p>Internal Pre-Made Penetration (5 Pack) 600mm x 600mm perforated plastic sheet with dripper line attached to 3 (three) sides. Suitable to link in with an internal perimeter to cover service penetrations. This is pre made and sold in a pack of 5. Holes for penetrations need to be cut.</p>	

DRIPPER LINE FITTINGS	
<p>Inline joint Suitable fitting to join two pieces of dripper line together. No clips required as the blue slip lock joints provide the necessary seal. Sold in bags of 25.</p>	
<p>Stop end Suitable fitting to put on the dripper line at the end of a run. No clips required as the blue slip lock joints provide the necessary seal. Sold in bags of 25.</p>	
<p>90° joiner Suitable fitting to put on the dripper line to go around 90° corners. No clips required as the blue slip lock joints provide the necessary seal. Sold in bags of 25.</p>	
<p>T joint Suitable fitting to link the dripper line into penetrations also can be used to go around external pipes and penetrations. No clips required as the blue slip lock joints provide the necessary seal. Sold in bags of 25.</p>	
<p>45°/135° joint Suitable fitting to put on the dripper line to go around bay windows. No clips required as the blue slip lock joints provide the necessary seal. Sold in bags of 25.</p>	
PURPLE MANIFOLDS	
<p>Multi Manifold single/double 150mm take off Suitable to link the system to a pump up point. For an external perimeter installation for up to 100Lm. Pre-assembled single/ double Manifold kit complete with 4 X 25mm herbie clips all in a bag. Sold individually.</p>	
<p>Purple Manifold complete double 600mm take off Suitable to link the system to a pump up point. For an internal perimeter installation for up to 100Lm. Pre-assembled double Manifold kit complete with 4 X 25mm herbie clips all in a bag. Sold individually.</p>	
PUMP UP FITTINGS	
<p>Square pathway trap This is to allow the manifold pump up point to be concealed. This is lockable and is the recommended pathway trap. It comes with 2 screws and requires an Allen key to tighten.</p>	
<p>Pump up tags This tag can be attached to the manifold to indicate the length of dripper line runs that have been installed. It enables you to ensure that the system is not under or over services when charging with termiticide.</p>	

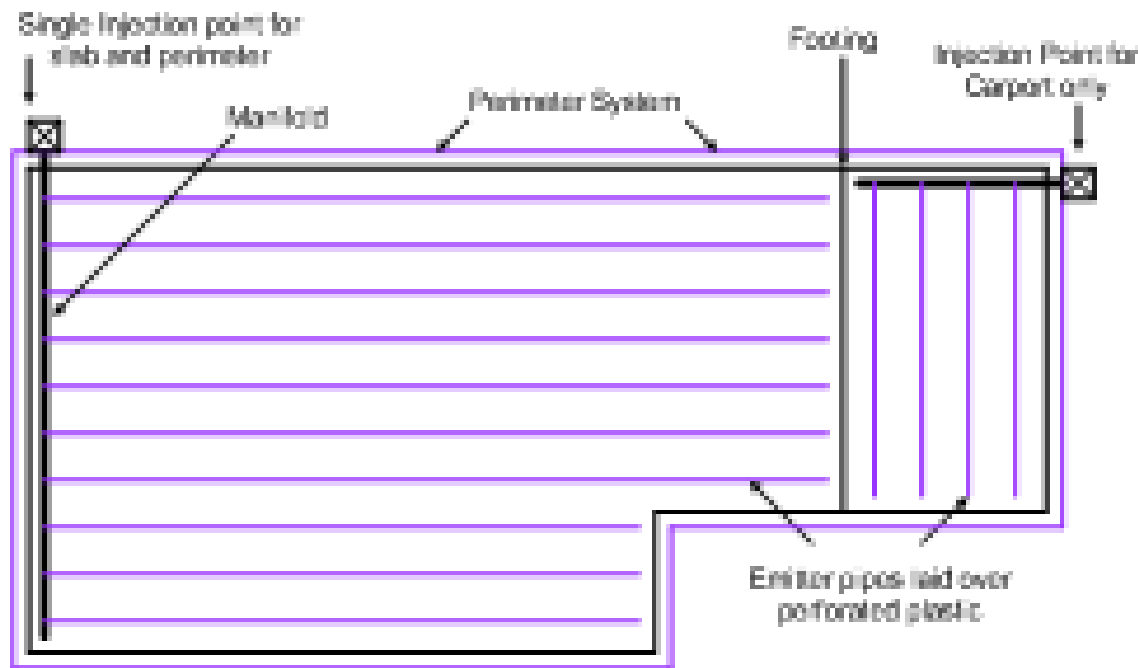
SUMMARY OF GENERAL ON-SITE WORK

- Preliminary work includes viewing plans and inspection of site prior to Altis System Installation, having regard for footing, slab, plumbing, electrical, and any unusual construction details.
- Obtain copy of plans and discuss suitable injection points with Builder/Architect/Site Supervisor.
- Draw plan of the site area being treated detailing injection point(s), position of manifold(s), and direction of pipes and parameters of area being treated. The injection point(s) must be numbered and recorded on job sheet with the area in square metres.
- Check site to make sure all plumbing pipes are installed and that sand level is correct.
- Check site injection points and ensure that emitter pipes do not exceed recommended length.
- Lay perforated plastic, using duct tape to join sections with 50mm overlap.
- Cut a simple cross in the perforated plastic when it is to be pulled over a penetration pipe.
- Install manifold pipes including pump up point. Make sure not to exceed the 50 metre maximum of length each line. Never exceed 180 m² from any one pump up point; less if your pump has low capacity.
- Run emitter pipes over pad - connect to manifold pipe using blue ring joiners. Do not exceed 50 metres per length. Emitters must always face down. Emitter pipes must not be twisted.
- Duct tape pipes into position at 1.8 m or less intervals.
- Fit Universal Line End Typhoon & Ring to end of each line.
- After installing injection point(s) inspect site to ensure job has been installed correctly and no joiners left off.
- Fit stickers to meter box or cupboards as required by State regulation

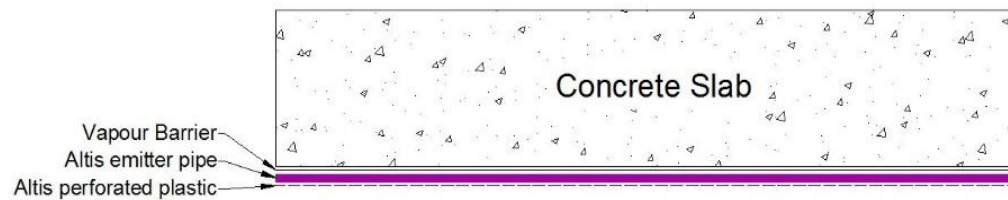
Altis Reticulation System Overview of System Types

FULL UNDERSLAB SYSTEM Using bulk goods

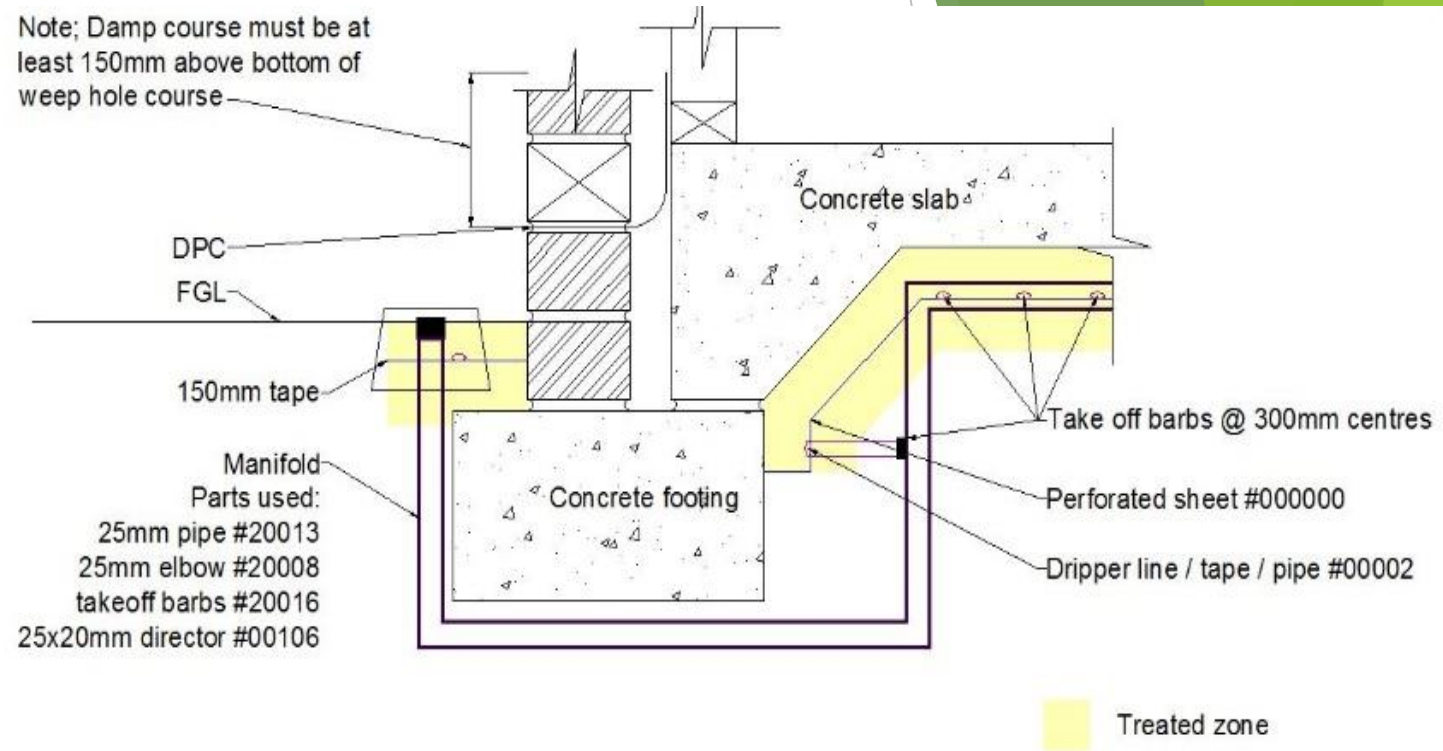
- Components required are 1000 metre rolls of Altis pipe and 1metre wide perforated plastic which fold out to 2 metre wide by 50 metre long.



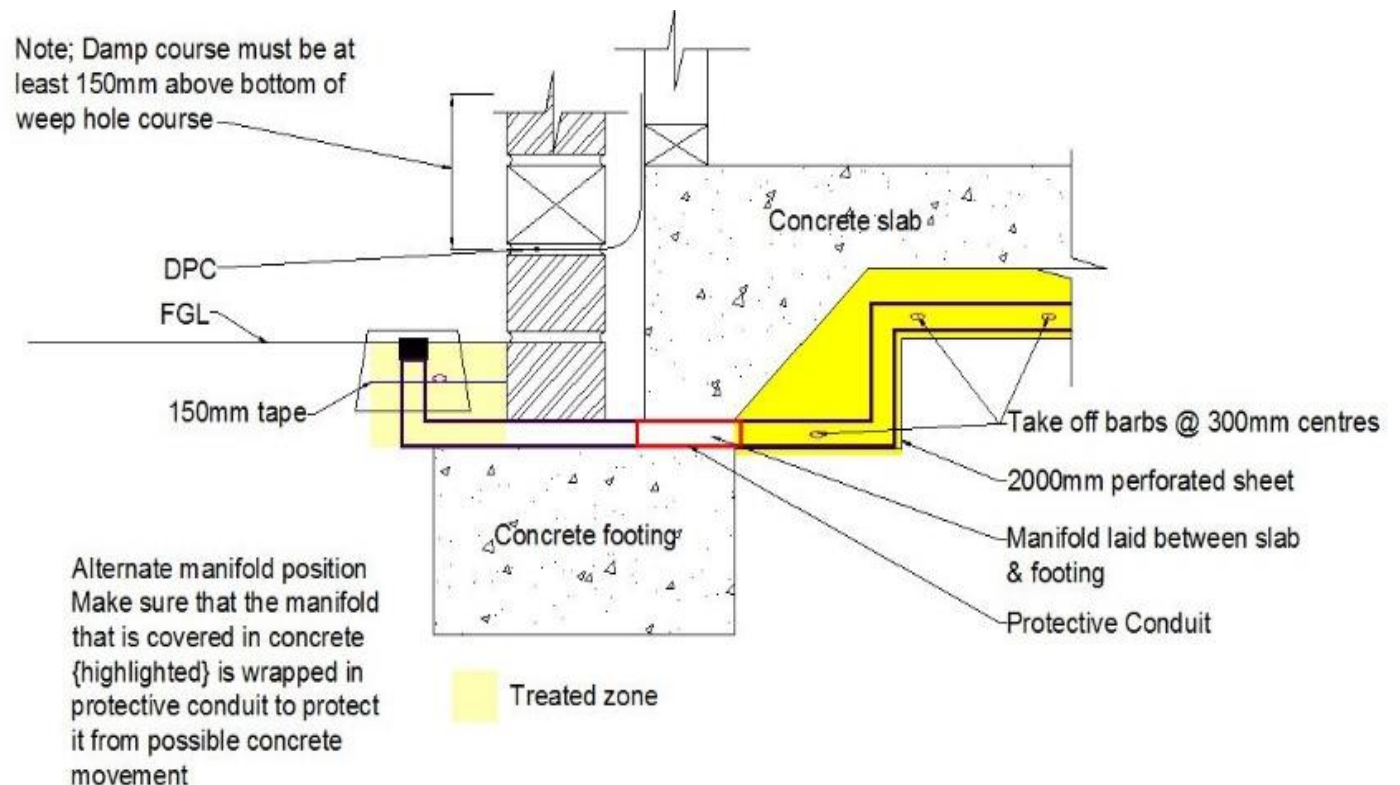
Plans of ALTIS Premium System under concrete-on-ground of new House and Carport - Plan View



Note; Damp course must be at least 150mm above bottom of weep hole course



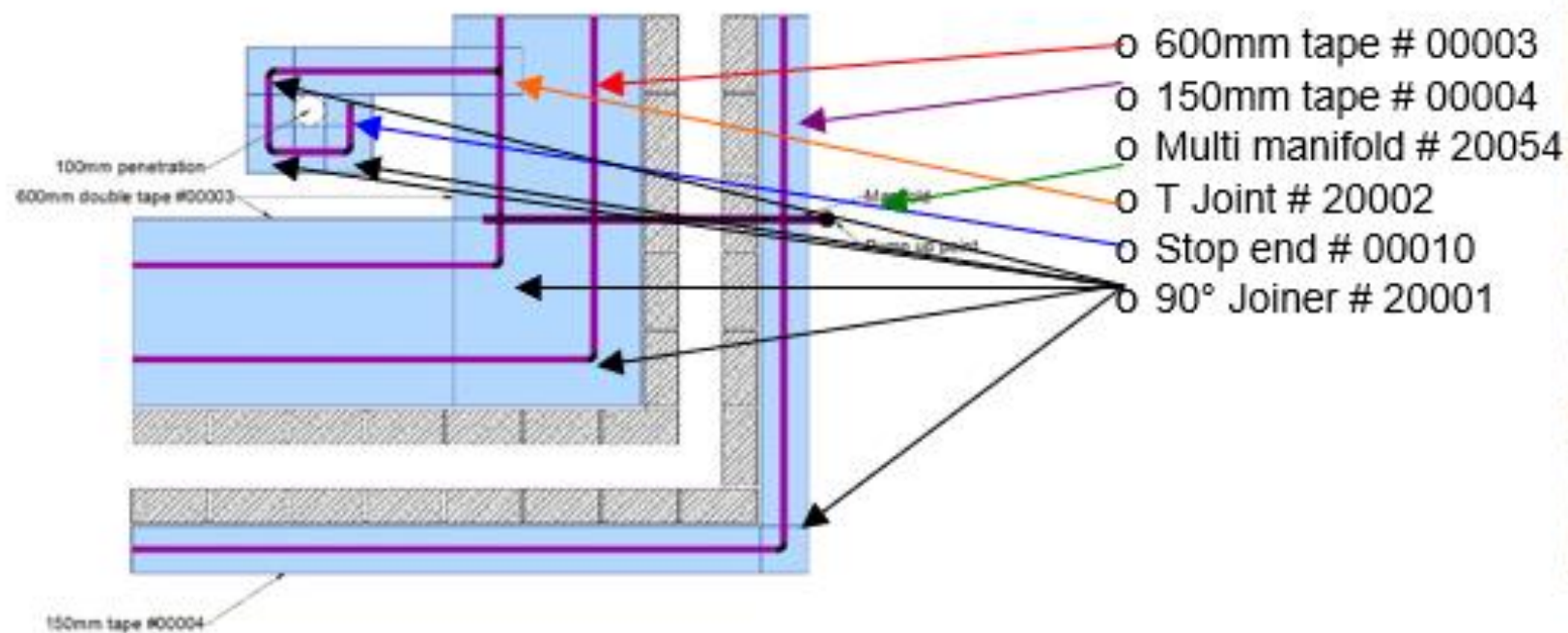
Note; Damp course must be at least 150mm above bottom of weep hole course



INTERNAL PERIMETER / INFILL SLAB

- A 50m long roll, 600mm wide and has 2 Altis pipes 300mm apart. It is suitable only for horizontal barrier for flat concrete on ground slabs including Waffle pod design.
- The Pre Assembled 600 under slab sheet and Altis pipe product, is simply rolled out in runs up to 50m to cover the complete area on the under slab.
- Cut off excess and join corners.
- Each run of the Altis emitter pipe is fitted to the 25 mm delivery manifold connected to the 25mm delivery (lead in) pipe to the outside of the slab area, using take offs from the manifold pipe.
- The opposite end of each run of the emitter pipe will be sealed using the Universal line end stop.
- This installation **MUST** be completely covered by polythene waterproof membrane before the steel reinforcing prior to concrete pour.

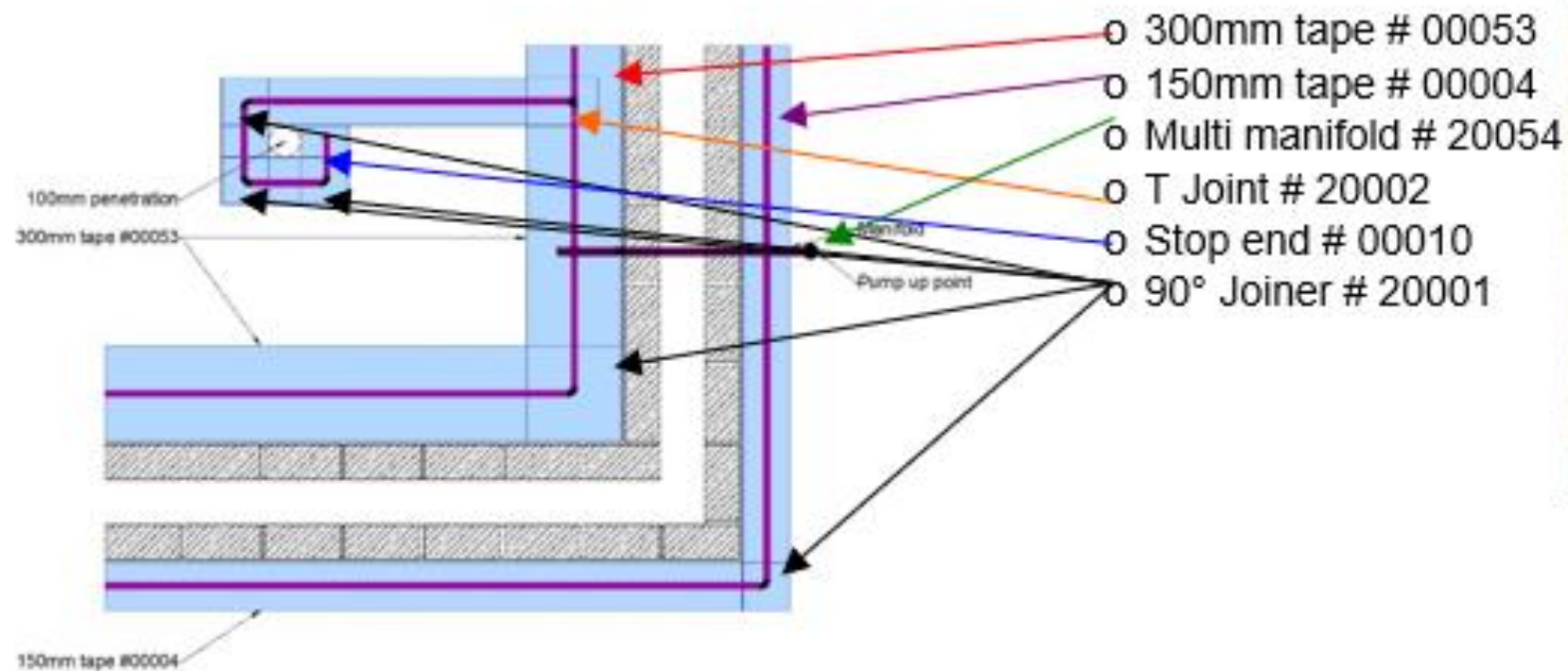
600 wide



300MM INTERNAL PERIMETER SYSTEM

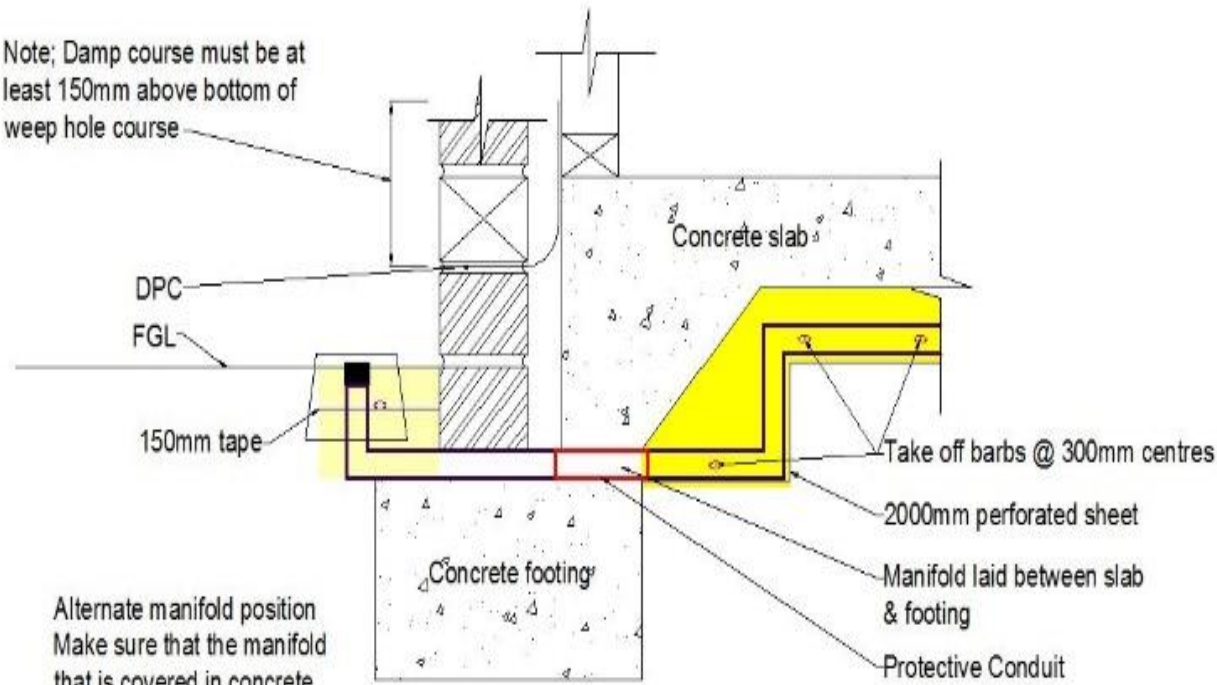
- A single line fixed to the centre of a 300mm wide perforated plastic sheet, available in 50m rolls.
- Suitable to form the horizontal barrier of the internal perimeter of slab and the lead up to service and / or post penetrations for slab on ground construction.
- Assembly and pumping is the same as a 600mm wide.

300 wide



Altis Reticulation System Overview of System Types

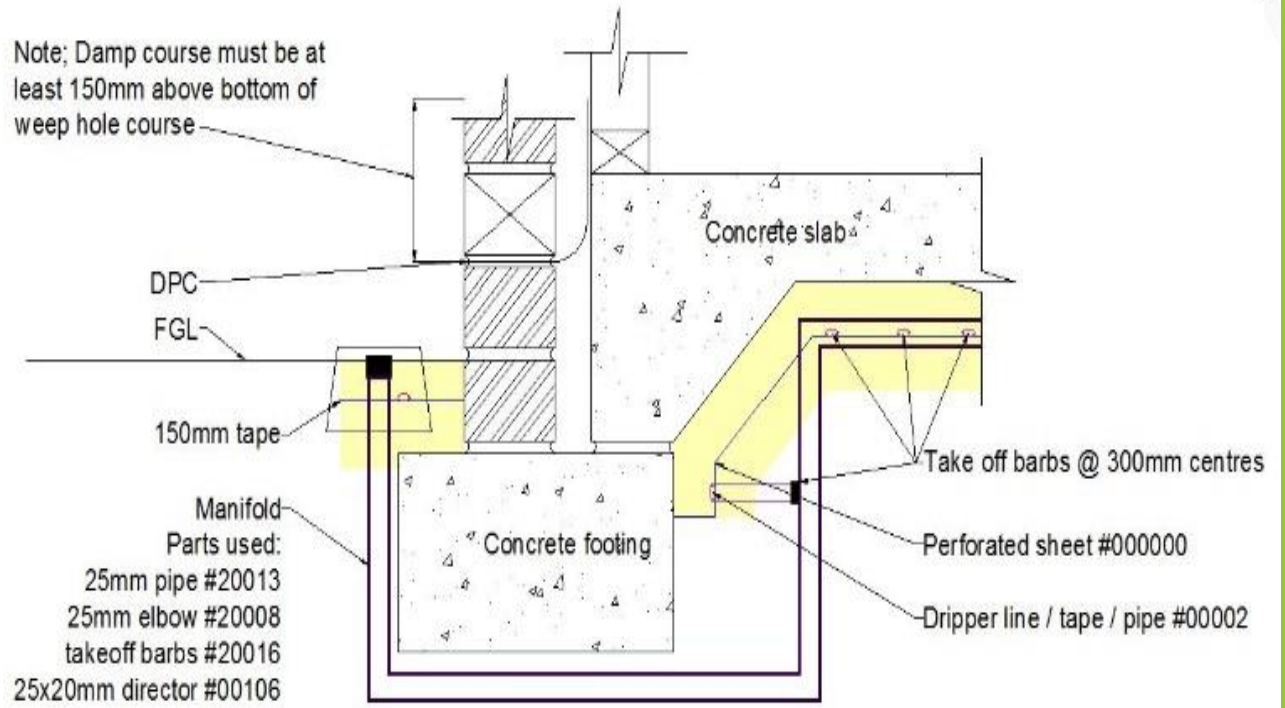
Note; Damp course must be at least 150mm above bottom of weep hole course



Alternate manifold position
Make sure that the manifold that is covered in concrete (highlighted) is wrapped in protective conduit to protect it from possible concrete movement

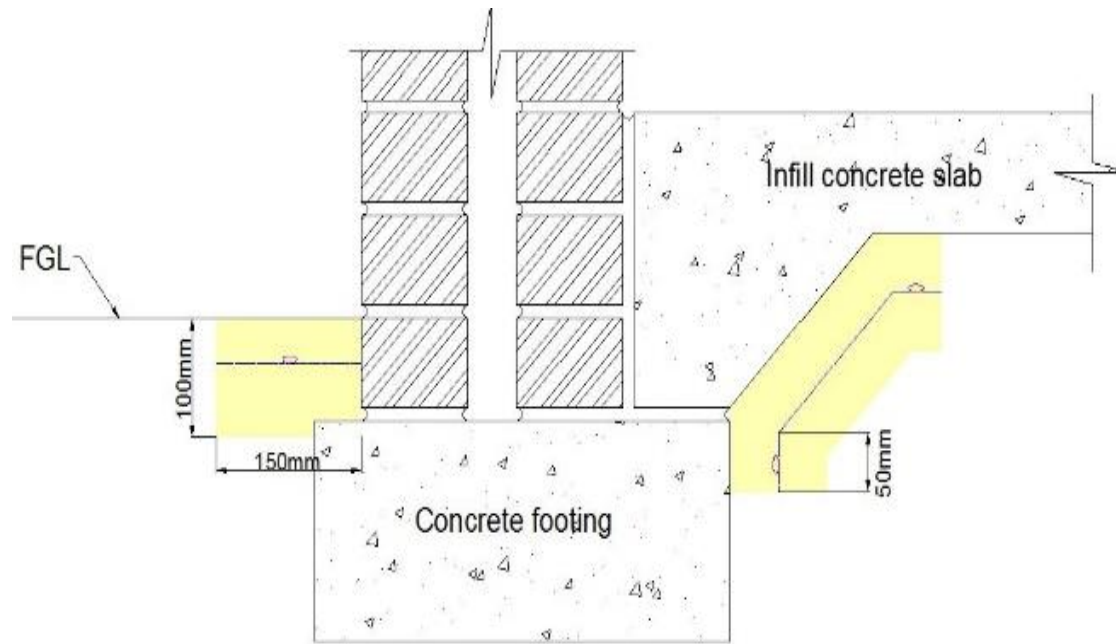
Treated zone

Note; Damp course must be at least 150mm above bottom of weep hole course



Parts used:
25mm pipe #20013
25mm elbow #20008
takeoff bars #20016
25x20mm director #00106

Treated zone



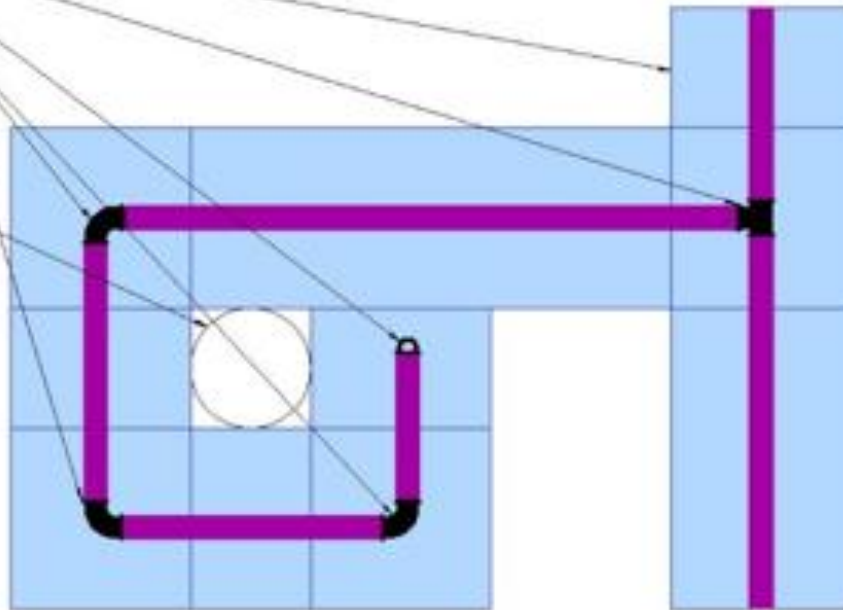
Treated zone

PENETRATIONS

Fittings Used:

- 150mm tape #00004
- Tee #20002
- Stop end #00010
- 90 elbow #20001

100mm Dia



- o 150mm tape # 00004
- o T Joint # 20002
- o Stop end # 00010
- o 90° Joiner # 20001

DAM WALL EXTERNAL PERIMETER BARRIER SYSTEM 300MM RETAINER

- The 300mm wide plastic is not perforated and the dripper line is fixed to the 300 sheet 75mm in from one edge. The dam wall lines the outside of the trench to the footing with the ribbon on the inner side to create a consistent treated zone.
- Chemical is forced against the true building base and uses correct volume of chemical.
- External perimeter can be pumped 50 m from each take off point or 100 m from a single pump up point with two take off barbs.
- Suitable for barriers at a depth 100-300mm, using the 300mm *unperforated sheet* as a dam wall. This is a 300mm wide unperforated sheet, fitted with 1 (one) run of the emitter pipe fixed to the sheet. The run of emitter pipe is 75mm in from the one outer edge. The feeder line can be at the base if the sheet can cover the full trench or on the outer soil wall, being 75mm below the finished soil level. This will form a treatment area 150mm wide and to a depth of 300mm when applied to following examples or an average of 150 wide in the above example.



EXTERNAL PERIMETER SYSTEM - 150MM PERFORATED

- Suitable for barriers at a depth 0 -100mm, using the 150mm wide sheet in the horizontal plane. This is a 150mm wide perforated sheet, fitted with 1 (one) run of the emitter pipe fixed to the sheet. The run of emitter pipe is centred with this run 75mm in from the outer edges. This installation needs to be covered by a plastic sheet when directly under concrete or covered with 25 to 50mm of soil. This will form a treatment area 150mm wide and to a depth of 100mm.
- The method is used where the footing is accessible and the total depth of the treated area does not exceed 100mm depth. For all other requirements the minimum method will be our “dam” construction which forces chemical against the true building base and uses the correct volume of chemical or to install 150mm runs in layers 100mm apart horizontally.
- Your tank size and pump output (litres per hour) determines the size of any one system, e.g. a 100 lineal metre system requires 1.5 l/meter of 150mm system. The maximum length of any one Emitter pipe must not exceed 50 metres off any one Takeoff Barb
- All treated areas/zones are required to have a minimum width of 150mm outside the footing line and a minimum depth past the top of the footing of 50mm and a minimum depth overall of 80mm provided that an area 50mm below the top of the footing is treated.

CALCULATIONS

For all profiles the treatment rates are as per the label a rate of 100 litres per cubic meter of soil.

To calculate this:

width X depth X length = (volume) X 100 L. = volume of mix.

All measurements in metres. E.g.

0.15 X 0.1 X 100m = 1.5m³ X 100 L = 150L or 1.5 L/m

EXTERNAL PERIMETER SYSTEM USING 300 MM DAM WALL WHEN BACKFILL IS PRESENT

- Install at a depth of 100-300mm using the 300mm unperforated sheet as a dam wall.
- The feeder line can be at the base if the sheet can cover the full trench or at the top being 75 mm below the finished soil level. This will form a treatment area 150mm wide and to a depth of 300mm. The ground level slope is preferred by BCA.
- External Perimeter system - 150mm perforated combined with 300mm dam wall system. Standard system barrier at a depth 300-450mm, using the 150mm perforated sheet in the horizontal plane at the top of the footing and the 300mm unperforated as a dam wall, the feeder line will be at the top being 75mm below the finished soil level. This will form a treatment area 150mm wide and to a depth of 450mm.

CALCULATIONS

- For all profiles the treatment rates are as per the label a rate of 100 litres per cubic metre of soil.

To calculate this:

$\text{width} \times \text{depth} \times \text{length} = (\text{volume}) \times 100 \text{ L} = \text{volume of mix.}$

All measurements in metres. E.g.

$0.15 \times 0.1 \times 100\text{m} = 1.5\text{m}^3 \times 100 \text{ L} = 150\text{l}$

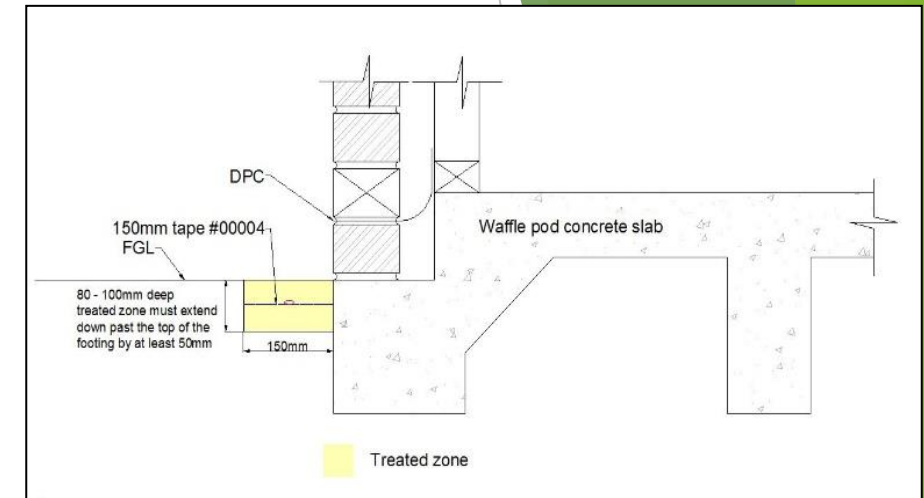
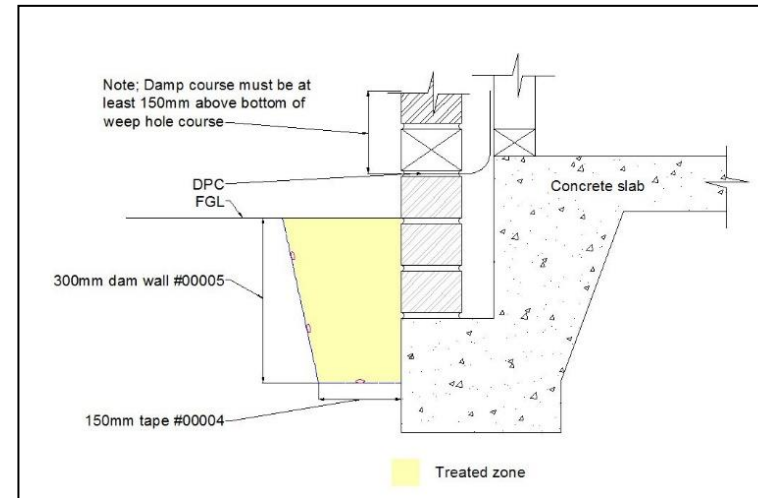
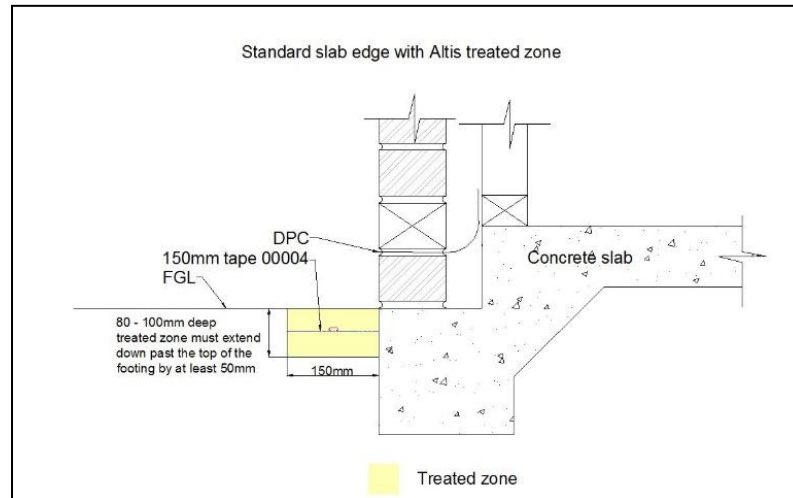
PLUS

$0.2 \times 0.3 \times 100\text{m} = 6\text{m}^3 \times 100 \text{ L} = 600\text{L}$

TOTAL 750L

- The 150mm perforated sheet and tape can be used without the 300mm retainer only when the 150 is layered each 200mm with one layer not more than 50 mm below the finished soil level.
- The maximum length of any one Emitter pipe must not exceed 50 metres off any one Takeoff Barb

DIAGRAMS & PHOTOS OF 150 WIDE

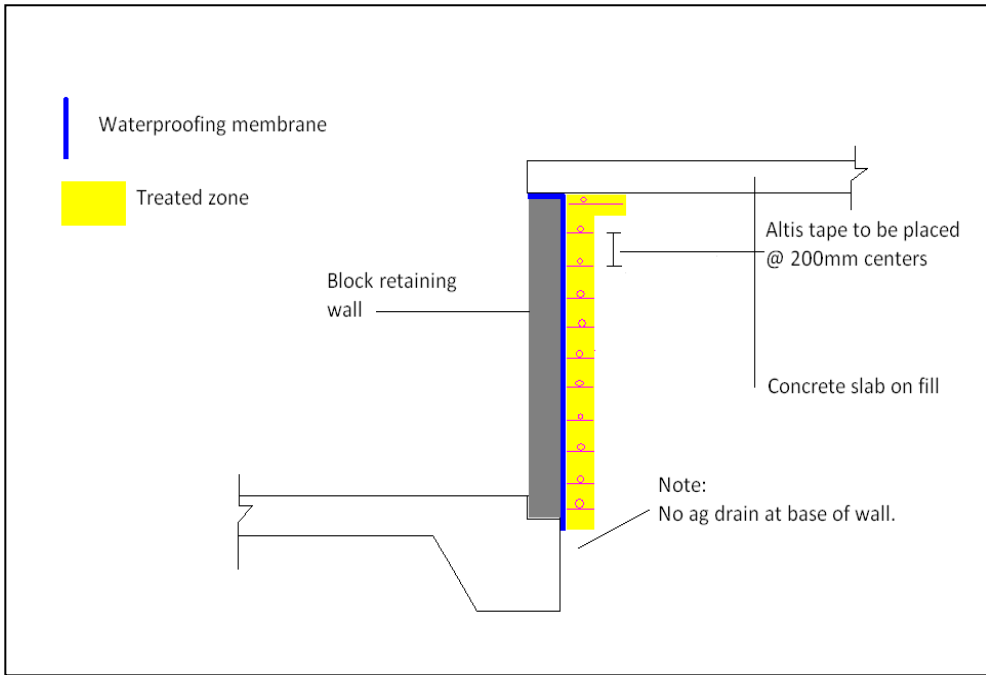


VERTICAL BARRIER – SYSTEM INSTALLATION

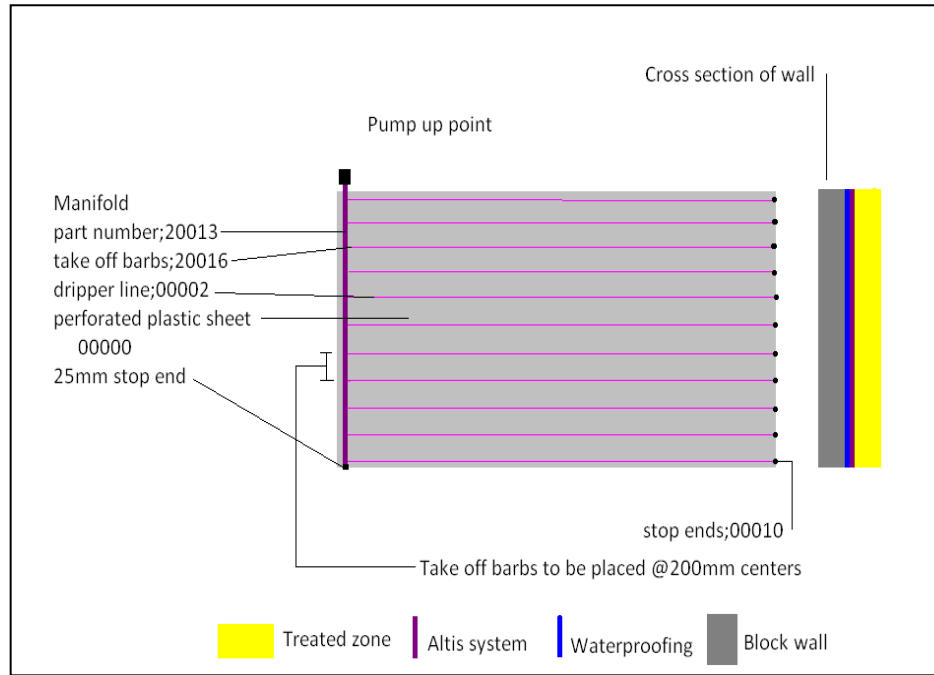
- Cut to size and join manifold pipes, ensuring Take-Off holes are in line.
- Connect manifold pipe via delivery pipe to injection point, with screw cap in place.
- Open end(s) of manifold pipe to be capped.
- Prior to on-site installation, Manifold pipe segments should be prepared with holes drilled at 200mm centres, rubber grommets and Take-Offs in place.
- Attach Emitter pipe(s) to Take-Offs and secure with plastic clips. When attaching Emitter pipe to Take-Off, ensure sufficient pipe, emitter free for fitting and fixing. Run out Emitter pipe(s) to extent of wall area to be treated, ensuring Emitter holes face towards wall. Pipes can be placed horizontally as drawing or vertically.
- Seal open ends of Emitter pipes by inserting stop ends.
- Fix manifold pipe to polythene sheeting (previously attached to wall) with fast drying glue such as liquid nails. Arrange Emitter pipes in horizontal parallel lines and fix with fast drying glue such as liquid nails at 1.0 metre centres to the polythene sheeting and / or saddle clamps as surfaces may not always suit glue. Cover with plastic builder's membrane unperforated securing with nail gun.
- Draw on plan, wall location and area being treated, detailing injection point(s), position of manifold(s), director of Emitter pipe(s) and perimeter of area(s).
- The injection point(s) must be numbered and recorded on job sheet with the area(s) in square metres.

Altis Reticulation System Overview of System Types

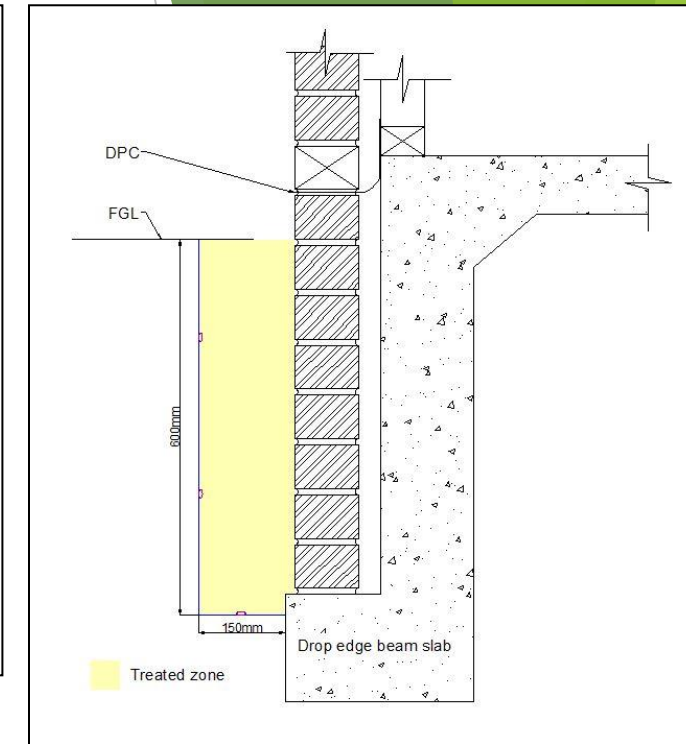
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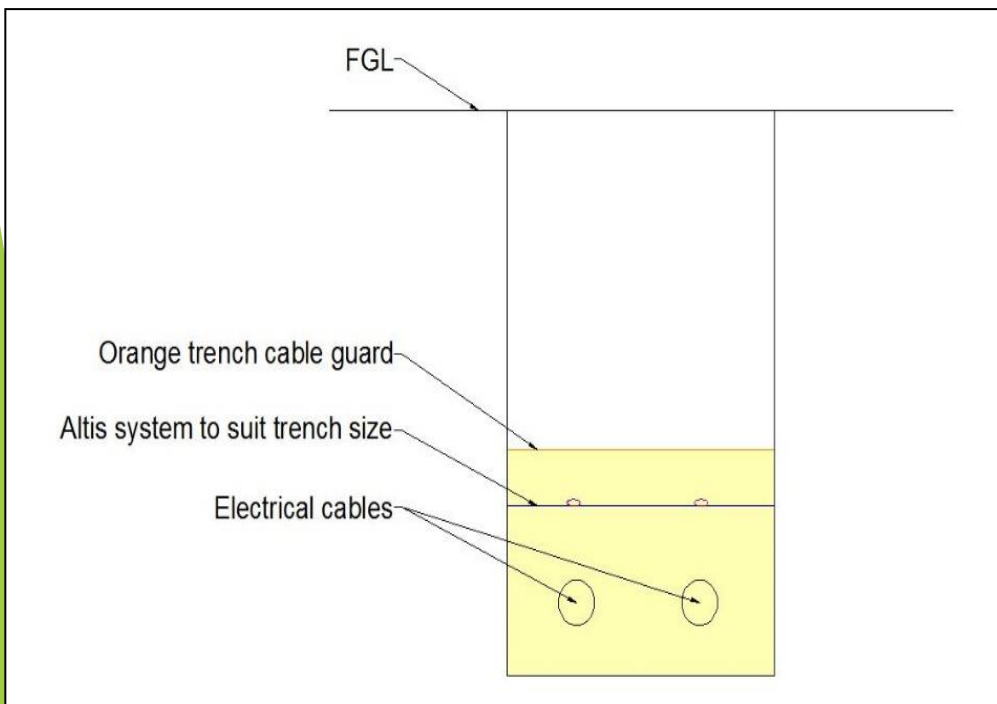
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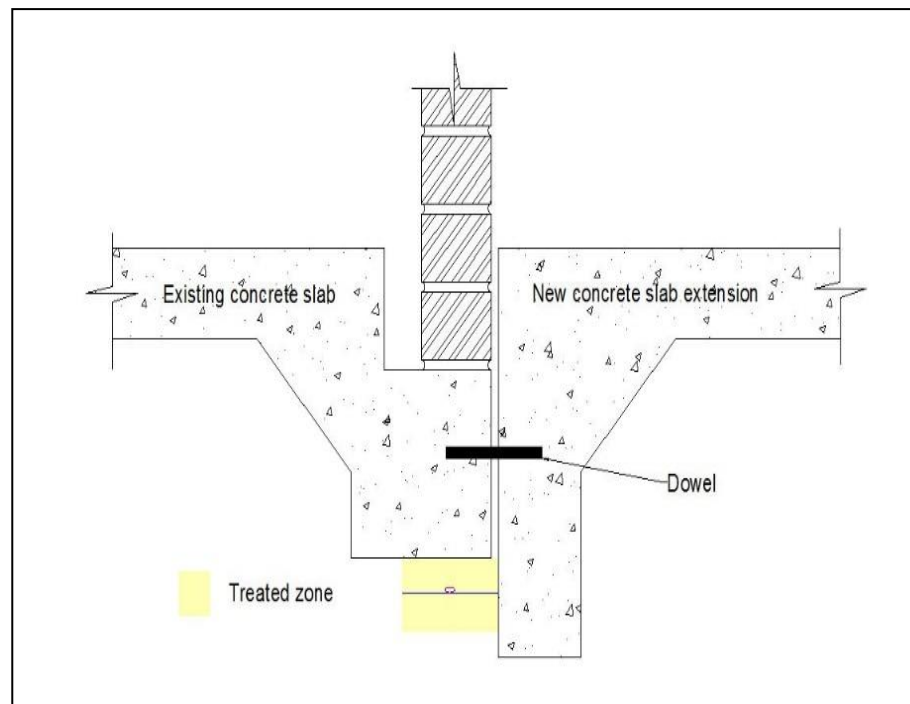
EPDREDBM



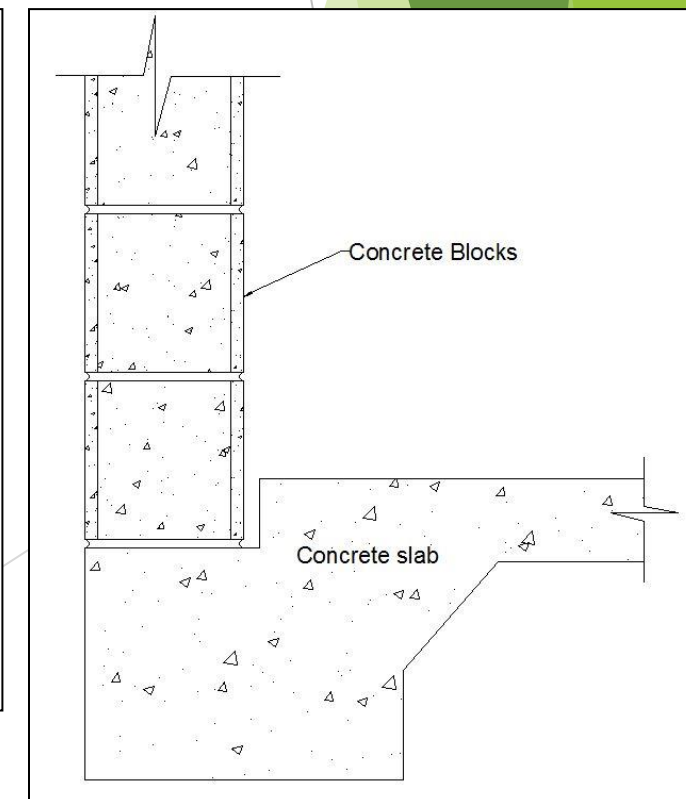
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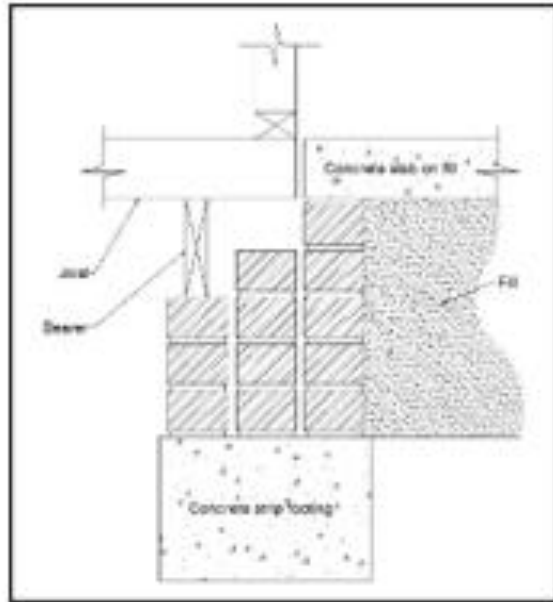


RW1

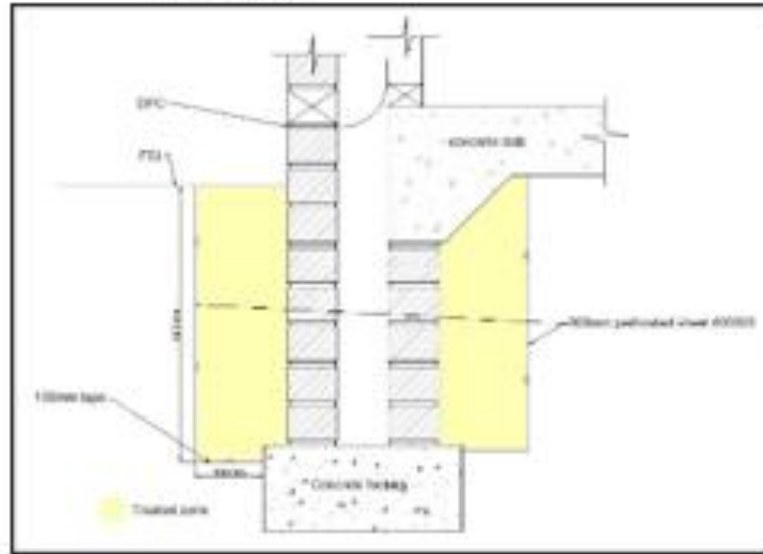


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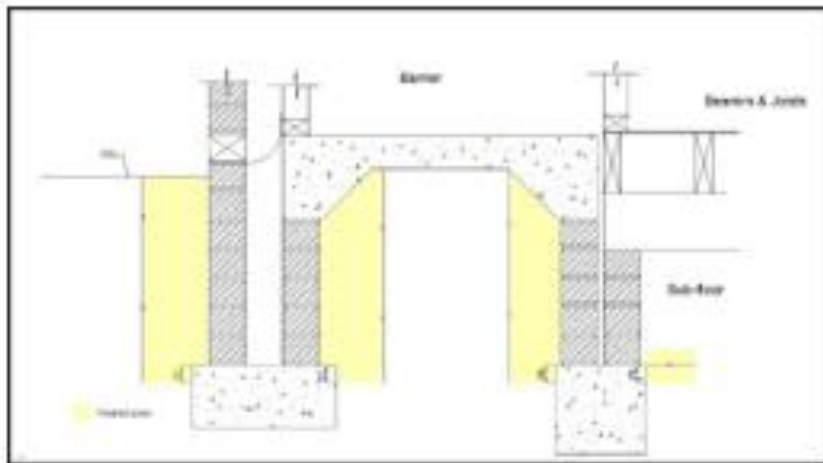
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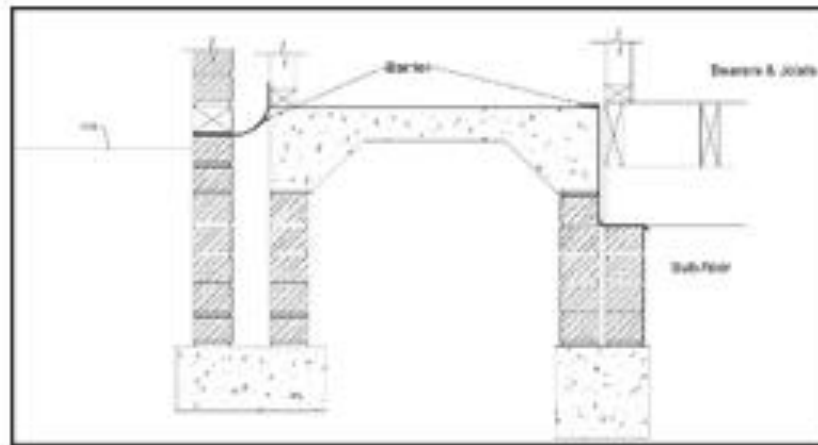
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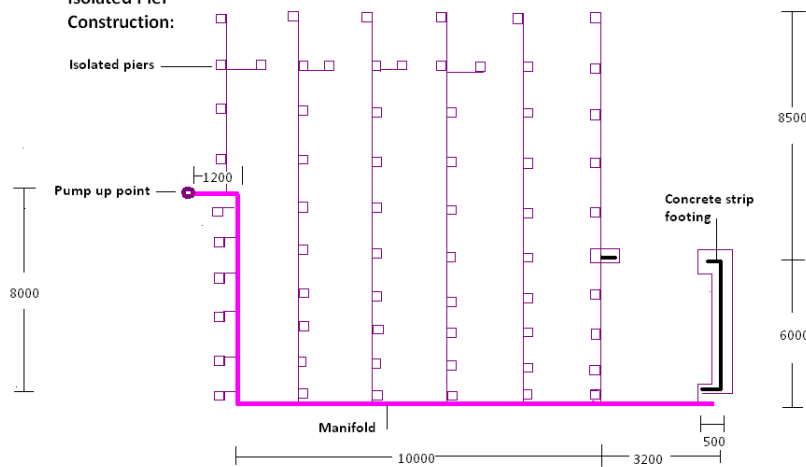


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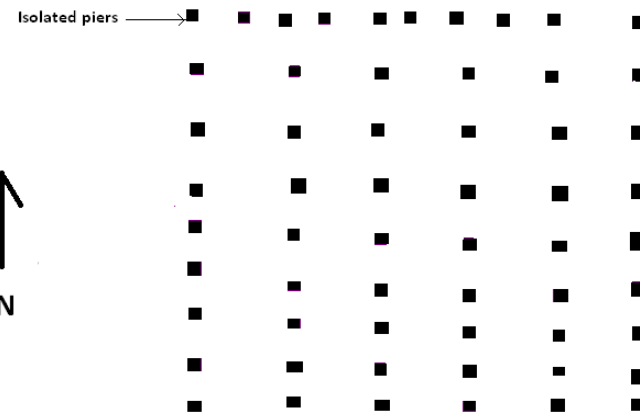


Isolated Pier Construction:

Pier size: 400x400



Isolated Pier Construction:



Calculate fittings required to complete this job.

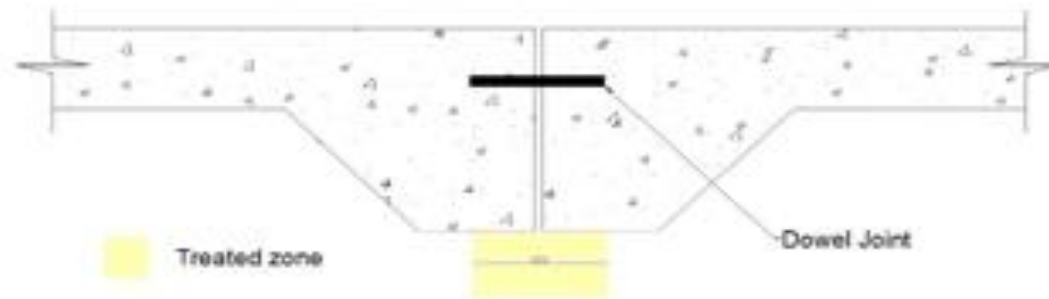
- Manifold
- Pump up fittings
- Tees
- 90 deg bends
- Stop ends
- Take off bars
- 150mm tape
- Pathway trap

Strip footing

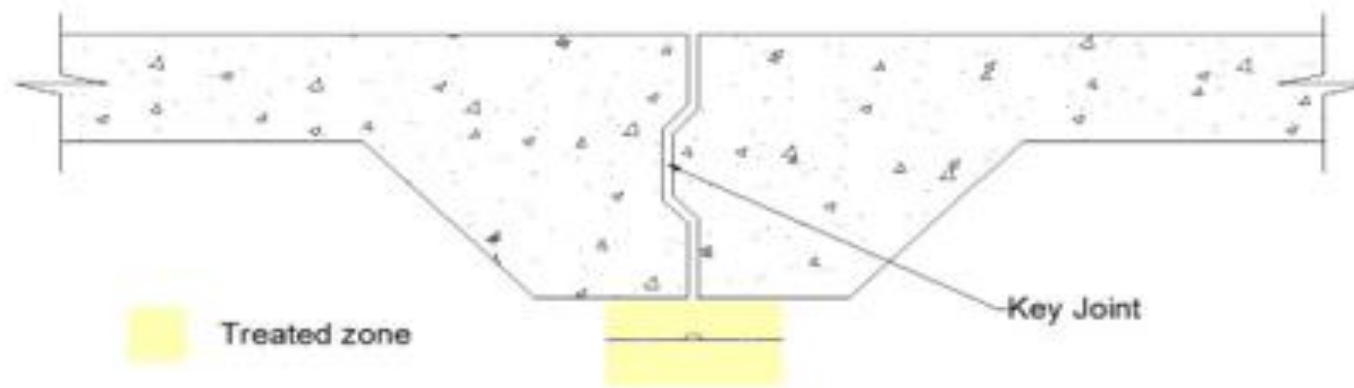


Control Joints

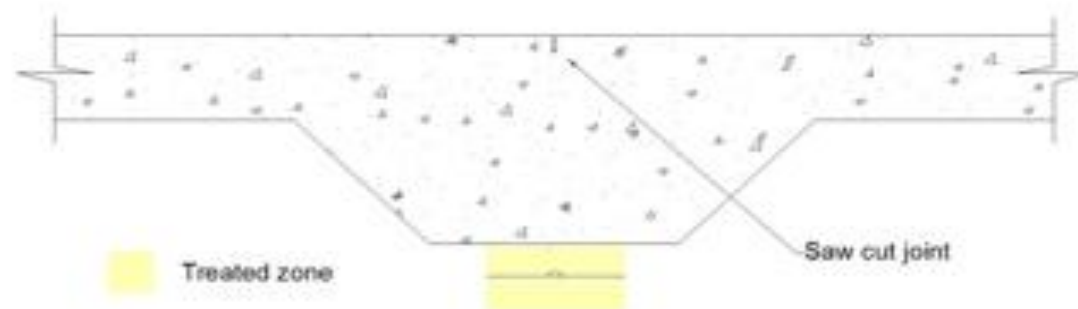
CJ000A1



CJ000A2



CJ000A3



Tools Required:

- The manual
- Vehicle with an approved termiticide tank
- Pump with output minimum of 3426 litres per hour (this will inject a system up to 100 square metres)
- 50 metres 25mm ID flexible hose and connections
- Clean water supply
- Adjustable spanner
- Job and check list sheets
- Site plan with injection points shown
- Remote control pressure unit (R.C.P.U.)
- Termiticide
- Remote Control Pressure Unit (R.C.P.U.) consists of an injection snorkel, a pressure gauge, a liquid flow rate meter and one on/off valve. Use the spreadsheet provided for calculations of Termiticide and time to pump up system.

Quick summary of pumping of system

1. Locate injection point(s) on plan and fix injection point(s) into position.
2. Work out from plan how much chemical is to be injected and check soil density.
3. Fill tank to required level and mix with chemical
4. Run pump motor for 15 to 20 minutes to mix chemical correctly
5. Pull out hose and join to RCPU unit.
6. Open tap on RCPU unit to allow small amount of chemical mix to flow through.
7. Go to truck and engage pump.
8. Go back to injection point and open up taps, watching pressure gauge at all times.
9. When pressure gauge reaches required pressure walk around site, especially in the wet areas to ensure that a plumber has not cut pipes and that chemical is not coming up around pipes.
10. When full flow rate meter indicates correct amount, turn off pump.
11. Disconnect chemical hose
12. Flush system with an amount of water equal to 10% of the chemical mix pumped through the system.
13. Disconnect RCPU and screw on black filler cap.
14. Install safety box lid.
15. Place durable notices in meter box.

An RCPU unit is used for injecting with chemical and water mixed as emulsion or water for flushing. It also acts as a non-return valve.

It comprises of two gauges, which are a flow rate meter and a pressure gauge, connectors at each end, one for connection to the pump output and the other to the Altis system. There is also a ball valve tap which is used to adjust the system pressure which must be held at lower than 140 Kpa (100 Kpa optimum).

A flow rate meter measures quantity in litres. The pressure gauge is measured in Kpa as well as lbs/square inch and is used to control pressure in the system.

The RCPU is attached to the valve socket on the Altis injection point and the other end to the hose from the pump.

The procedure is to connect the RCPU unit to injection point and connect the pre treat hose to the RCPU unit, ensuring the ball valve tap is turned off. Start the pump and mix chemical emulsion for 15-20 minutes.

Return to RCPU unit, slowly turn the ball valve tap on, all the time watching the pressure gauge. Once the gauge has reached 100 to 140 Kpa, let the pump run until the required amount of solution has filled the system as per installation sheet requirements.

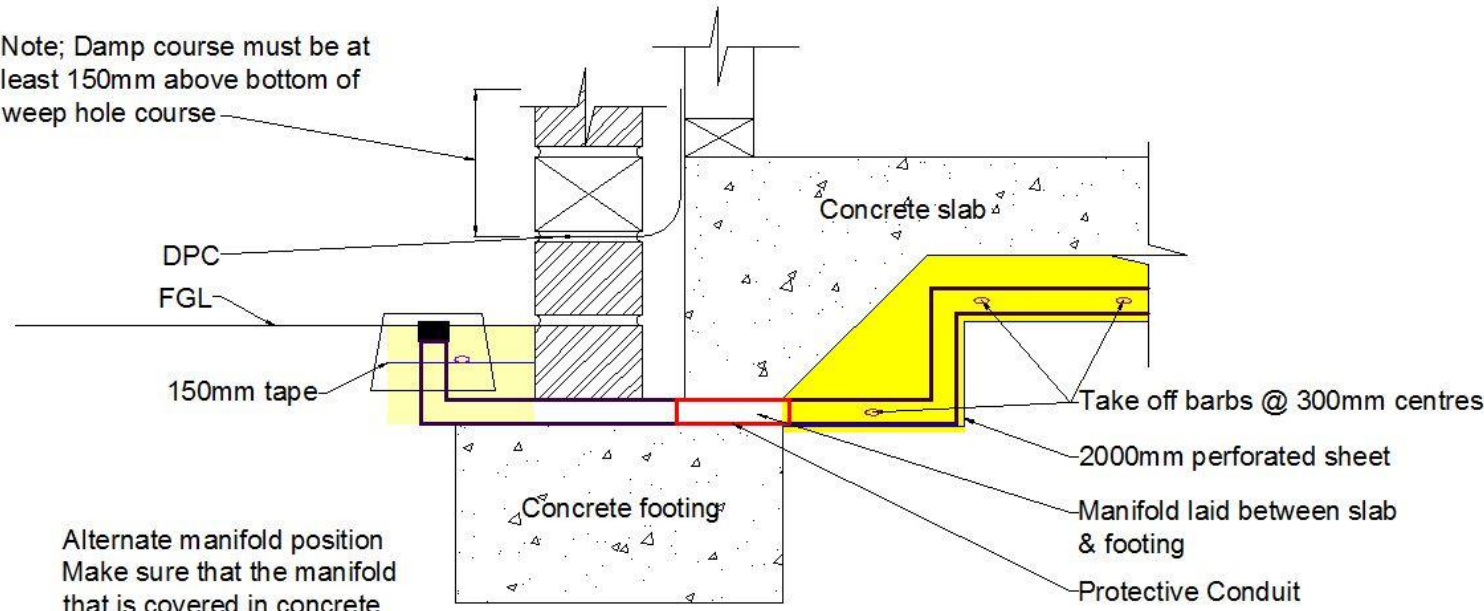
Flush the system with clean water.

Never pump higher than 140 Kpa, 100 Kpa is recommended.

(no photo or detail listed on product list – code 20037)

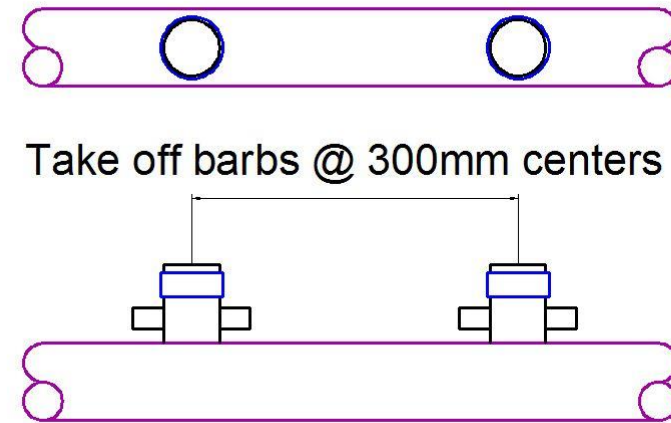
Altis Reticulation Systems - Injection Point Methods

Note; Damp course must be at least 150mm above bottom of weep hole course



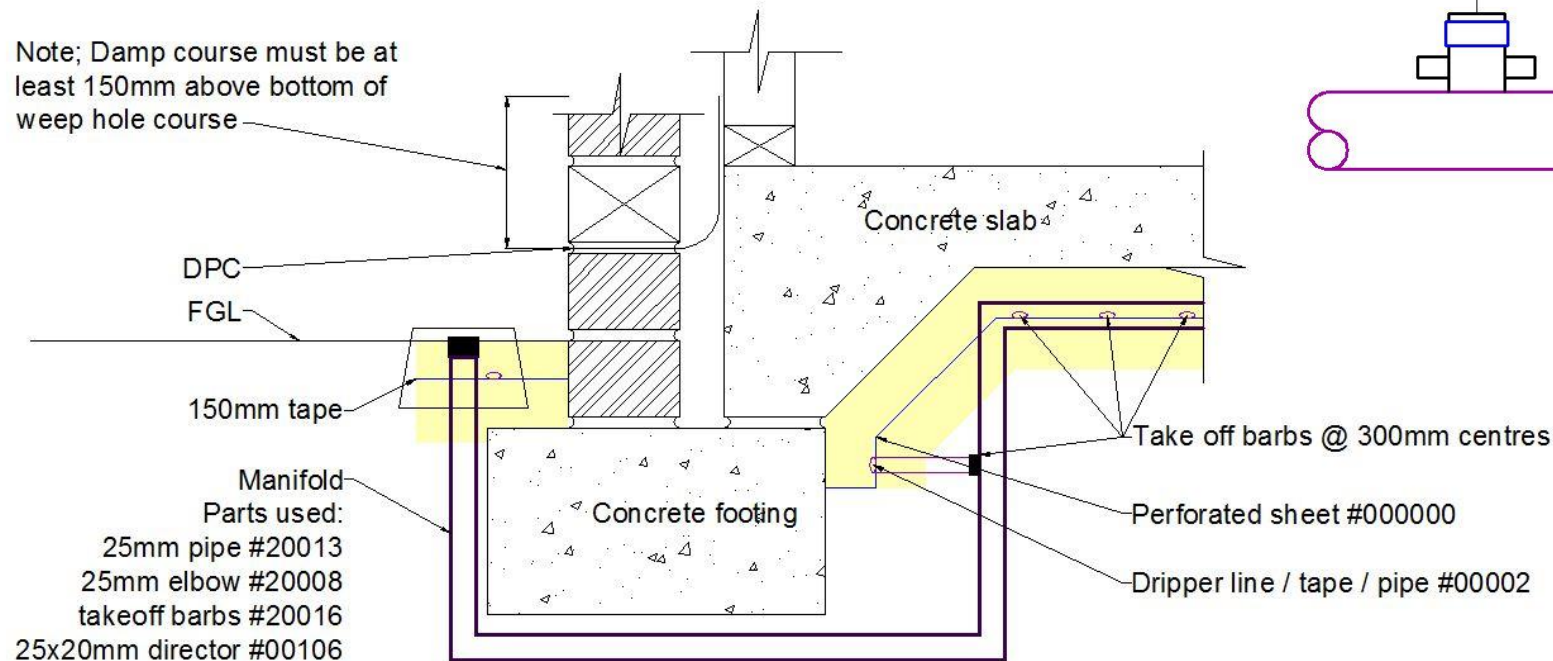
Alternate manifold position
Make sure that the manifold that is covered in concrete {highlighted} is wrapped in protective conduit to protect it from possible concrete movement

Treated zone



25mm manifold pipe

Note; Damp course must be at least 150mm above bottom of weep hole course



Manifold
Parts used:
25mm pipe #20013
25mm elbow #20008
takeoff barbs #20016
25x20mm director #00106

Treated zone

For Altis Accreditation send email to:

info@greenzonebarrier.com