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BUILDING PRODUCTS & SYSTEMS

Appraisals

CSIRO Appraisals, PO Box 56, Graham Road, Highett, Vic. 3190
Tel: (03) 9252 6000 Fax: (03) 9252 6244
E-mail: appraisals@dbce.csiro.au
Web: www.dbce.csiro.au/appraisals

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TECHNICAL ASSESSMENT 222

April 1997^{1, 2, 3, 4}

ALTIS Standard Partial Anti-Termite Irrigation System

1. May 1999. Formerly ABSAC Technical Opinion 222. Updated BCA reference.
2. February 2000. Revalidated until April 2003. Updated manuals and Australian Standards.
3. August 2004. Updated Manual
4. May 2006. Revalidated, update to manual & BCA references.

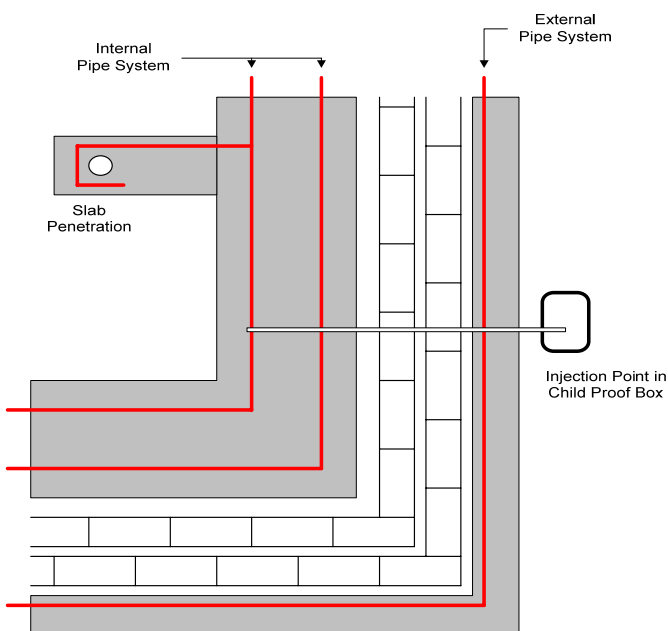
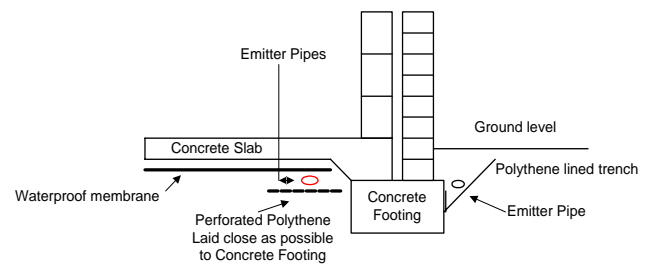
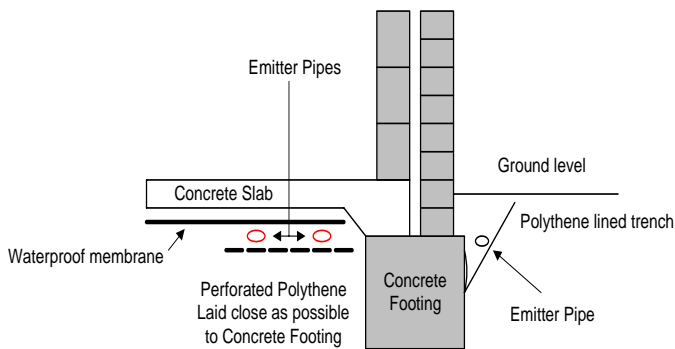
PURPOSE

A reticulation system for use with concrete slab-on-ground for protection of the perimeter and around penetrations by injection of termiticide

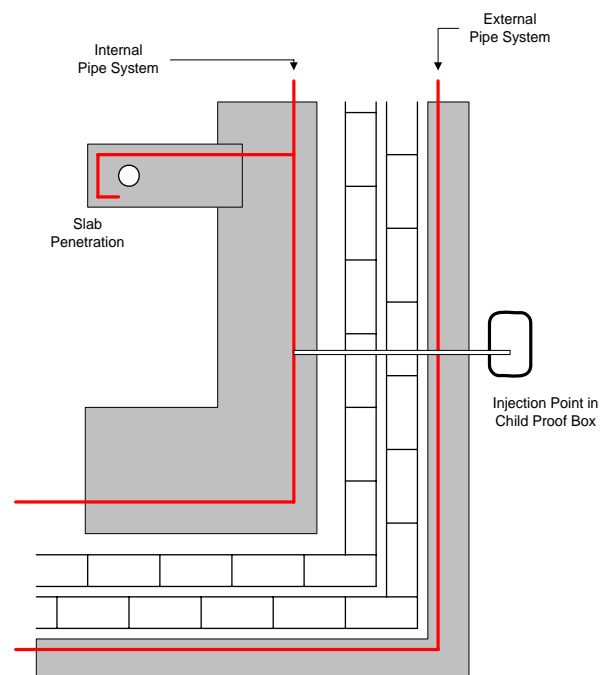
APPLICANT

Altis Pty Ltd (ACN 050 495 399), 124 Mills Street, Welshpool, Western Australia 6106 (Designer and Manufacturer)

Patent: ALTIS patent (A.P.O 626742) held by JP and CAE Matson)



Standard Partial Version



Standard Partial Economy Version

Figure 1. Altis Partial Anti-Termite Irrigation System

TECHNICAL OPINION

In the opinion of CSIRO Appraisals, the 'ALTIS Standard Partial Anti-Termite Irrigation System' will provide a suitable reticulation system for protection of the perimeter and around penetrations when used with or use with concrete slab-on-ground construction. When injected with an approved chemical termiticide to deter subterranean termite attack, it is capable of providing rates of application that comply with the requirements of Australian Standard 3660.1-2000 'Termite management – New building work' provided that:

1. The 'ALTIS Standard Partial Anti-Termite Irrigation System' is installed and charged by installers approved by Altis Pty Ltd and in accordance with Altis Pty Ltd, 'Installation and Injection Procedures for ALTIS Anti Termite Irrigation System' Version 06-03 (March 2006).
Note: These are readily available from Altis Pty Ltd, 124 Mills Street, Welshpool, WA 6106.
2. The concrete slab is designed and constructed in accordance with Standards Australia, Australian Standard 2870-1996 'Residential slabs and footings - Construction' (Amdt 1, January 1997; Amdt 2, June 1999; Amdt 3, November 2002 ;and Amdt 4, May 2003).
3. The components of the system are as described in the Altis Pty Ltd, 'Installation and Injection Procedures for ALTIS Anti Termite Irrigation System' Version 06-03 (March 2006).
Note: These are readily available from Altis Pty Ltd, 124 Mills Street, Welshpool, WA 6106.
4. Where the external perimeter is greater than 50 linear metre, injection points are provided so as not to exceed the 50 metre limit of the system.
5. The termiticide used is one approved by the Australian Pesticides and Veterinary Medicines Authority (APVMA) for Agricultural and Veterinary Chemicals and injection is carried out by licensed Pest Control Operators.
6. The sand is packing sand with a grading within the following specification 95-100% passing 6.7 mm and 0-10% passing 75 µm. The sieve sizes comply with AS 1152 -1993 'Specification for test sieves'.
7. The external system is protected either by paving or advisory signs fixed in close proximity to the barrier to prevent breaching and/or contamination of the chemical barrier.
8. A durable notice (in accordance with BCA requirements (Clause B1.3 (i)(ii) Volume 1 and Part 3.1.3.2 (b), Volume 2) is attached to the building which states that the 'ALTIS Anti-Termite Irrigation System' is installed.

9. Inspections shall be carried out on an annual basis, or more often if required by local conditions or regulation, to ensure that no bridging or breaching of the barrier has taken place.
10. A building site inspection shall be carried out prior to installation and the following precautions taken in accordance with Clause 3.2 of AS 3660.1:
 - Eliminate nests of wood feeding species of subterranean termite found within the property boundaries, up to distance of 50m from the proposed building work;
 - Excavate and remove all tree stumps, roots and logs from the building footprint;
 - All timber off-cuts, debris, removable framework and other waste material should be removed from the area in which the barrier is to be installed.

Notes:

- (i) The Building Code of Australia draws attention to the need for regular inspections.
- (ii) The installation of a termite barrier does not negate the need for regular competent inspections. Any additions, alterations or earth works, including gardening adjacent to the building, may render the barrier ineffective. Such activity should be referred to a contractor for appropriate advice and treatment.
- (iii) Any additional treatment should be done in accordance with the relevant State or Territory regulations.
- (iv) When used in conjunction with a full coverage hand spray under the slab, as specified in the Altis Pty Ltd, 'Installation and Injection Procedures for ALTIS Anti Termite Irrigation System' Version 06-03 (March 2006), compliance with Australian Standard 3660.1-2000 is obtained. If used without this full hand spray, the system falls outside the scope of Australian Standard 3660.1-2000. The Standard indicates areas that need additional protection beyond that which the concrete slab can provide. The 'ALTIS Standard Partial Anti-Termite Irrigation System' as assessed in this Technical Assessment gives additional protection to these areas. The requirement for hand spraying in Australian Standard 3660.1 is to cover the potential for termite entry in the event of the ground separating from under the slab due to differential soil movement. CSIRO Appraisals considers the risk of such separation is considerable in sites which are classified as M-D, H, H-D, or E, as defined in Australian Standard 2870-1996 and the full hand spray on these sites should be undertaken. For sites classified as A, S, or M, CSIRO Appraisals considers the risk of separation as minimal for slabs that comply with the design requirements of AS 2870-1996. On these sites, the use of the system without the full hand spray requirement can be considered as having minimal effect on the protection provided by the system.

BUILDING CODE of AUSTRALIA

In the opinion of CSIRO Appraisals, the system described in this Technical Assessment and installed under the conditions listed herein will satisfy the Performance Requirements BP1.1 and BP1.2 (Volume 1 – Class 2-9 buildings) and P2.1 (Volume 2 – Class 1 and Class 10 buildings Housing Provisions) of the Building Code of Australia (2006).

To meet the requirements of Clause P2.1.1 (relevant to Qld only) (Volume 2 Class 1 and Class 10 buildings) of the Building Code of Australia (2006), the applicant has provided a declaration of system design life, which is set out in the Durability section of this Technical Assessment. This declaration is only relevant for the system as described in this Technical Assessment and installed under the conditions listed in this Technical Assessment.

Notes:

- (i) The inclusion of this clause with reference to the BCA is aimed at assisting those involved in the design, specification and building approval/permit process, relating the Appraisal to the relevant Performance Requirements of the BCA.
- (ii) Any changes made to the BCA will be reviewed during the term of validity of this Technical Assessment and, where necessary, any amendment required will be published on the CSIRO Appraisals web pages on <http://www.cmit.csiro.au/Appraisals>.
- (iii) AS 3660.1-2000 is referenced by the BCA as a deemed to satisfy solution for the protection against concealed entry by subterranean termites.

RELATED INFORMATION

VALIDITY OF THE ASSESSMENT

Condition:

This Technical Assessment applies only to the use of 'ALTIS Standard Partial Anti-Termite Irrigation System' as described herein.

Withdrawal:

This Technical Assessment will be withdrawn or amended if CSIRO Appraisals considers that a change in design or manufacturing quality renders the basis of appraisal invalid, or if reported field experience convinces CSIRO Appraisals of unsatisfactory quality or performance.

Term of Validity:

This Technical Assessment will lapse three years after the date of issue unless revalidation has been requested and granted (see back page). Technical Assessments may be amended during the term of validity. Users of this Technical Assessment should verify that it remains valid and is the current version by checking on the CSIRO Appraisals website:
<http://www.cmit.csiro.au/services/appraisals/>.

RELEVANT DOCUMENTS

Altis Pty Ltd, 'Installation and Injection Procedures for ALTIS Anti Termite Irrigation System' Version 06-03 (March 2006).

Australian Building Codes Board, Building Code of Australia 2006.

Standards Australia, Australian Standard 3660.1-2000 'Termite management – New building work'.

Standards Australia, Australian Standard 2870-1996 'Residential slabs and footings - Construction' (Amdt 1, January 1997; Amdt 2, June 1999; Amdt 3, November 2002 ;and Amdt 4, May 2003).

APPROVED ASSESSMENT EXTRACT

The 'ALTIS Standard Partial Anti-Termite Irrigation System' installed by Altis Pty Ltd, Welshpool, Western Australia (ACN 050 495 399) trained and licensed installers, is a suitable reticulation system, under concrete slab-on-ground and around building penetrations, into which is injected a termiticide for use against subterranean termite attack when the conditions of CSIRO Appraisals Technical Assessment 222 are fulfilled.

APPRAISAL

DESCRIPTION

The following description is based on information provided by the applicant.

General:

The 'Altis Standard Partial Anti-Termite Irrigation System' is a reticulation system designed to deliver termite protection to the perimeter of concrete slabs and critical areas under concrete slab floors in new buildings and extensions. The system consists of perforated plastic laid either side of the perimeter and flat section emitter pipes laid on top of the perforated plastic. The emitter pipes are extended under critical areas (e.g. wet areas). The liquid termiticide is pumped into the piping system through connectors positioned adjacent to the building and enclosed within a specially designed Child-proof trap. The system is used around the perimeter of concrete slab-on-ground construction and includes a grid for service areas at critical areas.

It is laid on the sand bed and before the waterproof membrane is laid. Figure 1 shows typical arrangement and cross section of the system and Figure 2 shows the details of the slab penetration.

Components:

These are detailed in the Altis Pty Ltd, 'Installation and Injection Procedures for ALTIS Anti Termite Irrigation System' Version 06-03 (March 2006). The main components are as follows:

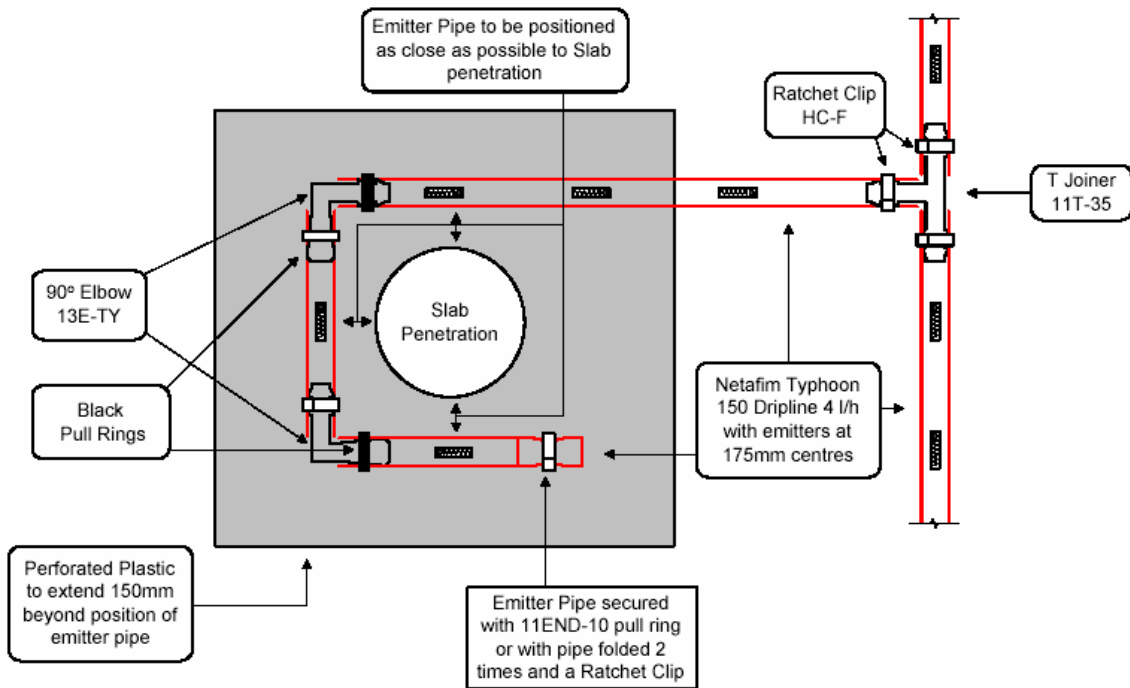


Figure 2. Detail of slab penetration

'Adhesive Tape' for lapping and joining of Perforated Plastic is 50 mm wide of a waterproof type and is laid continuously along laps and joins.

'Adhesive Tape' for positioning the 'Emitter Pipe' on the 'Perforated plastic' is of a waterproof type and 25 mm wide or optionally, pipes and perforated plastic may be bonded by hot glue.

'Delivery Pipe' is a PVC pipe of at least 25 mm internal diameter, minimum CAT 12.

Flat section 'Emitter Pipe' is Typhoon 20 or Super Typhoon 150 or other manufacturer's equivalent. Typhoon 20 has an internal diameter approximately 15.5 mm, wall thickness 0.5 mm (medium density) with 2.75 litre/hour emitters at 175 mm or 200 mm centres giving a discharge rate of 16 litres/hour per lineal metre at 10 metre head. Super Typhoon 150 has an internal diameter approximately 15.7 mm, wall thickness 0.38 mm (high density) with 4 litres/hour emitters at 175 mm or 200 mm centres giving a discharge rate of 23 litres/hour per lineal metre at 10 metre head. Super Typhoon 150 may also have 2.75 litre/hour emitters giving a discharge rate of 16 litres/hour per lineal metre at 10 metre head. (Note emitter rates may vary slightly)

Also available is Typhoon 16200 which is similar to Super Typhoon 150 but with a wall thickness of 0.5 mm in lieu of 0.38 mm.

'Injection Point Housing' is ground located adjacent to the external wall. The housing includes provision for connection of the delivery pipe. The delivery pipe injection point is located inside a 'Child proof trap'.

Joiners (25 mm), elbows (90 and 45 degree), caps, screw caps and valve sockets are minimum CAT 12 rating and a PVC solvent cement is used to connect them.

'Manifold Pipe' is a PVC pipe of at least 25 mm minimum CAT 12 with two 16 mm diameter holes drilled at 300 mm centres along the length of the pipe in a straight line, starting 150 mm in from one end.

'Perforated Plastic' is a polythene membrane of at least 100 microns thickness with a choice of medium or high density with 1.5 mm holes punctured in a 60 - 65 mm grid.

Netafim 11END-10 end plugs or black PVC 'Ratchet Clips' are used to fix and seal the open end of the 'Emitter Pipe'.

'Top Hat Grommets' are compound rubber 16 mm outside diameter. They are fitted into the 17 mm holes drilled into the Manifold pipe.

'Take-offs' are 16 mm black PVC Netafim adaptors with locking ring and are pressed into the 'Top Hat Grommet' in the 'Manifold Pipe'

Optionally a manifold can be made with a purple polypropylene 25 mm pipe with a variety of joiners and clips as illustrated in 'Installation and Injection Procedures for ALTIS Anti Termite Irrigation System' Version 06-03 (March 2006).

Installation:

The system is laid by installers trained and licensed by Altis Pty Ltd.

Installation instructions are contained in the Altis Pty Ltd, 'Installation and Injection Procedures for ALTIS Anti Termite Irrigation System' Version 06-03 (March 2006).

A design layout is prepared using the floor or footing plans.

The 'Perforated plastic' is laid first, then the 'Manifold pipe' is laid and connected via 'Delivery pipe' to the 'Injection point'. The 'Emitter pipes' are then attached to the 'Take-offs' which are fitted in the 'Manifold pipe' prior to laying. All open ends of the 'Emitter pipes' are sealed with the 'Ratchet clips' and the pipes secured in position with all 'Emitter holes' facing downwards.

The main feed pipe from outside to the 'Manifold Pipe', when going through brickwork is either sleeved with a 25 mm PVC pipe or lagged with polythene.

The 'Internal Perimeter System' is installed after the sand layer has been compacted and before the waterproof membrane is laid for concrete slab on ground. The 'Perforated Plastic', not less than 600 mm wide for the Standard partial version and not less than 300mm for the standard partial economy version is laid over the sand pad inside the perimeter wall footings. Two 'Emitter Pipes' (or one pipe in the economy version) are placed on top of the 600mm wide 'Perforated Plastic' (or 300 mm in economy version), 300 mm apart and not more than 150 mm from the inside edge of the footing.

'Slab Penetrations' beyond the 600 mm wide 'Internal System' have a 600 mm square piece of 'Perforated Plastic' placed over the penetration pipe. The inner 'Emitter Pipe' is cut and a 'T Joiner' inserted. A lateral 'Emitter Pipe' is connected to the 'T Joiner' and extended to the slab penetration. By cutting the 'Emitter Pipe' and joining with '90° elbows' the 'Emitter Pipe' is taken around three sides of the penetration and then folded back on itself twice and secured with a 'Ratchet Clip' (see Figure 2).

The external line is installed prior to practical completion of the building before the paths or paving is placed. A trench is dug at 45 degrees to the footing surrounding the building to a depth not greater than 50 mm below the top of the footing. Unperforated polythene membrane (300 mm wide) is laid approximately 100 mm against the footing and the remainder returning up the slope of the trench. The external delivery pipe is laid with a single Take-off in injection point housing. The emitter pipes are attached to the Take-offs and laid with emitter holes face down in the bottom of the trench adjacent to the footing. The other end of the emitter pipe is closed using an 11END-10 end plug, or may optionally be closed by folding over itself two times and securing with a PVC ratchet clip. Other solutions for external perimeters are discussed in Altis Pty Ltd 'Installation and Injection Procedures for Altis Anti Termite Irrigation System' Version 06-03 (March 2006) due to the variety of footings and soils that may require alternate solutions.

The filler Point Assembly is then installed with a screw on PVC cap to finish at the child proof trap. This must be located in the outside area.

Chemical injection:

Termiticide application is carried out by licensed Pest Control Operators that have also been trained and licensed by Altis Pty Ltd.

The chemical injection is performed immediately prior to, or following completion of, the construction.

The chemical injection requires a vehicle with a suitable tank and a high volume pump specifically modified for the Altis application.

A Remote Control Pressure Unit (RCPU) unit is used for injecting a system 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.

A flow rate meter measures quantity in litres. Pressure gauge may be measured in kPa or lbs/square inch and is used to control pressure in the system.

There are one or two adjustment levers for chemical emulsion mix or for flushing water only. The RCPU is attached to the valve socket on the Altis injection point and the other end to the hose from the pump.

When the required volume of chemical emulsion has been injected, clean water is then pumped in behind the chemical emulsion. When the required volume of water has been injected, the cap is replaced and the 'Child Proof Trap' locked.

Termiticides:

These are subject to legal and local government approval. The applicant has a list of termiticides used in the system at given concentrations which provide the recommended amount of chemical according to Australian Standard 3660.1.

Record of treatment:

A plan of the building and layout of the system, litres of emulsion, concentration of mix and date is recorded to the requirements of Australian Standard 3660.1-2000 'Termite management – New building work'. A durable notice indicating that the Altis Standard Partial Anti-Termite Irrigation System has been installed is to be provided.

DESIGN INFORMATION**General:**

The applicant states that 'Altis Standard Partial Anti-Termite Irrigation System' is a reticulation system designed to deliver termite protection to the perimeter edges of concrete slab floors in new buildings and extensions and to critical areas under concrete slabs. It comprises flat section polythene tubes which carry the appropriate termiticide around the perimeter and a separate grid which carries the termiticide to the 'Service areas'.

Maintenance:

Records of treatment used are kept as required by Australian Standard 3660.1-2000 'Termite management – New building work'. A copy of the site plan, showing pipe layout is also kept.

An annual inspection is made of the building to check for bridging or breaching of the barrier. If requested by the owner, this inspection is carried out by the Pest Control Operator or Licensed Pest Control Operator. If bridging or breaching is found, a further treatment is done.

Treatment is in accordance with the APVMA label for the termiticide.

Durability:

CSIRO Appraisals does not assess the durability of termite barriers.

The applicant has declared under its sole responsibility that:

- o the 'Altis Standard Partial Anti-Termite Irrigation System', has been designed to achieve a service life of at least 50 years during which period the 'Altis Standard Partial Anti-Termite Irrigation System', including its constituent components, is expected to maintain efficacy and function as a termite barrier in accordance with AS 3660.1-2000;
- o the 'Altis Standard Partial Anti-Termite Irrigation System' has been designed in accordance with a quality management system that incorporates a set of rules for the design, manufacture, installation and maintenance of all elements of the system; and
- o the components used in the manufacture of the 'Altis Standard Partial Anti-Termite Irrigation System' have been selected for their intended purpose and are expected to operate in accordance with their specification for the duration of the design life of the 'Altis Standard Partial Anti-Termite Irrigation System'.

BASIS OF APPRAISAL

CSIRO Appraisals has assessed the following aspects in undertaking this appraisal:

- (a) installation procedures
- (b) long term effectiveness of the system
- (c) Australian Standard 3660.1-2000 'Termite management – New building work'.
Note: For concrete slabs on ground Australian Standard 3660.1 has an area requirement for the underneath of the whole slab being treated. However, Section 3 of the standard, dealing with physical barriers, allows for the slab to form part of the protection if it is constructed in accordance with Australian Standard 2870-1996. CSIRO Appraisals has evaluated this system for the periphery and around penetrations being protected by the Altis Standard Partial Anti-Termite Irrigation System with the concrete slab forming part of the protection against termite entry.

The following documents and inspections were used in carrying out the appraisal:

Manufacturer's Information:

1. **Altis Pty Ltd, 124 Mills Street, Welshpool, Western Australia 6106. 'Installation and Injection Procedures for ALTIS Anti Termite Irrigation System' Version 06-03 (March 2006):**
This contains instructions for laying the irrigation system and injection of the termiticide.
2. **Altis Pty Ltd, 124 Mills Street, Welshpool, WA 6106. 'Training Procedure for ALTIS Partial Anti-Termite Irrigation System' (12 February 1997):**
This contains details of the training program for installers.
3. **BASF, The Chemical Company, Noble Park VIC 3174. Letter confirming test on Altis Reticulation System (9 March 2006):**
This contains confirmation that tests were conducted on Altis Reticulation system on 12th January 2005 to evaluate the efficacy of the Altis system in evenly distributing the correct volume of Termidor 100SC to satisfy requirements of AS 3660.
4. **Ensystem Australasia, Silverwater NSW 2128. Letter confirming test on Altis Reticulation System (10 March 2006):**
This contains confirmation that tests were conducted on Altis Reticulation system in 2005 and 2006 to evaluate the efficacy of the Altis Reticulation system in evenly distributing the correct volume of Isophor to satisfy the requirements of AS 3660.

Test Reports:

1. **Netafim Australia, 45-55 Epsom Road, Rosebery, New South Wales 2018. Product brochure 'Typhoon' (0496 Ty-New Aus.Z880C):**
This contains technical data and flow rates of the delivery pipe used in the system.
2. **Aaron Lee Pest Control, 124 Mills Street, Welshpool, WA 6106. Letter (31 May 1991):**
This letter details the sampling undertaken for testing to the above proposed method. The sampling was witnessed and supervised by independent witnesses from Western Australia Agriculture Department, Western Australia Health Department, Western Australia Local Government, CSIRO and other companies. Three sets of results were recorded as Series 1 for a sprayed application and an ALTIS system, and Series 2 for a revised ALTIS system. The ALTIS system was revised using decreased chemical concentration and increased volume. This gave results at least comparable to the sprayed method. The results have been independently verified by Mr A Boyt of the former Perth Office of CSIRO Building, Construction & Engineering.
3. **ANALABS, A Division of Inchcape Inspection & Testing Services Pty Ltd, 50 Murray Road, Welshpool, Western Australia 6106. Certificates of Analysis for Job No. 100500.10.79997, 100500.10.80103. and 100500.10.81261:**
These certificates are for the above mentioned samples of sprayed sand, soil and plastic to show concentration of Heptachlor.

The results showed retentions in the soil that were equal to or above that obtained from hand spraying, although the standard deviation was higher for ALTIS. **Note:** CSIRO Appraisals is satisfied that the above test method and report of analysis is equivalent to the test method subsequently published in AS 3660.1-1995.

4. Koukourou Engineers, 42 Fullarton Road, Norwood, South Australia 5067. Investigation report: Job No Z35521 for Altis Pty Ltd, P O box 190, Bayswater, WA 6053. (23 February 1998):

This investigation was to determine if the periodic application of termiticides using the 'Altis' ant-termite reticulation system for residential slabs would react upon foundation performance. Numerical analysis of the results found that provided the termiticide is uniformly distributed there were insignificant changes to the reactive clay soil either side of a slab footing.

5. Agriculture Western Australia, Letter (10/vi/98):

This letter comments on the training procedures and installation manual used by ALTIS. It states that 'the notes appear to provide a sufficiently detailed coverage of the subject material.'

6. Zedcon Scientific Services (ACN 050 725 178), 22 Banksia Terrace, South Perth, WA 6151.

'Resistance of ALTIS termiticide irrigation components to deterioration from organisms and substances in contacting soil' (Ref 011026) (December 2001; revalidated April 2006):

This report details testing of all components of the Altis system for life of the components when buried in soil. The soil was prepared to ASTM E154 and samples buried for 35 days. This test was far more aggressive than that normally experienced in service and the components were 'virtually unaffected by the aggressive soil conditions'. Based on the testing, a life expectancy of at least 50 years was predicted under normal service conditions.

7. DowElanco Confidential Report by R.T. Murray, 'The distribution of chlorpyrifos in sand/soil following application of Dursban* termiticide formulations through ALTIS reticulation systems in comparison to hand spraying' (23 March 1994):**

An experiment was designed to determine the distribution of termiticide using a horizontal reticulation system (ALTIS). The results, taken to a depth of 150 mm, showed retentions in the soil that were equal to or above that obtained from hand spraying. The results also showed that the recommended rate of application of termiticide does not cause soil erosion below the slab.

* Dursban Trademark of DowElanco, ** ALTIS Trademark of ALTIS Pty Ltd.

8. DowElanco Report by Dr H. Tank. 'ALTIS irrigation system - compatibility with Dursban* PC and Dursban* Micro-Lo Insecticides' (1 March 1993):

This report 'was undertaken to examine the compatibility of the construction materials of ALTIS underslab irrigation system with the two chlorpyrifos products Dursban PC Termiticide and Insecticide and Dursban* Micro-Lo Termiticide and Insecticide at use dilution.'

'The results show that all construction materials of the ALTIS system are compatible with both these chlorpyrifos products at use dilution showing only minimal weight increases and no signs of physical deterioration after exposure to the diluted products for 10 day at 25°C.'

* Dursban Trademark of DowElanco,

9. Zedcon Scientific Services (ACN 050 725 178), 22 Banksia Terrace, South Perth, WA 6151.

'Correspondence (16 May 2006):

This letter confirms the validity of Investigation report: Job No Z35521 by Koukourou Engineers, Norwood, South Australia dated 23 February 1998.

Related Information:

1. CSIRO Appraisals Technical Assessment 145 - 'ALTIS Anti-Termite Irrigation System' (Feb 1992):

This is an assessment of a full coverage reticulation system under concrete slab-on-ground, and around building peripheries into which is injected a termiticide for use against subterranean termite attack.

2. CSIRO, Manufacturing and Infrastructure Technology, Highett, VIC. Letter (11 November 2003):

CSIRO Appraisals is of the opinion that the use of the advisory signs, in lieu of the mowing strip, will be at least as effective, or even more so, as a means of notification to the householder that a Termite Management System is in place around the external perimeter of the structure.

Inspections:

Representatives of CSIRO Appraisals have inspected installations of the system and found them to be satisfactory.



S Hanson
CSIRO Appraisals



CSIRO Appraisals is a project of CSIRO Manufacturing and Infrastructure Technology providing a range of assessment products including:

- Technical Assessments – full fitness for purpose appraisals of innovative products, systems or materials that may or may not be covered by Australian Standards or building regulations.
- Interim Reports – appraisals of products that have not yet reached the fully developed or manufacturing phase. They aid with product development and may be used as a step towards a subsequent Technical Assessment.
- Certification Assessments – appraisals of products, systems or materials solely against the requirements of the BCA and used for gaining approval from Federal or State authorities.

From 1978, under the auspices of the Australian Building Systems Appraisal Council (ABSAC), CSIRO ran an appraisal service in conjunction with the Australian Institute of Building Surveyors, the Housing Industry Association, the Insurance Council of Australia and the Master Builders Association. In 1999, CSIRO Appraisals was formed to continue the business of ABSAC under the sole patronage of CSIRO. This new scheme retains the committee structure of technical and interstate advisers that operated as ABSAC. All past ABSAC publications and appraisals are being continued and supported by CSIRO Appraisals.

CSIRO Appraisals is a founding member of the World Federation of Technical Assessment Organizations

Technical Assessments are intended to help all those concerned with the approval, specification and use of

new products or systems. They are objective assessments of the fitness for purpose of the product, system or material but are not approvals or endorsements. They may be submitted to approval authorities as part of the justification process required to obtain approval.

Each Technical Assessment has been prepared by CSIRO Appraisals and then reviewed, revised and finally endorsed by the Technical Advisory Committee (TAC), detailed below. CSIRO makes the appraisals on a national basis by obtaining input from regional committees in each State and Territory to take account of variations in local building regulations, practice and local climatic features.

CSIRO Appraisals bases its assessment on the product and information it receives and cannot accept responsibility for deviations in the manufactured quality and performance of the material, product or system. However, Technical Assessments will be withdrawn where adequate quality or performance has not been maintained.

Technical Assessments are given a term of validity of three years from the date of issue. They are reviewed at the end of the term of validity which may be extended for a subsequent three-year term. Technical Assessments may be amended during the term of validity. Users of Technical Assessments should verify that Technical Assessments remain valid and are the current version by checking on the CSIRO Appraisals website:

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Note: Committee Membership at April 2006

1. SOURCE ORGANISATION**2. ORGANISATIONAL UNIT**

Technical Secretariat

3. TYPE OF DOCUMENT/SERIES

CSIRO Technical Assessment

4. DOCUMENT NUMBER

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S. S Hanson
J. Sinclair

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H. RELATED DOCUMENTS**J. OTHER/OPTIONAL INFORMATION****14. ABSTRACT** *(CSIRO Appraisals Approved Assessment Extract)*

The 'ALTIS Standard Partial Anti-Termite Irrigation System' installed by Altis Pty Ltd, Welshpool, Western Australia (ACN 050 495 399) trained and licensed installers, is a suitable reticulation system, under concrete slab-on-ground and around building penetrations, into which is injected a termiticide for use against subterranean termite attack when the conditions of CSIRO Appraisals Technical Assessment 222 are fulfilled.