

CLIENT: Patsy Gould, via Terry Maher. Ph: 0419916361.

DATE: 10 February 2012. **Order/Ref No:**

JOB: Inspection of old timber frame house for structural adequacy.

ADDRESS: No. 18 Lewis Street, City of Greater Geraldton.

TOPOGRAPHY: Elevated, slight gradient,, well drained. Site Class A. Wind exposure N2.

BUILDING/STRUCTURE REPORT:

This inspection was done in the early afternoon of 1 February 2012. The purpose was to assess the importance of structural deterioration and potential for remediation for this dwelling.

A termite report has already been done by 'Central West Pest Control' on 5 January 2012. It confirms my observations that there has been substantial termite damage. This is the North wall



The house was built in 1913. It is about 300m from the foreshore and not protected from the salt laden sea breeze. With the exception of the custom orb roof sheeting, it is entirely made of timber, even the clinker plank clad walls. The ground slopes to the South-East at about 18°.



The stumps are 120x120 (5 inch square) set typically at the old 4 foot (1200mm) spacing. They do not have concrete footings, and depend on natural high ground compaction to restrain them.

Since the house sits on a sloping site, the compaction is relaxed due to pressure being relieved on the down-slope.

The result is that the stumps sink at different rates, and the bearers begin to tip to one side or other.



The following photograph shows the 3.7 degree fall of the floor on the South side of the house.

The fall begins at the front door and gets progressively worse as we move towards the South. There is nothing that can be done except to shim the top of the stumps, or replace them with concrete pad founded stumps. If packers are used under the bearers, they will continue to move as the stumps continue to sink.



The next photo of cracks and eaves gap is a consequence of the tilting of the building, as the North side tries to resist the pull from the South.



Here we have an example of internal wall cracks caused by the same foundation movement.

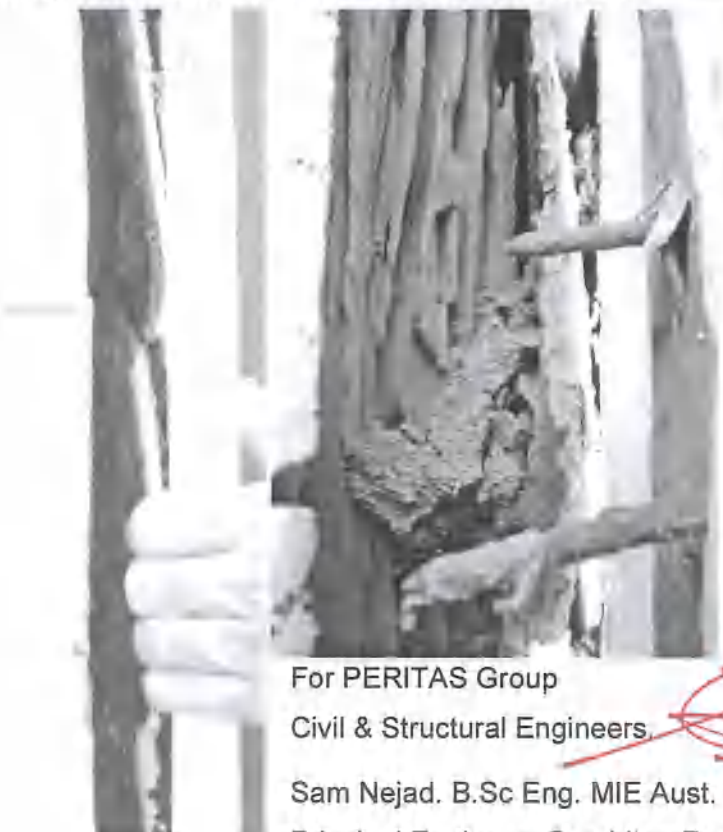
Finally, here is an example of the termite attack, the extent of which can only be determined by stripping the cladding. But it is evident that it is extensive and would be expensive and laborious to repair, leaving little of the original timber.

CONCLUSION & RECOMMENDATIONS:

This house has two types of damage which are difficult and expensive to repair: Serious foundation movement, and termite damage.

For satisfactory repairs there would have to be wide scale stripping of the cladding and floors, including joists and bearers.

Repairs will cost well over a hundred thousand dollars. Even portions of the hidden wall and roof frame which are not affected still need to be dismantled & rejoined to new, treated timber. Rusted nails and tie-downs will have to be renewed throughout. Please address any queries to the undersigned.



For PERITAS Group
Civil & Structural Engineers

A handwritten signature in red ink, appearing to read 'Sam Nejad', written over a red circular stamp.

Sam Nejad. B.Sc Eng. MIE Aust. CP Eng. NPER.
Principal Engineer, Geraldton Regional Manager.



CENTRAL WEST
Pest Control
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Ph: (08) 9964 4563
 Fax: (08) 99648243
 Mobile 0429 904 933
 ABN: 79 814 461 719

Email: admin@cwpestcontrol.com.au
 Web: cwpestcontrol.com.au
 131 North West Coastal Hwy GERALDTON WA 6530
 PO Box 161 GERALDTON WA 6531

Visual Termite Inspection Report in accord. With AS 3660

Client: GERALDTON HYDRAULICS

Job No: 33143

Phone: 9965 0222

Fax:

Mailing Address: PO BOX 2937 GERALDTON WA 6531

Re: Structure at: 18 LEWIS ST GERALDTON WA 6530

Date of the Inspection: 05/01/2012

1. Brief Description of Structure(s) Inspected:

Type: Domestic, Height: Single Storey, Piers type: Timber, Floor: Timber, Structural Walls: Woodframe,
 Roofing: Colourbond.

When a building, or part of a building is constructed on a concrete slab it is always more susceptible to concealed termite entry.

2. Areas Inspected: Only structures, fences &/or trees within 50m of the building but within the property boundaries were inspected.

Subfloor, Wall exterior, Interior, Roof Void, Fences, Grounds, Landscaping, Trees, Stumps, Posts, Garden, Landscape Timbers, Sheds, Loose timber

Areas NOT Inspected: No inspection was made, and no report is submitted, of inaccessible areas. These include, but may not be limited to, concealed frame timbers, eaves, areas concealed by concrete floors, wall linings, soil, landscaping, rubbish, floor coverings, furniture, pictures, appliances, stored items, insulation, hollow blocks/posts, etc. Furnishings, furniture & stored items were not inspected.

3. Other Area(s)* to which REASONABLE ACCESS for Inspection was NOT AVAILABLE and the Reason(s) why include:

NONE

4. Area(s)* in which Visual Inspection was Obstructed or Restricted and the Reason(s) why include:

Subfloor: SOME PARTS WERE BELOW THE MINIMUM CLEARANCE.

* Please note since a complete inspection of the above areas was not possible, timber pest activity and/or damage may exist in these areas.

No inspection was made, and no report is submitted, of inaccessible areas. These include, but may not be limited to, concealed frame timbers, eaves, areas concealed by concrete floors, wall linings, soil, landscaping, rubbish, floor coverings, furniture, pictures, appliances, stored items, insulation, hollow blocks/posts, etc. Furnishings, furniture & stored items were not inspected.

Visual Termite Inspection Report in accord with AS 3660

Important Information Any person who relies upon the contents of this report does so acknowledging that the following clauses which define the Scope and Limitations of the inspection form an integral part of the report.

- 1. THIS IS A VISUAL INSPECTION ONLY in accord with the requirements of AS 3660.** Visual inspection was limited to those areas and sections of the property to which reasonable access (See definition on page 4 of this report) was both available and permitted on the date of Inspection. The inspection **DID NOT** include breaking apart, dismantling, removing or moving objects including, but not limited to, foliage, mouldings, roof insulation, floor or wall coverings, sidings, ceilings, floors, furnishings, appliances or personal possessions. The inspector **CANNOT** see inside walls, between floors, inside skillion roofing, inside the eaves, behind stored goods in cupboards, in other areas that are concealed or obstructed. The inspector **DID NOT** dig, gouge, force or perform any other invasive procedures. An invasive inspection will not be performed unless a separate contract is entered into. In an occupied property it must be understood that furnishings or household items may be concealing evidence of Timber Pests which may only be revealed when the items are moved or removed.
- 2. SCOPE OF REPORT.** This Report is confined to reporting on the discovery, or non discovery, of infestation and/or damage caused by subterranean and damp wood termites (white ants), borers of seasoned timber and wood decay fungi (hereinafter referred to as "Timber Pests"), present on the date of the Inspection. The Inspection did not cover any other pests and this Report does not comment on them. Dry wood termites (Family: KALOTERMITIDAE) were excluded from the Inspection, but have been reported on if, in the course of the Inspection, any visual evidence of infestation happened to be found.
- 3. LIMITATIONS.** Nothing contained in the Report implies that any inaccessible or partly inaccessible areas or sections of the property being inspected by the Inspector on the date of the Inspection were not, or have not been, infested by Timber Pests. Accordingly this Report is not a guarantee that an infestation and/or damage does not exist in any inaccessible or partly inaccessible areas or sections of the property. Nor is it a guarantee that a future infestation of Timber Pests will not occur or be found.
- 4. DETERMINING EXTENT OF DAMAGE.** This Report does not and cannot state the extent of damage. It is NOT a structural damage report. We claim no expertise in structural engineering. If any evidence of Timber Pest activity or damage is Reported, then it must be assumed there may be some structural damage and a qualified person such as a Builder, Engineer, Architect or other qualified expert in the building trade should be asked to determine the full extent of the damage, if any, and the extent of repairs that may be required. This firm is not responsible for the repair of any damage whether disclosed by this report or not.
- 5. POSSIBLE HIDDEN DAMAGE.** If Timber Pest activity and/or damage is found, within the Structures **OR** the grounds of the property, then damage may exist in concealed areas, eg framing timbers. An **INVASIVE INSPECTION** is strongly recommended in this case, Damage may only be found when wall linings, cladding or insulation are removed to reveal previously concealed timbers.

6. High Risk Area(s) to which Access should be gained, or fully gained, since they may show evidence of Timber Pests or damage:

NONE

7. Was the property furnished at the time of inspection? YES NO N/A

Where a property is furnished at the time of the inspection then you must understand that the furnishings and stored goods may be concealing evidence of Timber Pest Activity. This evidence may only be revealed when the property is vacated. A further inspection of the vacant property is strongly recommended in this case.

SUBTERRANEAN TERMITES

8. Were active termites (live insects) present at the time of inspection: **Yes, found in post fence and under verandah floor.**

If active termites (live insects) were found, was any treatment done? **NO**

9. The termites are believed to be: *Coptotermes species* *Schedorhinotermes species* *Nasutitermes species*
 Heterotermes species *Mastotermes darwiniensis* **Other:**
and have the potential to cause Moderate Moderate to Large Large amounts of damage to timber including structural damage or are a species not considered generally to cause structural damage.

10. A termite nest was found in (state location if any found): **Not found**

11. Visible evidence of subterranean termite workings and/or damage was found: **Yes, found in Subfloor Stumps, in Patio Posts, in Shed wall and in Post Fence.**

VERY IMPORTANT: Where any termite activity or damage is noted above you must realise that further termite damage may be present in concealed areas. See Clauses 3, 4 and 5 on page 2.

12. While we are not builders the termite damage appears to be: Moderate Moderate to extensive Extensive or No Damage, Termite Clay Mud & Tracking Only. (See Clause 4)

IMPORTANT Where visual evidence of termite workings and/or damage is reported above, but no live termites were present at the time of inspection, you must realise that it is possible that termites are still active in the immediate vicinity and the termites may continue to cause further damage. It is not possible, without benefit of further investigation and inspections over a period of time, to ascertain whether any infestation is active or inactive. Active termites may simply have not been present at the time of inspection due to a prior disturbance, climatic conditions, or they may have been utilising an alternative feeding source. Continued, regular, inspections are essential. Unless written evidence of a termite protection program in accord with "Australian Standard 3660" is provided, a treatment should always be considered to reduce the risk of further attack.

13. Was a durable notice located stating previous termite treatment? Yes No.

14. If located the sign was found in: the meter box the entry to the subfloor or other

15. It indicates that a partial termite treatment, physical or a chemical or a combined physical and chemical barrier has been installed.

This firm can give no assurances with regard to work that may have been previously performed by other firms.

16. The following evidence of a possible previous termite treatment was found:

17. **SUBTERRANEAN TERMITE TREATMENT RECOMMENDATION:** A management program in accord with AS 3660-2000 to protect against subterranean termites is considered to be: essential strongly recommended not essential, **BUT an inspection every 6 to 12 Months is essential.**

18. A treatment proposal is attached or is available on request

You should read and understand the following important information. It will help explain what is involved in a termite inspection, the difficulties faced by a termite inspector and why it is not possible to guarantee that a property is free of termites. It also details important information about what you can do to help protect your property from termites. This information forms an integral part of the report. If you do not understand any part of this report please ask the Inspector to explain.

IMPORTANT

This report is provided solely for the benefit of the person/s named in this report. Any third party relying on this report either wholly or in part does so at their own risk. We accept no liability to any third party relying on this report.

Filled areas, areas with less than 400mm clearance, damp areas, leaking pipes, form work timbers, scrap timber, tree stumps etc. either in the sub floor or adjoining, or close to the building are conducive to termite infestation. All leaks or drainage problems must be repaired. All form work, scraps and/or stumps must be removed from under and/or around the building/s.

This is an inspection only. No treatment or replenishment of any existing chemical termite barriers has taken place. Termites may still enter the buildings or other structures at any time. You acknowledge this fact and agree that this company is not liable for any termite entry, or for any damage that may result. Modern termite barriers are designed to degrade. This means the length of life of these barriers is limited. It is important that the property is inspected at least annually.

REASONABLE ACCESS

Only areas to which reasonable access is available were inspected. The Australian Standard 4349.3 defines reasonable access as "areas where safe, unobstructed access is provided and the minimum clearances specified in the Table below are available or, where those clearances are not available, areas within the consultant's unobstructed line of sight and within arm's length. Reasonable access does not include removing screws and bolts to access covers." Reasonable access does not include the use of destructive or invasive inspection methods. Nor does reasonable access include cutting or making access traps, or moving heavy furniture or stored goods.

Area	Access hole	Crawl space	Height
Roof interior	450 x 400mm	600 x 600mm	Accessible from 2.1m step ladder or 3.6m ladder placed against a wall.
Subfloor	500 x 400mm	Vertical clearance Timber floor: 400mm to bearer, joist or other obstruction. Concrete floor : 500mm	
Roof Exterior			Accessible from a 3.6m ladder.

A MORE INVASIVE PHYSICAL INSPECTION IS AVAILABLE AND RECOMMENDED

As detailed above, there are many limitations to this visual inspection only. With the permission of the owner of the premises we WILL perform a more invasive physical inspection that involves moving or lifting: insulation, stored items, furniture or foliage during the inspection. We WILL physically touch, tap, test and when necessary force/gouge suspected accessible timbers. We WILL gain access to areas, where physically possible and considered practical and necessary, by way of cutting traps and access holes. This style of report is available by ordering with several days notice. Inspection time for this style of report will be greater than for a VISUAL INSPECTION. It involves disruption in the case of an occupied property, and some permanent marking is likely. You must arrange for the written permission of the owner who must acknowledge all the above information and confirm that our firm will not be held liable for any damage caused to the property, **Price available on request.**

CONCRETE SLAB HOMES

Homes constructed on concrete slabs pose special problems with respect to termite attack. If the edge of the slab is concealed by concrete paths, patios, pavers, garden beds, lawns, foliage, etc then it is possible for termites to affect concealed entry into the property. They can then cause extensive damage to concealed framing timbers. Even the most experienced inspector may be unable to detect their presence due to concealment by wall linings. Only when the termites attack timbers in the roof void, which may in turn be concealed by insulation, can their presence be detected. Where termite damage is located in the roof it should be expected that concealed framing timbers will be extensively damaged. **With a concrete slab home it is imperative that you expose the edge of the slab and ensure that foliage and garden beds do not cover the slab edge. Weep holes must be kept free of obstructions.**

19. Timber retaining walls should be replaced with non-susceptible material .

20. Termite Shields (Ant Caps) should be in good order and condition so termite workings are exposed and visible. This helps stop termites gaining undetected entry. Joins in the shielding should have been soldered during the installation. Whenever it is observed that the joins in the shielding have not been soldered then the shielding must be reported as inadequate. It may be possible for a builder to repair the shielding or a chemical barrier may need to be installed to provide a barrier to replace the use of the shielding. Missing, damaged or poor shields increase the risk of termite infestation.

Whilst not a builder it appears that termite shields are generally: **Adequate** **Inadequate** **Not Applicable** if considered inadequate a builder or other building expert should be consulted. NB Physical barrier systems are not visible to inspection and no comment is made on such systems.

21. Wood rot: At the time of the inspection was visible evidence of wood decay fungi (rot) found? **No Evidence Found**

If found, evidence was found in:

Wood decay fungi is conducive to subterranean termites you should consult a builder or other building expert to find out what must be carried out to prevent further decay (repairing of drainage, leaks and/or sealing the timber) and to repair the damage.

22. Other areas and/or situations that appear conducive to (may attract) subterranean termite infestation and the degree of risk are:

ENVIRONMENTAL CONDITIONS THAT ARE CONDUCTIVE TO TIMBER PESTS

23. Drainage: Poor drainage, especially in the subfloor, increases the likelihood of Timber Pest attack.

Whilst not a plumber, it appears that drainage is generally: **Present** **Not Present** **Not able to comment** **not applicable.**

Where drainage is considered inadequate a plumber, builder or other building expert should be consulted.

24. Ventilation: Ventilation, particularly to the sub-floor region is important in minimising the opportunity for Timber Pests to establish themselves within a property.

Whilst not a builder the ventilation appears to be generally: **Adequate** **Inadequate** **Not applicable**

Where ventilation is considered inadequate a builder or other expert should be consulted.

25. Water leaks: Water leaks, especially in or into the subfloor or against the external walls, increases the likelihood of termite attack. Leaking showers or leaks from other 'wet areas' also increase the likelihood of concealed termite attack. Whilst not a plumber, it appears that water leaks are: **Not Present** **Present.** Details of Water leaks are:



A plumber or other expert should attend to areas where leaks have been noted.

26. Slab Edge Exposure: Some types of slab on ground construction leave the slab exposed. In many cases the edges forms part of the termite barrier. Where external concrete slab edges are not exposed there is a high risk of concealed termite entry. Concrete paths, patios, pavers, garden beds, etc. often conceal these slabs edges.

At the time of construction was it intended that the slab edge be used as a termite barrier: **Yes** **No** **Not Applicable**

Where this is the case you should arrange to have the slab edge exposed for inspection to confirm whether concealed termite entry is possible.

Was the slab edges exposed all around the property: **Yes** **No - Arrange for slab edges to be exposed** **Not applicable**

27. Weep holes in external walls: It is very important that soil, lawn, concrete paths or pavers do not cover the weep holes. They should be clean and free flowing. Covering the weep holes in part or in whole may allow undetected termite entry.

Were the weep holes clear allowing the free flow of air: Yes No – (Arrange for weep holes to be exposed if there is any)
 Not applicable

You should read and understand the following important information. It will help explain what is involved in a termite inspection, the difficulties faced by a termite inspector and why it is not possible to guarantee that a property is free of termites. It also details important information about what you can do to help protect your property from termites. This information forms an integral part of the report. If you do not understand any part of this report then please ask the Inspector to explain.

SUBTERRANEAN TERMITES

No property is safe from termites! Termites are the cause of the greatest economic losses of timber in service in Australia. Independent data compiled by State Forests shows 1 in every 5 homes is attacked by termites at some stage in its life. Australia's subterranean termite species (white ants) are the most destructive timber pests in the world. In fact it can take "as little as 3 months for a termite colony to severely damage almost all the timber in a home".

How Termites Attack your Home The most destructive species live in large underground nests containing several million timber destroying insects. The problem arises when a nest matures near your home. Your home provides natural shelter and a food source for the termites. The gallery system of a single colony may exploit food sources over as much as one hectare, with individual galleries extending up to 50 metres to enter your home, where there is a smorgasbord of timber to feast upon. Even concrete slabs do not act as a barrier; they can penetrate through cracks in the slab to gain access to your home. They even build mud tubes to gain access to above ground timbers. In rare cases termites may create their nest in the cavity wall of the property without making ground contact. In these cases it may be impossible to determine their presence until extensive timber damage occurs.

Termite Damage Once in contact with the timber they excavate it often leaving only a thin veneer on the outside. If left undiscovered the economic species can cause many thousands of dollars damage and cost two to five thousand dollars (or more) to treat.

Subterranean Termite Ecology These termites are social insects usually living in underground nests. Nests may be in trees or in rare instances they may be in above ground areas within the property. They tunnel underground to enter the building and then remain hidden within the timber making it very difficult to locate them. Where timbers are concealed, as in most modern homes, it makes it even more difficult to locate their presence. Especially if gardens have been built up around the home and termite barriers are either not in place or poorly maintained. Termites form nests in all sorts of locations and they are usually not visible. There may be more than one nest on a property. The diet of termites in the natural environment is the various hardwood and softwood species growing throughout Australia. These same timbers are used in buildings. Worker termites move out from their underground nest into surrounding areas where they obtain food and return to nurture the other casts of termites within the nest. Termites are extremely sensitive to temperature, humidity and light and hence cannot move over ground like most insects. They travel in mud encrusted tunnels to the source of food. Detection of termites is usually by locating these mud tunnels rising from the ground into the affected structure. This takes an expert eye.

Termite barriers protect a building by forcing termites to show themselves. Termites can build mud tunnels around termite barriers to reach the timber above. The presence of termite tracks or leads does not necessarily mean that termites have entered the timber though. A clear view of walls and piers and easy access to the sub-floor means that detection should be fairly easy. However many styles of construction do not lend themselves to ready detection of termites. The design of some properties is such that they make the detection by a pest inspector difficult, if not impossible.

The tapping and probing of walls and internal timbers is an adjunct or additional means of detection of termites but is not as reliable as locating tracks. The use of a moisture meter is a useful aid for determining the presence of termites concealed behind thin wall panels, but it only detects high levels of activity. Older damage that has dried out will not be recorded. It may also provide false readings. Termite tracks may be present in the ceiling space however some roofs of a low pitch and with the presence of insulation, air conditioning ductwork and hot water services may prevent a full inspection of the timbers in these areas. Therefore since foolproof and absolute certain detection is not possible the use of protective barriers and regular inspections is a necessary step in protecting timbers from termite attack.

TIMBER DECAY FUNGI

The fruiting bodies of wood decay fungi vary in size, shape and colour. The type of fungi encountered by pest controllers usually resides in poorly ventilated subfloors, below wet areas of the home, exterior timbers and in areas that retain water in the soil. The durability and type of timbers are factors along with the temperature and environment. Removal of the moisture source usually alleviates the problem. Fungal decay is attractive to termites and if the problem is not rectified it may lead to future termite attack.

28. At the time of the inspection the **DEGREE OF RISK OF SUBTERRANEAN TERMITE INFESTATION** to the overall property was considered to be:

Moderate Moderate to High High

29. **FUTURE INSPECTIONS:** Due to the degree of risk of subterranean termite infestation noted above and all other findings of this report, we strongly recommend that a full inspection and written report in accord with AS 4349.3 or AS 3660.2-2000 is conducted at this property every 12 months 6 months 3 months other:

AS 3660.2-2000 recommends "regular competent inspections should be carried out at least on an annual basis but more frequent inspections are strongly recommended". It goes on to inform that "regular inspections will not prevent termite attack, but may help in the detection of termite activity. Early detection will allow remedial treatment to be commenced sooner and damage to be minimized".

RECOMMENDATION/PROPOSAL:

The Inspection and Report was carried out by: **PATRICK MAS**

State Licence No: **5577**

Dated; **5** day of **January** **2012**

SIGNED FOR AND ON BEHALF OF: **CENTRAL WEST PEST CONTROL**



Signature:

Terry Maher 07 0561
for Patsy Gould ASAP 19/1/12.
1.18, #16 Lewis St (behind Doreen O'Malley Property)
The large demolition report. (Is demolished or not?)

IMPORTANT INFORMATION

There is no warranty given or implied as a result of the inspection or this report. The report can only give details of what was found on the day and at the time of the inspection. Termites can gain entry to the structures at any time.

General remarks: A more thorough INVASIVE INSPECTION is available. Where any current visible evidence of termite activity is found it is strongly recommended that a more invasive inspection is performed. Trees on the property up to a height of 2m have been visually inspected, where possible and practicable, for evidence of termite activity. It is very difficult, and generally impossible to locate termite nests since they are underground and evidence in trees is usually well concealed. We therefore strongly recommend that you arrange to have trees test drilled for evidence to termite nests.

Important Maintenance Advice regarding Integrated pest Management for Protecting against termites.

Termites can attack any structure. Periodic maintenance should include measures to minimise possibilities of infestation in and around a property. Factors that may lead to infestation from termites include:-

- Situations where the edge of the concrete slab is covered by soil or garden debris
- Filled areas, areas with less than 400mm clearance. Foam insulation at foundations.
- Poor drainage, leaking pipes, damp areas, form-work timbers, scrap timber, tree stumps, mulch, tree branches touching the structure, wood rot and timber retaining walls. **Note:** Termites often build nest behind timber retaining walls.
- Gardens, pathways or turf abutting or concealing the edge of a concrete slab will allow for concealed entry by termites.

All timber in contact with soil such as formwork, retaining walls, scrap timbers or stumps must be removed from under and around the building and any leaks or poor drainage repaired. **You should endeavour to ensure such conditions DO NOT occur around your property.**

We further advise that you engage a professional pest control firm to provide a termite management program in accord with AS 3660 to minimise the risk of termite attack. There is no way of preventing termite attack. Even AS 3660 advises that "A complete termite barrier system constructed in accordance with this Standard cannot prevent termite attack, as barriers can be bridged or breached. Where termites bridge barriers the evidence can be detected during inspections."

DISCLAIMER OF LIABILITY:- No liability shall be accepted on account of failure of the Report to notify any Termite activity and/or damage present at or prior to the date of the Report in any areas(s) or section(s) of the subject property physically inaccessible for inspection, or to which access for Inspection is denied by or to the Licensed Inspector (including but not limited to any area(s) or section(s) so specified by the Report).

DISCLAIMER OF LIABILITY TO THIRD PARTIES: This Report is made solely for the use and benefit of the Client named on the front of this report. No liability or responsibility whatsoever, in contract or tort, is accepted to any third party who may rely on the Report wholly or in part. Any third party acting or relying on this Report, in whole or in part, does so at his or her own risk.