GENERAL NOTES

1. All work and materials shall be in accordance with the drawing(s), the specification(s), and current relevant Australian Standards, the Building Code of Australia and other statutory requirements.
2. These drawings shall be read in conjunction with the architectural and other consultants' drawings, the specification and all other written instructions by us that are issued during the course of the works.
3. The builder shall confirm all relevant dimensions before commencing construction/fabrication. All discrepancies shall be referred to the architect/engineer for clarification before proceeding.
4. Do not scale drawings.
5. All dimensions are in millimetres unless noted otherwise (U.N.O.).
6. No substitutions shall be made without the written approval of the engineer.
7. The builder shall maintain the works in a safe, stable condition and ensure that no part is over-stressed during construction.
8. All props and formwork to a beam or slab shall be removed before any masonry is constructed on that beam or slab U.N.O.
9. All non-loadbearing walls shall be constructed 20mm clear of structures over U.N.O.
10. A minimum of 48 hours notice is required for all engineering inspections U.N.O.
11. Beam end supports nominated as 'left' and 'right' are dependent on the beam label orientation i.e. the label is read left to right with end supports coinciding.
12. Design Live Loads:

Floors	1.5 kPa
Balcony & Stairs	2.5 kPa
Roof	0.25 kPa

13. Design Wind Criteria:

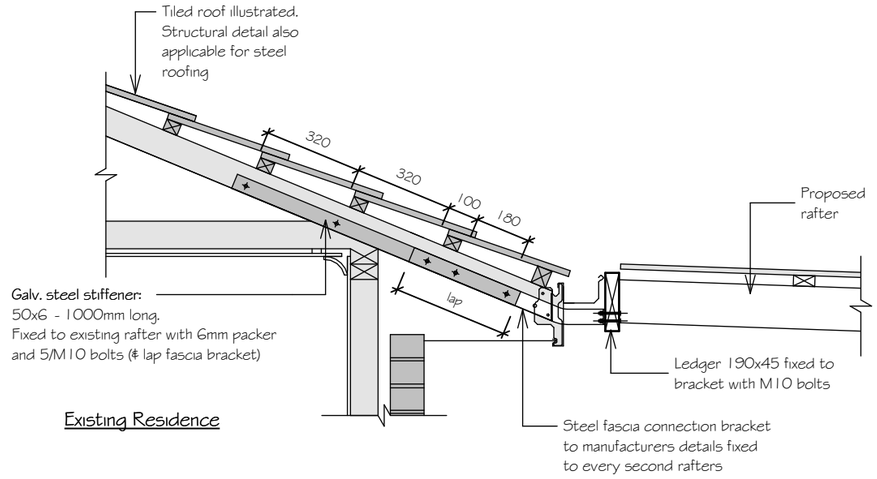
Wind Classification	N2
Region	A
Terrain Category	TC3
Topographic Class	T1
Shielding Class	NS

STRUCTURAL STEELWORK NOTES

1. All work and materials shall be in accordance with AS 4100.
2. Fabrication and erection shall be in accordance with AS 4100, AS 3828, AS 5131 and SAA/SNZ HB62.
3. All material to be (U.N.O.):
   a. Grade 250 Hot-rolled plates complying with AS 3678;
   b. Grade 250 Hot-rolled flats, TFC, TFB, angles 100x100EA or 125x75UA and smaller complying with AS 3679.1;
   c. Grade 300PLUS UB, UC, PFC and angles 125x125EA or 150x90UA and larger;
   d. Grade C350 RHS, CHS, SHS complying with AS 1163 and capped with 3mm plate.
4. All welds shall be continuous fillet weld, size 6mm, GP category using E41XX/W40X consumables and in accordance with the AS 1554 series U.N.O.
5. Holding down bolts shall be M20-4.6/S, galvanised U.N.O.
6. Connections not specifically detailed shall be in accordance with the appropriate connection detailed in the AISC Standardised Structural Connections Manual.
7. All cleat plates and stiffeners shall be 10mm thick U.N.O.
8. Tubular members to be galvanised shall be adequately vented.
9. All bolts and structural steel exposed to the weather shall be hot dip galvanised U.N.O.
10. All steel lintels supporting masonry exposed to the weather shall be hot dip galvanised.
11. Steelwork more than 1km from breaking surf or more than 100m from salt water not subject to breaking surf or non-heavy industrial areas shall have:
    a. 2 coats alkyd primer;
    b. 2 coats alkyd gloss;
    c. Hot dip galvanise 300 g/m² minimum;
    d. Hot dip galvanise 100 g/m² min. + 1 coat solvent based vinyl primer; or
    e. Hot dip galvanise 100 g/m² min. + (b) 1 coat vinyl gloss or alkyd
12. Steelwork 1km from breaking surf or within 100m of salt water not subject to breaking surf or heavy industrial areas shall have:
    a. Internal:
       1. 2 coats alkyd primer; or
       2. 2 coats alkyd gloss
    b. External:
       1. Inorganic zinc primer + 2 coats vinyl gloss finishing coats;
       2. Hot dip galvanised 300 g/m² minimum;
       3. Hot dip galvanised 100 g/m² + 2 coat solvent based vinyl primer; or
       4. Hot dip galvanised 100 g/m² + 2 coat vinyl gloss or alkyd
13. Coatings damaged during transport and/or erection shall be made good.
14. Lintels shall not be propped during load application U.N.O.
15. Provide minimum 150mm end bearing and levelling grout for steelwork seated on masonry U.N.O.
16. All steelwork projecting into masonry cavities shall be hot dipped galvanised U.N.O.

TIMBER NOTES

1. All work and materials shall be in accordance with AS 1720 and the AS 1684 series.
2. All timber used shall be of the specified stress grade noted on these drawings and of selected quality free of imperfections such as splits, cracks and warps.
3. Timber sizes not called up shall be in accordance with the AS 1684 series. Any discrepancies with the architectural plans shall be referred to the architect.
4. All bolted connections shall use washers under bolt head and nut. All external bolts, nuts and washers shall be hot dipped galvanized. No knots or defects shall occur within 150 mm of bolt group or connectors.
5. All external timbers shall have suitable durability for the proposed external use and comply with the appropriate hazard level for specific service conditions.
6. Glued laminated beams shall be manufactured in accordance with AS 1328.
7. Metal fixings shall be compatible with timber glues and preservative treatments.
8. All proprietary fixings shall be installed to develop their maximum capacity and in accordance with the manufacturer's recommendations.
9. All timber framework shall be adequately tied to resist uplift and racking forces in accordance with the AS 1684 series.
10. All multiple member beams, studs etc. shall be laminated in accordance with the AS 1684 series.
11. The builder shall submit one set of truss manufacturer's layout drawings and computations for review 48 hours prior to fabrication.
12. No penetrations or chases other than those shown on the structural drawings shall be made in timber members without prior approval of the engineer.



A PROPOSED RAFTER TO EXISTING ROOF

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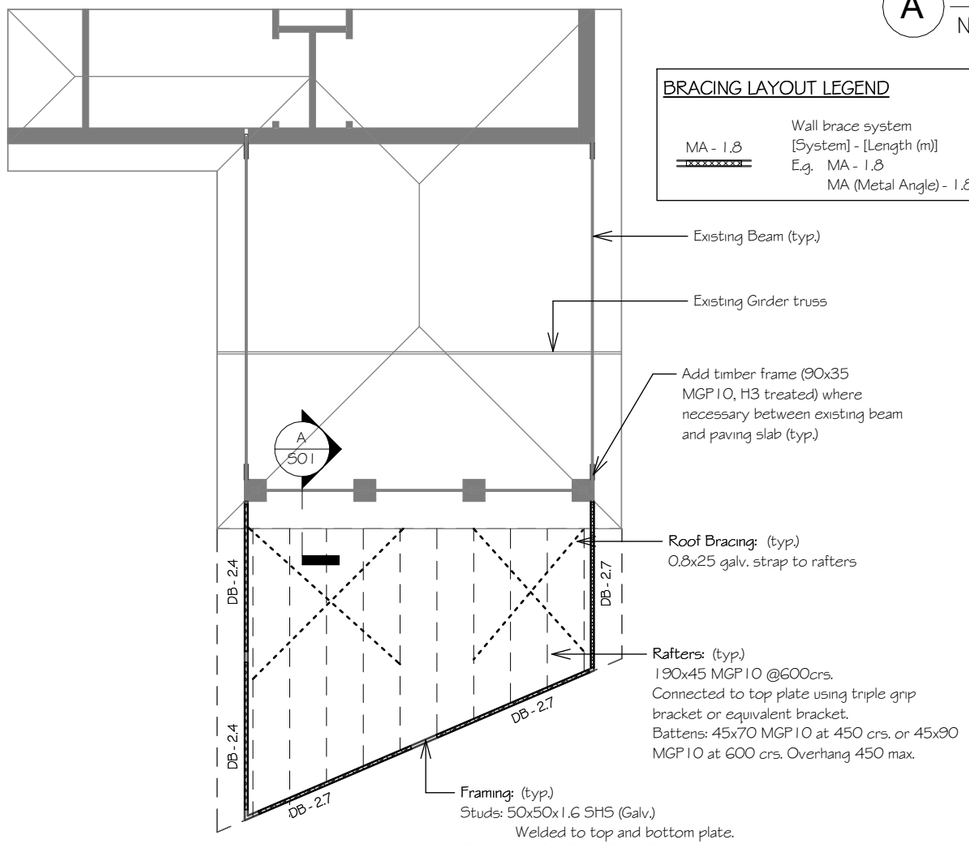


BRACING LAYOUT LEGEND

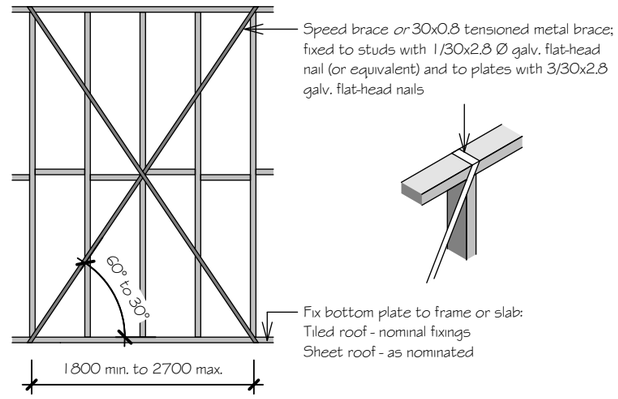
MA - 1.8

Wall brace system
[System] - [Length (m)]
E.g. MA - 1.8
MA (Metal Angle) - 1.8 m long

Indicative truss layout shown. Prefabricated timber trusses by specialists. If truss layout by others varies, beams and/or lintels may be affected, in this case builder is to contact this office for advice before commencing works.

1 ROOF STRUCTURE LAYOUT

1 : 100



SYSTEM: DB

SPEEDBRACE OR TENSIONED METAL STRAPS

As referenced in AS 1684.2 Tb. 8.18(b)

Capacity of 1.5 kN/m. For clarity reasons not all items shown .

B WALL BRACING SYSTEM - DB

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DRAWN	JD / LS
CHECKED	Leo Song

Business Licensing Authority
Reg No PE0003226

PROPOSED: Garage Extension & Shed

ISSUE DATE: 24 Jan 24

ISSUE STATUS: Concept only - Not for Construction

FOR: dennis doricic design

AT: 41 Menzies Drive, Subury, VIC 3429

SHEET SIZE: A3	SHEET NO: S01
JOB NO: 23625	REVISION:

SITE CLASSIFICATION

Site classification:	Class P
Report by:	RESCOM Consulting Engineers
Report no:	2210885 1
Dated:	2 March 2021

GENERAL NOTES:

1. These specifications shall be read in conjunction with the architectural drawings, architectural specifications and structural drawings. Any discrepancies shall be reported to this office immediately.
2. This drawing shall be read in conjunction with the relevant soil report and compaction report if applicable.
3. All materials and workmanship are to comply with AS 1684, AS 2870, AS 4773 and the Building Code of Australia (BCA).
4. Should site conditions necessitate altering the Finished Floor Level(s), this office shall be notified prior to footing construction.

PREPARATION / SITE WORKS:

1. The foundation shall have a minimum bearing capacity of 100kPa and be founded minimum 100mm into stiff natural ground, or as noted on the soil report (whichever is greater).
2. The site shall be graded or drained so that water cannot pond against or near the house. The ground immediately adjacent to the house shall be graded to a uniform fall of 50mm minimum away from the house over the first metre after construction.
3. Trenches shall be dewatered and cleaned prior to concrete placement such that no significant softened or loosened material remains.
4. Joints in plumbing pipes within 3.0m of the house shall be articulated to accommodate ground movement.
5. Strip footings that require deepening to 700mm or more will require internal strip footing grid, spaced at no greater than 6m centres and run from external footing to external footing. In this event contact this office for advice before proceeding.

REINFORCEMENT:

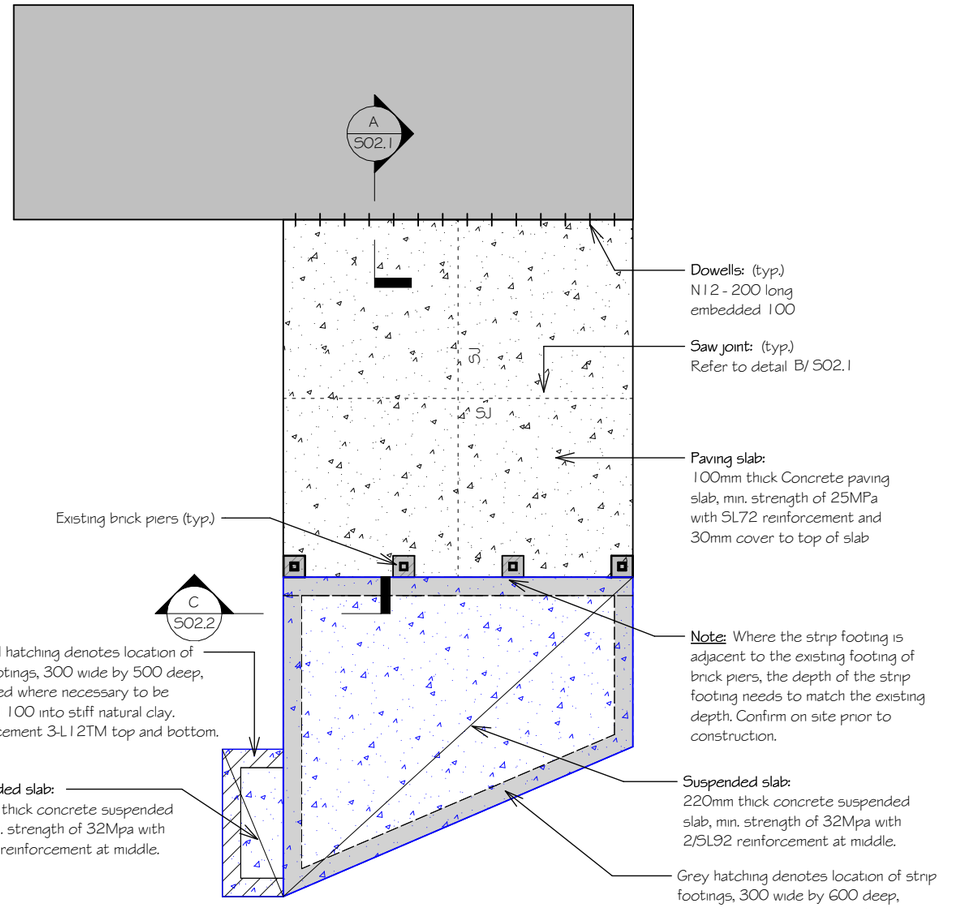
1. Trench mesh reinforcement may be replaced by the equivalent reinforcing bars.
2. Design cover to the reinforcement shall be 40mm.
3. Trench mesh in footings shall be anchored by the width of the mesh at T-intersections and L-intersections and shall be lapped by 500mm at splices for N12 bars or less, and 700mm at splices for N16 bars.
4. At T-intersections and L-intersections, the bars shall continue across the full width of the intersection. At L-intersections, one outer bar shall be bent and continued for the lap length, or a bent lap bar of appropriate lap length shall be provided on each leg.
5. Service penetrations are permitted through the middle third of the depth of the footing.

CONCRETE:

1. Concrete shall not be less than 20MPa, with 20mm nominal maximum aggregate size and 100mm slump.
2. Concrete to be placed and compacted in accordance with good building practice.

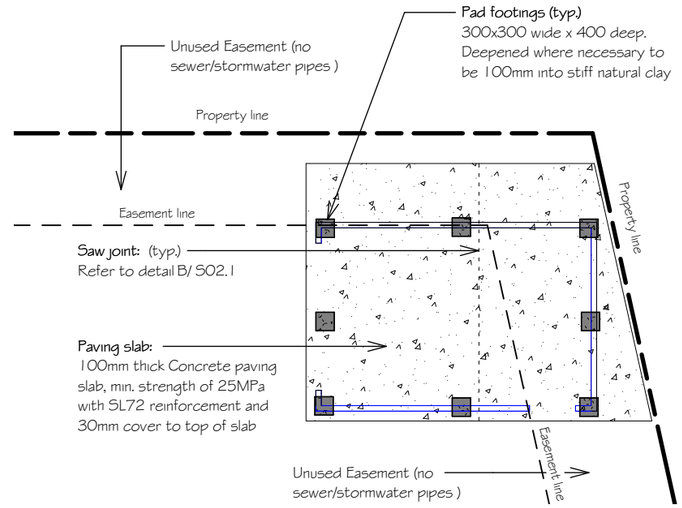
MAINTENANCE:

1. The builder is to ensure that the owner is aware that they are responsible for the maintenance of the footings. The maintenance requirements are set out in the CSIRO pamphlet BTF 18 "Foundation Maintenance and Footing Performance: A Homeowner's Guide". In the event of sale the new owner is to be made aware of this.
2. Plumbing leaks including stormwater and sewage drainage are to be repaired promptly.
3. Planting of trees and scrubs near the foundation of the house is to be avoided. Generally, trees and scrubs should be no closer than the distance equivalent to their mature height.
4. Acceptance levels of damage to floors due to foundation movements and defined in the "Guide to Standard & Tolerances" published by the Building Commission.



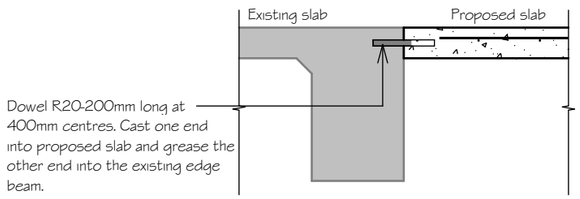
1 GARAGE FOOTING PLAN

1 : 100



2 SHED FOOTING PLAN

1 : 100



A SLAB CONNECTION - EXISTING TO PROPOSED

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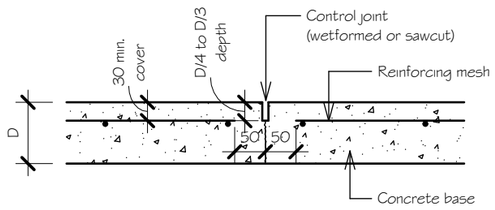

B TYPICAL SAW JOINT (SJ)

NTS

FOOTING DESIGN DIMENSIONS TO BE READ/CHECKED IN CONJUNCTION WITH ARCHITECTURAL FLOOR PLANS

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DRAWN	JD / LS
CHECKED	Leo Song

Business Licensing Authority
Reg No PE0003226

PROPOSED: Garage Extension & Shed

ISSUE DATE: 24 Jan 24

ISSUE STATUS: Concept only - Not for Construction

FOR: dennis doricic design

AT: 41 Menzies Drive, Subury, VIC 3429

SHEET SIZE: A3	SHEET NO: S02.1
JOB NO: 23625	REVISION:

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MASONRY / CONCRETE RETAINING WALL NOTES

SAFETY

1. All excavations shall be carried out in a safe manner in accordance with the relevant regulations, to prevent collapse that may endanger life or property.
2. Adjacent structures must be founded either beyond or below the zone of influence, defined by a line from the toe of the cut at 30° for sandy sites and 45° for clayey sites extending to the surface. Where there is risk of global slip around the slip plane encompassing the proposed retaining wall or other structures, or where the risk of inundation by ground water or surface water, retaining wall construction shall not proceed until remedial action has been carried out.
3. Footings adjacent to services shall be appropriately deepened.

FOUNDATION MATERIAL

1. Foundation material shall be uniform and of the type shown on the drawings.
2. Where there are significant variations of foundation material or compaction, soft spots or where there is ponding of ground water, the material shall be removed, replaced and compacted in layers no exceeding 150 mm at a moisture content with 2% of Optimum Moisture Content (OMC) to Achieve 95% Standard Proctor density.

CONCRETE

1. Concrete in the footings shall comply with AS 3600, strength grade N20 and max. aggregate size of 20 mm. Concrete shall be compacted by immersion vibrator.
2. All concrete shall be cured using a sprayed curing compound.

REINFORCEMENT

1. All reinforcement shall comply with AS 4671 and shall be a min. of grade N500.
2. Starter bars shall be tied into position to provide specified lap above the top surface of the footing, and held in position by a timber member.
3. Unless noted otherwise, structural laps and cover shall be as follows
   a. Cover:
      i. 40 mm in concrete contact with unprotected ground
      ii. 40 mm in concrete exposed externally
      iii. 30 mm to a sealed vapour barrier
      iv. 20 mm to an internal surface
   b. Laps shall comply with AS 3600, and shall not be less than:
      i. Bars 500 mm
         Fabric 2 cross wires overlapping
      ii. Trench mesh 500 mm

MASONRY

1. U.N.O. masonry units shall comply with AS 4455 and the following:
   a. Dimensional category DW4
   b. General purpose salt attack resistance grade (expect where exposed grade is required)
   c. Min. characteristic compressive strength of 10 MPa (unconfined value)
   d. Concrete blocks for reinforced masonry shall have:
      i. max. permeability of 2 mm/minute;
      ii. efflorescence potential not more than slight;
      iii. Characteristic lateral modulus of rupture of 0.8MPa;
      iv. H-block or Double-U configuration;
      v. If blocks with webs flush with the ends are to be used, horizontal reinforcement shall be suspended above the webs on 15 mm mortar pack on the centre web only.

MORTAR

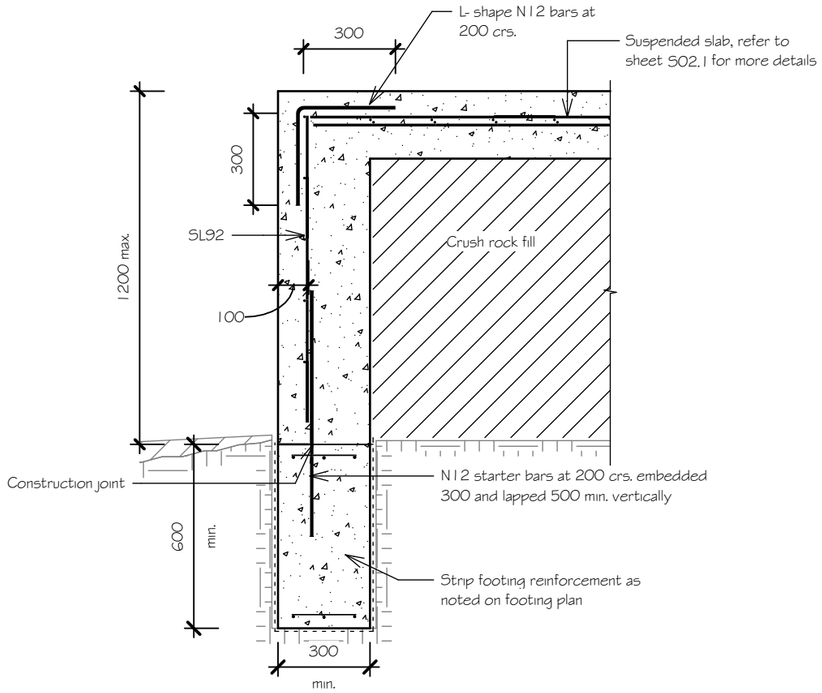
1. Cement shall be Type GP Portland cement complying with AS 3972 U.N.O.
2. Lime shall be hydrated building lime complying with AS 1672.1 U.N.O.
3. Water thickeners shall be methyl-cellulose based.
4. Sand shall comply with AS 2758.1.
5. Mortar type shall consist of the following:
   a. Type M3 for general applications (except where Type M4 is required)
   b. Preferred 1 part Type GP cement, 5 parts sand plus water thickener
   c. Alternative 1 part Type GP cement, 1 part lime, 6 parts sand

GROUT

Concrete grout shall have a min. Portland cement content of 300 kg/m3, a max. aggregate size of 10 mm, sufficient slump to completely fill the cores and min. compressive cylinder strength of 20 MPa.

MAINTENANCE

The owner is reasponsible for routine inspection of the retaining wall drainage system. An inspection of the silt trap on an annual basis is a min. requirement. Build up of silty materials within the silt trap are to be cleaned out. A heavy build up of silt may require flushing out the A.G. line.



C RETAINING WALL DETAIL
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PROPOSED: Garage Extension & Shed
ISSUE DATE: 24 Jan 24
ISSUE STATUS: Concept only - Not for Construction

FOR: dennis doricic design
AT: 41 Menzies Drive, Subury, VIC 3429

SHEET SIZE: A3	SHEET NO: S02.2
JOB NO: 23625	REVISION:

DRAINAGE SPECIFICATIONS

GENERAL:

1. Defective surface drainage is a common factor in reactive clay foundation movement problems. The effective drainage of the site is a prerequisite for satisfactory performance of footing system. Problems can arise where the landscaping and other finishing earthworks are not part of the builder's contract, even though drainage requirements have been stipulated as part of the footing design. In such cases, the owner may be directly or indirectly responsible for the completion of the site works. This highlights the need for the owner to be advised of the general requirement for drainage and any particular requirements attached to the footing design (AS 2870 Cl. C5.2.1).
2. These drainage requirements form part of the footing design.
3. The site drainage recommendations should be maintained for the economic life of the building (AS 2870 Cl. B2.3(a)).
4. All drainage, plumbing works and related materials to be in accordance with AS 2870, the AS 3500 series and current Building Code of Australia (BCA).

MAINTENANCE REQUIREMENTS:

1. The builder is to make the owner aware of these maintenance requirements. Should the property be sold, the previous owner is to make the new owner aware of these requirements.
2. The owner is the person or organization responsible for the maintenance of the building and the site (AS 2870 Appendix A(d)).
3. CSIRO pamphlet, Building Technology File 18, Foundation maintenance and footing performance: A homeowner's guide, and its recommendations should be followed. The builder is to supply the owner with a copy of this guide, or at the least make the owner aware of this guide which can be obtained online or from our office.
4. Leaks in plumbing, including stormwater, sewerage and service pipes shall be repaired promptly (AS 2870 B2.3(d)).
5. The owner is responsible for routine inspection of the drainage system. An inspection of sump pits, where applicable, on an annual basis is a minimum requirement. Build-up of silty materials within the sump trap is to be cleaned out. A heavy build-up of silt may require flushing out the AG line where applicable.

LANDSCAPING REQUIREMENTS:

1. The development of the gardens should not interfere with the drainage requirements or the subfloor ventilation and weephole drainage systems. Garden beds adjacent to the building should be avoided. Care shall be taken to avoid over watering of gardens close to the building footings (AS 2870 Cl. B2.3(b)).
2. Planting trees shall be avoided near the foundation of buildings or neighboring buildings on reactive sites as they can cause damage due to drying of the clay at substantial distances. To reduce, but not eliminate, the possibility of damage, tree planting should be restricted to a distance from the house as follows:
   a. 1 ½ x mature height for Class E sites.
   b. 1 x mature height for Class H1 and Class H2 sites
   c. ¾ x mature height for Class M sites.

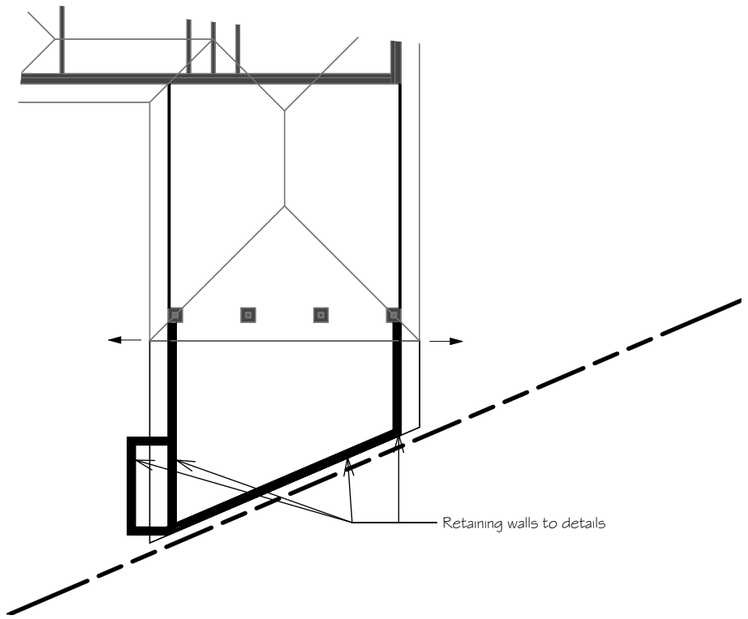
   Where rows or groups of trees are involved, the distance from the building should be increased. Removal of trees from the site can also cause similar problems (AS 2870 B2.3 (c)).

SURFACE DRAINAGE REQUIREMENTS:

1. Surface drainage shall be controlled from the start of site preparation and construction. The drainage system shall be completed by the finish of construction of the building. (AS 2870 Cl. 5.6.3)
2. The site should be graded or drained so that water cannot pond against or near the building. The ground immediately adjacent to the building should be graded to a uniform fall of 50mm minimum away from the building over the first metre (AS 2870 Cl. B2.3(a)). Where this is achieved by filling, permeable materials shall not be placed on the underlying clay.
3. The subfloor space for buildings with suspended floors should be graded or drained to prevent ponding under the dwelling (AS 2870 Cl. B2.3(a)).
4. Subsurface drains (e.g. agricultural (AG) pipes) to remove groundwater shall not be used within 1.5m of the building (AS 2870 Cl. 5.6.3(d)) unless noted otherwise.
5. Subsurface drains are to be 100 Ø slotted PVC agricultural (AG) pipe wrapped in geofabric sock, laid to a minimum slope of 1:300 on a bed of stiff clay. The trench is to be filled with 10mm crushed rock, min. 300mm thick around the pipe (excluding bed material) and extended to the surface. The low end of each run of pipe is to be drained through a sump pit and connected to the stormwater system. The upper end of each run of pipe is to be brought to the surface and capped.

PLUMBING REQUIREMENTS:

1. The base of trenches shall be sloped away from the building. Trenches shall be backfilled with clay in the top 300mm within 1.5m of the building. The clay used for backfilling shall be compacted. Where pipes pass under the footing system, the trench shall be backfilled full depth with clay or concrete to restrict the ingress of water beneath the footing system (AS 2870 Cl. 5.6.3(b)).
2. Drainage (pipes) under a slab shall be avoided where practicable. Pipes may be encased in concrete or in recesses in the slab when provided with flexible joints at the exterior of the slab. Methods used should comply with the AS 3500 series (AS 2870 Cl. 5.6.4(d)).
3. Penetrations of the edge beams or perimeter strip footings shall be avoided where practicable, but where necessary shall allow for movement (AS 2870 Cl. 5.6.4(a)). Install as detailed and provide lagging appropriate to the characteristic surface movement (y_s).
4. Drains attached to or emerging from underneath the building shall incorporate flexible joints immediately outside the footing and commencing within 1m of the building perimeter to accommodate differential soil movement in any direction equal to the estimated characteristic surface movement (y_s), refer to the referenced soil report where necessary). The fittings or devices provided to allow for movement shall be set at the mid-position of their range of possible movement at the time of installation, so as to allow for movement both upwards and downwards. This requirement applies to all stormwater and sanitary plumbing drains and discharge pipes (AS 2870 Cl. 5.6.4(b)).
5. On-site wastewater treatment units and associated land application areas shall be located to minimize soil moisture increase within the foundation (AS 2870 Cl. 5.6.4(c)).
6. Water service pipes installed under concrete slabs shall comply with the relevant requirements of AS 3500.1. Heated water service pipes installed under concrete slabs should comply with the relevant requirements of AS 3500.4 (AS 2870 Cl. 5.6.4(e)).
7. Cold water pipes and heated or hot water pipes shall not be installed under a slab, unless the pipes are installed within a conduit so that if the pipe leaks water it will be noticed above the slab or outside the slab and will not leak unnoticed under the slab (AS 2870 Cl. 5.6.4(e)).
8. The cover to stormwater drains shall not be less than:
   a. 100mm under soil not subject to vehicle loading for single dwellings, or 300mm for pipes servicing more than one dwelling
   b. 100mm to underside of paved or concrete areas not subject to vehicle loading
   c. 75mm to underside of reinforced concrete or paving for light vehicle loading (AS 3500.3 Tb. 6.2.5),
   d. 25mm to the underside of reinforced residential slabs (AS 3500.3 Cl. 6.3.6). Protection shall be provided from mechanical damage where necessary. We recommend the use of sewer grade pipes under dwellings and paving also.
9. It is advisable to get all pipes checked for leaks once construction is completed prior to occupancy. Testing should take place in accordance with AS 3500.3 Section 9.



1 SURFACE DRAINAGE LAYOUT
1 : 150

SITE/SOIL PLUMBING INFORMATION

Characteristic surface movement (y_s):	75mm
Recommended minimum pipe slope:	1:40
Lagging thickness*:	40mm
Flexible joints ^:	As detailed

*required for all horizontal penetrations of concrete footings
^ All joints are to be set at 50% of their capable movement when installing

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SURFACE DRAINAGE LEGEND

- SIO — Surface inspection opening (shown for AG lines only). Brought to surface & capped.
- Sump pit, connected to stormwater system leading to LPD
- 100Ø slotted PVC agricultural (AG) pipe at 1:300 min. slope, leading to LPD via a sump pit
- Surface runoff direction
- High side — Approximate cut/fill batter line Slope where nominated rise:run
- Retaining wall
- 00.00 × — Existing spot level (m)
- Direction of surface fall
- GSD — Grated surface drain 100Ø min. connected to stormwater system

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