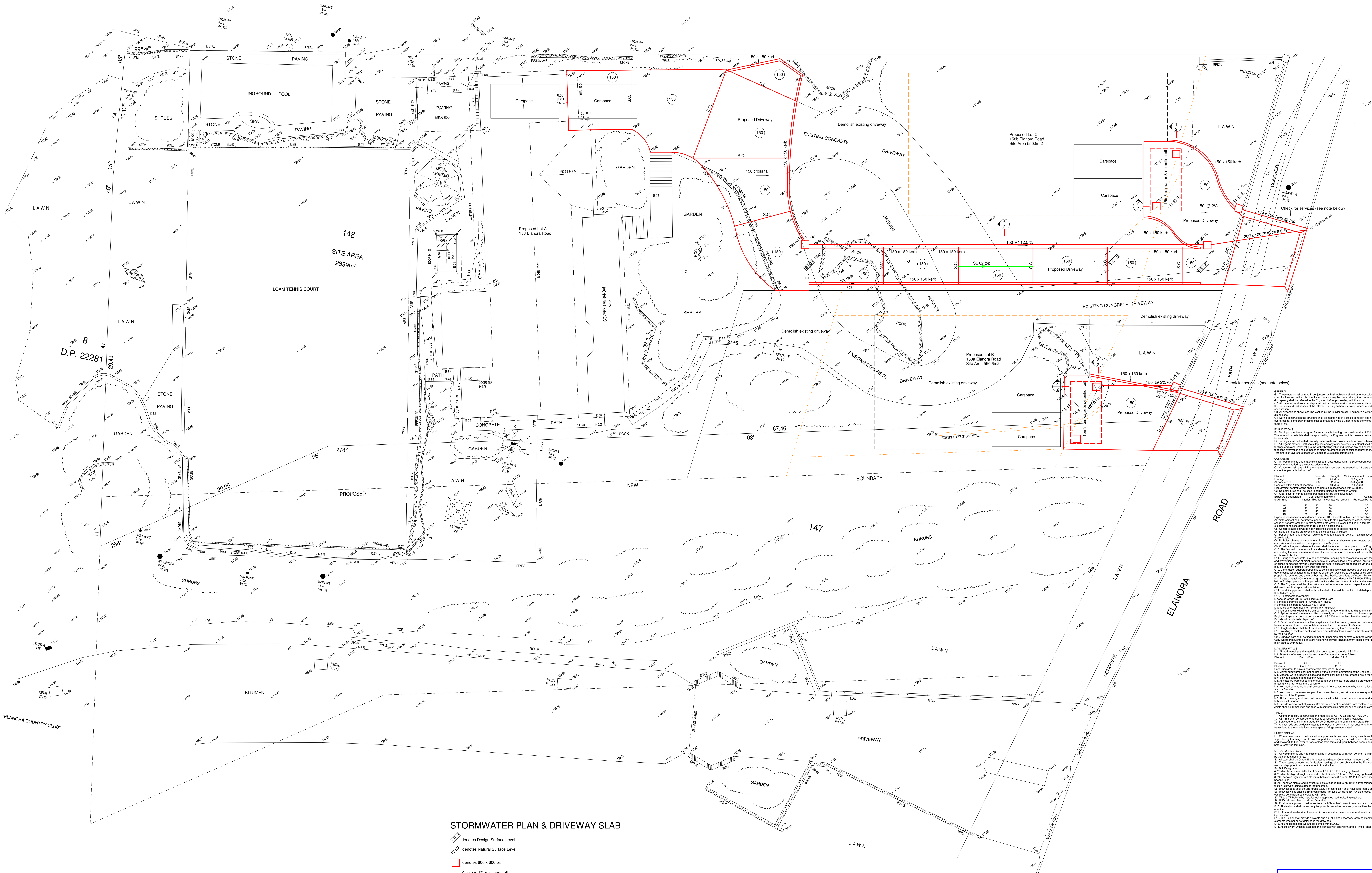

STORMWATER PLAN & DRIVEWAY SLAB

128.9 (boxed) denotes Design Surface Level

128.9 denotes Natural Surface Level

(red square) denotes 600 x 600 pit

All pipes 1% minimum fall

Stormwater calculations
In accordance with Council's On-site Stormwater Management Policy, using simplified method (modelling not required),
Table 2a (<60% impervious) for 550m2 site area, provide 7.5 cub m OSD tank and 7.5 cub m OSR tank (15m3 total) for Lots B & C).
PSD, Q5 = 17 l/s. Adopt 86mm orifice for 1.2m deep tanks.
At position (A), Q100 = 0.7 x 140 x 1800/ 3600 = 49 l/s

Driveway slabs to be 150 thick. Provide 30 sand under two layers Fortecon membrane.
Provide 16 mastic to E.J.
Provide R16 (400) galvanised, grease one end
Saw cut (S.C.) alternate wires to fabric. 25 deep saw cut slab 36 hours after pour

Provide a services search to locate public utility services within the proposed driveway in the road reserve. Where any services are impacted by the works, a letter of approval from the relevant authority is to be submitted to Council with the application.

GENERAL
G1. These notes shall be read in conjunction with all architectural and other consultants' drawings and specifications and with such other instructions as may be issued during the course of the contract. Any discrepancy shall be referred to the Engineer before proceeding with the work.
G2. All materials and workmanship shall be in accordance with the relevant and current SAA codes and with the By-Laws and Ordinances of the relevant building authorities except where varied by the project specification.
G3. All dimensions shown shall be verified by the Builder on site. Engineer's drawings shall not be scaled for dimensions.
G4. During construction the structure shall be maintained in a stable condition and no part shall be overstressed. Temporary bracing shall be provided by the Builder to keep the works and excavations stable at all times.

FOUNDATIONS
F1. Footings have been designed for an allowable bearing pressure intensity of 600 kPa (rock).
The foundation materials shall be approved by the Engineer for this pressure before placing reinforcement for concrete.
F2. Footings shall be located centrally under walls and columns unless noted otherwise.
F3. All organic material, soft spots, top soil and any other deleterious material shall be removed from under footings and slabs. Proof roll ground with vibrating roller and replace any soft spots with good fill. Backfilling to footing excavation and sub-bases to slabs on ground must consist of approved material compacted in 150 mm thick layers to at least 95% modified Australian compaction.

CONCRETE
C1. All workmanship and materials shall be in accordance with AS 3600 current edition with amendments, except where varied by the contract documents.
C2. Concrete shall have minimum characteristic compressive strength at 28 days and cement and flyash content as per table below UNO.

Element	Concrete	Strength	Minimum cement content	Maximum Fly Ash
Footings	S25	25 MPa	270 kg/m3	40 kg/m3
All concrete UNO	S32	32 MPa	320 kg/m3	40 kg/m3
Concrete within 1 km of coastline	S40	40 MPa	350 kg/m3	40 kg/m3

Plant/Project control testing shall be carried out in accordance with AS 3600.
C3. No admixtures shall be used in concrete unless approved in writing.
C4. Clear cover in mm to all reinforcement shall be as follows UNO:

Exposure classification to AS 3600	Cast against formwork Interior	Cast against formwork Exterior	In contact with ground	Cast against ground Protected by membrane	Cast against ground No membrane
A1	20	30	30	30	40
A2	20	30	30	40	50
B1	20	40	40	50	60
B2	20	45	45	55	65

Exposure classification for exterior concrete - B1. Concrete within 1 km of coastline - B2.
All reinforcement shall be firmly supported on mild steel plastic tipped chairs, plastic chairs or concrete chairs at not greater than 1 metre centres both ways. Bars shall be tied at alternate intersections. In exposure conditions greater than B1 use only plastic chairs.
C5. Concrete sizes shown do not include thicknesses of applied finishes.
C6. Depths of beams are given first and include slab thickness.
C7. For chamfers, drip grooves, reglets, refer to architectural details, maintain cover to reinforcement at these details.
C8. No holes, chases or embedment of pipes other than shown on the structural drawings shall be made in concrete members without the approval of the Engineer.
C9. Construction joints where not shown shall be located to the approval of the Engineer.
C10. The finished concrete shall be a dense homogeneous mass, completely filling the formwork thoroughly embedding the reinforcement and free of stone pockets. All concrete shall be shall be compacted with mechanical vibrators.
C11. Curing of all concrete is to be achieved by keeping surfaces continously wet for a period of 3 days, and prevention of loss of moisture for a total of 7 days followed by a gradual drying out. Approved sprayed on curing componds may be used where no floor finishes are proposed. Polythene sheeting or wet hessian may be used if protected from wind and traffic.
C12. Construction support propping is to be left in place where needed to avoid over-stressing the structure due to construction loading. No masonry or partition walls are to be constructed on suspended levels until all propping is removed and the member has absorbed its dead load deflection. Formwork shall remain in place for 21 days or reach 80% of the design strength in accordance with AS 1509. If Engineer allows removal before 21 days, props shall be placed directly under prop over so that two slabs are carrying the load.
C13. The Engineer shall be given 48 hours notice for reinforcement inspection and concrete shall not be delivered until final approval is obtained.
C14. Conduits, pipes etc., shall only be located in the middle one third of slab depth and spaced at not less than 3 diameters.
C15. Reinforcement symbols:
S denotes Grade 230 S Hot Rolled Deformed Bars
N denotes deformed bars to AS/NZS 4671 (D500)
R denotes plain bars to AS/NZS 4671 (250)
L denotes deformed mesh to AS/NZS 4671 (D500L)
The figures shown following the symbol are the number of millimetre diameters in the bar diameter.
C16. Splices in reinforcement shall be made only in positions shown or otherwise approved in writing by the Engineer. Laps shall be in accordance with AS 3600 and not less than the development length for each bar. Provide 40 bar diameter laps UNO.
C17. Fabric reinforcement shall have splices so that the overlap, measured between the outermost tranverse wires of each sheet of fabric, is less than those wires plus 50mm.
C18. Joggles to bars shall be 1 bar diameter over a length of 12 diameters.
C19. Welding of reinforcement shall not be permitted unless shown on the structural drawings or approved by the Engineer.
C20. Bundled bars shall be tied together at 30 bar diameter centres with three wraps of tie wire.
C21. Where transverse tie bars are not shown provide N12 at 300mm spliced where necessary and lap with main bars 300mm UNO.

MASONRY WALLS
M1. All workmanship and materials shall be in accordance with AS 3700.
M2. Strengths of masonry units and type of mortar shall be as follows:

Element	F'uc (MPa)	Mortar C:L:S
Brickwork	25	1:1:6
Blockwork	Grade 15	2:1:9

Core filling grout to have a characteristic strength of 25 MPa.
M3. Mortar admixtures shall not be used without written permission of the Engineer.
M4. Masonry walls supporting slabs and beams shall have a pre-greased two layer galvanised steel slip joint between concrete and masonry UNO.
M5. All masonry walls supporting or supported by concrete floors shall be provided with vertical joints to match any control joints in the concrete.
M6. Non load bearing walls shall be separated from concrete above by 12mm thick closed cell polythene strip or Caneite.
M7. No chases or recesses are permitted in load bearing and structural masonry without the written permission of the Engineer.
M8. All load bearing and structural masonry shall be laid on full beds of mortar and all perpends shall be fully filled with mortar.
M9. Provide vertical control joints at 8m maximum centres and 4m from reinforced corners.
Joints shall be 12mm wide and filled with compressible material and caulked on external faces.

TIMBER
T1. All timber design, construction and materials to AS 1720.1 and AS 1720 UNO.
T2. AS 1684 shall be applied to domestic construction in sheltered locations.
T3. Softwood to be minimum grade F7 UNO. Hardwood to be minimum grade F14.
T4. Anchor rods and tie down straps to the roof shall be installed that ensure uplift wind forces are transmitted to the foundations unless special fixings are nominated.

UNDERPINNING
U1. Where beams are to be installed to support walls over new openings, walls are to be effectively supported by tomming down to solid support. Cut opening and install beams, steel wedge between beam and brickwork to floor over to transfer load from toms and grout between beams and brickwork or floor before removing tomming.

STRUCTURAL STEEL
S1. All workmanship and materials shall be in accordance with AS4100 and AS 1554, except where varied by the contract documents.
S2. All steel shall be Grade 250 for plates and Grade 300 for other members UNO.
S3. Three copies of workshop fabrication drawings shall be submitted to the Engineer for review at least 10 working days prior to commencement of fabrication.
S4. Bolt Designation:
4.6/S denotes commercial bolts of Grade 4.6 to AS 1111, snug tightened.
8.8/S denotes high strength structural bolts of Grade 8.8 to AS 1252, snug tightened.
8.8/TB denotes high strength structural bolts of Grade 8.8 to AS 1252, fully tensioned to AS 4100 as a bearing joint.
8.8/TF denotes high strength structural bolts of Grade 8.8 to AS 1252, fully tensioned to AS 4100 as a friction joint with facing surfaces left uncoated.
S5. UNO, all bolts shall be M16 grade 8.8/S. No connection shall have less than 2 bolts.
S6. UNO, all welds shall be 6mm continuous fillet type GP using E41XX electrodes. Butt welds shall be complete penetration butt welds to AS 1554.
S7. TB and TF bolts to be installed using approved load indicating washers.
S8. UNO, all cleat plates shall be 10mm thick.
S9. Provide seal plates to hollow sections, with "breather" holes if members are to be hot dip galvanised.
S10. All steelwork shall be securely temporarily braced as necessary to stabilise the structure during erection.
S11. Structural steelwork not encased in concrete shall have surface treatment in accordance with the Specification.
S12. The Builder shall provide all cleats and drill all holes necessary for fixing steel to steel and other elements whether or not detailed in the drawings.
S13. All unexposed steelwork to be primed with R.O.Z.C.
S14. All steelwork which is exposed or in contact with brickwork, and all lintels, shall be hot dip galvanised.

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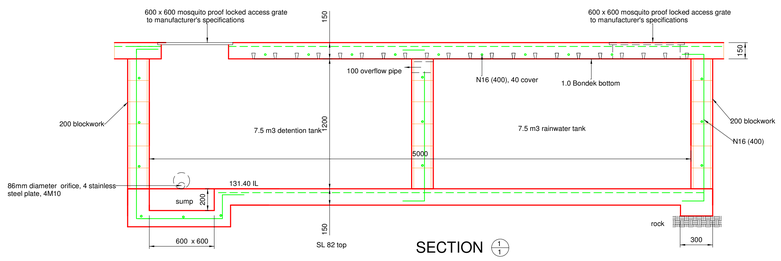
Accredited Certifier
Building Professionals Board

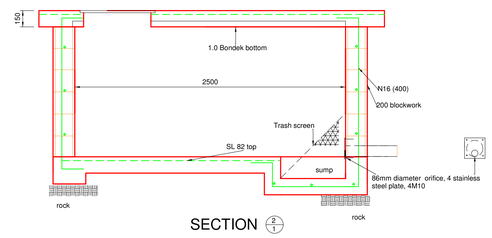
For
MR & MS A MOLINARO

Project
PROPOSED SUBDIVISION
ONE LOT INTO THREE LOTS AT
158 ELANORA ROAD
ELANORA HEIGHTS

Date	Scales
30.4.19	1:100, 1:20
Approved (signature) B.E., M.I.E. Aust. NER (Civil & Structural)	Drawing No 1922 -1



SECTION 1/1



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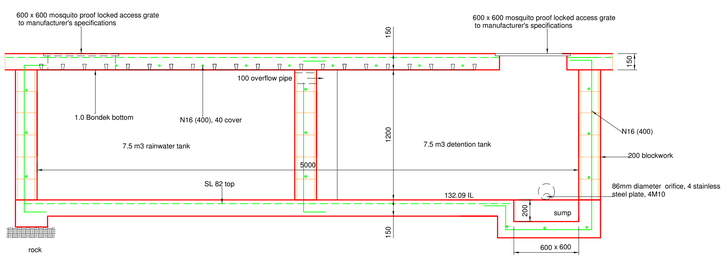

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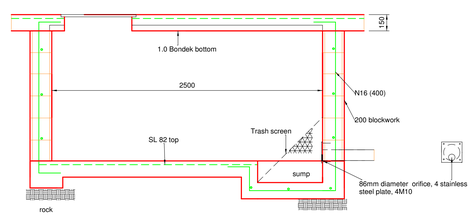

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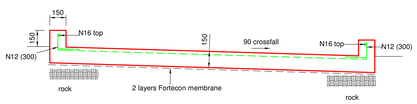

SECTION 5/1

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For
MR & MS A MOLINARO

Project
PROPOSED SUBDIVISION
ONE LOT INTO THREE LOTS AT
158 ELANORA ROAD
ELANORA HEIGHTS

Date 30.4.19	Scales 1:100, 1:20
Approved Michael Gergich B.E., M.I.E. Aust NER (Civ & Structural)	Drawing No 1922 -2