

| Index to the technical Q&As, updates and clarifications to the Residential Guidance (Repairing and rebuilding houses affected by the Canterbury earthquakes) | | | | | |
|---|----------------|-----------------|---|---|---------------------------|
| Q&A issue number | Q&A issue date | Question number | Question | Guidance document reference | Relevant part of guidance |
| 1 | May-13 | 1 | Can I average liquefaction settlement results across a site and compare the average to the index numbers in the guidelines? | Various (including Part D 16.5) | D |
| 1 | May-13 | 2 | If settlements or slopes measured for a house exceed those tabulated in column 3 of Table 2.3 in section 2.3, Part A, does that automatically mean the foundations need to be rebuilt? | Part A, section 2.3 | A |
| 1 | May-13 | 3 | Can we use thin layer correction factors in our liquefaction calculations? | Part C, section 13.5 and Part D, section 16.4.1 and appendix D1 | Various |
| 1 | May-13 | 4 | For subdivisions where most of the land is found to be equivalent to TC2 but some areas are found to be equivalent to TC3 performance (based on geotechnical calculations), can the results be 'averaged' and the subdivision called 'TC2-like' on the whole? | Part D, section 16.5 | D |
| 1 | May-13 | 5 | Do I need to design piles for lateral displacement in TC1 and TC2? | Part A, section 5.3.1, Option 5 | A |
| 1 | May-13 | 6 | Do I need to use the sliding head pile detail in TC1 and TC2? | Part A, section 5.3.1, Option 5 | A |
| 1 | May-13 | 7 | Is the sliding head detail only for certain cases of lateral stretch, and not required in other cases, or was it intended to be 'the standard detail'? | Part C, section 15.2.2 (point 6) | C |
| 1 | May-13 | 8 | The sliding head detail is for cases where 'significant lateral stretch up to 200mm has occurred'. What about situations where lateral stretch is more than 200mm? | Part C, section 15.2.2 (point 7) | C |
| 1 | May-13 | 9 | How do we design for differing depths of liquefaction versus crust thickness? | Part C, section 15.2.2 (point 8) | C |
| 1 | May-13 | 10 | How does the 200 mm relate to the 300 mm 'lateral surface movement' that we imply in the design for the standard piles? | Part C, section 15.2.2 (point 6) | C |
| 1 | May-13 | 11 | We say 'where major or severe global lateral movement (>300 mm) has occurred' - do we mean this, or do we mean 'or is anticipated'? | Part C, section 15.2.2 (point 6) | C |
| 1 | May-13 | 12 | What do the terms 'SS Sheet' and 'EPS' mean? | Part C, section 15.2.3, figure 15.3 | C |

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| 1 | May-13 | 13 | What do the letters H, M and L mean in Table 7.2, in Part A? | Part A, section 7.8, Table 7.2 | A |
| 1 | May-13 | 14 | Ground Improvement – In Part C, section 15.3.1, the guidelines state that ‘It is intended that ground improvement carried out following these guidelines will allow the construction of either concrete or timber floors that are supported on foundations that meet the requirements of TC2.’ Does this mean that for types 1 and 2 (densified raft or stabilised crust), the depth of treatment needs to be extended beyond the specified 2 m depth to the point where the residual calculated settlements are less than 100 mm (ULS) and 50 mm (SLS) in the upper 10 m of the soil profile? | Part C, section 15.3 | C |
| 1 | May-13 | 15 | Ground Improvement – can all types of ground treatment be applied on all sites? | Part C, section 15.3. | C |
| 1 | May-13 | 16 | How do we relevel houses that are already attached to deep piles? | Part A, section 4.3 and Part C, section 14 | A |
| 1 | May-13 | 17 | The media reporting of the recent High Court case involving Tower Insurance seemed to imply that the use of injection releveling methods was ‘not allowed’ – is this actually the case? | Part A, section 4.3 and Part C, section 14 | A |
| 1 | May-13 | 18 | For Port Hills properties, does the presence of the Green Zone mean that we do not need to consider rockfall hazards or other external hazards that might affect a site? | Part A, section 6 | A |
| 1 | May-13 | 19 | Regularity – Given that a 2:1 ratio base plan is allowed, and a 1:1 main projection, does this allow the combination of the two, along the long axis of the building to give an overall 3:1 aspect ratio rectangular building plan? | Part C, section 11.2 | C |
| 2 | Sep-13 | 20 | How is the Guidance document applicable to additions in TC3? | Part C, sections 13.3 and 15.1 | C |
| 2 | Sep-13 | 21 | Are there durability issues with grout injection (cement or urethane)? | Part A, appendix A1 | A |

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| 2 | Sep-13 | 22 | Under the following circumstances: <ul style="list-style-type: none"> - where the property is located in TC3, and - there are static bearing issues (either soft ground, fill or peat problems), and - a pile founding layer cannot be identified can a releveable concrete surface structure (as per section 15.4.8) that is supported on deep piles designed for static conditions only be constructed? | Part C, section 15.4.8 | C |
| 2 | Sep-13 | 23 | If the geotechnical report for a TC3 site demonstrates that the site is suitable for TC2 foundations, will the official designation for the land be changed? | Part A, section 3.1, Part C, section 11.2 | A |
| 2 | Sep-13 | 24 | Can an Engineering Technology Practitioner (ETPract) substitute for the CPEng requirements in the Guidance? | Part A, section 3.4.1, and Part C, section 13.1, and various other references | Various |
| 2 | Sep-13 | 25 | When constructing a Type 2 surface structure on an extended Type 1 or 2 ground improvement option as per section 15.3.4 of the Guidance, can the compacted gravel hardfill be omitted from the surface structure construction? | Part C, section 15.3 | C |
| 2 | Sep-13 | 26 | Could you clarify the design philosophy to be followed to determine the depth of ground improvement required for TC3 land? | Part C, section 15.3 | C |
| 2 | Sep-13 | 27 | Do the specific engineering design provisions to address lower than standard bearing capacities for TC1 and TC2 in section 3.4.1 also apply to TC3 sites? | Part A, section 3.4.1 | A |
| 2 | Sep-13 | 28 | Are TC3 Type 1, 2A and 2B surface structure foundation systems suitable for 2-storey construction where lightweight roof and medium weight cladding is specified? | Part C, section 15.1, Table 15.1, and section 15.4.2) | C |
| 2 | Sep-13 | 29 | The structural plan shape design principles set out in section 11.2, page 11.3, appear to be a requirement for all TC3 foundations. Is this the intention? | Part C, section 11.2.1 | C |

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| 2 | Sep-13 | 30 | The structural regularity principles set out in section 5.3, page 5.7, state: “The representative floor plan which the development and modelling of these details has been based on is shown in Figure 5.4. The details in this section should only be applied to simple house plan shapes such as rectangular, L, T, or boomerang shapes”. Is the intention to limit floor plan regularity to the concept shown in Figure 5.4 for all of the TC2 Options 1 to 5? | Part A, section 5.3 | A |
| 2 | Sep-13 | 31 | In order to achieve the MBIE Guidance target strength at 7 days for cement stabilised ground improvement, the cement application rate in these soils needs to be increased (with the associated cost implications). This could be negated if the Guidance could be relaxed to say achieving the criteria at 28 days. Would this be acceptable? | Part C, section 15.3.8.2 | C |
| 2 | Sep-13 | 32 | Is it anticipated that 100% of the soil tests required for ground improvement options given in the Guidance document must achieve the target criteria, or can an average value per layer be used to determine whether it is sufficient? | Part C, section 15.3.8.2 | C |
| 2 | Sep-13 | 33 | Stand-alone garages – how close can these be built to the main house before they are not considered ‘stand-alone’ for the purposes of the MBIE Guidance? | Part A, section 5.6 | A |
| 2 | Sep-13 | 34 | Are the LiDAR horizontal movement vectors ‘real’? Why do we need to design piles for 300mm movement away from lateral spread zones? | Part B, section 8.2.5 | B |
| 2 | Sep-13 | 35 | What details are required for Type 1 and 2 surface structures for flood areas where floor levels need to be higher than maximum heights currently provided for in the Guidance? | Part C, section 15.4 | C |
| 2 | Sep-13 | 36 | What is meant by ‘Engineer sign-off’ for TC2 sites, as indicated by the lower left box of Figures 4.1 and 5.2? | Part A, section 4.2, Fig 4.1 and section 5.1, Fig 5.2 | Various |
| 3 | Nov-13 | 37 | Do the following statements in Part C, section 14.2.2 of the guidance mean that houses in major or severe lateral stretch areas cannot be repaired or relevelled? | Part C, section 14.2.2 | C |

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| 3 | Nov-13 | 38 | Where the guidelines indicate the need for a surface structure Type 2A, could a Type 2B detail be used instead, without the underlying gravel raft? | Part C, section 15.4.4 | C |
| 4 | Dec-13 | 39 | I have a foundation in TC3 that satisfies the criteria in Table 2.3 for a relevel. Can I use the methods in Appendix A1 to relevel the foundation because the appendix title states that it only applies to TC1 and TC2, implying that it doesn't apply for TC3? | Part C, section 14.2.2, section 4.3, and appendix A1 | Various |
| 4 | Dec-13 | 40 | The process diagram for repairing foundation on TC3 sites in Part C, Figure 14.1 refers to section 5 in the bottom right blue box, is this correct? | Part C, section 14.2, Figure 14.1 | C |
| 4 | Dec-13 | 41 | What guidance is available for design of new retaining walls for the Port Hills? | Part A, section 6.4 | A |
| 5 | Apr-14 | 42 | Schedule 1 of the Building Act 2004 was amended, effective 28 November 2013. Does the revised wording in Schedule 1 alter the advice provided in Appendix A3 on assessment and repair options for chimneys regarding the need for a Building Consent? | Part A, appendix A3 section 3..3 | A |
| 5 | Apr-14 | 43 | Is it acceptable to notch bearers and piles beneath an existing Type A or Type B dwelling to assist with the releveling process? | Part A section 4.3, Part A appendix A1, Part C section 14.2 | Various |
| 5 | Apr-14 | 44 | For the TC3 Type 2A-300 and 2B (refer to Q&A 38 and Q&A 46) surface structure foundations, because the piles are cantilevering from the concrete slab, is it necessary to have the plywood skirt around the perimeter of the foundation? | Part C section 15.4.4 | C |
| 5 | Apr-14 | 45 | For TC3 Type 2A and 2B surface structure foundations, are there alternative ways of finishing the perimeter of the slab and perimeter subfloor cladding? | Part C, section 15.4.2 appendix C5 | C |
| 5 | Apr-14 | 46 | There have been some changes to the descriptions of the TC3 Type 2 surface structure foundations in the Guidance. Can you please provide a summary of the available Types and their specifications? | Part C, section 15.3 | C |

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| 6 | Jul-14 | 47 | In section 13 of the guidelines it states that the scope of a deep geotechnical investigation in TC3 must be determined by the geotechnical professional responsible for giving advice on the property in question, and that person must be either a CPEng geotechnical engineer or a PEngGeol with competence, suitable relevant training and experience in foundation investigations and liquefaction assessment. Do the same requirements apply for professionals who are carrying out investigations for foundation repairs on TC3 sites, where only a shallow investigation is being carried out? | Part C, section 13.1 | C |
| 6 | Jul-14 | 48 | Recent public articles in ASCE Civil Engineering and NZ Geomechanics News, as well as data coming out of the EQC ground improvement trials, provide new information regarding the scope and limitations of LMG. How does this affect the guidelines? | Part C, section 15.3 | C |
| 6 | Jul-14 | 49 | What area of subfloor ventilation opening is required where a type 2A or 2B foundation has been constructed with a double polythene slip-layer? | Part C, section 15.4.4 | C |
| 7 | Oct-14 | 50 | Now that the new report UCD/GCM-14/01 "CPT and SPT Based Liquefaction Triggering Procedures" by R Boulanger and I Idriss (2014) has been published (and is available at http://cgm.engr.ucdavis.edu/library/reports/), can this liquefaction analysis methodology be substituted for the Idriss & Boulanger (2008) method cited in the MBIE guidelines? | Part C, section 15.3 | C |
| 7 | Oct-14 | 51 | The updated Boulanger & Idriss (2014) method includes a probabilistic approach to liquefaction analysis. Can this probabilistic approach be utilised where the MBIE guidelines are being used? | Part C, section 15.3 | C |
| 7 | Oct-14 | 52 | Is it acceptable to build up the top surface of an existing Type B perimeter foundation to create a horizontal surface on which to build a new veneer that is correctly aligned with the window sills and soffit? | Part A, section 4.3 | A |

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| 7 | Oct-14 | 53 | When designing a Type 1 foundation, the MBIE Guidance document indicates a pile foundation depth of 350mm. Is there a maximum depth, or criteria, for the footing depth? | Part C, figure 15.16 and table 15.6 section 15.4.3 | C |
| 8 | Feb-15 | 54 | What is the requirement for embedment depth for the slab of a Type 2A 150? | Part C, section 15.4.4 | C |
| 8 | Feb-15 | 55 | Are the DELETION references in the margins in the Residential Guidance referring to text that has previously been removed? | Introduction, section 1.5 | Intro |
| 8 | Feb-15 | 56 | The partial replacement of slabs or the raising of slabs by injection through the slab can damage the polythene Damp Proof Membrane (DPM) under the slab. To ensure continued performance, as designed, what is required to reinstate the vapour barrier? | Appendix A4 | A |
| 8 | Feb-15 | 57 | What are the skill requirements for people taking measurements of levels and wall verticality as part of the information gathering toward determining a repair strategy? | Part A, section 2.4 | A |
| 8 | Feb-15 | 58 | What was the outcome of the review of the guidance on TC3 Type 2 foundation plywood skirts referred to in Q&A 44? | Part C, section 15.4.4 | C |
| 9 | May-15 | 59 | Can poly-propylene precast panel shims be used for packing the tops of piles instead of slips of H5 timber? | Part A, section 4 | A |
| 9 | May-15 | 60 | If a house is being relevelled what is the releveling objective? | Part A, section 2.3 | A |
| 9 | May-15 | 61 | What is the required sealant for multi-unit building inter-tenancy walls detailed in Part E (Figures 23.30 and 23.32) of the Residential Guidance? | Part E, section 26.3 | E |
| 9 | May-15 | 62 | Where a brick veneer cladding is being reinstated are there ways of combining the requirement for cavity drainage and sub-floor ventilation when there are no vents in the perimeter foundation? | Part A, appendix A | A |
| 10 | Jun-18 | 63 | How does the Residential Guidance apply to 'rubble' concrete foundation walls? | Introduction, section 1.4.3 | Intro |