|  |
| --- |
|  TBCRevision 0April 2017  |

|  |
| --- |
| Document Details |
| Document title: |  |
| Revision: | 0 |
| Date: | April 2017 |
| Project manager: |  |
|  |
|  |  |

|  |  |  |
| --- | --- | --- |
|  | **Document history and status** |  |
|  | Revision | Date | Description | By | Review | Approved |  |
|  | A | 25 Nov 2015 | Outline for initial feedback | Working Group | Ross Roberts | N/A |  |
|  | B & C | Jan 2016 | Internal drafts | Working Group | Ross Roberts | N/A |  |
|  | D | 11 Mar 2016 | Draft for Governance Group review | Working Group | Ross Roberts | N/A |  |
|  | E | 31 Mar 2016 | Final Working Group internal review | Ross Roberts | Working Group | N/A |  |
|  | F | 15 Apr 2016 | For sponsor approval | Ross Roberts | Working Group | Governance Group |  |
|  | 0 | April 2017 | Incorporating industry feedback | Ross Roberts |  |  |  |

Document Development

Development of these documents has been the collaborative effort of engineers and scientists representing interested parties within New Zealand. The following panel of contributors assisted with development of these documents.

**Working Group**

* Ross Roberts Auckland Council (lead author)
* Guy Cassidy ENGEO & NZGS
* Tony Fairclough Tonkin & Taylor, EQC & NZGS
* Stuart Finlan NZ Transport Agency
* Stephen Grace Watercare
* Sally Hargraves Terra Firma & NZGS
* Dr Gilles Seve MBIE
* Harry Wahab Beca
* Steve Faulkner NZDF
* Marco Holtrigter CETANZ CPT Group

**Governance Group**

* Sarah Sinclair Auckland Council (Chair)
* Mike Stannard MBIE
* Chris Beasley Auckland Transport
* Jean DeVilliers Watercare
* Stuart Finlan NZ Transport Agency
* Tony Fairclough NZGS, EQC
* Steve Faulkner New Zealand Drillers’ Federation (NZDF)
* Marco Holtrigter CETANZ CPT Group
* Ross Roberts Auckland Council

**Technical Specialists**

* Paul Burton Geotechnics (Geotechnical Laboratory Testing)
* Tom Grace RDCL (Geophysics)
* Ian Haycock McMillan Drilling (Drilling Standards)
* Carole Lee Auckland Council (Contaminated Land)
* Jane Sherrard Hill Laboratories (Geoenvironmental Laboratory Testing)
* Sam Woodford New Zealand Drillers’s Federation (Geotechnical Drilling)

Acknowledgements

A draft version of this document was selectively released for industry review in April 2016. Feedback was received from the following individuals and organisations:

* Shane Strode-Penny (WorkSafe New Zealand)
* Kevin Hind (Tonkin + Taylor)
* Eleni Gkeli, Darrel Oosterberg, Christine Parkes, Dave Dennison, Steve Cooke, Doug Mason, Ella Boam, Jon English, Helen Davies, Robert Bond, Ken Read, Roger High, Lisa Bond & Reagan Knapp ( Opus)
* Brian Tracey (DataTran)
* Ross Paterson (Beca)
* Phillip Falconer (Perry Drilling)
* Paul Carter (ENGEO)
* Greg Haldane & Ann Neill (NZ Transport Agency)

Contents

1. Introduction 1

1.1 Volume 0 1

1.2 Volume 1 1

1.3 Volume 2 (this document) 2

1.4 Volume 3 2

2. Instructions 3

3. Project introduction 4

3.1 Description of the site 4

3.2 Purpose of the main project 4

3.3 Purpose of the investigation 4

3.4 Anticipated geology and ground conditions 5

3.5 Site Information Pack 5

3.6 Key Performance Indicators (optional) 5

4. Project specific tender instructions 6

4.1 Roles in this procurement process 6

4.2 Alternative tenders 6

4.3 Programme 7

4.4 Tender delivery instructions 7

4.5 Required supporting information and documents 7

5. Scope of investigation 8

5.1 Investigation Locations 8

5.2 Permit and consent requirements 8

5.3 Sample and core management 9

6. Project specific amendments to Master Specification 10

6.1 Deleted clauses 10

6.2 Amended clauses 10

7. Additional requirements 11

Appendix A. Exploratory Locations Plan

Appendix B. Table of Investigation Locations

Appendix C. Reinstatement requirements

# Introduction

This specification has been written for use in ground investigations undertaken within New Zealand. It is intended for contracts of any size, with an emphasis on encouraging carefully designed, safely executed, consistent high quality and cost effective work.

**The specification is independent of the conditions of contract; it is intended to work in conjunction with NZS3910, other general conditions of contract or purchase order that is appropriate for the scale of project.**

The full specification comprises a number of inter-related components that, when used together, provide best opportunity to achieve a quality ground investigation and a simpler, clearer and more consistent tendering process for all parties.

## Volume 0

This volume provides general advice regarding the correct application and use of the Specification and the procurement of geotechnical services. It does not form part of the Specification, although the Specification is intended to be read in conjunction with this document.

This document is not a guide to the management or implementation of ground investigations, or the interpretation and development of ground models. For more information on this the reader should consult one of the many text books on the topic. One example is Simons, et al, 2002. The NZGS/MBIE Earthquake Geotechnical Engineering Practice Module 2: ‘geotechnical investigation for earthquake engineering’ provides an excellent introduction with a New Zealand emphasis.

This volume also provides (as appendices) a set of standard templates and guidance which may be useful in improving the consistency of ground investigation practice but do not form part of the specification. This allows the consultants involved to use their own preferred templates where they already exist or where they are more appropriate for the project and site requirements.

## Volume 1

**Master specification**:

The Specification comprises a series of clauses which are intended as minimum requirements. These minimum requirements have been set for the geotechnical investigation techniques which are most commonly used in New Zealand. It is implicit that only the sections relevant to the specific investigation being undertaken are applied to a particular project.

The Specification is fixed in content and scope; project specific requirements, including identification of which sections of the Specification are relevant to that project, are defined in the Project Specific Requirements. This way the Specification can be scaled to suit a range of project sizes.

**Notes for guidance:**

Associated with the Specification are notes which clarify the intent of the clauses, provide background on why they are worded in a specific manner, or give best-practice advice and/or clarification of general principles where the authors think this is valuable. They do not form part of the Specification or contract.

It should be noted that this document is not intended as a manual for ground investigation. The notes given are for clarity only. There are numerous other references available which provide more detail on the ground investigation process and specific methodologies which should be referred to if additional information is required.

|  |
| --- |
| Notes for guidance are presented in blue boxes similar to this example. They do not form part of the Specification or contract. |

## Volume 2 (this document)

**Project Specific Requirements:**

The Project Specific Requirements document is an MS Word format template designed to be completed by the client and geotechnical professional to give details on which aspects of the Specification will apply to the project, and any changes to the standard wording. This template is available from the NZGS website.

## Volume 3

**Bill of Quantities:**

An example Bill of Quantities is provided, together with a preamble which defines payment terms, is provided. This is designed to be compatible with the Specification and allow easy management of a ground investigation by defining consistent payment and measurement methods. It is also the preferred tool to clearly define the scope of work to the consultant or contractor. Some parties may choose to use the Specification alone with their own alternative method of measurement. This template is available from the NZGS website.

# Instructions

To use this document successfully the client or their geotechnical professional should fill in all the relevant sections of this document. It will define the responsibilities and scope of the investigation. Once complete it can be sent, with a bill of quantities, to selected suppliers to provide quotations to undertake the work. These suppliers should not amend this document.

|  |
| --- |
| Notes for guidance are presented in blue boxes similar to this example. They do not form part of the Specification or contract. They do not need to be deleted before issuing the document. |

Any points marked xxxx should be deleted and replaced with the project specific details, or an explanation given as to why they are not given.

The client may amend any part of this document to suit their own procurement preferences, or use an in-house alternative as appropriate.

# Project introduction

|  |
| --- |
| The contract name should be unique for reporting purposes, and will normally include the name of the nearest town or suburb to aid re-finding the data at a later date. |

|  |  |
| --- | --- |
|  | Details (leave blank where not yet defined, or enter ‘please complete’ where requesting the tenderer to provide) |
| Client organisation | xxxx |
| Client contact name and details | xxxx |
| Client project number | xxxx |
| Project name | xxxx |
| Contract name | xxxx |
| Contract number | xxxx |
| Client’s Project Manager name | xxxx |
| Geotechnical Professional name | xxxx |
| CL\_SQEP name | xxxx |

## Description of the site

|  |
| --- |
| The description of the site should include its location (with grid references where appropriate), boundaries, and topography. |

xxxx

## Purpose of the main project

|  |
| --- |
| A description of aims the master project for which this ground investigation will be undertaken should be provided to allow all parties to assess the suitability of their methodology |

xxxx

## Purpose of the investigation

|  |
| --- |
| A brief outline stating the intended end use of the data collected. Include the project stage (eg for preliminary or detailed design). |

xxxx

## Anticipated geology and ground conditions

|  |
| --- |
| Anticipated conditions will impact on the methodology and costs. Provide any known information about the ground from desk studies or other sources. If contamination is known or suspected report it here. |

xxxx

## Site Information Pack

|  |
| --- |
| The Site Information Pack is a critical risk management tool containing site details, access instructions and known or suspected site hazards, buried services and other constraints. See Volume 1 Clause 2.3. |

|  |  |
| --- | --- |
|  |  |
| Party with responsibility to create Site Information Pack | 🞎 Client🞎 Consultant |
| Location of Site Information Pack | xxxx |

## Key Performance Indicators (optional)

|  |
| --- |
| List the most important aspects of the project to the client. For example, knowing that maintaining local community goodwill is more important to the client than programme would allow the Consultant or Contractor to make decisions about appropriate methodologies and working hours to minimise disruption. |

xxxx

# Project specific tender instructions

## Roles in this procurement process

|  |
| --- |
| The table below gives a typical set of roles for procuring a ground investigation. The Client, in consultation with a Geotechnical Professional, shall select the most appropriate procurement option to their project risk profile. For some projects different arrangements may be required which shall be defined below. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Option A | Option B | Option C | Option D | Option E |
| Scoping of ground investigation | Consultant’s Geotechnical Professional | Consultant’s Geotechnical Professional | Consultant’s Geotechnical Professional | Client’s Geotechnical Professional | Client’s Geotechnical Professional |
| Filling in Vol 2 sections 2 & 3 | Client | Client | Client | Client | Client |
| Filling in Vol 2 sections 4 onwards | Consultant | Consultant | Consultant | Client’s Geotechnical Professional | Client’s Geotechnical Professional |
| Filling in Vol 3 quantities | Consultant | Consultant | Consultant | Client’s Geotechnical Professional | Client’s Geotechnical Professional |
| Filling in Vol 3 rates for work undertaken by Consultant | Consultant | Consultant | Consultant | Consultant | Consultant |
| Obtaining prices from subcontractors / suppliers to undertake physical works or specialist activities | Consultant | Consultant | Client | Consultant | Client |
| Filling in Vol 3 rates for work undertaken by Contractor / Laboratory | Consultant (or Consultant’s subcontractor) | Consultant | Client (or Client’s subcontractor) | Consultant (or Consultant’s subcontractor) | Client (or Client’s subcontractor) |
| Engaging subcontractors / suppliers to undertake physical works or specialist activities | Consultant | Client | Client | Consultant | Client |

The following procurement option applies to this project (select from table above or describe alternative):

xxxx

## Alternative tenders

Alternative tenders presenting a different investigation approach shall be delivered in addition to conforming tenders and in the same format.

## Programme

|  |  |
| --- | --- |
| Item | Due date / time |
| Tender queries close | xxxx |
| Tenders due | xxxx |

## Tender delivery instructions

|  |
| --- |
| Many clients will require specific tender delivery processes. These may include specific document formats, delivery addresses and envelope labelling requirements. These requirements should be defined here. |

xxxx

## Required supporting information and documents

|  |
| --- |
| Many clients will require specific documentation to go with the tender. These may include insurance certificates, statements of professional status, referees and examples of previous projects. These requirements should be defined here. |

Please provide the following documents to support your tender:

* Xxxx
* Xxxx

# Scope of investigation

|  |
| --- |
| The scope should be outlined here. There is no need to repeat here anything included in Volume 3 (Bill of Quantities) or Volume 1 (Generic Specification). |

xxxx

## Investigation Locations

|  |  |
| --- | --- |
| Information provided | Location, title or link to document |
| Map/plan showing investigation locations | Appendix A |
| Table of investigation location grid references and methodology | Appendix B |
| Reinstatement requirements | Appendix C |

## Permit and consent requirements

|  |
| --- |
| Where a clause in Volume 1 needs to be deleted to meet project requirements, list it below. There is no need to delete non-applicable clauses (eg tests that are not being undertaken) |

The following permits and consents shall be obtained by the indicated party:

|  |  |
| --- | --- |
| Permit / Consent | Party responsible for documenting permit / consent and obtaining all associated permissions. |
| Traffic Management | 🞎 Client 🞎 Consultant 🞎 Contractor 🞎 Not required |
| Resource Consent | 🞎 Client 🞎 Consultant 🞎 Contractor 🞎 Not required |
| Landowner access permission | 🞎 Client 🞎 Consultant 🞎 Contractor 🞎 Not required |
| WorkSafe NZ excavation notification | 🞎 Client 🞎 Consultant 🞎 Contractor 🞎 Not required |
| Neighbour / stakeholder notification | 🞎 Client 🞎 Consultant 🞎 Contractor 🞎 Not required |
| Heritage NZ consent | 🞎 Client 🞎 Consultant 🞎 Contractor 🞎 Not required |
| Iwi consultation | 🞎 Client 🞎 Consultant 🞎 Contractor 🞎 Not required |

## Sample and core management

The samples and cores shall be delivered according to the following schedule:

|  |  |  |
| --- | --- | --- |
|  | Core boxes | Laboratory samples |
| Address | xxxx | xxxx |
| Delivery frequency | xxxx | xxxx |
| Special instructions | xxxx | xxxx |

The following long term core storage shall be provided by the contractor:

xxxx

# Project specific amendments to Master Specification

## Deleted clauses

|  |
| --- |
| Where a clause in Volume 1 needs to be deleted to meet project requirements, list it below. There is no need to delete non-applicable clauses (eg tests that are not being undertaken). |

xxxx

|  |  |
| --- | --- |
| Clause deleted | Comment |
| xxxx | xxxx |
| xxxx | xxxx |
| xxxx | xxxx |
| xxxx | xxxx |

## Amended clauses

|  |
| --- |
| Where a clause in Volume 1 needs to be amended to meet project requirements, list it below. Where the new clause wording is particularly long, reference the location for the new clause rather than typing into the table. |

xxxx

|  |  |
| --- | --- |
| Clause amended | New clause wording (or reference) |
| xxxx | xxxx |
| xxxx | xxxx |
| xxxx | xxxx |
| xxxx | xxxx |

# Additional requirements

|  |
| --- |
| List all project specific requirements not covered by the Master Specification in this section. For example, this section may be used to specify the required core orientation tools, or to define testing not covered in the Master Specification. |

xxxx

1. Exploratory Locations Plan

|  |
| --- |
| Insert a location plan showing the physical location of each Exploratory Location relative to the site boundaries and other physical features. A link to another source (such as an online map) is also appropriate. |

xxxx

1. Table of Investigation Locations

The table included with the standard specification can be replaced with a project specific variant where suitable.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Location ID (eg BH number) | Method (enter Specification Clause) | Size / diameter | Target depth (m) | In-situ testing | Sampling | Backfill / installation | Access restrictions and other specific instructions |
| *Example BH212* | *2.4* | *HQ* | *24* | *SPT @ 1.5m centres* | *U54 in clays* | *Standpipe piezometer* | *Gate key required. No access before 10:00. Must leave site before 17:00 each day.* |
| xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

1. Reinstatement requirements

|  |  |
| --- | --- |
| Location ID (eg BH number) | Reinstatement requirements |
| *Example BH212* | *Install concrete pad around piezometer with 1m upstand. Upstand to be painted orange and locked with a padlock.* |
| xxxx | xxxx |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |