

1.1B)

Performance Provisions

Part 2.1 Structure

Explanatory information:

Objective

O2.1

The Objective is to—

- (a) safeguard people from injury caused by structural failure; and
- (b) safeguard people from loss of amenity caused by structural behaviour; and
- (c) protect *other property* from physical damage caused by structural failure; and
- (d) safeguard people from injury that may be caused by failure of, or impact with, glazing.

Functional statements

F2.1

- (a) A building or structure is to withstand the combination of loads and other actions to which it may be reasonably subjected.
- (b) Glazing is to be installed in a building to avoid undue risk of injury to people.

Performance Requirements

P2.1.1 Structural stability and resistance

- (a) A building or structure, during construction and use, with appropriate degrees of reliability, must—
 - (i) perform adequately under all reasonably expected design actions; and
 - (ii) withstand extreme or frequently repeated design actions; and
 - (iii) be designed to sustain local damage, with the structural system as a whole remaining stable and not being damaged to an extent disproportionate to the original local damage; and
 - (iv) avoid causing damage to *other properties*, by resisting the actions to which it may reasonably be expected to be subjected.
- (b) The actions to be considered to satisfy (a) include but are not limited to—
 - (i) permanent actions (dead loads); and
 - (ii) imposed actions (live loads arising from occupancy and use); and
 - (iii) wind action; and
 - (iv) earthquake action; and
 - (v) snow action; and
 - (vi) liquid pressure action; and
 - (vii) ground water action; and
 - (viii) rainwater action (including ponding action); and
 - (ix) earth pressure action; and
 - (x) differential movement; and
 - (xi) time dependent effects (including creep and shrinkage); and
 - (xii) thermal effects; and
 - (xiii) ground movement caused by—
 - (A) swelling, shrinkage or freezing of the subsoil; and
 - (B) landslip or subsidence; and
 - (C) siteworks associated with the building or structure; and

Performance Provisions

- (xiv) *construction activity actions*; and
- (xv) termite actions.
- (c) The structural resistance of materials and forms of construction must be determined using five percentile characteristic material properties with appropriate allowance for—
 - (i) known construction activities; and
 - (ii) type of material; and
 - (iii) characteristics of the site; and
 - (iv) the degree of accuracy inherent in the methods used to assess the structural behaviour; and
 - (v) action effects arising from the differential settlement of foundations, and from restrained dimensional changes due to temperature, moisture, shrinkage, creep and similar effects.
- (d) Glass installations that are at risk of being subjected to human impact must have glazing that—
 - (i) if broken on impact, will break in a way that is not likely to cause injury to people; and
 - (ii) resists a reasonably foreseeable human impact without breaking; and
 - (iii) is protected or marked in a way that will reduce the likelihood of human impact.

P2.1.2 Buildings in flood areas

- (a) A building in a *flood hazard area* must be designed and constructed, to the degree necessary, to resist flotation, collapse or significant permanent movement resulting from the action of hydrostatic, hydrodynamic, erosion and scour, wind and other actions during the *defined flood event*.
- (b) The actions and requirements to be considered to satisfy (a) include but are not limited to—
 - (i) flood actions; and
 - (ii) elevation requirements; and
 - (iii) foundation and footing requirements; and
 - (iv) requirements for enclosures below the *flood hazard level*; and
 - (v) requirements for structural connections; and
 - (vi) material requirements; and
 - (vii) requirements for utilities; and
 - (viii) requirements for occupant egress.

Limitation:

P2.1.2 only applies to a Class 1 building.

1.1C) Extract from WYDC Pre Cast Specification

2 MATERIALS

2.1 CONCRETE

Materials shall comply with the requirements of AS 3600 and as follows.

Cement

Shall be Type GP Portland Cement conforming with AS 3972.

Aggregate

Sand and gravel shall conform in quality and grading with the requirements of AS 2758.1. Generally, a 20 mm max. size aggregate is to be used. However, the Trade Contractor shall allow to use 10 mm max. size aggregate where necessary in this section to obtain the class of finish specified.

Water

Shall be free from matter harmful to concrete and reinforcement.

Flyash and Slag

Flyash may be incorporated as a replacement for part of the cement content in the concrete. The Flyash shall comply with AS/NZS 3582.1 and the amount incorporated shall not exceed 25% by weight of the cement/Flyash blend.

Flyash used in concrete specified to be sulphate resistant shall be manufactured in Queensland.

Slag shall not be used in concrete without the written permission of the Managing Contractor.

Admixtures

■ Admixtures Generally.

Concrete admixtures shall not be used without the approval of the Managing Contractor. Requests for the use of admixtures shall be made in writing to the Managing Contractor giving the name of the admixture, its properties, and its effects in concrete and stating the need for use of such admixtures. Any admixtures used shall conform in properties and use with the requirements of **AS 1478.1** and shall be free of chlorides, fluorides and nitrates. The use of Calcium Chloride will not be permitted.

■ Super Plasticiser.

An approved super plasticiser may be added to concrete if necessary to achieve the specified shrinkage strain or to construct columns or walls of narrow cross section if necessary to achieve the specified class of finish.

■ Waterproofing Additive

To locations noted, supply and install Water Proofing Additive as described below:

Location: To all slabs on ground with exposed slab edges, lift pit base slab, retaining walls, precast and tilt-up concrete walls.

Description: Xypex Waterproofing additive concrete crystal growth additive waterproofing system: Batch Xypex Admix C-1000 NF (or approved equivalent) to be added to the concrete mix in strict accordance with the Manufacturer's recommendations. Treat construction joints to the recommendations of the manufacturer. All pipe penetrations through the above concrete elements shall be wrapped with Xypex Kuniseal C-31 DS or approved equivalent.

■ Storage of Materials

Shall conform to the requirements of AS 3600.

2.2 CONCRETE PROPERTIES

Class

Concrete shall be special class in accordance with AS 1379.

Strength

Concrete shall have a minimum compressive strength at 28 days of 32 MPa unless noted otherwise in the documentation and is the minimum required for In-service structural requirements and durability.

The Precast and Tilt-up Contractor shall increase this compressive strength as necessary to suit their design requirements for fabrication, handling, storage and erection loads.

2.3 CONCRETE MIX DESIGN

Supply the following information regarding the mix design of each grade of concrete used for the construction of the precast panels before commencement of panel construction:

- The source of supply of all materials used in the mix.
- The amounts of all materials.
- The gradings of aggregates and sands.

2.4 PANEL FIXING

The materials used in the fabrication of panel fixings shall conform with the requirements of the Structural Steel specification and with AS/NZS 1214 and AS/NZS 4680. Stainless steel fixings shall be fabricated from the Grade of stainless steel specified on the drawings.

2.5 SURFACE TREATMENT OF FIXINGS AND INSERTS

All embedded steel fixings and inserts shall be hot dip galvanised in accordance with AS/NZS 4680.

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2.6 JOINTING MATERIALS

General

Use compatible jointing materials, including sealants, mastics, primers, gaskets, compressible fillers and joint covers as recommended by the material manufacturers for the location and type of joint which do not stain concrete.

Foamed Materials

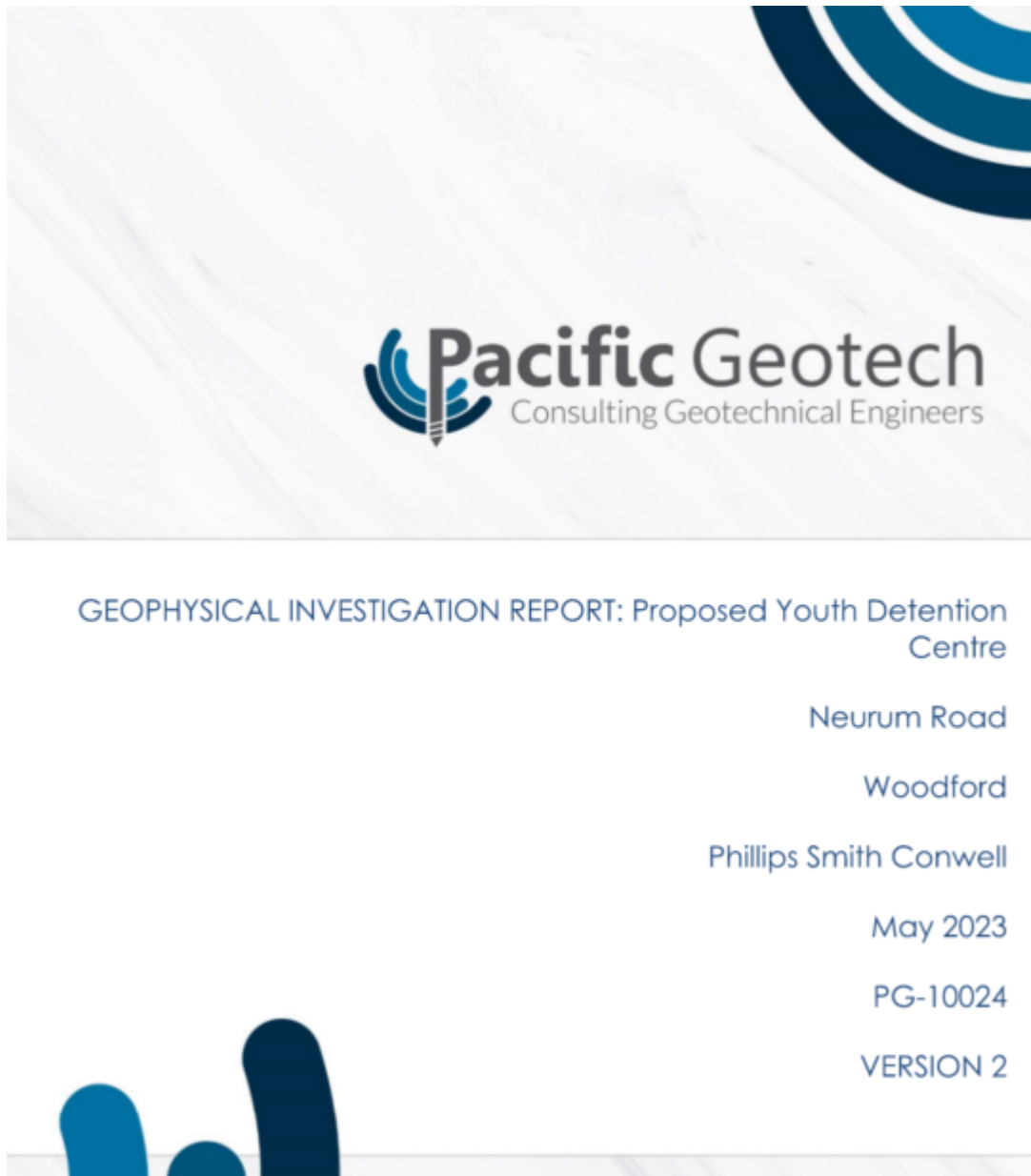
Foamed materials used in compressible fillers shall be closed cell which do not absorb water.

Bond Breakers

Use back-up materials including backing rods behind sealants which do not adhere to the sealant.

Sealant Colour

Item 1.2 Site / Soil Assessment



1.0 INTRODUCTION

This report contains the results of the geophysical investigation and includes the following information:

- Site Description
- MASW Seismic Results
- Excavation Considerations
- Additional Site Commentary

This report should be read in conjunction with Pacific Geotech geotechnical report 'PG-10024, 2023-04-05, GR VER 1.'

3.0 SITE DESCRIPTION

The site of the proposed development is located at Neurum Road, Woodford

At the time of the investigation, the site was generally clear of any existing structures. An underground irrigation network is understood to cross the site, together with high voltage power lines.

Vegetation comprised grass coverage with scattered trees and shrubs across the site.

9.0 SITE CLASSIFICATION

Site investigation and laboratory test results indicate the development site would be classified Class 'P' in accordance with AS 2870-2011 'Residential Slabs and Footings' due to the depth of fill.



The results of the site investigation indicate that there is variation in soil types and associated reactivity across the site. In the elevated portions of the site, shallow weathered rock was encountered. These areas would be considered a Class 'S' classification in accordance with AS 2870-2011.

In the lower lying portions of the site where greater clay profiles were encountered, these areas would be considered Class 'H1' in their existing condition. Final site classifications will be significantly influenced by the proposed bulk earthworks and the nature of the fill material placed over the natural clay soils.

In order to reduce the site classification in these more reactive, low lying areas, consideration could be given to placing a low reactive fill (I.S.S <1.0%) over the