

Title	Prepare for and install continuous flight auger piles for onsite piling and deep foundation works		
Level	4	Credits	15

Purpose	<p>People credited with this unit standard are able to, for onsite piling and deep foundation works:</p> <ul style="list-style-type: none"> – prepare continuous flight auger (CFA) piles for installation; and – install CFA piles.
----------------	--

Classification	Infrastructure Works > Structural Foundations
-----------------------	---

Available grade	Achieved
------------------------	----------

Guidance Information

- 1 Learning and assessment within this unit standard must be carried out in a construction or infrastructure works environment in accordance with industry requirements and the following legislation, as relevant to the role, and any subsequent amendments:
 - Health and Safety at Work Act 2015;
 - Resource Management Act 1991;
 - Heritage New Zealand Pouhere Taonga Act 2014;
 - Traffic Regulations 1976;
 - Land Transport Rule: Vehicle Dimensions and Mass 2016;
 - Land Transport Rule: Heavy Vehicles 2004;
 - *Structural Engineering Society New Zealand (SESOC), New Zealand Geotechnical Society (NZGS) Construction Specification Bored and Driven Piles*: June 2022, available from www.nzgs.org;
 - *Excavation Safety Good Practice Guidelines*; available from Worksafe www.worksafe.govt.nz;
 - Operator Safety Manual for Earthmoving Machinery, available from Civil Contractors New Zealand <http://connexis.org.nz/>.
- 2 Definitions

Continuous flight auger (CFA) refers to piles constructed by drilling a hollow stemmed auger into the ground to the required depth. Once the auger has drilled to the required depth concrete is pumped under pressure through the auger stem to the toe of the pile. The auger is then withdrawn in a controlled manner until the bore is concreted to ground level. Steel reinforcement may be placed into the fluid concrete.

Industry requirements may refer to but are not limited to relevant policies, processes, methodologies, industry codes of practice, site specific health and safety plans, standard operating procedures, site safety plans, quality plans, work plans, traffic management plans, contract work programmes, job safety analysis, safe work method statements, job instructions, manufacturer's requirements, contract specifications, manuals, procedural documents.

Job specifications are instructions given to the operator prior to undertaking a job. They may include site safety instructions, contract drawings, and written memos.

Quality plan refers to any contract specific policy, processes, procedures, testing or certification requirements.

Work plan refers to any job specifications or plans given to the operator prior to undertaking a job.

Outcomes and performance criteria

Outcome 1

Prepare CFA piles for installation for onsite piling and deep foundation works.

Performance criteria

- 1.1 Advantages of using CFA piles are explained in terms of suitability for the context.
- 1.2 Notification requirements are checked, lift plans are confirmed, method statements obtained, issued for construction drawings and experience of the rig operator are confirmed.
- 1.3 Quality plan requirements are confirmed and actioned.
- 1.4 Pile set out is completed in accordance with job specifications.
- 1.5 Permit to excavate is obtained.
- 1.6 Mobilisation to site is completed.
- 1.7 Rig is set up in terms of stability, correct position, and in accordance with the work plan.
- 1.8 Calibrations are completed in terms of plant, pile depth, concrete volume, check of depth sensors, and pressure requirements.
- 1.9 Mix design and spread test meet the requirements of the job specifications and any issues are communicated to a supervisor.

Outcome 2

Install CFA piles for onsite piling and deep foundation works.

Performance criteria

- 2.1 Current service plans and requirements for the area are obtained including the permit to dig.
- 2.2 Drill rig is positioned for the chosen installation method.
- 2.3 Grout or concrete supply lines are primed to ensure continuous pumping occurs through the full length of the line.
- 2.4 End cap at the base of the hollow stem is fitted correctly.
- 2.5 Auger drilling is completed until the final depth is reached and monitoring systems provide communication and direct feedback to the pile operator.
- 2.6 Auger extraction from the ground is completed and grout or concrete is pumped in.
- 2.7 The supply of grout or concrete is monitored in line with the monitoring system and checks.
- 2.8 Concrete phase is completed, and area is cleared in terms of the removal of soil and spoil.
- 2.9 Reinforcement is inserted to meet job specifications for structural capacity, anchorage, and tied for handling to prevent distortion.
- 2.10 Job specifications for pile position and height are met.
- 2.11 Pile record and post operational procedures are completed.

Planned review date	31 December 2028
----------------------------	------------------

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	27 July 2023	N/A

Consent and Moderation Requirements (CMR) reference	0101
--	------

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Waihanga Ara Rau Construction and Infrastructure Workforce Development Council at qualifications@WaihangaAraRau.nz if you wish to suggest changes to the content of this unit standard.