

REPUBLIC OF SOUTH AFRICA



National Department of Housing

ENGINEERING SERVICES

Project Linked Greenfield Subsidy Project Developments

*Generic Specification GFSH-8
August 2002*

INTRODUCTION

The following engineering services are required at various stages in a housing project:

- *civil engineering;*
- *electrical;*
- *structural; and*
- *geotechnical*

The civil and electrical engineering services relate to the municipal engineering services while the structural and geotechnical services relate to the houses foundation solutions.

It should be noted that the geotechnical services described in this specification are unrelated to the geotechnical site investigation, which services are addressed in the generic specification GFSH-2.

Civil and electrical engineering services are required prior to and after the confirmation of subsidies.

Structural and geotechnical services are generally required only after the confirmation of subsidies and are not required where houses are constructed on sites which are subjected to insignificant ground movements and where the design and construction rules relating to foundations of the Home Building Manual are followed. i.e: on class C, H, R and S sites. Foundation solutions can be either structural (e.g. the provision of raft foundations, the placement of reinforcement in footings in walls and foundations, the provision of articulation joints, etc.) or geotechnical (the provision of soil rafts, compaction under footings, impact rolling, etc.).

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1. SCOPE

This specification contains requirements that are generally applicable for the provision of engineering services on Housing Developments.

2. NORMATIVE REFERENCES

Department of Housing. The National Housing Code.

Department of Housing. Securing Land for Housing Developments. Generic specification GFSH-1.

Department of Housing. NHBRC Warranty Scheme Enrolments and Requirements. Generic Specification GFSH-6.

Department of Housing. Design and construction of municipal engineering services. Generic specification GFSH-10.

Department of Housing. Design and construction of Houses. Generic specification GFSH-11.

National Home Builders Registration Council: Home Building Manual.

3. DEFINITIONS

Competent Person (Engineering): a natural person who:

- a) is registered in terms of the Engineering Professions Act, 2000 (Act No. 46 of 2000) as either a Professional Engineer or a Professional Engineering Technologist; and
- b) has the necessary experience and training to undertake work associated with the required engineering service.

Competent Person (Geotechnical): a natural person who:

- a) is registered in terms of the Engineering Professions Act, 2000 (Act No. 46 of 2000) as a Professional Engineer or a Professional Engineering Technologist;
- b) has the necessary experience and training to undertake geotechnical engineering work in relation to housing developments; and
- c) holds the indemnity insurance prescribed by the Council.

Competent Person (Structural): a natural person who:

- a) is registered in terms of the Engineering Professions Act, 2000 (Act No. 46 of 2000) as either a Professional Engineer or a Professional Engineering Technologist;
- b) has the necessary experience and training to undertake structural engineering work in relation to housing developments; and
- c) holds the indemnity insurance prescribed by the Council.

Competent Person (Town Planning): a person described as such in the generic specification GFSH-3 (Town Planning and related Land Surveying Services).

Construction Phase: the period in the project cycle that follows on from the design phase.

Council: the National Home Builders Registration Council.

Design Phase: the period in the project cycle between the conclusion of the project agreement and the commencement of installation of municipal services.

Developer: the agency that completes a feasibility study and undertakes an approved project by concluding a project agreement with the MEC responsible for housing matters.

Note: Only a municipality or a Provincial Housing Department, where a municipality does not yet have appropriate technical, financial or managerial capacity to act as a Developer, may be a Developer.

Feasibility Study Report: a report on the findings of a feasibility study prepared by a Developer in accordance with the provisions of the generic specification GFSH-1 (Securing Land for Housing

Developments) for submission to a Provincial Government for purposes of confirmation of subsidies which contains components of technical and financial risk analysis and evaluation of the project against criteria set out in Chapter 3, Part 3 of the National Housing Code.

Housing Development: a project approved in terms of Chapter 3, Part 3 of the National Housing Code for the servicing of land and construction of houses for sale to beneficiaries using housing subsidy funds.

Investigation Phase: the period in the project cycle from the reservation by an MEC of an Identified Land Parcel for a housing development to the submission of a Project Description.

Preliminary Layout Phase: the period in a project cycle from the granting of the conditional approval for a housing development project to the submission of the Feasibility Study Report to the MEC.

Project Description: a document prepared by an Applicant in accordance with the provisions of the generic specification GFSH-1 (Securing Land for Housing Developments) for submission to a Provincial Government for evaluation of an Identified Land Parcel for conditional approval of subsidies for a housing development on that land.

4. OBJECTIVES

4.1 Civil engineering objective

The objective is to provide the necessary civil engineering inputs, designs and construction monitoring during identified sub-phases of a Housing Development in order to satisfy certain provisions of the generic specification GFSH-10 (Design and Construction of Municipal Engineering Services).

4.2 Electrical engineering objective

The objective is to provide the necessary electrical engineering inputs, designs and construction monitoring during identified sub-phases of a Housing Development in order to satisfy certain provisions of the generic specification GFSH-10 (Design and Construction of Municipal Engineering Services).

4.3 Structural engineering objective

The objective is to provide undertake rational designs of the structural elements of houses in accordance with the provisions of the Home Building Manual in order to satisfy certain provisions of the generic specification GFSH-11 (Design and Construction of Houses) and to monitor construction to ensure that design intent is met.

4.4 Geotechnical engineering objective

The objective is to provide geotechnical foundation solutions for houses founded on problem soil horizons in order to satisfy certain provisions of the generic specification GFSH-11 and to monitor construction to ensure that design intent is met.

4.5 House structure quality assurance objective

The objective is to:

- i. monitor the construction of houses for compliance with the requirements of the National Home Builders Registration Council's technical requirements; and
- ii. certify compliance with the requirements of 5.3.5 of generic specification GFSH-6 (NHBRC Warranty Scheme enrolments and requirements) relating to the issuance to the Council of a completion certificate.

5. REQUIREMENTS

5.1 General

5.1.1 Competent Persons shall in the provision of their services observe all relevant statutes, by-laws and associated regulations, standards of professional conduct and "best practice", as laid down, or recommended, by their respective professional associations, if any.

5.1.2 Construction monitoring staff shall be provided to perform the tasks associated with one of the following four levels, as provided for in the specification data.

Level 1 :-

- a) monitor the outputs from another party's quality assurance programme against the requirements of the plans and specifications;
- b) visit the works at a frequency nominated by the Developer to review important materials, critical work procedures and/or completed elements or components; and
- c) be available to advise contractors on the technical interpretation of the plans and specifications.

Level 2 :-

- a) review, preferably at the earliest opportunity, a sample of each important:
 - i) work procedure; and
 - ii) construction materialfor compliance with the requirements of the plans and specifications and review representative samples of important completed work prior to enclosure or completion as appropriate;
- b) visit the works at a frequency nominated by the Developer to review important materials, critical work procedures and/or completed elements or components; and
- c) be available to provide the contractor with technical interpretation of the plans and specifications.

Level 3 :-

- a) maintain a part-time presence on site to review random samples and review important completed work prior to enclosure, or on completion, as appropriate; and
- b) be available to provide the contractor with technical interpretation of the plans and specifications.

Level 4:

- a) maintain a full time presence on site to constantly review
 - i) work procedures; and
 - ii) construction materialsfor compliance with the requirements of the plans and specifications and review completed work prior to enclosure or on completion as appropriate; and
- b) be available to provide the Contractor with technical interpretation of the plans and specifications.

5.2 Civil engineering requirements

The Competent Person (Engineering) shall satisfy the civil engineering objective stated in 4.1 and as a minimum, undertake the following:

- a) during the Investigation Phase, broadly assess the feasibility of the Housing Development and prepare a report for the use of the Competent Person (Town Planning), taking into account factors such as possible floodlines, topography, the availability of bulk water supply, stormwater systems and sewer connections, the provision of access roads and public transport, stormwater drainage requirements, and subsurface materials, all in the context of not incurring excessive financial cost;
- b) during the Preliminary Layout Phase, establish the floodlines for the proposed township and, on the basis of the layout produced by the Competent Person (Town Planning), prepare a report containing detailed proposals and cost estimates for the provision of water supply, sewerage, stormwater drainage and internal roads, as well as any bulk services for which the Developer is responsible;
- c) during the Design Phase, prepare designs, working drawings and tender documents for the construction of water and sewer reticulations, internal roads and stormwater drainage and any other civil engineering works, whether internal, or external, for which the Developer is responsible and analyse the tenders received and make recommendations for the acceptance of tenders; and
- d) during the Construction Phase provide construction monitoring staff for one of four levels of service described in 5.1.2.

5.3 Electrical Engineering requirements

The Competent Person (Engineering) shall satisfy the electrical engineering objective stated in 4.2 and as a minimum, undertake the following:

- a) during the Investigation Phase, prepare an outline report, for use of the Competent Person (Town Planning), on the feasibility, at not unduly excessive cost, of providing bulk electrical power to the Project for the purposes of security lighting and any other purpose indicated by the Developer;
- b) during Preliminary Layout Phase, prepare a report containing detailed proposals and cost estimates for the provision of security lighting, any additional internal electrical services required and any bulk supply provisions for which the Developer is responsible;
- c) during the Design Phase, prepare designs, working drawings and tender documents for the installation of security lighting, any additional internal electrical services required and any bulk supply provisions for which the Developer is responsible and analyse the tenders received and make recommendations for the acceptance of tenders; and
- d) during the Construction Phase provide construction monitoring staff for one of four levels of service described in 5.1.2.

5.4 Structural engineering requirements

The Competent Person (Structural) shall satisfy the structural engineering objective stated in 4.3 and during the Construction Phase provide construction monitoring staff for one of four levels of service described in 5.1.2.

5.5 Geotechnical Engineering requirements

The Competent Person (Geotechnical) shall satisfy the geotechnical engineering objective stated in 4.4 and during the Construction Phase provide construction monitoring staff for one of four levels of service described in 5.1.2.

5.6 House structure quality assurance requirements

The Competent Person (Structural) shall satisfy the house quality assurance stated in 4.5 and during the Construction Phase provide construction monitoring staff for one of four levels of service described in 5.1.2.