



8925 Foundations to Structures

REVISION 13/03/24

8925.1 Introduction

This Supplementary Specification refers to the construction of the foundations for miscellaneous / prefabricated buildings, pedestrian bridges and boardwalks, and the like, shown on the project Drawings. This specification does not cover pile foundations.

8925.1 Definitions of Terms

This section describes any term which are specific to this specification or requires clarification due to an ambiguous understanding.

The terms used in this Technical Specification shall be as defined in Clause 2 of MRTS01 *Introduction to Technical Specifications*. Additional terms used in this Technical Specification are defined in the Table below.

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|----------------------|--|
| Foundation / Footing | Defined as the base to which the project structure is to be fixed to, it is also defined to include a slab where the type of structure incorporates this as part of its design and construction requirement. |
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8925.2 Referenced Documents

This supplementary specification shall be read in conjunction with the following:

- MRS01 "Introduction to Specifications"
- MRTS01 "Introduction to Technical Specifications";
- MRS04 & MRTS04 "General Earthworks"
- MRS70 & MRTS70 "Concrete"
- MRS71 & MRTS71 "Reinforcing Steel" and referenced documents
- MRS50 & MRTS50 "Specific Quality System Requirements"
- MRC Supplementary Specification 8924 Prefabricated Amenities Block
- MRC Supplementary Specification 8924_1 Prefabricated Amenities Block Annexure
- MRC Supplementary Specification 8925_1 Foundations to Structures Annexure
- MRC Supplementary Specification 8302 Elevated Composite Boardwalk
- MRC Supplementary Specification 8302_1 Elevated Composite Boardwalk Annexure
- AS3600 *Concrete Structures*
- AS3610 *Formwork for construction*
- AS1379 *Specification and supply of Concrete*
- AS3610 *Formwork for Concrete*
- AS/NZS 4671 *Steel Reinforcing Materials*
- AS6669 *Plywood-Formwork*
- Plumbing and Drainage Act 2018
- Plumbing and Drainage Regulation 2019,
- National Construction Code 2022
- AS 3500 series of the Australian Standards Plumbing and Drainage.
- AS/NZS 3000 *Electrical Installations*
- Queensland Building Regulation Form 12 "Aspect inspection certificate (appointed competent person)";
- Queensland Building Regulation Form 15 "Compliance certificate for building design or specification";
- Queensland Building Regulation Form 16 "Inspection certificate";



- Queensland Department of Housing and Public Works “Guidelines for the assessment of competent persons”;
- MRC “D20 Drawings and Documentation Guidelines”;
- Geotechnical Report prepared for the project design and construction
 - Manufacturers drawings and specification where MRC Std Drawings are not referenced
 - Project Drawings and specifications.

8925.3 Description of Work Items

Work items incorporated by this supplementary specification are identified in Section 8925.6 and 8925.7 with individual activities/tasks for measurement and payment sourced from the Bill of Quantities and listed in MRC Supplementary Specification Annexure 8925_1 Foundations to Structures Section 1

8925.4 Quality Systems Requirements

8925.4.1 Std Test Methods (Testing Regime)

The following minimum testing regime applies to this specification:

Unless otherwise stated the manufacturer certification of the structure to be mounted on the footings shall form the basis of the requirements, including Form 12/15 as required.

Civil works activities associated with the subgrade/floor of excavation, bed preparation, concrete pours, shall be tested as per the relevant MRTS specification MRTS04, and MRTS70 unless otherwise approved by the Superintendent.

8925.4.2 Hold Points, Witness Points and Milestones

The following table represents the minimum inspection requirements for this specification;

| Activity | Inspection Type | When |
|---|-----------------|---|
| Construction Procedure and Formwork design submitted, other permits and certifications in place and other submissions as required by Clause 8107.5 | Milestone | 4 Weeks prior to works commencing |
| Inspection of materials and documentation | Hold Point | As delivered to site |
| Layout survey | Hold Point | During site survey layout. |
| Foundation Excavation Floor, including unsuitable material | Hold Point | At completion of excavation and compacting as required |
| Rag bolt assembly, hold down anchors, or bracket connections inspected for compliance to the design drawings and specific footing location requirements | Hold Point | Prior to use and set up |
| Supporting formwork/falsework held rigidly in place and surveyed for alignment as required by the design drawings | Hold Point | At completion of placing of footing assembly or anchors |
| Surveyed level of Rag bolt assembly, hold down anchors, or bracket connections compliant with design drawings | Hold Point | At completion of placing of footing assembly or anchors |
| Installation of utility conduiting and draw wire/rope, and drainage (as required by design drawings) | Witness Point | Prior to concrete prepour inspection taking place |



| | | |
|---|---------------|--|
| Prepour inspection of formwork and falsework, and reinforcing installation including geometric details of compliance to design drawings | Hold Point | Prior to concrete pour |
| Placing of Concrete | Witness Point | During pour activities |
| Rag bolt assembly, hold down anchors, bracket connections on correct alignment and level | Hold Point | Post pour prior to concrete setting |
| Finishing of concrete | Witness Point | Prior to concrete hardening |
| Curing of Concrete | Witness point | Immediately after pouring of concrete setting |
| Approval by Superintendent to strip formwork and falsework | Hold Point | Minimum 72 hours after pouring |
| Dressing of Concrete | Witness Point | After stripping of formwork and falsework |
| Application of fillers and sealants | Witness Point | After stripping of formwork and falsework |
| Approval to Backfill (as required) | Hold Point | After removal of formwork has occurred |
| Works as Executed documentation, including Form 16 as required | Hold Point | 4 weeks prior to practical completion being requested. |

8925.4.3 Construction Tolerances

Unless otherwise approved by the Superintendent the following construction tolerances shall apply to this Specification;

The construction activity outcome shall not depart from the widths, lengths, heights, and shapes specified by the relevant specifications as applies to this specification;

- Structure manufacturers dimensions and tolerances for footing set up
- Concrete tolerances in accordance with MRTS70 Concrete.
- Earthworks tolerances in accordance with MRTS04 General Earthworks.

Tolerances specific to the project are detailed on the design drawings and are included in Clause 2 of MRC Supplementary Specification Annexure 8925_1 Foundations to Structures

8925.5 Preliminary

The Contractor is to submit or ensure the following documentation is in place 4 weeks prior to delivery or a prestart is conducted.

- Construction procedure
- Formwork design
- Geotechnical or site classification reports
- RPEQ certification of footing design including Form 15 as required
- Approved building permit for site (as required)

(MILESTONE)

Other requirements unique to the project will be listed in the MRC Supplementary Specification Annexure 8925_1 Foundations to Structures

(MILESTONE)



8925.5.1 Materials

Supply of all materials to site is the responsibility of the Contractor at their cost, where items are Principal supplied the nominated storage site shall be obtained from MRC Supplementary Specification Annexure 8925_1 Foundations to Structures Section 3 and shall be the point of supply.

Materials used to dress the concrete, and fillers and sealants are to be approved by the Superintendent as part of the submission with the Construction Procedure.

(MILESTONE)

Unless instructed otherwise by the Superintendent existing components to be salvaged and the nominated storage site will be detailed in MRC Supplementary Specification 8925_1 Section 4. This will also include any reuse of existing items.

All civil items and materials shall be supplied in accordance with their relevant MRTS Specification.

Materials manufactured from steel as well as protective coatings shall be delivered with accompany certifications to their relevant Australian Standard.

8925.6 Construction

This section lays out the works operations with more detail based on specific requirements of this supplementary specification. Some activities may appear to include items which are stated within other specifications, the purpose is to reinforce that requirement specific to this supplementary specification.

Specific construction requirements associated with these works is detailed in MRC Supplementary Specification Annexure 8925_1 Foundations to Structures Section 5

Delivery date of the structure to be mounted on the footings is to be confirmed by the Superintendent who is responsible for ensuring works are completed prior to delivery.

HOLD POINT

8925.6.1 Work Operations

Work operations included in these items include:

- a) **Work operations included in Clause 2.1.5 of MRS01 "Introduction to Standard Specifications"**
- b) **Supply of all materials, plant, and labour;**

All materials, plant, and labour required to carry out the works under this Specification is to be supplied by the Contractor.

All items delivered to site shall be inspected upon delivery to site prior to use. Any items which are damaged or not manufactured as required by the design drawings are not to be used and are to be returned to the supplier.

HOLD POINT

- d) **Site layout with Superintendent**

The final location of the footing/s (including slab as required) is to be marked out on site and shall be inspected and approved by an MRC representative prior to excavation commencing.

HOLD POINT

- f) **Carrying out excavations for foundation/s;**

Excavation of material to level and grade as per design drawings, dimensional tolerances to be compliant with the structure manufacturers requirements.

Bed/Subgrade is to be inspected for areas of unsuitable material

HOLD POINT



If unsuitable material is identified this is to be removed and replaced with approved material as per the instructions of the Superintendent

g) Utilising or disposing of excavated material;

Excess excavated materials shall be disposed of by the contractor or utilised as per Superintendents instructions. Material stockpiled shall ensure that all Environmental ESC measures are in place and maintained.

h) Bottom of Excavations (including compaction)

Where project drawings require a footing only, the bottom of the excavation shall be firm and be representative of the surrounding material. All loose material is to be removed from footing/s floor.

Where design drawings require a slab type footing the area shall be compacted to 97% SDD and tested at a frequency of 1/200m²

Excavated floor preparation is to be carried out as per MRTS04 and is to be presented for inspection by the Superintendent with inspections, geotechnical testing and geometric requirements applying unless stated otherwise in MRC Supplementary Specification Annexure 8925_1 Foundations to Structures.

HOLD POINT

j) Set up formwork, falsework, and reinforcing

All formwork and falsework shall be in accordance with AS3610 and the submitted and approved formwork design, any departure from this must be approved by the Superintendent.

Set up for the formwork and reinforcing shall include the installation of rag bolt assemblies or hold down anchors and ensure the requirement to hold in place without movement laterally or vertically to comply with the design drawings and structure manufacturers requirements.

k) Supply and placing rag bolt assembly, hold down anchors, or bracket connections (rivetted or bolted)

Rag bolt assembly, hold down anchors, or bracket connections (rivetted or bolted) shall be manufactured and supplied as required by the design drawings and/or the structure manufacturers specification. Prior to use they should be inspected and confirmation of design drawings and/or manufacturers specification has been complied with.

HOLD POINT

Placing of the assembly, anchors, or bracket connectors shall be as required by the design plans or manufacturers specification with any supporting formwork/falsework held rigidly in place to prevent movement during concrete placing works.

HOLD POINT

The tops of the assembly, anchors, or bracket connectors should be set so that they protrude out of the concrete, to allow for nuts, washers, baseplate and sufficient room underneath the baseplate for grouting and to allow sufficient thread above the top nut for securing of the structure as required by the footing type.

The threads of the bolts should be covered with grease and protected by a cap or tape to ensure that damage does not occur, through concrete adhesion caused during the pouring of the footing.

Bracket connections shall be installed in accordance with the manufacturer's requirements and design drawings, any variation to the design drawings shall be endorsed by the Contractors RPEQ Consultant and agreed to by the Superintendent prior to the works being carried out.

l) Penetrations, conduits and the like for services (as required)



This includes penetrations, conduits, and the like for services (as required) for installation in and through the footings. Type of utility should be clearly labelled or tagged for future reference and connection of the utility.

Where required by the design drawings and/or manufacturers drawings and specifications utility conduiting and draw wire/rope shall be supplied and installed.

All works must be carried out by qualified tradespersons with whom the various permits have been issued, this includes licenced plumbers and drainers, and licenced electricians with solar installation certification.

All conduiting to footings and lead in trenches shall be installed as required by the design drawings prior to the prepour inspection and pouring of the concrete footing. Lead in trenches to be backfilled and compacted.

The protrusion of these conduits and other services should be level with the tops of the rag bolt assembly or hold down anchors. These services should be sealed at both ends to avoid ingress of foreign matter. e.g. Sand, cement etc.

WITNESS POINT

n) Construction concrete footings

Each footing shall be inspected prior to concrete pouring. Inspections, geotechnical testing and geometric requirements applying as per MRTS70 unless otherwise stated in MRC Supplementary Specification Annexure 8925_1 Foundations to Structures.

HOLD POINT

All concrete works associated with the footings shall be carried out in accordance with MRTS70, and the design drawings. No foreign materials shall be allowed to fall or collapse into the footing during concrete works being carried out. If this occurs the concrete pour is to be stopped and the foreign material removed prior to continuing with the concrete pour or ceased and the footing has been re-excavated including any concrete already poured into the footing.

WITNESS POINT

Inspections, geotechnical testing and geometric requirements applying as per MRTS70 unless otherwise stated in MRC 8925_1 Foundations to Structures Annexure.

HOLD POINT

Prior to the concrete commencing to set the reinforcing, rag bolt assemblies, hold down anchors, or bracket connections shall be surveyed and checked for alignment and level to ensure they have not moved.

HOLD POINT

q) Finishing and curing of concrete

Concrete is to be finished in accordance with the design drawings.

WITNESS POINT

Immediately after the concrete pour for each footing is poured the rag bolt assemblies, hold down anchors, or bracket connections shall be surveyed and checked for alignment and level to ensure they have not moved.

HOLD POINT

Immediately after the initial set of the concrete, curing shall commence and continue for a minimum of seven days. Plastic sheeting shall not be used as part of the curing process.

WITNESS POINT

t) Stripping formwork and falsework, and clean up



Formwork and falsework is not to be stripped for a minimum 72 hours after pouring of concrete and loading not to occur for 7 days or as per design drawings with approval by the Superintendent granted.

HOLD POINT

The site is to be cleaned up when stripping of the concrete footings occurs, with ESC measures in place as required by the approved Erosion and Sediment Control Plan.

u) Dressing of concrete

The foundation/footing is to be dressed as per the design drawings and documents, the application of surface dressing to the concrete shall be with approved products and as required by the product manufacturer

WITNESS POINT

w) Sealing of joints and exposed penetrations

All joints and exposed penetrations shall be sealed using a filler and/or sealant. The application shall be as per the design drawings and documents and as required by the manufacturer's directions of use for the approved product.

WITNESS POINT

y) Connection of services (as required).

Supply of all materials and installation of services and utilities shall be carried out as required to connect to the source of the required utility as detailed in the design drawings.

All works must be carried out by qualified tradespersons with whom the various permits have been issued, this includes licenced plumbers and drainers, and licenced electricians with solar installation certification.

Unless otherwise detailed in the design drawings and included as part of the task measurement and payment connection and commissioning of services to the structure shall be carried out as required once the structure is in place.

8925.7 Post construction

a) Collection and submission of all As Constructed data including QA data requirements.

Contractor is to supply and submit Works as Executed documentation as required by *MRC D20 - Drawings and Documentation* for approval by the Superintendent 4 weeks prior to requesting a practical completion inspection.

HOLD POINT

Certification of works as required shall be submitted with the "Works as Executed" Plans and supporting documentation as required this includes where Form 12 or 16 is required.

Format of submitted "As Constructed" documentation shall be compliant with MRC Supplementary Specification 8919.

8925.8 Measurement and Payment

Construction of footings shall be measured for each type of footing.

Provision for these works shall be included in the scheduled unit rate for the items show in Clause 8925.3 of this Supplementary Specification and Annexure. No separate payment will be made for the works specified within this Supplementary specification or it's annexure.



Version Control:

| Version | Description | Reviewed / Endorsed | Date |
|---------|-------------------------|---------------------|------------|
| 1.0 | Original issue | | 07.04.2014 |
| 2.0 | Review of specification | Colin Sultana | 13.03.2024 |