

Supplementary Specification

**MRC Supplementary Specification
8514 Recycled Plastic Bollards**

Revision 3.0

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Contents

8514.4	Quality Systems Requirements	3
8514.4.1	Std Test Methods (Testing Regime)	3
8514.4.2	Hold Points, Witness Points and Milestones.....	4
8514.4.3	Construction Tolerances.....	4
8514.5	Preliminary	5
8514.5.1	Materials.....	5
8504.5.2	Storage of Materials	5
8504.5.3	Contractors Personnel.....	5
8514.5.4	General Workplace Health and Safety Requirements.....	6
8514.5.4.1	Council Work Health Safety Contractor Requirements.....	6
8514.5.4.2	Safe Systems of Work / Risk Assessment	6
8514.6	Construction	7
8514.6.1	Work Operations	7
8504.6.1.1	Work Scope	7
8514.6.2	Supplying All Materials;.....	7
8514.6.3	Existing Bollard Removal (as required).....	7
8514.6.5	Carrying Out Excavations to Design Depth and Alignment;.....	8
8514.6.6	Utilising or Disposing of Excavated Material;.....	8
8514.6.7	Bottom of Excavations.....	8
8514.6.8	Installation of Bollard/s	8
8514.6.9	Concrete Placement	9
8514.6.10	Clean up of Site.....	9
8514.7	Post Construction	9
8514.7.1	Collection and Submission of All As Constructed Data.	9
8514.8	Measurement and Payment.....	10



8514.1 Introduction

This supplementary specification applies to the supply and installation of recycled plastic bollards in accordance with Mackay Regional Council standard drawing A3-00915.

8514.1.1 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.

Term	Definition
Recycled Plastic Bollard	Defined as a proprietary bollard product of recycled plastic rectangular profile.

8514.2 Referenced Documents

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

- MRS01 *"Introduction to Specifications"*;
- MRTS01 *"Introduction to Technical Specifications"*;
- MRS50 & MRTS50 *"Specific Quality System Requirements"*
- MRS70 and MRTS70 *"Concrete"*
- Mackay Regional Council Standard Drawings:
 - A3-00915 *"Optional Round Or Rectangular Profiles"*;
 - A3-00916 *"Vehicle Barrier, Rectangular Bollard Post"*;
- The project Drawings; and
- The manufacturer's specifications.

8514.3 Description of Work Items

Work items incorporated by this supplementary specification are identified in Section 8514.6 and 8514.7 with individual activities/tasks for measurement and payment sourced from the Bill of Quantities and listed in MRC Supplementary Specification Annexure 8514_1 Recycled Plastic Bollards Section 1

8514.4 Quality Systems Requirements

8514.4.1 Std Test Methods (Testing Regime)

The following minimum testing regime applies to this specification:

Unless otherwise stated the manufacturer certification of the recycled plastic bollards form the basis of the requirements.



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

8514.4.2 Hold Points, Witness Points and Milestones

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

Activity	Inspection Type	When	Clause
Construction Procedure and Traffic management plan (with TGS's) and other submissions as required by Clause 8504.5	Milestone	4 Weeks prior to works commencing	8504.5
Inspection of materials and documentation	Hold Point	As delivered to site	8504.6.2
Layout survey through spot marking	Hold Point	During site layout survey prior to works commencing.	8504.6.4
Carry out excavation	Hold Point	Prior to installing and bracing bollard	8504.6.5
Excavated floor compliance	Hold Point	Prior to installation of bollard/s	8504.6.7
Formwork and reinforcing prepour Inspection (as required)	Witness Point	Prior to concrete pour proceeding	8504.6.8
Bollards on correct alignment and level, and vertically plumb on all sides	Hold Point	Post pour prior to concrete setting	8504.6.9
Concrete finish, shaped and trowelled	Witness Point	Post pour prior to concrete setting	8504.6.9
Curing and approval to strip bracing/formwork	Hold Point	Minimum 72 hours after concrete pour	8504.6.9
Works as Executed documentation	Hold Point	4 weeks prior to practical completion being requested.	8504.7.1

8514.4.3 Construction Tolerances

Unless noted on the design drawings or 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 design drawings as applies to this specification;

- MRC Standard Drawings A3-00915 and A3-00916
- Manufacturers dimensions and tolerances for installation of recycled plastic bollards

Excavation of footing for bollards shall be deemed to be the minimum as shown on MRC Standard Drawings 00915 and 00916 for depth, width, and thickness of poured concrete around the bollard.



Tolerances specific to the project are detailed on the design drawings and are included in Clause 2 of MRC Supplementary Specification Annexure 8514_1 Recycled Plastic Bollards

8514.5 Preliminary

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

- Works procedure for all activities, and a construction plan;
- Quality Plan outlining compliance with Clause 8514.4 as a minimum, and MRTS 50;
- Work Health and Safety Plan;
- Approved Traffic Management Plan and TGS's.

Other requirements unique to the project will be listed in the MRC Supplementary Specification Annexure 8514_1 Recycled Plastic Bollards

MILESTONE

8514.5.1 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 8514_1 Recycled Plastic Bollards Section 3 and shall be the point of supply.

Unless instructed otherwise by the Superintendent existing components to be salvaged and the nominated storage site will be detailed in MRC Supplementary Specification Annexure 8514_1 Recycled Plastic Bollards Section 4. This will also include any reuse of existing items.

All bollards must comply with MRC's "List of Furniture and Materials" where the proposed use is within a public open space area, where the use is proposed for the road environment the type of bollard, height, and material shall be as per the design drawings and must be approved by the Superintendent prior to proposed use and shall be supplied in accordance with their relevant manufacturers specification and requirements.

The Contractor shall take into account fire resistance, all bollards shall comply with the notes in MRC Standard Drawing A3-00915 and A3-00918. Certification shall be provided with the supply of bollards.

It is preferred the material chemical profile of the bollard/s contains no PFAS chemicals, or will leach microplastics into the environment.

Concrete supplied and placed for the support footings of the bollards shall comply with the specifications MRS70 & MRTS70.

8504.5.2 Storage of Materials

All materials shall be stored as required by the manufacturers requirements prior to use, stored out of direct sunlight to limit exposure to UV light. The Contractor shall include storage of materials in their works procedure for approval by the Superintendent.

MILESTONE

8504.5.3 Contractors Personnel

Personnel, sub-contractors and suppliers utilised in the preparation of the base, laying of the pavers, and their sealing shall be experience in the processes and activities required to carry out the works.



The Contractor shall provide documented evidence for the Superintendent's approval to demonstrate the experience, qualification, skills and training of proposed personnel, sub-contractors a minimum 4 weeks prior to works commencing.

MILESTONE

8514.5.4 General Workplace Health and Safety Requirements

As a condition of this document, it is required that the Contractor and its workers (including all sub-contractors etc., and their workers) engaged to perform a service or work on site must at all times ensure (so far as reasonably practicable) the health and safety of all persons who are, or may be, affected by work under this Supplementary Specification or the services provided.

8514.5.4.1 Council Work Health Safety Contractor Requirements

As a minimum, the Contractor must ensure they and their workers (including all Contractor's sub-contractors etc.) comply with the following work health and safety requirements:

- Undertake Council Contractor and site inductions prior to commencing work.
- Ensure all workers are competent, and provide proof of competencies, licenses, and training on request.
- Have an approved safe system of work (including risk assessment) for the task and ensure the work is completed according to this safe system of work.
- Provide adequate supervision for all high-risk construction tasks.
- All incidents and near misses are to be reported to their Council representative within 60 minutes.
- Participate in Contractor pre-start meetings, safety interactions, site meetings and site inspections.
- Review information provided by Council such as site-specific hazards, risks and interaction issues and implement controls to, so far as reasonably practicable, eliminate, or if that is not possible, mitigate the risk.
- Supply safe plant and equipment with pre-start checks, maintenance/ service records and manufacturer's manual.
- For all hazardous chemicals, ensure current Safety Data Sheets (SDS) are available and that appropriate controls (including as required under SDS requirements) are implemented.
- Comply with Council Safety, Drug and Alcohol and Fitness for Work policies.
- Be familiar with applicable site emergency procedures, closest emergency assembly point and sign in and out of site registers where required.
- Compliance with any reasonable direction given by Council relating to work health and safety.

8514.5.4.2 Safe Systems of Work / Risk Assessment

The Contractor must prepare and submit a safe method of work (risk assessment) and relevant controls prior to commencement of work.

The completed risk assessment is to be provided to the Superintendent for review and approval prior to works commencing. Safe Work Method Statements (SWMS) are required for all high-risk construction activities (e.g. entry and work within manholes) and Job Safety Analysis (JSA) or similar risk assessments are required for other tasks. The risk assessment (whether SWMS, JSA or other) must be reviewed and signed by the workers prior to undertaking the work.

MILESTONE



The Contractor shall implement a Safety Management System (SMS) that includes sections addressing the project scope.

8514.6 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.

All material and construction shall be in accordance with the design drawings, and notes and details on Mackay Regional Council standard drawings.

Specific construction requirements associated with these works is detailed in MRC Supplementary Specification Annexure 8514_1 Recycled Plastic Bollards Section 5

8514.6.1 Work Operations

Work operations incorporated in this item are those included in Clause 2.1.5 of MRS01 "Introduction to Standard Specifications" and the following work scope activities and associated sub activities;

8504.6.1.1 Work Scope

The scope of works (including all associated sub activities) covered under this specification is as follows:

- Procure, supply, and store all materials;
- Carry out excavation to design drawing alignments and depths;
- As required, compact and test foundation, including removal and replacement of unsuitable materials as approved;
- Utilise or dispose of excess materials, as required;
- Carry out preparation required for installation of bollard/s;
- Install and compact bedding material;
- Install and brace bollard/s as required by the design drawings and manufacturers specification;
- Carry out concrete footing works as required to encase the bollard/s, including surface finish to train water away from bollard;
- Collect and submit "As Constructed" details;

8514.6.2 Supplying All Materials;

All materials, plant, and labour required to carry out the works under this Specification is to be supplied by the Contractor, where the bollard/s are Principal supplied the designated storage site will be nominated in MRC Supplementary Specification Annexure 8514_1 and shall be the point of supply for the purposes of this Specification.

All items shall be inspected at delivery to site prior to use. Any items which are damaged are not to be used and are to be returned to the supplier.

HOLD POINT

8514.6.3 Existing Bollard Removal (as required)

The removal of existing bollards and footing shall be carried as required out prior to spot marking of the new bollard/s. The Contractors chosen method of removal will be such that any impact on surrounding environment is minimised. Unless the existing footing excavations are to be utilised by the new bollards,



or as otherwise approved by the Superintendent existing holes are to be backfilled and compacted prior to site location approval of the new bollard/s.

Existing bollards to remain or salvaged are identified on the design drawings. Refer to MRC Supplementary Specification Annexure 8514_1 Recycled Plastic Bollards for items to remain or be salvaged and the storage site location.

At the commencement of demolition the Superintendent may direct which bollards are to remain or be salvaged for reuse based on prevailing site conditions

Disposal of any demolished materials and bollards not requiring storage or reuse shall be disposed of by the contractor at their cost to the nearest MRC waste disposal transfer station.

8514.6.4 Site Layout with Superintendent

The final location of the bollards is to be marked out on site and shall be inspected and approved by the Superintendent prior to excavation commencing.

HOLD POINT

8514.6.5 Carrying Out Excavations to Design Depth and Alignment;

Excavation of material shall be carried out to level, line, and alignment as per MRC Standard Drawing A3-00915 and A3-00916 and design drawings, vertical tolerances shall not exceed the manufacturers specification, in the absence of detail the tolerance shall not exceed +5mm/-10mm.

Horizontal tolerances shall not exceed the manufacturers specification and the design drawings. Where a straight line of bollards are installed the set out shall be such that when a string line is placed along the face of the bollards no bollard is out of alignment by more than 5mm's

The excavated hole is to be inspected for areas of unsuitable material. If unsuitable material is identified this is to be removed and replaced with approved material as per the instructions of the Superintendent.

HOLD POINT

8514.6.6 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. The disposal site shall be approved by the Superintendent.

8514.6.7 Bottom of Excavations

All loose material is to be removed from footing hole. The sides of the excavated hole are to be vertical and stable, if not the Contractor shall install a permanent liner to maintain the vertical sides.

The excavated floor preparation is to be carried out as per MRC Standard drawing A3-00915 and is to be presented for inspection by the Superintendent with inspections, geotechnical testing and survey requirements in accordance with MRTS 04 unless otherwise approved by the Superintendent.

HOLD POINT

8514.6.8 Installation of Bollard/s

Prior to concrete placement the bollards shall be installed in place and braced in position as required by MRC Standard Drawing A3-00915. The bracing shall be rigid and capable of maintaining the bollard in position during the concrete pour.

The Contractor shall notify the Superintendent of the intention to carry out the footing concrete pour.

WITNESS POINT



All bollards installed shall be generally of a smooth surface and free of protruding elements or elements which may introduce snag or spearing hazards to passing cyclists, pedestrians or people using personal mobility devices.

8514.6.9 Concrete Placement

All concrete works associated with the footings shall be carried out in accordance with MRTS70, MRC standard drawings, the design drawings, and the manufacturers specification, where conflict exists the manufacturers requirements and specification will take precedence, with inspections, geotechnical testing and survey requirements applying unless otherwise approved by the Superintendent.

Prior to the concrete setting the bollards installed shall be surveyed and checked for alignment, level, and vertically plumb to ensure no movement has occurred. Any movement will require rectification to ensure the finished bollards meets the requirements of the design drawings, manufacturers specification.

HOLD POINT

The finish of the top of the concrete around the bollard shall be trowelled using a timber trowel, and be shaped to ensure water runs off and any maintenance plant or equipment does not need to contact the bollard in accordance with MRC Supplementary Specification Annexure 8514_1 Clause 5. The height above the finished surface level shall be uniform and consistent for all bollards installed as part of the project.

WITNESS POINT

Concrete curing is to commence directly after the concrete pour has begun to set, where the work operations utilises formwork for the purpose of bracing and holding in place the bollard this must not be removed for a minimum of 72 hours after pouring of the concrete unless otherwise approved by the Superintendent.

HOLD POINT

8514.6.10 Clean up of Site

Any disturbed areas are to be backfilled, turfed, and made good. The site is to be cleaned of all debris, excavated material, and construction materials.

8514.7 Post Construction

Items which close out the project, and readies the project for "On Maintenance" inspection.

8514.7.1 Collection and Submission of All As Constructed Data.

Contractor is to supply and submit "As Constructed" 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 shall be submitted with the "AS Constructed" Plans and documentation.

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



8514.8 Measurement and Payment

Provision for these works shall be included in the scheduled unit rate for the items shown in Clause 8514.3 of this Supplementary Specification and Annexure. No separate payment will be made for the works specified in this Supplementary Specification. Any works associated with replacement of non-conforming material and/or construction procedures shall be at no cost to the Principal.

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