



## Uhambiso Consult

**PORT ELIZABETH OFFICE:**

131 PROSPECT ROAD, WALMER

PORT ELIZABETH

TELEPHONE: +27 (0)41 373 0180

FAX: +27 (0)41 373 0102

www.uhambiso.com

**THE MASTER DOCUMENT HELD AT UHAMBISO CONSULT BEARS THE ORIGINAL SIGNATURE OF APPROVAL****REVISIONS**

2024/02/06	T01	ISSUED FOR TENDER PURPOSES	RM
DATE.	REV NO	DESCRIPTION	BY

**PROJECT INFO**

CLIENT

**DEVELOPMENT BANK OF SOUTH AFRICA**

PROJECT

**CONSTRUCTION OF DIKIDIKINI BRIDGE**

DRAWING TITLE

**PREFABRICATED MAYBE BRIDGE 200 PANEL BRIDGE –  
PERFORMANCE SPECIFICATION**

FUNCTION	NAME	SIGNATURE	SHEET SIZE
DESIGNED	R.McSporran		<b>A4</b>
DRAWN	N/A		SCALE
CHECKED	R. McSporran		<b>N.A</b>

**APPROVAL CONSULTANT**

NAME	<b>F LIEBENBERG</b>	PR. ENG.	SIGNATURE		SHEET NUMBER
DATE	<b>2024/02/06</b>		PROF REG No	830374	

**UHAMBISO DRAWING NUMBER**

PROJ No.	DRAWING NUMBER	REVISION
<b>8547P</b>	<b>STR-SPEC02</b>	<b>T03</b>
DRAWING STATUS CODES :		
P = PLANNING	T = TENDER	C = CONSTRUCTION
		Z = AS BUILT
COPYRIGHT RESERVED		

### 1. Bridge Supplier

The bridge supplier will have a proven track record in prefabricated bridge structures.

Examples of recent similar size projects should be included.

The preferred bridge system is as per Mabey design.

This performance specification provided is a guide to the contractor to undertake the detailed design and all the requirements in this document need to be adhered to as a minimum.

### 2. Bridge Concept

The client preference is to use a Mabey bridge.

Prefabricated bridge components to be assembled on site and launched into final position using a launching nose.

The supply of one (1) Mabey Compact 200 Panel Bridge, with the following characteristics:

- Span configuration: Single 51.8m span between bearing centre lines
- Decked width: 3.15m between kerbs single lane.
- The Mabey bridge will comprise the following:
  - longitudinal trusses formed of prefabricated modular steel panels with pinned end connections and transverse cross girders bolted between these at approximately 3.048m centres longitudinally.
  - The cross girders will support proprietary Mabey steel decks with raised 'durbar' raised pattern plate finish forming the carriageway.
  - All bolted connections will use Grade 8.8 bolts.

The bridge will be designed by the bridge fabricator and is to be signed off and approved by ECSA registered (or similar) Professional/Chartered engineer, **employed by the bridge supplier.**

Mabey bridges are typically designed for the below loading, however the bridge supplier needs to ensure that the bridge is designed for the more stringent loading conditions of either the loading conditions outlined in the two bullets below or of section 3 of this document.

- The bridge to include proprietary Mabey bearings.
- The bridge needs to include Mabey Smart-Edge TM Infill panels.
- The bridge will include all tools and supplementary erection equipment.

### 3. Loading Requirements

The bridge is to be for loading in accordance with TMH7 Part 1 and 2.

The above code requires a minimum loading of NA +NB24.

The contractor design engineer will need to confirm loading along with design calculations to the above loading requirement.

#### 4. Material Requirements

The bridge is to be galvanized in accordance with SANS 121 or ISO 1461.

All steel is to be fabricated grade S355J steelwork produced in accordance with produced in accordance with EN 10025-2.

All bolts are to be grade 8.8 bolts.

#### 5. Temporary works Requirements and Erection of Bridge

The bridge needs to be assembled on the riverbank on a level area, with access on all sides for a crane.

The contractor is to make allowance for all temporary work in the erection of the bridge.

As part of their submission the contractor will be required to provide a full methodology detailing how the contractor intends to erect the bridge.

The contractor must appoint a temporary works designer in writing to design, inspect and approve the erected temporary works on site before use.

A contractor must ensure that all temporary works operations are carried out under the supervision of a competent person who has been appointed in writing for that purpose. For the purposes of the erection of the Bridge the temporary works designer needs to be a ECSA registered professional (professional Engineer) with a minimum of 15 years post registration experience and demonstratable experience on at least 5 projects of a similar nature.

Further to the above the contractor will allow for the provision of a Maybe Bridge Installation advisor to be on site for the complete duration of the erection of the bridge.

A contractor must ensure that-

- All temporary works structures are adequately erected, supported, braced and maintained by a competent person so that they are capable of supporting all anticipated vertical and lateral loads that may be applied to them, and that no loads are imposed onto the structure that the structure is not designed to withstand;
- All temporary works structures are done with close reference to the structural design drawings, and where any uncertainty exists the structural designer (both bridge designer and Lead Structural design Engineer) should be consulted;
- Detailed activity specific drawings pertaining to the design of temporary works structures are kept on the site and are available on request to an inspector, other contractors, the Client, the Clients Safety Agent, or any employee;
- All persons required to erect, move, or dismantle temporary works structures are provided with adequate training and instruction to perform those operations safely;
- All equipment used in temporary works structure are carefully examined and checked for suitability by a competent person, before being used;
- All temporary works structures are inspected by a competent person immediately before, during and after the placement of concrete, after inclement weather or any other imposed load and at least on a daily basis until the temporary works structure has been removed and the results have been recorded in a register and made available on site;
- No person may cast concrete, until authorization in writing has been given by the competent person contemplated above;

- If, after erection, any temporary works structure is found to be damaged or weakened to such a degree that its integrity is affected, it is safely removed or reinforced immediately;
- Adequate precautionary measures are taken in order to-
- Secure any deck panels against displacement; and
- Prevent any person from slipping on temporary works due to the application of release agents;
- a temporary works drawing, or any other relevant document includes construction sequences and methods statements;
- the temporary works designer has been issued with the latest revision of any relevant structural design drawing;
- a temporary works design and drawing is used only for its intended purpose and for a specific portion of a construction site; and
- the temporary works drawings are approved by the temporary works designer before the erection of any temporary works.
- No contractor may use a temporary works design and drawing for any work other than its intended purpose.

## 6. Fabrication Drawing Requirements

On placement of the order for the bridge, the vendor is to supply a complete set of fabrication drawings in electronic format in pdf and dwg formats, so that a design check can be performed.

The preparation of the drawings will be undertaken by a draftsman registered with the South African association of structural draftsmen or similar professional body.

Fabrication drawings will as a minimum include and detail the following, but not limited to:

- Complete exact size of all members of element to be produced. i.e. plates rolled sections and gussets.
- Exact position of holes, notches and other cut outs as required on the design drawings.
- Member sizes,
- Structural steel class and grade.
- Weld sizes and strengths.
- Corrosion protection to the steelwork.

All information required for accurate fabrication of the structural system.

## 7. Structural Design

Prior to fabrication of the bridge and as part of the contractors' submission the contractor needs to provide a full set of calculations that shows conformance of the bridge structure to all requirements captured in this document.

The contractor is expected to ensure that all responsibilities, of the designer, in terms of the Health and Safety Act, Construction regulations and other statutory regulations are met when undertaking the design of the bridge.

