APPENDIX P





Haughton Stage 2 Pipeline Detailed Business Case

Appendix G - Performance specification

Performance Specification | A

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Haughton Stage 2 Pipeline Detailed Business Case

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Appendix G. Performance specification

G.1 Scope

The purpose of this performance specification is to define the operational requirements of the Haughton Stage 2 Pipeline and Clare pumping stations for the purposes of project delivery through a design and construct approach. This performance specification is intended to describe the project's performance requirements rather than to definitively prescribe the way that the works are to be constructed.

The scope of works includes:

- A new 34.5 km long raw water pipeline situated to the west of the Haughton main channel, with nominal capacity of 364 ML/d.
- Connection of the Stage 2 pipeline into the Haughton Stage 1 pipeline that is currently under construction by others.
- New Clare low lift or river extraction pump station located near the existing Tom Fenwick pump station with nominal capacity of 364 ML/d.
- New Clare transfer pump station located near the existing Tom Fenwick pump station with nominal capacity of 364 ML/d and capable of pumping in a single stage through the 70km to the Toonpan outlet (Stage 1 + Stage 2 pipelines combined).
- Provision for the effective management of sediment, through a combination of a sedimentation dam located adjacent to the proposed Clare river extraction and transfer pump stations, and pigging stations allowing for sediment removal.





Figure G.1: Location of pipeline from Haughton to Burdekin River (Stage 2 pipeline)



G.2 Projects requirements

Table G.1 presents project performance and specific requirements.

Table G.1: Project requirements

Characteristic	Project configuration		
Pipeline			
Location	Burdekin River—approximately 30 m AHD Latitude: 19.9261 S; longitude: 147.2192 E Haughton pump station (near Haughton River): approximately 34 m AHD Latitude: 19.7096 S; longitude: 147.0765 E		
Pipeline name	Haughton Stage 2 pipeline		
Pipe material	Contractor to specify		
Length	34,500 m (nominal)		
Pipeline capacity	364 ML/d; to be achieved over 22 out of 24 hours in a day.		
Pipeline type	Pressurised pipeline		
Civil asset design life	Nominal 80 years		
Mechanical asset design life	Nominal 30 years		
Electrical asset design life	Switchgear—30 years; instrumentation and controls—20 years		
Quality assurance	Contractor to specify; prepare QA plan		
Clare low-lift pump station			
Pump station structure	Reinforced concrete structure on piled foundations, built into the west embankment of the Burdekin River at Clare Weir. The structure incorporates three intake channels and three DN1400 stainless steel pipe columns. Above the pipe columns is a gantry crane over a working platform. The pump station is accessed by a trafficable bridge, which also supports 3 no. DN900 pipes.		
Pump type	Contractor to specify		
Rated power	Contractor to specify		
Delivery capacity	364 ML/d when pumping 22 out of 24 hours		
Redundancy	Nil		
Head	Contractor to specify		
Quality assurance	Contractor to specify; prepare QA plan		
Clare High Lift Pump Station			
Pump set			
Pump station structure	Reinforced concrete floor and basement structure below natural ground level, with steel portal frame structure above and corrugated metal cladding		
Pump type	4 x DN1200 horizontal split case pumps		
Rated power	4 x 2600 kW		
Delivery capacity	4 x 1,149 L/s (equates to 364 ML/d when pumping 22 out of 24 hours)		
Head	Contractor to specify – to suit Stage 1 + Stage 2 profile		
Quality assurance	Contractor to specify; prepare QA plan		
Sediment dam			
Detention time	2 hours		
Electrical			



Characteristic	Project con	figuration			
Solar array	Total load: 12.0 MW Sized for load guarantee provided for 6 hrs				
Site Lighting	 Flood lights – normally off with switch at main gate. Automated site lighting (night sensor) with manual over-ride switch located within pump housing. Emergency site egress lighting. Power by internal backup battery supply. 				
Power Supply	ID	Location/ Description	Primary Power Supply	Supplementary Power Supply	Backup Power Supply
		River PS Transfer PS	Mains power – From Suitable local network 66kV or 11kV	Solar power array	Provision for relocatable diesel generator to supply full load.
Pump Starter Type	VSD				
Redundancy of Drives	Duty only for all drives (no standby).				
Standards for Switchgear	Australian standards.				
Security System	Provision made in PLC for future connection of security sensors. Provide PTZ web cameras, POE, outdoor housing.				
Lightning Protection	Surge protection on incoming power cables to switchboards. Surge protection provided on incoming instrument cabling to PLC/RTU.				
Fire System	Provide VESDA VLF-250 in switchrooms/kiosks.				
Quality assurance	Contractor to specify; prepare QA plan				
Buildings / Structures					
Compliance	All structures to be compliant with the Building Code of Australia				