Harvest Hills

Prepared for: **Prime Meat Co Ltd**

Date: **27/05/2020**

Prepared by: **Stephen Cook**

"Stimulating regional economic development through water access solutions"

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Version:	Change summary:	Drafted by:	Approved by:
1	Draft for comment	S. Cook	R. Fenech
2	Final	S. Cook	B. Hamersley
3			
4			

About Harvey Water:

Harvey Water is a self-funded cooperative, which delivers non-potable water to its Members and a broad customer base. Water is sourced from local dams through a licensing agreement with the Department of Water and Environmental Regulation and delivered through gravity flow in a network of channels and pipes to the Harvey, Waroona and Collie River districts. This 112,000 hectare footprint is known as the Harvey Water Irrigation Area.

Water is supplied sustainably and efficiently from dams via pipe and channel network and delivered to Harvey Water's 720 irrigator members and to more than 350 non-member customers for industrial, mining, construction, hobby farming, garden, fire attenuation and community use.

Harvey Water is proud of the excellent working relationship gained with Prime Meat Co. Ltd (PMC) to date and to have been awarded the contract to build a dedicated water supply pipeline with a supply point at the south-western boundary of the property. Harvey Water is pleased to submit this new proposal for other water associated and safety packages.

Looking ahead, Harvey Water will be pleased to work with PMC throughout the operation of the plant and will be interested in providing a quote to mange and operate the water treatment plant should PMC require.

Executive Summary:

Due to the growing demand for food and meat products, PMC approached Harvey Water for a proposal to supply water to the Waroona Abattoirs for two stages of production. Stage one involves acquiring an estimated 550 mega litres (ML) per year, with stage two requiring an additional 250ML per year. This proposal has been accepted and a contract is in place.

In our proposal outlined below the current delivery network will be extended from the PMC 150mm supply point on the southern boundary. Downstream of this supply point there are four additional packages detailed and quoted below.

In accordance with the agreed scope of work Harvey Water has completed numerous processes in the preparation for the development, design and refurbishment of water infrastructure for PMC:

- Inspected the available water storage dams;
- Identified the most suitable storage dam for volume that minimises evaporation;
- Assessed the condition of current lining for Ponds 1 & 2;
- Assessed the safety of the area and developed a fencing proposal;
- Commissioned a survey of the area to serve PMC purposes;
- Established a pipeline delivery route from the supply point to the proposed storage dam;
- Developed the pipeline plan to minimise friction loss;
- Designed the proposed pumping arrangement from the storage dam to the battery limit established at the entry to the WTP; and
- Harvey Water to manage and execute the works, with selected specialist sub-contractors.

Qualifications:

- No allowance has been included at this stage for the electrical cabling and connection to the submersible pumps at the storage dam. Harvey Water will be able to quote for, and manage this aspect of the works should PMC so require.
- In the event that this proposal is not accepted in full or in part a project development fee of 2.5% of value of the project will apply to cover costs incurred in survey, inspection, design and project development.

The quality of water that will be delivered is raw untreated water from surface dams and primarily the Waroona dams. All water treatment is to be carried out by PMC. Waste water treatment and disposal is the responsibility of PMC.

Statement of requirements:

For ease of description Harvey Water has divided the works into four packages and for the dams we refer to the survey plan (copy submitted) produced for the project:

1. Water delivery from the boundary supply point to the storage dam (D2);
2. Storage dam (D2) rehabilitation and lining, pumps and pipe to the battery limit;
3. Ponds (D4 and D5) refurbishment; and
4. Compound safety fencing around D2, D3, D4 and D5.

It's our understanding that PMC would like to be able to access water by spring 2020. This objective is achievable if agreement is reached and payment is made by 30th June 2020 which then allows enough time for materials to be received and the works to be completed. Please note that power and electrical connections are excluded.

Indicative program:

Harvey Water has forecast project duration of six weeks for delivery of this turnkey project (excluding electric connections). If PMC is in agreement and the invoice for these works is paid, we envisage commencing works, weather permitting, in July/August 2020.
Harvey Water will require clear access to the site.

Infrastructure concept design – package 1 water pipeline to dam:

Figure 1 shows the proposed supply point location connecting to the storage dam.
The 500 metre pipe route will run on a south then north-easterly route in a corridor 5 metres inside the boundary fence line and buried to 700mm to the top of the pipe. The pipe will be fabricated in HDPE DN250 pressure rated to 800kPa. The connection will ensure a consistent volume of water to PMC supply point minimising friction loss. An actuated butterfly control valve for isolation will be inserted at the dam wall.

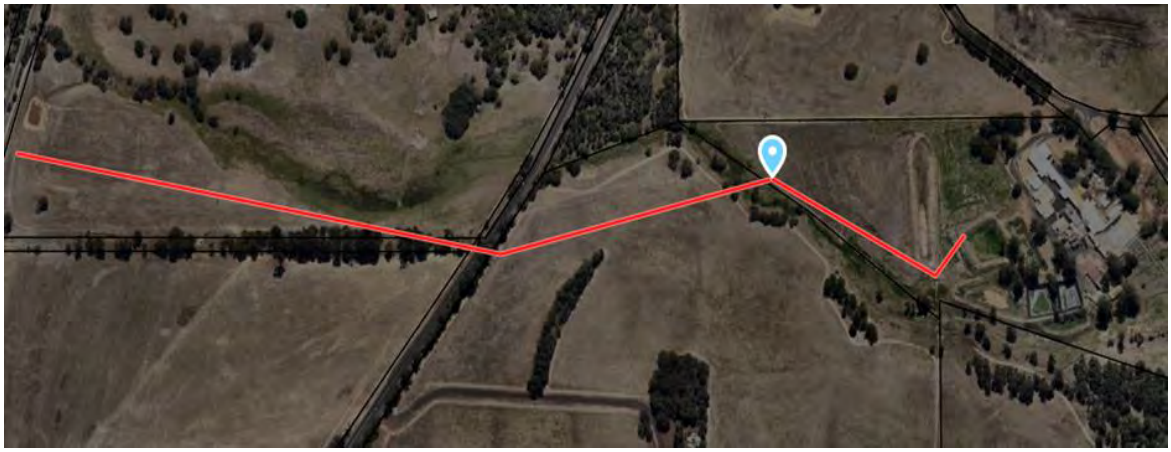

Figure 1: Delivery pipe route to the storage dam showing the delivery route to the battery limit that is the supply point (blue dot) and from the supply point to the storage dam (to be lined)

Infrastructure concept design – package 2 storage dam, pumps and water delivery to the WTP:

The large storage dam identified as D2 has been identified as the best on site storage facility. Up to 13ML of water may be retained in this dam which ensures good redundancy and ample cover for expansion. The dam is currently grass and earth lined with some incursion of weeds and trees. The dam will be cleared of weeds, grasses and trees using specialist products and equipment. The dam will then be lined with a 2mm thick poly (HDPE) liner anchored into the dam perimeter (see Fig 2 below). The construction will include the installation of two safety egress points along with the appropriate safety equipment.

Figure 3: Sample newly lined dam with pump pontoon

To lift the water for delivery to the Water Treatment Plant (WTP)- installed by others - two submerged pumps will be installed on a floating pontoon (see Fig 3 as an example). This system of pump installation ensures that the pumps are fully primed and eliminates the risk of suction air locks. The pumps will be wired to a control cabinet located a safe distance from the dam embankment. Instrumentation relay to the Harvey Water pump station on Burney Rd will control delivery of water to the dam and the dam level. The pumps will operate alternately so as to maintain a balanced use and optimise the asset life and reliability. Supply of electricity to the pump control cabinet has not been included in this submission pending PMC confirmation of electrical source.

The water will be delivered by the pumps to the battery limit that is yet to be confirmed. The rate of delivery to the WTP is planned to be 27lts/second. For the purpose of this proposal Harvey Water has included 500 metres of DN200 HDPE pipe to deliver water to the expected location of the WTP and an isolation valve will be fitted at this point for future connection by the WTP supplier/operator.

Figure 3: pump station supply from the new lined dam to the water treatment plant battery limit (TBC)

Infrastructure care – package 3 refurbishment of ponds D4 & D5:

We have assessed the condition of ponds 4 & 5 that will be used to store water waste from the WTP. Whilst both dams have suffered damage in the 2016 fires pond D5 has been severely damaged to the point where the liner has been stretched beyond recovery. We propose to reline this dam and install one safety egress point. A new 1.5mm liner will be installed at this 23mx34m dam.
Pond D4 however is in better condition and we are confident of being able to carry out repairs to the lining and extend the asset life. A safety egress point will be installed.
The ponds will be cleared of debris and weed prior to the works and 1.5mm repair patches used at this 29mx35m dam.

Infrastructure safety – package 4 compound fence construction

A 2400mm high fence consisting of heavy gauge mesh toped with 3 barbed wire strands has been designed to prevent against wildlife and unauthorised access.
Access points for machinery and personnel have been included and safety notices will be put up around the fence perimeter.
The fence will be built to Australian Standard using heavy gauge galvanised mesh.

Personnel:

This project will be delivered by Harvey Waters' experienced team managed by Stephen Cook our operations Manager and supervised by our Works Manager Todd Wilson. Instrumentation for water delivery will be managed by our Water Services Manager Richard Yates.

Commercial model for consideration:

We have developed a comprehensive support plan to facilitate works progress towards opening the abattoir as detailed above. Harvey Water will invoice PMC a total excludes GST. The payment is due 15 days after invoice.

[redacted]

Next steps:

- PMC to confirm acceptance of this proposal by 30th June 2020;
- Works planning meeting to agree the program and access; and
- Payment due from PMC to confirm the order.

Harvey Water

Contacts for this proposal

Stephen Cook – Operations Manager
0427988790
scook@harveywater.com.au

Todd Wilson – Works Manager
0429048500
twilson@harveywater.com.au

Richard Yates – Water Services Manager
0419048575
ryates@harveywater.com.au

Administration and Customer Service Centre
Eckersley House
1 Turnbull Street, Harvey, Western Australia, 6220

Postal
PO Box 456. Harvey, Western Australia, 6220

Telephone
(08) 97290100

Email
admin@harveywater.com.au

Website
www.harveywater.com.au

Global Synthetics
Australian Company – Global Expertise

Customer Name	Global Synthetics Pty Ltd	Material :	HDPE
Product Name :	2.0 mm ProLiner HDPE geomembrane Smooth/Smooth	Thickness:	2.0 mm
Width (If aplicable) :	8.0 mtrs	BATCH NO. :	BSGGMHD2.00520-ALNA
Purchase Order & Date:	4074456 DTD. 24/04/2020	Quantity:	9 rolls (80 x 8 mtrs)= 5760 sqm
Invoice No. & Date :	282020012 Dt. 14/05/2020	Certificate #	MP/QA/AU/EX-012/14052020

Test Certificate - Geomembrane

SR.NO.	Properties	Thickness	Density	Tensile Strength at Yield & Elong.		Tensile Strength at Break & Elong.		Carbon Black Content	Puncture Ressit.	Tear Resist.	Carbon Black Dispersion	OIT	UV Resistance after 1600 hrs UV	After Oven Ageing (at 85° C) Resistance (After 90 days)	Stress Crack Resistance
	Test Method	D 5199	D 792	D 6693				D 4218	D 4833	D 1004	D 5596	D 3895	D 7238 & (D 5885)	D 5721 & (D 5885)	D 5397 (App.)
	Unit	mm	g/cc	KN/m	%	KN/m	%	%	N	N	Category	min	% OF HP-OIT	% OF HP- OIT	Hrs.
	Req. Value as per GM13	2.00	≥ 0.940	29	12	53	700	2 - 3	640	249	Cat. 1 or 2 (90 %) & Cat. 3 (10%)	≥ 100	≥ 50	≥ 80	≥ 500
	Frequency	Every roll	Every 90,000 Kg	Every 5th roll or 9,000 kgs					Every 10th roll or 20,000 kgs			Every 90,000 Kg	Per each formulation	Per each formulation	Each Two resin lot as per GRI-GM-10 . (one lot = 90,000kgs)
	Test Roll NO.														
1	201553	2.05	0.949	32.6	15.2	61.4	786	2.48	659	261	1 & 2 (100 %)	178	64	86	> 520
2	201554	2.04													
3	201555	2.03													
4	201556	2.06													
5	201557	2.04													
6	201558	2.05		33.1	14.8	60.2	769	2.46							
7	201559	2.06													
8	201560	2.07													
9	201561	2.06													

Note : The above testing was performed according with the above specified frequencies .

ASTM INTERNATIONAL

TC- 5763

ISO 9001

(Lab Manager)

Global Synthetics
Australian Company – Global Expertise

Customer Name and address :	Global Synthetics Pty Ltd	Material :	**HDPE**
Product Name :	2.0 mm ProLiner HDPE geomembrane Smooth/Smooth	Thickness:	2.0 mm
Width (If aplicable) :	8.0 mtrs	BATCH NO. :	BSG2.01218-ALNA
Purchase Order & Date:	61187 / Dt. 18/12/2018	Quantity:	24 rolls (80 x 8 mtrs)= 15360 sqm
Invoice No. & Date :	22180045 / Dt.23/12/2018	Certificate #	MP/QA/AU/EX-045-1/231218

Test Certificate - Geomembrane

SR.NO.	Properties	Thickness	Density	Tensile Strength at Yield & Elong.		Tensile Strength at Break & Elong.		Carbon Black Content	Puncture Ressit.	Tear Resist.	Carbon Black Dispersion	OIT	UV Resistance after 1600 hrs UV	After Oven Ageing (at 85° C) Resistance (After 90 days)	Stress Crack Resistance
	Test Method	D 5199	D 1505 / D 792	D 6693				D 4218	D 4833	D 1004	D 5596	D 3895	D 7238 & (D 5885)	D 5721 & (D 5885)	D 5397 (App.)
	Unit	mm	g/cc	KN/m	%	KN/m	%	%	N	N	Category	min	% OF HP-OIT	% OF HP- OIT	Hrs.
	Req. Value as per GM13	2.00	≥ 0.940	29	12	53	700	2 - 3	640	249	Cat. 1 or 2 (90 %) & Cat. 3 (10%)	≥ 100	≥ 50	≥ 80	≥ 500
	Frequency	Every roll	Every 90,000 Kg	Every 5th roll or 9,000 kgs					Every 10th roll or 20,000 kgs			Every 90,000 Kg	Per each formulation	Per each formulation	Each Two resin lot as per GRI-GM-10 . (one lot = 90,000kgs)
	Test Roll NO.														
1	182310	2.03	0.949	33.6	16.2	58.9	781	2.46	658	274	1 & 2 (100 %)	181	78	88	> 530
2	182312	2.04													
3	182313	2.01													
4	182314	2.03													
5	182315	2.04		34.2	15.8	59.7	774	2.48							
6	182316	2.05													
7	182317	2.03													
8	182318	2.04													
9	182319	2.01													
10	182320	2.04		34.8	15.2	59.1	768	2.47	654	267	1 & 2 (100 %)				
11	182321	2.02													
12	182322	2.03													
13	182323	2.01													
14	182324	2.01													
15	182325	2.04		33.1	15.6	57.7	772	2.47							
16	182326	2.03													
17	182327	2.03													
18	182328	2.02													
19	182329	2.02													
20	182330	2.04		32.9	16.4	58.7	777	2.48	662	278	1 & 2 (100 %)				
21	182331	2.02													
22	182332	2.02													
23	182333	2.01													
24	182334	2.01													

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TC- 5763

ISO 9001

(Lab Manager)