

Updated Storm Water Management Plan

1. New effluent dam drawings lined with plastic
2. Contours around the Piggery to catch storm water run off from the Pig Paddocks
3. The 2 new holding dams drawings to hold storm water run off from the contours
4. A new brick buffer wall to divert storm water into a holding dam
5. These measures that have been implemented will ensure that no storm water run off from the Piggery will flow into the adjoining farming land
6. New underground conservatory tank have been installed which also will eliminate any affluent from the Piggery flowing into the farm land

Rain Water flow to Paddocks

Each Shed has it's own Under Ground Concrete Tank

EARTH BANK WALL

CATCHMENT DRAIN FOR RAIN WATER

BRICK BUFFER

WALL FOR RAIN WATER

FRENCH DRAIN

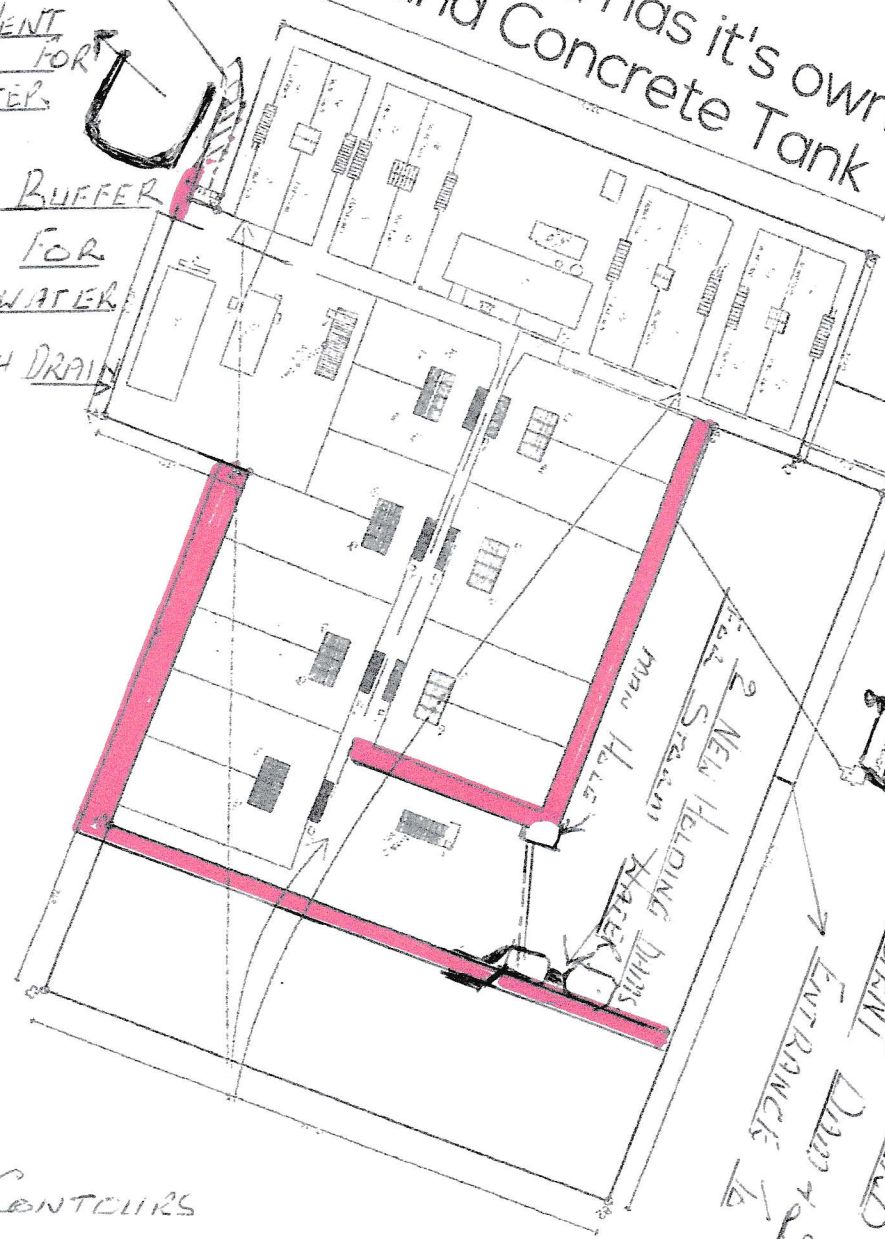
1. PLASTIC LINED EFFLUENT DRAIN + SEPARATOR ENTRANCE TO Paddock

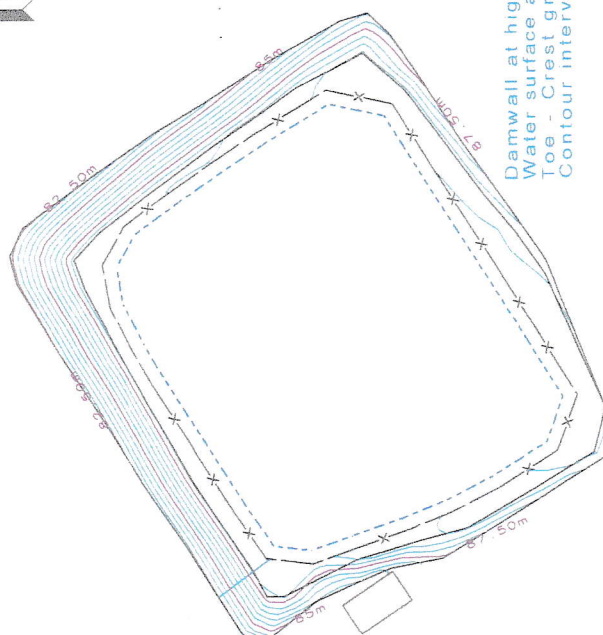
2. NEW HOLDING DRAIN FOR STREAM WATER

CONTOURS

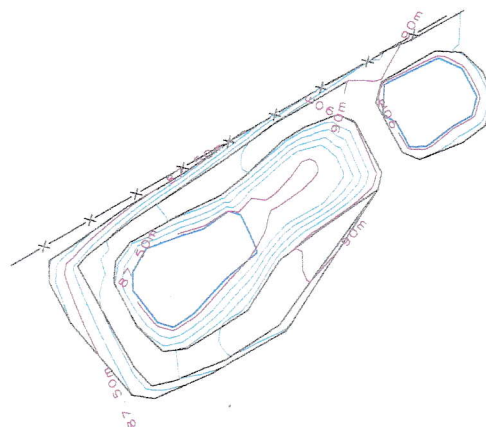
design cooperative

Alenellwyn van Rensburg
Architecture & Planning





Damwall at highest point = 5.5m
Water surface area = 4412 m²
Toe - Crest gradient = 1 : 1.48
Contour interval = 0.50m



Jarrahup Farm

Hermanus

Effluent dams

Project Number	Date: 15/5/2026
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Scale 1:1000 Trimble GPS survey

Drawn By: A Boonzaaijer

AGRICO

FOR

PROJECT

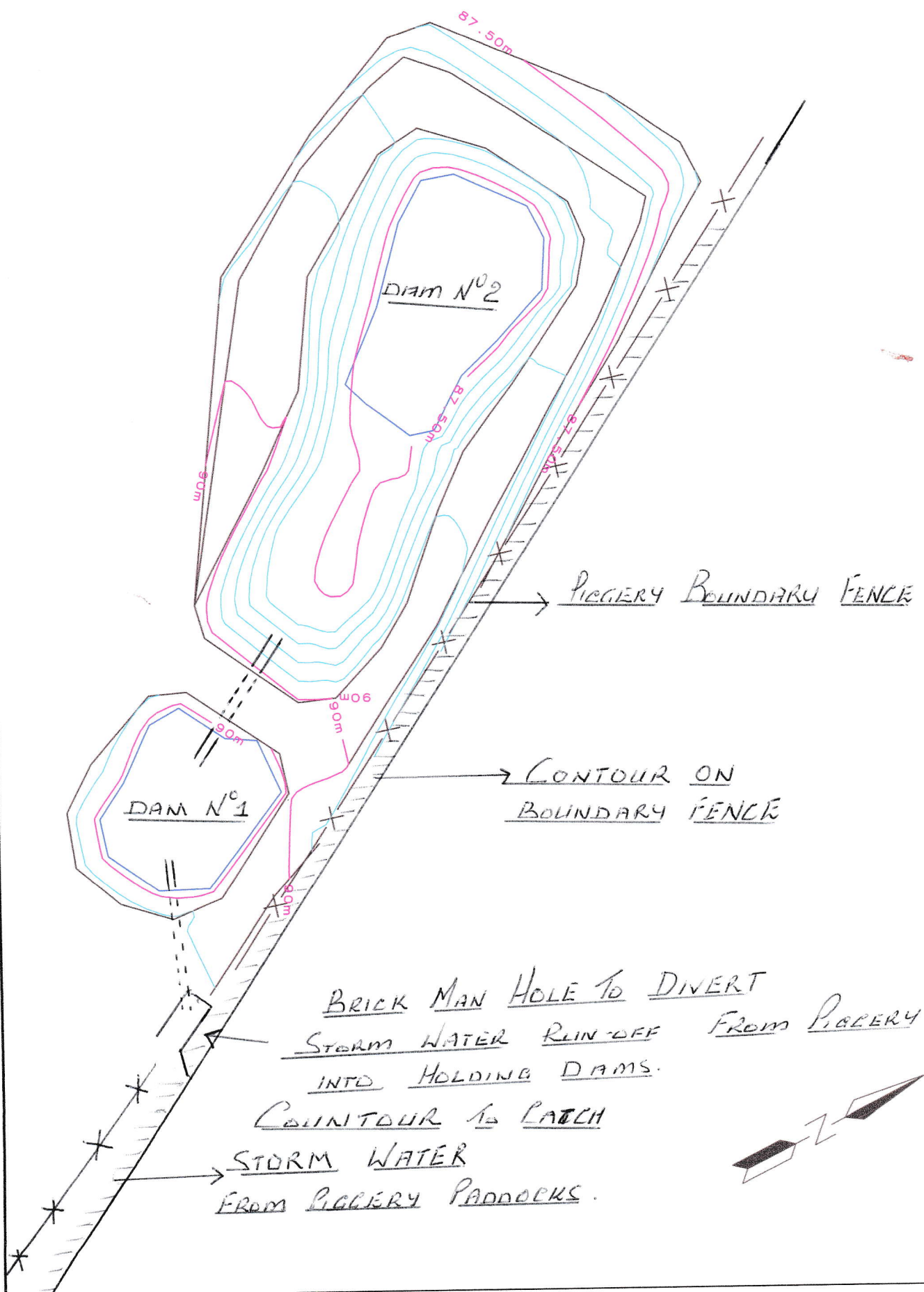
NOTES

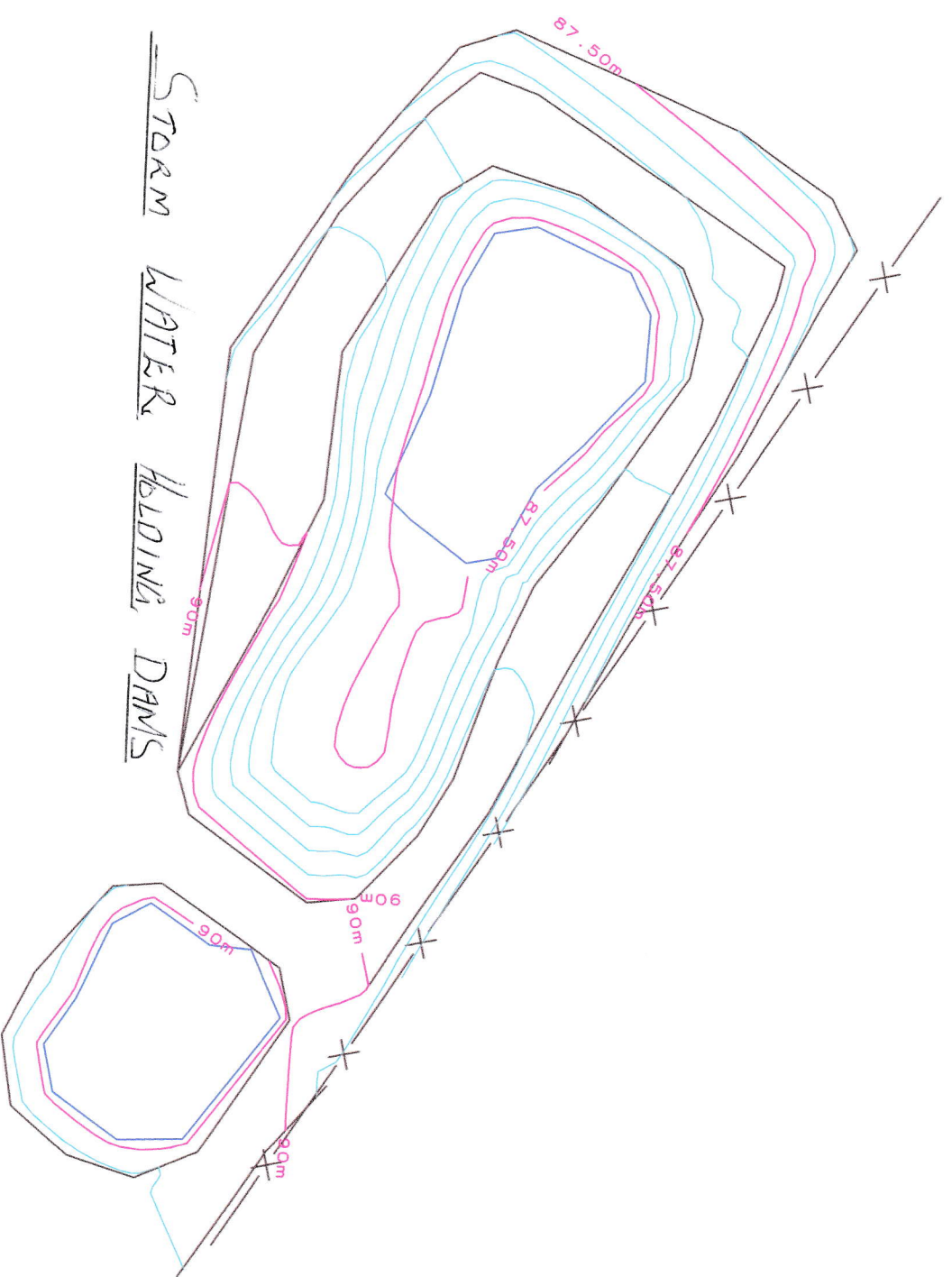
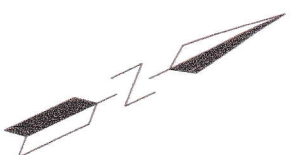
AgriCo 021 8594246

Jarrahup Farm

Small effluent dams

Surveyed and map as build





STORM WATER HOLDING DAMS

DRAWN BY

Agriico 021 8594246
Grabouw

FOR

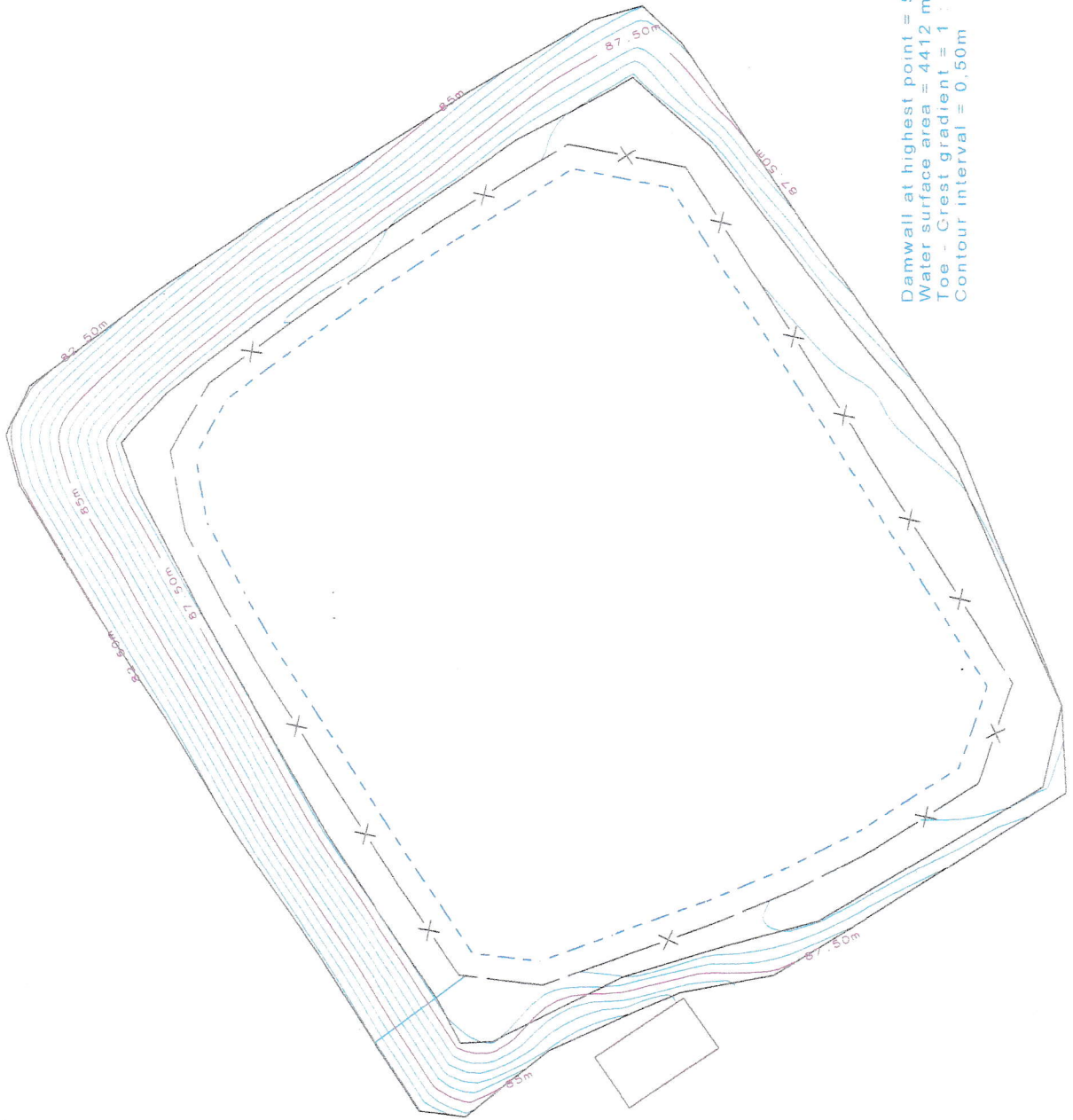
Jarrahnup Farm
Hermannus

PROJECT

Small effluent dams
SCALE 1/500

NOTES

Surveyed and map as build



Damwall at highest point = 5.5m
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Jarrahnup Farm

Hermanus

Effluent dam

Project Number

Date 15/5/2026

Scale 1:500

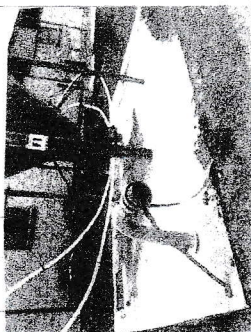
Trimble GPS survey

Drawn By: A Boonzaier

AGRICO



Botriver normally receives about 382mm rain per year and because it receives most of its rainfall during winter it has a Mediterranean climate. The chart (lower left) shows the average rainfall values for Botriver per month. It receives the lowest rainfall (9mm) in January and the highest (60mm) in August. The monthly distribution of average daily maximum temperatures (center chart below) shows that the average midday temperatures for Botriver range from 16°C in July to 26°C in February. The region is the coldest during July when the mercury drops to 6°C on average during the night. Consult the chart given (lower right) for an indication of the monthly variation of average minimum daily temperatures.



Vacuum Tank Connection

A. CATCHMENT OF ROOF RAIN WATER STORAGE

1. FEEDING SHEDS X 24

Roof area $24 (5\ 000 \times 24) = 2\ 880\text{m}^2 \times 382\text{l/m}^2 = 1\ 100\ 000\text{l}$

2. SHELTER BUILDINGS

Roof area $24 (15 \times 7 \times 4) = 10\ 080\text{m}^2 \times 382\text{l/m}^2 = 3\ 850\ 000\text{l}$

3. OFFICE BLOCK

Roof area $2 \times 7 \times 25 = 350\text{m}^2 \times 382\text{l/m}^2 = 133\ 700\text{l}$

Total roof water capacity/month

Water storage tanks (5 000l)

Actual tanks installed

Feeding shed = $24 \times 2 = 48$

Shelter shed = $24 \times 4 = 96$

Office building = $1 \times 2 = 2$

Total storage capacity rainwater

Exclude existing borehole supply of +/- 120 000l/h

Deemed to satisfy

B. GUTTER REQUIREMENTS (per building)

1. SHELTER SHED

Roof area (middle) = 210m^2

Box gutter size = 300cm

D.P. requirement = $1 \times 125\text{mm}$

Side roof area = $105\text{m}^2 \times 2 = 210\text{m}^2$

Gutter sizes = 125cm

D/P sizes = $4 \times 100\text{cm}$

PIG SHELTER FLOOR WASHING EFFLUENT

C. Under ground concrete tanks

1. $(3\ 000 \times 3\ 000 \times 2\ 000 \text{ Deep}) 8\ 000\text{l cap}$

$24 \text{ off} \times 17\ 999\text{l} = 432\ 000\text{l capacity}$

All Bio Degradable Agricultural Waste Water for

irrigation purpose on farm land

Total Waste Water capacity cycle discharged = $432\ 000\text{l}$

2. This include effluent from spray race wash bay water

discharged into effluent tanks

Determination of Sizes of Gutters and Downpipes

The chart is calculated on the assumption that 1 cm² of downpipe is sufficient for 1 m² of roof area, which is adequate for average rainfall conditions. For heavy rainfall areas, calculations should be based on 10 m² of downpipe for 1 m² of roof area, whereas in dry areas, where heavy showers are not likely to occur, 10 cm² of downpipe is sufficient for 14 m² of roof area.

Alwyn van Rensburg
Member of the Council for the Architectural Profession Reg 071392

Dessert Star is a free-range piggery that accommodates pigs in permanent outdoor compounds with shelters. The furrowing rows are kept in a furrowing house with pull plug channels and conservancy holding tanks. The effluent from the shelters are directed with open channels to conservancy tanks. A vacuum tanker and UPVC pipe line is used to convey the effluent to the treatment area. The entire effluent system is a closed system.

1.1 Introduction

The effluent from the piggery sheds contain manure, waste feed, water used for cleaning and spill drinking water. The manure and waste feed contribute the organic matter, most of the nutrients and some salts. Water can also contribute a significant salt load. Management and treatment of effluent involves collection (Section 1.2), solid separation (pre-treatment) (Section 1.3) and solids and wastewater storage (Section 1.4).

1.2 Effluent Collection Systems

Effluent collection from the camp and sheds involves drains, pull plug channels, conservancy tanks or some combination of these. A vacuum tanker and UPVC pipes are used to move the effluent to the treatment area.

1.2.1 Pull Plug Channels

Pull Plug channels are concrete channels that sit underneath slatted flooring within the furrowing and AI (Artificial Insemination) house. Manure, waste feed, hosing water and drinking water wastage drop through the flooring into these channels. The pull plug channels store effluent in these under floor channels. They are then drained through a gravity release plug on the outside of the house. Because no flushing water is used, pull plug channels use less water than conventional flushing systems. The plugs are pulled every day.

1.2.2 Drains

Open drains are found in the grower and dry sow areas in the shelters. Because pig activity in open drains discharges some manure the drains are shallow and are cleaned daily. The waste water flows directly to the conservancy tank.

1.2.3 Pipes, Drains and Conservancy tanks

Impervious pipes, drains and conservancy tanks are used to convey and store effluent from sheds and from there to the treatment area. The effluent is transferred under gravity flow with sufficient slope and also with a vacuum tanker. The drains are designed to exclude storm water runoff from surrounding areas.

1.2.4 Sump

At the piggery, effluent is directed from the conservancy tanks into a sump so the flow rate to a mechanical solids separator can be managed. The sump is an in-ground tank used to store at least 5 day's effluent production. The sump is made out of concrete. The effluent in the sump is mixed using propellers to keep solids in solution and prevent crust formation. Storm water runoff from surrounding areas is excluded from the sump.

1.3 Solids Separation

At the piggery, solids are separated from the effluent stream ahead of either direct irrigation or storage in tanks. The benefits of solid separation prior to pond treatment include:

- Removal of large particles that can block irrigation equipment
- Reduction in organic load
- Reduced sludge accumulation rate because less solids enter the tanks
- Reduction in required storage capacity
- Smaller reuse areas needed for sustainable reuse of nutrients in the treated effluent, although the nutrients in the removed solids will still need to be sustainably reused.

1.3.1 Presses

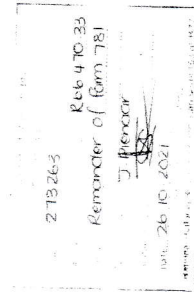
A screw press is used to separate the solids from the liquids. A screw press consists of a cylindrical screen with a screw conveyor in the centre. The conveyor presses the solids against a screen to remove moisture. The conveyor also moves the solids through the press to a collection area. Screw press separators are more expensive than underflow screens. However, they are relatively simple devices with low operating costs and maintenance requirements. They also produce drier, more manageable solids than screens.

1.4 Manure Stockpiling, Composting and Waste Water Storage Areas

An area is allocated to store and manage the solid manure until it can be removed from the site for spreading (usually in conjunction with cropping cycles) or further processing. Material kept in this area is stockpiled and actively composted. All solid manure will be managed in this area and sufficient space is allocated for effective management. The liquid is stored in tanks which it is to be spread over the cultivated area of the farm which is about 510ha.

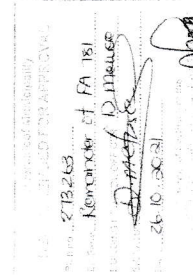
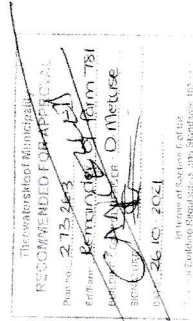
Rain Water flow to Paddocks

Each Shed has its own Under Ground Concrete Tank



Note:

Drainage & Storm Water from teh piggery is collected in under ground Brick Tanks. After it is pumped into A tanker and off loaded into A tank with A screw press separating solids & Bio Degradable water other Storm Water not near the piggery drains into the Paddocks.



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Rem Farm no. 781 Botrivier Jarrahup Farm Trust

PROPOSED SITE PLANS FOR
REM FARM NO. 781, JARRAHUP
FARM TRUST
DRAINAGE & WASTE
WATER

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