

# FACT SHEET: GRADED CATCHMENTS

A late break, a dry winter or a poor spring can all lead to a lack of water flowing into dams. Graded catchments may be one solution to enable landholders to reliably capture run-off into dams.

Graded catchments are designed to reduce soakage of rainfall into the soil and promote rapid runoff without causing erosion. Reshaping the soil surface by removing the topsoil and compacting the sub soil will improve the runoff dramatically.

On a pastured site, run-off equates to about 10% of a rainfall event. A graded catchment can increase run-off by 50-60%.

A monitored graded catchment site in Haines resulted in 1.6ML/ha/yr run-off into the dam below a graded catchment, (total rainfall in the year the site was monitored was 412mm).



## SUITABLE LOCATIONS

The site should have the following:

- sufficient slope to run water, but not too steep (for example, erosion risk)
- good 'dam sinking' clay, ideally within 20cm of surface to reduce earthmoving costs. Check the depth to clay at the proposed site (checking depth across both the length and width of the site)
- check for sand/gravel seams as they will reduce the effectiveness of the system.
- avoid cracking clays.
- close to an existing dam or construct a dam for the site and check the size/capacity of the collector dam.
- ideally in a location to gravity feed to other sites on the farm

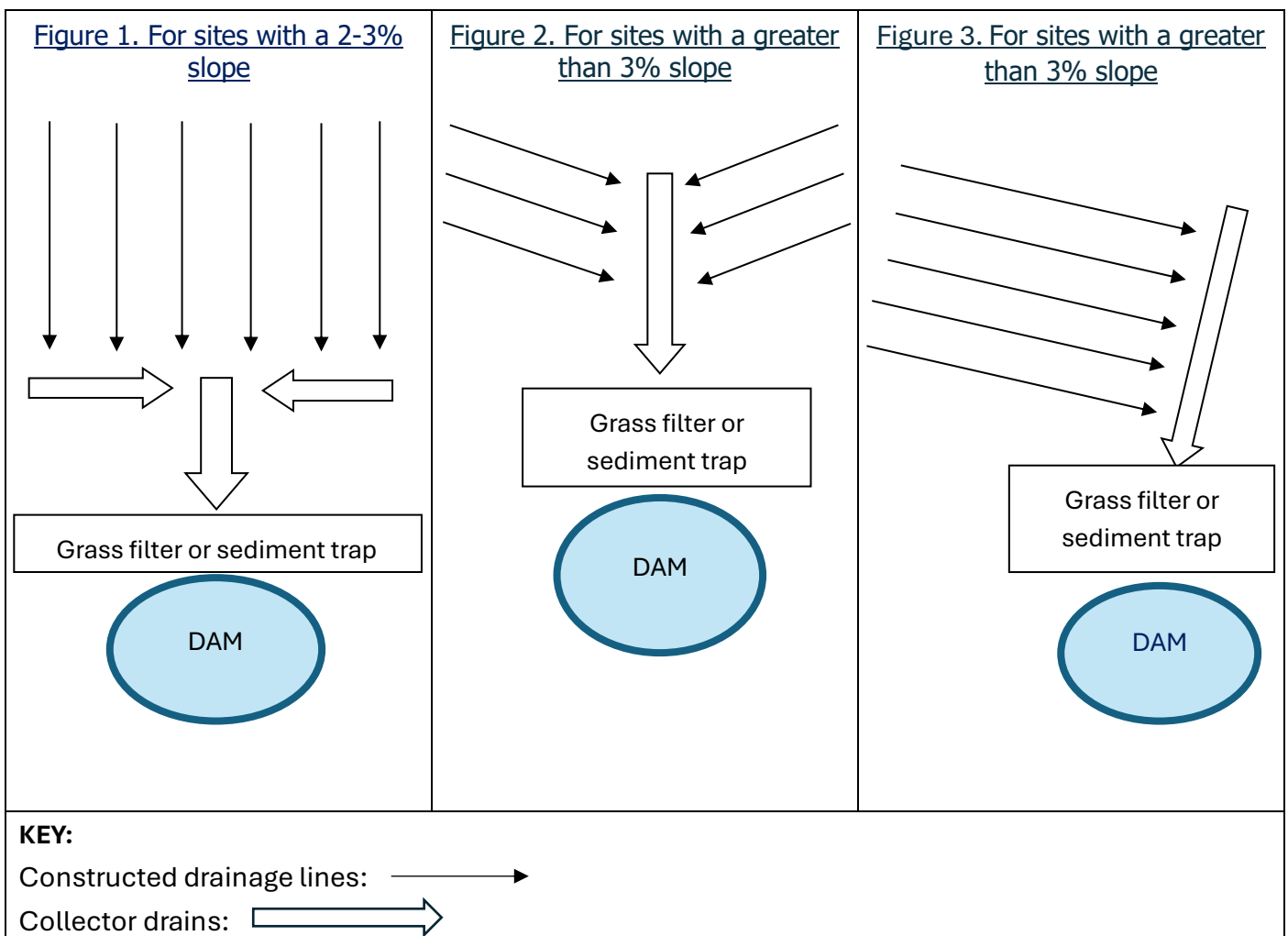
# CONSTRUCTION

Effective construction is critical to ensure the system maximises run-off potential without causing any negative impacts:

- locate the catchment and drains as close to the existing/new dam as possible.
- remove topsoil and cut drainage lines into the clay.
- drainage lines can be up to 2-3% (greater than this can result in erosion) and can be run down the slope, into a collector drain and into the dam (refer to Figure 1)
- if slope is greater than 3%, the drainage lines can be run across the slope before being collected into the collector drain (refer to Figure 2 and 3)
- compact drainage lines to enhance run-off (you are aiming for a hard, smooth, impermeable surface once the site is completed)
- fence the site to exclude stock as they will damage the surface, and their manure will pollute the dam.
- use a grader or equivalent to form the drains, then a roller to re-seal and compact the surface. Not using a roller leaves small depressions in the drains resulting in less run-off.
- use a sediment trap or grass filter strip 8-10 m between the drainage lines and the dam to reduce sediment run-off into the dam.
- consider access around the site for vehicles and machinery.

# DESIGN OPTIONS

Several options for plastic sources are available. Each with their own pros and cons. All options will need fencing to keep stock off the plastic and will require some system (tyres or weights) to secure the edges and help create the middle drainage line.



## MAINTENANCE

Maintenance is essential as run off can decrease to minimal levels within 3 years if the site is not kept weed free. Remember, we tend to generate the most run-off into dams in early winter, so undertake annual weed control early in the season i.e. a knockdown soon after germination in Autumn.

Maintenance or regrading of the graded drains may be required every 5-10 years to keep drainage lines clear.

Ideally keep stock off the site, but if they do have access the annual weed control and regrading of the site will become even more imperative.

## APPROVALS

The construction and enlargement of all dams, no matter the size, require a from the Kangaroo Island Landscape Board.

Graded catchments are deemed a Water Affecting Activity and require a permit, as installing a graded catchment increases the volume of water allowed to be captured in farm dams.

Before any construction begins on either the dam or graded catchment, contact the Kangaroo Island Landscape Board to seek approval for the works.

Contact the Kangaroo Island Landscape Board:

Phone: +61 08 8553 2476

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## KEY TAKE HOME MESSAGES:

- Graded catchments are a highly effective and long-term solution to enable landholders to more reliably capture run-off into dams.
- Correct design and construction are critical.
- Permits are required before starting construction.
- Ongoing maintenance of the site is essential.

## NEED HELP OR MORE INFORMATION?

Contact Lyn Dohle at the Kingscote PIRSA Office:

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