

How To Guarantee Successful Revegetation On Degraded Land

Science-backed and tested, tailored solutions from
Erizon for sustainable revegetation projects

Introduction

Mine-site rehabilitation is a legal obligation for all mining projects in Australia, but is also an activity whereby the industry can clearly demonstrate its sustainable development commitment to key stakeholders and the local community.

Rehabilitation through revegetating with healthy, suitable vegetation that supports existing ecosystems is the most efficient and effective way to meet these environmental remediation requirements. Inadequate implementation of revegetation can cost significant time and money. A tailored, well-timed approach is the key to a successful, long-term revegetation project.



Common issues with a 'spray and pray' methodology

When it comes to revegetation, some companies will plant seeds, add fertiliser and hope for the best – what's known as the 'spray and pray' methodology.

Ignoring pre-site testing, adequate site preparation, sourcing the optimal plant species, utilising the right techniques, and timing the project correctly could result in a costly and time-consuming exercise in the long run.

Obvious issues in 'spray and pray' methodology in revegetation projects includes:

- **Using a one-approach-fits-all solution. Without the assessment of a site's soil types and conditions, its unique rehabilitation needs may not be met.**
- **Disregarding species selection. Without a suitable selection, plant growth, erosion control effectiveness, and the project's functional longevity are all adversely affected.**
- **Not investing in surface preparation, which means plants are not given the best conditions for germination, survival, and growth.**
- **Overlooking critical timing considerations, such as optimal climate conditions and weed control timeframes.**
- **Not utilising the ideal application techniques. As technology develops and improves, there are new and more effective methods of applying your revegetation solution – a modern revegetation project requires up-to-date products and techniques that are suitable for a changing environment.**
- **Inaction against weeds. Without proper weed control, new plants and seedlings have difficulty surviving as they compete for soil moisture, nutrients and light.**
- **A lack of post-project monitoring, which can mean site requirements are not met and compliance issues are left unaddressed.**

The Erizon approach

Case Study

Ensuring (and maintaining) a successful revegetation project

The key to avoiding the issues compounded by a 'spray and pray' methodology lies in finding a tailored solution for your project. No single revegetation approach will fit all sites. Each area is distinctive and, thus, needs a specific revegetation program. This is the Erizon approach.

Step 1 Soil analysis

Good quality soil is the foundation for any successful revegetation project. Each project starts with a thorough understanding of the physical, chemical, and biological characteristics found on-site. Attending the site in person to collect soil samples allows our team to better understand rehabilitation needs, noting soil type, landscape, prior land use and early species considerations.

A comprehensive analysis of the soil samples is completed in a lab environment. The results provide us with essential information to determine what adjustments need to be made to ensure a favourable growing environment and a more complete vegetative establishment.



Project	Kanmantoo Copper Mine Site Rehabilitation Project
Client	Hillgrove Resources
Sector	Mining
Services	Dust Suppression and Revegetation
Product	EnviroLoc

Following previous failed attempts at rehabilitation, Erizon was approached by Hillgrove Resources to provide an effective revegetation strategy.

During the on-site consultation, comprehensive soil samples were taken from locations around the site, and laboratory analysis showed that the soil pH levels were moderately alkaline with low levels of calcium, elevated levels of potassium and magnesium, and some areas also high in sodium.

These findings confirmed that the lack of on-site vegetation was likely due to the poor structure of the soil profile. From this, Erizon were able to organise a hydromulching and amelioration program as a remediation strategy, customised for the site and its unique environment.



Step 2 / Choosing the right plant species

Correctly identifying the plant species appropriate for the specific site you want to revegetate is imperative. When choosing the optimal species, the team at Erizon will consider:

- **Revegetation purpose.** Determining the purpose of the revegetation project before starting it will serve as a guide in choosing suitable plants to grow on your site. For example, in rehabilitating degraded areas with low soil fertility and structure (as identified in Step 1), we would choose plants that can create micro-climate conditions and enhance the soil health and moisture.
- **Natural habitat.** It's crucial to consider the environment of the site needing revegetation, then, to choose a plant species that naturally grows or thrives in that area.
- **Native and local plants.** The ability to adapt to local climate and soil conditions is one attribute of local or native plants. It's important to use them whenever it is possible since they are more likely to be self-sustaining and will provide longevity to your project. Some plants need more time and care for cultivation. We will select only those that suit your schedule for proper maintenance.



Step 3 / Drone surveying and trial

A 3D survey is undertaken of the proposed revegetation site to accurately measure the area size and map it to a high degree of detail for quality, planning and analysis purposes.

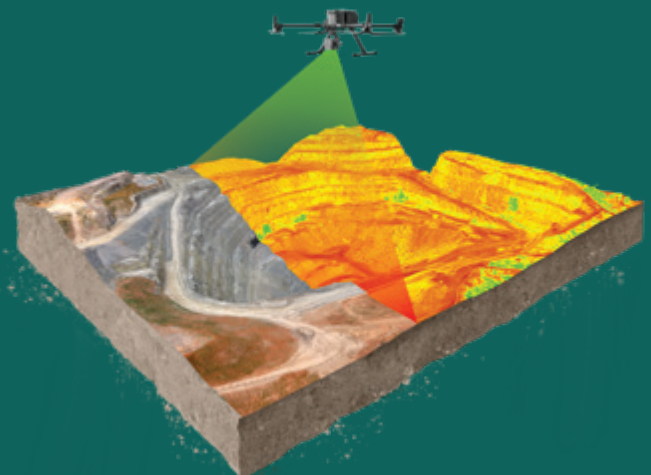
As each site is different, this inspection allows Erizon to get an early assessment of the best strategy moving forward, while tailoring the revegetation project and timeline to each individual site.

For revegetating large areas, Erizon have developed a custom trial to give the best possible insights into the most effective methods for your project's success. We monitor the trial's success through Envizo.

Envizo is a performance monitoring system that collects data, allowing 24/7 remote access to a full range of performance indicators. These can include temperature, humidity, soil moisture levels, average

rainfall and much more. Live video and reporting capabilities allow our team to accurately study the behaviour of each trial.

Once the trial is complete, you have full access to a comprehensive report analysing the trial period. From here, we can Soidesign the perfect solution for your project.



Step 4 Tailor the best solution

At Erizon, our experts carefully select the best solution for your unique project. We consider erosion control and product effectiveness, including its ability to facilitate growth and the functional longevity required for protection.



Case Study



Project	Port Augusta Ash Dam- Dust Suppression & Revegetation Project
Client	Flinders Power
Sector	Energy
Services	Dust Suppression and Revegetation
Product	HydroBond

Based on the results of the soil testing and the previous efforts to revegetate the site, the Port Augusta Ash Dam Project was deemed challenging and Erizon explored many potential options to provide a long-term revegetation strategy.

Ultimately, this included a tailored short-term dust suppression solution to contain high-risk topsoil dust. Alongside this, a soil amelioration plan was developed, with the aim to allow for long-term vegetation growth. Erizon were able to provide a solution that met the client's goals significantly more effectively than anticipated.

Step 5 Growth medium application

Damaged and depleted soils require more than conventional methods to achieve sustainable growth. Through the application of world-class growth mediums, we can support faster vegetation growth while minimising erosion.

By combining EnviroSoil and EnviroLoc Hydromulching BFM solutions tailored to your site-specific requirements, Erizon can ensure sustainable plant growth and help you achieve your revegetation goals.



EnviroSoil: A sprayable topsoil alternative

EnviroSoil has been scientifically engineered to drive unbeatable growth performance in challenging areas where the substrate is severely damaged and lacks essential nutrients and bioactivity after being disturbed by land activity. With eight active components, EnviroSoil includes site-specific fertiliser and custom additives to maximum success for your site's conditions.

EnviroLoc Hydromulching Bonded Fibre matrix (BFM):

This advanced hydromulch solution accelerates vegetation growth and enhances erosion control with its engineered fibre matrix technology. Our solution provides greater soil cover for erosion protection, weed suppression and establishes an optimal medium for seed germination with its high water retention and improved airflow exchange.

EnviroSprout Hydraulic Growth Medium (HGM)

In large areas where soil is poised for optimal vegetation growth, mulch is not required and quality irrigation is present, we recommend EnviroSprout. It is an advanced way to revegetate compared to conventional direct seeding, drill seeding or the aforementioned 'spray and pray' method, with the ability to revegetate hard to reach and steep areas.

Step 6 Even and uniform application

While Erizon offer a uniform approach, not all sites are uniform. We look at the best way to maximise growth and remediation success, with a range of options available to perfectly suit your site's needs.

Once your site is ready, our highly trained technicians prepare the solution. Strict guidelines are in place to ensure the correct mixes, ratios, and percentages are implemented, maximising the performance of our solutions.

When it comes to application, we use state-of-the-art equipment. As an industry leader, we strive to constantly innovate to improve performance and guarantee results - keeping pace with modern technologies in the industry allows us to do so.



HydroRigs

These are a game-changer in revegetation, especially for Hydromulching or Hydroseeding applications. With our HydroRigs, we can apply solutions in a fast and efficient manner of up to 50,000 square metres per day. This includes across challenging terrains and steep slopes.

Featuring hydraulic cannons and in-built agitators to maintain solution uniformity and homogeneity, these machines optimise efficiency and effectiveness.

With safety paramount in everything we do, our HydroRigs are equipped with rollover protection systems, edge protection and harness attachment points, interlocks and emergency stops, fire-fighting equipment, spill containment kits and first aid equipment.

Low bearing capacity (LBC) HydroTrailer

A specially developed, low-ground-pressure system, our LBC HydroTrailer is capable of applying solutions efficiently, accurately and above all, safely.

With the capability to extending the tractor track width past that of the trailer tracks, the HydroTrailer reduces compaction and extends the integrity of the substrate. Revegetation sites can often have restricted access due to the risk of compaction that would result in poor growing conditions. Our HydroTrailer lowers surface pressure by more than 500%, significantly reducing soil compaction.

Step 7 Drone Spraying & Spreading



Once solutions are applied and seeding is complete, Erizon creates a timeline to ensure the continued care of the site. After 4-8 weeks, we use the latest drone technology to apply fertiliser, trace elements and soil probiotics to the site. This ensures the longevity of the revegetation and ongoing project success.

With the ability to cover varied and uneven terrain, drones provide a safer and more efficient solution to projects where access is limited, with aerial spraying treating areas up to 40 times faster than manual spraying.

Additional key benefits of drone spraying include:

- **Cost savings, with a reduction in labour costs and more efficient application of spray solutions.**
- **Improved precision, with intelligent control systems enabling precise navigation at centimetre-level. Our drones also adjust spray height accordingly for uneven terrains.**
- **Consistency, as optional spray solution amounts are maintained.**
- **Being all-terrain compatible, with our drones able to fly in all weather conditions, including dangerous and hard-to-reach areas.**



Step 8 Post-project monitoring

Monitoring and maintenance are vital to ensure the ongoing success of your revegetation project. This continued support of the site means we can ensure your goals are met.

We recommend starting to record notes of your observations from the beginning of the revegetation project, which will give you baseline information to help inform the project's progress.

Erizon use the latest in drone, sensor, and imaging technology to accurately manage this monitoring. This includes:

Envizo technology

As detailed in Step 3, Envizo is our innovative monitoring system. You can avoid unnecessary site visits by assessing weather, dust levels, wind speed and direction, salt levels, moisture and access a live camera feed, all from your web browser.



envizo
Real-time Performance Monitoring

Monitoring drones

Drone-enabled plant health monitoring allows for detailed and accurate data, any time of the day or night, with seamless data sharing between all relevant stakeholders. Saving you time and money, our drones are a safe way to help you gain deeper insights into the rehabilitation of your site and will allow you recalibrate your strategy if necessary.



Why Partner With Erizon?

Innovators in successful, sustainable revegetation

With Erizon, you can feel confident that you are hiring knowledge and expertise to revegetate your site. We are an ISO and Australian Standards certified company providing proven results with over 25 years of experience. With the ability to mobilise rapidly from depots in each state and territory in Australia, the Erizon team are ready when you are.

Long-term and cost-effective solutions

Our use of state-of-the-art technology means that, at Erizon, we are continually developing and improving efficiency, which will save you and your project time and money.

Not only do Erizon address your revegetation goals, but we ensure the sustainability and longevity of your project, through extensive performance monitoring and management.

Australian products backed by experts

With our experienced and highly skilled team of agronomists, horticulturalists, and soil scientists, we take the time to fully understand the variables in each revegetation project. That way, we can develop effective solutions based on science, with a focus on safety.

All Erizon products are developed and made in Australia, with rigorous and extensive performance testing applied. Our products are designed to complement our unique Australian environment and landscapes, including the most depleted and degraded soils in the country.

On the forefront of technology

Our specialty equipment, techniques and products are on the cutting edge of revegetation developments. From our specially formulated growth mediums, state-of-the-art application equipment and extensive use of drones for everything from fertiliser spraying to post-project monitoring, we can radically improve the quality and efficiency of revegetation operations.

Everything we do meets the Australian Safety, Environmental and Quality standards, and our tailored Quality Management Plan and Inspection & Test Plan (ITP) identifies and records project specifications and requirements.

A tailored solution

Above all else, Erizon understand the need for a tailored solution to meet your revegetation goals. Revegetation involves a careful analysis of your site requirements and conditions to customise a solution. We have the expert knowledge to formulate a seamless path forward.

Contact us to discuss your next project and how we can guarantee results for you.

[CONTACT US](#)







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