

SUSTAINABLE SOLUTIONS

FOR LONG-TERM COAL ASH COMPLIANCE



Solutions for your Environment®



Profile's Engineered Soil Cover System

An environmentally friendly approach to closing Coal Combustion Residual (CCR) sites

With Profile Products, you can transform your CCR closure compliance liabilities into functional green space employing sustainable, Nature-based Solutions (NbS).

Closure of coal ash sites presents an opportunity to restore the land for beneficial uses that support surrounding communities and ecosystems while promoting carbon sequestration through natural vegetation. These efforts help rebuild ecosystems, reduce environmental risks and create long-term value beyond regulatory compliance.

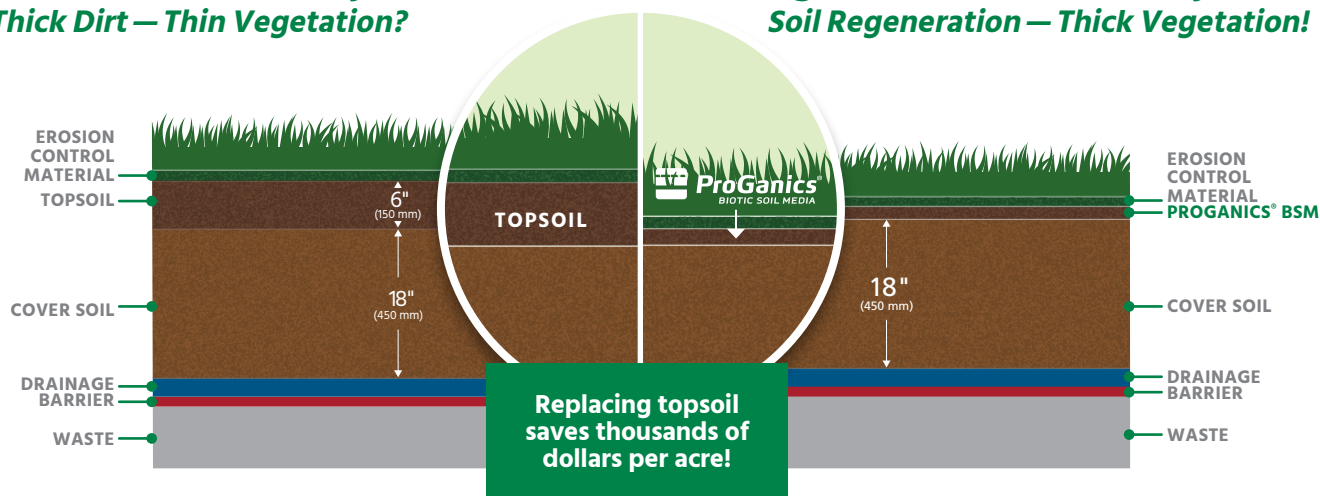
Profile's Engineered Soil Cover System (ESCS) is designed to meet the specific demands of CCR closure, all while supporting environmental stewardship and future land use. By combining innovative technologies, this approach offers accelerated site stabilization, robust vegetation establishment and reduced costs.

Profile's engineered systems provide durable, vegetated protection and effective dust control solutions tailored to site conditions. Together, these technologies help utilities safely close coal ash sites while delivering additional long-term benefits that:

- » Promote worker safety by reducing truck and heavy equipment traffic
- » Reduce carbon footprint, construction timelines and cost
- » Accelerate site stabilization and achieve compliance
- » Establish vegetation that restores ecosystems and sequesters carbon
- » Improve stormwater retention and reduce downstream liability
- » Enable future land uses with ecological, community or operational value

Traditional Cover System *Thick Dirt — Thin Vegetation?*

Engineered Soil Cover System *Soil Regeneration — Thick Vegetation!*



Typically, 6 inches (150 mm) of a "vegetative soil layer" is specified in traditional cover system designs with the underlying premise it will support vegetation. With CCR sites lacking fertile topsoil, designers and contractors next go to importation of manufactured soils to mimic properties of naturally-formed topsoil. However, these supplemental "faux" topsoils are:

- » Costly to obtain and maintain consistent quality
- » Time intensive, requiring heavy equipment and trucking to harvest, haul and place; adding additional cost and negative environmental impacts to the process
- » Devoid of necessary biological activity to perform as "healthy soil"
- » Difficult to install in wet or frozen conditions
- » Potentially unsafe to use on steep slopes

ESCS solves these problems by starting with an efficient hydraulic application of ProGanics® Biotic Soil Media (BSM), eliminating the time, cost and uncertainties that come with topsoil. ProGanics is a proprietary, pathogen and weed-free formulation that is engineered with a patented "Biological Soil Nutrient System" and soil-building components that initiate the nutrient cycling necessary to develop topsoil out of dirt without the environmental, contamination and quality control concerns.

Promote Carbon Sequestration with Native Vegetation

Beyond aesthetic and functional benefits, vegetation is a climate-smart strategy. Profile's products create conditions where native vegetation can thrive — allowing for significantly more carbon sequestration in comparison to traditional turf grasses or synthetic covers.

WHY NATIVE VEGETATION MATTERS

- » **More carbon, stored longer:** Robust root systems promote long-term carbon sequestration
- » **Adapted to thrive:** Native species require less water and resist environmental stressors
- » **Lower maintenance:** Fewer inputs, less mowing and better long-term site stability
- » **Environmental benefits:** Supports pollinators, wildlife and ecological health

TARGETED SOLUTIONS FOR LONG-TERM SUCCESS

Profile's solutions are engineered to meet the unique demands of coal ash sites: supporting rapid stabilization, sustainable vegetation and long-term site resilience. Each solution plays a vital role in restoring the land while aligning with your compliance, cost and environmental goals.

ProGanics® Biotic Soil Media

Instead of importing topsoil, ProGanics jumpstarts the natural processes to regenerate soil biology. Applied hydraulically, this pathogen and weed-free formulation delivers a consistent, high-performance growing medium.

- » Composed of recycled, natural wood fibers and soil-building components that initiate the nutrient cycling necessary to develop topsoil out of dirt
- » A proven alternative to topsoil and compost without the environmental contamination and quality control concerns
- » Prescribed as a functional equivalent to topsoil per ASTM D5268-23 standard, "Topsoil Used for Landscaping and Construction Purposes"
- » Compatible with harvesting coal ash for reuse in cementitious products

Flexterra® HP-FGM®: Erosion Control + Vegetation Establishment with the ProFlex™ System

Flexterra surpasses traditional erosion control methods, especially when paired with ProGanics Biotic Soil Media. Together, they provide a complete, sustainable solution for stabilizing CCR units and supporting long-term closure success.

- » Achieve regulatory compliance and attain Notices of Termination (NOT) more quickly
- » Made from recycled virgin wood fibers and naturally derived components
- » Holds moisture and controls erosion as vegetation establishes
- » Biodegradable, net-free and won't entangle wildlife or maintenance equipment
- » Requires less soil preparation and manpower
- » Eliminates risks posed by plastic netting found in Rolled Erosion Control Products

In areas of concentrated flow or high erosion potential, consider the GreenArmor™ System as a cost-effective and environmentally friendly alternative to rip rap and hard armor. This turf reinforcement mat, hydraulically infilled with Flexterra HP-TRM, offers the industry's highest reported vegetated and non-vegetated performance.



Project Profile:

ESCS Replaces Topsoil on Large CCR Closure Project

CHALLENGE

- » Long 3H:1V slopes
- » No topsoil available on site
- » Low organic matter and nutrient levels in underlying cover soil

Located in the Southeastern US, this massive CCR closure was delayed after previous revegetation attempts yielded poor results. After conducting soil tests facilitated through Profile Soil Solutions Software (PS³), ProGanics® BSM and ProPlus® Prescriptive Solutions were specified to increase organic matter and boost vitality of the cover soil, removing the need for costly imported topsoil. ProMatrix® Engineered Fiber Matrix® (EFM™) was then applied as a protective erosion cover that accelerates growth establishment.

RESULT

Despite low concentrations of organic matter and nutrients, dense vegetation was established in just three weeks to create a living, breathing cover system that has endured potentially damaging rainfall year over year. By employing ESCS, this and other CCR sites are achieving regulatory compliance at greatly reduced costs versus traditional cover systems while fostering enduring environmental legacies.

Lower your CCR closure costs and restore the environment with Profile's proven solutions. Schedule your in-person consultation today.

ProGanics Application



ProMatrix Application



In Just 3 Weeks



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