

WattleFence™ Testing and Performance



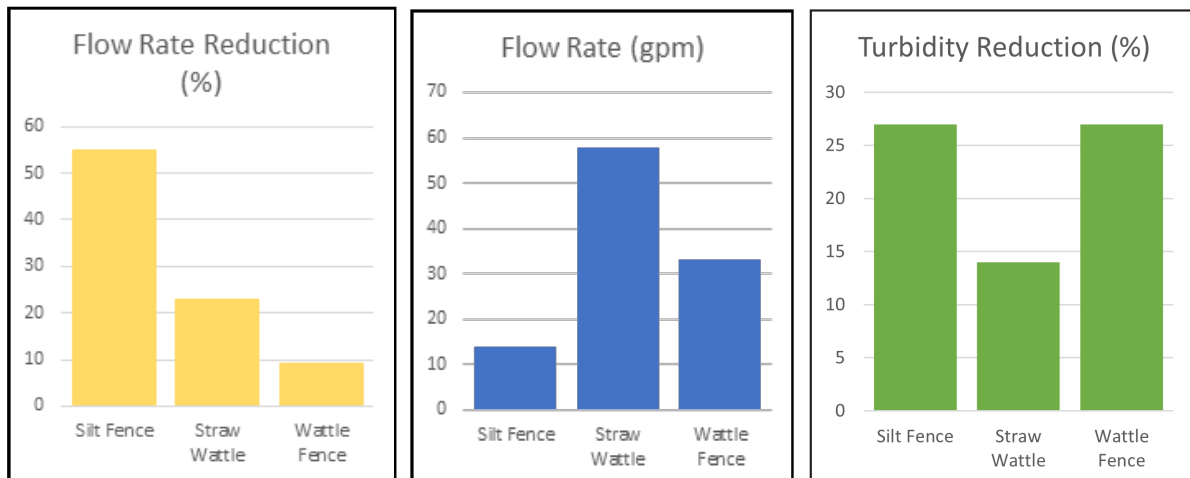
Overview of WattleFence Sediment Control Device Testing

Sediment control devices represent the last line of defense for keeping soil and pollutants on site. Key requirements for these devices are the flow-through capacity, sediment capture, and longevity. WattleFence offers a unique offering that changes the value equation from the specifier, to the contractor. With ultra-high shipping and storage efficiency, excellent performance and being fully biodegradable, WattleFence is changing how sediment is corralled and controlled.

WattleFence has been tested to determine the flow-through capacity, flow rate reduction, sediment capture and turbidity reduction. In a series of tests conducted at multiple, independent facilities, WattleFence has been shown to provide an advantageous performance envelope. In short, WattleFence captures more sediment, reduces turbidity at higher flow rates compared to a familiar technology, silt fence. Additionally, WattleFence presents less resistance to flow than a straw log and provides significantly better turbidity reduction.



In testing performed at the Texas Transportation Institute (TTI), sediment-laden flows were conveyed through three devices as a comparison. WattleFence provided equivalent turbidity reduction without creating problematic backwater. The sediment load introduced was granular (average grain size 3 micron), thus, did not lead to blinding of any of the products. Thus, this could be considered the worst-case in considering the turbidity reduction. This method is a standard protocol utilized by Texas Department of Transportation.



Testing performed at TTI, shows the flow rate reduction, flow rate, and turbidity reduction comparison between three different sediment control devices.



WattleFence cont.

When configured to intercept channelized flow, as in testing at a leading research university, the flow-through discharge was determined in conjunction with the reduction in sediment size achieved with WattleFence. Normalized sampling from upstream and downstream of the WattleFence during testing showed a 100% reduction in sediment at 4 mm diameter. This was determined as samples upstream showed some particles of 4 mm or greater, downstream samples did not, thus 100% reduction. Similarly, for particle sizes 2 – 4 mm in size, the downstream samples showed 96% less particles of this size fraction. The conveyance during testing was greater than 20 gpm per foot for the 9” tall unit.



Grain Size (≥ mm)	Sampled Reduction %
4	100
2	96
1	89
0.5	81
0.25	67
0.125	46
0.075	24

Shown Left to Right: WattleFence Before Testing, WattleFence During Testing.

WattleFence In Action

In real-world evaluation, WattleFence has been shown to provide outstanding longevity, remaining fully functional and at design height for approximately 9 months in southern Georgia. In this case, the unit was removed at the end of construction, and was fully functional at the time. Comparatively, logs, wattles, compost socks, etc, utilize a fill or stuffing to provide the device height. This fill is degrading from the first day on-site. The device loses height and structure every day on the job. WattleFence stands tall, month after month. Additionally, the WattleFence is comprised of natural, biodegradable elements, so once its functional use is no longer needed, the product can be laid down to allow degradation without removal.

WattleFence can be used in lieu of Coir Logs, Coir Wattles, Silt Fence, Straw/Excelsior Logs or any other type of sediment control device. The sediment capture performance is exemplary, while passing significant flow, minimizing ponding. Added to the ease of installation and the ability to leave the unit behind, WattleFence provides on-site simplicity.

For more information about WattleFence’s design or installation, or to learn more about our other Erosion and Sediment Control product brands, visit our website at www.westerngreen.com.



Shown Left to Right: Straw wattle deformation as degradation occurs, WattleFence in action under sediment-laden flows, WattleFence continued performance after multiple flow event.



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