

CASE FILE



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SITE CIVIL IMPROVEMENT ↔ EROSION CONTROL ↔ SURFACE WATER QUALITY

Geopro® Learning Tool

February 10, 2004

Jackson Creek - Sanilac County, MI; February/March 2003

Jackson Creek provides drainage for both Sanilac and St. Clair Counties. By late 2002, accumulated debris and sediment significantly impacted hydraulic capacity within a two mile stretch north of the St. Clair County border. Several farm crossings were choked and impacted from the resulting erosion stresses. Adjacent farm field flooding had become routine. In response, the *Jackson Creek Inter-County Drain Board* appropriated funds for maintenance to this section of deteriorated drain.



Debris & sediment choked Jackson Creek

BMJ, Inc. of Pt. Huron developed plans for debris removal and mechanical excavation operations. A key component of their design approach focused on minimizing downstream water quality impact resulting from the construction. All of the maintenance operations, including excavated sediment disposal, would be conducted within the Jackson Creek flood plain, a zone having little vegetal undergrowth and a relatively dense tree canopy. A specific concern addressed by *BMJ, Inc.* involved during-construction spoil stabilization as bank overtopping would

quickly erode the disturbed, loose soils, sending large sediment quantities downstream.



Dormant seeding using broadcasted Silt Stop 705 for soil binding

The planned winter months of operation made the review of available erosion control management practices relatively simple. Only two practices are practical for cold weather operations. Both require installation over unfrozen soil. Erosion control blankets offer the best security from mass soil movement associated with precipitation impact and sheet flow stresses. However, before blankets could be deployed, spoil dewatering would be needed, followed by rough grading to ensure blanket conformity to the soil surface. In colder weather, these processes may result in frost development prior to blanket installation completion [preventing stake placement]. Therefore, the alternative approach to soil stabilization was selected.

The selected management practice included initial spoil dewatering – followed **immediately** by grass seed and **Silt Stop®** polymer placement. Simple bench tests performed on sediment samples collected by *BMJ, Inc.* indicated that *Applied Polymer Systems, Inc.* [APS] **Silt Stop 705** to be effective in rapidly stabilizing the spoil materials and



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holding grass seed secure within the soil.

Due to cold temperatures and lack of sunlight, **Silt Stop** was expected to perform far beyond its standard 60-90 day capability, a key element as protection was required well past spring germination. Since **Silt Stop 705** is granulated, winter conditions posed no installation difficulties. *Kruger Excavating* of Sandusky coordinated their personnel and equipment operations to assure seed and 705 placements over unfrozen soil. Both were placed using conventional hand broadcast spreader techniques following spoil dewatering over the flood plain outside of the creek bank crests.



As the photographs indicate by virtue of the vegetation density shown, this management practice performed as desired. **Silt Stop 705** significantly reduced erosion stemming from spring snow melt and early storms. Due to

Project: Jackson Creek
Owner: Jackson Creek Inter-County Drain – Mr. James Bowerman
Design: BMJ, Inc. – Mr. Michael Quaine
Contractor: Kruger Excavation – Mr. Bill Krueger

low material cost [less than \$100.00 per acre] and simple installation procedures, **APS Silt Stop 705** is a practical, economical management practice for temporary soil stabilization. Its unique characteristics enable it to be used year round, including late fall, winter and early spring.



To learn more about polymer erosion and sediment control, contact your *Price and Company, Inc.* **Regional Representative.**

Silt Stop is a trademark of Applied Polymer Systems, Inc.

