

<p><b>New York State</b>  <b>Environmental Investment Program</b>  <i>Capital Project Summary</i></p> <p><b>Knight Settlement Sand and Gravel, LLC</b></p>
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**Project Background**

Knight Settlement Sand and Gravel, LLC performs traditional surface extraction of sand and gravel. The company has been in operation at its location in Bath, NY since 1968. It also operates a concrete batch plant on site, but the mining of sand and gravel is Knight Settlement’s most important operation, processing 300 to 350 ton of raw material per hour. The sand and gravel are crushed and washed to make about 20 different course and fine aggregate products, and a ready-mix concrete, which are sold to contractors, municipalities, and the general public. Knight Settlement also manufactures a variety of pre-cast concrete products.

**Project Description**

Knight Settlement’s production process generates about 73,590 tons of waste slurry per year. This byproduct is comprised of fine crusher dust and water from the washing process. Prior to this project, the company was pumping the slurry up 95 feet to on-site holding ponds. To create more space in the ponds, Knight periodically dredged the sediment from the ponds to create dykes. The process cost the business about \$75,365 per year. However, the practice eventually caused the ponds to become unstable, requiring that they be filled in.

In December, 2003, Syracuse University’s Industrial Assessment Center conducted a review of alternative options for Knight Settlement. One recommendation was that Knight purchase a hydrocyclone system to separate the solids from the water in the crusher slurry to eliminate the costs associated with dredging and instead produce a saleable product from the recovered fines. A Phoenix HG 315/508 Separator System was installed in October, 2004

and began operating shortly thereafter. Knight intended to blend a portion of the fine sand produced by the hydrocyclone into its bituminous sand product (“bit sand”) and sell a larger portion of it to local farmers as bedding sand for dairy cattle. It was anticipated that the new process would generate fines at a rate of 59,460 tons per year, earn Knight an additional \$319,000 in sales revenue and save \$75,000 on avoided dredging costs.

**Project Results**

The hydrocyclone removed solids from the slurry at a higher rate than projected, recovering 65,274 tons of fines per year. Knight was able to mix the fines into seven of its products: black top sand, filter sand, green sand, mason sand, ice control sand, topsoil, and concrete sand – far more end uses than originally anticipated. In some cases, the fines are a substitute for other materials (e.g., fly ash in black top). In other cases, Knight adds the fines “as-is” without detracting from product quality, allowing the business to extend the value of those products. New revenues from the sale of products containing the recovered fines (adjusted for the percentage of fines normally found in those products) reached the equivalent of \$326,882 per year. Knight Settlement also avoided dredging costs of \$75,000 per year as well as mine reclamation costs of \$34,500 per year.

This project successfully converted 65,274 tons of waste into high quality products, yielding an annual dollar benefit of \$436,382.

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<b>Contractor:</b>	Steuben County IDA	<b>NYS EIP Investment:</b>	\$89,792
<b>County:</b>	Steuben County	<b>Contractor Match:</b>	\$89,792
<b>ESD Region</b>	Southern Tier	<b>Total:</b>	\$179,584
<b>ESD Contact:</b>	518/292-5340	<b>Completion Date:</b>	December, 2005