

McGuires Excavating & Trucking Inc. Upgrade Wash Plant for Increased Capacity

Family Business

McGuires Excavating & Trucking Inc. is a family run business located in Terre Haute, Indiana, that has been operating for over 33 years. Established in 1986, the company first started washing aggregates in 2007, producing sand and gravel for the expanding local construction and concrete industry. Earlier this year they made the decision to upgrade their washing plant to allow them to offer a higher volume, and a wider range of high quality materials to their loyal customer base. Through the investment in new Terex Washing Systems (TWS) equipment and technology they have been able to maximise profits and eliminate inefficiencies in their production process. Commenting on the project, Ryan McGuire, Vice President, McGuire's Excavating & Trucking Inc. commented 'Increasing our production and our salable material was our reason for looking at a new solution. We initially considered a few at different options, however the reason we opted for this TWS washing solution was due to the capability to make multiple sands and aggregates at any one time and in addition the local dealer support on the ground, which was crucial not only for the build, but for the life-cycle of the plant thereafter. Ryan added 'meeting with both the manufacturer and our local dealer several times reassured us in terms of our final decision. We instantly knew this would be the best relationship for us moving forward.'

World Class Support

Terex Washing Systems (TWS) and their local territory dealer, Powerscreen Crushing and Screening, worked very closely with McGuire's Excavating & Trucking Inc. to provide a solution suited to their needs and desired end products. The solution was specified following several site visits, plant proposals and customer specific design modifications, as well as samples of the feed material being sent for further testing at TWS Headquarters in Dungannon, Northern Ireland. Commenting on the support, Ryan McGuire commented, 'The support we got directly from TWS and from our dealer has been absolutely amazing.'

Whilst TWS is headquartered in Northern Ireland, they also have a full facility and team based in Louisville, Kentucky, so to easily serve the USA customers alongside their dealer network. The service and support from TWS, along with their distributor, is typical of what customers can expect when purchasing a TWS product. TWS offer their expertise and highly skilled team of engineers to assist and guide the customer from the initial conception to final installation.

Seamlessly Combined

Designed for the processing of dredged sand and gravel with organics, the TWS washing solution at McGuire's Excavating & Trucking Inc. consists of an AggreSand™ 206 and the AggreScrub™ 150, Industry leading products first launched in 2014. Both products seamlessly combine to form a washing and scrubbing plant to produce 3 clean sized aggregates and 1 or 2 sands. Ryan McGuire commented 'With this new washing solution we have so much flexibility, we can produce 2 sands or 1 sand, and we can adjust spec by blending more fines into the sand, or less fines, based on what specification of sand our customer needs. We also have the capability to make 3 washed aggregates at once, which just makes it a really great plant and meets all of our expectations and more'.

Barry McMenamin, Global Sales Director, TWS commented: "The McGuire's Excavating & Trucking Inc. installation represents our end to end solution offering and demonstrates how our equipment can be seamlessly combined to provide a solution tailored to the customers' needs, so to consistently deliver premium grade sand and aggregates.

Improved Product Quality

Ryan McGuire went on to explain that the increased demand for high-spec clean aggregates was the major driver in selection of the TWS equipment. Through pre-sale customer visits, understanding the sand production levels that were required, the AggreSand™ 206 was the obvious choice of sand washing equipment. With its large 20x6 bottom deck, sand production could be maximized while offering flexibility to meet spec across all products.

Through further feed material sampling it became apparent that, to guarantee the aggregate cleanliness, the material would need scrubbed. The AggreScrub™ 150, with its high

performance twin shaft logwasher and integrated post rinsing and sizing screen met all the needs in one compact chassis.

The AggreSand™ concept pre-wired & pre-plumbed with quick installation was particularly intriguing to McGuire's Excavating & Trucking Inc. far removed from their previous wash plant. The material to be processed required extra scrubbing, to ensure the desired product was in spec, therefore the AggreScrub™ 150 was added as part of this overall solution. It offers increased production capacity and increased levels of access. The seamless combination of the AggreSand™ 206 and AggreScrub™ provided the extra required capacity.

Reaching New Heights

The AggreSand™ 206 plant consists of a H12 feed system which is fed by a wheel loader. The feeder is fitted with a 14' wide hydraulic tipping grid, equipped with 4" grid bars to scalp off any oversize material in the feed. Both the feeder and grid are powered by the on board 37kW electric hydraulic power-pack. The material transfers from the feeder to the main rinsing screen via a 23m twin-drive feed conveyor with an integrated rubber lined washbox. Here the material is pre-soaked using a high volume spraybar system which fluidizes material presenting it uniformly onto the 20 x 6 inclined rinsing screen.

2 Decks or 3 Decks

The rinsing screen on the AggreSand™ 206 is available as a 3-deck or 2-deck variant. At McGuire's Excavating & Trucking Inc. the two deck version is fitted with polyurethane modular media on both decks. Each deck utilizes ten individually controlled isolated spray bars to efficiently rinse the aggregate and sand product. From the top deck a washed 'septic stone', + 1 ½", aggregate is sent to stockpile for future crushing and processing. The rinsed material between ¼" – 1 ½" from the mid-size deck is fed to the AggreScrub™ 150 for scrubbing and removal of clay conglomerates.

The 2-Grades of sand are produced through a split bottom deck system, where material is washed through as separate products into a split sump tank, where each sand is then pumped to a dedicated cyclone before finishing on a 14x6 high frequency dewatering screen making a high quality in spec concrete sand, with the ability to switch to make a variety of sands.

Abrasive Scrubbing Action

The AggreScrub™ 150 combines a combines a high performance twin shaft logwasher, trash screen, sump tank and integrated post rinsing & sizing on one compact chassis.

The AggreScrub™ 150 logwasher consists of a 26ft hull, housing two rotating shafts fitted with abrasion resistant blades and paddles. The blades and paddles convey the material from the feed end of the scrub to the discharge end. As the material travels through the hull the abrasive action of the aggregate colliding and passing through other aggregate (stone on stone) scrubs it clean and breaks up any clay conglomerates which become liberated and then float off through the back of the AggreScrub™. The addition of clean water encourages any organics (such as roots) to flow with the suspended fines and clays out of the hull and on for dewatering over the AggreScrub's™ 6 x 2 trash screen.

Scrubbed aggregate exits the main discharge of the AggreScrub™ 150 onto a 12x5 2-deck part rinsing screen. This screen is fitted with polyurethane modular media to produce three aggregates standard pea gravels, specialized pea gravel and oversize (number 8).

The initial section of this screen is fitted with spray bars to rinse off any sand / grit residues produced during the scrubbing process.

A key feature of the AggreScrub™ 150 is the onboard sump tank and centrifugal pump, where the underflow from the trash screen, and the underflow from the part rinsing screen are captured in this sump tank, then this dirty water is pumped back to the AggreSand™ 206 sand plant for maximum recovery of sand and efficient use of water.

Sand Fit For A Castle

Using the AggreSand™ 200tph 2-grade sand plant gives the customer maximum control and flexibility in managing the fine sand fraction in the final C33 product while offering the option to make a dedicated in-spec fine sand.

As standard, the AggreSand™ provides the functionality to blend the fine and coarse sand product at the cyclone discharge point, or at the end of the dewatering screen, at the final product discharge chute. In addition to this a third blending opportunity is created via a specially designed rubber-lined catchbox, under the rinsing screen which allows individually operated adjustable division plates to blend more fines into the coarse product or alternatively maximize the bottom deck area availability for the fine sand production.

Cutting Edge Control System

The on-board HMI control system for this AggreSand™ 206 & AggreScrub™ 150 wash plant is another example of the seamless integration possible with these two plants. Each plant has a dedicated control panel, which is prewired and factory tested. However, when combined the entire plant can be operated and monitored from one single HMI.

For McGuire's Excavating & Trucking Inc. the additional feature of having a second HMI located in plant side operator cabin, allows the operator to monitor plant parameters such as water flow rate and pressure, cyclone pressure and motor running information from one location.

Ryan went on to say: "It has given us a great deal of flexibility in the market. We started here with a much smaller washing plant and after looking at the market and the changes, we opted for this solution which has allowed for more flexibility to better serve the market and demands. It's modular in design, so we can change the modules and we also have the ability to add a larger sand plant if the market changes. Moreover, on the back of that we have built a strong relationship with our local dealer, Powerscreen Crushing and Screening, as well as with TWS. The fantastic thing about the AggreSand™ is the modular design, allowing us to be flexible and

fast in the market and it allows us to react quickly. From start to finish, from the product coming in, the assembly of the build, commissioning, everything has been flawless.'

To find out more or to discuss specific washing requirements, contact us at TWS.Sales@terex.com or visit our dedicated website which provides an overview of the full product offering at www.terex.com/washing