

New Jersey Department of Transportation  
Bureau of Research

## Technical Brief



### Analysis of Genesis Rapid Dewatering System (RDS) and Related Technologies

*This study assessed the feasibility of using the Genesis Rapid Dewatering System, in comparison to comparable dewatering systems, using a number of feasibility metrics, and hypothetical site stresses. The research team made these comparisons based on a literature review, case studies and research.*

### Background

The NJDOT Office of Maritime Resources (OMR) provided specifications to study the differences, advantages and disadvantages of current dewatering technologies and techniques, compared to the Genesis Rapid Dewatering System. This report focuses on different systems and their technologies; Traditional Systems, Geotextile Tubes and Integrated Systems use four types of technologies: passive, chemical aids, physical and mechanical processes. Examining dewatering more closely, over the last 10 years technological advancements in the rapid dewatering field have improved processes, throughputs, scalability and decreased costs. Studies show that rapid dewatering accelerates the separation of solids and water from the dredged materials, often mitigating the issue of disposal areas and reducing the footprint of the project, compared to more traditional systems (Hodges, et. al 2009). This report seeks to determine the ideal design conditions that result in the most efficient dewatering practices.

### Research Objectives and Approach

The objective of this report is to present a focused and limited feasibility analysis on whether or not the Genesis Rapid Dewatering System and other related technologies could effectively be employed in the State of New Jersey. The dewatering systems under consideration were put through a screening process and compared based on qualitative and quantitative characteristics. All systems adhere to the specifications provided by NJDOT/OMR and the hypothetical scenarios themselves were based on sites that could be encountered throughout NJ as potential projects. Regarding the approach used to analyze and compare dewatering systems and technologies against Genesis RDS, the research team developed a screening process including, but not limited to: cost effectiveness, scalability and mobility.

### Findings

The research team examined multiple dewatering techniques and technologies against the Genesis Rapid Dewatering System. The research presented in these studies was delivered

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to the NJDOT/OMR to provide in-depth information about the Genesis RDS and related dewatering technologies. The research team concluded that the Genesis RDS, when utilized in the right scenario, can provide optimal results when compared to other dewatering systems.

The research team has the following recommendations for NJDOT:

- Extensive site-specific research must be done to ensure that the system set-ups and add-ons adequately address all needs;
- Support materials and labor must be provided to ensure that the system can operate at full capacity;
- Competence and experience of work crews with the dewatering system will have a large impact on the system's efficiencies and costs, the quality of these crews must be assessed;
- NJDOT/OMR must create a system of checks and balances to analyze any site against the abilities or shortcomings of specific dewatering systems; and
- Exact site scenarios must be established so that system parameters can be defined and cost estimates can be refined.

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A final report is available online at: <http://www.state.nj.us/transportation/refdata/research/>. If you would like a copy of the full report, send an e-mail to: [Research.Bureau@dot.state.nj.us](mailto:Research.Bureau@dot.state.nj.us).

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