

FINAL DRAFT
SUMMARY OF THE DREDGED MATERIAL MANAGEMENT PROGRAM
INNOVATIVE REUSE COMMITTEE MEETING

November 28, 2017, 5:30 PM

2200 Broening Highway
Baltimore, Maryland 21224

Attendees:

Innovative Reuse Committee (IRC) Members:

Anne Arundel County Department of Public Works: Chris Phipps
Baltimore County Department of Environmental Protection and Sustainability (EPS): David Riter
Baltimore Development Corporation (BDC): Patrick Terranova
Baltimore Port Alliance (BPA): Rupert Denney
Blue Water Baltimore: Barbara Johnson
Chesapeake Bay Foundation (CBF): Doug Myers
Maryland Department of Natural Resources (DNR): Paul Petzrick
Northeast Maryland Waste Disposal Authority (NMWDA): Andrew Kays
Turner Station Conservation Team (TSCT): Larry Bannerman
Rukert Terminals: Steve Landess
Stancills, Inc.: Terry Stancill

IRC Support Staff and Observers:

Facilitator: Steve Pattison
Maryland Department of Transportation Maryland Port Administration (MDOT MPA): Chris Correale, Bertrand Djiki, Sergio Adantor, Holly Miller, Kristen Keene
Maryland Environmental Service (MES): Lauren Mentzer
Northgate Environmental (NGE): Nancy Leitner
Stancills, Inc.: Chris Siciliano
Straughan Environmental: Jeff Nelson
Synagro: Lauren Miller
Terracon: Nancy Straub
Tradepoint Atlantic: Pete Haid
University of Maryland Center for Environmental Science (UMCES): Elizabeth Price

Action Items:

No action items to report.

Welcome & Introductions

Steve Pattison, Facilitator

Mr. Pattison welcomed the meeting attendees and the attendees introduced themselves. Mr. Pattison informed the Committee of a change to the May 23, 2017, meeting summary; an inconsequential grammatical error was corrected. Mr. Pattison asked for any additional comments. No comments were shared and the Committee accepted the August 22, 2017 summary as final.

MDOT MPA/MDOT SHA Memorandum of Understanding (MOU)

Holly Miller, MDOT MPA

Mr. Pattison informed the Committee that due to a conflict, Mr. Darren Swift of Maryland Department of Transportation State Highway Administration (MDOT SHA) was unable to attend the meeting. Therefore, Ms. Miller would provide an update on the memorandum of understanding (MOU) between Maryland

Department of Transportation Maryland Port Administration (MDOT MPA) and MDOT SHA in Mr. Swift's absence. Ms. Miller stated that the MOU was signed by both MDOT MPA and MDOT SHA. MDOT MPA is creating a financial management information systems (FMIS) number for MDOT SHA to begin studies and testing related to the innovative reuse of dredged material.

Ms. Miller discussed recent changes to MDOT SHA's recycled materials specification and topsoil specification to include the use of dredged material. The recycled materials specification draft is undergoing internal review at MDOT SHA. The finalized document can be shared if committee members are interested. MDOT SHA is coordinating internally to revise the topsoil specification. Ms. Miller stated that MDOT SHA may reference the recycled materials specification in the topsoil specification.

Mr. Myers asked if the MOU specifies the amount of dredged material MDOT SHA intends on using. Ms. Miller responded that the language in the MOU is general and does not specify a specific amount of material that MDOT SHA will use; MDOT MPA would like MDOT SHA to perform several small pilot projects before uses are broadened. Ms. Miller stated that there are no specific projects planned at this time; the MOU was developed for MDOT SHA to be compensated for additional testing on dredged material and several small demonstration projects. Ms. Correale added that the inclusion of dredged material into their specifications has been a significant change for MDOT SHA, so the MOU was created for MDOT SHA to perform additional testing and assuage their concerns. Mr. Denney asked whom would private industry need to contact for the development of an area for storage or work space. Mr. Riter responded that private industry would need to contact the Baltimore County Soil Conservation District to obtain a permit for any grading or filling activities and Maryland Department of the Environment (MDE) to categorize the material used. Mr. Dijiki added that the County uses the same specification as MDOT SHA for highway projects. Mr. Denney summarized that the County uses MDOT SHA's specifications as guidelines to adjust as they see appropriate.

Potential Small Scale Demonstration Projects

Lauren Mentzer, MES

Mr. Pattison reminded the Committee of Action Item Four, implementation of small scale demonstration projects, from the June 2014 Updated Strategy for Innovative and Beneficial Use of Dredged Material in Maryland's Dredged Material Management Plan (DMMP).

Ms. Mentzer provided an update on several proposed/established demonstration projects. MDOT MPA is actively working with several partners for the development of demonstration projects to be executed in 2018. MDOT MPA and Maryland Environmental Service (MES) are currently evaluating projects using dried dredged material from Cox Creek dredged material containment facility (DMCF). One such project is for the use of dredged material as Alternative Daily Cover (ADC) material at the Quarantine Road Landfill. MDE has provided a letter to the Baltimore City Department of Public Works (DPW) approving the use of material for the demonstration project and outlining necessary reporting from the landfill on any operational issues encountered. The letter goes on to state that based on the landfill's report after the demonstration project MDE may consider dredged material as ADC for an extended period of time. MDOT MPA is working with DPW to finalize an agreement for hauling of the material from the Cox Creek DMCF drying area to the Quarantine Road Landfill. Additionally, MDOT MPA is in the planning stages of building an algal flow-way on the completed South Cell of the Hawkins Point DMCF. This is a MDOT MPA property that last received dredged material in 1997. The North Cell of Hawkins Point DMCF was closed in 2012. The South Cell is currently being dewatered through a permit and will be filled and graded with approximately 19,000 cubic yards of dredged material. Another potential demonstration project would use the existing steel slag fines/dredged material blend pile, remaining from the Schnabel demonstration project,

for engineered fill at Sagamore's Port Covington project. The blended pile is approximately 3,200 cubic yards. MDOT MPA is coordinating with Sagamore on a potential agreement.

An eight-by-sixteen foot test nursery was created to determine the ability of Cox Creek DMCF dredged material to sustain growth of grass seed. The nursery was divided into eight separate plots, each with a unique treatment using dried dredged material from Stockpile C2, Leafgro®, and Lime with a control treatment of store brand topsoil. The plots were planted with a grass seed mix and observed weekly since the nursery was completed on October 2, 2017. The 100% dredged material and lime plot currently has the highest percent coverage of all the plots with the 100% dredged material plot without lime having the second highest percent coverage. The dried dredged material used in the study was previously tested for pH, metals, and nutrients and will be tested again after completion of the observations in Late Summer 2018.

Mr. Nelson asked if MES is using MDE's Innovative Reuse and Beneficial Use of Dredged Material Guidance Document (Guidance Document) in order to categorize the material at Cox Creek DMCF to determine the acceptable end uses for the material. Ms. Mentzer responded that MES is using the Guidance Document to determine what material at Cox Creek can be used for specific end uses and stated that the material used in the nursery and most of the material at Cox Creek meets Category 2 criteria. Mr. Nelson asked if the material at Cox Creek that was determined to be Category 2 material has been separated from uncategorized material. Ms. Mentzer responded that wet material is placed on the interior slopes of the DMCF during crust management and transported to the old Schnabel Study area, which has an approved Erosion and Sediment Control Plan. When the material is dry, the material is then tested and categorized. Mr. Nelson asked if additional testing of the material is being considered prior to use in the demonstration projects. Ms. Mentzer responded that the current testing regime is sufficient for the demonstration projects. Ms. Mentzer added that MES is developing long-term sampling plans for the innovative reuse of Cox Creek material. Mr. Myers asked what category is required of material used as topsoil. Ms. Mentzer responded that the category of material depends on the end location of the topsoil, residential, commercial, or industrial. Mr. Phipps inquired as to the quantity of dredged material that will be used for the ADC demonstration project. Ms. Mentzer responded that MDE has approved the use of approximately 1,000 cubic yards of material and stated that the MOU is being developed with DPW in order to determine the quantity of material needed to perform a meaningful demonstration project. Ms. Mentzer added that MDE approval will be sought if any additional material is needed for the demonstration. Ms. Miller added that DPW currently estimates that 7,000 cubic yards of material would be needed for the demonstration. Mr. Phipps asked if the dredged material would be applied as a one-for-one replacement of typical cover material in terms of depth. Ms. Mentzer responded that the application of the material will be determined by the operators of the landfill. Mr. Phipps asked if dredged material would only be used as daily cover, not intermediate or final. Ms. Mentzer responded that dredged material will only be used as daily cover for the demonstration.

Overview of Stancills Incorporated

**Terry Stancill, Stancills, Inc.
Chris Siciliano, Stancills, Inc.**

Mr. Pattison stated that MDOT MPA likes to offer an opportunity for committee members to provide updates from their organizations. Therefore, Mr. Stancill will provide an overview of work performed by Stancills, Incorporated, and their role/interest in the innovative reuse of dredged material.

Mr. Stancill thanked the Committee for the opportunity to discuss his company, Stancills, Inc. Mr. Stancill introduced Mr. Siciliano as the Director of Sales at Stancills, Inc. Mr. Stancill stated that the company was founded as a sole proprietorship in 1934 by his father, G.L. Stancill, and once supplied sand and gravel for

construction sites, placed asphalt and concrete, performed excavating and grading, and rented equipment. Due to multiple requests for specialized soils, a soil mixing and blending program began around 1997 using the skills and experiences gained from the production of sand and gravel. Stancills, Inc., was acquired by P. Flanigan and Sons on November 3, 2017. This is very exciting to Mr. Stancil as the president of P. Flanigan and Sons, Pierce Flanigan, is Mr. Stancill's son-in-law. P. Flanigan and Sons was founded in 1885 and share the same ideals as Stancills, Inc., regarding the treatment of people, employees, customers, and vendors. Mr. Stancill stated that Mr. Siciliano would inform the Committee on the products produced by Stancills, Inc., and how the products are created.

Mr. Siciliano stated that Stancills, Inc., engineers green roof, bioretention, rain garden, stabilized path, equestrian, and ball diamond mixes. Stancills, Inc., also produces custom mixes, blends for The United States Department of Defense, construction soils, and structural soils. The majority of blending companies use loader buckets, for pad blending or bucket blending, or a pug mill to create soil blends. This process, however, does not yield completely uniform blends that would be consistent throughout. Stancills, Inc., uses bins to accurately meter the raw materials onto a collection belt that feeds the proportioned material through a passive blending system. The end product of this process will be properly proportioned, thoroughly blended, consistent throughout, and accurate to the specifications.

Mr. Siciliano discussed multiple projects Stancills, Inc., has undertaken, each needing a unique soil mixture. The Fair Hill Training Center for race horses in Cecil County needed a soil mix that could withstand constant equestrian traffic. The Maryland Zoo in Baltimore needed a soil mix that drained quickly due to the urination habits of warthogs, which led to the use of the mix at the Smithsonian's National Zoo in Washington D.C. and the Philadelphia Zoo. The Maryland Zoo in Baltimore also used the mix in the penguin and rhinoceros exhibits. Bishop Stadium at Naval Academy in Annapolis required a ball diamond mix which wouldn't stick to players' or fieldsmen's shoes. Longwood Garden needed a stabilized path mix to replace paved trails for its main fountain garden and meadow garden that could withstand heavy pedestrian traffic, be compliant with the Americans with Disabilities Act (ADA), and resemble an old English/European garden path. Phase I of the National Mall turf restoration process was started and completed in 2012, restoring 11.3 acres of grass panels between 3rd and 7th streets. The original plan involved recovering 70% of the sites' existing material through screening; an additional 15% organic matter and 15% coarse sand would be brought to and blended with the recovered material on site. Due to the yield of reusable material not meeting the required quantity, larger screens were used. Phase II of the National Mall turf restoration process was completed in 2016 and used 22,000 tons of new material to restore the grass panels between 7th and 14th streets. A stabilized path mix, compliant with the ADA, was used for the walkways around the National Mall and the Washington Monument. The National Mall was home to a facescape art project titled "Out of Many, One" for the month of October 2017. It was designed by Mr. Jorge Rodriguez-Gerada in conjunction with the Smithsonian and the National Parks Service (NPS) using sand and mulch, which not only met the needs of the NPS but also Mr. Rodriguez-Gerada's color requirements for the project. Stancills, Inc., engineered green roofs at the American Bandstand studio museum in Philadelphia with wildflowers and at Diane Von Furstenberg's building in Southwest Manhattan, near the High Line, with native grasses. Bioretention soils were used alongside most of Cecil and Harford County's portion of Interstate 95 in Maryland.

Mr. Siciliano discussed the physical and chemical components/contributions of soil mixes. The physical profile of soils include: particle size distribution; particle shape, used to control water holding capacity and flow rates; bulk density at maximum water holding capacity; and water/air measurements. The chemical profile of soils include: nutrients; cation exchange capacity, organic content; pH; and soluble salts and

determines the plant's ability to absorb available nutrients. Mr. Siciliano stated that the factors that Stancills, Inc. will consider before using dredged material as engineered fill include: material contaminants, current gradation of the material, consistency of the material, cost of testing, if the material/mix meets MDE's requirements for engineered fill, and if the material will meet the design specifications for the mix.

Mr. Nelson asked if Stancills, Inc., performs their own material testing. Mr. Siciliano responded that Stancills, Inc., does not perform their own testing. Testing is performed by various labs. Mr. Stancill added that Stancills, Inc., performs some of the physical testing and pH for internal use only. Ms. Straub asked what Stancills, Inc., uses to bind the sediment in the stabilized path mixes. Mr. Siciliano responded that Stancills, Inc., obtains an all-natural binder from Stabilizer Solutions in Arizona that absorbs water. Ms. Straub asked if the binder is made out of pine tar resin. Mr. Stancill responded that the binder is the by-product of Metamucil® production. Mr. Siciliano added that the by-product is very fine grained, like talcum powder, and must be used at a rate of 15 pounds per ton to be compliant with the ADA. Mr. Siciliano stated that all Major League Ballparks use a version of this binder; thirteen ballparks are currently using the binder from Stabilizer Solutions as it reduces dust clouds and keeps the field sturdy in the rain. Mr. Myers asked if Stancills, Inc., has performed any research into soil biology, such as the roles of fungal hyphae and bacteria colonies in the soil, which are important for nutrient retention, nutrient cycling, water retention, and plant available nutrients. Mr. Siciliano responded that Stancills, Inc., has researched biochar and other biological additives that could be used in mixes as sources have been lined up. Mr. Siciliano added that due to the added cost of biological additives most customers abstain. Mr. Siciliano stated that one of the premier designers of green roofs believes that a healthy biological community in the soil can be obtained naturally within three weeks to three months, depending on the season, from the spores already in the air. Mr. Myers agreed that it could happen naturally if the soil contains enough organic matter and has the correct chemical make-up, but that those conditions are not in all soils. Mr. Bannerman asked if Stancills, Inc. engineers any mixes that can be used within the riparian zone. Mr. Siciliano responded that Stancills, Inc., had previously investigated bio-filtering buffers that would filter water but was unsure of the study's results. Mr. Siciliano stated that Stancills, Inc., is typically provided with the parameters, such as the required characteristics or formula, of the project in order to create the needed soil mix. Mr. Bannerman provided an example for his question: a ramp to a beach. Mr. Siciliano responded that the soil mixes would disintegrate if submerged in water and stated that only asphalt or concrete would be able to withstand those conditions.

Mr. Myers asked if distance is a determining factor when deciding on the source of feed materials for soil mixes, such as dredged material. Mr. Stancill reminded the Committee of the discussion regarding the use of dredged material for lightweight aggregate (LWA) production. Mr. Stancill stated that while distance is one determining factor when deciding the source of feed materials, the ability of the material to meet the specifications of a project is the defining point. Mr. Stancill added that the consistency of the product depends on the consistency of the material used and that if the material does not meet the specifications it could be amended, depending on costs.

Mr. Djiki asked if Stancills, Inc., has experience blending dredged material. Mr. Stancill responded that Stancills, Inc., has taken 8,000 yards of dredged material from Havre De Grace where the Susquehanna River meets the Chesapeake Bay, Susquehanna Flats. The material was easily amended into topsoil, but this material is probably not representative of Harbor material. Mr. Djiki asked if the Havre De Grace material could be used for construction or structural projects. Mr. Stancill responded that the material could not be used for construction or structural projects due to the material primarily consisting of silts and clays. Mr. Stancill stated that the preliminary physical characteristics of Conowingo sediments show a more granular material, which could possibly be used directly or amended for construction or structural projects.

Group Discussion

All

Mr. Petzrick stated that a separate meeting should be held to discuss other materials; such as Conowingo sediment or coal combustion by-products (CCB), which has long been proposed as a stabilizer for dredged material.

Mr. Petzrick discussed the Maryland Power Plant Research Program's purpose of reviewing license applications for new power plants and mentioned that the increase of solar power plant licensing has become controversial. Mr. Petzrick suggested that the goal of the Committee should be to find someone who could make a profit by using dredged material. Mr. Petzrick stated that the controversy surrounding solar power is due to the logistics of replacing coal power plants with solar plants; coal power plants produce between 200 to 300 Megawatts on minimal acreage while solar power plants require 100 acres to produce 20 Megawatts.

Mr. Myers suggested that a future IRC meeting discuss the volume of dredged material being used in the various pilot projects and next steps needed to reach MDOT MPA's goal of recycling 500,000 cubic yards of dredged material annually. Mr. Myers added that a projected timeline of volume utilization based on the current status of the pilot projects could be developed. Mr. Stancill asked if the sole focus of the Committee is on the reuse of Baltimore Harbor dredged material. The Committee responded that the IRC's sole focus is for the reuse of dredged material from the Baltimore Harbor.

Upcoming Meetings

Steve Pattison, Facilitator

Mr. Pattison informed the Committee that the 2018 IRC meetings are scheduled for February 27 (snow date March 6), May 22, August 28, and November 27.

Meeting adjourned at 6:50pm