

Suffolk County
Multi-Jurisdictional Debris Management Plan

APPENDIX E

SAND RECOVERY and RE-USE



SAND RECOVERY and RE-USE **GUIDANCE**

There are several reasons for the associated recovery work and re-use of clean sand which has been displaced and washed inland along coastal areas and may also be piled along roadways, residential areas and lots in coastal communities. These conditions create a serious danger to life, safety and property.

Benefits for recovering clean sand washed inland include:

- Decreasing costs incurred by Towns and the County in disaster response and recovery
- Restoration of communities heavily damaged during natural disasters by correcting displacement of sand
- Negating the need for sand sources that are part of the environment
- Reducing disposal costs, fuel consumption and vehicular emissions by shortening transportation distances
- Reducing additions to landfills
- Assisting with a faster reestablishment of protective barriers along shorelines and engineered beaches, thus protecting communities from future storm impacts
- Speeding economic recovery of beach and waterfront areas to pre-disaster condition
- Enabling access to the area and resumption of basic sanitary services as well as removal of potentially unsafe materials from other areas of the impacted community
- Ensuring minimal secondary contamination of the clean beach sand by superimposed placement of waste materials.
- Minimizing the amount of material that must be collected by the Town or County and stored at staging areas
- Speeding the regional recovery of displaced sand may act as a physical impediment to other components of the debris removal operations
- Reducing the potential for sand washing into storm drains and causing future flooding during and after the recovery operation.
- Providing local small businesses contracting capability

A cost benefit analysis should be performed by the Towns or County when sand recovery and re-use is being considered. Steps will be taken to determine if actions needed to re-use sand and return it back to the original site locations is normally more cost effective than removing and transporting sand for disposal.

The Debris Management Task Force will coordinate between all levels of government through all phases of the sand clearance and removal process. Monitoring of contracted sand debris removal operations will be under direct supervision of the Town or County department responsible for such operations. A monitoring contractor not completing the



sand removal operations may be used to insure eligible work is performed for all contracts to be included in FEMA Public Work (PW) reimbursement documentation.

Specific operational procedures and steps are needed to ensure FEMA, NYSDEC and EPA requirements are met for sand processing and re-use. These include: sand moving and vacuuming; staging; and both mechanical raking and cleaning (sifting) of public beach areas in order to remove embedded hazardous debris. In addition, testing for contaminants is required. The final removal and transportation of contaminated sand unsuitable for re-use must be in accordance with NYSDEC requirements. Disposal of this sand must be at a NYSDEC permitted off-site disposal facility.

FEMA Public Assistance Debris Management Guide (325), pages 28 and 29 should be followed as it pertains to the removal of soil, mud and sand on improved public property and public rights-of-way

Guidelines

Guidelines of this task will assist the Town and/or County Department responsible to determine sources of clean beach sand that meet the criteria established and also meet the strict standards for utilization Town or County beaches, prior to relocation in the manner described below.

Provisions for Placement of Clean Beach Sand

Clean beach sand loading and placement will be subject to the following provisions:

- Clean beach sand placement areas will be above the astronomical high tide line and will not be subject to tidal action.
- Clean beach sand placement areas will be cleared of storm-related debris prior to placement.
- Clean beach sand placement locations will be established and surveyed as part of the placement operation.
- Any debris observed during loading or placement will be manually extracted and properly disposed.
- Clean beach sand will also be subject to mechanical processing that will be performed as part of the eventually larger scale beach clearing and sand cleaning operations that are required to remove extensive debris that was deposited on the beach by the outgoing storm surge.
- Clean beach sand relocated in exposed areas of the beach will eventually be mechanically processed along with the remainder of the beach using one or more of the following types of beach sand debris removal equipment, or equivalent, listed below.

Sand relocated will be screened during loading, unloading and placement to verify that it is clean and contains no debris or contamination. Mechanical beach sifting performed as part of the broader beach clearing and cleaning operations is not intended to process all relocated sand.



Only sand in the upper several inches, as is normally accomplished with the following beach cleaning apparatus:

- Sifting equipment utilizing a mechanical sieve or shaker with a ¼ inch diameter to sift sand and pass debris to a conveyor and collection container;
- Rakes which use 6-inch tines to capture debris and pass it to a conveyor and collection container.

Site Preparations

- Delineation and staking of the appropriate areas for placement of clean beach sand.
- Identification of points for transportation from source areas to the beach for placement of clean sand.
- Work will be performed under a contract with the appropriate Town or County Department and directly supervised by such staff, not the contractor, in order to determine which sand is clean and subject to relocation under the approved Scope of Work.
- Means and methods for loading and transporting clean beach sand will be determined by the contractor but are anticipated to utilize standard equipment within the industry, such as bull dozers, front end loaders and large capacity all-terrain trucks with dumping capability.
- Appropriate Town or County staff will ensure that the contractor's equipment is clean and free of debris or contamination.
- Excavation and loading of the clean beach sand will be performed in conjunction with field screening using visual and odor detection methods.
- Sand will be inspected under the supervision of those identified in the contract and will be generally free of storm related debris.
- Sand that mixed with debris from flooded homes and businesses, contains household waste, is stained or petroleum, chemically, sewage or fecal contaminated **will not be relocated**.
- Establishment of an approved construction health and safety plan for protection of workers and the community.
- Activities will be coordinated with the Debris Management Task Force and the County Department of Health Services to ensure appropriate protection of public health prior to sand relocation and re-use.

Identification of Eligible Beach Sand

The removal and reuse of storm-deposited sand layers and piles of beach sand moved out of the roadway as part of initial recovery efforts, including clean sand that is not relocated to local beaches and sand mixed with varying amounts of storm debris, is an important consideration for Towns and/or the County.



Eligible sand may contain small amounts of inert storm debris which will require mechanical screening. Such beach sand is usually located in piles established along roadways, in public and private lots and in several staging areas established during the initial field recovery operations. Generally, quantities of beach sand are most abundant in the areas closest to the beach and decline in abundance with decreased distance from the beach.

In addition to the specific criteria outlined for the specified uses of sand, all beach sand, except for Category of Use 4, beach sand exceeding Restricted Residential Use or Protection of Groundwater Soil Cleanup Objects "SCOs", but is not hazardous, (See Standards for Use of Processed Sand Beach below) will not exhibit;

- evidence of petroleum, petroleum spills or gross contamination;
- chemical staining or odors indicative of contamination; and
- evidence of sewage or fecal contamination.

Stockpiling and Processing of Beach Sand for Beneficial Use

Beach sand will be removed from the recovery area and stockpiled separately from C&D debris and other solid waste removed during recovery operations.

Two classes of sand will be established based on the quality of the sand determined at the recovery site:

Category 1. Beach sand that may contain small amounts of inert storm debris but that is not mixed with debris from flooded homes and businesses, household waste, or other refuse.

Category 2. Beach sand that is mixed with solid waste.

Sand in these two categories should be maintained in separate storage piles to the maximum extent practicable.

Beach sand in Category 1 requires screening utilizing a mechanical sieve or 'shaker' with a ¼ inch diameter sieve to remove storm debris prior to use. Separated debris will be properly disposed, and the beach sand will be stockpiled separately from unprocessed incoming sand. Periodic sampling and analysis of beach sand from Category 1 should be performed for confirmatory purposes.

Beach sand in Category 2 requires screening utilizing a mechanical sieve or 'shaker' with a ¼ inch diameter sieve to remove storm debris and solid waste prior to use. Separated debris and solid waste will be properly disposed and the beach sand will be stockpiled separately from unprocessed incoming sand. In addition, beach sand in category 2 will be sampled, as described below.

Sampling of Category 2 Stockpiled Beach Sand



- Processed beach sand will be chemically characterized by sampling and chemical analysis prior to determining its use.
- Use will be determined based on the chemical quality of the samples reported.
- Composite samples will be used for beach sand characterization and will be collected from stockpiles of processed beach sand. Five discrete samples to form one composite shall be collected from every 1000 CY of screened sand for chemical analysis. This sampling frequency can be revised based on sampling results.
- Samples will be collected in a manner compliant with DER-10 Tech Guide or applicable and equivalent EPA sampling methods. Samples will be analyzed for Target Analyte List metals, Target Compound List volatile organic compounds and semi-volatile organic compounds, Pesticides, and PCBs. Sample results will be compared to 6NYCRR Part 375-6.8 soil cleanup objective tables.

Standards for Use of Processed Beach Sand

Beach sand processed under this Plan may be beneficially used in the following ways:

1. Beach sand meeting Unrestricted Use SCOs, and has no evidence of petroleum, petroleum spills, gross contamination, chemical staining or odor, or sewage or fecal contamination has no restriction on use.
2. Beach sand exceeding Unrestricted Use SCOs but is below the SCOs for Residential Use and for Protection of Groundwater, and has no evidence of petroleum, petroleum spills, gross contamination, chemical staining or odor, or sewage or fecal contamination is approved for all uses other than those in or adjacent to sensitive ecological areas, including:
 - Backfill in areas upland of the beach that have experienced extensive erosion and scour during the storm.
 - Cover soil placed on top of land areas including parks.
 - Backfill or grading material below a cover layer, such as pavement or building slab, in Town or other designated capital construction projects.

Use in or adjacent to sensitive ecological areas may be allowed if approved by NYSDEC on a site-specific basis.

3. Beach sand exceeding Residential Use but does not exceed Restricted Residential and Protection of Groundwater SCOs and has no evidence of petroleum, petroleum spills, gross contamination, chemical staining or odor, or sewage or fecal contamination is permitted to shape material at an MSW landfill below the final landfill cover.

Uses other than the above, require site-specific approval from the NYSDEC.



4. Beach sand exceeding Restricted Residential Use or Protection of Groundwater SCOs, but is not hazardous is permitted to shape material at an MSW landfill below the final landfill cover.

Beach Sand Use Summary

Category of Use	Acceptable Uses	Required Standards (SCOs)
1	Unrestricted	Unrestricted
2	Non-Ecological Sites*	Residential and Protection of Groundwater
3	Site-Specific DEC Approval and MSW Landfill Under Final Cover	Restricted Residential and Protection of Groundwater
4	MSW Landfill Under Final Cover	Non-Hazardous

Note: In categories 1, 2 and 3 there must be no evidence of petroleum, petroleum spills, gross contamination, chemical staining or odor, or sewage or fecal contamination.

* Use at ecological sites may also be allowed with site-specific DEC approval.