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2019 WEDA Dredging Summit  
Kurtz Bros., Inc: Sustainable Sediment  
Management Upland Material Distribution

# Kurtz Bros., Inc.

**Family-owned waste-to-resource company with 70 years of experience operating throughout the state of Ohio and Midwest**

**Multi-faceted industry leader in bulk material production and distribution, beneficial reuse, and waste stream management**

## **The Kurtz Diversity...**

- **Manages and distributes over half a million yards of bulk landscape supplies every year**
- **Largest organics recycler in the State of Ohio**
- **Recycles over 350k yards of construction & demolition debris annually**
- **Operates waste-to-energy anaerobic digesters for the City of Akron**
- **Operates the Largest sediment recycling center in the Great Lakes**

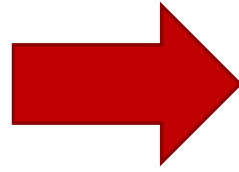


# 70 Years Recycling Sediment



From 1948

Starting in 1948, Kurtz's legacy with sediment recycling began when our founders utilized flooded Cuyahoga River valley sediment as a component of their topsoil.



To Present

In 2014, Kurtz entered into a long-term contract with the Port of Cleveland to reclaim and repurpose dredged river sediment.



# Port of Cleveland Sediment Recycling Center

- **Entering our 4th year of operations at the facility**
- **Contracted to manage and remove at least 120k yards of sediment per year**
- **Last year Kurtz managed the largest volume of sediment to date (160k yards)**
- **Sediment characteristics improving**
- **Product and Sales volumes increasing**
- **Version 3.0 of site design**



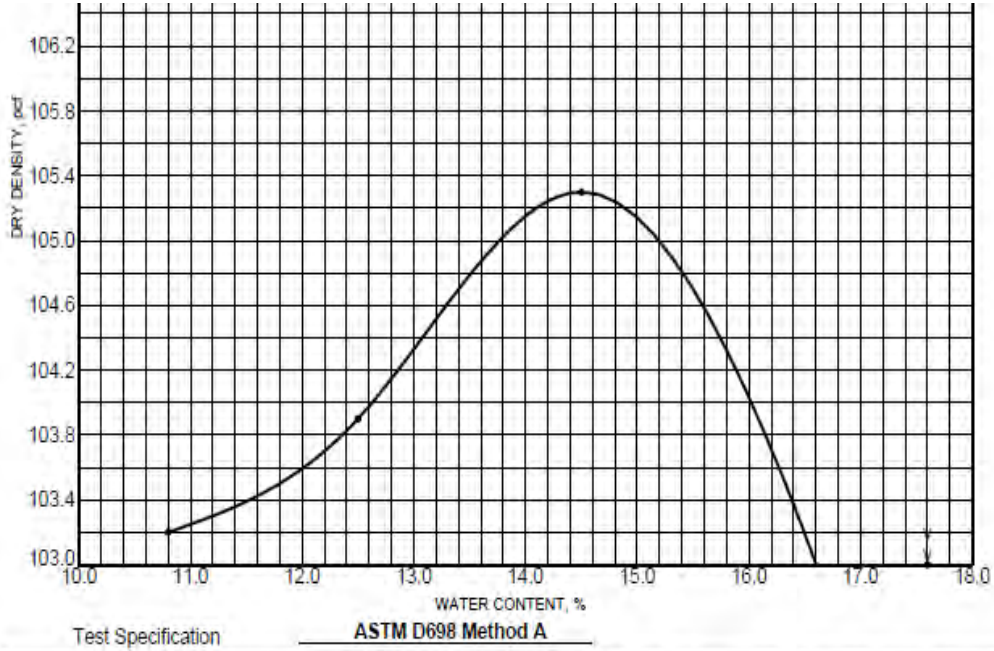
# Sediment Analysis Starting Point

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- Origin/Source
- Physical
- Chemical/Environmental



# CLE Sediment: Sand



## TEST

Internal Angle of Friction, degrees  
Remolded to 98% of max. dry  
Density at optimum moisture  
(AASHTO T236)

## RESULTS

45.5°

Sieve Size	Percent Passing
3/4"	100.0
1/2"	99.4
3/8"	98.8
#4	95.0
#8	90.6
#10	89.1
#16	83.5
#20	78.1
#30	70.7
#40	58.4
#50	42.7
#60	32.9
#70	24.9
#80	19.7
#100	16.2
#140	13.8
#200	10.6

CLASSIFICATION		Nat. Moist	Sp. G.	LL	PI	% > 3/4 in	% < No.200
USCS	AASHTO	9.0					
TEST RESULTS		MATERIAL DESCRIPTION					
Maximum Dry Density		CDF-Great Lakes #1 sand					
Optimum Water Content							
PROJECT NAME: KURTZ BROS. - VARIOUS (P.O.#164480)		SAMPLE LOCATION: CDF					
PROJECT NUMBER: A15031							
LOCATION:							
DATE: 7/24/15							



# CLE Sediment: Silt/Clay

TEST NO.		1	PARTICLE SIZE ANALYSIS(ASTM D422)			
Initial time	$t_1$	8:26 A.M.	SIEVE SIZE		PARTICLE SIZE (mm)	% PASSING
Final time	$t_2$	10:26 A.M.	#10	2.000	100.0	
Elapsed time, sec	$t$	7200	#20	0.850	99.8	
$V_U(t_1)-V_L(t_1)/a$	$h(t_1)$	0.331	#40	0.425	99.6	
$V_U(t_2)-V_L(t_2)/a$	$h(t_2)$	-10.155	#100	0.150	98.7	
$  \text{Upper Pressure} - \text{Lower Pressure}   \times 70.37$	$P_B$	351.85	#200	0.075	96.8	
Coefficient of Permeability, cm/sec	$k$	$6.57 \times 10^{-7}$		0.028	75.0	
	AVG	$6.61 \times 10^{-7}$		0.018	65.7	
				0.011	47.8	
				0.008	40.3	
				0.006	31.9	
				0.003	21.6	
				0.001	11.3	
			% Gravel		0	
			% Sand		3.2	
			% Silt		80.4	
			% Clay		16.4	
			<b>ATTERBERG LIMITS(ASTM D4318)</b>			
			Liquid Limit		40	
			Plastic Limit		30	
			Plasticity Index		10	
			Above/Below the A-line*	Below	Above	



# Creating Value in the Market

## Common Sediment Reuse Applications:

### Soils:

- Engineered Soils
- Custom Specialty Soils

### Aggregate:

- Pipe Bedding
- Sub-grade
- Structural fill
- Concrete
- LSM

### Clay

- Landfill Cap
- Compactable Fill
- Manufacturing materials

### Markets:

- DOT Projects
- Landscaping
- Construction
- Brownfield redevelopment
- Agriculture
- And More





# Sediment Approved for use in State Department of Transportation

## **CDF12 Sediment Processing Center ODOT 1069 Approval**

- **Producer/Supplier Code: 5149**
- **Plant Address: 4301 North Marginal Rd., Cleveland**
- **Lab Number: 110**
- **Materials Supplied:**
  - **703.11 Granular Backfill**
  - **1069 Topsoil**
  - **203 Embankment-703.16 B**



# Sediment Blend Meeting State Specification for Topsoil

LAB. NO.	SAMPLE IDENTIFICATION	MECHANICAL ANALYSIS			U.S.D.A. TEXTURE CLASS
		% SAND	% SILT	% CLAY	
631130	CDF STATE SPEC	63	22	15	SANDY LOAM

TEST	RESULTS	UNITS
pH	7.6	SU
ORGANIC MATTER	5.4	%
TEXTURE CLASSIFICATION	SANDY LOAM	



# Agriculture Applications

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- Opportunities for use as Soil Amendment
- Targeted
- Challenges with timing
- Logistics
- Wet vs. Dry
- Stand Alone value



# Challenges of Working with Sediment

- **Dewatering – Wet/Damp Material**
- **Screening/Processing**
- **Markets/End Users**
- **Sediment Variability**
- **Foreign Matter**
- **Chemicals of Concerns**
- **Commodity Logistics**
- **Weather**
- **Neighbors**



# Additional Opportunities

- Look for “two birds one stone” approach
- Don't just rely on sediment- RSM
- Regional opportunities
- Site needs
- Local Partners



# Kurtz Bros. Sediment Solutions What's Next...



**Continue to focus on innovative reuse opportunities that can help cost-effectively solve water quality and sediment capacity issues for dredged river sediment throughout Ohio and in other parts of the country.**

## **Growing Focus:**

- **New innovative uses for dredged river sediment**
- **Alternative technologies**
- **Agriculture solutions to address water quality issues**
- **National sediment challenges including East Coast and Mountain West**



# QUESTIONS?

For more information check us out online at:  
[www.kurtz-bros.com](http://www.kurtz-bros.com)

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