

Applications for Using Pulverized Glass Sand/Aggregate

Presented
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Alternative Uses for Recycled Glass Processed to Construction Aggregate Specifications

- Pulverized Glass Sand or Aggregate
 - Uniform size – no sharp edges
 - 1/8” minus glass sand or 3/8” minus glass aggregate
- Glass is separated and cleaned
 - Glass is selectively crushed and pulverized
 - Removal of metal, plastics and most paper
 - All types of glass and ceramics are permitted.

Materials used to produce glass aggregate include:

- unsorted glass bottles
- whole or broken bottles
- plate glass
- tempered glass
- ceramics
- any frangible material



Glass aggregate is smooth and rounded - no sharp edges. It will not cut.



OK to drive or walk on it - even barefoot!

The Glass Recycling Alternative

Piles of glass sand/aggregate

- General Aggregate
- Fill or Soil Enhance
- Aggregate Base
- Road Construction
- Filtration Sand
- Asphalt Sub-Base



The Glass Recycling Alternative

- Pipe Bedding



- Backfill



The Glass Filtration Recycling Alternative



Wastewater

Filter

Medium



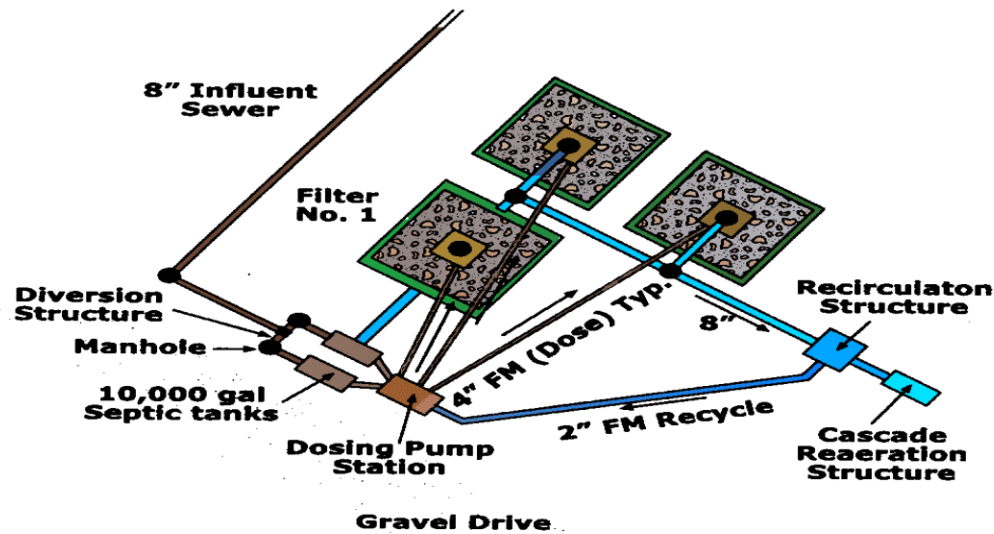


Figure 1
Sleepy Hollow WWTf Schematic Plan

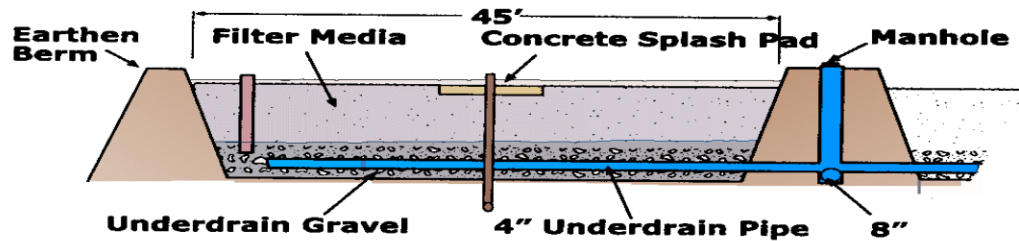


Figure 2
Filter Cross-Section



Septic Waste Water Treatment

Benefits of pulverized glass aggregate as a filtration media:

- Chemically inert and does not leach minerals
- It does not break down, like natural aggregates, so it will perform at an optimal level for an extended period of time.



Benefits of pulverized glass aggregate as a filtration media:

- No inherent silts or clays
- Provides Opportunity for Bio-attenuation for Contaminants of Concern (microorganism friendly environment)
- Good compaction, less dense, easy to apply
- Superior Filtration Rate (10 sec/inch)



The Glass Landscaping Recycling Alternative

- Parks, parking lots, and roads
- Landscaping – road, shoulder, and medium enhancement



The Glass Recycling Alternative – MRF Glass



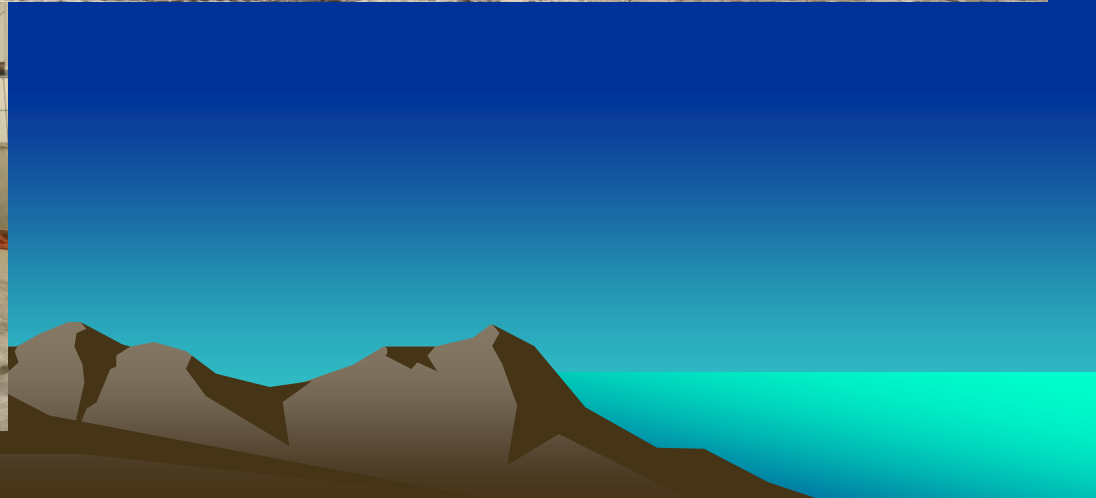
Smooth, safe glass sand or aggregate can be produced from Single-Stream glass.

Glass reduced in size

Screen out larger metal, plastics and most paper.



System Size Options for Glass Pulverizing



Andela GPT-1 Pulverizer System – 3-5 TPH



A Sustainable Business Model

- Glass recycling for every community
- Flexibility for different recycling programs
- Multiple local markets



Environmental Benefits

- Enhancement of local glass recycling efforts
- Non-recyclable glass and ceramics are kept out of landfills
- Reduced carbon footprint associated with transporting waste glass out, and/or natural aggregates in. Local circular solution.
- No exposure to crystalline silica dust – glass is amorphous silica and safe for people and the environment.



Marketing Opportunities & Challenges

- Connect with the public
- Partner with private construction & landscaping companies
- Keep price competitive
- Project specs & requirements are necessary for its usage



The Glass Recycling Alternative

- Prices for Alternative Markets:
 - \$0 - \$10 Bulk Aggregate
 - \$20 - \$30 Specialty Aggregate (some marketing required)
 - \$150 - \$1,000 / ton Glass Abrasives, Water filtration, & Colored Landscaping (requires additional processing/marketing- i.e. cleaning, drying, bagging, screening, coloring)



Final Thoughts

Material Availability and Cost

Quality Product

Community Involvement

www.andelaproducts.com

