

Ultra-Lightweight

Foamed Glass Aggregate (UL-FGA)

MATERIAL AND APPLICATIONS

Highly Frictional • Non-Leaching • Rot-Resistant • Non-Flammable • Durable • Safe

made from recycled container glass

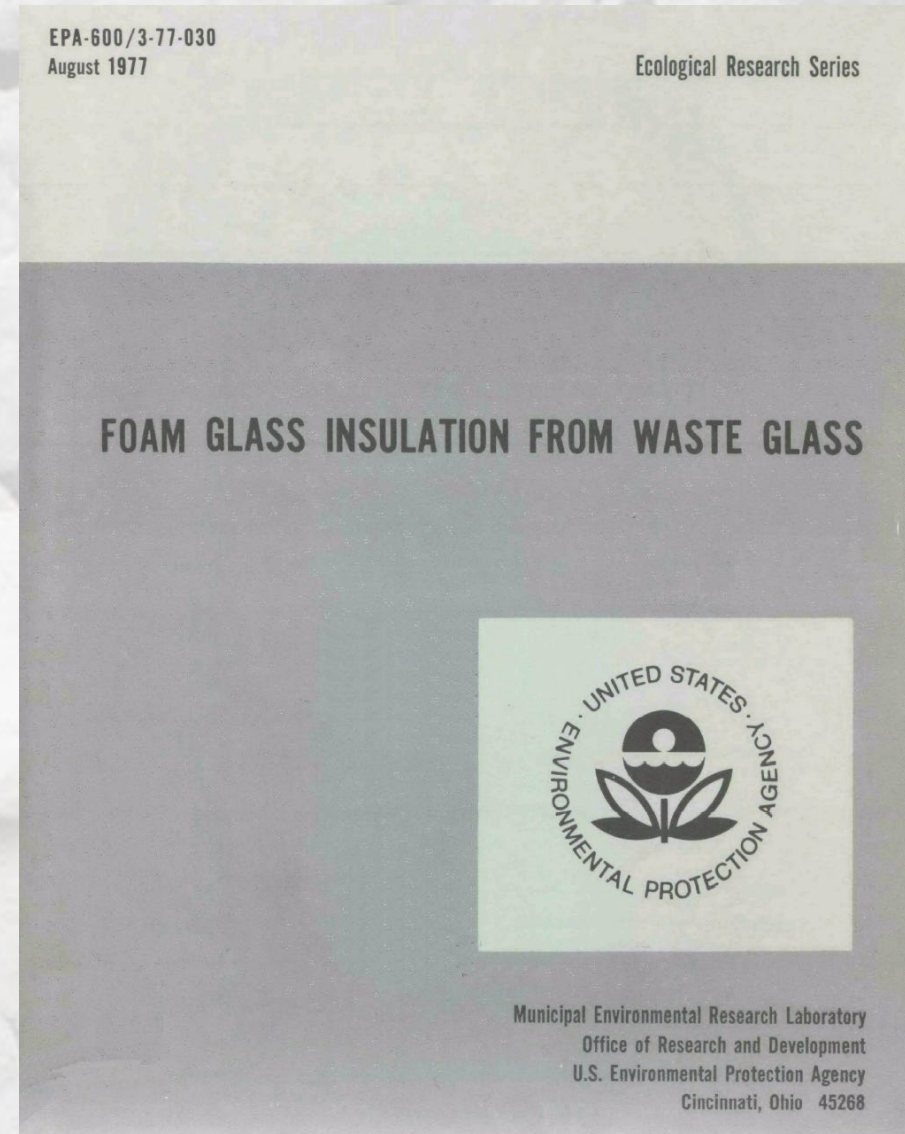
What are foamed glass aggregates?

- Ultra-Lightweight
(8-15 pcf dry bulk density)
- 1.5 inch average size (D_{50})
- High Friction Angle
- Free-draining
- Non-reactive
- 100% Post Consumer Glass



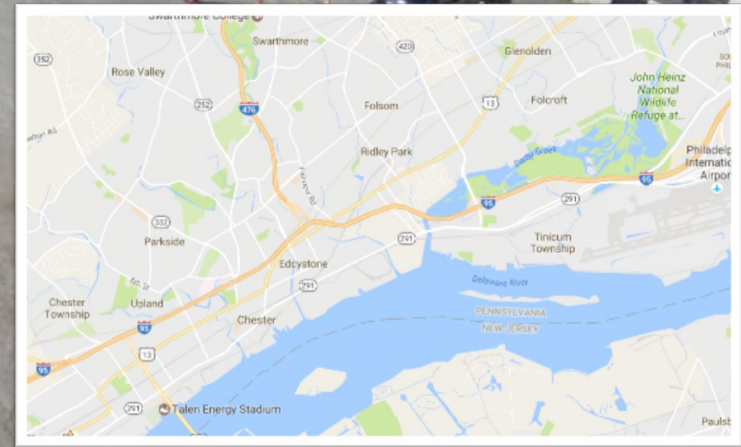
History of Foamed Glass Aggregates

- Developed in Germany in early 1980s
- Technology taken to Norway in 1990s
- Thermal barrier for roadways
- Led to lightweight applications





Baldwin Facility





NYSDEC

“are commercial products not subject to solid waste regulation in New York State”

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Materials Management, Bureau of Permitting and Planning
625 Broadway, 9th Floor, Albany, New York 12233-7260
P: (518) 402-8678 | F: (518) 402-9024
www.dec.ny.gov

JUN 23 2017

Archie Filshill, Ph.D.
Aero Aggregates, LLC
1500 Chester Pike
Eddystone, PA 19022

Dear Dr. Filshill:

Re: Status of Aero Aggregates' Products under NYS Solid Waste Regulations

The New York State Department of Environmental Conservation (Department) has reviewed your request, via electronic mail dated May 3, 2017, for a beneficial use determination (BUD) for Aero Aggregates' lightweight aggregate products made from glass from material recycling facilities (MRFs) at your facility in Pennsylvania. In subsequent email correspondence, the Department requested and you provided further information regarding the aggregate product, how it is made, and its regulatory status in Pennsylvania (where Aero Aggregates is exempt from permitting and the aggregate product from regulation).

The Department evaluated Aero Aggregates' process to make lightweight aggregates and concluded incoming glass undergoes significant physical transformation through heat and foaming into a material with greatly differing characteristics from the incoming container glass residue or cullet. Furthermore, this material meets or exceeds industry and government standards for lightweight aggregate. The process used to convert the glass into this product takes place outside of New York State jurisdiction. The Department has determined, for these reasons, that lightweight aggregates produced from glass obtained from recycling facilities, through Aero Aggregates' process, are commercial products not subject to solid waste regulation in New York State.

If you have any questions regarding this determination, please contact me at (518) 402-8678 or kathleen.prather@dec.ny.gov.

Sincerely,

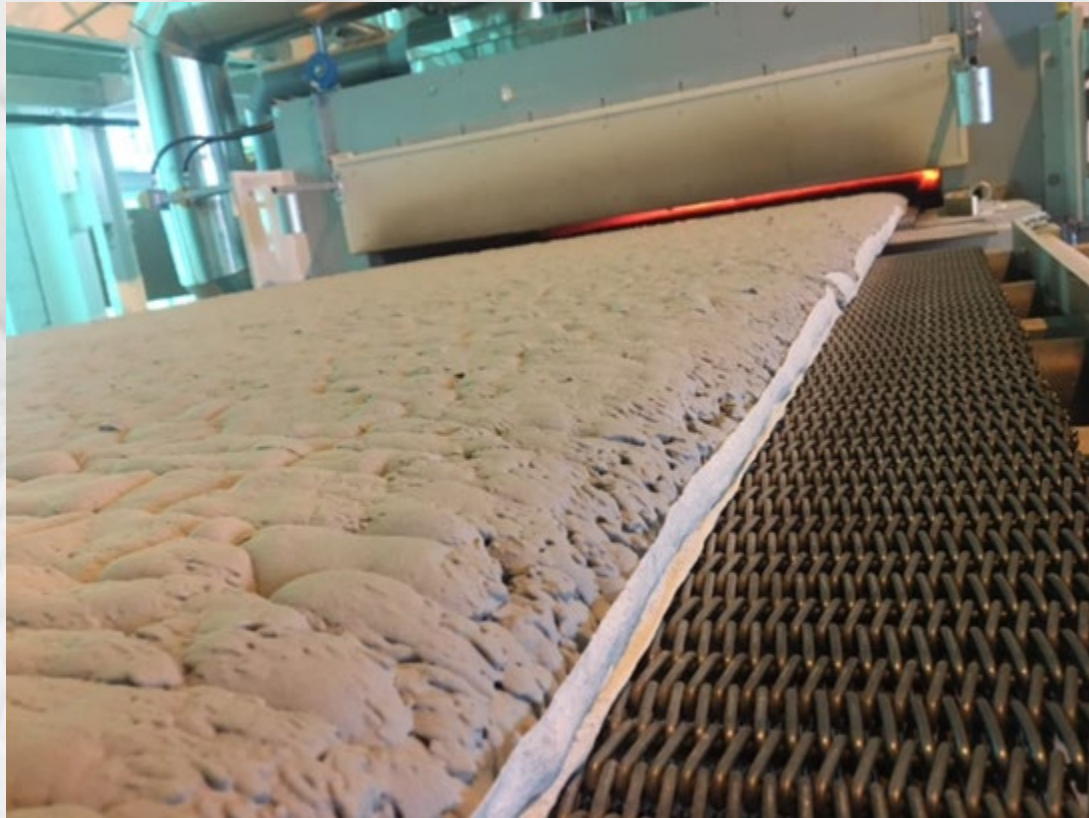


Kathleen A. Prather, P.E.
Professional Engineer (Environmental)
Beneficial Use, Medical Waste & Inactive Landfills Section
Bureau of Permitting & Planning

bcc: R. Clarkson/G. Carayiannis/K. Prather
L:\DMM\MATRIX\Regulated Activities (non-facility)\Beneficial Use\No BUD Required-No Number Assigned\360
Exemption or Exclusion
Aero-Aggregates_360-Exclusion-Determination.2017-06-dd.letter
KP:ks
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Cooling Table



Stockpile



Daily Quality Control

Dry Bulk Density



< 15 pcf
(avg ~13.5)

@ 20%
> 15,000
psf

Modified version of the European Standard EN 1097-11, "Tests for mechanical and physical properties of aggregates, Part 11: Determination of compressibility and confined compressive strength of lightweight aggregates".

Compressive Strength



Quality Control Program

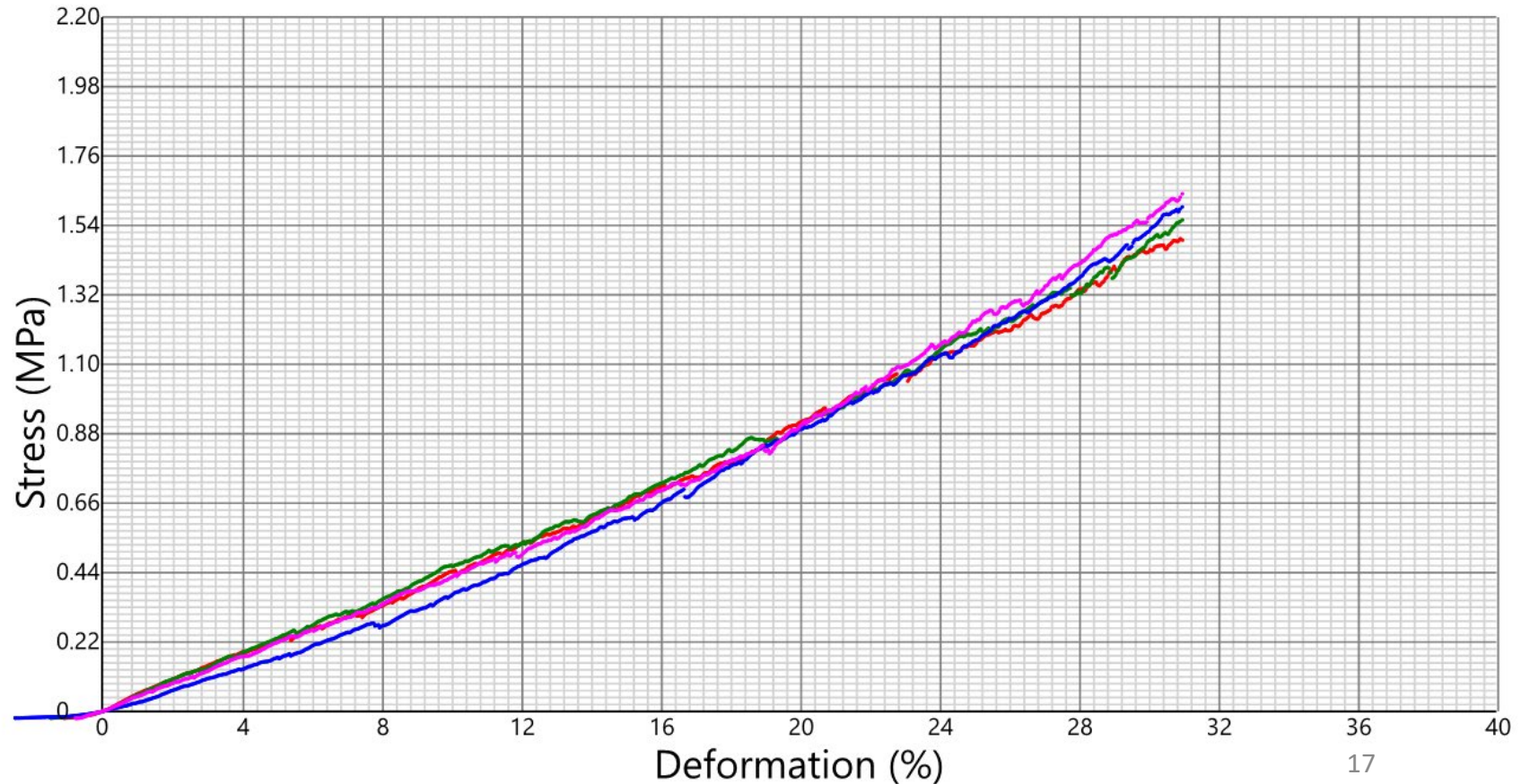
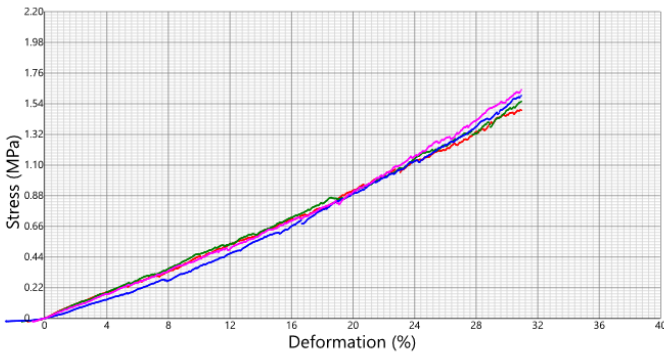
- Density (Dry, bulk density < 240 kg/m³ (15 pcf))
- Compression (Stress @ 20% Deformation > 0.71 Mpa (15,000 psf))



AeroAggregates, LLC
1500 Chester Pike, Edgelyne, PA 19022
Phone: 610-447-5900
www.aeroaggregates.com

Product Name: G15 Lot Number: 20170620
QC Tech: MM Shift ID: 0
Method Name: MQC Kin ID: 01
Plate Diameter (mm): 298.5 mm

Specimen ID	Date/Time of Manufacture	Date/Time Tested	Bulk Density kg/m ³	Stress @ 10% MPa	Stress @ 15% MPa	Stress @ 20% MPa	Stress @ 25% MPa
1	20170620 10:00	6/22/2017 4:12 PM	214.31	0.4430	0.6621	0.9181	1.1558
2	20170620 10:00	6/22/2017 4:18 PM	214.31	0.4830	0.6671	0.9000	1.1675
3	20170620 17:40	6/22/2017 4:38 PM	213.52	0.3987	0.6124	0.8941	1.1736
4	20170620 17:40	6/22/2017 4:43 PM	213.92	0.4281	0.6463	0.9032	1.2353
Average			213.92			0.9033	



Shipping

- Up to 100 CY/trailer
- Reduced carbon footprint
 - 1 trailer of Foamed Glass
 - 7 tri-axial loads of stone

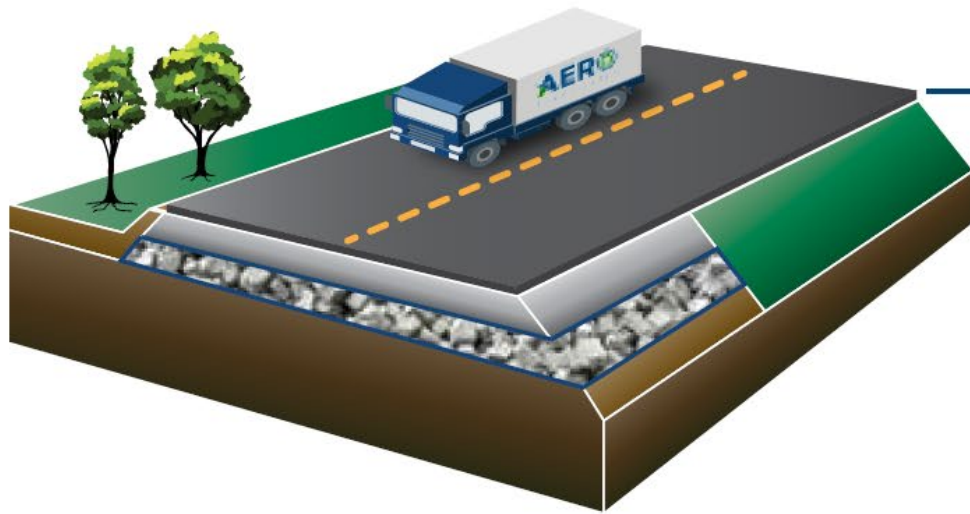


Delivery in Super Sacks
3CY 1,200 lbs. vs. 8,000 lbs.

Installation

- Nonwoven Geotextile as separator
- Maximum lift thicknesses of 24 inches (0.6 m)
- Compaction is performed with a tracked excavator or dozer 600 - 1,000 psf (30 - 50 kPa)
- 2 to 4 passes over the UL-FGA layer



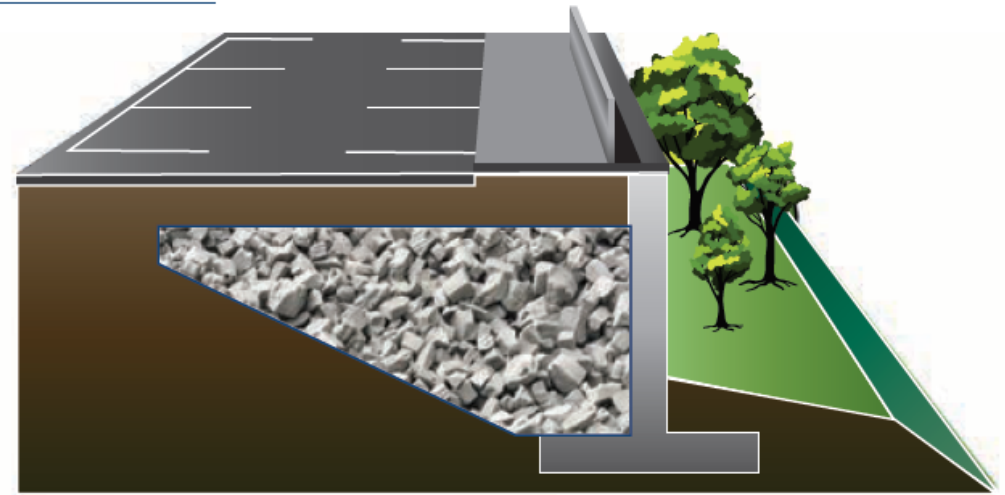


Embankments

- Lightweight fill over compressible soils and/or utilities
- Insulating fills for frost susceptible soils
- Resiliency projects requiring fill on soft soil
- Reduced excavation for soil balancing
- Less soil removal and disposal
- Potential to stay out of the water table

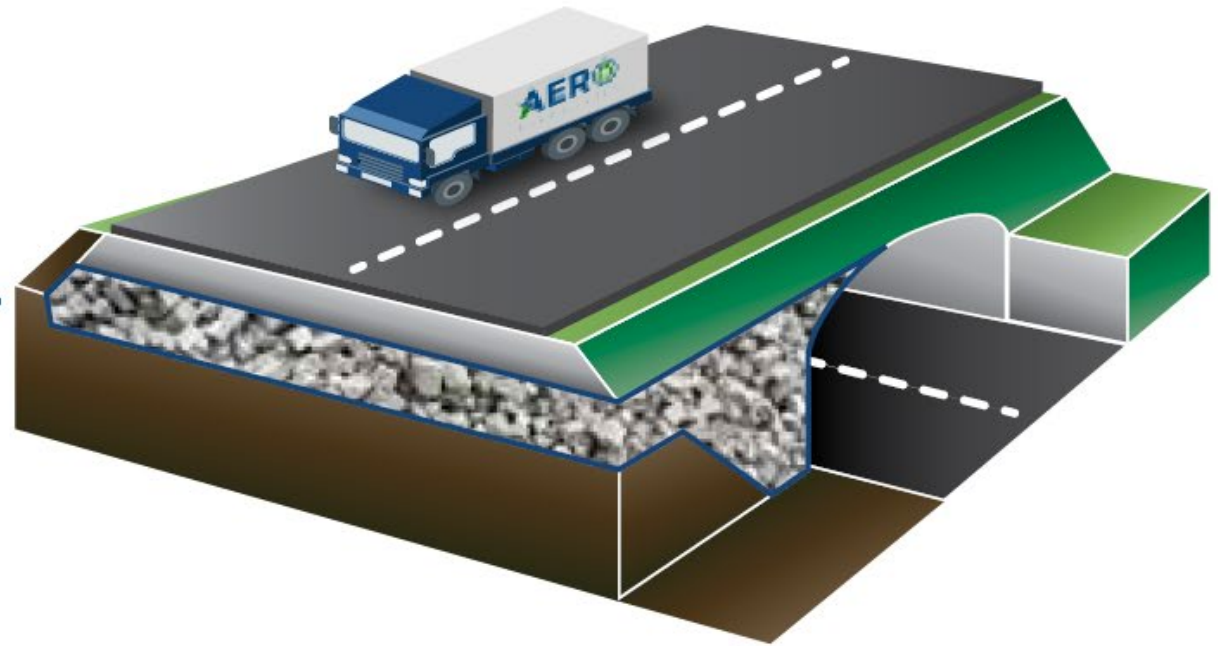
Retaining Walls & Bridge Abutments

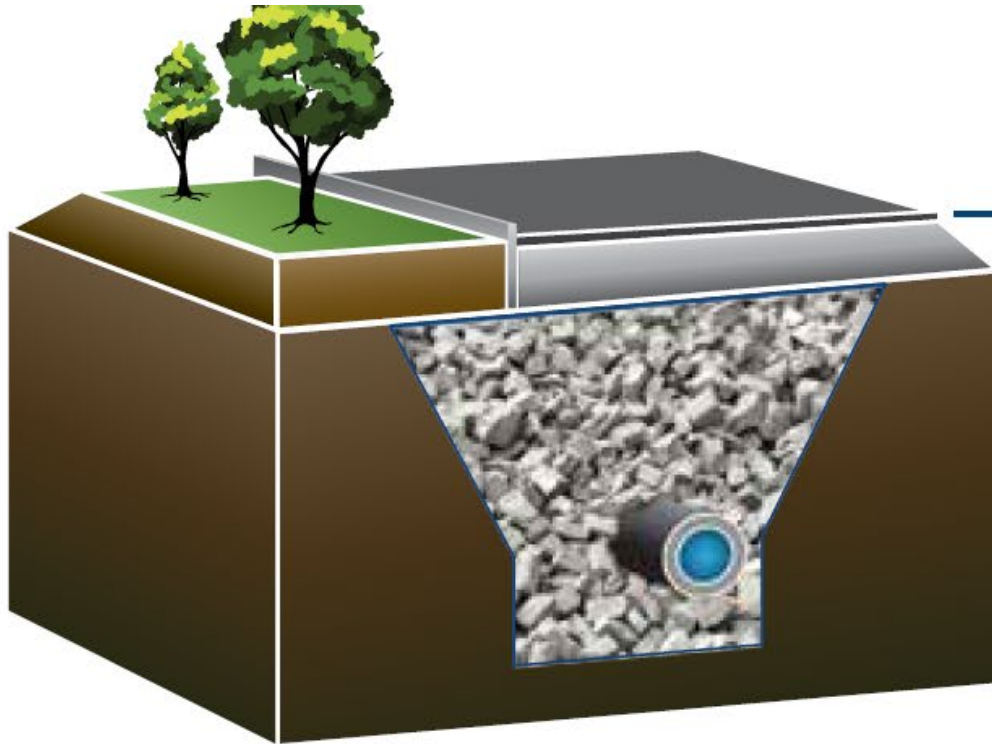
- Lightweight fill behind retaining walls and wing walls
- Greatly reduces lateral load
- Easily excavated for placement or repair of utilities
- Pullout testing completed on various types of reinforcement
- Free draining material
- Reduces settlement of embankments for bridge approaches



Tunnels & Culverts

- Lightweight backfill for tunnels, utilities or culverts



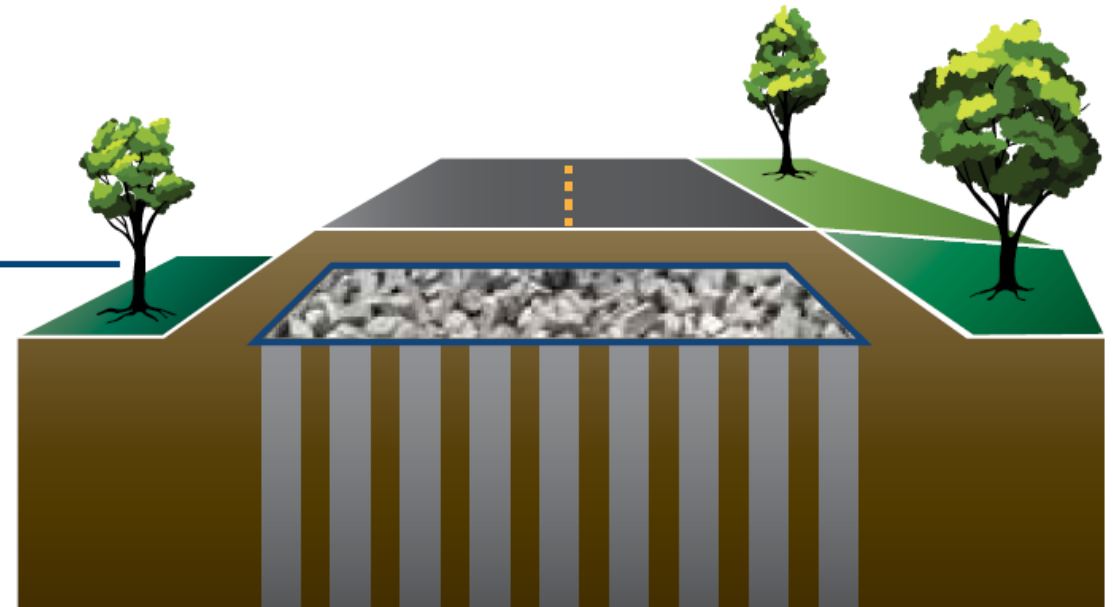


Utilities

- Lightweight backfill for sensitive utilities
- Bedding layer for utilities on soft compressible soils
- Insulating backfill for frost protection
- High friction angle creates soil arching to reduce loads on utilities
- Heat resistant up to 800°C

Load Distribution

- Reduced embankment fill over load from load distribution platforms
- Optimize number of piles
- Use in locations where piles cannot be driven due to underground utilities



DOT status

- Approved by MD SHA
 - Approved VDOT - SPEL
 - 5 Projects Completed with PADOT
 - 3 Project In Progress with NJDOT
 - DDOT – 1 approval Design/Build
 - NYS DOT – 1 approval for D/B – Finalizing specification
 - MassDOT – 1 project in Design Stage
 - Mass Transit Authority – 2 projects
- NHDOT – Approved as ATC for D/B project
 - Maine Turnpike Authority – 2 projects
 - Maine DOT – Approved
 - Michigan DOT Provisional approval
 - NCDOT – Provisional approval
 - Minnesota DOT

**UNITED STATES
(EAST COAST MAP)**



Case Histories

DOT Applications



Philadelphia Navy Yard

- Langley Avenue
- Area Prone to Flooding
- Compressible Soil



Philadelphia Navy Yard



Eddystone, PA

PADOT I-95 Walsh Construction



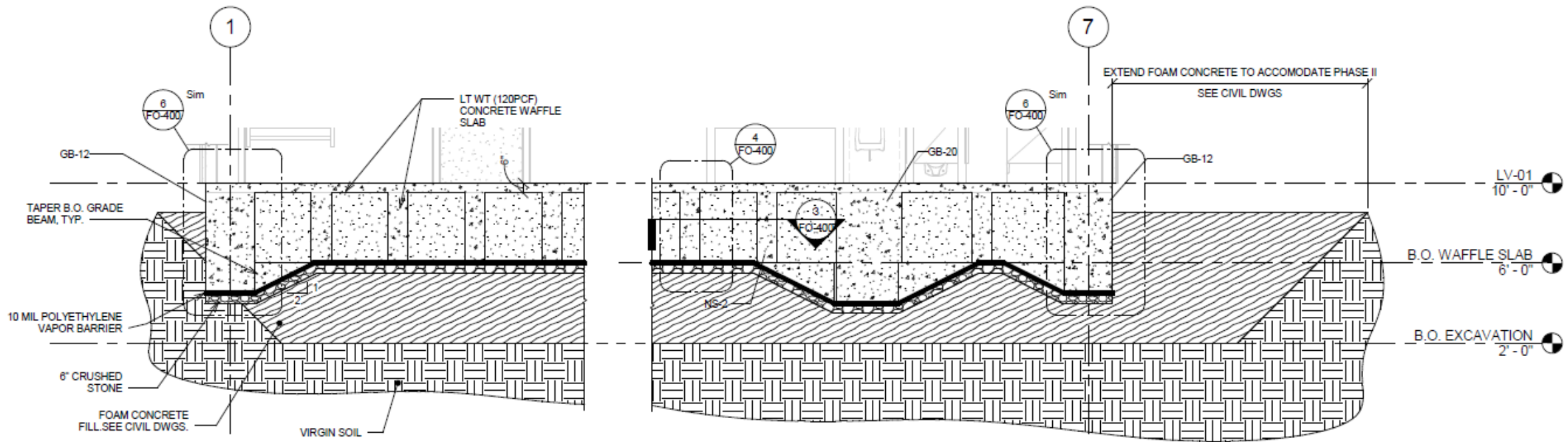
PADOT I-95 Walsh Construction





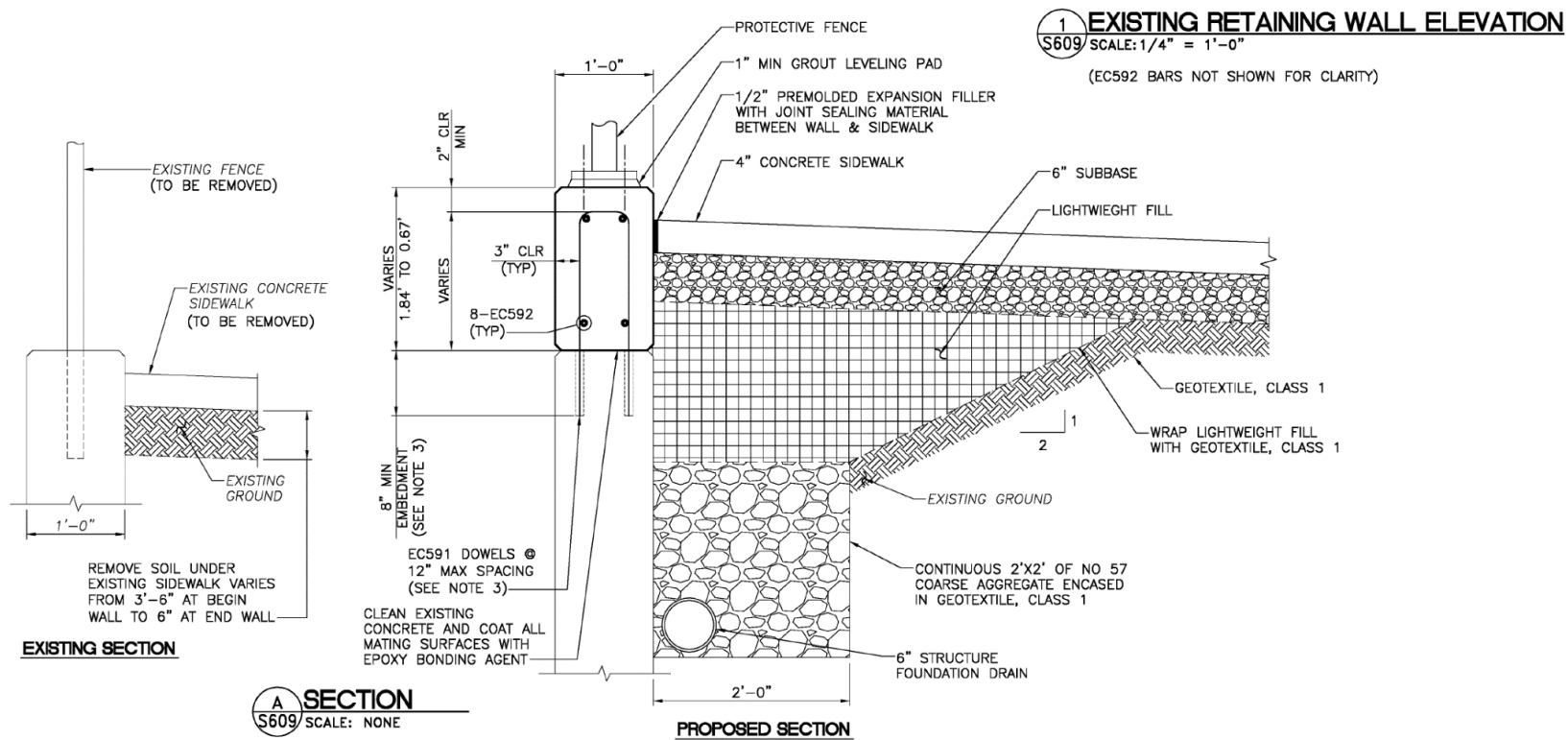
New York City 601 W. 26th Street

USTA - Flushing Meadows Broadcast Building



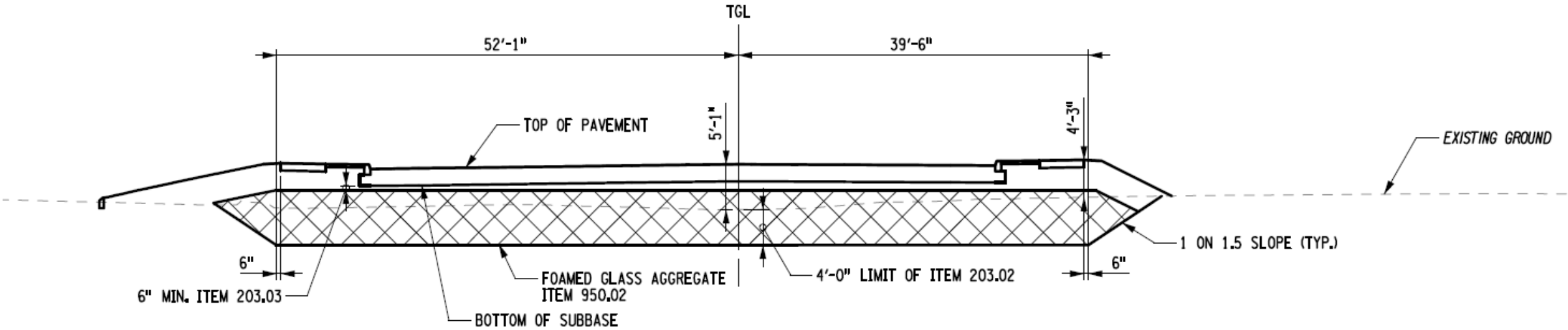
2 FOUNDATION SECTION - E/W
FO-100 1/4" = 1'-0"

SEPTA –Media Line



Nassau Expressway

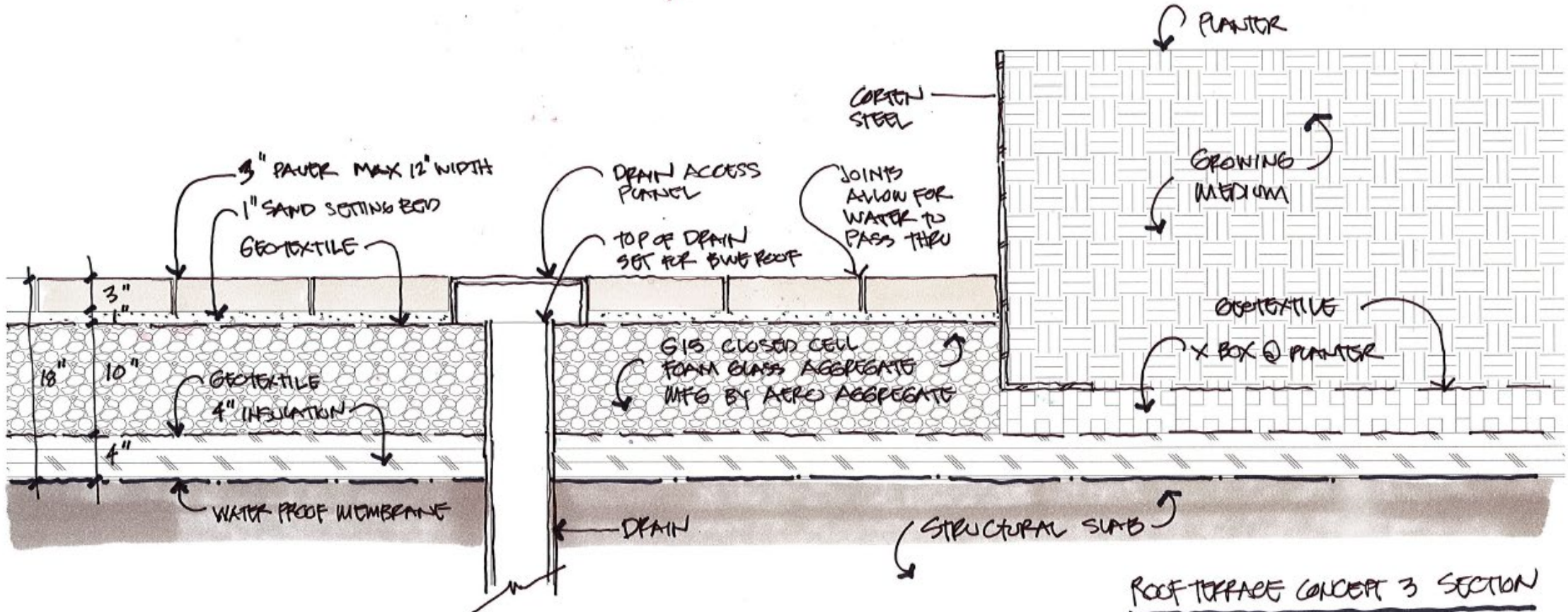
NYS DOT



BAY BOULEVARD
STA. B 10+78 TO STA. B 11+57
(LOOKING EAST)
NOT TO SCALE

Genesis, NYC, NY – Blue Roof

AERO AGGREGATE - 40% POROUS MATERIAL



ROOF TERRACE CONCEPT 3 SECTION
6.28.18
nts
hlw

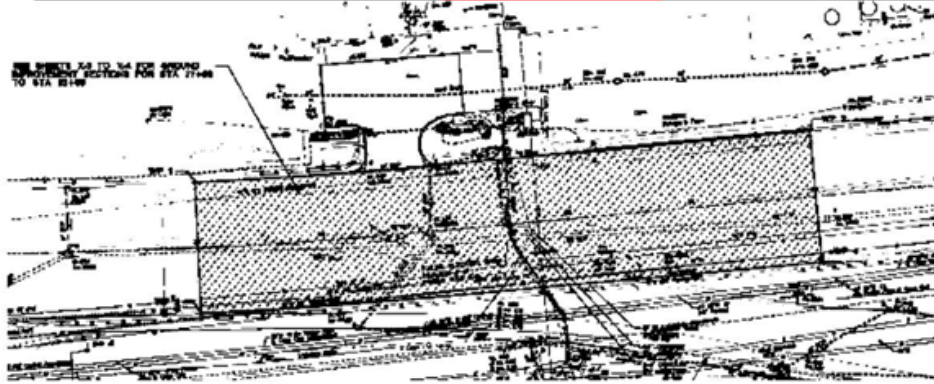
South Capitol Street – Washington DC



Route 7 – NJDOT

RT 7 Hackensack River Wittpenn Bridge Contract 4

Ground Improvements: **Lightweight** Aggregate (LWA)



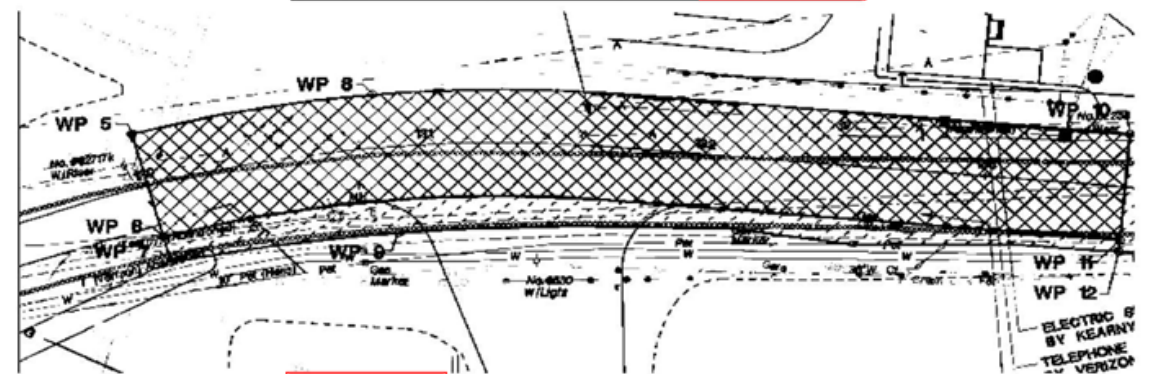
- 38,500 cy LWA
- Use Geotextile at base of LWA
- Over-excavation required prior to placing LWA
- Dewatering required during earthwork



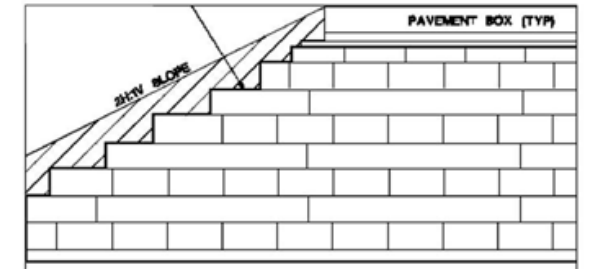
witpenn
BRIDGE REPLACEMENT

RT 7 Hackensack River Wittpenn Bridge Contract 4

Ground Improvements: **Geofoam**



- Over 26,500 cy **Geofoam**
- Wrapped in Geomembrane
- Covered with 4" concrete slab
- Staged Construction Required along FHR Sta 130 to 133+50 to maintain traffic



witpenn
BRIDGE REPLACEMENT



Route 7, Kearny, NJDOT



Route 7, Kearny, NJDOT

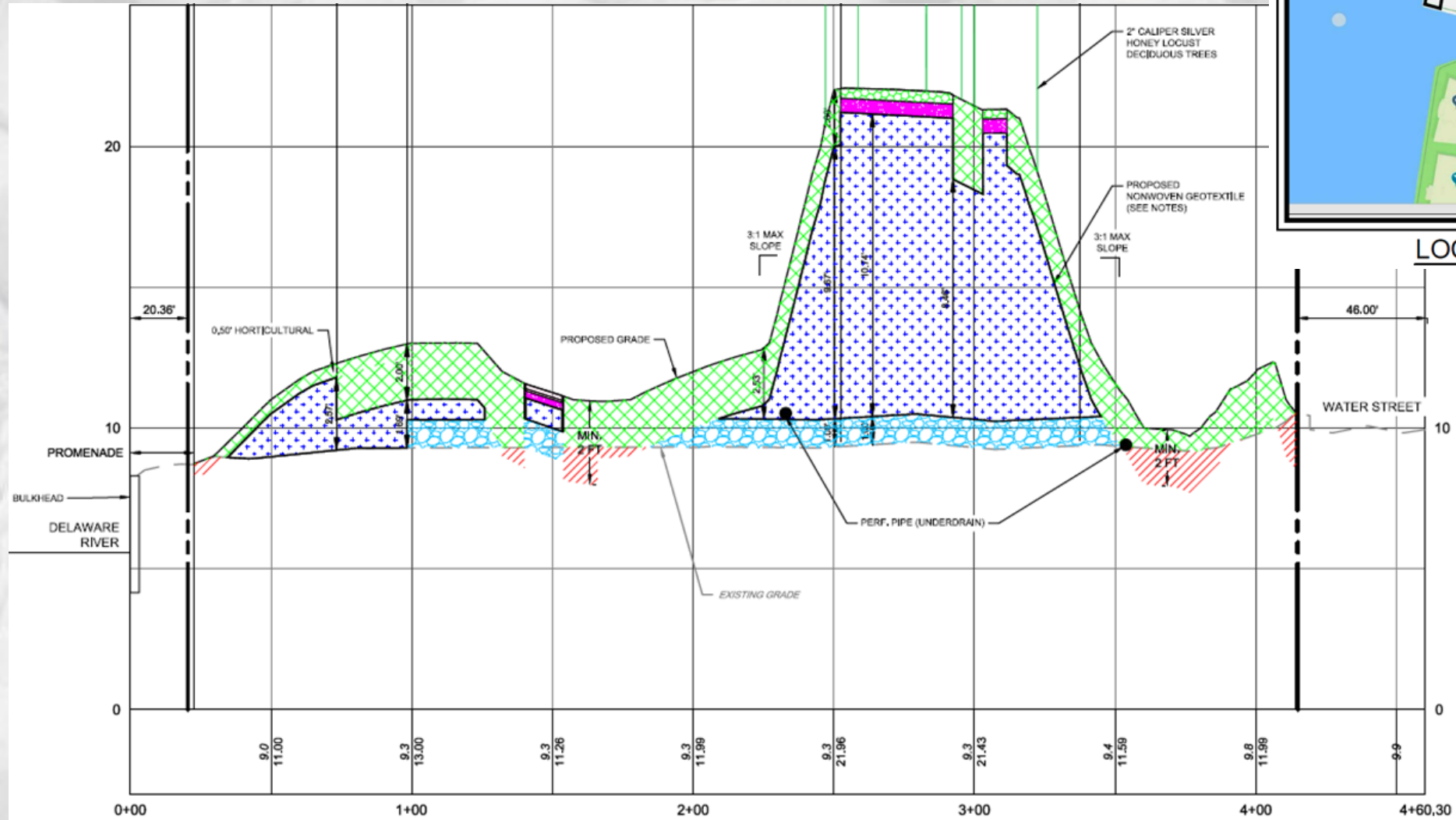




RCA Pier, Camden, NJ



LOCATION MAP





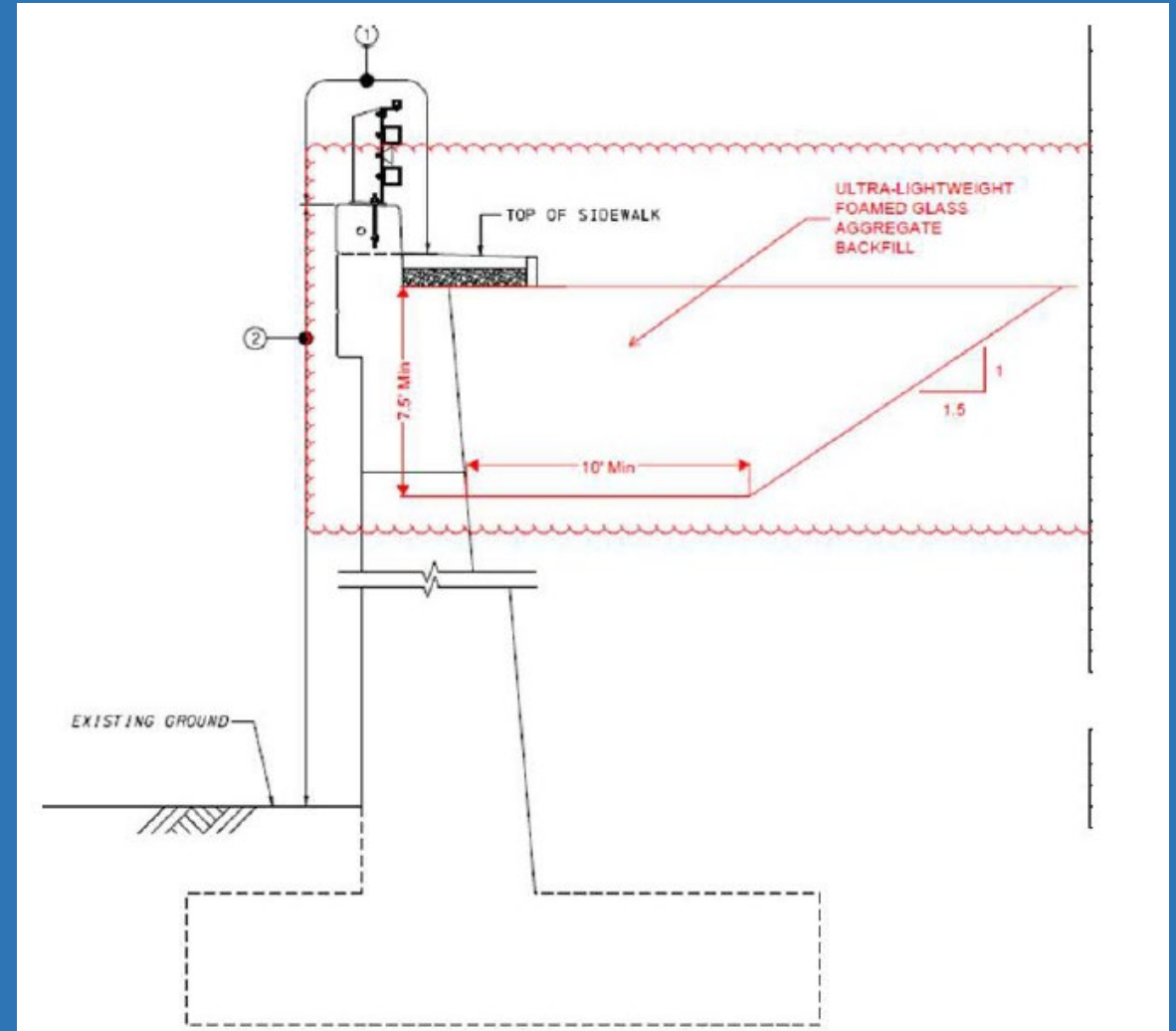


Philadelphia Intl Airport – Fuel Tanks

Repair of Existing Wall

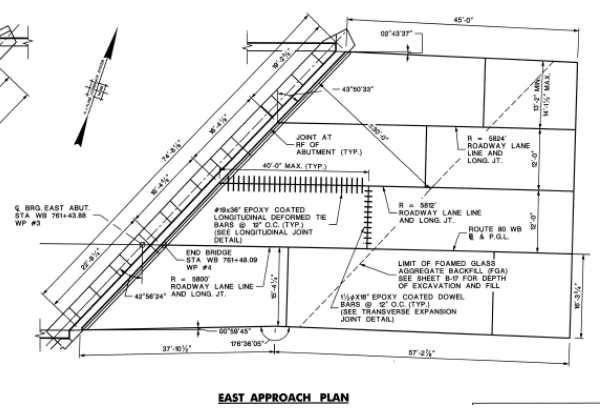
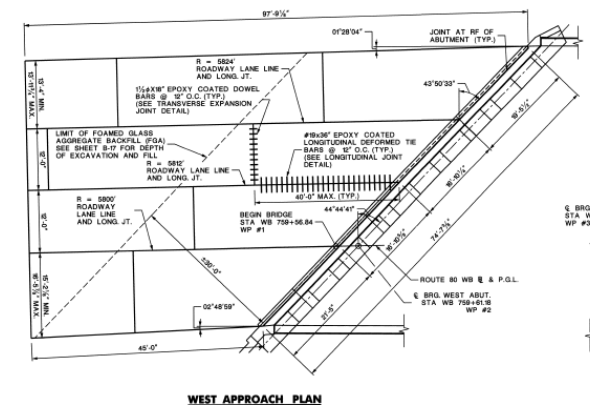
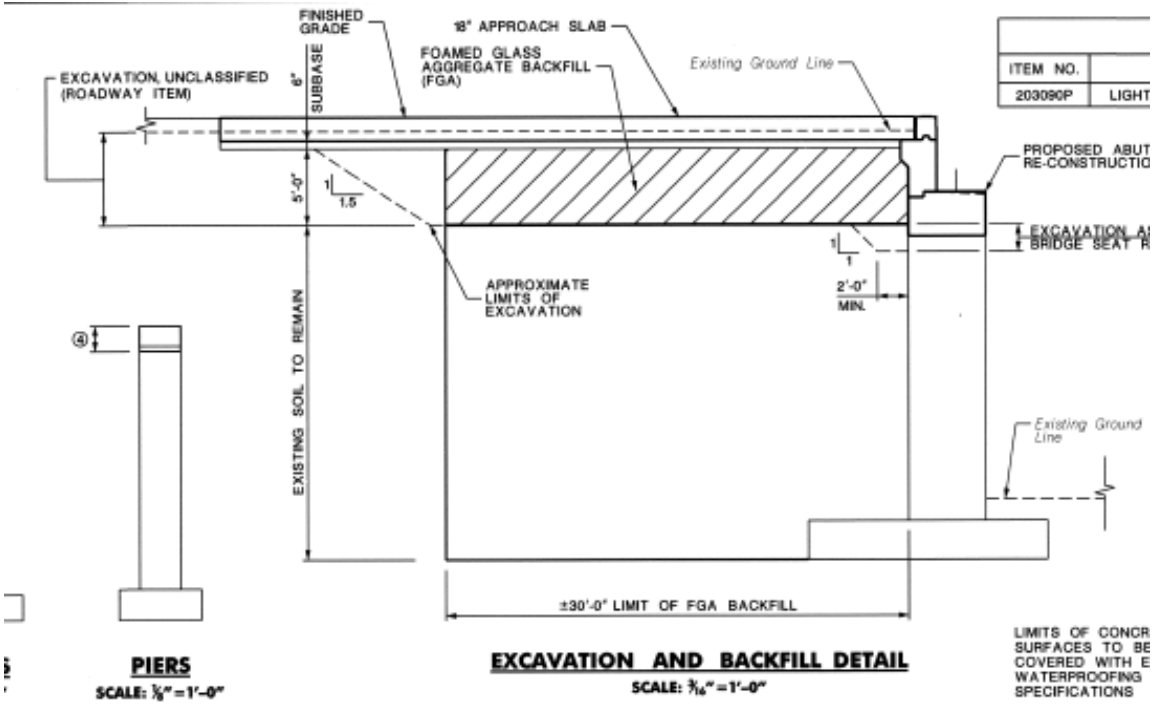
JFK Blvd - Philadelphia

- Existing 24' wall was starting to rotate
- Remove 7.5' of soil
- Replace with UL-FGA



JFK Blvd, Philadelphia





I-80 Rockaway NJDOT

MinnDOT



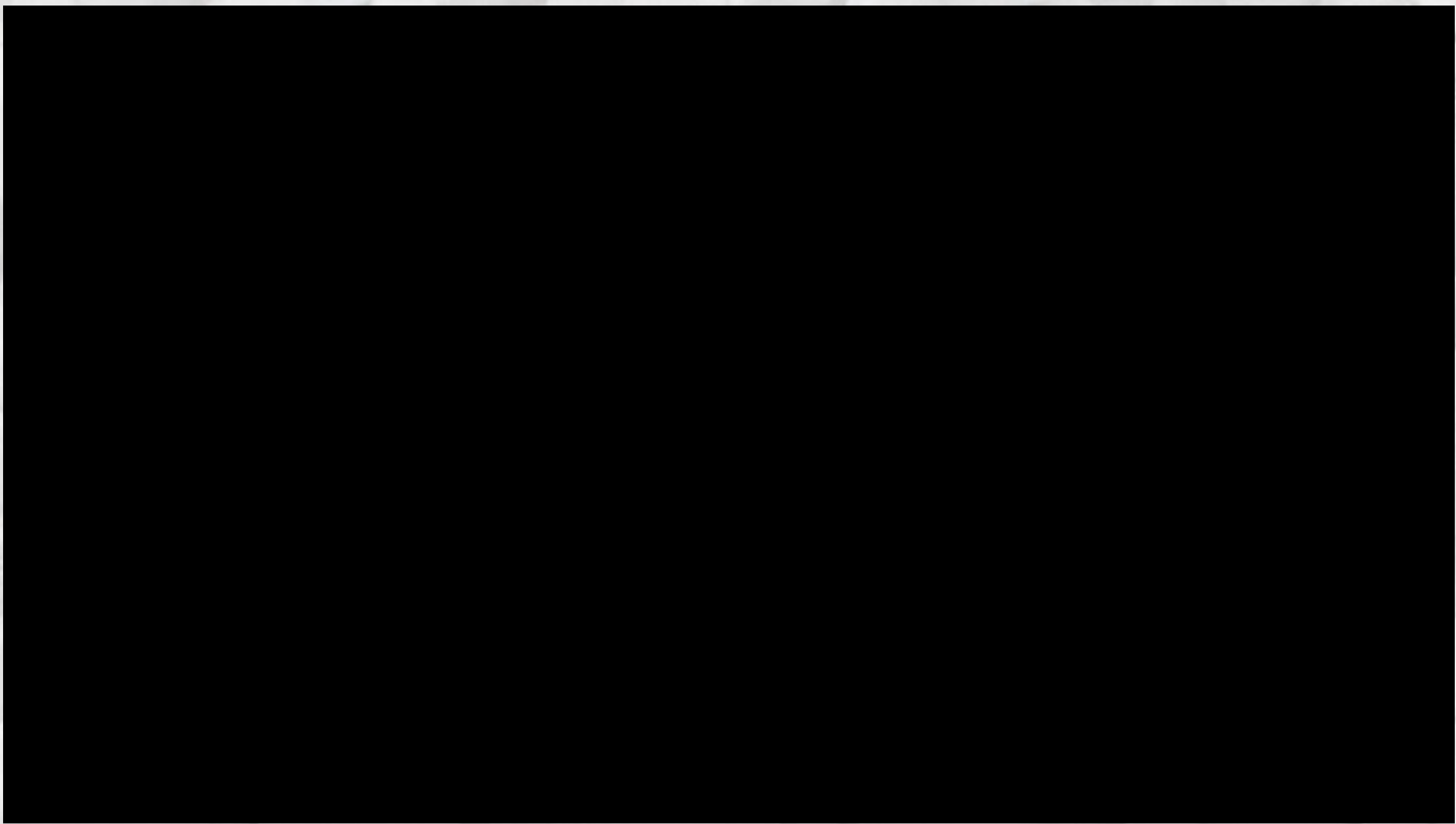


HOME & AUTO

MAZZA
IRON & STEEL

CAT

ENCORE WORSHIP AREA



RIDOT Route 6&10







Recycling Numbers

Each kiln processes 16,000 tons of recycled glass per year

2 kilns installed in Eddystone, PA

The equivalent of 140 million bottles/year/kiln



Thank You!

www.aeroaggregates.com

Investment Highlights

DRAFT – STRICTLY PRIVATE AND CONFIDENTIAL

VALTERRA
PARTNERS

Key Investment Highlights

<p>1 Differentiated Product</p>	<ul style="list-style-type: none"> ▪ Foamed glass aggregate (“FGA”) offers a compelling alternative to both traditional and light weight aggregates over a wide range of key metrics, resulting in significant project level cost savings ▪ Easiest to ship, shortest installation time, highest peak friction angle, easiest to work with, environmentally friendly, etc.
<p>2 Compelling Value Proposition</p>	<ul style="list-style-type: none"> ▪ FGA is the least expensive and lowest weight unit of any other lightweight aggregates and offers significant savings to customers, both in comparison to traditional heavy aggregates as well as to light weight alternatives ▪ FGA is significantly cheaper than aggregate alternatives on a total project cost basis as it significantly reduces other costs to developers (less volume require, smaller retaining walls, fewer h-piles, smaller embankment sizes, accelerated construction period, etc)
<p>3 Highly Experienced Management Team</p>	<ul style="list-style-type: none"> ▪ Aero management team brings together operational & technical knowledge along with start-up & commercial expertise ▪ CEO Archie Filshill & COO Herb Northrup have each started & successfully sold companies in the geotechnical industry ▪ Archie along with Technical Manager Theresa Loux both hold Ph.D.s and are professors at top-tier universities
<p>4 First Mover Advantage</p>	<ul style="list-style-type: none"> ▪ Aero is the first manufacturer of FGA in the US and through exclusive licensing and a growing IP portfolio, has set up a strong defensive position as the first mover in the market ▪ Early-on, CEO Archie Filshill obtained an exclusive license for the FGA kiln technology from SGGC for the entire US; currently, SGGC is the only supplier of these specialized kilns in the world ▪ In addition, Archie and Theresa have continued to research and refine the FGA manufacturing process; the Company has filed 2 patents with plans to file several more in an effort to build an IP moat to discourage new entrants into the market
<p>5 High Margin / Cash Flowing Business</p>	<ul style="list-style-type: none"> ▪ From Day 1, Aero will be a high margin, cash flowing business which significantly de-risks Valterra’s investment ▪ The Company operates at 60%+ EBITDA margins and 50%+ EBIT margins with ~95% free cash flow conversion ▪ <u>Key to high margin profile is receiving recycled glass from recyclers for negligible cost; in fact, the Company may have the opportunity to charge recyclers up to \$25 per ton to offtake their glass, turning the materials cost line into a source of revenue (not modeled in)</u> ▪ 1.50 year payback on a 2 kiln facility assuming 75% utilization
<p>6 Significant Momentum Since Initial Investment</p>	<ul style="list-style-type: none"> ▪ Since April, LTM PF EBITDA for Aero has increased from \$1.1mm to \$3.2mm ▪ Strong pipeline conversion and rapidly building project pipeline for 2020
<p>7 Environmentally Friendly</p>	<ul style="list-style-type: none"> ▪ FGA made from 100% recycled glass has tremendous benefits to the environment as well as to state and local municipalities and recyclers ▪ 50% less CO2 / 50% less energy / 55 million bottles diverted from landfill per year per kiln
<p>8 Significant Macro Tailwinds</p>	<ul style="list-style-type: none"> ▪ Since 2012, infrastructure spending in the US has expanded with significant runway through 2020 driven a record high backlog of projects and a significant increase federal infrastructure funding and programs for new projects

Differentiated Product

FGA offers significant savings to contractors and developers, both on a per CY basis as well as a total project cost basis

Table below compares the cost to install three types of aggregate along a 200 yard long x 40 yard wide stretch of roadway

(lbs per cubic foot)	Gravel (100pcf)	Shale (65pcf)	FGA (20pcf)
Depth to Excavate	13 ft	8 ft	3 ft
Cubic Yards Required	34,667	22,533	6,933
Cost of Material per CY	\$20.00	\$80.00	\$80.00
Total Cost of Material	\$693,333	\$1,802,667	\$554,667
Shipping Costs	\$1,155,556	\$488,222	\$46,222
Cost to Remove Historic Fill	\$2,426,667	\$1,577,333	\$485,333
Installation Costs	\$4,520,000	\$3,538,000	\$2,504,000
Total Costs	\$8,795,556	\$7,406,222	\$3,590,222
Project Days Saved	-	36 days	88 days

FGA provides \$5.2 million of savings compared to gravel and \$3.8 million of savings over expanded shale, its primary competitor

In addition, FGA saves up to 88 days of construction time; dollar savings are difficult to quantify but the Federal Highway Administration estimates cost reductions up to \$100k per day

Illustrative Cost Savings

- **Depth to Excavate** – during construction, existing soil is excavated so that the weight of the aggregate being placed on top is equal to the weight of soil removed (which prevents settling over time)
 - Because of its lightweight, FGA required significantly less soil excavation to achieve the same result
- **Material Cost** – while FGA is more expensive on a per CY basis, the amount of CYs required for FGA is *significantly less*; on a total project basis, the material cost for FGA is much less
- **Shipping Costs** – FGA can fit 5-6x the amount of CY on a truckload compared to gravel, reducing the amount of truckload deliveries to the site by 80%; in addition, the project requires fewer CYs than gravel, further reducing the cost to ship
- **Cost to Remove Historic Fill** – significantly cheaper for FGA as on 6,933 CYs need to excavated and removed compared to 34,667 for gravel
- **Installation Costs** – Again, the total volume of material that needs to be placed is significantly less; in addition, FGA offers various savings on structural costs to contractors in the form of things like fewer h-piles, smaller retaining walls, less land usage, etc)

Compelling Value Proposition

The properties of FGA offer a variety of potential benefits to all of the potential stakeholders in the decision making process

		Potential Benefits to Stakeholders from FGA		
		Cost	Project Benefits / Quality	Environmental
Decision Makers	Government	Lower projects costs / more capital for additional projects	Positive publicity for building with recycled material	Full support from Dept. of Environmental Protection (DEP)
	Design / Engineering Firm	Ability to submit low bid / increase project win rate	Ability to value engineer project	Green certification
	Contractor	Increase project win rate / increase profit margin	Easier to install / shorter project times	
	Builder / Owner / Operator	Increase project win rate / increase profit margin	No sacrifice quality	Green certification
Other Stakeholders	Consumer / Voters	Lower cost to recycle glass = less taxes required to support municipal recycling programs		Want glass to actually be recycled
	Waste Management	Neutralize cost center / increase profitability / submit low bid to city to win recycling contract		

Compelling Value Proposition

The properties of FGA offer significant value to customers, both in comparison to traditional heavy aggregates as well as light weight alternatives

Customer Value Proposition

- **No environmental restrictions** – Because FGA is 100% inert, it is totally exempt from environmental oversight (a huge advantage over alternatives like expanded shale, slag and geofoam)
- **Lowest unit weight of any aggregate** – with the exception of geofoam, foamed glass is has the lowest unit weight of any aggregate with the same compressive strength (note: geofoam is rarely an ideal solution for infrastructure contractors given its high flammability and requirement for costly protective membrane, drainage and specialty contractor)
- **Least expensive lightweight aggregate** – foamed glass is the cheapest lightweight alternative for contractors; furthermore, while gravel may be less expensive per cubic yard, FGA is cheaper on a total project basis as it allows contractors to achieve significant savings on other project costs (i.e. smaller retained walls, less steel, smaller embankment size, etc)
- **Accelerated construction period** – compared to other lightweight alternatives, FGA can significantly reduce construction time; foamed shale cannot be laid in wet conditions and foamed concrete can only lay one layer per day
- **Consistent Price and Quality** – because gravel and other heavy aggregates are difficult to transport, they are often sourced locally at market price; Aero products can be shipped cost competitively in a 250 mile radius around each facility, providing a consistent product and price
 - One truckload of FGA can deliver 8 times the volume of material than traditional aggregate providing significant savings on transportation
- **25 year track record in Europe** – long track record and proven longevity in Europe allows contractors to expedite approval process from state DOTs

PADOT/I-95 Case Study (completed project)

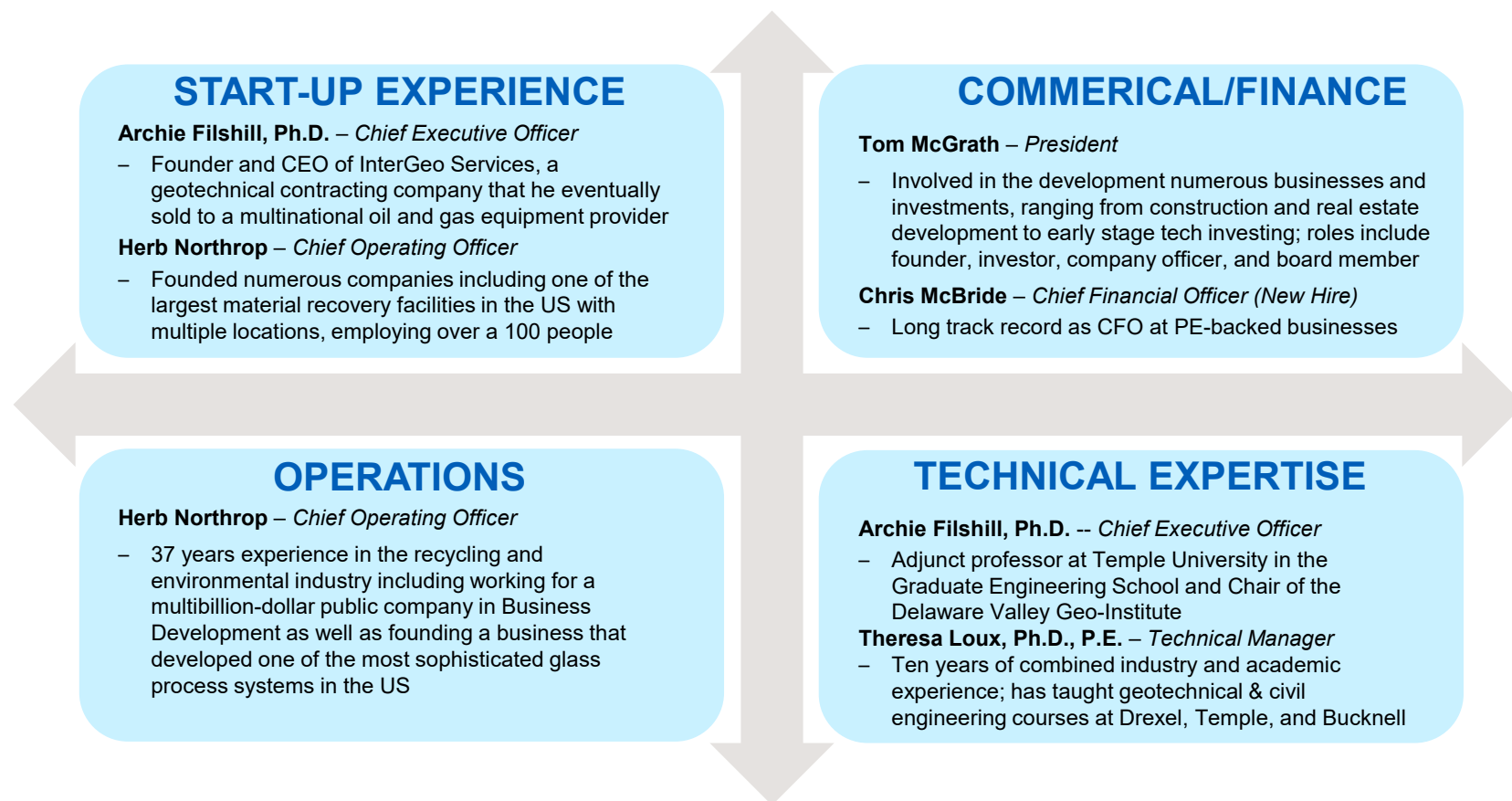
- Reconstruction along I-95 required a 20 ft high embankment to be built against temporary MSE wall
- Embankment required steepened slope and/or retaining wall to maintain right-of-way
- PADOT required no additional weight surcharge on existing 100 year-old brick sewer 15ft below embankment
 - **Original design required 13ft of excavation, sheeting/shoring and backfill with expanded shale aggregates**
 - Project redesigned with foamed glass aggregate (FGA) as embankment fill
- FGA reduced excavation from 13ft to 3ft and eliminated sheeting/shoring
- FGA reduced the amount of soil excavation and disposal off site
- Slope was steepened from 2H:1V to 1H:1V slope increasing right-of-way
- Project diverted the equivalent of 7.8 million glass bottles from landfill
- Cost savings to Department exceeded \$3.4 million
- Embankment construction reduced by at least 100 days
 - According to the Federal Highway Administration, each additional day of constructions costs approx. \$100k – \$3.4m of cost savings calculated below does not include up to \$10m from accelerated project time

	Expanded Shale			Fomed Glass Aggregate		
	Req. Units	Total Cost	Days	Req. Units	Total Cost	Days
Excavation	11,766 CY	\$411,810	23	1,417 CY	\$49,595	3
Remove of Historic Fill	11,766 CY	411,810		1,417 CY	49,595	
Install Steel Sheeting	11,050 SF	1,215,500	30	- SF	-	
Install Tie-Backs	34 EA	255,000		- EA	-	
Place Aggregate / Grade	6,139 CY	92,085	43	1,417 CY	7,085	19
Place Buttress	15,741 CY	236,115	54	9,444 CY	47,220	
Purchase Material	19,200 CY	1,920,000		10,861 CY	1,086,100	
		\$4,542,320	150		\$1,239,595	22

Cost Saved	\$3,302,725
Days Saved	128

Highly Experienced Management Team

The Aero management team brings together operational and technical knowledge along with start-up and commercial expertise



The wide skill range of the Aero team has allowed the Company to bring a product from concept to commercialization and positive cash flow in under a [36] months with expected 2019 LTM PF EBITDA of \$[3.2]m

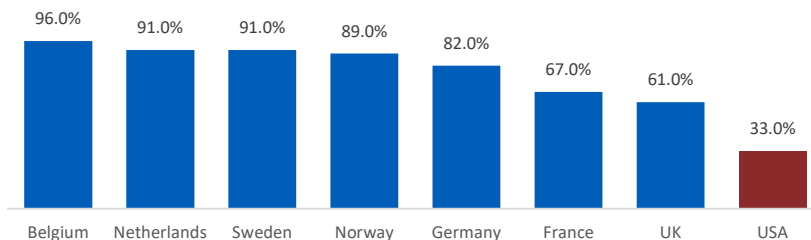
First Mover Advantage

Aero is the first manufacturer of FGA in the US and through exclusive licensing and a growing IP portfolio, has set up a strong defensive position as the first mover in the market

Key Question: Why is FGA popular in Europe but unavailable in US?

- In 1977, the US EPA released a report outlining the potential applications of foamed glass using recycled materials
 - Despite this report, the technology did not gain any traction as there was an unrecognized need for a new type a lightweight aggregate as well as a lack of investment to develop the technology
- In fact, when FGA was first commercially developed in Germany in the early 1980s, it was not originally used for its lightweight properties
 - In Northern Europe and Scandinavia, a key challenge for infrastructure developers is to prevent damage from soil 'heave' caused by the seasonal ground freezing/thawing
 - Because of its insulating properties, FGA is able to significantly mitigate the amount of 'heave' and related damage to roadways with the added benefit of being a cheap and environmentally friendly solution
- Only after being developed and used as an insulator did developers realize the potential benefit of using FGA as a lightweight aggregate
- Additionally, unlike the United States, Scandinavian countries have the world's best glass recycling programs which provided a cheap and consistent raw material supply for foamed glass providers

Glass Recycling Rate by Various Countries (% Recycled)



Aero has developed an early defensive position in the North American market

- In 2013, Aero founder and CEO Archie Filshill identified the foamed glass technology at a conference in the United Kingdom
- As a professor of geoscience and with a 25+ year career working in the geo-technical industry, Archie quickly realized the value and potential applications of the technology
- After the conference, Archie quickly moved to obtain **an exclusive license of the manufacturing technology for the entire US**;
 - Note, SGGC is currently the world's only provider requisite kiln technology used to produce foamed glass
- After some early success with PADOT, NJDOT and others, developers have begun to 'spec-in' FGA aggregate into their RFPs, with Aero being the only provider in North America

901.12 FOAMED GLASS AGGREGATE

Obtain foamed glass aggregate from the following manufacturer:

AeroAggregates
1500 Chester Pike
Eddystone, PA 19022
(833) 261-8499
www.aeroaggregates.com

The picture to the right shows an RFP that specifically provides contractors with Aero's contact information

- As Aero has started to get spec'd in, they have started to receive calls from contractors they have never contacted who need a quote for FGA from Aero so that they can submit their own proposals for a job
- In addition, Archie along with Technical Manager Theresa Loux, Ph.D. have continued to research and refine the FGA formula and process
- Aero current has two patents pending (EFS ID: 29191900 & 30599097) with several more in the works with the goal of building an IP moat around their space and making it difficult for incumbents to compete

High Margin / Cash Flowing Business

From Day 1, Aero will be a high margin, cash flowing business which significantly de-risk Valterra's investment into the Company

High Margin Business

- Aero is able to manufacture FGA at \$31 per CY and sell at \$80 per CY
- At \$80 per CY, Aero is still the low cost option among lightweight alternatives
- 60%+ EBITDA margins and 50%+ EBIT margins with ~95% FCF

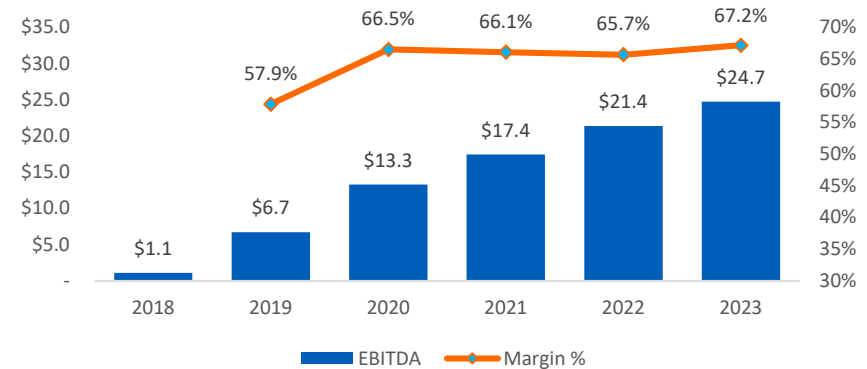
Tipping Fee

- Currently, glass recyclers (who typically can only recycle 20% of the glass they receive) are forced to dispose of their mixed color waste glass at landfills who charge a tipping fee of up to \$80 per ton
 - To-date Aero has taken this mixed color waste glass from the glass recyclers at no cost, saving the recyclers from paying the tipping fee to landfill to offtake their waste glass
 - In the future, Aero believes it can charge up to \$25 per ton to offtake the mixed color waste from certain recyclers, effectively turning its materials costs into a source of revenue (not modeled in)
 - The Company believes that recyclers would be happy to pay this fee as it is still substantially cheaper than sending to landfill

Downside Protection

- 1.0x liquidation preference and 10%/90% catch-up provision de-risks Valterra capital recovery
 - Valterra equity attachment point of \$23.25mm or 3.47x 2019E EBITDA
- On Day 1, Aero will be cash flow positive with an LTM PF EBITDA of \$3.2m, with significant visibility over 2019/2020 EBITDA forecast
- Low risk of liquidity crunch given high cash generation and low debt
- Growing, positive EBITDA allows for increasing debt capacity at the business providing near term opportunity for a recap / capital return
- Post-Valterra investment, Aero's growth will be self funding, limiting the risk to Valterra of future dilution

EBITDA and Margin Profile



Payback Period

Facility Payback Analysis

1 Facility with 1 Kiln Operating

	Utilization %				
	45.0%	55.0%	65.0%	75.0%	88.9%
Payback	12.25 yrs	6.75 yrs	4.75 yrs	3.50 yrs	2.75 yrs

1 Facility with 2 Kiln Operating

	Utilization %				
	45.0%	55.0%	65.0%	75.0%	88.9%
Payback	3.50 yrs	2.50 yrs	2.00 yrs	1.50 yrs	1.25 yrs

1 Facility with 3 Kiln Operating

	Utilization %				
	45.0%	55.0%	65.0%	75.0%	88.9%
Payback	2.50 yrs	1.75 yrs	1.50 yrs	1.25 yrs	1.00 yrs

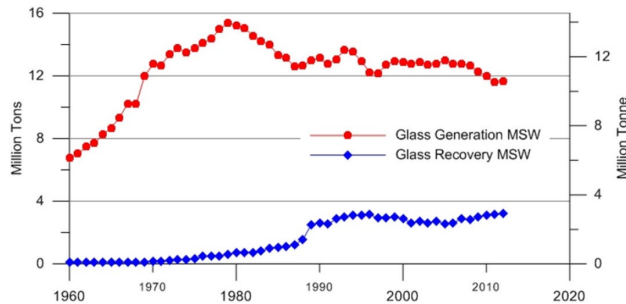
1 Facility with 4 Kiln Operating

	Utilization %				
	45.0%	55.0%	65.0%	75.0%	88.9%
Payback	2.00 yrs	1.50 yrs	1.25 yrs	1.00 yrs	0.75 yrs

* Assumes max utilization of 89% with no ramp-up period

Aero's foamed glass aggregate made from 100% recycled glass has tremendous benefits to the environment as well as to state and local municipalities and recyclers

Current State of Glass Recycling in US



- Currently, only approx. 30% of the glass in the United States get recycled
- Of the 30% that is recycled, only 20% of the glass that can be color sorted is sold to re-manufacturers (glass bottle, fiber glass, etc)
 - Although the total amount of glass recovered may be high, only a fraction of this amount may be remanufactured
 - Traditionally, glass needs to be collected and sorted into different colors; glass that cannot be sorted is broken or mixed during the collection phase
 - Mixed glass cannot be reused due to chemical incompatibility and problems that arise from the differences in the melting temperatures of each type of glass, as only 5g of non-recyclable glass is enough to contaminate a ton of recyclable glass
- As a result, states like Massachusetts are forced to either stockpile glass or pay landfills up to 80\$ per ton to accept their unrecycled glass while also risking potential public outcry that 'recyclables' are actually going to landfill

Benefits of FGA to Glass Recyclers

- Rather than paying landfills up to \$80 per ton to accept their crushed, mixed/glass ('glass cullet'), recyclers can deliver their glass to Aero for free
 - Note – in the future, Aero is considering charging recyclers up to \$25/ton to accept their glass which would still be a huge savings but would effectively turn Aero's raw materials cost line into a source of revenue
- For Municipal recyclers, the ability to dispose of glass more cheaply than landfill is significantly beneficial as it allows them to improve their bid to the city (and chances of winning) when recycling contracts come due
- The ability to recycle glass cullet is so unique and so valuable that states like Massachusetts are offering huge tax incentives and financing packages for Aero to locate one of their facilities in their jurisdictions

Other Environmental Benefits of FGA

50% less CO2 than other lightweight materials

50% less energy consumed than other lightweight options

Inert, inorganic product which does not decompose – US EPA testing shows it is non-toxic and does not leach

55 million bottles diverted per year per kiln

Supports municipal recycling programs

Significant Macro Tailwinds

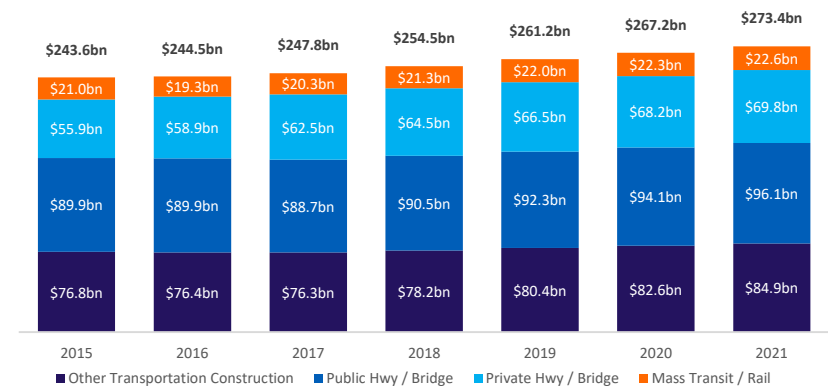
Since 2012, infrastructure spending in the US has expanded with significant runway through 2020 driven a strong backlog of projects and increase federal funding for new projects

Key Infrastructure Drivers

- There is mounting evidence that the upturn in US infrastructure volumes is imminent
 - As of June 2018, Associated Builders & Contractors construction backlog index at a record high of 9.9 months with infrastructure category at 10.06 months¹
 - 18% increase in the American Road & Transportation Builders Association (ARTBA) project awards in the three months to Jan-18²
- HSBC projects robust cement/aggregates volume growth in the US in 2018 at 4%, accelerating to 4.5% per year in 2019-2020 should be driven by an upturn in infrastructure spending and combine with buoyant private sector demand for residential and commercial development³
- The FAST Act was passed in December 2015 and is the first multi-year highway program enacted at the Federal level since the financial crisis; authorizing federal highway investment through July 31, 2020⁴
- President Trump's \$1.5tn infrastructure plan offers long-term potential to prolong the upturn in the infrastructure cycle (not included in forecast)
 - \$1.5tn infrastructure plan, calling for \$200bn in federal spending (over 10 years) to leverage \$1.3b in state, local, and private spending³
 - Of the \$200b, \$100b would be grants to states upon reaching identified milestones, \$20b would be for "transformative projects", \$50b would be for rural grants, and the rest is to support existing programs like TIFIA³
 - While the a final bill has yet to be passed, it is encouraging that the administration continues to include infrastructure in its agenda, presenting substantial upside to industry forecasts

1. Associated Builders and Contractors, Inc. "ABC's Construction Backlog Indicator". June 2018.
 2. American Road & Transportation Builders Association. "US Transportation Construction Market Forecast 2017"
 3. HSBC Global Research. "US Plays' Infrastructure Upturn Imminent". March 2018.
 4. UBS Global Research. "US Non-Res Construction Outlook". March 2018.

ARTBA forecast of real major transportation construction market (excludes potential impact of proposed \$1.5tn infrastructure bill)²



FAST Act (in place through 2020) provides visibility to DOTs to plan larger and expansionary projects that are more cement and aggregates intensive⁴

