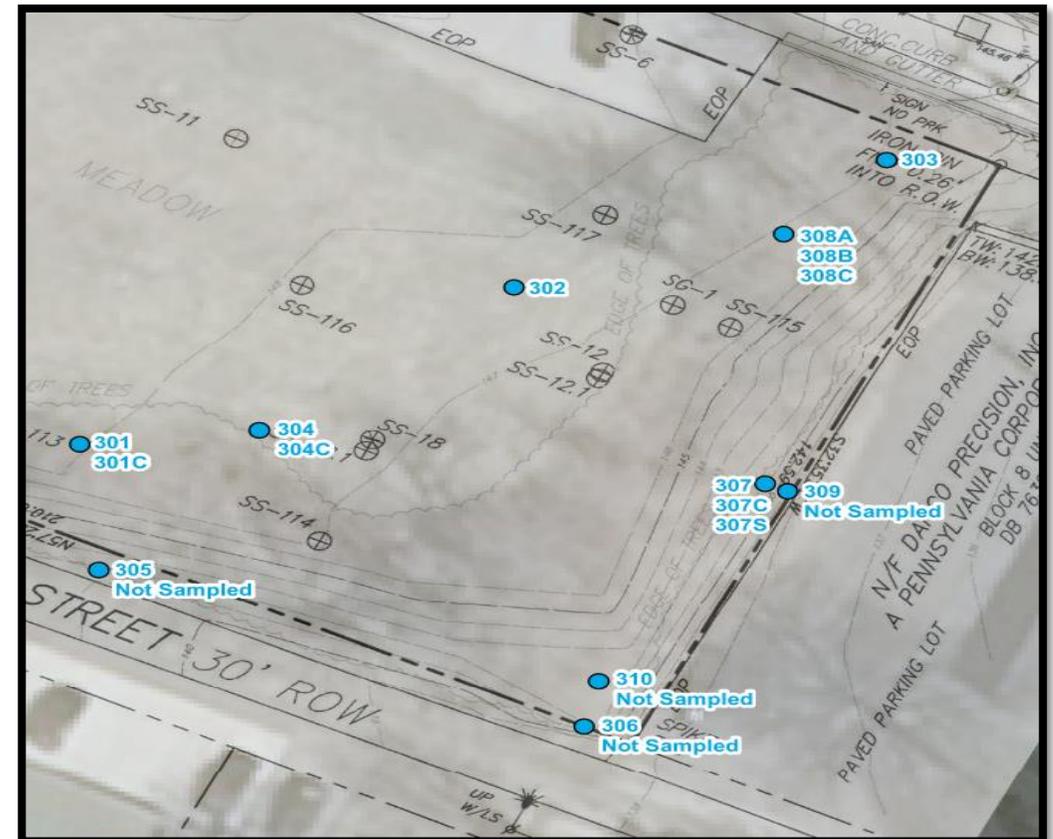
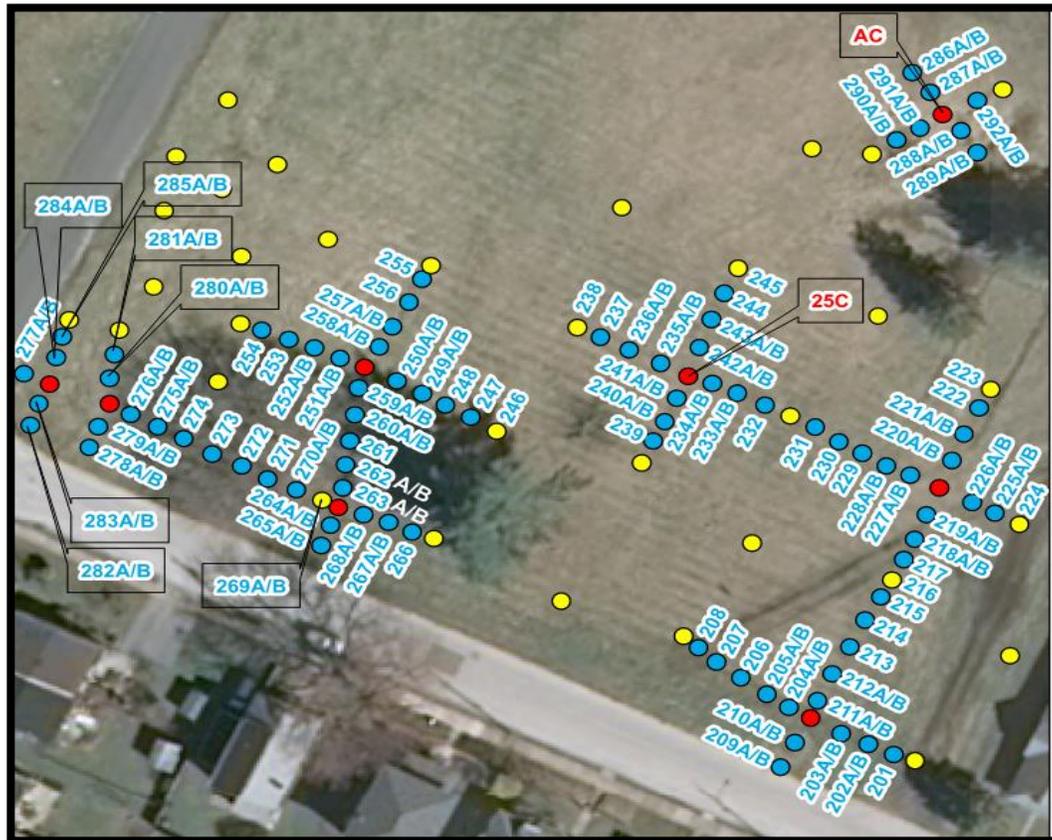


CHARACTERIZATION OF STEELTOWN (Former Flint Property)

Final round of characterization (requested by developer) confirmed full extent of impacts between prior borings and delineated edges of fine black sand (the swiss cheese effect).

164 borings, 345 total soil samples, and two soil gas samples were performed on-site



POLL

After all that testing, were we finished with Site Characterization?



Yes, the soils were fully characterized.



Close, but more soils testing was needed.



Not yet, what about soil gas?



No way, you haven't considered the groundwater!

THE GROUNDWATER ISSUE

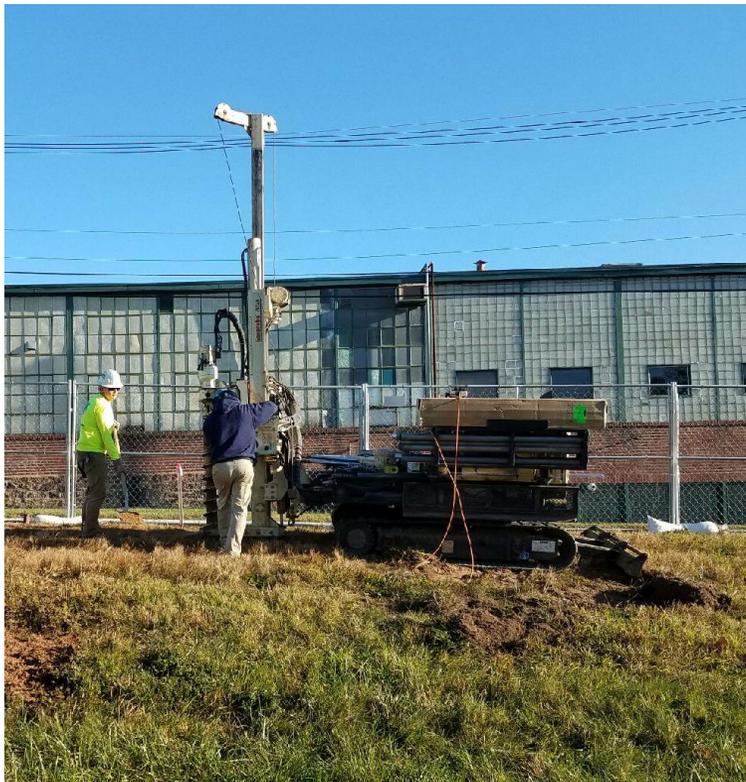
Leachability testing of the fine black sand showed a potential for Arsenic to be released at concentrations greater than the groundwater SHS

- However, testing below the sand showed no elevated Arsenic
- Leachability tests below the sand showed not arsenic
- At least 4 feet of clean soil served as a buffer between the top of bedrock and the fine black sand

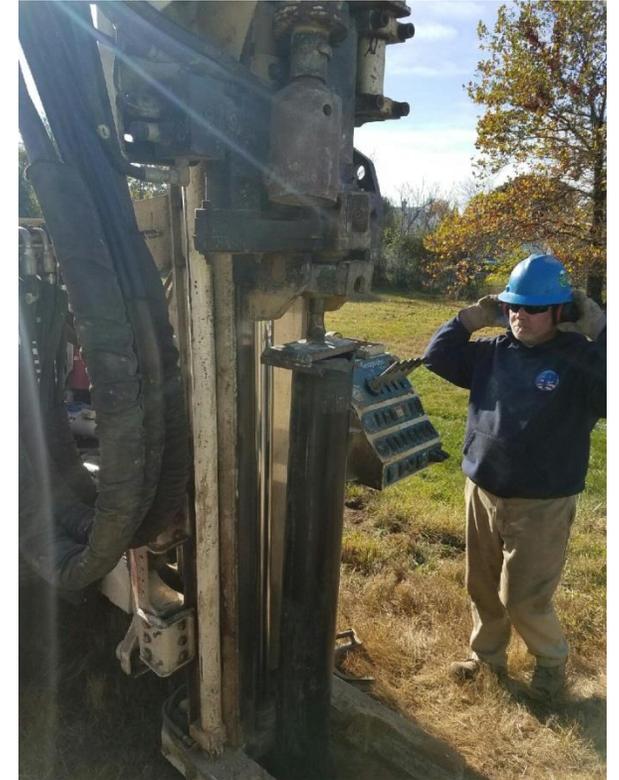
GROUNDWATER MONITORING

DEP insisted on groundwater monitoring to verify no Arsenic impacts to groundwater

(just when the Developer thought we were ready to proceed)



- 4 monitoring wells were installed
- One down gradient of the black sand mass
- Wells were monitored for 4 quarters
- Arsenic was never detected above the Residential SHS for Groundwater



SOIL GAS SAMPLING

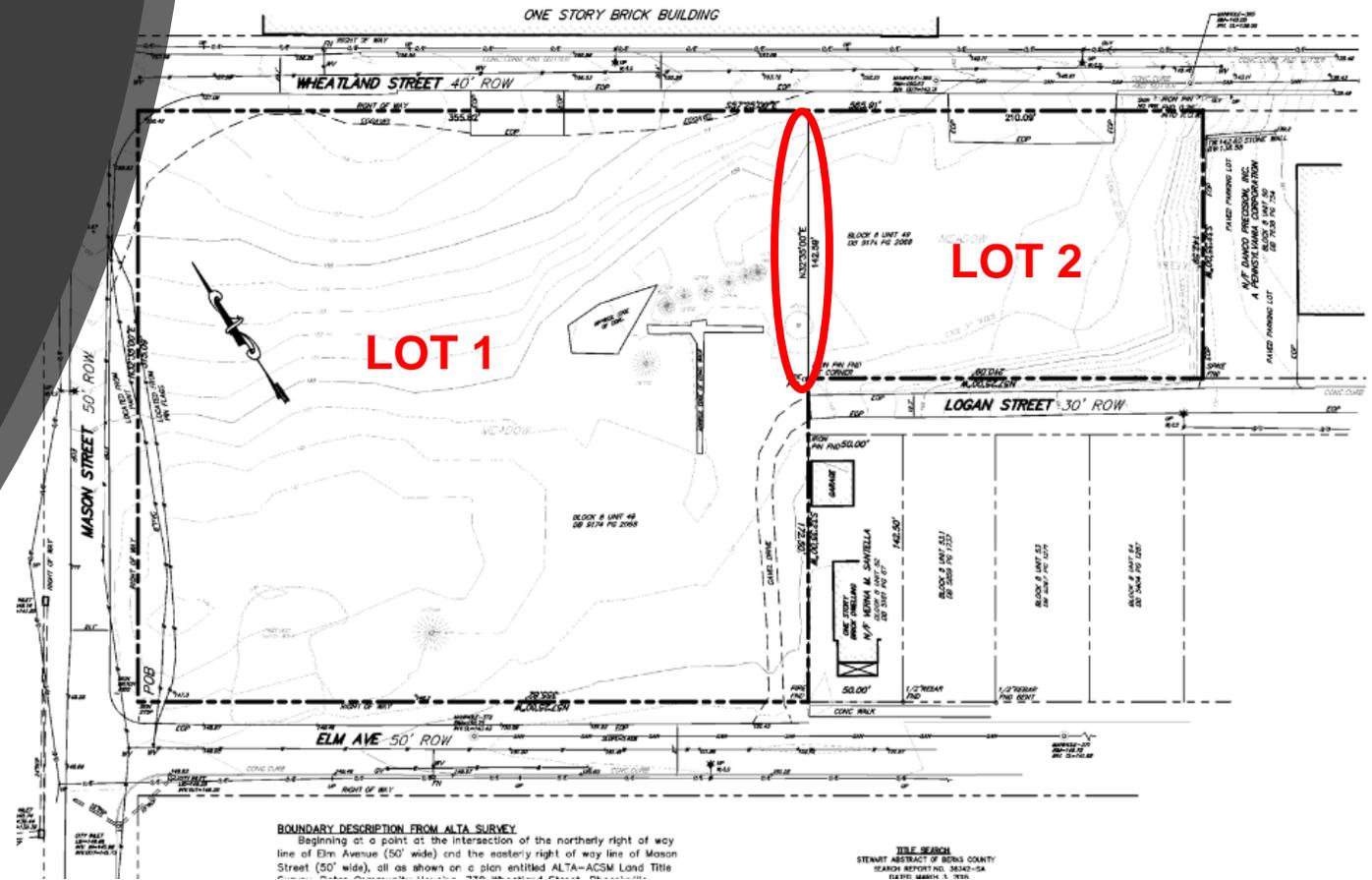
- An EPA Emergency Cleanup was conducted at the Turco property, less than 100 feet from the Former Flint Property.
- Soil gas sampling was conducted in the northeast corner of the property to verify that there were **no vapors** migrating toward the project site.



Image from the EPA's clean-up at Turco.

SUBDIVISION OF THE PROPERTY

- HUD tax credits required the site only have one use – **Residential**
- Due to the subdivision occurring after the acquisition, the County Soils considered this one site for complete remediation.
- Residual piece of the property was going to be offices for community support and social services
- Needed to legally separate the residential portion from Lot 2
- Provided a separate lot and a clean division between the Hot Spots and the Black Sand





RESIDENTIAL REMEDIATION

- Excavated the 8 Hot Spots and removed the impacted soil from Lot 1
- Post excavation sampling showed the site met the Residential SHS for Arsenic
- Soil Management Plan included a designated haul road to limit chances for spreading impacted soils

LOT 2 REMEDIATION

- Site Specific Standard using pathway elimination via a soil cap.
- To stabilize slope and apply a cap, the eastern embankment needed to be re-graded with the excess sand relocated to a point and could be capped.
- The toxic groundhogs had to find a new home.



LOT 2 REMEDIATION



To manage the Arsenic impacted soil from the Residential portion of the project and the fine black sand that was being relocated, a large pit was excavated.

The clean excavated soils were used to level the SteelTown parcel and provided needed weight bearing strength.

Once buried, the impacted soils were capped with 2 feet of clean soil.

LOT 2 REMEDIATION

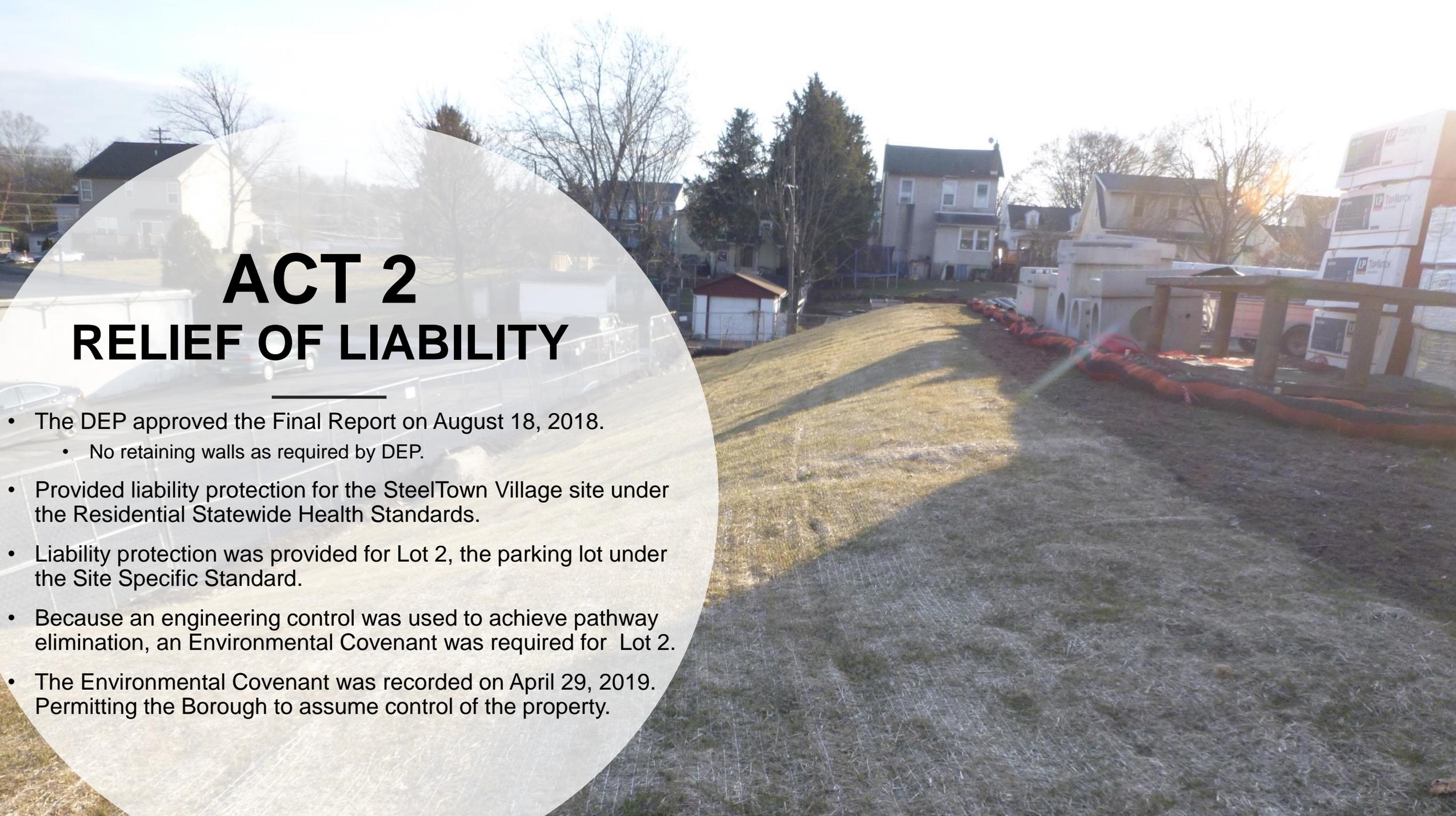
- The clean soil cap being applied to the fine black sand
- Clay dikes were used where utilities crossed the sand fill to prevent arsenic from migrating along utilities.
- Borough wanted the lot for parking, which is at a premium. They would do the paving but wanted a site with DEP Relief-of-Liability already approved.
- Soil cover was applied prior to any subbase or asphalt from the Parking lot, which eliminated the need to maintain the lot as part of the cap. This also permitted transfer to the Borough as a completely remediated site.



POLL

How many months did the entire project take?

From start of due diligence until the environmental covenant was recorded.



ACT 2

RELIEF OF LIABILITY

- The DEP approved the Final Report on August 18, 2018.
 - No retaining walls as required by DEP.
- Provided liability protection for the SteelTown Village site under the Residential Statewide Health Standards.
- Liability protection was provided for Lot 2, the parking lot under the Site Specific Standard.
- Because an engineering control was used to achieve pathway elimination, an Environmental Covenant was required for Lot 2.
- The Environmental Covenant was recorded on April 29, 2019. Permitting the Borough to assume control of the property.

THE PROPERTIES TODAY

The Parking Lot on Lot 2 once the Borough paved it and installed the lights.





STEELTOWN VILLAGE

STEELTOWN VILLAGE

STEELTOWN VILLAGE is now fully occupied with a waiting list.

48 housing units provide homes to 6 residents with disabilities, 11 veterans, 4 elderly and 25 workforce families including 55 children.

Amenities include:

Fitness Center	Playground
Community Room	Community Garden
Laundry Facilities	Picnic Area
On-site Maintenance	Bicycle storage lockers

An on-site Resident Coordinator assists residents with issues and services. Twelve service agencies comprise the Supportive Services Plan.



STEELTOWN VILLAGE OUTCOMES

The buildings meet the Enterprise Green Communities and Energy Star version 3/ reduced HERS Construction Standards.

The project created an additional 40 off-street parking spaces and 81 parking spaces within SteelTown Village in addition to the 53 parking spots within the adjacent parking lot, to satisfy residents.

Remediated 3.25-acre tract that was a source of Arsenic exposure to the community.

Converted former industrial land to a vibrant portion of the community providing high quality residences for those having difficulty in finding affordable housing.



WHAT'S NEXT?

The need for **affordable housing** still exists within Phoenixville & Chester County.

Petra is considering new potential sites for additional housing and service provider locations.

While there is a housing boom right now, it consists of high-end, luxury homes and apartments.

Partnerships will be used in future projects to:

- Enhance the power of non-profits to meet their missions
- Create a better product relaying on professionals and potential residents in a collaborative process.



QUESTIONS?

STEVE KAMBIC
Petra Community Housing

ALEX ULMER, PG
Barry Isett & Associates