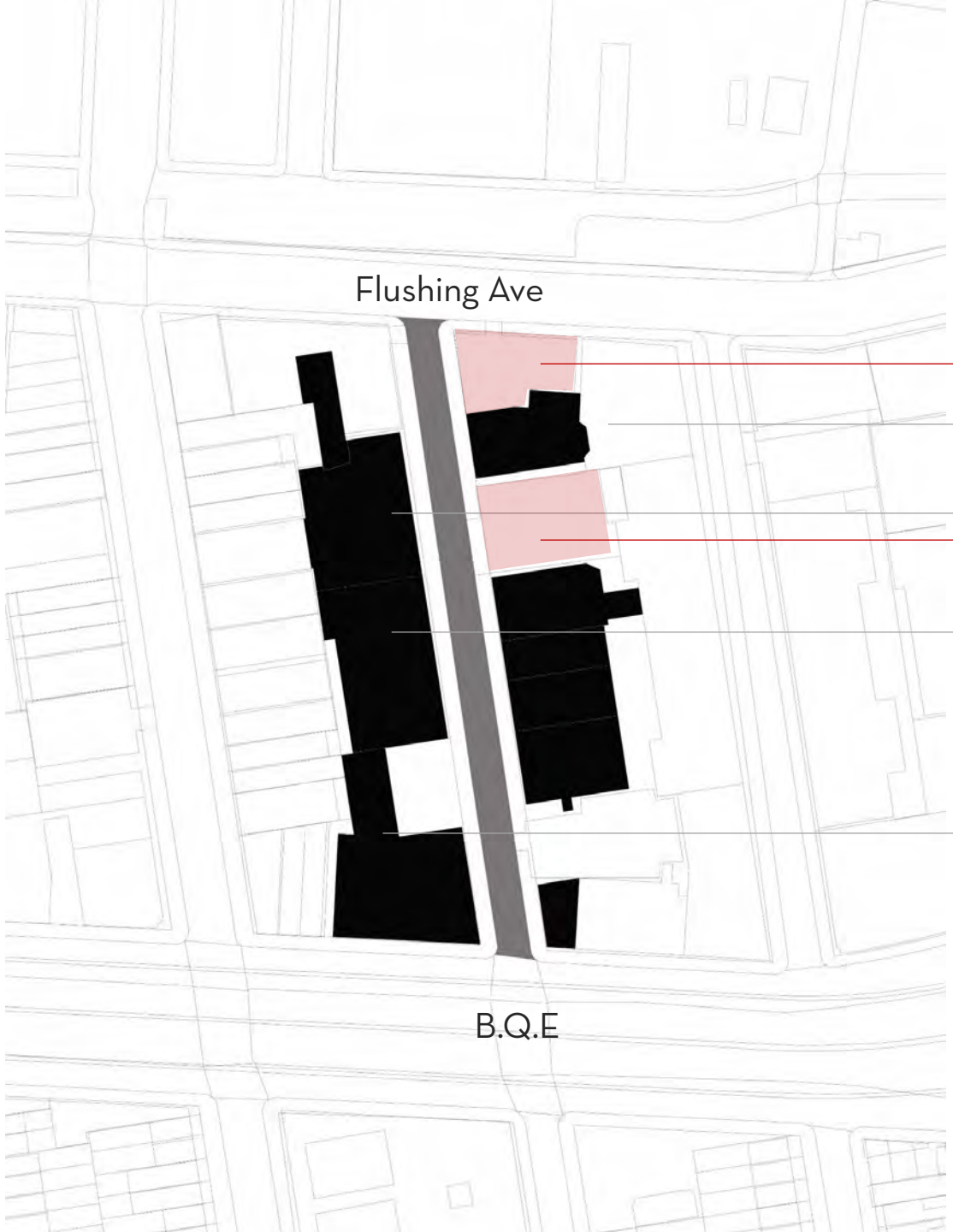
Altered Carbon

Urban Hybrids

Donghan Kang – Nikhil Sanghvi

Professor – Ferda Kolatan
Co-Professor – Emilija Landsbergis


Hall St
iStore
2 MO
FR
718



Garden 2

The Hall

Storage Unit

Garden 1

Storage Unit

Storage Unit


HALL STREET STORAGE
FROZEN • CHILLED • DRY
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Store GREEN
RENTAL OFFICE

Artificial Nature

The hall street has an interesting but weird situation, since the street was mostly used by trucks and not many pedestrians- it has no trees, not even one, however, it had these paintings of ‘nature’.

This situation gives us a glimpse of the impact of fossil fuel vehicles on our planet. We decided to build upon this idea that these paintings represented to us and thought of it as artificial nature. The project is centered on our idea of this artificial nature to nullify the impact of fossil fuel vehicles.

Climate Change

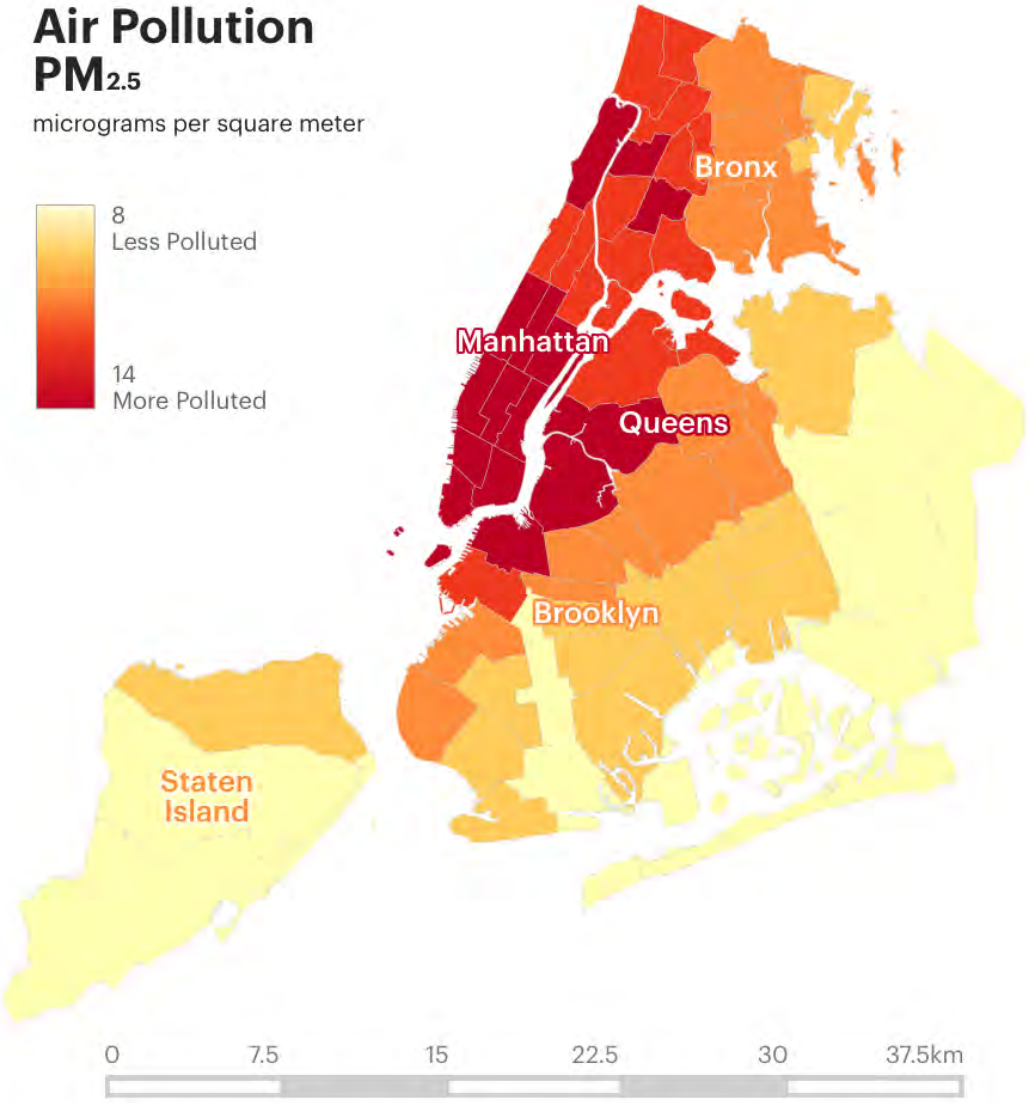
National Geographic defines climate change as a long-term shift in global or regional climate patterns. Often climate change refers specifically to the rise in global temperatures from the mid-20th century to present. Climate change may cause weather patterns to be less predictable which can make it difficult to maintain and grow crops in regions that rely on farming because expected temperature and rainfall levels can no longer be relied on. Climate change has also related to other damaging weather events such as more frequent and more intense hurricanes, floods, downpours, and winter storms.

The cause of current climate change is largely human activity, like carbon emissions due to burning fossil fuels. Burning these materials releases greenhouse gases into Earth's atmosphere, these gases trap heat from the sun's rays inside the atmosphere causing Earth's average temperature to rise. This rise in the planet's temperature is called global warming. Throughout Earth's history, climate has continually changed. When occurring naturally, this is a slow process that has taken place over hundreds and thousands of years. The human influenced climate change that is happening now is occurring at a much faster rate.

Consequences of climate change in New York City

The link between respiratory issues and COVID-19, which has attacked people with pre-existing health conditions the hardest, shows just how important reducing pollution and improving air quality are to protecting public health, especially in times of crisis. The effects of carbon emissions can be seen much more with the outpouring of cases of asthma and cancer. Several people in the city are affected by climate-influenced health issues due to exposure to polluted air.

Additionally, excess carbon emissions have left our environment unstable, resulting in extreme weather events like Superstorm Sandy, polar vortexes, and extreme highs and lows during the summer and winter months. Sea levels along New York's coast have already risen more than a foot since 1900. New York's rate of Sea level rise (about 1.2 in per decade) is almost twice the observed global rate (0.7 inches per decade) over the same period



PM2.5 is fine particulate matter of diameter less than 2.5 micrometers. These tiny dust particles, when inhaled, lead to numerous health conditions including early deaths, and heart and lung related illnesses.

Source - Urban Exposures, MIT senseable city lab

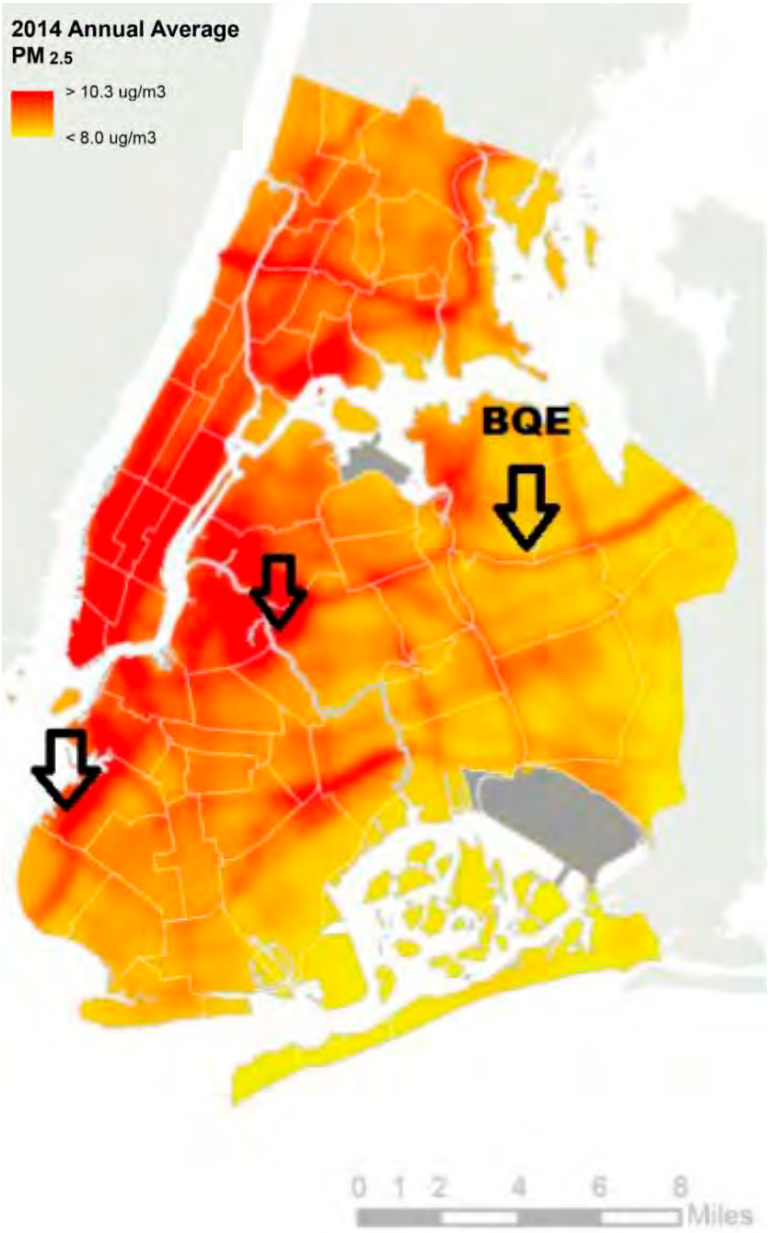
Air Pollution

In New York City, exposure to PM2.5 air pollution from vehicles contributes an estimated 320 premature deaths each year due to cardiovascular disease, heart attacks, and other illnesses (Kheirbek et al. 2016). Pollution from trucks and buses accounts for over half of these deaths. By way of comparison, 292 homicides and 222 traffic fatalities were reported in New York City in 2017 (NYC 2018; NYPD 2017).

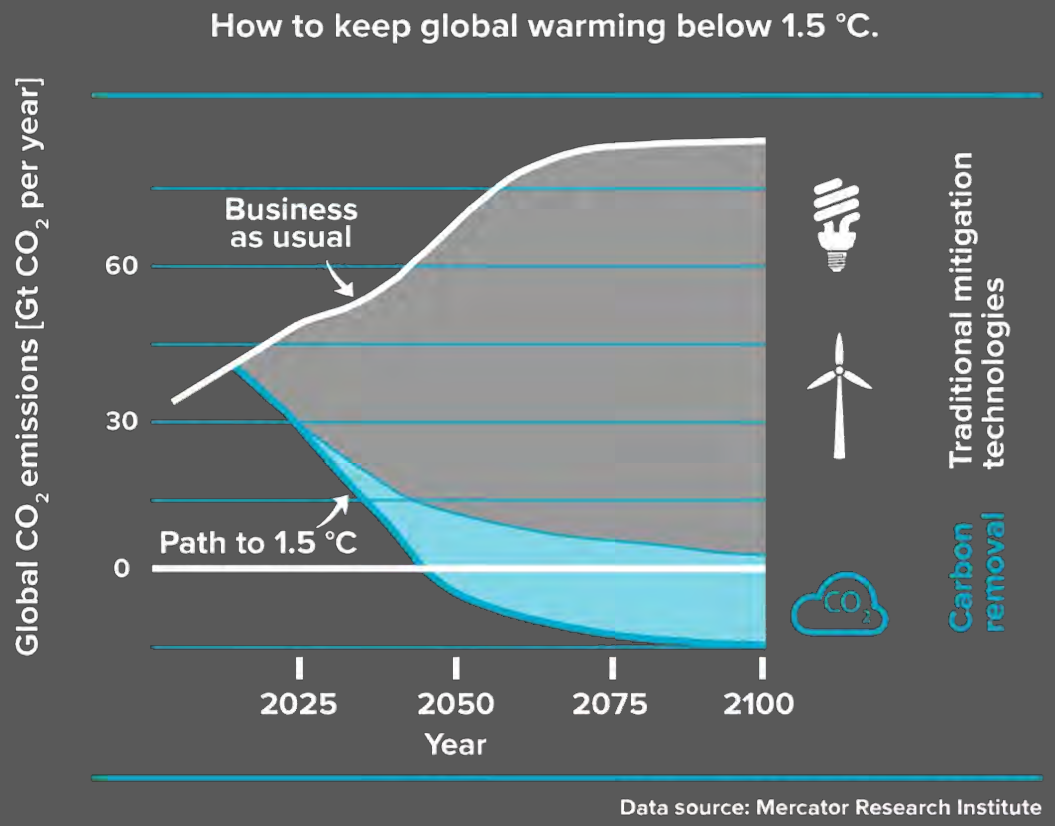
The site sits between the Brooklyn Navy Yard and the Brooklyn Queens Expressway. Almost 153,000 trucks and cars travel the BQE daily releasing dangerous amounts of toxic particulate which affects the health of people in the neighborhood. The map highlights the high amount of emissions over the entire expressway. Toxics Release Inventory data for 2017 revealed that the 17 companies emitted a total of 80.6 thousand pounds of pollution into the environment. The Brooklyn Navy Yard's cogeneration facility gave off the most waste in the borough with 71,442 pounds of toxic chemicals.

The 2016 Paris Agreement aims to keep the increase in the global average temperature to "well below" 2°C above pre-industrial levels, in order to significantly reduce the risks and impacts of climate change on the planet.

Although significant strides have been made in renewable energy and energy efficiency, these are not enough to meet the critical 2 °C target. Additional CO2 removal from the atmosphere will be required.

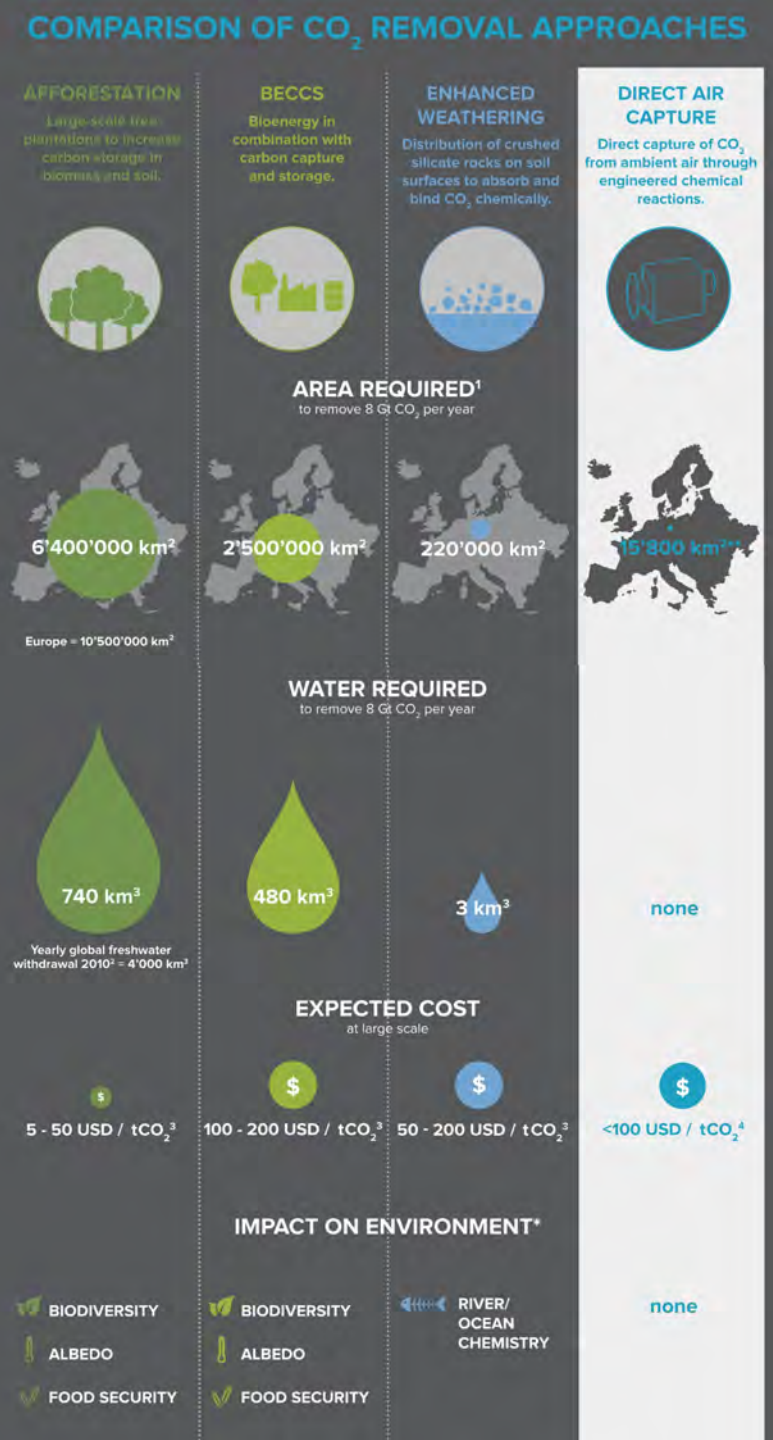


City's BQE plan could bring dangerous levels of toxic pollution to Brooklyn Heights, December 17, 2018 By Mary Frost Brooklyn Daily Eagle



Climate change mitigation therefore urgently needs carbon removal technologies. 87% of all IPCC climate scenarios make it clear that negative emissions are necessary in order to keep global warming below 2 °C.

Importantly CO2 removal is not only needed to enable negative emissions but also to achieve zero CO2 emissions globally. Sectors such as shipping and aviation do not yet have viable alternatives to fossil fuels. Traditional mitigation measures such as renewable energies can – even in the optimum scenario – only reduce CO2 by around 80 per cent. The rest must come from removing carbon from the air.

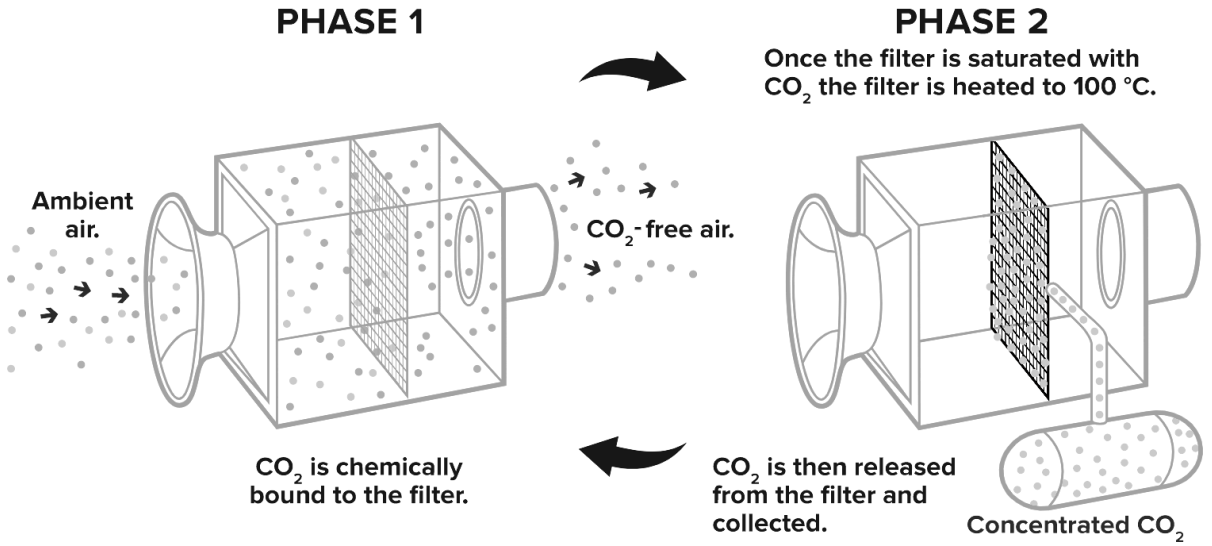


Carbon Sequestration

Carbon sequestration or **carbon dioxide removal** (CDR) is the long-term removal or capture of carbon dioxide from the atmosphere to slow or reverse atmospheric CO2 pollution and to mitigate or reverse global warming.

*Source: Carbon Engineering

Carbon Sequestration process



Fossil fuel vehicles have brought the planet on the brink of collapse. Even with the introduction of autonomous electric vehicles on the street, we will still need to spend resources on managing the consequences of continued fossil fuel use. Carbon sequestration is a process through which carbon is extracted from the atmosphere and is converted into carbon rocks, which can then be sculpted into any form with modern machines. This project explores the idea to reduce the amount of carbon in the environment employing this technique, and the extracted carbon to develop landscapes, thereby creating a ‘new nature’, where the carbon absorbing machines substitute a major function of trees.

Carbon Sequestration process

Ambient Air

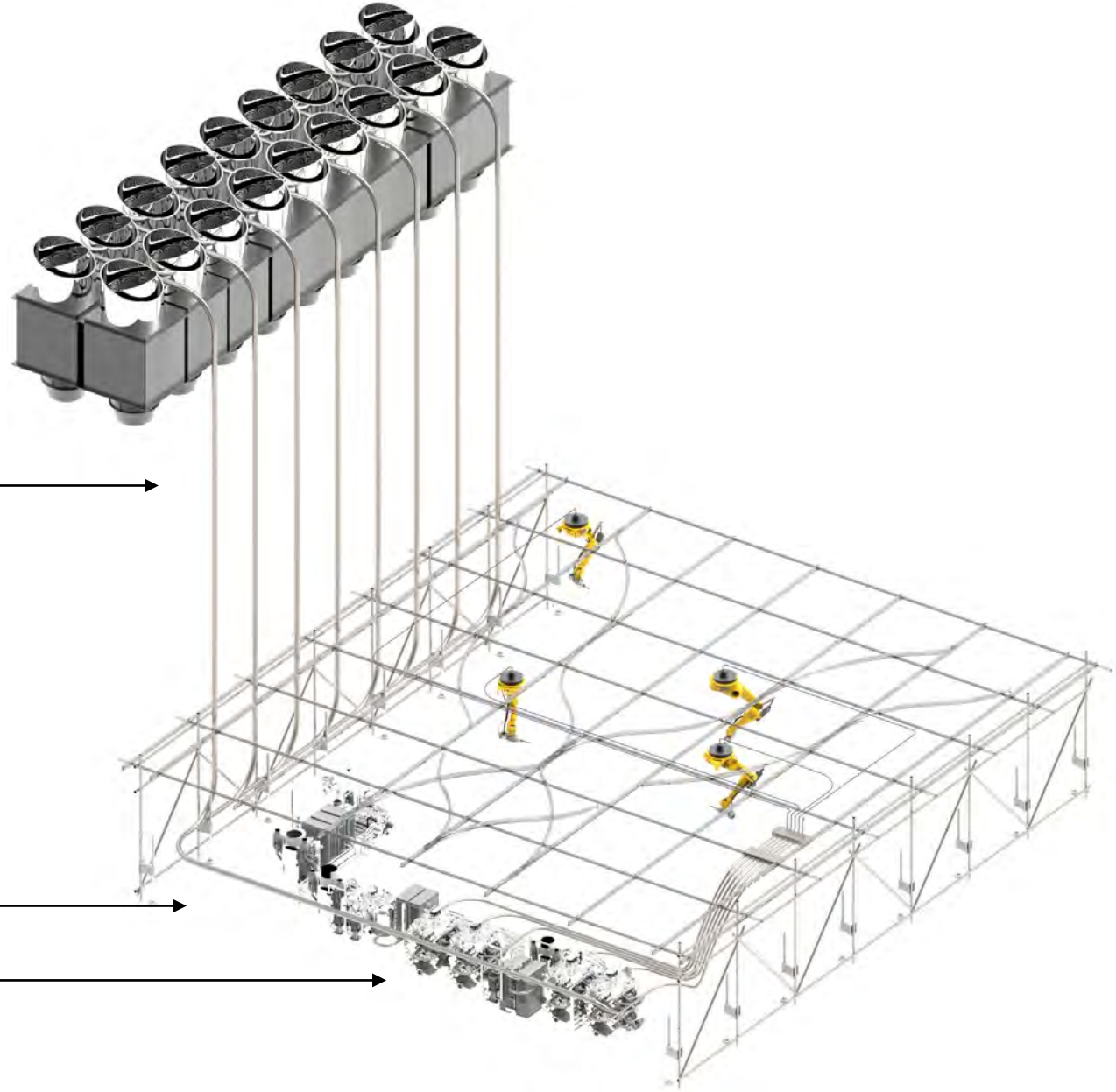
Filters

Concentrated CO_2

Electrolytic Liquid

Liquid Metal Catalyst
(Gallium + Cerium)

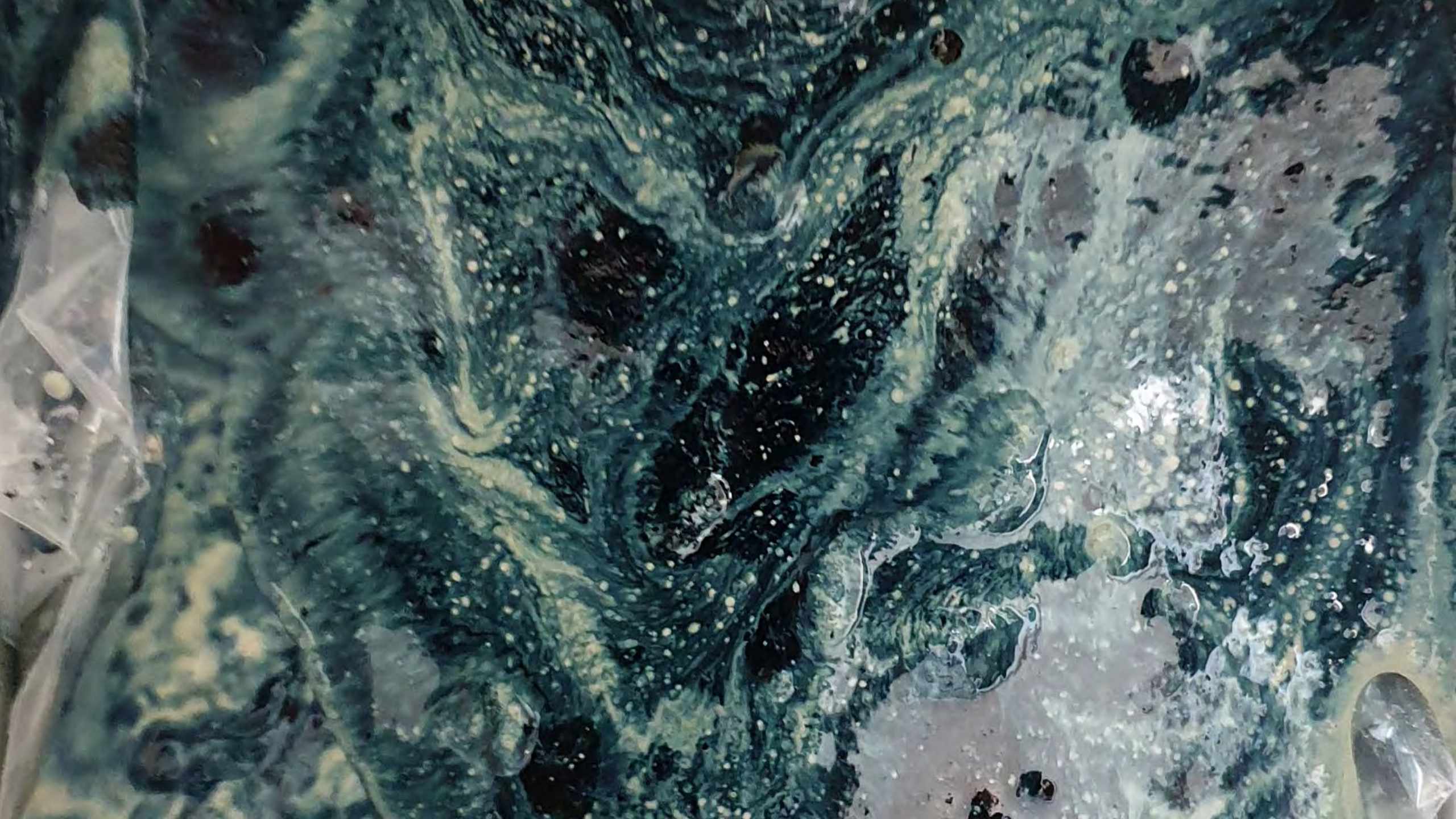
Solid Carbon Flakes

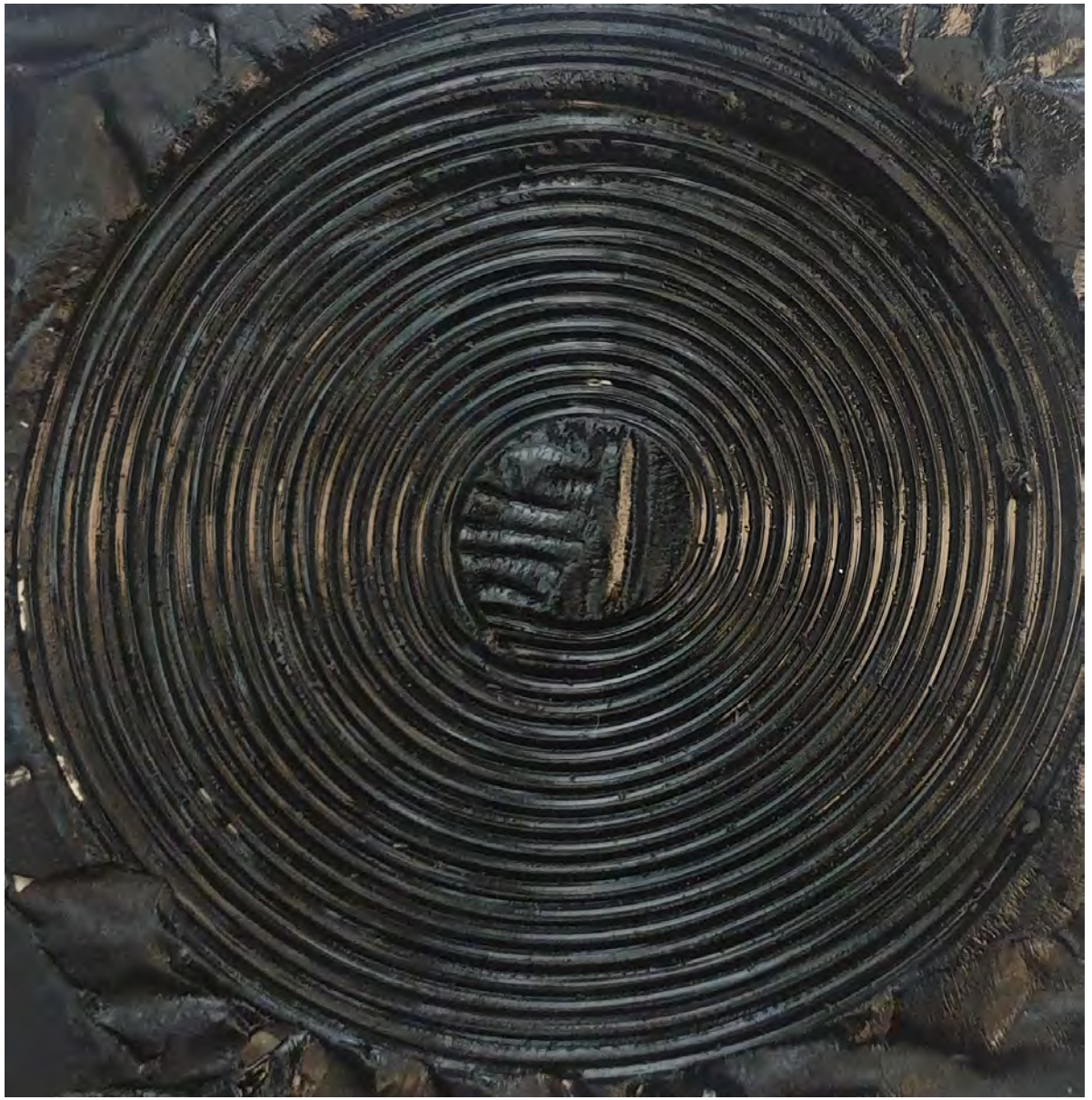


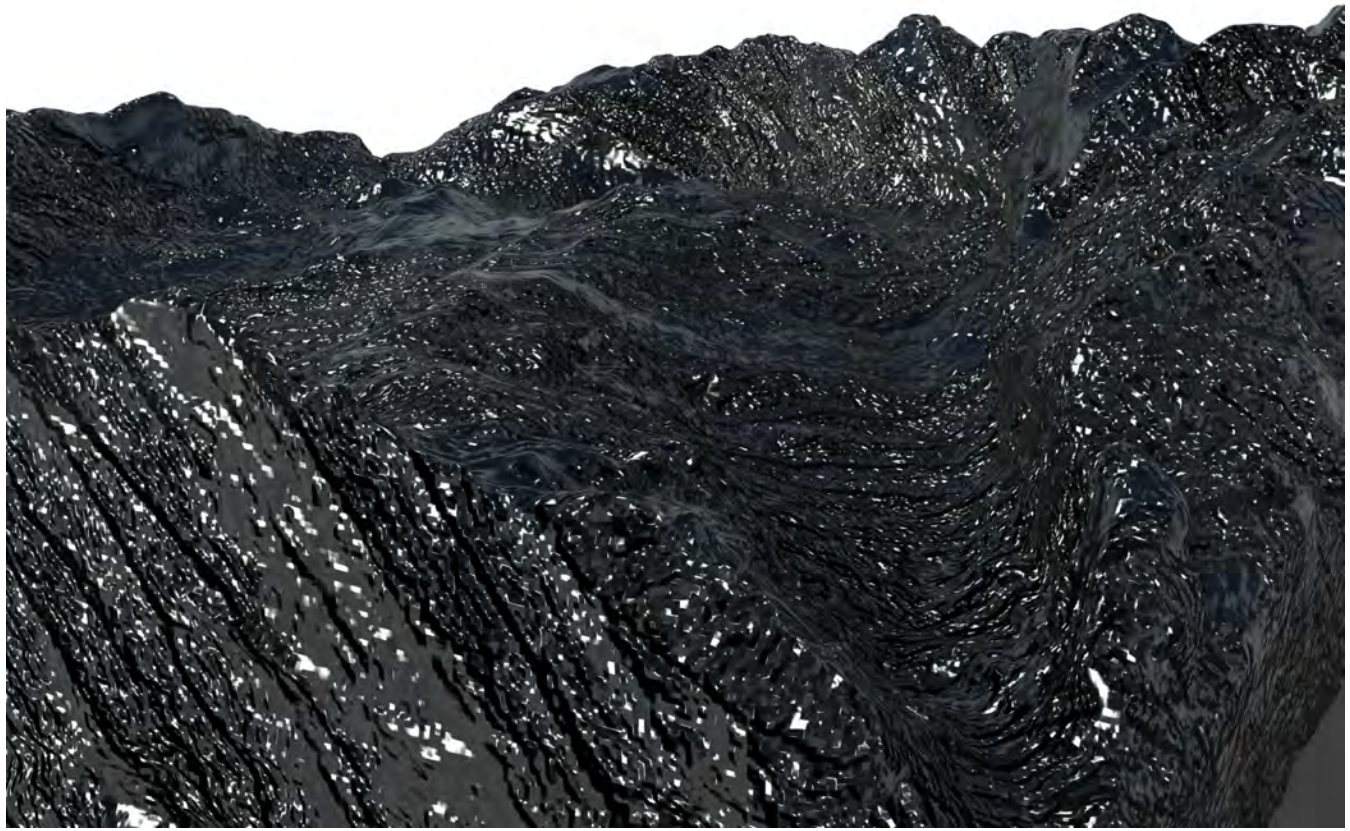
Solid Carbon Flake

Source: How Geology Influenced Central Park's Design, Jessica Sain-Baird
Sep 07, 2017

Material Studies







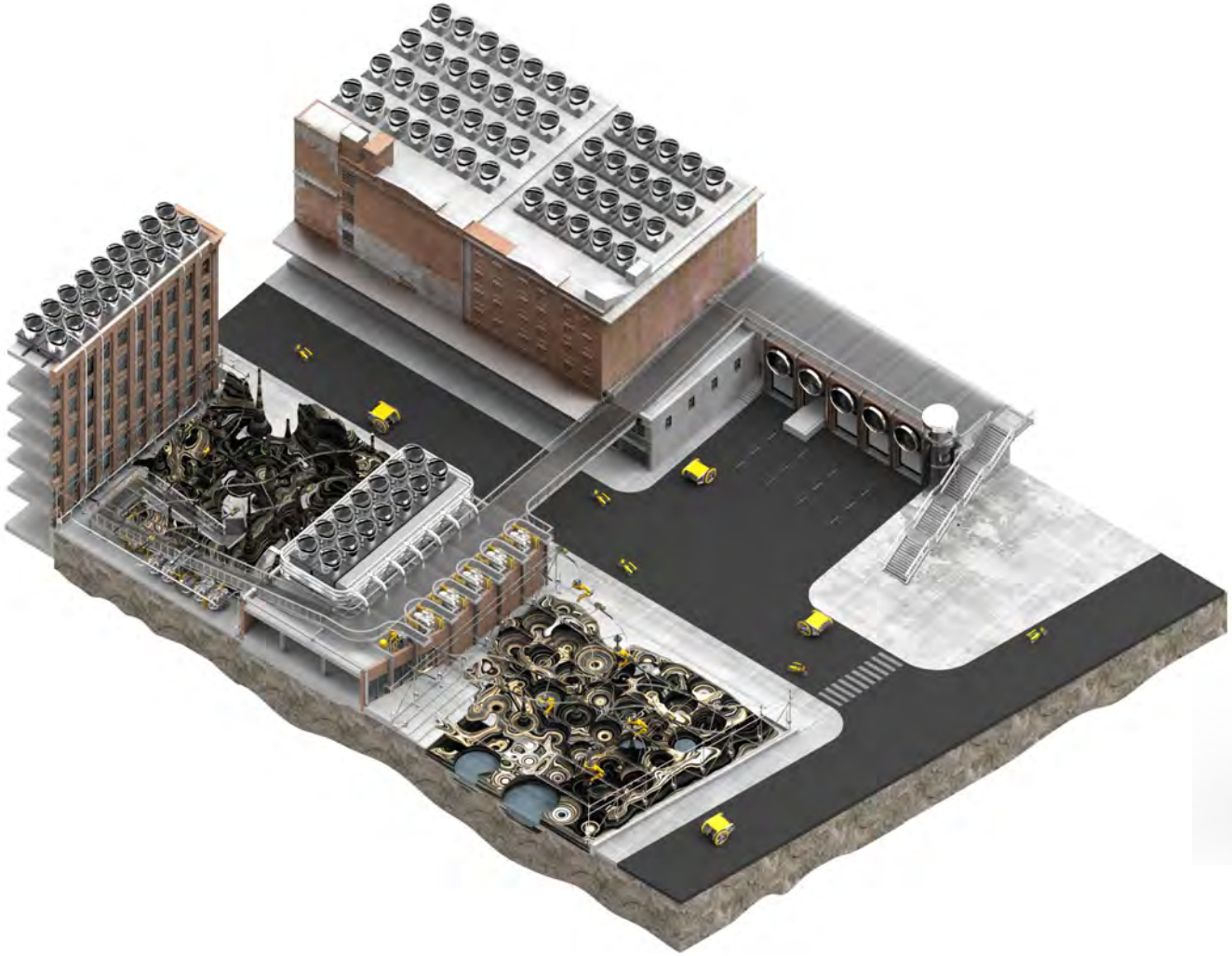
Machines with their potentials will sculpt and carve these rocks

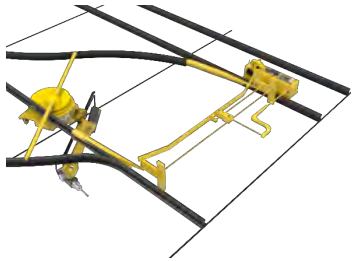
An animation depicting the sculpting machines at work

https://www.youtube.com/watch?v=7dfxNQYe0c8

Machine Species

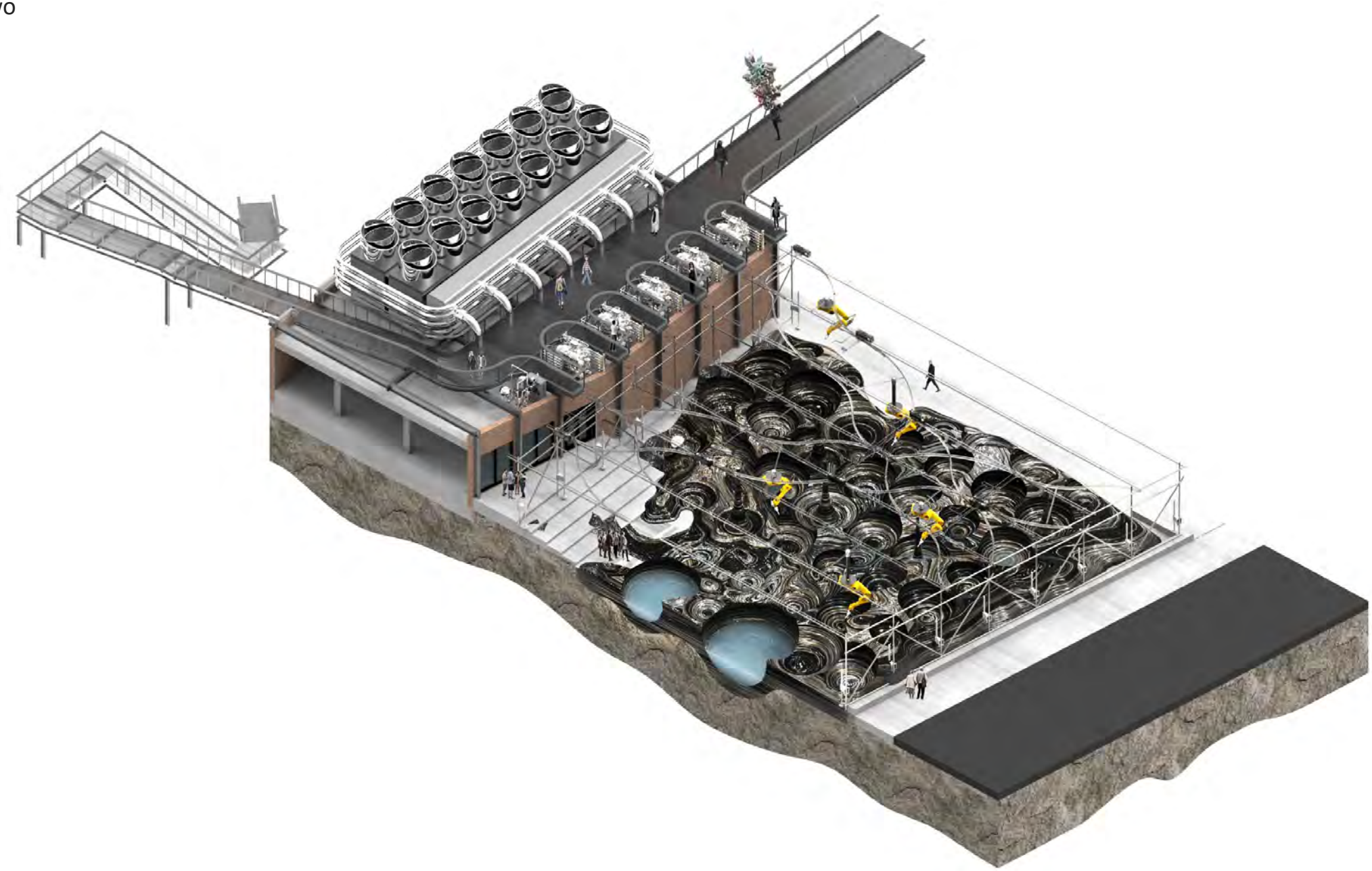
An ecosystem of machines is created which together performs a ‘ballet’ where the machines form, carve and sculpt the gardens and the Avs zip by the streets, while humans, mostly tangential can experience this everchanging and dynamic landscape.





Garden One

Garden Two

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