



STUDENTS AS  
CO-CREATORS

## **A Disciplinary Research Collaboration**

### ***Cody Dock Reed Beds***

Julie Krafft Bruland, Kristiana

Valdmane, Ana Ivaschescu, Sarah

El-Abed

Corinna Dean, Ursula Dimitrou

**School of Architecture &**

**Cities**

**Academic Year 2021-2022**

## **1. Executive Summary**

With the undertaking development that is being carried out at Cody Dock, we were presented with a task that would help sustain and work hand in hand with its futurist overview of the site: designing and building Floating Reed Beds that will help with filtration of the River Lee's water system. The class was split into smaller groups of about 3-4 students that would then design separate structural Reed Beds based on individual research ideas. We focused on the ecology and the habitation surrounding Cody Dock so we could form a deeper understanding as to what we needed to pivot our project on. This project allowed us to think about how we can also design for other forms of life. All groups would then come and create a solution that we discussed and developed through the semester through the addition of supporting funds and Client meetings with the Cody Dock workers. Once a design was finalised, we had to carry out the building process and install the Reed Beds on site and make sure they would be stabilised correctly through their potential lifetime.

## **2. Background and Aims**

Cody Dock is located on the east from River Lea, which has been very polluted over the past two centuries, rubbish has been dumped there, some oil and sewage leaks. Currently, there is a non-profit organization with activists and ecologists that are aiming to improve the quality of water in the river as well as attract a more diverse ecology. They have done this by removing the polluted silt from the dock, as well as rubbish from the river.

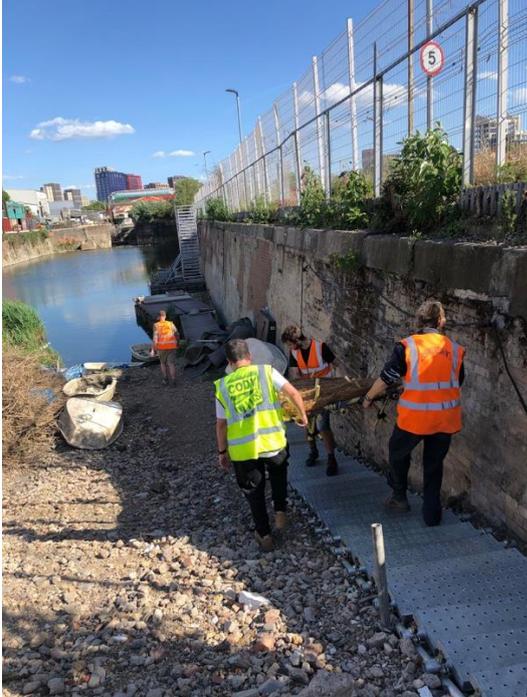
The aim of our project is to help this organization come closer to achieving their goal. By designing, building and installing the reedbeds we aim to clean the polluted water with the roots of the plants, as well as create a habitat for a more diverse fauna: birds can nest on the platforms and hide in-between the plants, insects can also lay there and fish can spawn under the reedbeds in-between the roots.

## **3. Methods**

Our starting point was the in-depth research of the Biometrix Reed bed system. This allowed us to view a working finalised product and from there we went in our own direction for different functioning solutions. Working in smaller groups allowed us to explore different sustainable approaches that would work for a finalised design structure. One of the groups decided to focus on the use of Bamboo as a structure base that would hold up the Reed beds. They explored different patterns that would solve individual problems such as the possibility of a tipping reed bed, possibility of the sinking of the reed bed, etc. Another group focused on turning the plastic waste in the river into buoyancy. Through this, we would collect plastic bottles and enclose them in a plastic mesh tube that would then hold up the coir, the plants and its potential habitants. In the end, the client chose the bamboo structure, which has many sustainable benefits and a longer life efficiency for the project.

## 4. Results

We designed and tested a modular reedbed that floats. After having done so with the help of the people working at Cody Dock we were able to build a few of them on the site. We also installed them on the site.



Since we built them together with the Cody Dock team, they now will be able to create more of the reedbeds and make public workshops, where they will teach others how to make them.

## 5. Discussion

Since the main achievement of this project was based around the ecology and the biodiversity of Cody Dock, we need that our main goal was to make it as Sustainable for the location and its future as possible. We did this through:

1. Using long lasting with sustainable materials. Even though we had finalised on using Bamboo as the final structural material, we did experiment with sustainable plastic for the base as well as coconut fibre
2. Helping reduce the pollution in the River. Having stuck algae roots to the bottom of them Reed beds, we have helped in the reduction of the pollution that is now in the River, which has overall been a continuous fighting challenge for the future of the Thames and the River Lee.
3. Creating habitats for animals and the wildlife. While doing our initial research into Cody Dock, we had analysed the wildlife that is common and has been spotted at Cody Dock as well as UK priority species. This allowed us to find solutions into how we can attract these different species and accommodate them. We looked into different plants and even technology such as fish spy cameras that would also allow us to

understand what goes in the Rivers. With this being said, a couple moments after the Reed Beds were inserted into the site, we spotted a duck landing on the Reed Bed and staying there for a while.

## **6. Conclusion and Recommendations**

Overall, I would say that we had successfully achieved the aims of the project. With the challenges we had faced as previously mentioned, we did manage to create a sustainable Reed Bed that was also effectively installed and is managing to stay afloat. We had also constructed different Bamboo bases however they all proved to be working and none of them sank. We also have managed to see its local habitants interacting positively with the Reed Bed which was also a task that we knew was a strong decision making factor in our design that majorly influenced the project. We can also say that given our time frame and the different projects we were working on, this project could have achieved a bit more of its potential if we had a longer time frame to be working on it. To conclude however, our aims were achieved.

## **7. Dissemination**

The spreading of our project is mainly left at the hands of Cody Dock. Once people visit there, they will be told about the project. Furthermore, the team working there said that they are planning to host community workshops where they will collectively teach and build our design.

## **8. Research Team Reflection**

This project was our first real project which ended with our studio building and installing the structure together at the site. We benefited a lot from the project, as we had a client with whom we discussed the design and adapted it to the requirements they gave us. The reed bed is set to last for several years, therefore we had to do much more research about the durability of the materials and had a very realistic and technical approach to this project. Given the success of the installation of the reed beds, we benefit from showing future employees this design. As well as that we also got to research sustainable materials and create and assemble them. Construction of the finalised Bamboo structure and creating the rubber joints that would hold it together, for example, helped us develop more skills than we thought we would as it made us look into a completely different area of the architectural world than we normally would.

As with any design project, there were bound to be bumps in the road, with certain students not showing up or giving their attention to the project and its requirements. However, at the end, the design development and the final installation, we successfully managed to finish this project within a much smaller group. The positive outcome was much better coordination amongst the group and even though it took us longer we learned to adapt to the circumstances and distribute work efficiently to finish before the deadlines. Overall the triumph was well earned as everyone who has researched,

designed, collaborated and worked managed to create a functioning Reed Bed that has worked well for the clients.