

## Executed project report

### Consolidation of the slopes of the Parking Service Castellbisbal (Barcelona)

Stakeholder of the proposal and the execution: Naturalea

Client: Parking Service Castellbisbal

Started/Finished: May 2019

BEFORE

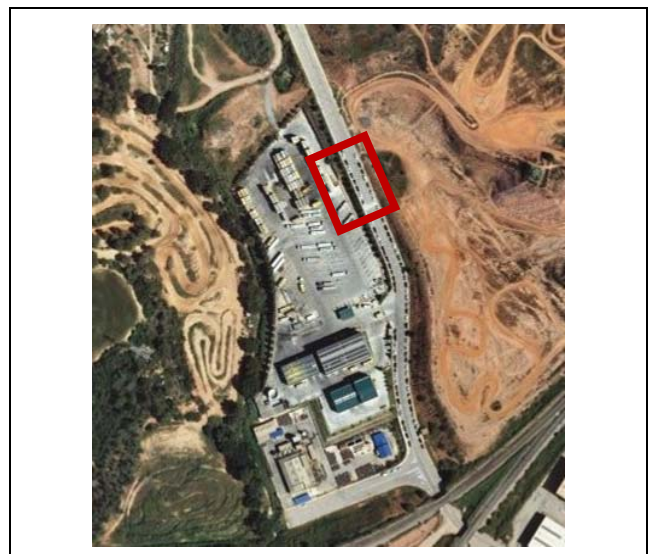


AFTER



#### INTRODUCTION

The present work consists in the consolidation of a part of the slopes that limit the *Factory Parking Service Castellbisbal* with the street. The gradient and the poor internal structure could have caused the collapse of the slope in precipitation episodes. This was aggravated by the incorrect management of the runoff, but at the moment of the intervention this was already solved.

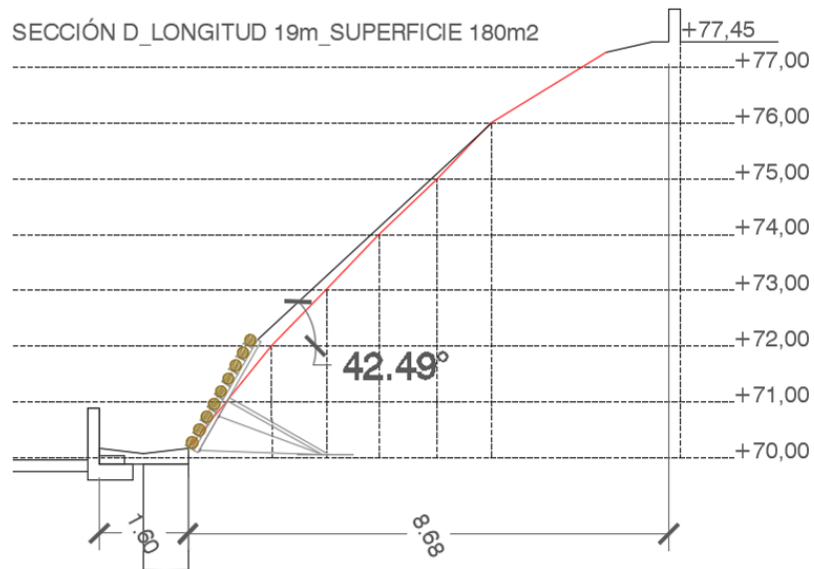


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## Actions

To stabilize this slope of 20 m of length, 4 Loricata cribwall, which are structures that consolidate the base of the slope at 60°, were installed, along with a seeding mat on the surface of the rest of the slope.



Scheme of the section

### Conditioning of the terrain and cleaning of drainage ditch

In order to install the Loricata cribwall, we previously profiled the slope and conditioned the terrain to work. This included the cleaning of the vegetation and the landslides, with the complementary objective of taking advantage of it for the global land balance.





## Installation of the Loricata structures

The Loricata is a certain type of crib wall that has its origin in a metallic structure that is used to slope control and where vegetation-containing trunks are added in the front, and that facilitates the revegetation.

The structure consists of a metallic frame that subjects the frontal trunks and of a metallic plate that holds the weight of the slope. The structure works as a lever that guarantees the stability of the frontal.



Scheme of the Loricata cribwall and image of the initial phase of the installation

The frontal view is very similar to every other crib wall technique. It can be easily vegetated, although the stability of the structure does no longer depend of the vegetation. It has a known, stable and permanent resistance since the moment of the construction, and allows the vegetation to develop without any difficulty.

This system avoids drilling the trunks. Different studies regarding the crib walls have shown that those with fewer holes and cuts have greater durability.

The construction process is very important, since the levels must be installed level by level. First, the trunk is placed, then, the soil, which compacts, and finally we plant before we start with the next level.



Images of the construction of the Loricata cribwall





Images of the planting step

### **Profiling and protection of the upper part of the slope**

Once the Loricata cribwalls are finished, the upper part of the slope was profiled and completed with the installation of a 700 gr seeding mat and autochthone herbaceous species. The seeding mat will initially stabilize the slope, protecting it from torrential precipitation and from the runoff. This mat retains the moisture and facilitates the herbaceous colonization, leading the nature to replace the seeding mat at the end.



Images of the installation process of the seeding mat

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**KEY WORDS:** Slope restoration, bioengineering, Loricata cribwall, planting, seeding mat

**APPLIED TECHINQUES:** Loricata cribwall, plantation, seeding mat