



Co-funded by the Walloon region

RAWFILL WP I1

I1.4.2 As-built document, works report

Date: October, 2020



SUBJECT: WP I1 - I1.4.2 As-built document, works report

report
 information
 consideration
 decision

To: ... **From:** OVAM

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Introduction

In this report, the restoration works performed on the Meerhout landfill site in April 2019 are presented. These actions consisted of:

1. the reparation of the geomembrane (HDPE-liner) on the southern part of the landfill (where two boreholes were performed in November 2018);
2. the restoration of the northeastern part of the landfill where trenches were performed.

Description of the activities

Table 1: Project description and information

| | |
|--|---|
| Project description | - Reparation of geomembrane at two locations - Characterization of the excavated waste retrieved from the lower part of the landfill |
| Address | Kiezel 300, 2450 Meerhout, Belgium |
| Employees | 5 - 20 employees |
| Planning and duration of the activities | From 8 th to 10 th of April 2019 |
| Main contractor | Bentivec Piping nv |
| Sub contractor | Aertssen nv |

Reparation of the geomembrane at the location of two boreholes – 9/04/2019

The geomembrane was restored at the location of two boreholes (1W and 1E) by Benvitec nv (**Fig. 1**). The exact coordinates are listed in **Table 2**.

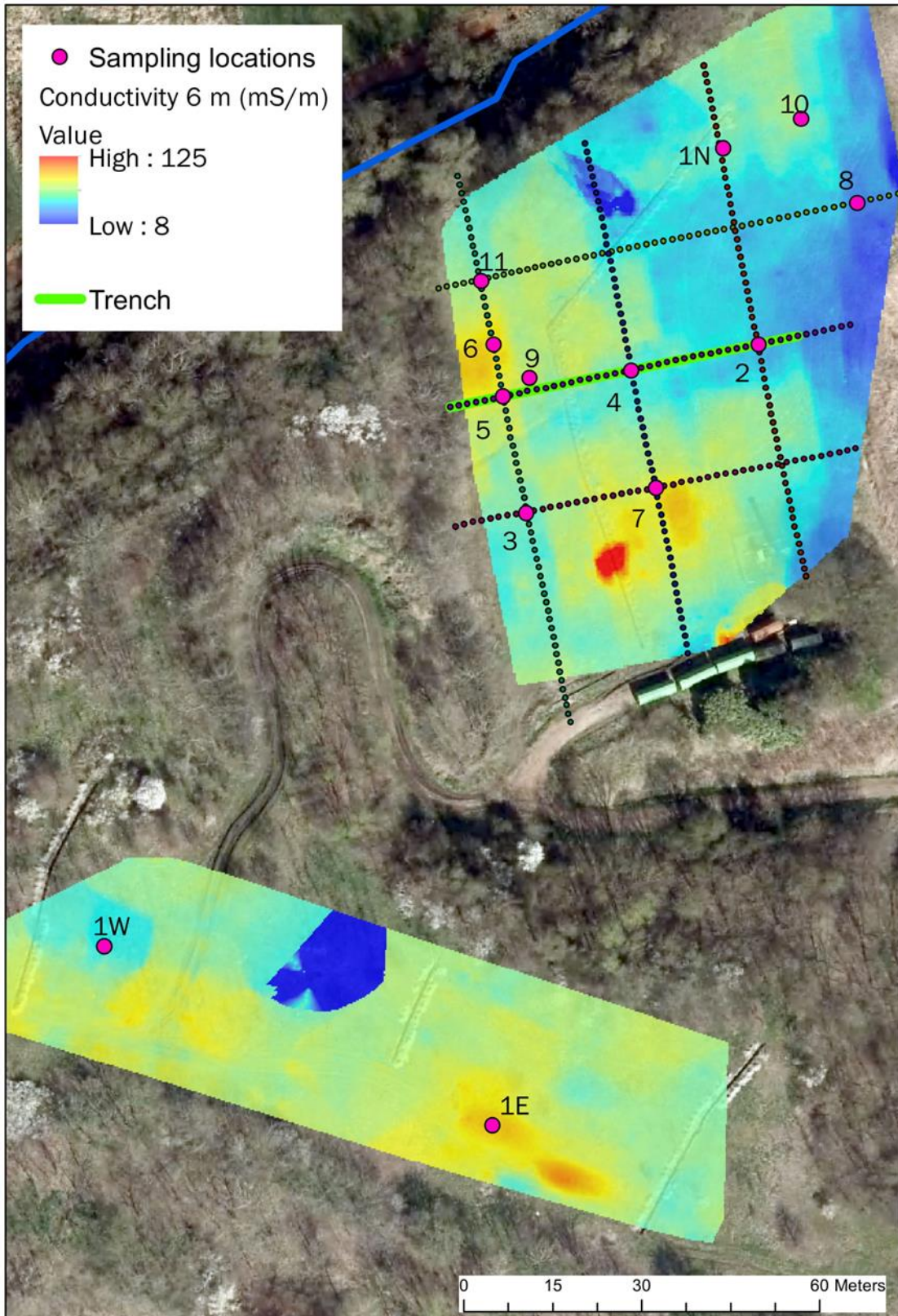


Figure 1: Location of the boreholes performed in November 2018. Capping restoration was only performed in the southern part (1W and 1E) .

Table 2: Coordinates of the capping restoration points performed in the upper part of the landfill.

| | Coordinate (Lambert 72) | |
|----|-------------------------|------------|
| | x | y |
| 1W | 197656.1868 | 199405.32 |
| 1E | 197721.6713 | 199375.078 |

Summary of waste sampling (trenches) and waste characterization activities

1. Location of the trenches

Seven trenches were performed along a profile (A → B in Fig. 2) in the upper part of the landfill in order to investigate the waste composition. The profile started at the point A in **Figure 2** (coordinate x: 197712.626; y: 199516.3403) and ended at the point B in **Figure 2** (coordinate x: 197771.5366; y: 199528.4963). The exact coordinates of the seven trenches as well as their sizes are listed in **Table 3**.

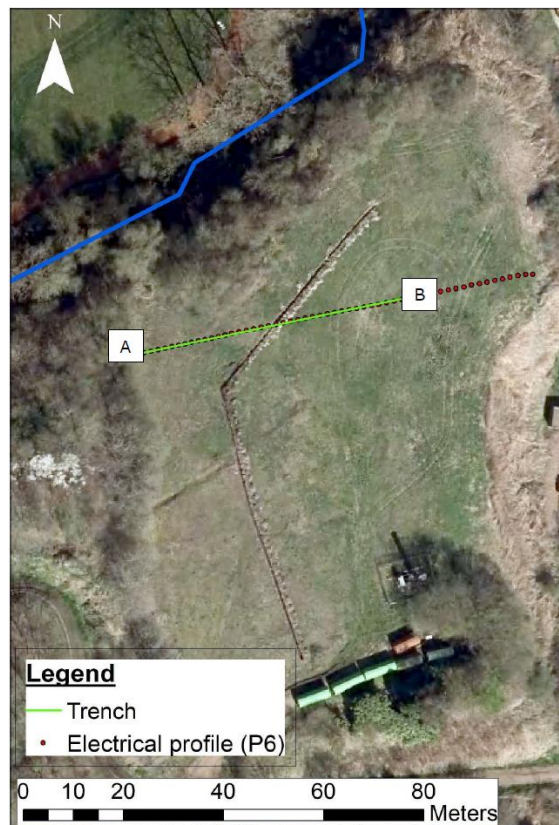


Figure 2: Location of the profile AB where seven trenches were performed (northeastern part of the landfill).

Table 3: Trenches locations measured by GPS. The size of the trenches (L x W) are also reported in the table. The average depth of the trenches is 4 m.

| No. trench | X-coordinate | Y-coordinate | Z-coordinate | Trench size (L x W) |
|------------|--------------|--------------|--------------|---------------------|
| 1 | 197720.54 | 199515.70 | 31.00 | 5 m x 3.5 m |
| 2 | 197734.88 | 199518.97 | 30.97 | 4 m x 2.5 m |
| 3 | 197745.66 | 199522.06 | 31.31 | 3 m x 2.5 m |
| 4 | 197751.00 | 199524.40 | 31.47 | 4 m x 2 m |
| 5 | 197758.53 | 199526.80 | 31.70 | 4 m x 2 m |
| 6 | 197768.55 | 199530.22 | 31.65 | 4 m x 2 m |
| 7 | 197776.40 | 199532.79 | 31.36 | 4 m x 2 m |

2. Action plan for the trenches

On the 8th of April 2019, seven trenches were created along the profile defined by point A and B (see **Table 2** for the location). The average depth of the trenches was 4 m and it was limited due to stability conditions. A description of the encountered soil and waste layers was performed by ABO and can be found in the **Appendix 1**. The full report with all the drilling and trial pit logs, sampling points and photographs of the whole operation is in **Annexe¹**.

Per trench, a series of layers were kept apart for separation and valorization tests. **Table 4** summarizes the valorized layers per trench.

Table 4: Summary of the valorized layers per trench. The detailed description of the excavated waste can be found in Appendix 1.

| No. trench | Valorized layers |
|------------|--|
| 1 | <ul style="list-style-type: none"> Layer 2 (soil fraction, inert and wood) Layer 3 (soil fraction) |
| 2 | <ul style="list-style-type: none"> Layer 2 (soil fraction and inert) Layer 3 (soil fraction and wood) |
| 3 | <ul style="list-style-type: none"> Layer 2 (soil fraction and inert – construction waste) Layer 3 (soil fraction and wood) |
| 4 | No valorization possible |
| 5 | <ul style="list-style-type: none"> Layer 2 (MSW, plastics and inert – construction waste) Layer 3 (soil fraction and wood) |
| 6 | <ul style="list-style-type: none"> Layers 2 and 3 (soil fraction, MSW, plastics, inert and wood) |
| 7 | <ul style="list-style-type: none"> Layers 2 and 3 (soil fraction, MSW, plastics, and wood) |

¹ Only available in Dutch.

On the 10th of April 2019, the different fractions were brought into a shake sieve one by one. This sieve was equipped with a separating net of 50x50 mm. The smaller fraction, almost entirely consisting of soil, was automatically loaded onto transport and weighted on the balance of the civic amenity site on the landfill site. Afterwards this fraction was deposited again adjacent to the trenches. The fraction >50 mm, primarily consisting of debris and residual waste to a lesser extent was manually sorted out on traces of metals and plastics. These traces were weighed separately on a small balance. After this, the debris was loaded onto the transporter and weighed on the scale of the civic amenity site.

When asbestos was detected, an individual description was made of the asbestos containing sample. The results of the analysis of the reported weights can be found in **Appendix 2**.

3. Post sampling activities

After the characterization activities, the processed waste materials were redeposited in the trenches of origin according to the instructions of OVAM. This operation was allowed due to the fact that no hazardous waste or landfilled material in violation of the environmental permit was encountered. The plastics and residual waste were put in first, then the debris, then the soil fraction and finally the original top cover, also consisting of soil and vegetation.

Appendix 1 - report of ABO.

| ABC | | DIARY ENVIRONMENTAL SUPERVISION ON CIVIL WORKS | | | NR 11 | | |
|--------------------------------------|---|--|--|-----------------|-----------------------|------|----------------|
| WERF: | | 23796, OVAM, Supervision ELFM landfill IOK Meerhout, Kiezel 300 2450 Meerhout | | | DATE: | | ma 08 apr 2019 |
| P A R T I E S | Aan | Opdrachtgever: OVAM, Michaël Van Raemdonck, +32 491 72 04 87, michael.van.raemdonck@ovam.be | | | Raming (ton) | | |
| | CC | Aannemer: Aertssen, Els de Leeuw, Projectleider, Els.deLeeuw@aertssen.be | | | | | |
| | Van | EBSD/Milieukundige begeleider: ABO nv, Koen Viaene, 0499/43.83.02, koen.viaene@abo-group.eu ABO nv, ing. Pedro D'Haese, 0499/99.82.01, pedro.dhaese@abo-group.eu | | | | | |
| G E N E R A L | General information | | | Company | Name, function | | |
| | weather | Cloudy, grey | | Aertssen | crane driver | | |
| | labours hrs | 7u30-16u30 | | Aertssen | Els de Leeuw, PL | | |
| | terrain | Locked | | ABO | Pedro D'Haese, MKB | | |
| | rain | - | | OVAM | Michaël Van Raemdonck | | |
| L | temperature | 5°C | | ULG | David Catherina | | |
| D I A R Y | Hour | Description | | | Vervoerder | | |
| | 11:30 | Arrival of environmental coordinator on site (PDH). | | | | | |
| | | Crane driver and crane are already on site. | | | | | |
| | | Site exploration with the crane driver. | | | | | |
| | | Start with excavation of 7 trenches | | | | | |
| | | The XYZ location is taken by the crane driver | | | | | |
| | | Writing of a description per trench | | | | | |
| | | Taking pictures | | | | | |
| | | Description of trenches per layer | | | | | |
| 16:15 | Environmental coordinator is leaving the site. (PDH). | | | | | | |
| V G M | Opmerkingen VGM / toolboxmeeting / luchtmonitoring / incidenten | | | Actie door | | | |
| | | | | | | | |
| | | | | | | | |
| O P M | Onderwerp | Beschrijving | | Actie door | | | |
| | | | | | | | |
| | | | | | | | |
| P I A N N I N G | date | works | | Grondverzet | | | |
| | 10/apr | sieving and weighing | | deze periode | 0,00 | 0,00 | 0,00 |
| | | | | vorige periodes | 0,00 | 0,00 | 0,00 |
| | | | | Totaal (ton) | 0,00 | 0,00 | 0,00 |

Description of the trenches

| no trench | layer | depth (cm) | description | X | Y | Z |
|-----------|-------|------------|--|-----------|-----------|-------|
| 1 | 1 | 0 to 5 | grass, weeds, brown dirt | 197720,54 | 199515,70 | 31,00 |
| | 2 | 5 to 45 | sand, brown-black, traces of asbestos plate, much debry, much bricks, traces of wood, traces of ceramic tiles | | | |
| | 3 | 45 to 85 | sand, green-beige, traces of roots | | | |
| | 4 | 85 to 280 | silty sand, grey-black, some wood, traces of plastic foils, 1 car tyre, traces of debry | | | |
| | 5 | 280 to ... | traces of silty sand, primarily plastic foils, some metals, traces of PS, few PET bottles, few hard plastics, much MSW. | | | |
| 2 | 1 | 0 to 5 | grass, weeds, brown dirt | 197734,88 | 199518,97 | 30,97 |
| | 2 | 5 to 90 | sand, brown, traces of asbestos plate, much bricks, much debry | | | |
| | 3 | 90 to 110 | sand, black, much wood, few debry | | | |
| | 4 | 110 to 200 | silty sand, green-grey, traces of debry, traces of wood | | | |
| | 5 | 200 to 290 | much plastic foils, some PET bottles, traces of glass, traces of rubber, traces of wood, few MSW | | | |
| 3 | 1 | 0 to 5 | grass, weeds, brown dirt | 197745,66 | 199522,06 | 31,31 |
| | 2 | 5 to 100 | sand, brown, traces of rebars, much bricks, traces of asbestos plate, some large concrete chunks, some debry, some reinforced concrete | | | |
| | 3 | 100 to 110 | sand, black, some wood | | | |
| | 4 | 110 to 240 | silty sand, grey-green, traces of wood, traces of debry | | | |
| | 5 | 240 to ... | much plastic foils, few PET bottles, few MSW, traces of metal plating, traces of glass | | | |
| 4 | 1 | 0 to 5 | grass, weeds, brown dirt | 197751,00 | 199524,40 | 31,47 |
| | 2 | 5 to 110 | sand, brown, much plastic foils | | | |
| | 3 | 110 to 270 | silty sand, grey-green, traces of debry | | | |
| | 4 | 270 to ... | much plastic foils, some PET bottles, few MSW, few wood | | | |
| 5 | 1 | 0 to 5 | grass, weeds, brown dirt | 197758,53 | 199526,80 | 31,70 |
| | 2 | 5 to 130 | sand, brown, some plastic foils, few construction wood, some MSW, few PET bottles, traces of asbestos-like compounds, some bricks | | | |
| | 3 | 130 to 150 | sand; black, much wood | | | |
| | 4 | 150 to 295 | silty sand, green-grey, traces of wood | | | |
| | 5 | 295 to ... | much plastic foils, much MSW, traces of metal plate, few hard plastics, 1 cycle tyre, traces of bitumen | 197768,55 | 199530,22 | 31,65 |
| 6 | 1 | 0 to 5 | grass, weeds, brown dirt | | | |
| | 2 | 5 to 45 | silty sand, beige-brown, traces of debry | | | |
| | 3 | 45 to 155 | some hard plastics, some plastic foils, few PET bottles, some MSW, few debry, few wood, few bricks | | | |
| | 4 | 155 to 285 | silty sand, grey-green | | | |
| | 5 | 285 to ... | much plastic foils, much MSW, traces of debry | | | |
| 7 | 1 | 0 to 5 | grass, weeds, brown dirt | 197776,40 | 199532,79 | 31,36 |
| | 2 | 5 to 40 | sand, beige-green | | | |
| | 3 | 40 to 130 | much plastic foils, few PET bottles, few hard plastics, much MSW, few debry, some wood, few jute bags | | | |
| | 4 | 130 to 260 | silty sand, grey-brown | | | |
| | 5 | 260 to ... | sand, grey-black, few wood, much MSW, few metals, some plastic foils | | | |

Appendix 2:

2.1 Weight per fraction and presence of asbestos (in kg)

| no. Trench | 1 | | 2 | | 3 | | 5 | | 6 | 7 |
|-------------------------|-------------|---------|-------------|--------|-------------|-------|-------------|-------------|-------|-------|
| Layer | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 2+3 | 2+3 |
| 0-50 (soil) | 12620 | 26600 | 8740 | 7440 | 9260 | 10200 | 6700 | 8260 | 7000 | 6300 |
| > 50 (debris) | 5860 | 4260 | 5860 | 2380 | 4880 | 2960 | 3440 | 2280 | 4340 | 4300 |
| Asbestos | Yes, traces | | Yes, traces | | Yes, chunks | | Yes, traces | Yes, traces | | |
| Plastics/residual waste | 0,140 | 1,000 | 0,100 | 90,500 | 11,000 | 3,000 | 12,000 | 0,500 | 2,600 | 4,100 |
| Metals | 0,145 | | 0,100 | | | 2,150 | | | | |
| Wood/stumps | 25,000 | 169,000 | 16,500 | 0,280 | | 1,800 | 10,000 | 8,250 | | 0,200 |

2.2 Weight per fraction and presence of asbestos (in %)

| no. Trench | 1 | | 2 | | 3 | | 5 | | 6 | 7 |
|-------------------------|-------------|---------|-------------|---------|-------------|---------|-------------|-------------|---------|---------|
| Layer | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 2+3 | 2+3 |
| 0-50 (soil) | 68,197% | 85,723% | 59,795% | 75,070% | 65,437% | 77,467% | 65,932% | 78,303% | 61,714% | 59,410% |
| > 50 (debris) | 31,667% | 13,729% | 40,091% | 24,014% | 34,485% | 22,481% | 33,852% | 21,614% | 38,263% | 40,550% |
| Asbestos | Yes, traces | | Yes, traces | | Yes, chunks | | Yes, traces | Yes, traces | | |
| Plastics/residual waste | 0,001% | 0,003% | 0,001% | 0,913% | 0,078% | 0,023% | 0,118% | 0,005% | 0,023% | 0,039% |
| Metals | 0,001% | | 0,001% | | | 0,016% | | | | |
| Wood/stumps | 0,135% | 0,545% | 0,113% | 0,003% | | 0,014% | 0,098% | 0,078% | | 0,002% |

Contact

Feel free to contact us.

Local contact details:

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