

# 1 Executive Summary

- 1.1.1 Monitoring was undertaken across C1 throughout June 2022. Graphs showing the monitoring data for the month are attached in Appendix A.
- 1.1.2 The launching girder for the CVV deck installation, named Dominique, was launched on the 23<sup>rd</sup> May. 14 deck segments were laid in June. Piling continues along the CVV, with the jetty completed in mid-June and sheet piling completed for the time being.
- 1.1.3 The monitoring at Little Missenden shaft (LMI) reduced to monthly monitoring in response to the end of the post-treatment grouting. Monitoring at the Chalfont St Peter (CSP), Chalfont St Giles (CSG) and Amersham (AMS) shaft sites continued monthly in line with the SSMP's. Chesham Road (CHR) and North Portal (NPTL) both continue to be monitored weekly.
- 1.1.4 Daily monitoring began at Colne Valley Viaduct (CVV) module 2 with piling works moving into the area between piers 24-20. Monitoring at Modules 4, and 1 of the CVV remained at monthly monitoring frequency with Module 3 also dropping to monthly monitoring in line with the SSMP's.
- 1.1.5 Monitoring across the South Portal and Western Valley Slopes areas reduced to monthly monitoring, with continued surface water monitoring of the drainage systems. Pynesfield monitoring remains at a fortnightly monitoring schedule.
- 1.1.6 The priority monitoring round was completed, with all locations visited. ML044-RC007 was reported as blocked and ML044-RC518 was monitored in its stead while investigations are planned.
- 1.1.7 There were no trigger level exceedances during June; this excludes the on-going contamination identified in ML032-RC009, discussed in doc no.: 1MC05-ALJ-EV-NOT-C001-000006.

## 2.9 Colne Valley Viaduct (CVV)

- 2.9.1 Rotary piling activities continued with the following locations worked on during the month:
- P22
  - P23
  - P24
  - P29
  - P30
- 2.9.2 No support fluid loss was reported during June.
- 2.9.3 At South Embankment, the first continuous flight auger (CFA) pile was started in April. To date Phase 1 has been completed with 166 piles. In phase 2, 365 CFA piles have been completed and a remaining of 656 CFA piles are planned.
- 2.9.4 The deck segments have begun being laid for the construction of the viaduct. 14 were laid in June.
- 2.9.5 Jetty works across CVV during the month were concluded with all jetties completed.
- 2.9.6 In April, it was identified that water dewatered from the cofferdams within the CVV was intermittently showing contamination, resulting from the concrete plug pour at the base of the cofferdam. This water was planned for discharge into the River Colne via the RVT system discharge. Although no impact was identified in the river itself, no further discharges of dewatered water to the River Colne have been allowed. The management strategy for the dewatered water has instead been rethought, and this water will now be routed via the South Portal WTP system for treatment. Once treated to an acceptable standard, it will be discharged back into the Colne system via the A412 ditch and making use of the Thames sewer effluent discharge. The consent variation already submitted to the EA has been updated to reflect this change.

## 2.10 CVV Module 4 groundwater

2.10.1 There were no trigger limit breaches during the month in Module 4.

2.10.2 Table 7 compares typical priority borehole ranges for the area with trigger levels and any trigger level exceedances.

Table 7 CVV Module 4 borehole in-field parameter data

|                                  | pH      | SPC<br>( $\mu\text{S/cm}$ ) | Turb (NTU)   | REDOX<br>(mV) | DO (mg/L) |
|----------------------------------|---------|-----------------------------|--|---------------|-----------|
| <b>Typical Range</b>             | 6.5 – 8 | 700 - 875                   | 1 – 25   | 50 - 300      | 7 – 11    |
| <b>Trigger limit</b>             | 5 – 9   | 1000                        | 100 <sup>3</sup> /250 <sup>4</sup> /500 <sup>5</sup> | -             | -         |
| <b>Trigger Level Exceedances</b> | -       |                             | -  | -             | -         |
| <b>Exceeding borehole</b>        | -       |                             | -  | -             | -         |

2.10.3 Groundwater levels declined gently in line with seasonal change between 0.3-0.1m.

<sup>3</sup> ML029-CR010, ML029-RO431

<sup>4</sup> ML028-CR018, ML028-CR009

<sup>5</sup> ML028-CR006

## 2.11 CVV Module 3 groundwater

2.11.1 Table 8 compares typical priority borehole ranges for the area with trigger levels and any trigger level exceedances.

2.11.2 No trigger limit breaches were observed during the month in Module 3.

Table 8 CVV Module 3 borehole in-field parameter data

|                                  | pH      | SPC<br>( $\mu\text{S/cm}$ ) | Turb (NTU) | REDOX<br>(mV) | DO (mg/L) |
|----------------------------------|---------|-----------------------------|------------|---------------|-----------|
| <b>Typical Range</b>             | 6.5 – 8 | 700 - 875                   | 1 – 25     | 50 - 300      | 7 – 11    |
| <b>Trigger limit</b>             | 5 – 9   | 1000                        | 250        | -             | -         |
| <b>Trigger Level Exceedances</b> | -       |                             | -          | -             | -         |
| <b>Exceeding borehole</b>        | -       |                             | -          | -             | -         |

2.11.3 Groundwater levels displayed a gentle decrease in line with seasonal trends. Decreases were approximately 0.2m.

## 2.12 CVV Module 2 groundwater

2.12.1 Table 9 compares typical priority borehole ranges for the area with trigger levels and any trigger level exceedances.

2.12.2 There were no trigger limit breaches in Module 2 during the month.

Table 9 CVV Module 2 borehole in-field parameter data

|                                  | pH      | SPC<br>( $\mu\text{S}/\text{cm}$ ) | Turb (NTU) | REDOX<br>(mV) | DO (mg/L) |
|----------------------------------|---------|------------------------------------|------------|---------------|-----------|
| <b>Typical Range</b>             | 6.5 – 8 | 700 - 875                          | 1 – 25     | 50 - 300      | 7 – 11    |
| <b>Trigger limit</b>             | 5 – 9   | 1000                               | 250        | -             | -         |
| <b>Trigger Level Exceedances</b> | -       | -                                  | -          | -             | -         |
| <b>Exceeding borehole</b>        | -       | -                                  | -          | -             | -         |

2.12.3 Groundwater levels have displayed gentle declines in line with seasonal trends or have otherwise remained generally stable throughout the month.

## 2.13 CVV Module 1 groundwater

- 2.13.1 Table 10 compares typical borehole ranges for the area with trigger levels and any trigger level exceedances.
- 2.13.2 There were no trigger limit breaches in Module 1 during the month.

Table 10 CVV Module 1 borehole in-field parameter data

|                                  | pH      | SPC<br>( $\mu\text{S}/\text{cm}$ ) | Turb (NTU) | REDOX<br>(mV) | DO (mg/L) |
|----------------------------------|---------|------------------------------------|------------|---------------|-----------|
| <b>Typical Range</b>             | 6.5 – 8 | 550 - 1400                         | 1 – 25     | -100 - 300    | 1 – 12    |
| <b>Trigger limit</b>             | 5 – 9   | 1500 <sup>6</sup>                  | 500        | -             | -         |
| <b>Trigger Level Exceedances</b> | -       | -                                  | -          | -             | -         |
| <b>Exceeding borehole</b>        | -       | -                                  | -          | -             | -         |

- 2.13.3 Groundwater levels remained relatively stable.

<sup>6</sup> Due to pre-existing contamination in the module 1 area, EC values are generally higher than anywhere else in Section C1.

## 2.14 Colne Valley surface water

2.14.1 Surface water monitoring at various locations was completed during the month with chemical sampling and gauge board readings collected where possible. Monitoring continued both weekly and monthly.

2.14.2 Table 11 compares typical surface water ranges for the area with trigger levels and any trigger level exceedances.

Table 11 Colne Valley surface water in-field parameter data

|                           | pH    | SPC ( $\mu\text{S}/\text{cm}$ ) | Turb (NTU) | REDOX (mV) | DO (mg/L) |
|---------------------------|-------|---------------------------------|------------|------------|-----------|
| <b>Typical Range</b>      | 7 - 9 | 500 - 1000                      | 1 - 25     | 0 - 300    | 4 - 14    |
| <b>Exceedances</b>        | -     | -                               | -          | -          | -         |
| <b>Exceeding location</b> | -     | -                               | -          | -          | -         |

2.14.3 The high conductivity observed in the New Years Green Bourne was recorded as returning to baseline levels in June, however, it should be noted that flow in the stream has ceased and so results are not reflective of water flowing down the streambed.

## 2.15 South Portal and Western Valley Slopes

2.15.1 Activity on South Portal is focused on the continued operations of the Tunnel Boring Machine (TBM) and the Slurry Treatment Plant (STP). Chalk cake placement on the WVS is ongoing.

2.15.2 A pilot trial was run on the Water Treatment Plant throughout May to prove the efficiency of using chemical oxidation and granular activated carbon in place of the existing Ion Exchange. The results from this trial will feed it the final dose rates for the upgraded WTP, due for commissioning in September 2022.

### Western Valley Slopes

2.15.1 Table 12 compares typical priority borehole ranges for the area with any abnormal in-situ readings in the area.

Table 12 WVS borehole in-field parameter data

|                                  | pH      | SPC<br>( $\mu\text{S}/\text{cm}$ ) | Turb (NTU)           | REDOX<br>(mV) | DO (mg/L) |
|----------------------------------|---------|------------------------------------|----------------------|---------------|-----------|
| <b>Typical Range</b>             | 6.5 – 8 | 750 - 900 <sup>7</sup>             | 1 – 300 <sup>8</sup> | 0 - 350       | 6 – 10.5  |
| <b>Trigger limit</b>             | 5 – 9   | 1000                               | 250                  | -             | -         |
| <b>Trigger Level Exceedances</b> | -       | -                                  | -                    | -             | -         |
| <b>Exceeding borehole</b>        | -       | -                                  | -                    | -             | -         |

2.15.2 Groundwater levels displayed a gentle decrease across the month. Decreases were observed between 0.1-0.3m or were otherwise stable.

<sup>7</sup> Area exhibits higher background EC than other chalk aquifers across C1

<sup>8</sup> Turbidity at ML031-CR003 is variable and higher than other C1 sites, and boreholes at SP/WVS/PYF