

Mereway Fish Pass – Preliminary Summary of Ground Investigations
Conducted 29.07.19 – 01.08.19

Summary emails below in lieu of formal report still to be produced

Email Summary sent 01.08.19 from consultant to Environment Agency

From: Nickalls, Tom []
Sent: 01 August 2019 15:47
To: Gibbs, Natasha <Natasha.Gibbs@environment-agency.gov.uk>
Cc:
Subject: Mereway fish pass - Preliminary summary on ground investigation conducted on 29 – 31 July 2019

Natasha,

In the boxes below are the notes from the engineer on site for the Ground Investigation 29 – 31 July 2019.

There has been no visual or olfactory evidence of significant ground contamination.

The groundwater level measured in the previously installed borehole BH05 was 1.98mBGL This compares to a final groundwater level of 1.5 BGL when the borehole was installed in winter. On this basis it is likely that the groundwater levels will rise in winter from those indicated below by 0.5m.

The channel section invert level at the downstream end is 8.8 – 9.0mAOD. We are in the process of confirming the optimum invert level with our hydraulic modelling. The highest final groundwater level from the results below is at around 8.3m AOD. Even with an increase of 0.5m this seems unlikely to cause problems for buildability or for long term stability of the structure.

We are still waiting for final monitoring of GW levels in the boreholes which may show a further rise and we will seek further advice from our geotechnical team on likely variance in groundwater levels and on how groundwater flows may be an issue both during construction and for the permanently installed fish pass.

Our design limits the depth of the channel section by including a higher gradient Larinier fish pass section at the downstream end to mitigate the risk of problems with groundwater.

For reference also see my table to calculate GW levels relative to mAOD below.

Tom

BH06

Descriptions:

GI - 0.6m made ground. Silt with rootlets, occasional metal and glass fragment.

0.6 - 1.5m firm consistency light brown fissured clay.

1.5 - 2.2m medium dense greenish grey clayey fine to med rounded chert gravel.

2.2 - 2.3m firm consistency light brown sandy clay.

2.3 - 5.0m medium dense becoming dense brown sandy fine to coarse rounded chert gravel
 5.0 - 6.0m firm consistency greenish grey silty clay.
 6.0 -6.45m (in spt) stiff clay, becomes hard at base of SPT.

Groundwater:

GW struck at 2.1m, rose to 1.96m after 20 mins. Casing masking water strikes below. Possibly perched gw.

BH installed to 6m. Installed 19mm piezometer for future GL monitoring

N values:

1.8m 28
 3.0m 22
 4.0m 45
 6.0m 50+

BH07

Descriptions:

Gl - 0.10m topsoil

0.10 - 1.7m made ground. Brown gravelly silt. Frequent glass, occasional pottery and coke/clinker.

1.7- 2.4m soft consistency brown sandy silt. Frequent carbonised rootlets.

2.4 - 2.8m firm consistency grey brown gravelly clay.

2.8 - 4.2m brown and black slightly sandy fine to coarse rounded chert gravel.

4.2 - 5.8m dense orange brown very sandy fine to coarse rounded chert gravel.

5.8 - 6.5m (Inc. end of u100) stiff consistency grey silty clay.

Groundwater:

Water not encountered, likely cased out.

BH installed to 6m. Installed 19mm piezometer for future GW monitoring

N values:

1.2m 8
 3m 12
 4m 23
 5m 44

TP01

Descriptions:

Gl - 0.7m made ground. Sandy silt with rootlets, occasional ceramic fragment

0.7 - 0.9m firm light brown silty clay

0.9 - 1.36m stiff light brown gravelly clay. Gravel is chert.

1.36 - 2.6m orange brown very gravelly sand. Gravel is fine to coarse rounded chert.

2.6 - 2.9m greenish grey sandy fine to coarse rounded chert gravel.

Groundwater

GW strike 2.85m, very fast flow. Rose 0.4m in 20 mins. Unstable within gw table, stable walls above.

TP02

Descriptions:

Gl - 0.85m made ground. Dark brown sandy silt with frequent oyster shells, pottery and glass.
 0.85 - 1.38m stiff, light brown silty clay.
 1.38 - 2.8m light orange brown clayey sandy chert gravel
 2.8 - 3.6m brown and grey sandy fine to coarse chert gravel and occasional cobble.

Groundwater

GW strike 3.5m moderate to fast flow. Rose 0.4m in 20 mins.
 Stable above GW, very Unstable below.

TP03

Descriptions:

Gl - 0.22m topsoil.
 0.22 - 0.82m made ground. Sandy silt with glass, occasional car part, pottery and steel.
 0.82 - 1.80m stiff light grey brown fissured clay.
 1.80 - 2.4m firm greenish grey sandy gravelly clay. Pockets of very sandy and very gravelly material. Gravel is med to coarse rounded chert.
 2.4 - 3.5m dark grey / black very sandy fine to coarse rounded chert cobbles. Occasionally a signal orange sand interbeds. Black colour likely organic, though no odour.
 GW strike 3.3m, moderate flow. Stable above gw, unstable below.

Contamination (boreholes and trial pits):

No olfactory evidence, likely to be some hydrocarbons / metals within made ground but nothing obvious. Metal, glass, ceramics most common material. Car parts and fly tipping particularly tp03.

Monitoring of water levels in BH05

Water level in previously undertaken BH05 was 1.97mbgl.

Calculations for GWL relative to mAOD

	GL (mAOD)	Struck GW (mBGL)	Struck GW (mAOD)	GW rose to after 20 mins (mBGL)	GW rose to after 20 mins (mAOD)	Notes
BH06	10.25	2.10	8.15	1.96	8.29	GW possibly perched
BH07	10.75	not encountered				GW possibly cased out.
TP01	10.5	2.85	7.65	2.45	8.05	
TP02	10.5	3.50	7.00	3.50	7.00	
TP03	10.5	3.30	7.20	3.30	7.20	

TOM NICKALLS, CEng, MICE, C.WEM | Principal Engineer (Civil)



GBV JV Ltd, 60 HIGH STREET, REDHILL, SURREY, RH1 1SH, UK

Email Summary from archaeologist from ground investigations: sent 01.08.19 from consultant to Environment Agency

From: Nickalls, Tom []

Sent: 01 August 2019 15:59

To: Gibbs, Natasha < >

Cc:

Subject: Mereway Sluice - archaeologist preliminary note

Natasha,

This is the note from the archaeologist:

I have just spoken to Jess and it looks like the overlying made ground is relatively late in date (19th-20th century) this sits over an oxidised alluvial deposit which in turn overlies the gravels. One of the test pits, TP03, recorded a thin organic silt deposit overlying the gravels which has the potential to preserve organic palaeoenvironmental remains. It is not clear if this deposit represents floodplain accumulation or is part of a paleochannel.

The gravels are indicated on the engineers logs at 2.4m depth so the thin layer referred to will be below the level of excavation at this location.

Tom

TOM NICKALLS, CEng, MICE, C.WEM | Principal Engineer (Civil)

