Materials Management Plan (MMP) Form - October 2014

This form should be completed once the lines of evidence have been marshalled in relation to suitability for use, certainty of use and quantity required.

The answers to the questions posed within this form, together with the supporting information will constitute the MMP and must be provided to the Qualified Person.

A Qualified Person may comment on draft versions of this MMP, but will not complete the Declaration until all the relevant documents, demonstrating lines of evidence have been provided for each site.

The person / organisation who will pay the Declaration fee should confirm that they have read and understand the Terms and Conditions relating to the payment of the Declaration fee to CL:AIRE. These can be found on the CL:AIRE website.

The person / organisation agreeing to pay the Declaration Fee - Name, organisation and contact details inc. email address -	Andy Norman, Envirotreat Technologies Ltd. Andy.norman@envirotreat.com

X **I confirm I have read and understood the Terms & Conditions.**

Each question must be answered. If the question is not applicable please state this and provide a brief explanation.

1. Specify the scenario to which this MMP relates, as described in the Definition of Waste: Development Industry Code of Practice (DoW CoP) (1, 2, 3 or 4):

x 1. Reuse on the Site of Origin

☐ 2. Direct Transfer of clean naturally occurring soil / mineral materials

☐ 3. Cluster Project

☐ 4. Combination of any of the above

In the case of a combination of reuse scenarios, please describe it below (e.g. (i) Reuse on Site of Origin and Direct Transfer of clean naturally occurring unpolluted soils, (ii) Reuse on the Site of Origin with Direct Transfer of clean naturally occurring soil to x number of development sites etc:

(NB: A Declaration is required for reuse on the Site of Origin and for any 2 site arrangement i.e. there is no facility for a combination Declaration)

2. Organisation and name of person preparing this MMP	Andy Norman, Envirotreat Technologies Ltd, LCP House, Pensnett Trading Estate, Kingswinford, DY6 7NA

Document Control

Date issued	08/02/21
Revision date	15/02/21
Summary of revision 1	Stockpile schematic plan amended
Summary of revision 2	

Insert additional lines to the table above for any subsequent revisions.

Note - revisions to the MMP do not trigger an additional Declaration by a Qualified Person, unless an additional site is added to the project.

Revisions to the MMP must be recorded and summarised in the Document Control box above.

Site Details

3. Site / Project name(s)	Herbert Road, Newport, NP19 7BH
Reuse / receiving site name :	As above
Donor site name (if Direct Transfer)	N/A

Landowners

4a. Name of Landowner(s) (full address and contact details) – where excavated materials are to be reused	Pobl Group, Exchange House, The Old Post Office, High Street, Newport, NP20 1AA.
4b. Name of Landowner(s) (full address and contact details) – where excavated materials are arising from	Pobl Group, Exchange House, The Old Post Office, High Street, Newport, NP20 1AA.

Summary and objectives

5a. Provide a brief description of the planned project and how excavated materials are to be reused.	Engie have been contracted by Pobl Group to redevelop the brownfield site with social houses. Phase 1 has been completed and handed over, and phase 2 is well progressed. The contract for phase 3 has been awarded but works have not started. Engie's proposed groundworks contractor has identified a need for filling across phase 3 to raise levels for flood alleviation purposes. It is therefore proposed to reuse excavated Made Ground soils from civils works (pile, pile cap and ground beam

	arisings, arisings from service excavations etc) to form the level raise. Restrictions on placement of arisings in sensitive areas (e.g., Public Open Space and residential gardens) have been agreed with the local authority via an amended Remediation Strategy. NRW have confirmed they have no objection to the proposals and have previously confirmed that no works are required to mitigate controlled waters risks. Note: Engie has not yet appointed a groundworks contractor (two have tendered). As such, details of the groundworks contractor have not been included.

General Plans and Schematics

6. **Attach** a location plan for the site(s) and a plan of the site(s) which identifies where different materials are to be excavated from, stockpile locations (if applicable), where materials are to be treated (if applicable) and where materials are to be reused.	Plan Document Reference(s): See site phasing plan, Appendix 1. Soils are to be generated and reused in phase 3 and stockpiled in the phase 3 storage area pending reuse.

7. **Attach** a schematic of proposed materials movement. Where there is only one source area and one placement area briefly describe it. For all other projects a schematic is required.	Description & Schematic Document Reference: Surplus soils are to be generated through civils excavations (piles, groundworks, service trenches etc) within phase 3. These soils are to be stockpiled within the phase 3 storage area prior to reuse in phase 3.

Parties Involved and Consultation – if more than one party please provide additional details for them and identify the location that they will be working e.g. where a site is zoned

8a. Main earthworks contractor(s) (full address and contact details) – Where excavated materials are to be reused	The groundworker has not yet been appointed. They will be appointed by the principal contractor, Engie.
8b. Main earthworks contractor(s) (full address and contact details) - Where excavated materials are arising from	As above.

9. Treatment contractor(s) (full address and contact details) – for treatment on site of origin, or at a Hub site within a fixed STF / Cluster Project	No treatment proposed for these soils.

10. Where wastes and materials are to be transported between sites, provide details of the transport contractor(s) (full address, contact details and waste carriers registration details (if applicable))	Not applicable.

11. Provide Local Authority contact details (full address and named contacts) where excavated materials are to be reused	Newport City Council Civic Centre, Godfrey Rd, Newport NP20 4UR Planning officer: Grant Hawkins – grant.hawkins@newport.gov.uk 01633 235461 Senior scientific officer: Steve manning – steve.manning@newport.gov.uk

12a. For the site where materials are to be reused and for Hub Site locations provide Environment Agency contact details (full address and named contacts):	Natural Resource Wales Rivers House St Mellon's Business Park Cardiff CF3 0EY Alex Bowder – alex.bowder@cyfoethnaturiolcymru.gov.uk 07775 502799
For all Cluster Projects: 12b. Attach any relevant documentation from the EA relating to the excavation and reuse of the materials to demonstrate no objection to the proposals (see 3.37 of DoW CoP) If the EA has not been consulted please explain why (see paragraph 3.39 of the DoW CoP).	EA references: Not applicable

Lines of Evidence

There is no one single factor that can be used to decide that a substance or object is waste, or when it is, at what point it ceases to be waste; as complete a picture as possible has to be created.

The following sections require completion to ensure the correct decision is made.

If a requested item is not relevant it is important to clearly state why this is so (e.g. no planning permission required because permitted development status exists).

Suitable for use criteria

13. Please describe or provide copies of the required specification(s) for the materials to be reused on each site.	Document Reference(s): Principally the proposed remediation strategy amendment (ETL 2021), included in Appendix B.

Where contamination is suspected or known to be present	Document Reference(s): The site has been the subject of contaminated land investigation, risk assessment and

14a. Please provide copies of or relevant extracts from the risk assessment(s) that has been used to determine the specification for use on the site. **This must relate to the place where materials are to be used.** This must be in terms of (i) human health (ii) controlled waters and (iii) any other relevant receptors. If a risk assessment is not relevant for a particular receptor given the site setting please explain why below:	correspondence since 2013. Site levels were raised with imported fill under an Environmental Permit and validated by TerraFirma. The specification for this is attached (Appendix 3). This work was subject to significant ongoing validation. It was agreed with NCC and NRW that this material could be imported provide the final development included a suitable layer of clean cover. A revised specification for this clean cover has been agreed and is attached (Appendix 2). As such the material set to be reused has already been deemed to be suitable for filling in non-sensitive areas (i.e., beneath hardstanding and beneath the clean cover in areas of soft landscaping. A summary of salient information is provided below. Text in italics is a direct quote from the report. <u>TerraFirma Imported Fill Validation Report, 2016</u> Executive summary – *All imported materials have been chemically screened and confirmed suitable use in accordance with Terra Firma Remediation Strategy, or in agreement with Newport City Council and National Resources Wales.* It is the intention to reuse this fill material. This material has already been validated as suitable for use by NCC and NRW provided it is suitably capped. The capping detail has recently been revised and agreed with NCC. Section 2.2 – Note that point 2 has been superseded by the recent RS. Section 4 - *Contamination in original site soils is too deep to present a risk to future site residents. Imported fill similarly is considered to be at a depth at which no risks to*

	future site residents will be presented given that the remainder of the required engineered fill will not contain asbestos and a 600mm capping layer of clean imported subsoil and topsoil will be placed in all garden and landscaped areas upon development. The material to be reused in non-sensitive areas is directly comparable to those set out in Section 4 (indeed, comprise the same soils). A revised remediation strategy has recently produced by Envirotreat specifically to support this MMP. It sets out the intention to reuse site-won materials and includes a specification for soils in shallow areas. This has been agreed by NCC as protective of human health. The areas of POS and gardens are to comprise 300mm / 600mm respectively of clean soil over a deter to dig layer. There is no specification for soils beneath the depth due to the absence of human health pathways (see above Terra Firma report, which has been agreed by NCC and NRW). Section 7 – Shows NRW agree pre-fill soils did not present a risk to controlled waters. This, in addition to validation of imported fill, confirms the materials do not present a risk to controlled waters. As such, the materials to be reused outside of sensitive areas have previously been shown to be suitable for use. Materials to be reused in sensitive areas are to comply with the specification set out in the revised RS.
14b. Please attach any relevant documentation from the LA relating to the	LA Document references: See attached email from Steve Manning, dated 26th January 2021 (Appendix 4). The agreed RS explicitly stipulates the scheme relies upon reused material under an MMP.

excavation and reuse of the materials to demonstrate no objection (see 3.37 of the CoP)	
14c. Please attach any relevant documentation from the EA relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 and Table 2 of the CoP)	EA Document references: See attached email from Alex Bowder, dated 12th January 2021 (Appendix 5).
14d. Please attach any relevant documentation from any other regulators (if relevant) relating to the excavation and reuse of the materials to demonstrate no objection (see 3.37 of the CoP)	Document Reference(s): Not applicable.

Where contamination is not suspected 15a. Please attach copies or relevant extracts from the Desk Top Study that demonstrates that there is no suspicion of contamination.	Document Reference(s): Not applicable.
15b. Please attach copies of or relevant extracts from the site investigation/testing reports that adequately characterise the clean materials to be used (if appropriate).	Document Reference(s): Not applicable.

15c. Please attach copies of any other relevant information (if available) confirming that land contamination is not an issue.	Document Reference(s): Not applicable.

NB: It is your responsibility to assess the nature of the material to be used and that it fits within the limitations of the scenario under which it is to be used

Certainty of use

Various lines of evidence are required to demonstrate that the materials are certain to be used. This includes:

- The production of this MMP
- An appropriate planning permission (or conditions that link with the reuse of the said materials)
- An agreed Remediation Strategy(ies)
- An agreed Design Statement(s)
- Details of the contractual arrangements

Please identify in the following sections what lines of evidence relate to the site(s) **where the materials are to be used**.

16a. Planning Permission(s) relating to the site where materials are to be reused	Document Reference: See attached.

Please provide a copy of the relevant planning permission	
16b. Explain how the reuse of the excavated materials fits within the planning permission(s) for each site.	See condition 32, which covers landraising (Appendix 6). Phase 3 includes all of the land 'north of the reen' and has to be raised to the highest elevation of all phases (10.4mAOD), and hence requires the most fill / has the greatest deficit.
16c. If planning permission is not required for any one site please explain why below e.g. permitted development, clean up of a chemical spill, surrender of an Environmental Permit, re-contouring within the existing permission.	Not applicable.

Where contamination is suspected or is known to be present 17. Please provide a copy of any Remediation Strategy(ies) that have been agreed with relevant regulators.	Document Reference(s): See attached revised RS, dated January 2021 (Appendix 2).

Where contamination is not suspected 18. Please provide a copy of any Design	Document Reference(s): Not applicable.

Statement(s) that have been agreed (e.g. with the planning authority or in the case of permitted developments the client).	

Quantity of Use

19. Please provide a breakdown of the excavated materials for each site and how much will be placed at each site or sub area of each site. Where this is not specific to a single readily identifiable source refer to an annotated plan, schematic or attach a tabulated summary.	Document Reference(s): Engie has provided a summary of cut and fill requirements (Appendix 7). Groundworks are estimated to produce ~3,500m3 of surplus soils. A requirement of ~2,210m3 fill has been estimated. This will leave an estimated ~1,290m3 net surplus for off-site disposal. The cut and fill summary states where soils are to be excavated and reused.

20a. How has consolidation/compaction being considered in the above mass balance calculations?	Materials will be compacted during filling by the earthwork's contractor. The material comprises reused engineering fill material and thus is not prone to excessive settlement.
20b. How has loss due to treatment being considered in the above mass balance	Not applicable.

calculations (if applicable)?	
20c. How has the addition of treatment materials being considered in the above mass balance calculations (if applicable)? Note - An exact figure is not required but one that is reasonable in the circumstances and can be justified if challenged.	Not applicable.

Contingency arrangements

Explain what is to happen in the following situations and **identify the appropriate clauses** in the contract(s) (Such clauses must be provided to the Qualified Person, preferably as a summary document): or

21a. What is to happen to, and who is to pay for out of specification materials?	Reference: As set out in 14a, materials are not expected to be out of specification as they have already been deemed to be suitable for use. If this is to occur, material will be disposed of off-site as waste, paid for the client.
21b. What is to happen to, and who is to pay for any excess materials?	Reference: This will be disposed of off-site, paid for by the client.
21c. What happens if the project programme slips in relation to excavated	Reference: Re-use is not program critical. Materials will be excavated during groundworks and reused as and when fill is needed. It will be stockpiled on-site in the meantime. Due to

materials or materials under -going treatment?	the nature of the works, fill will not be needed before it is generated (i.e., levels will not be made up until foundation works have been completed).
21d. Other identified risk scenarios for the project (relating to excavated materials)?	Reference: None identified.

The Tracking System

Where contamination is suspected or known to be present, state the procedures put in place to:

22a. For all sites please describe the tracking system to be employed to monitor materials movements.	Tracking systems are present on site, devised and employed by Engie in line with their company procedures. See appended information (Appendix 8).
Where contamination is suspected or known to be present, state the procedures put in place to: 22b. Prevent contaminants not suitable for the treatment process being accepted	No treatment is proposed. Should generally unsuitable material be identified, it will be stockpiled separately and disposed of off-site.
Where contamination is suspected or known to be present, state the procedures put in place to: 22c. Prevent cross contamination of materials not in need of treatment, wastes awaiting treatment and treated materials	See above.
Where contamination is suspected or	Soil validation data will be reviewed, and materials stockpiled based on their

known to be present, state the procedures put in place to: 22d. Demonstrate that materials that do not require treatment and successfully treated materials reach their specific destination	compliance with the capping specification (anticipated to be very little of the material). Stockpiled materials will be labelled with their proposed destination (i.e., where they are suitable to be reused). Confirmation of this reuse will be recorded by the site manager for incorporation into the validation report. Given that the material is to be reused within the phase from which it was generated (i.e., excavated from, and reused in phase 3), details on the precise location (i.e., which plot, which section of road) is not considered necessary.
Where contamination is suspected or known to be present, state the procedures put in place to: 22e. Ensure that waste for off-site disposal or treatment is properly characterised and goes to the correct facility	No treatment is proposed. Where soils are to be disposed of off-site, soil characterisation data will be collected and submitted to the disposal facility for their review and approval. Depending on the levels of contaminations, soils could be disposed of at an inert facility in Newport, or at a soil treatment facility within South Wales.

23. Please attach a copy of the tracking forms / control sheets that are to be used to monitor materials movements. To include transfer of loads on site into stockpiles prior to treatment (if applicable), stockpiled after treatment (if applicable), stockpiled awaiting use (as appropriate) and final placement.	Document reference(s): See attached for on-site tracking of soils (Appendix 8). If waste soils are removed from site, they will be tracked under waste transfer notes.

For Hub Sites within Cluster Projects & where materials need treatment before reuse 24. Please attach a copy of the Environmental Permit covering the treatment process. Alternatively if the treatment is covered by a Mobile Plant Permit and associated Deployment Form, attach a copy of the EA agreement to the Deployment Form.	Permit reference / EA letter reference: Not applicable.

Records

25. Where, and in what form, are records to be kept? Note – records e.g. transfer notes, delivery tickets, Desk Top Study, Site Investigation, Risk Assessment(s), Verification Report(s) need to be kept for at least 2 years after the completion of the works and production of the Verification Report	Site forms, including tracking and site plans, are to be retained by the client. They will be provided for inclusion within the verification report, and thus be stored in electronic format. The verification report, along with all supporting information, will be retained for at least 2 years.

Verification Plan

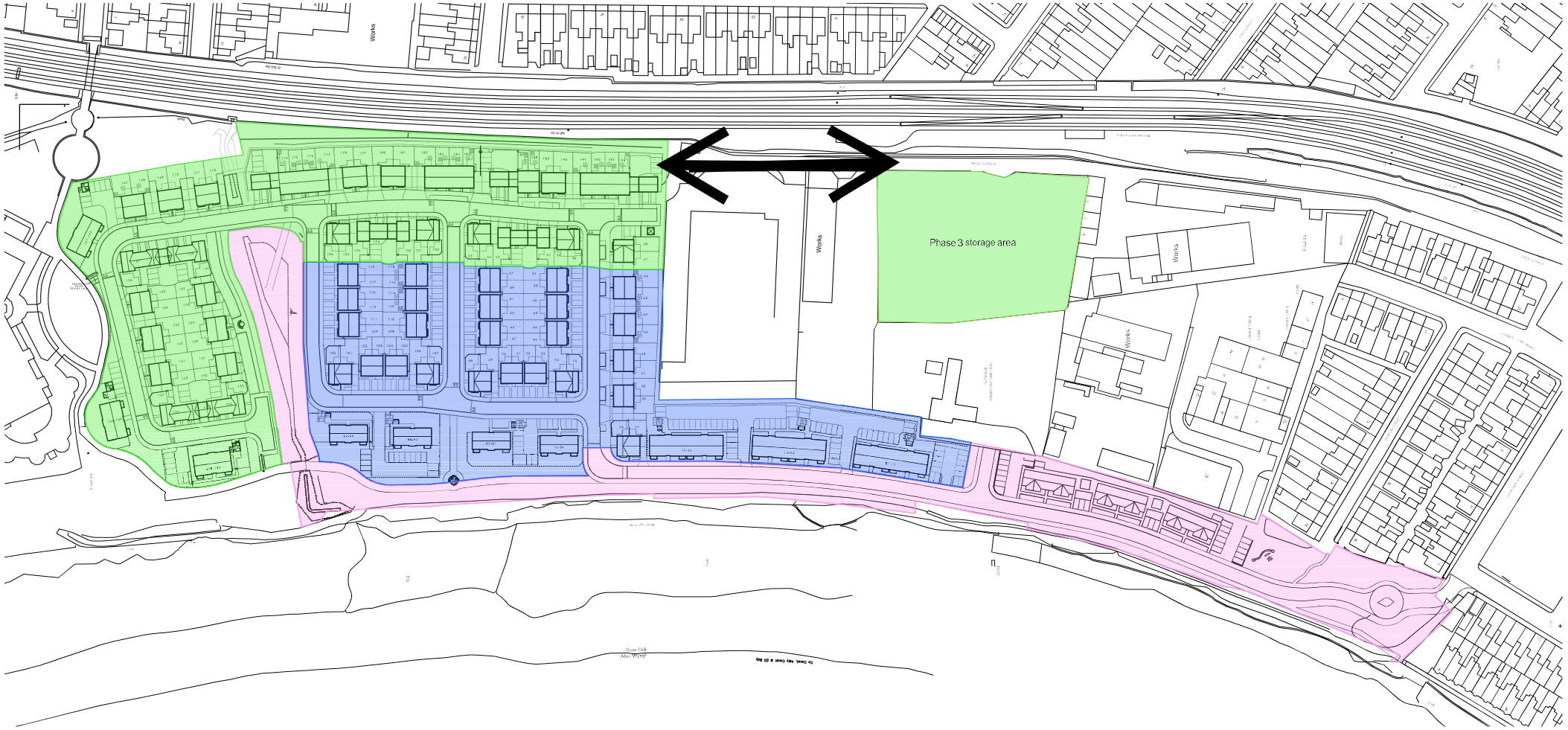
26. Provide or explain the Verification Plan which sets out how you will record the placement of materials and prove that excavated materials have been reused in the correct location and in the correct quantities within the development works (see 3.4 of the DoW CoP).	Document Reference: Verification reporting will include soil test certificates, soil tracking forms, finished site levels. Clean capping verification, including details on the deter to dig layer, clean capping testing and photographs, will be collated and provided for final remediation verification purposes, as required under planning condition 23.

APPENDICES

1. SITE PHASING PLAN
2. PROPOSED REMEDIATION STRATEGY AMENDMENT
3. TERRAFIRMA IMPORTED FILL VALIDATION REPORT
4. STEVE MANNING (NCC) EMAIL (26/01/2021)
5. ALEX BOWDER (NRW) EMAIL (12/01/2021)
6. PLANNING DECISION NOTICE
7. CUT/FILL SUMMARY
8. SOIL TRACKING PROFORMA

APPENDIX 1

SITE PHASING PLAN



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Scale 1:1250

0 25 50 75 100 125

KEY

- Phase 1
- Phase 2
- Phase 3

REV	DESCRIPTION	DATE

CLIENT
Pobl Group

JOB TITLE
Herbert Road, Newport

DRAWING TITLE
Phase 1, 2 & 3 - Location Plan

SCALE @ A3	DATE	DRAWN BY
1:1250	June '20	WC
JOB NO	DRAWING NO	REVISION
1996	LP-P1,2&3-01	-

hammond Architectural Ltd
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APPENDIX 2

PROPOSED REMEDIATION STRATEGY AMENDMENT

Steve Manning
Newport City Council
By email

Envirotreat Technologies Ltd
LCP House,
36 First Ave.,
Pensnett Trading Estate,
Kingswinford
DY6 7NA

4th January 2021

Dear Steve,

Re: Proposed remediation Strategy Amendment, Herbert Road Newport (18/0293)

This letter sets out a proposed amendment to the existing remediation strategy for the site located on Herbert Road, Newport.

The site is being developed in three phases under planning decision notice 18/0293. We understand that phase 1 is complete and an application to discharge the remediation verification (condition 16) has been made. Garden remediation validation has also been completed by TerraFirma across Phases 2A and 2B (plots 1 through 38 and 76 through 99).

Construction works across phase 2 are well progressed, but soil remediation in gardens and POS (public open space) areas is yet to be completed. Phase 3 has not yet started. The amended remediation strategy set out herein will therefore apply to phases 2 (outstanding plots) and 3 only.

The site has a long history of assessment, remediation, and regulatory liaison. It is not the intention to review that in detail. It is our understanding that circa 45,000m^3 of soil was imported to raise site levels to alleviated flooding risk. TerraFirma validated this material and concluded that it presented a risk to human health. They recommended that such risks be mitigated through laying of 600mm clean capping and a basal deter to dig layer. This was recommended for gardens and POS (public open space).

The purpose of this addendum is to amend these recommendations. In brief, we seek to reduce the thickness of clean cover in POS to 300mm, revise the chemical specification for clean cover soils and allow the reuse of chemically suitable, validated site-won subsoil. No changes to the proposed ground gas mitigation measures are proposed and thus ground gas is beyond the remit of this report.

Relevant Contaminant Linkages and Proposed Remediation Strategy

Remediation is required where potential contaminant linkages have been identified, assessed and concluded to be relevant[1]. Remediation options for relevant contaminant linkages should be appraised and agreed with the regulator.

TerraFirma completed site investigation in 2013, prior to level raising. Soil conditions identified are little pertinence due to the thickness of imported cover placed over them. Fill materials were validated by TerraFirma, with their validation report issued in 2017.

[1] https://www.gov.uk/guidance/land-contamination-how-to-manage-the-risks

Human health impacts from fill materials emplaced below 8.65mAOD were to be mitigated through the subsequent cover material. A condition of the bespoke environmental permit was that fill material laid at between 8.65mAOD and 8.95mAOD should be asbestos free. TerraFirma produced a specification for this material based on published GAC (generic assessment criteria) for a residential without plant uptake end use (2015 Remediation Strategy, Table 3.1).

TerraFirma note that Engie are to raise the site further, to 9.95mAOD. They have provided a soil specification for the top 0.6m of this 1m raise to be used in gardens and areas of soft landscaping (201 Remediation Strategy, Table 3.3). The specification provided broadly comprises CIEH (Chartered Institute of Environmental Health) GAC.

No justification has been provided for either the thickness of clean cover or the GAC adopted. It is these aspects that will be discussed, along with our proposed amendments. It should be noted that the clean cover is not intended to mitigate a specific, quantified relevant contaminant linkage.

Clean Cover Thickness

TerraFirma recommended 600mm of clean cover be laid in all areas of soft landscaping. Given the absence of a quantified relevant contaminant linkage, this has been based on calculated mixing zones, for example as set out by the BRE (Building Research Establishment)[2]. However, the clean cover thickness for residential gardens is accepted herein due to the sensitivity of the land use. However, 600mm of clean cover in POS areas is considered to be overly conservative. Turn over or excavation of surficial soils in POS areas is unlikely to occur and the deter to dig layer will prohibit biogenic turnover. Therefore, we consider 300mm over a deter to dig layer to be sufficient and this measure is commonly employed on other projects.

The clean cover will comprise a minimum of 100mm of topsoil, with any remaining cover comprising chemically suitable subsoil. It is anticipated that this will be imported to allow compliance with BS3882[3] and BS8601[4].

Adopted GAC

TerraFirma presented GAC based on a residential with homegrown produce end use for all soils in gardens and soft landscaped areas. The end use is considered appropriate for gardens, but overly conservative for soft landscaping.

GAC have been published by both DEFRA and LQM for POS (public open space) areas, including those situated within residential developments (POS resi). Current CLEA software includes a POS (resi) default setting. It excludes the consumption of homegrown produce and associated soil and the inhalation of indoor air exposure pathways included in the residential setting. However, it includes tracking back of soil and dust, followed by exposure indoors.

[2] BRE465 Cover systems for land regeneration – the thickness of cover systems for land contamination. Tedd *et al,* 2004. Building Research Establishment.
[3] BS3882 Specification for topsoil. 2015. British Standards Institute.
[4] BS8601 Specification for subsoil and requirement for use. 2013. British Standards Institute.

The source of the chosen GAC is not justified. It is not clear why, for example, a GAC for cadmium of 10mg/kg has been chosen when the LQM S4UL is 11mg/kg and the C4SL is 22mg/kg. The report references 'CLEA', so this may be an in-house GAC. Irrespective of the source, Envirotreat proposes adopting GAC based on the following rationale.

Proposed GAC

Defra and the EA have published a limited number of SGV (soil guideline values[5]) that represent minimal chronic risk to human health. CL:AIRE, on behalf of DEFRA, has published a limited number of C4SL[6] that represent a low, but still strongly precautionary, level of chronic risk to human health. Both the SGV and C4SL have both been derived for a SOM (soil organic matter) content of 6% and a sandy loam soil type. Following their publication, confirmation was issued that C4SL are suitable for use in a planning situation (Lord de Mauley, 2014).

LQM responded to the demand for a more comprehensive set of screening values for a wider range of SOM and produced S4UL[7], which are a hybrid of SGVs and C4SLs. The S4ULs have been endorsed by the CIEH (Chartered Institute of Environmental Health).

Envirotreat has adopted C4SLs, where available, as GAC to quantitatively assess the potential chronic risks to human health and suitability for use. This is in accordance with DEFRA and DCLH guidance and subsequent government clarification.

The assumptions underpinning the C4SL have been reviewed to ensure that they are applicable to the subject site. It is noted that the use of 6% SOM and a sandy loam soil has a significant effect of the benzene exposure model. However, we note that benzene is not included in the TerraFirma validation suite. The identified contaminants, comprising metals and benzo(a)pyrene, are not sensitive to SOM. The use of a sandy loam soil type is standard across human health risk assessment and underpins the derivation of the old SGVs (soil guideline values) and LQM/CIEH (Land Quality Management and Chartered Institute of Environmental Health) GAC as well as the S4UL. The use of a sandy loam soil is noted to be a precautionary approach by LQM.

On the basis of the above, Envirotreat considers that C4SL are applicable on this site and is fully in accordance with guidance issued for England and Wales. As mentioned above, C4SL have only been issued for 6no contaminants. Where C4SLs are not available, the S4ULs are used. It is noted that S4ULs are not equivalent to C4SLs in all their exposure assumptions but are generally more conservative in their assumptions.

SOM Values

S4ULs for organic contaminants have been derived for three SOM values; 1%, 2.5% and 6%. In the context of this site, this affects the S4UL to be selected for naphthalene and phenol. It does not affect inorganic contaminants. SOM is calculated from the TOC content of soils

[5] Environment Agency Science Report SC050021 series.
[6] CL:AIRE Final Project Report. SP1010 – Development of Category 4 Screening Levels for assessment of land affected by contamination. CL:AIRE, December 2013
[7] The LQM/CIEH S4ULs for Human Health Risk Assessment, Nathaniel P et al, 2015. Copyright Land Quality Management Ltd, reproduced with permission: Publication Number S4UL3509

analysed during this phase of work. Given that the SOM of cover materials will not be known until tested it is proposed the most precautionary SOM value be adopted, i.e. 1%.

PAH Proxy Assessment

According to current PHE (Public Health England) guidance[8], the assessment of PAHs should been carried out using a surrogate marker approach, whereby the assessment of risk from benzo(a)pyrene also captures potential risks from other carcinogenic PAHs that may be present. The alternative approach for PAHs using the toxic equivalent factor approach have not been used because this approach is likely to under predict the true carcinogenicity of PAHs and is not advocated by PHE. The threshold PAHs have been assessed similarly, by using naphthalene as a marker compound due to its volatility relative to other PAHs. PHE note that benzo(a)pyrene is a suitable proxy for genotoxic PAH in each of the 52no contaminated sites included in their study.

Based on the above technical details, the following chemical soil specifications are proposed.

Table 1: Chemical specification for subsoil/ topsoil (0-0.6mbgl) – residential gardens

Determinant	Criteria (mg/kg)	Criteria Derivation
Arsenic	37	Residential w/ HGP C4SL
Boron	290	Residential w/ HGP S4UL
Cadmium	26	Residential w/ HGP C4SL
Trivalent Chromium	910	Residential w/ HGP S4UL
Hexavalent Chromium	21	Residential w/ HGP C4SL
Copper[1]	100/200	Residential w/ HGP S4UL
Lead	200	Residential w/ HGP C4SL
Mercury	40	Residential w/ HGP S4UL
Nickel[1]	60/100	Residential w/ HGP S4UL
Selenium	250	Residential w/ HGP S4UL
Zinc[1]	200/300	Residential w/ HGP S4UL
Naphthalene	2.3	Residential w/ HGP S4UL (1% SOM)
Benzo(a)Pyrene	5	Residential w/ HGP C4SL
Phenol	120	Residential w/HGP S4UL (1% SOM)
Asbestos	<0.001%	Undetectable fibre content

Notes to table

1. Phytotoxic limits taken from BS3882/ BS8601. Value is dependent on type of topsoil (low fertility, calcareous or acid).

[8] HPA Contaminated Land Information Sheet. Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs). Public Health England, 2017.

Table 2: Chemical specification for subsoil/ topsoil (0-0.3mbgl) – POS

Determinant	Criteria (mg/kg)	Criterion Derivation
Arsenic	79	POS (resi) C4SL
Boron	21000	POS (resi) S4UL
Cadmium	220	POS (resi) C4SL
Trivalent Chromium	1500	POS (resi) S4UL
Hexavalent Chromium	21	POS (resi) C4SL
Copper[1]	100/200	POS (resi) S4UL
Lead	630	POS (resi) C4SL
Mercury	120	POS (resi) S4UL
Nickel[1]	60/110	POS (resi) S4UL
Selenium	1100	POS (resi) S4UL
Zinc[1]	200/300	POS (resi) S4UL
Naphthalene	4900	POS (resi) S4UL
Benzo(a)Pyrene	10	POS (resi) C4SL (1% SOM)
Asbestos	<0.001%	Undetectable fibre content
Phenols	120	POS (resi) S4UL (1% SOM)

Notes to table

1 Phytotoxic limit taken from BS3882/ BS8601. Value is dependent on type of topsoil (low fertility, calcareous or acid).

The risk to controlled waters from the previously imported fill material has been assessed by TerraFirma and agreed by NRW (Natural Resources Wales, previously the EA) as acceptable. As such, reuse of any existing material will not constitute and unacceptable risk. Likewise, importation of less contaminated clean cover material will not present an unacceptable risk to controlled waters.

Soil Re-use

The current Remediation Strategy does not cover the re-use of soils. This amendments includes a proposal to reuse soils in Phase 3 under the CL:AIRE Definition of Waste: Code of Practise.

The reuse of soils will be completed in accordance with a MMP (Materials Management Plant) and declared by an independent QP. As such, only materials that are chemically and geotechnically suitable for use will be reused in in the required quantities.

Conclusion

This addendum sets out revised proposals for the clean cover layer recommended in the 2015 TerraFirma Remediation Strategy. It sets out thicknesses and chemical compositions for private residential gardens and areas of soft landscaping (POS).

This addendum also covers the reuse of suitable soils under an MMP in accordance with the CL:AIRE DoW:CoP.

We trust that the enclosed proposals are suitable and gain your approval.

Yours sincerely

Andy Norman

Envirotreat Technologies Limited

APPENDIX 3

TERRAFIRMA IMPORTED FILL VALIDATION REPORT

APPENDIX 9.9

Imported Fill
Validation Report
Proposed Residential Development
Herbert Road
Newport

Prepared for:
Keepmoat

December 2016

Report No. 12032/VR1-V2

terrafirma

REPORT TITLE	**:**	**Imported Fill Validation Report:** **Herbert Road, Newport**
REPORT STATUS	**:**	**Final**
JOB NUMBER	**:**	**12032/VR1-V2**
DATE	**:**	**December 2016**
PREPARED BY	**:**	R. Howells. …….. **(Mrs R. Howells)**
REVIEWED BY	**:**	M. Lake …….. **(Mr M. Lake)**
APPROVED BY	**:**	Guy Lake …….. **(Dr G. C. Lake)**

Executive Summary

In order to comply with current Government directives and the Flood Consequence Assessment (FCA) approved by NRW the site is to be raised from its original level to an average formation level of 8.80m AOD.

Riversee Limited has to date completed partial fill of the site. This has been achieved by importation of soils from various sources.

All imported materials have been chemically screened and confirmed suitable use in accordance with Terra Firma Remediation Strategy, or in agreement with Newport City Council and National Resources Wales.

In-situ geotechnical testing has confirmed the effectiveness of the compaction process.

In-situ monitoring of settlement with in-situ piezometers and settlement pins is on-going. Assessment of the piezometer results in June 2016 confirmed that primary settlement was not complete since pore water pressure continued to fall and that dissipation of pore water pressure appears faster in the peat layers than in the clay. Piezometer 1 set within peat took roughly half the time for peak pore water pressure to dissipate to 40% than Piezometer 3 set within clay. Measured settlement to date (June 2016) recorded settlement of up to 28mm since the commencement of the earthworks.

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SECTION 1 Introduction

1.1 General

In order to comply with current Government directives and the Flood Consequence Assessment (FCA) approved by NRW the site is to be raised from its original level to an average formation level of 8.80m AOD.

Riversee Limited has to date completed partial fill of the site. This has been achieved by importation of soils from various sources.

The following sections provide a summary of the site, detail both chemical and geotechnical validation of the imported fill, and present the findings of settlement monitoring to date.

1.2 Limitations and Exceptions

The Imported Fill Validation Report has been prepared for Keepmoat. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Terra Firma (Wales) Limited. If an unauthorised third party comes into possession of this report they rely on it at their peril and the authors owe them no duty of care and skill.

The report represents the findings and opinions of experienced geo-technical and geo-environmental consultants. Terra Firma (Wales) Limited does not provide legal advice and the advice of lawyers may also be required.

SECTION 2 Site Summary

2.1 Geotechnical and Geo-environmental Site Investigation

Investigation of the site was previously undertaken by Terra Firma (Wales) Limited. The details of the investigation were reported on in March 2013 (Geo-environmental and Geo-technical Report No. 12032). A copy of this report is provided in **Annex A**.

The site investigation was carried out between the 31st of October and the 8th of November 2012 comprising 19 trial pits and six cable percussive boreholes and three mini percussive boreholes.

In March 2014 additional testing of groundwater was performed.

2.1.1 Ground Conditions

The ground conditions encountered beneath the site can in general be summarised as made ground to between 0.2m ad 3.3m depth, underlain by soft grey and brown clay with bands of peat and intermittent sand and gravel deposits. Below 5.9m/10.3m depth firm becoming very soft red brown gravelly clay prevails, grading in to red mudstone between 10m to 12.7m depth.

2.1.2 Foundation Solution

Construction of shallow traditional foundations upon un-compacted made ground over soft clay bands beneath the site would lead to high total and differential settlements.

Precast concrete driven piles founded within the underlying very weak red brown and grey mudstone with a suspended floor slab were therefore recommended.

2.1.3 Contamination and Human Health Risk Assessment

During the intrusive investigation, small disturbed soil samples were collected for contamination screening from trial pits (TP). A number of contaminants of concern were identified when comparing results to current residential (not including plant uptake) threshold levels, as summarised below:

Table 2.2 Summary of Contaminants of Concern in Soil

Hole and depth (m bgl)	Chemical	Guideline (mg/kg)	Exceedance (mg/kg)
TP5 1.3m	Arsenic	32	40
TP2 0.90m	Cyanide	8	10
TP8 0.50m	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	11 2.7 3.3 0.28	13 11 9 1.6
TP6 1.8m TP7 0.20m	Chrysotile – Loose Bundles	-	-
TP13 0.60m	PCB 2,4,4'-Trichlorobiphenyl 2,2',5,5'-Tetrachlorobiphenyl	0.08 0.08 0.08	0.16 0.12 0.05

2.1.3 Contamination and Human Health Risk Assessment (Continued)

In the human health risk assessment construction workers and future site residents were considered as potential receptors to contamination in site soils.

It was concluded that future site users will be protected by the thick layer of fill to be imported and that construction workers could be protected by good site management, COSHH, good standards of hygiene and appropriate health & safety on site, with personal protection equipment (PPE) and dust suppression where appropriate.

Upon development all garden and landscaped areas will be finished with a minimum of 600mm of clean imported subsoil and topsoil.

Comparison of in-situ gas monitoring results with CIRIA report C665 confirmed that gas protection measures will be required. It was concluded that gas protection to a 'gas characteristic 2' level may be adequate. However, further on-site gas monitoring from from flux boxes is to be undertaken during on completion of the earthworks to confirm that this level of protection will be suitable.

Basic radon protection measures should be incorporated into all new buildings on site. The radon/gas barrier should also be effective as a barrier to PCB vapours.

Prior to the placement of water supply pipes an assessment should be made, by the water provider, of soil along the route of the pipe with reference made to the material selection criteria quoted in UKWIR Report Ref No 10/WM/03/21 'Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites'.

2.1.4 Environmental Risk Assessment

Groundwater wells were installed and groundwater samples were also retrieved for testing. Samples from the drainage reen were taken and analysed in June 2013. Petroleum hydrocarbons, zinc and fluoranthene were found as contaminants in groundwater and the reen. Two rounds of groundwater testing in March 2014 identified only a single exceedence of zinc, in one location.

Monitoring of groundwater level in boreholes in January 2014 over a tidal cycle confirmed that there was no tidal influence on groundwater in the underlying sands and gravel and no hydraulic continuity between groundwater and the River Usk. The River Usk and hydrological environment are not therefore considered to be at risk.

2.2 Remediation Strategy

Following the Geotechnical and Geo-environmental Site Investigation a Remediation Strategy Report was prepared in December 2013. This has been updated several times, reflecting the proposed works for site.

A copy of the August 2015 Remediation Strategy Report is provided in **Annex B**.

In general, the following remedial measures proposed to ensure no risks to human health and the environment were:

1. Raising the site above the flood plain with imported engineered fill. All imported materials to date have been validated as suitable for use. All further imported fill will similarly be sampled, tested and validated as required.

2. Upon completion of the development placement of 600mm capping of clean soil (subsoil and topsoil) in garden and landscaped areas.

3. Installation as a minimum a 2000 gauge membrane suitable for protection against ground gas, radon gas and PCB vapours in all new buildings. Passive under-floor venting and taping and sealing of all joints will also be required. Dependant on further on-site flux box gas monitoring more robust gas protection measures may be required.

4. Sampling and analysis of groundwater prior to and following initial fill works.

5. New water supply pipes to be chosen in accordance with UKWIR Report Ref No 10/WM/03/21 ‘Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites’.

2.3 Earthworks

To date the site levels have been part-raised in accordance with the Remediation Strategy.

The following sections detail validation works completed on the imported engineered fill.

SECTION 3 Chemical Validation Imported Engineering Fill

A summary of the materials imported to date is provided in **Table 3.1** below.

Table 3.1 Summary of Imported Materials

Soil Source	Estimated Volume Imported (m^3)	Date Imported on to Site	Soil Validation Test Results
Upper Half of Riversee Limited Stockpile (Adjacent Herbert Road Site)	14,000	Small portion imported and placed in south of site prior to July 2015 Remainder July 2015	DETS test certificates 27313-1 & 27519-2 **Annex C**
Lower Half of Riversee Limited Stockpile (Adjacent Herbert Road Site)	9000	July 2015	DETS test certificates 40034-2 & 40314 **Annex D**
Taylor Wimpey Citivision Site	1000	August 2015	DETS test certificate 47308-1 **Annex E**
Taylor Wimpey Citivision Site	500	October 2015	DETS test certificate 46635 **Annex F**
Soils taken from area of site north of the drainage reen	500	October 2015	DETS test certificate 77110 **Annex G**
Soils sourced from Green Lane and Hawes Lane, Wentloog	15,000	Part imported November & December 2016 Remainder to be imported in 2017	Contained within soils Risk Assessment Report **Annex H**

All soils were tested for a range of substances and compared to regulatory soil and leachate guidelines values in accordance with Terra Firma Remediation Strategy. The soil test certificates are appended, as detailed in **Table 3.1**.

The Riversee Limited stockpile was sampled and tested in two halves. Each half was tested prior to import.

Other soil sources were sampled and tested once imported, except the Green Lane and Hawes Lane soils which were sampled at source and prior to import whilst stockpiled on land adjacent to site.

The soil and leachate test results (except Green Lane and Hawes Lane soils) are summarised in table format, please refer to **Annex E**. On occasion some soil samples exhibited exceedences of chemicals above their respective soil or water threshold level were identified. Newport City Council Environmental Protection officer and the NRW were contacted and acceptance of the soils sought in these instances.

Green Lane and Hawes Lane soil results were subject to a site specific risk assessment as requested by NRW, see **Annex H**.

Chemical Validation Imported Engineering Fill (Continued)

Table 3.2 below and **Annex I** detail correspondence between Terra Firma, the NRW and Newport Council during fill works.

Table 3.2 Summary of Correspondence

From	To	Format	Date	Subject	Annex I Ref
TFW	Riversee Limited	letter	22.06.2015	Chemical summary of soils from upper part of Riversee stockpile. Concludes soils should be acceptable provided appropriate bespoke permit granted from the NRW to allow asbestos	1
TFW	Newport Council Planning	Email	22.06.2015	Sent copy of letter on upper part of stockpile (as above) for approval	2
TFW	Riversee Ltd Copied to NRW and Newport Council Pollution Control	letter	06.08.2015	Summary of chemistry of lower part of Riversee stockpile and updated Remediation Strategy. **Riversee Limited stockpile material permitted for use on site. Remediation Strategy updated to include remedial measures required to protect against asbestos in fill material as requested by Newport Council Contaminated Land**	3a&b
NRW	Newport Council Planning	Letter	14.08.2015	Response to letter regarding leachate chemistry of lower part of Riversee stockpile	4
NRW	TFW	let20	19.08.2015	Response to NRW letter dated 14.08.2015. Stockpile chemical summary – suggestion place Riversee stockpiled soils at least 50m from reen	5
TFW	Newport Council Pollution Control	Email	13.10.2015	Query of high lead exceedence in Citivision (Aberbargoed – wrongly named) soils	6
Newport Council Pollution Control	TFW	Email	15.10.2015	Response to TF email 13.10.2015	7
TFW	NRW	Email	27.10.2015	Regarding Citivision soil and leachate results	8
NRW	TFW	Email	12.11.2015	Reply to TFW email 27.10.2015	9
TFW	Newport Council Pollution Control	Email	17.11.2015	Regarding asbestos and lead in Citivision soils	10
TFW	NRW	let 21	18.11.2015	Citivision source leachate results - TFW justification for acceptance	11
Newport Council Planning	TFW	Email	25.11.2015	Council/NRW inform that they are not recommending discharge of condition. Request info by 02.12.2015	12
TFW	NRW	Email	26.11.2015	Regarding above Newport Council correspondence 25.11.2015 and reference to Let20	13
NRW	NRW	Email	26.11.2015	**Confirmed received TFW let20 and agreed informally that proposal to place Lower Riversee Stockpile material 50m from reen was acceptable**	14
NRW	TFW and Newport Council Planning	Email with letter (SE-2015-119016-03-L02)	02.12.2015	NRW formal response to TFW let20 Partial discharge of condition 5 & 6 (remediation strategy) following receipt of TFW let20	15
NRW	TFW	Email	02.12.2015	Questioning how will know which part of the stockpile deposited where on site and placement of geotextile membrane	16
TFW	Newport Council Planning	Let 22	10.12.2016	Response to email 02.12.2015 (Annex Ref 14). Confirmation of fill placement and outline of intended remediation and validation proceedures	17

Chemical Validation Imported Engineering Fill (Continued)

Table 3.2 Summary of Correspondence (Continued)

From	To	Format	Date	Subject	Annex I Ref
Newport Council Pollution Control	TFW	Email	22.01.2016	Response to TFW email 18.11.2015 regarding Citivision soils **Newport Council confirm Citivision soils are acceptable**	18
Newport Council Pollution Control	TFW	Email	24.10.2016	Confirmation Risk Assessment Report on Green Lane and Hawes Lane soils is acceptable provided risk from ground gas considered Reference to proposed flux box testing subsequently added	19
TFW	NRW	Email	04.11.2016	Provision of Risk Assessment Report on Green Lane and Hawes Lane soils	20
NRW	TFW	Email	11.11.2016	**Confirmation from NRW that Risk Assessment Report on Green Lane and Hawes Lane soils is acceptable and that soils are permitted to be imported**	20

SECTION 4 Human Health Risk Assessment

Soils on site were tested prior to fill works. A number of contaminants were identified.

Fill materials imported to date were also found to contain some contamination, including asbestos.

In the human health risk assessment construction workers and future site residents are considered as potential receptors to contamination in site soils.

Both groups of receptors could be exposed to site soil through dermal contact with soil/soil dust, ingestion of soil/soil dust or inhalation of soil dust. Inhalation of asbestos fibres is also a potential pathway.

Contamination in original site soils is too deep to present a risk to future site residents. Imported fill similarly is considered to be at a depth at which no risks to future site residents will be presented given that the remainder of the required engineered fill will not contain asbestos and a 600mm capping layer of clean imported subsoil and topsoil will be placed in all garden and landscaped areas upon development.

Site construction workers may possibly be exposed to site soils through activities such as installing bored piles or deep drainage works. Assessment of contamination has been carried out by comparison of results to residential thresholds, which considers long term exposure to site residents. Also, thresholds assume a worst case and reflect the risk to the most vulnerable receptor, a child. Site construction workers are at very low risk from the identified contaminants (except asbestos) given the relative very low exposure time. These very low risks may be mitigated through good site management, COSHH, good standards of hygiene and appropriate health & safety on site, with personal protection equipment (PPE) and dust suppression where appropriate.

The risk to construction workers from asbestos must be considered. Asbestos was present in two localised areas in the original site investigation, and is present in the imported fill. Asbestos fibres can accumulate in the lungs over time, and is known to cause asbestosis (scarring of the lungs), mesothelioma (cancer of the lung lining) and lung cancer.

For any activities that involve exposing fill soils or in-situ made ground in the area of original site investigation locations TP6 and TP7 (see **Annex A**) the contractor should seek appropriate additional protection against asbestos fibres. This is likely to include appropriate PPE and dust suppression.

SECTION 5 Verification of Fill Compaction

The Riversee Limited stockpile was geotechnically tested prior to import to enable an Earthworks Compaction Specification Report to be provided.

The Compaction Specification Reports for the top half of this stockpile (Report No. 12032/CS1, dated July 2015) and bottom half (Report No. 12032/CS2, dated July 2015) are provided in **Annex J**.

A small portion of the top of the Riversee Limited stockpile was imported on to site prior to official commencement of the earthworks. This was placed across the southern end of the site. This fill was subject to plate testing and sand replacement density (SRD) tests on the 24th July 2015. A number of tests were also performed on the in-situ ground across the northern part of the site at this time.

'North' of the site refers to the area north of the track (see original topographic plan in Figure 2.1). 'South' is the area below the track.

Also prior to earthworks a small mound of imported soils (also from the top of the Riversee Limited stockpile) had been placed in the northwest of the site.

As the fill levels were raised further plate load and SRD tests were completed.

The testing completed is summarised in **Table 5.1** on the following page.

Recent sampling on behalf of Keepmoat confirmed the placed fill thickness to range between 0.6m and 1.3m.

Verification of Fill Compaction (Continued)

Table 5.1 Summary of In-situ Geotechnical Tests

Fill Location and Details	Source	Date Imported	Date Tested	Test Type
Pre earthworks fill placed in south of site and mound in northwest of site Max 600mm fill thickness	Top of Riversee Limited Stockpile	Pre July 2015	24.07.2015	Plate tests SRDs
400mm (2 layers) across north of site 200mm fill across southeast quadrant of site	Top of Riversee Limited Stockpile including previously imported bund	30.07.2015 – 04.08.2015	05.08.2015	Plate tests SRDs
Small mound placed along eastern half of southern site edge	Bottom of Riversee Limited Stockpile	05.08.2015		
Fill stockpiled then spread in southwest quadrant of site (400mm thick) Small mound in south spread over southeast quadrant (200mm thick)	Bottom of Riversee Limited Stockpile	07.08.2015		
Fill spread over north of site (200mm)	Bottom of Riversee Limited Stockpile	10.08.2015 – 11.08.2015		
Fill now 600mm in north and 400mm in south Eastern half of site tested following period of stipping / drying / replacing material previously tested and spread of mound in southeast quadrant 05.08.2015			18.08.2015 19.08.2015	Plate tests
Fill spread over eastern half of site	Bottom of Riversee Limited Stockpile	19.08.2015		
Fill stockpiled in northwest corner of site	First batch of Citivision soils	08.09.2015 – 10.09.2015		
Fill placed across the site, Northern area, the haul road and southern area.	- Fill from North/CV - Fill from S.pile - Fill from S.pile		11.09.2015	Plate tests
SRD 1 – Centre North SRD 2 – Southwest SRD 3 – South	- Fill from North - Fill from S.pile - Fill from S.pile		14.09.2015	SRDs
Placed in north of the site	Material taken from north of the reen	16.09.2015 – 18.09.2015	**Untested**	
Placed in central south of site	Bottom of Riversee Limited Stockpile	28.09.2015 & 02.10.2015	**Untested**	
Placed in south of the site	Second batch of Citi-vision soils	05.10.2015	**Untested**	

Test result certificates are provided in **Annex K.** Where any unsatisfactory results were identified the fill was stripped or broken up to allow further drying before re-rolling and testing.

In November and December 2016 soils sourced from Green Lane and Hawes Lane were imported. These soils have not yet been subject to in-situ geotechnical tests.

SECTION 6 Settlement Monitoring

During July 2015 six vibrating wire piezometers and eight settlement monitoring pins were installed across the site.

The location of these monitoring points is illustrated in **Figure 6.1** below.

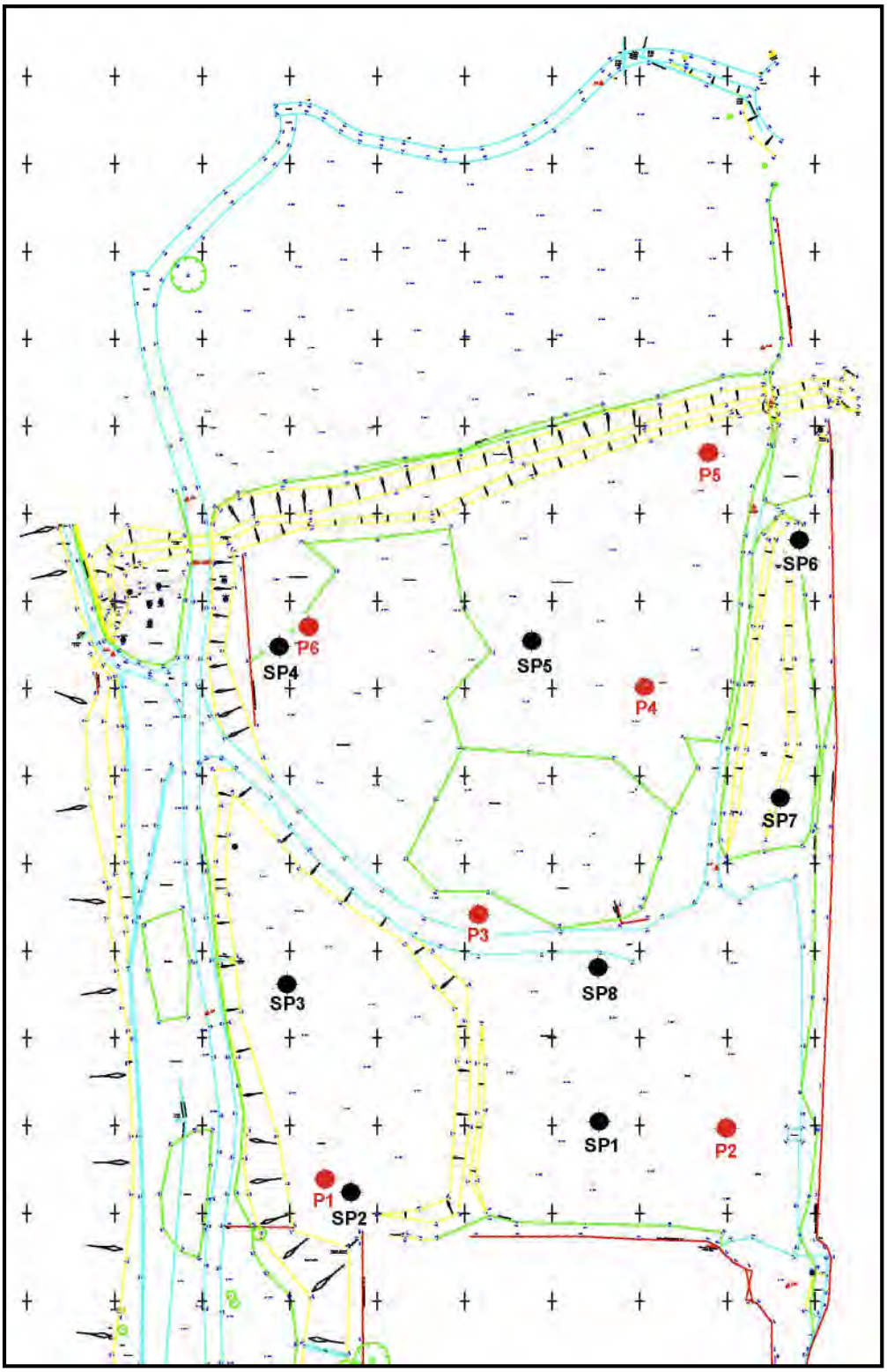


Figure 6.1: Piezometer (P1 – P6) and Settlement Pin (SP1 – SP8) Locations

Settlement Monitoring (Continued)

The piezometers and settlement pins were monitored and surveyed at regular intervals during the earthworks completed so far (July to October 2015), and intermittent monitoring was also completed in the period between October 2015 and May 2016.

With raising ground levels settlement is expected to occur on site in two phases, instantaneous and primary settlement and subsequent secondary settlement.

During instantaneous settlement the soil experiences only shear deformation resulting into change in shape without volumetric deformation. The loss of pore pressure in the soil is zero. Since this settlement is instantaneous it can only be monitored via monitoring pins as the pore pressure cannot be measured (zero).

During primary consolidation / settlement the soil is deformed by movement and compression of soil particles which overall results in volume change. Water held in pores of a saturated soil will migrate to pores of lower pressure (The process of consolidation). Primary settlement is time dependent on a logarithmic scale and stops when pore water pressure returns to baseline level.

Secondary consolidation / settlement occurs following the fall of pore water pressure. Secondary consolidation / settlement includes but is not limited to the following factors;

- Creep: With increasing pressure the grains may become so tightly packed that they will deform causing the soil mass to continue to reduce in volume
- Viscous behaviour of water between particles and pore water: During secondary compression the highly viscous water between the points of contact of soil particles is squeezed out.
- Compression and degradation of organic matter,

Consolidation is a process by which soils decrease in volume by decreasing water content within a saturated soil without replacement of water by air. Consolidation occurs when water is expelled under long term static loads. When a stress or surcharge is applied to a saturated soil the soil particles can compact, therefore reducing its bulk volume and excess water will be “squeezed out”. As a soil consolidates excess pore water pressure will fall.

Vibrating wire piezometers were used to monitor pore water pressures (a pressure correlating to meters of water). Vibrating wire piezometers convert fluid pressures on a sensitive diaphragm into a frequency signal. The signals are capable of long transmission distances without degradation, tolerant of wet conditions and resistant to external electrical noise.

Settlement Monitoring (Continued)

To measure settlement baseline data is required.

Table 6.1 Installation details of Piezometers

Piezometer	Depth	Strata Description	Initial Reading		Possible Baseline Reading	
			mH2O	Date	mH2O	Date
P1	6.30mbgl	Peat	2.05	14/7/15	4.45	23/7/16
P2	2.60mbgl	Clay	0.017	15/7/15	2.20	24/7/16
P3	3.70mbgl	Clay	2.429	16/7/15	2.20	24/7/16
P4	4.95mbgl	Peat	0.358	16/7/15	4.10	22/7/16
P5*	2.90mbgl	Peat	0.324	17/7/15	1.95	29/7/16
P6	5.00mbgl	Clay	4.087	22/7/15	4.50	28/7/16
*P5 was last recorded on 4/1/16. The piezometer has been destroyed.						

The possible baseline readings are considered representative although project program would not permit prolonged monitoring to refine the baseline pressures further.

During the establishment of a baseline the piezometers were monitored for changes in pore pressure coinciding with changes in tide level. The tidal range of the River Usk in Newport can extend over 13m. Tide information from The United Kingdom Hydrographic Office for Newport, Wales was used to identify low tide and high tides. Despite the significant tidal range the effect on piezometers was slight / negligible.

As confirmation the piezometers were measured again from low tide to high tide, (a 10.3m tidal range) between 11:00 and 17:00 on 27/5/2016. The data is summarised below.

Table 6.2 Tidal Effect on Piezometers

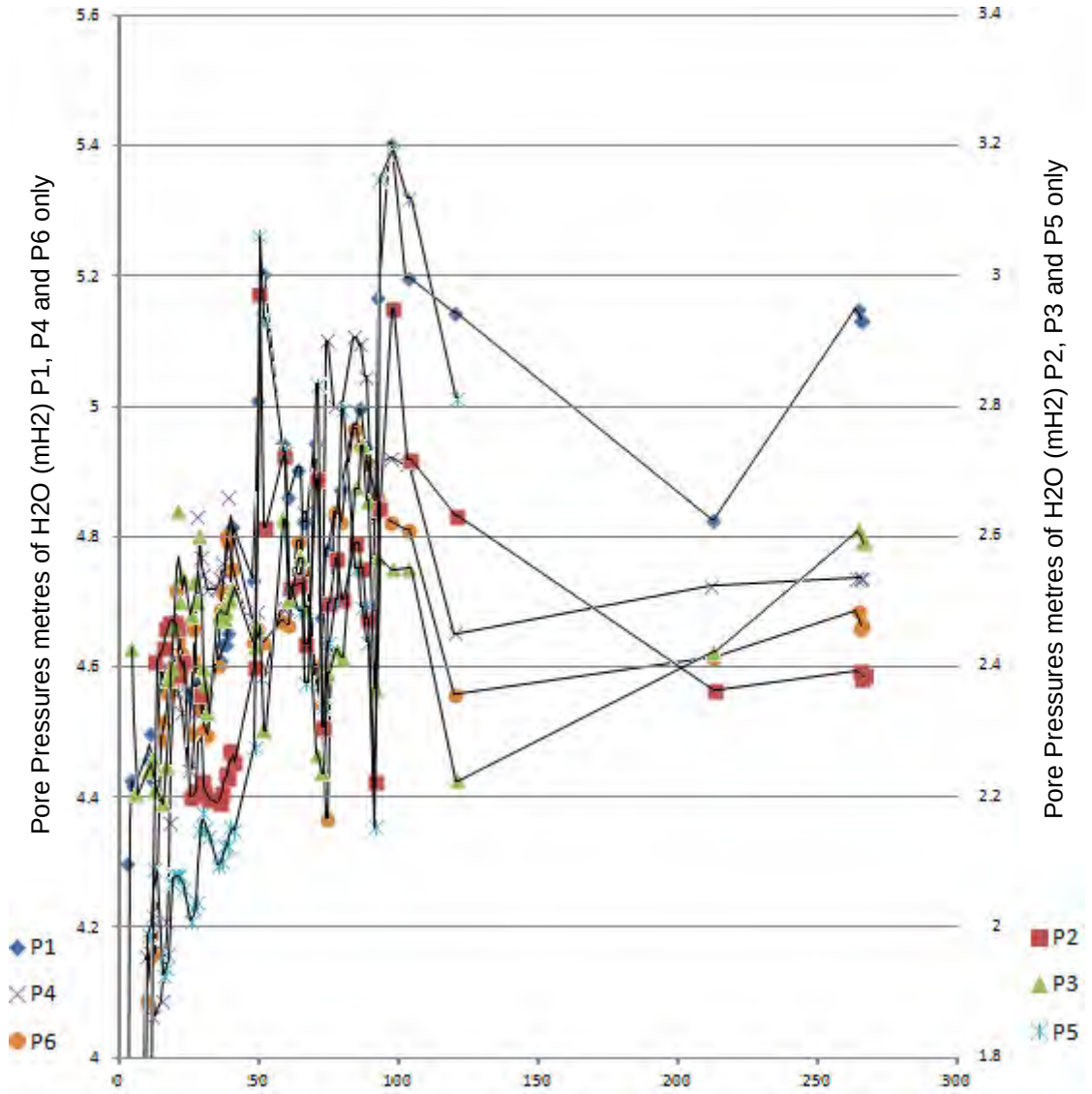
Time	11:00	14:00	17:00	Maximum measured Change in Pore Pressure
Tide Description	Low Tide	Rising Tide	High Tide	
P1	5.151573	5.13387	5.13387	-0.018mH2O
P2	2.3939187	2.3825055	2.3882121	-0.011mH2O
P3	2.6096248	2.5912062	2.5912062	-0.018mH2O
P4	4.7355286	4.7355286	4.7355286	0mH2O
P5	Destroyed			
P6	4.6853254	4.6593008	4.6646852	-0.026mH2O
Pore Pressures reported in mH2O.				

Pore water pressure would be anticipated to increase at high tide with rising water levels however this does not appear to be evident. The equivalent of under 30mm groundwater change was observed between low tide and high tide in this instance. It is considered that the groundwater beneath the site is unlikely to be significantly influenced by the high tidal range of the Usk.

Pore water pressure was monitored daily (or more) during the period of full time supervision. Full time supervision was between 14/7/2015 through to 20/8/2015. Budgetary constraints from 20/8/2015 meant that monitoring became less frequent.

Settlement Monitoring (Continued)

Graph 6.1 : Piezometer Monitoring Results

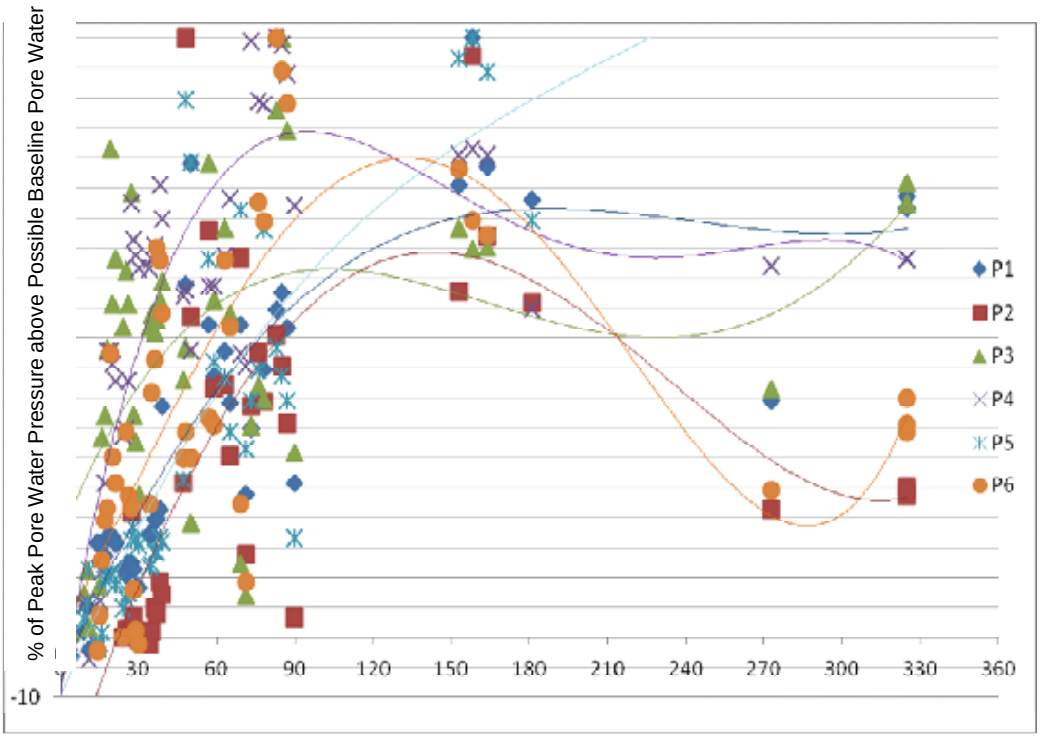


During full time supervision the increasing pore water pressures observed from the piezometers appeared to correlate with the placement of fill. As evidenced by jumps in pore water pressure over the day. Peak pore water pressure dissipated initially quickly but the rate of dissipation reduced resulting in jumps of pore water pressure.

Settlement Monitoring (Continued)

During settlement pore water pressure dissipates as water is squeezed out of consolidating material. The graph below shows the generation of peak pore water pressure generated by the placement of fill typically between 3 and 5 months after the commencement of the earthworks.

Graph 6.2 : Dissipation of Peak Pore Water Pressure



Days since 14/07/2015. (Installation of first piezometer)

Pore water pressure has been observed to be dissipating, evidence of consolidation and settlement. However the monitoring of pore water pressure dissipation has been disrupted by unsupervised filling events subsequent to the termination of full time supervision.

Pore water pressure dissipation of a single filling event should produce a single curve. Unsupervised filling events are likely to explain for the polymodal lines of best fit of pore water dissipation suggesting that following the initial placement of the assessed stockpile further material has been placed on site. Gaps in monitoring at 4 months and 8 months after the commencement of the earthworks have lead to some uncertainty over likely pore water pressures beneath the site at those times.

A summary of pore water pressure dissipation 11 months after commencement of the earthworks is presented below;

Settlement Monitoring (Continued)

Table 6.3 Summary of Piezometer Monitoring to Date14/7/15 to 27/5/16		
Piezometer 1	Strata: Peat (6.30mbgl)	Location: South-western Corner of Site (Near River Usk Embankment)
Piezometer P1 dissipated to 40% of peak pore water pressure after 3 months but has recently increased to over 70% indicating the recent placement of fill. After a period of dispersion of water pressure there was a significant increase in pore water pressure at Piezometer P1 located beneath a recently placed plateaued stockpile.		
Piezometer 3	Strata: Clay (2.60mbgl)	Location: Southern Centre of Site
Piezometer P3 like Piezometer P1 also dissipated to 40% of peak water pressure taking ~6 months. Piezometer P3 like Piezometer P1 has also recently increased to over 70% of peak pore water pressure. After a period of dispersion of water pressure there was a significant increase in pore water pressure at Piezometer P3 both located adjacent to a recently placed plateaued stockpile to the south of the site.		
Piezometer 2	Strata: Clay (3.70mbgl)	Location: South-eastern Corner of Site (Near Rail Embankment)
Piezometer P2 dissipated initially but rose again to 95% of peak water pressure after 3 months. Pore water pressure dissipated again taking a further 3 months to dissipate to ~20% of peak pore water pressure however recently no dissipation has been recorded. After a period of dispersion of water pressure there was a slight increase in pore water pressure at Piezometer P2 located adjacent to a recently placed plateaued stockpile.		
Piezometer 4	Strata: Peat (4.95mbgl)	Location: North-Centre of Site
Piezometer P4 dissipated initially falling to 55% of peak pore water pressure after 3 months. Pore water pressure at Piezometer P4 has failed to dissipate in the last 4 months and currently in excess of 60% of peak pore water pressure. After a period of dispersion of water pressure there was a slight increase in pore water pressure at Piezometer P4 located near a recently placed plateaued stockpile.		
Piezometer 5	Strata: Peat (2.90mbgl)	Location: North-eastern corner of Site (Near Rail Embankment)
Before being destroyed Piezometer 5 was observing evidence of peak pore water pressure dissipation having dissipated to 70% of peak water pressure within a month.		
Piezometer 6	Strata: Clay (5.00mbgl)	Location: North-western corner of Site (Near River Usk Embankment)
After 6 months pore water pressure appears to have dissipated between to 20-40% of peak pore water pressure. The recent changes to pore water pressure only equate to an equivalent groundwater level change of ~100mm which is considered possible especially considering proximity to the River Usk and the sensitivity of the peat. After a period of dispersion of water pressure there was a slight increase in pore water pressure at Piezometer P6. There appears to be no obvious cause for this and may be a result of natural variation. Peat is known to be a more susceptible material to change than clay.		
Observations: Primary settlement is not complete since pore water pressure continues to fall. Dissipation of pore water pressure appears faster in the peat layers than in the clay. Piezometer 1 set within peat took roughly half the time for peak pore water pressure to dissipate to 40% than Piezometer 3 set within clay.		

Settlement Monitoring (Continued)

Settlement monitoring pins were installed targeting the following areas;

Monitoring Pin 1: South-eastern Corner of the site, near rail embankment,
Monitoring Pin 2: South-western Corner of the site, near River Usk Embankment,(Destroyed)
Monitoring Pin 3: Western Edge of the site, near River Usk Embankment,(Destroyed)
Monitoring Pin 4: North-western Corner of the site, near River Usk Embankment,(Destroyed)
Monitoring Pin 5: Northern edge of the site, near reen,
Monitoring Pin 6: North-eastern corner of the site, near rail embankment,(Destroyed)
Monitoring Pin 7: Eastern Edge of the site, near rail embankment,
Monitoring Pin 8: Centre of site

Unfortunately half of the original monitoring pins were disturbed during the earthworks causing the loss of corresponding baseline information for settlement monitoring. A summary of all survey data to date is presented in **Table 6.4** below.

Table 6.4 Summary of Survey Data

	Round1	Round2	Round3	Round4	Round5	Round6	Round7	Round8
Pin	17/7/15	24/7/15	7/8/15	17/8/15	24/8/15	2/10/15	29/12/15	17/3/16
P1	9.435	9.435	9.435	9.435	9.424	9.427	9.4187	9.418
P2	**D**	10.069	**D**	**D**	**D**	**D**	**D**	**D**
P2A	-	-	10.071	10.064	10.055	10.059	10.0464	10.0429
P3	9.136	9.136	9.137	**D**	**D**	**D**	**D**	**D**
P3A	-	-	-	9.195	**D**	**D**	**D**	**D**
P3B	-	-	-	-	-	9.708	9.6882	9.68
P4	8.772	8.773	8.771	**D**	**D**	**D**	**D**	**D**
P4A	-	-	-	-	9.009	9.013	8.9902	8.982
P5	9.195	9.195	9.198	9.195	9.186	9.178	9.1563	9.149
P6	9.22	**D**	**D**	**D**	**D**	**D**	**D**	**D**
P6A	-	9.268	9.267	9.271	9.264	9.274	9.2721	9.263
P7	8.954	8.954	8.955	8.955	8.945	8.935	8.9125	8.91
P8	9.209	9.209	9.207	9.208	9.199	9.202	9.1563	9.185

- = not present
D = Destroyed,
Green filled cells indicate pins with a mostly complete set of monitoring data

During earthworks half of the monitoring points were lost or damaged resulting in the loss of data comparable to baseline conditions. Monitoring Pins 2, 3, 4 and 6 were lost. Monitoring Pins 1, 5, 7 and 8 remain intact.

Justification of Survey Rounds;

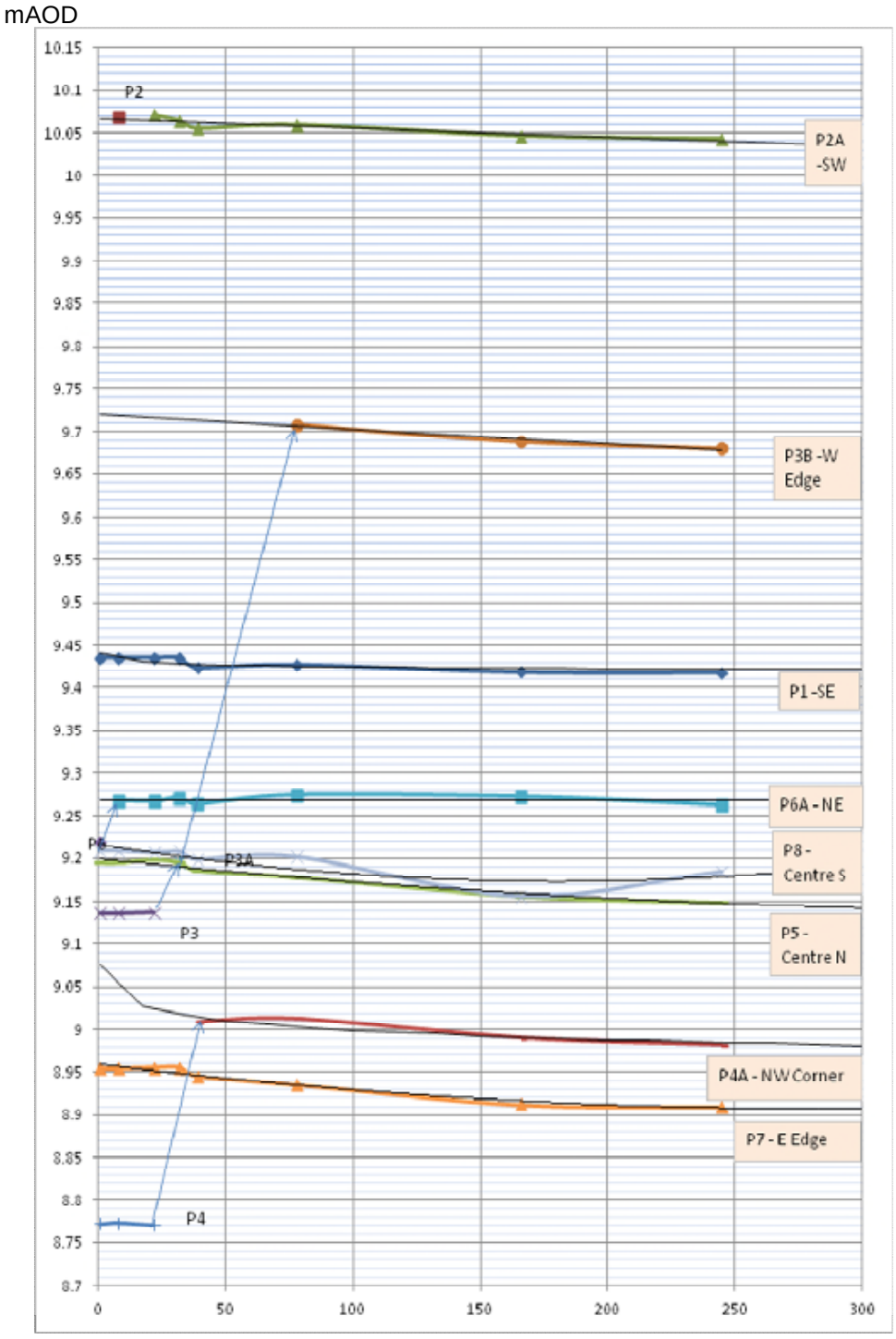
Round 1, 17/7/15.	Initial Survey (P2 damaged - not surveyed)
Round 2, 24/7/15.	Initial Survey of P2 and P6A
Round 3, 7/8/15,	Initial Survey of P2A
Round 4, 17/8/15,	Initial Survey of P3A and survey of damaged P2A
Round 5, 24/8/15,	Initial Survey (P3A damaged - not surveyed)
Round 6, 2/10/15	Initial Survey of P3A

Round 7, 29/12/15	Follow up survey
Round 8, 17/3/15	Follow up survey

Settlement Monitoring (Continued)

The graph below shows all of the surveyed monitoring pins on an arithmetic time scale. When a monitoring pin was damaged or destroyed an effort was made to replace the pin. When a monitoring pin was damaged / destroyed it was given a sequential alphabetical designation.

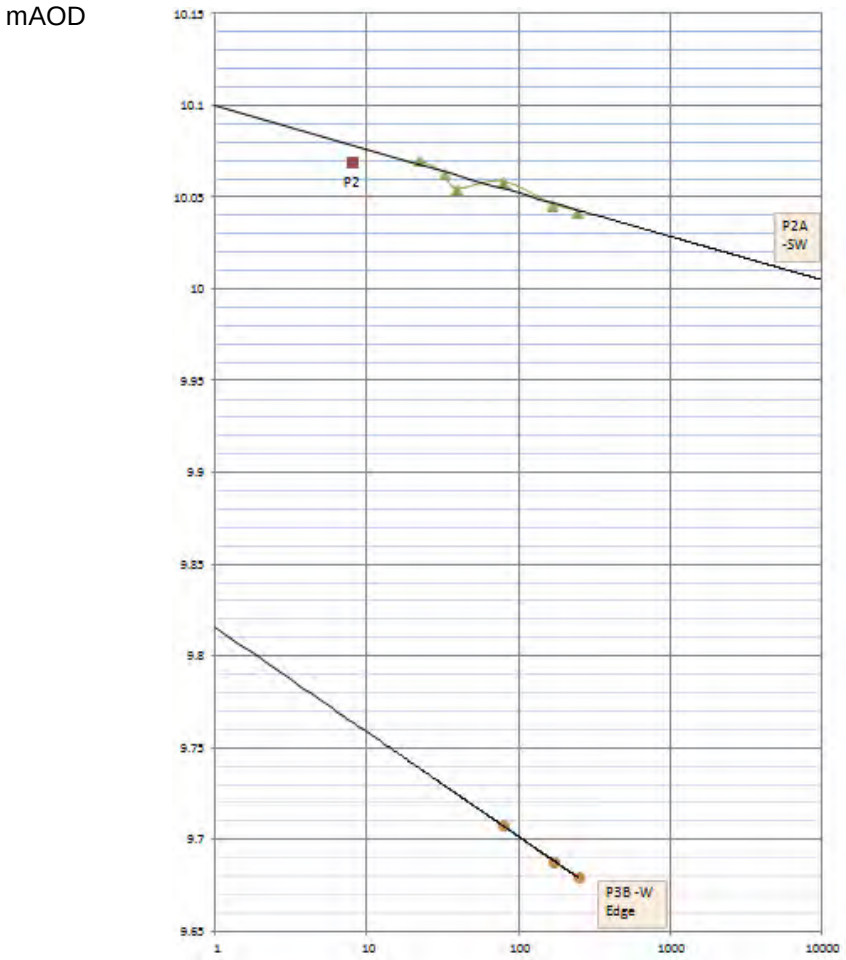
Graph 6.3 : Settlement Monitoring Pin Results



Settlement Monitoring (Continued)

In principle secondary settlement is infinite with settlement rates dropping on a logarithmic scale. However in practice the increase in settlement after 10^4 days (~30years) appears to be generally "complete".

Graph 6.4 Settlement at Monitoring Pins P2A and P3B
(South-western Corner and Western Edge only)



Days since 17/07/2015. (First survey of Settlement Pins) – Log base 10
* Note Original Pins of P2, P3 and P3A were lost or damaged.

Monitoring Pin 2

Unfortunately baseline conditions for Monitoring Pin 2 (located within the south-western corner of the site) were lost as the pin was destroyed following the placement of fill. Monitoring Pin 2A however recorded ~28mm of settlement over 7 months. Whilst the initial readings may be lost it may be possible to conjecture future settlement from the data obtained.

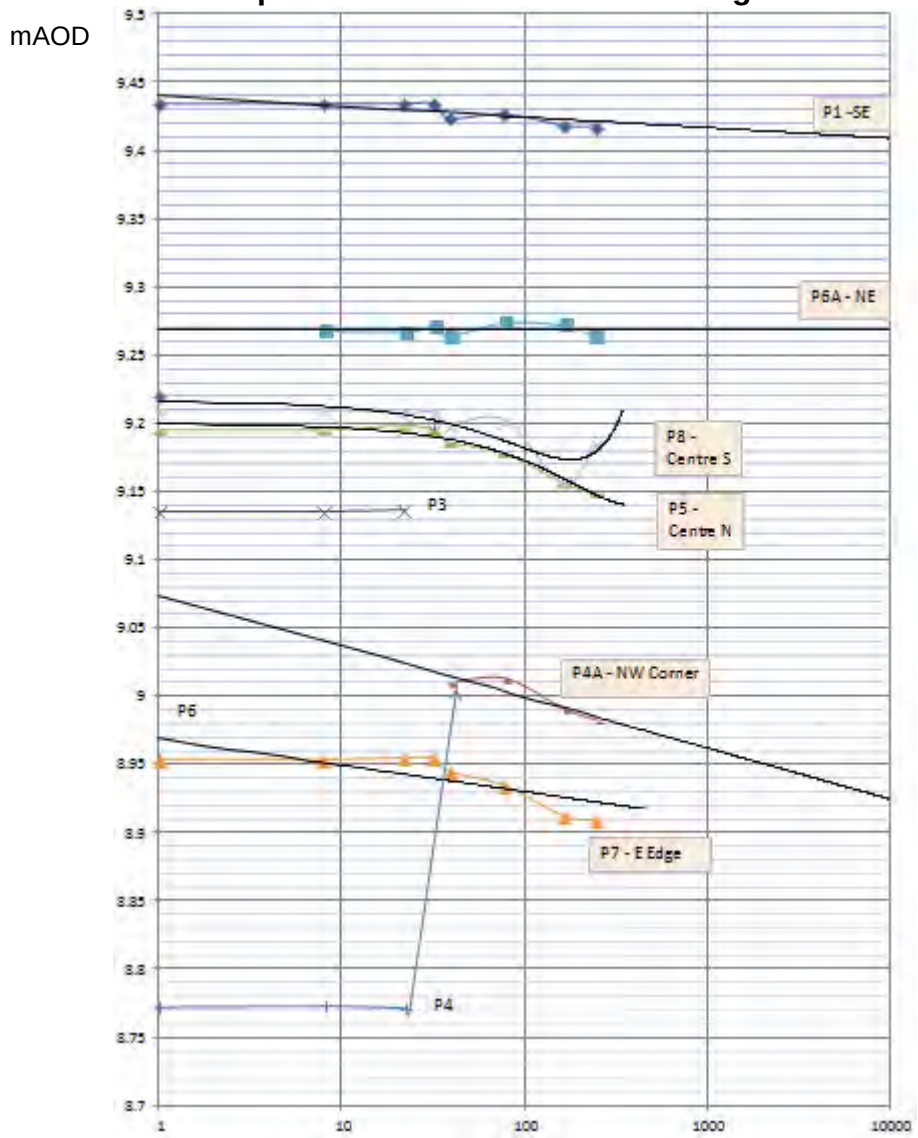
Following the current trend of settlement the above graph indicates at that levels may settle to 10.005mAOD after 10^4 days (~30years or 2045). With the last survey indicating levels of 10.043m a further 0.035m (35mm) should be anticipated under the current surcharge by 2045.

Settlement Monitoring (Continued)

Monitoring Pin 3

Unfortunately baseline conditions for Monitoring Pin 3 (located on the western edge of the site) were lost as the pin was destroyed following the placement of fill. Monitoring Pin 3A was similarly lost. It is considered that any attempt to assess future settlement from Monitoring Pin 3B would be open to too much error and inaccuracy to predict. It is however noted that having measured ~30mm settlement in 5 months that future settlement at this location may be greater than at Monitoring Pin 2A.

Graph 6.5 Settlement at Monitoring Pins



Days since 17/07/2015. (First survey of Settlement Pins) – Log base 10

* Note Original Pins of P4 and P6 were lost or damaged.

Monitoring Pin 1

Data for Monitoring Pin 1 (located near the South-eastern Corner of the site) is complete and to date indicates settlement of ~10mm over 8 months. Conjecturing future settlement from the data obtained indicates that levels may settle to 9.41mAOD after 10^4 days (~30years or 2045). With the last survey indicating levels of 9.42m a further 0.010m (10mm) should be anticipated under the current surcharge by 2045.

Settlement Monitoring (Continued)

Monitoring Pin 6

Unfortunately baseline conditions for Monitoring Pin 6 (located within the North-eastern corner of the site) were lost as the pin was destroyed. Monitoring Pin 6A has however recorded ~5mm of settlement over 7 months. Whilst the initial readings may be lost it may be possible to conjecture future settlement from the data obtained.

Following the current trend of settlement the above graph indicates at that levels may have settled at 9.27mAOD after 10^4 days (~30years or 2045). With the survey indicating fluctuating levels of 9.263m no further settlement is anticipated under the current surcharge by 2045.

Monitoring Pin 4

Unfortunately baseline conditions for Monitoring Pin 4 (located within the North-western corner of the site) were lost as the pin was destroyed. Monitoring Pin 4 recorded 1mm of settlement within a month before it was destroyed.

Like Monitoring Pin 3B it is considered that any attempt to assess future settlement from only 4 survey points at Monitoring Pin 4A would be open to too much error and inaccuracy to predict. It is however noted that following the current trend of settlement the graph indicates at that levels may settle to 8.920mAOD after 10^4 days (~30years or 2045). With the most recent survey indicating levels of 8.982mAOD a further 62mm settlement is anticipated under the current surcharge by 2045. However, this statement is based upon fewer readings.

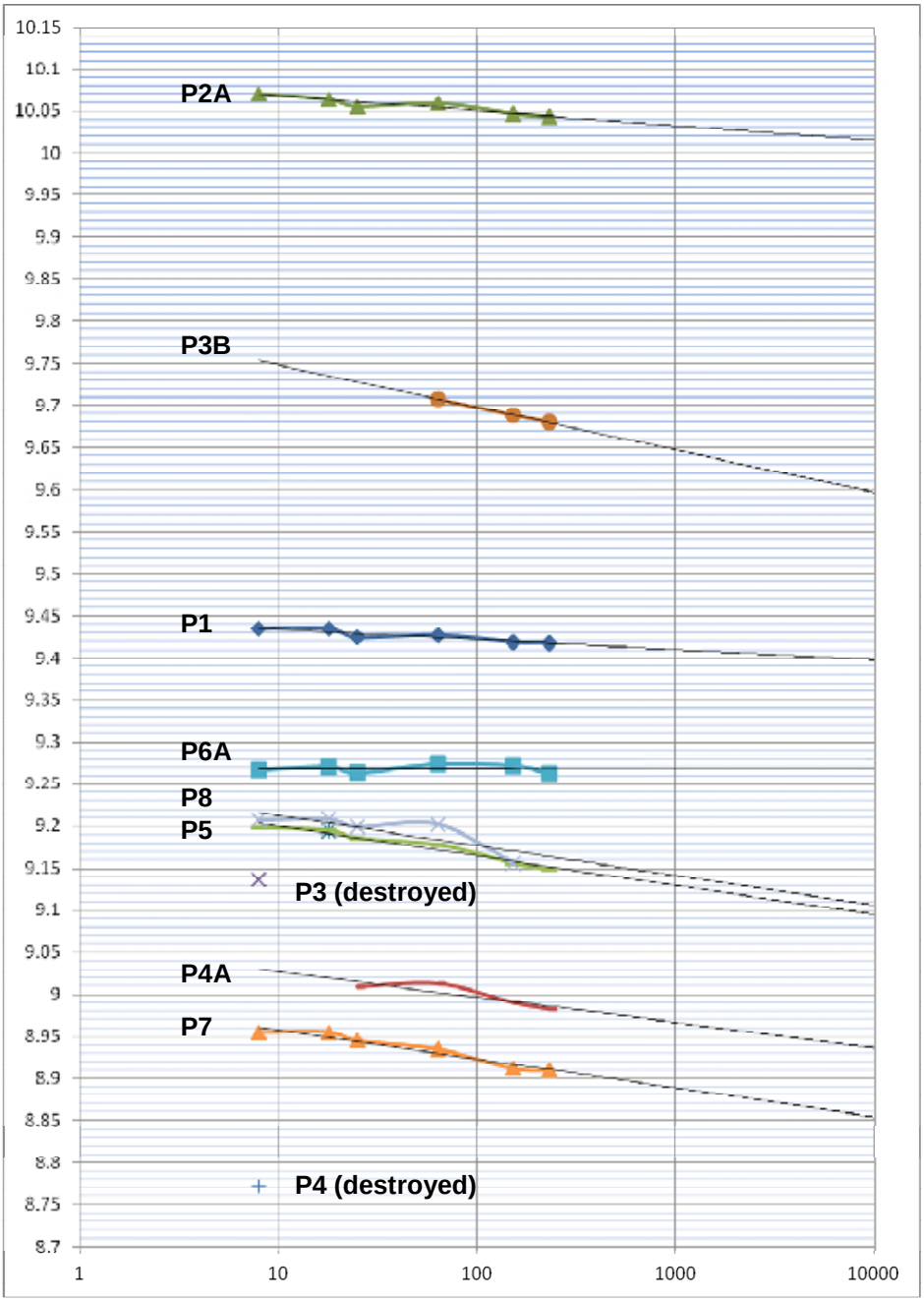
Monitoring Pin 5, Monitoring Pin 7 and Monitoring Pin 8

Data for Monitoring Pins 5, 7 and 8 do not appear to fit a logarithmic settlement curve suggesting that the start date may be out. No settlement was observed within the first two weeks. This could be a result of the earthworks taking longer than anticipated and the placement of fill in these areas being delayed. It has therefore been considered to discount the first two weeks of placement of the settlement pins since the correlation with a logarithmic settlement curve is closer.

Settlement Monitoring (Continued)

Data for Monitoring Pins 5, 7 and 8 do not appear to fit a logarithmic settlement curve as no settlement was observed within the first two weeks. This suggests that the start date may be out. Therefore Graph 3.6 shows settlement on a logarithmic scale starting on 31/7/2015, two weeks after the commencement of the earthworks. Settlement at Monitoring Pins 5 and 7 appear to be a closer fit as a result.

Graph 6.6 2 Week Adjusted fit of Logarithmic Settlement Curve due to Earthworks Delay



Days since 31/07/2015. (2 wks after first survey of Settlement Pins) – Log base 10

Settlement Monitoring (Continued)

Monitoring Pin 5,

Monitoring Pin 5 from the northern centre of the site follows a logarithmic settlement curve fairly closely. In an effort to predict settlement the existing trend, which may be inaccurate, indicate a possible settlement to ~9.1mAOD, a further ~50mm settlement from recent level.

Monitoring Pin 7

Monitoring Pin 7 from the eastern edge of the site follows a logarithmic settlement curve fairly closely. In an effort to predict settlement the existing trend, which may be inaccurate, indicate a possible settlement from ~8.91mAOD to ~8.85mAOD, a further ~60mm settlement from recent level.

Monitoring Pin 8

Monitoring Pin 8 from the southern centre of the site continues to deviate from a logarithmic settlement curve. It may be that the pin was damaged or that multiple phases of earthworks over an extended period mean that settlement cannot be traced from a single event. The most recent survey result indicates an increase in level, which suggests that the pin may be damaged and has been discounted from the estimate below.

In an effort to predict settlement the existing trend, which may be inaccurate, indicate a possible settlement to ~9.1mAOD, a further ~50mm settlement from recent level. It is noted however that the settlement prediction is comparable to Monitoring Pin 5 which is expected to be similar.

Settlement Monitoring (Continued)

Table 6.5 Summary of Predicted Settlements

Monitoring Pin	Initial Survey mAOD	Measured Settlement	Predicted Settlement after 10^4 days (2045)*		Predicted Settlement Remaining (2045)*
Monitoring Pin 1 (SE Corner)	9.435	-18mm (7 months)	- 25mm (approx)	9.410 mAOD	- 6mm (approx)
Monitoring Pin 2 (SW Corner)	10.069	Not Achieved	N/A		N/A
Monitoring Pin 2A (SW Corner)	10.071	-28mm (7 months)	-66mm (approx)	10.005 mAOD	- 38mm (approx)
Monitoring Pin 3 (W Edge)	N/A	+1mm (1 month)	N/A		N/A
Monitoring Pin 3A (W Edge)	9.195	Not Achieved	N/A		N/A
Monitoring Pin 3B (W Edge)	9.708	-28mm (5 months)	N/A		N/A
Monitoring Pin 4 (NW Corner)	8.772	-1mm (1 month)	N/A		N/A
Monitoring Pin 4A (NW Corner)	9.009	-27mm (7 months)	-89mm (v.approx)	8.920 mAOD	- 62mm (v. approx)
Monitoring Pin 5** (N Edge)	9.195	46mm (7 months)	-100mm (approx)	9.095 mAOD	- 54mm (approx)
Monitoring Pin 6 (NE Corner)	9.220	Not Achieved	N/A		N/A
Monitoring Pin 6A (NE Corner)	9.268	-5mm (7 months)	0mm (approx)	9.27 mAOD	0mm (approx)
Monitoring Pin 7** (E Edge)	8.954	44mm (7 months)	104mm (approx)	8.85 mAOD	- 60mm (approx)
Monitoring Pin 8** (Centre)	9.209	53mm (7 months)	99mm (v.approx)	9.11 mAOD	- 46mm (v.approx)

Assumptions:
Earthworks are instantiations with settlement beginning on Day 1.
Settlement is logarithmic

Known Inaccuracies:
Earthworks was not instantaneous and in reality took longer than anticipated
Earthworks has not occurred equally across the site, notably:

- Some areas have more fill placed than others.
- Additional fill has been placed during the settlement process sometimes months later through intermittent earthworks post supervision.

Notes:
Established base line levels filled green
* Assuming no further fill is placed
** Monitoring Pins 5, 7 and 8 do not conform with a logarithmic settlement curve. A better fit is achieved when the start date is set back 14 days. Estimates for Monitoring Pins therefore discount any settlement during the first two survey rounds.
N/A = Not achievable, insufficient baseline information.

SECTION 7 Groundwater and Reen Monitoring

Sampling and testing of the deep groundwater and reen water was scheduled to be carried out prior to earthworks, and two rounds following completion of the intended Riversee Limited fill works or no later than 6 months of earthworks commencement.

Six water monitoring wells were installed, BH1 to BH6, as illustrated in **Figure 7.1** below.

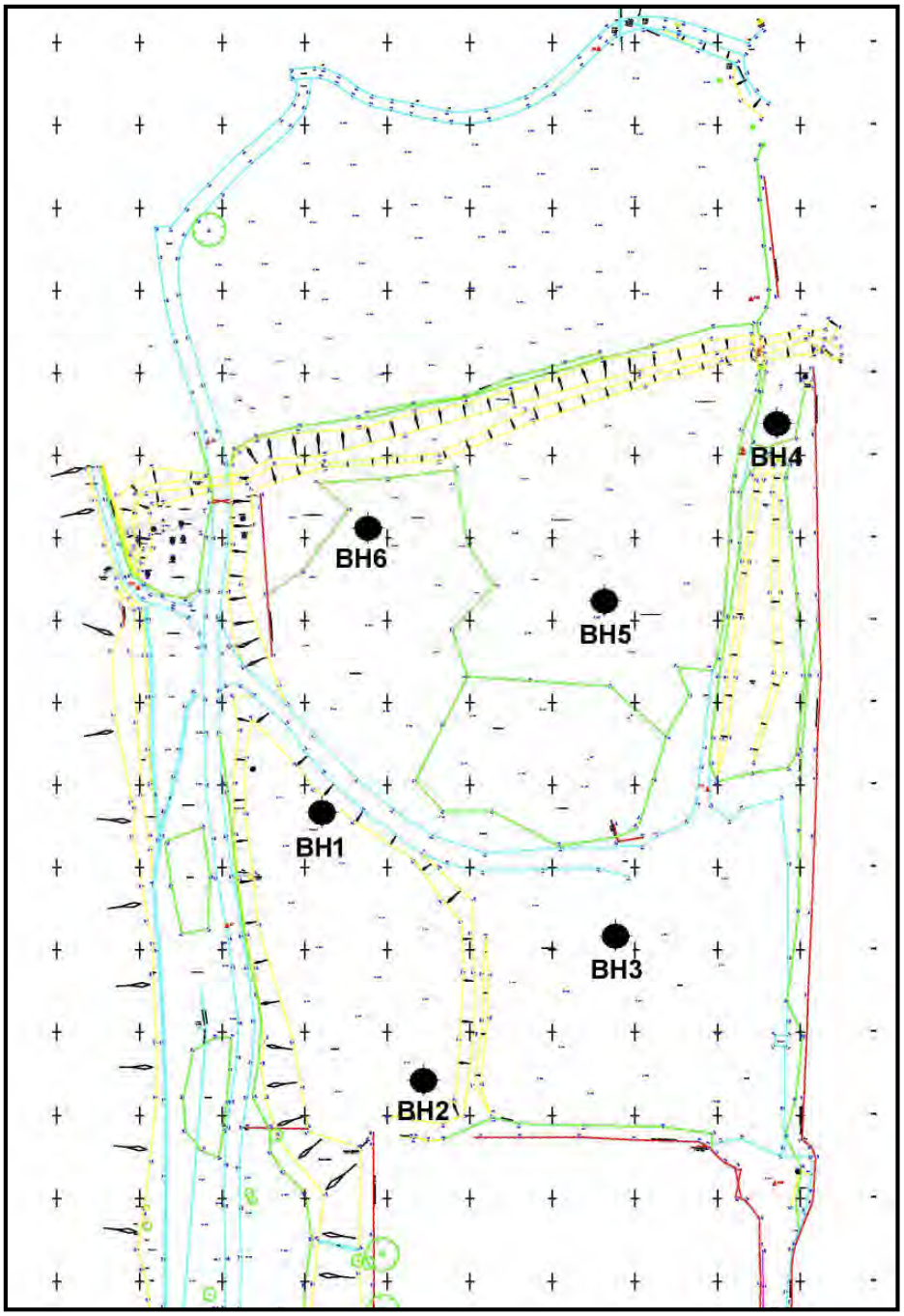


Figure 7.1: Water Monitoring Well Locations

Groundwater and Reen Monitoring (Continued)

The pre-earthworks monitoring round was carried out in July 2015.

The second monitoring round was undertaken in January 2016, and the third followed in February 2016.

All water results were acceptable, displaying no notable variation to the previously established water quality.

The results were presented to the NRW in Letter 25, dated 30th August 2016. A copy of this letter is presented in **Annex L**.

This letter proposed that no further groundwater monitoring was required.

The NRW subsequently agreed that this would be acceptable in an email dated 1st September 2016. A copy of this email may be found in **Annex M**.

Soils sourced from Green Lane and Hawes Lane were determined to have a low risk to the drainage reen. However, testing of reen waters during fill works and for 2 months after placement of this fill will be carried out.

SECTION 8 Engineering Recommendations

8.1 Foundation and Floor Slab Solution

Due to the presence of soft clay bands beneath the site traditional shallow foundations are not recommended. Such foundations are likely to lead to high total and differential settlements.

A piled foundation is advised for the proposed residential properties. Precast concrete driven piles founded within the underlying very weak red brown and grey mudstone are recommended. For a 275mm square precast concrete pile driven to an appropriate set within the underlying gravels a safe working load of typically 500kN should be achieved. Based upon the site investigation data, pile lengths should vary between 12m and 15m beneath original ground levels. Following placement of the fill piles lengths will be increase to approximately 14 and 17m below original ground levels.

The estimated working loads, pile type and lengths should be confirmed by a specialist piling contractor. It may be prudent to test drive piles at select locations. For the quoted pile size, founded within the competent gravels, total settlements should not exceed 10mm with differential movements between adjacent piles being less than half this value. Allowances should be made for re-driving piles should buried obstructions be encountered.

A trunk sewer passes beneath the site and the use of precast concrete piles is prohibited along its route. Due to these restrictions all new dwellings to be built along the sewer route are to be founded upon bored piles. The sewer lies at around 25m depth below ground level, within the underlying mudstone. These piles should be bored and installed as specified by the piling contractor.

Floor slabs should be designed as suspended.

Measurements should be kept on pile vibrations during driving. Measures should also be taken to dampen such vibrations. If, however, vibrations exceed permissible values then consideration should be given to using a contiguous flight auger (cfa)/bored pile solution.

Network Rail may also require a bored pile solution close to the railway.

8.2 Protection of Buried Concrete

Laboratory soil chemical analysis undertaken for the Geotechnical and Geo-environmental Report identified concentrations of total sulphate of between 200 and 2500 mg/kg and pH of between 8.2 and 11.8 pH units. Due to an elevated level of total sulphate in TP12 at 0.40m below ground level, sulphate aqueous extract was undertaken. A value of 160 mg/l was recorded.

Sulphate levels in the imported fill range between 400mg/kg and 4100mg/kg., at a pH of between 7.6 and 11.7. Leachate sulphate results ranged between 2mg/l and 51mg/l at a pH of between 6.5 and 10.7.

Based upon the above results we recommend that all buried concrete should conform to Design Class DS-1, ACEC Class AC-1, of BRE Digest 1:2005.

8.3 Compaction of Imported Fill

Fill materials should be placed at or close to, i.e. 95%, of their optimum moisture content/maximum dry density and compacted in layers as per the requirements of the the Department of Transport 'Specification for Highway Works, Series 600'.

Where combinations of different types or categories of plant are used, the depth of the layer should be for the type of plant requiring the least depth of layer, and the number of passes should be that for the type of plant requiring the greatest number of passes.

Earthmoving plants are not recommended for use as compaction plant, nor are lighter categories of plants used to provide preliminary compaction to assist the use of heavier plant.

Any deleterious material, such as timber and plastic, should be removed.

Any roots and tree roots should be excavated and removed.

The stability of excavations or fills should not be compromised by the location of stock piled materials or use of plant or location of temporary buildings/structures.

All earthworks must be kept free of water including arranging for the rapid removal of water, water shed onto the earthworks and water entering the earthworks from any source.

Fill materials especially cohesive (silt and clay) fill should not be deposited and compacted during wet weather, where an increase in moisture content will increase the liquid limit of the soil.

All exposed fill surfaces must be adequately weather proofed during inclement weather or at the end of the working day/compaction process. Any exposed cohesive fill that becomes wet and slurrified due to water ingress or weather erosion must be stripped off, spread into thin layers and aerated. The fill should then be re-compacted.

Plant movement across compaction layers should be restricted to that plant necessary for its deposition, spreading and compaction.

Fill areas should be constructed evenly over their full width and their fullest possible extent and the contractor should control and direct constructional plant and other traffic uniformly over them. Damage by construction plant should be made good with material having the same characteristics and strength as the material had before it was damaged.

Embankments and other areas of unsupported fills should not be constructed with steeper side slopes than the materials effective shear strength, with exception to allowing the adequate compaction at the edges before trimming back, within the minimum period necessary for the safety of the works.

Where fill is to be placed against a natural slope, or sloping earthworks face including embankments, cuttings and other fills and excavations, such faces should be appropriately benched immediately before placing the subsequent fill.

8.3 Compaction of Imported Fill (Continued)

In-situ plate bearing tests and/or density tests (sand replacement method) should be undertaken to ensure the compaction process is performing satisfactory during the enabling works. In-situ testing should be undertaken at an appropriate spacing to reflect the adequacy of the compaction process beneath the entire development area.

The earthworks should be supervised by a suitable engineer.

The tests should be conducted in accordance with BS 1377: Part 9: 1990 under the supervision of a qualified geotechnical engineer.

Should the in-situ testing indicated that the compaction process has been inadequate, the deposited material must be excavated out and re-laid.

Allowances should be made for the removal of soft spots and their replacement with imported suitable selected inert granular materials or suitable inert site won materials.

APPENDIX 4

STEVE MANNING (NCC) EMAIL (26/01/2021)

From: Manning, Steve (Senior Scientific Officer) <Steve.Manning@newport.gov.uk>
Sent: 26 January 2021 10:30
To: Roberts, Geraint (Principal Planning Officer) <GeraintN.Roberts@newport.gov.uk>
Cc: Hawkins, Grant (Senior Planning Officer) <Grant.Hawkins@newport.gov.uk>
Subject: 21/0048 - Land To South Of Glan Usk Primary School Herbert Road - Remedial Strategy Amendment.

Dear Geraint

I have looked at the submissions in respect of the above.

It is noted that soil acceptance criterions that are protective of human health have been specified for residential gardens and public open space (POS). The placing of a "deter to dig layer" below clean cover systems in residential and public open space environments is also noted.

The specification of the "deter to dig layer" in the POS should incorporate an additional tensar geogrid (or equivalent) anti dig layer to prevent animals digging through the proposed 300mm of clean cover in POS.

Details and samples of the "deter to dig" and anti-dig materials being used must be provided to the LPA prior to use, and all verification of these works must include extensive photographs and survey work showing emplacement.

Subject to the above considerations the proposed amendments to the remedial strategy are supported.

Kind Regards
Steve

Steve Manning MCIEH CEnvH
Senior Scientific Officer (Community & Environment)
Y Gyfraith a Rheoleiddio / Law & Regulation
Cyngor Dinas Casnewydd / Newport City Council
Civic Centre
Godfrey Road
Newport NP20 4UR
steve.manning@newport.gov.uk

APPENDIX 5

ALEX BOWDER (NRW) EMAIL (12/01/2021)

Andy Norman

From: Bowder, Alex <Alex.Bowder@cyfoethnaturiolcymru.gov.uk>
Sent: 12 January 2021 14:51
To: Andy Norman
Subject: RE: 18/0293 Herbert Road

Hi Andy,

I can confirm that, at this stage, we are happy with the principal of material reuse under DoW:CoP.

Please can you inform us if any plans chnage that could potentially affect the works in regard to material use/storage/drainage.

Kind regards,

Alex

Alex Bowder
Senior Environment Officer / Uwch Swyddog Amgylchedd
Waste Regulation Team – South East Wales
Natural Resources Wales / Cyfoeth Naturiol Cymru
Rivers House | St Mellons Business Park | Cardiff | CF3 0EY
Tel / Ffôn: 0300 065 3394 Mobile: 07775 502799

alex.bowder@naturalresourceswales.gov.uk / alex.bowder@cyfoethnaturiolcymru.gov.uk
Correspondence available in English and Welsh

From: Andy Norman <Andy.Norman@envirotreat.com>
Sent: 05 January 2021 17:15
To: Bowder, Alex <Alex.Bowder@cyfoethnaturiolcymru.gov.uk>
Cc: Gardner, Greg <greg.gardner@cyfoethnaturiolcymru.gov.uk>; Simon Farr <simon.farr@envirotreat.com>; David Slater <david.slater@envirotreat.com>; Neil Mcleod | Envirotreat <neil.mcleod@envirotreat.com>
Subject: RE: 18/0293 Herbert Road

Good afternoon Alex.

Please find attached our proposed remediation strategy amendment for the site. This is being formally submitted through the planning process by our client and thus NRW may be asked to comment via that route. However it appertains solely to human health risk as NRW have already confirmed that they are happy with the controlled waters risk from soils on site.

We are proposing an MMP across phase 3 only for reuse on the site of origin. It will cover materials that have not yet been excavated and thus will not be classified as waste upon point of excavation.

We are in the process of producing the materials management plan (MMP) and so it's not currently available. However, my enquiry was really just to satisfy the requirements of section 3.5 of DoW:CoP (i.e. that NRW are happy with the principal of material reuse under DoW:CoP), rather than review of the document itself. It will of course go via an independent QP to review and declare in the usual manner.

Kind regards

Andy Norman

APPENDIX 6

PLANNING DECISION NOTICE

Notice of Decision

REVISION 08 – 28/05/2020

Newport CITY COUNCIL
CYNGOR DINAS Casnewydd

E. Harding,
Asbri Planning Ltd.
Unit 9, Oak Tree Court, Cardiff Gate Business Park
Cardiff
CF23 8RS

TOWN AND COUNTRY PLANNING ACT 1990 [as amended]
TOWN AND COUNTRY PLANNING [ENVIRONMENTAL IMPACT ASSESSMENT](WALES) REGULATIONS 2017

Application No:	**18/0293**
Application Type:	**Full+Env Statement**
Proposal:	**DEVELOPMENT OF 195NO. RESIDENTIAL UNITS, INTERNAL ROAD NETWORKS, PARKING, LANDSCAPING AND ASSOCIATED WORKS AFFECTING PUBLIC RIGHT OF WAY 407/1**
Site/Location:	**Land To South Of Glan Usk Primary School, Herbert Road, Newport**
Decision Date:	**03-Oct-2018**

In pursuance of its powers under the above legislation the Council of the City of Newport notifies you of its decision in respect of your application, registered by them on 03-Apr-2018. The application has been:-

Granted with Conditions

STANDARD CONDITIONS

The development must begin not later than the expiration of **FIVE YEARS** from the date of this permission.
Reason: To conform with the requirements of Section 91 of the Town and Country Planning Act 1990.

ADDITIONAL CONDITIONS

1. The development shall be carried out in accordance with the following plans & documents:
   - Drawing A102732 P LA1 F – Landscape Layout
   - Drawing A102732 P LA2 F – Planting Details (1 of 7)
   - Drawing A102732 P LA3 F – Planting Details (2 of 7)
   - Drawing A102732 P LA4 F – Planting Details (3 of 7)
   - Drawing A102732 P LA5 F – Planting Details (4 of 7)
   - Drawing A102732 P LA6 F – Planting Details (5 of 7)
   - Drawing A102732 P LA7 F – Planting Details (6 of 7)
   - Drawing A102732 P LA8 F – Planting Details (7 of 7)
   - Drawing 1795 103 D – Engineering Layout
   - Drawing 3073(04)100 O – Site Layout
   - Drawing 3073(04)201 A – House Type A Ground Floor Plan
   - Drawing 3073(04)202 – House Type A First Floor Plan
   - Drawing 3073(04)211 – House Type B Ground Floor Plan
   - Drawing 3073(04)212 – House Type B First Floor Plans
   - Drawing 3073(04)221 – House Type C Floor Plan, Ground Floor Plan
   - Drawing 3073(04)222 – House Type C First Floor Plan
   - Drawing 3073(04)231 – House Type C&D Ground Floor Plan
   - Drawing 3073(04)232 B – House Type C&D First Floor Plan
   - Drawing 3073(04)241 – House Type E Floor Plans, Ground Floor Plan
   - Drawing 3073(04)242 – House Type E Floor Plans, First Floor Plan
   - Drawing 3073(04)261 – House Type G, Floor Plans, Ground Floor Plan
   - Drawing 3073(04)262 – House Type G Floor Plans, First Floor Plan
   - Drawing 3073(04)271 A – House Type H Floor Plans, Ground Floor Plan
   - Drawing 3073(04)272 A – House Type H Floor Plans, First Floor Plan
   - Drawing 3073(04)281 A – House Type I & J Floor Plans, Ground Floor Plan
   - Drawing 3073(04)282 – House Type I & J Floor Plans, First Floor Plan
   - Drawing 3073(04)291 – House Type K Floor Plans, Ground Floor Plan
   - Drawing 3073(04)292 – House Type K Floor Plans, First Floor Plan

- Drawing 3073(04)293 – House Type K Floor Plans, Second Floor Plan
- Drawing 3073(04)301 B – House Type A Elevations (Type 1)
- Drawing 3073(04)302 B – House Type A Elevations (Type 2)
- Drawing 3073(04)311 B – House Type B Elevations
- Drawing 3073(04)322 C – House Type B Elevations (Type 2)
- Drawing 3073(04)323 B – House Type C Elevations (Type 3)
- Drawing 3073(04)331 B – House Type C&D Elevations (Type 1)
- Drawing 3073(04)332 B – House Type C&D Elevations (Type 2)
- Drawing 3073(04)333 B – House Type C&D Elevations (Type 3)
- Drawing 3073(04)341 A – House Type E, Elevations
- Drawing 3073(04)342 A – House Type E, Elevations (Type 2)
- Drawing 3073(04)343B - House Type E Elevations (Type 3)
- Drawing 3073(04)344 B – House Type E Elevations (Type 4)
- Drawing 3073(04)361 A – House Type G, Elevations
- Drawing 3073(04)371 C – House Type H, Elevations
- Drawing 3073(04)381 C – House Type I & J Floor Plans, Elevations
- Drawing 3073(04)391 A – House Type K Elevations (Type 1)
- Drawing 3073(04)392 A – House Type K Elevations (Type 2)
- Drawing 3073(04)2200 – House Type L1 (Plots 1-36), Floor Plans, Ground and 1st Floor Plan
- Drawing 3073(04)2211 – House Type L1 Floor Plans, Ground Floor Plan
- Drawing 3073(04)2212 – House Type L1 Floor Plans, First Floor Plan
- Drawing 3073(04)2213 – House Type L1 Floor Plans, Second Floor Plan
- Drawing 3073(04)2201 – House Type L1 (Plots 1-36), Floor Plans, Second Floor Plan
- Drawing 3073(04)2311 A – House Type L1 Elevations (Type 1)
- Drawing 3073(04)2312 A – House Type L1 Elevations (Type 2)
- Drawing 3073(04)2321 A – House Type L1 (Plots 1-36), Elevations (Type 1)
- Drawing 3073(04)2322 A – House Type L1 (Plots 1-36), Elevations (Type 2)
- Drawing 3154 (90)204 A – Proposed Site Plan (5 of 6)
- Drawing 3154(90)205 A – Proposed Site Plan (6 of 6)
- Drawing 1155090 300 A – Reinforced Earth Details (60 Degrees)
- Drawing 1155090 301 A – Reinforced Earth Details (70 Degrees)
- Drawing 1155090 302 B – Gabion Basket Retained Boundary
- Drawing 1155090 303 C – Gabion Basket Retaining Sections
- Drawing 1155090 304 C – Gabion Basket Retaining Sections
- Drawing 1155090 305 – Gabion Basket & Reinforced Earth Bank Extents Plan
- Drawing 1155090 551 – Reen Setting Out
- Unnumbered Drawing – Retaining Walls Revision A (07.03.2017)
- Unnumbered Drawing – Construction Site Layout (14/03/2018)
- Wildlife Protection Plan (WPP) & Environment Management Plan (EMP)

Reason: to comply with Welsh Government Circular 016/2014, Paragraph 5.30.

19/0331 – Plans non-materially amended, 17/07/2019
19/0808 – Plans non-materially amended 19/09/2019

2. Pre-commencement Conditions

Imported Materials to raise the site
Prior to import to site, soil material or aggregate used as clean fill or capping material, shall be chemically tested to demonstrate that it meets the relevant screening requirements for the proposed end use. This information shall be submitted to and approved in writing by the Local Authority before that material is imported to the site. No other fill material shall be imported onto the site.
Reason: To ensure that any potential risks to human health or the wider environment including controlled waters which may arise as a result of potential land contamination are satisfactorily addressed.

3. Pre-construction conditions

Surface Water Drainage
Prior to the construction of Plots 1-36 details of the surface water drainage for those Plots and any associated roadways and car parking shall be provided in writing to the Council. Following the Council's written agreement the surface water arrangements shall be provided as agreed when the relevant part of the development is constructed.
Reason: to ensure this part of the site is appropriately drained, to reduce the risk of surface water flooding offsite and to protect the conservation objectives of the River Usk SAC.
19/0001 – Partial Discharge approved on 21/02/2019 by Newport City Council.

4. Details of bin stores
Prior to the construction of any bin store or cycle store as shown in Drawing 3073 (04) 100 N full details of those stores shall be submitted to the local planning authority. Following the Local Planning Authorty's written agreement the store shall be provided fully as agreed prior to the occupation of any unit served by that store.
Reason: in the interests of residential amenity & sustainability and to ensure the bin stores have sufficient capacity.
19/0423 – Partial Discharge approved on 07/08/2019 by Newport City Council.

5. Treatment of run-off for hydro-carbons
Surface water drainage from roads, parking areas and any other surfaced areas where motor vehicles park or transit shall be passed through a mechanism to remove hydrocarbons prior to being discharged to any surface waters. The design and capacity of the means to remove hydrocarbons shall be submitted to the Council in writing. Following the Council's written agreement the agreed mechanism shall be fully installed at the time the area it serves is constructed and it shall be retained thereafter.
Reason: to protect surface waters and the River Usk SAC from hydrocarbon pollution.
19/0196 – Partial Discharge approved on 14/08/2019 by Newport City Council.

6. Piling & Risks to Ground Waters
Piling or any other foundation designs using penetrative methods below 1m in depth shall not be permitted other than with the express written consent of the Local Planning Authority, which may be given for those parts of the site where it has been demonstrated that there

is no resultant unacceptable risk to groundwater.
Reason: There is an increased potential for pollution of ground waters from inappropriate methods of piling.
19/0002 – Partial Discharge approved on 14/02/2019 by Newport City Council.

7. Window reveals
No window shall be installed in any block of flats approved under this consent until details of a window reveal have been provided in writing to the Council. Following the Council's written agreement the windows shall be installed as agreed.
Reason: to break up facades in the interests of good design and visual amenity.
19/0196 – Partial Discharge approved on 14/08/2019 by Newport City Council.

8. Parking Courts
Notwithstanding submitted details, no parking court accessed via an underpass shall be completed until details of finishing materials, landscaping, boundary treatments and lighting have been submitted to and agreed in writing by the Council. The courts shall be completed as agreed prior to their first use.
Reason: to ensure that these are high quality spaces that provide a safe and attractive environment to users.

9. Alternative Boundary Treatment
Notwithstanding the submitted details, details of an alternative rear boundary treatment for Plots 144-149 & Plots 161-166 shall be provided in writing to the Council. Following the Council's written agreement the boundary shall be installed fully as agreed prior to the first occupation of those Plots.
Reason: to ensure the provision of a high quality boundary in a prominent and publically accessible location.
19/0423 – Partial Discharge approved on 07/08/2019 by Newport City Council.

10. Lighting
Full details of lighting shall be provided for adopted roads & footways / cycleways, unadopted roads & footways / cycleways and other areas of public access including car parks, parking courts and areas of public open space to the Council in writing. Following the Council's written agreement the lighting shall be provided as agreed prior to the first beneficial use of the areas to be lit. Any lighting scheme submitted shall have regard to maintaining dark corridors along the river bank. No lighting other than as agreed shall be installed in these areas.
Reason: to protect residential amenity, public safety and ecological interests including the conservation objectives of the River Usk SAC.
19/0196 – Partial Discharge approved on 14/08/2019 by Newport City Council.

11. Pre-occupation Conditions

Acoustic fencing
Prior to the occupation of any dwelling backing onto the railway or the adjacent industrial land; full details of an acoustic fence including its location, height, density, means of construction, materials and finish (colour & texture) shall be provided in writing to the Council. Following the Council's written agreement the fence shall be provided as agreed before the occupation of any of the Plots described above.
Reason: to protect the outdoor and indoor amenity of the occupiers of those Plots and to accord with the assumptions of the submitted Environmental Statement in relation to noise mitigation.
19/0423 – Partial Discharge approved on 07/08/2019 by Newport City Council.

12. Details of glazing & ventilation
Prior to the occupation of any dwelling backing onto the railway or the adjacent industrial land; full details of the glazing specification and trickle vents for the windows of those dwellings shall be provided in writing to the Council. The details shall show that internal noise can be mitigated to the Target Criteria specified in Table 0-12 'Indicative Façade Sound Insulation Performance for Glazing Elements' of Chapter 13 of the submitted Environmental Statement. Where that level of mitigation cannot be achieved with open windows details of an alternative means to ventilate affected rooms shall be provided. Following the Council's written agreement the glazing, trickle vents and alternative means of ventilation (as required) shall be installed as approved prior to the occupation of those plots.
Reason: to protect the amenity of future occupiers.

13. Provision of Drainage
No dwelling shall be occupied until the means to drain foul and surface water from that dwelling have been provided.

14. Roads Completion
The approved roads / cycleways / footways shall be built in accordance with construction details, including drainage details that have been submitted to and approved in writing by the local planning authority. The roads / cycleways / footways shall be provided minimally to base course level prior to the occupation of the dwelling they serve and shall be fully completed within 3 months of the completion of the last dwelling within the relevant phase.
Reason: in the interests of highway and pedestrian safety and wider residential amenity.

15. Parking
Arrangements for vehicle parking shall be provided as approved prior to the occupation of any part of the scheme to which those parking arrangements relate and they shall be retained thereafter.
Reason: to ensure there is sufficient parking in the interests of residential amenity and highway safety.

16. Remediation Verification
Prior to occupation of any part of the approved development, a verification report demonstrating completion of the works set out in the remediation strategy submitted under discharge of condition approval 17/0082 (or any other strategy that may be subsequently agreed) and the effectiveness of the remediation for that part of the site shall be submitted to and approved, in writing, by the Local Planning Authority. The report shall include results of sampling and monitoring carried out in accordance with the approved verification plan to demonstrate that the site remediation criteria have been met. It shall also include any plan (a "long-term monitoring and maintenance plan") for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action, as identified in the verification plan, and for the reporting of this to the Local Planning Authority.
Reason: In order to demonstrate that the remediation criteria relating to controlled waters and human health have been met. In order to (if necessary) secure longer-term monitoring of groundwater quality. This will ensure that there are no longer remaining unacceptable risks to controlled waters or human health following remediation of the site.

17. Details of Brick Boundary Walls
Details of the proposed brick wall boundary treatments shall be provided in writing to the Council. Following the Council's written agreement the walls shall be provided as agreed prior to the occupation of any relevant plot.

Reason: in the interests of visual & residential amenity and safety & security.
19/0423 – Partial Discharge approved on 07/08/2019 by Newport City Council.

18. Open Space Management
No building shall be occupied in the approved scheme in relation to each phase as defined by Condition 30 until a management strategy for the maintenance of all areas of formal and informal open space for that phase, not subject to adoption by the local authority, has been submitted to and approved in writing by the local planning authority. The strategy shall include details of any management company proposed and its terms of reference. The management strategy for each phase shall be implemented in accordance with the approved details for that phase for a period of 5 years following the completion of the last dwelling on that phase.
Reason: to ensure that areas of open space are maintained until fully established in the interests of residential and visual amenity.
19/0937 – Partial discharge approved on 05/12/2019.

19. Other conditions requiring the submission of information

Unforeseen Contamination
If, during development, contamination not previously identified is found to be present at the site then no further development shall be carried out in the contaminated area(s) until the developer has submitted, and obtained written approval from the Local Planning Authority for, an amendment to the remediation strategy detailing how this unsuspected contamination shall be dealt with.
Reason: Given the size/complexity of the site it is considered possible that there may be unidentified areas of contamination at the site that could pose a risk to controlled waters if they are not remediated.

20. Surface Water Infiltration
Notwithstanding the details shown in Drawing 1795 103 B (Engineering Layout) no infiltration of surface water drainage into the ground is permitted other than with the express written consent of the Local Planning Authority, which may be given for those parts of the site where it has been demonstrated that there is no resultant unacceptable risk to controlled waters. The development shall be carried out in accordance with any details that may be submitted.
Reason: The water environment is at risk and there is an increased potential for pollution from inappropriately located infiltration systems such as soakaways, unsealed porous pavement systems or infiltration basins.

21. Shad & Lamprey Migration
No works within the River (below the top of the river bank) or associated with piling anywhere on the site shall be undertaken during the period from 1 March to 30 June unless the applicant has provided a method statement showing these activities will not cause unacceptable levels of noise or vibration and that Method Statement has been agreed in writing by the Council. Thereafter the works shall be carried out fully in accordance with the Method Statement.
Reason: To avoid disturbance during the main Shad and Lamprey spawning and migration period in the interests of protecting the integrity of the River Usk SAC and its conservation objectives.

22. Privacy screening
The two central balconies in the Flat L1 'terraced blocks' comprising Plots 01-36 shall not be used until details of a means to provide privacy screening between those balconies has been provided to the Council in writing. Following the Council's written agreement the privacy screening shall be installed as agreed prior to the use of those central balconies.
Reason: to protect the privacy of adjoining occupiers.
19/0937 – Partial discharge approved on 05/12/2019.

23. Requirement to remediate the site
Prior to occupation the site shall be decontaminated / remediated in accordance with the details submitted under discharge of condition approval 17/0082 or in accordance with any other scheme that satisfies the requirements of condition 03 of permission 13/1279 as may be submitted to and agreed in writing by the Council.
Reason: to ensure the site is appropriately remediated in the interests of protecting controlled waters, human health and the conservation objectives of the River Usk SAC.

24. Directive Conditions

Migratory Fish
No works in-river (below the top of the river bank) shall be undertaken other than January – February and July-August inclusive without the prior written approval of the LPA.
Reason: to avoid adverse impacts on migrating fish species including the Atlantic salmon and to protect the wider interests of the River Usk SAC and its conservation objectives.

25. Hydrocarbon Storage
Any facilities for the storage of oils, fuels and chemicals shall be sited on impervious bases and surrounded by impervious bund walls. The volume of the bunded compound shall be at least equivalent to the capacity of the tank plus 10%. If there are multiple tanks the compound shall be at least equivalent to the capacity of the largest tank or the combined capacity of inter-connected tanks plus 10%. All filling points, vents, gauges and sight glasses must be located within the bund. The drainage system of the bund shall be sealed with no discharge to any watercourse, land or underground strata. Associated pipework shall be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets shall be detailed to discharge downwards into the bund.
Reason: to prevent pollution of the water environment.

26. Otter migration
No work of excavation, land raising or construction shall take place within 10 metres of the top of the riverbank between one hour prior to sunset and one hour after sunrise.
Reason: To ensure no disturbance is caused to otters migrating up or down the river.

27. External Materials - Dwellings
The dwellings hereby approved shall be completed using the materials as specified or other materials closely similar in size, colour and texture.
Reason: to ensure the dwellings are built from appropriate materials in the interest of visual amenity.

28. Delivery Route
Notwithstanding the submitted information relating to deliveries only large indivisible loads that cannot pass below the Turner Street railway bridge shall be delivered via East Usk Road. All other loads shall be delivered via Turner Street unless that route is unavailable due to closure. No deliveries shall take place outside of the hours of 08:00 to 18:00.

Reason: in the interests of wider residential amenity.

29. Hard Surfacing
Hard surfaces shall be provided as per drawing 3073 (04) 100 N – Site Layout other than as amended by information provided to discharge other conditions of this permission.
Reason: to ensure the development is completed using appropriate materials.

30. Phasing Plan
The development shall proceed in accordance with the phasing shown in unnumbered drawing 'Construction Site Layout' (Revision 14.03.2018).
Reason: so the development proceeds in an orderly way.

31. Landscaping
The Planting shown in:
Drawing A102732 P LA1 F – Landscape Layout and
Drawing A102732 P LA2 F – Planting Details 1 of 7
Drawing A102732 P LA3 F – Planting Details 2 of 7
Drawing A102732 P LA4 F – Planting Details 3 of 7
Drawing A102732 P LA5 F – Planting Details 4 of 7
Drawing A102732 P LA6 F – Planting Details 5 of 7
Drawing A102732 P LA7 F – Planting Details 6 of 7
Drawing A102732 P LA8 F – Planting Details 7 of 7
Shall be provided within the next full planting season (September to March inclusive) after the completion of the last dwelling on the phase to which it relates. Thereafter the planting shall be maintained for a period of 5 years from its implementation and any dead or dying plants shall be replaced with new plants of the same type and size during that time period.
Reason: to ensure the site is appropriately planted.

32. Land raising
The site north of Lottery's Reen shall be raised to 10.4m AOD and buildings in that area shall have a finished floor level of 10.4m AOD. The site to the south of Lottery's Reen shall be raised to 9.95m AOD and buildings in that area shall have a finished floor level of 9.95m AOD.
Reason: to mitigate the risk of flooding and to comply with the advice of Paragraph 4.26 of the submitted Flood Consequences Assessment.

33. Travel Plan
The requirements of the submitted Travel Plan (March 2018) shall be implemented as described from the first occupation of the site and maintained so far as relevant for a period of 3 years following the occupation of the last dwelling to be completed on the site.
Reason: to encourage the use of sustainable forms of transport in the interests of overall sustainability and reducing air pollution in the Caerleon Road AQMA.

34. Ecological Mitigation
The ecological avoidance, mitigation & compensation and the habitat management described in the Wildlife Protection Plan and the Environmental Management Plan (EMP) shall be carried out as described as the relevant phases of the scheme are completed. The EMP shall be carried out as described and the proposed management shall be carried out until 10 years after the last dwelling is completed. Where measures in the Wildlife Protection Plan are contradicted by other conditions applied to this permission the other conditions shall take precedence.
Reason: to protect the conservation objectives of the River Usk SAC during the construction phase, to provide compensatory and mitigatory habitats for those that have been lost and to ensure the new habitats are maintained until established.

35. Provision of boundaries prior to occupation
Boundary treatments shall be provided as approved (or in accordance with any relevant conditional discharge) prior to the occupation of the dwellings which they serve or within 3 months of the completion of the phase where they are located if they do not serve a dwelling.
Reason: in the interests of visual and residential amenity.

36. Surface Water Drainage
The Surface water drainage mechanism shown in Drawing 1795 /103B – Engineering Layout shall be installed as shown. The drainage shall be provided at the time the associated roads are constructed.
Reason: to ensure surface water drainage on the site is provided and to reduce the risk of exacerbating surface water flooding off the site.

37. Standard condition:
Prior to the commencement of the development hereby approved a notice shall be given to the local planning authority.
(a) stating the date on which the development is to begin;
(b) giving details of the planning permission and of such other matters as is required by Schedule 5A to the Town and Country Planning (Development Management Procedure) (Wales) Order 2012 as amended ("the Order").
Reason: To comply with the requirements of Section 71ZB of the Town and Country Planning Act 1990 as amended by Section 34 of the Planning (Wales) Act 2015.
19/0001 – Discharge approved on 21/02/2019 by Newport City Council.

38. Electric Vehicle Charging Points
A scheme allowing for the provision of a charging point for electric vehicles for each dwelling hereby approved shall be submitted in writing to the Council. Following the Council's written agreement the scheme shall be implemented as agreed prior to the occupation of the dwelling to which the charging point relates. Where parking and the dwelling are divorced from one another the scheme shall make provision at the relevant parking point. In the event the provision of charging points is not technically feasible the scheme shall demonstrate this.
Reason: in the interest of general sustainability and to reduce the impact of the proposal on the Caerleon Road Air Quality Management Area which will be directly affected by this proposal.
20/0060 – Partial Discharge Approved on 28/05/2020 by Newport City Council

39. CEMP
All works shall be carried out in accordance with submitted Construction Environmental Management Plan, Herbert Road, Newport (March 2018) unless directly contradicted by other conditions attached to this permission in which case the other conditions shall take precedence.

Reason: to protect neighbouring amenity and the interests of the River Usk SAC.

NOTE TO APPLICANT

1. The development should be carried out fully in accordance with the proposals shown in the application and in the plans and particulars accompanying such application as varied and amended by this permission.

2. This decision notice is issued in respect of Planning Permission only and does not convey any decision which may be required under any other legislation or provisions, such as the Building Regulations. For advice on the requirements of the Building Regulations and allied legislation, and/or whether there is a need for a Building Regulations submission, please contact the Council's Building Control Section on 01633 656656 or email building.control@newport.gov.uk.

3. This decision relates to the following documents in relation to those contained in Condition 01:
   - Drawing 1795 002-1 – Refuse Vehicle Tracking (1 of 2)
   - Drawing 1795 002-2 – Refuse Vehicle Tracking (2 of 2)
   - Proposed Piling Strategy for Residential Development, Herbert road, Newport (19 March 2018)
   - Drawing 3154(90)208 – Proposed Site Sections
   - Drawing 3073(04)001 B – Site Location
   - Design & Access Statement (August 2018)
   - Environmental Statement, Volumes 1-3 & Appendices
   - Addendum to Environmental statement (July 2018)
   - Surface Water Calculations; Reen Sizing (1155090 – Reen, Rev. A)
   - Acoustic Fencing (PCD 12)
   - Construction Environment Management Plan (March 2018)
   - Delivery Plan (March 2018)
   - Travel Plan (March 2018)
   - Proposed Materials Schedule (MaterialsV1/HR)
   - Otter Mitigation Strategy (March 2017)
   - PAC Report & Appendices (March 2018)
   - Proposed Piling Strategy March 2018 (1155090-SM-01 Rev 01)
   - Planning Statement (March 2018)
   - Photograph of Stone Sample (Gabion Basket Fill)
   - Swept-Path analysis of several construction Vehicles, Travelling from Caerleon Rd (B4596) to the site access, Herbert Road, Newport (March 2018)
   - Transport Statement (March 2018)
   - Supplementary Piling Note (01 August 2018)

4. The development plan for Newport is the Newport Local Development Plan 2011 – 2026 (adopted January 2015). Policies SP1, SP2, SP3, SP4, SP8, SP9, SP10, SP13, SP15, SP18, GP1, GP2, GP3, GP4, GP5, GP6, GP7, CE3, CE9, H1, CF2 & CF4 were relevant to the determination of this application.

5. Adopted Supplementary Planning Guidance for Planning Obligations, Affordable Housing, Wildlife and Development, New Dwellings and Parking Standards were relevant to the determination of this application.

6. This permission is subject to a legal agreement under section 106 of the Town and Country Planning Act 1990.
7. The application was accompanied by an Environmental Statement.

8. Network Rail need to be consulted on any alterations to ground levels. No excavations should be carried out near to railway embankments, retaining walls or bridges.

9. A programme of Knotweed eradication should be carried out on in order to ensure a nuisance plant is controlled. The plans have been assessed on the basis of the scale or dimensions stipulated and any statement of 'do not scale' (or similar) has been disregarded.

10. The plans have been assessed on the basis of the scale or dimensions stipulated and any statement of 'do not scale' (or similar) has been disregarded.

11. Where there are conditions which require details to be approved prior to the commencement of development, failure to submit these details prior to commencement of development may result in the permission being invalidated.

12. The Local Planning Authority has a target to determine Discharge of Condition applications within 8 weeks of receipt of the details, and so you are advised to programme any work accordingly.

13. Any person carrying out the development to which this planning permission relates must display at or near the place where the development is being carried out, at all times when it is being carried out, a copy of any notice of the decision to grant it, in accordance with Schedule 5B to the Town and Country Planning (Development Management Procedure) (Wales) Order 2012 as amended and Section 71ZB of the Town and Country Planning Act 1990 as amended by Section 34 of the Planning (Wales) Act 2015.

Signed on behalf of the Council

Keir Duffin
Head of Regeneration, Investment and Housing / Pennaeth Adfywio Buddsoddi a Thai
Cyngor Dinas Casnewydd / Newport City Council

Newport City Council
Regeneration, Investment and Housing
Civic Centre
NEWPORT
South Wales
NP20 4UR

Application Number: 18/0293 **Decision Date: 03-Oct-2018**

IMPORTANT! PLEASE READ THE NOTES ON THE REVERSE OF THIS FORM

Notes for Applicants

TOWN AND COUNTRY PLANNING ACT 1990

Appeals to the Welsh Government

If you are aggrieved by the decision of your Local Planning Authority to refuse an application or to grant it subject to conditions, you can appeal to the Welsh Government under Section 78 of the Town and Country Planning Act 1990 (as amended).

If you want to appeal against your local planning authority's decision then you must do so within 6 months of the date of this notice. However, if you are appealing against a decision relating to a householder or minor commercial development the time limit for lodging the appeal is 12 weeks.

Appeals must be made using a form which you can get from the Welsh Government, Planning Inspectorate at Crown Buildings, Cathays Park, Cardiff CF10 3NQ, or online at www.planningportal.gov.uk/pcs

The Welsh Government can allow a longer period for giving notice of an appeal but will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.

The Welsh Government will not consider an appeal if its seems that the Local Planning Authority could not have granted permission for the proposed development or could not have granted it without the condition they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.

In practice, the Welsh Government does not refuse to consider appeals solely because the Local Planning Authority based its decision on a direction given by them.

The Choice of Appeal Procedure

The appeal procedures available are:

a) by written representations which you and the Local Planning Authority make, normally followed by an unaccompanied site inspection

b) by Hearing, when both parties make oral representations to an Inspector appointed by the Welsh Government. A Hearing is conducted on a less formal basis than a Public Inquiry.

c) by Public Inquiry which takes the form of a formal hearing by an Inspector appointed by the Welsh Government.

Purchase Notices

If either the Local Planning Authority or the Welsh Government refused planning permission or listed building consent or grants it subject to conditions, the owner may claim that he can neither put the land to a reasonably beneficial use in its existing state nor can he render the land capable of a reasonably beneficial by the carrying out of any development which has been or would be permitted.

In these circumstances, the owner may serve a purchase notice on the local planning authority in whose area the land is situated.

This Notice will require the Council to purchase the owner's interest in the land in accordance with PartVl of the Town an Country Planning Act 1990.(The Local Planning Authority may accept the notice and proceed to acquire the land; or reject the notice in which case they must refer the notice to the Welsh Government.)

IMPORTANT -This Decision Notice affects your property and should be placed with the title Deeds of the Property

APPENDIX 7

CUT/ FILL SUMMARY

Herbert Road: Cut/ Fill requirements (Phase 3)

Current Design Levels

(Note: External levels fluctuate slightly depending on localised constraints)

South of the Reen:

Piling mat set at 9.20m

DPC Level 9.8

FFL 9.95

North of the Reen:

Piling mat set at 9.65m

DPC Level 10.25

FFL 10.40

Total cut: 3500m3

Fill Areas/ Volumes

Private highways

Private footpath Make up: 200mm – 9.80 = 9.60 Requirement to fill 400mm

Private drive Make up: 220mm – 9.80 = 9.58 Requirement to fill 380mm

Shared drive make up: 345mm – 9.80 = 9.455 Requirement to fill 255mm

Note : All based on 5% CBR and a generic 9.80 DPC level taken

Private footpath Make up: 200mm – 10.25 = 10.05. Requirement to fill 400mm

Private drive Make up: 220mm – 10.25 = 10.03. Requirement to fill 380mm

Shared drive make up: 345mm – 10.25 = 9.905. Requirement to fill 255mm

Note : All based on 5% CBR and a generic 10.25 DPC level taken

Total fill under Private drives 570m3

Total fill under Shared drive 422m3

Private Footpaths not included due to scaffold margins

Landscape areas: 300mm of clean soils to take levels to 9.80 / 10.25 and a similar approach was taken on the adopted highway subject to cross falls and cambers.

House Types – Plot make-up

The standard foundation design provided by Van-Elle shows the cap flush with piling mat but our pile cap needs to project by 120mm before landing the 400mm deep beams then the Cemex 155mm beams + 75 structural topping (9.95/10.40 FFL). Under NHBC standards with Low Volume change require a min void of 200mm is to be created.

House Type	Number	M3 fill per plot	Total m3
C/D	5	14.07	70.36
E/E	7	14.89	104.2
A/A	1	14.68	14.68
C/C	4	12.68	50.71
E/H/E	2	24.73	49.46
A/B/B/A/H	2	46.56	93.13
A/B/B/A	1	34.81	34.82
H/A/A	1	26.21	26.21
L1	3	21.60	64.79
D/G/I/J/D	2	42.92	85.84
Total			**594.20**

House Types Flat over Garage

Cemex design shows 155mm beams with no insulation beneath the underside of beam leaving a clear void of 520mm. NHBC standards with Low Volume change require a min void of 200mm.

Total fill: 2210m3

Net: Surplus 1290m3.

Raising Existing Levels Locally

Location	Volume
Under Slabs (Further to above)	88.29
Gardens	256.5
Driveways	182.81
Roads	97.2
Total	**624.80**

APPENDIX 8

SOIL TRACKING PROFORMA

Site			**Contractor**	
Date	**Origin (site area/ stockpile number)**	**Classification (suitable/ unsuitable)**	**Destination (stockpile/ site area)**	**Est volume (t/ m3)**