ATKINS
The official engineering design services provider for the London 2012 Games

London 2012 Olympic Park

Follow-on Project (Stage 2) Consolidated Validation Report – Planning Delivery Zone 1

December 2012

Notice

This document and its contents have been prepared and are intended solely for the Olympic Delivery Authority (ODA)'s information and use in relation to summarising the ODA Follow-on Project remediation and validation works within Planning Delivery Zone 1 on the London 2012 Olympic Park site.

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Document History

JOB NUMBER: 5094113			DOCUMENT REF: REP-ATK-PM-01Z-ZZZ-ZZZ-Z-0001			
3	Final following PPDT comments 07/12/2012	[redacted]	[redacted]	[redacted]	[redacted]	December 2012
2	Final following PDT comments	[redacted]	[redacted]	[redacted]	[redacted]	October 2012
1	Final	[redacted]	[redacted]	[redacted]	[redacted]	August 2012
0	Draft for comment	[redacted]	[redacted]	[redacted]	[redacted]	February 2012
Revision	Purpose Description	Originated	Checked	Reviewed	Authorised	Date

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PART III

1. Introduction

1.1 Scope

The aim of this Stage 2 Consolidated Validation Report (CVR) is to provide a high level summary of the approved Follow-on Project (FoP) remediation related documentation pertaining to Planning Delivery Zone 1 (PDZ1) of the London 2012 Olympic Park, London. These remediation works were completed as part of the Olympic Delivery Authority (ODA) redevelopment of the Olympic Park. This FoP (Stage 2) CVR provides a summary of the FoP earthworks, which have been completed following on from creation of the site platform by the Enabling Works project. The Enabling Works validation scope has been reported separately within the Enabling Works (Stage 1) CVR (Ref. 1). The Enabling Works (Stage 1) and FoP (Stage 2) CVRs, form the complete consolidated validation reporting for ODA works within PDZ1.

This FoP (Stage 2) CVR is produced on the basis that the individual FoP remediation and validation reports have previously been approved by the Local Planning Authority (London Legacy Development Corporation Planning Policy and Decisions Team (PPDT) formerly the ODA Planning Decisions Team (PDT)). Therefore, this report does not reproduce or re-evaluate any of the detailed testing, results, or assessments that have been previously reported and are contained therein. This document provides a summary of existing FoP validation information: no new information is presented herein.

This document has been prepared to discharge the ODA's obligation under Condition OD.0.36 ('Protection and Validation of Remediation') of the 2007 Olympic, Paralympic and Legacy Transformation Planning Applications: Facilities and Their Legacy Transformation Planning Application (Ref. 2) as well as a number of related Slot-In validation Planning Conditions, as outlined in Section 1.3 below.

1.2 Report Objectives

As the focus of the CVRs is to discharge the relevant Planning Conditions associated with validation reporting on the Olympic Park, the CVRs are to be issued in stages to provide clarity and ensure progressive regulatory approval is achieved. The staged process is set out below and shall discharge the planning obligations as follows:

- **Stage 1** – *submitted separately via the Enabling Works CVR* - comprises Part I (Background) and Part II (Implementation of Design – Site Preparation (Enabling Works)). Part I sets out the completed remediation works within the context of the preceding remedial design. Part II discusses the implementation and validation works completed by the Enabling Works Team. The objective of this CVR (Stage 1) is to fully discharge the ODA's obligations under Condition SP.0.35 of the Olympic, Paralympic and Legacy Transformation Planning Applications: Site Preparation Planning Application (Ref. 3).

- **Stage 2** – *this document* - comprises Part III (Implementation of Design – Olympic Development (Follow-on Projects). Part III presents the ODA completed construction and remediation works as required to facilitate the development aspects of the works i.e. infrastructure, venues and

landscaping. This CVR is submitted to discharge the ODA's obligation under Condition OD.0.36 of the Olympic, Paralympic and Legacy Transformation Planning Applications: Facilities and Their Legacy Transformation Planning Application (Ref. 2) and subsequent applicable Slot-In Planning Conditions for Permissions relating to construction variations.

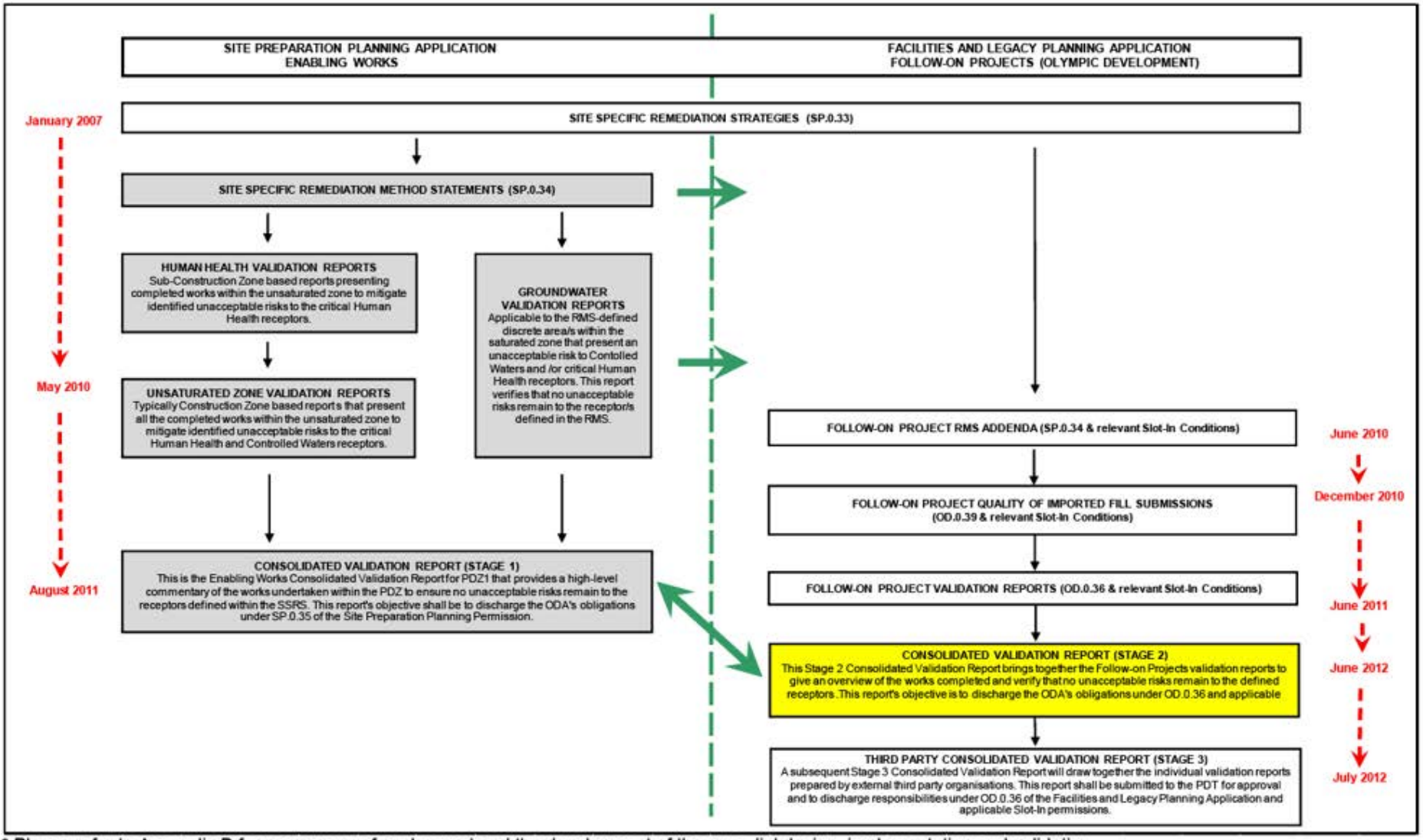
- **Stage 3 -** may be required in instances where completion of the Human Health Separation Layer (HHSL) and other overlay / completion works will be carried out by external third party organisations, most notably the London Organising Committee of the Olympic and Paralympic Games (LOCOG). In such circumstances, it will be the responsibility of these third parties to prepare, submit and obtain PPDT approval of their works by way of separate validation reports. As a consequence of these separate validation reports, another CVR (Stage 3) will require submittal under Condition OD.0.36 of the Olympic, Paralympic and Legacy Transformation Planning Applications: Facilities and Legacy Transformation Planning Application (Ref. 2). If such a Stage 3 CVR is required this will be prepared and submitted by a third party organisation.

Based on the works completed within PDZ1, a Stage 3 CVR will be required to collate the LOCOG Games Overlay scope. This will be submitted separately from this ODA FoP Stage 2 CVR.

This Stage 2 CVR also provides a summary of the Enabling Works residual actions which have been closed out by the FoPs, and those which remain to be addressed. Together with the Enabling Works (Stage 1) CVR and the Stage 3 CVR, this report is intended to inform future developers / owners / operators at the site, including the London Legacy Development Corporation (LLDC), of the remediation and validation works completed. In addition, these reports will look to highlight any residual actions / issues which need to be considered as part of future on-site development.

Future stages of CVR production will likely be required to capture post-Games Transformation and Legacy re-development works. The PDZ1 validation reporting sequence presenting the current three stages of the Consolidated Validation Reporting process is presented in Table 1.1 below.

Table 1.1: PDZ1 Validation Reporting Structure



* Please refer to Appendix B for a summary of each report and the development of the remedial design, implementation and validation

1.3 Relevant Planning Conditions

The reporting boundary for this PDZ1 (Stage 2) CVR is presented on the attached Figure 1.

This document is submitted to PPDT for discharge of the Planning Condition OD.0.36 of the 2007 Olympic, Paralympic and Legacy Transformation Planning Applications: Facilities and Their Legacy Transformation Planning Application (No. 11/90313/VARODA) (Ref. 2), which states:

> *'Validation of the Remediation Works for the purposes of human health protection must be provided within two months of completion of the Final Build Layer within any Construction Zone. When all works for the protection of human health are completed within each Planning Delivery Zone, a consolidated validation report, drawing together the Construction Zone validations, shall be submitted to the Local Planning Authority. This shall include topographic mapping of the final finished ground levels'.*

In addition, this document seeks to discharge the equivalent Planning Condition from a number of subsequent Slot-In Planning Applications relating to specific variations in the construction of certain infrastructure, buildings and landscaping from those set out in the original 2007 Application. These Conditions have similar wording to OD.0.36 above and are written so as to dovetail with this Condition. These Vaildation Slot-In Conditions are listed below, with Table 2.3 providing further details:

- Infrastructure (Loop Road) – 08/90194/FULODA (LOD.22)
- Infrastructure (Outer Perimeter Fence [OPF]) – 08/90151/FULODA (Conditions 26 & 27)
- Infrastructure (OPF) – 09/90135/FULODA (Condition 22)
- Infrastructure (OPF Carpenters Road) – 10/90055/FULODA (Condition 14)
- Infrastructure (OPF River Sections) – 10/90298/FULODA (Condition 21)
- Infrastructure (Surface Water Drainage Pumping Station) – 09/90100/FULODA (POD.16)
- Infrastructure (Waterpolo Drop-off) – 10/90643/FULODA (WOD.27 & WOD.28)
- Utilities (Electrical Transformers) – 09/90211/FULODA (Condition 19)
- Utilities (Utilities Corridor) – 08/90377/FULODA (Condition 16)
- Utilities (Multi-Zonal Utilitiy Connections) – 12/90021/FULODA (Condition 12)
- Utilities (Temporary Transformer Installation) – 11/90169/FULODA (AT.14)
- Venues (Waterpolo) – 10/90224/FUMODA (WPOD.37)

1.4 Site Location

PDZ1 is an 11 hectare triangular parcel of land located in the southern section of the Olympic Park (the South Park). It lies in an approximately north west to south east orientation and is surrounded by the current Olympic Park Development to the south (PDZ8) and west (PDZ2 and PDZ4), with the Stratford City Development (PDZ9) to the north, and commercial and residential land use to the east. The zone is bounded by the River Lea to the north west, the Waterworks River to the west, and railway lines to the north, east and south. For construction purposes the site was split into two Construction Zones (CZs); CZ1a which forms the larger area in the southern and western sections, and CZ1b located in the northern and eastern sections. The internal boundary that divided CZ1a and CZ1b followed an existing road.

The site layout and location are presented on Figure 1.

For a summary of the wider site context / background of PDZ1, including the history, geology, hydrogeology, hydrology and site investigations completed, please refer to the Enabling Works (Stage 1) CVR (Ref. 1).

1.5 Olympic and Legacy End Use

The Olympic and Legacy end uses for PDZ1, as defined by the Designers, are as follows:

Olympic Mode (see Figure 2): Approximately two-thirds of PDZ1 will be used for the Aquatics Centre and Waterpolo with surrounding areas of hard and soft landscaping. Sections of the site have also been identified for use as roads or transport areas along with a head-house located in the southern section of the site.

Legacy Mode (see Figure 3): The Aquatics Centre will remain in use as a legacy facility with the surrounding areas having been earmarked for a mix of land uses including: service corridor, residential mixed use (with no private gardens), soft landscaping and hard landscaping (including a road). The head-houses located in the southern section of the site are retained.

1.6 Outstanding / Excluded Works

All ODA FoP individual validation reports for PDZ1 have now been approved by PPDT and a summary of these documents is provided in Appendix B (see also the report references in Section 5).

Certain non-ODA works have been completed in PDZ1 by LOCOG, which include the temporary front of house and back of house overlay works, to facilitate the Olympic Games. As discussed in Section 1.2 above it will be the responsibility of this third party to prepare, submit and obtain PPDT approval of their works by way of separate validation reports. These works will be summarised within a separate Stage 3 CVR.

1.7 Report Limitations

This CVR is based on information received from FoPs, which is assumed to be accurate and complete.

This CVR does not present new information or re-evaluate any of the data previously assessed within the approved documents summarised herein. Neither does this document present information from third parties working within the Planning Boundary, but whose works are outside of ODA's control or scope. Where applicable, these works will be detailed within separate validation reports and summarised within a subsequent CVR Stage.

This CVR should be read in light of the legislation, statutory requirements and/or industry good practice applicable at the time of the works being undertaken. Any subsequent changes in this legislation, guidance or design may necessitate the findings to be reassessed in the light of these circumstances.

2. Basis of Remedial Design and FoP Amendments

2.1 Background

The FoP works comprised construction of the principal infrastructure, including services / utilities, roads, bridges and support structures, the key permanent and temporary venues and the hard and soft landscaping for the London 2012 Games. This infrastructure was built on a platform constructed by the Enabling Works project whose remit comprised site clearance, demolition, earthworks and remediation works. The objective of the earthworks is to ensure the site has been remediated to a standard protective of both human health and controlled waters receptors as defined by the Olympic and Legacy Masterplans.

The remedial strategy for the Park was set out in a series of increasingly focussed documents which commenced with a Global Remediation Strategy (GRS) (Ref. 4). The GRS was further developed by the Site Specific Remediation Strategies (SSRSs), which were informed by site investigation works completed in accordance with the Intrusive Investigation Method Statement (IIMS) (Ref. 5). The design documentation was further refined in a series of SSRS Addenda, to ensure the remedial works were reflective of the encountered ground conditions. These documents are all discussed in further detail within the Enabling Works (Stage 1) CVR (Ref. 1).

Within the SSRS and SSRS Addenda, a Conceptual Site Model (CSM) was developed for PDZ1, presenting potential sources, pathways and receptors. Individual contaminant concentrations protective of either controlled waters or human health, termed Site Specific Assessment Criteria (SSAC), were derived through the SSRS risk assessment process. The risk assessment process identified significant risks to controlled waters receptors across PDZ1 that required excavation, treatment and / or further investigation / delineation.

Following on from this, the Enabling Works Tier 1 Contractor (Nuttall) issued a series of Remediation Method Statements (RMSs), which detailed how the design would be implemented and subsequently validated to achieve planning discharge.

The PDZ1 CSM identified several human health critical receptors associated with the Olympic Park and Legacy end uses. In the context of the FoP works these human health receptors comprised adult athletes, workers, officials and visitors of all ages during the Olympic phase, and residents, workers / office staff and venue visitors in the Legacy phase. The key sources and pathways to these receptors included dermal contact / ingestion / inhalation of placed soils, especially within soft landscape areas in the residential development plots (no private gardens or vegetable growing areas were proposed for the Legacy end use – see below).

The remediation design allowed for placement of a Human Health Separation Layer (HHSL) or hard standing in the proposed Olympic and Legacy end uses within PDZ1. This measure reduces the human health pathways including dermal contact, ingestion and dust inhalation.

The remedial strategy was based on a number of assumptions and/or limitations with the primary two human health assumptions, as follows:

- no private gardens or vegetable growing areas are proposed for Legacy end use thus reducing risks associated with the ingestion pathway; and

- incorporation of ground gas / vapour protection measures within the fabric of building structures reduces risks associated with the ingress of ground gas and / or vapour.

The Waterworks River and the Chalk Primary (Major) Aquifer were considered the main controlled waters receptors since perched waters within the Made Ground are not considered to be 'Controlled Waters' under current legislation. The shallow aquifer was considered by the Environment Agency to represent a source and/or pathway for contaminants but not a receptor. The primary controlled waters objectives of the remedial design included; excavation of unsaturated soils (including hotpsots), construction of a sheet pile river wall to prevent migration to the adjacent Waterworks River and groundwater treatment of dissolved phase hydrocarbons and light non-aqueous phase liquid within the River Terrace Deposits (RTD).

As a result of the remediation works completed limited residual actions were transferred to the FoPs and these are outlined further in Tables 3.1 and 4.1. All Enabling Works validation reports are summarised within the Enabling Works (Stage 1) CVR (Ref. 1) and the process is presented graphically within the flow chart in Table 1.1.

There were no significant land use changes within PDZ1, for example, venue movements or changes in topography that have impacted the remediation aspects of the project. Changes to the initial remedial approach were detailed and subsequently agreed with the PDT via the SSRS and RMS documents. The principal changes related to amendments to the controlled waters compliance point and inclusion of an additional controlled waters hotspot as a result of further investigation and delineation. These changes to the remedial design are set out in the Enabling Works (Stage 1) CVR (Ref. 1).

2.2 FoP Design

Guidance to assist the FoPs with their remedial works and production of related planning documents was produced by PDT (Ref. 6). This document provided a framework for the FoPs to follow when considering their remedial requirements, set out the anticipated contents of remedial planning submissions and included templates / tools to support the completion of these documents.

At completion of the Enabling Works phase of the programme all identified remedial hotspots within PDZ1 had been addressed through appropriate removal or risk assessment such that the FoPs were not required to complete hotspot remediation. A number of residual remedial issues were, however, identified by Enabling Works which required consideration / action by the FoPs and / or future parties working on the site as detailed in the Enabling Works (Stage 1) CVR (Ref. 1) and further discussed in Section 3.2 and Table 3.1.

In broad terms the FoP remedial design comprised completion of the remedial cover system, placement of compliant fill materials and validation of localised excavations to facilitate construction e.g. service corridors and foundation excavations. The remedial cover system comprised Human Health Separation Layer (HHSL) and Marker Layer, demarcating the 'clean' soil of the HHSL (see Sections 3.3 and 3.4) from the underlying general fill and / or *in-situ* soils. Further, where projects encountereted *in-situ* soils there was a requirement

for the FoPs to further assess what remediation and validation would be required to ensure the areas were suitable for Legacy use.

A summary of the design for the FoP works, comprising infrastructure, landscaping, utilities and venues, is provided within Table 2.1.

Table 2.1 – Summary of FoP Design within PDZ1

Contractor / Project	Task	Description	Permanent	Temporary	Scope of Key Earthworks	Final Surface / Works to be Completed
Infrastructure (Balfour Beatty)	Bridge F09	Connecting north of PDZ1 and PDZ2	Northern section	Southern section	• Removal of rip-rap placed by Enabling Works • Construction of piling platform • Piling • Excavation of piling mat and some underlying Alluvium • Placement of fill behind abutment • Construction of pile cap, concrete stairs and retaining wall	To be completed by others: • Subsequent FoPs to construct footpath leading onto bridge deck, including Marker Layer and HHSL to Final Finished Level (FFL) (completed by LPR)
Infrastructure (Balfour Beatty)	Bridge F10A and F10B	Connecting centre of PDZ1 to PDZ2 and PDZ9	F10A: all areas F10B: northern section	F10A: N/A F10B: southern section	• Excavation of existing ground • Construction of piling platform • Installation of temporary sheet piled cofferdam (and subsequent removal of majority of sheet piles) • Construction of temporary access ramp within towpath • Continuous flight auger (CFA) piling • Installation of steel tubular piles • Excavation of piling platform • Construction of pile cap • Placement of fill materials	Complete: • F10B permanent central pier: within the Waterworks River To be completed by others: • All other areas: subsequent FoPs to place Marker Layer and HHSL to FFL (completed by LPR)

Contractor / Project	Task	Description	Permanent	Temporary	Scope of Key Earthworks	Final Surface / Works to be Completed
Infrastructure (Nuttall SBH)	Bridge H05	Connecting south of PDZ1 and PDZ2	All areas	N/A	• Excavation of Enabling Works material and Alluvium • Construction of piling platform • Piling • Excavation of piling platform and some underlying Alluvium • Placement of fill materials	To be completed by others: • Marker Layer and HHSL to FFL (completed by LPR)
Infrastructure (Nuttall SBH)	Bridge H07	Connecting south of PDZ1 and PDZ2	All areas	N/A	• Excavation of Made Ground, Alluvium and River Terrace Deposits (RTD) • Construction of piling platform • CFA piling • Excavation of piling platform and some underlying RTD • Installation of cofferdam around north eastern abutment • Construction of approach ramp including retaining walls and backfill	To be completed by others: • Subsequent FoPs to place Marker Layer and HHSL to FFL (completed by LPR)
Infrastructure (Nuttall SBH)	Bridge H08	Connecting north of PDZ1 to PDZ9	Central pier stem	Reinforced earth approach embankment with concrete supporting walls	• Excavation of existing ground • Construction of piling platform • CFA piling • Installation of vibro concrete columns (VCCs) • Minimal excavation of piling platform • Placement of reinforced earthworks, load transfer platforms and general fill	Complete: • Approach ramp: Marker Layer and 530 mm HHSL with tarmac surface To be completed by others: • Piling mat and laydown areas: subsequent FoP to place Marker Layer and full HHSL (completed by BAM SBH)

Contractor / Project	Task	Description	Permanent	Temporary	Scope of Key Earthworks	Final Surface / Works to be Completed
Infrastructure (Nuttall SBH)	Channelsea Retaining Wall	Retaining wall along the boundary between the Olympic Park and the Network Rail Woolwich Line in the north of PDZ1	All areas	N/A	• Excavation of Made Ground • Construction of piling platform • Installation of steel sheet piles • Excavation of piling platform • Construction of capping beam and placement of fill behind capping beam	To be completed by others: • Marker Layer placed beneath piling mat (completed by LPR) • Subsequent FoPs to place HHSL and additional Marker Layer as necessary (completed by LPR)
Infrastructure (Nuttall SBH)	Various Roads	Loop Road, Stratford City Access Road (SCAR), Bridge H08 Approach Road, Carpenters Road and 'white areas' along Carpenters Road	Bridge H08 Approach Road	All other areas	• Construction of reinforced earth walls and concrete retaining walls • Placement of fill materials • Construction of road surface	Complete: • Final elevation approximately 2.7 to 11.6 m AOD • Marker Layer and 640 880 mm HHSL To be completed by others: • White Area 27: subsequent FoP to place 100 mm asphalt to FFL (completed by LOCOG)
Infrastructure (Nuttall SBH)	National Grid (NG) Head House Compound	Adjacent to NG Head House in the south of PDZ1, including perimeter walls around compound and Head House	All areas	N/A	• Excavation of existing ground • Placement of fill materials • Construction of retaining walls, perimeter walls and concrete hard standing	Complete: • Perimeter walls: final elevation approximately 3.4 to 6.4 m AOD • Perimeter walls: Marker Layer and 1100 mm HHSL
Infrastructure (Nuttall SBH)	Outer Perimeter Security Fence (including addendum)	Fence line around the perimeter of the Olympic Park (along the northern, eastern and southern boundaries of PDZ1)	N/A	All areas	• Installation of fence posts including augering and backfill with concrete • Placement of 300 mm layer of gravel between and around the fence posts	To be completed by others: • Placement of Marker Layer and HHSL (to be completed during Legacy Transformation)

Contractor / Project	Task	Description	Permanent	Temporary	Scope of Key Earthworks	Final Surface / Works to be Completed
Infrastructure (Nuttall SBH)	Surface Water and Foul Drainage	Located in the north and south of PDZ1	All areas	N/A	• Excavation of trenches (including below Enabling Works sub grade) • Installation of drainage pipework • Trench backfill	Complete: • Enabling Works Marker Layer and HHSL reinstated
Infrastructure (Nuttall SBH)	Surface Water Drainage Outfalls	Six outfalls draining into the Waterworks River along the western boundary of PDZ1 (S01-01, S01-03, S01-04, S01-05, S01-06 and S01-07)	All areas	N/A	• Construction of sheet-piled cofferdams • Excavation of soils within cofferdams to the top of the RTD • Construction of outfalls within the cofferdams • Construction of manholes • Backfilling around outfalls	To be completed by others: • All outfalls except S01-04 and S01-07: Marker Layer and 350 to 3100 mm of HHSL (completed by LPR) • S04-01 and S01-07: subsequent FoP to place Marker Layer (completed by LPR) • All outfalls: subsequent FoP to place remainder of HHSL to FFL (completed by LPR)
Infrastructure (Nuttall SBH)	Thames Water Pumping Station	Located in the south of PDZ1	All areas	N/A	• Excavation to -6 m AOD • Installation of 12.5 m diameter precast concrete shaft • Construction of perimeter walls	Complete: • Final elevation approximately 4.9 to 6.1 m AOD • Shaft: no Marker Layer or HHSL • Perimeter walls: Marker Layer and 375 to 575 mm HHSL

Contractor / Project	Task	Description	Permanent	Temporary	Scope of Key Earthworks	Final Surface / Works to be Completed
LPR (Skanska)	Hard and Soft Landscaping	Tree pits, wetlands, pavements, drainage and retaining walls	Tree pits, wetlands, drainage and retaining walls	Pavements	• Placement of fill and tarmac surface • Excavation of trenches and tree pits • Installation of drainage pipework • Trench backfill • Construction of wetlands • Construction of retaining walls	Complete: • All areas completed to FFL, including Marker Layer and HHSL
Utilities (Cofely)	District Heating and Cooling Network	Pipe work located along the west of PDZ1, with a branch leading onto Bridge F09	All areas	N/A	• Trench excavation • Installation of heating and cooling pipes • Trench backfill	To be completed by others: • Placement of Marker Layer and HHSL to FFL (completed by LPR)
Utilities (McNicholas)	Multi Utilities	Utilities located within the central and southern sections of PDZ1, with branches leading onto Bridges F09, H05 and H07 (including potable water, electrical and telecommunications networks, and intermediate pressure gas)	All areas	N/A	• Trench excavation • Installation of utilities • Trench backfill	To be completed by others: • Placement of Marker Layer and HHSL to FFL (completed by LPR)

Contractor / Project	Task	Description	Permanent	Temporary	Scope of Key Earthworks	Final Surface / Works to be Completed
Utilities (Volker)	Readily Connectables	Excavation and installation of temporary utilities within sections in PDZ1	N/A	All areas	• Excavation of battered trench • Installation of potable and foul water connections • Reinstatement of surface	• Works were carried out in areas where FFL had been attained. • Marker Layer was breached and reinstated. To be completed by others: • Placement of HHSL to FFL (completed by LPR and LOCOG Common Domain contractor ISG to south east of Aquatics)
Utilities (UKPN / Murphys)	Electrical installations	Installation of cables in pre-installed ducts. The works were carried out as part of the LVU (Lea Valley Utilities) Concession works. LVU is the trading name of UK Power Networks Independent Network Operator (IDNO) on the Olympic Park	All areas	N/A	• Limited excavations at joint, substation & link box locations for the low voltage and high voltage electricity supply.	Complete: • Reinstatement to within 150 mm of the FFL

Contractor / Project	Task	Description	Permanent	Temporary	Scope of Key Earthworks	Final Surface / Works to be Completed
Venues (Balfour Beatty)	Aquatics Centre	Aquatics Centre building located within the southern section of PDZ1, including competition pool, diving pool and training pool	All areas	Sheet piled cofferdam	• Installation of cofferdam comprising sheet piled and secant piled walls • Excavation down to Lambeth Group (maximum depth -5 m AOD) within cofferdam • Dewatering of shallow groundwater within cofferdam • Construction of piling platforms • CFA piling • Excavation of piling platforms • Placement of fill materials • Construction of Aquatics Centre building and pools	Complete: • Agreed that concrete basement structure provides adequate substitute to HHSL and Marker Layer
Venues (Balfour Beatty)	Aquatics Centre Landscaping	Hard landscaping of the area to the south of the Aquatics Centre bulding	All areas	N/A	• Excavation of existing fill and placement of new fill materials	To be completed by others: • Marker Layer and partial HHSL to be installed (completed by LOCOG / LPR) • Subsequent FoP to place remainder of HHSL and hard standing to FFL (completed by LOCOG / LPR)

Contractor / Project	Task	Description	Permanent	Temporary	Scope of Key Earthworks	Final Surface / Works to be Completed
Venues (Jackson)	Waterpolo venue construction	Earthworks associated with the construction of the temporary Water Polo venue	N/A	All areas	• Installation of temporary filter drainage works • Excavations for pile cap bases • Sheet piling • CFA piling • Slope grading works	To be completed by others: • Hard landscaping/tarmac to be placed on external areas left covered in Type 1 material (completed by LOCOG) • Removal of venue and associated infrastructure post Games and reinstatement of the HHSL and Marker Layer (to be competed in Legacy Transformation)

2.2.1 Addenda to the Enabling Works Remediation Method Statements

A number of addenda to the established Enabling Works South Park RMSs were completed and approved for works undertaken by the FoPs in PDZ1 (Refs. 7, 8, 9 and 10). These RMS addenda established the FoPs methodologies for undertaking their earthworks so as to complete the remedial strategy, whilst protecting / maintaining the existing Enabling Works remediation and detailing validation of their works. These documents were submitted to PDT to discharge the Planning Condition covering provision of RMS (SP.0.34) in addition to seeking discharge of related Slot-In Planning Conditions. The relevant FoP RMS addenda and Applications for PDZ1 are summarised in Table 2.2 below.

Table 2.2 – RMS Addenda relevant to PDZ1

Project / Contractor	Document Title and Reference	Planning Application and Status	Rationale
Infrastructure: (Nuttall SBH)	Olympic Park Lot 2 (PDZ1, PDZ2, PDZ3, PDZ4, PDZ8) and Lot 5 (PDZ5 & PDZ6) RMS Addendum – Structures, Bridges and Highways (7040-SBH-SPK-W-REP-0027 & 7080-SBH-NPK-W-REP-0017)	08/90151/FULODA (Condition 25): Approved (10/90514/AODODA) 08/90194/FULODA (LOD.21): Approved (10/90579/AODODA) 10/90298/FULODA (Condition 20): Approved (10/90343/AODODA)	Nuttall infrastructure works covered temporary and permanent bridges, the loop road and security fence. In their RMS a variation was proposed to reduce the thickness of the HHSL / shallow placement of Marker Layer under the permanent loop road (see Section 2.2.2 below).
LPR: (Skanska)	Olympic Park Planning Delivery Zones 1, 2, 4 & 8: RMS Addendum – LPR South (7170-LPR-SPK-L-RMS-0001)	08/90311/FULODA (PPR.38): Approved (09/90031/AODODA, 10/90363/AODODA, 11/90022/AODODA, 11/90079/AODODA, 11/90084/AODODA, 10/90357/FULODA) (WTOD.15)	To address LPR South works on the soft landscaping and main concourse (hard landscaping) variations were proposed to the standard remediation design. These included reducing the thickness of the HHSL / shallow placement of Marker Layer under the permanent concourse (see Section 2.2.2 below) and omission of sub-grade validation testing on linear drainage trenches. This RMS document also discharged a number of pre-validation Slot-In Planning Conditions (refer to Section 2.2.6).

Project / Contractor	Document Title and Reference	Planning Application and Status	Rationale
Utilities: (McNicholas)	Design Note for McNicholas Works in the Olympic Park, Planning Delivery Zones 1, 2, 3, 4, 5, 6, 7 and 8 (8526-UNN-ECW-U-MST-0070, 8514-UNN-UCW-U-MST-0001)	08/90377/FULODA (Condition 15): Approved (10/90523/AODODA) 09/90212/FULODA (Condition 19): Approved (11/90331/AODODA)	To address the multi-utilities scope of works. Variations included placement of Marker Layer and reduced HHSL by subsequent FoPs overlying the utilities works where permanent hard standing was to be installed. No sub-grade validation testing for the utility linear corridors was proposed.
Venues: Waterpolo (Jackson)	London 2012 Water Polo Design Note. Water Polo Building Verification Criteria V3.	10/90224/FUMODA (WPOD.36): Approved: (10/90564/AODODA)	To address construction of the Waterpolo venue. A variation was proposed to omit Marker Layer beneath the building and for hard standing to act as HHSL, due to the temporary nature of the venue.

Note: Refer to Appendix B for a summary of the key elements of the various RMS addenda.

2.2.2 Hard standing as a Substitute to the Separation Layer

Under a site wide RMS addendum completed by the Enabling Works remedial designers a framework was established for reducing the thickness of the HHSL under suitably robust hard standing (Ref. 11). The basic premise behind this design change was that hard standing would act as a suitable barrier to certain pollution pathways (namely ingestion, dermal contact and dust inhalation) and reduce the requirement for a full-thickness HHSL.

The framework document required individual projects to provide information of where this approach was being adopted and provide details with regards to the extent of the area and the transition from reduced to full-thickness separation.

The approved RMS for Nuttall SBH adopted a similar approach for reducing the thickness of HHSL beneath the Loop Road and areas of hard standing within PDZ1. In addition, Balfour Beatty gained retrospective approval from the PDT that the concrete basement structure of the Aquatics Centre provided an adequate substitute to HHSL. LPR South also gained approval from PDT via an RMS submission , to reduce HHSL thickness in permanent hard landscaping areas. The approved RMS for the Water Polo venue adopted a similar approach for reducing the thickness of HHSL beneath the footprint of the temporary venue where the slab / hardstanding acts as an adequate substitute to the full HHSL. For Water Polo a residual action remains for placement of Marker Layer and HHSL as part of Legacy Transformation.

This is discussed further within Section 3 below.

2.2.3 Quality of Imported Fill Submissions

Under the 2007 Planning Permissions (Conditions OD.0.39 and SP.0.37) and a number of the subsequent Slot-In Permissions, a requirement existed for projects which intended to import unbound fill materials from off-Park to confirm suitability of the material for use on the project in advance of importation to demonstrate the material did not constitute a waste. A framework document, setting out the information required to satisfy the discharge of these 'Quality of Imported Fill' Planning Conditions was established by the Enabling Works Team and subsequently adopted by the FoPs (Ref. 12). Planning applications, in accordance with the framework, were submitted by a number of the FoPs and those applications submitted in relation to Slot-In conditions are summarised in Table 2.3, below.

A large proportion of the materials imported were supplied through the ODA's aggregate supplies concessionaire, Aggregate Industries, who worked alongside CLM Logistics to develop a further framework to encourage use of Waste Recycled Action Programme (WRAP) compliant recycled aggregates (Refs. 13 and 14).

2.2.4 Gabion Material

A site wide framework (Ref. 15) was approved by the PDT (Decision Notice: 10/90330/AODODA), which addressed the use of site derived gabion material in the FFL and established that no chemical testing of the material for human health or controlled waters verification purposes was required to be undertaken. This framework was based on the principle that the nature and placement of gabion material mitigates pathways to human health receptors. Regarding potential risks to controlled water receptors, the Environment Agency agreed that visual inspection of the material during hand placement was sufficient to ensure no fines or visual signs of contamination or deleterious material were apparent.

2.2.5 SSAC Amendments

Following derivation of the original SSAC for HHSL and general backfill materials for the individual zones / sub-zones across the Park, as provided in the remedial designer's SSRS documents, a number of amendments were subsequently discussed and agreed in consultation with PDT. These Olympic Park wide SSAC amendments included the following key documents:

- Site Wide RMS Addendum (Asbestos in the Sub-grade & General Fill). MST-ENL-CE-ZZZ-OLP-SP1-E-0159 Rev 05 (08/90083/AODODA, 08/90181/AODODA, 08/90216/AODODA, 08/90217/AODODA, 08/90218/AODODA, 08/90219/AODODA, 08/90220/AODODA, 08/90221/AODODA, 08/90222/AODODA 08/90223/AODODA, 08/90281/AODODA and 08/90326/AODODA). This document details the sampling strategy to be utilised when an asbestos value of >0.1% w/w is encountered within the HHSL or General Fill.
- Site Wide SSRS Addendum (Justification of deviation from the GRS in the derivation of SSAC). MEM-ATK-CM-ZZZ-OLP-ZZZ-0004 Rev 2 (09/90233/AODODA). This memorandum documents the changes Atkins applied in the derivation of SSAC from the methodology or data sources presented in the GRS along with justification for the changes.
- Proposed changes to the Human Health SSAC values for Lead, General Metals, and Polycyclic Aromatic Hydrocarbons (PAHs) in the Separation Layer, and to the SSAC values for General Fill. REP-ATK-CM-ZZZ-OLP-ZZZ-E-0004 (08/90265/AODODA). Revised SSAC were calculated for lead using the Provisional Tolerable Weekly

Intake method for the Soft Landscaping Legacy end use, for general metals using a single Soil Ingestion Rate, and for PAHs assessing the potential contribution from each of the vapour inhalation pathways based on the Henry's Law Constant.

- Errata to Document entitled 'Proposed changes to the Human Health SSAC values for Lead, General Metals, and polycyclic aromatic hydrocarbons (PAHs) in the Separation Layer, and to the SSAC values for General Fill'. REP-ATK-CM-ZZZ-OLP-ZZZ-E-0004 (08/90265/AODODA). Atkins recalculated the inhalation Tolerable Daily Intake for lead; but the inhalation pathway was still not considered to be significant. The dermal pathway for lead was also calculated, resulting in a new SSAC for areas of soft landscaping not associated with commercial buildings. In addition, Atkins further justified the use of a fraction of organic carbon (FOC) of 0.01.

2.2.6 Pre-validation Remediation Slot-In Conditions

A number of the FoP works were subject to Slot-In Planning Permissions, which generally related to structural design changes rather than changes to remediation, and retained the key remediation Conditions from the 2007 Permissions as follows:

- Landscape and Planting Details (OD.0.28) – FoPs required to submit details of the means by which installed remediation measures would be safeguarded during landscaping works.
- Foundation Details (OD.0.26) – FoPs required to demonstrate the means by which existing remediation measures would be safeguarded during foundation construction works, along with any measures to prevent ingress of gaseous contaminants into that building or the contamination of controlled waters.
- IIMS, SSRS, RMS (SP.0.32, SP.0.33 and SP.0.34) – FoPs required to consider the suitability of the prevailing IIMS, SSRSs and RMSs for the area of their works and to provide details of any changes to these strategies or demonstrate how these strategies still applied.
- Quality of Imported Fill (OD.0.39) – FoPs required to confirm suitability of imported material for use on the project (see Section 2.2.3 above).

Table 2.2 above provides details of the RMS Slot-In Conditions discharged by the FoPs in PDZ1 and a summary of the discharge of the remaining remediation Slot-In Conditions is provided in Table 2.3 below.

Table 2.3 – ODA Remediation Slot-In Conditions relevant to PDZ1

Slot-in Application and Responsible Party	Pre-validation Slot-In Conditions							Validation
	Landscape Details	Foundation Details	IIMS	SSRS	RMS	Grouped IIMS, SSRS, RMS	Quality of Imported Fill	
Infrastructure: Loop Road 08/90194/FULODA (Nuttall SBH)	N/A	LOD.39 (N/A)	LOD.18 (discharged under LOD.21)	LOD.19 (discharged under LOD.21)	LOD.20 (discharged under LOD.21)	LOD.21 Approved: 10/90579/AODODA	LOD.24 Approved: 10/90579/AODODA	LOD.22 Approved: 10/90579/AODODA
Infrastructure: OPF 08/90151/FULODA (Nuttall SBH)	N/A	N/A	Condition 23 Approved: 10/90514/AODODA	Condition 24 Approved: 10/90514/AODODA	Condition 25 Approved: 10/90343/AODODA 10/90514/AODODA	N/A	Condition 28 Approved: 10/90343/AODODA	Condition 26 & 27 Approved: 10/90514/AODODA & 12/90215/AODODA
Infrastructure: OPF between headhouses 09/90135/FULODA (Nuttall SBH)	N/A	N/A	Condition 18 (discharged under Condition 21)	Condition 19 (discharged under Condition 21)	Condition 20 (discharged under Condition 21)	Condition 21 Approved: 10/90343/AODODA	Condition 24 Approved: 10/90343/AODODA	Condition 22 Approved: 12/90215/AODODA
Infrastructure: OPF Carpenters Road 10/90055/FULODA (Nuttall SBH)	N/A	N/A	None	None	None	None	None	Condition 14 Approved: 10/90514/AODODA
Infrastructure: OPF River Sections 10/90298/FULODA (Nuttall SBH)	N/A	N/A	Condition 17 (discharged under Condition 20)	Condition 18 (discharged under Condition 20)	Condition 19 Approved: 10/90343/AODODA	Condition 20 Approved: 10/90514/AODODA	Condition 23 Approved: 10/90343/AODODA	Condition 21 Approved: 10/90514/AODODA
Infrastructure: Surface Water Drainage Pumping Station 09/90100/FULODA (Nuttall SBH)	N/A	N/A	POD.13 *Letter submitted to PPDT to close out*	POD.14 *Letter submitted to PPDT to close out*	POD.15 *Letter submitted to PPDT to close out*	None	POD.18 *Letter submitted to PPDT to close out*	POD.16 Approved: 10/90579/AODODA
Infrastructure: Waterpolo Drop-off 10/90643/FULODA (Jackson)	N/A	WOD.10	None	None	None	WOD.26 *Submitted awaiting approval*	WOD.24 *Submitted awaiting approval*	WOD.27 & WOD.28 *Submitted awaiting approval*
Utilities: Temporary Transformer VT110 11/90169/FULODA (Utilities)	N/A	N/A	None	None	None	None	AT.21 (PDT confirmed close out under previous submissions via email)	AT.14 (PDT confirmed close out under previous submissions via email)

Slot-in Application and Responsible Party	Pre-validation Slot-In Conditions							Validation
	Landscape Details	Foundation Details	IIMS	SSRS	RMS	Grouped IIMS, SSRS, RMS	Quality of Imported Fill	
Utilities: Multi-zonal below ground utility connections 12/90021/FULODA (Logistics)	N/A	N/A	None	None	None	None	Condition 14 Approved: 12/90243/AODODA	Condition 12 Approved: 12/90243/AODODA
Utilities: Electrical Transformers CD109, CD317 & CD535 09/90211/FULODA (Morrisons)	N/A	N/A	None	None	None	Condition 18 Approved: 11/90331/AODODA	N/A	Condition 19 Approved: 11/90331/AODODA
Utilities: Utilities Corridor 08/90377/FULODA (McNicholas)	N/A	Condition 19 (N/A)	Condition 12 (discharged under Condition 15)	Condition 13 (discharged under Condition 15)	Condition 14 (discharged under Condition 15)	Condition 15 Approved: 10/90523/AODODA	Condition 18 Approved: 11/90004/AODODA 11/90015/AODODA	Condition 16 Approved: 11/90172/AODODA
Venues: Aquatics Centre 10/90464/FULODA (Balfour Beatty)	N/A	TS.11	None	None	None	None	TS.17 Covered by Aquatics Centre Validation (10/90299/AODODA)	None
Venues: Aquatics Centre Temporary Seating 08/90027/FULODA (Balfour Beatty)	N/A	Condition 27	None	None	None	None	Condition 17 Covered by Aquatics Centre Validation (10/90299/AODODA)	None
Venues: Waterpolo 10/90224/FUMODA (Jackson)	WPOD.18	WPOD.25	N/A	N/A	N/A	WPOD.36 Approved: 10/90564/AODODA	WPOD.40 Approved: 12/90112/AODODA	WPOD.37 Approved: 12/90112/AODODA

3. Implementation of Design – Follow-on Projects

3.1 Summary of Works Completed

The following sections summarise the key construction earthworks completed by the FoPs within PDZ1 and further details from each FoP validation report are provided within Appendix B, including which Enabling Works residual actions were addressed (see also Section 3.2 below). Details of the FoP works, including sub-grade levels, extent and thickness of Marker Layer and HHSL and the final topography are included in Figures 5 to 8, respectively. Representative as-built sections are presented on Figure 11.

3.1.1 Infrastructure

3.1.1.1 Bridges – F09, F10A/B, H05, H07, H08

A total of five new bridge structures were constructed within PDZ1 to provide the connections required during Games time and Legacy. Bridges F09, H05 and H07 were constructed by Nuttall (Refs. 16, 17 and 18); and Bridges F10A/B, and H08 were constructed by Balfour Beatty (Refs. 19 and 20). Bridges F09, F10 and H08 include a temporary element, which will be used during Games mode and then removed during the Legacy transformation to leave a smaller permanent structure. Construction of the bridge abutments comprised: excavation to create piling / crane platforms, CFA piling, installation of vibro concrete columns (VCCs), construction of retaining walls and reinforced earthworks, ground re-profiling, and backfilling. Certain areas of the bridge abutments were completed to FFL, including Marker Layer and HHSL; however the remaining areas were terminated below FFL (see Sections 3.3 and 3.4, and Figures 6 and 7).

3.1.1.2 Channelsea Retaining Wall

The Channelsea retaining wall was constructed in order to re-locate the existing boundary line between the Olympic Park and Network Rail property and runs along the boundary between the Park and the Network Rail Woolwich Line (Ref. 21). The wall is a permanent feature and comprises a cantilever sheet pile wall with a reinforced concrete capping beam.

3.1.1.3 Loop Road and Stratford City Access Road

The Loop Road and SCAR were constructed by Nuttall along the south eastern edge of PDZ1 (Refs. 22 and 23). Bridge H07 is located at the western extent of the Loop Road. The roads were completed to FFL with Marker Layer and 640 to 880 mm of HHSL (see Sections 3.3 and 3.4, and Figures 6 and 7).

3.1.1.4 National Grid Head House Compound

The NG Head House perimeter walls were constructed by Nuttall (Refs. 22 and 23). Works comprised excavation of existing ground, construction of retaining walls and placement of fill materials. Typical section of the Head House works can be seen on Figure 11. Works within the Head Houses was undertaken be third parties and do not form part of the ODA's scope.

3.1.1.5 Olympic Park Perimeter Fence Line

Nuttall constructed a fence around the perimeter of the Olympic Park as part of the Infrastructure works (Ref. 24). The Olympic Park Perimeter Fence (OPF) is approximately 4.8 m high, with fence posts installed at 25.7 m intervals. Localised augering was required and the fence posts were secured with concrete. Placement of fill material was limited to a 300 mm thick layer of imported granite gravel between and around the fence posts. Marker Layer and HHSL were not required to be placed along the OPF due to the limited extent of excavations and the established easements and boundary agreements. The OPF will be removed during Legacy transformation, and any necessary remediation (including placement of Marker Layer and HHSL) and validation will be completed at this point by subsequent Transformation Contractors (refer to Table 4.1).

3.1.1.6 Addendum Validation Report for Olympic Park Perimeter Fence Line

The OPF comprises a "358 mesh" system manufactured by Zaun Ltd to meet the Olympic Perimeter Fence Specification. The fence extends approximately 4.8 m above ground level and was typically installed at the existing ground level handed over by Enabling Works. No Marker Layer or human health separation layer was placed by Enabling Works along the path of the OPF as these areas were unremediated due to third party stand-off areas and exclusion zones. The installation of the OPF line required localised auguring of the existing ground at a diameter of 600 to 700 mm to an approximate depth of 900 mm. The fence posts were installed into these localised excavations and backfilled with concrete at 25.7 m intervals. As above, a Legacy / Transformation residual action exists to complete remedial works and validation in the location of the OPF (refer to Table 4.1).

3.1.1.7 Drainage (Including Outfalls and Pumping Station)

Nuttall constructed surface water and foul drainage within PDZ1, including six surface water outfalls along the Waterworks River and a surface water pumping station in the southern section of PDZ1 (Refs. 22, 23, 25 and 26). The outfalls were constructed within sheet-piled cofferdams and soils within the cofferdams were excavated to the top of the RTD. The removal of the Alluvium in these areas and mitigation against creation of new contamination pathways into groundwater is discussed within Section 3.9. The pumping station shaft was excavated to a depth of - 6 m AOD and perimeter walls were constructed around the structure, incorporating Marker Layer and HHSL. A section through Outfall S01-07 is shown on Figure 11.

3.1.1.8 Addendum Validation Report for PDZ1 Infrastructure

Various works were completed by Nuttall SBH and reported within their Addendum Validation Report for PDZ1 Infrastructure (Ref. 27). These works included:

- earthworks in White Areas, Carpenters Road and Bridge H08 Approach Road verges to bring to FFL; and
- installation of wet well, valve chamber and surface water drainage associated with Outfall S01-07.

Nuttall SBH did not install a Marker Layer or HHSL in the areas around and between Outfall S01-07, or manholes MH S01-07-01-05 (south of the sheet piled wall) and MH S01-07-01-04 as these were outside their scope. These works were subsequently completed by LPR South.

3.1.2 Landscape and Public Realm

Soft landscaping works comprised the construction of tree pits and wetlands along the western and south-western boundaries of CZ1a, and hard landscaping works comprised the construction of temporary pavement areas which will be transformed into soft landscaping and future development platforms in Legacy (Ref. 28). Landscaping works within PDZ1 also included the installation of drainage and retaining walls. .

Landscaping works for White Space Area (WSA) 44 in the northern part of PDZ1, were included within Skanska's White Areas Validation Report PDZ1, PDZ3 and PDZ4 (Ref. 29).

Soft landscaping at WSA 44 comprised placement of the following materials from surface:

- 150 mm or 300 mm (in the tree planting area) topsoil;
- 200 mm subsoil, underlain by existing ground.

Hard landscape area WSA 44 consists of an access footpath located across the site in a north-south direction. A typical section of the hard landscaping works can be seen in Figure 11. Construction of the footpath comprised placement of the following from surface:

- concrete flags / tiles;
- approximately 30 to 50 mm sharp sand;
- approximately 100 to 120 mm Type 1, underlain by existing ground; and
- a French drain was constructed in the western part of WSA 44 which consisted of a trench approximately 450 mm deep and 450 mm wide filled with 20 mm limestone gravel.

An area to the south east of the Aquatics Centre was identified as requiring completion of asphalt hard standing to FFL to complete the remedial scope. This area is back of house during Games and changes to a mixture of soft / hard landscaping and development platform in Legacy. Figure 7 'Extent and Thickness of Human Health Separation Layer within Planning Delivery Zone 1' highlights this area and it is also included within the residual actions Table 4.1.

Representative sections through the hard landscaping areas and wetlands are shown on Figure 11.

3.1.3 Utilities

3.1.3.1 District Heating and Cooling Network

The DHC runs along the west of PDZ1 in an approximately north-south alignment, with a branch leading onto Bridge F09. Cofely were the Principal Contractor for the DHC, however McNicholas were instructed to construct the civil earthworks components (excavation and backfilling only) of the DHC on behalf of Cofely in March 2010 (Ref. 30). The DHC works included placement of Marker Layer, where breached and trench backfill with suitable materials but did not complete to FFL. Subsequent works to complete to FFL were undertaken by the LPR and SBH projects.

3.1.3.2 Multi-utilities

McNicholas installed the following utilities throughout PDZ1: potable water, intermediate pressure gas, electricity, telecommunications, surface water and duct crossings, electrical junction boxes, communication boxes, transformer bases and jointing chambers (Ref. 30). The utilities were installed within the central and southern sections of PDZ1, with branches leading onto Bridges F09, H05 and H07. A service corridor lined with Marker Layer and filled with HHSL was constructed within PDZ1 during Enabling Works, and the utilities were partially installed within this corridor. The works comprised trench excavation, utility installation and backfill, and McNicholas placed Marker Layer and HHSL where necessary. However, none of the site was completed to FFL and in many cases this Marker Layer was superseded by Marker Layer placed by subsequent FoPs (see Sections 3.3 and 3.4, and Figures 6 and 7). The works included two variations to the McNicholas RMS: use of *ex-situ* data to validate Soil Hospital material, and use of pre-existing Enabling Works validation data and site investigation data to validate as dug materials from *in-situ* soils. In the latter instance this issue has been recorded as a residual action requiring consideration by future land owners and developers when undertaking maintenance of the multi utilities corridor in PDZ1 (for further details refer to Table 4.1 below).

3.1.3.3 Lea Valley Utilities (LVU)

J Murphy and Sons Ltd (Murphys) on behalf of Lea Valley Utilities (LVU) completed the electrical network which included site-wide excavations at joint, substation & link boxes to install cabling. Within PDZ1 these works were located to the east of the Aquatic centre and at two locations in the north western portion. These excavations were limited in extent and depth to approximately 1.5 m to facilitate installation through existing validated materials. No LVU excavations extended beneath the Enabling sub-grade. In locations where the Marker Layer was penetrated both the excavated material above and below the Marker Layer was removed from site and disposed to a suitably licensed landfill.

The LVU works consisted of installation of the 11,000v High Voltage network & a 415v Low Voltage (LV) network throughout the Olympic Park (Ref. 31). This was installed in a duct system provided by others. The High Voltage network was also constructed within purpose made Salmore pits, again constructed by others, at any location where cables left the main "spine" or where joints were located. This was different to the LV network, where joints and routes away from the spine were direct buried before re-entering the duct system..

3.1.3.4 LOCOG Readily Connectibles

Works undertaken by Volkers to install the underground utilities associated with the Water Polo potable water were reported in the Site Wide Validation Report for the LOCOG Readily Connectables and LV Blakey Panels (Ref. 32). Potable water excavations were carried out at various locations Park-wide. The excavations comprised a standard stepped trench battered down to a typical depth of 1.2 m bgl. In instances where Marker Layer was breached, this was reinstated to a typical overlapping detail at all locations. Works were not completed to FFL by Volkers but were subsequently completed by either LPR or the LOCOG Common Domain contractor.

3.1.4 Venues

3.1.4.1 Aquatics Centre

The Aquatics Centre building was constructed by Balfour Beatty in the southern section of PDZ1 and includes the competition pool, diving pool and training pool (Ref. 33). Works included the installation of a cofferdam, deep excavation (maximum depth -5 m AOD), dewatering within the cofferdam, CFA piling, placement of fill materials and construction of the building and pools. No Marker Layer was placed beneath the building footprint, with the concrete basement structure considered to be a suitable substitute to the Marker Layer and HHSL. These aspects are discussed further in Sections 3.3 and 3.4. Ground gas and vapour protection measures were installed and these are discussed further within Section 3.8. One temporaray office accommodation block used during construction was retained during Games by LOCOG and assessed separately, for Games time use by that project.

In addition, Balfour Beatty completed landscaping works in the area to the south of the Aquatics Centre building, which will be used to provide access to the Aquatics Centre and other venues on the Olympic Park (Ref. 34). These works involved the placement of Marker Layer and landscaping fill materials including partial HHSL. Completion of HHSL and hard standing to FFL was to be subsequently undertaken by LPR. A typical section of the hard landscaping works to the south of Aquatics can be seen in Figure 11.

3.1.4.2 Waterpolo

The Water Polo venue is a temporary structure for use during the London 2012 Olympic Games, after which it will be completely removed. The building contains a competition pool, a warm up pool, seating for 5,000 spectators and various elements of ancillary accommodation. The building is constructed from large steel portal frames and clad with a PVC fabric skin. The seating stands and the swimming pools have both been constructed using standard components that are to be fed back into the supply chain after the building is taken down. The building is ventilated using motorised exhaust air louvers situated at the top end of the building in the north and mechanical extract spigots on either side of the venue.

Earthworks started with temporary filter drainage works, excavations for pile cap bases and sheet piling works (Ref. 35). Some excavations went below the Marker Layer, in which case the excavated material was placed on polythene prior to being sent to the Olympic Park Soil Hospital. No *in-situ* Made Ground was re-used in the construction works on site. The warm up pool area was excavated (approximately 3,500 m^3), with the excavated crushed material used for levelling works. Screw piling and drainage works were complete in the southern part of the site, with excavation and levelling works starting in the north of the site. The competition pool area was excavated, with some of the crushed material arisings re-used on site to level the bar building in the east of the site. Note, the ground slab acts as a temporary Marker Layer and HHSL. Both elements are required to be fully installed post removal of the structure.

3.2 Residual Actions from Enabling Works

Table 3.1 below presents the residual actions identified at the end of the Enabling Works stage of the project, as summarised within the Enabling Works (Stage 1) CVR for PDZ1 (Ref. 1) and summarises the works undertaken by the FoPs to address these actions, where relevant.

Table 3.1 – Residual Remedial Actions from Enabling Works for PDZ1

No	Title	Description	Responsibility	Action completed by FoP
1	Potential removal of sub-grade with asbestos concentrations >0.1 w/w (wet-weight)	Asbestos concentrations in the sub-grade have been identified at >0.1% w/w. Confirmation has now been received from the LLDC that no further works are required in this respect as the pathway to human health receptors has been intercepted by the overlying general fill and / or HHSL.	N/A (this action was closed by Enabling Works, refer to the Stage 1 CVR)	N/A
2	Removal of temporary fill placed in the River Wall Zone	Temporary material was placed in the river wall zone to protect the integrity of the erosion protection layer beneath it and to support the river edge sheet piles in their temporary condition. This will require removal and (if required) replacement with suitably compliant materials. Alternatively it should be sampled and verified should it be considered necessary to leave it *in-situ*.	FoPs	Addressed by Skanska LPR through placement of 165 mm Type 1 limestone and construction of a 225 mm thick concrete slab. Additionally, temporary fill was removed from the river wall zone by NUttall SBH during works for Bridge H05, Bridge F09, surface water drainage outfalls and White Area 31f.
3	Placement of Marker Layer where omitted	Future contractors are to complete the Marker Layer where not present over remediated areas or obtain agreement from the PDT to its omission.	FoPs	Details of the extent of Marker Layer and HHSL are presented in Figures 6 and 7. Refer to Table 4.1 for details of where Marker Layer is to be placed by a subsequent project.

No	Title	Description	Responsibility	Action completed by FoP
4	Placement of additional separation layer over remainder of site and provision of survey plans of final separation layer	FoPs are required to provide survey plans within two months of completion of the entire HHSL to demonstrate to the PDT an acceptable thickness of HHSL (minimum 600 mm thickness). These survey plans should also identify any areas where the Marker Layer is not laid. Reference should be to Figures 6, 7, 8 & 9 within the PDZ1 Stage 1 CVR, for the survey of HHSL, EWFL, extent of Marker Layer placed during Enabling Works and non-remediated areas.	FoPs	Details of the extent of Marker Layer and HHSL are presented in Figures 6 and 7. Known areas where Marker Layer and HHSL need to be placed / replaced as part of LOCOG's works and Legacy / Transformation are outlined in Table 4.1.
5	Suitable infrastructure design	Structures should be designed recognising the chemical and other characteristics of the stratum in which they are founded. Sections in contact with potentially contaminated materials may need to be resistant to chemical attack, particularly by sulphates.	FoPs	FoP structures have been designed and constructed to take account of known ground conditions. This includes infrastructure, landscaping, utilities and venues. Example specification extracts, for a selection of projects, have been reproduced within Appendix E to demonstrate that this issue has been considered at design and construction stages.

No	Title	Description	Responsibility	Action completed by FoP
6	Incorporation of vapour protection to building structures	The SSRS specified that the 'incorporation of land gas / vapour protection measures within fabric of building structures' was one of the key remediation / mitigation measures for the site. Specific measures are subject to detailed design.	FoPs	As detailed within Section 3.8 and Appendix B, ground gas / vapour assessments were produced for the Aquatics Centre and Water Polo venues, due to the potential migration pathway to indoor air. Temporary site accommodation to facilitate construction of the Aquatics Centre and Water Polo was constructed on pad footings with a clear void space beneath. The Aquatics temporaray offices were passed to LOCOG for use during Games time and have been assessed separately by that project.
7	Maintenance of Riverwall cut off	Cut off provided by sheet piles, sealant, geo-membrane, anchorage and associated works to be maintained to ensure integrity. Any openings or breaches are to be sealed to Designers approval for river wall installation as built.	FoPs	The river wall cut off was breached during construction of Outfalls S01-01 and S01-03 to S01-07. Integrity was maintained by sealing around the pipes passing through the river wall cut off. In addition, the sheet piled cofferdam was left in place at S01-03 and S01-07, thus sealing these areas off from the rest of PDZ1. Maintenance of the cut-off wall needs to be considered during future developement of the site and is carried forward as a residual action in Table 4.1.

No	Title	Description	Responsibility	Action completed by FoP
8	Protection of monitoring installations and facilities	Undertaking measures required to protect monitoring and groundwater remediation installations and facilities. Any damage to such installations or facilities is to be reported to the PTP Team (see Appendix D) as soon as practicable so that remedial works / decommissioning (as appropriate) can be undertaken.	FoPs	FoPs followed these guidelines during their works and ensured that access to monitoring locations and facilities was maintained. Further information is provided within the FoP validation reports, summarised within Appendix B.
9	Final validation report	The FoP shall produce and gain approval of final validation report on completion of construction to complete above remediation requirements, primarily the provision of the full HHSL.	FoPs	All FoP validation reports for PDZ1 approved by the PDT are summarised within this Stage 2 CVR (in Section 3 and Appendix B).
10	Excavation of soils at the Site	The PTP Protocol (Appendix D) must be implemented for all below ground works. A review of available data relating to the condition of the soils at the Site should be undertaken prior to any excavation and appropriate precautions must be undertaken. The validation reports prepared by Enabling Works base their assessments on long-term risks to the end-user assuming the Legacy end use stated in the SSRS and do not consider risks to construction or maintenance workers. Any risks to workers can be safely mitigated through use of appropriate PPE and suitable engineering precautions. Reference should also be made to the Health & Safety File.	FoPs / future land owners and developers	FoP compliance with the PTP Protocol is detailed within Section 3.6 below and within the individual validation reports summarised in Appendix B. As detailed within Section 3.16, FoP works incorporated appropriate health and safety measures associated with the known ground conditions.
11	Risk assessments	In addition to risk assessments outlined above regarding excavation of soils at the Site, appropriate risk assessments would need to be undertaken with respect to unexploded ordnance (UXO), pathogens, asbestos, radiation and ground gas / vapours when undertaking excavations and / or construction activities at the Site.	FoPs / future land owners and developers	Sections 3.13, 3.14 and 3.16 describe the risk assessments undertaken by FoPs in relation to excavation and construction activities in PDZ1. For ground gas and vapour assessment, please refer to Item 7 above.

No	Title	Description	Responsibility	Action completed by FoP
12	Restrictions to remediation	Restrictions to remediation exist in defined areas of PDZ1 as shown on Figure 9 within the PDZ1 Stage 1 CVR. If these areas are developed in the future, an assessment will be required to determine if remediation is required. In the meantime, any construction adjacent to the areas should consider available evidence from samples taken at the limits of the remediation works.	FoPs / future land owners and developers	Please see Section 3.10 below and the update to the Retained Areas Risk Assessment Report (RARAR) (Ref. 36), as shown in Figure 9.
13	Future land use	The areas designated for different land uses shall not be amended without reassessment of the soil conditions. The Site shall not be used for growing edible crops or for private gardens.	Future land owners and developers	N/A
14	Future Services	Appropriately resistant / sealed utility corridors shall be constructed as per the SSRS.	FoPs / future land owners and developers	Multi Utilities (including DHC) were constructed as per the design.
15	Maintenance of river wall cut off	The river wall cut off must be maintained. In particular, the following requirements: • Lightweight fill only to be used above river wall. • Seal any pipes or openings made in the river wall. • Strengthen any such pipe entry or other opening with a suitable collar.	FoPs / future land owners and developers	Lightweight fill was placed by Balfour Beatty above the River Wall, as per Section 3.1.4.1. Also refer to Item 7, above.
16	Changes in final level	Any reduction of FFL will require a reassessment of the underlying soil and potentially additional investigation or remediation. The design levels used for the Enabling Works remediation assume that a minimum 600 mm thickness HHSL will be provided.	FoPs / future land owners and developers	Instances where FoPs have used permanent hard standing as a substitute to the HHSL are detailed within Section 2.2.2. Further detail on the HHSL and FFL is provided within Section 3.1, Section 3.3 and Appendix B.

No	Title	Description	Responsibility	Action completed by FoP
17	Rate of infiltration / recharge	The Follow-On Projects / future land owners and developers are required to comply with the infiltration / recharge requirements specified in the SSRSs.	FoPs / future land owners and developers	Infiltration and generation of perched water is considered to have been significantly reduced due to the construction of the Aquatics Centre building and surrounding hard-standing.

Note: Where residual actions require further consideration and / or need to be addressed as part of the next stages of the project (including Transformation / Legacy works) these have been taken forward and included in Table 4.1.

3.3 Human Health Separation Layer

The HHSL forms the upper section of the cover system across PDZ1 and is compliant with above Marker Layer SSAC, based on the known Legacy use and SSRS assumptions. Whilst the minimum thickness of the HHSL is 600 mm, this varies in accordance with the ground build up and agreed variations (see Sections 2.2.1 and 2.2.2 above).

Within PDZ1 the thickness of HHSL placed by the ODA Enabling and FoP contractors varies from 375 mm in hard landscaped areas to a maximum 3100 mm. In accordance with their approved RMS addenda (see Table 2.1 above) Nuttall SBH placed a reduced thickness of HHSL beneath areas of permanent hard standing in the approach to Bridge H08 and around the surface water pumping station. In addition the concrete basement structure of the Aquatics Centre and Water Polo venue was deemed to provide an adequate substitute to the HHSL. LPR South also gained approval from the PDT via their RMS submission, to reduce HHSL thickness in permanent hard landscaping areas.

The full thickness (minimum 600 mm) of HHSL or hard standing substitute has been shown to provide an effective barrier to underlying materials thus breaking potential pathways to future human health receptors. Within PDZ1 the only areas identified as not having full thickness HHSL or an agreed hard standing substitute are the two small soft landscaped 'White Space Areas' (WSA), one in the southern section (WSA 31f) and one along the northern site boundary (WSAs 29 and 30). Enabling Works did not undertake any work in WSA 29 and 30 (although to a lesser extent) due to the presence of an easement for the Network Rail Third Party Boundary. At WSAs 29 and 30 the Marker Layer has been placed directly below the 150 mm of imported topsoil and the existing *in-situ* material below the Marker Layer was validated, as detailed in the PDT approved Nuttall SBH Addendum Validation Report for Planning Delivery Zone 1 (Ref. 23). Similarly, in WSA 31f, the Marker Layer is below only 150 mm of HHSL (topsoil). To assess the risk presented to human health the underlying Class 1 material was also screened to the Human Health Separation layer criteria and not the General Fill criteria, no exceedances of the SSAC were identified. These areas have been subject to placement of between 300 and 600 mm of imported, virgin HHSL and are not readily accessible by the general public. Future access and use of these areas will need to be considered in terms of potential pathways to underlying existing / unremediated ground and, as such, are identified within Table 4.1 below.

An area to the south east of the Aquatics Centre was identified by LPR South as requiring completion of the hard standing pavement to FFL by LOCOG. This Games time back of house area is mixed use in Legacy and not recorded as permanent hard standing and so requires completion of the full thickness HHSL. Figure 7 and Table 4.1 highlight this residual action and the LOCOG Stage 3 CVR will be required to confirm the hard standing has been completed.

Figures 6 and 7 show the location and thickness of Marker Layer and separation layer placed by the FoPs, while Figure 7 also shows the locations within PDZ1 where hard standing has been used as a substitute to HHSL. Figure 9 shows the 'retained' or unremediated areas within PDZ1 and those subject to FoP works.

A total of approximately 16,700 m^3 HHSL material has been placed as part of the FoP works in PDZ1 with approximately 1,100 m^3 supplied by the Soil Hospital and approximately 15,600 m^3 imported from outside the Olympic Park. The principal material types imported from off-Park comprised sub- and topsoil placed within the soft landscape areas, road verges, white areas etc, virgin Type 1 / 2, Class 6A, 6C, 6N and 6I material used for road

construction and as engineered fill for structures, virgin and recycled gravels and sands for pipe bedding / utility surrounds and engineered light-weight fill, also for structures. Re-used, site derived materials principally comprised fill from the Westfield development and the Power Line Underground (PLUG) works across the site, which was used as sub-base beneath hard standing and as sub-soil.

The placed HHSL material in PDZ1 has been validated in-situ by the FoPs on a testing frequency of at least one sample per 200 m^3 of placed material or an agreed variation to this frequency. No exceedances of the applicable SSAC have been identified which have required further works to address and, as such, no unacceptable risk is presented to the Legacy users as defined in the SSRS and Figure 10, 'Exceedances requiring Action in Legacy Transformation', has not been prepared for PDZ1.

3.4 Marker Layer

The Marker Layer, a brightly coloured (orange) terram or netlon geogrid forms an integral part of the Park's cover system and provides a visual demarcation between the HHSL (see Section 3.3) and underlying general fill or *in-situ* soils. For planning and remediation design purposes, no special health and safety precautionary measures or controls are required for those undertaking works within material above the Marker Layer. Material below the Marker Layer should be considered potentially contaminated and requires further health and safety consideration.

Marker Layer was omitted beneath the footprint of the Aquatics Centre building due to the deep excavations (to the top of the Lambeth Group) and the concrete basement structure. These features make exposure of the material below the building highly unlikely and thus the risk to human health receptors was considered to be negligible, reducing the requirement for a visual Marker Layer. In addition due to the changing building foundation levels and the number of CFA piles installed beneath the building, the installation of Marker Layer beneath the building footprint was not practicable. This approach was agreed with the PDT (Ref. 33).

Marker Layer was also omitted beneath the footprint of the Waterpolo building and hard standing, due to the temporary nature of the venue. The hard standing over the site area forms the cap which is protective of human health, as discussed in Ref. 35. It is also noted that Water Polo is a temporary venue, to be removed post Games. Installation of Marker Layer and full HHSL will be required as part of Legacy / Transformation works.

Figure 6 shows the extent of Marker Layer placement across PDZ1.

3.5 General Fill

General backfill was placed beneath the HHSL and Marker Layer during FoP deeper excavations in PDZ1 including as part of drainage installation, foundation works for bridge abutments and structures, and to raise site elevations in accordance with the Legacy design e.g. beneath permanent hard standing.

A total of approximately 111,000 m^3 of general fill was placed during the FoP works with approximately 22,600 m^3 supplied by the Soil Hospital and approximately 88,400 m^3 imported from outside the Olympic Park. Imported general fill principally comprised recycled (Waste Recycling Action Programme, WRAP compliant) demolition rubble, rail

ballast and glass and recycled sand for pipe bedding / utility surrounds. Chemical testing of this placed material was generally undertaken on a frequency of at least one sample per 1,000 m^3 or an agreed variation. In certain instances agreed in retrospect, however, *in-situ* testing of Soil Hospital supplied general fill was not undertaken and works were validated through assessment of *ex-situ* stockpile test data provided by Soil Hospital. Assessment of this data has established that the FoP placed general fill material does not present an unacceptable risk to identified SSRS receptors.

In addition, certain projects re-used as-dug, existing, unremediated ground excavated from beneath the sub-grade and did not undertake validation of the replaced material. These projects included McNicholas multi-utilities and Skanska LPR South with a total estimated volume of as-dug re-used material of approximately 250 m^3 in PDZ1. Where this approach was adopted the projects sought retrospective PDT approval via presentation of either pre-construction site investigation data or adjacent Enabling sub-grade data to demonstrate compliance. See residual item in Table 4.1 for details of actions / mitigation required for future maintenance workers in relation to the McNicholas multi-utilities corridors in PDZ1.

3.6 Safeguarding Remediation

On completion of the Enabling Works remediation, processes were put in place by the ODA to ensure the integrity of these works was protected. The processes were collectively known as the 'Permit to Proceed' (PTP) system (Appendix D).

This system ensured the protection of remediation works and the maintenance of environmental protection measures during FoP excavation works. The PTP system was implemented across the Olympic Park and was fully adhered to by FoPs throughout the duration of the works. The procedure is described in full in the PTP Protocol (Appendix D).

Prior to the commencement of any ground excavation works, all the information required by the PTP team was provided on an ATK-084 'Protection of Remediation Works' *pro forma* completed by the FoPs and submitted to the PTP team for approval. The PTP team informed the FoPs of any remedial aspects they should be aware of during their works. On completion of the ground excavation works FoPs provided as-built details to the PTP team to demonstrate adequate protection of existing remediation works. This process was supported by monthly PTP Audits of the projects by the PTP team, which monitored materials management and protection of remediation works. Any non-compliances identified were informed to the CLM project management team and steps put in place to address the issues.

Slot-In Conditions relating to the safeguarding of remediation during foundation and landscape works are detailed within Table 2.3 above.

3.7 Soil Hospital Process

As part of the Olympic Park development, a facility known as the Soil Hospital was established and made available for use throughout the project. The procedure is detailed within the Soil Hospital protocol (Ref. 37). The Soil Hospital was introduced with a view to maximising the re-use of site derived earthworks materials within the Park, in accordance with the ethos of the Construction Code of Practice (Ref. 38). Soil Hospital provided a hub for processing / handling materials generated by ground works within the Park (both

Enabling Works and FoPs) and included treatment facilities and related testing of produced materials to maximise re-use across the project.

Prior to any material movements to or from the Soil Hospital, all the information required by Soil Hospital was provided on an ATK-088 'Request from Follow-on Contractor' *pro forma* completed by the FoPs and submitted to the Soil Hospital team. The Soil Hospital maintained stockpiles of a range of recycled earthworks materials and collected chemical and geotechnical test data on these materials which was supplied to the FoPs for them to confirm acceptability based on the proposed area of placement. When FoPs needed to dispose of material, the Soil Hospital team provided a response detailing the arrangements for disposal of the material within the Park or agreement that the material could be disposed of off-site (to landfill).

3.8 Gas / Vapour Protection Measures

Within PDZ1 the only identified structure which required a ground gas / vapour assessment was the Aquatics Centre.

The original ground gas risk assessment for the Aquatics Centre recommended a building design incorporating 3 points of gas protection, in accordance with the British Standard (Ref. 39). The gas protection measures installed at the Aquatics Centre comprised a reinforced concrete suspended slab and a gas / vapour resistant membrane, which give a total score of 2.5 points. The installed gas protection is judged to be sufficient, given the gas / vapour regime and source characteristics, the removal of much of the underlying gas / vapour source and the building use (controlled public building with substantial construction details and a high degree of internal ventilation). The majority of the internal space above the pools is open and well ventilated. The basement "corridors" that run alongside the pools are effectively concrete air ducts, all usable parts of the building are air conditioned / ventilated and back office and plant room areas include louvers to ensure air movement. Therefore, the Aquatics Centre has ground gas protection that meets the requirements set out in BS8485 and CIRIA C665 for the proposed use of the building.

A variety of ground gas mitigation scenarios were identified by Buro Happold for the Water Polo venue. These were submitted and subsequently approved by PDT within the venue ground gas risk assessment which formed part of the venue foundation design details. Works were installed as per the design, as discussed in Ref. 35.

3.9 Mitigation Measures for Contamination Migration

FoPs were required to adopt suitable design and construction methods to avoid creation of preferential contaminant migration pathways to the lower aquifers.

Environmental risk assessments were produced by the FoPs carrying out piling works and subsequently approved by the regulators (the Environment Agency). These risk assessments are listed in Table 3.2 below.

Table 3.2 – FoP Piling Environmental Risk Assessments

Task	Document References
Bridge F09	7040-SBH-F09-W-REP-006 (09/90131/REMODA)
Bridge F10B	Aquatics Centre Temp Footbridge F10 REP-OAP-CG-ZZZ-FBR-F10-0001 (08/90029/REMODA)
Bridge H05	7040-SBH-H05-W-REP-0004 (08/90309/REMODA & 08/90237/REMODA)
Bridge H07	GUI-OAP-PC-ZZZ-HBR-H07-O-0001 (08/90072/REMODA & 08/90195/REMODA)
Bridge H08	REP-OAP-CG-01B-RWL-XXX-X-0001 (08/90274/REMODA, 08/90236/REMODA & 08/90045/REMODA)
Aquatics Centre	Submission of Reserved Matters (08/90025/REMODA)
Water Polo	02 6753 ODA for Foundation Piles / Vibro Replacement Concrete Columns and Sheet Pile Retaining Walls (11/90122/AODODA)

In addition, one of the key SSRS assumptions for PDZ1 was that the cohesive Alluvium underlying the Made Ground across the site acts as a barrier to the downward migration of contaminants to the underlying RTD aquifer. Where works compromised or breached the Alluvium the remedial strategy called for consideration of replacement of cohesive fill or a suitable substitute to the Alluvium, for example, an impermeable membrane.

Construction of the Aquatics Centre required the complete removal of the Alluvium in certain areas beneath the building footprint. It was determined that all significant sources of contamination within the cofferdam had been removed, thus reducing generation of contaminated perched water. In addition, the generation of perched water would also be significantly reduced by the construction of the Aquatics Centre building and surrounding hard-standing, since infiltration would be limited and precipitation positively dealt with. It was therefore concluded that perched water migration into the shallow groundwater would represent no greater risk than that considered within the SSRS model. This process demonstrated that the removal of Alluvium during construction of the Aquatics Centre will not impact the remediation works and would not create a pathway for perched water to migrate to the underlying shallow groundwater within the RTD.

At the request of the PDT a site wide assessment of penetrations of the Alluvium has been produced by the remedial Design Team (Ref. 40) which considers the risks to the underlying RTD. This document forms a separate submission to this CVR. It concludes that, although certain FoP works have penetrated the Alluvium, they are not considered to present a significant risk to controlled waters because they are not located within residual unremediated areas. The exception to this is the works for F10 Bridge columns where concrete was placed at the base of the excavations and material above removed and replaced with material of appropriate quality. The assessment also notes that the PDZ1 SSAC do not include for any attenuation of contamination within the Alluvium and, therefore, material compliant with the SSAC would not present a significant risk to controlled waters, even if Alluvium was not present.

3.10 Non Remediated Areas

Works by the FoPs within areas defined as 'unremediated' i.e. those not subject to remediation during the Enabling Works phase of the project, within PDZ1, were limited to certain boundary areas of the Zone and instances of excavation beneath Enabling Works sub-grade. Refer to Figure 9 for the location of these areas.

A separate, revised and updated assessment of retained areas is being produced (Ref. 36) to capture the works completed by the FoPs in these unremediated areas, forming an addendum to the existing Retained Areas Risk Assessment Report (Ref. 41). Where works in these areas have a potential to impact future works these are recorded in Table 4.1.

3.11 Sampling and Analytical Testing

In-situ sampling and validation chemical testing, where undertaken by the FoPs, was in accordance with the SSRS and applicable updates. Analysis of samples was undertaken by UKAS accredited laboratories and soils were analysed using MCERTS accredited methods.

Test suites were designated by the individual FoPs to capture the relevant compounds listed within the zonal SSAC for HHSL and general backfill, as outlined within the SSRS for PDZ1.

3.12 Invasive Species

No invasive species were encountered during the FoP works within PDZ1, however, the BAM Nuttall LRP project has undertaken ongoing treatment of invasive species, especially along with the river banks and these works will likely need to be continued in the future. Reference should be made to the Park Wide Invasive Species Treatment Report (Ref. 42) residual action 2.5 in Table 4.1 below and the invasive species drawing within Appendix E.

3.13 Unexploded Ordnance

A Park wide risk assessment of German air-dropped unexploded ordnance (UXO) was conducted by BAE Systems in advance of the project (Ref. 43). The objective of this document was to assess the potential to encounter UXO during the project, to evaluate implications of such an occurrence and to determine whether risk mitigation measures would be necessary. The assessment recommended that there was a moderate probability of German air-dropped UXO being encountered during the Project.

Eight UXO were encountered during Enabling Works within PDZ1 and these are discussed in greater detail within the Enabling Works (Stage 1) CVR (Ref. 1). In addition, several ordnance related items were removed from the Waterworks River (adjacent to PDZ1 but outside the site boundary) prior to Enabling Works and there was considered to be a high risk of encountering further items in the watercourse should specific activities such as dredging or site investigation be required.

As a result of these UXO encounters during Enabling Works, FoPs were cognisant of the potential to encounter further items of UXO, however no UXO have been encountered during FoP works within PDZ1.

3.14 Radiological Material / Unexpected Contamination

No instances of unexpected contamination, in accordance with the applicable Planning Condition definition, were recorded for ODA FoP works within PDZ1. Details of the works completed during the Enabling Works phase, to assess potential radiological materials, are summarised in the Stage 1 CVR (Ref. 1).

For the FoP works, the risk associated with encountering radiological materials at the site was considered to be low based on the extent of the earthworks, in relation to the works completed by Enabling. Based on this, no further formal radiological assessment was undertaken by the FoPs for their works in PDZ1. It is further noted that where as-dug materials were re-used as general fill within PDZ1 or general fill was re-used from another zone with a known previous radiological land use, that these materials have been placed beneath a full thickness Human Health Separation Layer or hard standing substitute. The full thickness (minimum 600mm) of HHSL or hard standing substitute has been shown to provide an effective barrier to underlying materials thus breaking potential pathways to future human health receptors. Within PDZ1 the only areas identified as not having full thickness HHSL or an agreed hard standing substitute are the two small WSAs 29 and 30, as detailed in Section 3.3. Future access and use of these areas will need to be considered in terms of potential pathways to underlying existing / unremediated ground and, as such, are identified within Table 4.1 below.

During the construction of surface water drainage outfall S01-07, Nuttall SBH recorded a small quantity of granite aggregate was used, which contains naturally occurring levels of radioactivity. Nuvia, the radiological specialists, produced a survey of granite kerb blocks on site, which concluded that the recorded levels presented a 'negligible hazard' (Ref. 44). In addition, the small amount of granite aggregate used within outfall S01-07 has been covered by a full thickness of HHSL. The use of this granite aggregate is therefore considered to be of insignificant risk to human health and controlled waters with respect to radionuclide contamination.

3.15 Materials Management and the Waste Recovery Licence

Temporary stockpiling of materials was managed by all FoPs in accordance with the established Park wide guidance and included segregation of different types of material and, where required, sheeting and appropriate bunding of potentially contaminated material to reduce rainwater infiltration / run-off and the release of odours / dust. Stockpiles were located to be clear of waterways and public places where practical and were constructed so as to shed water.

On-site material tracking has been undertaken by the FoPs across the project. All material movements were subject to a ticketing process with a record of the source and destination of the load, its description, the time, date and vehicle identifier and signatures for

representatives controlling the loading and unloading. The tickets were collated to provide daily and weekly summaries of materials moved. The information was then entered onto the ODA Smartwaste / M3N system to allow material movements and re-use to be reconciled.

A Waste Recovery Licence (Environmental Permit), held by the ODA for its scope of works, has been managed by the CLM Waste Recovery Manager and sets out requirements with regards to managing the recovery of materials from within the Park and limits importation of waste materials. Any variations to the original consent have been discussed and subsequently agreed with the Environment Agency. No breaches of the Waste Recovery permit have been recorded for the FoP works in PDZ1. Completion and approval of this Stage 2 CVR is intended to support surrender of the ODA's obligations under its Olympic Park Environmental Permit.

3.16 Health, Safety and Environment

FoP works were completed in accordance with Construction (Design and Management) (CDM) Regulations. Permit to work and permit to dig systems were in operation for the duration of FoP works. Staff wore suitable Personal Protective Equipment (PPE), with gloves, helmets, boots, eye protection and hi-vis clothing required at all times as a minimum. All details regarding Health and Safety, environmental controls and monitoring are provided within the various FoP construction risk assessments and method statements.

Baseline environmental monitoring across the Olympic Park was undertaken and reported by Enabling Works. General environmental control measures that were in place during FoP works included the following, in accordance with the requirements of the Code of Construction Practice (Ref. 38):

- wheel washes at site entrances / exits;
- wetting of roadways to prevent dust generation;
- sheeting of loads;
- use of hard surfaces for heavily-used haul roads;
- control of vehicle speeds on site;
- readily available spill kits to deal promptly with any spillages;
- monitoring to confirm the absence of protected and invasive species; and
- tool box talks to brief workers on potential environmental issues.

3.17 Legacy Transformation Works

A number of structures completed for the Olympic mode within PDZ1 will be subject to works in transformation to facilitate the Legacy development. Final details of these works are not currently known, however it is known that certain bridge structures will be subject to decommissioning and removal of sections of deck and related abutments to reduce capacity for Legacy use. The bridges within PDZ1 which will be subject to these transformation works include F09, F10 and H08.

It is noted that residual remedial works / protection of existing remediation, will be a requirement of transformation for these structures in addition to the wider transformation works (refer to Table 4.1 below).

4. Conclusions

The PDZ1 FoP Validation Reports conclude that the placed and validated soils do not pose an unacceptable risk to the SSRS defined critical controlled waters and human health receptors. On this basis this PDZ1 FoP (Stage 2) CVR seeks to discharge the ODA's obligations under Condition OD.0.36 of the Facilities and Their Legacy Transformation Planning Application and the Slot-In Validation Planning Conditions referenced in Section 1.3. Aside from the residual actions identified in Table 4.1 below, the ODA has completed the SSRS remedial scope within PDZ1. LOCOG is required to complete the hard standing surfacing in the area to the south east of the Aquatics Centre, as identified on Figure 7 and in Table 4.1 below, to complete the remedial scope in this area. This will be confirmed in the LOCOG Stage 3 CVR together with any further details of LOCOG's pre-Games works.

Residual remedial actions for completion during future works and / or restrictions to future development within PDZ1 are summarised in Table 4.1 below. The incoming Project Teams should be cognisant of these residual actions together with the underlying assumptions of the SSRS design.

4.1 Further Works - Residual List and Issues Affecting Future Development

Table 4.1 below records the works that have been transferred from the ODA Enabling Works and FoP scope to LOCOG, the LLDC Transformation team and future Legacy developers. This table collates the residual items identified in the preceding individual FoP reports and those passed on from the Enabling Works team (refer to the report summaries in Appendix B). No areas of PDZ1 are being passed back to their original landowners.

In addition, Table 4.1 records some key aspects for future developers to consider as part of their works. It is further noted that this table does not in any way alleviate the incumbent Project Teams from complying with the full requirements of the remediation documentation, their legal, regulatory and contractual obligations.

4.2 Stage 3 Consolidated Validation Reporting

This report summarises the FoP validation works completed by the ODA to create the venues and infrastructure suitable for staging the London 2012 Olympic and Paralympic Games. It is recognised that other, non-ODA, parties have earthworks on the site which follow on from these ODA completed works, most notably LOCOG. These works are not summarised herein and are to be included in a third stage of the CVR programme.

In the context of the works in PDZ1, known third party works, which are not summarised herein comprise the LOCOG overlay construction including Common Domain areas. Removal of this temporary infrastructure and subsequent reinstatement works may also need to be captured through validation reporting and this will be established with the appropriate parties.

Table 4.1: Outstanding Works transferred to Future Developers / Land Owners and Restrictions on Future Works in PDZ1

No.	Title	Site Specific Actions Required	Action By
2.1	Maintenance of river wall cut off	The ODA / FoP have maintained the integrity of the river wall cut-off during their works by placing lightweight fill only above the river Wall and by sealing any pipes or openings made during their works. Future land owners and developers should be aware of the river wall cut off during future works and continue to maintain its integrity.	Future land owners and developers / LLDC
2.2	Rate of infiltration / recharge	Future land owners and developers are required to comply with the infiltration / recharge requirements specified in the SSRSs.	Future land owners and developers / LLDC
2.3	Removal of Temporary Structures	Removal of the Water Polo venue and temporary seating 'wings' at the Aquatics Centre and subsequent placement of Marker Layer and full HHSL to FFL. The location of the temporary structures are shown in Figure 4.	LLDC
2.4	Removal of Temporary Bridges	Removal of temporary Bridges F10A, F10B and potentially H08 together with subsequent placement of Marker Layer and full HHSL to FFL. The location of the temporary bridges are shown in Figure 4.	LLDC
2.5	Completion of HHSL	Hard standing surfacing is to be completed and suitably validated by LOCOG within the back of house area to the south east of the Aquatics Centre. The area is highlighted on Figure 7.	LOCOG
2.6	Invasive Species Monitoring	Ongoing monitoring of invasive species adjacent to the river bank. The location of invasive species requiring ongoing monitoring is shown in Appendix E.	BAM Nuttal LPR / Future land owners and developers / LLDC
2.7	Non-aqueous phase liquid (NAPL) plume	Enabling Works identified a NAPL plume to the north of the Aquatics Centre which was demonstrated not to present an unacceptable risk based on the SSRS Legacy design. Any change to this design which may include deep excavations or piling works in proximity to this feature must consider this and include for appropriate risk assessment e.g. piling risk assessment and potentially further down gradient monitoring to demonstrate no unacceptable risks exist (refer to Stage 1 CVR, Ref. 1).	Future land owners and developers / LLDC

No.	Title	General Actions Required	Action By
2.8	Placement of Marker Layer where omitted	FoPs were required to provide survey plans within two months of completion of the entire HHSL to demonstrate to the PPDT an acceptable thickness of HHSL (minimum 600 mm thickness). These survey plans also identified any areas where the Marker Layer was not laid. Reference should be made to Figures 6 & 7 within this PDZ1 Stage 2 CVR for the extent of Marker Layer and HHSL placed or replaced during the ODA works and the updated non-remediated areas drawing. Future works must consider the areas where Marker Layer has been omitted and take applicable corrective actions. This includes the area of the Olympic Park Fence – see below.	Future land owners and developers / LLDC
2.9	Suitable infrastructure design	Future land owners and developers need to consider ground conditions when designing infrastructure, such as services, utilities and foundations.	Future land owners and developers / LLDC
2.10	Incorporation of vapour protection to building structures	Future land owners and developers should consider assessment of soil and gas vapour hazard and incorporate the appropriate vapour protection in their design and construction. The SSRS assumes that vapour protection will be required wherever indoor air is present.	Future land owners and developers / LLDC
2.11	Excavation of soils at the Site	Future land owners and developers shall take appropriate health and safety measures to protect workers involved in excavation of soils. It is likely that a permitting system similar to PTP shall be implemented within the Olympic Park in post-Games mode. Future land owners / developers should be cognisant of utilities works below Enabling Works sub-grade completed by McNicholas Utilities (as detailed in Sections 3.1.3.2 and 3.14. In certain areas the project re-used non validated materials around their utilities. As such below Marker Layer soils around utilities should be treated as potentially contaminated / harmful to health. This is highlighted in the applicable Asset Holders health and safety file. Health and safety risks to future workers accessing these utilities should be assessed in advance of undertaking works. Future land owners / developers should also be aware of the reduced thickness of HHSL within areas across PDZ1, as detailed in Section 3.3 and shown in Figure 7.	Future land owners and developers / LLDC

No.	Title	General Actions Required	Action By
2.12	Risk assessments	Future land owners and developers shall complete appropriate risk assessments with respect to UXO, pathogens, asbestos, radiation and ground gas / vapours when undertaking excavations and / or construction activities during their work.	Future land owners and developers / LLDC
No.	**Title**	**General Actions Required**	**Action By**
2.13	Restrictions to remediation	An addendum to the Enabling RARAR has been produced by the remedial designers for areas identified as 'retained' as part of the ODA works (Ref. 36, 0241-ENW-PWD-CM-REP-0001)). Contractors shall be cognisant of the Residual Actions detailed in this report and in particular when working in the proximity of the features referenced in this report. Figure 9 shows Retained Areas within PDZ1 and details are reproduced in Appednix E.	Future land owners and developers / LLDC
2.14	Future land use	Future land owners and developers shall ensure that areas designated for different land uses are not amended without re-assessment of the soil conditions and that the Site is not used for growing edible crops or for private gardens.	Future land owners and developers / LLDC
2.15	Future Services	Future land owners and developers shall consider installing future services within appropriately resistant / sealed utility corridors as per the SSRS. Note, where this cannot be maintained, consideration must be given to suitable infrastructure design (see point 2.8 above).	Future land owners and developers / LLDC
2.16	Changes in final level	Any works by future land owners and developers involving a reduction of FFL will require a reassessment of the underlying soil and potentially additional investigation or remediation. The design levels used for the ODA remediation assume that a minimum 600 mm thickness HHSL will be provided.	Future land owners and developers / LLDC
2.17	OPF Removal	An easement associated with the OPF has meant that remediation and placement of Marker Layer and full HHSL has not been completed by ODA. The area of the OPF shall be assessed and corrective actions undertaken to complete the remedial design as part of the Legacy / Transformation phase. The location of the OPF is shown in Figure 4.	Future land owners and developers / LLDC
2.18	Borehole Decommissioning	Correct decommissioning of boreholes, in accordance with applicable guidance, is required to prevent the generation of migration pathways.	Future land owners and developers / LLDC

No.	Title	General Actions Required	Action By
2.19	Piling Risk Assessments	Piling risk assessments are required for any future structures constructed across the site.	Future land owners and developers / LLDC

Note: This table incorporates residual actions following completion of the ODA Enabling and Follow-on Project works and represents the status at the end of the Stage 2 consolidated reporting (hence the Residual Action Nos. **2.1** etc). For the status of these residual actions following the LOCOG works please refer to the applicable Stage 3 CVR.

5. References

1 Atkins. REP-ATK-PM-ZZZ-ZZZ-ZZZ-E-0193. Enabling Works (Stage 1) Consolidated Validation Report, Planning Delivery Zone 2. November 2011. (Decision Notice Ref. 11/90174/AODODA)

2 Planning Application Approval (Olympic, Paralympic and Legacy Transformation Planning Applications: Facilities and their Legacy Conditions Planning Application, Application No – 11/90313/VARODA (formerly 07/90010/OUMODA), Date of Application - 7th February 2007): Condition 36.

3 Planning Application Approval (Olympic, Paralympic and Legacy Transformation Planning Applications: Site Preparation Planning Application, Application No – 07/90011/FUMODA, Date of Application - 7th February 2007): Condition 35.

4 Capita Symonds. REP-CSP-VZ-ZZZ-OLP-XXX-E-0076. Global Remediation Strategy, (Version 2.0, Rev B). January 2007. (Decision Notice Ref: 07/90011/FUMODA)

5 Capita Symonds. MST-CSP-CM-ZZZ-OLP-XXX-E-0040. Intrusive Investigation Method Statement (IIMS). November 2006. (Decision Notice Ref: 07/90216/AODODA)

6 Olympic Delivery Authority Planning Decisions Team, ERM, Pinsent Masons. \22528872.3\EW02. Remediation and Follow on Works, Follow on Contractors Interaction with the Olympic Delivery Authority Planning Decisions Team.

7 Nuttall. 7040-SBH-SPK-W-REP-0027-02 & 7080-SBH-NPK-W-REP-0017-02. Olympic Park Lot 2 (PDZ1, PDZ2, PDZ3, PDZ4, PDZ8) and Lot 5 (PDZ5 & PDZ6) Remediation Method Statement Addendum – Structures, Bridges and Highways. October 2010. Decision Notice Ref: 10/90343/AODODA)

8 Skanska Infrastructure Services. 7170-LPR-SPK-L-RMS-0001 C04. Olympic Park Planning Delivery Zones 1, 2, 4 & 8: Remediation Method Statement Addendum – Landscape & Public Realm South. September 2011. (Decision Notice Ref: 11/90078/AODODA)

9 McNicholas Construction Services Limited. 8526-UNN-ECW-U-MST-0070 C03 (8514-UNN-UCW-U-MST-0001). Design Note for McNicholas Works in the Olympic Park, Planning Delivery Zones 1, 2, 3, 4, 5, 6, 7 and 8. March 2011. (Decision Notice Ref: 10/90523/AODODA)

10 Buro Happold. London 2012 Water Polo Design Note. Water Polo Building Verification Criteria V3. January 2011(Decision Notice Ref: 10/90564/AODODA)

11 Atkins. ENW-ATK-LET-00269. Site Wide RMS Addendum (Use of Hardcover as a Substitute to the Separation Layer). February 2009. (Decision Notice Ref: 08/90292/AODODA)

12 Atkins. 0241-ENW-ATK-LET-00328. Condition SP.0.37 & OD.0.39: Quality of Imported Fill – Framework. October 2009. (PDT approval via letter dated 9th November, 2009)

13 Olympic Delivery Authority. 20100208_Let_PDTRemediation. Application for Approval for Sources of Recycled Aggregate Products: Related Testing and Validation of Waste Resources Application Programme Quality Protocol Compliant Products. March 2010. (Decision Notice Ref: 09/90437/AODODA)

14 Olympic Delivery Authority. Application for approval of source of recycled aggregate products: related testing and validation of Waste Resources Action Programme (WRAP) quality protocol compliant productions. September 2010. (Decision Notice Ref: 10/90422/AODODA)

15 Atkins. 0241-ENW-ATK-LET-00659. Site wide use of Crushed Concrete for filling of Gabion Baskets & Mattresses. July 2010. (Decision Notice Ref: 10/90330/AODODA)

16 Nuttall. 7040-SBH-F09-W-REP-0013 P01. Validation Report for F09 East Permanent and Temporary Bridge Abutment in LA11540. September 2010. (Decision Notice Ref: 10/90469/AODODA)

17 Nuttall. 7040-SBH-H05-W-REP-0017 P01. Validation Report for H05 East Bridge Abutment in LA2140. July 2010. (Decision Notice Ref: 10/90317/AODODA)

18 Nuttall. 7040-SBH-H07-W-REP-0008 P01. Validation Report for H07 North Bridge Abutment in LA4300-1 and LA7180. August 2010. (Decision Notice Ref. 10/90372/AODODA)

19 Balfour Beatty. 6001-F10-F10-CK-REP-0002 C03. Remediation Completion and Validation Process. Validation Report for ZONE: PDZ1 (OD.0.36 and OD.0.39). SUB AREA: F10B Bridge (permanent and temporary central piers) and F10A central pier. May 2011. (Decision Notice Ref: 10/90562/AODODA)

20 Balfour Beatty Civil Engineering. 7060-SBH-SPK-CM-REP-9001. Validation Report for Zone: PDZ1 CZ1b. Sub Area: H08 Bridge, Central Pier Stem and Southern Approach Embankment with Retaining Wall Structure H08-R2 and H08-R3. April 2011. (Decision Notice Ref: 10/90326/AODODA)

21 Nuttall. 7040-SBH-RWL-W-REP-0010 Rev01. Validation Report for Channelsea Retaining Wall CHA-R1 (CZ1B) in LA1250. July 2010. (Decision Notice Ref: 10/90343/AODODA)

22 Nuttall. 7040-SBH-HWY-W-REP-0023 P02. Validation Report for Planning Delivery Zone 1. May 2011. (Decision Notice Ref: 10/90579/AODODA)

23 Nuttall. 7040-SBH-HWY-W-ADD-0001 P02. Addendum Validation Report for Planning Delivery Zone 1. March 2012. (Decision Notice Ref: 11/90792/AODODA)

24 Nuttall. 7040-SBH-FEN-W-REP-0010 P03. Validation Report for Olympic Park Perimeter Fence Line, Planning Delivery Zones 1, 2, 3, 4 and 8. August 2011. (Decision Notice Ref: 10/90514/AODODA)

25 Nuttall. 7040-SBH-SCW-W-REP-0032 Rev04. Validation Report for CZ1 Surface Water Drainage Outfalls. July 2011. (Decision Notice Ref: 11/90171/AODODA)

26 Nuttall. 7040-SBH-SCW-W-REP-0035 Rev01. Validation Report for Surface Water Drainage Outfall S01-07. June 2011. (Decision Notice Ref: 11/90413/AODODA)

27 Nuttal SBH. 7040-SBH-HWY-W-ADD-0001. Addendum Validation Report for PDZ1 Infrastructure. November 2011. (Decision Notice Ref: 11/90792/AODODA)

28 Skanska Infrastructure Services. 7170-LPR-SPK-REP-0031 P01 (Final). ODA Landscape and Public Realm South Park Works. Validation Report for Construction of Hard Landscape, Soft Landscape and Drainage Network in Planning Delivery Zone 1. December 2011. (Decision Notice Ref: 11/90790/AODODA)

29 Skanska. 7170-LPR-SPK-W-REP-0053. White Areas Validation Report PDZ1, PDZ2, PDZ3 and PDZ4. July 2012 (Decision Notice Ref: 12/90270/AODODA)

30 McNicholas Construction Services Limited. 8526-UNN-ECW-CM-REP-0001 C05. Validation of Utility Works in PDZ1. August 2011. (Decision Notice Ref: 11/90172/AODODA)

31 Murphys / UKPN. LVU-8524-SUD-000308. Validation Report for Multi Zonal LV. *Submitted May 2012* (Decision Notice Ref: 12/90267/AODODA)

32 Volker Highways. 0009-TPI-EWK-CM-REP-0015 Validation Report for the LOCOG Readily Connectables and LV Blakey Panels. Submitted May 2012 (Decision Notice Ref: 12/90243/AODODA)

33 Balfour Beatty. 6001-AQC-ARE-CK-REP-0002 C04. Validation Report for London Aquatics Centre Building Footprint: Discharge of Planning Conditions OD.0.36 and OD.0.39. June 2011. (Decision Notice Ref: 10/90299/AODODA)

34 Balfour Beatty. 6001-AQC-ARE-CK-REP-0004 Rev C03. Validation Report for ZONE: PDZ1 (OD.0.36 and OD.0.39). SUB AREA: Aquatics Centre South and Landscaping fill. November 2011. (Decision Notice Ref: 11/90768/AODODA)

35 Buro Happold. Report Ref: 028952 Water Polo Building Footprint and External Areas *Submitted May 2012* (Decision Notice Ref: 12/90112/AODODA)

36 Atkins 0241-ENW-PWD-CM-REP-0001 Retained Areas Risk Assessment Addendum. (Decision Notice Ref: 12/00159/AOD).

37 Atkins. PRO-ATK-CM-ZZZ-ZZZ-ZZZ-E-0005. The Soil Hospital Protocol: Management of Olympic Park Earthworks Materials. December 2009.

38 Olympic Delivery Authority. Code of Construction Practice. December 2007. Decision Notice Ref: 07/90165/AODODA (SP) & 07/90164/AODODA (OD))

39 British Standards Institution. Code of practice for the characterization and remediation from ground gas in affected developments. October 2007. BS 8485.

40 Atkins. 0241-OPS-SPK-C-REP-0001_P02. Alluvium Penetration Report for PDZ1. May 2012. (Decision Notice Ref: 12/90156/AODODA)

41 Atkins. REP-ATK-CM-ZZZ-OLP-XXX-E-0007. Retained Areas Risk Assessment. January 2011. (Decision Notice Ref: 11/90102/AODODA)

42 BAM Nuttall. 7160-LPR-NPK-W-REP-0311-P02. Park Wide Invasive Species Treatment Report. November 2011.

43 BAE Systems. PRO-ENL-CE-ZZZ-OLP-SP1-E-0009-01. Risk Assessment for German Air-dropped UXO. March 2007. (Decision Notice Refs: 10/90513/AODODA, 10/90568/AODODA and 08/90376/AODODA)

44 Nuvia. REP-ENL-CE-ZZZ-OLP-SP1-E-0365. Addendum No. 1 to the Summary Report of Radiological Surveys Conducted in Olympic Park South (Additional Works in CZ2a, CZ3a and OLY3). September 2010.

SPONSORS HOSPITALITY

STRATFORD CITY MIXED-USE TOWN CENTRE

OLYMPIC STADIUM

WATERFRONT

WATER WORKS RIVER

CZ1a

CZ1b

PDZ1

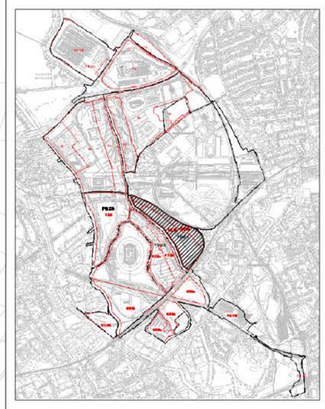
PDZ3

Legend

Planning Delivery Zone (PDZ1) Boundaries

Construction Zone Boundaries (CZ)

PDZ 1



No.	Description	Apvr	N	DD/NN/YY
Rev	Description	Drawn	Chk'd	Date

Safety, Health and Environment Information

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following risks and information:

Construction	CI. CII. CIII.
Dismantling / Demolition (Future) Description	DI. DII. DIII.

For information relating to Use, Cleaning and Maintenance see the Health and Safety File. It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

Creator

Prepared by
ATKINS
On behalf of the ODA

Drawing Title

Figure 1 Location of Planning Delivery Zone 1

Project Title

Olympic Park Remediation

Drawn	Checked	Approved

Date	Scale	Size
30/11/2012	1:1250	A1

Purpose of Drawing

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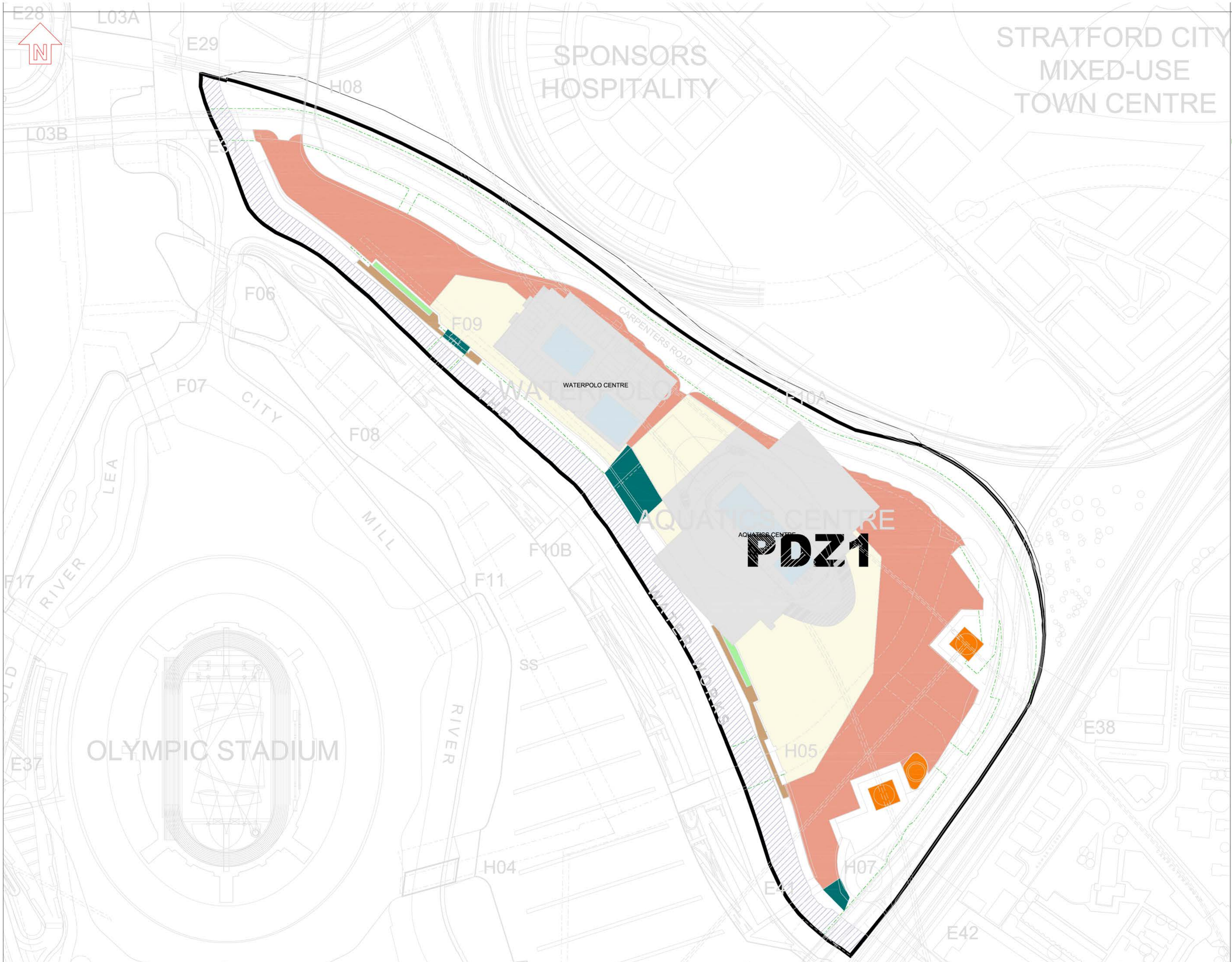
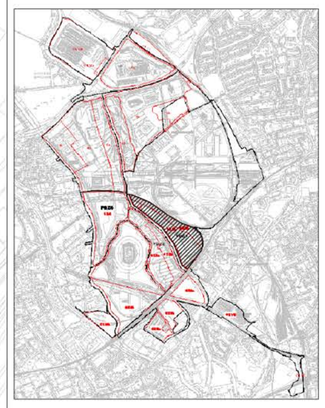


Legend

- PLANNING DELIVERY ZONE (PDZ1) BOUNDARIES
- SECURITY FENCES
- UTILITY SERVICE CORRIDORS
- RIVER + CANAL (WATERWAYS)
- FIELD OF PLAY
- SPECTATORS AREAS
- VENUES
- PARKLANDS AND PUBLIC REALM
- BRIDGE
- UTILITIES



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No.	Description	Apvr	N	DD/NN/YY
Rev	Description	Drawn	Chk'd	Date

Safety, Health and Environment Information

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following risks and information:

Construction	CI. CII. CIII.
Dismantling / Demolition (Future) Description	DI. DII. DIII.

For information relating to Use, Cleaning and Maintenance see the Health and Safety File. It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

Creator

Prepared by
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On behalf of the ODA

Drawing Title

Figure 2 Olympic End Use
For Planning Delivery Zone 1

Project Title

Olympic Park Remediation

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Date	**Scale**	**Size**
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Purpose of Drawing

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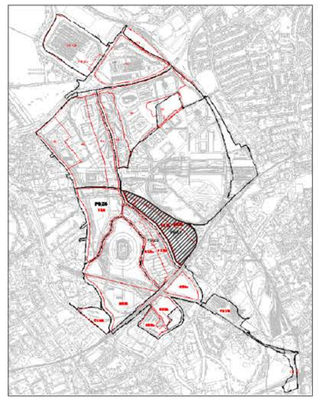
Legend

- Planning Delivery Zone (PDZ1) Boundaries
- Future development plots
- Un-assigned development plots



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Rev	Description	Drawn	Chk'd	Date

Safety, Health and Environment Information

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following risks and information:

Construction	CI. CIi. CIii.
Dismantling / Demolition (Future)	DI. DIi. DIii.

For Information relating to Use, Cleaning and Maintenance see the Health and Safety File. It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

Creator

Prepared by
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On behalf of the ODA

Drawing Title

Figure 3 Legacy End Use for Planning Delivery Zone 1

Project Title

Olympic Park Remediation

Drawn	Checked	Approved
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Date	**Scale**	**Size**
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Purpose of Drawing

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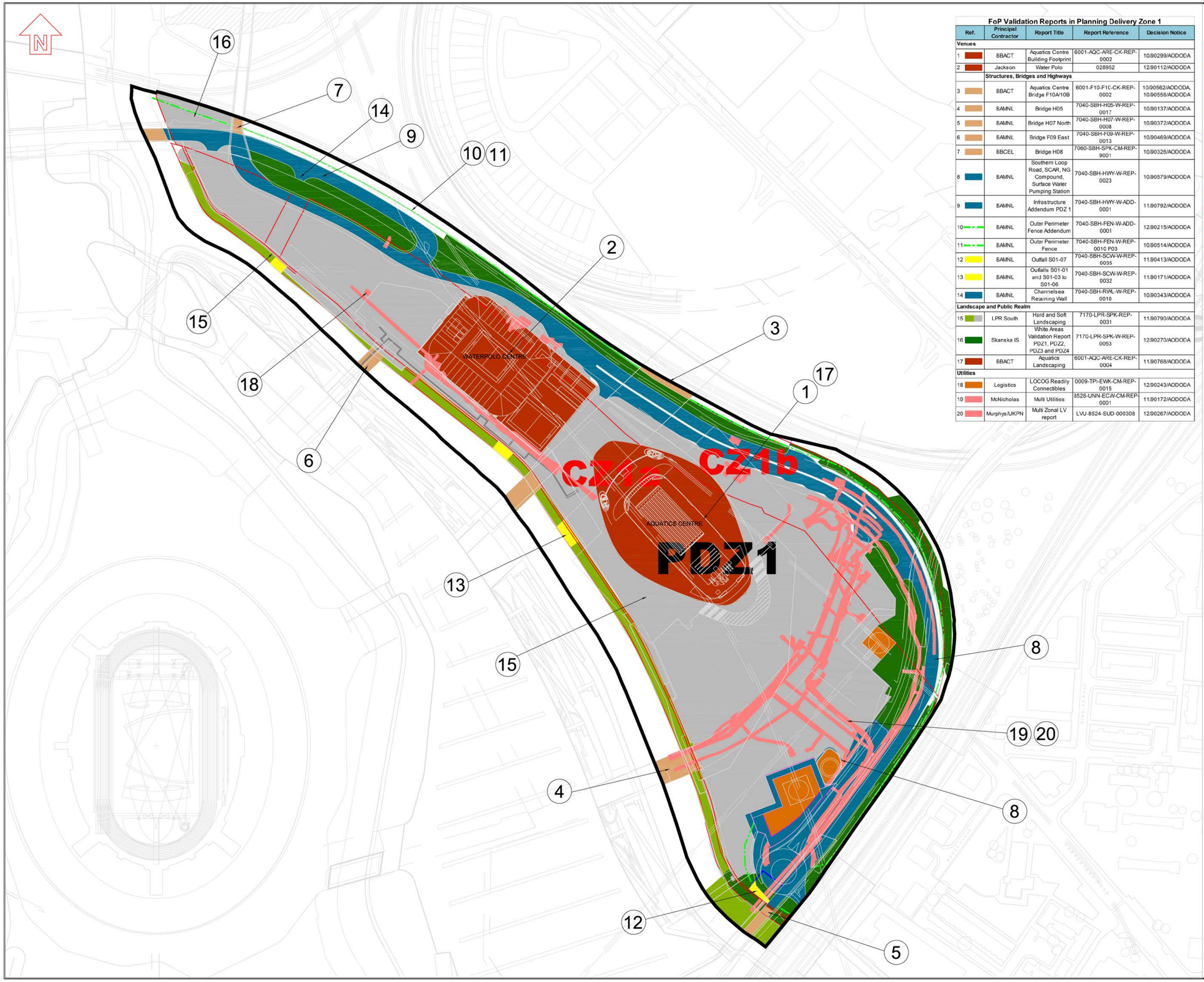
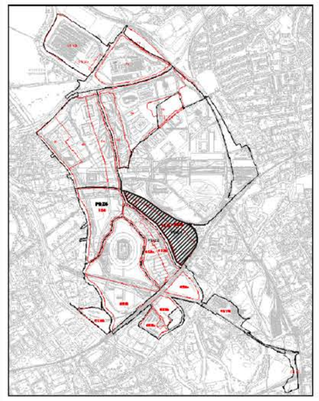


FoP Validation Reports in Planning Delivery Zone 1

Ref.	Principal Contractor	Report Title	Report Reference	Decision Notice
Venues				
1	BBACT	Aquatics Centre Building Footprint	6001-AQC-ARE-CK-REP-0002	10.90299/AODODA
2	Jackson	Water Polo	028952	12.90112/AODODA
Structures, Bridges and Highways				
3	BBACT	Aquatics Centre Bridge F10A/10B	6001-F10-F1C-CK-REP-0002	10.90562/AODODA, 10.90558/AODODA
4	BAMNL	Bridge H05	7040-SBH-H05-W-REP-0017	10.90137/AODODA
5	BAMNL	Bridge H07 North	7040-SBH-H07-W-REP-0008	10.90372/AODODA
6	BAMNL	Bridge F09 East	7040-SBH-F09-W-REP-0013	10.90469/AODODA
7	BBCEL	Bridge H08	7060-SBH-SPK-CM-REP-9001	10.90328/AODODA
8	BAMNL	Southern Loop Road, SCAR, NG Compound, Surface Water Pumping Station	7040-SBH-HWY-W-REP-0023	10.90579/AODODA
9	BAMNL	Infrastructure Addendum PDZ 1	7040-SBH-HWY-W-ADD-0001	11.90792/AODODA
10	BAMNL	Outer Perimeter Fence Addendum	7040-SBH-FEN-W-ADD-0001	12.90215/AODODA
11	BAMNL	Outer Perimeter Fence	7040-SBH-FEN-W-REP-0010 P03	10.90514/AODODA
12	BAMNL	Outfall S01-07	7040-SBH-SCW-W-REP-0035	11.90413/AODODA
13	BAMNL	Outfalls S01-01 and S01-03 to S01-06	7040-SBH-SCW-W-REP-0032	11.90171/AODODA
14	BAMNL	Channelsea Retaining Wall	7040-SBH-RWL-W-REP-0010	10.90343/AODODA
Landscape and Public Realm				
15	LPR South	Hard and Soft Landscaping	7170-LPR-SPK-REP-0031	11.90790/AODODA
16	Skanska IS	White Areas Validation Report PDZ1, PDZ2, PDZ3 and PDZ4	7170-LPR-SPK-W-REP-0053	12.90270/AODODA
17	BBACT	Aquatics Landscaping	6001-AQC-ARE-CK-REP-0004	11.90768/AODODA
Utilities				
18	Legistics	LOCOG Readily Connectibles	0009-TPI-EWK-CM-REP-0015	12.90243/AODODA
19	McNicholas	Multi Utilities	3526-UNN-ECA-CM-REP-0001	11.90172/AODODA
20	Murphys/UKPN	Multi Zonal LV report	LVU-8524-SUD-000308	12.90267/AODODA

Legend

- Planning Delivery Zone (PDZ1) Boundaries
- Construction Zone Boundaries
- Outer Perimeter Fence
- Venues
- Hard Landscaping
- Soft Landscaping
- Bridges
- Loop Road and associated infrasture
- Extent of McNicholas Utilities Works
- Utilities
- White Areas
- Outfalls



NOTES:

1. Unshaded areas have not been subject to FOP validation.
2. Refer to figure 9 'Retained Areas Within PDZ1' for further information.

No.	Description	Apvr	N	DD/NN/YY
Rev	Description	Drawn	Chk'd	Date

Safety, Health and Environment Information

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following risks and Information:

Construction	CI. CII. CIII.
Dismantling / Demolition (Future) Description	DI. DII. DIII.

For information relating to Use, Cleaning and Maintenance see the Health and Safety File. It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

Creator

Prepared by
ATKINS
On behalf of the ODA

Drawing Title

Figure 4
Spatial Coverage of FoP Validation Reports for Planning Delivery Zone 1

Project Title

Olympic Park Remediation

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Date 29/11/2012	**Scale** 1:1250	**Size** A1
Purpose of Drawing FINAL		
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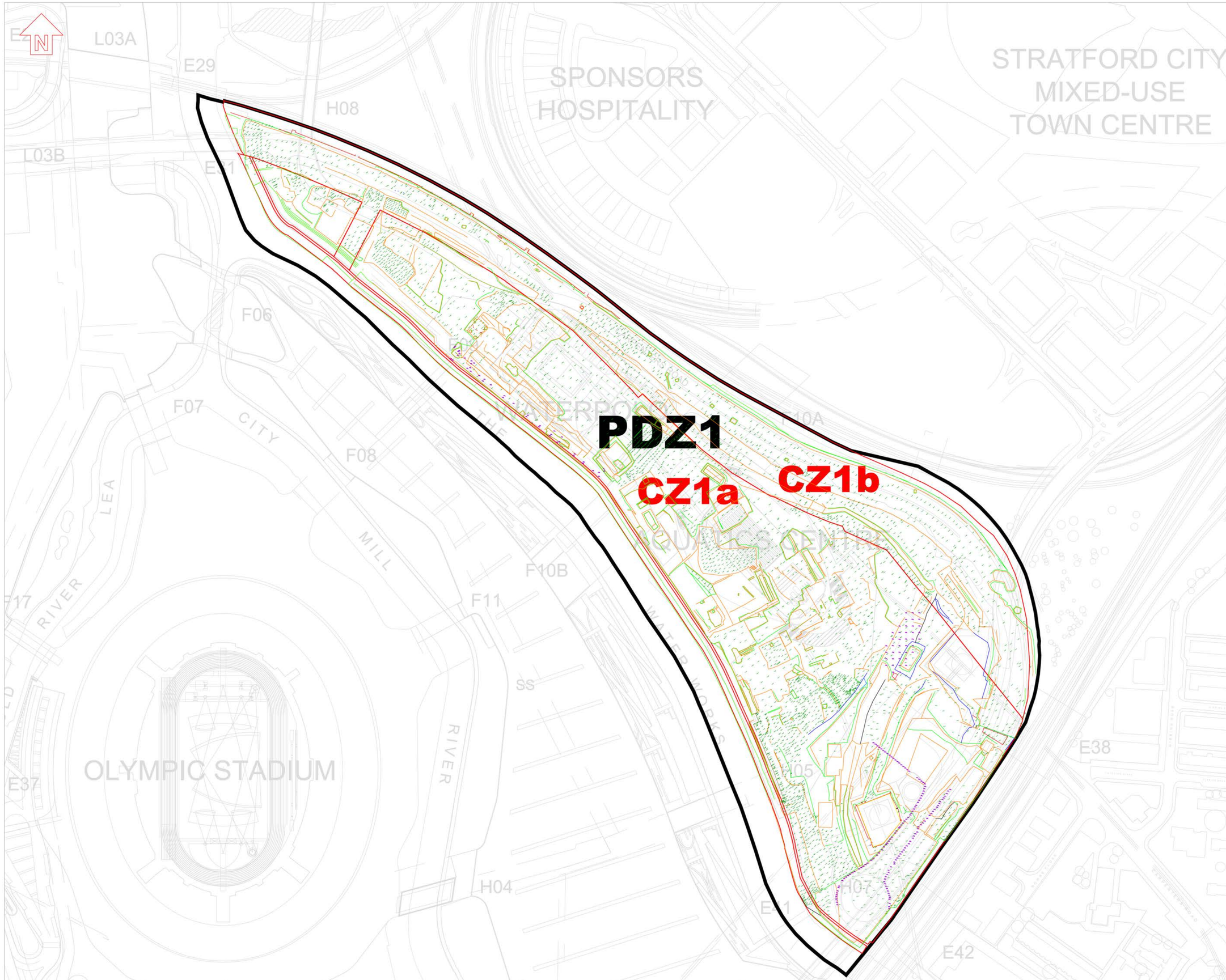
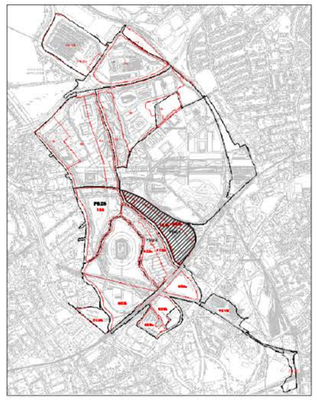


Legend

- Planning Delivery Zone (PDZ1) Boundaries
- Construction Zone Boundaries (CZ)
- +8.935 Enabling Works sub grade levels (M AOD)
- +8.935 FoP Sub grade levels (M AOD)



Note:

Further Information on applicable variation for sub-grade levels is available in respective FOP reports.

No.	Description	Apvr	N	DD/NN/YY
Rev	Description	Drawn	Chk'd	Date

Safety, Health and Environment Information

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Construction	CI. CII. CIII.
Dismantling / Demolition (Future) Description	DI. DII. DIII.

For information relating to Use, Cleaning and Maintenance see the Health and Safety File. It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

Creator

Prepared by
ATKINS
On behalf of the ODA

Drawing Title

Figure 5 Sub-Grade Levels
For Planning Delivery Zone 1

Project Title

Olympic Park Remediation

Drawn	Checked	Approved
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Date	Scale	Size
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Purpose of Drawing

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Drawing No.	Sheet.	Rev.
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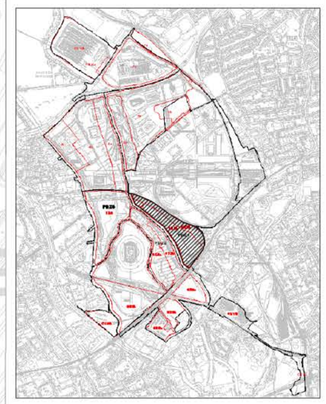
AREAS WHERE MARKER LAYER IS ABSENT/REDUNDANT IN PLANNING DELIVER ZONE 1			
Ref	Area	Rationale/Agreement	Document Reference no.
1	EDF 2 Head House (marker layer absent)	Refer to Enabling retained area risk assessment report and addendum (under PDT consideration)	REP-ATK-CM-ZZZ-OLP-XXX-E-0001 (11/90102/AODODA), 0241-ENW-PWD-CM-REP-0001 (under PDT consideration)
2	NGT 2 Head House (marker layer absent)	Refer to Enabling retained area risk assessment report and addendum (under PDT consideration)	REP-ATK-CM-ZZZ-OLP-XXX-E-0001 (11/90102/AODODA), 0241-ENW-PWD-CM-REP-0001 (under PDT consideration)
3	Aquatics (marker layer absent)	Agreed in Aquatics Validation Report	6001-AQC-ARE-CK-REP-0002 (10/90299/AODODA)
4	Eastern boundary of CZ1b against Network Rail assests (marker layer absent)	Refer to Enabling retained area risk assessment report and addendum (under PDT consideration)	REP-ATK-CM-ZZZ-OLP-XXX-E-0001 (11/90102/AODODA), 0241-ENW-PWD-CM-REP-0001 (under PDT consideration)
5	E31 bridge abutments (marker layer absent)	Refer to Enabling retained area risk assessment report and addendum (under PDT consideration)	REP-ATK-CM-ZZZ-OLP-XXX-E-0001 (11/90102/AODODA)
6	Water Polo (Enabling marker layer redundant)	Agreed in Water Polo RMS and validation report. Enabling marker layer made redundant by temporary Water Polo venue. Marker layer and full separation layer to be placed during Transformation / Legacy.	026753 (10/90564/AODODA)

Legend

- Planning Delivery Zone (PDZ1) Boundaries
- Construction Zone Boundaries (CZ)
- Marker Layer Placed or Replaced by Follow On Contractors
- Marker Layer placed by Enabling Works
- Marker Layer Absent
- Redundant Marker Layer



No.	Description	Apvr	N	DD/NN/YY
Rev	Description	Drawn	Chk'd	Date

Safety, Health and Environment Information

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following risks and information:

Construction	CI. CII. CIII.
Dismantling / Demolition (Future) Description	DI. DII. DIII.

For information relating to Use, Cleaning and Maintenance see the Health and Safety File. It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

Creator

Prepared by
ATKINS
On behalf of the ODA

Drawing Title

Figure 6: Extent of Marker Layer Within Planning Delivery Zone 1

Project Title

Olympic Park Remediation

Drawn	Checked	Approved
[redacted]	[redacted]	[redacted]

Date	Scale	Size
29/11/2012	1:1250	A1

Purpose of Drawing

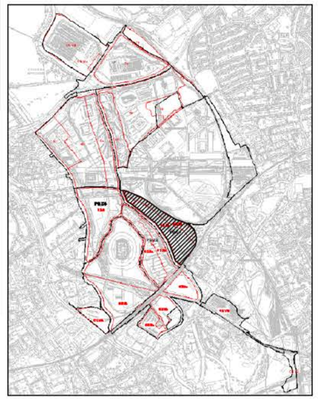
FINAL

Drawing No.	Sheet.	Rev.
0241-ENW-PWD-C-DGA-0106	01	A

HARDSTANDING AS A SUBSTITUTE TO THE SEPARATION LAYER/REDUCED SEPARATION LAYER IN PLANNING DELIVER ZONE 1			
Ref	Area	Rationale/Agreement	Reference no.
1	Aquatics Centre	Concrete basement structure beneath Aquatics Centre has been used as a substitute to HHSL in accordance with PDT approved documents	6001-AQC-ARE-CK-REP-0002 (10/90299/AODODA)
2	Water Polo	Use of hard cover as a substitute to the separation layer in LPR permanent hard standing areas in accordance with PDT approved RMS and validation report	026753 (10/90564/AODODA), 028952 (11/90112/AODODA)
3	South Loop road and NG compound	Use of hard cover as a substitute to separation layer in accordance with PDT approved documents	7040-SBH-SPK-W-REP-0027-02, 08/90292/AODODA
4	Carpenters road and verges	Use of hard cover as a substitute to the separation layer in accordance with PDT approved RMS document	7040-SBH-SPK-W-REP-0027-02 (10/90340/AODODA)
5	Pavement in landscape areas	Use of hard cover as a substitute to the separation layer in LPR permanent hard standing in addition to raising of marker layer in such areas with PDT approved documents	7170-LPR-SPK-L-RMS-0001 (11/90078/AODODA to 11/90084/AODODA)

Legend

- Planning Delivery Zone (PDZ1) Boundaries
- Construction Zone Boundaries (CZ)
- 0 - 299mm thickness of HHSL
- 300 - 599mm thickness of HHSL
- 600+mm thickness of HHSL
- Hardstanding as a substitute to separation layer
- LOCOG to complete to final finished level



Note

Areas without shading have not been subject to ODA validation.

No.	Description	Appr	N	DD/NN/YY
Rev	Description	Drawn	Chk'd	Date

Safety, Health and Environment Information

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following risks and Information:

Construction	CI. CII. CIII.
Dismantling / Demolition (Future) Description	DI. DII. DIII.

For information relating to Use, Cleaning and Maintenance see the Health and Safety File. It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

Creator

Prepared by
ATKINS
On behalf of the ODA

Drawing Title

Figure 7 Extent & Thickness of Human Health Separation Layer Within PDZ1

Project Title

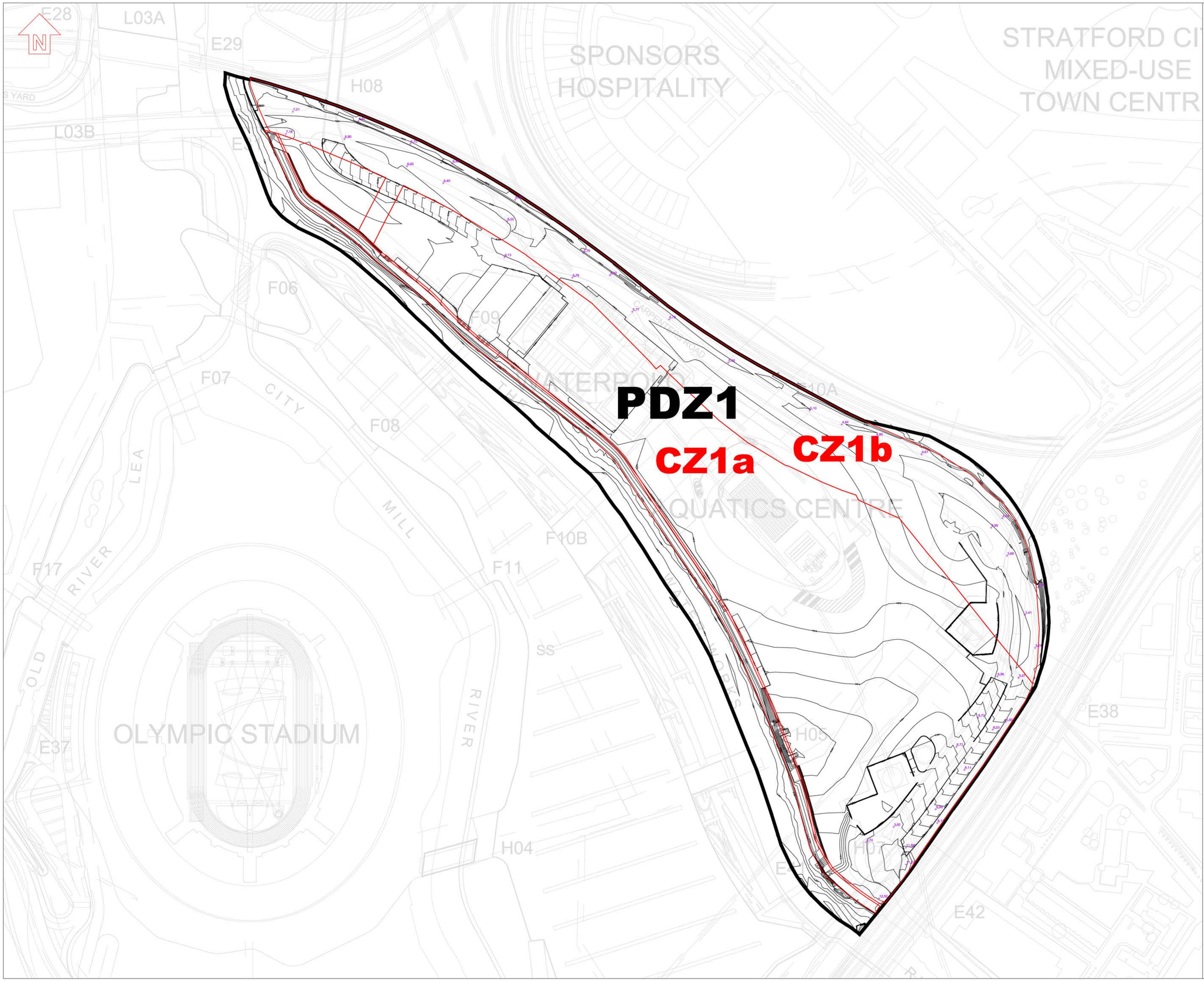
Olympic Park Remediation

Drawn	Checked	Approved
[redacted]	[redacted]	[redacted]
Date: 29/11/2012	Scale: 1:1250	Size: A1

Purpose of Drawing

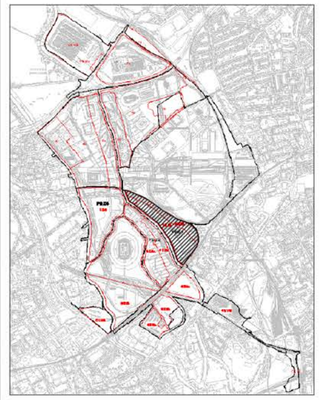
FINAL

Drawing No.	Sheet.	Rev.
0241-ENW-PWD-C-DGA-0107	01	A



Legend

- Planning Delivery Zone (PDZ1) Boundaries
- Construction Zone Boundaries (CZ)
- 9,0m Spot Heights (M AOD)
- +3.99 FoP Final Finished Levels (M AOD)



Note:

Final Finished Levels based on Scenario 13C with applicable variation in respective FOP report.

No.	Description	Apvr	N	DD/NN/YY
Rev	Description	Drawn	Chk'd	Date

Safety, Health and Environment Information

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following risks and information:

Construction	CI. CII. CIII.
Dismantling / Demolition (Future) Description	DI. DII. DIII.

For information relating to Use, Cleaning and Maintenance see the Health and Safety File. It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

Creator

Prepared by
ATKINS
On behalf of the ODA

Drawing Title

Figure 8 Final Finished Levels
For Planning Delivery Zone 1

Project Title

Olympic Park Remediation

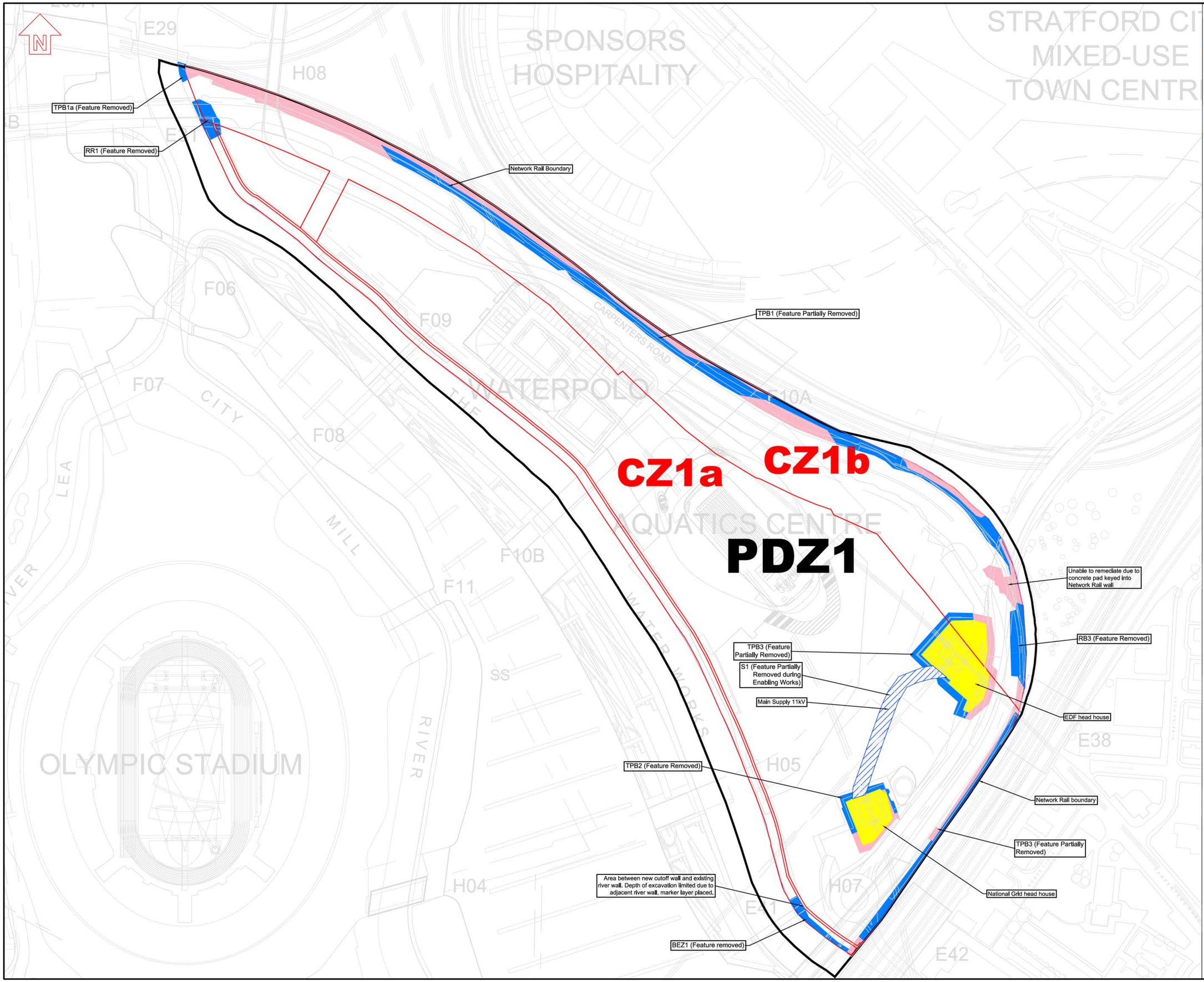
Drawn	Checked	Approved
[redacted]	[redacted]	[redacted]

Date	Scale	Size
29/11/2012	1:1250	A1

Purpose of Drawing

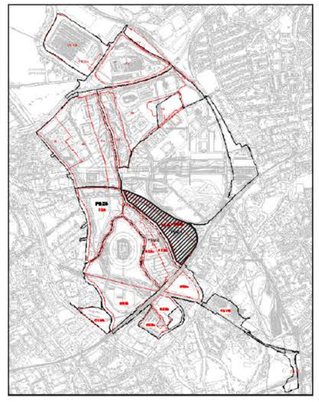
FINAL

Drawing No.	Sheet.	Rev.
0241-ENW-PWD-C-DGA-0108	01	A



Legend

- Planning Delivery Zone (PDZ1) Boundaries
- Construction Zone Boundaries (CZ)
- Services
- Retained Building (RB)
- Third Party Boundary (TPB)
- Feature Removed/Partially Removed During FOP Works



No.	Description	Apvr	N	DD/NN/YY
Rev	Description	Drawn	Chk'd	Date

Safety, Health and Environment Information

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following risks and Information:

Construction	CI. CII. CIII.
Dismantling / Demolition (Future) Description	DI. DII. DIII.

For information relating to Use, Cleaning and Maintenance see the Health and Safety File. It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

Creator

Prepared by
ATKINS
On behalf of the ODA

Drawing Title

FIGURE 9 - RETAINED AREAS WITHIN PLANNING DELIVERY ZONE 1

Project Title

Olympic Park Remediation

Drawn	Checked	Approved
[redacted]	[redacted]	[redacted]
Date: 29/11/2012	Scale: 1:1250	Size: A1

Purpose of Drawing

FINAL

Drawing No.	Sheet.	Rev.
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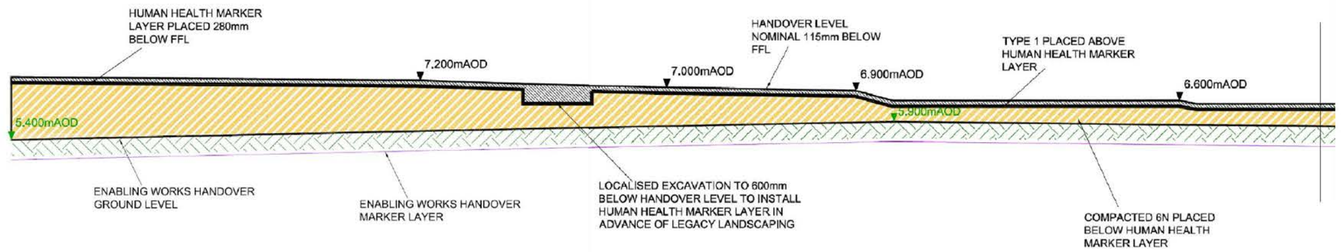
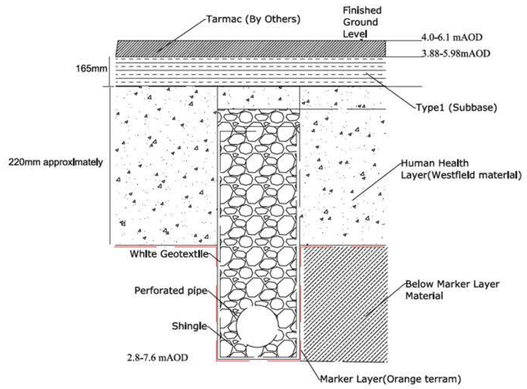
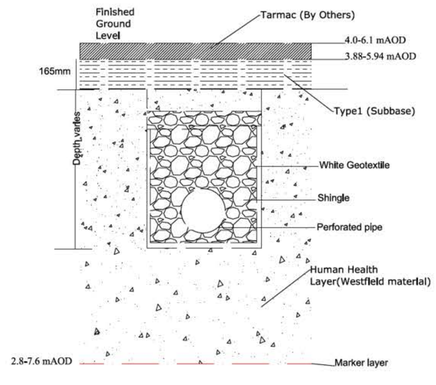


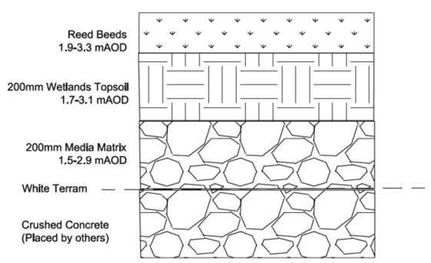
SECTION THROUGH AQUATICS LANDSCAPING
Ref: 6001-AQC-ARE-CK-REP-0004 (11/90766/AODODA)



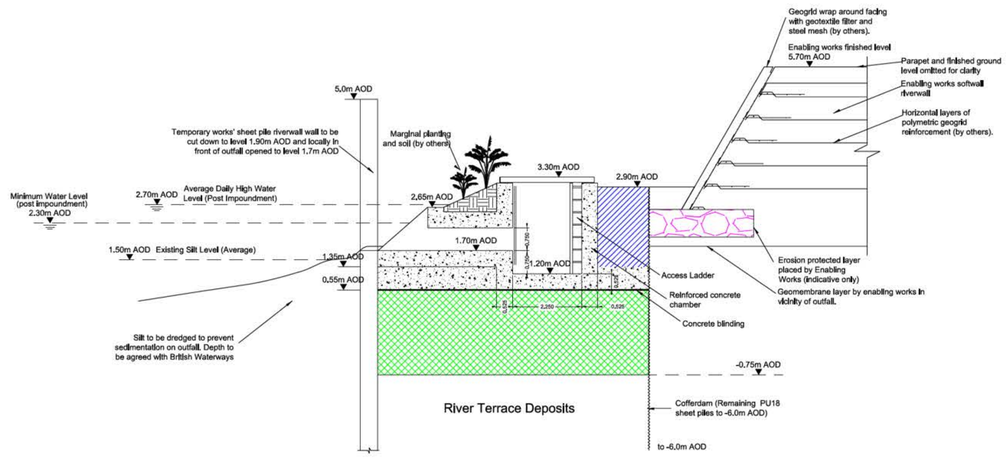
SECTION THROUGH HARD LANDSCAPE
SHOWING FILTER DRAIN
Ref:7170-LPR-SPK-REP-0031 (11/90790/AODODA)



SECTION THROUGH HARD LANDSCAPE SHOWING FILTER
DRAIN WITHIN HUMAN HEALTH SEPARATION LAYER
Ref:7170-LPR-SPK-REP-0031 (11/90790/AODODA)



SECTION THROUGH WETLANDS
Ref: 7170-LPR-SPK-REP-0031 (11/90790/AODODA)



SECTION THROUGH OUTFALL S01-07
Ref: 7040-SBH-SCW-REP-0035 (11/90413/AODODA)

NOTE

Representative sections show 'as constructed' profiles within the PDZ and are taken directly from the referenced approved validation reports. These reports are outlined in figure 4.

No.	Description	Apvr	N	DD/NN/YY
Rev	Description	Drawn	Chk'd	Date

Safety, Health and Environment Information

In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following risks and information:

Construction	CI. CII. CIII.
Dismantling / Demolition (Future) Description.	DI. DII. DIII.

For information relating to Use, Cleaning and Maintenance see the Health and Safety File. It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

Creator

Prepared by
ATKINS
On behalf of the ODA

Drawing Title

Figure 11 Representative As-Built Sections of the Final Remedial Cover System in Planning Delivery Zone 1

Project Title
Olympic Park Remediation

Drawn	Checked	Approved
[redacted]	[redacted]	[redacted]

Date	Scale	Size
06/12/2012	NTS	A1

Purpose of Drawing
FINAL

Drawing No.	Sheet.	Rev.
0241-ENW-PWD-C-DGA-0111	01	A

APPENDIX A:

Glossary of Terms and Definitions

Glossary of Terms and Definitions

Term	Meaning / Definition
CDM	Construction (Design and Management) Regulations
CFA	continuous flight auger
CSM	Conceptual Site Model
CVR	Consolidated Validation Report
CZ	Construction Zone
DHC	District Heating and Cooling Network
ESGL	Environmental Scientifics Group Limited
EWFL	Enabling Works Formation Level
FFL	Final Finished Level
FOC	fraction of organic carbon
FoP	Follow-on Project
GGMS	Global Groundwater Monitoring Strategy
GRS	Global Remediation Strategy
HHSL	Human Health Separation Layer
LLDC	London Legacy Development Corporation
LNAPL	Light Non-Aqueous Phase Liquid
LOCOG	London Organising Committee of the Olympic and Paralympic Games
LPR	Landscape and Public Realm
NG	National Grid
Nuttall	BAM Nuttall Limited (Enabling Works)
ODA	Olympic Delivery Authority
ODA PDT	Olympic Delivery Authority Planning Decisions Team
OPF	Olympic Park Perimeter Fence
ORC	Oxygen Releasing Compound
PAH	Polycyclic Aromatic Hydrocarbons
PDZ	Planning Delivery Zone
PGT	Post Games Transformation
PLUG	Power Line Underground

PPE	Personal Protective Equipment
PPR	Parklands and Public Realm
RMS	Remediation Method Statement
RTD	River Terrace Deposits
SBH	Structures, Bridges and Highways
SSAC	Site Specific Assessment Criteria
SSRS	Site Specific Remediation Strategy
UXO	unexploded ordnance
VCC	vibro concrete column
WSA	white space area

APPENDIX B:

Schedule of Key Documentation

(including summary of contents)

Summary of Contents

This section provides a summary of the development of documentation relevant to PDZ1. In addition, several site wide documents forming the basis for remedial design are included for clarity. This section should be read in conjunction with the text of this CVR and the reference list presented in Section 6. A summary of the documentation relating to the Enabling Works phase of the project is provided in the Enabling Works (Stage 1) CVR (Ref. REP-ATK-PM-ZZZ-ZZZ-ZZZ-E-0192, Decision Notice Ref. 11/90151/AODODA).

Site Wide Documents

Capita Symonds. MST-CSP-CM-ZZZ-OLP-XXX-E-0040. Intrusive Investigation Method Statement (IIMS). November 2006. (Decision Notice Ref: 07/90216/AODODA)

The IIMS presents a framework and provides a generic specification for undertaking contamination intrusive investigations across the Olympic Park to gather sufficient information to support planning applications and scheme design. It has been prepared with reference to the Environment Agency Model Procedures for the Management of Land Contamination CLR 11.

The intrusive investigation works outlined in this document gathered sufficient information to inform production of Site Specific Remediation Strategies (SSRS) to support planning application requirements and detailed design.

In particular the intrusive investigation works provided sufficient information to:

(i) assess the nature, extent and source of soil and groundwater contamination;
(ii) assess the soil gas generation potential;
(iii) prepare site conceptual model;
(iv) undertake generic and detailed quantitative risk assessment; and
(v) identify of areas requiring remediation.

Capita Symonds. REP-CSP-VZ-ZZZ-OLP-XXX-E-0076. Global Remediation Strategy, (Version 2.0, Rev B), January 2007. (Decision Notice Ref: 07/90011/FUMODA)

Given the scale and the strict delivery requirements of the Olympics, the GRS has been prepared to provide a common resource for remediation strategy related work, thus minimising duplication of design, regulatory requirements and programme risk.

To this end the GRS sets out site wide principles and procedures for taking forward the SSRSs, which are, and have been, prepared for individual Construction Zones/Sub Zones. Specifically the following principles and technical resources have been established:

(i) a 'Global Conceptual Site Model' (GCSM) for the Olympic Park identifying the major potential contamination related risks; and

(ii) a wide range of soil and groundwater 'Generic Assessment Criteria' (GAC) for screening of chemical testing results to identify potential contamination risks.

With regard to (ii) above computer based generic quantitative risk assessment (QRA) has been undertaken to derive generic screening values for areas potentially requiring remediation.

The Environment Agency document 'Model Procedures for the Management of Land Contamination' (CLR11) has been consulted in production of this document. In this respect this document broadly represents the Generic Quantitative Risk Assessment process outlined within CLR 11.

Atkins. REP-ATK-CM-ZZZ-OLP-ZZZ-E-0004. Proposed changes to the Human Health SSAC values for Lead, General Metals, and PAHs in the Separation Layer and General Fill. August 2008. (Decision Notice Ref: 08/90265/AODODA)

Revised SSAC were calculated for lead using the Provisional Tolerable Weekly Intake method for the Soft Landscaping Legacy end use, for general metals using a single Soil Ingestion Rate, and for PAHs assessing the potential contribution from each of the vapour inhalation pathways based on the Henry's Law Constant.

Atkins. REP-ATK-CM-ZZZ-OLP-ZZZ-E-0004 Errata to Document entitled 'Proposed changes to the Human Health SSAC values for Lead, General Metals, and PAHs in the Separation Layer and General Fill'. September 2008. (Decision Notice Ref: 08/90265/AODODA)

This report recalculated the lead SSAC using the inhalation Tolerable Daily Intake and the dermal pathway. This resulted in a new SSAC for areas of soft landscaping not associated with commercial buildings.

Atkins. ENW-ATK-LET-00269. Site Wide RMS Addendum (Use of Hardcover as a Substitute to the Separation Layer). February 2009. (Decision Notice Ref: 08/90292/AODODA)

Under this site wide RMS addendum the remedial designers developed a framework for reducing the thickness of the HHSL under suitably robust hardstanding. The basic premise behind this design change was that hardstanding would act as a suitable barrier to certain pollution pathways (namely ingestion, dermal contact and dust inhalation) and reduce the requirement for a full-thickness HHSL.

Nuttall. MST-ENL-CE-ZZZ-OLP-SP1-E-0159 Rev 05. Site Wide RMS Addendum (Asbestos in the Sub-grade & General Fill), March 2009. (Decision Notice Refs: 08/90083/AODODA, 08/90181/AODODA, 08/90216/AODODA, 08/90217/AODODA, 08/90218/AODODA, 08/90219/AODODA, 08/90220/AODODA, 08/90221/AODODA, 08/90222/AODODA 08/90223/AODODA, 08/90281/AODODA and 08/90326/AODODA)

The SSACs and methodology for assessing asbestos in the HHSL and below Marker Layer materials was further developed as the works progressed as set out in the Site Wide SSRS Addendum - Criteria for Asbestos in Fill Material (0241-ENW-ATK-LET-00276) detailed below. In addition, this RMS details the sampling strategy to be utilised when an asbestos value of >0.1% w/w is encountered within emplaced materials.

Atkins. MEM-ATK-CM-ZZZ-OLP-ZZZ-0004 Rev 2. Site Wide SSRS Addendum (Justification of Deviation from the GRS in the Derivation of SSAC). September 2009. (Decision Notice Ref: 09/90233/AODODA)

This document details the changes applied in the derivation of SSAC from the methodology or data sources presented in the GRS along with justification for the changes.

This memorandum has been produced to support any deviations from the GRS specifically in relation to TPH and PAH. It documents the changes Atkins has applied in the derivation of the SSAC from the methodology or data sources presented in the GRS. Where changes have been made from the GRS, these have been justified. Updated versions of the TPH and PAH criteria summary tables are appended to this document and in the case of TPH is based on differing fraction of organic carbon (FOC).

Enabling Works Documents

Refer to Appendix B within the Enabling Works (Stage 1) CVR (Ref: REP-ATK-PM-ZZZ-ZZZ-ZZZ-E-0192, Decision Notice Ref. 11/90151/AODODA).

Follow on Project Documents

Remediation Method Statements:

Nuttall. 7040-SBH-SPK-W-REP-0027-02 & 7080-SBH-NPK-W-REP-0017-02. Olympic Park Lot 2 (PDZ1, PDZ2, PDZ3, PDZ4, PDZ8) and Lot 5 (PDZ5 & PDZ6) Remediation Method Statement Addendum – Structures, Bridges and Highways. October 2010. (Decision Notice Ref: 10/90343/AODODA)

Sub-grade verification sampling was only considered to be required in areas previously undisturbed by Enabling Works and where excavations extended to a depth >0.5m below the Enabling Works sub-grade level. As-dug fill material previously verified by Enabling Works and virgin fill material did not require *in-situ* validation testing. In areas of permanent hard landscaping it was agreed that the hard cover would provide an effective substitute for the HHSL, as outlined in the following scenarios:

- for the south loop road the Marker Layer would be placed between the road capping and sub-base layers; and
- for the concrete barriers between the loop road and perimeter fence line a concrete blinding layer would be placed beneath the barriers and the Marker Layer installed beneath the concrete blinding.

Buro Happold. London 2012 Water Polo Design Note. Water Polo Building Verification Criteria V3. January 2011. (Decision Notice Ref: 10/90564/AODODA)

As-dug fill material previously verified by Enabling Works and imported virgin aggregate did not require *in-situ* validation testing, provided as-dug material was subject to inspection for visual / olfactory evidence of contamination, and virgin aggregate conformed to the guidance detailed within the importation of fill framework document. It was agreed that Marker Layer would be omitted beneath the building and hard standing due to the temporary nature of the venue. An assessment of soil gas risks was undertaken, which classified the site as Characteristic Situation 2 and defined the level of soil gas protection measures required within the Waterpolo venue.

McNicholas Construction Services Limited. 8526-UNN-ECW-U-MST-0070 C03 (8514-UNN-UCW-U-MST-0001). Design Note for McNicholas Works in the Olympic Park, Planning Delivery Zones 1, 2, 3, 4, 5, 6, 7 and 8. March 2011. (Decision Notice Ref: 10/90523/AODODA)

McNicholas did not consider it necessary to undertake further sub-grade validation beyond Enabling Works sub-grade, as the risks to controlled waters and human health associated with pre deposit materials at the Park had already been identified during design stages and, with the exception of any identified residual risks / outstanding actions identified by the Enabling Works Contractor, these SSRS hotspots and exposed subgrade surfaces were excavated, remediated and validated as part of the Enabling Works. As-dug fill material previously verified by Enabling Works and virgin fill material did not require *in-situ* validation testing. Where materials excavated from below the Enabling Works sub-grade level were mixed with previously validated as-dug materials and used as backfill, appropriate Enabling Works sub-grade validation data and / or pre-existing site investigation data was reviewed against the relevant fill criteria to prove compliance. McNicholas did not intend to complete their works to FFL unless specifically instructed and where utility installations did not breach the Marker Layer only a nominal quantity of HHSL would be placed over the installation prior to handover. In areas of permanent hard landscaping it was agreed that the hard cover would provide an effective substitute for the HHSL. However it was not expected that McNicholas would be responsible for placing the permanent hard cover and associated raised Marker Layer.

Skanska Infrastructure Services. 7170-LPR-SPK-L-RMS-0001 C04. Olympic Park Planning Delivery Zones 1, 2, 4 & 8: Remediation Method Statement Addendum – Landscape & Public Realm South. September 2011. (Decision Notice Ref: 11/90079/AODODA)

Sub-grade verification sampling was only considered to be required in areas previously undisturbed by Enabling Works, within excavations extending >500 mm below the Enabling Works sub-grade level (except linear excavations with adjacent Enabling Works sub-grade validation data) and within linear excavations where visual / olfactory indicators of potential contamination were identified. Retrospective agreement from PDT was gained such that as-dug fill material previously verified by Enabling Works and virgin fill material did not require *in-situ* validation testing. In areas of permanent hard landscaping it was agreed that the hard cover would provide an effective substitute for the HHSL, as outlined in the following scenarios:

- where Marker Layer and HHSL were installed by Enabling Works, general fill would be installed on top of this up to the underside of the Type 1 layer, then if necessary a secondary Marker Layer would be placed on top of this and the remainder of the hardstanding installed; and
- where no Marker Layer or HHSL was installed by Enabling Works, general fill would be installed to the underside of the Type 1 layer, then if necessary a Marker Layer would be placed on top of this and the remainder of the hardstanding installed.

Validation Reports:

Nuttall. 7040-SBH-RWL-W-REP-0010 Rev01. Validation Report for Channelsea Retaining Wall CHA-R1 (CZ1B) in LA1250. July 2010. (Decision Notice Ref: 10/90343/AODODA)

Excavation of existing Made Ground was undertaken, followed by construction of a piling platform and installation of steel sheet piles. The piling platform was then partially excavated and the capping beam was constructed, including placement of fill behind the capping beam. Fill materials used within these works comprised Class 1A (recycled crushed brick from the Soil Hospital) and

Class 6N (crushed limestone). Enabling Works Residual Actions 8 and 10 (see Table 3.1) were addressed in Section 17 and Appendix A.

Nuttall. 7040-SBH-H05-W-REP-0017 P01. Validation Report for H05 East Bridge Abutment in LA2140. July 2010. (Decision Notice Ref: 10/90317/AODODA)

Excavation of Enabling Works materials and underlying Alluvium was undertaken, followed by construction of a temporary piling mat and installation of piles. The piling mat and further Alluvium was then excavated. Fill materials were then placed behind the bridge abutment, comprising: Class 6T (Soil Hospital) and Class 6F2 (Soil Hospital). Marker Layer and HHSL were omitted, to be placed by subsequent FoPs.

Nuttall. 7040-SBH-H07-W-REP-0008 P01. Validation Report for H07 North Bridge Abutment in LA4300-1 and LA7180. August 2010. (Decision Notice Ref. 10/90372/AODODA)

Excavation of Made Ground, Alluvium and River Terrace Deposits was undertaken, followed by construction of a piling platform and installation of CFA piles. The piling platform and further RTD was then excavated, and a cofferdam was installed around the north eastern abutment. The approach ramp was constructed using Class 6N (crushed limestone and recycled Soil Hospital material). Marker Layer and HHSL were omitted, to be placed by subsequent FoPs.

Nuttall. 7040-SBH-F09-W-REP-0013 P01. Validation Report for F09 East Permanent and Temporary Bridge Abutment in LA11540. September 2010. (Decision Notice Ref: 10/90469/AODODA)

Excavation of Enabling Works material was undertaken, followed by construction of a piling platform and installation of piles. The piling mat and some underlying Alluvium was then excavated. Class 6N fill (crushed limestone) was then placed behind the bridge abutment and the pile cap, concrete stairs and retaining wall were constructed. Marker Layer and HHSL were omitted, to be placed by subsequent FoPs.

Balfour Beatty Civil Engineering. 7060-SBH-SPK-CM-REP-9001. Validation Report for Zone: PDZ1 CZ1b. Sub Area: H08 Bridge, Central Pier Stem and Southern Approach Embankment with Retaining Wall Structure H08-R2 and H08-R3. April 2011. (Decision Notice Ref: 10/90326/AODODA)

Excavation of existing ground was undertaken, followed by construction of a piling platform and installation of CFA piles and VCCs. The piling platform was partially excavated and reinforced earthworks, load transfer platforms and general fill were placed. Backfill material comprised: Type 1 (crushed limestone) and general fill (Soil Hospital). The approach ramp was completed to FFL, however Marker Layer and HHSL were omitted from the piling mat and laydown areas, and placed by BAM SBH.

Balfour Beatty. 6001-F10-F10-CK-REP-0002 C03. Remediation Completion and Validation Process. Validation Report for ZONE: PDZ1 (OD.0.36 and OD.0.39). SUB AREA: F10B Bridge (permanent and temporary central piers) and F10A central pier. May 2011. (Decision Notice Ref: 10/90562/AODODA)

Excavation of existing ground was undertaken, followed by construction of a piling platform. A temporary sheet piled cofferdam was installed and a temporary access ramp constructed within the towpath. Installation of CFA piles and steel tubular piles took place, followed by excavation of the piling platform and construction of the pile cap. The majority of the sheet piles were removed

and fill materials were placed. Fill material placed during these works comprised: Class 6F5 (from the Aquatics Centre piling platforms), Class 6N (crushed limestone) and imported gravel. Marker Layer and HHSL were omitted, and placed by Skanska LPR.

Nuttall. 7040-SBH-HWY-W-REP-0023 P02. Validation Report for Planning Delivery Zone 1. May 2011. (Decision Notice Ref: 10/90579/AODODA)

Works comprised the construction of surface water and foul water drainage, the Loop Road, Stratford City Access Road (SCAR), the National Grid (NG) Head House Compound and the Thames Water Pumping Station. All these areas were completed to FFL, including Marker Layer and full HHSL.

Balfour Beatty. 6001-AQC-ARE-CK-REP-0002 C04. Validation Report for London Aquatics Centre Building Footprint: Discharge of Planning Conditions OD.0.36 and OD.0.39. June 2011. (Decision Notice Ref: 10/90299/AODODA)

A cofferdam comprising sheet piled and secant piled walls was installed, within which excavation down to the Lambeth Group (maximum depth -5 m AOD) and dewatering of shallow groundwater took place. Piling platforms were constructed and CFA piles were installed, following which the piling platform materials were partially excavated and fill materials were placed. Fill materials comprised: Class 6F5 (crushed concrete imported from outside the Olympic Park), Class 6N (crushed limestone imported from outside the Olympic Park), Lytag (manufactured lightweight fill) and quarried gravel (imported from outside the Olympic Park). The concrete basement structure constructed beneath the Aquatics Centre building and pools was retrospectively agreed with PDT to provide an adequate substitute for HHSL and Marker Layer.

Nuttall. 7040-SBH-SCW-W-REP-0035 Rev01. Validation Report for Surface Water Drainage Outfall S01-07. June 2011. (Decision Notice Ref: 11/90413/AODODA)

A sheet-piled cofferdam was constructed, incorporating the existing river wall and excavation took place within the cofferdam to the top of the RTD. Class 6A virgin material was placed within the cofferdam, followed by a concrete blinding layer. The outfall chamber, manhole and outfall spillway were then constructed and another concrete layer poured around the outfall chamber, providing a replacement to the removed Alluvium. Class 6N virgin material and granite aggregate were placed surrounding the outfall chamber and spillway, and the drainage pipe between the manhole and outfall was connected. Marker Layer and HHSL were omitted, and subsequently placed by LPR.

Nuttall. 7040-SBH-SCW-W-REP-0032 Rev04. Validation Report for CZ1 Surface Water Drainage Outfalls. July 2011. (Decision Notice Ref: 11/90171/AODODA)

This report covers the construction of Outfalls S01-01 and S01-03 to S01-06, and works at each outfall followed a similar methodology, comprising: construction of a sheet-piled cofferdam, excavation of ground within the cofferdam to the top of the RTD, installation of Marker Layer at the base of the excavation (except S01-04), installation of the outfall chamber, coring of the river wall to allow connection of drainage pipe, backfill around the outfall chamber and removal of the cofferdam (except S01-03). Class 6A and 6N crushed limestone was placed above the Marker Layer as HHSL.

McNicholas Construction Services Limited. 8526-UNN-ECW-CM-REP-0001 C05. Validation of Utility Works in PDZ1. August 2011. (Decision Notice Ref: 11/90172/AODODA)

McNicholas works comprised trench excavation, installation and backfill for the following utilities: potable water, intermediate pressure gas, electrical and telecommunications networks, surface

water and duct crossings, electrical junction boxes, communication boxes, transformer bases, jointing chambers and the civil earthworks components of the district heating and cooling pipe network. Backfill materials comprised imported virgin aggregate, imported recycled aggregate, Soil Hospital material and as-dug material. The works included two variations to the McNicholas RMS: use of *ex-situ* data to validate Soil Hospital material, and use of pre-existing Enabling Works validation data and site investigation data to validate as dug *in-situ* soils. McNicholas placed Marker Layer and HHSL where necessary, however none of the site was completed to FFL and in many cases this Marker Layer was superseded by Marker Layer subsequently placed by Skanska LPR..

Nuttall. 7040-SBH-FEN-W-REP-0010 P03. Validation Report for Olympic Park Perimeter Fence Line, Planning Delivery Zones 1, 2, 3, 4 and 8. August 2011. (Decision Notice Ref: 10/90514/AODODA)

No Marker Layer or HHSL was placed by Enabling Works along the path of the OPF due to third party stand-off areas and exclusion zones. Localised auguring was required and the fence posts were installed into the resulting excavations and backfilled with concrete at 25.7 m intervals. Placement of fill material was limited to a 300 mm thick layer of imported granite gravel between and around the fence posts along the length of the OPF. No Marker Layer or HHSL was placed along the OPF and validation was not deemed practicable at the time of works due to the limited extent of excavations and the established easements and boundary agreements. Following the post-Games removal of the OPF these areas will require validation and potentially remediation by subsequent FoPs, including placement of Marker Layer and HHSL.

Nuttall. 7040-SBH-FEN-W-ADD-0001. Addendum Validation Report for Olympic Park Perimeter Fence Line, Planning Delivery Zones 1 and 3. Construction Zones CZ1a, 1b, 3a and 3b. April 2012. (Decision Notice Ref: 11/90792/AODODA)

The Olympic Perimeter Fence line (OPF) has been installed around the perimeter of the Olympic South Park crossing through CZ1a, 1b, 2a, 2b, 3a, 3b, 4, 8a and 8b for the Olympic Games. The OPF comprises a "358 mesh" system manufactured by Zaun Ltd to meet the Olympic Perimeter Fence Specification. The fence extends approximately 4.8m above ground level and was typically installed at the existing ground level handed over by Enabling Works. No Marker Layer or human health separation layer was placed by Enabling Works along the path of the OPF as these areas were unremediated due to third party stand-off areas and exclusion zones.

The installation of the OPF line required localised auguring of the existing ground at a diameter of 600 to 700 mm to an approximate depth of 900 mm. The fence posts were installed into these localised excavations and backfilled with concrete at 25.7 m intervals.

Balfour Beatty. 6001-AQC-ARE-CK-REP-0004. Validation Report for ZONE: PDZ1 (OD.0.36 and OD.0.39). SUB AREA: Aquatics Centre South and Landscaping fill. November 2011. (Decision Notice Ref. 11/90768/AODODA).

Some existing fill material was excavated to create the site compound. Landscaping fill materials were then placed, comprising: Class 6F5 (recycled crushed concrete from the Aquatics Centre piling platforms), general fill (Soil Hospital / Athlete's Village) and Type 1 (crushed limestone). Marker Layer was placed overlying the Class 6F5 and general fill, and the Type 1 was placed above the Marker Layer. Balfour Beatty did not complete the area to FFL, with additional HHSL and hard standing subsequently placed by LOCOG / LPR .

Nuttall. 7040-SBH-HWY-W-ADD-0001 P02. Addendum Validation Report for Planning Delivery Zone 1. March 2012. (Decision Notice Ref. 11/90792/AODODA).

Earthworks were completed for Carpenters Road, the Bridge H08 Approach Road, and within seven 'white areas' (areas along Carpenters Road where no structures had been constructed and which had been landscaped). In addition, the NG Head House Compound and drainage infrastructure associated with Outfall S01-07 was completed. All areas were completed to FFL incorporating Marker Layer and HHSL, with the following exceptions:

- White Area 27 – subsequent FoP to complete HHSL to FFL (works completed by LOCOG)
- White Areas 29 and 30 – Marker Layer omitted except where elevated concentrations of PAHs recorded
- White Area 31f – full thickness of HHSL placed although Marker Layer placed within HHSL profile (150 mm below FFL)
- White Area 45 – full thickness of HHSL placed although Marker Layer placed within HHSL profile (150 mm below FFL)
- Areas surrounding Outfall S01-07 and associated drainage infrastructure – subsequent FoP to place Marker Layer and HHSL

Fill materials placed comprised: Class 1 (Soil Hospital), Class 6F2 (Soil Hospital), Class 6N (Soil Hospital), topsoil (imported from outside the Olympic Park), Class 6N (crushed limestone), Type 1 (crushed limestone) and shingle (crushed limestone)..

Skanska Infrastructure Services. 7170-LPR-SPK-REP-0031 P01. ODA Landscape and Public Realm South Park Works. Validation Report for Construction of Hard Landscape, Soft Landscape and Drainage Network in Planning Delivery Zone 1. December 2011. (Decision Notice Ref. 11/90790/AODODA)

Hard and soft landscaping works comprised construction of tree pits, wetlands, pavements, drainage and retaining walls. Construction activities included: placement of fill and tarmac surfacing, excavation of trenches and tree pits, installation of drainage pipework, trench backfill, and construction of wetlands and retaining walls. Fill materials used in these works comprised: Type 1 (crushed limestone), pipe bedding (crushed limestone), quarried sand, topsoil, Class 6F2 (WRAP material imported from outside the Olympic Park) and Thanet Sand arisings (Soil Hospital). All areas were completed to FFL, including Marker Layer and HHSL.

Buro Happold. 028952. Water Polo Building Footprint and External Areas. Validation Report. February 2012. (Decision Notice Ref. 12/90112/AODODA)

The Water Polo building is a temporary structure being constructed for use during the London 2012 Olympic Games, after which it will be completely removed. The building contains a competition pool, a warm up pool, seating for 5,000 spectators and various elements of ancillary accommodation. The building is constructed from large steel portal frames and clad with a PVC fabric skin. The seating stands and the swimming pools have both been constructed using standard components that are to be fed back into the supply chain after the building is taken down. The building will be ventilated using motorised exhaust air louvers situated at the top end of the building in the north and mechanical extract spigots on either side of the venue.

The site was handed to the Water Polo Team with a layer of approximately 800 mm of imported crushed below Marker Layer specification material (placed by Balfour Beatty) present above a geotextile layer. The geotextile layer was installed by Enabling Works and is present to separate the imported crushed material from the *in-situ* Made Ground. Earthworks comprised temporary filter drainage works, excavations for pile cap bases and sheet piling work. Some excavations went below the Marker Layer, in which case the excavated material was placed on polythene prior to being sent to the Olympic Park Soil Hospital. No *in-situ* Made Ground was re-used in the

construction works on site. The warm up pool area was excavated (approximately 3,500 m^3), with the excavated crushed material used for levelling works. Screw piling and drainage works were complete in the southern part of the site, with excavation and levelling works starting in the north of the site. The competition pool area was excavated, with some of the crushed material arisings re-used on site to level the bar building in the east of the site.

Murphys. LVU-8524-SUD-000308. LVU Validation Report for Lea Valley Utilities (LVU) Works on London 2012 Olympic Park. Date *Submitted May 2012.* (Decision Notice Ref. 12/90267/AODODA)

J Murphy and Sons Ltd (Murphys) undertook excavations site-wide at joint, substation & link box locations. Due to the depth of these excavations, none penetrated the human health separation layer, however in line with Park policy, where an excavation was carried out & the Marker Layer was encountered, it was replaced, regardless of its depth. The LVU works consisted of the installation 11,000v High Voltage network & a 415v Low Voltage network throughout the Olympic Park. This was installed in a provided duct system, installed by others. The High Voltage network was also constructed with purpose made Salmore pits, again constructed by others, at any location where cables left the main "spine" or where joints were located. This was different to the LV network, where joints and routes away from the spine were direct buried before re-entering the duct system. The LV network installation consisted of limited excavations, completed by Murphys, over the pre-installed third party ductbanks to enable the installation of LV cables and connection to street furniture through its entirety at pre-determined locations as per the LVU LV network diagrams.

Skanska. 7170-LPR-SPK-W-REP-0053. White Areas Validation Report PDZ1, PDZ2, PDZ3 and PDZ4. July 2012 (Decision Notice Ref: 12/90270/AODODA)

Landscaping works for White Space Area (WSA) 44 in the northern part of PDZ1, were included within Skanska's White Areas Validation Report PDZ1, PDZ2, PDZ3 and PDZ4. Soft landscaping at WSA 44 comprised placement of the following materials from top:

- 150 mm or 300 mm (in the tree planting area) topsoil;
- 200 mm subsoil, underlain by existing ground.

Hard landscape area WSA 44 consists of an access footpath located across the site in a north-south direction. Construction of the footpath comprised placement of the following from the top:

- concrete flags / tiles;
- approximately 30 to 50 mm sharp sand; and
- approximately 100 to 120 mm Type 1, underlain by existing ground.
- A French drain was constructed in the western part of WSA 44 which consisted of a trench approximately 450 mm deep and 450 mm wide filled with 20 mm limestone gravel.

Volker Highways. 0009-TPI-EWK-CM-REP-0015 Validation Report for the LOCOG Readily Connectables and LV Blakey Panels. Submitted May 2012 (Decision Notice Ref: 12/90243/AODODA).

Works undertaken by Volker to install the buried utilities relating to Water Polo potable water were reported in the Site Wide Validation Report for the LOCOG Readily Connectables and LV Blakey Panels. Potable water excavations were carried out at various locations parkwide. The excavations for a standard trench comprised a stepped battered down to a typical depth of 1.2 m bgl. In instances where Marker Layer was breached, this was reinstated as a typical

overlapping detail at all locations. Works were not completed to FFL by Volker, though were subsequently completed by LOCOG / LPR.

APPENDIX C:

Key Parties

Key ODA FoP Parties for PDZ1

Responsibility	Organisation
Client:	ODA
Land owner:	London Legacy Development Corporation (LLDC, this was transferred from London Development Agency)
Local Planning Authority:	LLDC Planning Policy and Decisions Team (PPDT, formerly ODA Planning Decisions Team – PDT)
Key Stakeholders:	Canal and River Trust (formerly British Waterways) Environment Agency London Borough of Newham
CDM Coordinator:	Arup
Remediation Designer:	Atkins
Chemical Testing Laboratory:	Environmental Scientifics Group Ltd (ESGL)
Geotechnical Testing Laboratory:	ESGL
UXO Study:	BAE Systems
Infrastructure Contractor:	Nuttall
Infrastructure Contractor:	Balfour Beatty
LPR Contractor:	Skanska Infrastructure Services
Utilities Contractor (LOCOG Readily Connectables):	Volker Highways
Utilities Contractor (DHC):	Cofely
Utilities Contractor (Multi Utilities):	McNicholas
Venues Contractor (Aquatics Centre):	Balfour Beatty
Venues Contractor (Waterpolo):	Jackson

APPENDIX D:

Permit to Proceed Protocol (CD only)

The Permit to Proceed Protocol:
Protection of Remediation Works on the Olympic Park

Notice

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Document History

ATKINS JOB NUMBER: 5051803.400 ATKINS DOCUMENT REF: WIZZZ/000/02/03/0293			DOCUMENT REF: PRO-ATK-CM-ZZZ-ZZZ-ZZZ-E-0003 (Formerly PRO-ATK-CM-03a-STA-SP1-Z-0001)			
Revision	Purpose Description	Originated	Checked	Reviewed	Authorised	Date
10	Division of Permit to Proceed & Soil Hospital Documents	[redacted]	[redacted]	[redacted]	[redacted]	01/07/09
09	For Implementation	[redacted]	[redacted]	[redacted]	[redacted]	30/01/09
08	For Implementation	[redacted]	[redacted]	[redacted]	[redacted]	15/08/08
07	For Implementation	[redacted]	[redacted]	[redacted]	[redacted]	11/08/08
06	For Implementation	[redacted]		[redacted]	[redacted]	11/07/08
05	For Implementation	[redacted]		[redacted]	[redacted]	06/06/08
04	For Implementation	[redacted]		[redacted]	[redacted]	14/02/08
03	For Issue			[redacted]	[redacted]	07/01/08
02	For Information	[redacted]				
01	For Information	[redacted]				

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Definitions

CLM – The Employers Delivery Partner

Employer – The Olympic Delivery Authority (ODA) located at 23rd Floor, 1, Churchill Place, Canary Wharf, London, E14 5LN, and includes transferees, successors and assignees.

Enabling Works – The site clearance, demolition, bulk earthworks and Remediation Works carried out by the Enabling Works Tier 1 Contractors to prepare the Olympic Park platform for construction by Follow on Projects.

Enabling Works Formation Level (EWFL) – The site surface level that is handed over to the Follow on Projects by the Enabling Works Tier 1 Contractors.

Enabling Works Sub-Formation Level (EWSFL) – The level beneath the EWFL upon which the Marker Layer is placed.

Enabling Works Tier 1 Contractors – The contractors appointed to a Framework Contract to undertake Demolition, Remediation and Enabling Works. They are BAM Nuttall Ltd (BNL) who have responsibility under the Enabling Works contract to provide the works to the southern area of the site (Construction Zones (CZ) 1, 2, 3, 4 and 8; Planning Delivery Zones (PDZ) 12, 13 and 14) and Morrison Construction Ltd (MCL) who have responsibility to provide the works to the northern area of the site (CZ 5, 6 and 7; PDZ 15).

Exported Material – Materials excavated and removed from Follow on Project sites.

Final Finished Level (FFL) – Final ground levels or constructed floor levels under a building, upon completion of works by Follow on Projects.

Final Build Layer – Term referenced in Planning Conditions for the Olympic Park, meaning soil or other material placed to complete the remediation and, with the exception of topsoil, to be at the finished ground levels.

Follow on Projects (FOP) – Any project involving contractors employed by the Employer to construct infrastructure and venue works on the Olympic Park following completion of Enabling Works by the Tier 1 Contractors.

Human Health Separation Layer (HHSL) (or Separation Layer) – Chemically and geotechnically acceptable fill material which satisfies Human Health and Controlled Waters Site Acceptance Criteria (SSAC/SSRT), which lies above the Marker Layer but beneath the final ground cover.

Imported Material – Infill materials brought into FOP from within or from outside the Olympic Park. All permanent fill materials placed within the Park must be compliant with the site specific remediation criteria as established in the Baseline Remediation Strategy and associated Site Specific Remedial Strategies and Specifications.

Marker Layer – An orange non woven geo-textile membrane (or similar) placed directly beneath the Separation Layer to clearly delineate the separation layer from potentially contaminated materials below.

Permit to Proceed (PTP) Team – The Team responsible for implementation and administration of the protection of remediation works by Follow on Projects. The PTP Team are provided by Atkins and from June 2009 will operate under CLM Project Assurance. The management of the supply and receipt of earthworks materials to and from Follow on Projects will be handled by the separate Soil Hospital Team.

Remediation Technical (RemTech) Team – The Team responsible for residual Enabling Works and established to offer technical advice to Follow on Projects on remediation issues.

Sharepoint – A web-based shared workspace (https://sharepoint.demrem.com) which hosts data regarding chemical and geotechnical laboratory test results of materials supplied by Tier 1 Contractors. Its aim is to provide direct access for the FOP to data needed in the validation process of the infill material sourced from Tier 1 contractors.

SMARTStart – A computer system available from BRE, which provides a Site Waste Management Plan (SWMP) tool to aid the construction industry in meeting legislation and as an aid to improving waste management (www.smartwaste.co.uk). This is designed to monitor and track all materials used and / or

generated within a construction site, supporting the requirements of clients and contractors under duty of care.

Soil Hospital Team – Part of the former PTP Team responsible for the administration and management of 'Request from Contractor' applications from Follow on Project Teams for the import and export of earthworks materials to and from those projects. The Soil Hospital Team will also retain the responsibility to coordinate the resolution borehole conflicts where construction works conflict with borehole installations across the Olympic Park.

1. Introduction

1.1 Permit to Proceed: The Protection of Remediation Works

The Employer has established this Permit to Proceed (PTP) Protocol, which shall be adopted by all Follow on Project (FOP) Teams, to regulate any disruption, modification or penetration of ground surfaces and to protect the overall integrity of site remediation works across the Olympic Park.

From June 2009 the PTP Team will form part of CLM Assurance. Implementation of this PTP Protocol is designed to protect existing remediation works and maintain environmental protection measures.

The PTP Team will administer this Protocol via 'Protection of Remediation Works (ATK-084)' applications that will be submitted by FOP Teams for all elements of their works that penetrate previously remediated ground surfaces. ATK-084 applications shall be submitted to permit.to.proceed@london2012.com.

1.2 Soil Hospital: Management of Olympic Park Earthworks Material

To facilitate the supply and receipt of earthworks materials between FOP and soil treatment facilities within the Olympic Park, FOP Teams will submit *'Request from Contractor (ATK-088)'* applications to the Soil Hospital Team. ATK-088 applications shall be submitted to soil.hospital@demrem.com.

The function of the Soil Hospital Team is described in the separate document:

The Soil Hospital Protocol: Management of Olympic Park Earthworks Materials. *(Document Ref: PRO-ATK-CM-ZZZ-ZZZ-ZZZ-E-0005)*

1.3 Soil Hospital: Resolution of Borehole Installation Conflicts

Monitoring wells and other borehole installations are located across the Olympic Park. Many of the installations must remain intact and accessible in order to verify that remediation objectives have been met or to allow ongoing groundwater remediation works.

Matters relating to the management of boreholes that conflict with construction works are detailed in the Soil Hospital Protocol (referenced above).

1.4 Compliance Auditing

The PTP Team will audit FOP works to ensure they conform to authorised site remediation strategies and Planning Conditions. Members of the PTP and Soil Hospital Teams shall be allowed access to FOP sites to inspect and audit construction works for compliance against this PTP Protocol; the Soil Hospital Protocol and any relevant permits issued under either protocol.

An audit report will be issued to the FOP Team, their CLM Project Manager and CLM Assurance detailing performance and any key issues identified in the audit.

1.5 Non-Conformance Reports

Where the FOP Team fails to conduct works in accordance with this PTP Protocol, or if in the view of the PTP Team any works or actions pose a potential risk to the integrity of previous (or ongoing groundwater) remediation works, a Non-Conformance Report will be raised by the PTP Team and issued through CLM Assurance.

Non-conformance reports will be issued to the FOP Team and their CLM Project Manager and will be reported to the CLM Executive in monthly Performance Assurance Reports.

2. Olympic Park Remediation Information

2.1 Site Remediation Background

It is the responsibility of the FOP Team to ensure they are familiar with all relevant aspects of completed or ongoing site remediation works and construction activities; such that they may ensure their works do not damage or otherwise negate any preceding site remediation works.

A general summary of remediation works completed at the Olympic Park to date is provided below. These descriptions are not exhaustive and are provided for introductory purposes only. Exact details of completed or ongoing remediation works for specific parts of the site are detailed in site handover documentation and will be referenced on the CLM Sharepoint website (https://sp.h0twise.com) within the 'Programme Delivery Management System' (PDMS).

Completed site remediation works have involved or included:

- Removal and treatment of soils below the Enabling Works Formation Level (EWFL) that contained concentrations of contaminants above acceptance criteria defined within Site Specific Remediation Specifications (SSRSpec) and which presented a risk to controlled waters and/or human health receptors in either Olympic or Legacy land use phases of the Olympic Park.
- Provision of a remediated ground cover system incorporating:
  - a Marker Layer (ML), in most cases placed 600-800mm below the Final Finished Level (FFL) and typically consisting of orange geotextile 'Terram 1000' on horizontal surfaces and 'Signal' geogrid type marker layer on slopes steeper than 1(V):3(H).
  - Human Health Separation Layer (HHSL) of soil or aggregate placed in a thickness of (typically) 300mm over the Marker Layer.
- Treatment of excavated soils to render them suitable for reuse, predominantly as General and Structural Fill beneath the Marker Layer.
- Treatment of contaminated groundwater via both pump & treat systems and/or in-situ remediation
- Groundwater interception and pathway control via construction of below ground barriers and/or installation of pumping systems.
- In geotechnical terms, materials have been placed using Method Compaction or End Product Compaction (95% of maximum dry density) as appropriate. California Bearing Ratio (CBR) tests (one test per 1,000m^2) have been carried out on the Enabling Works Sub-Formation level (EWSFL) and EWFL to ensure a minimum CBR of 5% on Class 1 and Class 6a (granular fills) and a minimum CBR of 2% on Class 2 materials (cohesive fills).
- Remediation works to address post-construction risks to controlled waters and human health. These works do not, and will not, address potential risks to any FOP Team workforce arising from exposure to soils, groundwater, ground gases or vapours below the site. T**he Olympic Park remains a "brownfield site".** In accordance with legislation, the FOP Team must appropriately assess, control and mitigate potential risks to worker health and safety.

2.2 Reference Documents and Information Sources

It is the responsibility of FOP Teams to be familiar with all applicable planning conditions and relevant site remediation specifications prior to commencing any ground works. These documents will be included or referenced within site handover documentation and on the CLM Sharepoint website (https://sp.h0twise.com) within the PDMS.

The following list of generic specification and planning documents is not exhaustive and it remains the responsibility of FOP Teams to be aware of all documents applicable to their works. The PTP Team may audit any aspect of FOP works against any applicable site remediation specifications or planning conditions (which relate to the protection and maintenance of site remediation works).

2.2.1 Remediation Design Documents

1. (Typical) Site Specific Remediation Documents

Site specific remediation and earthworks design documents remain applicable to FOP construction works and present (chemical) soil acceptance criteria and details of how remediated ground cover systems (ML and HHSL) must be constructed within site formation levels:

- Site Specific Remediation Strategy (SSRS)
- Site Specific Remediation Specification (SSRSpec)
- Remediation Method Statement
- Site Validation Reports (where available)

2. Park-wide Remediation Documents

Where site specific remediation design documents do not apply, global site remediation documents and specifications will normally be adopted:

- Global Remediation Strategy
- Global Groundwater Monitoring Strategy

3. Amendments to Remediation Specifications

Agreed alterations or updates to site specific remediation specifications may be introduced via submissions approved by the Planning Decisions Team. Any such amendments made by prior contractors / occupiers of the site will be provided in supplementary handover documentation and will be referenced on the PDMS.

2.2.2 Olympic Park Planning Permissions

Approved planning permissions for the development of the Olympic Park can be viewed at the ODA website (http://www.london2012.com/planning/). The park-wide permissions include:

- Olympic, Paralympic and Legacy Transformation Planning Applications: Site Preparation Planning Application
- Olympic, Paralympic and Legacy Transformation Planning Applications: Facilities and their Legacy Transformation Planning Application

2.2.3 Further Standards and Guidance Documents

The following documents include additional design requirements and obligations that FOP Teams must implement with respect to various site construction works:

- The Soil Hospital Protocol: Management of Olympic Park Earthworks Materials
- The Code of Construction Practice
- Intrusive Investigation Method Statement
- EA Guide to Contractors on the Olympic Park
- Environmental Protection Requirements for Piling (REP-ATK-CG-ZZZ-ZZZ-ZZZ-Z-0001)
- Soil Gas and Vapour Risks: A Briefing Note to Designers (REP-ATK-CM-ZZZ-OLP-ZZZ-Z-0001)
- Environmental Permit No. EAWML80790 (South Park Waste Management License)
- Environmental Permit No. EAWML80791 (North Park Waste Management License)
- Construction Waste Management Plan (CLM-D0701-Rep-CWMP-v1.6.doc)
- Memorandum of Understanding for Waste Management Licensing Applied to the Olympic Park (Appended to CWMP)
- A Guide to Material Movements: London 2012 Enabling Works (GUI-MOR-CE-ZZZ-ZZZ-XXX-E-0015)

3. The Protection of Remediation Works

3.1 Introduction

As a minimum, FOP Teams are responsible for the following matters, against which they will be audited:

- Works must comply with site remediation design specifications.
- Works shall not invalidate any previously completed site remediation works.
- Protection, reinstatement or installation (completion) of remediated ground cover systems as necessary (Marker Layer and Human Health Separation Layer).
- Protection of ongoing groundwater remediation works and the maintenance of adequate access to them to allow completion.
- Additional remediation of any unexpected contamination or contaminant hotspots (if necessary).
- 'Duty of Care' obligations under Waste Regulations to satisfy the conditions of Waste Recovery Licenses for the Olympic Park.
- Protection of boreholes and groundwater monitoring installations.

These obligations and responsibilities are further detailed in Table 1 of Appendix A, which includes a cross-reference to generic remediation design, specification and guidance documents and relevant planning conditions.

3.2 Implementation: Application Form ATK-084

Follow on Projects shall submit a PTP application for the 'Protection of Remediation Works' (ATK-084) for any excavation works and under any circumstances where FOP construction works will result in the disturbance or penetration of the EWFL, irrespective of whether or not the works are of a sufficient depth to penetrate the Marker Layer.

Protection of Remediation works applications shall be submitted to the PTP Team (permit.to.proceed@london2012.com) a minimum of 5 working days prior to the commencement of such works. Applications shall be made on an ATK-084 form, shown in the following pages. An electronic version of this form shall be issued to all FOP Teams.

The ATK-084 application should indicate the maximum plan size of any excavation. This will not generally be greater than one section of trench up to 100 metres long, or an area of ground works with plan dimensions up to 25 metres in any one direction (exceptions to these dimensions of works should be agreed with the PTP Team directly and in advance). The FOP may prepare standard method statements that may be referenced in the ATK-084 application to assist in the assessment and granting of the ATK-084 Protection of Remediation Works Permit by the PTP Team.

The ATK-084 application procedure shall be as follows:

1. FOP Team completes Section A of the ATK-084 proforma and submits it electronically to permit.to.proceed@london2012.com, with all necessary supporting documentation (as indicated in the ATK-084 proforma and this PTP Protocol);
2. The PTP Team will review the application and if the planned works comply with this Protocol, will sign off Section B of the ATK-084 proforma and return it to the applicant;
3. On completion of works, the FOP Team completes Section C of the ATK-084 proforma and returns it to the PTP Team (permit.to.proceed@london2012.com) together with necessary earthworks volume information, SMARTStart verification and supporting as-built information;
4. If works have been conducted in accordance with the requirements of the PTP Protocol, the PTP Team will sign off Section D and return it to the FOP Team, closing the ATK-084 application;
5. If the works have **not** been carried out in accordance with the requirements of the PTP Protocol, the FOP shall undertake additional works or provide additional information, which the PTP Team may reasonably require.

London 2012 Olympic Park	PERMIT TO PROCEED

PROTECTION OF REMEDIATION WORKS: FORM ATK-084

PTP Reference: *(To be completed by PTP team)*

Dear Sirs,
With respect to the protection and maintenance of previously completed ground remediation works and site specific remediation strategies we hereby submit this Permit to Proceed application for our intrusive works and for your acceptance. We understand we initially require your completed section B prior to commencement of our works and that we are responsible for the integrity of the remediation works.

SECTION A *(Please complete & submit to permit.to.proceed@london2012.com 5 days prior to works)*

Prepared by		Authorised by	
of Company		of Company	
Date		Date	
Follow on Project	*(eg SBH Lot X)*	Principal Contractor	*(i.e. the PC in control of the LA site)*
Title of Works	*(eg H12 north abutment)*	FOP Reference	*(if different from PTP reference)*
Construction Zone		Works Start Date	
LA Site Reference		Works Finish Date	

Co-ordinates of works	*(Olympic Grid or Ordinance Survey)*
Drawing Reference	*(Attach drawing or sketch indicating the location of works)*
Description of works	
Dimension of works (incl. depth)	
Method Statement Reference(s)	*(Attach applicable method statements, including specific MS for unexpected contamination or invasive species removal works where necessary)*
Piling Risk Assessment Ref.	*(Required by the EA for piling works)*
Existing Marker layer depth	
Earthworks above marker layer (m^3)	
Earthworks below marker layer (m^3)	
Historic boreholes at vicinity of works	
Planned backfill material types	

Additional Comments:

SECTION B *(Completed by and returned from Permit to Proceed Team prior to works)*

Prepared by		Authorised by	
of Company		of Company	
Date		Date	
Accepted	Yes / No		

Conditions of acceptance / reason for non-acceptance:

Distribution: *Originating Team, Principal Contractor, CLM Project Manager, RemTech Team.*

SECTION C *(Please complete and return to permit.to.proceed@london2012.com on completion of the works)*

Dear Sirs,
We confirm completion of works in accordance with the methods described in Section A and conditions described in Section B. On the basis of the following information and the attached supporting documents, we request that this application be formally closed.

Prepared by		Authorised by	
of Company		of Company (PC)	
Date		Date	

C1: COVER LAYER	Reinstated	Altered	Omitted
Marker Layer	Yes / No	Yes / No	Yes / No
Human Health Separation Layer	Yes / No	Yes / No	Yes / No
Comments or description of cover system reinstatement	*(Detail Marker Layer and Human Health Separation Layer materials and any reasons for specific omission)*		
Photo record of excavation and Marker Layer reinstatement	*(Attach photograph record document)*		
As-Built drawings provided	*(Attach as-built drawing or sketch indicating cover system reinstatement)*		

C2: EXCAVATED VOLUMES	Above Marker Layer (m^3)	Below Marker Layer (m^3)
Total cut		
Cut volume retained (on site)		
Cut volume to Soil Hospital		
Cut volume sent off Olympic Park		
Related ATK-088 Export Application(s):		
SMARTWaste References	*(Attach spreadsheet from SMARTStart detailing relevant entries)*	

C3: FILL VOLUMES	Above Marker (m^3)	Chemical Tests (no.)	Below Marker (m^3)	Chemical Tests (no.)
Total fill				
Site won fill (reused)				
Fill from Soil Hospital				
Fill from outside Olympic Park				
Related ATK-088 Import Application(s):				

Additional Comments:

SECTION D *(Application is closed by the Permit to Proceed Team following review of Section C and returned to FOP Team)*

Prepared by		Authorised by	
of Company		of Company	
Date		Date	
Accepted & Closed	Yes / No		

Comments or conditions on closure / reason for non-closure of application:

Distribution: *Originating Team, Principal Contractor, CLM Project Manager, RemTech Team, EW Project Manager.*

APPENDIX A:

SUMMARY OF FOLLOW ON PROJECT OBLIGATIONS COVERED UNDER THE PERMIT TO PROCEED PROTOCOL

Table 1: Summary of Follow on Project Obligations Covered Under the Permit to Proceed Protocol

FOP Ob gat on / Respons b ty	Descr pt on	App cab e Remed at on Des gn Documents, Gu dance Documents and P ann ng Cond t ons	PTP Imp ementat on and Aud t ng
Ensure works comply with site remediation design specifications	Earthworks materials used within the Olympic Park must comply with remediation design specifications applicable to the Planning Delivery Zone (PDZ) in which the works are being undertaken All earthworks materials placed by FOP Teams (above or below the ML) shall meet the Site Specific Assessment Criteria (SSAC) outlined in applicable remediation design documents	The Soil Hospital Protocol Management of Olympic Park Earthworks Materials Site Specific Remediation Strategy (SSRS) Site Specific Remediation Specification (SSRSpec) Remediation Method Statement Site Validation Reports (where available) Global Remediation Strategy *OD.0.36 Validation of the Remediation Works for the purposes of human health protection must be provided within two months of completion of the Final Build Layer within any Construction Zone. When all works for the protection of human health are completed within each Planning Delivery Zone, a consolidated validation report, drawing together the Construction Zone validations, shall be submitted to the Local Planning Authority. This shall include topographic mapping of the final finished ground levels.* *Reason: To ensure the protection of human health and avoidance of pollution of controlled waters.* *OD.0.37 Approved post-remediation monitoring and maintenance of the remediated land shall continue, as set out in the validation reports, until such dates or events as are approved by the Local Planning Authority.* *Reason: To ensure the protection of human health and avoidance of pollution of controlled waters.* *OD.0.39 No soils or infill materials (including silt dredged from watercourses), shall be imported onto the Site until it has been satisfactorily demonstrated that they present no risk to human health, planting and the environment. Documentary evidence to confirm the origin of all imported soils and infill materials, supported by appropriate chemical analysis test results, shall be submitted to and approved by the Local Planning Authority prior to that import. The import onto Site of material classified as 'waste' is only acceptable with the prior approval of the Local Planning Authority.* *Reason: To ensure that no contaminated material is brought onto Site.*	FOP Teams submit an ATK-088 Application (Request from Contractor) to the Soil Hospital Team at soil hospital@demrem com (Refer to separate Soil Hospital Protocol document for further details) FOP Teams submit an ATK-084 Application (Protection of Remediation Works) to the PTP Team at permit to proceed@london2012 com detailing the scope of works and arrangements for completing works in accordance with the site remediation design Section C of Form ATK-084 requires that information on the number of chemical tests performed on backfill materials is reported n auditing the works the PTP Team may request evidence and details of sampling and chemical testing of backfill materials
Ensure works do not invalidate any previously completed site remediation works	Completed remediation works that must be maintained may include (but are not limited to) • Placed fill materials that comply with applicable remediation design documents (as above) • Cut off walls and sheet piling • Low permeability layers • Gas membranes • Groundwater or ground gas monitoring boreholes • Groundwater remediation systems n addition FOP Teams must ensure that pathways are not created in the ground that could • invalidate any completed Remediation Works • present any pollution risks to controlled waters • cause any ingress of ground borne gases or vapours to any buried structures This shall be achieved by selecting designing and constructing piling deep foundation works and ground treatment methods that do not create such pathways (in this regard the guidance and requirements of the Environment Agency shall apply)	Site Specific Remediation Strategy (SSRS) Site Specific Remediation Specification (SSRSpec) Remediation Method Statement Site Validation Reports (where available) Global Remediation Strategy EA Guide to Contractors on the Olympic Park Environmental Protection Requirements for Piling (REP-ATK-CG-ZZZ-ZZZ-ZZZ-Z-0001) Soil Gas and Vapour Risks A Briefing Note to Designers (REP-ATK-CM-ZZZ-OLP-ZZZ-Z-0001) *OD.0.26 Before the construction of each building is commenced, details of the foundations and piling, the means by which previously installed remediation measures are to be safeguarded and any measures to prevent ingress of gaseous contaminants into that building or the contamination of controlled waters, shall be submitted to and approved by the Local Planning Authority.* *Reason: To avoid risk to human health or contamination of controlled waters.* *OD.0.59 Before construction of any bridge or other structure requiring foundations is commenced, details of foundation design, including details of any piling and a method statement for any piling, shall be submitted to and approved by the Local Planning Authority.* *Reason: To avoid risk to human health or contamination of controlled waters.*	FOP Teams submit an ATK-084 (Protection of Remediation Works) Application to the PTP Team at permit to proceed@london2012 com detailing the scope of works and any proposed measures to protect completed remediation works and prevent any adverse environmental effects Section C of Form ATK-084 requires information on the number of chemical tests on backfill materials and as-built details to prove integration Any details of vapour protection measures should also be reported in Section C n auditing the works the PTP Team will inspect methods of piling and other intrusive works Where necessary the PTP Team will check that piling risk assessments have been approved by the Environment Agency

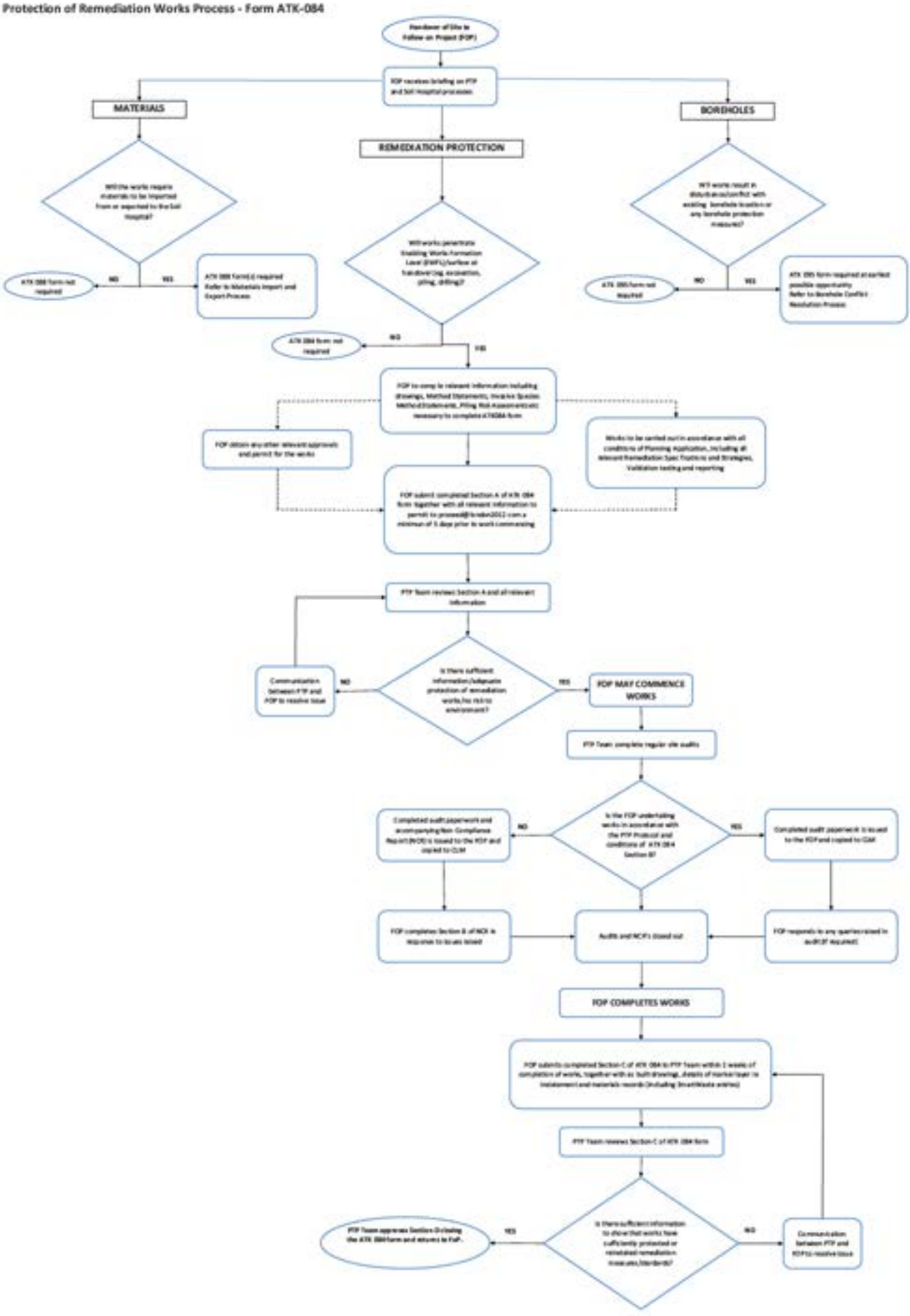
FOP Ob gat on / Respons b ty	Descr pt on	App cab e Remed at on Des gn Documents, Gu dance Documents and P ann ng Cond t ons	PTP Imp ementat on and Aud t ng
Reinstate or install remediated ground cover systems (Marker Layer and Human Health Separation Layer)	Project works must maintain the integrity of existing site remediation and remediated ground cover systems The majority of FOP Teams will need to penetrate installed ML and HHSL elements and excavate materials beneath those layers to construct foundations or install utilities Where the ML is penetrated or altered it must be reinstated and integrated within final constructed levels to ensure that applicable remediation designs are met FOP Teams shall ensure that the ML is reinstated immediately beneath materials that satisfy SSAC for HHSL and that any altered location and level of the ML is accurately recorded ML and HHSL requirements may differ between or within Planning Delivery Zones n some instances it will be more practical to locally deepen or raise the ML Significant changes to ML depth will require approval from the Planning Decisions Team (PDT) and FOP Teams should seek approval from the PDT where any such changes or omissions are proposed	Site Specific Remediation Strategy (SSRS) Site Specific Remediation Specification (SSRSpec) Remediation Method Statement Site Validation Reports (where available) Global Remediation Strategy Any approved supplementary design for ML and HHSL (which may allow omission of ML and/or HHSL) as submitted to and approved by the Planning Decisions Team *OD.0.37 Approved post-remediation monitoring and maintenance of the remediated land shall continue, as set out in the validation reports, until such dates or events as are approved by the Local Planning Authority.* *Reason: To ensure the protection of human health and avoidance of pollution of controlled waters.*	FOP Teams submit an ATK-084 Application (Protection of Remediation Works) to the PTP Team at permit to proceed@london2012.com detailing the scope of works and arrangements for the protection of remediation works Section C of Form ATK-084 requires that photographic evidence and as-built drawings are supplied to detail reinstatement of ML and HHSL elements n auditing the works the PTP Team may request evidence of adequate ML reinstatement and integration into FOP works
Protect groundwater remediation works and maintain adequate access to them	Several sites across the Olympic Park contain active groundwater remediation systems Some of these are intended to remain operational throughout the Olympic Park construction period and into Legacy phases FOP Teams must protect all elements of such groundwater remediation systems including any extraction or injection wells and connecting pipe work and cable routes Other elements of the installed remediation systems may include compound areas containing operational plant and storage areas for ancillary equipment Groundwater monitoring wells used to assess the progress of groundwater remediation works must also be maintained	Site Specific Remediation Strategy (SSRS) Site Specific Remediation Specification (SSRSpec) Remediation Method Statement Site Validation Reports (where available) Global Remediation Strategy Global Groundwater Monitoring Strategy Site Specific Groundwater Treatment Method Statement *OD.0.37 Approved post-remediation monitoring and maintenance of the remediated land shall continue, as set out in the validation reports, until such dates or events as are approved by the Local Planning Authority.* *Reason: To ensure the protection of human health and avoidance of pollution of controlled waters.*	FOP Teams submit an ATK-084 Application (Protection of Remediation Works) to the PTP Team at permit to proceed@london2012.com detailing the scope of works and arrangements for the protection of any known groundwater remediation equipment and works (within appended Method Statements) n auditing the works the PTP Team may request evidence of adequate project integration between FOP works and incumbent groundwater remediation contractors
Unexpected contamination	f unexpected contamination is encountered during earthworks the PTP Team and the Planning Decisions Team should be notified and a methodology for the assessment remediation and validation of the affected area shall be prepared to support a Remediation Change Note as required by Planning Condition OD 0 38	Site nvestigation Reports Site Specific Remediation Strategy (SSRS) Site Specific Remediation Specification (SSRSpec) Remediation Method Statement Site Validation Reports (where available) Global Remediation Strategy *OD.0.38 If at any time during the construction of the Olympic Development, contamination is encountered which was not previously identified or treated or has been brought to the surface by construction activity, construction work in that Construction Zone shall not proceed (except to the extent that it would not further disturb that contamination) until a Remediation Change Note, containing an assessment of that contamination and a scheme and timetable to contain, treat or remove it has been submitted to and approved by the Local Planning Authority and any necessary remediation has been carried out.* *Reason: To ensure the protection of human health and avoidance of pollution of controlled waters.*	FOP Teams shall submit an ATK-084 Application (Protection of Remediation Works) to the PTP Team at permit to proceed@london2012.com (as well as an ATK-088 Application to cover the transfer of excavated materials) The application shall detail excavations and earthworks associated with any remediation works supported by method statements as required by OD 0 38

Uphold 'Duty of Care' obligations under Waste Regulations and satisfy conditions of Waste Recovery Licenses for the Olympic Park	The recovery and re-use of materials within the Olympic Park is authorised by two Waste Recovery Licenses held by the Olympic Delivery Authority By legislation excavation within a contaminated or 'Brownfield' site requires that materials must be characterised before being excavated or re-used The Principal Contractor of any site is the responsible party under Waste Regulation 'Duty of Care' obligations the Environment Act (including associated legislation) and the Waste Recovery Licenses for the Olympic Park Any Principal Contractor conducting earthworks within the Olympic Park is therefore deemed a Waste Operator and must meet obligations associated with the handling of waste and recycled earthworks materials Those obligations include the requirement to maintain accurate information relating to earthworks materials excavated from or placed within the site and to ensure traceability of material movement within and between different sites across the Olympic Park The ODA has determined that BRE's SMARTStart system shall be used within all projects to allow electronic records of all material movements and final deposition locations of to be referenced and traceable	Environmental Permit No EAWML80790 (South Park Waste Management License) Environmental Permit No EAWML80791 (North Park Waste Management License) Construction Waste Management Plan (CLM-D0701-Rep-CWMP-v1 6 doc) Memorandum of Understanding for Waste Management Licensing Applied to the Olympic Park (Appended to CWMP) A Guide to Material Movements London 2012 Enabling Works (GU -MOR-CE-ZZZ-ZZZ-XXX-E-0015) *OD.0.39 No soils or infill materials (including silt dredged from watercourses), shall be imported onto the Site until it has been satisfactorily demonstrated that they present no risk to human health, planting and the environment. Documentary evidence to confirm the origin of all imported soils and infill materials, supported by appropriate chemical analysis test results, shall be submitted to and approved by the Local Planning Authority prior to that import. The import onto Site of material classified as 'waste' is only acceptable with the prior approval of the Local Planning Authority.* *Reason: To ensure that no contaminated material is brought onto Site.*	References of SMARTStart entries relating to specific works must be provided to the PTP in Section C of ATK-084 applications and if necessary be backed up with a printed spreadsheet of information generated from SMARTStart This information is required to ensure materials are being adequately tracked in SMARTstart and to ensure that obligations under Waste Recovery Licenses are being fulfilled
Protection of Boreholes and Groundwater Monitoring installations	FOP Teams must protect preserve and ensure access to all existing boreholes and monitoring locations unless or until the Soil Hospital Team formally confirm alternative arrangements and/or arrange for borehole decommissioning dentification and resolution of conflicts between borehole locations and FOP construction works are detailed in the Soil Hospital Protocol Any damage to an operational borehole will be reported as an Environmental ncident and should be raised by the FOP responsible for the damage and be reported to the Soil Hospital Team and CLM Assurance	Site Specific Remediation Strategy (SSRS) Site Specific Remediation Specification (SSRSpec) Remediation Method Statement Site Validation Reports (where available) Global Remediation Strategy Global Groundwater Monitoring Strategy Site Specific Groundwater Treatment Method Statement *OD.0.37 Approved post-remediation monitoring and maintenance of the remediated land shall continue, as set out in the validation reports, until such dates or events as are approved by the Local Planning Authority.* *Reason: To ensure the protection of human health and avoidance of pollution of controlled waters.*	FOP Teams submit an ATK-095 Application (Borehole Conflict) to the Soil Hospital Team at soil hospital@demrem com a minimum of six-weeks prior to occurrence of conflict with FOP works (Refer to separate Soil Hospital Protocol document for further details) During audits the PTP Team will review borehole protection measures installed at any site and request that any potential risks to borehole installations are rectified and that any damage is reported

APPENDIX B:

PERMIT TO PROCEED PROCESS DIAGRAM

Protection of Remediation Works Process - Form ATK-084



ATKINS
The official engineering design services provider for the London 2012 Games

APPENDIX E:

Supporting Information

Specification text extracts for the following documents:

- Olympic Park Design Infrastructure Development, Specification and Design Brief for Potable Water Network (Ref. SPE-ATK-UW-ZZZ-XXX-ZZZ-Z-0004 P01);
- ODA Civil Works for LOCOG, LOCOG Utility Connection Points, Specification Potable Water, Foul Water, Telecommunications and Gas (Ref. 0241-TPI-LUT-U-SPE-0001 C02);
- London 2012, Specification Appendix 5, Drainage & Service Ducts (Ref. 0241-LPR-NPK-C-SPE-0500 P03);
- Olympic Landscape and Public Realm – South Park, South Park Landscape Specification (Ref. 0241-LPR-SPK-L-SPE-00001 P09).

Invasive Species Plan – North Park & South Park Invasive Species, Landscape and Public Realm (Ref. 7160-LPR-NPK-W-DSK-0471 P06)

PDZ	CZ	Feature ID	Type of Feature	Feature description and salient points	Original area of feature (m^2)	Initial Risk Rating	Risk Rating at close of Enabling Works (Rev05)	Summary of works at the site	FOP Validation Report Reference	Feature Removed (Yes / Partially / No)	Revised Risk Rating (for Legacy Use)
1	1a / 1b	RR1	Retained Road	E31 Bridge Abutment	320	Low Risk	No Unacceptible Risk	Area remediated by Enabling Works (excavated and backfilled with compliant material, with a 150-200mm concrete blinding layer placed at base of excavations) and validated.	No Follow-On project works were undertaken	Yes	No Unacceptable Risk
1	1b	TPB1	Third Party Boundary	Network Rail Boundary (stand-off 2 to 4 m) - partially soft landscaping, partly concrete	8531	Low Risk	Not Assessed	Excavation 0.5 to 1m bgl for removal of the existing concrete footpath and demolition of the brick boundary wall/palisade fence by BAM Nuttall SBH for construction of Channelsea retaining wall. BAM Nuttall SBH has excavated to a depth of 150mm and placed 150mm topsoil within white space areas. They have placed marker layer and between 280 – 650mm human health separation layer (HHSL). Excavation for construction of permanent bridge F10 pier by Balfour Beatty. Excavation up to 1.4m bgl to construct piling mat for CFA piling for bridge H08 approach embankment. Placement of crushed concrete and type 1. Excavation of up to 900mm for construction of Olympic Park security fence posts (OPF). Placement of 300mm granite gravel along the length of the fence.	7040-SBH-RWL-W-REP-0010 (Channelsea Retaining Wall); 7040-SBH-HWY-W-ADD-0001 (11/90792/AODODA) (Addendum to Nuttall SBH PDZ1 validation report (White Spacea Areas & Carpenters Road verges)); 6001-F10-F10-CK-REP-0002 (10/90562/AODODA, 10/90556/AODODA) (Bridge F10); 7060-SBH-SPK-CM-REP-9001 (10/90326/AODODA (Bridge H08); 8526-UNN-ECW-CM-REP-0001 (11/90172/AODODA)(McNicholas Utilities); 7040-SBH-FEN-W-REP-0010 (10/90514/AODODA) (Security fence)	Partially	Low Risk (within areas where works were undertaken during FoP contract) / Not Assessed (in areas where works were not undertaken by FoPs due to presence of concrete foundations and Network Rail boundary)
1	1b	TPB1a	Third Party Boundary	Buried drums adjacent to boundary with Network Rail	67	Low Risk	Not Assessed	Feature removed and validated during Enabling Works.	REP-ATK-CM-ZZZ-OLP-XXX-E-0007 Rev 05 for Enabling Works	Yes	No Unacceptable Risk
1	1a	TPB2	Third Party Boundary	Associated with National Grid Head House	431	Low Risk	Not Assessed	Skanska P3A area - additional 115 mm asphalt placed. Excavation to a depth of 500 mm bgl and placement of marker layer, 500 mm Class 6N limestone and 200 mm concrete by BAM Nuttall SBH within National Grid Compound.	Addendum to Nuttall SBH PDZ1 validation report (White Space Areas & Carpenters Road verges): 7040-SBH-HWY-W-ADD-0001	Partially	Low Risk (within areas where works were undertaken during FoP contract) / Not Assessed (due to standoff from Nationa Grid Head House boundary)
1	1a / 1b	TPB3	Third Party Boundary	Associated with EDF Head House	993	Low Risk	Not Assessed	Skanska P3A area - additional 115 mm asphalt placed	Skanska LPR report: 7170-LPR-SPK-REP-0031	Partially	Low Risk (within areas where works were undertaken during FoP contract) / Not Assessed (due to standoff from EDF Head House boundary)
1	1a / 1b	RB1	Retained Building	EDF Head House - recently built and comprise deep shafts beneath	2027	No Unacceptable Risk	Not Assessed	Potential source material has been excavated during building of shafts. Privately Owned Land - restricted access; area not covered by Olympic Planning Permission.	N/A	No	Not Assessed - Privately Owned Land
1	1b	RB2	Retained Building	National Grid Head House - recently built and comprise deep shafts beneath	852	No Unacceptable Risk	Not Assessed	Potential source material has been excavated during building of shafts. Privately Owned Land - restricted access; area not covered by Olympic Planning Permission.	N/A	No	Not Assessed - Privately Owned Land
1	1b	RB3	Retained Building	Concrete sump	287	Low Risk	Not Assessed	Marker layer (ML), 200 mm type 1 limestone (HHSL) and 80 mm asphalt placed in white space areas 31b by Bam Nuttall SBH.	Addendum to Nuttall SBH PDZ1 validation report (White Spacea Areas & Carpenters Road verges): 7040-SBH-HWY-W-ADD-0001	Yes	No Unacceptable Risk
1	1a	S1	Services	Main supply 11kV	1195	High Risk	Medium Risk (Low Risk if no residential gardens placed over top of feature)	Material abutting the utilities ducts has been excavated by Enablin_ Works. 1.5-3 m of fill and marker la_er have been placed over the top of this feature. Additional 165 mm type 1 virgin aggregate (limestone) placed by Skanska LPR and 120 mm asphalt placed by LOCOG.	REP-ATK-CM-ZZZ-OLP-XXX-E-0007 Rev 05 for Enabling Works Skanska LPR: 7170-LPR-SPK-W-REP-0031	Partiall_ as _eneral fill and ML placed above feature)	Low Risk va_our / gas membranes required in buildings)
1	1b	BEZ1	Batter Exclusion Zone	Area between new cut-off wall and existing river wall. Depth of excavation was limited due to river wall. Marker layer has been placed and material beneath verified.	238	Medium Risk	Low Risk	Enabling Works validation report indicates that although depth of excavation was limited due to adjacent river wall, the material at base of excavation has been verified. The riverwall was not altered, but the levels of the area have been reduced by approximately 1m. ML placed over half of the area. Enabling Works fill and ML excavated by BAM Nuttall SBH during construction of white space area 31f and outfall S-01-07. Site excavated to River Terrace Deposits, then backfilled with class 6N and 6A (limestone gravel and Class 1 fill and 150 mm topsoil. MLwas placed under topsoil.	Addendum to Nuttall SBH PDZ1 validation report (White Spacea Areas & Carpenters Road verges): 7040-SBH-HWY-W-ADD-0001	Yes	No Unacceptable Risk

Note:
- refer to figure 9 'Retained Areas within Planning Delivery Zone 1' for the location of the above features; and
- the 'Revised Risk Rating (for Legacy Use)' presents the qualitative risk for each area/feature based on the known legacy use at the time of writing. Future changes in use will require consideration and potentially re-assessment of the areas in question.

Olympic Delivery Authority

Olympic Park Design
Infrastructure Development

Specification and Design Brief For
Potable Water Network

For Review and Approval by the London Fire and Emergency Planning Authority (LFEPA)
Jul 08

SPE-ATK-UN-ZZZ-XXX-ZZZ-Z-0004-P01

London 2012 Acceptance Code

- [x] Code 1 - Accepted by Project Manager/Employer's Agent
- [ ] Code 2 - Accepted as Noted by Project Manager/Employer's Agent
- [ ] Code 3 - Rejected by Project Manager/Employer's Agent
- [ ] Code 4 - For Information Only

[redacted]

Project Manager/Employers Agent

Date 25/7/08

ODA Civil Works for LOCOG

LOCOG Utility Connection Points

SPECIFICATION
POTABLE WATER, FOUL WATER, TELECOMMUNICATIONS AND GAS

Notice
This document and its contents have been prepared and are intended solely for *ODA's* information and use in relation to *Civil Works for LOCOG Areas*.

Atkins assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

Document History

JOB NUMBER: 5060667.161			DOCUMENT REF: 0241-TPI-LUT-U-SPE-0001			
C02	Details of temporary spade location updated	[redacted]	[redacted]	[redacted]	[redacted]	04/11/11
C01	Issued for construction	[redacted]	[redacted]	[redacted]	[redacted]	25/10/11
P02	Content updated	[redacted]	[redacted]	[redacted]	[redacted]	07/10/11
P01	Issued for construction of PW2-1-1, PW1-1-1, PW6-3-1, PW5-3-1, PW5-2-1 and FW-15	[redacted]	[redacted]	[redacted]	[redacted]	08/09/11
Revision	Purpose Description	Originated	Checked	Reviewed	Authorised	Date

Code 1 Accepted by Project Manager/ Employer's Agent

Where a conflict occurs between any of the above specifications and the construction drawings, the construction drawings shall take precedence.

2.1.2 Pipes, Valves and Fittings

Pipes lengths, sizes and materials at individual connection points are as per the drawings which are outlined in Section 3 of this specification.

All pipes, valves and fittings used shall be Water Regulations Advisory Scheme (WRAS) approved and be suitable for use in contaminated ground. Pipes and fittings shall be handled and installed in accordance with the manufacturers requirements.

Potable water pipes shall either be:

i. Polyethylene with an aluminium barrier (PE barrier pipes PE 100 SDR 17) and comply with WIS 4-32-19:2007.

ii. Ductile iron pipes (with protective wrapping where buried; including at joints) as per IGN 4-21-01 and Thames Water specific requirements.

Jointing of PE and ductile iron potable water pipes shall be by use of self anchoring/ tensile resistant jointing and fittings. Where other jointing is proposed, the Contractor shall design and install thrust or anchor blocks as required to the approval of the Designer, Atkins (via the Client).

Suitable marker tape shall be installed above the new pipe work for identification purposes as per the requirements of NJUG Volume 1.

Gate valves shall be: right hand closing; cap top operated and resilient seated.

2.1.3 Excavation and Reinstatement

Generally, excavations shall be undertaken within areas of the Park with varying hard landscape construction and finishes. Reinstatement shall be back to the existing surface condition.

It is generally expected that proposed installation in all areas will comprise of previously contaminated ground capped with a human health membrane layer, which if penetrated shall be reinstated. It shall be the responsibility of the Contractor to extend and repair the protective membrane into the over excavated area prior to backfilling with compliant remediated material to the required formation level.

Where in the unlikely event that contaminated ground is encountered, the Contractor shall excavate to a minimum depth of 300mm below the minimum invert level and shall chemically test the ground to enable classification and ensure that it does not represent a residual risk to either the environment or the installed utilities.

The Contractor shall be responsible for the removal and safe disposal of any leftover or contaminated spoil. Any remaining spoil material will require testing to determine its characteristics prior to removal from site to a designated landfill site.

6 Description of distribution systems

6.1 Trunk Routes

From the bulk meter inflow chamber a new trunk water main shall be laid following the route shown on the drawings. One circuit feeds the northern part of the Olympic Park and a second circuit feeds the southern part.

6.2 Interfaces with Stratford City

There are 2 discrete connection points ('B' and 'J') between the Olympic Park network and the Stratford City network to provide resilience to each network (see Drwg 2DD-ATK-UW-ZZZ-XXX-XXX-O-1018). Each interface point terminates in a blank spur as shown in the Drawings.

Two spurs have been included in the south loop to facilitate future resilience connections between the OP south network and either:

i. the local host utility diverted 36"/1200mm main along Carpenters Rd,(Spur i) or
ii. the Stratford City network (Spur ii).

These connections are currently under investigation. The spurs are shown in the drawings as Spur (i), (Drwg 2DD-ATK-UW-ZZZ-XXX-XXX-O-1013), and Spur(ii), (Drwg 2DD-ATK-UW-ZZZ-XXX-XXX-O-1010). Both spurs terminate in chambers with an isolation valve and end cap. The arrangement and layout of these chambers is shown in Drwg 2DD-ATK-UW-ZZZ-XXX-XXX-Z-ZDS008.

6.3 Pipe diameter

The primary distribution routes and all key information for the design are shown on Drawings 2DD-ATK-UW-XXX-XXX-O-1001 to 1018. Pipe diameters are shown in millimetres (NB). These pipe diameters are based on hydraulic models using data which is current at Jan 08 and which are conservative to allow for uncertainties in this data. In particular the available delivery pressure from Thames Water has not been defined- this is currently under investigation by Thames and will be reported on in Jan/Feb 08. A review of the models will follow this report and this may lead to a revision of pipe diameters, with the possibility of moving to smaller diameters for the ring main.
Thames Water has commented that it is acknowledged that the current pipe sizes have been over-designed to allow for uncertainties

6.4 Pipe Material, Jointing & Fittings

It is recognised that the Olympic Park is classified as 'contaminated' by Thames Water and that only Ductile Iron (D.I.) and Steel are acceptable for such sites, with barrier PE also acceptable up to 63mm only.

Ductile Iron has been shown as the pipe material on the drawings on the assumption that for the pipe diameters shown D.I. will be the least cost option.

Pipe jointing methods for Ductile Iron and Steel will conform to host utility standards as set out in Thames Water comments below.

For socket and spigot joints, the 'Rapid' joint system must be used; for steel pipe the 'Tyton' joint system must be used at every joint.

Rapid or Tyton anchor joints must be used at the following occurrences:

i. *EITHER SIDE OF A BEND*

ii. *BEFORE ANY END (WASHOUT / HYDRANT)*

iii. *BEFORE ANY CHANGE OF DIRECTION (TEE CONNECTION)*

As a guide, the following minimum requirements are:

100mm main - 3 Pipe Lengths (3 x Anchor Joints)
150mm main - 4 Pipe Lengths (4 x Anchor Joints)
200mm main - 5 Pipe Lengths (5 x Anchor Joints)
300mm main - 8 Pipe Lengths (8 x Anchor Joints)

Welded steel does not require anchor gaskets. Socket & Spigot method used with ductile iron may or may not require anchor gaskets. The use of them is dependant on the pipe loading and also enough of them to ensure that the pipework is structurally sound. It is usually cost effective where available as the need for thrust blocks is reduced.

Other specific Thames Water requirements are set out below for guidance

SERVICE PIPES

Contaminated sites – EITHER Copper pipe (BS EN 1057/1996 standard) OR Barrier Pipe (preferred for 63mm external diameter and under) / Ductile Iron & Fuchs Steel (100mm and above).

[N.B. TW prefer not to install 80mm internal diameter ductile iron / fuchs steel pipework, although there is no specific reason why it cannot be installed.]

HYDRANTS / WASHOUTS

Only use the metal outlet. The nylon outlet type is not allowed. The temporary washout used at the point of final connection should be a PN16 FLANGED fitting.

- *All end washouts must be installed at a distance of no more than one metre after the last service connection draw off point*
- *Failure to carry out this procedure could result in water quality issues.*

HYDRANT SPECIFICATION (Installation)

- *Install tee & extension piece (if required) to extend hydrant to correct position & height in order that hydrant outlet is at a maximum depth of 300mm & a minimum depth of 150mm below finished surface level*
- *Backfill excavation, and consolidate ground to 100mm below the bottom hydrant flange*
- *Install base unit & chamber sections in order that the hydrant is squarely aligned within the chamber and new f/h frame & cover squarely aligned with the finished surface area*
- *Install marker post & plate (if required)*

FERRULES

Drilled using under-pressure threaded tappings.
Meet provisions of WIS 4-22-02

VALVES

Right Hand close valves only.

BOUNDARY BOXES

Waterproof type
Contain integral shut off valve on the upstream side together with a non-return valve
Adjustable for height & slope

[A more comprehensive specification can be found by reading the publication "Self Laying of Water Mains and Services (1st Edition) – A Code of Practice for England & Wales", and TW's Self Lay Addendum (version 4.1 October 2007).]

Olympic Delivery Authority

London 2012

Specification Appendix 5 Drainage & Service Ducts

12 Sulphate Resistance of Concrete Pipes

12.1 Unless specified elsewhere in the contract documentation and drawings all concrete pipes and fittings (including channel drains) shall be manufactured to Design Chemical Class DC-4 in accordance with the requirements of the Building Research Establishment Concrete in aggressive ground Special Digest 1. A Design Sulphate Class of DS-4 shall be assumed unless stated otherwise. Sulphate resisting cement shall not be used.

13 Schedule of Chambers and Rodding Eyes:

13.1 Chambers and Rodding Eyes shall be constructed in accordance with the requirements stated in the manhole schedules and drawings 0241-LPR-UED-C-DDE-0337.

13.2 Cover and frames to chambers and manholes shall comply with the requirements of BS EN124 and the following schedule below.

13.3 No manufacturers identifying marks are allowed on the Manhole Covers or Rodding Eye Covers.

13.4 Thermoplastic Inspection Chambers and Catchpits may be utilised in temporary areas and on filter drain systems, as specified in the manhole schedules.

13.5 Manhole covers are to be capable of being secured using sealing strips (as required by the ODA Security Team).

13.6 Rodding eyes are only permitted in soft landscaping areas.

Chamber Type	BS EN 124 Loading Class	Type of cover (mm)
ALL	As a general rule the following criteria are applied, but refer to manhole schedules for requirements at each chamber. **B125** – Soft Landscaped Areas and Footpaths (not in maintenance traffic routes) **C250** - Front of House, Concourse Areas and Soft Landscaping Areas (in maintenance traffic routes) **D400** – Back of House and Heavily Trafficked Areas	Minimum clear opening as dictated on drawings 0241-LPR-UED-C-DDE-0330-0332, non-rocking, lockable.

14 Gully Requirements

14.1 Gullies shall be constructed in accordance with the requirements shown on drawing 0241-LPR-UED-C-DDE-0334.

14.2 All gullies shall be connected to the surface water carrier drainage network. Appropriate fittings shall be provided on the gully lead and carrier drain so that the gully lead turns through a bend adjacent to the carrier drain and enters the carrier at an angle of 45° to the direction of carrier drain flow. The finished level of the gully gratings shall be 6 mm below the finished paving level and canted to the slope of the paving surface. Refer to drawings 0241-LPR-UED-C-DGA-0301 to 0312 for details of gully connections.

14.3 Gully pots shall be of pre-cast concrete (sulphate resisting) complying with BS 5911: Part 6: 2004 or thermoplastic to BS 4660, BS 5481 and BS EN 1401.

14.4 Gully pots shall be 375 mm internal diameter, 750 mm internal depth, with 150 mm diameter trapped outlet and rodding eye. They shall be installed complete with galvanised iron stopper and chain. All gullies shall be set on and surrounded with 150 mm of ST2 concrete.

14.5 Gullies at the end of dished channels shall be dished to suit pre-cast channel units.

15 Schedule of Gullies:

15.1 Gratings and frames shall comply with the requirements of BS EN 124 and be specified on the detailed drawings and the following schedule:

Gully Type	BS EN 124 Grade	Cover Depth (mm)	Size of cover (mm)	Minimum Clear Waterway Area (cm^2)
Single	**B125** – Soft Landscaped Areas and Footpaths (not in maintenance traffic routes) **C250** - Front of House, Concourse Areas and Soft Landscaping Areas (in maintenance traffic routes) **D400** – Back of House and Heavily Trafficked Areas	100	Min. 370 × 430	830

15.2 Gullies shall incorporate captive hinged gully gratings.

15.3 Pipe bedding for gully connections shall comply with the table below:

Permitted alternative construction: Gully Connections

Pipe Diameter (mm)	**Trench Depth (m)**	**Trench / Bedding Type**		
		Vitrified Clay Types	**Thermoplastic Types**	
		BS 65 OR BS EN 295	**BS 4660**	**BS 5481**
150	<1.2	Z	Z	
150	>1.2	S	S	

16 Requirements for Geotextiles and Membranes

16.1 Geotextile for use in filter drains and permeable paving strips at the interface of the filter material and surrounding ground shall comply with SHW Clause 515.3 and 514.4.

16.2 Where filter drains, porous recycled thermoplastic drainage units and permeable paving strips are located below the ground water table, an impervious HDPE geomembrane barrier shall be provided, as indicated on drawings 0241-LPR-UED-C-DDE-0336. This is to stop the ingress of potentially contaminated groundwater into the SW drainage system and to reduce the risk of mobilising the contaminants in the ground. The geomembrane shall not exceed 2mm in thickness and shall be smooth. The minimum lap length at jointing of the impervious barrier shall be 250mm.

16.3 Where permanent carrier drains and filter drains are located within 3m of a tree to remain in legacy, a root barrier geomembrane shall be provided in accordance with BS 5837:2005. Suitable product type to be approved by the Project Manager.

17 Headwall/Outfall Structure

17.1 Headwall structures shall be constructed in accordance with drawings 0241-LPR-UED-C-DDE-0350, 0353 – 0370.

17.2 Consent for working in or near a watercourse shall be obtained from the Environment Agency or British Waterways (depending on the outfall location), prior to construction commencing.

17.3 Outfall pipes are to be fitted with plastic composite flap valves.

17.4 Galvanised steel grills are to be provided to all outfall structures greater than 300mm diameter. Grills are to have a safety platform with a hinged opening to allow maintenance access to the flap valve structure. Opening to be lockable as required by the ODA Security Team.

17.5 Deleted

18 Porous Paving Strips

18.1 Porous paving strips shall be constructed in accordance with drawings 0241-LPR-UED-C-DDE-0336.

18.2 The porous paving strips are to consist of a porous asphalt surface and structural sub-base, as indicated in Appendix 7 – Highways Specification.

18.3 A perforated pipe will be installed at the base of the porous paving strips in accordance with drawing 0241-LPR-UED-C-DDE-0336. This porous pipe will have a minimum pipe diameter of 150mm and minimum depth of cover of 600mm. Perforations shall face upwards.

18.4 The perforated pipework shall discharge to a catchpit chamber prior to connecting to the carrier pipework system.

Olympic Delivery Authority

Olympic Landscape and Public Realm - South Park

South Park Landscape Specification

Code 1: Accepted by Project Manager/ Employer's Agent

0240-LPR-SPK-L-SPE-00001

Rev 098

7.7 The sewer shall be deemed to have passed the test if the volume of water added does not exceed 0.5 litre per linear metre of pipeline per metre of nominal diameter.

7.8 All pipelines shall be visually inspected by means of CCTV survey prior to and after backfilling.

7.9 Water used for testing should be from a non-potable source, wherever possible.

8.0 Fuel/Oil Separator

8.1 Bypass fuel/oil separators are to be installed at the locations shown on drawings 0240-LPR-SPK-CD-DGA-01101-01103, 0240-LPR-SPK-CD-DGA-01111-01113, 0240-LPR-SPK-CD-DGA-01201-01203, 0240-LPR-SPK-CD-DGA-01401-01403 and 0240-LPR-SPK-CD-DGA-01801.

8.2 The separators to be used shall be Class 1 bypass separators.

8.3 The separators shall comply with Environment Agency requirements in Pollution Prevention Guideline PPG3.

8.4 The units are to be installed in accordance with the manufacturer's specification.

8.5 Standard details of surrounds for interceptors are shown on drawing 0240-LPR-SPK-CD-DDE-05010.

8.6 Interceptor sizes are indicated on the fuel/oil interceptor schedules on drawing 0240-LPR-SPK-CD-DDE-05010.

8.7 Fuel/oil separators must be provided with a remote proprietary alarm to provide visual and audible warning when the level of oil reaches 90 per cent of the oil storage volume under static liquid or when an unacceptable build up of silt occurs. The location of the visual and audible warning shall be co-ordinated with the Back of House (BoH) layout (as agreed with the Project Manager).

8.8 Fuel/oil interceptors shall be fitted with a vent pipe as indicated on drawing 0240-LPR-SPK-CD-DDE-05010. This shall be co-ordinated with the BoH layout (with the Project Manager's acceptance).

8.9 The fuel/oil interceptor is to be provided with a base and cover slab, and backfilled with shingle, as indicated on drawing 0240-LPR-SPK-CD-DDE-05010. The units are temporary and will be removed in the Legacy Mode. The units shall therefore be anchored to the base slab with a strap in accordance with the manufacturer's recommendation. Oil/fuel interceptors are not to be surrounded in concrete, unless agreed with the Project Manager.

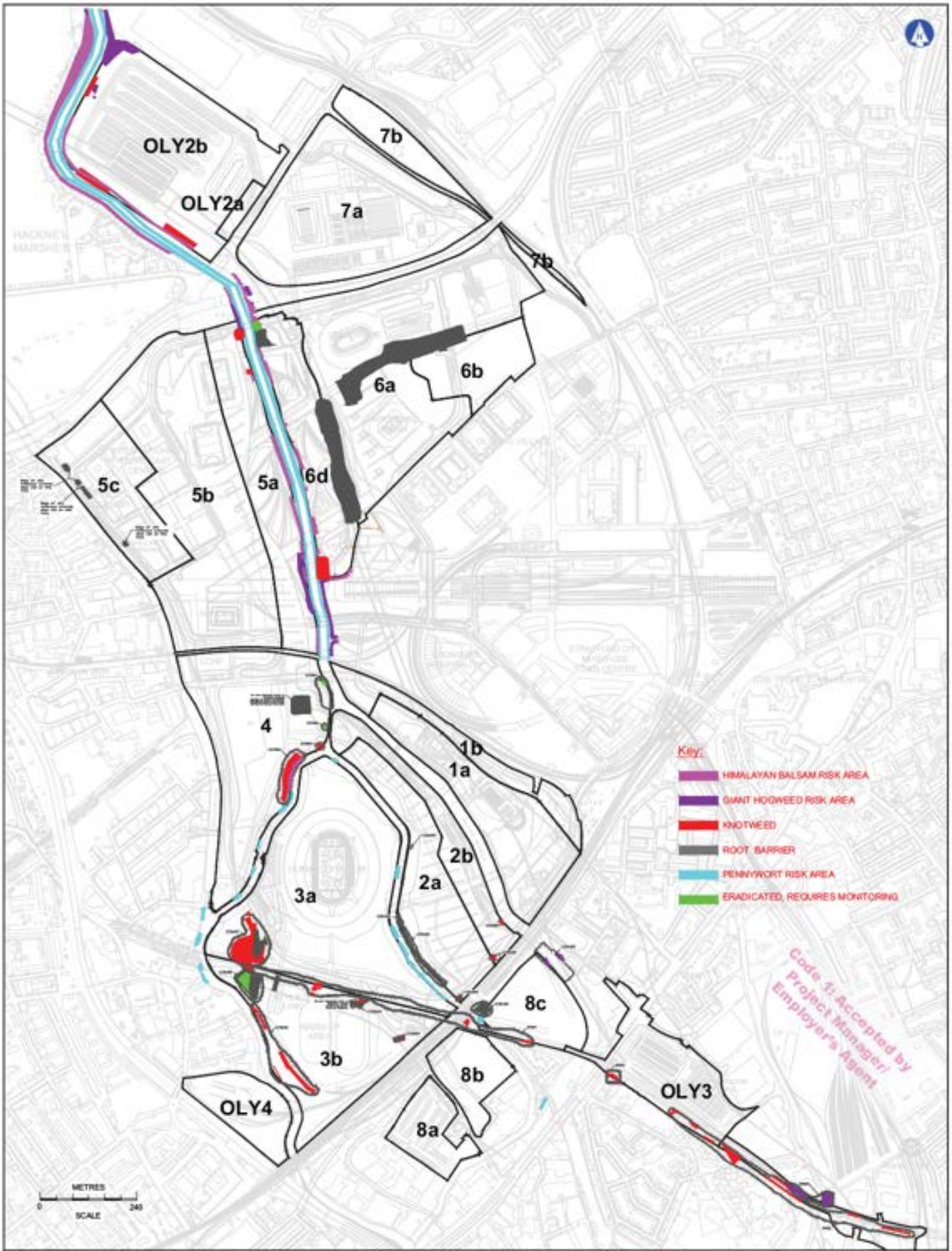
9.0 Filter Drains – Refer to Appendix 5/4

10.0 Sulphate Resistance of Concrete Pipes

10.1 Unless specified elsewhere in the contract documentation and drawings all concrete pipes and fittings (including channel drains) shall be manufactured to Design Chemical Class DC-4 in accordance with the requirements of the Building Research Establishment Concrete in aggressive ground Special Digest 1. A Design Sulphate Class of DS-4 shall be assumed unless stated otherwise. Sulphate resisting cement shall not be used.

11.0 Schedule of Chambers, Rodding Eyes and Pipelines

11.1 Chambers and Rodding Eyes shall be constructed in accordance with the requirements stated in the manhole schedules in the 0240-LPR-SPK-CD-SCH-



OLYMPIC DELIVERY AUTHORITY

bam nuttall

NORTH PARK & SOUTH PARK INVASIVE SPECIES

Landscaping & Public Realm

OLYMP C GR D

7160-LPR-NPK-W-DSK-0471

P06

APPENDIX F:

PPDT / Hyder Document Review Comments and Responses

Olympic Delivery Authority PDT

EIA & Site Remediation Advisory Services Call Off Contract

DOCUMENT REVIEW

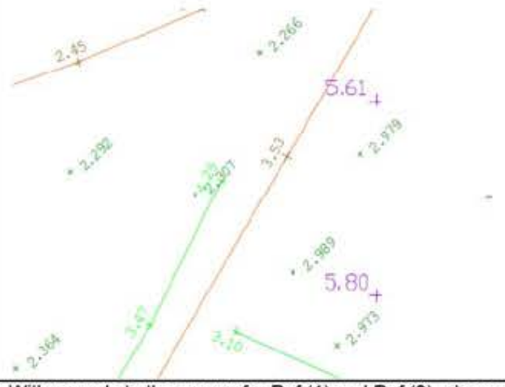
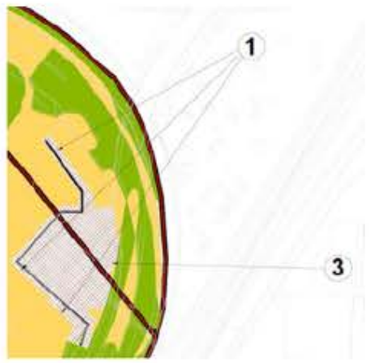
Application No.	Submission Title	Submission Ref.	Applicant Author	Date of Document Review	HCL Task Ref.
12/90116/AODODA	Follow-on Project (Stage 2) Consolidated Validation Report – Planning Delivery Zone 1	REP-ATK-PM-01Z-ZZZ-ZZZ-Z-0001	Atkins	13/11/2012 06/12/2012 07/12/2012	REM 225

The report titled "*Follow-on Project (Stage 2) Consolidated Validation Report – Planning Delivery Zone 1*" has been reviewed by Hyder Consulting on behalf of the PDT to determine compliance with the Facilities and Legacy Planning Condition OD.036 Protection and Validation of Remediation. The report has been reviewed against the requirements of this Condition as outlined in *'Remediation and Follow-on Works – Follow on Contractors Interaction with the Olympic Delivery Authority Planning Decisions Team'* document.

Table 1 - HCL Comments

Ref.	Submission Section / Aspect	HCL Comment	Applicant's Response RemTech response 03/12/2012 Hyder Review 06/12/12 RemTech response 07/12/12 Hyder Review 07/12/12
1.0	General Content	Please ensure that the content of the PDZ1 CVR Stage 2 (and others) mirrors that for the PDZ2 equivalent, obviously only where the same wording / template is relevant.	Response 03/12/12: We have cross checked the content of this Stage 2 PDZ1 CVR (latest version Rev03) with the now approved version of the Stage 2 PDZ2 CVR and amended where appropriate. Hyder 06/12/12: No further comment.
1.1	Section 1.6, bullet point	Utilities (Murphys / UKPN) – Validation Report for Multi-zonal LV (12/90267/AODODA) has now been approved. Please update this section accordingly.	Response 03/12/12: Section 1.6 has been updated to reflect the latest report status. Hyder 06/12/12: Section 1.6 has been updated to confirm all ODA FOP reports for PDZ1 have been approved by PPDT. No further comment.
1.2	Section 2.1, 3rd paragraph	We note that the Stage 2 CVR for PDZ2 included a summary of human health and controlled waters receptors. We consider this useful information, and it would be of benefit if similar paragraphs are provided in this report.	Response 03/12/12: Further text has been added to Section 2.1 to outline the main human health and controlled waters receptors. Hyder 06/12/12: Section 2.1 has been revised to provide a description of the receptors. No further comment.
1.3	Section 2.1, 6th paragraph	Can the applicant please summarise the principal changes briefly here, as carried out for the PDZ2 CVR.	Response 03/12/12: Further text has been added to Section 2.1 though noting no significant land use changes were recorded for PDZ1. Hyder 06/12/12: Section 2.1 has been revised to confirm that there were no significant land use changes within PDZ1. No further comment.
1.4	Table 2.1	For the Utilities (Volker) "Readily Connectable" row, please could the applicant confirm whether the "Final Surface / Works to be Completed" works have been completed, and by whom so that this is consistent with the remainder of the table.	Response 03/12/12: Table 2.1 has been updated with this information. Hyder 06/12/12: Table 2.1 has been updated to confirm that completion of HHSL to FFL was the responsibility of others, namely LOCOG and LPR. No further comment.
1.5	Table 2.1	9th item, Outer Perimeter Security Fence –the placement of the Marker Layer is yet to be completed. Please could the applicant confirm whether this should be included as a residual action in Table 3.1, or whether Item 3 of Table 3.1 is intended to cover this item?	Response 03/12/12: Table 3.1 captures remedial actions from Enabling Works and construction of the OPF was a Follow-on Project task. Completion of the HHSL and Marker Layer in the area of the OPF is captured in Table 4.1 as a residual action from the FoPs which is to be completed in Legacy / Transformation. A note is now included in Item 3 of Table 3.1 to direct the reader to Table 4.1. Hyder 06/12/12: Table 3.1 has been revised by the addition of a note directing the reader to Table 4.1 for further details where HHSL placement is required. No further comment.
1.6	Table 3.1	Reference to PDT in the future tense, could be PPDT or even the LPA.	Response 03/12/12: We've reviewed the report for use of the term 'PDT' now this is no longer relevant and updated where appropriate with 'PPDT'. This includes Table 3.1. Hyder 06/12/12: No further comment.
1.7	Section 3.2, Table 3.1	Item No. 2 – this item is referred to as "partially closed" and provides information where some or all temporary fill has been removed. Please can the applicant provide clarification where this residual remedial action remains, this may be best shown on a drawing.	Response 03/12/12: This item has been addressed. The 'partially closed' text refers to the fact that the action was partially closed by Skanska in addition to other FoPs (Nuttall SBH). The text has been re-worded to clarify. Hyder 06/12/12: Table 3.1 has been revised to confirm that residual item 2 has been addressed by Skanska LPR and Nuttall SBH. No further comment.
1.8	Section 3.2, Table 3.1	Item No. 6 – temporary site accommodation. Please explain why protection measures were not installed in these areas.	Response 03/12/12: This text has been re-worded. Where temporary accommodation was retained through Games time this has been assessed by LOCOG. Hyder 06/12/12: Table 3.1 has been revised to confirm that the Aquatics temporary offices were constructed with a sub-floor void. No further comment.
1.9	Section 3.2, Table 3.1	Item No. 7 – can the applicant please confirm whether this item is closed out, or else confirm where this residual remedial action remains, this may be best shown on a drawing.	Response 03/12/12: This item has been addressed by the ODA FoPs and carried forward as Item 2.1 in Table 4.1 for consideration by the Transformation / Legacy teams. A note has been included in Table 3.1 to this effect. Hyder 06/12/12: Table 3.1 has been revised by addition of a note directing the reader to Table 4.1. No further comment.

Ref.	Submission Section / Aspect	HCL Comment	Applicant's Response RemTech response 03/12/2012 Hyder Review 06/12/12 RemTech response 07/12/12 Hyder Review 07/12/12
1.10	Section 3.3, 2nd paragraph	This section details that 'the thickness of HHSL varies from 375 mm to 3100 mm' and gives information where a reduced thickness of HHSL was placed. • Does the 375mm relate to hard cover? • In all soft areas is >600mm of HHSL present?	Response 03/12/12: Further text has been added to Section 3.3 to clarify the status of the HHSL in PDZ1 and provide further detail on the two small soft landscaped areas where HHSL is less than the default 600mm thickness. Hyder 06/12/12: Section 3.3 has been updated to describe the construction thickness of HHSL and where <600mm areas remain. Furthermore, the reader is directed to Table 4.1 which confirms these HHSL deficient areas as residual areas.
1.11	Appendices –Figures List	Please ensure the title for Figure 11 is consistent with the title given on the Figure 11 drawing.	Response 03/12/12: The drawing title and figures list will be checked for consistency. Hyder 06/12/12: Assuming this is done adequately prior to PPDT submission, no further comment. **RemTech response 07/12/12: This has been checked for the final attached submission.** **Hyder 07/12/12: No further comment.**
1.12	Reference list and Appendix B	Please update these sections in light of newly approved documents.	Response 03/12/12: Both the references and Appendix B have been checked in line with the current report status. Hyder 06/12/12: No further comment.
1.13	Appendix B	Validation Reports – the report reference for Buro Happold. 028925. Water Polo Building Footprint and External Areas. Validation Report. This is given as 028952 in the references section. Please could the applicant check and update accordingly.	Response 03/12/12: The report reference has been checked and updated to ensure consistency. Hyder 06/12/12: No further comment.
1.14	Appendix B	Follow on Project Documents, Remediation Method Statements: Nuttall. 7040-SBH-SPK-W-REP-0027-02 & 7080-SBH-NPK-W-REP-0017-02: The text for this report currently states "...where excavations extended to a depth >0.0m below the...". Please could the applicant clarify this.	Response 03/12/12: This is a drafting error and has been amended to state *'…where excavations extended to a depth* ***>0.5m*** *below the Enabling Works sub-grade level.'* Hyder 06/12/12: Apologies but the V3 version of Appendix B still has >0.0. Please ensure that this drafting error is rectified in the final documents issued to PPDT. On the assumption that this is done adequately, then we have no further comment. **RemTech response 07/12/12: Apologies, this has now been amended.** **Hyder 07/12/12: Above change has been made. No further comment.**
1.15	Appendix B	Validation Reports: Murphys. LVU-8524-SUD-000308. LVU Validation Report for Lea Valley Utilities (LVU) Works on London 2012 Olympic Park has now been approved. Please update this section accordingly.	Response 03/12/12: Text amended accordingly. Hyder 06/12/12: Appendix B has been amended. No further comment.
1.16	Appendix C	Key Stakeholders – please update British Waterways to the Canal and Rivers Trust. A note "formally British Waterways" would be useful.	Response 03/12/12: Thank you, we've updated Appendix C as indicated. Hyder 06/12/12: Appendix C has been amended. No further comment.
1.17	Figure 2 Olympic End Use For Planning Delivery Zone 1	The key and presented Figure indicate a number of 'unallocated areas' – please confirm what these relate to and whether they have been validated as part of the FOP works.	Response 03/12/12: This legend note has been carried over from the original SSRS Drawing and is no longer applicable. The note has been removed on the latest drawing version. Hyder 06/12/12: The legend has been updated by way of removal of "unallocated areas". Assuming the now unlabelled blank areas are in line with the SSRS and do not represent sensitive land uses, then no further comment.
1.18	Figure 2 Olympic End Use For Planning Delivery Zone 1	PPR – please could this be written out in full.	Response 03/12/12: 'PPR' or Parklands and Public Realm has been spelt out it eh legend on the latest drawing version. Hyder 06/12/12: No further comment.
1.19	Figure 3 Legacy End use for Planning Delivery Zone 1	The key does not appear to be reflective of the actual drawing – please could you clarify / update the drawing.	Response 03/12/12: The drawing has been updated so the key better reflects what is actually shown. Hyder 06/12/12: No further comment.
1.20	Figure 3 Legacy End use for Planning Delivery Zone 1	There are a number of unmarked grey areas as well as the Waterpolo Centre. Is this correct?	Response 03/12/12: The drawing has been updated to better reflect the known Legacy use. Hyder 06/12/12: No further comment.
1.21	Figure 4 Spatial Coverage of FoP Validation Reports for Planning Delivery Zone 1	The drawing shows a number of 'blank' areas where no validation works appear to have been completed. Have these areas undergone validation? Are they RARAR areas? For completeness we suggest the figure explains why some areas are intentionally blank, if this is the case, even though they are within the PDZ boundary.	Response 03/12/12: The drawing has been reviewed and certain previously 'blank' areas have now been filled in. Where areas have not been subject to validation a legend note has been included to denote these and a further note directs the reader to the RARA areas as shown on Figure 9. These changes are consistent with those agreed for PDZ2. Hyder 06/12/12: Figure 4 has been updated in line with the above including addition of a note. No further comment.

Ref.	Submission Section / Aspect	HCL Comment	Applicant's Response RemTech response 03/12/2012 Hyder Review 06/12/12 RemTech response 07/12/12 Hyder Review 07/12/12
1.22	Figure 4 Spatial Coverage of FoP Validation Reports for Planning Delivery Zone 1	FoP Validation Reports Table: • Jackson Water Polo Report – please check the report reference, this is different to that given in Appendix B. • McNicholas Multi Utilities Report – please check the Decision Notice – it is different to that given in Appendix B. • Cofely report – we are unable to find this in Appendix B, please could you clarify and update accordingly.	Response 03/12/12: The drawing Table and Appendix B have been updated to account for the following changes: • BH / Jacksons Water Polo report – Appendix B reference amended; • McNicholas Multi-Utilities – Decision ref. amended in the drawing Table; • Cofely report – this does not relate to PDZ1 and reference has been removed from the drawing. Hyder 06/12/12: No further comment.
1.23	Figure 4 Spatial Coverage of FoP Validation Reports for Planning Delivery Zone 1	Are there intentionally blank areas?	Response 03/12/12: Certain areas have not been subject to ODA FoP validation and have been left blank – refer to response to comment 1.21 above. Hyder 06/12/12: No further comment.
1.24	Figure 5 Sub-Grade Levels for Planning Delivery Zone 1	Two legends are provided - 8.933 Enabing Works sub grace levels (M AOD) 8.933 FoP Sub grade levels (M AOD) However, it appears that four different colours (brown, mid green, lime green and purple) have been used in the drawing (extract below). Please could you confirm which are correct and update the drawing / legends accordingly. Further review may be required once updated. 	Response 03/12/12: The drawing colours have been amended so as to align with the legend notes and colours. Hyder 06/12/12: No further comment.
1.25	Figure 6 Extent of Marker Layer Within Planning Delivery Zone 1	With regards to the arrows for Ref (1) and Ref (3), please could you confirm whether these are pointing to discrete locations, or discrete areas, this is currently not clear (extract below). The drawing may require updating accordingly. 	Response 03/12/12: The drawing has been amended to clarify these areas (now shown as one area). Note, the drawing Table refers to the RARA addendum as being 'under consideration'. If the status of this changes before this report is finalised this note will be updated. Hyder 06/12/12: No further comment.

Ref.	Submission Section / Aspect	HCL Comment	Applicant's Response RemTech response 03/12/2012 Hyder Review 06/12/12 RemTech response 07/12/12 Hyder Review 07/12/12
1.26	Figure 7 Extent and Thickness of HHSL Within PDZ1	The following extract is shown on the drawing: Notes Reference should be made to the stage 3 CVR to confirm where separation layer is to be completed by LOCOG. However, section 4 of the CVR states "*Aside from the residual actions identified in Table 4.1 below, the ODA has completed the SSRS remedial scope within PDZ1 and is not reliant upon works by LOCOG to demonstrate the design has been fully implemented.*" Should the text on the drawing be removed? Or are there works that are reliant on LOCOG?	Response 03/12/12: This standard legend note has been removed and the drawing amended to show a section to the south east of the Aquatics Centre where LOCOG is to complete the hard standing surfacing. In addition the text within the report Conclusions (Section 4) has been amended to account for this residual action and an item added to Table 4.1. Hyder 06/12/12: No further comment.
1.27	Figure 7 Extent and Thickness of HHSL Within PDZ1	There are a number of "blank spaces" shown on this drawing – please could you confirm if these are intentionally white, and if so, a legend is required. If not, please could you update the drawing to remove the blank spaces.	Response 03/12/12: The drawing has been checked and there remain a couple of discrete areas where ODA FoPs have not completed validation. A legend note has been included to state these areas have not been subject to validation. Hyder 06/12/12: No further comment.
1.28	Figure 7 Extent and Thickness of HHSL Within PDZ1	Please ensure the reference number for the WaterPolo report is correct (shown as 028952 on drawing and 028925 in Appendix B).	Response 03/12/12: The reference on the drawing is correct and the Appendix B reference has been corrected. Hyder 06/12/12: No further comment.
1.29	Figure 7 Extent and Thickness of HHSL Within PDZ1	There appear to be many areas where HHSL is less than 600mm. Are these deficient areas covered by the residual remediation table and or explained in the individual FOP reports?	Response 03/12/12: Due to the extent of hard standing and the venues within PDZ1 there are extensive areas where the HHSL is less than 600mm. These areas are highlighted in the Table in Figure 7 and are as per the agreed RMS and individual FoP validation reports. Hyder 06/12/12: No further comment.
1.30	Figure 9 Retained Areas within Planning Delivery Zone 1	This drawing has not been provided for review. Comments therefore in abeyance pending provision of drawing. Comments regarding text within main body of report that refer to this drawing also in abeyance.	Response 03/12/12: Figure 9 is now available and attached to this re-submission. Hyder 06/12/12: We have no comment on this drawing.
1.31	Figure 11 Typical Sections of the Final Remedial Cover System in PDZ1	• It is difficult to read much of the text relating to the scanned sections provided on this drawing. Please could the scan quality be improved to aid the reader. • Typical sections should be presented for all key surfacing types for the PDZ in question i.e. soft and hard landscaping, utilities, roads etc and clear indications where building footprints are present. Please could the applicant confirm / ensure that all representative key types are included in this drawing. • Please could the applicant confirm the sections show as constructed details and update the drawing notes to state such.	Response 03/12/12: Drawing amendments / response to comments are to follow. Hyder 06/12/12: Revised Figure 11 not received. In abeyance. **RemTech response 07/12/12: Please find the drawing attached. We have tried to identify available sections which are representative of the exterior areas in PDZ1 and for where we have good quality as-builts. The text in Section 3.1 of the report has been amended to highlight which project sections are shown on the new Fig 11.** **Hyder 07/12/12: No further comment.**
1.32	Appendix B McNicholas submissions	Has this wording been updated in line with PDZ2?	Response 03/12/12: The McNicholas submissions text in Appendix B is in line with that agreed for the PDZ2 CVR. Hyder 06/12/12: No further comment.
1.33	LOCOG Reliance	Does the ODA scope rely in any way to LOCOG or similar work?	Response 03/12/12: Please see the text in the Conclusions paragraph (Section 4). This has been amended to note that a section of hard surfacing to the south east of Aquatics is to be constructed by LOCOG to complete the remedial scope. This is also now included in Table 4.1 as a residual item to be addressed by LOCOG. Figure 7 has also been amended to show this area as requiring completion by LOCOG. Hyder 06/12/12: Section 4 has been updated to confirm reliance on LOCOG to complete and validate an area to the SE of the Aquatics centre. No further comment.
1.34	Section 3.14	• Please confirm whether or not any materials from known or suspected radiological impacted PDZs have been used on-site, either directly or via Soil Hospital. • If the answer to the above is yes, or a certain no cannot be confirmed, then we request clarity on the level of potential remnant risk – we are obviously happy to discuss this further.	Response 03/12/12: Text has been included in Section 3.14 to address this aspect and is as per that agreed for the approved Stage 2 PDZ2 CVR. Hyder 06/12/12: Section 3.14 has been updated to describe potential radiological material hazards. No further comment.
1.35	LOCOG Removal of Infrastructure	How does this affect the conclusions of your report?	Response 03/12/12: A note is included in Section 4.2 to state that the LOCOG reinstatement works will likely need to be recorded / captured in subsequent reporting. We are not in a position to confirm how the LOCOG infrastructure removal / reinstatement works will impact on the remediation completed by the ODA. This will be the responsibility of LOCOG to confirm. Hyder 06/12/12: Section 4.2 has been updated. No further comment.

Ref.	Submission Section / Aspect	HCL Comment	Applicant's Response RemTech response 03/12/2012 Hyder Review 06/12/12 RemTech response 07/12/12 Hyder Review 07/12/12
1.36	This response table	Will this be added to a new Appendix F?	Response 03/12/12: We can confirm this table, once finalised, is to be included as Appendix F, as per the report appendix list. Hyder 06/12/12: No further comment.