

Warren Hall Masterplan & Delivery Statement

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Appendix A - Warren Hall Masterplan

Appendix B - Warren Hall Constraints & Opportunities Plan

1.0 Introduction

1.1 Purpose of Report

1.1.1 Flintshire County Council (FCC) propose to allocate land at Warren Hall within the emerging Local Development Plan (LDP) for a mixed-use allocation comprising employment, housing and commercial uses, as follows:

"Warren Hall Mixed Use Development Site: Employment and housing:

- i. Approximately 300 new homes, including affordable*
- ii. Approximately 22.7 hectares of B1 and high quality B2 employment land*
- iii. Commercial hub involving hotel, leisure, local centre and retail*
- iv. Strategic landscaping and green infrastructure network*
- v. Sustainable transport links with nearby settlements and a link with the section of the Mold – Deeside Active Travel route between Penymynydd and Broughton."*

1.1.2 An Illustrative Masterplan for the development of the Warren Hall site has been prepared by WYG on behalf of the Welsh Government. This report (Warren Hall Masterplan & Delivery Statement) has been prepared in order to present the Masterplan and to provide a summary of the technical survey/assessment work which has been undertaken to inform the Masterplan.

1.1.3 The Masterplan is included at **Appendix A**, and is informed by the Constraints and Opportunities Plan included at **Appendix B**.

2.0 The Site

2.1 Site Description

2.1.1 The Warren Hall site is located immediately to the south-west of the settlement of Boughton, and to the south-west of Junction 35A of the A55. The total site area is 75.49 hectares, and the existing land is characterised by medium/large pasture fields; areas of woodland; and some modern activity (gravel hardstanding and spoil heaps). The site is bordered by the A5104 to the north; Lesters Lane to the east; and Kinnerton Lane to the south/west.

2.2 Site Planning Status

2.2.1 Historically, the Warren Hall site has been allocated within FCC's Development Plan for employment use (including as a protected employment site within the Flintshire Unitary Development Plan). The LDP Preferred Strategy acknowledges that the delivery of the Warren Hall site has been impeded by both site conditions and wider economic influences, and that a wider mix of uses is required to allow for a deliverable and sustainable allocation (including employment, housing and commercial uses).

2.2.2 In terms of the site's planning history, a number of planning permissions have been granted in relation to the development of the site, including full planning permission for off-site highway improvement works in 2004 (permission ref. 036330), and outline planning permission (permission ref. 038744) in 2008 for a Business Park (76,394 sqm), hotel and associated leisure facilities, roadway, car parking, drainage, landscaping and off-site roadworks.

3.0 Site Constraints & Opportunities

3.1 Introduction

3.1.1 A significant level of technical survey and assessment work has been undertaken across the Warren Hall site to fully inform the development potential of the site and the associated Illustrative Masterplan. A summary of the key findings of these technical studies is set out below. Cross- reference should be made to the Constraints and Opportunities Plan attached at **Appendix B**.

3.2 Aeronautical Constraints

3.2.1 Hawarden Airport is located approximately 2 km to the north-west of the Warren Hall site, and at a substantially lower level such that the development of the Warren Hall site will be constrained by the operation of the runway. The effect on the development potential of the site from the obstacle limitation surfaces defined by the Civil Aviation Authority and a specially commissioned instrument flight procedure (IFP) assessment, have been examined.

Effect of obstacle limitation surfaces on the Warren Hall site

3.2.2 We have calculated the difference in the existing ground levels and the obstacle limitation surfaces. Much of the existing ground level of the site infringes the take-off climb surface and approach surface. In broad terms about 16.8 ha (22.3% of the overall site) would be available for two-storey development.

Effect of instrument flight procedure assessment on the Warren Hall site

3.2.3 The IFP assessment concludes that notwithstanding the penetration of the instrument landing systems basic surfaces, the assessed IFPs were not impacted at a maximum building elevation of 74.2 m. We have calculated the difference between the existing ground levels and a consistent elevation of 74.2 m across the site. In broad terms about 53.67 ha (71.24% of the overall site) would be available for two-storey development.

3.2.4 Further assessments will be required following the production of a development framework for the Warren Hall site, which shows the amount and disposition of proposed development (including building heights) as part of any planning application or detailed development of the Masterplan. However, the Illustrative Masterplan at Appendix A can be seen to comply with the above assessment

3.3 Transport

- 3.3.1 A Transport Feasibility Study has been carried out – this includes a review of existing walking and cycling routes within the area surrounding Warren Hall. This review has shown that the site can be integrated into the local pedestrian and cycle network offering the opportunity for sustainable travel around Broughton. The location of the site will assist in encouraging future users to travel by sustainable modes, reducing the site’s impact on the local road network. The site is located close to a number of existing bus services routes into Broughton and further afield into Mold and Chester. Additionally, these bus services provide a link to nearby Buckley Railway Station. A new shared cycleway / footway has been provided along the Warren Interchange north of the site, which connects into the existing pedestrian footways on Mold Road within Broughton. There are a number of proposed cycling routes within the site, that will tie in with the surrounding infrastructure, as shown on the Masterplan.
- 3.3.2 The development of the site will aim to achieve walkable and cycle friendly neighbourhoods with a hierarchy of easy to navigate routes connecting neighbourhoods, spaces and nearby employment uses. Green corridors and open spaces on site provide the opportunity for a range of formal and informal spaces providing high quality connecting routes, creating a healthy environment, and providing separation between different uses where appropriate.
- 3.3.3 An assessment of the local road network has been undertaken to demonstrate that the development of the site as proposed by the LDP allocation will not generate a severe impact on the operation of the network. The detailed technical assessments undertaken show that the residual cumulative impact of the proposed development will likely not be severe, and as such, the development is considered acceptable from a traffic and highway perspective.
- 3.3.4 Scoping will be required with FCC in advance of any Planning Application being prepared and submitted, in order to agree a number of key parameters to determine any necessary highway mitigation.

3.4 Ecology & Trees

- 3.4.1 A number of ecology surveys have been undertaken across the site – these include the following:
- Phase 1 Habitat Survey
 - Desktop Assessment

- Hedgerow Assessment
- National Vegetation Classification (NVC) of woodlands
- Arboricultural Survey
- Great Crested Newt Survey
- Daytime and Nocturnal Activity Bat Surveys
- Breeding Bird Survey
- Water Vole Survey
- Otter, Badger, Reptile and Invertebrate Assessment

3.4.2 The key results of the above surveys are summarised as follows:

- A number of bat species are present on site. Any Planning Application which comes forward on the site will be required to be supported by more detailed activity surveys to assess potential impacts upon bat populations on site.
- There are two badger setts on site, one within a block of woodland in the north of the site and one within the band of woodland in the south of the site. There will be implications for future development within 30m of badger setts.
- Where possible, detailed design should seek to retain all native hedgerows. Where hedgerow retention is not possible, priority for retention should be placed upon the important and species-rich hedgerows, and on hedgerows which provide an important connectivity function. Where hedgerow loss cannot be avoided, losses should be mitigated or compensated for through new hedge planting.
- English bluebell are present on site. If future development works impact upon bluebell then they will require translocation to other areas of the site.
- Schedule 1 bird species hobby are present on site. Prior to any works being undertaken during the hobby breeding season, a walkover survey should be carried out by an experienced ornithologist to determine if hobby are nesting at the site.
- Any Planning Application which comes forward on the site will be required to be supported by an Arboricultural Impact Assessment in order to identify, evaluate and possibly mitigate the impacts of development on the existing tree resource.
- A single slow worm was recorded on site during reptile surveys. Measures will need to be undertaken to prevent death or injury to reptiles during any future site clearance works.
- No great crested newts were found on site during eDNA surveys of the one water body. Great crested newts are not known to be present in the wider locality.
- The waterbodies on site are unsuitable to support water vole or otter and there are no implications for future development of the site regarding water vole and otter.
- The site was assessed as not being important for invertebrates.

- A number of enhancement measures are recommended, including protection of hedgerows and woodland, management works to waterbodies and woodland on site, wildflower corridor planting, a bat and bird box scheme and reptile habitat creation.

3.5 Agricultural Land Classification

- 3.5.1 An 'Agricultural Land Classification and Soil Resource Survey' has been undertaken across the site. In summary, the site does not contain any agricultural land that is classified as 'Grade 1' (excellent quality) or 'Grade 2' (very good quality). The site primarily comprises agricultural land classified as 'Subgrade 3a' (good quality) and 'Subgrade 3b' (moderate quality), with some areas of 'Grade 5' (very poor quality) and 'non-agricultural' land. The Grade 3a land is present in patches across the site, principally north of Warren Dingle, south and west of Gravelhole Wood and adjoining the south and east of Warren Hall.
- 3.5.2 The main limiting factor for the quality of the agricultural land within the survey area was found to be wetness and workability but at a few sample points dryness was found to limit land quality. Additionally, in a few locations, slopes in excess of 7° were found and hence gradient in these areas was limiting for the quality of the land.

3.6 Ground Conditions

- 3.6.1 A Phase 1 Geo-Environmental Assessment Desk Top Study has been undertaken to assess the site's ground conditions.
- 3.6.2 In terms of site history, the earliest British Geological Survey mapping shows the site as agricultural fields and farmland with Gravel Hole Wood in the north adjacent to a central pond and Warren Dingle stream crossing the site from the west to the south-east. A boat house was present in the centre of the site between 1890 to sometime prior to 1969. A tank and sewage bed were recorded from 1969 with the tank being removed by 1983. Earthworks were undertaken in the north east of the site prior to 2010 which resulted in a gravel filled area with adjacent mounding of materials.
- 3.6.3 The preliminary geo-technical assessment had identified shallow groundwater present on site that will require groundwater control during earthworks and construction excavations. A hydrogeological assessment should be undertaken to inform the design of groundwater control measures. The near surface soils have been identified as being variable and susceptible to moisture content variation. Significant earthworks are required in order to create development

plateaus; however, the combination of variable, moisture content sensitive soils and a high groundwater table represent a high risk for undertaking earthworks. A methodology for maximising the re-use of site won soils will need to be prepared and is likely to include the addition of lime and/or cement to stabilise the soils and will need to include field trials. Earthworks will need to be tightly controlled.

- 3.6.4 Ground conditions are generally suitable for the adoption of spread foundations bearing on firm natural clay and/or bedrock at shallow depth. Where conditions are laterally variable, or clay of sufficient strength is not present at shallow depth, trench fill foundations may be adopted. Deep foundations e.g. piles or ground improvement columns may be required in select areas where Made Ground deposits are of significant thickness (e.g. the north-east / east), or where building footprints span areas of cut and engineered fill. Consultation with specialist contractors should be made following any further investigation works and development of detailed proposed site layouts and preliminary construction drawings.
- 3.6.5 The preliminary ground contamination assessment identifies the potential for Made Ground from historical usage of part of the site as a landfill in the north-east of the site associated with historical construction of the A55, a groundworks contract undertaken in 2010, isolated gravel pits to the north-west and from agricultural usage. Areas of significant Made Ground deposits are likely to be limited to the north-east / east of site. The preliminary risk assessment identifies a Low risk to Human Health (for commercial end use and maintenance workers. There is a Moderate/Low risk to Human Health (for residential end use, Surface Waters, and the Secondary A Aquifer)
- 3.6.6 The Phase 1 Geo-Environmental Assessment Desk Top Study concludes that further ground investigation works will be required in relation to Radon risk, ground gas risk, contamination risk, groundwater control and geotechnical assessment of the site.

3.7 Archaeology & Built Heritage

- 3.7.1 An Archaeological and Built Heritage Desk Based Assessment has been undertaken which considers the potential impacts of the proposed development of the Warren Hall site on the historic environment. It has been assessed that the potential for archaeological activity and remains is low and is unlikely to be a significant constraint to development.
- 3.7.2 It is recommended that the line of oak trees which are thought to relate to the post-enclosure fields, potentially from the close of the 18th century, are left in situ and incorporated within

future development as a record of the historical development of the landscape.

3.7.3 Further archaeological work may be required at the planning stage of development.

3.7.4 There are no World Heritage Sites, Registered Battlefields, Registered Parks and Gardens, Scheduled Monuments or Conservation Areas within the study area. There are 4 Listed Buildings located within proximity of the site: Warren Hall which is surrounded by the site on its northern edge; Kinnerton Lodge to the south of the site; the Stables at Kinnerton Lodge; and Hillside Cottage located to the west of Kinnerton Lodge, along Kinnerton Lane, opposite the southern edge of the site. The proposals do not result in any direct impacts to designated heritage assets, with all impacts being indirect in relation to development within the assets' setting.

3.7.5 The assessment concludes with regards to Built Heritage that levels of 'less than substantial' harm are identified in relation to historic assets in proximity to the site boundary, and to the potential non-designated heritage asset of Warren Hall Garden. With the levels of harm being demonstrably of a less than substantial nature and in the main at the lowest end of the scale of harm, the harm is required to be balanced against the public benefits arising from the development proposals.

3.7.6 It is therefore not considered that there are any archaeological grounds which would constrain the development to the site.

3.8 Noise, Air Quality, Light & Odour Impacts

3.8.1 An assessment of potential impact upon amenity of future occupiers of the site in relation to noise, air quality, light and odour has been undertaken in order to inform the positioning of uses across the site, and any potential mitigation required to minimise impact on amenity. The results of this assessment are summarised as follows.

Noise & Vibration

3.8.2 The industrial / commercial units should be designed to ensure that any service yard / unloading areas are orientated away from existing sensitive receptors. Service yard / unloading areas should be screened using the commercial unit themselves where possible. If this is not possible in all areas, then there should be the provision for the implementation of acoustic barriers between service yard areas and sensitive receptor locations. Noise from building services plant is to be controlled through design. The location and choice of plant should

control any potential adverse impact on surrounding sensitive receptors.

- 3.8.3 A 20 - 30m risk area should be located between the A5104 and any proposed residential dwellings, within which residential properties would require detailed acoustic design. All external garden amenity areas should be located towards the centre of the site to allow for the dwelling themselves to screen against road traffic noise and the proposed commercial units. Amenity areas in all areas of the development should have 1.8m close-board fences around the perimeter. As illustrated on the Illustrative Masterplan, no sensitive receptors are proposed to be located within the 30m risk zone.
- 3.8.4 Where possible sensitive spaces such as living rooms and bedrooms should be positioned away from noise sources (such as the A5104, proposed commercial units and the 'North Wales Autograss Club' on the east side of Lesters Lane). The Illustrative Masterplan suggests this will not be an issue. However, where this is not possible, worst-affected facades (i.e. those adjacent to the A5104, proposed commercial units or automotive club) may require additional mitigation from enhanced acoustic glazing.
- 3.8.5 With regards to the presence of Hawarden Airport to the north-east of the site, it is expected that sensitive spaces in the majority of areas in proposed residential dwellings will require an alternative means of ventilation (i.e. trickle vents) as openable windows could not be relied upon for ventilation purposes during noisier aircraft events.
- 3.8.6 In regards to traffic emissions, based upon the monitored concentration adjacent to the A5104 being significantly below the Air Quality Objective (AQO) for NO₂, no air quality buffer would be required. Given that the remaining road network surrounding the site is minor, air quality emissions from these roads would not exceed the AQO at surrounding receptors. As such, no air quality buffers would be required at the development site associated with road traffic emissions.
- 3.8.7 Risk zones are identified where dust emissions associated with the operations of the Grab Hire Company to the north of the proposed development could potentially result in emissions on to the proposed site. A very small part of the area at the north of the site may be subject to dust emissions. This would be confirmed through dust monitoring or could be mitigated by placing non-sensitive uses here.

Light

- 3.8.8 Any lighting associated with the development should be designed carefully so as to minimise light spill where it is not required, e.g. on to hedge rows which may affect ecological corridors.

Odour

- 3.8.9 Risk zones are identified where odour emissions associated with the operational farms could potentially be an issue. These areas, specifically the zone surrounding Crab Mill Farm and Mount Farm (where sensitive receptors are proposed), are where residents have the potential to be exposed to high odour concentrations. This would be determined through understanding of operations at the farm and more detailed survey work. Following the survey work, any mitigation required would be able to be determined.

3.9 Utilities

- 3.9.1 A Utilities Appraisal Report has been prepared to identify capital costs and risks associated with procuring potable water, gas, electricity, and telecommunications services in relation to the residential and commercial development at Warren Hall.
- 3.9.2 The preliminary findings of this report indicate that there will likely be network investment required to supply the site. Hafren Dyfrdwy Water (HDW) have advised that there is insufficient capacity in the local network to supply the development. HDW have advised that it will be necessary to reinforce their network in order to provide for the development.
- 3.9.3 Sewers in the area are provided by Welsh Water (WW). It is not anticipated that existing WW sewers will be affected by the proposed development.
- 3.9.4 SP Energy Networks (SPEN) have confirmed that to provide 2.2MVA of load for the development they would need to reinforce the existing 11kV circuits from Kinnerton Primary substation and lay two new 11kV circuits from a connection point at the south end of Kinnerton Lane into the site. SPEN have confirmed that further assessment would be required to establish if there is sufficient capacity within the existing circuits from Kinnerton Primary to provide a capacity of 3.5MVA. To provide loads above the capacity of Kinnerton primary would require a new transformer at the primary, assuming there is sufficient space at the site, a new primary on the development site or connection to another primary substation. A new distribution substation will be required on site to provide Low Voltage supplies to each property. We would anticipate that two substations will be required for the residential development, one in the northern part of the site and one in the southern part, due to the distance between parcels.

To provide a capacity of 3.5MVA on the site a minimum of an additional two distribution substations would be required, located within the commercial area.

- 3.9.5 Cadent Gas (CG) have confirmed that a connection can be made to the Medium Pressure main east of the A55 in Mold Road around its junction with Cherry Dale Road. This main currently has sufficient capacity to supply the full site.
- 3.9.6 Fibre broadband could be provided by Openreach to the site. Gigaclear and Virgin also have apparatus in the area and could be approached to provide connections to the site.
- 3.9.7 The extent of any utility diversion required as part of the development will depend on the location and depths of existing apparatus and the proposed construction works to be carried out in their vicinity. Where utilities can be left in-situ, this would always be the best option. The following potential diversions have been identified at the site:
- 11kV and 33kV overhead lines crossing through the site
 - Openreach underground apparatus east side of Warren Hall Court
 - Openreach underground apparatus across proposed site accesses

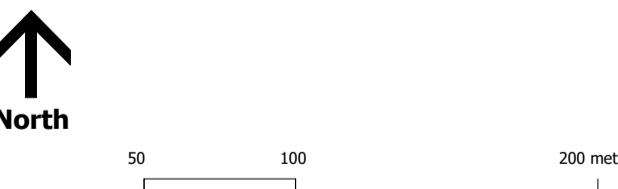
4.0 Conclusions

- 4.1.1 As set out within this report, a substantial amount of technical survey/assessment work has been undertaken across the Warren Hall site to provide a detailed baseline against which the site's development potential, and thus the soundness of the allocation, has been assessed.
- 4.1.2 In response to the findings of the various studies (summarised above), the site's key opportunities and constraints have been identified (as illustrated at Appendix B), which has allowed for a fully informed Masterplan, albeit illustrative at this stage, to be prepared (as illustrated at Appendix A).
- 4.1.3 The findings of the collective technical assessments carried out to inform this summary report are that the site is able to accommodate the quantum of development proposed to be allocated in the emerging LDP, and thus the allocation is deliverable taking account of the constraints of the site.

APPENDIX A: WARREN HALL MASTERPLAN

Warren Hall, Broughton
Illustrative Masterplan -
Maximised Employment Option

- KEY**
- Site Boundary
 - Retained Trees / Hedgerows
 - Existing Waterbody / Watercourse
 - ProW
 - Employment Area (22.7ha)
 - Hotel / Leisure Use (1.3ha)
 - Medium to High Density Residential (8.1ha = approx. 300 units)
 - Indicative Landmark Dwellings
 - Proposed Roads
 - Public Open Space
 - Proposed Ecological Mitigation
 - Pedestrian / Cycle Links
 - Proposed Trees / Hedgerows
 - Indicative SuDS Ponds
 - Potential Alternative Northern SuDS Pond
 - Proposed Vehicular Access
 - Proposed Pedestrian / Cycle Link



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APPENDIX B: CONSTRAINTS & OPPORTUNITIES PLAN



Llywodraeth Cymru
Welsh Government



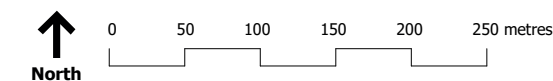
creative minds safe hands

Warren Hall, Broughton Opportunities & Constraints Plan

KEY

- Site Boundary
- Contours
- Existing Waterbody / Watercourse
- Existing Trees / Hedgerows
- Public Right of Way
- Listed Building
- Heritage Asset (as identified in Heritage Assessment)
- 'A' Road
- HV Overhead Line*
- LV Overhead Line*
- 33kV Underground Cable
- Existing Sewage Bed
- Potential Vehicular Access
- Potential Pedetrian / Cycle Access
- Ecological Mitigation Required (as identified in TEP plan)
- Historic Oak Trees to be Retained (as identified in Heritage Assessment)
- Interface with Residential Development
- Odour Risk Zone (from adjacent farms)†
- Noise Risk Zone (from traffic on A Road and Autograss Club)
- Dust Risk Zone (from Grab Hire company)
- Key Views

*Assumption that these can be diverted
†To be managed at detailed planning stage



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