



SUBMISSION TO EXAMINING AUTHORITY
On behalf of
GREENSFORGE SAILING CLUB

In respect of
Application for Development Consent Order for
West Midlands Interchange
By Four Ashes Ltd

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1.0 INTRODUCTION

- 1.1 This submission has been prepared on behalf of Greensforge Sailing Club by Allison Blakeway MRTPI, MRICS of Evolution PDR Ltd. We confirm that the author has a RYA Level 1 Sailing qualification and is a member of Greensforge Sailing Club.
- 1.2 Greensforge Sailing Club (the Club) note the recent application for the development of the West Midlands Interchange by Four Ashes Ltd.
- 1.3 The Club remains concerned that the development, if permitted as currently proposed, will result in building heights of up to 30m within close proximity of the south-western boundary of the reservoir.
- 1.4 Given the prevailing winds are primarily south-westerly, this will adversely impact wind conditions upon the reservoir, threatening the viability and safety of future sailing activities, with a consequential impact upon the long-term sustainability of the Club as a whole.
- 1.5 The following sets out the current context in which the Club operates, details the potential impacts which can be anticipated from the development as proposed, and requests appropriate amendments to the Parameters Plan in order to overcome these concerns.

2.0 BACKGROUND

Greensforge Sailing Club

- 2.1 Greensforge Sailing Club is a not-for-profit organisation founded in 1958. It has utilised Calf Heath Reservoir as its base since 1974 with occupation secured via a second thirty-year licence (20 years remaining), the Club has held since it started operating at Calf Heath Reservoir. There are currently 40 active sailing members, some of whom have sailed at the Club for over 50 years, and an additional 30 social members.
- 2.2 The Club aim to offer an affordable and active sailing club with a relaxed approach and welcoming atmosphere, encouraging competitive and friendly sailing. The Club specifically offers grass-root entry into sailing activities for all ages, and focusses in encouraging beginners in to the sport, gaining new skills and developing confidence. This provides a different offer from other local groups who have greater focus on competitive results. The Club has been successful in attracting new members, many of whom attain Royal Yachting Association qualifications after attending courses delivered by Club Instructors. The Club became a RYA Training Centre in 2013.
- 2.3 Sailing takes place every weekend between March and December, in addition to Wednesday evenings during the summer period. The Club also works with two Sea Scout groups with affiliation to the Royal Navy, and Sandwell Sea Cadets, both of whom are registered charities in their own right, and people of limited physical capabilities of all ages. The site is also utilised by Blackfords Angling Society, operating under a separate licence, and is also occasionally used for other water sports such as Kayaking and Canoeing.
- 2.4 Securing RYA Training Centre status enabled development plans to be put in place to increase membership, which is now yielding results. The Club was successful in securing grant funding to enable the purchase of equipment for training purposes, and specifically grant funding from the Veolia Environmental Trust to upgrade the existing facilities on the bankside. This work has been undertaken in two separate

phases, the most recent being completed in 2018, resulting in a safe base for launch, recovery and mooring, and extended the number of boats that can be accommodated whilst moored. Future investment plans include upgrading Clubhouse facilities.

Sailing Conditions

- 2.5 The Reservoir extends to an area of approximately 5ha and is generally kidney shaped, with the Club facilities being located on the eastern side.



Figure 1 Calf Heath Reservoir

- 2.6 Sailing on the reservoir is generally undertaken primarily in the northern section, with courses set around five moveable buoy locations., as shown in Figure 2. The area in the south-eastern corner of the reservoir has become less sailed over recent years, primarily arising as a result of the increasing density of tree cover immediately

to the east. It is noted that whilst there is tree cover on the south-west boundary, this is less dense and sailing is not noticeably affected between the seasons.

- 2.7 The ability to sail safely, especially for beginners, is the utmost priority. Weather conditions, particularly wind influence all sailors ability to keep the boat upright and moving. Whilst capsizing is accepted as an “occupational risk”, sailing in adverse conditions resulting in continual capsizing significantly reduces enjoyment of the sport (potentially having a demoralising effect), and can be potentially dangerous, resulting in increased safety risks. These uncertain conditions can cause a loss of confidence with beginners.
- 2.8 At Calf Heath Reservoir, the wind is most frequently generated from a south-westerly to westerly direction and is sufficient to permit regular sailing throughout the year occasions for all competencies without increased safety risks. The designated Officer of the Day and Safety Boat Officer, who have ultimate responsibility for ensuring the safety of all sailors, will, in more adverse conditions, determine whether it is appropriate to permit sailing to progress, and may restrict those of lesser competency from sailing on such occasions. This is more an exception rather than the rule.

3.0 IMPACT OF THE PROPOSED DEVELOPMENT

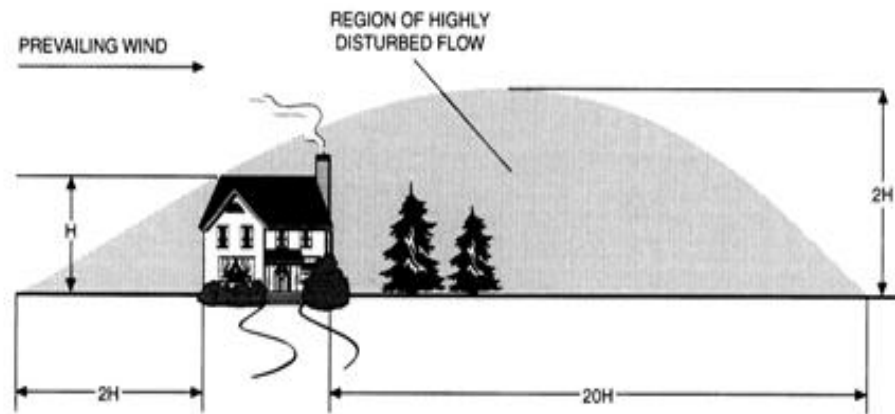
- 3.1 Document 6.2, Technical Appendix 14.1 – Wind Effects on Sailing (Desk Study) (November 2017) states:

“ Any change in terrain close to a sailing area would result in changes to local wind flow in regards to the mean wind speed, direction and turbulence. Typical effects are: a local increase in mean wind speed (commonly occurring in the areas close to the corners or buildings or in constricted passages between adjacent buildings) and an increase in turbulence intensity (in the area downwind from the building). Variable wind direction and turbulence has a particular relevance for sailing as it can potentially limit the amount of sailable area. An area with high turbulence or where the wind direction changes significantly over a short distance will reduce the quality of sailing, or in extreme cases prevent sailing altogether.”

- 3.2 The Development Zone Parameters Plan (Doc 2.5) proposes a development block immediately to the south and west of the reservoir, with a suggested 2-6 warehouses comprising a total GEA of 50,835sq.m. contained within Zones A4a and A4b. Buildings heights are indicated on the Parameter Plan (Doc 2.6 Floor Level and Building Heights Parameters Plan) indicated as being between 20m and 30m high with a finished floor level of between 106AOD and 108AOD.
- 3.3 There are significant levels of online research which confirm changes in airflow when around buildings, and this is acknowledged in the Applicants submissions highlighted above. However, the scheme proposals fail to consider the extent of the potential impact on the leeward side of any proposed structures that may be erected within the proposed development zone.
- 3.4 Research indicates that air flows around buildings will be directed vertically, and that disturbed or turbulent wind is experienced on the leeward side. Evidence suggests that the vertical impact may be 2 times the height of the building, and that the leeward distance where impact may be felt can be between 20 times the height in distance, although anecdotal evidence suggests this could be increased to 3 times

height and 30 times distance. The diagram in Figure 2 below demonstrates this as follows:

Figure 2 Impact of Airflow over buildings



Turbulence and tower height. Power-robbing turbulence is created by trees, shrubs, buildings, and other obstructions. Ideally, you want to install your wind turbine in a zone of undisturbed flow, just as you want your solar panels in full sunlight.

Source 1 <http://www.see.murdoch.edu.au/resources/info/NSWTC/install.html>

- 3.5 On the basis of the established research, it therefore follows that the installation of 20m high buildings within the vicinity of the reservoir would result in highly disturbed wind flows for a distance of some 400m on the leeward side of the building. Where the building height is increased to 30m, the wind impact would be felt some 600m away.
- 3.6 These distances are shown on Figure 3 below, and represent a significant part of Development Zone A4a and A4b. In effect, any buildings which are located any closer to the reservoir than these distances are highly likely to impact upon the current sailing conditions within the reservoir and should therefore be considered to be minimum distances from which no detrimental impact would result.



Figure 3 Wind Impact 400m/600m

- 3.7 It is also noted that the proposals also incorporate a 7-8m high bund upon which additional tree planting and landscaping are also proposed. Whilst total heights are not given as a result, the presence of a tree which grows to approx. 10m (thus total 18m) would result in wind disturbance of up to 360m.
- 3.8 In addition to the impact on the prevailing wind, there is also the possibility of channelling the wind between buildings, which will also result in increases in wind speed. The Illustrative Masterplan shows building alignment in such a way that the potential for channelling may also exist. The alignment of buildings, as and when they come forward, will also be critical to the consideration of the impact on sailing conditions, although it is not possible at this stage to determine the extent to which such impact will occur.
- 3.9 The extent and density of the proposed Interchange would be significant intrusion on what has been a peaceful reservoir suitable for sailing. The result of either scenario highlighted above is an increase in disturbed wind flow over the reservoir, with a consequential impact on sailing conditions, resulting in either conditions in which sailing is not deemed to be safe (irrespective of competency), or a significantly reduced sailing area. This impact will be felt permanently and will restrict the Club's ability to encourage new sailors/beginners and thus threatens the long-term viability of the Club as a whole.

4.0 PROPOSED CHANGES TO THE PARAMETERS PLAN

- 4.1 It is on the basis of the above that the Club request amendments to the Parameters Plan be made which restrict the height of buildings within Development Block A4a and A4b to ensure that sailing is not impeded by disturbed wind flow over buildings. It is noted that the minimum height of any building proposed on the site overall would be 12m which would still result in a minimum distance of 240m between the leeward face of any building and the reservoir being required to avoid any adverse impact upon sailing conditions.
- 4.2 Document 6.2 – Technical Appendix 14.1 – Wind Effects on Sailing (November 2017) concludes that sailing quality is likely to be reduced over the reservoir from the range of angles where the wind is predominant (broadly south-west to west). It suggests that these impacts can be minimised by minimising building height in these directions and that any intended landscaping is restricted. It is noted that the proposed landscaping bund and associated landscaping has not been amended or reduced as a result of this recommendation. However, as shown above it would also negatively impact on the sailing conditions on the reservoir, and consideration should also therefore be given to its total removal immediately adjacent the reservoir boundary.
- 4.3 Technical Appendix 14.1 also concludes that wind tunnel tests are undertaken once massing has been determined in order to determine the wind speed, direction and turbulence around the reservoir due to the proposed scheme.
- 4.4 The Applicant's evidence confirms that the proposed development is likely to impact upon wind flow upon the reservoir, and that sailing quality is likely to be impacted as a result, yet they have failed to ensure that sufficient information is available on which to make judgements on such matters.
- 4.5 The Club are concerned that once the Development Consent Order is granted the ability to restrict building height will be very limited, and therefore require that such changes are considered as part of the Parameters Plan in order to ensure that there are no future negative impacts upon sailing conditions. If left to later stages of the

- decision-making process, the potential for change to be secured will be extremely limited.
- 4.6 The applicant's suggest that wind tunnel testing is undertaken once the massing of the scheme has been determined. It is not clear what purpose the wind tunnel tests as proposed would serve, and what mitigation could or would be put in place to reduce any negative impacts that are shown in the results of such tests once the parameters of the scheme are determined. The Club maintains its stance that the parameters of development will be secured by the current consenting regime, and such tests would not assist the decision-making process once the Consent is granted.
- 4.7 The Club confirm its willingness to participate in any detailed discussions to reach agreement on what may be acceptable, but firmly believe that appropriate changes to the Parameters Plan should be made to ensure any impact upon sailing conditions are negated.
- 4.8 The Club therefore respectfully requested that the Examining Authority do not confirm the Order until such time as the Parameters Plan is amended to reflect these concerns.