

07<sup>th</sup> March 2024

**RE: FORMER BARTONS INFANT SCHOOL, BERSTED**  
**Council Ref: BE/40/22/PL**

**Technical Note in response to LLFA comments**

This Technical Note has been prepared in response to the points raised in Arun District Council (ADC) with regard to the future flood risks to the Proposed Development at Former Bartons Infant School ("the Site").

The principal point being: *The FRA does not address climate change by reference to the SFRA produced for the Local Plan/ This shows the site as FZ3 in 2111.* For reference, Flood Zone 3a is defined as land which has a 1% or greater Annual Exceedance Probability (AEP) of river flooding and/or 0.5% or greater AEP of coastal flooding.

ADC's Strategic Flood Risk Assessment (SFRA) includes maps that define both the current Flood Zone 3a, which corresponds to the extent shown by the Environment Agency (EA) mapping and estimate the extent of future Flood Zone 3a when climate change is taken into consideration.

The Level 1 SFRA: Appendix D Climate Change Mapping (copy attached for reference) shows that the site is located outside the present Flood Zone 3a.

The site is also located outside of the future Flood Zone 3a for years 2031 and 2061. These correspond to a 15% and 30% climate change allowance for river flows, based on the EA guidance for the Southeast River Basin District from 2016.

The current peak river flow allowance published by the EA for the Arun and Western Stream Management Catchment are shown on Table 1 below. On this basis, the 2031 and 2061 extents shown in the SFRA are considered good approximations of the impact of climate change using the central allowance. The current EA guidance recommends using the central allowance for More Vulnerable development.

Therefore, the proposed development consisting of 20no. new dwelling houses ("More Vulnerable") can be considered both outside the present Flood Zone 3a, and the future Flood Zone 3a including considerations for future flooding in line with the current guidance on climate change allowances.

*Table 1: Arun and Western Streams Management Catchment peak river flow allowances*

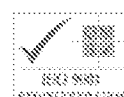
|              | Central | Higher | Upper |
|--------------|---------|--------|-------|
| <b>2020s</b> | 11%     | 16%    | 27%   |
| <b>2050s</b> | 13%     | 19%    | 36%   |
| <b>2080s</b> | 25%     | 36%    | 64%   |

Notwithstanding the above, the site will be located within the future Flood Zone 3a extent for the year 2111 (45% allowance for peak river flows), as pointed out within ADC's comments.

The future FZ3a mapping in the SFRA includes considerations of both fluvial and coastal models, simulating both the 100-year (fluvial) and 200-year (coastal) undefended cases. Having reviewed in detail the latest EA fluvial

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[illegible]

On this basis, it can be concluded that the flood risk shown at the Site in the 2111 future Flood Zone 3a mapping is solely coastal in nature.

This is based on the same data used in the JBA model to generate the future Flood Zone 3a extent as shown on the map appended. The extent hugs the southernmost corner of the former Bartons Infant School building, corresponding to the 3.50m AOD contour.



All proposed Finished Floor Levels are set above the estimated 3.50m AOD flood level.

Additionally, and as mentioned in the ADC's comments, the Site is allocated for residential development within the Bersted Neighbourhood Development Plan. The Site was selected based on its current location within Flood Zone 1 following a review of 17 potential sites within Bersted Neighbourhood. A Sequential Test is therefore not necessary as this would have been carried out during the site's allocation and the above note provides a robust justification for the proposed development, considering the risk of flooding at the Site is residual only.



## Sea Level Rise Assessment

|                      |                                       |
|----------------------|---------------------------------------|
| <b>Project Title</b> | Former Bartons Infant School, Bersted |
| <b>Project No.</b>   | 11642                                 |
| <b>Date</b>          | 26/02/2024                            |
| <b>Location</b>      | Bognor Regis                          |
| <b>UK Chainage</b>   | 4580                                  |
| <b>OS NGR</b>        | 493728.2,<br>96772.6                  |
| <b>River Basin</b>   | South east                            |
| <b>Base Year</b>     | 2017                                  |
| <b>Design Life</b>   | 2111                                  |
| <b>Horizon</b>       | 4                                     |



| Epoch to year  |                |           | 2035  | 2065 | 2095 | 2111  | Total rise (m) |
|----------------|----------------|-----------|-------|------|------|-------|----------------|
| Allowance (mm) | Higher central | Per year  | 5.7   | 8.7  | 11.6 | 13.1  |                |
|                |                | Per epoch | 102.6 | 261  | 348  | 209.6 | 0.9            |
|                | Upper end      | Per year  | 6.9   | 11.3 | 15.8 | 18.2  |                |
|                |                | Per epoch | 124.2 | 339  | 474  | 291.2 | 1.2            |

| Annual Probability (AP) | 2017 Tide Level | Sensitivity |     | 2111 Tide Level, Higher central | Sensitivity |     | 2111 Tide Level, Upper end | Sensitivity |     |
|-------------------------|-----------------|-------------|-----|---------------------------------|-------------|-----|----------------------------|-------------|-----|
|                         |                 | C1          | C2  |                                 | C1          | C2  |                            | C1          | C2  |
| 1 in 1                  | 3.1             | 3.1         | 3.2 | 4.0                             | 4.0         | 4.1 | 4.3                        | 4.3         | 4.4 |
| 1 in 2                  | 3.2             | 3.2         | 3.2 | 4.1                             | 4.1         | 4.1 | 4.4                        | 4.4         | 4.4 |
| 1 in 5                  | 3.3             | 3.3         | 3.3 | 4.2                             | 4.2         | 4.2 | 4.5                        | 4.5         | 4.5 |
| 1 in 10                 | 3.4             | 3.3         | 3.4 | 4.3                             | 4.3         | 4.3 | 4.6                        | 4.6         | 4.6 |
| 1 in 20                 | 3.4             | 3.4         | 3.5 | 4.4                             | 4.3         | 4.4 | 4.7                        | 4.6         | 4.7 |
| 1 in 25                 | 3.5             | 3.4         | 3.5 | 4.4                             | 4.3         | 4.5 | 4.7                        | 4.6         | 4.8 |
| 1 in 50                 | 3.5             | 3.5         | 3.6 | 4.5                             | 4.4         | 4.6 | 4.8                        | 4.7         | 4.9 |
| 1 in 75                 | 3.6             | 3.5         | 3.7 | 4.5                             | 4.4         | 4.6 | 4.8                        | 4.7         | 4.9 |
| 1 in 100                | 3.6             | 3.5         | 3.8 | 4.5                             | 4.5         | 4.7 | 4.8                        | 4.8         | 5.0 |
| 1 in 150                | 3.7             | 3.6         | 3.8 | 4.6                             | 4.5         | 4.8 | 4.9                        | 4.8         | 5.1 |
| 1 in 200                | 3.7             | 3.6         | 3.9 | 4.6                             | 4.5         | 4.8 | 4.9                        | 4.8         | 5.1 |
| 1 in 250                | 3.7             | 3.6         | 3.9 | 4.6                             | 4.5         | 4.9 | 4.9                        | 4.8         | 5.2 |
| 1 in 300                | 3.8             | 3.6         | 4.0 | 4.7                             | 4.6         | 4.9 | 5.0                        | 4.9         | 5.2 |
| 1 in 500                | 3.8             | 3.7         | 4.1 | 4.7                             | 4.6         | 5.0 | 5.0                        | 4.9         | 5.3 |
| 1 in 1,000              | 3.9             | 3.7         | 4.3 | 4.8                             | 4.7         | 5.2 | 5.1                        | 5.0         | 5.5 |
| 1 in 10,000             | 4.2             | 3.9         | 5.0 | 5.1                             | 4.9         | 5.9 | 5.4                        | 5.2         | 6.2 |

Source of base data: Coastal flood boundary conditions for the UK: update 2018 (Environment Agency)

Source of climate change allowances: Flood risk assessments: climate change allowances (Environment Agency, via gov.uk)

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