Written Evidence Submitted by The Landscape Institute

1. Introduction

1.1 About the Landscape Institute

1. The Landscape Institute (LI) is the royal chartered body for the landscape profession. As a professional organisation and educational charity, we work to protect and enhance the built and natural environment for public benefit. The LI represents around 5700 landscape professionals, including landscape architects, managers, and planners, urban designers, and parks managers, working across urban and rural areas.

1.2 Summary

2. With the government's drive to build 300,000 homes a year and deliver its net zero strategy, it is vital to consider how we can better employ sustainable design, nature-based solutions and green infrastructure to ensure that these two objectives are not pulling in opposite directions.

3. Landscape professionals plan, design and manage outdoor spaces, and play a major role in increasing the sustainability of the built environment. By weaving together, the natural and built environment, landscape professionals ensure that new development works sustainably with nature from the outset.

4. Green infrastructure and nature-based solutions will have key role to play in helping to meet climate mitigation and adaptation targets, through – for instance - protecting against flooding or excessive heat, improving health and wellbeing outcomes, enhancing biodiversity, and helping to manage air and water quality. The better integration of this into new development is vital, and more should be done to support this through investment, planning policy, and regulatory frameworks (including building and highway regs).

5. By starting with the landscape, the design of new places can also encourage low-carbon behaviours as the macro level (such as active travel) and well as ensuring that existing green assets are protected and enhanced for sustainable outcomes.

6. Landscape professionals' role is principally in the spaces between the buildings, although not exclusively so: through innovations like green roofs and living walls, and integrated/adjacent green infrastructure such sustainable drainage. Again, this type of practice needs further support through investment, planning policy, and building regulations.

7. Likewise, there is a need to ensure that outdoor landscapes are themselves are contributing to emission reductions through – for instance – better assessment of embodied carbon; more specification of sustainable, local materials; better construction practices; and the carbon sequestration potential of soft landscaping. More research and investment in skills is needed in this area.

2. Response to questions

2.1 How can materials be employed to reduce the carbon impact of new buildings, including efficient heating and cooling, and which materials are most effective at reducing embodied carbon?

8. Specification of materials is of course an important aspect of reducing the embodied carbon of buildings but is just one aspect of an overall reduction strategy. As part of a holistic approach to design developers must look beyond the materials used in construction and utilise outside spaces. For example, trees and vegetation can lower surface and air temperatures by providing shade and through evapotranspiration, trees in urban areas can also decrease wind speeds creating a sheltered microclimate. Designing to use less materials in the first instance is perhaps the most important step in landscape projects.
    - Specifying low carbon materials such as timber, rammed earth, hempcrete etc.
    - Using less materials is an important step- this can be done at the design stage
    - Using recycled materials
    - Not just the type of material but the sourcing and transport mileage is important.
    - Design for future use, adaptability and flexibility - designing to make places suited to different uses will increase their life-span and reduce the need to use new construction materials.

2.2 What role can nature-based materials can play in achieving the Government's net zero ambition?

9. Nature-based materials can play an important role in driving down the embodied carbon in construction. However, specifying alternative low-carbon materials must be supported by wider *nature-based solutions*, many of these actions can be delivered on site such as vegetation management, tree planting and sustainable drainage systems.
    - Living roofs and walls can insulate buildings, and large trees provide shade, reducing the need for air conditioning in the summer and raising ambient temperatures in the winter, reducing heating costs due to the slowing of wind speeds
    - Managing soils and ground cover vegetation generally as carbon sinks – avoiding soil sealing with hard surfaces wherever possible.
    - Prohibit removal of top-soils and sub-soils from site during construction, promote storage and re-use on site
    - Selecting resilient plants and taking under consideration climate adaptation strategies
    - 'Natural' water systems reduce need for 'hard' engineered structures and provide environmental and social benefits.
    - Sustainable drainage systems (SuDS) promote infiltration, slow storm-water run-off, reduce the extent and frequency of flooding and the risks of river and groundwater pollution.
    - A range of organic and bio-renewable materials are available in construction having low embodied carbon compared to their more highly processed/synthetic equivalents, for example:
        - bamboo in place of certain hardwoods, though transport-related emissions may increase embodied carbon
        - natural rubber in place of vinyl
        - straw bale construction in place of concrete blocks/bricks

2.3 What role can the planning system, permitted development and building regulations play in delivering a sustainable built environment? How can these policies incentivise developers to use low carbon materials and sustainable design?

10. The design and management of landscapes is principally shaped by planning policy, and to a lesser extent by other regulatory regimes and standards (such as highways). Building regulations have a smaller impact on our sector, through regulations affecting the wider site (e.g., drainage and site preparation), immediate surroundings of a building (e.g., an accessible approach under Part M), or the use of green roofs and walls (e.g., under Part B).

11. The Building Regulations affecting landscape are currently piecemeal, and not written with the specific outcome of whole-life carbon emissions reduction. There could be benefit in a review of building regs to assess the degree to which they are supporting delivery of the Government's net zero targets – for instance to better allow for the use of recycled materials. We are unaware if such a review has been undertaken.

12. Planning policy in England currently includes a number of policies which seek to enable a more environmentally-sustainable built environment, most obviously through chapters 11-15 of the National Planning Policy Framework (NPPF). Recently proposed changes to the NPPF (March 2021) have made further improvements in this arena, and we are broadly supportive of these.

13. A potential option for positive planning reform is to embed requirements for living roofs and walls into national planning policy and consider financial incentives for their provision, including equalisation of VAT rules to encourage retrofit of existing buildings and infrastructure.

14. The National Model Design Code – and the design reforms to the NPPF to enable these – are also supported, however the degree to which they contribute towards greater sustainability remains to be seen. Green infrastructure is currently under-prioritised in the NMDC, which risks further side-lining the importance of green infrastructure to creating healthy sustainable places.[1] Generally speaking, design codes should take a whole-area approach, and include the role of nature-based solutions in the external environment. Schemes also benefit from establishing green infrastructure standards early in the planning process and integrating green infrastructure strategies within spatial plans. There are many good examples of this.

15. The wider planning reforms introduced in Planning White Paper (2020) are less positive in terms of their impact on environmental sustainability, although much remains to be seen.[2] In particularly the reduction in the timescales for planning oversight and the proposed reforms to Environmental Impact Assessment (EIA) risk worsening the current situation. The Planning Bill has been recently introduced (May 2021) and we have not yet assessed the impact of the legislation on sustainable landscape practice.

[1] Our response to these proposals is here: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2021/04/nppf-nmdc-policy-response-20210327-FINAL.pdf

[2] Our response to these proposals is here: https://www.landscapeinstitute.org/news/li-responds-to-the-planning-white-paper-consultation/

16. Some of the proposed changes to permitted development rights (PDR) may undermine the UK's 2050 net zero greenhouse gas emission commitment. PDR could encourage demolition of buildings and undermine the delivery. Furthermore, recent research[3] has shown that PD units have worse outcomes for amenity and green space with detrimental effects on health, wellbeing and quality of life.

17. We believe there is more to be done to promote the use of Sustainable Drainage Systems (SuDS) in particular. New development requiring planning permission should be expected to include SuDS as the default option, unless there is clear and proportionate evidence that such features are unfeasible or inappropriate. Schedule 3 of the Flood and Water Management Act 2010 should be made statutory in England, as in Wales – and stronger policy and clearer Planning Practice Guidance is also needed. The Non-Statutory Technical Standards on SuDS are currently under review, and this will also help.

2.4 What methods account for embodied carbon in buildings and how can this be consistently applied across the sector?

18. Whilst the question asks about buildings, it is important not to forget about other sources of carbon emissions within the built environment sector. From a UK landscape sector perspective there are currently a limited number of tools to measure embodied carbon. There have been toolkits created or adapted in other countries such as the United States and Australia, such as the Climate Positive Design Pathfinder app: https://climatepositivedesign.com/pathfinder/. There is currently no UK standard equivalent, and this is a gap in the market which we believe needs filling.

19. Processes for the calculation of embodied carbon within landscape projects calculate a profile by inputting materials used, project type, site boundaries, and percentage of impervious and pervious surfaces. Most are predicated upon Environmental Product Declarations.

20. Some suppliers within the market have begun providing their own embodied carbon (or wider sustainability) indicators for products they sell, such as Vestre for street furniture. However, the use of these is at the discretion of the specifier. Separately, there is growing evidence on the carbon sequestration potential of different soft landscaping elements, although this is not yet well embedded into landscape practice.

2.5 Should the embodied carbon impact of alternative building materials take into account the carbon cost of manufacture and delivery to site, enabling customers to assess the relative impact of imported versus domestically sourced materials?

21. Yes, we believe so. Taking a whole life approach is vital to truly capture the amount of carbon produced. For example, using native plant materials, produced in the UK, may produce benefits not recognised by a more simplistic carbon calculation.

[3] Research into the quality standard of homes delivered through change of use permitted development rights https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/902220/Research_report_quality_PDR_homes.pdf

22. Biosecurity aspects should also be taken into account for plant derivative products (such as woods). Reduction of imported plant-based materials reduces risks of (undetected) virus and pest imports.

2.6 How well is green infrastructure being incorporated into building design and developments to achieve climate resilience and other benefits?

23. The implementation of high-quality, multifunctional green infrastructure in the built environment is mixed.

24. At a strategic level there has been good progress in regards to developing green infrastructure plans, strategies and frameworks. Natural England's current work on a National Framework of Green Infrastructure Standards represents a promising chance to raise national standards. High quality GI is commonly defined by two crucial features: it is multi-functional and it is connected. The Building with Nature framework a voluntary approach created by Build with Nature similarly seeks to deliver more consistent high quality green infrastructure.

25. At a national level the NPPF contains policy on green infrastructure however overall GI policy in the document has weaker footing than other competing demands such as housing numbers, creating a vulnerability towards the way that GI may be treated in local-level and strategic plans[4].

26. Delivery of green infrastructure in new housing developments is mixed with some developers incorporating green infrastructure early into designs and ensuring delivery is integral to the development. However, with little mandatory backing often GI is an afterthought or is not of high standard.

27. On the ground application of GI therefore often remains patchy, symbolic and lacking in quality. Individual planning applications for developments may include areas of open space these are often to minimum standards and are not planned as part of a connected network of green infrastructure. Furthermore, reductions in local government funding for GI have meant that local planning authorities are increasingly reliant on making the case to demonstrate its value.

28. There needs a step change within the development industry and planning authorities to value all green space around buildings – amenity spaces, gardens, boundary hedges, road verges and street trees, cycle routes and footpaths, etc - as contributing to and connecting networks of green infrastructure. This needs to be supported by changes in governance and decision-making processes.

29. That being said there are many fantastic examples of green infrastructure planning, maintenance and delivery across the country. When integrated into local plans and spatial strategies delivery of networks of green infrastructure is improved.

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[4] What does good green infrastructure policy look like: An evaluation of the NPPF England - https://mainstreaminggreeninfrastructure.com/outputs-page.php?town-and-country-planning-may-2019-special-guest-edition-mainstreaming-green-infrastructure-in-the-planning-system-

30. We hope to see improvements with the updated biodiversity net gain planning requirements and with the mainstreaming of GI standards. Improving incorporation of green infrastructure cannot be achieved without a skilled workforce. Professional bodies can work with government to raise standards and ensure training, continued professional development and apprenticeships are available to deliver on this important agenda. The public sector is also under resourced in this crucial area with local authorities needing design, sustainability and place-making skills. The Landscape Institute's current drive to create a professional home for parks and green spaces is an important step in ensuring there is a professional, skilled workforce to deliver high-quality green infrastructure.

2.7 How should we take into account the use of materials to minimise carbon footprint, such as use of water harvesting from the roof, grey water circulation, porous surfaces for hardstanding, energy generation systems such as solar panels?

31. Calculating the holistic effects of climate-adaptive design is vital, and this is where a natural capital approach is beneficial.

32. For example, the use of water-sensitive design and rainwater capture will have multi-stage impacts on carbon emissions, but there may also be benefits to biodiversity, water quality, microclimate/local temperature, etc. – and these need to be factored in. Promoting the use of natural capital accounting methodologies in the built environment should be a priority for the Government.

2.8 How should re-use and refurbishment of buildings be balanced with new developments? Increase in re-use and refurbishment

33. Reuse and refurbishment of sound existing buildings, not just listed buildings, should always be the first option. Making better use of existing stock reduces the need to build on greenfield land elsewhere, whilst the demolition of building structures creates excessive waste taken to landfill, releases embodied carbon and increases the use of fossil-fuel driven heavy machinery and vehicles.

34. From a landscape perspective, there is benefit in establishing small-scale green retrofit schemes such as sustainable drainage, and retrofitting tree-lined streets and urban forests. The upcoming England Tree Strategy should help create targets for increasing urban tree numbers in existing spaces.

35. Refurbishment and reuse projects – including those delivered through permitted development – should still look to deliver additional green infrastructure. Commercial to residential conversions through permitted development rights, for instance, are often in places with existing poor access to green space, and there is currently no mechanism for ensuring additional provision through this route. This can have a major impact on climate adaptation risks, for instance urban heat island (UHI) effect.

2.9 What can the Government do to incentivise more repair, maintenance and retrofit of existing buildings?

36. Whilst the question asks about buildings, it is important not to forget about the importance of retrofit and maintenance in other areas of the built environment. Re-inserting landscape and nature back into the built environment can provide biodiversity

and microclimatic benefits, improve health and wellbeing, increase community perception and solve flood management problems.

37. To meet the UK's climate obligations, we must make the most of the places we've already got. Properly maintaining and retrofitting the nation's assets is as important as investing in them in the first place. For existing green infrastructure like parks, ongoing management and maintenance is essential to maximise its many benefits. Too often, capital investment in green infrastructure (GI) is not made with full consideration of the resource needed to maintain it[5]. We must therefore rebalance capital investment in new infrastructure to ensure places and buildings can be greened, managed, and maintained.

[5] Making Parks Count https://www.theparksalliance.org/making-parks-count-the-case-for-parks/#:~:text=In%20June%202020%20The%20Parks,are%20a%20'smart%20investment'