



Dundee Civic Trust

encouraging the best

EDEN DUNDEE

Planning Application 23/00814/FULM

Response by Dundee Civic Trust

Dundee Civic Trust (DCT) was formed more than fifty years ago in 1973 as a voluntary body and charitable trust. Its aims are to encourage the highest standards of design in new buildings and regeneration projects, and to stimulate the public's interest in the City's urban heritage. DCT regularly comments on planning applications and engages with developers at pre-application consultation meetings. With over 220 members, some of them retired professionals including town planners, architects and engineers, DCT possesses within our ranks sufficient expertise and knowledge of good practice to be able to provide a relevant commentary on these matters.

Introduction

1.1 Dundee Civic Trust (DCT) welcomes this great opportunity for the further development of the city, the region and indeed for Scotland. We are anxious to help support and promote the Eden Project Dundee in any way we can.

1.2 The proposed developments within the site and its various venues demonstrate a bold ambition reflecting the ethos of Eden, for the promotion of the environment, nature and regeneration. The use of the gasholder is an excellent indicator of the aims which they wish to highlight.

1.3 It is self-evident that it will be essential to attract a large number of visitors, and indeed repeat visitors, to the project in order fully to promote the objectives of Eden Dundee, and to help ensure that its financial and commercial viability is guaranteed. It will be important that the visitor experience will be regularly updated to attract repeat visitors.

1.4 As part of the focus on the environment, we welcome the emphasis on encouraging visitors to leave their cars behind and use public transport. Even with this approach, it is estimated that 62% of visitors are expected to arrive by car. Every effort must be made to reduce that percentage figure, and to encourage and facilitate the use of public transport, or for shorter distances, walking or cycling.

1.5 We welcome the fact that Eden intends to work with other visitor attractions in the city to encourage visitors to stay for more than a single day, and to develop the city breaks market for Dundee.

1.6 In this response DCT will concentrate our comments on certain key documents associated with the planning application which may cause us some concern, and which aspects are, in our view, essential to being improved or remedied so that the visitor experience can be of the highest quality.

The documents in the planning application on which we wish to comment particularly include:

1.6.1 Planning Statement (D61)

1.6.2 Interim Travel Plan (D62 and D63)

1.6.3 Design and Access Statements (D53)

1.6.4 Energy Statement (D56)

We should mention that, as a small part of this multi-million pound project, the standard proportion of expenditure should be used to provide public art installations.

1. Planning Statement (D61)

There is a lot to welcome in this application. It looks to be an exciting development which has the potential to make a very positive impact on the site, the area, the city and the surrounding regions and beyond.

The Planning Statement addresses the main headings one would expect of such a document but, in many ways, it is pitched at a high, general level, leaving most of the detail to the other associated reports. In fact, the Design and Access Statement provides a much clearer picture of the context of the site, its development history, linkages to other important developments and, unusually here, the pre-application engagement. Even on planning history, information is limited: it would have been useful, for example, to see some reference to the decontamination work carried out in 2007, and what is still required. Even the discussion of policy is quite limited, given that the project falls within the scope of the Dundee Waterfront, a nationally important site identified in NPF4 as being suitable for development.

In terms of the planning case, there can be little doubt that that this project will *“transform the area and deliver a wide range of social, economic, environmental and cultural benefits”* (7.2.7) but more evidence is needed to back up this claim. The site is allocated as a General Economic Development Area (Policy in the LDP) and it is recognised that the proposal does not fully comply with this. Given the site’s status in NPF4 and the length of time it has lain vacant, this is unlikely to be a planning problem. The proposal does not comply with the Town Centre First policy but it is now accepted that this project could not have been accommodated anywhere more central.

Most of the key benefits highlighted are covered in supporting reports (Energy, Transport, Ecology etc). The case for the economic benefits is mentioned and yet there is merely an assertion that this will be positive for the area and the city with no analysis to back it up. We are told that *“regeneration and economic benefits are considered to be very substantial, generating significant economic impacts that will positively impact existing and future generations”* (8.3.2). Figures are quoted of 500,00 visitors a year, generating £27m of economic impact (8.3.5) but there is scant detail as to where these benefits come from or how they have been arrived at. This information is essential to allow an understanding of how Eden will be sustainable financially.

2. Interim Travel Plan (D62) and Transport Assessment documents (D63)

Some of DCT's greatest concerns relate to the means of accessing the Eden site from the city centre. Most of the area between the centre and Eden is industrial or commercial, and parts of it are dilapidated. A great deal of expense will be necessary to upgrade these access points in order to be attractive for visitors, particularly those arriving in the centre by the encouraged public transport. The walking distances are not small, except from the Olympia car park, so they must be pleasing.

The possible routes to Eden are each bedevilled with problems, and we are not convinced that sufficient attention has been given to ameliorating the difficulties, which are both financial and practical:

2.1 Private transport by car with parking at Olympia and Gellatly Street.

The aim of largely "carbon-free" travel may well take some considerable time to achieve. If we assume that, of the expected 500,000 visitors annually, say 350,000 will come in the five months between May and September, or 2250 per day. If 62% of them (about 1400) come by car this equates to more than 500 cars or more on a busy day, assuming three per car.

- 2.1.1 Congestion will be inevitable and expensive to manage. Olympia and Gellatly Street car parks can accommodate fewer than 1000 cars, and those spaces must also accommodate many locally parked vehicles. This issue will have to be addressed and proper management will be essential.
- 2.1.2 Very many more electric chargers will be needed.
- 2.1.3 Dropping-off arrangements for the transport of disabled visitors do not appear to be very satisfactory. It will not be simple for private car drivers to drop off a passenger and then re-trace the route in order to find parking spaces, often involving crossing of major traffic flows. The prospect of those with walking difficulties being deposited at the top of Peep o' Day Lane, and walking down the steep path is highly unsatisfactory.
- 2.1.4 Plans should include the consideration of a "rubber train" from car parks and from the V&A forecourt via the Waterfront to West Victoria Dock Road, Camperdown Street and the southern end of the bridge. Any additional train on the north side of the railway and road could easily continue to the existing – and the proposed - Transport Museum.

For these reasons, all efforts should be made to encourage arriving by public transport.

2.2 Public Transport and walking/cycling

2.2.1 *Integrated travel.* Satisfactory reciprocal arrangements for pre-booked and integrated travel will have to be made among the various providers of public transport. This will not be easy, with the involvement of Stagecoach, Xplore, tour buses, ScotRail, and many other longer haul operators. There will have to be incentives (probably with ticket pricing) to attract those arriving by these means.

- 2.2.2 *Drop off areas.* More thought will have to be given to the proposal to close the top part of Peep o' Day Lane. Bus turning areas will be problematic. We are not satisfied that the one-way loop that is mentioned will work. Traffic flow will be considerable, and there is a serious risk of congestion and accidents.
- 2.2.3 *Tour buses* will have to be found a parking area which is not too distant.
- 2.2.4 *Active Travel* routes from the Bell Street hub and other parts of the city are only at the planning stage, and it is unlikely, given the slow progress, that they will be complete and available by the scheduled opening.
- 2.2.5 There is a vacant and very prominent unit on the south corner of the railway station that would make an ideal point for promotion, information and welcome for Eden visitors. The City Council owns it.

2.3 Access routes to the site

There are four probable routes, plus Seagate, which will have to be taken by nearly all visitors arriving by private or public transport, or on foot. It is sensible to have a choice, but definitely not, in our view, a choice of four. All of these routes are, by definition, outside the site, but are all vitally important, as surrounding infrastructure, to be attractive and easy to walk along. Worryingly, they do not appear to be specifically mentioned in Dundee City Council's recent draft Sustainable Transport Delivery Plan as being suitable for development. Let us consider each route.

- 2.3.1 *Seagate.* Many access routes will pass through Seagate, already a very busy street. It is congested, with all buses from the east stopping there, and narrow pavements, dilapidated buildings, over-bearing street furniture, and ghastly congestion and air pollution. We are not satisfied that any consideration has been given to the essential upgrading of this street, which is not the direct responsibility of Eden, but of the City Council.
- 2.3.2 *Bridge over road and railway line.* We have already submitted responses to the application in principle for a pedestrian/cycle bridge. We strongly support the need for and the desirability of a permanent bridge joining the Waterfront/docks area, which will help to open up that part of the city, give appropriate links to the Maritime Trail and to the major visitor attractions in that area. It must be ready in time for the opening. However, how will any visitor, except perhaps those arriving by train, be encouraged and directed along that easy and interesting route? This must be considered.
- 2.3.3 *Foundry Lane.* This is, in several ways, a good route to Eden, but in the planning application it is designated only as a "potential" route. It is straight, flat, and reasonably obvious to a visitor. Were it not for the heavy commercial and bus traffic using it, it would be ideal. Access is also required for buildings in Foundry Lane itself.

In meetings that DCT have had with the Eden Project design teams, we have seen graphics of an upgraded Lane (which have not been lodged); and have been told that it may be possible to negotiate the frequency and timings of heavy traffic flow with users. We are not convinced that, despite the possibilities of this route, that it would work satisfactorily unless these and other issues are resolved.

- 2.3.4 *Peep o' Day Lane.* It might be possible to use this access for bus/car drop-off, except for the fact that Blackcroft is a busy through road, and the steep descent to (nearly) sea level is daunting for reasonably fit walkers, let alone cyclists and those with walking difficulties. The

zig zag shared pedestrian/cycle route to the North West corner of the site must negotiate a 5 metre drop and with a gradient of 1:21 it is highly awkward for cyclists. Visitors coming from Stobswell and beyond to the north and the east will be expected to use this means of access, but anyone coming from the city centre will not wish to climb the gradient up Blackscroft, only to have to walk down the slope of Peep o' Day Lane, and they will have to be encouraged to use Foundry Lane or the new bridge from the dock areas. Any sloping path down to the site will have to be carefully designed, and will occupy a lot of space. Cyclists should be directed along another route.

Blackscroft, which is part of the route for visitors using Peep o' Day Lane, is ill-defined, and at present unsuitable for busy foot traffic. Like Foundry Lane, Peep o' Day Lane is much used by heavy and commercial traffic, as well as being a possible route for deliveries to Eden itself. Also, Peep o' Day Lane is a one-way street used by traffic coming from Blackscroft and Broughty Ferry Road: suitable arrangements will have to be arrived at to deal with the issue.

2.3.5 *Dock Street.* We are very concerned that Dock Street is seen as a major access route to Eden. In our view, it has almost nothing to recommend it. Many visitors will unwittingly be drawn along it, especially those coming from the nearby car parks and the bus station, and efforts must be made to discourage this. The pavement is narrow for even a small volume of foot traffic, let alone the huge numbers, including young children, that are expected. Walkers will be inches away from a four lane through route, on which much of the traffic leaving the city centre is already travelling at nearly 40mph and often more. The traffic includes HGVs and commercial buses, including those turning into the bus depot. The road is in a thoroughly dirty industrial area, with no attractive features and little possibility or prospect of being cleaned up.

The access route from the South West corner of the site is really poor. This looks to be a turning circle for traffic with no proper or suitable provision for pedestrians arriving from East Dock Street: the pedestrian crossing conflicts with frequent bus, taxi and other traffic arrivals. It can only be presumed that Eden does not intend pedestrians to arrive from the North side of East Dock Street.

Using the visitor figures employed at 2.1 above, we can see that nearly all visitors will be arriving from the west, 2250 or more on a busy summer's day. Even if only half of them walk along Dock Street there would be around a thousand walking on Dock Street, mostly between 10.30 am and 4pm, *in each direction*. What might be done about cyclists on the pavement?

The opinion of Dundee Civic Trust is that the Dock Street option should be abandoned, and emphasis, priority and funding directed towards the other options.

3. Design and Access Statement (D53)

Overview and Summary

There is much in the Design and Access Statement to be commended: the proposals are exciting, interesting, thoughtful and thought-provoking. We feel, however, that more attention needs to be given to the ethos of Eden Dundee and how that can be demonstrated in and around the site, such as regeneration and sustainability. More ambition in the project can result in even greater achievements. There are several existing buildings and structures, and more will be added. It is essential that buildings are:

- retained where possible,
- rendered as energy-efficient as absolutely possible, with Passivhaus principles, re-used materials and PV roof arrays,
- fitted with sloping or pitched glass roofs, rather than flat, and
- have “net zero carbon” as a key driver.

Care must be taken in planning the various landscape areas.

We do not need to comment on every aspect mentioned. We shall retain the existing numbering in the Design and Access Statement.

2. Existing Site Context

2.2.4 *Tourist Attractions*. It is important that there will be reference to and cooperation with all other tourist facilities, such as the planned Transport Museum at Stobswell, and the planned Video Games Arena in the city centre.

2.4.2 *Site Historic Context* ignores the “ghost footprint” of the former Peep o’ Day House and its splendid gardens previously on the site, (mentioned at 2.5). This relevant historic reference should be included in designs.

2.6 *Remnant Buildings*. The Eden team should negotiate to stop the precious Gas Meter house and Edwardian Engine Shed from being demolished, and to re-use these historic buildings, as part of their regeneration aims. Keeping them would save a lot of embodied carbon.

2.8 *Ground Condition*. More information should be provided on the extent to which the whole site has been decontaminated, and how much remains to be cleared.

3. Project Overview

3.2 *Key Design Drivers*. Restorative/regenerative design principles are central to the ethos of Eden Dundee. “Operational Energy” as a concept is all very well, but it does not go nearly far enough. We are surprised not to see **Net Zero Carbon** as a key driver. The concept of “operational energy” will not implement or achieve the requirement, which is largely universal, for the Eden development to reach Net Zero Carbon as an exemplar for the project and its declared objectives. All three key new buildings must be made out of re-used materials, which would hugely reduce embodied carbon. It can be done with one building, so it should be possible to do it with three. In the UK Government’s policy on Waste Hierarchy, re-use comes in importance above recycling because the latter inevitably requires far more energy use and there are excessive carbon emissions

from the processes involved. There are already good UK precedents for large buildings made from re-used materials, and Eden should follow suit and indeed lead the way.

5. The Valve

5.2. Layout & Organisation. We consider that the layout of the building is clear and functional with good flexible use, which is to be welcomed. It is described as a “Regenerative Building”, (at 5.4) and the use of natural materials is excellent. However, the implication is that it will be completely biodegradable, when it is not; the building should be much more ambitious, with the use of natural “grown” materials (such as timber, bamboo, hemp, straw, cork). Where this is not possible re-used materials should be employed rather than recycled materials, especially for any glazing and metal work, for example the metal canopy and glazed lobby. This is essential to keep the embodied carbon footprint to an absolute minimum. Recycling glass and metal gives off far more carbon emissions than re-using elements of it.

5.2.3 Layout. While the toilet areas in the spine have overhead daylighting, it appears the staff in the kitchen will not benefit from natural daylight: they should. The rooflights should not be flat, as shown, as they will simply get dirty and need constant cleaning. The glazing should be pitched which facilitates self-cleaning and improved daylight.

6. The Lush Bunker

6.3 Scale, Massing & Form. This is an exciting proposal for the re-use of the old gasholder on the site, which looks to be well programmed for use. The currently proposed roof pitch ideally needs to be at least 30 degrees to ensure that the glazing is genuinely self-cleaning as recommended by Pilkington glazing.

6.4 Materiality. It would be good to see the same rigorous application of re-used materials in the Lush Bunker as is presently planned with The Valve building. It should be possible to source re-used structural steel columns beams to create the upper structure rather than using recycled steel, which still uses considerable energy to produce.

7. Venue 3

7.4 Character, Appearance and Materiality. This is another exciting building, with excellent plans to re-use materials found in scrap yards from Dundee. There seems to be some confusion in the terminology between “re-use” and “recycle”. Ideally, the building should be made from 100% re-used elements.

7.5.3 PV roof arrays. It is pleasing to see the proposed use of PV panels but the low pitch of these does not appear to be optimised for the latitude of Dundee, and the cross-section drawing shows the likelihood of the South building significantly overshadowing some of the PV panels on the North building in winter, when the sun drops to 13 degrees in elevation above the ground.

7.6.1 Access and Maintenance. Spiral staircases should be avoided for public access, as they are hard to negotiate for those with infirmities and have a higher accident rate than straight stairs.

8 Venue Operations.

This seems to be a sensible location for servicing the site.

9. Landscape.

9.2 *Landscape Masterplan.* We support the many good ideas here and there is generally a coherent narrative that provides ecological diversity and richness through a constantly evolving landscape.

9.8 *The Water Line.* Much of the Landscape Masterplan is laudable with interesting narratives, but the water feature is poorly considered. providing sharp angles and corners. The water feature should have soft, flowing, rounded lines for edging, to encourage water flow which will oxygenate the water. Sharp corners in water features simply allow litter and debris to accumulate at these points, and the water itself will not flow in these corners, becoming dead water. Indeed, water flow forms should be considered in the design of this feature. None of the photo images associated with the Water Line show sharp angled water edges, which appear only on the associated plan.

9.9.1 *The Meadows.* There may be unacceptable wind exposure, so further consideration is needed. Given the predominant south westerly and north easterly winds and the relatively exposed nature of the site, it would be good to see denser, non-deciduous tree and shrub planting in the south east and north west corners of the Meadows. The willow coppice and “Pioneer” planting at these points is quite thin and unlikely to deter the wind much. Traditionally, meadows were sheltered by hedging and it would be useful to apply some tall semi-permeable windbreak hedging alongside the pathway that intersects the Gathering Meadow, facing south west, to shelter both the path and the meadows, otherwise this is likely to be a windswept area. The acceptable ratio of shelter height to length is generally 1:10, ie 2 metres height for 20 metre length. Such a windbreak can also provide additional acoustic buffering across the site from the stage and audience area, and from the adjacent busy road.

The idea of hosting events in the Gathering Meadows is excellent. Care must be taken to ensure that the wildflower meadow can be robust and sustainable if it is also to be used for seating and standing for event purposes.

9.12 *Material Strategy.* It is excellent to see re-used materials being used for the landscaping as well as for the buildings. We like the prospect of re-using wind turbine blades for features, or recycling them. Care needs to be taken not to introduce toxic materials such as tarmac into the landscape. All pathways should be self-binding, porous water-bound gravel.

11. Regeneration and Sustainability

11.1 *Policy Context.* The narrative contained here is, nowadays, insufficient in seeking to achieve Net Zero Carbon emissions by 2045. We now only have six years left of the UK government-allocated Carbon Budget if we are not to exceed 1.5 degrees warming. After that time, the UK has to effectively be Net Zero, by 2030. This means that it is incumbent upon the Eden Project to move well beyond its existing plans in order to minimise release of embodied carbon and carbon emissions when the site is in use. It needs to improve its strategy and aim to achieve Net Zero Carbon by 2030. For example, the Eden Project buildings should be aiming for Passivhaus Premium levels, not just Passivhaus Standard, which does not achieve Net Zero Carbon in itself. Eden will be opening fairly

close to 2030, and will be in existence for many decades after that, so it is essential to see a clear statement to show how the project will achieve Net Zero Carbon by this date.

11.3.1 *Embodied Carbon.* A “use less” principle is fine, but such a statement is vague, and real, specified target figures are needed for this statement to have any true meaning. The Eden Project should at the very minimum, adopt the RIBA/LEI targets for embodied carbon. The embodied carbon for the project must be carefully calculated and demonstrated to meet these targets.

11.6.4 *Ventilation.* For mechanical ventilation, the well-trying, Victorian principle of slow moving displacement ventilation over a large area should be used, rather than high speed ventilation via narrow ductwork, even if it is to be made from “engineered cardboard”, which uses more energy and is less comfortable and probably noisier than slower, displacement ventilation systems.

4. Energy Statement D56

4.1 When the Energy Statement is read in tandem with the Sustainability section at the end of the Design and Access Statement (D53) it is possible to conclude that a reasonably sensible approach has been adopted in terms of Energy requirements throughout the proposed site. The use of basic Passive elements, particularly in the fabric of the buildings, is indicative of an aim to achieve fairly low energy requirements. There is an expectation that buildings will be self-heated for most of the year and that natural ventilation will greatly assist with cooling in the summer months. In addition, the intention is to use air source heat pumps to supplement heating and provide hot water along with chilled water pumps for cooling. The inclusion of three solar panel arrays for electricity generation, together with the other proposals, suggests that boxes are ticked in terms of energy requirements; and the planning application suggests that the achievement of EPC ratings of A+ for both The Valve and Venue 3 buildings, with an A-rating for The Lush Bunker, are something to be lauded.

4.2 Dundee Civic Trust, however, feels that this approach is a rather unambitious, safe and to some extent pedantic approach. It is an insufficient course of action by Eden Project Dundee, whose obvious aim, indeed ethos, is to promote sustainability, conservation, restoration and regeneration.

4.3 Eden is essentially a flagship project, a demonstrator project and an exemplar for others, and for its own energy use they should aim much higher than mere compliance with Building Regulations. There is a lack of ambition in the published plans. The Energy document identifies that ‘electrification of heat is the leading strategy for the decarbonisation of buildings in the UK’ (p8). In order to do this, it should be possible to make use of more advanced technologies that would achieve better results than the EPC ratings that are proposed. As a ‘Regenerative’ project, and under its Regenerative Charter, the term ‘Restorative – Power Generating’ (D53 p37) is used. Alongside this is one of its Key Design Drivers – ‘utilise different forms of on-site renewable energy generation’ (D53 p39). Even in terms of their own ambitions, we feel that they can achieve so much more.

4.4 Eden Project Dundee should be indicating to regulators and planners how much greater a target they would like to aim for than the current EPC ratings, and they should be demonstrating what is perfectly feasible to achieve. There is also a need for Eden to indicate what steps they are taking, in terms of building in energy resilience, to consider the following:

4.4.1 how to incorporate likely future improvements in energy standards and requirements, and to plan to the future changes;

4.4.2 how to counteract the predicted increases in turbulent weather and global temperature extremes over the next thirty years; and

4.4.3 how to make use of effective future renewable technologies as the project matures.

4.5 DCT suggests that Eden Dundee should embrace all, or at least most, of the following recommendations in a bid to generate as much power on-site as will be needed, and thus to minimise or preferably remove the need to import energy:

- 4.5.1 Use as many PV panels as feasible and incorporate roofing PV panels in as many structures as possible;
- 4.5.2 Incorporate flexible PV arrays on a number of surfaces. For example, with the insulation proposed around the gasholder there is a potential for overheating in The Lush Bunker. This problem could be ameliorated by the use of flexible PV panels on parts of the ETFE roof cushions, which would provide both shading and power.
- 4.5.3 Subject to a feasibility study, introduce throughout the site vertical wind turbines, avoiding interfering with the views from Blackcroft, using bright colours on the vanes, possibly in school colours and naming the turbines corresponding to the schools. Pupils could be made aware of the energy their turbine is creating in real time. This would be a useful addition to computing and maths classes as well as giving pupils knowledge of energy markets and pricing;
- 4.5.4 Have all principal pathways kinetically energy-generating and provide in real time digital information of energy produced by visitors as they walk and wheel along the surfaces;
- 4.5.5 Install a line of static bicycles connected to a generator with a digital display for use by visitors, to show how much energy they can produce from their own efforts. The electricity generated can also be used to power an audio-visual display of the Story of Eden. Hand driven bicycles should also be made available;
- 4.5.6 Incorporate battery storage facilities within the Venue Operations space. These would be monitored and power levels displayed for visitors. There should also be an ability to make changes to battery technology as batteries inevitably get smaller and more powerful;
- 4.5.7 Duplicate, where practicable, much of what is proposed in the satellite sites associated with Eden throughout Dundee as part of its outreach programme;
- 4.5.8 Cooperate with businesses in Michelin Innovation Parc and representatives of Dundee's gaming industry to demonstrate visually for visitors the strength of the different forms of renewable energy generation being achieved.
- 4.5.9 Engage suppliers of renewable technologies, who would be keen to be associated with Eden Dundee as a showcase for their products. These suppliers could be chosen on a rotational basis, as the technologies develop, so that the latest and most efficient is always on display. As a consequence, costs would be kept to a minimum.
- 4.5.10 Ensure that as a result of design for self-sufficiency, an excess of electricity produced on-site would be exported to the National Grid, thus helping Eden Dundee to gain the financial benefit of selling electricity to the Grid;
- 4.5.11 Illuminate the way forward in the proposed new buildings by utilising Passivhaus standards or preferably Passivhaus Premium standards, or FEES (Fabric Energy Efficiency Standard) which incorporates airtightness and thermal bridging as well as U-values.

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