Power Park Exeter
211268

February 2022

External Lighting Report – P03

OXENWOOD
REAL ESTATE

CPW
Where buildings come alive

Contents

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01 - PROJECT BACKGROUND

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01 Introduction

Brief

Above: View across Site to Airport

This draft masterplan document has been prepared on behalf of Oxenwood Real Estate (the land owner) by pHp Architects LLP.

The purpose of this document is to set out the vision and parameters that Oxenwood Real Estate has for the Power Park. This documents aims to set out and illustrate how the overall environment, materiality and character of the Power Park that can be achieved while providing opportunities for a diverse range of occupiers and businesses that can enhance the local economic growth of the area.

The proposed Power Park development falls within East Devon District Council's (EDDC) "West End" growth area and is within an operational Enterprise Zone. It is designated for employment purposes in the adopted Local Plan and forms part of the demise of the Exeter and East Devon Growth Point.

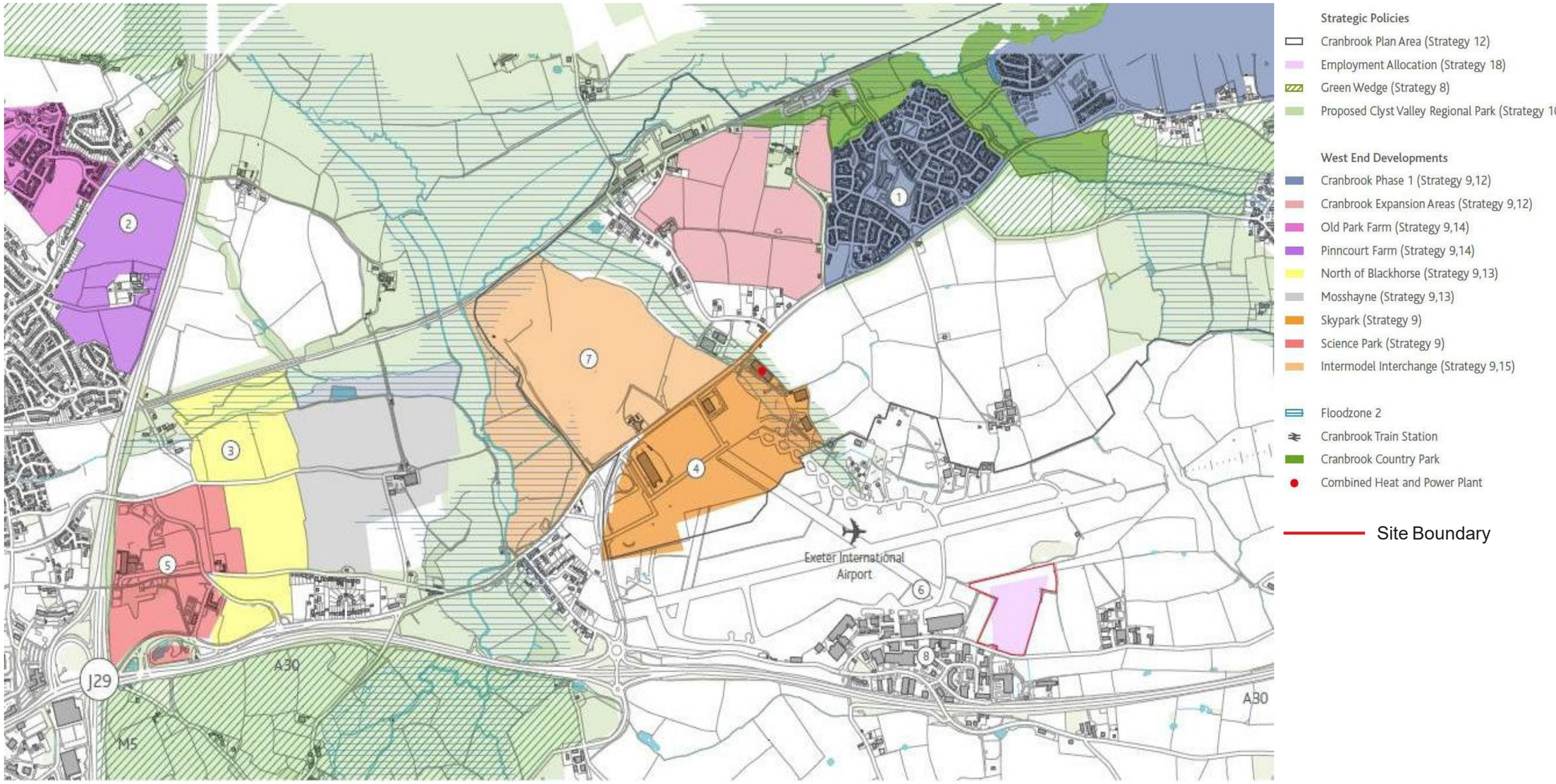
The document provides a draft masterplan that showcases the potential development capacity for the site, outlining a series of design guidelines that can be implemented into the site to meet the East Devon District Council's vision for the "West End".

Prior to this document a outline draft masterplan document was produced by Clifton Emery Design assessing and outlining potential guidance and development opportunities for the site. The previous document sets out the site context in relation to its history and development within the EDDC Local Plan 2013-2031. It discusses how the scheme aligns with the aims of Enterprise Zone that was designated in April 2017 and the implications of this.

As a result, this document intends to build on this previous work and explore in greater detail the vision that Oxenwood Real Estate have and how this could be implemented as part of the future of the site. This document can then be used to inform the preparation of Local Development Orders which will facilitate the development and fast track it through the planning process as part of the Enterprise Zone designated by the EDDC.

01 Introduction

Local Plan



Above: West End - New East Devon Local Plan 2013 -2031

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02 - LIGHTING STRATEGY

02

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02 Policy, Guidance and Legislative Framework

The external lighting will be developed with reference to:

- BS EN 12464-2:2014 Light and Lighting – Lighting of work places: Part 2 Outdoor Work Places.
- BS 5489-1:2013 Code of practice for the design of road lighting — Part 1: Lighting of roads and public amenity areas;
- BS EN 13201-1:2015 Road Lighting, Part 1 Guidelines on selection of lighting classes;
- BS EN 13201-2:2015 Road Lighting, Part 2 Performance Requirements;
- ILP Guidance Notes on the Reduction of Obtrusive Light, Guidance Note GN01/21;
- Advice Notes 2 'Lighting Near Aerodromes'
- Advice Notes 3 'Wildlife Hazards Around Aerodromes'
- Advice Notes 5 'Renewable Energy & the Impact on Aviation'
- CAA Publication CAP736 'Operation of Directed Light, Fireworks, Toy Balloons and Sky Lanterns within UK Airspace'

The lighting strategy is informed by the most relevant sections of GN01/21 (published in May 2021) to reduce the potential for obtrusive light from a wide range of exterior lighting applications. The environmental zone criteria detailed within guidance and re-provided below will inform the lighting strategy.

Zone	Surrounding	Lighting Environment	Examples
E0:	Protected	Dark (SQM 20.5+)	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places
E1:	Natural	Dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.
E2:	Rural	Low district brightness (SQM −15 to 20)	Sparsely inhabited rural areas, village or relatively dark outer suburban locations
E3:	Suburban	Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations
E4:	Urban	High district brightness	Town / City centres with high levels of night-time activity

In addition, the Lighting Strategy has been designed with reference to the following national and local planning policy and guidance.

National Planning Policy Framework 2021

The National Planning Policy Framework (NPPF) sets out the government's planning policies for England and how they are expected to be applied and provides a framework for local plans. Regarding light pollution (section 180), the NPPF was updated in July 2021 and states that the following elements are to be considered:

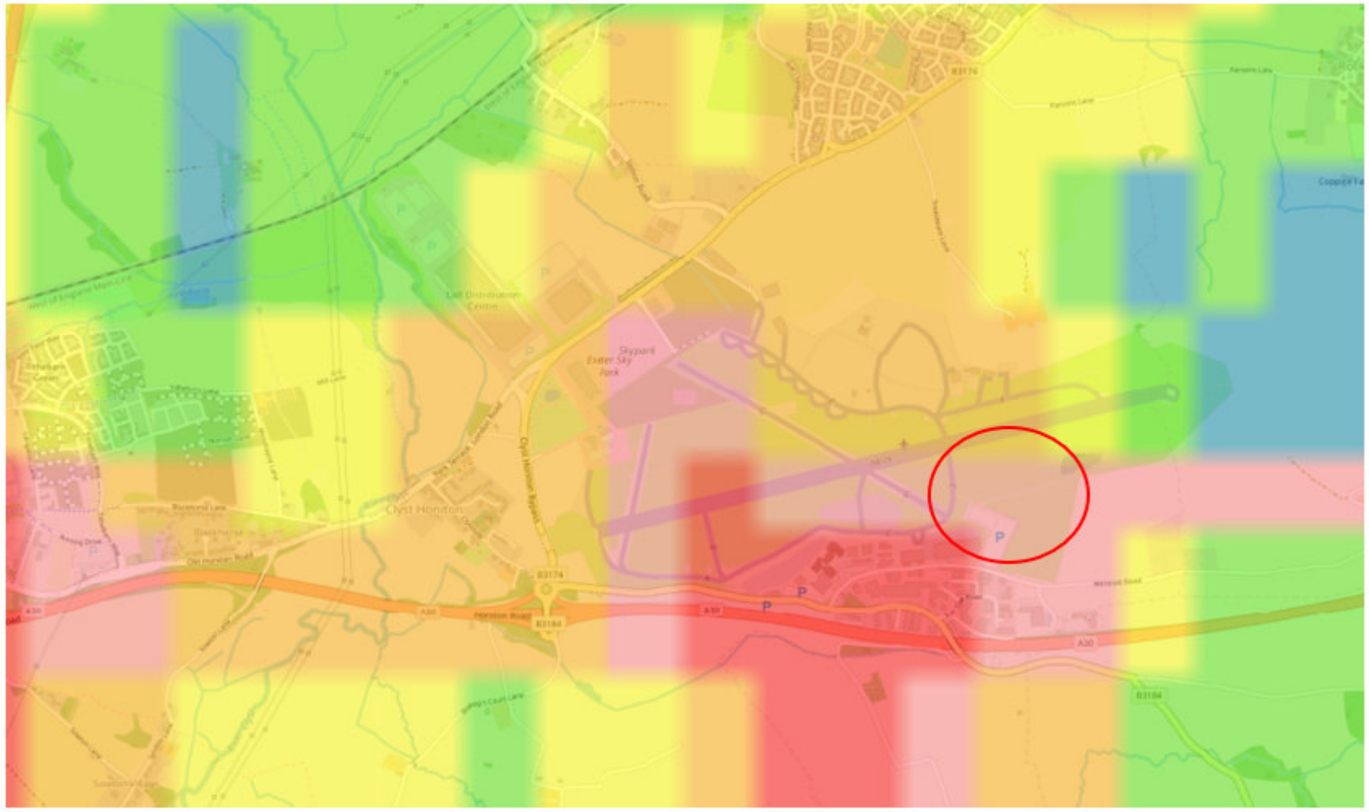
"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should…

c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

02 Site and Surrounding Area

Baseline Conditions

The CPRE Sky Glow Map identifies that the existing light pollution levels surrounding the Site (outlined in red below) fall under a medium - high brightness designation, which is confirmed by the red colouration (8 - >32 NanoWatts / cm2 / sr) in the extract provided below. The main area of high brightness surrounding the Application Site are the industrial and commercial developments to the south.



Significant existing artificial lighting has been identified on the Application Site and within its surroundings, including external artificial lighting in the form of private commercial lighting, public street lighting, and private dwelling lighting. Of this existing lighting, the private commercial and existing street lighting is most likely the predominant cause of the high levels of local sky glow

As described in the previous section, the Application Site is located in an area containing several industrial, commercial, and residential developments, along with extensive highway development. Accordingly, an environmental zone of E3 has been selected to inform the lighting strategy of the Proposed Development. An E3 environmental zones comprises one described as a Medium District Brightness, well inhabited rural and urban settlements, small town centres of suburban locations.

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02 Lighting Strategy

The lighting strategy has been designed to achieve the requirements for site's location within environmental zone of E3 (described as a Medium District Brightness, well inhabited rural and urban settlements, small town centres of suburban locations). The lighting strategy seeks to ensure that external lighting is applied sensitively, and that the potential for adverse effects on identified potentially sensitive receptors such as the adjacent runway are minimised or mitigated by using downward light only. Special attention shall be made to the retained hedgerows surrounding site, to ensure minimal light spill in line with ecologist requirements. (i.e. commuting routes and foraging areas for bats and dormice)

The new lighting which will be installed as part of this development will have:

- Used 3000K colour temperature to ensure the impact on the night sky, the identified receptors, ecology and the surrounding area is minimised & also to comply with Advice Notes 2 'Lighting Near Aerodromes' which advises against white light.
- Luminaires will have tight optical control and emit light in the downwards direction only to meet the requirements of Environmental Zone E3. Backwards light shields will also be used wherever reasonable to minimise the light spill. Backwards light shields will be added to reduce light spill onto sensitive areas.
- High efficiency long lasting LED luminaires, which have a high colour rendering index to provide the required visual clarity.
- Zero upward light ratio (URL will be calculated to ensure impacts on local levels of sky glow are within those stipulated in GN01:21 for an E3 environmental zone.
- Zero Upwards light reduces any impedance to operations and local runway lighting & also omits the risk of dazzling pilots.
- Glare will be calculated to prevent dazzling or distracting lights in consideration of the local airport.

The following products are proposed as part of the light strategy:

Type EX1
The D-Series luminaire is part of the Holophane range. It is ideal for open spaced areas with its asymmetric and forward throw light distribution options. Precisely controlled light distribution offers maximum efficiency keeping light pollution along with spillage and glare to a minimum. Complete with bird spikes to prevent perching on luminaires. The D series comes with a uneven top which makes it unconformable for birds to stand on, bird spikes on the other parts of the lantern and column top will add to this bird prevention, see photo of top of D series on the right.

Type EX2
The Denver Elite Wall is part of the Holophane range. It is a modern aesthetic design that incorporates LEDs in addition to standard white light sources. Its stylish design and clear glass optic for LED, proves a high-performance asymmetric distribution, with wide spacing for high efficiency. Optional photocell can be included which provides energy savings.

Type EX3
The Denver ID Bollard is part of the Holophane range. It is a modern aesthetic design to coordinate with the matching wall mounted luminaire. The luminaire consists of an extruded aluminium body, housing high performance, high efficiency, LED technology. Zero Upwards light is emitted from this luminaire, making it compliant with Advice Notes 2 'Lighting Near Aerodromes'. Optional passive infrared sensors can be used to detect occupancy, after 10 minutes of no occupancy the luminaire dims to 30%, which provides energy savings. Due to the site layout being of several small to medium building, straight continuous runs of lights can and will be avoided. In addition these lights will have no upward light so could not be mistaken for runway marker lights.

Note: Proposed lighting philosophy can be found attached at the end of the report.

02 Conclusion

This report details the proposed external lighting strategy based around a low pollution, low energy and low maintenance strategy, and considerations will be given to the use of low energy products that have excellent light control optics, such that their efficiencies are maximised, and carbon footprint minimised. Alternative luminaires may develop and be introduced into the market during the detailed design stage, however the philosophy of downward light only should always be retained and implemented into the finalised design.

The scheme will be developed to reduce the impact that the external lighting would have on the surrounding areas. The scheme will show that the illuminance spillage towards the nearest residential properties to the development are within the parameters of environmental zone E3.

In conclusion, compliance with the lighting strategy will allow a safe and sensitive level of light to enable the usage of the proposed development at night, whilst limiting obtrusive light to a negligible level and in compliance with ILP GN01:2021.

THIS DRAWING IS AN INDICATIVE LAYOUT ONLY, DEMONSTRATING THE CONCEPTUAL REQUIREMENTS CORRELATING WITH THE AGREED SCHEMATIC SOLUTIONS. THE PURPOSE OF THIS DRAWING IS TO DEMONSTRATE DESIGN INTENT, FOR FURTHER DEVELOPMENT BY THE RELEVANT SERVICES DESIGNER ONLY.

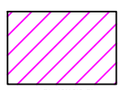
THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE ELECTRICAL PERFORMANCE SPECIFICATION & ALL RELEVANT ARCHITECTURAL & ENGINEERING DRAWINGS. DETAILED & FULLY COORDINATED INSTALLATION DRAWINGS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR IN ACCORDANCE WITH THE SPECIFICATION.

NOTES

1. ELECTRICAL CONTRACTOR TO VERIFY LIGHTING DESIGN PRIOR TO INSTALLATION. THIS IS IS ONLY A CONCEPTUAL DESIGN.
2. ELECTRICAL CONTRACTOR TO READ THIS DRAWING IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS.
3. ELECTRICAL CONTRACTOR TO ENSURE THE CAR PARK LUMINAIRES ARE INSTALLED TO COORDINATE WITH THE PARKING LOCATIONS.
4. ELECTRICAL CONTRACTOR TO ENSURE CABLES AND LIGHTING COLUMNS ARE LOCATED SUCH THAT THEY WILL NOT BE AFFECTED BY THE FUTURE GROWTH OF THE TREE ROOT, ETC, IN THE AREA OF THE CAR PARK.
5. FOR PLANNING PURPOSES ASSUME ALL EXTERNAL LIGHTING WILL COME ON AT DUSK AND REMAIN ON UNTIL DAWN, EXACT HOURS TO BE CONFIRMED BY THE OCCUPIER.
6. THE LIGHTING DESIGN TO COMPLY WITH THE CIBSE GUIDE LG06 THE OUTDOOR ENVIRONMENT, AND THE ILP GUIDANCE NOTES FOR REDUCTION OF OBTRUSIVE LIGHT, 2021 AND ALL LATEST ADDITIONS.
7. ROAD LIGHTING DESIGNED TO COMPLY WITH BS5489-1:2013 CODE OF PRACTICE FOR DESIGN OF ROAD LIGHTING.
8. LUMINAIRE COLOURS TO MATCH CLADDING / BUILDING COLOURS AND COLUMN COLOURS.
9. ALL LUMINAIRE TO HAVE A COLOUR TEMPERATURE OF 3000K.

LEGEND:

REFERENCE 'EXT'
LUMINAIRE AS OF HOLOPHANE 'D-SERIES' RANGE TO BE BUILDING AND COLUMN MOUNTED.



HATCH RE PRESENTS AREAS TO BE LIT BY D-SERIES

REFERENCE 'EX2'
LUMINAIRE AS OF HOLOPHANE 'DENVER ELITE WALL' TO BE BUILDING MOUNTED, PROVIDING FUNCTIONAL & SECURITY LIGHTING AROUND BUILDING PERIMETER.

REFERENCE 'EX3'
LUMINAIRE AS OF HOLOPHANE 'DENVER ID BOLLARD' RANGE TO BE FLOOR MOUNTED, PROVIDING FUNCTIONAL LIGHTING TO OFFICE ENTRANCES.

P01	21/02/22	PLANNING SUBMISSION	CP AC
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RIBA Stage
STAGE 2

Status
FOR PLANNING

Client
OXENWOOD REAL ESTATE

Project
POWER PARK EXETER

Drawing Title
PROPOSED EXTERNAL LIGHTING PHILOSOPHY

Scale (A0)	Date	By	Ve
NTS	18/02/22	CP	AC

Proj	Originator	Volume	Level	Type	Role	Number	Subsets	Revision
211268	CPW	ZZ	XX	DR	E	EXT01	S3	P01

211268-CPW-ZZ-XX-DR-E-EXT01 S3 P01

CPW Project No. 2108

Linked Files

Waldeck

emery planning

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paragon

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pHp architects