



Building a One Planet Destination

Design and construction review of
Les Villages Nature® Paris

June 2018



ONE
PLANET
LIVING



A
framework
by Bioregional



VILLAGES NATURE.
PARIS

Les Villages Nature® Paris: a sustainability game-changer in the tourism industry



Les Villages Nature® Paris is a new holiday destination that's taking a big step forward for sustainable tourism – and it's just 35 minutes from central Paris. With pools heated by renewable energy and a wide range of activities related to nature, this car-free landscape of lakes, woodlands, meadows and gardens offers a positive vision for sustainable development.

This pioneering new resort, developed in partnership by Euro Disney and Groupe Pierre & Vacances Center Parcs, opened in September 2017. It expects to attract 1m visitors a year, with almost 900 cottages and apartments.

The ambition of Les Villages Nature® Paris is to offer its guests a unique experience while minimising its impact on the planet, contributing to the local economy and helping nature thrive onsite.

Les Villages Nature® Paris used Bioregional's One Planet Living® framework throughout a decade of design, planning and construction. Its construction is an excellent example of what can be achieved by a large-scale sustainable build. This process was supported by setting strong sustainability objectives, involving local companies and authorities in the development and considering the entire lifecycle of its buildings.

This annual review, compiled and written by Bioregional, shares Les Villages Nature® Paris's successes, challenges and lessons from its construction now that it has opened to the public. It reveals how it achieved these sustainability ambitions, as well as outlining plans for embedding One Planet Living within its operations.



“12 years ago, Les Villages Nature® Paris team had the foresight to predict the importance of sustainable development. Its design, development and construction have shown that large-scale sustainable build is achievable and attractive. They have stuck with their original pioneering vision – and the result is a pure joy. It will be a game-changer in both sustainable tourism and large-scale sustainable build.”

Pooran Desai OBE, International Director for One Planet Communities at Bioregional



“Since the inception of the project, One Planet Living has helped us design and fine-tune a unique concept for a tourism resort based upon sustainability. Our action plan has helped us drive the project with clear and ambitious goals and has guided our decisions throughout the development and construction process.

One Planet Living has also enabled us to create momentum among all teams. With around 600 employees and potentially 4000 guests per day, our main challenge now is to keep up the spirit of sustainability and create the spark which will make everyone want to do their part.

Marie Balmain, CSR and Foundation Director at Group Pierre & Vacances Center Parcs

One Planet Living: Bioregional's sustainability framework

One Planet Living, a framework by Bioregional, is designed to help anyone, anywhere plan, deliver and communicate sustainability.

Its ten intuitive principles – from health and happiness to zero carbon energy – have helped hundreds of organisations around the world create better, more sustainable places to live, work and do business.

The framework has been used in more than \$30bn of development globally to help achieve sustainability throughout planning, design, construction and operation.

The ten One Planet Principles guide the design, construction and management of One Planet Destinations

	Health and happiness
	Equity and local economy
	Culture and community
	Land and nature
	Sustainable water
	Local and sustainable food
	Travel and transport
	Materials and products
	Zero waste
	Zero carbon energy



An internationally recognised development

Les Villages Nature® Paris has won several awards and recognitions for its sustainability and architectural ambitions:

Les Villages Nature® Paris won “Best Initiative in Sustainable Development and Social Responsibility” in the Worldwide Hospitality Awards 2017.

The Aqualagon won the public vote on the best architectural project in its category in the 2017 Architizer A+ Awards.

The Aqualagon is also certified NF HQE (a French green building standard) under the “Sports equipment - Pool” category.

In 2013, the resort was recognised by the United Nations Environment Programme as part of its Global Partnership for Sustainable Tourism.



Certificat N° NF 439/15/018
For more information visit:
www.certivea.fr

Les Villages Nature® Paris's progress towards One Planet Living

Health and happiness	<ul style="list-style-type: none"> Improve wellbeing of visitors and employees through reconnection with nature Protect and enhance the quality of life of neighbouring residents 	✓ ✓✓
Equity and local economy	<ul style="list-style-type: none"> Support the local economy through procurement Support local employment in construction and operation, particularly for people with poor access to opportunities Develop partnerships with local companies across different sectors 	✓ ✓✓ ✓
Culture and community	<ul style="list-style-type: none"> Awaken visitors to sustainable development and promote local partnerships 	✓
Land and nature	<ul style="list-style-type: none"> Neutral impact on the 72 protected species identified on the site Ongoing management to be 'biodiversity positive' through habitat creation 	✓✓ ✓✓
Sustainable water	<ul style="list-style-type: none"> Maintain the quality of the aquifer and waterways during construction Recycle water from the Aqualagon 	✓✓ ✓
Local and sustainable food	<ul style="list-style-type: none"> 100% of outlets to provide a 'responsible' and attractive food and drink offer Favour onsite production and local and regional food 	✓ ✓
Travel and transport	<ul style="list-style-type: none"> Maximising use of public transport by staff Zero car site 	✓ ✓✓
Materials and products	<ul style="list-style-type: none"> Reduce embodied carbon during construction of the resort 100% certified timber Reuse the materials onsite eg timber, soil excavated etc 	✓✓ ✓✓ ✓✓
Zero waste	<ul style="list-style-type: none"> Material recovery rate of > 90%, and > 60% recycling during construction Maximise separation and re-use of waste in construction 	✓✓ ✓✓
Zero carbon energy	<ul style="list-style-type: none"> 100% heat demand met by onsite renewable energy from day one Net zero carbon by 2020 	✓✓ ✓

Substantially or entirely completed or a high degree of certainty over deliverability ✓✓

On track for a long term target ✓

Substantially incomplete, behind schedule or doubt over delivery ✗

Challenges and lessons learned

As with any project that's pushing the boundaries, there were stumbling blocks and things that did not work as planned. But with each challenge came valuable lessons for future projects.

Set ambitious goals – but be prepared to be flexible

Setting ambitious goals at the start of a project is important to ensure that it sets its sights on high sustainability standards. But progress won't always be straightforward. Project teams may have to make new commitments, set new deadlines or wait for the right person and time to achieve their aims, for example:

Carbon footprint: Achieving low-carbon construction was a main objective for the project and involved comprehensive carbon footprinting for the accommodation, farm and Aqualagon. Through use of low-carbon concrete and timber, Les Villages Nature® Paris achieved a reduction in embodied energy of 25% (see page 6 for more information).

However, the team had also wanted to create a complete carbon footprint for the construction phase, but the huge number of companies involved made this unfeasible. Small companies especially did not have the time or internal processes needed for this to happen.

Local food: Initially, there was a target for all partners to source food locally from the start of their contracts. However, it became clear that this would require a change in processes for many of these companies, so it won't be achieved from day one of operations. It remains a longer-term aim, with the retailers that have succeeded in achieving this target providing inspiration for others.

Select sustainability priorities

While sustainability should be embedded across an entire project, it is sensible to focus on a few main priorities for 'innovation.'

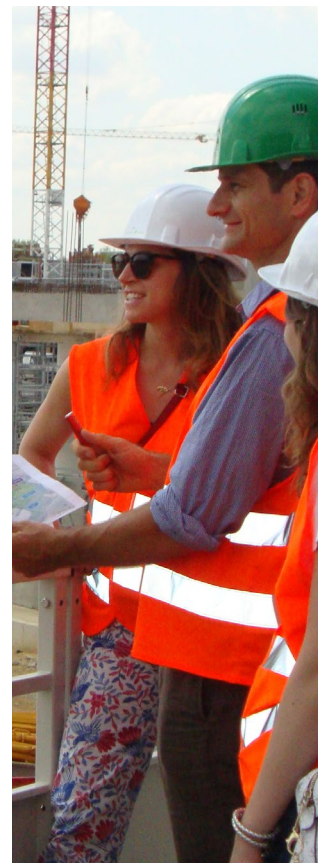
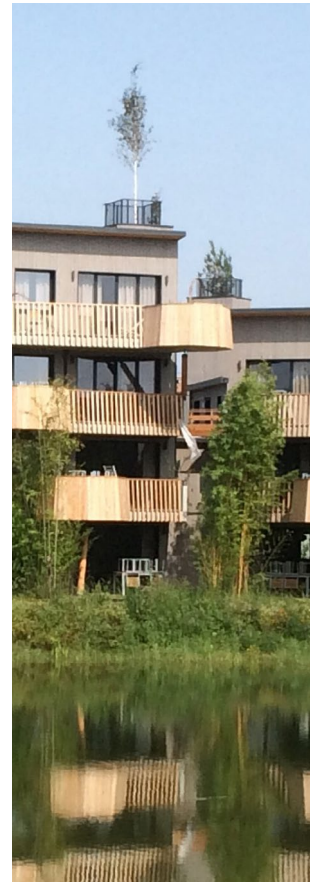
At Les Villages Nature® Paris, the team focused on geothermal energy, which provides 100% of its heat energy demand, and supporting local nature. This helped concentrate efforts and resources on achieving significant change (see page 6 for more information).

Achieving milestones for these priorities helped inspire the project teams involved as they could see that ambitious goals were achievable and understand they were making positive change.

Create a whole team dedicated to the sustainability mission

It's vital to have a team of people – including not only construction experts, but also the marketing team, PR representatives and management – that are responsible for delivering sustainability commitments. These people will be in charge of championing sustainability across the whole project, from setting objectives to implementing the action plan. They can also help make sure that any changes to the project do not negatively impact upon sustainability objectives.

This commitment shouldn't stop upon finishing construction. Les Villages Nature® Paris has appointed a 'One Planet Living Manager' to co-ordinate the delivery of the sustainable action plan by the operations management team.



A One Planet tour around Les Villages Nature® Paris

Sustainability has been embedded across the whole of the site. The map below and information overleaf highlights how Les Villages Nature® Paris has created a resort which both creates space for guests to enjoy nature, and minimises its impact on the planet.



Lakeside Promenade

Surrounded by hanging gardens, this promenade is at the heart of Les Villages Nature® Paris with shops and restaurants offering a wide range of food options including organic, fairtrade and local products, as well as leisure activities.



Extraordinary Gardens

Two hectares of green space enhanced by human hands, inviting guests to relax and enjoy nature.



Aqualagon

Designed for both relaxation and fun, this water park is heated to 30°C year-round by geothermal energy.



Forest of Legends

A forest filled with adventures for children to enjoy the magic of nature and imaginative play, with hiding places, playgrounds, climbing frames, treehouses and more.



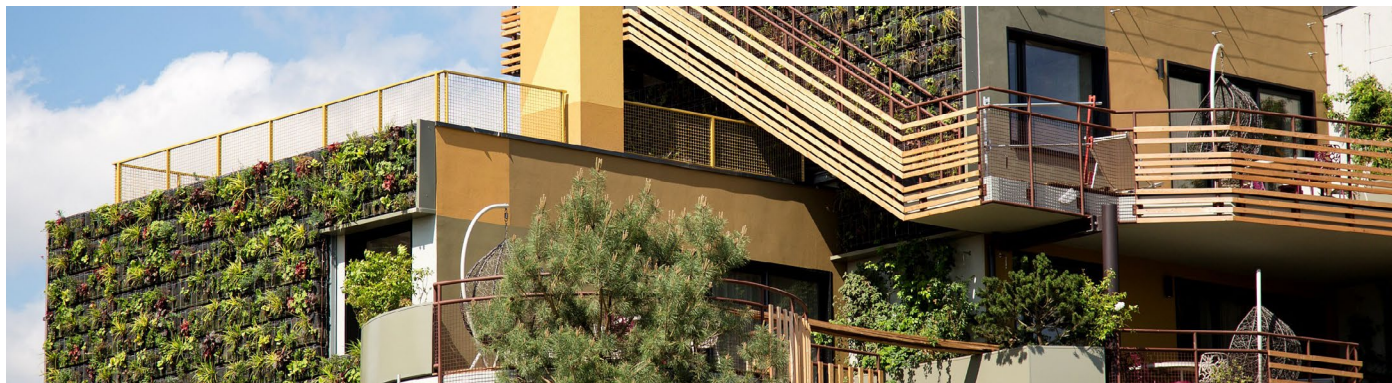
BelleVie Farm

A working farm enabling guests to experience the life of a farmer, from seeing how cows are milked to growing fruit and vegetables, making butter and baking bread.



Holiday housing

Each home has its own private garden or green space.



Lower-carbon, more efficient buildings

Embodied energy reduced by 25%

By using lower-carbon materials – such as timber and low-carbon cement – the construction **saved approximately 12,000 tonnes of carbon emissions** (compared to the French construction average).

100% heat from geothermal energy

All heating and hot water is provided from geothermal energy at Les Villages Nature® Paris and as of 2018 it is connected to Disney as well. It's estimated that this will **save 4,000 tonnes of carbon emissions** in the first year.

Warm, energy-efficient cottages

Les Villages Nature® Paris also managed to achieve **very high levels of airtightness**, which reduces heat loss, with units manufactured offsite. The accommodation is also designed to reduce ongoing energy consumption, with A+ appliances and LED lights.

Thriving, diverse green space and nature activities

Offering a unique guest experience with nature

Les Villages Nature® Paris is designed to allow its guests to immerse themselves in nature. This is achieved with its different landscaped 'worlds', including the Extraordinary Gardens, the 'Forest of Legends', lakeside area and BelleVie Farm.

Each of these has its own activities to help people understand the enjoyment that can be found by being in nature, including gardening, cross-country running, hut building or bee-keeping.

Providing new homes for local species

- **28,000 new trees and 430,000 shrubs and plants** provide abundant green space for guests to enjoy, and for wildlife to call home
- **4,000m of new wetland** along the shore of the lake will support local wildlife, prevent local flooding and help maintain good water quality
- **23 new protected species** have already been spotted onsite
- 20 hectares of green space, known as **an ecological corridor**, now connects two local forests to allow wildlife to roam more freely.

Almost zero waste to landfill

Les Villages Nature® Paris has exceeded its original targets and has diverted an impressive 97% of construction waste from landfill.

- **100% of the 1 million m³** of soil excavated onsite was reused – enough to fill 400 Olympic swimming pools
- **Almost 100% of timber felled onsite was reused** – more than 970m³
- **Prefabrication of accommodation offsite** helped minimise waste.

Sustainability ambitions during operations

After opening its doors on 1 September 2017, Les Villages Nature® Paris's efforts are now focused on providing an excellent guest experience. It will continue to use One Planet Living to embed sustainability throughout this process.



“As a leisure destination, we wanted to emphasise the enjoyment that can be found in enjoying nature and living a sustainable life. We will do this by encouraging simple pleasures like soaking up nature, enjoying new experiences and discovering a new way of living in harmony with nature.

We want our guests to leave feeling relaxed, inspired and happy, and inspired to continue enjoying nature after they go home.”

Olivier Robin, Operations Director at Les Villages Nature® Paris



“Les Villages Nature® Paris has succeeded in creating a holiday destination that clearly demonstrates you don't have to compromise on sustainability to create a place that people will enjoy.

And, of course, its sustainability journey has only just begun. The next challenge is to see how it can inspire its guests to start making changes in their own lives. But with such strong foundations in place, guests will be able to see that sustainability can equal a healthier, happier life.”

Ben Gill, International Technical Manager for One Planet Communities at BioRegional



Highlights from the One Planet Action Plan for operations

Les Villages Nature® Paris's One Planet Action Plan outlines its objectives for operations, and the actions it will take over the next two years to achieve these goals.

Health and happiness



Reinforce the human aspect of sustainable development by making the wellbeing of visitors, employees and guests a performance indicator

- Promote **employee wellbeing**
- Create a **proactive - rather than preventative - culture of health and safety** for staff and clients

Equity and local economy



Support and develop the local economy by maximising the economic benefits of the project

- Promote **local and fairly traded products** in procurement
- **Support local employment** and ensure equal opportunities for all staff.

Culture and community



Promote the local culture and heritage and awaken visitors to sustainable development

- Build a **One Planet culture** through training and engaging with staff and partners
- **Engage with guests** with clear communication and information about One Planet Living
- Develop guest activities to **encourage reconnection with nature** through events about nature preservation, culture and art

Land and nature



Promote, enhance and track the site's biodiversity and raise awareness among visitors

- **Maintain and develop local species** and diversity of natural habitats
- Create activities to **engage guests with onsite biodiversity**
- **Implement ecological management plan** of green and natural places.

Sustainable water



Reduce water consumption and ensure sustainable management of rainwater across the site

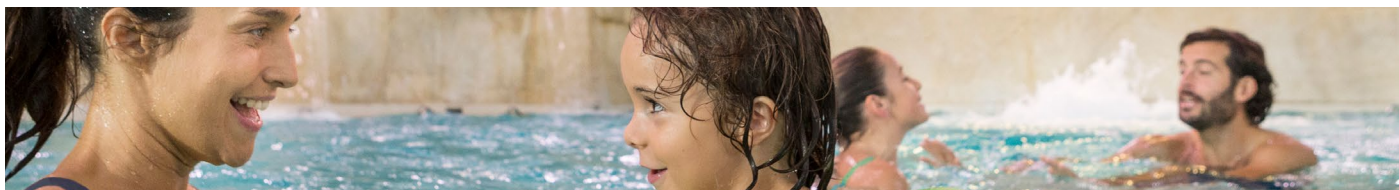
- **Reduce drinking water consumption** with daily monitoring and ensure regular maintenance of equipment
- **100% rainwater and greywater** used for irrigation of landscape
- Train staff and engage with guests and partners to **maximise efficient water use**
- Maintain the **quality of aquifer and waterways**.

Local and sustainable food



To offer healthy and local food, as well as organic products

- Organise a **local market**
- Support partners to offer a **“responsible” food option eg local, fairtrade or vegetarian** and help them with implementation.



Travel and transport



Reduce transport-related carbon emissions for both employees and visitors

- Reduce the travel carbon footprint of guests by promoting use of public transport, with **30% of guests using sustainable transport**
- Implement onsite **green travel policy** to achieve a zero-car site.

Materials and products



Promote sustainable goods and responsible products with a lower environmental impact

- Develop procurement guidelines to ensure use of **ecological and low-impact materials** for operations and renovation.

Zero waste



Reduce the quantity of waste sent to landfill or incineration

- Ensure that guests and staff (including partners) sort waste effectively and **achieve a sorting rate of 60% for all waste** by 2022
- Develop **food composting solution** for guests.

Zero carbon energy



Transition to a site with zero carbon emissions from buildings

- Achieve **100% renewable electricity** target by 2020
- Ensure **geothermal energy** meets 100% of heat energy demand by opening and during phase one
- **Reduce energy consumption** with daily monitoring and ensure regular maintenance of equipment
- Train staff and engage with guests and partners to **maximise efficient energy use**.



Appendix one: How did Les Villages Nature® Paris achieve its construction objectives?

Embracing One Planet Living

From its outset, Les Villages Nature® Paris used the One Planet Living framework to guide its design and developed a One Planet Action Plan in partnership with Bioregional. One Planet Living helped set up clear and easy-to-understand targets for each of the ten principles.

To put these commitments into action and define specific measures, Les Villages Nature® Paris also used the HQE “Sports equipment - Pool” criteria (HQE is a French green building certification scheme) and worked with a range of sustainability experts.

The HQE criteria provided particularly demanding requirements for air quality and water efficiency for the “Aqualagon” (the pool area). The experts helped define specific requirements for the master plan and building design to protect local species, enhance biodiversity and maintain the water balance.

As the construction phase was reached, all requirements were incorporated into Les Villages Nature® Paris’s procurement standards and tender requirements. These also helped define initiatives to create a sustainable construction site

Creating a green construction site

To ensure that the construction site was also managed in a sustainable way Les Villages Nature® Paris developed a green charter which it called its “Charte Chantier Vert” (CCV). This was finalised in 2013 (a year before construction began) and outlined:

- The vision and aspirations for the site
- The organisation of the site and division of responsibilities
- Detail on specific issues like waste management procedures, monitoring energy and water consumption and controlling pollution onsite.

The charter was then implemented by:

- Embedding it into the tender process, with all companies required to respond to its key points, particularly around waste reduction strategies. These responses were then considered during the tender selection process
- Requiring all companies to sign the CCV and attaching it to their contracts
- Monthly reporting against the charter on seven of the ten One Planet Principles (Les Villages Nature® Paris chose the ones that were most relevant to the construction phase).

How did this work in practice?

- As a massive and complex construction project, it was important to have clear reporting and communications across the site
- Delivery of the green construction site was sub-contracted to the organisation responsible for construction site management. A specific role within this organisation was then in charge of co-ordinating all data, compiling monthly reports, communications and training
- Two specialist organisations provided additional technical support: EGIS supported on technical issues such as embodied energy calculations and monitoring energy and water and Biotope ran the ecology monitoring programme
- Each major sub-contractor had a nominated sustainability person (“un référent environnement”) who collated data and was responsible for training and communication about sustainability within their own organisation.

Bioregional's comments

- Although the CCV required reporting on the use of fuel and transport data, this was not captured by all companies due to their small size and lack of resources. Ideally the data would have been maintained by all companies
- The CCV had a significant focus on waste, biodiversity and standard site practices – though consideration of the One Planet Principles meant it was extended to address areas such as staff transport and wellbeing. Ideally all of the Principles would have been explicitly addressed by the CCV
- The CCV helped Les Villages Nature® Paris achieve its significant successes in minimising waste to landfill and reducing embodied CO₂ for Aqualagon and accommodation, as regular monitoring and reporting by the sub-contractors helped keep these issues on the agenda despite delivery pressures
- The charter was effective at ensuring a well-managed site for sustainable construction but as a contractual document it was not an effective tool for communicating with site workers, which meant that additional materials were required. While the posters and reports supported the training staff received on the CCV, more imaginative and engaging tools could have been used – such as talks by local organisations or micro-training events
- The successful application of the CCV relied significantly on the “Responsable Chantier Vert - RCV.” This role was part of the site management contract and became merged with a range of site management requirements. It was not a separate function with a separate line of reporting to Les Villages Nature® Paris. A more successful approach may have been to have a Villages Nature employee as the RCV or at a minimum an external employee with a direct line of reporting to a sustainability manager at Les Villages Nature® Paris
- Pressure to get the job complete on time is a challenge for all construction projects and was a particular challenge at Les Villages Nature® Paris due to the huge scale of the project and the inclusion of the highly innovative Aqualagon. By laying out the requirements for maintaining a sustainable construction site at the outset and building these into the way the contractors' operated, the CCV ensured that there was minimal slippage in the sustainability standards as the pressure of delivery increased.

Appendix two: Les Villages Nature® Paris progress towards its construction targets

One Planet Principle	Construction related target	Performance	How was this achieved?
Health and happiness	Ensure safety and security for the staff	<ul style="list-style-type: none"> 100% of coatings VOC A+ to minimise exposure to pollutants 26 accidents compared to 43 in 2017 Accident frequency index of 21.7 compared to national average for building professions of 42.4 (in 2015) 	<ul style="list-style-type: none"> The tender process explicitly referenced safety of employees as an aim, specifically concentrating on air pollution (e.g. VOCs) Contractors were chosen for their good reputation and experience All contractors had access to continual training and communication on safety
	Protect and enhance the quality of life of neighbouring residents	<ul style="list-style-type: none"> No significant complaints during construction Job opportunities for local population (approx. 500 in construction and 600 in operation) Local woodland and wildlife preserved and enhanced Boosted local public transport facilities and cycling infrastructure 	<ul style="list-style-type: none"> Les Villages Nature® Paris engaged with municipal authorities from the outset to ensure the concerns of the local community were addressed (public consultation process before the project was launched).
Equity and local economy	Support the local economy through procurement	<ul style="list-style-type: none"> More than 65% of contracts (by value) were from within 100km Only 1% were from abroad 	<ul style="list-style-type: none"> Worked with the chamber of commerce to upskill local businesses to be able to meet the requirements of Les Villages Nature® Paris
	Support local employment in construction and operation, particularly for people with poor access to opportunities	<ul style="list-style-type: none"> 68,500 hours for apprentices exceeding the 25,000 target. This is approximately 45 full-time employees for one year. In 2017 insertion employees included: <ul style="list-style-type: none"> —32% long-term unemployed —31% young people —28% on social support —3% registered disabled 	<ul style="list-style-type: none"> Training agreement with local private and state organisations to upskill local workforce (for example, its partnership with Initiative 77, a local organisation that supports unemployed people to find apprenticeships). Maximising site accessibility – (see transport)
	Develop partnerships with local companies across different sectors	<ul style="list-style-type: none"> 1/3 of contracts for supplying trees were local 	<ul style="list-style-type: none"> Les Villages Nature® Paris engaged with local tree nurseries so they could provide the quality and quantity of trees required

Culture and community	Awaken employees to sustainable development and promote local partnerships	<ul style="list-style-type: none"> • Les Villages Nature® Paris established its 'Charte Chantier Vert' (CCV) - or 'green charter' - in 2013, which was designed to create an efficient and sustainable construction site • All organisations made aware of the charter and trained in delivering its ambitions • Monthly reporting on performance • Staff training on the ten One Planet Principles and the specific goals of Les Villages Nature® Paris • Partnership with local tourism organization set up 	<ul style="list-style-type: none"> • By creating the CCV, Les Villages Nature® Paris provided a shared vision for the site's sustainability and supported all contributing organisations to achieve these aims • The monthly reporting helped track and maintain progress
Land and nature	Neutral impact on the 72 protected species identified on the site	<ul style="list-style-type: none"> • Protection of habitat for rare species to enable them to remain onsite during construction • > 90% of species observed during construction, plus 23 new protected species • Slight drop in number of bird species observed in 2017 - presumably due to increased construction activity (KPI to be followed in the coming year) 	<ul style="list-style-type: none"> • Preservation of areas with high biodiversity (areas of woodland) • Education of workers, placing ecologists on-site, and conducting annual surveys • Removal of alien species (Japanese knotweed) • Ensuring there were no barriers for wildlife movement and the creation of amphibian road crossings
	Create habitats for local nature	<ul style="list-style-type: none"> • 28,000 trees and 430,000 plants added onsite • 4,000 m² of wetlands • 20 ha of ecological corridor • 7.500m² of green roofs 	<ul style="list-style-type: none"> • A site-wide plan for enhancing and protecting nature which is now linked to the operational plan • Targeted habitat creation for specific species identified onsite – such as re-naturalisation of streams and wetlands
Sustainable water	Maintain the quality of the aquifer and waterways	<ul style="list-style-type: none"> • No impact seen in quality or quantity in aquifer or rivers except one stream that had periodic suspended solids 	<ul style="list-style-type: none"> • Pollution traps were used to remove any pollutants from the water

	Reduction in water use – 20% below standard for residential accommodation and for Aqualagon bathrooms and showers	<ul style="list-style-type: none"> Approximately 30% saving in guest water use and 35% at Aqualagon compared to standard practice Aqualagon achieved level 5 'tres performant' (very good) for water conservation with HQE (a French green building certification) Met design requirement that 8% of total water use is non-potable water (rainwater and treated water) 	<ul style="list-style-type: none"> Low-flow equipment installed in all housing and at the Aqualagon Rain-water harvesting
	Reduce water use on the construction site	<ul style="list-style-type: none"> Total site-wide water use: 212,259m³ At the Aqualagon construction site 1/3rd of water used was in workersite huts (daytime) Aqualagon per person water use at 'worker site huts' about 50l/p/day – high compared to offices, but use profile is different 	<ul style="list-style-type: none"> Forward planning helped support this – all lakes were filled with rainwater
	Recycle part of the Aqualagon water	<ul style="list-style-type: none"> A series of planted ponds – or 'filtering gardens' – will clean the used water from the Aqualagon and feed it into the onsite lake. This process will filter 8100m³/year (approx. 15% of demand) 	
Local and sustainable food	A 'responsible' and attractive food and drink offer always available for visitors	<ul style="list-style-type: none"> No initiatives undertaken 	
Transport and travel	Maximising use of public transport by staff	<ul style="list-style-type: none"> The monthly monitoring was dropped as the figures were stable and approximate, but showed that only about 1/4 came by private car and more than 50% car-shared 	<ul style="list-style-type: none"> Les Villages Nature® Paris engaged with the local transport agency to provide a bus stop from the start of construction

Materials and products	Reduce embodied carbon of buildings	<ul style="list-style-type: none"> The accommodation cottages and apartments, farm and Aqualagon all used timber where possible. This resulted in an embodied carbon average 86 kgCeq/m² compared to the French baseline of 119 (28% saving) The Aqualagon saved 22% in embodied carbon (on a base case) through the use of timber frame and low-carbon cement Overall Les Villages Nature® saved approximately 12,000 tonnes of embodied CO₂ (25% reduction) 	<ul style="list-style-type: none"> Timber was specified as a material where possible Use of low-carbon concrete for the Aqualagon was included as a requirement in all tenders and contracts
	Reuse materials created during construction	<ul style="list-style-type: none"> All excavated soil and rock onsite was reused – 1 million m³ of which 300,000m³ was topsoil All timber felled onsite was used in construction – more than 970m³ 	<ul style="list-style-type: none"> These were set as objectives from the outset This required continual redesign of site layout to ensure that it could be met
	100% certified timber	<ul style="list-style-type: none"> 100% FSC, PEFC and European timber used 	<ul style="list-style-type: none"> This was included in the contracts for all tenders Les Villages Nature® Paris selected suppliers who could deliver this
Zero waste	Ongoing reduction of waste	<ul style="list-style-type: none"> 46% of cottages and 20% of the site overall (by volume) was pre-fabricated 64kg waste per m² of construction housing - this estimate is significantly lower than UK average 	<ul style="list-style-type: none"> Pre-fabrication of the units was prioritised over onsite construction All tendering organisations had to outline their waste reduction strategies Delays elsewhere led to increased waste in the housing as materials were stored for longer.
	Maximise separation and re-use of waste in construction	<ul style="list-style-type: none"> 86% recycled 11% waste-to-energy 3% landfill 	<ul style="list-style-type: none"> A single waste contractor for the whole site All contractor teams required to report monthly on waste data Training of all staff in waste and recycling

Zero carbon energy	Reduce and control energy consumption	<ul style="list-style-type: none"> Accommodation: exceeded French Thermal regulations by 9% (80kWh/m²/yr) for cottages and -18% for apartments Farm: exceeded French Thermal regulations by 50% All accommodation achieved airtightness levels of < 1 m³/ (H.m²) – well above best practice levels Aqualagon achieved HQE ‘tres performant’ (very good) All accommodation uses A+ appliances and LED, all exterior lights LED Provision of offsite geothermal energy – the geothermal is also now connected to Disney 	<ul style="list-style-type: none"> Post-completion testing of airtightness of 20% of units Clear targeting of HQE performance level from the outset Setting of requirements for appliance standards
	Manage energy use on construction site	<ul style="list-style-type: none"> Total electricity use was calculated. About 12GWh for the entire site equivalent to 1200tCO₂eq On the Aqualagon construction site 90% was electricity for construction and the rest: worker base camp (daily use) and gas (for engines). 	<ul style="list-style-type: none"> Monitoring programme specified in the CCV



Substantially or entirely completed



Mostly achieved



Not delivered

Bioregional

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