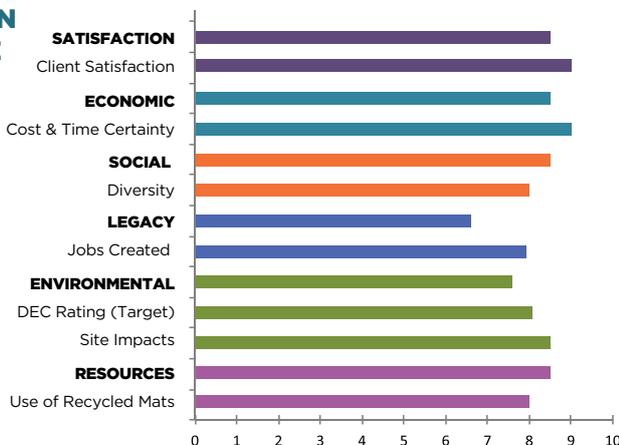




Menai Science Park (M-SParc)

DESIGN STAGE



The Exemplar Menai Science Park is a £20m project funded by the Welsh Government and EU ERDF fund. The aim is to spark the economy in North Wales by developing knowledge-based enterprises.

Menai Science Park Ltd (M-SParc) is currently developing its ambitious plans to build Wales' first dedicated Science Park in Gaerwen, some six miles from Bangor. M-SParc, a wholly-owned subsidiary of Bangor University, will offer clean workspace, offices and labs along with open hot desking. M-SParc will host companies, businesses, and research projects that are linked with knowledge based science, energy, environmental services and clean technology enterprises (although it will not necessarily be limited to these sectors). Ancillary services such as business support, IP advice and a Risk Fund will also be available for businesses established on the site.

The design and build contractors, Willmott Dixon, were appointed from the North Wales procurement framework and have been working with the project team to develop the detailed designs based upon concepts developed by architects FaulknerBrowns. Works started on site in the autumn last year and aims to be complete by early 2018.

This ground-breaking project has used Exemplar techniques during the design phase to engage with end users and consult with FM providers, using BIM to assist with the development of the design and consider how waste could be minimised.

PROJECT DETAILS

Client: Pryderi Ap Rhisiart, Bangor University
PM: Ian Lamb, Gleeds UK
Contractor: David Williams, Willmott Dixon
Designer: Leighton Cooksey, FaulknerBrowns
Structures: Caulmert: M&E Design: TACE
Value: Enabling Works, Utilities and Site Acquisition: £2m; Fees and Legal: £1.5m; D&B Contract: £15m
Project size: 5,950m²
Contract: JCT D&B
Duration: 64 weeks - Design Phase Jun 15 – Sept 16; D&B Oct 16 – Jan 18;



KEY CONTACTS

Gordon Brown - CE Wales
gordon.brown@cewales.org.uk

Menai Science Park Ltd (M-SParc)
– Pryderi Ap Rhisiart
p.a.rhisiart@bangor.ac.uk





What is an Exemplar project?

An Exemplar is defined as **‘something worthy of being copied’**. The Exemplar programme has been developed to help identify the reasons why certain projects are successful in a standardised, quantifiable way and to share with the industry what enabled these successes.

An Exemplar considers all aspects of sustainability, including economic, social and environmental, demonstrating that the

scheme is well rounded and has incorporated best practice and collaboration.

Case studies are prepared at 3 Key Stages Design Stage; Construction Phase; Post Occupation

This ensures that lessons learnt can be demonstrated throughout the development of the project.

What Makes this Project Exemplar?

Excellence in construction has been a key cornerstone for the project since its inception with several project strands demonstrating best practice and innovation. Led by CEWales’ Client of Year 2013, the M-SParc project has established a team approach to the delivery of the project with internal and external stakeholders alike. Ensuring an open and creative environment and project culture to discuss ideas as a complete and holistic team, the client is now seeing the benefits in the ideas, the design and the delivery plans that are now being produced.

- 1** Utilising BIM beyond the construction aspects: The project has excelled in the use of BIM and has developed the skills of both the client and construction sector and supply chain locally to respond to BIM
- 2** Collaborative working and the way the team has been able to consult and work together as a team to develop the project surpasses client expectations. Consultation with end users, the public and the business plan was central to the design phase
- 3** The development of diversity and Welsh language – a key client requirement that has been echoed and supported by the contractor and team at large
- 4** Customer satisfaction questionnaires and full 360 reviews
- 5** The project is breaking new ground in community benefits by developing new models and methods for delivering targets. From professionals looking to develop skills to young people who are not in education or training, the community benefits plan addresses all of them. In addition the project is actively working to promote more women into the construction industry
- 6** The project signed up to CEW Enabling Zero Waste and promoting the recycling on site and the welfare facilities. Recycling agreements in place with local recycling centres and ZERO WASTE is discussed and promoted at every pre-commencement meeting with the supply chain
- 7** Use of a Clerk of Works (CoW) is producing positive results. Ecology and Sustainability.

Notable Aspects

The other main points in terms of dealing with key issues facing the industry include:

- The project engaged with D&B contractors several months in advance of tendering to ensure input into early stage design. These conversations provided key messages and a direction on buildability for the project team from the outset which were incorporated into early design work and cost plans
- The flexibility of the building was crucial and as such the design team have developed an innovative flexible approach to laboratory development and provision
- Defibrillators and training provided on site during the construction phase will be “handed on” to the end users
- The project has provided 4 BIM Training events for the client and the construction industry along with significant contributions to the “community benefits agenda”
- Drones used to provide up to date footage and progress information
- Local artists have been commissioned by WDC and M-SParc to recycle waste materials for an exhibition at the Eisteddfod in July
- PV panels have been incorporated into the landscape in and around the building to enable easy access for University researchers who specialise in advance photovoltaics
- The Princes Trust scheme involved on site with work experience participants used recycled timber to make planters which will be donated to the local school
- Virtual reality utilised from the BIM and design information to provide simple actions plans and methodologies on site and also to assist in the promotion of the finished article to potential tenants.

Improving The Process

The M-SParc team have been eager to instil a “team” approach to the project from the outset with the original design team from FaulknerBrowns. This approach has been developed further with the design and build contractor, once on site. An open, collaborative environment will be created where the client, contractor and professional teams sit alongside each other.

The safe and open environment has been formed for the project team to operate, evidenced in the start-up, project launch and intermediate workshops held to date. Workshops where collaborative working and common goals have been identified and leadership questioned to ensure the project team has a clear vision of its expectations and how to deliver the project successfully.

In addition the delivery team produced a project statement to capture the delivery ethos: **“As a team we’ll deliver an award winning building that we can all be proud of. M-SParc will be an exemplar to the construction industry. The project will provide lasting economic impact for the region, immediately through community benefits and into the future through provision of high quality job and entrepreneurial opportunities. We will do this through communicating openly with each other, with the public, and with our stakeholders and by working as a team. We will exceed expectations and strive to be the best.”**

Pryderi Ap Rhisiart, project manager, M-SParc.

Utilising the Clerk of Works on a D&B Contract

Menai Science Park took the decision to employ a CoW on the D&B Project, an unusual approach for this type of contract. The approach to the role is also unusual, rather than being the traditional, CoW M-SParc wanted a person who would work with the contractors and to collaborate with them positively. The relationship between the CoW and Willmott Dixon is healthy; any issues identified are immediately discussed with solutions identified. M-SParc were eager for the contractors to look at CoW as resource that’s available for them - an extra pair of eyes to make sure that what is built is right first time and that the quality of the build is exceptional.

The appointment serves to reduce risks involved with quality and provides re-assurance for the client that the quality is outstanding. Willmott Dixon will now invite the client and the CoW to use mobile technology to identify and manage snagging issues on site by making use of the latest technology.

Andrew Bailey, the CoW said **“the quality of the work on site is excellent and the relationship between the company and myself is healthy and collaborative.”** David Williams, Willmott Dixon’s Project Manager added **“having Andy on site has assisted us in giving the client re-assurance that the quality of our workmanship is exceptional and as a team we really appreciate the collaborative approach to this project.”**

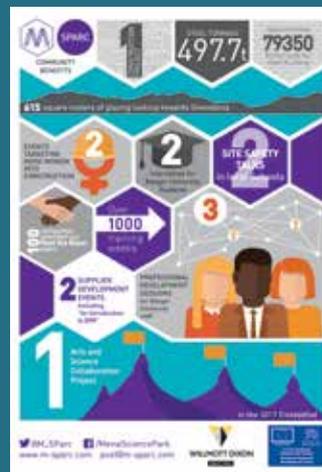


Community Engagement, Community Enhancement, Community Benefits Delivered

Benefits of the park and the impact it will have is far reaching as stated in the Project’s Partnering Statement the project will “spark” lasting impact in the region immediately through community benefits and into the future through the provision of high quality job and entrepreneurial opportunities.”

The Community Benefits (CB) delivered through this project are substantial and far reaching and the client worked with WD to develop and agree a CB plan that would deliver impact. The CB plan is monitored in the formal progress meetings and will without doubt result in lasting economic, social and environmental benefits to the area.

A key criteria for the project from inception was to be sustainable in economic, social, environmental and cultural terms. This has been a challenge presented and shared with everyone involved in the delivery of the project so that designers and the onsite construction teams are aware of the challenge and feel free to assist M-SParc to achieve the vision. Securing this sustainable future will ensure a lasting, long term impact from the development. These values align with the Well-being of Future Generations Act 2015 and underpin our project.



Sustainability

M-SParc is being assessed under BREEAM NC2014. An excellent rating has been targeted, with a design stage pre-assessment score of 72.5% at the end of Stage3. The BREEAM requirements were embedded within the contract preliminaries.

During Stage 2 the design team carried out a “blue sky” sustainability workshop, in order to brainstorm the potential sustainability measures. Once the long-list of sustainability measures was defined, these were individually considered on merit in order to develop the most effective and efficient strategy.

The sustainability strategy is based upon prioritising lean methodologies (minimising the demand for energy and water at the point of use). “Mean” methodologies were then applied to maximise the efficiency of the specified building systems, with “Green” methodologies (use of LZC and alternative water sources), as the lowest priority.

Passivhaus principles have been applied with a highly efficient thermal envelope and the maximum possible use of natural light and ventilation. The sustainability strategy established a target of achieving the mandatory Ene01 credits for BREEAM 2014 Outstanding, which has been achieved by supplementing the improved thermal envelope with 250m² of PV, integrated into the landscape as a visible statement of M-SParc’s ethos. The external realm strategy has been developed to retain and where possible enhance the biodiversity of the existing farmland setting, while maximising opportunities for community and education benefits.

Supply Chain Strategy

Utilising the North Wales Construction Framework (NWCFF) to procure the works led to an interactive and iterative way to produce collaborative actions in order to implement the shared purpose of successful delivery of public sector projects across the North Wales region.

The key drivers of the NWCFF are: principled engagement with clients, contractors, together with education establishments and supporting agencies through our community Benefit and BIM strategic interest groups. Alongside shared motivation, mutual trust, understanding and shared commitment. This has allowed capacity for joint action for sharing of knowledge and resources providing a continuous change in our collaboration dynamics.

The principals and values of the project will be embedded with the supply chain from commencement. This will include designers, suppliers, manufacturers and installers on the project. During consultation and the tendering process all relevant information on the project will be communicated to the supplier including a summary of the projects key values and principals. For example BREEAM, BIM and the community Plan. To identify the project collaborative and consistent approach there will be an agreed dedicated agenda for pre commencement meetings with suppliers.

The project team takes health and safety seriously and from the onset suppliers will be briefed and informed on the importance of good health and safety. This will be done via managed H&S inductions, production of timely risk assessments and method statement approvals, pre-enrolment inductions carried out off site, toolbox talks, identification of H&S training needs and the management of H&S on site.

Identifying and managing best practice will be key to the project success and as such the suppliers will be consulted and through collaboration with them new ways of working will be able to be identified and put in place on the scheme. Some examples of best practice already identified are;

- Pre agreed quality inspections and material identified to be inspected off site
- Open door policy on site (Shared accommodation with client and supply chain)
- Daily SSS safety “gatherings”
- CSCS cards for all
- Construction H&S and quality plans for all suppliers
- Environmental/waste management plans for suppliers
- Supplier 360 degree reviews on completion of their works
- Combined defects management – Fieldview on Tablets
- BIM for FM management



In an attempt to develop the skills of the local supply chain BIM Training has already been arranged for local trades to learn about BIM with a follow up event planned for March/April 2017. The event was well attended.



Resources

M-SParc are also proud members of the CEW EZW Programme and have been looking in detail at how to minimise and reduce waste on site. The client placed a particular focus on community engagement and one project brings an artist together with community interest groups to look at developing a work of art from site waste. **“During early consultation with the community it became apparent that celebrating the rich history of the site was important for the community of Gaerwen and the arts and zero waste programme presents an opportunity for us to do this”** said Pryderi Ap Rhisiart, M-SParc’s Project Manager. In addition M-SParc are looking at the fit out proposals for the park and are reviewing the benefits of using re-cycled or up-cycled office furniture within the finished project.

The M-SParc site on Anglesey is in close proximity to the slate mines of North Wales. Over 5,225t of waste slate from the mine workings has been recycled and imported to site for use as fill material and the base course for haul roads alongside the crushed bedrock from the top of the site. A further 1000t will be required before completion of the project. Use of waste material decreases demand for, and therefore reduces extraction of, virgin material.

It is common practice for the waste from a site canteen and office to be disposed via the general waste skips. This approach causes recyclates to lose value and makes food waste more difficult to separate for disposal via digestion. At the M-SParc site canteen and office waste has been given special consideration. A separate waste compound for canteen and office waste has been established allowing segregation of food waste, glass and mixed recyclates. This will allow for recycling, maintain recycle value and allow for anaerobic digestion of food waste.

Segregation is also taking place for construction waste. On site, there are metal, wood and mixed waste skips. This approach will reduce waste management costs and maintain resource values.

