Facility
Case Study

YORK SPORT VELODROME

YORK, NORTH YORKSHIRE

Status: Completed 2014
Client: University of York
Operator: York Sport Village LLP
Value: £1 million

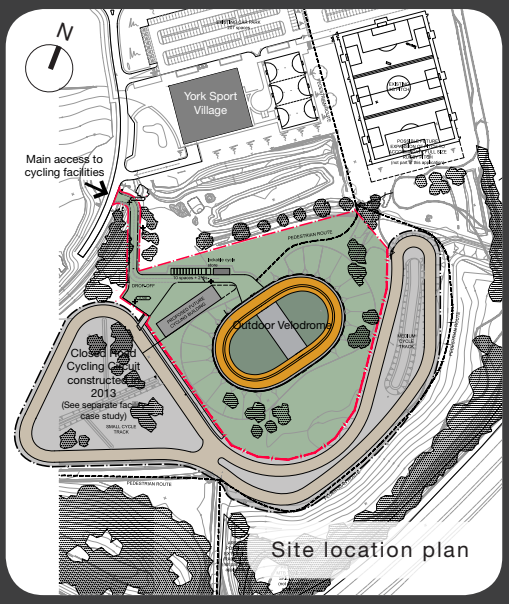
Velodrome with Closed Road Circuit and main sport village facilities beyond

The new Velodrome is located within the York University campus at Heslington East. It is on the outskirts of the city, as part of York Sport Village and is easily accessible from the A64 York outer ring road. It provides regional standard cycling facilities for students and the wider community.

The sports village and the cycling hub facilities complement each other. The new Velodrome provides for both novice and competitive cyclists, and shares changing rooms, showers, café and car parking with the main facilities.

The project was funded jointly by British Cycling, York Sport Village LLP and University of York. The aim was to build on the rising public profile of cycling to grow the number of people participating in cycle sport.

The facility is the only Velodrome in Yorkshire and provides opportunities for people to experience track cycling from beginners through to accomplished riders with a range of coach-led sessions and a summer race league.



Site location plan

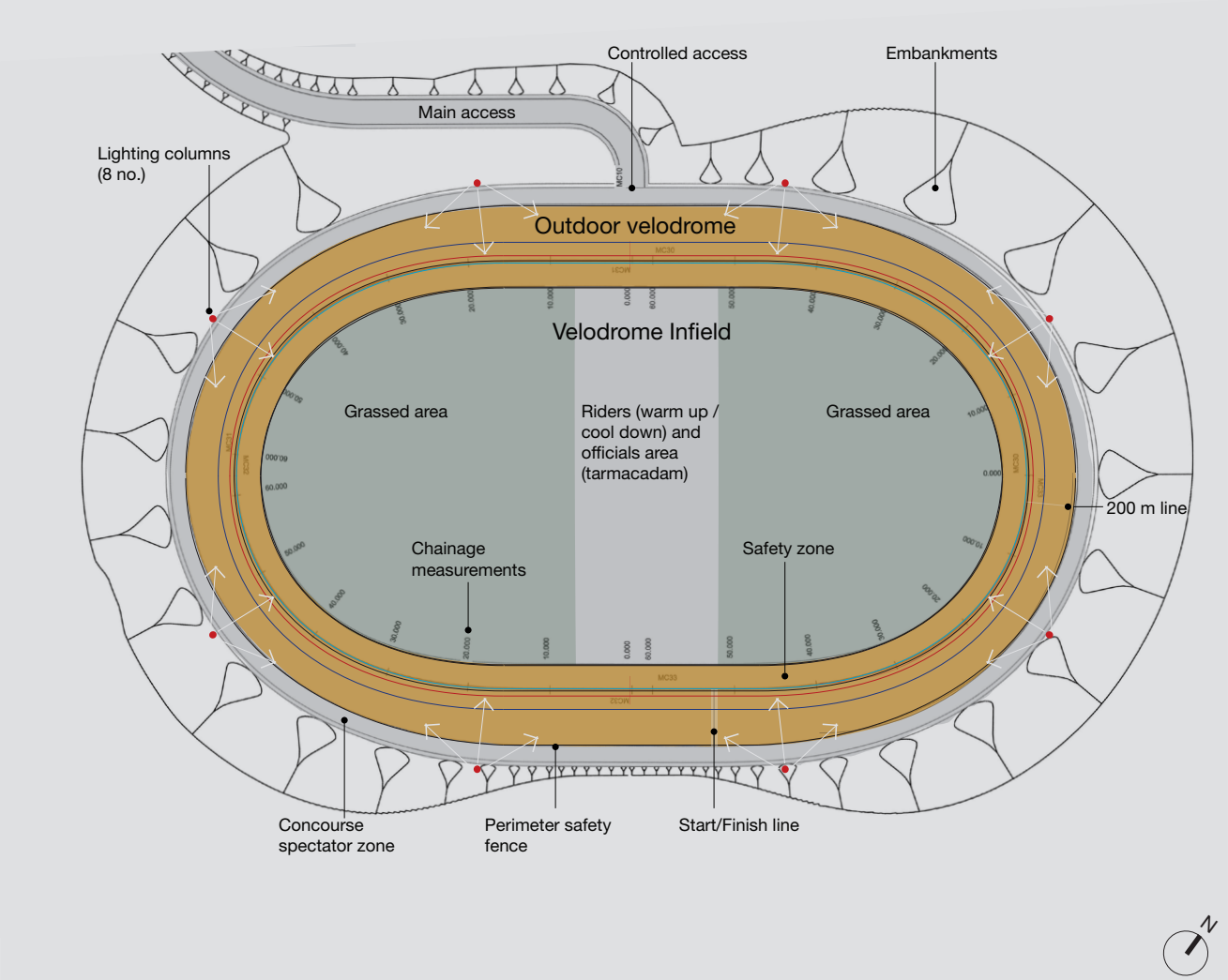
General Arrangement

The measured track length is 250 m, the same length as indoor velodrome facilities used at the Olympic Games and World Championships.

The tarmacadam-surfaced track is 7 m wide throughout with bends measuring 25 m radius. The track surface is banked and transitions from 5 degrees on the straights to 30 degrees banking in the middle of the bends.


Completed Velodrome viewed from concourse

Site plan showing Velodrome layout (adjacent Closed Road Circuit not indicated)



Support Facilities

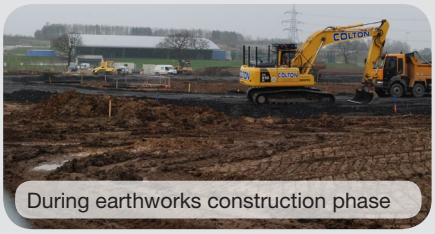
All visitors and users register and pay at the York Sport Village reception and benefit from the pedestrian and cycling circulation routes that link the campus and the city centre. The sport village car parking is also shared during busy events when there can be a need to accommodate up to 100 cars.

There are a currently a number of temporary support buildings that are primarily used for cycle events and club sessions. There is also a small toilet block adjacent to the circuit included and an accessible WC and three accessible car parking spaces.

General Description of Works

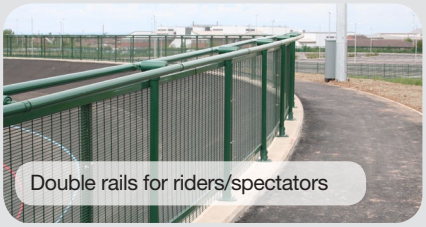
Earthwork embankments were formed to the required profiles, following which a 150 mm layer of MOT Type 1 stone was laid to the required gradients (up to 30º incline at bends) followed by a 100 mm layer of C32/40 concrete. The finished surface comprised 105 mm depth of high-performance asphalt.

Placement and compaction of the surfacing on the banked track required specialist equipment to achieve the centrifugal force necessary to maintain friction and distribution of weight to compact the macadam.



During earthworks construction phase


The high-performance asphalt during installation over the concrete layer


Double rails for riders/spectators

Schedule of Areas

Total site for Velodrome facility	27,000 m^2
Overall Track Footprint (from outer line (verge) to edge of safety zone (excluding infield)	3,446 m^2
Infield area (grass/tarmac)	2,845 m^2
Access road, car parking/cycle parking and drop off zone	2,015 m^2

General Accommodation

Velodrome	250 m length to meet British Cycling Design Guidance for a regional facility and UCI dimensional criteria for World Championships / Olympic Games
Officials	Accommodated in 'temporary' support buildings and the main sport village building
Spectators	Accommodated on the concourse around the track perimeter
Storage	130 m^2 equipment area for events, coaching and bike storage, with option for sharing with Closed Road Circuit
Equipment	27 no. Velodrome bikes and helmets


Rider briefing on the Velodrome's infield

General Description of Key Specifications and Materials

Drainage	Filter drain 0.5 x 1.0 m deep with shingle filter material, flush recessed channel drainage to infield/track edge. Drainage was tied into an existing Swale (constructed as part of the earlier Closed Road Circuit)
Geotextile membrane	Tensar geotextile membrane
Sub-base	150 mm depth of MOT Type 1, laid to gradients up to 30°, with 100 mm of C32/40 concrete applied over
Track surface	105 mm-thick high-performance dense asphalt (6 mm aggregate)
Kerbs	150 x 50 mm precast concrete units to outside of track. 255 x 125 mm bullnose kerbs to inside of track
Fencing	Single projecting rider top rail, powder coated, tubular handrail/posts

Summary of Elemental Costs

	Element	Total cost (£)	Cost (£) per m²
1	Site preparation and earthworks	205,000	59.49
2	Drainage and ductwork	40,000	11.61
3	Trackbase works including geotextile placement, sub-base, shaping of track, kerbs, specialist topping layer, line markings	362,000	105.05
4	Fencing	40,000	11.61
5	Furniture and equipment	2,000	0.58
6	Landscaping, subsoil and infield grass	55,000	15.96
7	Site wide, access road etc	45,000	13.06
8	Preliminaries (and OH&P) including trackway	152,000	44.11
9	Professional and legal fees	94,000	27.28
	TOTAL PROJECT COST	**995,000**	**288.75**

Notes:

- Costs stated are rounded and based on third quarter 2014
- Costs stated exclude VAT
- Elemental cost/m² based on overall track footprint area of 3,446 m²
- Cost of the facility is final cost including abnormals associated with the site such as an access road but excluding a car park extension
- Costs include installation of ductwork for sports lighting but exclude lighting column and associated electrical installations completed post contract.

> *"...The joint partnership between British Cycling and the University of York is a wonderful example of how the legacy of the Tour (Cycle Yorkshire) is coming together and the levels of investment and opportunities it is bringing. This velodrome is a classic example of this..."*

Cllr Sonja Crisp
Cabinet Member for Leisure, Culture and Tourism
City of York Council

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Environmental Sustainability

Ducts were laid for potential future sports lighting (now installed), thereby reducing on construction works in the longer term

Procurement / Programme

Tender	Three tenderers
Contract	JCT Design and Build
Duration	17 weeks contract period to practical completion

Specific Items of Interest

Track features	Banking and line markings to meet UCI requirements
Track construction	Over 13,000 cubic metres of imported material

User on the safety run-off area

Sports lighting installed post completion

Photographs generally provided by York Sport Village and British Cycling. Low Level Aerial Images by @Watertowers (Twitter).

