Cottam Parkway Railway Station

Environmental Statement

Volume 3: Appendices

Appendix 12.1: Carbon Calculation Values

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1 Carbon Calculation Values

Table 1: Carbon calculation values for the Scheme access road, calculated using the National Highways Carbon Calculator

Series	Bill of Quantities Description	Quantity	Unit	Unit conversion	Quantity for new units	New units	Aspect	Item	Type	Carbon Factor	Carbon (tCO2e)
Earthworks	Imported acceptable material Class 6F5 in capping layer	10392	m^3	2	20784	tonnes	Bulk materials	Fill, aggregate and sand	General mixture	0.007	145.488
Earthworks	Transport - Imported acceptable material Class 6F5	21	miles	NA	NA	NA	Bulk materials	Fill, aggregate and sand	HGV	0.0000975	0.147

	in capping layer										
Earthworks	Imported acceptable material Class 6F5 in embankments and other areas of fill (Structural Core)	10164.29	m^3	2	20328.58	tonnes	Bulk materials	Fill, aggregate and sand	General mixture	0.007	142.30006
Earthworks	Transport - Imported acceptable material Class 6F5 in embankments and	21	miles	NA	NA	NA	Bulk materials	Fill, aggregate and sand	HGV	0.0000975	0.147

	other areas of fill (Structural Core)										
Pavements	Granular Type 1 150mm subbase in carriageway, hard shoulder and hard strip in narrow widths.	2598	m^3	2	5196	tonnes	Bulk materials	Fill, aggregate and sand	General mixture	0.007	36.372
Pavements	Transport - Granular Type 1 150mm subbase in carriageway	30	miles	NA	NA	NA	Bulk materials	Fill, aggregate and sand	HGV	0.0000975	0.21

	, hard shoulder and hard strip in narrow widths.										
Pavements	AC32 HDM 135mm base/40/60/ pen in carriageway , hard shoulder and hard strip.	2338.2	m^3	1.7	3974.94	tonnes	Bulk materials	Asphalt	General asphalt	0.055	218.6217
Pavements	Transport - AC32 HDM 135mm base/40/60/ pen in carriageway	30	miles	NA	NA	NA	Bulk materials	Asphalt	HGV	0.000097 5	1.65

	, hard shoulder and hard strip.										
Pavements	AC 20 HDM 70mm bin 40/60 pen carriageway, hard shoulder and hard strip.	1212.4	m^3	1.7	2061.08	tonnes	Bulk materials	Asphalt	General asphalt	0.055	113.3594
Pavements	Transport - AC 20 HDM 70mm bin 40/60 pen carriageway, hard shoulder and hard	30	miles	NA	NA	NA	Bulk materials	Asphalt	HGV	0.0000975	1.65

	strip.										
Pavements	40mm thick SMA surface course	776.96	m^3	1.7	1320.832	tonnes	Bulk materials	Asphalt	General asphalt	0.055	72.64576
Pavements	Transport - 40mm thick SMA surface course	30	miles	NA	NA	NA	Bulk materials	Asphalt	HGV	0.0000975	1.65
Pavements	AC 32 HDM base 40/60 pen in carriageway, hard shoulder and hard strip	36.82	m^3	1.7	62.594	tonnes	Bulk materials	Asphalt	General asphalt	0.055	3.44267

Pavements	Transport - AC 32 HDM base 40/60 pen in carriageway, hard shoulder and hard strip	30	miles	NA	NA	NA	Bulk materials	Asphalt	HGV	0.0000975	1.65
Pavements	AC 20 HDM bin 40/60 pen in carriageway, hard shoulder and hard strip	110.46	m^3	1.7	187.782	tonnes	Bulk materials	Asphalt	General asphalt	0.055	10.32801
Pavements	Transport - AC 20 HDM bin 40/60 pen in	30	miles	NA	NA	NA	Bulk materials	Asphalt	HGV	0.0000975	1.65

	carriageway, hard shoulder and hard strip										
Kerbs, Footways and Paved Areas	Precast concrete kerbs	2397	m	NA	NA	NA	Road Pavements	Kerb	Pre-cast concrete 125x150 mm	0.005676	13.605372
Kerbs, Footways and Paved Areas	Transport - Precast concrete kerbs	87	miles	NA	NA	NA	Road Pavements	Kerb	HGV	0.0000975	0.493812
Kerbs, Footways and Paved Areas	Precast Edgings	1598	m	NA	NA	NA	Road Pavements	Kerb	Pre-cast concrete 125x150 mm	0.005676	9.070248
Kerbs, Footways	Transport - Precast	87	miles	NA	NA	NA	Road Paveme	Kerb	HGV	0.000097	0.493812

and Paved Areas	Edgings						nts			5	
Kerbs, Footways and Paved Areas	Granular Type 1 100mm subbase in footway	525.6	m^3	2	1051.2	tonnes	Bulk materials	Fill, aggregate and sand	General mixture	0.007	7.3584
Kerbs, Footways and Paved Areas	Transport - Granular Type 1 100mm subbase in footway	30	miles	NA	NA	NA	Bulk materials	Fill, aggregate and sand	HGV	0.0000975	0.21
Kerbs, Footways and Paved Areas	Dense macadam binder course with 0/20 mm aggregate 60 mm thick	315.36	m^3	1.7	536.112	tonnes	Bulk materials	Asphalt	General asphalt	0.055	29.48616

	in footway.										
Kerbs, Footways and Paved Areas	Transport - Dense macadam binder course with 0/20 mm aggregate 60 mm thick in footway.	30	miles	NA	NA	NA	Bulk materials	Asphalt	HGV	0.0000975	1.65
Kerbs, Footways and Paved Areas	Dense bitumen macadam with 20mm aggregate regulating course.	105.12	m^3	1.7	178.704	tonnes	Bulk materials	Asphalt	General asphalt	0.055	9.82872
Kerbs, Footways and Paved	Transport - Dense bitumen	30	miles	NA	NA	NA	Bulk materials	Asphalt	HGV	0.0000975	1.65

Areas	macadam with 20mm aggregate regulating course.										

Table 2: Carbon calculation values of railway station building and platforms using Rail Safety and Standards Board Rail Carbon Tool.

Series	Material	Description	Units	Quantity	Total CO2e	Source Summary Title	Region	Carbon Factor Value
Railway Station Building	Structural Steel	Steel - General	Tonnes	100	146000	Bath ICE (2.0)	UK	1.46 kgCO2e/kg
	Foundations	Concrete - 1:1.5:3 Cement:Sand:Aggregate - Average UK Additions	m^3	270	92664	Bath ICE (2.0)	UK	0.143 kgCO2e/kg
	External Walls	Wall - Brick - Double Skin - Mortar - 1:4 Cement:San	m^3	41	32760	Bath ICE (2.0)	Europe	81.9 kgCO2e/m2

		d mix						
	Internal Walls	Wall - Brick - Single Skin - Mortar - 1:4 Cement:Sand mix	m^3	10.25	3800	Bath ICE (2.0)	Europe	38 kgCO2e/m2
	Roofing	Steel - Sheet - Hot-Dip Galvanized Steel	m^3	240	5274.36	Bath ICE (2.0)	Global	2.76 kgCO2e/kg
Platform	Platform	Concrete - 1:1.5:3 Cement:Sand:Aggregate - Average UK Additions	m^3	650	446160	Bath ICE (2.0)	UK	0.143 kgCO2e/kg