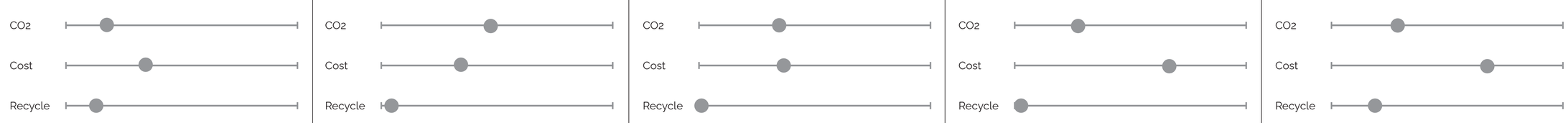
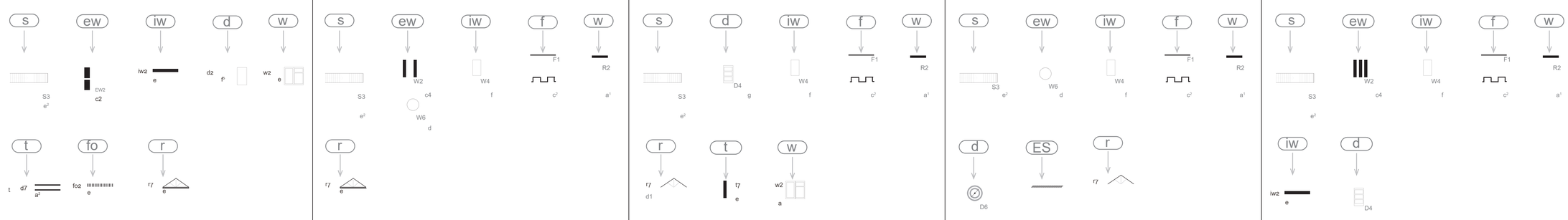
FUNCTIONS → / STEPS ↓	HOUSE	HIGH RISE BUILDING	AIRPORT	HOSPITAL	BRIDGE

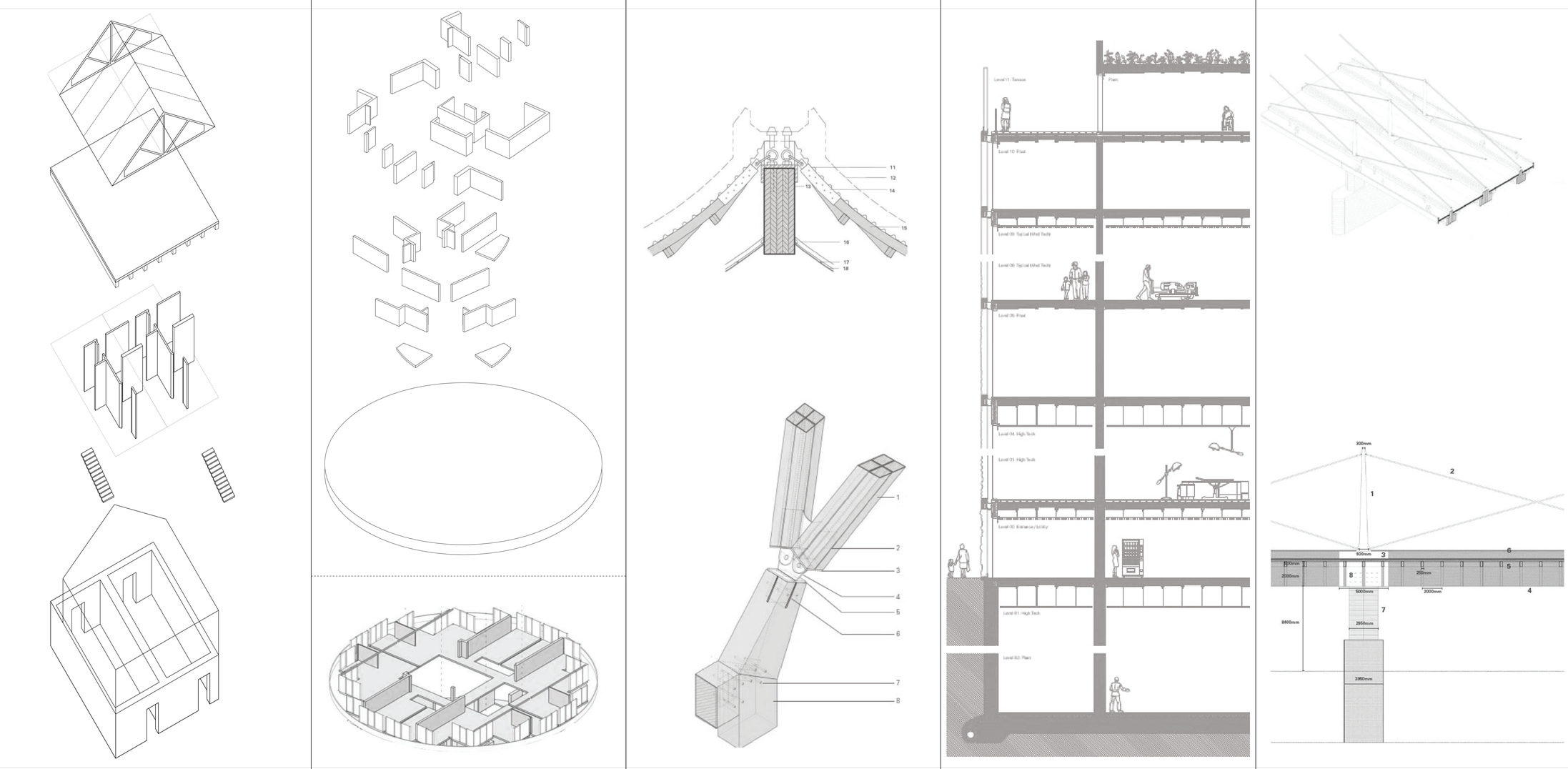
SCALE



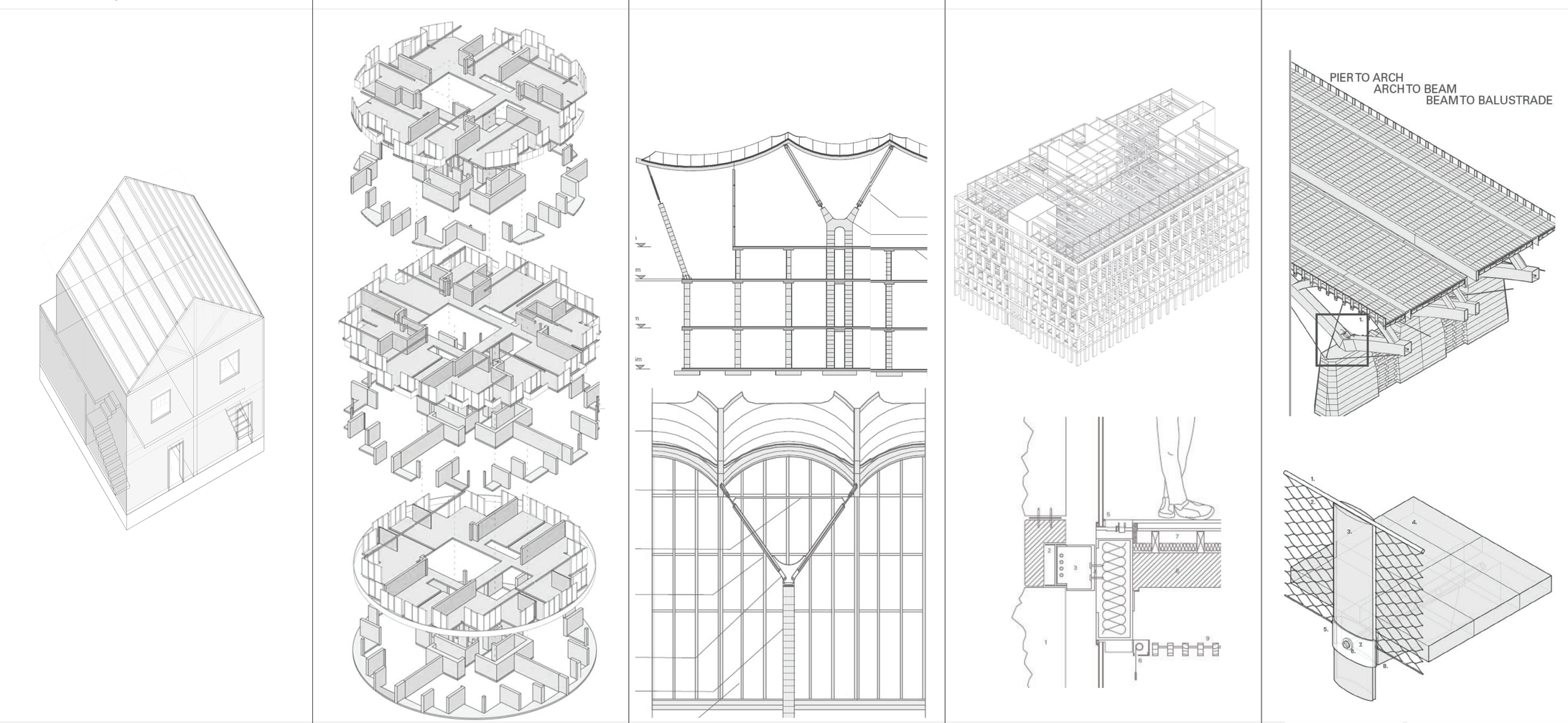
COMMENTS



DRAWING IN PROCESS



ARCHITECTS ROLES



FINAL DRAWING

FINAL GRAPH

HOUSE

MATERIAL	ELEMENT	QUANTITY M²	COST £
Limestone	Pad foundation	4m³	1200
Limestone	Wall	16m³	4626
Softwood I-beam	Wall and floor	<1	Unknown
Softwood	Wall and floor	507	5065
Softwood	Stud partitions	284	2840
Plywood	Linings/floors	1322	19,830
Welsh slate	Roof tiles	2m³	648
Softwood	Roof trusses	103	1028
Hemp batt	Insulation	109m³	15,025
Glass	Windows	14	6750
Limestone	Sills and lintels	<1m³	78
TOTAL/HOUSE			57,270

MATERIAL	ELEMENT	VOLUME M³	EMBODIED CARBON $KGCO_2E$
Limestone	Pad foundation	4	756
Limestone	Wall	16	2914
Softwood I-beam	Wall and floor	<1	-2030
Softwood	Wall and floor	6	-3888
Softwood	Stud partitions	2	-1139
Plywood	Linings/floors	16	-8079
Welsh slate	Roof tiles	2	408
Softwood	Roof trusses	n/a	-473
Hemp batt	Insulation	109	-2389
Glass	Windows	<1	380
Limestone	Sills and lintels	<1	49
TOTAL/HOUSE			-13489

HIGH RISE BUILDING

MATERIAL	ELEMENT	VOLUME M³	EMBODIED CARBON KGCO²E
Reinforced Concrete	Core / Structural Wall / Floor Slab	22,131.3	14,783,708
Light Concrete	Cladding	3284.1	945,821
Flat Glass	Glazing	677.8	1,609,775
Aluminium	Metal Frame	299.4	5,141,596
Plasterboard	Separating Wall	3349.8	877,648

MATERIAL	ELEMENT	VOLUME M³	EMBODIED CARBON $KGCO_2E$
Limestone	Pad foundation	4	756
Limestone	Wall	16	2914
Softwood I-beam	Wall and floor	<1	-2030
Softwood	Wall and floor	6	-3888
Softwood	Stud partitions	2	-1139
Plywood	Linings/floors	16	-8079
Welsh slate	Roof tiles	2	408
Softwood	Roof trusses	n/a	-473
Hemp batt	Insulation	109	-2389
Glass	Windows	<1	380
Limestone	Sills and lintels	<1	49
TOTAL/HOUSE			-13489

AIRPORT

MATERIAL	ELEMENT	VOLUME M³	COST £
Limestone	Roof tile	2,936	880,889
Aluminum	Channel and fixing	44	1,763,300
EPDM rubber sheet	Waterproofing	220	1,468,149
Rock wool	Insulation	38,906	22,756,312
Bitumen elastomer	Vapour barrier	220	7,340,746
Fibre felt	Vapour control	147	7,340,746
Perforated aluminum sheet	Acoustic Insulation	125	14,681,492
Galvanised steel profile	Metal deck	103	11,745,193
Hardwood	Bracing, secondary beam main beam and purlin	28,592	19,061,342
Bamboo	Laminated strip	734	489,383
Hardwood	V Support	2,747	1,831,358
Limestone	Column	4,888	1,466,400
Steel	Tension rods and connector	200	395
Hardwood	Window frame	751	500,527
Limestone	Slab, beam and column	137,747	41,323,975
Steel	Tension rod	80	157
	TOTAL		132,650,365

MATERIAL	ELEMENT	VOLUME M³	EMBODIED CARBON KGCO2E
Limestone	Roof tile	2,936	554,960
Aluminum	Channel and fixing	44	713,303
EPDM rubber sheet	Waterproofing	220	708,861
Rock wool	Insulation	38,906	1,789,674
Bitumen elastomer	Vapour barrier	220	64,525
Fibre felt	Vapour control	147	17,177
Perforated aluminum sheet	Acoustic Insulation	125	1,955,876
Galvanised steel profile	Metal deck	103	2,377,908
Hardwood	Bracing, secondary beam main beam and purlin	28,592	-29,249,625
Bamboo	Laminated strip	734	-687,075
Hardwood	V Support	2,747	-2,810,220
Limestone	Column	4,888	923,832
Steel	Tension rods and connector	200	2,154,110
Hardwood	Window frame	751	-768,059
Limestone	Slab, beam and column	137,747	26,034,104
Steel	Tension rod	80	858,764
	TOTAL		4,638,112

HOSPITAL

MATERIAL	QUANTITY M³	CARBON KGCO2E/M3	EMBODIED CARBON KGCO2E
Portland Stone (Exoskeleton)	2655	790	2,097,450
Limestone (Structural)	13,708	697	9,554,476
Flat Glass	163	2375	387,125
Sustainably Sourced Hardwood	64	-1,023	-65,491
Galvanised Steel	114	16,882	1,924,567
Aluminium	2	19,291	38,582
Polyethylene (Vapour Barrier)	11	83	913
Rockwool	1814	46	83,444
Screed	124	439	54,436
Plasterboard	2936	2936	769,050
Intumescent Paint	0.8	5650	4520
TOTAL			14,849,117

MATERIAL	QUANTITY M³	COST PER UNIT	COST £
Portland Stone (Exoskeleton)	2655	£500/ M³	1,327,500
Limestone (Structural)	13,708	£300/ M³	4,112,400
Flat Glass	163	£500/ M²	8,150,000
Sustainably Sourced Hardwood	64	£100/ M²	640,000
Galvanised Steel	114	£2500/ t	285,000
Aluminium	2	£75/ kg	202,425
Vapour Barrier (Polyethylene)	11	£5/ M²	605
Rockwool	1814	£50/ M²	907,000
Screed	124	£100/ M³	124,000
Plasterboard	2936	£20/ M²	2,348,800
Intumescent Paint	0.8	£100/ M²	80,000
TOTAL			£18,177,730

BRIDGE

Element	Volume m3	Embodied Carbon kgCO2e/m3
Primary Arches		**Total - 457,639**
Lime Stone	1522.00	287,658
Galvanized Steel Plates	7.20	121,552
Cables	2.86	48,429
Spandrels		**Total - 177,127**
Lime stone	774.00	146,286
Cables	1.82	30,841
Secondary Beams		**Total - 328,508**
Lime Stone	1090.00	206,010
Galvanized Steel Plates	6.70	113,111
Cables	0.55	9,387
Path Slabs		**Total - 202,884**
Sand Stone	1166.00	202,884
Balustrade		**Total - 28,693**
Stone	28.00	5,292
Cable	0.05	846
Netting	0.03	567
Galvanizes Steel Plates	1.30	21,988
		Total - 1,198,227

Element	Amount	Cost
Primary Arches		**Total - £655,285**
Lime stone	1,522.00 m3	£456,600
Metal Plates	56,880 kg	£142,200
Cables	22,594 kg	£56,485
Spandrels		**Total - £268,145**
Lime stone	774.00 m3	£232,200
Cables	14,378 kg	£35,945
Secondary Beams		**Total - £470,188**
Lime Stone	1,090.00 m3	£327,000
Metal Plates	52,930 kg	£132,325
Cables	4,345 kg	£10,863
Path Slabs		**Total - £349,800**
Sand Stone	1,166.00 m3	£349,800
Balustrade		**Total - £35,656**
Stone	28.00 m3	£8,400
Cable	395 kg	£988
Netting	237 kg	£593
Metal Plates	10,270 kg	£25,675
		Total - £ 2,305,874

CONCLUSION