	Elemental breakdown as Jacobs cost estimate	Airports Commission NWR cost estimate - Source: Appendix C, Cost and Commercial Viability: Cost and Revenue Identification Update Heathrow Airport North West Runway, Jacobs June 2015				HHL comment	HHL estimate of cost for NWR scheme			
	All figures rounded	Quantity	Unit	Unit Rate (£)	Total (£)		Quantity	Unit	Unit Rate (£)	Total (£)
1	Site clearance	543	ha	156,000	84,708,000	The AC assumed site clearance/demolitions only within the NWR site boundary (actually 569ha, para. 9.136 AC Final Report July 2015). Additional costs will be incurred as a result of the additional land required	680	ha	156,000	106,080,000
2	Decants/demolitions	0.9	sum	171,000,000	153,900,000	for relocation of displaced property and infrastructure - estimate additional 25%	1.1	sum	171,000,000	188,100,000
3	Earthworks	3,932,500	m3	8	31,460,000	The AC assumed earthworks only within the NWR site boundary. Additional costs will be incurred as a result of the additional land required for relocation of displaced property and infrastructure - estimate additional 25%.	5,000,000	m3	8	40,000,000
4	Site levelling, remediation	270	ha	455,000	122,850,000	The AC's estimate appears to assume earthworks to be primarily excavation, rather than fill, across the NWR site, assuming the new runway and taxiways at grade. This is based on Jacobs allowing a rate of £8/m3 for NWR earthworks compared to £35/m3 for ENR, that higher rate relating to cut/fill/grading of imported fill (Appendix C, Cost and Commercial Viability: Cost and Revenue Identification Update, Heathrow Airport Extended Northern Runway, Jacobs for Airports Commission, June 2015). HAL now propose to raise the NW runway above grade, "between 3 and 5 metres elevation relative to the existing" (Updated Scheme Development Report, Document 2 of 5, HAL June 2019). We assume runway width 75m (Figure 1.7 ibid), taxiway width 25m, 180m between runway/taxiway centrelines (Para. 2.4.8), 91m between taxiway centrelines and a runway length of 3,500m (Para. 1.5.53) + 240m RESA's each end. We therefore estimate an overall platform area of c.500m x 4,000m = 2,000,000m2 including shoulders but excluding taxiway connections to the existing airfield. Assuming the platform level returns to existing grade at the eastern end, and the required remediation, we estimate a total fill volume of c.10,000,000m3. For comparison, Jacobs estimated ENR required c.22 million m3 of "earthworks, cut, fill, grading of imported fill" (Appendix C, Cost and Commercial Viability: Cost and Revenue Identification Update, Heathrow Airport Extended Northern Runway, Jacobs for Airports Commission, June 2015) - despite ENR requiring a much smaller site (336ha) than the NWR (569ha) site (para. 9.136, Airports Commission Final Report, July 2015)	10,000,000	m3	35	350,000,000
						Within the NWR site boundary there is c.7 million m3 of contaminated material which requires either on-site remediation or excavation and removal (Figure 2, Heathrow NWR Landfill Report, Appendix 20, Response to Airports Commission Consultation, RSK for Gatwick Airport Ltd, January 2015 - see Appendix A). For comparison, prior to 2012 the Olympic Park Stratford required treatment of 0.7m3 contaminated soil by soil washing, 82,000m3 complex sorting, 50,000m3 ex situ stabilisation and 30,000m3 bioremediation (Sustainable site clean-up from megaprojects: lessons from London 2012, Engineering Sustainability, Volume 168, Issue ES2, Institute of Civil Engineers 15th January 2015). While it is not possible to make direct comparisons, the final cost of the Olympic Park enabling works was £364m, within a total site preparation and infrastructure cost of £1.8bn (London 2012 Olympic and Paralympic Games, Final Quarterly Report, DCMS October 2012). HAL's NWR scheme will require substantial remediation over a much larger area in view of not only surface works but also the necessary underground infrastructure including drainage, fuel pipelines, utilities and passenger transit and baggage systems. Assume higher rate/ha, and 25% additional area as a result of the additional land required for relocation of displaced property and infrastructure	340	ha	1,000,000	340,000,000
5	Runway, taxiways, stands & navaids				655,000,000					655,000,000
6	Airfield facilities				329,000,000					329,000,000
7	Terminal & satellite buildings				3,330,000,000					3,330,000,000
8	Airside infrastructure (inc. passenger transit/baggage systems				1,536,000,000					1,536,000,000
9	Landside infrastructure (car parks)				500,000,000	HAL June 2019 consultation confirms new 52,500 space car parks ("Northern and Southern Parkways," paras. 7.7.3-4, Preferred Masterplan June 2019) Assume 25% of construction cost of T2 MSCP (1,340 spaces, £140m at 2011 prices, HAL Project Definition Sheet 8)	52,500	spaces	25,000	1,312,500,000
						HAL masterplan now includes passenger transit systems to connect Northern & Southern car parks to CTA/T5 (see Appendix B). Assume same rates as airside transit system				
						Tunnel (civils/fit-out)	5,000	m	80,000	400,000,000
						Stations (surface) within Northern and Southern Parkways		6 no.		60,000,000
						Stations (sub-surface)		2 no.		500,000,000
						Depot/maintenance base		2 no.		50,000,000
						Transit vehicles				50,000,000
10	Other landside infrastructure (inc. utilities, river diversions)				467,000,000					467,000,000
11	Equipment				730,000,000					730,000,000
12	Operational commissioning				124,000,000					124,000,000
13	Operational handover				3,000,000					3,000,000
14	Commercial property CPO				1,552,000,000	The AC's estimate appears to have assumed extinguishing, not relocation. However, reprovision of commercial and public property and infrastructure is essential, and includes the Lakeside EfW plant, BA HQ, Harmondsworth/Colnbrook Immigration Removal Centres, BT Data Centre, Heathrow Police Station, Colnbrook freight branch and associated facilities including the airport's aviation fuel terminal as well as the industrial/warehousing/logistics facilties and hotels (providing c. bedrooms). HAL have previously estimated a total of c.200,000m2 of "commercial and industrial airport-related displaced uses" in addition to "2,335 to 2,960" hotel rooms (Table 12.1, Our emerging plans, HAL, January 2018)	Lakeside EfW plant/High Temp Incinerator/Material Recovery Facility, inc. road infrastructure, utiltity diversions etc.			500,000,000
							BA Waterside HQ (46,000,2 GIA), external works, car park	m2	4,000	184,000,000
							Immigration Removal Centres, 1100 places	place	250,000	275,000,000
							Colnbrook freight branch inc. aggregates/aviation fuel terminals & new pipeline connections			100,000,000
							BT Data Centre			50,000,000
							Commercial/industrial property including Airport Gate, Polar Park, Heathrow police station, c. 100,000m2	m2	2000	200,000,000
							Hotels, 3,000 rooms	room	150,000	450,000,000
							Car rental locations, parking and maintenance facilities, assume 5,000 spaces	space	20000	100,000,000
							Compensation for business disruption/relocation costs			50,000,000
15	Land purchase				406,000,000	The AC made no allowance for additional land to relocate displaced uses, and instead assumed "the inclusion within (the NWR) masterplan of large areas set aside for development which would no longer be suitable for residential land due to the proximity of the runways" (Para. B.19, Heathrow Airport North West Runway: Business case and sustainability assessment, Airports Commission, Airports Commission, November 2014). See Appendix C for comparison of landtake assumed by AC and now proposed by HAL. We assume additional land purchase is therefore now required. Arora Group own much of the land required, the value of which is likely to have increased from the AC's assumptions in view of Arora's promoting their own scheme for terminal development and airport expansion				500,000,000
16	Residential property CPO				268,000,000	NWR requires the demolition of at least 783 homes (para. 3.56 ANPS) and the NPS confirms payments of 125% of market value plus taxes and moving costs (para. 5.245). The average value of properties in the CPO zone, which reflects generations of blight, is c.£393,000 (Mouseprice accessed 12th July 2019). The AC's estimate values each home at £342,000.	783	property	500,000	391,500,000
						Note our (HHL) assessment of total commercial and residential property CPO and land purchase costs (lines 14-16 above) = £2.9bn, while the CAA's latest consultation (CAP1819, July 2019) confirms £2.4bn for "early Category C spending" (para. 2.8) - ie: not all Category C spending.				
17	Environmental compensation & mitigation				476,000,000	HAL's submissions to the Transport Committee's inquiry into the draft ANPS confirmed a "£2.6bn community compensation package in the context of expansion" as set out in "Paragraph 5.243 of the revised draft NPS" (Para. 2.4, Further supplementary evidence from Heathrow Airport Ltd				2,600,000,000
18	Community impacts including Noise insulation and compensation				347,000,000	(NPS0079), published 5th February 2018). The designated NPS confirms "over a 15 year period, a community compensation fund could therefore distribute £750 million to local communities" (Para. 5.247, ANPS June 2018). While it is impossible from published information to assess the likely costs of compensation and mitigation, we assume £2.6bn is an appropriate overall estimate. However this assumes HAL's package excluded residential property CPO costs.				
	Sub-total				11,115,918,000					15,971,180,000
19	Project/design team fees			15%	1,667,387,700	The CAA's latest consultation (CAP1819, July 2019) reports HAL's estimate of £530m Category B planning costs to DCO stage (para. 1.14). This has increased from £265m, (para. 1.9) suggesting the AC's overall project/design fee budget of 15% was an under- estimate even without taking into account the higher scheme cost.			20%	3,194,236,000
20	Risk			20%	2,556,661,140				20%	3,833,083,200
21	Optimism Bias			15%	2,300,995,026				15%	3,449,774,880
	Sub-total (2014 prices)				17,640,961,866					26,448,274,080
22	Surface access enhancements				5,000,000,000	"The Government expects, as set out in the Aviation Policy Framework 2013, the cost of any surface access works required solely to enable airport expansion to be met by the promoter. In the case of Heathrow expansion, this would mean that Heathrow Airport Limited, will meet the cost of the surface access improvements necessary to allow expansion of the airport, including re-alignment of the M25, the A4 and A3044, as well as airport and terminal access roads. Where proposed projects have wider beneficiaries, such as Western Rail Access and Southern Rail Access, the Government will expect Heathrow to fund an appropriate proportion of the costs based on the direct benefits for the airport" (Written question HLS875 answered 16th March 2017)				5,000,000,000
	Sub-total (2014 prices)				22,640,961,866					31,448,274,080
23	Sub-total					Add for inflation from 2014 to 2026 (estimate)			20%	6,289,654,816
	Sub-total									37,737,928,896
24	Total expansion capital cost					The CAA's latest consultation (CAP1819 July 2019) states "HAL's current estimates for total expansion capital costs are around £32.5 billion (in 2014 prices) in the period to 2050 (to provide the capacity to accommodate 142 million passengers per annum)" (para. 7). This assumes HAL's estimate of £14bn capital cost to runway opening in 2026, and therefore allows an additional £18.5bn beyond 2026. We assume this is an additional NWR scheme cost to deliver the scheme assessed by the AC and not what the AC termed "Asset replacement costs ... relate to the investment required to maintain or replace the capital assets of the airport as well as to update infrastructure to maintain the assets as a modern airport" (p.69, Cost and Commercial Viability: Financial Modelling Input Costs Update, PWC for Airports Commission, July 2015). We assume 30% inflation since this additional cost relates to works to 2050				24,000,000,000
	Total									61,737,928,896