



A Second Runway for Gatwick Appendix

A20

Construction Programme & Risk Profile



Turner & Townsend

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**London Gatwick Airport Expansion
Airports Commission Submission
Construction Programme & Risk Profile**



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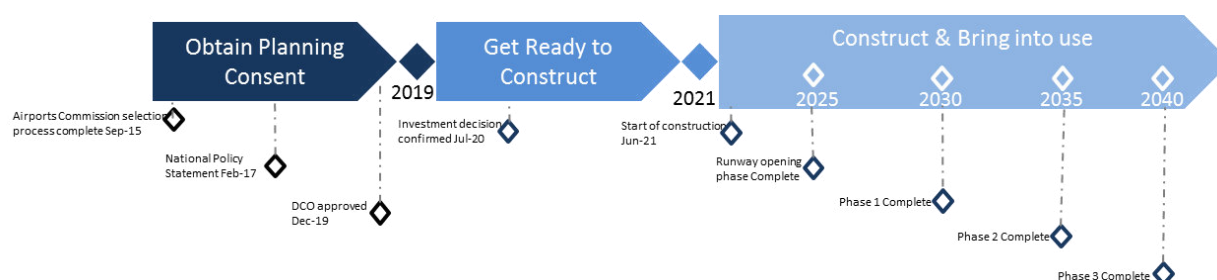
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1 Executive Summary

1.1 Introduction

This report identifies the development programme for construction of a second runway at Gatwick. The development timeline is shown below.



- Stage 1 - Obtain Planning Consent – this stage covers the time from the completion of The Airports Commission’s final report in 2015 to the award of a Development Consent Order (DCO). This includes; Government response to The Commission’s report, development of a National Policy Statement (NPS) and obtaining the DCO.
- Stage 2 - Get ready to construct – this stage covers the time from award of DCO to start of construction works. This includes; obtaining the land, ecology, archaeology, decanting, initial site clearance and site utility diversions.
- Stage 3 – Construct and bring into operation – the construction and bringing into use of the facilities will be phased to align with passenger demand. Construction and bringing into use is delivered in 4 main phases;
 - Runway Opening phase – Opens 2025
 - Phase 1 – Opens 2030
 - Phase 2 – Opens 2035
 - Phase 3 – Opens 2040

In addition to the deterministic programme (see Section 6 for definition), we have undertaken a schedule risk analysis, the full results of this is included within the Programme Risk Management Report Appendix.

It should be noted that we have taken a risk adverse position when considering concurrent working between the stages. All activities for each stage are completed before the next stage commences – this is particularly important to understand when looking at obtaining planning consent (Stage 1) and getting ready to construct (Stage 2). Only minor enabling works are assumed to take place prior to the DCO being in place.

This offers potential mitigation of delays to the DCO process, but would require Gatwick to invest funds in advance of any decision.



2 Runway Opening

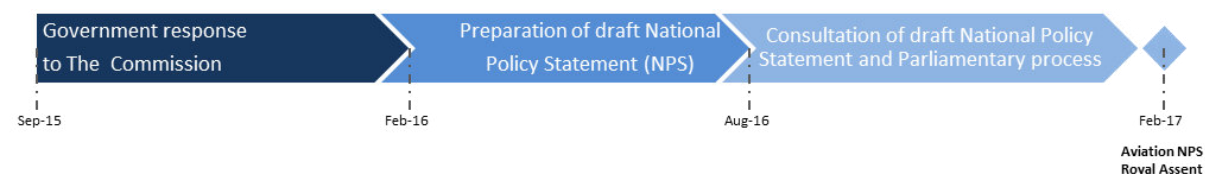
2.1 Runway Opening - Key milestones

- Airports Commission Report Sep-15
- NPS – Royal Assent Feb-17
- DCO granted Dec-19
- Appoint contractor Jan-20
- Start construction Jun-21
- Start Operational Readiness Oct-24
- Runway opens May-25

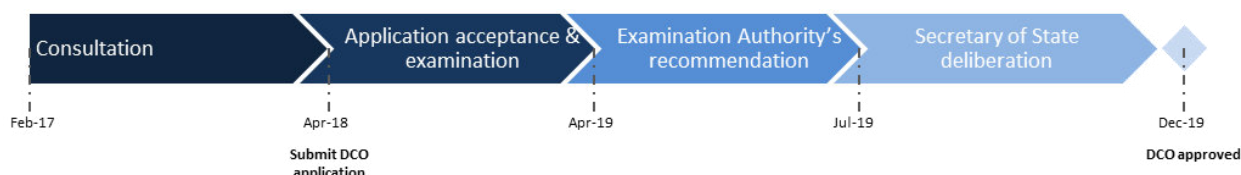
2.2 Runway Opening - obtain planning consent (NPS and DCO)

The programme commences at the issue of the report from The Commission. There are two stages to gaining planning consent. Incorporation of the Commission's recommendation into a Aviation National Policy Statement and then the subsequent DCO process;

- The development of NPS - The NPS is expected to be prepared for Parliament to give Royal Assent; the basis is expected to be derived from works from The Commission. As the development of this is to be procured and sanctioned through Government, the following timeline is assumed:



- The timeline for DCO - The DCO can commence following the issue of The Commission's report, however further public consultation will be required after the NPS is published and prior to submitting the DCO application.



2.3 Runway Opening - getting ready to construct

Once the DCO is issued the compulsory purchase of land/property can commence, with the procurement process running in parallel.

With the land/property available, the focus turns to the pre-construction activities required to enable the effective start on site of the main construction works:

- habitat and archaeological evaluation and mitigations;
- asbestos survey and clearance;
- decants, demolition of buildings and existing hard standing removal;
- site preparation including; removal of redundant services, vegetation, finalise site clearance;



- preconstruction earthworks; and
- utility diversion

These preconstruction activities can be prioritised based on the required availability of specific areas for construction. Figure 1 below shows the heat map of areas which are required early for construction. Area G is required for the diversion of the A23, main earthworks and Crawter's Brook diversion. Areas B, C, D and E are required for the diversion of River Mole and Crawter's Brook.

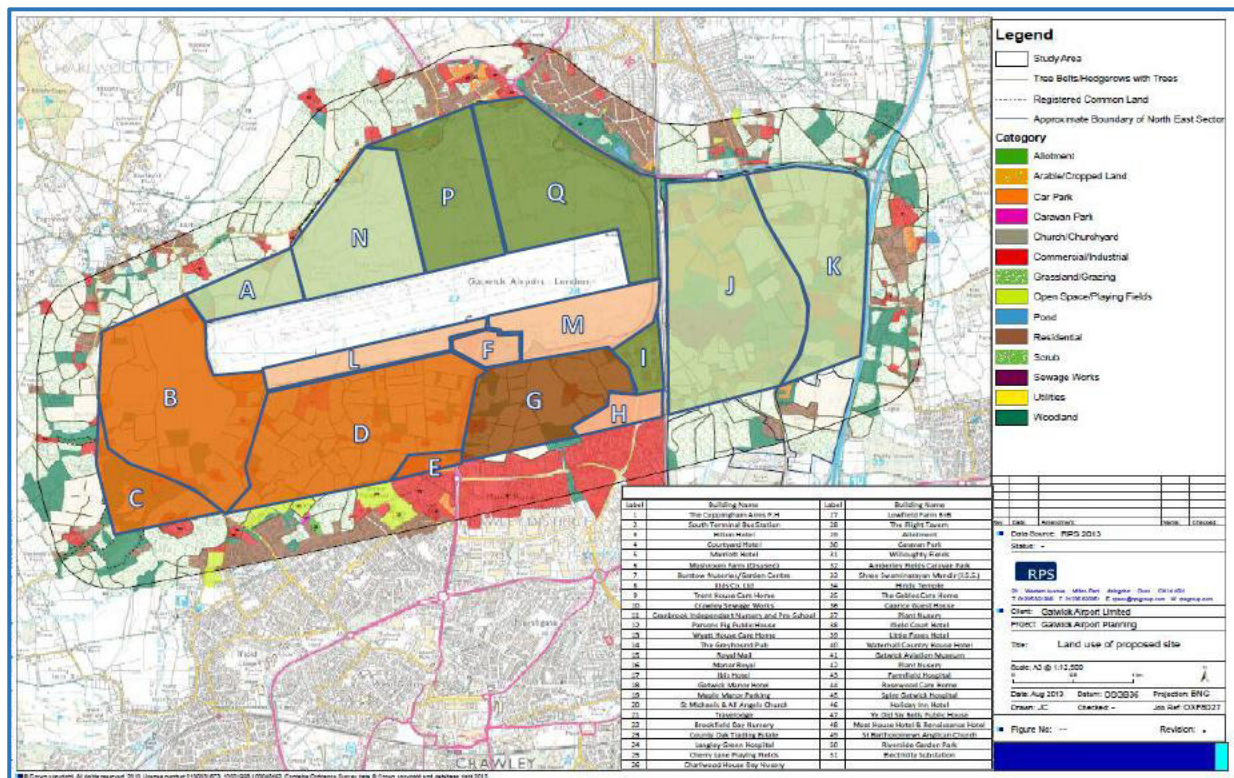


Figure 1. Construction areas availability heat map

2.4 Runway Opening - construction

The main construction scope involves watercourse diversions and diverting the A23 to the south. This enables the main earthworks to complete, followed by the construction of the runway and the opening section of the Remote Pier. The main works in this phase are illustrated in Figure 2.

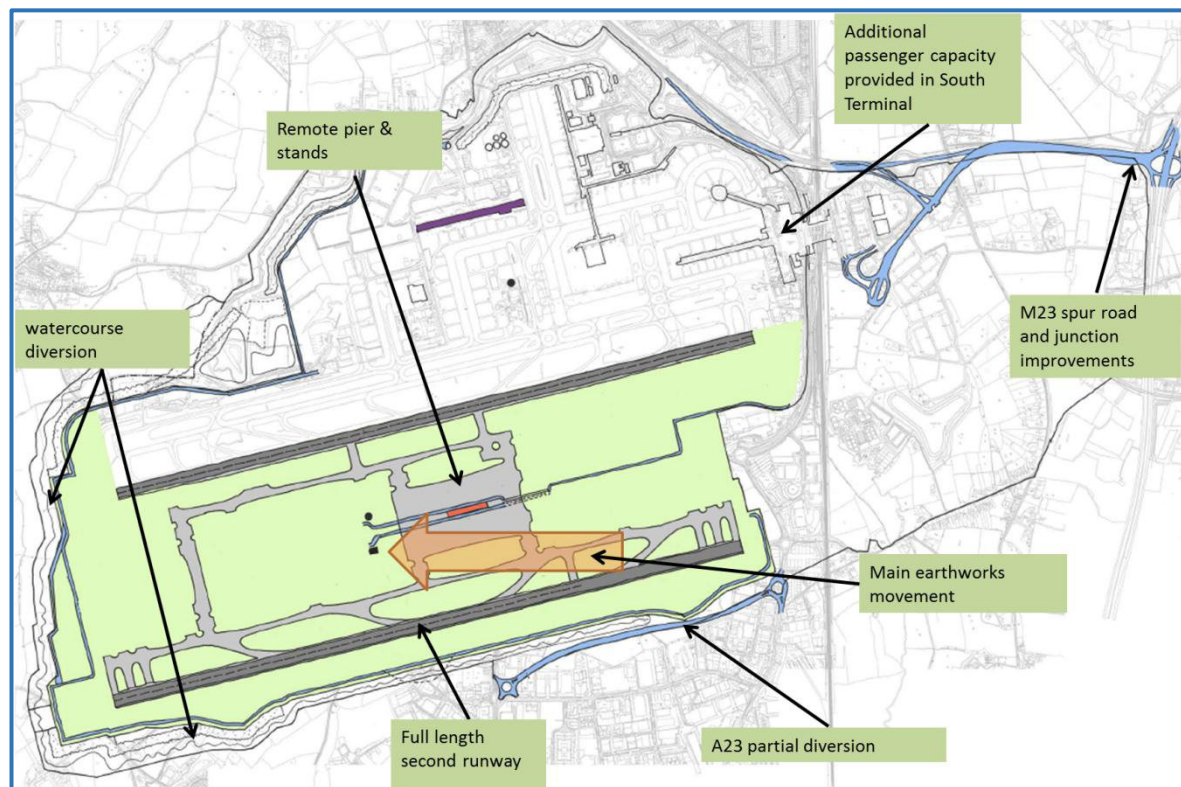


Figure 2. Runway Opening construction scope

Runway Opening – construction scope

Work Element	Scope
Watercourse construction and diversion	The construction of a new watercourse around the perimeter of the new airport boundary will be required to allow the diversion of River Mole and Cawter's Brook.
Road works	<p>The road works during this phase is focused on diverting the existing A23 southwards to allow the main earthworks to be completed.</p> <p>Improvement of the M23 Junction 9 and 9a is also required to accommodate increased traffic volumes.</p>
Earthworks movement	<p>There are large areas of cut and fill on the site. Most of the cut is generally to the east of the site, with the fill generally to the west. The diversion of A23 southwards will enable the earthwork movements from east to west.</p> <p>The new diverted watercourse will also produce excavated material.</p> <p>Some cut material may need to be sorted, stored or require treatment before being reused. A sorting and stockpiling area will be designated.</p>



	Stripped topsoil will also need to be stockpiled prior to being used in the noise bunds.
Utilities delivery	<p>Utilities, such as water and power will be required for construction. It is expected that a service corridor south of the existing runway and running east to west can be constructed early to service construction. Although initially carrying utilities required for construction, more utilities can be added to this service corridor to support the completed development.</p> <p>Such utilities include: fuel; fire; high voltage power; surface water; communications; low voltage power; and water supply.</p>
New main runway	Construction of the runway can commence when the land to the west of the site becomes available and River Mole and Crawter's Brook have been diverted. The east end of the runway will be completed when the new A23 permanent alignment between London Road and Gatwick Road is completed.
Remote Pier	The construction of the Remote Pier is assumed to be a simple base slab with a steel framed structure.
Stands	With the service corridor in place and the roof of the Remote Pier complete, construction of the stands commence.
New Terminal road bridge	<p>The New Terminal road bridge over the Brighton Main Line and the existing A23, once complete, will be used as a construction bridge with temporary ramps.</p> <p>The bridge is assumed to be a temporary steel deck. It is expected the construction will be undertaken during normal rail possession times.</p>

2.5 Runway Opening - construction logistics

The logistics plan assumes the work is split in sizeable packages. In order to maximise efficiency, drive value for money and provide schedule and quality certainty, it is envisaged that a common use logistics centre will be established to provide:

- site offices
- canteen
- materials storage
- waste recycling
- processing yard
- plant service and maintenance area
- batching plants

- staff parking

Figure 3 illustrates the Runway Opening Phase site set up arrangement.

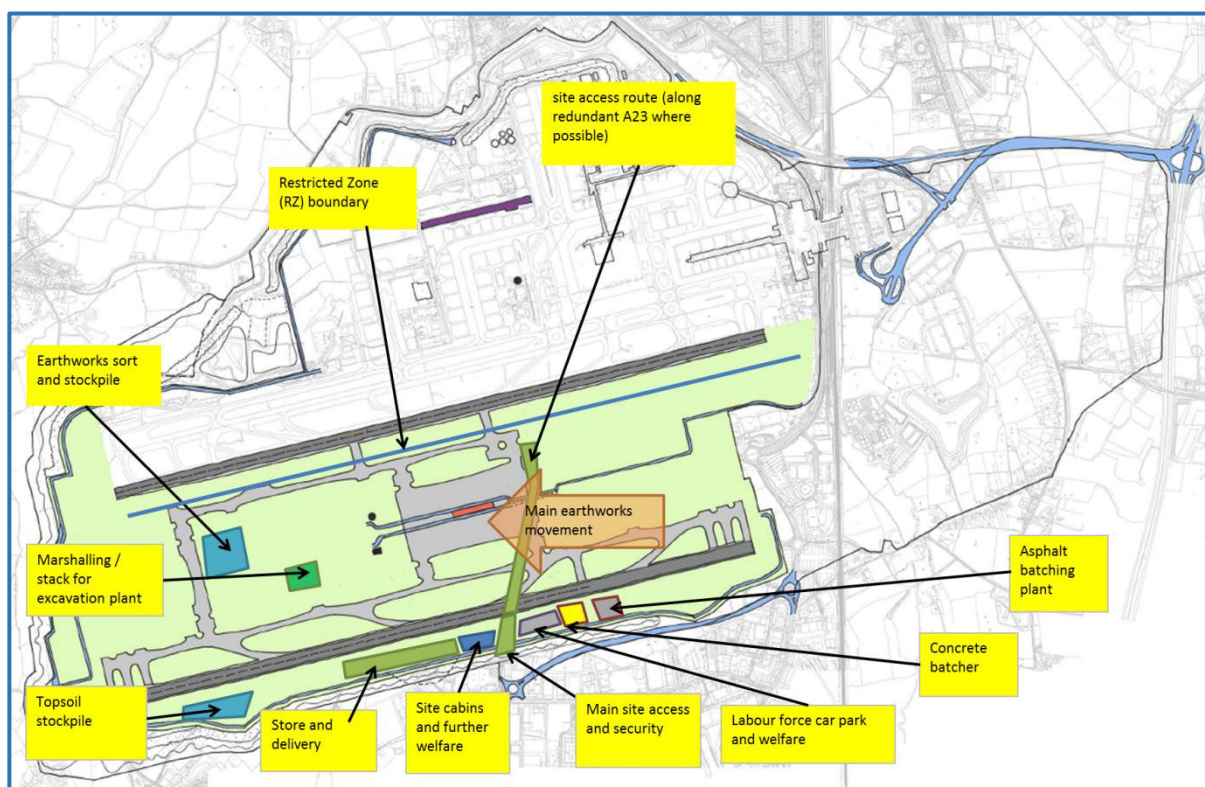


Figure 3. Runway Opening construction logistics

Runway Opening – construction logistics

Item	Scope
Site set up	<p>Our site delivery plan, will minimise the impact on the existing airports operations and our neighbours, whilst optimising the location of the site set up.</p> <p>For the landside construction the main site gate, which will change between phases, will be a secure facility. A security cordon will be maintained around the perimeter of working areas.</p> <p>For the airside construction, a security screening centre will be set up. Staff and operatives working airside will be securely bused from the screening centre to their work location.</p> <p>A site set up that uses a clocking in system to enable site operatives and management time to be monitored easily is proposed, ensuring auditable records and compliance to governing working regulations.</p> <p>Where possible, permanent site fencing will be erected to the perimeter of the new site layout, otherwise temporary fencing will be installed.</p>
Location	<p>The main set up in the Runway Opening Phase is expected to be located to the south of the site, just north of the A23 roundabout. This is expected to be a temporary cabin type setup incorporating office accommodation and canteen, concrete batcher, asphalt batcher, staff car park, materials delivery</p>



	<p>and storage area.</p> <p>A smaller local site set up is expected close to the Remote Pier site.</p>
Access	<p>The main access to the site is expected to be from the existing A23, north of the diverted A23. Dedicated filter lanes will be introduced at the new A23 roundabout (in County Oak) to avoid congestion.</p> <p>It is expected the existing A23 running across the site will be maintained for as long as possible as a means of access to the Remote Pier site.</p> <p>Internal site roads will follow the Southern Perimeter road with site storage along the road.</p>
Enabling Works	<p>A security fence will be erected around the site.</p> <p>A service corridor will be constructed to service the site.</p> <p>Power will be provided to the site through temporary substations.</p> <p>A cabin type site office, the South Perimeter road, the site storage and staff car park will be constructed after the main earthworks. A dedicated staff bus service will also operate between the Gatwick train station and the sites.</p> <p>The new A23 alignment between London Road and Gatwick Road will incorporate a temporary alignment avoiding the commercial properties south east of the site. Once the commercial properties have been decanted and demolished, and the permanent A23 alignment between London Road and Gatwick Road is completed, the temporary alignment will be removed.</p>
Key plant and location	<p>There will be large numbers of excavation machinery on site during the early stages of the phase. A plant service and maintenance area is proposed to be strategically located around the centre of the site.</p> <p>A concrete batcher and an asphalt batching plant will be located close to the main site access to enable easy materials delivery.</p> <p>Tower cranes are expected to be erected around the temporary pier site for lifting materials into position. All crane heights will comply with air traffic requirements, in particular the Obstacle Limitation Surface (OLS).</p> <p>There is an opportunity to use the existing rail head south of Gatwick to deliver construction materials.</p>
Landside/airside boundary	<p>Construction is expected to be in a landside environment, with the works only switching to airside when the runway and Remote Piers are complete and security sweeps have been completed.</p>

2.5.1 Earthworks

Earthworks cut and fill balance uses the excavated materials and will be planned to optimise and minimise required treatment.

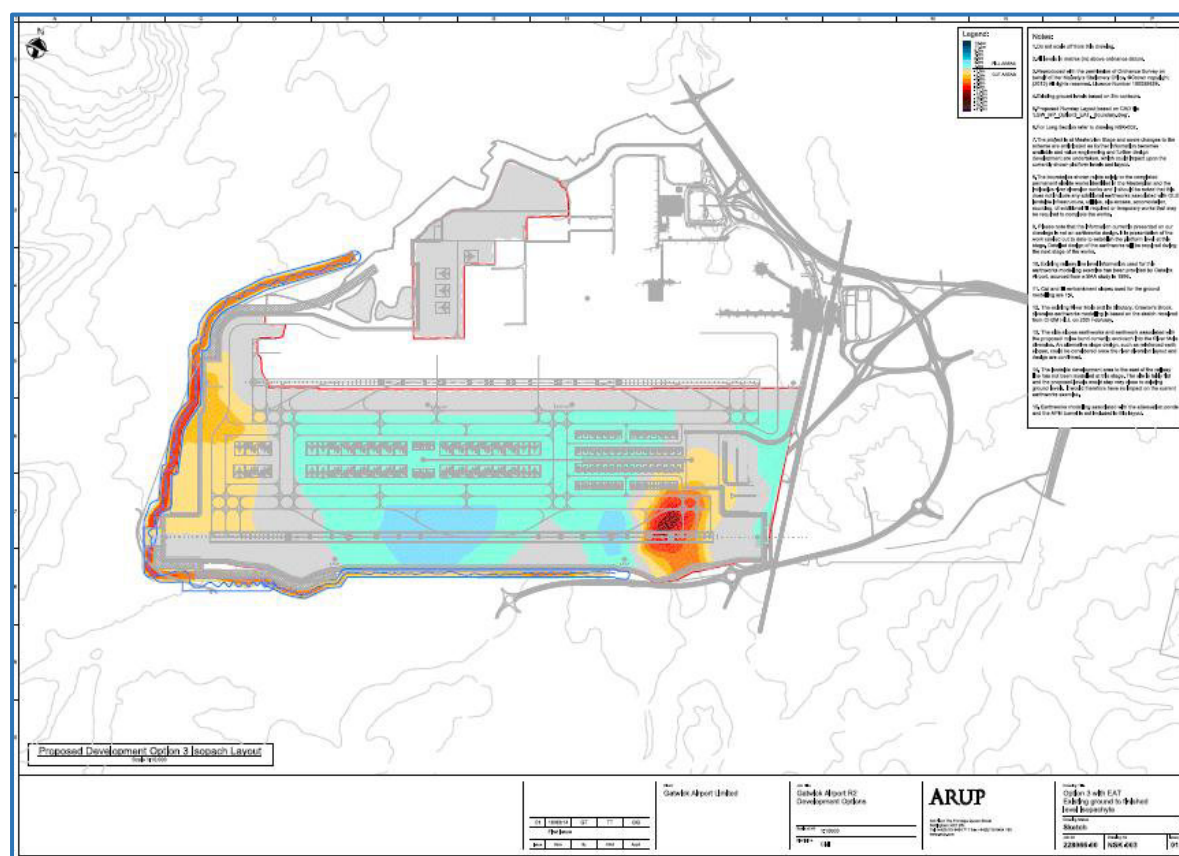


Key areas of cut on the site are to the south east of the site, between the existing A23 and the railway line and along the route of the river diversion (see figure below).

There is a large fill area in middle of the site.

Stripped topsoil, awaiting to be reused elsewhere, can be stockpiled in a designated area to the south west of the site. This can be reused later for landscaping the noise bunds and along the river.

With the main earthworks movement from the east to the west, the diversion of the A23 south west of the Brighton Main Line will need to be in place before completing earthworks.



2.6 Runway Opening - critical path

The following section identifies the critical path activities for this phase;

2.6.1 Obtaining Planning Consent

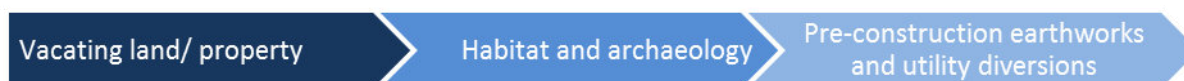
The deterministic programme demonstrates the critical path for obtaining planning consent runs through development of NPS and the DCO.



2.6.2 Get ready to construct

In preparation for the start of construction, the critical path runs through:

- vacating land /property;
- habitat and archaeology work;



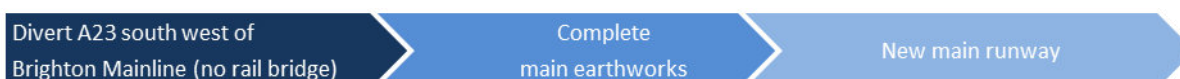
- pre-construction earthworks and utility diversions

The above activities are important for the area around Rowley farm, south east of the site, to enable the diversion of the A23, which in turn enables the main earthworks to be completed. They are also critical for the area to the south west of the site, to enable the River Mole and Crawler's Brook to be diverted.

2.6.3 Construction

The critical path during this stage runs from the diversion of A23, then to the completion of the main earthworks, followed by the construction of the new runway.

The critical path then brings the new runway into use. This involves demonstrating to the CAA, through a process of operational readiness, that the runway meets the agreed design and aerodrome licencing criteria. This may include simulations, testing, audits or inspections with licencing authorities and key stakeholders.



3 Phase 1

3.1 Phase 1 - Key milestones

- Start construction Aug-25
- Start Operational Readiness Jun-29
- Phase 1 opens Jan-30

3.2 Phase 1 - construction

Phase 1 construction is driven by the requirement to meet 2030 passenger demand. The first section of the New Terminal and Contact Pier are constructed after the civil works for the airside Automated People Mover (APM). The A23 diversion to the new permanent alignment east of the railway line allows the landside APM to be built in this phase.

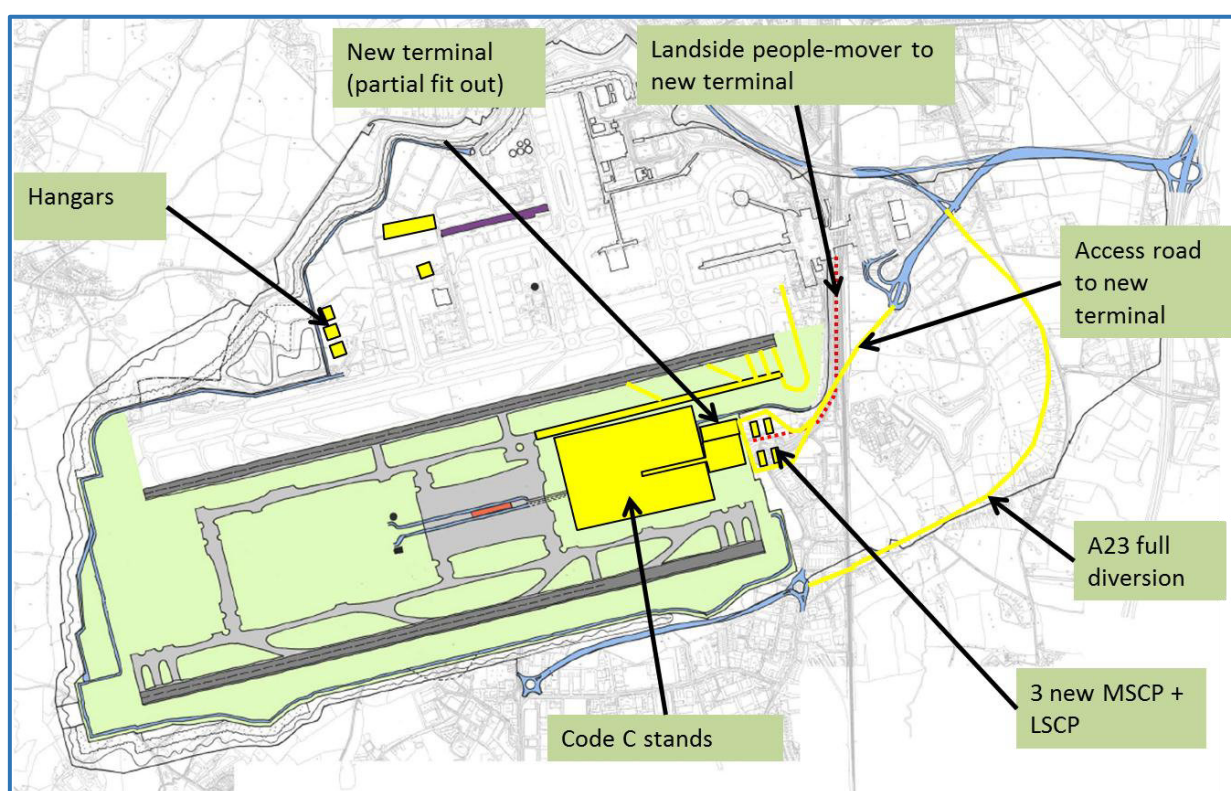


Figure 5. Phase 1 construction scope

Phase 1 – construction scope

Work Element	Scope
Roads and bridges	<p>With the New Terminal access bridge over the Brighton Main Line in place, the roads connecting the New Terminal and South Terminal can be completed.</p> <p>The new A23 bridge over the rail line is assumed to be steel with pre cast concrete infills. The completion of the bridge and the roads in this phase allows the diversion of the A23 to the new permanent alignment east of the Brighton Main line.</p>



	This allows construction of the landside APM to commence.
Landside Automated People Mover (APM)	<p>With the A23 now diverted to the east of the Brighton Main line, construction of the landside APM can commence.</p> <p>The existing landside APM from the North Terminal, is re-aligned to drop to road level through the new South Terminal APM station. It is then elevated as it approaches the new station in the New Terminal.</p> <p>The reconfiguration of the North Terminal APM station and the track re-alignment between the North Terminal and the new station at the South Terminal will require a shutdown of the existing APM. To minimise the shutdown time required, re-alignment works will be timed to coincide with the completion of the new APM between the South and New Terminals. Replacement buses between the North and South Terminal will be required during the construction period.</p>
Airside Automated People Mover (APM)	The construction programme for the airside APM is based upon a diaphragm wall solution. Diaphragm wall installation and ground floor slab construction (under the New Terminal and Contact Pier only), without excavation, allows for construction of the New Terminal and Contact Pier above and subsequent safe delivery of APM system in later phases.
Contact Pier	With the ground floor slab for the airside APM in place, the Contact Pier steel structure and floors are erected, followed by roof and perimeter cladding (including any brickwork/blockwork). Once the building is watertight, work can proceed on partition walls, mechanical and electrical work, ceilings, fittings and finishes.
New terminal	The construction completion of the ground floor slab over the diaphragm wall for the airside APM also allows construction of the New Terminal, following similar sequence to the Contact Pier.
Stands	The completion of the Contact Pier roof works opens up works for the stands. Aircraft taxi lanes immediately adjacent these stands may be constructed much earlier.

3.3 Phase 1 – Construction logistics

Phase 1 construction logistics follows the same strategy as the Runway Opening phase, minimising the impact of construction on the airport operations and our neighbours, whilst optimising the location of the site set up.

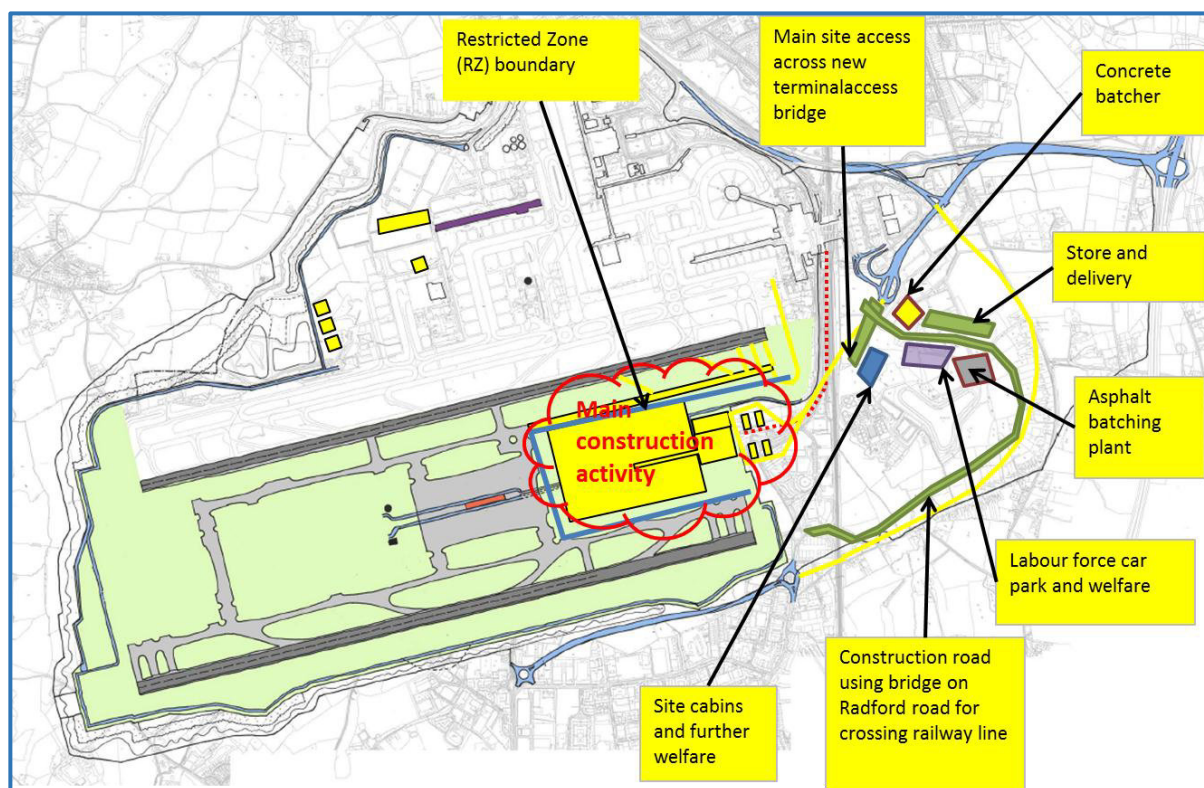


Figure 6. Phase 1 construction logistics

The table below details the scope of Phase 1 construction logistics.

Table Phase 1 – construction logistics

Item	Scope
Location	<p>As the main construction moves to the east of the site, and with the New Terminal access bridge complete, it is expected that the main site set up will move to the east of the Brighton Mail Line.</p> <p>A local site set up will be located at the New Terminal site.</p> <p>There will also be a smaller site setup for the landside APM construction close to the South Terminal.</p>
Access	<p>The main site access will be through the existing surface car parks to the east of the Brighton Main Line.</p> <p>Access to the site will be by temporary ramps across the New Terminal access bridge.</p> <p>As the phase progresses, with the A23 diverted to its new permanent alignment, the main access to the site is expected to be through a temporary construction road across the site, using the bridge on Radford Road across the railway line. Bridge strengthening works will be done, if required, to</p>



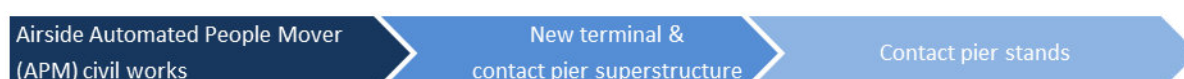
	<p>accommodate construction traffic.</p> <p>With the A23 diverted to the new alignment, the northern section of the now redundant A23 can be used to supply materials for the landside APM construction.</p>
Enabling works	<p>Some of the roads around the surface car parks to the east of the railway line will be upgraded to accommodate construction traffic.</p> <p>A security fence will be erected along the route of the landside APM construction, where possible.</p> <p>When the A23 is diverted to its permanent alignment with the railway bridge, a temporary construction road from the site set up to Radford Road bridge will be constructed across the site. The main access for construction traffic moves to the bridge on Radford Road which will be strengthened if necessary.</p>
Key plant and location	<p>A concrete batcher and an asphalt batching plant will be located close to the entrance to enable easy materials delivery.</p> <p>Tower cranes are expected to be erected around the New Terminal site. Tower cranes are also expected at the landside APM stations at the North and South terminal.</p> <p>Heavy civil construction equipment is expected early in the phase to construct the diaphragm walls for the airside APM.</p> <p>There is an opportunity to use the existing rail head south of Gatwick to deliver construction materials.</p>
Landside/airside boundary	<p>The works are all expected to be constructed in a landside environment. The Contact Pier and some of the terminal works will only be switched to airside as they prepare for operational readiness and security sweeps have been completed.</p> <p>The landside APM works are expected to be constructed in a landside environment</p>

3.4 Phase 1 - critical path

Phase 1 critical path is from the diversion of the A23 to its permanent alignment east of the railway line. The critical path then runs through the delivery of the landside Automated People Mover (APM).



A parallel critical path is from the installation of the diaphragm wall and roof slab construction of the New Terminal airside APM tunnel, to the New Terminal and Contact Pier, related Contact Pier stands and operational readiness across the site.



4 Phase 2

4.1 Phase 2 - Key milestones

- Start construction Jan-31
- Start Operational Readiness Aug-34
- Phase 2 opens Feb-35

4.2 Phase 2 – Construction

Phase 2 construction is driven by the requirement to meet 2035 passenger demand. The main scope for the phase is completion of fit out of the New Terminal and construction of the Remote Pier.

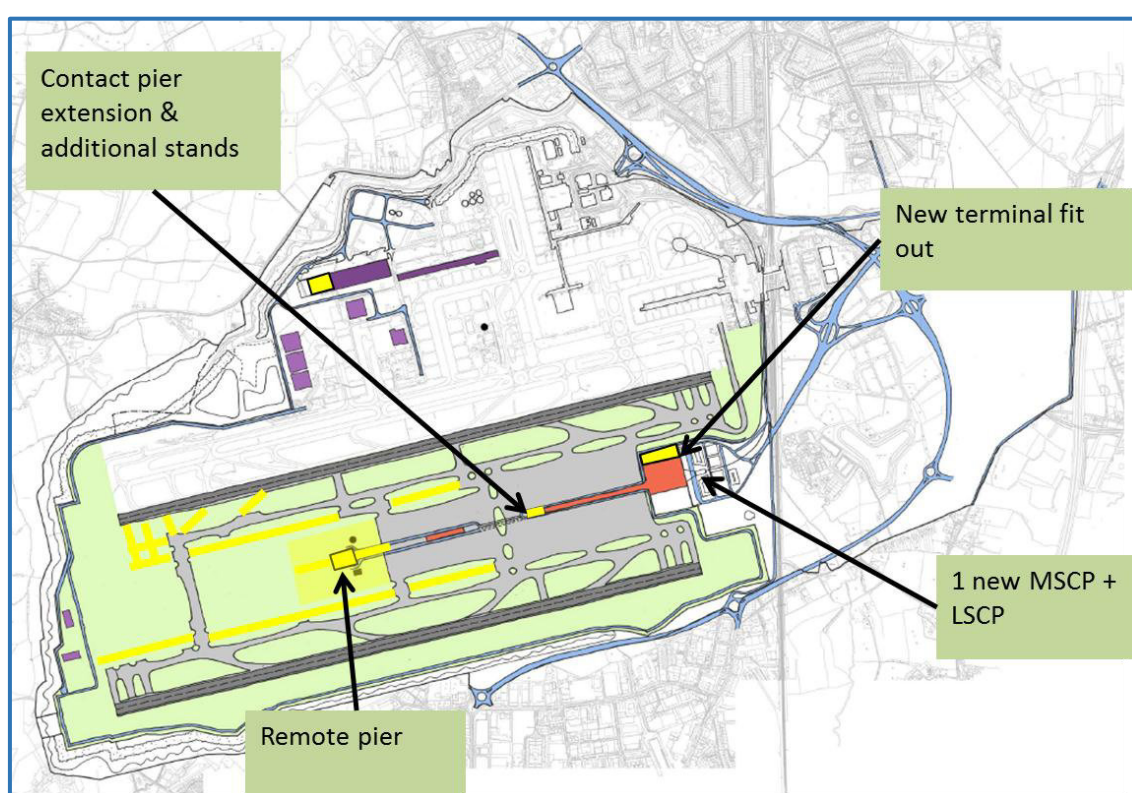


Figure 7. Phase 2 construction scope

Phase 2 construction scope

Work Element	Scope
New Terminal fit out	Fitting out of the New Terminal in part of the shell and core constructed in Phase 1 is completed to meet passenger demand.
Contact Pier	Extension of the Contact Pier can commence following the construction of the ground floor slab over the airside APM in Phase 1.
Airside APM civils	Diaphragm wall installation and ground floor slab construction (under the Remote Pier only), without excavation, allows for construction of the Remote Pier above.



Remote Pier & stands

With the ground floor slab for the airside APM in place, construction of the Remote Pier can commence . Construction of the stands can commence once the roof of the pier is complete.

4.3 Phase 2 - construction logistics

Site set up for Phase 2 is illustrated in the figure below.

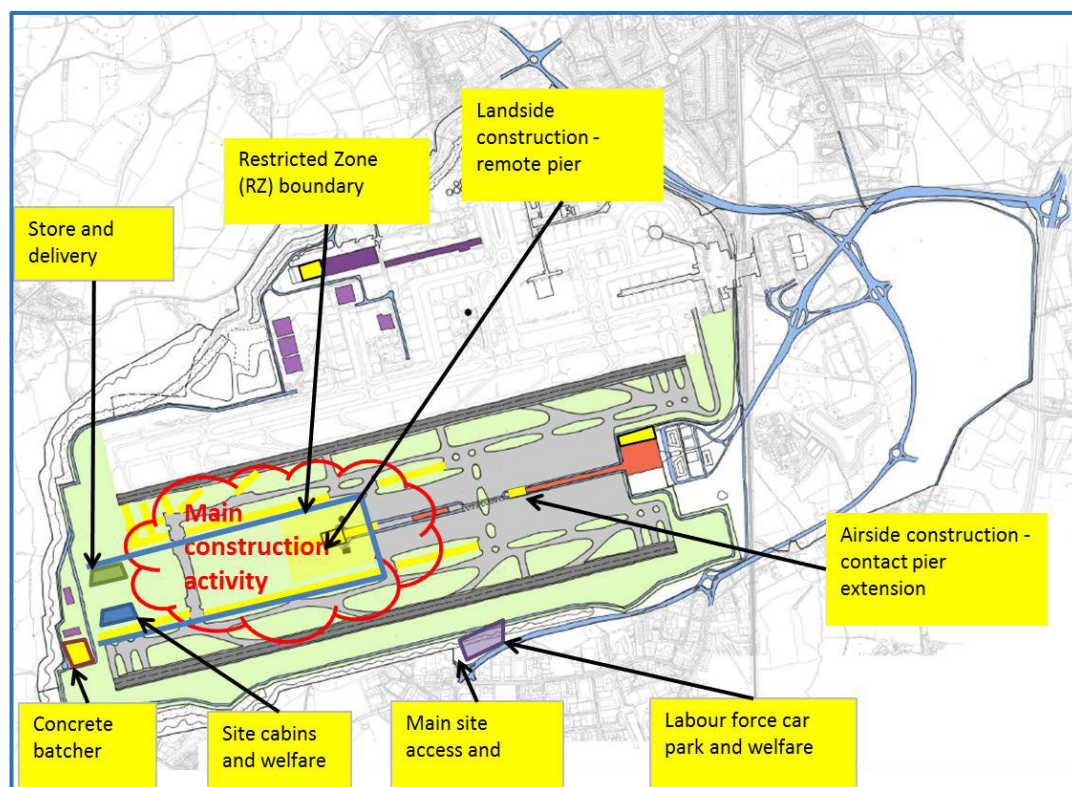


Figure 8. Phase 2 construction logistics

Phase 2 - construction logistics

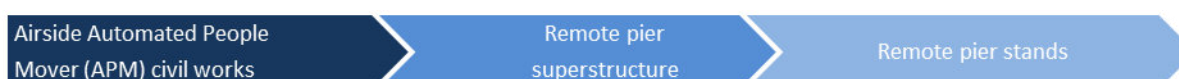
Item	Scope
Location	<p>With the main construction now focused on the construction of the Remote Pier and the extension of the Contact Pier, the main site set up moves to the west end of the site. The extension to the New Terminal will be served from the east of the site during off peak times.</p> <p>The site cabins, site storage will be along the west boundary of the site.</p> <p>A local airside site set up will be located at the Contact Pier site.</p>
Access	<p>The main access to the site is expected to be from A23 roundabout, south of the site.</p> <p>The South Perimeter road (constructed to accommodate construction traffic</p>



	in an earlier phase) will be the main supply route.
Enabling Works	Dedicated filter lanes will be introduced at the new A23 roundabout (in County Oak) to avoid congestion.
Key plant and location	<p>A concrete batcher will be located to the west of the site to reduce traffic movements.</p> <p>Tower cranes are expected to be erected around the Contact Pier and Remote Pier sites. All heights will comply with Air Traffic requirements, in particular, the OLS.</p> <p>There is an opportunity to use the existing rail head south of Gatwick to deliver construction materials.</p>
Landside/airside boundary	<p>The Contact Pier works are all expected to be constructed in an airside environment.</p> <p>New Terminal is expected to be constructed in a landside environment, with some only switching to airside when they are ready for operational readiness and security sweeps have been completed.</p> <p>The Remote Pier is expected to be constructed in a landside environment only switching to airside when they are available for operational readiness and security sweeps have been completed.</p>

4.4 Phase 2 - critical path

Phase 2 critical path is from the airside APM diaphragm wall and the ground floor slab. This enables the construction of the Remote Pier superstructure. The critical path then runs through the apron and operational readiness across the site.



5 Phase 3

5.1 Phase 3 - Key milestones

- Start construction Jan-37
- Start Operational Readiness Aug-39
- Phase 3 opens Feb-40

5.2 Phase 3 – Construction

Phase 3 construction is driven by the requirement to meet 2040 passenger demand. The main scope is on completing the airside APM and extension of the Remote Pier. The main scope for Phase 3 is illustrated in the Figure 9.

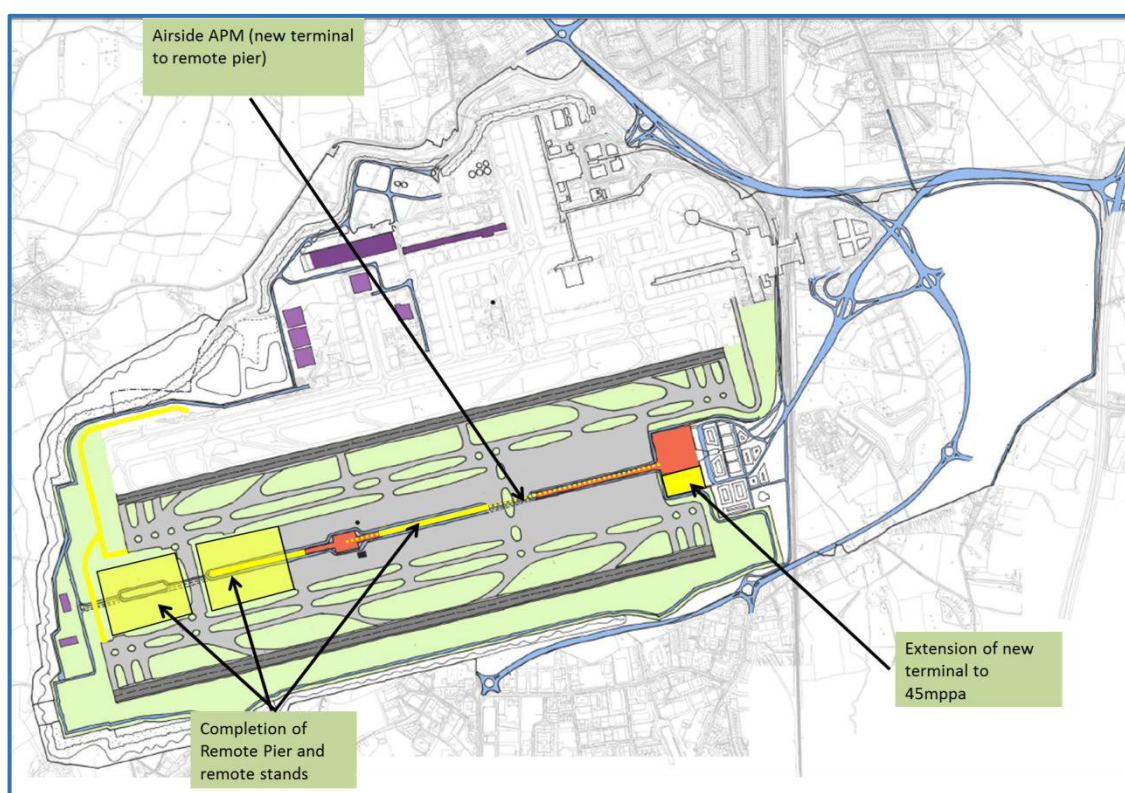


Figure 9. Phase 3 construction scope

Phase 3 - construction scope

Work Element	Scope
Airside APM	<p>Construction of the airside APM below ground can commence in parallel with extension of the Remote Pier.</p> <p>Excavation and ground slab construction can commence from the west end of the site, followed by track and stations fit out.</p>
Remote Pier	<p>The Remote Pier superstructure, assumed to be steel framed, is expected to run concurrently with the APM works below ground.</p>

Remote Pier & stands	Construction of the extension of the Remote Pier superstructure in this phase, is enabled by the construction of the ground floor slab for the airside APM (in an earlier phase). Construction of the stands can commence once the roof of the pier is complete.
Extension of the New Terminal	The final extension of the New Terminal is added.
Existing runway	Works to the existing runway will have to accommodate and maintain existing operations. The construction sequence and timing will follow the conventional construction practice when adjacent to the runway.

5.3 Phase 3 – construction logistics

Figure 10 illustrates the site up for Phase 3.

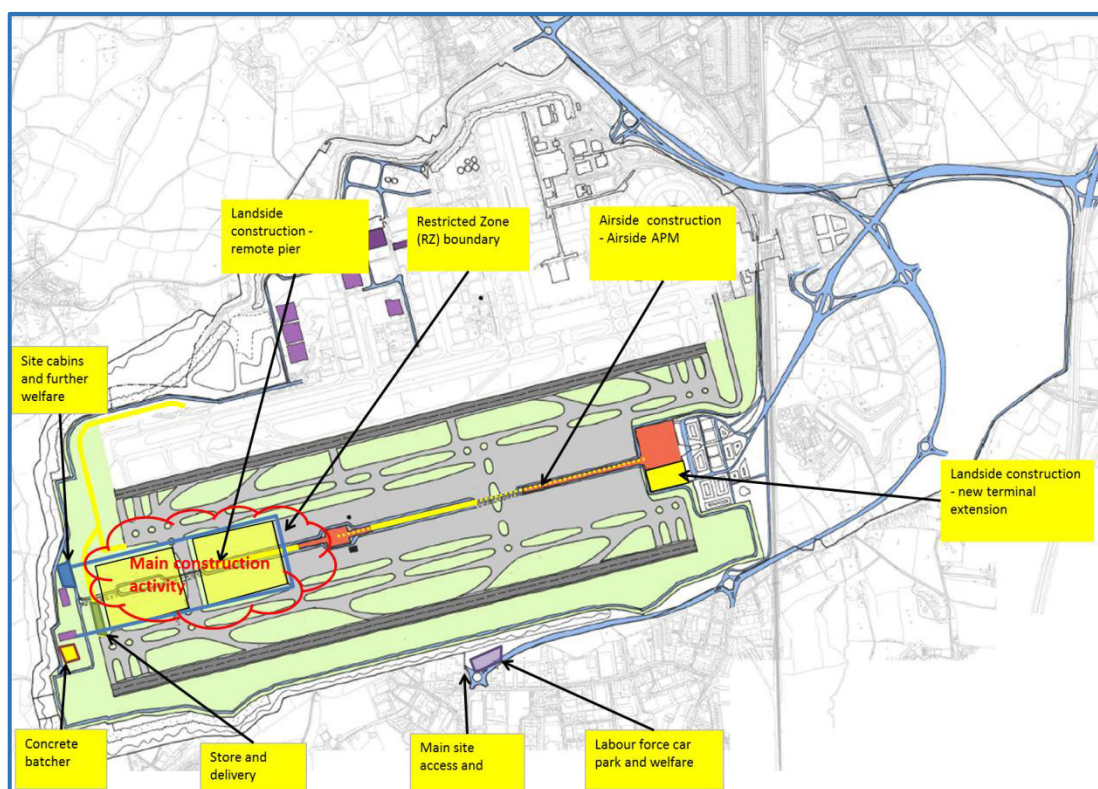


Figure 10. Phase 3 construction logistics

Phase 3 - construction logistics

Item	Scope
Location	<p>With most of the work still to the west of the site, Phase 2 main site set up is expected to be maintained in Phase 3, with the size reducing towards completion.</p> <p>A local site set up is expected to be located at the New Terminal for the terminal extension.</p>



Access	Access arrangements will be the same as in Phase 2.
Enabling Works	With Phase 2 site set up arrangements in place, enabling works in this phase are limited.
Key plant and location	<p>A concrete batcher will remain in its Phase 2 location.</p> <p>Tower cranes are expected to be erected around the Remote Pier and New Terminal extension sites. All heights will comply with Air Traffic requirements, in particular, the OLS.</p> <p>Disposal of excavated material from the airside APM results in an increased volume of site traffic in this phase.</p> <p>There is an opportunity to use the existing rail head south of Gatwick to deliver construction materials.</p>
Landside/airside boundary	The works are all expected to be constructed in a landside environment, with the works only switching to airside when they are available for operational readiness and security sweeps have been completed

5.4 Phase 3 - critical path

With the ground floor slab for the airside APM now in place, the critical path is from the construction of the Remote Pier superstructure, to the Remote Pier stands, and then to the operational readiness across the site.



6 Quantitative Schedule Risk Analysis

We have used Quantitative Schedule Risk Analysis (QSRA) modelling to test our confidence in meeting the construction programme dates.

The QRS is a mathematical simulation of possible outcomes of the programme based on the probability and likelihood of identified risks occurring, and programme uncertainty. This simulation generates confidence points between 0% and 100%. 0% confidence point indicates the delivery date cannot be earlier than this date based on the risks and uncertainty identified. A 100% confidence indicates that the delivery date should not exceed this date.

Deterministic schedule dates are driven by networks of tasks connected to each other with dependencies that describe the work to be performed, that work's duration and the planned completion of the project.

- Each task has a planned duration
- Each task has a predecessor and a successor.
- The longest path through the network is the critical path
- The total duration of the project is a fixed value - it is deterministic

Probabilistic schedules are networks with all the elements of a deterministic plan, but the durations of the tasks are random variables driven by risk factors and tolerance levels on task duration as identified in the QSRA. This enables confidence in deterministic dates to be expressed as a probability of occurrence. (i.e P80 date represents an 80% chance of occurrence).

6.1 Output statistics

The summary QSRA outputs of the key phased milestones are detailed in the table below. The analysis has shown that the current project schedule has been sequenced in such a manner that if no mitigation plans were implemented, there is still strong confidence that the key milestones of Phase 1 completion can be delivered by The Commission's requirement of 2030.

The QSRA was also run removing all risks concerned with delays in the DCO process, to highlight that if Gatwick were to manage their risks and the DCO theirs, there would be further improvement in the project schedule. The re-run analysis demonstrated that there would be approximately a 5 months improvement at P80 in the schedule for Runway Opening prior to Gatwick initiating mitigations if the DCO process is managed accordingly.

Key Milestone	Deterministic Date	P50 Date	P80 Date
Runway Opening No DCO Risk (2025)	12/05/2025	23/10/2025	08/12/2025
Runway Opening (2025)	12/05/2025	02/03/2026	13/05/2026
Phase 1 (2030)	07/01/2030	12/04/2030	13/05/2030
Phase 2 (2035)	16/02/2035	28/03/2035	20/04/2035
Phase 3 (2040)	10/02/2040	02/05/2040	06/06/2040



7 Key Interdependencies

The delivery of the work on the second runway will also depend upon other work to be delivered by third parties.

7.1 Operations

The Operations team at Gatwick are fully engaged in planning the design and delivery of the proposal. Procedures will be put in place to ensure safety, throughput, resilience and regulatory compliance is maintained throughout construction.

7.2 Airspace redesign

The airspace redesign is expected to be done alongside the design of the facilities and includes: Strategic Framework briefing; Design development; Consultation; Proposal submission; regulatory consideration and approval; and implementation.

National Air Traffic Services (NATS) would be fully engaged in planning the design and delivery of this proposal. Their initial work can be found in the Airspace Appendix.

7.3 Airport safety case

Gatwick with two runways meets all relevant requirements of the CAA and other regulatory bodies. See Operational Efficiency – Master Plan Appendix.

Gatwick have engaged with the CAA Safety and Airspace Regulatory Group and have briefed them on the main aspects of the two-runway Master Plan. No significant points of concern or objection have been raised so far, giving more confidence to move forward with the designs. A safety review has also been carried out on behalf of Gatwick to ensure all statutory regulations can be met. See Operational Efficiency - Master Plan Appendix.

Reference has also been made to European Aviation Safety Agency (EASA) requirements where appropriate. These are not yet fully implemented in the UK, however, they are closely based on International Civil Aviation Organisation (ICAO) Standards and Recommended Practices and hence closely align with current CAA Aerodrome Licensing requirements.

Relevant guidance, where available, has also been taken into consideration. For instance the impact of Department for Transport Public Safety Zones (PSZs), on existing and proposed land uses has been considered. (see Public Safety Zones Appendix)

This development will follow the CAA three-part process to ensure it meets its obligations under the licencing process;

- Compliance (Part 1) – Part 1's objective is to provide evidence that the proposal conforms to licencing requirements.
- Control (Part 2) – Part 2's objective is to demonstrate that the management of construction works and operating procedures ensures safe airport operations during construction.
- Completion (Part 3) – Part 3's objective is to ensure the operational readiness process facilitates the smooth and safe transition into service.

7.4 Environmental assessments

Environmental assessments will be done as part of the planning application process. Although we are aware of the risks inherent in this process, the risks are not considered to be significant enough to affect the DCO process.



7.5 Surface Access Infrastructure

The development will require an improvement to the current surface access system. All information can be found in the Surface Access Appendix. These fall into three categories:

- Committed schemes - to be delivered by others, have approved funding and the details have been announced publicly.
- Planned schemes - with Gatwick as consultee/partner/joint promoter/stakeholder. These schemes have an outline programme only with funding not necessarily confirmed.
- Proposed schemes - there are proposed by Gatwick for the second runway. Funding for the schemes is solely by Gatwick or jointly with others.

7.5.1 Rail

The following table shows some committed railway schemes that will be of benefit to Gatwick airport:

Project	Date	Description
Gatwick Airport Station Platform 7	2014	New platform and track work to provide additional capacity (complete)
Redhill Station Additional platform	2017	Creates capacity for more trains on the slow lines and higher frequency Gatwick services
Thameslink Programme Key Output 2	2018	Network improvements, new and longer trains to support the new TSGN franchise including a new timetable
London Bridge Station Improvements	2018	Major station refurbishment and additional capacity (some services will call at London Bridge for most of the period)
Integrated Thameslink, Southern, Great Northern Franchise	2018	Single franchise for most Brighton Main Line services, with new rolling stock and enhanced services (8tph for Gatwick)
London Victoria Station Improvements	2018	Station concourse improvements, removal of retail and change to ticket barriers/offices to increase space
North Downs Line 2tph Reading to Gatwick	2019	More frequent service possible with new Redhill platform and other improvements
Brighton Main Line Re-signalling	2021	Completion of re-signalling work following from Three Bridges Rail Operation Centre.

In addition to the above, planned railway schemes include;

- Gatwick Airport station enhancement (2021)
- Gatwick Express new rolling stock (2024)
- Clapham Junction Station enhancement
- Direct Oxford – Gatwick service via North Downs line
- Milton Keynes Central – East Croydon service extension to Gatwick

Gatwick propose to build a new APM system from the New Terminal, connecting into the re-aligned APM between North and South Terminals to form a continuous service to the terminals.

7.5.2 Road

The table below shows committed road projects around Gatwick Airport.

Project	Date	Description
M25 Jn 5-7 Smart Motorways	2014	Hard shoulder running and dynamic traffic management to increase capacity and improve traffic flow (complete)



M25 Jn 8-10 Controlled Motorways	2019	Dynamic traffic management to improve traffic flow
M25 Dartford Crossing Free Flow Tolling	2014	Replacement of existing tolling to reduce queuing and delays
A23 Handcross to Warninglid Safety Scheme	2014	Local road widening and junction improvement to reduce accidents
M25 Jn 23-27 Smart Motorways	2015	Progressive widening of the M25 (completed) for delivery by
M23 Smart Motorway and Gatwick Junctions	2021	Hard shoulder running and dynamic traffic management to increase capacity and improve traffic flow
HA Pipeline projects throughout the South East	2021	Programme of wider regional schemes, including M1, M3 and M4 Smart Motorways and series of A-road improvements

In addition, A23 (London) Junction Improvement Scheme has been planned by TfL as part of Roads Task Force proposals.

This development proposes a number of schemes including;

- M23 junction 9 capacity improvement
- Replacement of M23 Junction 9a with dedicated Gatwick access and A23 connections
- A23 grade separation
- A23/Airport way capacity improvement and grade separation
- Balcombe Road diversion

New roads will also be constructed around the airport to provide internal access to terminals, workplaces and car parks.



8 Assumptions

The structure of the programme is based upon the following assumptions:

- Possessions required for installation of the bridges over Brighton Main Line, will be on a normal possession and not require an abnormal Christmas shut down
- A temporary road alignment can be introduced to the Northwest of City Place to divert alignment of A23 away from the new airfield location, without requiring completion of the rail bridge rail line and the removal of City Place or the Beehive.
- A cut and cover tunnel for the airside Automated People Mover (APM): Including, Diaphragm Wall with roof slab only will be constructed at New Terminal and Pier prior to the New Terminal construction. Excavation and base slab will be done when the APM is required into service.
- The location of the new control tower is assumed to be in the Remote Pier area.
- All land/property will be purchased and vacated in advance of the works with the exception of City Place, which will be purchased in time to deliver Phase 1 works.
- Where compensation is paid to landowners and occupiers, no re-provision of facilities has been allowed for in the programme.



References

1. **RPS Technical Note TN07** (21-Mar-14) Archaeological Evaluation and further mitigation & Historic Building mitigation – Advice note for Gatwick to assist outline programme
2. **Arup draft report C-RP001** (20-Mar-14) Gatwick R2 Development Options, Airside Geometry & Earthworks



Appendix 1 – Summary Construction Programme

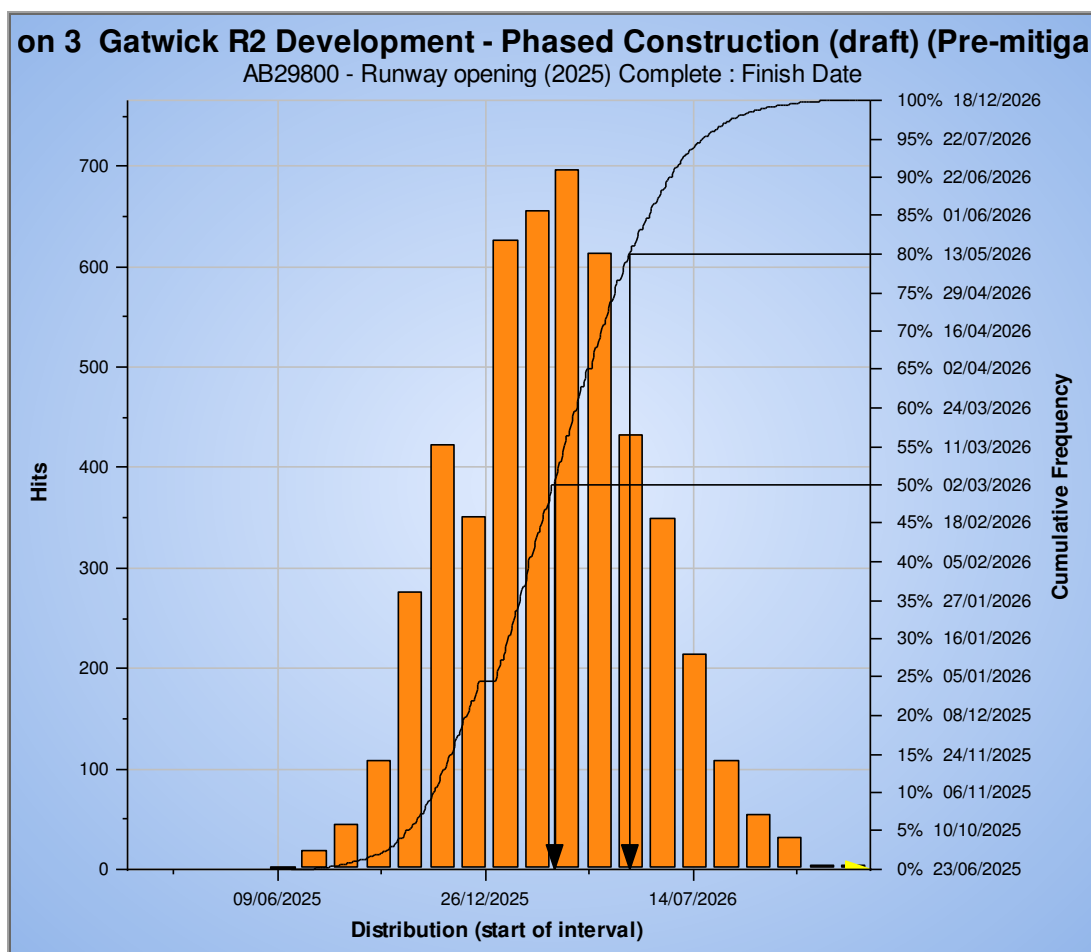
Activity ID	Activity Name	Original Duration	Start	Finish	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Summary Construction Programme		6009	01-Sep-15	13-Feb-40																										
Obtain Planning Consent		1058	01-Sep-15	13-Dec-19																										
SUM1000	Aviation National Policy Statement (NPS)	360	01-Sep-15*	20-Feb-17																										
SUM1580	Development Consent Order (DCO) - GAL prepare application, pre- NPS	260	02-Feb-16	20-Feb-17																										
SUM1030	Aviation National Policy Statement - Royal Assent	0	21-Feb-17																											
SUM1010	Concept Design (RIBA 2)	281	21-Feb-17	12-Apr-18																										
SUM1110	Development Consent Order (DCO) - GAL prepare application	281	21-Feb-17	12-Apr-18																										
SUM1520	GAL submit DCO application	0		12-Apr-18																										
SUM1390	GAL commit to purchase blighted property	0	13-Apr-18																											
SUM1040	Development Consent Order (DCO) approval - UK Government	417	13-Apr-18	12-Dec-19																										
SUM1050	Development Consent Order (DCO) in place	0	13-Dec-19																											
Get ready to construct		1067	13-Apr-18	10-Aug-22																										
SUM1530	Land / property acquisition - blighted properties	417	13-Apr-18	12-Dec-19																										
SUM1080	Developed Design (RIBA 3)	410	24-Apr-18	12-Dec-19																										
SUM1430	GAL Design Review (RIBA3)	65	18-Mar-19	20-Jun-19																										
SUM1100	Procurement - Main contractor	130	21-Jun-19	20-Dec-19																										
SUM1070	Funding approvals	150	13-Dec-19	29-Jul-20																										
SUM1090	Procurement - enabling works	150	06-Jan-20*	06-Aug-20																										
SUM1380	Main contractor design & sub-contractor procurement	364	06-Jan-20	23-Jun-21																										
SUM1130	Land / property acquisition	115	30-Jul-20	21-Jan-21																										
SUM1140	Site Clearance, Demolitions, Service Diversions	300	16-Oct-20*	13-Jan-22																										
SUM1150	River Mole & Crawler's Brook diversion	330	13-Apr-21*	10-Aug-22																										
Construction & Bring into use		4581	24-Jun-21	13-Feb-40																										
Runway opening phase		949	24-Jun-21	06-May-25																										
SUM1320	Start Construction	0	24-Jun-21*																											
SUM1160	A23 Diversion south west railway line	435	08-Jul-21*	17-Apr-23																										
SUM1190	Connection to M23 access, incl junction & M23 interchange	440	10-Sep-21*	28-Jun-23																										
SUM1180	Remote Pier & stands	634	01-Apr-22*	23-Oct-24																										
SUM1170	New runway and taxiways	544	11-Aug-22*	23-Oct-24																										
SUM1540	Operational readiness	125	24-Oct-24*	02-May-25																										
SUM1330	Runway opening phase operational	0	06-May-25																											
Phase 1		1664	13-Apr-23	21-Jan-30																										
SUM1420	GAL Design Review (RIBA3)	65	13-Apr-23	14-Jul-23																										
SUM1410	Procurement - Main contractor	130	17-Jul-23	29-Jan-24																										
SUM1400	Main contractor design & sub-contractor procurement	375	30-Jan-24	01-Aug-25																										
SUM1340	Start Phase 1 construction	0	04-Aug-25*																											
SUM1210	Airside Automated People Mover - civils	330	04-Aug-25*	30-Nov-26																										
SUM1200	A23 east of railway line	651	04-Aug-25*	28-Mar-28																										
SUM1230	New terminal	660	06-Oct-26*	15-Jun-29																										
SUM1220	Contact pier & stands	620	01-Dec-26*	15-Jun-29																										
SUM1550	Operational readiness	144	18-Jun-29	18-Jan-30																										
SUM1350	Phase 1 operational	0	21-Jan-30*																											
Phase 2		1585	04-Sep-28	19-Feb-35																										
SUM1440	GAL Design Review (RIBA3)	65	04-Sep-28	01-Dec-28																										
SUM1450	Procurement - Main contractor	130	04-Dec-28	21-Jun-29																										
SUM1460	Main contractor design & sub-contractor procurement	375	22-Jun-29	20-Dec-30																										
SUM1360	Start Phase 2 construction	0	06-Jan-31*																											
SUM1280	Airside APM civils	330	06-Jan-31*	05-May-32																										
SUM1240	New terminal - fit out	330	06-Jan-31*	05-May-32																										
SUM1260	Contact pier extension & additional stands	655	06-Jan-31*	25-Aug-33																										
SUM1250	Landside Automated People Mover	730	06-Jan-31*	09-Dec-33																										
SUM1270	Remote pier & stands	635	12-Jan-32*	03-Aug-34																										
SUM1560	Operational readiness	130	04-Aug-34	16-Feb-35																										
SUM1370	Phase 2 operational	0	19-Feb-35*																											
Phase 3		1335	04-Sep-34	13-Feb-40																										
SUM1470	GAL Design Review (RIBA3)	65	04-Sep-34	01-Dec-34																										
SUM1480	Procurement - Main contractor	130	04-Dec-34	21-Jun-35																										
SUM1490	Main contractor design & sub-contractor procurement	375	22-Jun-35	19-Dec-36																										
SUM1500	Start Phase 3 construction	0	05-Jan-37*																											
SUM1310	Existing runway extension	385	05-Jan-37*	22-Jul-38																										
SUM1290	Airside APM	640	05-Jan-37*	04-Aug-39																										
SUM1300	Remote pier extension & additional stands	640	05-Jan-37*	04-Aug-39																										
SUM1570	Operational readiness	125	05-Aug-39*	10-Feb-40																										
SUM1510	Phase 3 operational	0	13-Feb-40*																											



Appendix 2 Quantitative Schedule Risk Analysis Results

Results with all risks captured

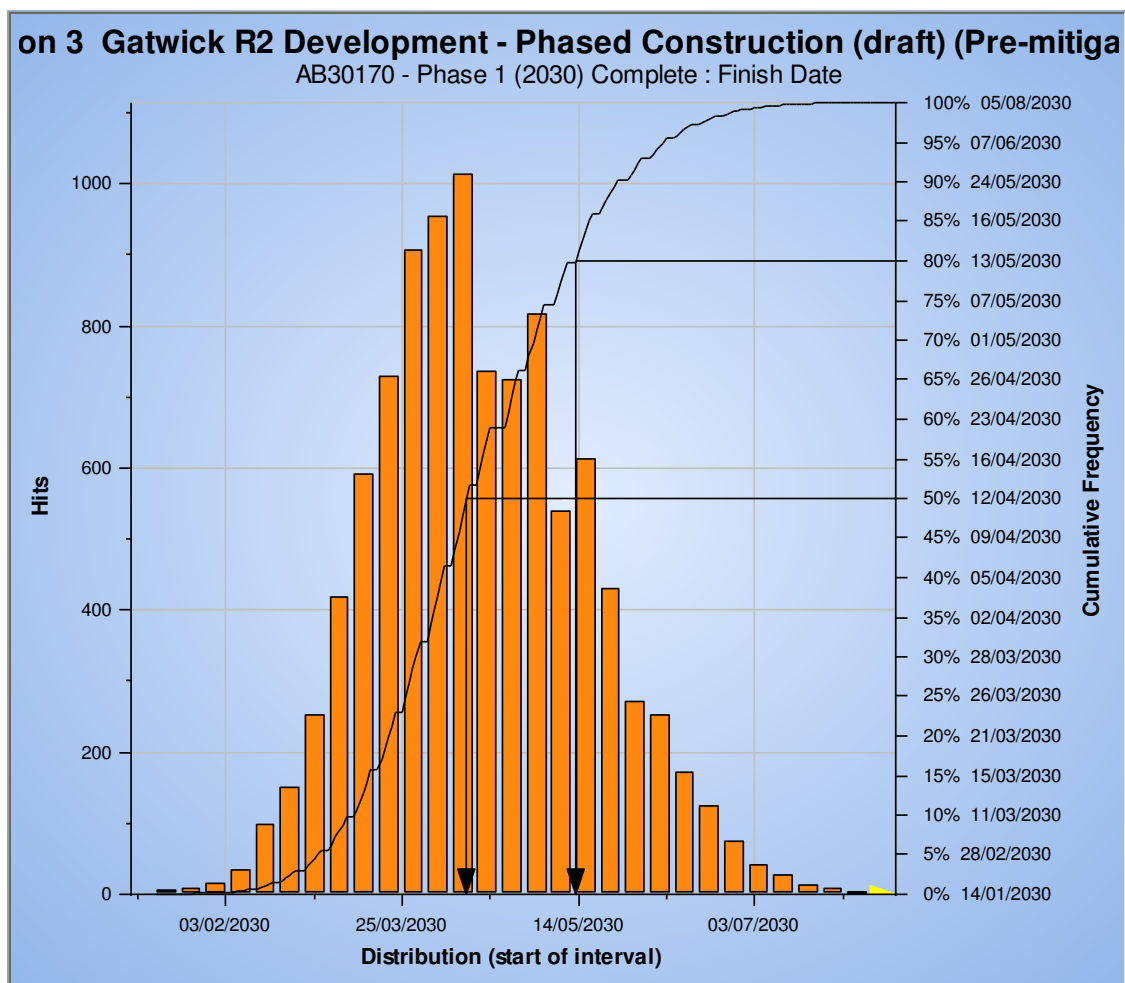
Key Milestone – Runway Opening (2025)



	Milestone Completion Date
Deterministic Date	12/05/2025
Schedule P50	02/03/2026
Schedule P80	13/05/2026



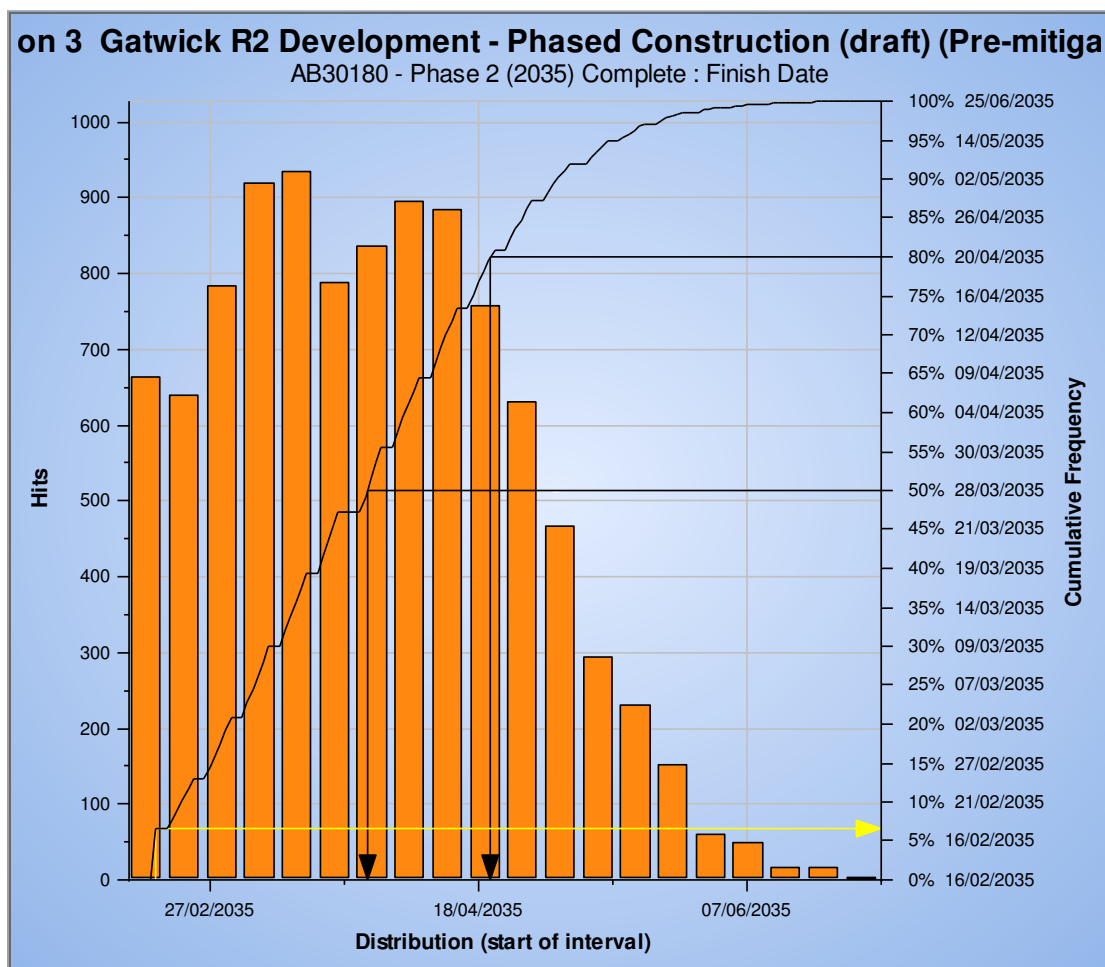
Key Milestone- Phase 1 (2030)



	Milestone Completion Date
Deterministic Date	07/01/2030
Schedule P50	12/04/2030
Schedule P80	13/05/2030



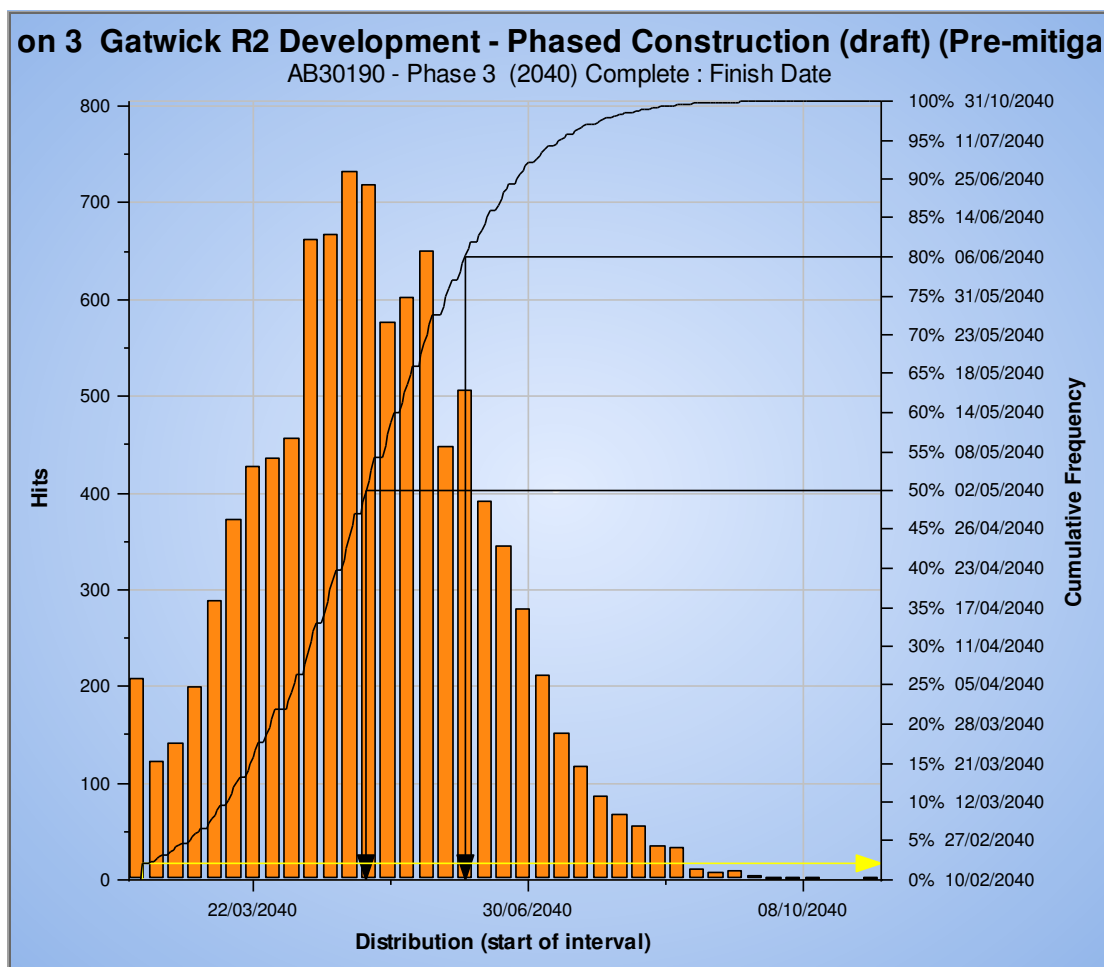
Key Milestone- Phase 2 (2035)



	Milestone Completion Date
Deterministic Date	16/02/2035
Schedule P50	28/03/2035
Schedule P80	20/04/2035



Key Milestone- Phase 3 (2040)

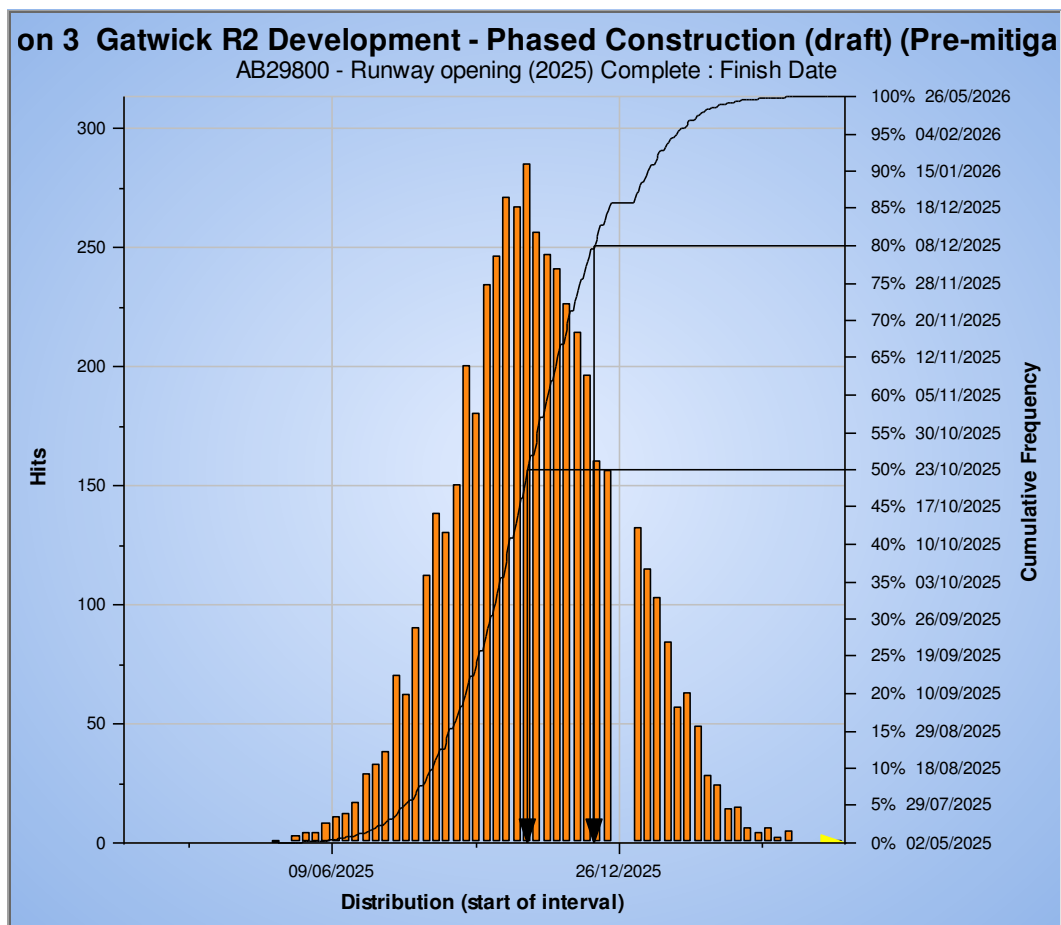


	Milestone Completion Date
Deterministic Date	10/02/2040
Schedule P50	02/05/2040
Schedule P80	06/06/2040



Results with DCO delay risks removed

Key Milestone – Runway Opening (2025)



	Milestone Completion Date
Deterministic Date	12/05/2025
Schedule P50	23/10/2025
Schedule P80	08/12/2025