Gatwick Airport Northern Runway Project

Environmental Statement
Appendix 3.5.1: Options Appraisal Tables

Book 5

VERSION: 1.0

DATE: JULY 2023

Application Document Ref: 5.3

PINS Reference Number: TR020005

APFP Regulations 5(2)(a) **Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009**

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1 Options Appraisal Tables

1.1 Introduction

1.1.1 This document forms Appendix 3.5.1 of the Environmental Statement (ES) prepared on behalf of Gatwick Airport Limited (GAL) for the proposal to make best use of Gatwick Airport's existing runways and infrastructure (referred to within this report as 'the Project').

1.1.2 Following identification of component parts required to deliver the Project (refer to **ES Chapter 3: Alternatives Considered**, Section 3.5 (Doc Ref. 5.1)) requirements were provided to help guide the identification and then subsequent appraisal of potential options. Requirements could include operational, regulatory, or environmental matters, or set out minimum / maximum parameters or design standards.

1.1.3 In addition to the requirements set out for each component, a set of key assumptions were developed by the component leads. The assumptions were as follows:

- All options to assume a future capacity of at least 80.2 million passengers per annum (mppa) by 2047, based on information available at the time of the appraisal process, and required infrastructure to support this capacity.
- All options to focus on containing as much of the future development and impact within the area under GAL land ownership.
- All options assumed to include reasonable embedded and good practice mitigation (eg a code of construction practice), but not additional mitigation, which would be developed as part of the Environmental Impact Assessment (EIA) process.

1.1.4 To ensure a consistent approach was taken when considering each option against the appraisal categories and sub-criteria, the following rating system has been developed, based on a five-scale red, amber, green (RAG) approach and uses the ratings described in Table 1.1.1 for each option.

1.1.5 For clarity, the preferred option (or options) have been identified for each the individual components as described in Table 1.1.1 and explained further in **ES Chapter 3: Alternatives Considered** (Doc Ref. 5.1).

Table 1.1.1: Appraisal Rating System

Key	Appraisal Rating
	A 'good' option: Appears likely to be acceptable in terms of the relevant appraisal attributes. Meets land availability, deliverability, cost and business case criteria. Environmental effects and / or consenting risks may arise but on balance appear likely to be acceptable with mitigation.
	A 'relatively good' option. Land agreements, deliverability, cost and business case requirements appear achievable, although not as ideal as a good option. Environmental effects and / or consenting risks may arise but on balance appear likely to be acceptable with mitigation.
	A 'feasible' option: Land agreements, deliverability, cost and business case requirements appear to be achievable but may require compromise. Environmental effects and / or consenting risks may arise but appear likely to be acceptable on balance with mitigation.
	A 'less feasible' option: Where the achievement of land agreements, deliverability, cost and business case requirements may be problematic. Environmental effects and / or consenting risks are likely to arise, and it is not certain that all such effects could be successfully mitigated.
	A 'high-risk' option: Effects, policy conflicts and / or consenting risks that are likely to remain after mitigation and are likely to carry such weight that the site is unlikely to be granted consent. Deliverability and / or cost and business case criteria are unlikely to be achievable.
	A 'preferred' option: Following the completion of the initial RAG assessment, one or more options for each component were identified by specialists as scoring high enough to warrant consideration as a 'preferred option'.

1.2 Runways

1.2.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Safety** – all options would need to comply with European Civil Aviation Rules and Regulations (EASA) and International Standards and Recommended Practices (ICAO).
- **Capacity** – all options would need to provide for sufficient capacity for 80.2 mppa by 2047.
- **Resilience** – all options would need to consider operational resilience. This enables continued operations or rapid recovery from disruption events, such as adverse weather conditions, airspace congestion, aircraft emergencies, pavement and / or infrastructure failures, as well as routine maintenance.

Table 1.2.1: Appraisal of Runway Options

'A' Options	Operational and Business			Planning, Environmental, Community and Land					
ES Figure 3.3.1 (Doc Ref. 5.2)	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option A1 - moving the northern runway centreline north by 12 m	Medium risk to operations resulting primarily from undertaking significant construction works in the middle of a live airfield. This would necessitate careful phasing and coordination so that the necessary infrastructure is available for live movements. The complexities associated with operating once complete are deemed to be low. However, impacts upon the existing airfield during construction will be high. This option in the end state delivers a dependent runway model, which is safe, resilient and provides the capability for up to 70 Air Traffic Movements (ATM) per hour. The dual runway concept can be operated down to Category I (CAT I) conditions.	Capital expenditure (CapEx) costs are relatively low compared with other options. Safety upgrades would be required to the existing northern runway. No third-party land or property costs.	Risks to operations during construction are considered to be manageable but require careful planning and phasing. Anticipate that it could be built by the target date.	Involves making best use of existing runways in accordance with Government's aviation policy. This option is fully compliant with all EASA regulations. The location within the floodplain means the option does not score as fully complaint with all policies	Involves the import and export of bulk construction materials, requiring construction traffic movements to and from the airport. However, impacts are considered capable of being mitigated.	Fluvial: affects available floodplain for 1:20 event, will require mitigation. Pluvial; adds additional impermeable area requiring mitigation.	Given the limited extent of the physical works, no impacts are anticipated.	Realignment not considered to result in increased noise, vibration or reduced air quality levels at nearby receptors.	All land within GAL control. No loss of third-party land or properties. No requirements to acquire land for delivery.

'A' Options ES Figure 3.3.1 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option A2 – retain 198 metre (m) centreline separation between northern and southern runways and operate both in dual mode.	Impacts to existing infrastructure once implemented would be low, whilst the complexity to operate once built would be medium. This option would necessitate development of a new, unprecedented dependent runway model and would reduce resilience capability as aircraft would not be able to hold between runways in any configuration, potentially leading to increased go arounds.	Less CapEx investment required to deliver, due to less construction and demolition anticipated. Access to third party land would be required due to change to approach lighting on southern runway. Assuming a less constrained working window (see next field), cost would reduce.	Risk to operations during construction are considered medium. Anticipate that it could be built by the target date. Full close down of northern runway is not required and can be constructed in a more manageable timeframe, however work on both runways still required (airfield ground lighting and resurfacing due exit taxiways and levelling).	Securing Civil Aviation Authority (CAA) consent considered to be challenging as the separation below 210 m for the instrumented vs non-instrumented runway has not been regulated for. Involves making best use of existing runways in accordance with Government's aviation policy.	No construction works and therefore no change in airport-related vehicle movements.	No change to existing flood risk.	No construction and no impacts upon receptors.	Option not considered to result in increased noise, vibration or reduced air quality levels at nearby receptors.	All land within GAL control. No loss of third-party land or properties. No requirements to acquire land for delivery.
Option A3 - moving the main runway centreline 12m south	Impacts to existing infrastructure once implemented would be low due to Juliet taxiway only needing to be moved 15 m north, whilst the complexity to operate once built would be medium. This option in the end state delivers a dependent runway model, which is safe, resilient and provides the capability for up to 70 ATMs/hr. The dual runway concept can be operated down to CAT I conditions.	Less CapEx investment required to deliver, due to less construction and demolition anticipated, however high impact to ATM volumes during construction and no recovery option in low visibility. Access to third party land would be required due to	Considered to have a lower impact upon existing operations during construction as airfield can operate relatively unimpeded from the northern runway in good visibility conditions. Less complexity due to less physical work and work site being more isolated.	Involves making best use of existing runways in accordance with Government's aviation policy. This option is fully compliant with all EASA regulations.	Greater level of import/export materials anticipated as runway option is longer in length than other options, resulting in additional vehicle movements. Impacts are considered capable of being mitigated.	Fluvial: affects available floodplain for 1:50 event, will require mitigation Pluvial; adds additional impermeable area requiring mitigation	Given the limited extent of the physical works, no impacts are anticipated.	Realignment not considered to result in increased noise, vibration or air quality levels at nearby receptors	Access to third party land would be required due to change to approach lighting on southern runway.

'A' Options ES Figure 3.3.1 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
		change to approach lighting on southern runway. Assuming a less constrained working window (see next field), cost would reduce.							
Option A4 - re-purpose the Northern Runway for Code C only	Impacts to existing infrastructure once implement would be medium. However, the complexity to operate once built is considered to be high. The resulting operation would downgrade the capability of the northern runway and would mean that larger aircraft would not be able to land or take off from it.	Lower CapEx cost compared to Option A1. No third-party land or property costs.	Risk to existing operations during construction are considered medium. Still requires closure and re-provision of the northern runway infrastructure and all adjacent works. Option can be delivered earlier than option A1 involving construction works.	Securing CAA consent considered to be challenging as the separation below 210 m for the instrumented vs non-instrumented runway has not been regulated for.	Involves the import and export of bulk construction materials, increasing construction traffic movements to and from the airport. However, impacts are considered capable of being mitigated.	No change to existing flood risk.	Given the extent of the physical works, no impacts are anticipated.	Option not considered to result in increased noise, vibration or reduced air quality levels at nearby receptors.	All land within GAL control. No loss of third-party land or properties. No requirements to acquire land for delivery.

1.3 End-around and Exit Taxiways

1.3.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Capacity** – all options should facilitate 70+ATMs / hour throughput on the airfield considering a varied mix of aircraft types and arrival / departure split.
- **Resilience** – all options should provide sufficient choice of exits for the mix and capability of the aircraft fleet being serviced, to allow full capacity to be delivered in a variety of operational conditions.
- **Operations –** all options should provide an efficient flow model that minimises conflicts and the requirement for air traffic control intervention.
- **Flexibility** – all options should optimise connectivity between aprons and runway ends, in all modes of operation.

Table 1.3.1: Appraisal of End-around Taxiways and Exit Taxiways

'B' Options ES Figure 3.3.2 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option B1 - vacate onto a new dependent End Around Taxiway (EAT) inside the airport boundary	Will have an impact on runway length (-100 m). The complexity to operate is considered to be high, significant deconfliction required between aircraft operating on the EAT and take-off and landing movements on the two runways.	Capital expenditure (CapEx) costs considered to fall within viable range for project. This option meets business case capacity requirements but is dependent on traffic and flow mix ie balance of arrivals and departures.	Capable of being available for use in 2021.	Option contained within existing airport boundary on airfield. Location within flood zone 3 will require sequential test, so considered not fully with national and local policy. Option considered to have a medium likelihood of securing Civil Aviation Authority (CAA) consent.	Requires the importation of construction materials and potential export of materials, increasing traffic on internal roads and local highway network. Volumes of traffic assumed capable of being mitigated through use of best practices and laydown areas.	Fluvial: affects available floodplain for 1:20 event, will require mitigation. Pluvial; adds additional impermeable area requiring mitigation.	Loss of some trees, planting/hedgerows and soil. All works contained within existing development footprint and deemed unlikely to result in adverse effects.	Extends south and also east outside the existing runway footprint and may give rise to greater levels of noise at nearby receptors, though increases considered negligible.	Requires the acquisition of purple parking. Currently anticipate that agreement can be reached and no Compulsory Purchase Order (CPO) required.
Option B2 - taxi down the full length of the runway and wait to vacate at the end	No impacts on existing runways. Operational complexities considered high.	Estimated not to be able to provide the required flow capacity nor resilience compared to the Base Option, due to need to increase arrival spacing to ensure flow deconfliction. No CapEx costs.	No build required so available immediately. No health and safety or construction logistics impacts.	Contained within existing airport boundary on airfield, and are compliant with national and local policy. Option considered to have a medium likelihood of securing CAA consent.	No construction required, so no construction vehicle movements.	No change to flood risk.	No construction works or associated impacts upon land-based receptors.	No construction related impacts. Rapid exit taxiways (RET) located within the existing runway development footprint.	All land within GAL control.
Option B3 - arriving flights taxi across the Northern Runway behind a departing aircraft	No impacts on existing runways. Operational complexities considered high.	High energy conflict hazard between arrival from southern and departure on northern makes this option unacceptable. No CapEx costs.	No build required so available immediately. No health and safety or construction logistics impacts.	Contained within existing airport boundary on airfield and are compliant with national and local policy. Option considered to have a medium likelihood of securing CAA consent.	No construction required, so no construction vehicle movements.	No change to flood risk.	No construction works or associated impacts upon land-based receptors.	No construction related impacts. RETs located within the existing runway development footprint.	All land within GAL control.

'B' Options ES Figure 3.3.2 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option B4 - vacate onto a new dependent end around taxiway but outside the proposed red line boundary	No impact on runway length. The complexity to operate is considered to be low.	CapEx costs considered to fall within viable range for project. Capable of meeting the required demand and providing the resilience, however effective only in westerly runway direction.	Will take longer to construct compared to base due to additional scope (additional taxiway, relocation of external perimeter road, and carpark along with the relocation of the airside landside fence). No additional logistics impacts over the base case.	Option expands beyond the extent of current airport boundary into green belt and is therefore not compliant with national or local policy.	Requires the importation of construction materials and potential export of materials, increasing traffic on internal roads and local highway network. Increase in movements considered greater than other options given that 'new ground' is being broken. Volumes of traffic assumed capable of being mitigated through use of best practices and laydown areas. However, may require vehicle access from road network west of the site, adversely impacting upon safety, residents, and highway.	Fluvial: affects available floodplain for 1:20 event, will require mitigation. Pluvial; adds additional impermeable area requiring mitigation.	Increased visual impacts (near and distance views) due to development expanding east. Loss of agricultural land and habitats.	No construction related impacts. RETs located within the existing runway development footprint.	Requires the acquisition of purple parking. Currently anticipate that agreement can be reached, and no CPO required. However, also required land west of airport that will likely require CPO. Alternative options are available, so option considered unlikely to pass the CA tests.
Option B5 - vacate onto a new RET to join a new independent end around taxiway	Fully deconflicts runway operations in 26 runway directions.	Capable of providing higher than required flow capacity and resilience, better flow than Base Case scenario. Significantly higher CapEx costs, including cost of third-party land acquisition and potential compensation.	Will take much longer to construct compared to base due to additional scope (additional taxiway, relocation of external perimeter road, and carpark along with the relocation of the airside landside fence).	Option expands beyond the extent of current airport boundary into green belt and is therefore not compliant with national or local policy.	Requires the importation of construction materials and potential export of materials, increasing traffic on internal roads and local highway network. Increase in movements considered greater than other options given that 'new ground' is being broken. Volumes of traffic assumed capable of being mitigated through	Fluvial: affects available floodplain for 1:20 event, will require mitigation. Pluvial; adds additional impermeable area requiring mitigation.	Increased visual impacts (near and distance views) due to development expanding east. Loss of agricultural land and habitats.	Extends south and also east outside the existing runway footprint and may give rise to greater levels of noise at nearby receptors, though increases considered negligible. Also extends west outside current boundary, potentially increasing impacts at Charlwood.	Requires the acquisition of purple parking. Currently anticipate that agreement can be reached, and no CPO required. However, also required land west of airport that will likely require CPO. Alternative options are available, so option considered

'B' Options ES Figure 3.3.2 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
			No additional logistics impacts over the base case.		use of best practices and laydown areas. However, may require vehicle access from road network west of the site, adversely impacting upon safety, residents and highway.				unlikely to pass the CA tests.
Option B6 - new southern taxiway attached to new RETs	No impact on runway length. The complexity to operate is considered to be low.	This option is capable of meeting or exceeding the Base flow and resilience performance, but similar to base is dependent on flow mix. Significant CapEx costs including cost of potential third-party land acquisition (dependent on option chosen) and potential compensation (Purple Parking).	Will take longer to construct due to additional scope (additional taxiway). Additional construction works in the vicinity of the runway which will lead to construction inefficiencies. No logistics impacts over the base case.	Contained within existing airport boundary on airfield, so in policy terms, raises no major concerns. Option considered to have a medium likelihood of securing CAA consent.	Requires the importation of construction materials and potential export of materials, increasing traffic on internal roads and local highway network. Increase in movements considered greater than other options given that 'new ground' is being broken. Volumes of traffic assumed capable of being mitigated through use of best practices and laydown areas.	Fluvial: affects available floodplain for 1:20 event, will require mitigation. Pluvial; adds additional impermeable area requiring mitigation.	Loss of some trees, planting/hedgerows and soil. All works contained within existing development footprint and deemed unlikely to result in adverse effects.	Extends south and east outside the existing runway footprint and may give rise to greater levels of noise at nearby receptors, though increases considered negligible.	Option contained within GAL land but may require the acquisition of purple parking.

1.4 Holding Areas

1.4.1 The following key requirements have influenced the options identified as part of the appraisal process:

- **Capacity** – options must be capable of providing sufficient capacity in terms of the required number of intermediate holding positions.
- **Operations and Accessibility** – options must be compatible with dual and single runway operations, must minimise impact on taxiway and runway traffic flow and must not infringe on runway safeguarded areas.

Table 1.4.1: Appraisal of Holding Area Options

'C' Options ES Figure 3.3.3 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Property and Land
Option C1 - Beta Box	7 Northern stands and 8 Southern stands only achieves 15 stands, option fails to achieve the 16 stand requirement. Fails to provide Code E route linking Taxiway Papa and Quebec. Fails to provide a Code E exit from the proposed runway exit (Taxiway 2).	Potential for fully services 7 stands, however blast screens would be required to enable operations - significant tow on/tow off activity. No through taxiway for Code E aircraft. Viable in terms of operational costs.	Consideration to loss of stand capacity during construction, but no major concerns regarding deliverability.	Within Airport boundary and no anticipated environmental impacts. Compliant with national/ local policies.	Mid-Airfield - construction traffic only, impact considered negligible.	Fluvial: If raised affects available floodplain for 1:100 event, will require mitigation. Pluvial; Minimal impact - currently fully pavemented area.	No impact -currently fully pavemented area.	None anticipated given nature of proposals.	GAL Land De-icer stored here and is used for winter Ops resilience.
Option C2 - J-Box	Operationally allows for only 4 Code C runway holds if 140 stands are utilised for concurrent movements. Design does allow for up to eight stands however the stands north of Juliet holds cannot be used concurrently. Engine blast (idle and high power) from holding aircraft impacts 140 stands such that this will prevent use of these	Provides for 9 serviced stands (stand capacity requirement) however impacts use of runway holds. Use of the intermediate holds severely impacts the viability of 140 stands as remote holds (ref blast). Viable Option in terms of operating costs, however due Air Traffic Control complexity - potential	Consideration to loss of stand capacity during construction, but no major concerns regarding deliverability.	Within Airport boundary and no anticipated environmental impacts. Compliant with national/ local policies.	Mid-Airfield - construction traffic only, impact considered negligible.	Fluvial: If raised affects available floodplain for 1:100 event, will require mitigation. Pluvial; Minimal impact - currently fully pavemented area (check water modelling outputs).	No impact -currently fully pavemented area.	None anticipated given nature of proposals.	GAL Land. No loss of third part land or property.

'C' Options ES Figure 3.3.3 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Property and Land
	stands as remote stands. Complex traffic pattern increases Air Traffic Controller (ATCO) workload and increases risk of aircraft to aircraft conflict. (Particularly tail and wing-tip conflict). Design increases the risk of aircraft infringing the Obstacle Limitation Surfaces and Take-off Climb Surfaces during certain dual or all 26R single runway operations - and therefore cannot be used as a runway hold during 26R operations.	additional cost implication.							
Option C3 - Charlie Box	Design provides for a Code E / F route. Meets all requirements; up to 16 runway holding positions, does not infringe the runway in any mode of operation, maximises available taxiway	Opportunity to provision for stand servicing in RIBA 3 design, however consideration of aircraft blast likely to be a complex issue. Design provides flexible area for overnight parking and	Consideration to be given to loss of stand capacity during construction. Construction area is approximately twice the size of J box; accordingly this option has the potential to significantly impact the construction	Within Airport boundary and no anticipated environmental impacts. Compliant with national/ local policies.	Mid-Airfield - construction traffic only, impact considered negligible.	Fluvial: If raised affects available floodplain for 1:100 event, will require mitigation. Pluvial; minimal impact - currently fully pavemented area.	No impact - currently fully pavemented area.	None anticipated given nature of proposals.	GAL Land De-icer stored here and is used for winter operations resilience.

'C' Options ES Figure 3.3.3 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Property and Land
	footprint - enables 5 taxi-lanes within the area. May also allow arrival holding and provides a Code E route from Papa to Quebec and Code E route (north - south) from runway exit 2 to Taxiway Kilo.	tow on/tow off for up to 16 aircraft. Viable option in terms of operating cost. Opportunity to provide mobile ground power units to provide temporary overnight parking - provides stand resilience.	period and the disruption to stand access and aircraft movements (this option impacts two taxiways as appose to the 1 impacted by the other two options).						

1.5 Terminals

1.5.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Operations** – all options would need to be designed to allow for efficient operation of the airport, including considerations of accessibility.
- **Capacity** – all options would need to provide for a total capacity to serve 75.6 mppa by 2038 (80.2 mppa by 2047).

Table 1.5.1: Appraisal of Terminal Options

'D' Options ES Figure 3.3.4 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option D1 - 'Do Nothing' scenario	Over capacity, creating operational conflicts that could lead to safety incidents and poor passenger experience.	Constrained by capacity, so cannot achieve the volume of passenger throughput to generate the expected / required levels of revenue.	No changes, therefore, no construction deliverability issues.	No changes, therefore, no planning issues.	Physical impacts limited to accommodating additional passenger and operational movements within existing infrastructure. Likely to require	No changes, therefore, no changes to flood risk / drainage.	No impacts given there are no proposed works.	No impacts given there are no proposed works.	No impacts given there are no proposed works.

'D' Options ES Figure 3.3.4 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
		No construction costs but option constrained by capacity would lead to increased costs to manage inefficiency and high levels of disruption.			upgraded forecourt and road capacity for growth to 75.6 mppa.				
Option D2 - New terminal in the north western part of the Site	Provides the capacity but is difficult to get passengers to / from the terminal landside as considerable new infrastructure would be required including road works and forecourts.	Costs of providing landside transport arrangements to / from the terminal are excessive. An additional terminal creates duplication of functional / management resources increasing the cost to operate compared to other options.	Construction of terminal should be relatively straight forward. Construction of landside transport arrangements to / from the terminal is however difficult.	Located within the airport, but given potential surface access issued, considered that it may not be possible to demonstrate compliance with policy.	Significant landside infrastructure required to get the passengers to / from the terminal (especially to / from the train station) and to provide a link to existing terminals. Difficulty in providing adequate forecourt access (if similar experience to existing terminals is assumed) and impact on existing road network, especially North Terminal Roundabout would be profound	Fluvial: No changes to available flood plain. Pluvial: No additional hard standing.	Environmental impacts associated with construction works.	Minimal community impacts associated with construction works.	GAL land, but loss of parking requiring replacement.
Option D3 - New terminal in the southern part of the Site	Provides the capacity but is difficult to get passengers to / from the terminal landside.	Costs of providing the landside transport arrangements to / from the terminal are excessive. An additional terminal creates duplication of functional /	Construction of the terminal should be relatively straight forward. Construction of the landside transport arrangements to / from the terminal is however difficult. Also	Requires purchase and development of safeguarded land (for another runway). Probable relocation of the A23 roundabout and rerouting the A23 for surface access.	End state would be good, but construction of surface access would create significant impacts for local traffic and airport operations.	Minimal impact to flood risk.	Environmental impact associated with construction works.	Minimal community impacts associated with construction works.	Requirement to acquire significant land and rights over land not in GAL ownership (over safeguarded land).

'D' Options ES Figure 3.3.4 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
		management resources increasing the cost to operate compared to other options.	requires an additional taxiway to be constructed and additional taxiway links.						
Option D4 - Expand the existing South Terminal only	Neither terminal has enough space so a balanced expansion of both is required to provide sufficient processing capability.	Requires a larger extension and displaces an office building, so is more expensive than option 6. Requires more staff to operate than option 6 as the spare capacity within the other terminal is not accessible.	Construction of the terminal extension should be relatively straight forward, but the reconfiguration of the existing spaces would be problematic. Office buildings would require relocating ahead of building the terminal extension lengthening the programme.	Located within the airport boundary and minimal environmental and community impacts anticipated. Potential surface access issues may mean the option is not fully compliant with policy.	Physical impacts limited to accommodating additional passenger and operational movements within existing infrastructure. May require upgraded forecourt and road capacity for growth to 75.6 mppa and potential for railway station upgrade reflecting optimum access from the main transport interchange. Provides greatest scope to maximise sustainable access.	Fluvial: No changes to available flood plain. Pluvial: No additional hard standing.	Minimal environmental impact associated with construction works.	Minimal community impacts associated with construction works.	On GAL Land. Likely minimal requirements - Ashdown House would need to make way for the extension, so it would depend on where these were re-provisioned. Loss of the Sussex Suite and the IT infrastructure involved.
Option D5 - Expand the existing North Terminal only	Neither terminal has enough space so a balanced expansion of both is required to provide sufficient processing capacity.	Requires a larger extension and significant capacity increases to the inter-terminal shuttle, so is more expensive than option 6. Requires more staff to operate than option 6 as the spare capacity within	Construction of the terminal extension should be relatively straightforward. But the increase in capacity of the shuttle system would be difficult and lengthen the overall programme.	Located within the airport boundary and minimal environmental and community impacts anticipated. Potential surface access issues may mean the option is not fully compliant with policy.	Shuttle would need significant expansion to get passengers to / from the train station. Significant additional impact on North Terminal Roundabout and forecourt resulting in extra capacity requirement. May impact on mode share	Fluvial: No changes to available flood plain. Pluvial: No additional hard standing.	Minimal environmental impact associated with construction works.	Minimal community impacts associated with construction works.	On GAL land. Likely minimal requirements - mainly driven by the shuttle requiring upgrading which may require a third or even fourth track way to be built to handle the volumes.

'D' Options ES Figure 3.3.4 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
		the other terminal is not accessible.			for sustainable modes due to all growth being located away from the railway station.				
Option D6 - Expand both existing South and North Terminals	Keeping a balanced split of demand makes the best use of the combined residual capacity in each terminal, thereby limited the size of expansion required in each.	This option creates the smallest expansion requirement in terminal - with the fewest consequential requirements on displaced areas requiring relocation. Lowest construction cost option. Keeping a balanced split of demand makes the best use of the combined residual capacity in each terminal, thereby limiting the size of expansion required to operate each terminal.	This option creates the smallest expansion requirement in terminal but is the most difficult to deliver as the construction interacts with operations and passengers. Accordingly, access to work fronts will be restricted and disrupted. Works will also have to be undertaken airside rather than landside.	Minimal impact due to size and location of expansions within airport boundary, some planning and land requirements to provide surface access improvements.	Physical impacts limited to accommodating additional passenger and operational movements within existing infrastructure. Likely to require upgraded forecourt and road capacity for growth to 75.6 mppa.	Fluvial: No changes to available flood plain. Pluvial: No additional hard standing.	Minimal environmental impact associated with construction works.	Minimal community impacts associated with construction works.	On GAL land. Loss of some equipment parking areas.

1.6 Piers

1.6.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Safety** – all options would need to be designed in accordance with EASA and ICAO.
- **Capacity** – all options would need to provide for a capacity that allowed for up to 75.6 mppa by 2038 (80.2 mppa by 2047).
- **Resilience** – all options would need to be cognisant of flood modelling and apply appropriate mitigation.

Table 1.6.1: Appraisal of Pier Options

'E' Options ES Figure 3.3.5 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option E1 - Pier 6 South Full Service	Removes Taxiway Kilo from the airfield operation, which would significantly impact aircraft flow. Loss of existing stands and space planned as aircraft holding points to the south of the Pier would also impact aircraft flow.	Originally designed to enhance Code F capability – traffic which is no longer expected to grow at Gatwick. Impact on airport operations would result in capacity constraints and limit delivery of the full business benefits. Of the Project.	Complex build due to being mid-airfield. Risk of impacting live operation – mitigation would be required.	Located within airport, no impacts on designations. Flooding implications mean less complaint with policy.	Requirement for construction access considered manageable. Minimal impacts on surface access.	Fluvial: if raised will affect available floodplain for 1:100 event, requiring mitigation. Pluvial: existing hardstanding.	Minimal impact on the environment due to being located on airfield and area of hardstanding.	No community impacts anticipated.	No loss of third-party land or properties. No requirements to acquire land for delivery.
Option E2 - Tower Stand Full Service	Relatively good option. Achieves concept of operations however consideration to be given to the likely complexity of passenger access and egress (taxiway crossings) to the Stands due centralised airfield location.	Does not provide any additional stands (just makes existing stands pier served). Unlikely to gain approval for changes to the safety case for autonomous vehicles to cross live taxiways, so would need to be a manned bus operation which is more expensive and resource intensive. Requirement to cross live taxiways will drive the need to minimise the number of crossings and	Complex due to being mid-airfield. The loss of existing stands during construction will be require re-provision ahead of the build, adding considerable cost and increasing schedule.	Located within airport, no impacts on designations. Considered to comply with planning policy.	Requirement for construction access considered manageable. Minimal impacts on surface access.	No change to flood risk.	Minimal impact on the environment due to being located on a brownfield site.	No community impacts anticipated.	GAL land but loss of the Fire Station, Airfield Operations building & Airfield Lighting facility, which must be re-provided elsewhere.

'E' Options ES Figure 3.3.5 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
		therefore a traditional flight by flight operation rather than independent access for passengers via a 'shuttle' bus. It is unclear that this would be considered 'pier served' given passenger perception of coaching. (No independent means of access).							
Option E3 - Tower Stand (Fast–turn)	Relatively good option. Achieves concept of operations however consideration to be given to the likely complexity of passenger access and egress (taxiway crossings) to the Stands due centralised airfield location.	Does not provide any additional stands (just makes existing stands pier served). Unlikely to gain approval for changes to the safety case for autonomous vehicles to cross live taxiways, so would need to be a manned bus operation which is more expensive and resource intensive. Requirement to cross live taxiways will drive the need to minimise the number of crossings and therefore a traditional flight by flight operation rather than	Complex due to being mid airfield. The loss of existing stands during construction will be require re-provision ahead of the build, adding considerable cost and increasing schedule. .	Located within airport, no impacts on designations. Considered to comply with planning policy.	Requirement for construction access considered manageable. Minimal impacts on surface access.	No change to flood risk.	Minimal impact on the environment due to being located on a brownfield site.	No community impacts anticipated.	GAL land but loss of the Fire Station, Airfield Operations building & Airfield Lighting facility, which must be re-provided elsewhere.

'E' Options ES Figure 3.3.5 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
		independent access for passengers via a 'shuttle' bus. It is unclear that this would be considered 'pier served' given passenger perception of coaching. (No independent means of access).							
Option E4 - Pier 7 (Cargo) Single loaded	Relatively good option providing direct route to primary taxiways. This option achieves concept of operations. Re-provision of Cargo operation requires careful consideration to facilitate operational efficiency.	Requires purchase of current facility from leaseholder and significant land requirement to re-provide the cargo facilities that are lost – making costs prohibitive.	Minimal deliverability issues anticipated.	Located within airport, no impacts on designations. Considered to comply with planning policy.	Requirement for construction access considered manageable. Minimal impacts on surface access.	Fluvial: if raised will affect available floodplain for 1:100+35% climate change allowance (CCA) event, requiring mitigation. Pluvial: existing hardstanding.	Minimal impact on the environment due to being located on a brownfield site.	No community impacts anticipated.	GAL own the freehold but not the leasehold of the existing cargo facilities, which will need to be relocated/ compensated.
Option E5 - Pier 7 (Cargo) Double loaded	Relatively good option providing direct route to primary taxiways. This option achieves concept of operations. Re-provision of Cargo operation requires careful consideration to facilitate operational efficiency.	Requires purchase of current facility from leaseholder and significant land requirement to re-provide the cargo facilities that are lost – making costs prohibitive	Minimal deliverability issues anticipated.	Located within airport, no impacts on designations. Loss of grassland means may not be fully complaint with policy.	Requirement for construction access considered manageable. Minimal impacts on surface access.	Fluvial: if raised will affect available floodplain for 1:100+35% CCA event, requiring mitigation. Pluvial: existing hardstanding	Some loss of grassland area, replaced by hardstanding.	No community impacts anticipated.	GAL own the freehold but not the leasehold of the existing cargo facilities, which will need to be relocated /compensated.
Option E6 - Pier 6 Single Pier (Double loaded)	Removes Taxiway Kilo from the airfield operation. This would significantly impact aircraft flow.	Significant impact due to loss of Taxiway Kilo.	Complex due to being mid airfield. The loss of existing stands during	Located within airport, no impacts on designations. Flooding implications	Requirement for construction access considered manageable. Minimal	Fluvial: if raised will affect available floodplain for 1:100 event, requiring mitigation.	Minimal impact on the environment due to being located on a brownfield site.	No community impacts anticipated	No loss of third-party land or properties.

'E' Options ES Figure 3.3.5 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
			construction will be require re-provision ahead of the build, adding considerable cost and increasing schedule.	mean less complaint with policy.	impacts on surface access.	Pluvial: existing hardstanding.			No requirements to acquire land for delivery.
Option E7 - Double Pier (Double loaded)	Removes Taxiway Kilo from the airfield. This would significantly impact aircraft flow.	Significant impact due to loss of Taxiway Kilo.	Complex due to being mid airfield. The loss of existing stands during construction will be require re-provision ahead of the build, adding considerable cost and increasing schedule.	Located within airport, no impacts on designations. Flooding implications mean less complaint with policy.	Requirement for construction access considered manageable. Minimal impacts on surface access.	Fluvial: if raised will affect available floodplain for 1:100 event, requiring mitigation. Pluvial: existing hardstanding.	Minimal impact on the environment due to being located on a brownfield site.	No community impacts anticipated.	No loss of third-party land or properties. No requirements to acquire land for delivery.
Option E8 - Pier 5 / Pier 4 re-configured	Doesn't provide the additional capacity required. Significant disruption to operations during construction	Doesn't provide the additional capacity required. Significant disruption to operations during construction	Significant interaction with existing operations therefore major impact on work site availability and consequential disruption. Significant timescale required to construct.	Located within airport, no impacts on designations. Flooding implications mean less complaint with policy.	Requirement for construction access considered manageable. Minimal impacts on surface access.	Fluvial: if raised will affect available floodplain for 1:100 event, requiring mitigation. Pluvial: existing hardstanding minimal pending flood model.	No environmental impacts anticipated.	No community impacts anticipated.	No loss of third-party land or properties. No requirements to acquire land for delivery.
Option E9 - Pier 5 West Extension	Doesn't provide the additional capacity required. Concerns about proximity to existing airport fuel farm to be viable.	Doesn't provide the additional capacity required.	Minimal deliverability issues anticipated.	Located within airport, no impacts on designations. Flooding implications mean less complaint with policy.	Some impacts anticipated due to increased access via congested area around Northern Approach.	Fluvial: affects available floodplain for 1:100 +25% CCA event, will require mitigation. Pluvial; adds additional impermeable area	Minimal impact on the environment due to being located on a brownfield site.	No community impacts anticipated.	No loss of third-party land or properties. No requirements to acquire land for delivery.

'E' Options ES Figure 3.3.5 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
						which will require mitigation.			
Option E10 - Pier 7 (south of cargo)	Meets operational requirements. Push back onto Taxiway Lima a consideration. Would be serviced via autonomous vehicle shuttle, routed around the edge of the airport, avoiding taxiway crossings.	Provides the necessary capacity. Some additional costs associated with loss of/impacts on cargo storage/ manoeuvring areas.	Strong option – ability to construct under landside conditions and convert post construction to an airside status, reducing complexity of delivery.	Located within airport, no impacts on designations. Considered to comply with planning policy.	Requirement for construction access considered manageable. Minimal impacts on surface access.	Fluvial: if raised will affect available floodplain for 1:100+35% event, requiring mitigation. Pluvial: existing hardstanding.	Minimal impact on the environment due to being located on a brownfield site.	No community impacts anticipated.	GAL owned land but will require purchase/re-provision of some parking space from leaseholder.
Option E11 - Pier 3 Western Extension	The finger pier removes taxiway Kilo Alpha which is part of the dual taxiway system feeding this area. This would increase the amount of delay on Kilo taxiway adjacent to pier 2. There are two solutions for connecting to pier 3, one is the existing connection creating long cul-de-sac areas serving 10 plus code E stands on both Lima and Kilo	Delivers an increase in code E capability but likely not enough to satisfy all demand arising in South Terminal. Cost of tunnel works estimated to be significant.	Complex due to being mid airfield. Also, multiphase design required to maintain access to pier 3 during build.	Located within airport, no impacts on designations. Flooding implications mean less complaint with policy.	Requirements for additional construction vehicle movements considered more complex than other options due to being mid airfield.	Fluvial: if raised will affect available floodplain for 1:100 event, requiring mitigation. Pluvial: existing hardstanding.	Minimal impact on the environment due to being located on a brownfield site.	No community impacts anticipated.	No loss of third-party land or properties. No requirements to acquire land for delivery.

'E' Options ES Figure 3.3.5 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
	taxiways, which would lead to holding on arterial taxiways until the taxiway is free. Connected via bridge or tunnel which will link Lima and Kilo providing a through route which would likely need to be one-way traffic serving 20 plus stand which has a high risk of pushback delays. Requirement to re-provide functionality of push-and-hold or accept more on-stand holding.								
Option E12 - Other Pier 3 Alternative Options	Doesn't provide the additional capacity required. Significant disruption to operations during construction.	Doesn't provide the additional capacity required. High construction costs.	Complex due to being mid airfield.	Located within airport, no impacts on designations. Flooding implications mean less complaint with policy.	Requirements for additional construction vehicle movements considered more complex than other options due to being mid airfield.	Fluvial: if raised will affect available floodplain for 1:100 event, requiring mitigation. Pluvial: existing hardstanding.	Minimal impact on the environment due to being located on a brownfield site.	No community impacts anticipated.	No loss of third-party land or properties. No requirements to acquire land for delivery.

1.7 Stands

1.7.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Safety** –all options must meet the aerodrome's Safety Case requirements.
- **Capacity** – all options (either individually, or in combination with other options) must provide the required capacity to deliver additional stands (Code C centrelines).
- **Resilience** – all options must provide sufficient flexibility, access and support aircraft flow.

Table 1.7.1: Appraisal of Stand Options

'F' Options ES Figure 3.3.6 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option E13 - North West Zone (Phase 2 to 230 Stand development)	Long bussing route for remote operations. More stands at this location add to the volume of aircraft traffic using Juliet if towed to a North Terminal or South Terminal pier served stand. This would be mitigated if Lima extension is delivered. Feedback from airlines indicates this option is less attractive and not favoured.	Only available after batching plant has been removed, which works for a 2030's delivery.	Some land needs to be built up. Adds to drainage catchment for pond M. Required connection will close uniform during (night) work, reliant on Juliet-Sierra and Juliet Tango route.	Located within airport boundary, but given location in flood zone and potential alternatives available, option considered non-compliant with some policies	No anticipated impacts upon existing network or performance because of this option.	Fluvial: affects available floodplain for 1:100 +25% CCA event, will require mitigation. Pluvial; adds significant additional impermeable area which will require mitigation.	Loss of some amenity grassland.	No air quality emission constraints. Potentially brings aircraft closer to receptors in the north west, but unlikely to result in large changes.	Within GAL land.
Option E14 - 60s (Sixties) Expansion	Good location for remote operations and towing. However, loss of Romeo taxiway, reducing the whole end to a cul-de-sac with only one way in and out reducing the effectiveness of the remaining stands. Loss of resilience and Significant risk of	Land currently in use will require significant services relocation and preparation of site.	Minimal deliverability issues anticipated. Airside build unlikely to close Quebec, temporary situation akin to end situation.	Proximity to fuel farm may require a safety case. Located on airfield, some potential flooding issues, so considered less compliant with policies.	No anticipated impacts upon existing network or performance because of this option.	Fluvial: affects available floodplain for 1:100 +25% CCA event, will require mitigation. Pluvial; adds additional impermeable area which will require mitigation.	Existing hardstanding area, no additional land take required. No new built elements introduced to the baseline.	No likely increase in emissions as location is currently part of the active airfield.	Within GAL land.

'F' Options ES Figure 3.3.6 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
	congestion on Quebec taxiway post completion - less feasible option. Space available is insufficient to support the number of stands required in end state.								
Option E15 - Oscar Stands	Central to airfield, good location for towing and remote ops.	The area is occupied by various services and facilities that require relocation which adds to the cost and schedule the development. Strategically sound – this is an area of prime airfield currently used for landside functions.	Some land needs to be built up. Adds to drainage catchment for pond M. Proximity and connections to existing taxiways require mitigation to avoid operational disruption which may add cost and time (eg nightworks).	Located on airport. Considered to be complaint with relevant policies.	No anticipated impacts upon existing network or performance because of this option.	Fluvial: Not at risk of flooding Pluvial: Existing hardstanding - opportunity to improve drainage on older part of the airfield.	Existing hardstanding area, no greenfield land take. No new built elements introduced to the baseline.	No likely increase in emissions as location is currently part of the active airfield.	Within GAL land but would require relocation of existing services.
Option E16 - Hangar 7 Stands	Central to airfield, good location for towing and remote ops.	Gatwick currently anticipates continued future demand for the hangar. The financial and environmental cost of demolishing an existing hangar and re-providing elsewhere would be significant.	Largely offline build, some land to be build up. Adds to drainage catchment for pond M. Proximity and connections to existing taxiways require mitigation to avoid operational disruption which may add cost and time (eg nightworks).	Located on airport. Considered to be complaint with relevant policies.	No anticipated impacts upon existing network or performance because of this option.	Fluvial: Not at risk of flooding. Pluvial: Existing hardstanding - opportunity to improve drainage on older part of the airfield.	Existing hardstanding area, no greenfield land take. No new built elements introduced to the baseline.	No likely increase in emissions as location is currently part of the active airfield.	Within GAL land

'F' Options ES Figure 3.3.6 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option E17 - 40s (Forties) Stands	Currently used for intermediate hold point for aircraft. After the construction of Charlie-box this requirement will be Code E route to be maintained through site for day-time ops. No significant impact anticipated, minor impact on early morning pier 2 departures.	Likely only minor works required to bring into operation for new use.	Dependent on push-hold to be provided in C-Box. Airside location.	Located on airport. Location within the flood plain with potential alternatives available meaning compliant with majority of policies	No anticipated impacts upon existing network or performance because of this option.	Fluvial: if raised will affect available floodplain for 1:100 event, requiring mitigation. Pluvial: existing hardstanding.	Existing hardstanding area, no greenfield land take. No new built elements introduced to the baseline.	No likely increase in emissions as location is currently part of the active airfield.	Within GAL land.
Option E18 - Taxiway Yankee MA 1 Stands	Good location for '26 ops' but long taxi route to '08 ops' (see glossary), crossing under the runway approach path restricts runway operations. Route to and from stands affected by crossing under runway approach, which is the same in dual runway ops for use of EAT. Loss of existing parking.	The area is occupied by various services and facilities, including a large valet parking operation that would require relocation which would add to the cost and schedule of the development. The area will be used as a construction compound for airfield works until 2030s.	Some services to relocate. Drainage to be added to catchment for pond D.	Located on airport. Compliant with policies.	Loss of car parking and requirement for replacement in an alternative location may have minor implications for network performance.	Fluvial: Not at risk of flooding. Pluvial: Existing hardstanding - opportunity to improve drainage on older part of the airfield. Existing hardstanding - opportunity to improve drainage on older part of the airfield. Partially in Flood Zone 2.	Existing hardstanding area, no greenfield land take. Drainage could be updated to include pollution control.	No likely increase in emissions. Could potentially bring noise and air emissions closer to receptors to the south east.	Within GAL land.
Option E19 - South Terminal 'Edge' Stands	Good location accessible for both South Terminal and	Significant cost to develop and would deliver a limited	Largely offline build, some services to relocate. drainage to	Partial loss of grassland to create	Requirement to realign part of landside airport road	Fluvial: affects available floodplain for 1:100 +35% CCA	Loss of some greenfield land.	May require moving the blast barrier (wavy wall) which	Within GAL land

'F' Options ES Figure 3.3.6 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
	North Terminal. However, more stands in a cul-de-sac could lead to more congestion.	number of new Code C Stands (including the relocation and re-provision of noise mitigation measures and the perimeter road).	be added to catchment for pond D.	impermeable surface with flood zone.	network because of airside works, could also create issues for proximity to inter-terminal shuttle.	event, will require mitigation. Pluvial; adds additional impermeable area which will require mitigation		could affect the noise experience around the site Unlikely to result in changes to air quality emissions.	
Option E20 - Taxiway Lima Extension Stands	Good location on the taxiway network assuming Lima taxiway extension is delivered. Push backs onto Lima can be alleviated by co-ordinating the use of Juliet-Sierra route. Located on an area of existing car parking which would be required to be re-provided.	Cost of re-providing car parking has been taken into account and is considered acceptable.	Several options for delivery; landside or airside. Some service diversions. Could be delivered at the same time as Lima taxiway extension or at a later date.	Located on airport. Compliant with policies.	Loss of car parking and requirement for replacement in an alternative location may have minor implications for network performance.	Fluvial: if raised will affect available floodplain for 1:100 +25% CCA event, requiring mitigation. Pluvial: existing hardstanding.	Existing area of hardstanding, no loss of greenfield land. Located in an area of existing airfield built elements.	Likely to require some additional blast screens. Not likely to result in increased air quality emissions.	Within GAL land Loss of car parking to be re-provided.
Option E21 – Hangar 7 Stand	Central to airfield, good location for towing and remote ops.	Minimal capacity creation but efficient use of space created by Lima taxiway extension, and offsetting one of the stands lost on Sierra.	Minimal deliverability issues anticipated. Would be delivered alongside Lima taxiway extension for construction efficiency and to minimise operational impact.	Located on airport. Compliant with policies.	No anticipated impacts upon existing network or performance because of this option.	Fluvial: Not at risk of flooding. Pluvial: Existing hardstanding - opportunity to improve drainage on older part of the airfield.	Existing hardstanding area, no greenfield land take. No new built elements introduced to the baseline.	No likely increase in emissions as location is currently part of the active airfield.	Within GAL land
Option E22 – Stands 150-151	Reconfiguration of 3 Code E stands maintains 4 Code C	Maintains Code C capability	Minimal deliverability issues anticipated. May be delivered	Located on airport. Compliant with policies.	No anticipated impacts upon existing network or	Fluvial: Not at risk of flooding.	Existing hardstanding area, no greenfield land take. No new	No likely increase in emissions as location	Within GAL land

'F' Options ES Figure 3.3.6 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
	centrelines in a central location, good for towing and remote operations.		alongside Lima taxiway extension for construction efficiency and to minimise operational impact.		performance because of this option.	Pluvial: Existing hardstanding - opportunity to improve drainage on older part of the airfield.	built elements introduced to the baseline.	is currently part of the active airfield.	

1.8 Hangars

1.8.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- All options should provide direct access to the operational apron.
- All options should provide for an area capable of facilitating a Boeing 777-9X hangar and providing the necessary manoeuvring space estimated to be 2.5 hectares (ha) in area.
- A building up to 32 metres in height.

Table 1.8.1: Appraisal of Hangar Options

'G' Options ES Figure 3.3.7 (Doc Ref. 5.2)	Operations and Business Case			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based)(Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option F1 – Long Stay Summer Special Car Parking	Contiguous to taxiway for ease of access.	Excellent option from operator perspective, however, reduces availability of car parking (re-provision via decking of long stay north upper area or alternative project). Low operating cost and flexibility to operate either as airside or landside.	Construction should be able to be undertaken from the land side and should be relatively straight forward.	Located within airport boundary and no environmental impacts, so considered fully compliant with policy.	Loss of parking requiring relocation and construction of hangar could impact on congestion, but effects are considered to be minimal	Fluvial: No changes to available flood plain. Pluvial no additional hard standing.	Some potential loss of grass land.	Option could potentially give rise to visual impacts.	GAL owned land. Loss of car parking which would have to be re-provided elsewhere.

'G' Options **ES Figure 3.3.7** (Doc Ref. 5.2)	Operations and Business Case			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based)(Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option F2 - Adjacent to Hangar 6 (south of the runway)	A viable option, however, consideration to operational manoeuvring time (taxiing/towing) across or around both runways.	Less attractive to operators due to runway crosses. Uses an area currently used for large scale block parking - reducing the footprint of the parking area reduces the operational efficiency of the valet operation.	Construction should be able to be undertaken from the land side and should be relatively straight forward.	Located within airport boundary and no environmental impacts, so considered fully compliant with policy.	Loss of parking requiring relocation and construction of hangar could impact on congestion, but effects are considered to be minimal.	Fluvial: No changes to available flood plain. Pluvial no additional hard standing.	No greenfield land take and located in an area of existing airport infrastructure.	Option could potentially give rise to visual impacts.	GAL owned land. Loss of car parking which would have to be re-provided elsewhere.
Option F3 - Oscar Area	Area is unlikely to be able to provide the land required to provide for the building and manoeuvring/ circulatory areas.	Area has been identified as suitable for stands, which are considered to offer better business case benefits overall.	Airside construction in a congested area accordingly construction will be impacted by logistics and access issues.	Located within airport boundary and no environmental impacts, so considered fully compliant with policy.	Option will not impact upon network.	Fluvial: No changes to available flood plain. Pluvial no additional hard standing.	No greenfield land take and located in an area of existing airport infrastructure.	No change in emissions likely.	GAL owned land. Loss of buildings which would have to be re-provided elsewhere.
Option F4 – 'Long Stay Summer Special Parking Area	Area is unlikely to be able to provide the land required to provide for the building and manoeuvring/ circulatory areas.	Area has been identified as the most suitable for a pier development, which is considered to offer better business case benefits overall.	Construction should be able to be undertaken from the land side and should be relatively straight forward.	Located within airport boundary and no environmental impacts, so considered fully compliant with policy.	Loss of parking requiring relocation and construction of hangar could impact on congestion, but effects are considered to be minimal.	Fluvial: No changes to available flood plain. Pluvial no additional hard standing.	No greenfield land take and located in an area of existing airport infrastructure.	No change in emissions likely.	GAL owned land. Loss of car parking which would have to be re-provided elsewhere.
Option F5 - Adjacent to Boeing Hangar	Area is unlikely to be able to provide the land require to provide for the building and manoeuvring/ circulatory areas.	Area is insufficiently sized for a viable operation.	Construction should be able to be undertaken from the land side and should be relatively straight forward.	Located within airport boundary, but flood zone status means option not likely to be fully compliant with policy.	Loss of parking requiring relocation and construction of hangar could impact on congestion, but effects are considered to be minimal	Fluvial : affect available flood zone for 1 :100 event which requires mitigation. Pluvial additional hard standing which requires mitigation.	No greenfield land take and located in an area of existing airport infrastructure. Need to ensure pollution control infrastructure is installed due to proximity to River Mole.	Option could potentially give rise to visual impacts.	GAL owned land.

1.9 Hotels

1.9.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Operations and Accessibility** – all options would need to be in convenient locations, easily accessible by all transport modes.
- **Capacity** – ideally one hotel to serve the North Terminal and one hotel to serve the South Terminal to balance the demand.

Table 1.9.1: Appraisal of Hotels Options

'G' Options ES Figure 3.3.7 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option G1 - new hotel at the Car Park H Site	Assessment required of overall Car Park H layout to ensure pedestrian safety and minimisation of cross flow issues. No impacts upon airport operations envisaged.	No business case issues envisaged. Provides opportunity to deliver a solution required to support business case.	No delivery issues envisaged. Can be delivered within the required timeframe.	Located within airport boundary. Potential community impacts mean options scored as compliant with majority of policies.	Located within an existing car park with good access from South Terminal Roundabout. Located near to rail station with established access routes. Increases in traffic unlikely to impact upon network.	Fluvial, no impact to available floodplain. Pluvial; existing hardstanding possible positive effect though green spaces.	Site comprises an existing operational car park. New structure may be visible from outside airport boundary, though likely to be of similar scale to adjacent buildings.	Any potential impacts of noise, air quality or light pollution during construction and operation can be mitigated. Provides additional direct and indirect local employment.	GAL owned land. Loss of car parking which would have to be re-provided elsewhere.
Option G2 - new hotel at the Car Park Y site	Assessment required of overall Car Park Y layout to ensure pedestrian safety and minimisation of cross flow issues.	Potential issues with building in a constrained area and interface with other projects are anticipated to increase the capital costs.	Significant interfaces with other projects in the vicinity (including proposed use of site for a construction compound and a water storage site).	Located within airport boundary, but location within flood zone means option not deemed fully compliant with policy.	Located within existing car park with good vehicle access from North Terminal Roundabout. Improved pedestrian access between hotel and North Terminal may be required. Remote from train station but access via the inter-terminal shuttle would be available.	Fluvial: will affect available floodplain for 1:100+70% event, requiring mitigation. Pluvial: existing hardstanding.	Site comprises an existing operational car park. Potential visual impacts from Riverside Park Gardens and nearby residential properties.	Any potential impacts of noise, air quality or light pollution during construction and operation can be mitigated. Provides additional direct and indirect local employment.	GAL owned land. Loss of car parking which would have to be re-provided elsewhere.
Option G3 - new hotel at the South Terminal	No operational issues envisaged.	No business case issues envisaged. Provides	Requirement for Network Rail interfaces and risk management given	Located within airport boundary, but location within flood zone	Location would enable direct Terminal access (including to rail station).	Fluvial, no impact to available floodplain.	Site comprises Car Rental Front of House area with parking and low-level	Any potential impacts of noise, air quality or light	GAL owned land.

'G' Options **ES Figure 3.3.7** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
car rental front of house site		opportunity to deliver a solution required to support business case.	proximity to railway line could potentially delay programme.	means option not deemed fully compliant with policy.	Increases in traffic unlikely to impact upon network.	Pluvial; existing hardstanding possible positive effect though green spaces.	buildings. However, no visual impacts anticipated due to adjacent buildings of similar height and scale.	pollution during construction and operation can be mitigated. Provides additional direct and indirect local employment.	
Option G4 – North of Multi-Story Car Park (MSCP) 3	No operational issues envisaged	No business case issues envisaged. Provides opportunity to deliver a solution required to support business case.	A standalone site with good vehicle access. There are minimal buildability issues relating to this site.	Consent will be required as part of the Development Consent Order (DCO), but no issues are known at this stage and makes best use of GAL land.	Location would enable easy Terminal access (including to rail station) and is adjacent to existing MSCP provision	Most of the existing site is a surfaced car park, so a minimal flood risk could be created but needs exploring further	No known ecological or heritage issues. Minimal environmental impact expected due to the loss of a small number of trees.	Any potential impacts of noise, air quality or light pollution during construction and operation can be mitigated. Provides additional direct and indirect local employment.	GAL owned land
Option G5 – Destinations Place	No operational issues envisaged.	No business case issues envisaged. Provides opportunity to deliver a solution required to support business case.	An existing building above the Terminal. There are a few buildability issues relating to access that need to be solved, but as the works are mostly internal there a relatively good options available to solve this.	Consent will be required as part of DCO to change the use of the building and GAL will need to demonstrate the loss of office space is not detrimental.	Location would enable direct Terminal access (including to rail station). Increases in traffic unlikely to impact upon network.	Existing building, no additional water or flood risk is expected to be created.	No known ecological or heritage issues.	Any potential impacts of noise, air quality or light pollution during construction and operation can be mitigated. Provides additional direct and indirect local employment.	GAL owned land.

1.10 Offices

1.10.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Accessibility** – all options would need to be in convenient locations, easily accessible by all transport modes and from the terminal buildings.

- **Design** – all options would need to be capable of providing space for up to 9,000 square metres (m^2) of additional office space in accordance with original modelling.

Table 1.10.1: Appraisal of Office Options

'G' Options ES Figure 3.3.7 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option G6 - additional office space on the site of Car Park H	Assessment of overall Car Park H layout will ensure pedestrian safety is maintained and minimisation of cross flow issues.	Office building to meet future demand and offset loss of Destinations Place (to be converted to a hotel) for occupation by GAL and other organisations that require space to be on-airport to support operations. Location will be easily walkable to terminal.	No deliverability issues envisaged.	Located within airport boundary.	Located within an existing car park with good access from South Terminal roundabout. Located near rail station with established access routes. Increases in traffic unlikely to impact upon network.	Fluvial: no affect to available floodplain. Pluvial: existing hardstanding.	Site comprises an existing operational car park. No visual impacts anticipated due to adjacent buildings of similar height and scale.	Any potential impacts of noise, air quality or light pollution during construction and operation can be mitigated. Provides additional direct and indirect local employment.	GAL owned land. Loss of car parking which would have to be re-provided elsewhere.
Option G7 – office accommodation within the site of Car Park Y	Assessment of overall Car Park Y layout will ensure pedestrian safety is maintained and minimisation of cross flow issues.	Requirement for site to be used for construction logistics (North Terminal Roundabout Works) means that the construction of office facilities on this site may be later than required to meet anticipated demand. Location is not easily walkable to Terminal – bus route likely to be required hence reduces commercial attractiveness of location.	Significant interdependencies with other projects in the vicinity (including proposed use of site for construction logistics and potential for underground tanking).	Located within airport boundary, but potential community and flooding impacts mean option considered not fully compliant with policy.	Located within existing car park with good vehicle access from North Terminal Roundabout. Improved pedestrian access between car park and North Terminal may be required. Remote from train station but access via the inter-terminal	Fluvial: will affect available floodplain for 1:100+70% event, requiring mitigation. Pluvial: existing hardstanding.	Site comprises an existing operational car park. Potential visual impacts from Riverside Park Gardens and nearby residential properties.	Any potential impacts of noise, air quality or light pollution during construction and operation can be mitigated. Provides additional direct and indirect local employment.	GAL owned land. Loss of car parking which would have to be re-provided elsewhere.

'G' Options ES Figure 3.3.7 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
		Potential issues with building in a constricted areas and interface with other projects. Increased costs due to provision of bus services but may be mitigated by combining bus service required for MSCPs / hotels			shuttle would be available.				

1.11 Car Parking

1.11.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Capacity** – all options should allow for the maximum potential capacity of spaces within the identified footprint**.**
- **Operations and Accessibility** – all options must be located within the airport boundary.
- **Design** – all options should be capable of providing for efficient transfer to terminals and employment locations, to minimise the volume of vehicle traffic around the campus.

Table 1.11.1: Appraisal of Car Parking Options

'G' Options ES Figure 3.3.7 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option G8 – new surface car park in Pentagon Field	Access to new parking area via current Long Stay South: links to existing bus routes and uses current entrance/entry points so therefore offers a good passenger experience.	Increases long stay parking capacity (relatively low-yielding) but could be used flexibly for block-parking as required.	Current greenfield site with limited interfaces within airport, so no deliverability issues.	Greenfield site, outside of Airport boundary but within safeguarded land. Within biodiversity area. Possible conflict with local airport parking and biodiversity policies.	Access to new parking area via current Long Stay South. Impact of additional vehicle movements expected to be manageable.	Fluvial: no affect to available floodplain. Pluvial: additional hardstanding to be mitigated.	Potential for impact - Adjacent to Ancient Woodland and Red Archaeological Notification Area (West Sussex).	Minimal community impacts given the location away from receptors.	GAL owned.

'G' Options **ES Figure 3.3.7** (Doc Ref. 5.2)	**Operational and Business**			**Planning, Environmental, Community and Land**					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
	No operational or safety issues envisaged.								
Option G9 - new decked car park in Pentagon Field	Access to new parking area via current Long Stay South: links to existing bus routes and uses current entrance/entry points so therefore offers a good passenger experience. No operational or safety issues envisaged.	Increases long stay parking capacity (relatively low-yielding) but could be used flexibly for block-parking as required.	To utilise a standardised decking system with anticipated low construction complexity.	Greenfield, site, outside of Airport boundary but within safeguarded land. Within biodiversity area. Possible conflict with local airport parking and biodiversity policies.	Access to new parking area via current Long Stay South. Impact of additional vehicle movements expected to be manageable.	Fluvial: no affect to available floodplain. Pluvial: no additional hardstanding to be mitigated.	Potential for impact - Adjacent to Ancient Woodland and Red Archaeological Notification Area. (West Sussex). Decking increases potential for visual impacts	Minimal community impacts given the location away from receptors.	GAL owned.
Option G10 – new MSCP in the location of Car Park H (1)	Assessment of overall Car Park H layout to ensure pedestrian safety and minimisation of cross flow issues. Offers a good passenger experience as this will either be a walk-to-Terminal offering or only a short and frequent bus operation.	Potential for new spaces to be walking distance to Terminal although could also use as a bussed "mid-stay" product or for staff use. High confidence in MSCP generic cost per space following MSCP 7 tenders.	Utilisation of a standardised modular system (likely steel frame with pre-cast concrete decks) in line with the system being currently used for MSCP7.	Existing car park site within Airport boundary. Compliant with national/ local policies.	Existing or attached access already exists. Minimal alteration required. Impact of additional vehicle movements expected to be manageable.	Fluvial: no affect to available floodplain. Pluvial: no additional hardstanding to be mitigated.	Minimal environmental impact Opposite two Grade II listed buildings). MSCP structure increases potential for visual impacts.	Potential for impact. Adjacent to Air Quality Management Area (AQMA).	GAL owned.
Option G11 - new MSCP in the location of Car Park H (2)	Assessment of overall Car Park H layout to ensure pedestrian safety and minimisation of cross flow issues.	Potential for new spaces to be walking distance to Terminal although could also use as a bussed "mid-stay" product or	Utilisation of a standardised modular system (likely steel frame with pre-cast concrete decks) in line with the system	Existing car park site within Airport boundary. Compliant with national/ local policies.	Existing or attached access already exists. Minimal alteration required. Impact of additional vehicle	Fluvial: no affect to available floodplain. Pluvial: no additional hardstanding to be mitigated.	Minimal environmental impact Opposite two Grade II listed buildings). MSCP structure	Potential for impact. Adjacent to AQMA.	GAL owned.

'G' Options **ES Figure 3.3.7** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
	Offers a good passenger experience as this will either be a walk-to-Terminal offering or only a short and frequent bus operation.	for staff use. High confidence in MSCP generic cost per space following MSCP 7 tenders.	being currently used for MSCP7.		movements expected to be manageable.		increases potential for visual impacts.		
Option G12 – new MSCP in the location of existing Car Park Y.	Assessment of overall Car Park Y layout to ensure pedestrian safety and minimisation of cross flow issues. Offers a good passenger experience as this will be only a short and frequent bus operation.	Likely use as a bussed "mid-stay" product or for staff use. High confidence in MSCP generic cost per space following MSCP 7 tenders.	Utilisation of a standardised modular system (likely steel frame with pre-cast concrete decks) in line with the system being currently used for MSCP7.	Existing car park site. Within Airport boundary. Compliant with national/ local policies.	Existing or attached access already exists. Minimal alteration required. Impact of additional vehicle movements expected to be slightly worse than some other options due to limited capacity at North Terminal Roundabout.	Fluvial: will affect available floodplain for 1:100+70% event, requiring mitigation. Pluvial: existing hardstanding.	MSCP structure increases potential for visual impacts.	Potential for impact - Adjacent to AQMA.	GAL owned.
Option G13 - new MSCP in the location of existing car park J (currently used for car rental)	Good passenger experience as easily walkable to Terminal.	Potential for new spaces to be walking distance to Terminal or alternative use for approved operators/staff etc. High confidence in MSCP generic cost per space following MSCP 7 tenders. No operational costs envisaged.	Utilisation of a standardised modular system (likely steel frame with pre-cast concrete decks) in line with the system being currently used for MSCP7.	Within Airport boundary. Compliant with national/ local policies.	Existing or attached access already exists. Minimal alteration required. Impact of additional vehicle movements expected to be slightly worse than some other options due to limited capacity at North Terminal Roundabout.	Fluvial: will affect available floodplain for 1:1000 event, requiring mitigation. Pluvial: existing hardstanding.	MSCP structure increase potential for visual impacts.	Minimal community impacts.	GAL owned.
Option G14 - new	Would operate as per the current Long Stay	Increases long stay parking capacity	To utilise a standardised decking	Existing car park site within Airport	Existing or attached access already exists.	Fluvial: no affect to available floodplain.	Minimal environmental impact	Minimal community impacts.	GAL owned.

'G' Options **ES Figure 3.3.7** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
decked parking in the location of existing self-park Long Stay North car park (one deck)	car parking operation, providing a relatively easy transfer (via bus) for passenger to access the Terminal.	(relatively low-yielding) but could be used flexibly for block-parking as required. May increase long stay bussing costs.	system with anticipated low construction complexity.	boundary. Compliant with national/ local policies.	Minimal alteration required. Impact of additional vehicle movements expected to be slightly worse than some other options due to limited capacity at North Terminal Roundabout.	Pluvial: no additional hardstanding to be mitigated	(Heritage asset on other side of River Mole). Decking increases potential for visual impacts.		
Option G15 - new decked parking in the location of existing self-park Long Stay North additional deck	Upper deck most likely to be used for non-passenger facing use (ie used for block storage of cars as part of the valet service).	Likely upper deck for block-parking to avoid the need for expensive "front of house" elements such as lifts etc (ie not used by the public). No operational costs envisaged.	To utilise a standardised decking system with anticipated low construction complexity.	Existing car park site within Airport boundary. Compliant with national/ local policies.	Existing or attached access already exists. Minimal alteration required. Impact of additional vehicle movements expected to be slightly worse than some other options due to limited capacity at North Terminal Roundabout.	Fluvial: no affect to available floodplain. Pluvial: no additional hardstanding to be mitigated.	Minimal environmental impact (Heritage asset on other side of River Mole). MSCP structure increase potential for visual impacts.	Minimal community impacts.	GAL owned.
Option G16 – new car park in the location of Crawter's Field	Area is distant from Terminal and so this would be used for the block-storage of cars as part of the valet service or for staff use (non-passenger facing).	Staff/block use only due to area being distant from the Terminal. Anticipated high construction costs (due to drainage requirements) compared with other options.	High complexity due to drainage requirements in the area.	Greenfield site, within Airport boundary. Located within floodplain making the site potentially non-compliant with flood policies	A new access point would be required.	Fluvial: affects available floodplain for 1:50. Pluvial: significant additional hardstanding to be mitigated.	Potential for Impact - Adjacent to River Mole, Archaeological Notification Area (West Sussex), Significant tree loss.	Minimal community impacts.	GAL owned.

'G' Options **ES Figure 3.3.7** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
		No operational costs envisaged.							
Option G17 – new decked car park in the location of existing car park X	Area is distant from Terminal and so this would be used for the block-storage of cars as part of the valet service or for staff use (non-passenger facing).	Staff/block use only due to location (less desirable due to inflexibility). Cost benchmarking exercise for decking to be undertaken for reduced specification for staff/jockey use. No operational costs envisaged.	To utilise a standardised decking system with anticipated low construction complexity. Proximity to the runway may restrict crane usage and thus increase complexity.	Existing car park site within Airport boundary. Compliant with national/ local policies.	Existing or attached access already exists. Minimal alteration required. Impact of additional vehicle movements expected to be slightly worse than some other options due to distance from main access routes (eg M23).	Fluvial: no affect to available floodplain. Pluvial: no additional hardstanding to be mitigated Not located within the flood zone.	Potential for Impact - Adjacent to Crawters Brook, Tributary and River Mole, Archaeological Notification Area (West Sussex) one Grade II and one Grade II* Listed Building. MSCP structure increase potential for visual impacts.	Minimal community impacts.	GAL owned.
Option G18 – new decked car park in the location of existing valet MA1 car park	Area is distant from Terminal and so this would be used for the block-storage of cars as part of the valet service or for staff use (non-passenger facing).	Staff/block use only due to location (less desirable due to inflexibility). Cost benchmarking exercise for decking to be undertaken for reduced specification for staff/jockey use. No operational costs envisaged.	To utilise a standardised decking system with anticipated low construction complexity. Proximity to the runway may restrict crane usage and thus increase complexity.	Existing car park site within Airport boundary. Compliant with national/ local policies.	Existing or attached access already exists. Minimal alteration required. Impact of additional vehicle movements expected to be slightly worse than some other options due to distance from main access routes (eg M23).	Fluvial: no affect to available floodplain. Pluvial: no additional hardstanding to be mitigated.	Ancient Woodland opposite (separated by London Road). MSCP structure increase potential for visual impacts.	Minimal community impacts.	GAL owned.

1.12 Foul Water Drainage

1.12.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Compliance** – Options must not result in an increase in flood risk to any receptor in accordance with the Airports National Policy Statement (ANPS) direction to meet the requirements of the National Planning Policy Framework with respect to flood risk.
- **Stakeholder –** guidance from MSCP on likely restrictions of capacity at Crawley and Horley sewage treatment works.

Table 1.12.1: Appraisal of Foul Water Drainage Options

'H' Options **ES Figure 3.3.8** (Doc Ref. 5.2)	Operations and Business Case			Planning, Environmental, Community and Land					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
Option H1 - South Terminal-Foul, Upgrade main to Horley Wastewater Treatment Works (WTW)	Technically sound solution requires additional solutions to address system issues. Potential impacts on passenger experience if works impact A23.	Depended on Third party assets to be upgraded and available capacity at Horley WTW, which may create a financial demand from Thames Water on GAL.	Dependent on Third-party delivering capacity in a timely manner. Complexities of works alongside highway could impact programme.	Are greater potential for impacts on highways, soils and nearby residents. Potential for traffic regulation orders to deliver works, so considered broadly complaint with balance weighing in favour.	Several major road and river crossings (A23), could give rise to delays on existing network during construction and impact on design of highway mitigation for the project.	Underground asset. Fluvial; no effect on available floodplain Pluvial; no additional hardstanding.	Some potential impacts upon soils and ecology because of works.	Works located near to residential area, with potential to increase noise during construction.	Works located outside of GAL Land. Asset fully owned by third party.
Option H2 - South Terminal-Foul, Reroute Pumping Station (PS)19 and PS23 to Crawley WTW	Creates headroom in remaining South Terminal-Foul system to accommodate growth.	Asset to be built on GAL land, requires permission from Thames Water Crawley WTW to connect in, which may trigger discharge cost for hotels and catering establishments.	Requires slight indirect route to WTW to avoid ancient woodland. Could potentially add to programme.	Approvals from Thames Water for connections into WTW. Initial appraisal identified potential loss of ancient woodland, which is not supported in policy. Would require mitigation in the form of a diversion around woodland.	Development contained within airport estate. No impacts on network.	Largely underground asset. Fluvial; no effect on available floodplain. Pluvial; no additional hardstanding.	Some potential impact upon soils and trees. Initial route passed through area of Ancient Woodland. Would require mitigation in the form of a diversion around woodland.	No impact visible from outside the boundary.	Part of connection on land outside of GAL control.
Option H3 - South Terminal-Foul, Storage tanks and slow release to Horley WTW	Storage system susceptible to ragging issues, as critical to South Terminal operations, needs significant resilience systems.	Create an additional critical asset for GAL to maintain, incur CapEx cost and Significant operational expenditure (OpEx) to fix issues and maintain asset.	Congested areas with limited space available to build such a facility for the South Terminal foul system.	Location within airport, but flood zone and given potential for odour impacts means option broadly complaint with balance likely to weigh in favour.	Development contained within GAL land. No impacts on network. Works traffic negligible.	Underground asset. Fluvial; no effect on available floodplain. Pluvial; no additional hardstanding.	Area of existing hardstanding and no impacts anticipated.	Potential for storage area to give rise to odours that could impact nearby receptors.	Located within GAL owned land.

'H' Options **ES Figure 3.3.8** (Doc Ref. 5.2)	Operations and Business Case			Planning, Environmental, Community and Land					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
Option H4 - South Terminal-Foul PS40 and sewer line upgrade	Pinch point in existing system, new pumps and pump main will allow existing set-up to remain functional into the future.	Will take time to install due to temp measures.	Route of both PS40 and pump main is in central area of the airfield and will require access during the day. There is a demand for lots of temporary works.	Located within the airport. No impacts on environment or community and compliant with policy.	Development contained within GAL land.	Underground asset. Fluvial; no effect on available floodplain. Pluvial; no additional hardstanding.	Upgrade of existing underground asset in an area of build development.	Upgrade of existing underground asset.	Located within GAL owned land.
Option H5 - South Terminal-Foul connection to Crawley WTW under railway	Could work in combination with PS19/PS23 reroute or stand alone. Providing a resilient option for rest of the South Terminal and its growth taking might be too much or Crawley to handle (based on the assumption the WTW Horley is restricted).	Land issues in crossing the railway and Gatwick stream, finding location for additional pumping station and rerouting foul services within South Terminal buildings make the CapEx costs likely to be prohibitive.	Crossing of railway and Gatwick stream requires close coordination/ interfaces with Environmental Agency and Network Rail, no option for cut and cover, weald clay may prove substantial obstacle. Complexities may impact programme.	Additional consents and licences required associated with rail and river crossing. Potential impacts upon rive and community could lead to some non-compliance with policies.	Could require railway and A23 closures to deliver – potentially having significant impacts upon passenger travel and highway network during construction.	Underground asset. Fluvial; no effect on available floodplain, requires river crossing. Pluvial; no additional hardstanding.	Potential impacts upon ecology and soils because of the required works.	Potential impacts on economy if rail closures.	Rights and wayleaves potentially required to deliver works.
Option H6 - GAL owned Wastewater treatment works	Non-core business for GAL, requires recruitment of specialist engineers, but not depended on third-party.	High cost to establish and maintain, but in own ownership and not depended on third-party.	Requires discharge consent from Environment Agency, for water and air quality.	Given the potential environmental impacts and location within the flood zone, potential to be non-compliant with several policies, but potential for mitigation.	Enlarged operation will trigger additional traffic, trucks with chemicals and staff removal of rag and sludge cake.	Above ground asset Fluvial; affects 1:100+35% available floodplain requiring mitigation, additional discharge consent required Pluvial; significant additional hardstanding.	Potential impacts on soils and ecology because of works.	WTW structure could have visual impacts and potential odour impacts on nearby receptors, which would require mitigation.	GAL owned land.
Option H7 - Airfield Foul - relocate PS3	PS3 will be under the relocated Juliet Taxiway, relocating the pumping station	Under current proposal there is not a clear location where PS3 could be	Timing will be critical during any works to Oscar area.	Within airport boundary. No impacts on environment or	Development contained within GAL land	Underground asset Fluvial; no effect on available floodplain.	Located on area of hardstanding within the airport, so no impacts anticipated.	No impact visible from outside the boundary.	GAL owned land.

'H' Options **ES Figure 3.3.8** (Doc Ref. 5.2)	Operations and Business Case			Planning, Environmental, Community and Land					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
	to a new location would allow continued operations.	replaced without significant changes to the incoming and outgoing connections. Has potential CapEx implications.		community and compliant with policy.		Pluvial; adds to volume by decoupling surface water and foul.			
Option H8 - Airfield Foul - reinforce PS3	A reinforced PS3 would be able to stay in the same location, but maintenance and operations could be hampered by constant traffic on taxiway Juliet.	Costly solution that does not address current suboptimal performance of PS3 and PS2a.	To reinforce an existing asset and get design certificates can be complex and expensive.	Within airport boundary. No impacts on environment or community and compliant with policy.	Development contained within GAL land.	Underground asset Fluvial; no effect on available floodplain Pluvial; adds to volume by decoupling surface water and foul.	Located on area of hardstanding within the airport, so no impacts anticipated.	No impact visible from outside the boundary.	GAL owned land.
Option H9 - Airfield Foul - add PS2a	Reorganises the airfield foul to remove two sub-optimally performing pumping stations into one new into an area that is not affected by the core airfield works and can thus be carried out and maintain operations.	PS2a can be build offline before PS3 is taken off line, it can be designed and build to accommodate growth and reduce overall business risk of inaccessible pipework.	Work can be done at various stages of the process making it largely independent of major component of the core airfield.	Within airport boundary. No impacts on environment or community and compliant with policy.	Development contained within GAL land.	Underground asset Fluvial; no effect on available floodplain Pluvial; adds to volume by decoupling surface water and foul.	Located on area of hardstanding within the airport, so no impacts anticipated.	No impact visible from outside the boundary.	GAL owned land.
Option H10 - North Terminal Foul - Route to Horley WTW	If the capacity becomes available in Horley WTW, a route from PS8 via povey cross could allow North Terminal Foul system to discharge in that direction. Indications are this is unlikely.	Requires new connection over povey cross bridge to MSCP (Thames Water) main sewer, Thames Water to provide capacity, significant disruption during construction.	Most of the required infrastructure has pro-actively been put in place. Additional connection considered to be deliverable within timescales required.	Given the potential impacts and location within the flood zone, potential to be non-compliant with several policies but planning balance weighing in favour.	Potential minor impacts on network around Povey Cross Bridge during construction.	Fluvial; no effect on available floodplain. Pluvial; no additional hardstanding.	Potential impacts on ecology and soils associated with additional connection over povey cross bridge.	underground assets, but potential for some impacts on nearby residents during construction.	Part of works located outside GAL ownership.

'H' Options ES Figure 3.3.8 (Doc Ref. 5.2)	Operations and Business Case			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option H11 - North Terminal foul - PS7a	New pumping station replacing the current pinch point in the system, low impact on current ops.	Asset to be built on GAL land, it requires access via Segro owned land to complete the construction, large and deep PS will be costly. But is a one site solution to solve the North Terminal foul issues.	Asset to be built on GAL land, it requires access via Segro owned land to complete the construction but works considered deliverable.	Potential flooding impacts mean option considered to be less complaint that other options.	Development contained within GAL land.	Fluvial; affects 1:100+70% available floodplain. Fluvial; additional hardstanding.	Located on area of hardstanding within the airport, so no impacts anticipated.	Underground assets.	Part of works located outside of GAL land.

1.13 Surface Water Drainage

1.13.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Compliance** – Options must not result in an increase in flood risk to any receptor in accordance with the ANPS direction to meet requirements with respect to flood risk and consider the requirements of the Water Framework Directive (WFD).
- **Compliance** - We are required to demonstrate no increase in flood risk to other parties for the 1% Annual Exceedance Probability (AEP) event plus an allowance for the predicted impact of climate change. The project has adopted a variable design life between airfield and surface access highways improvements of 40 and 100 years respectively. Therefore, airfield surface water elements have been assessed against a rainfall event of 1% AEP plus 25% event and highways a 1% AEP plus 40% event in accordance with Environment Agency guidance.
- **Water Quality** – all options need to prevent pollution.

Table 1.13.1: Appraisal of Surface Water Drainage Options

'I' Options ES Figure 3.3.9 (Doc Ref. 5.2)	Operations and Business Case			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option I1 - Pond A re-provision in museum field	Pumped crossing of river mole required. requires relocation of westfield stream and new Environment	Implementing this option prevents this land being used for fluvial storage, which would lead to	Potential programme implications this option was required prior to	Large pond (reservoir act applies) serving former pond A catchment,	No impacts anticipated.	Fluvial: affects existing watercourses and but adds available floodplain.	Options for improvement but some tree removal required.	The new pond would be visible from neighbouring fields. Some potential for temporary disruption	Located on GAL Land.

'I' Options ES Figure 3.3.9 (Doc Ref. 5.2)	Operations and Business Case			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
	Agency discharge consents. Can be delivered without affecting airport operations.	needing GAL to acquire additional land for fluvial mitigations.	commencement of enabling works.	Requirements for discharge consents, can be included in DCO. Some potential impacts to flooding and loss of trees, resulting in option being considered only partially compliant with policy.		Pluvial: additional load mitigated within design. Not potential for Campus wide benefit.	Soil protected by liner if required. Medium risk for archaeological find.	at nearby receptors during construction.	
Option I2 – Expand pond M catchment	Requires significant scalable pumping station in northwest of the airfield to transfer water to pond M, likely to require additional substation to feed it.	High cost of operation in end state due to pumping.	Delivery requires close coordination with construction drainage plan and careful consideration of airfield interfaces.	Location on airport with no policy designation issues, but flood zone means only complaint with majority of policies.	No impacts anticipated.	Fluvial; removes discharge from river mole no affect to floodplain. Pluvial; no additional hardstanding.	No impacts anticipated.	Works would not give rise to any impacts upon community.	Located on GAL Land.
Option I3 - Storage open	Large pond (reservoir act applies) serving all Gatwick catchments, size to be determined by size of pond A and amount of airfield storage achieve in line.	Site earmarked for future development eg MSCP and / or Hotel, solution not compatible with this use solution does retain option to enlarge for additional protection of North Terminal loss of carpark to be re-provided elsewhere.	Would involve interfaces with several other works within the area along with existing operations. Some potential for programme impacts.	Some potential impacts to flooding and loss of trees, resulting in option being considered only partially compliant with policy.	Displacement of car parking spaces could give rise to network impacts.	Fluvial: affects floodplain for 1:100+70%. Pluvial: removal of hardstanding.	Some removal of trees required but in essence like for like use of space. Soil protected by liner if required. Medium risk of archaeological finds.	Potential for some nuisance during construction given proximity to nearby residential area.	Located on GAL Land.
Option I4 - Storage underground	Large pond (reservoir act applies) serving all Gatwick catchments,	additional investment required to maintain future development	Key is timing and integration with other elements of the programme.	Location on airport with no policy designation issues, potential impacts on	Temporary loss of parking during construction could	Fluvial: affects floodplain for 1:100+70%.	Some removal of trees required but in essence like for like use of space.	Potential for some nuisance during construction given	Located on GAL Land.

'I' Options ES Figure 3.3.9 (Doc Ref. 5.2)	Operations and Business Case			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
	size to be determined by size of pond A and amount of airfield storage achieve in line.	options of site as, carpark and Hotel.		environment means only complaint with majority of policies.	impact immediate network.	Pluvial: no additional hardstanding.	Soil protected by liner if required. Medium risk of archaeological finds	proximity to nearby residential area.	
Option I5 - Pond A north and relocate river mole	Positively impacts fluvial flooding south of runway, and provide close to source buffering reducing requirements for car park Y.	Option uses parcel of potential commercial land for environmental use. Riverside Park planting cost expected to substantial due to need for established growth.	Sequencing of the work to maintain drainage functionality will be challenging. River side planting to be complete as part of delivery no time for natural establishment due to safeguarding.	Location on airport with no policy designation impacts, potential impacts on environment means only complaint with majority of policies.	No impacts anticipated.	Fluvial; improves flow through river and adds floodplain. Pluvial no additional hardstanding	Significant enlargement of river valley habitat will provide a major benefit. Soil protected by liner if required, Medium risk for archaeological find.	Improved natural noise absorption.	Loss of the PV equipment which would have to be re-provided elsewhere.
Option I6 (Water Treatment Plant)	Positively impacts water quality.	This option removes the need for a treatment and storage tank at Car Park Y for water quality purposes. Proximity to existing infrastructuree.	Non-operational area adjacent to existing Crawley South Terminal.	Construction consented under the DCO, utilises existing outfall to Gatwick Stream. But would require new Environmental Permit and Flood Risk Activity Permit from the Environment Agency (which should be achievable).	No impacts anticipated.	Option beneficial to water environment by reducing risk of pollution	No discernible impacts to other water disciplines	Improvement to water quality. Works would not give rise to any impacts upon community.	Currently farmland but owned by GAL

1.14 Fluvial Mitigation

1.14.1 The following key requirements were originally used to influence the development of the options identified as part of the appraisal process:

- **Compliance** – Options must not result in an increase in flood risk to any receptor off-site in accordance with the ANPS direction to meet requirements with respect to flood risk and take into account the requirements of the Water Framework Directive (WFD).

- **Compliance** - We are required to demonstrate no increase in flood risk to other parties for the 1% AEP event plus an allowance for the predicted impact of climate change. The project has been assessed against the 1% AEP plus 20% flood event in accordance with Environment Agency guidance. A further sensitivity test has been undertaken for the 1% AEP plus 40% event to understand the effects they give rise to.

Table 1.14.1: Appraisal of Fluvial Mitigation Options

'J' Options ES Figure 3.3.10 (Doc Ref. 5.2)	Operations and Business Case			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based)(Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option J1 - Museum Field	Passive protection, good modelled protection against flooding.	No current use for the field, was site for pond A re-provision.	Can be done independently of any other works.	Greenfield site located outside of the current airport boundary, though nature of works and potential biodiversity opportunities allow for planning balance to be favourable.	No impact on transport in end state.	N/A	Positive options for improvement. No removal of habitat proposed. Soil protected by liner, if required. Medium risk for archaeological finds.	Potential for temporary impacts because of construction works, but area to be opened to the public, positive effects.	GAL owned land.
Option J2 - Summer Holiday Parking	Passive protection, poor modelled protection against flooding.	Does not contribute significantly to achieving target flood protection, displaces block parking site.	Close proximity to sensitive buildings.	Within airport boundary on area of existing hardstanding, so considered to be policy complaint.	No impact on transport in end state.	N/A	Positive options for improvement. No removal of habitat proposed. Soil protected by liner, if required High risk of archaeological finds.	Increased access to public.	GAL owned land.
Option J3 - Car park X	Passive protection, good modelled protection against flooding.	Displaces carparking spaces and increase liability for damages to cars parked at X carpark.	Delivery to be done in winter months (5 months per phase). To minimise carpark space loss.	Within airport boundary, but loss of trees and archaeology risks result in option being less compliant with policy than other options.	No impact on transport in end state.	N/A	Some removal of trees required but in essence like for like use of space. Soil protected by liner, if required. High risk of archaeological finds.	Potential for temporary impacts because of construction works.	GAL owned land.
Option J4 - Car park Z	Passive protection, limited modelled protection against flooding.	Displaces carparking spaces and increase liability for damages to cars parked at z carpark.	Delivery to be done in winter months (5 months per phase). To minimise carpark space loss.	Within airport boundary on area of existing hardstanding, so considered to be policy complaint.	No impact on transport in end state.	N/A	Positive options for improvement. no removal of habitat proposed. Soil protected by liner, if required. High risk of archaeological finds.	Potential for temporary impacts because of construction works.	GAL owned land.

'J' Options **ES Figure 3.3.10** (Doc Ref. 5.2)	Operations and Business Case			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based)(Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option J5 - Carpark B	Passive protection, poor modelled protection against flooding.	Displaces carparking spaces and increase liability for damages to cars parked at B carpark.	Delivery to be done in winter months (5 months per phase). To minimise carpark space loss.	Within airport boundary, but loss of trees and archaeology risks result in option being less compliant with policy than other options.	No impact on transport in end state.	N/A	Some removal of trees required but in essence like for like use of space. Soil protected by liner, if required. Medium risk of archaeological finds.	Potential for temporary impacts because of construction works.	GAL owned land.
Option J6 - Gatwick stream with trees	Passive protection, good modelled protection against flooding.	Land in GAL ownership currently not used.	Can be done independently of any other works.	Within airport boundary, but loss of trees and archaeology risks result in option being less compliant with policy than other options.	No impact on transport in end state.	N/A	Some removal of trees required but in essence like for like use of space. Soil protected by liner, if required. Medium risk of archaeological finds.	Potential for temporary impacts because of construction works.	GAL owned land.
Option J7 - Gatwick stream without trees	Passive protection, good modelled protection against flooding.	Land in GAL ownership currently not used.	Can be done independently of any other works.	Within airport boundary, but loss of trees and archaeology risks result in option being less compliant with policy than other options.	No impact on transport in end state.	N/A	Significant removal of trees required but in essence like for like use of space. Soil protected by liner, if required. Medium risk of archaeological finds.	Loss of tree cover in front of WTW could give rise to increased emissions impacts.	GAL owned land.
Option J8 - Areas in between EAT, West	Passive protection, poor modelled protection against flooding, potential safeguarding issues.	Potentially costly due to construction constraints.	Construction hours constraint by runway ops must be delivered in parallel with EATS adding time to the delivery programme.	Within airport boundary, but loss of grassland result in option being less compliant with policy than other options.	No impact on transport in end state.	N/A	Some loss of grassland. No habitat improvement possible. Soil protected by liner if required. Low risk of archaeological finds.	Potential for temporary impacts because of construction works.	GAL owned land.
Option J9 - Areas in between EAT, East	Passive protection, poor modelled protection against	Potentially costly due to construction constraints.	Construction hours constraint by runway ops must be delivered in parallel	Within airport boundary, but loss of grassland result in option being less	No impact on transport in end state.	N/A	Some loss of grassland. No habitat improvement possible. Soil	Potential for temporary impacts because of construction works.	GAL owned land.

'J' Options ES Figure 3.3.10 (Doc Ref. 5.2)	Operations and Business Case			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based)(Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
	flooding, potential safeguarding issues.		with EATs adding time to the delivery programme.	compliant with policy than other options.			protected by liner if required. Low risk of archaeological finds.		
Option J10 river mole diversion (combination with surface water option 5)	Passive protection for flooding due to providing more room for the river. Some safety concerns due to creation of open Channel attracting birds.	Land in GAL ownership currently not used, but limited potential for commercial exploitation.	Requires phased delivery but feasible landside delivery.	Within airport boundary, due to improvement to the river habitat deemed to be compliant with policy.	No impact on transport in end state.	N/A	Positive option for improvement of river habitat in exchange for poor grassland. Medium risk for archaeological finds.	No change.	GAL owned land.

1.15 Central Area Recycling Enclosure (CARE) Facilities

1.15.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Operations** – all options would need to be designed to allow for efficient operation of the facility itself and the airport, including considerations of waste flows and vehicle routing.
- **Capacity** – all options would need to provide for a waste capacity that meets the demands of 75.6 mppa by 2038 (80.2 mppa by 2047).
- **Design** – all options are to be designed to 'tie in' and be in keeping with the design of the existing airport, drive innovation, support delivery of Gatwick Airport's Sustainability Policy and Second Decade of Change (June 2021) and align with the Governments Waste Management Strategy (October 2018).

Table 1.15.1: Appraisal of CARE Facility Options

'K' Options ES Figure 3.3.11 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option K1 - Flying Pan Site (north of cargo)	Operational reduction in travel distance of 575 m. No anticipated impacts upon airport operations.	Can be designed to meet future needs and CapEx estimate with an acceptable range.	Can be built to allow for phasing. No construction complexities anticipated.	Located within the airport boundary and considered an appropriate/necessary use. Facilities with include re-use and recycling which align with local policies.	Waste vehicle traffic and supplier collection terminate earlier along Larkins Road. No significant impact on network from the volume and routeing of traffic.	Fluvial: affects available floodplain for 1:100 +70%. Pluvial: no additional	There is considered to be a lower probability of the waste management site being visible from outside the airport boundary compared to Option K2.	There is no requirement to construct new enabling roadway. If a flue stack is required, it may potentially be visible	GAL owned land. Loss of car parking which would have to be re-provided elsewhere.

'K' Options **ES Figure 3.3.11** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
	Flexibility of phasing possible					hardstanding to be mitigated.	Located on existing hardstanding, no loss of habitat.	from outside of the boundary. Stack distance of 295 m from nearest receptors.	
Option K2 – Long Stay Car Park North	Operational reduction in travel distance of 250 m. No constraint in shape of site footprint, so offers greater opportunity for flexibility in developing the site.	Sited on car park that offers greater value/revenue – (adjoining existing estate) than Option K1.	Can be built to allow for phasing. No construction complexities anticipated.	Located within the airport boundary and considered an appropriate/necessary use. Facilities with include re-use and recycling which align with local policies.	Waste vehicle traffic and supplier collection vehicles terminate further out towards the airport boundary, carrying heavy goods traffic further along Larkins Road. No significant impact on network from the volume and routeing of traffic.	Fluvial: no affect to available floodplain. Pluvial: no additional hardstanding to be mitigated.	This option would be located closer to the airport boundary therefore the flue stack could potentially be visible from outside the airport. Located on existing hardstanding, no loss of habitat.	Likely to be contentious with local community due to proximity to airport boundary. If a flue stack is required, it may potentially be visible from outside of the boundary. Stack distance of 295m from nearest receptors.	GAL owned land. Loss of car parking which would have to be re-provided elsewhere.

1.16 Engine Running Areas

1.16.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Capacity** – all options should support the demand for ground engine run tests within a growth scenario.
- **Operations and Accessibility** – all options should seek to remove or minimise operational impact and support the core airfield operations.
- **Location** – enough suitable locations are required to ensure engine ground runs can be conducted in all operational modes.
- **Design** – the location for ground engine run areas should not require any blast infrastructure, as per existing provision.

Table 1.16.1: Appraisal of Engine Running Area Options

'K' Options **ES Figure 3.3.11** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option K3 - Taxiway Yankee - Block 15/16	Less congested area - already in operation today.	None.	No anticipated issues given no major works required.	Located on existing airfield and no significant impacts anticipated.	No impacts upon future surface access.	None anticipated given nature of proposals.	None given location on existing taxiway and no works required.	None anticipated given location is very similar to existing.	GAL Land.
Option K4 - Taxiway Juliet West	In use today. Some impact consideration to aircraft flow in dual runway operation– to be utilised when operationally viable. Wind flow impact due to noise wall a consideration however less so than Juliet Spur.	Availability may be impacted depending on aircraft flow/routing.	No anticipated issues given no major works required.	Located on existing airfield and no significant impacts anticipated.	No impacts upon future surface access.	None anticipated given nature of proposals.	None given location on existing taxiway and no works required.	None anticipated given location is very similar to existing.	GAL Land.
Option K5 - Alpha Box	In westerly operations, the area is used for runway holding. In easterly operations, much of the space is affected by the obstacle free surfaces from the northern runway, so utilisation is limited to single runway operations from the southern runway.	No major CapEx costs, but significantly reduced utility compared to current operations.	No anticipated issues given no major works required.	Located on existing airfield and no significant impacts anticipated.	No impacts upon future surface access.	None anticipated given nature of proposals.	None given location on existing taxiway and no works required.	None anticipated given location is very similar to existing.	GAL Land.
Option K6 - Oscar Area - South of Virgin Hangar	Blast impact to be considered on Tango / Sierra. Consideration also to positioning	Possibility of impacting Stand Planning.	No anticipated issues given no major works required.	Located on existing airfield and no significant impacts anticipated.	No impacts upon future surface access.	None anticipated given nature of proposals.	None given location on existing taxiway and no works required.	None anticipated given location is very similar to existing.	GAL Land.

'K' Options **ES Figure 3.3.11** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
	aircraft in an appropriate direction (wind) to enable viable engine test.								
Option K7 - Taxiway Tango Block 53	Construction and operation impacts (flow, foreign object debris) impacted by all options (no infrastructure to full hush house).	Blast considerations are likely to require infrastructure which would significantly impact business case.	No anticipated issues given no major works required.	Located on existing airfield and no significant impacts anticipated.	No impacts upon future surface access.	None anticipated given nature of proposals.	None given location on existing taxiway and no works required.	None anticipated given location is very similar to existing.	GAL Land.
Option K8 - Juliet Spur	Aircraft flow/routing impact (to and from Spur), Noise Wall impact on wind flow, ie flow of air to aircraft engine for testing is imperative.	Routing flow + additional pavement required to prevent foreign object debris. Some OpEx required to operate.	No anticipated issues given no major works required.	Located on existing airfield and no significant impacts anticipated.	No impacts upon future surface access.	None anticipated given nature of proposals.	Close to Brockley Wood than other options so potential to have greater impact.	Location moves running area slightly closer to sensitive receptors compared to existing and other potential options.	GAL Land.
Option K9 - South of Boeing Hangar)	Access/egress onto live taxiway (Juliet/Uniform) flowing/routing impact. Blast risk to Taxiway Uniform when facing westerly direction.	New pavement infrastructure requirements.	No anticipated issues given no major works required.	Located on existing airfield and no significant impacts anticipated.	Additional paving and hardstanding required on grassland.	None anticipated given nature of proposals.	Proximity to ancient woodland and habitat areas, but similar to existing operations.	None anticipated given location is very similar to existing.	GAL Land.
Option K10 - Old Hangar 4 Entrance	Consideration of blast mitigation and foreign object debris mitigation required.	New pavement infrastructure requirements.	No anticipated issues given no major works required.	Located on existing airfield and no significant impacts anticipated.	No impacts upon future surface access.	None anticipated given nature of proposals.	None given location on existing taxiway and no works required.	None anticipated given location is very similar to existing.	GAL Land.

'K' Options ES Figure 3.3.11 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option K11 - 230 Stands	In easterlies, blast/noise directly onto Taxiway Uniform, so consider not a viable option. In westerlies, blast to Taxiway Tango and Stands south of Virgin Hangar also considered not viable.	Flow/aircraft routing impacted.	No anticipated issues given no major works required.	Located on existing airfield and no significant impacts anticipated.	No impacts upon future surface access.	None anticipated given nature of proposals.	None given location on existing taxiway and no works required.	None anticipated given location is very similar to existing.	GAL Land.

1.17 Rendezvous Points

1.17.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Capacity** – all options must provide sufficient holding pavement area to accommodate multiple emergency service vehicles (an area of approximately 4,500 m^2).
- **Operations and Accessibility** – the facility requires access from a landside roadway into a secure fenced area, with an egress gate directly accessing the airfield. A demountable cabin is required to house essential incident and toilet provision. The facility needs to be secluded from direct public access, and ideally offer line of sight to the airfield. Options must align with emergency services requirements.
- **Location** – all options must be located north of the existing runways.

Table 1.17.1: Appraisal of Rendezvous Point Options

'K' Options ES Figure 3.3.11 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option K12 – (former Security Post - Northgate Area)	Operationally in the wrong place – would not meet requirements of emergency services on basis of both access and distance to incident.	Construction cost considered to be acceptable. Minimal operating cost.	Non-operational Area, Minimal construction works required to deliver.	Located within airport boundary and comprises an existing use.	No surface access issues anticipated. Easiest option to access from main highways and "blue light" emergency routes.	Fluvial: affects available floodplain 1:100+70%. Pluvial: no additional hardstanding.	Existing pavemented area and no additional development required.	None anticipated given nature of proposals and location within airport.	Within airport boundary on GAL owned land.

'K' Options **ES Figure 3.3.11** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
	Too far from the central airside area, no opportunity of line of sight. Access too convoluted.								
Option K13 – North West Zone Area	Aligns with Emergency Services requirements. Option supports rapid access to the airfield, acceptable distances, and potential for some line of sight to the airfield.	Construction cost considered to be acceptable. Minimal operating cost.	Non-operational Area, Minimal construction works required to deliver.	Located within airport boundary and comprises an existing use.	No surface access issues anticipated.	Fluvial: no affect to available floodplain. Pluvial: no additional hardstanding to be mitigated.	Existing pavemented area and no additional development required.	None anticipated given nature of proposals and location within airport.	GAL owned land. Loss of car parking which would have to be re-provided elsewhere.
Option K14 – Northern Approach Security Post	Separation from operational areas is essential. Area is congested and would create risk of delayed access.	Construction cost considered to be acceptable. Minimal operating cost.	Congested airside area, and construction impacts would require mitigation.	Located within airport boundary and comprises an existing use.	No surface access issues anticipated.	Fluvial: affects available floodplain 1:100+35%. Pluvial: no additional hardstanding.	Existing pavemented area and no additional development required.	None anticipated given nature of proposals and location within airport.	Within airport boundary on GAL owned land.
Option K15 – Western end of aerodrome	Operationally in the wrong place – would not meet requirements of emergency services on basis of both access and distance to incident.	Construction cost considered to be acceptable. Minimal operating cost.	Non-operational area, Minimal construction works required to deliver.	Located within airport boundary and comprises an existing use.	No surface access issues anticipated. Furthest option from main highways and "blue light" emergency routes.	Fluvial: affects available floodplain 1:100. Pluvial: additional hardstanding to be mitigated.	Greenfield site that would result in the loss of soils and grass land to create development.	Potential for impacts resulting from emergency traffic routing via Charlwood Village/Charlwood Road.	Within airport boundary on GAL owned land.

1.18 Longbridge Roundabout

1.18.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- Ensure safe and effective future operation of the strategic and local road network in the vicinity of Gatwick, by providing better travel conditions on through routes at the Longbridge Roundabout for airport and non-airport users through measures that enhance safety, capacity and resilience.
- Provide sufficient highway capacity to mitigate the forecasted airport traffic and background traffic growth.

- Promote and support an increase in sustainable travel by passengers and staff accessing the airport in accordance with Gatwick's Surface Access Strategy through the provision of new and enhanced active travel infrastructure.
- Maintain the existing safety standard of the roads being impacted by the proposed scheme and provide betterment where feasible.
- Ensure full compliance with standards in line with relevant highway authority standards and procedures.
- Minimise disruption to road users during construction and ensure compliance with best practice in relation to safety and other road user impacts of roadworks.
- Minimise the impact to key areas of ecological, landscape or recreational value in the vicinity of the works.

Table 1.18.1: Appraisal of Longbridge Roundabout Options

'L' Options **ES Figure 3.3.12a** (Doc Ref. 5.2)	**Operational and Business**			**Planning, Environmental, Community and Land**					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
Option L1 – Minor carriageway works	No direct impacts on operations other than continued access around the northern perimeter of the airfield (via Povey Cross Road). Lack of additional capacity may impact passenger experience for those approaching the airport via this junction.	Minor cost implications but lack of capacity for growth could impact on accessibility and have a marginal effect on the Northern Runway business case if it creates a capacity constraint.	Relatively minor construction works. Requires highway authorities' approval of scheme design and construction.	Requires agreement with highway authorities and publication of new Traffic Regulation Orders. Some potential impacts upon on community, leading to view that option is complaint with majority of policies.	Potential to reduce congestion and improve safety but does not provide additional capacity for growth so does not mitigate future congestion.	None. Works within existing highway boundary.	None. Works within existing highway boundary.	Potential to reduce congestion and improve air quality. Does not add capacity so does not mitigate future congestion that may arise from growth.	None. Works within existing highway boundary.
Option L2 – Signalised Intersection	Concept design based on meeting required capacity and mitigating operational and safety impacts with reference to Design Manual for Roads and Bridges (DMRB) guidance. Includes retention of safe pedestrian crossing facilities.	Considerable cost to secure growth and ensure accessibility to meet business requirements for Northern Runway. Potential for some commuted sum payments to cover future maintenance.	Major construction works with potentially significant traffic disruption. Complex to deliver. Requires highway authorities' approval of scheme design and construction.	Requires agreement with highway authorities and publication of new Traffic Regulation Orders. No anticipated impacts during construction and improvements can improve existing congestion.	Potential to reduce congestion and improve safety. Provide an increase in capacity to mitigate the effects of future growth.	Fluvial; affects 1:20 available floodplain requiring mitigation. Fluvial; adds additional hardstanding to be mitigated in design, however, overall junction footprint similar to existing.	None anticipated given the nature of the works.	Potential to reduce congestion and improve air quality. Scheme mitigates future congestion that may arise from growth.	Third party land required subject to scheme development with highway authorities.

'L' Options **ES Figure 3.3.12a** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
Option L3 – Roundabout Improvements	Concept design based on meeting required capacity and mitigating operational and safety impacts of current, non-compliant lane widths with reference to DMRB guidance. Includes improvement of safe pedestrian crossing facilities.	Considerable cost to secure growth and ensure accessibility to meet business requirements for Northern Runway. Potential for some commuted sum payments to cover future maintenance.	Major construction works with significant traffic disruption. Complex to deliver due to structures over River Mole requiring widening or replacement. Requires highway authorities' approval of scheme design and construction.	Requires agreement with highway authorities and publication of new Traffic Regulation Orders. Anticipated impacts during construction due to reduced capacity. Improvements will reduce congestion once complete.	Will reduce congestion and improve safety. Provide an increase in capacity to mitigate the effects of future growth.	Fluvial; affects 1:20 available floodplain requiring mitigation. Fluvial; adds additional hardstanding to be mitigated in design. Overall junction footprint increased compared to existing.	Impact on adjacent land due to drainage mitigation requirements.	Potential to reduce congestion and improve air quality. Scheme mitigates future congestion that may arise from growth. Minor impact on loss of open space will be mitigated	Third party land required subject to scheme development with highway authorities.

1.19 North Terminal Roundabout

1.19.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- Ensure safe and effective future operation of the strategic and local road network in the vicinity of Gatwick, by providing better travel conditions on through routes at the North Terminal junctions for airport and non-airport users through measures that enhance safety, capacity and resilience.
- Provide sufficient highway capacity to mitigate the forecasted airport traffic and background traffic growth.
- Promote and support an increase in sustainable travel by passengers and staff accessing the airport in accordance with Gatwick's Surface Access Strategy through the provision of new and enhanced active travel infrastructure.
- Maintain the existing safety standard of the roads being impacted by the proposed scheme and provide betterment where feasible.
- Ensure full compliance with standards in line with relevant highway authority standards and procedures.
- Minimise disruption to road users during construction and ensure compliance with best practice in relation to safety and other road user impacts of roadworks.
- Minimise the impact to key areas of ecological, landscape or recreational value in the vicinity of the works.

1.19.2 The design iteration process included several options being tested through strategic modelling of the highway network and six options were presented in the Preliminary Environmental Information Report (PEIR). A full description of the options considered through this process is provided in the **Consultation Report Appendices – Part B**, B.16 Preliminary Environmental Information Report, PEIR Appendix 12.9.1 Part 4 (Doc Ref. 6.2). These initial options were revisited as part of the Summer 2022 optioneering exercise (Consultation Report Appendices – Part C, C.1 Consultation Document (Doc Ref. 6.2)) and a further two options were considered.

1.19.3 A summary of the highway options relating to the North Terminal Roundabout following both periods of consultation are provided in **ES Appendix 3.5.2: North Terminal Roundabout Options Development** (Doc Ref 5.3). It provides further detail to the three main options presented in within Table 1.19.1. Options in brackets refer to the sub-options analysed in **ES Appendix 3.5.2**.

Table 1.19.1: Appraisal of North Terminal Roundabout Options

'M' Options **ES Figure 3.3.12b** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option M1: Do Minimum (Option 5)	Insufficient capacity for anticipated highway demand (based on growth, mode share and occupancy assumptions). Likely severe operational and safety impacts.	Severe impact on business and commercial efficiency, potential reputational issues due to the traffic delays.	None anticipated. A series of simple highway works with little impact during construction and minimal materials and workforce requirements.	Requires agreement with highway authorities. Delivery within National Highways boundary and may require separate consents but works likely to comply with policy.	Lack of sufficient capacity to meet growth would lead to safety, access and congestion impacts limiting accessibility to North Terminal.	Marginal change to drainage requirement from extent of highway, not considered significant.	None anticipated given the nature of the works.	Lack of sufficient capacity to meet growth would lead to some noise, air quality and health impacts.	None anticipated. Works within highway boundary.
Option M2: Grade separation largely within the existing highway boundary (Option 1, 4 (and 4, Variant C)	Concept designs based on meeting required capacity and mitigating operational and safety impacts with reference to DMRB guidance. Operations potentially affected during lengthy construction process.	Considerable investment to secure growth. Significantly higher construction cost compared to at grade options. Additional road space likely to result in additional maintenance costs (payable via commuted sums).	Requires highway authorities' approval of scheme design and construction phasing. Significant complexity and a number of constraints on construction due to limited work site and construction around live traffic operation, all of which will affect the optimum build programme. Standard method of construction and use of materials for highways and structures.	Requires agreement with highway authorities including associated S278. Some potential impacts upon environment may mean not fully compliant with policies but benefits of improvements allow for planning balance to be made.	Concept designs based on meeting required capacity and mitigating safety, access and congestion impacts resulting from growth. Constraints may result in more departures from standard requiring approvals. Allowance for growth in airport and non-airport traffic. Significant impacts during construction affecting access to North Terminal forecourt and car parks.	Material change in drainage requirement from extent of highway, potential impact on GAL drainage strategy and capacity of local watercourses.	Localised impact on land, habitats and character adjacent to the highway during construction and to a lesser extent operation. Potential for impacts to be addressed through design, subject to assessment.	Impact on visual amenity from elevated highways and requirement to mitigate effects on noise and air quality, which would be addressed through design. Potential for severance effects to be mitigated through Public Rights of Way Management Strategy.	Widening of highway may impact adjacent land requiring temporary access rights for construction.
Option M3: Grade separation not constrained by the existing	Concept designs based on meeting required capacity and mitigating operational and	Considerable investment to secure growth. Anticipated higher construction	Requires highway authorities' approval of scheme design and construction phasing. Significant	Requires agreement with highway authorities including associated S278. Some potential	Concept designs based on meeting required capacity and mitigating safety, access and	Material change in drainage requirement from extent of highway, potential impact on GAL	Greater impact on land, habitats and character due to loss of land to highway and impact during	Impact on visual amenity from elevated highways and requirement to mitigate effects on	Widening of highway will impact adjacent land requiring permanent access rights or purchase.

'M' Options **ES Figure 3.3.12b** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
highway boundary (Options 2, 3, 5, 6 ,7 and 8)	safety impacts with reference to DMRB guidance. Operations affected during lengthy construction process.	cost compared to at grade options. Additional road space likely to result in additional maintenance costs (payable via commuted sums). Additional costs required for land acquisition outside highway boundary.	complexity and several constraints on construction due to limited work site and construction around live traffic operation, all of which will affect the optimum build programme. Standard method of construction and use of materials for highways and structures.	impacts upon environment may mean not fully compliant with policies but benefits of improvements allow for planning balance to be made. Requirements to acquire permanent land rights would need to be sought through DCO.	congestion impacts resulting from growth, with reference to DMRB guidance. Allowance for growth in airport and non-airport traffic. Significant impacts during construction affecting access to North Terminal forecourt and car parks.	drainage strategy and capacity of local watercourses.	construction. Potential for some impacts to be addressed through design, subject to assessment.	noise and air quality, which would be addressed through design. Potential for severance effects to be mitigated through Public Rights of Way Strategy.	

1.20 South Terminal Roundabout

1.20.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- Ensure safe and effective future operation of the strategic and local road network in the vicinity of Gatwick, by providing better travel conditions on through routes at the South Terminal junctions for airport and non-airport users through measures that enhance safety, capacity and resilience.
- Provide sufficient highway capacity to mitigate the forecasted airport traffic and background traffic growth.
- Promote and support an increase in sustainable travel by passengers and staff accessing the airport in accordance with Gatwick's Surface Access Strategy through the provision of new and enhanced active travel infrastructure.
- Maintain the existing safety standard of the roads being impacted by the proposed scheme and provide betterment where feasible.
- Ensure full compliance with standards in line with relevant highway authority standards and procedures.
- Minimise disruption to road users during construction and ensure compliance with best practice in relation to safety and other road user impacts of roadworks.
- Minimise the impact to key areas of ecological, landscape or recreational value in the vicinity of the works.

Table 1.20.1: Appraisal of South Terminal Roundabout Options

'N' Options **ES Figure 3.3.12c** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option N1: Do Minimum	Insufficient capacity for anticipated highway demand (based on growth, mode share and occupancy assumptions). Likely severe operational and safety impacts.	Severe impact on business and commercial efficiency, potential reputational issues.	None, business as usual (BAU) project, simple highway works with little impact during construction and minimal materials and workforce requirements.	Requires agreement with highway authorities. Delivery within National Highways boundary and may require separate consents but works likely to comply with policy.	Lack of sufficient capacity to meet growth would lead to safety, access and congestion impacts limiting accessibility to North Terminal.	Marginal change to drainage requirement from extent of highway, not considered significant.	None	Lack of sufficient capacity to meet growth would lead to some noise, air quality and health impacts.	None
Option N2: Grade separation largely within the existing highway boundary	Concept designs based on meeting required capacity and mitigating operational and safety impacts with reference to DMRB guidance. Operations affected during lengthy construction process.	Considerable investment to secure growth. Significantly higher construction cost compared to at grade options. Additional road space likely to result in additional maintenance costs (payable via commuted sums).	Requires highway authorities' approval of scheme design and construction phasing. Significant complexity and a number of constraints on construction due to limited work site and construction around live traffic operation, all of which will affect the optimum build programme. Standard method of construction and use of materials for highways and structures.	Requires agreement with highway authorities including associated S278. Some potential impacts upon environment may mean not fully compliant with policies but benefits of improvements allow for planning balance to be made.	Concept designs based on meeting required capacity and mitigating safety, access and congestion impacts resulting from growth. Constraints may result in more departures from standard requiring approvals. Allowance for growth in airport and non-airport traffic. Significant impacts during construction affecting access to South Terminal forecourt and car parks.	Material change in drainage requirement from extent of highway, potential impact on GAL drainage strategy and capacity of local watercourses.	Localised impact on land, habitats and character adjacent to the highway during construction and to a lesser extent operation. Potential for impacts to be addressed through design, subject to assessment.	Impact on visual amenity from elevated highways and requirement to mitigate effects on noise and air quality, which would be addressed through design. Potential for severance effects to be mitigated through Public Rights of Way Strategy.	Widening of highway may impact adjacent land requiring temporary access rights for construction.
Option N3: Grade separation not constrained by the existing	Concept designs based on meeting required capacity and mitigating operational and safety impacts with reference to DMRB guidance.	Considerable investment to secure growth. Anticipated higher construction cost compared to at grade options.	Requires highway authorities' approval of scheme design and construction phasing. Significant complexity and a number of constraints on construction due to limited work site and construction	Requires agreement with highway authorities including associated S278. Some potential impacts upon environment may mean not fully compliant with policies but benefits of	Concept designs based on meeting required capacity and mitigating safety, access and congestion impacts resulting from growth, with reference to DMRB guidance. Allowance for	Material change in drainage requirement from extent of highway, potential impact on GAL drainage strategy and	Greater impact on land, habitats and character due to loss of land to highway and impact during construction. Potential for some impacts to be addressed through	Impact on visual amenity from elevated highways and requirement to mitigate effects on noise and air quality, which would be addressed through	Widening of highway will impact adjacent land requiring permanent access rights or purchase.

'N' Options ES Figure 3.3.12c (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
highway boundary	Operations affected during lengthy construction process.	Additional road space likely to result in additional maintenance costs (payable via commuted sums). Additional costs required for land acquisition outside highway boundary.	around live traffic operation, all of which will affect the optimum build programme. Standard method of construction and use of materials for highways and structures. Additional alignment issues with impact on existing structures such as the bridge over the Brighton Main Line and M23 Spur to Junction 9, which would add complexity and cost.	improvements allow for planning balance to be made. Requirements to acquire permanent land rights would need to be sought through DCO.	growth in airport and non-airport traffic. Significant impacts during construction affecting access to South Terminal forecourt and car parks.	capacity of local watercourses.	design, subject to assessment.	design. Potential for severance effects to be mitigated through Public Rights of Way Strategy.	

1.21 Rail Access

1.21.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Operations –** all options would need to be designed to allow for efficient operation of the airport, including considerations of accessibility.
- **Capacity** – all options would need to provide for a capacity that allowed for an increased mode share in line with targets and airport growth up to 75.6 mppa (increasing to 80.2 mppa by 2047).

Table 1.21.1: Appraisal of Rail Access Options

'O' Options ES Figure 3.3.13 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option O1 - Do minimum	Minimises impacts to those already built in to BAU scheme delivery. Some potential deterioration	Business investment already committed, ensures new capacity is used to optimum level, business case	No impacts based on the nature of proposals.	Planning permission already obtained and being implemented so considered fully complaint.	GAL planning in place for access during works. Project will improve safety, accessibility, and	None anticipated given nature of works.	None anticipated given nature of works.	BAU scheme supports increase in rail mode share that will contribute to lower emissions from road	Network Rail led project, on NR and GAL land. Agreement in place no

'O' Options **ES Figure 3.3.13** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
	of passenger experience (crowding) at peak periods with Northern Runway demand post-2030. Subject to further modelling and agreement from Network Rail these are within the tolerances for peak performance.	and value for money approved. Capacity and performance modelling indicates demand from Northern Runway Project would be met.			crowding (Department for Transport business case) but is predicated on single runway operation so some crowding may remain. Some reduction in service frequency during construction, minor impact on pedestrian route (mitigation agreed).			traffic and improves public transport accessibility for employment.	reasonable alternatives identified.
Option O2 - Extension over platform 3/4	Would result in either increasing the impacts associated with the Gatwick Station Project or lead to further disruption that could potentially coincide with airfield construction, highway construction if delivered at a later date. This would lead to increased impacts on terminal operations and passenger experience.	Poor GAL business case as a standalone project. High scheme cost and poor affordability (assumes GAL bearing 100% of costs). Risks value of investment in BAU scheme. Would affect investment value of BAU scheme if delivered before 2035. High construction cost due to working over live railway, additional complexity whether adding to existing station project or as a	Would severely disrupt the delivery of the committed scheme if considered part of a single scheme delivery, adding programme risk. Delivery after 2030 is feasible but buildability would be constrained by working across the new concourse (Option 1).	Requirement to obtain additional Network Rail consents. Potential impacts upon surface access mean option is considered complaint with majority of policies.	Project will improve safety, accessibility and crowding and provides additional capacity over the do-minimum. Some reduction in service frequency during construction, minor impact on pedestrian route (mitigation agreed).	None anticipated given nature of works.	None anticipated given nature of works.	Supports increase in rail mode share that will contribute to lower emissions from road traffic and improves public transport accessibility for employment.	Network Rail land and permissions required, construction and delivery would need to meet their standards and process requirements. No reasonable alternatives in respect of land or CPO.

'O' Options **ES Figure 3.3.13** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
		standalone project after completion. Capacity and performance modelling indicates demand from Northern Runway Project would be met.							
Option O3 - Extension full deck	Would result in either extending the impacts associated with the Gatwick Station Project or introduce further disruption that could potentially coincide with airfield construction, highway construction or both if delivered at a later date. This would lead to increased impacts on terminal operations and passenger experience.	Poor GAL business case as a standalone project. High scheme cost and poor affordability (assumes GAL bearing 100% of costs). Risks value of investment in BAU scheme. Would affect investment value of BAU scheme if delivered before 2035. High construction cost due to working over live railway, additional complexity whether adding to existing station project or as a standalone project after completion.	Would severely disrupt the delivery of the committed scheme if considered part of a single scheme delivery, adding programme risk. Delivery after 2030 is feasible but buildability would be constrained by working across the new concourse (Option O1).	Requirement to obtain additional Network Rail consents. Potential impacts upon surface access mean option is considered compliant with majority of policies.	Project will improve safety, accessibility and crowding and provides considerable additional capacity over the do-minimum to accommodate growth and increased mode share. Some reduction in service frequency during construction, minor impact on pedestrian route (mitigation agreed).	None anticipated given nature of works.	None anticipated given nature of works.	Supports increase in rail mode share that will contribute to lower emissions from road traffic and improves public transport accessibility for employment.	Network Rail land and permissions required, construction and delivery would need to meet their standards and process requirements. No reasonable alternatives in respect of land or CPO.

'O' Options ES Figure 3.3.13 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
		Capacity and performance modelling indicates demand from Northern Runway Project would be exceeded.							

1.22 Shuttle

1.22.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Capacity** – all options would need to provide for a capacity that allowed for airport growth up to 75.6 mppa (80.2 mppa by 2047) and an increased rail mode share in line with targets.
- **Operations** – all options would need to be designed to allow for efficient operation of the airport, including considerations of accessibility and passenger experience.
- **Resilience** – all options should ensure there is sufficient resilience in the system to cope with variations in demand and availability.

Table 1.22.1: Appraisal of Shuttle Optioneering

'P' Options ES Figure 3.3.14 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consent	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option P1 - Do Minimum	Potential for operational and safety issues from peak hour crowding and potential for queues affecting operation of moving walkways (South Terminal link) and greater impact when trains taken out of service.	Business case for replacing/refurbishing existing system at end of life is unknown (contract with supplier for maintenance to 2030). BAU, no additional costs. Risk of additional maintenance requirement due to increased loading and impact on reduced service	None as no works required.	Considered likely to be fully complaint as no physical works required or impacts.	Increased congestion at shuttle platforms and crowding on trains associated with growth, especially beyond 2030.	None as no works required.	None as no works required.	None as no works required.	GAL owned land.

'P' Options **ES Figure 3.3.14** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consent	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
		due to trains taken out of service.							
Option P2 - Optimise current operating pattern	Peak hour crowding and safety issues reduced, not all passengers accommodated on first train but queues manageable (within acceptable range) based on simulation modelling.	Additional running and maintenance costs. Business case for replacing/refurbishing existing system at end of life is unknown (contract with supplier for maintenance to 2030). New maintenance regime for when trains are taken out of service assumed, based on increased demand. System capability to be confirmed.	None as no works required.	Considered likely to be fully complaint as no physical works required or impacts.	Some peak crowding and congestion at platforms would remain after 2030 but this is limited to peak periods.	None as no works required.	None as no works required.	None as no works required.	GAL owned land.
Option P3 - Extend to 4-car trains and platforms	Reduces queueing and crowding but end car not efficiently utilised without encouraging passenger behaviour (marshalling/signage).	Confirmation required that system could operate at higher loading and that additional cars are available (otherwise a full fleet replacement may be required). Low complexity platform extension but some issues for integration with existing system/buildings.	Access to site constrained at North Terminal with some potential impacts on operation during construction (North Terminal forecourt and vertical circulation). Standard issues associated with working at height.	Works minor in mature and not anticipated to give rise to environmental impacts, so considered fully complaint with policy.	Improved safety and reduced congestion through additional capacity.	Fluvial; could reduce 1:100 +25% floodplain in North Terminal. Fluvial; no additional hardstanding.	Canopy extension could be visible from outside airport boundary.	None given proximity from residential area.	GAL owned land.
Option P4 - Add crossover for maximum platform utilisation (ability to operate 4 trains).	More even loading and shorter wait times reduce operational and safety issues whilst increasing capacity and flexibility.	Significant investment in infrastructure requires business decision on system life expectancy to confirm commercial business case. Includes additional fleet requirement.	Optimum location for crossovers to be determined, possible interfaces with A23 and Gatwick Police Station to be avoided. Period of disruption during construction. Standard	Should be achievable within existing rights but changes to alignment adjacent to A23 subject to supplementary air rights agreement. Considered to comply with planning policies.	Improved safety and reduced congestion through additional capacity.	Fluvial; Raised asset no effect on available floodplain. Fluvial; no additional hardstanding.	Physical works only likely to be visible from inside the airport boundary.	None given proximity from residential area.	Only in respect to crossing of A23 (if affected), remainder is GAL owned land.

'P' Options **ES Figure 3.3.14** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	**Business Case**	**Deliverability**	**Planning and Consent**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
		Low complexity cost subject to confirmation of operating system impacts. Increased operating costs (assume 4 x 2 cars vs current 2 x 3 cars), opportunities for improved regular maintenance.	issues associated with working at height.						
Option P5 - Add bypass loops + maintenance area (ability to operate 4 trains)	More even loading and shorter wait times reduce operational and safety issues whilst increasing capacity and flexibility.	Significant investment in infrastructure requires business decision on system life expectancy to confirm commercial business case. Includes additional fleet requirement. Low complexity cost subject to confirmation of operating system impacts. Increased operating costs (assume 4 x 2 cars vs current 2 x 3 cars), opportunities for improved regular maintenance.	Optimum location for bypass loops to be determined, possible interface with highway works for Genesis. Period of disruption during construction. Standard issues associated with working at height.	Given potential for impacts on water and loss of landscaping, compliant with majority of policies and scheme benefits outweigh impacts.	Improved safety and reduced congestion through additional capacity.	Fluvial; could reduce 1:100 +25% floodplain in North Terminal. Fluvial; additional hardstanding might be required.	Minor loss of landscaped areas to accommodate new maintenance building. Physical works only likely to be visible from inside the airport boundary.	None given proximity from residential area.	GAL owned land.

1.23 Forecourt

1.23.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Safety –** all options must ensure the safe operation of the road network at Gatwick Airport, accommodating all airport users.
- **Capacity –** options should ensure sufficient capacity in the forecourts to accommodate airport growth up to 75.6 mppa by 2038 (80.2 mppa by 2047) and be consistent with access to and from the local highway network (Terminals Option D6).
- **Resilience –** options should consider the potential for increased resilience in terminal and forecourt operations.
- **Operations –** options should allow for the continuous and efficient operation of both terminals, including access for staff, operational and emergency vehicles.

Table 1.23.1: Appraisal of Forecourt Options

'Q' Options ES Figure 3.3.15 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option Q1 - Do Minimum	Potential for increased congestion and gridlock across forecourts if access is unconstrained, impact on car park access, operations, and emergency access/egress.	Does not meet the unmitigated vehicle demand associated with growth to 75.6 mppa. Commercial risk due to congestion impacts and reduced accessibility. Business and reputational impact of congestion and operational constraints.	No direct impact. Will be likely to make any future landside construction more challenging/ disruptive.	Within airport boundary. Considered fully complaint with policy.	Increased congestion compromised access for operational and emergency vehicles and potential to increase risk of near miss and vehicle-vehicle incidents. Increased likelihood of congestion extending back on to the local road network.	Fluvial; No effects on available floodplain. Fluvial; no additional requirement.	No physical development.	Increased congestion would have a marginal impact on AQ/noise at point of impact. Unlikely to be significant for receptors.	GAL owned land.
Option Q2 - Optimisation of existing highway	Re-configuration of existing layout may be insufficient to cater for unconstrained demand on some parts of the forecourt (especially North Terminal), with potential for operational inefficiencies. May be mitigated by re-locating some activities within the forecourts (eg drop off/pick up), to be verified by dynamic modelling.	Low commercial cost and risk assuming capacity is sufficient. Any impact on drop off/pick and short stay parking assumed to be commercially neutral.	Minimum impact of minor kerb realignment and some utility diversion.	Within airport boundary. Considered fully complaint with policy.	Reduce congestion (compared to do-minimum/BAU) and offers potential for improved efficiency but some peak congestion may remain.	Fluvial; No effects on available floodplain physical development. Fluvial; additional hardstanding requiring mitigation.	No impacts anticipated given nature of proposals.	No impacts anticipated given nature of proposals.	GAL owned land.

'Q' Options ES Figure 3.3.15 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
Option Q3 - Optimisation with some displacement/use of remote facilities	Scoped to maximise the benefits of optimisation by decanting some traffic away from the most congested areas (eg car rental) to new/re-used areas (eg integrated with long stay car park), to be verified by dynamic modelling. Potential for deterioration in passenger experience for displaced users.	Commercial business case required for any new facilities created as a requirement for displaced activities. Any impact on drop off/pick and short stay parking assumed to be commercially neutral.	Minimum impact of minor kerb realignment and some utility diversion. Deliverability of any new facilities to be confirmed but assumed to be feasible within existing estate.	Uncertainty around where displaced facilities would be relocated, so considered compliant with majority of policies.	Reduce congestion (compared to do-minimum/BAU) and potential for improved efficiency. Access to terminals will reduce for some passengers due to bus transfer from remote facilities but opportunity to offset this with careful design of the facilities.	Fluvial; No effects on available floodplain. Fluvial; additional hardstanding requiring mitigation.	None	Marginal, related to design of any remote facilities for displaced users.	Relocation of car rental. Potential to use third party land for remote facilities if this is preferred compared to use of GAL land.
Option Q4 - North Terminal Forecourt Extension	Improved operations by significantly extending the available capacity.	Significant cost implication, interface with airside/landside boundary and potential interface with other developments as part of the DCO.	Complexity with possible removal of North Terminal Upper Forecourt ramp (not in use) and bridging over basement access ramp and airside road. Needs to be integrated with works for MSCP7.	Potential increase in flooding, but no other environmental impacts anticipated, so considered complaint with majority of policies.	Reduced congestion from increased capacity, subject to dynamic modelling of interaction with highways.	Fluvial; affects 1:100 +25% available floodplain requiring mitigation. Fluvial; adds additional hardstanding to be mitigated in design.	None	None	None

1.24 Airfield Compounds

1.24.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Safety** – Compound should be located as close as possible to the works to mitigate construction hazards and potential risks to airport operatives and passengers from the movement of vehicles and plant.
- **Amenities** – sites should have access to existing services and utilities.
- **Site area** – any option must provide at least 30,000 m^2 in area. To deliver the works safely and efficiently, a minimum of two compounds are required – with one located north and the other south of the runways.
- **Community impacts** – options would seek to avoid:

- Congestion to the local roads.
- Local air pollution due to use of HGV diesel powered engines as well as particle matter from brake and tyre wear.
- Emission of vehicle noise and light.
- Damage to the local road infrastructure.
- Potential increases in the occurrence of accidents due to additional traffic.

Table 1.24.1: Appraisal of Airfield Compound Options

'S' Options **ES Figure 3.3.17** (Doc Ref. 5.2)	**Operational and Business**			**Planning, Environmental, Community and Land**					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
Option S1 – MA1 Site 9	Located on area of existing parking. The site is not anticipated to breach aerodrome safeguarding (full assessment to be completed). Airside vehicle routes are feasible, mitigation and management plan to be implemented.	Area is currently public parking.	Very good and safe integrated space. On Perimeter Road East where access can be on a restricted road from others. On Landside/ Airside (LS/AS) fence.	Brownfield site within Airport boundary. Compliant with National and Local policies.	Relative ease of access to strategic road network, subject to management of activity and impacts on northbound A23 and North Terminal Roundabout. Assume time restrictions outside airport and commuter peaks.	Not located in an area at risk of flooding. Existing area of hardstanding.	Currently developed land - Good Option assuming parking would not be replaced on additional greenfield sites.	None anticipated given location within airport.	GAL owned land. Loss of parking that will require re-provision.
Option S2 – MA1 Site 7 & 8	Located on area of existing parking. The site is not anticipated to breach aerodrome safeguarding (full assessment to be completed). Airside vehicle routes are feasible, mitigation and management plan to be implemented.	Area is currently public parking.	Very good and safe integrated space. On Perimeter Road East where access can be on a restricted road from others. On LS/AS fence.	Brownfield site within Airport boundary. Compliant with National and Local policies.	Relative ease of access to strategic road network, subject to management of activity and impacts on northbound A23 and North Terminal Roundabout. Assume time restrictions outside airport and commuter peaks.	Not located in an area at risk of flooding. Existing area of hardstanding.	Currently developed land - good option assuming parking would not be replaced on additional greenfield sites.	None anticipated given location within airport.	GAL owned land. Loss of parking that will require re-provision.
Option S3 – MA1 Site 3, 4 & 5	The site is not anticipated to breach aerodrome	Area is currently public parking.	Very good and safe integrated space. On Perimeter Road East	Brownfield site within Airport boundary. Compliant with	Relative ease of access to strategic road network, subject	Not located in an area at risk of	On airfield site with some grassland areas.	None anticipated given location within airport.	GAL owned land. Loss of parking that

'S' Options **ES Figure 3.3.17** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
	safeguarding (full assessment to be completed). Airside vehicle routes are feasible, mitigation and management plan to be implemented.		where access can be on a restricted road from others.	National and Local policies.	to management of activity and impacts on northbound A23 and North Terminal Roundabout. Assume time restrictions outside airport and commuter peaks Greater impact on users of Perimeter Road South compared to some options.	flooding. Existing area of hardstanding.			will require re-provision.
Option S4 – MA1 Site 2	The site is not anticipated to breach aerodrome safeguarding (full assessment to be completed). Airside vehicle routes are feasible, mitigation and management plan to be implemented.	Area is currently public parking.	Very good and safe integrated space. On Perimeter Road East where access can be on a restricted road from others.	Brownfield site within Airport boundary. Compliant with National and Local policies.	Relative ease of access to strategic road network, subject to management of activity and impacts on northbound A23 and North Terminal Roundabout. Assume time restrictions outside airport and commuter peaks Greater impact on users of Perimeter Road South compared to some options.	Not located in an area at risk of flooding. Existing area of hardstanding.	Currently developed land - good option assuming parking would not be replaced on additional greenfield sites.	None anticipated given location within airport.	GAL owned land. Loss of parking that will require re-provision.
Option S5 – BA Hangar Parking Area	Potential to impact BA given proximity	Area is BA hangar parking and so does not form part of GAL's estate.	Too close to BA and possible impacts to their operation. Safety issue due to access/egress on a bend.	Brownfield site within Airport boundary. Compliant with National and Local policies.	Relative ease of access to strategic road network, subject to management of activity and impacts on northbound A23	Not located in an area at risk of flooding. Existing area of hardstanding.	Currently developed land - good option assuming parking would not be replaced on additional greenfield sites.	No additional impacts anticipated given location within airport and existing use as parking area.	GAL owned land but leased to BA until 2032 with no option to break. Potential impact on BA's operation.

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	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
					and North Terminal Roundabout. Assume time restrictions outside airport and commuter peaks Greater impact on users of Perimeter Road South compared to some options.				
Option S6 – Car Park Z Area	Potential to impact BA given proximity.	Area is currently public parking. Area has also been used for staff in the past. Reduced future parking requirement.	Direct access to airside but limited driver visibility from traffic from West.	Brownfield site within Airport boundary. Compliant with National and Local policies.	Relative ease of access to strategic road network, subject to management of activity and impacts on northbound A23 and North Terminal Roundabout. Assume time restrictions outside airport and commuter peaks Greater impact on users of Perimeter Road South compared to some options.	Not located in an area at risk of flooding. Existing area of hardstanding.	Currently developed land - Good Option assuming parking would not be replaced on additional greenfield sites	No additional impacts anticipated given location within airport and existing use as parking area.	GAL owned land. Loss of parking that may require re-provision.
Option S7 – Rowley Farm Area 1	Located off site. No anticipated impacts on operations	Area is not part of GAL estate so no impact on current commercial operations. However, the area would need to be converted back to greenfield.	Approach Road and farm road access bares too much weight from HGV and parking from local industrial area but viable integrated area.	Greenfield land, outside Airport boundary albeit within safeguarded land. Adjacent to two listed buildings, and land designated as Rural Fringe. Conflict with some policies.	Ease of access, subject to interface with Fastway bus priorities on Gatwick Road. Good access from railhead (if required).	Not located in an area at risk of flooding. Loss of greenfield land and increase in impermeable area.	Green field site. Effects on setting of Grade II*listed building and II*listed barn, potential for buried archaeology, adjacent to ancient woodland.	Likely additional disturbance to nearby residential properties (including adjacent listed buildings) from construction noise/ emissions / lighting as site is currently greenfield. Impact	Not within GAL control.

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								reduced given location in immediate vicinity of airport.	
Option S8 – Rowley Farm Area 2	Located off site. No anticipated impacts on operations.	Area is not part of GAL estate so no impact on current commercial operations. However, the area would need to be converted back to greenfield.	Approach Road and farm road access bares too much weight from HGV and parking from local industrial area but viable integrated area.	Greenfield land, outside Airport boundary albeit within safeguarded land. Adjacent to two listed buildings, and land designated as Rural Fringe. Conflict with some policies.	Similar to Option 7. Potential for additional access requirements, needing improvements and possible new access, and impact on third party users (eg Royal Mail).	Not located in an area at risk of flooding. Loss of greenfield land and increase in impermeable area.	Green field site. Effects on setting of Grade II*listed building and II*listed barn, potential for buried archaeology, adjacent to ancient woodland.	Likely additional disturbance to nearby residential properties (including adjacent listed buildings) from construction noise / emissions / lighting as site is currently greenfield. Impact reduced given location in immediate vicinity of airport.	Not within GAL control.
Option S9 – Tennis Courts Area	No anticipated risk to operations.	Currently used for car rental overflow on an unofficial basis- no significant GAL business impact.	Comment: Too small and limited. No safe unloading / vehicle turnaround / walking route space. Area is an emergency assembly point for local businesses.	Brownfield site within Airport boundary. Compliant with National and Local policies.	Small site with likely compromised access/egress, will require physical mitigation and will have a congestion impact on sensitive local network.	Not located in an area at risk of flooding. Existing area of hardstanding.	Previous spreadsheet comment: Currently developed land - good option assuming parking would not be replaced on additional greenfield sites	None anticipated given location in immediate vicinity of airport with no residential properties nearby.	GAL owned land.
Option S10 – TUI Car Park Area	Located off site. No anticipated impacts on operations.	Area is TUI parking and so does not form part of GAL's estate. However, we may need to re-provide their parking and so the note below may still apply.	Staff bus stop 23 is immediately outside the compound making access and egress restricted and dangerous. Good space but not for both people and material processing.	Site is brownfield, adjacent to but outside of Airport boundary, within safeguarded land, and within employment area. Largely compliant with National and Local policies.	Small site with likely compromised access/egress, plus additional impacts on access to neighbouring premises. Will require physical mitigation and will have a congestion impact on sensitive local network.	Not located in an area at risk of flooding. Existing area of hardstanding.	Currently developed land - good option assuming parking would not be replaced on additional greenfield sites	None anticipated given location within industrial estate.	GAL owned land. Concern regarding ease of access to / from the site. The site is currently rented to a tenant.

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Option S11 – Old Hotel (Lowfield Heath)	Located off site. No anticipated impacts on operations.	Area is part of the GAL estate and so no detrimental impact on current operations.	Dilapidated state and full of asbestos. Brighton Road is busy with Heavy Goods Vehicles (HGVs) and parked cars. Building Control involvement but viable for welfare and office only. Potential danger to users of roundabout (Perimeter Road South/ Old Brighton Road South)	Site is brownfield, adjacent to but outside of Airport boundary, within safeguarded land, and within employment area. Largely compliant with national and local policies.	Constrained site with very likely compromised access/egress, plus additional impacts on access to neighbouring premises. Will require physical mitigation and will have a congestion impact on sensitive local network.	Not located in an area at risk of flooding. Existing area of hardstanding.	Currently developed land - good option assuming parking would not be replaced on additional greenfield sites	None anticipated given location within industrial estate.	Not GAL owned and the site is in the middle of an industrial estate.
Option S12 – Lowfield Heath Farm Area	Located off site. No anticipated impacts on operations.	Area is not part of GAL estate so no impact on current commercial operations. However, the area would need to be converted back to greenfield post Genesis. An option could be explored to use this for temporary staff car parking if a current car park is determined as the most appropriate location?	Large open space and will suit a full integrated logistics plan but off airport.	Site is greenfield, outside the airport boundary, within the airport safeguarding zone. Policy map shows archaeological sensitive area.	Site location compromised by likely difficulty in accessing the site from the A23, therefore constrained by use of Church Road. Will require physical mitigation and will have a congestion impact on sensitive local network.	Fluvial: Small area of flood plain affected in 1:100 + 70% Pluvial increase in impermeable area.	Greenfield Site - potential considerations for biodiversity, heritage and landscape	Potential for some disturbance from construction noise / emissions / lighting as site is currently greenfield, however anticipated to be minimal given location in immediate vicinity of airport with no residential properties nearby.	Not GAL owned and the site is in the middle of an industrial estate.
Option S13 – Car Park X & V Area	No anticipated impacts on operations.	Area is currently used for staff parking.	Large open space and will suit a full integrated logistics plan. Close to Airfield access gate.	Brownfield site within Airport boundary. Flood Risk. Compliant with	Site becoming remote from strategic road network with traffic impacts on either Perimeter Road	Fluvial; reduces 1:50 floodplain. Fluvial; no additional hardstanding.	Developed car parking area, some areas of trees within in - biodiversity potential - assuming	No additional impacts anticipated given location within airport and existing use as parking area.	GAL owned land.

'S' Options **ES Figure 3.3.17** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
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				National and Local policies.	South or Charlwood Road. May require some physical mitigation and may have a congestion impact on sensitive local network.		parking would not be replaced on additional greenfield sites		
Option S14 – Crawters Brook	Potential conflict and risk based on the proposed additional EAT.	Area has been ear-marked for development into additional car parking (in CIP). Potential synergies if used for logistics and then converted for parking later. Consideration of potential timing required as an element of this area may be required for re-provision of lost spaces in the adjacent area.	Comment: Large open space and will suit a full integrated logistics plan. Close to Airfield access gate and borders LS/AS fence.	Greenfield land located within the Airport Boundary. Flood risk and tree loss potentially.	Comment: Site remote from strategic road network, railway station and bus routes, with traffic impacts on Charlwood Road. May require some physical mitigation and may have a congestion impact on sensitive local network.	Fluvial; reduces 1:50 floodplain. Fluvial; significant additional hardstanding.	Previous spreadsheet comment: On airport but grassland area with woodland belt to south - biodiversity loss, surface water attenuation.	Potential for some disturbance to nearby residential properties, however anticipated to be minimal given location within airport.	GAL owned land.
Option S15 – Purple Parking Area	Potential conflict and risk based on the proposed additional EAT.	Area is currently GAL public parking and Purple Parking operated area. Part of this is lost to the end-around taxiway works and so re-provision/purchase of purple spaces is potentially required. There is double-height decking in this	Large open space and will suit a full integrated logistics plan. Close to Airfield access gate and borders LS/AS fence.	Brownfield site within Airport boundary. Compliant with National and Local policies.	Site remote from strategic road network, railway station and bus routes, with traffic impacts on Charlwood Road. May require some physical mitigation and may have a congestion impact on	Fluvial; could reduce 1:100 +25% floodplain. Fluvial; no additional hardstanding.	Currently developed land - good option assuming parking would not be replaced on additional greenfield sites	No additional impacts anticipated given location within airport and existing use as parking area.	Partly owned by GAL, partly 3rd party land

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		area so the loss of spaces is higher than if just considering surface parking. We would likely need to re-provision both GAL and PP spaces at an aggregate estate level which puts significant pressure on available locations for the number of spaces that would be required.			sensitive local network.				
Option S16 – Farm Area	Located off site. No anticipated impacts on operations.	Area is not part of GAL estate so no impact on current commercial operations. However, the area would need to be converted back to greenfield post Genesis.	Large open space and will suit a full integrated logistics plan but off airport.	Site is greenfield, outside the airport boundary, within the airport safeguarding zone.	Site remote from strategic road network, railway station and bus routes, with traffic impacts on Charlwood Road. May require some physical mitigation and may have a congestion impact on sensitive local network.	Fluvial: no effect on available floodplain. Pluvial; additional hardstanding needing mitigation.	Green field site. Children's day nursery. Effects on setting of Grade 2 listed Charlwood house, potential for buried archaeology. Effects on biodiversity ancient hedgerows.	Likely additional disturbance to nearby residential properties (including listed Charlwood House) from construction noise / emissions / lighting as site is currently greenfield. Impact reduced given location in immediate vicinity of airport.	Not GAL owned.
Option S17 – FTG Area	Located landside. No anticipated impacts on operations.	GAL owned land but not used for commercial purposes so no real impact.	Potential access issues via museum and AS.	Greenfield land within the Airport Boundary. Compliant with National and Local policies.	Remote from strategic road network, railway station and bus routes. Unacceptable access via Charlwood/Lowfield Heath Road or with	Fluvial; could reduce 1:100 floodplain. Fluvial; likely additional hardstanding.	On airfield site with some grassland areas. Biodiversity potential, surface water attenuation	None anticipated given location within airport.	GAL owned land.

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					major impact on extending Larkins Road/Perimeter Road North.				
Option S18 – FTG West Area	Located landside. No anticipated impacts on operations.	Potential access issues via museum and AS.	Potential access issues via museum and AS.	Greenfield land within the Airport Boundary. Flood Zone 3 Flood Risk.	Remote from strategic road network, railway station and bus routes. Unacceptable access via Charlwood/Lowfield Heath Road or with major impact on extending Larkins Road/Perimeter Road North.	Fluvial; affects 1:100 floodplain. Fluvial; additional hardstanding.	Adjacent to area of Westfield Brook diversion - biodiversity loss and water attenuation.	None anticipated given location within airport.	GAL owned land.
Option S19 – Air Museum Land Area	Located landside. No anticipated impacts on operations.	Area is not part of GAL estate so no impact on current commercial operations. However, the area would need to be converted back to greenfield.	Potential access issues via museum and AS.	Site is greenfield, outside of airport boundary, within safeguarding zone.	Remote from strategic road network, railway station and bus routes. Unacceptable access via Charlwood/Lowfield Heath Road or with major impact on extending Larkins Road/Perimeter Road North.	Fluvial; not in floodplain (tiny bit). Fluvial; additional hardstanding to be mitigated.	Greenfield Site, adjacent to green belt potential considerations for biodiversity, heritage and landscape.	Potential for some disturbance to nearby residential properties, however anticipated to be minimal given location in immediate vicinity of airport.	GAL owned land.
Option S20 – Old Batching Plant Area	Requirement to consider impact to Boeing's operation, but previously used as batching plant. The site is not anticipated to breach	Site of former batching plant which is no longer operational. Minimal costs to bring into use.	Good for link works and amalgamate with batcher. Larkin Rd enhancement will add value.	Greenfield land located within the Airport Boundary. Flood Zone 3 Flood Risk.	Convenient for access to work site, remote from strategic road network and railway station. Potential for significant impact on	Fluvial; reduces 1:100+35% floodplain. Fluvial; additional hardstanding requiring mitigation.	On airfield previous use for construction with some grassland areas. Biodiversity potential, surface water attenuation.	None anticipated given location within airport.	GAL owned land. Potential impact upon Boeing hangar operations.

'S' Options ES Figure 3.3.17 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
	aerodrome safeguarding (full assessment to be completed). Airside vehicle routes are feasible, mitigation and management plan to be implemented.				Larkins Road/Perimeter Road North.				
Option S21 – Summer Special South Area	Potential to impact upon customer experience given extent of potential parking that would be affected.	Area is current Summer Special block parking and the proposed site of the Lima works. Early removal of these spaces from the GAL parking estate has wider implications as it is unlikely that any re-provision can be made quickly enough. This will result in lost income.	Most preferred option for integrated logistics compound and close to main works Centre of Gravity (CoG).	Brownfield land within Airport Boundary. Flood Zone 3 Flood risk.	Convenient for access to work site, remote from strategic road network and railway station. Potential for impact on Perimeter Road North, may require restricted times of access/egress outside of passenger peaks.	Fluvial; no effect to floodplain. Fluvial; no additional hardstanding.	Currently developed land on airfield. Option assumes parking would not be replaced on additional greenfield sites.	None anticipated given location within airport.	GAL owned land.
Option S22 – Pond M North Area	No anticipated impacts on operations.	GAL owned land but not used for commercial purposes so no real impact.	Extremely undulating ground.	Greenfield land located within the Airport Boundary. Flood Zone 3 Flood risk.	Convenient for access to work site, remote from strategic road network and railway station. Potential for significant impact on Larkins Road/Perimeter Road North.	Fluvial; reduces 1:100+35% floodplain. Fluvial; additional hardstanding requiring mitigation.	On airfield grassland embankment areas (biodiversity/water attenuation).	Potential for some disturbance to nearby residential properties, however anticipated to be minimal given location in immediate vicinity of airport.	GAL owned land, so within our control. There is a possible impact with local residents. Also, it is expected utilities would need to be provided to the site.

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	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
Option S23 – Oscar Area	Potential risks to operations at Cuckoo area.	Option has the potential to impact on the assumption for the Oscar Area: re-provision of facilities and the timings required (as proposed decant to further areas of long stay north car parking).	Close to site and other local works and suitable for an integrated logistics area. Good access to AS.	Brownfield land within Airport Boundary. FZ2 Flood risk.	Convenient for access to work site, remote from strategic road network and railway station. Potential for adverse impact on Larkins Road/Perimeter Road North.	Fluvial; no effect on floodplain. Fluvial; no additional hardstanding.	Already developed land on airfield- Good Option.	None anticipated given location within airport.	GAL owned land. Loss of parking that will require re-provision.
Option S24 – Take operational stands Area	Potential risks to operations because of lost stands.	Results in the loss of operational stands and so therefore likely to have a wider airport impact.	Comment: Both good areas bordering AS/LS fence. Close to main works and construction access from Larkins Rd.	Brownfield land, with compatible surrounding uses and within Airport Boundary. Flood Zone 3 Flood risk.	Split site likely to lead to unacceptable disruption due to access/egress, would require considerable co-ordination with operational access.	Fluvial; reduces 1:100+35% floodplain. Fluvial; no additional hardstanding.	Already developed land on airfield- Good Option	None anticipated given location within airport.	GAL owned land out of service.
Option S25 – Land South east of M23 Junction 9	Off airport and no impacts anticipated.	Area is not part of GAL estate so no impact on current commercial operations. However, the area would need to be converted back to greenfield.	Comment: Large enough for an integrated logistics site but too far away from the work sites.	Site is outside of the airport boundary and safeguarded zone and located within the green belt. Not compliant with policy.	Convenient location for strategic road network, assuming access to/from Junction 9 is possible (requires Historic England approval) with mitigation. Impact of additional construction vehicle traffic on M23 Spur would require restricted access during peak periods to mitigate impacts.	Fluvial; potential to reduce 1:1000 floodplain. Fluvial; additional hardstanding requiring mitigation.	Greenfield site would potentially impact upon trees, soils and create visual impacts.	Potential for some disturbance to nearby residential properties, however anticipated to be minimal given location adjacent to busy M23.	Not GAL owned. Concern regarding ease of access to / from the site.

1.25 Highway Compounds

1.25.1 The following key requirements have influenced the development of the options identified as part of the appraisal process:

- **Safety** – Compound should be located as close as possible to the works to mitigate construction hazards and potential risks to airport operatives and passengers from the movement of vehicles and plant.
- **Services** – sites should have access to existing services and utilities.
- **Site area** – any option must provide at least 30,000 m^2 in area to provide the above.
- **Community Impacts** – options would seek to avoid:

  - Congestion to the local roads;
  - Local air pollution due to use of HGV diesel powered engines as well as particle matter from brake and tyre wear
  - Emission of vehicle noise and light;
  - Damage to the local road infrastructure;
  - Potential increases in the occurrence of accidents due to additional traffic.

Table 1.25.1: Appraisal of Highway Compound Option

'R' Options ES Figure 3.3.18 (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
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Option T1 - Reigate Field	Minor operational impact, assumes access/egress movements will be timed to avoid passenger peaks.	Requires rights to temporarily use the land which will result in a rent payable.	The most appropriate site to serve all facilities for the South Terminal Roundabout works. Potential to link with proposed business park development.	Relatively good option' on the basis the site will soon be allocated for development and can be utilised by GAL ahead of employment uses.	Ease of access and proximity to site, access to railway station. Potential impact on South Terminal Roundabout (though reduced with signalisation scheme).	Fluvial; not in flood zone. Fluvial; additional hardstanding requiring mitigation.	Greenfield, within an AQMA, trees surrounding the site.	Potential for noise emissions to impact on nearby receptors.	GAL do not own this land. Requirement to secure land – potentially via a CPO.
Option T2 - Balcombe Road Field	Little interface with passenger experience if construction/logistics traffic can be timed to avoid passenger peaks. More restrictions likely compared to Option T1.	Requires rights to temporarily use the land which will result in a rent payable.	Close to South Terminal Roundabout works but will require additional construction to build access into the field (eg accidental incursion).	The site is not in the Green Belt but lies 'beyond the built-up area'/ in the rural area and within a Biodiversity Opportunity Area. It is however within Gatwick Safeguarded Land where temporary uses may be feasible.	Reduction in M23 Spur (westbound) capacity, access unlikely to be acceptable to Historic England (if no access to M23 Spur then impact avoided but severe impact on local network).	Fluvial; not in flood zone. Fluvial; additional hardstanding requiring mitigation Not located within the flood zone.	Greenfield, biodiversity, heritage and landscape considerations. Overgrown on western edge may have greater biodiversity interest.	Potential for noise emissions to impact on nearby receptors.	GAL do not own this land. Requirement to secure land – potentially via a CPO.

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Option T3 - Car Park H	Greater likelihood of passenger interfaces and potential for disruption, plus impacts on the passenger environment.	Site is currently used for staff parking- this would require staff parking to be re-provided in other car parks and may have a detrimental impact on business case if this requires public spaces to be used for this re-provision. This site is also in the proposed development plan for increased parking to meet capacity requirements in addition to operational office space (required to meet demand requirements) and a new hotel development. Cost of re-providing / impact on programme if re-provision required prior to works commencing.	Access already exists, brownfield site, self-contained site, close to the South Terminal Roundabout works.	Within airport boundary, brownfield site with existing access. Proximity to hotel and the potential need to secure replacement parking on airport will need further consideration.	Impacts for south Terminal access/egress capacity and conflicts with adjacent uses (eg Hilton Hotel). Egress onto Ring Road North constrained (access to services). Would require mitigation to reduce vehicle movements during peak periods. Good access via sustainable modes given proximity to railway station.	Fluvial; not in flood zone. Fluvial; No additional hardstanding.	Good option, currently developed land (few trees around perimeter).	Limited impact due to existing use and change required.	GAL owned land. Loss of parking that will require re-provision.
Option T4 - Car Park Y	Minor operational impact, assumes access/egress movements will be	Site is currently used for staff parking- this would require staff to be re-provided in	Access already exists, brownfield site, self-contained site, close to the	Within airport boundary, brownfield site with existing access. Need to	Potential issues for capacity at North Terminal Roundabout in peak periods, and	Fluvial; affects 1:100% +70% flood plain.	Good option, currently developed land (few trees around perimeter).	Limited impact due to existing use.	GAL owned land. Loss of parking that will require re-provision.

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	timed to avoid passenger peaks.	other car parks and may have a detrimental impact on business case if this requires public spaces to be used for this re-provision. This site is also in the proposed development plan for increased parking to meet capacity requirements and a new hotel development. Arguably more favourable than Y as the development of the site has been phased later in the commercial plan. Good location but cost of re-providing / impact on programme if re-provision required prior to works commencing.	South Terminal Roundabout works.	secure replacement parking on airport will need further consideration. High flood risk may be problematic but could be acceptable given temporary construction use.	impact on Longbridge Way would require mitigation to reduce vehicle movements during peak periods.	Fluvial; No additional hardstanding.			
Option T5 - Peeks Brook Lane North	Moderate operational impact, assumes access/egress movements will be timed to avoid passenger peaks	Requires rights to temporarily use the land which will result in a rent payable. No other financial impacts to GAL.	Too remote. Additional construction of access required (eg for accidental incursion).	Brownfield site with potentially limited access (dependent on quantum and size of vehicles etc). Site lies within the Green	Reduction in M23 Spur (eastbound) capacity, access unlikely to be acceptable to Historic England (if no access	Fluvial; not in flood zone. Fluvial; additional hardstanding requiring mitigation	No anticipated impacts.	Limited impact due to existing use and change required.	GAL do not own this land. Requirement to secure land – potentially via a CPO.

'R' Options **ES Figure 3.3.18** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	Business Case	Deliverability	Planning and Consents	Surface Access	Water	Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)	Community	Land and Property
				Belt. Potential conflict with rural residents to the north however adjacent to M23 which is compatible use.	to M23 Spur then impact avoided but severe impact on local network).	Not located within the flood zone.			
Option T6 - Peeks Brook Lane South	Moderate operational impact, assumes access/egress movements will be timed to avoid passenger peaks.	Requires rights to temporarily use the land which will result in a rent payable. No other financial impacts to GAL.	Too remote, not large enough, extremely difficult access.	Brownfield. Potential conflict with rural residents to the north however adjacent to M23 which is compatible. Within Gatwick Safeguarded Land where temporary uses may be acceptable. May impact on setting of locally listed building. Smaller site but could come forward in conjunction with Option T5. NB: 2 different LPAs.	Reduction in M23 Spur (eastbound) capacity, access unlikely to be acceptable to Historic England (if no access to M23 Spur then impact avoided but severe impact on local network).	Fluvial; not in flood zone. Fluvial; additional hardstanding requiring mitigation Not located within the flood zone.	No anticipated impacts.	Proximity to residential dwellings and public rights of way diversion required.	GAL do not own this land. Requirement to secure land – potentially via a CPO.
Option T7 - M23 Compound North	Site is located away from the airport and no impacts upon operations are anticipated.	Requires rights to temporarily use the land which will result in a rent payable. No other financial impacts to GAL.	Accessibility to the site includes a 16mile round trip to get to M23 Southbound, alternative access is through Horley.	Brownfield site currently used for similar use to that proposed. Within green belt but may not require introduction of new buildings/operations given current use.	Direct access to/from the Strategic Road Network (SRN), access/egress difficult (unlikely to be accepted by Historic England), remote from work sites.	Fluvial; not in flood zone. Fluvial; additional hardstanding requiring mitigation.	Surrounding woodland to be avoided.	Existing commercial use, limited receptors in the vicinity.	GAL do not own this land. Requirement to secure land – potentially via a CPO.
Option T8 - M23	Site is located away from the airport and no impacts upon	Business Case: Requires rights to temporarily use the	Accessibility to the site includes a 16mi+E11.	Brownfield site currently used for similar use to that	Direct access to/from the SRN, access/egress	Fluvial; affects 1:1000 floodplain.	None	Residential dwelling to the south.	GAL do not own this land and a CPO is considered

'R' Options **ES Figure 3.3.18** (Doc Ref. 5.2)	Operational and Business			Planning, Environmental, Community and Land					
	Operations	**Business Case**	**Deliverability**	**Planning and Consents**	**Surface Access**	**Water**	**Environment (Land Based) (Ecology, Heritage, Soils and Visual considerations)**	**Community**	**Land and Property**
Compound South	operations are anticipated.	land which will result in a rent payable. No other financial impacts to GAL. Potential impact on M23, Historic England strategic resilience would require modification.		proposed. Within green belt but may not require introduction of new buildings/operations given current use.	difficult (unlikely to be accepted by Historic England), remote from work sites.	Fluvial; additional hardstanding requiring mitigation.			necessary. The site is currently used as a winter resilience compound by Highways.
Option T9 – Junction 10 Copthorne	Site is located away from the airport and no impacts upon operations are anticipated.	Requires rights to temporarily use the land which will result in a rent payable. No other financial impacts to GAL.	Too remote from site as the main compound.	The site has consent for B8 warehousing so any use would be considered fully complaint with policy.	Direct access to/from the SRN, potential constraints for Junction 10 capacity, particularly in the peak, remote from work sites.	Fluvial; not in flood zone. Fluvial; additional hardstanding requiring mitigation.	Surrounding woodland to be avoided.	Potential to impact nearby residents.	GAL do not own this land and a would have to take a lease of the building.
Option T10 (Longbridge Roundabout)	Site is located away from the airport and no impacts upon operations are anticipated.	Requires rights to temporarily use the land which will result in a rent payable. No other financial impacts to GAL	Access already exists, self-contained site, close to the Longbridge Roundabout works.	Relatively good option' on the basis the site will be allocated as Environmental Mitigation Area.	Ease of access and proximity to the site access to Longbridge Roundabout works.	Proximity to the flood plain. Cabins needs to be placed above the peak water level.	Greenfield, surrounded with trees. Would be potential impact upon trees, soils and create visual impact.	Potential for some disturbance to nearby residential properties, however anticipated minimal given location adjacent to A217.	GAL do not own this land. Requirements to secure land via CPO.
Option T11 (Car Park B)	Potential risk to operations because of lost car parking for staff.	GAL owned land. Area is currently GAL staff parking. This would require staff to be re-provided in other car parks. The area will be part of Environmental Mitigation Area.	Within airport boundary, brownfield site with existing access. Proximity to the works site will decrease the construction traffic and impacts to stakeholders.	Relatively good option on the basis the site will be allocated as Environmental Mitigation Area.	Ease of access and proximity to the site access to Airport Way Rail Bridge widening site.	Within flood plain. Cabins would need to be placed above the peak water level.	Good option, currently developed land.	Limited impact due to existing use.	GAL owned land. Loss of parking that will require re-provision.

2 Glossary

2.1 Glossary of Terms

Table 2.1.1: Glossary of Terms

Term	Description
08 ops	Direction 08 operations occur when the wind is from the east, which is historically 26 % of the time.
26 ops	Direction 26 operations occur when the wind is from the west, which is historically 74 % of the time.
AQMA	Air Quality Management Area
AS	Airside
ATM	Air traffic movements
BAU	Business as usual
CAA	Civil Aviation Authority
CCA	Climate change allowance
CapEx	Capital expenditure. A business expense incurred to create future benefit.
CAT I	Category I (CAT I) Instrument Flight Rules are precision approach runways as defined by ICAO.
CPO	Compulsory Purchase Order
DCO	Development Consent Order
EASA	European Aviation Safety Agency
EAT	end around taxiway
FZ	flood zone
GAL	Gatwick Airport Limited
hush house	An enclosed, noise-suppressed facility used for testing aircraft systems
ICAO	International Civil Aviation Administration
LPA	local planning authority
LS/AS	landside/airside security fence
North Terminal	North Terminal
OpEx	Operational expenditure. Money a business spends in order to turn inventory into throughput.
PRS	Perimeter Road South
PRoW	public right(s) of way
PS	pumping station
RET	rapid exit taxiway
SRN	strategic road network
South Terminal	South Terminal

Term	Description
South Terminal Roundabout	South Terminal Roundabout
WFD	Water Framework Directive
WTW	Wastewater treatment works