

PHASE 2 Risk Register - Revision 4

05/09/2019

Ref	Risk description	Risk Manager	Time Scales longevity	Risk target			Current Mitigation and risk level						Planned Mitigation		Risk review date
				Likelihood (initial)	Impact (initial)	Risk score (initial)	Current controls in place			Likelihood (initial)	Impact (initial)	Risk score (initial)	Gaps in controls Additional controls required to reduce risk as far as is practical	Further planned actions / Actions needed to address gaps	
1. Site Issues															
1.1	VANDALISM Vandalism occurs during construction. Cost and delay arises as a result of vandalism during the construction phase.	PSCP	Dec 2021	3	2	6	Works not yet on site - risk minimal at this time.	3	2	6			Full site hoarding will be put in place prior to enabling works / construction.	Jan-20	
1.2	UNFORESEEN GROUND CONDITIONS Ground conditions during construction phase discovered. Unforeseen ground conditions lead to variations and the requirement for remedial works to enable construction works to progress. Potential addition time, cost and quality implications.	PSCP	June 2020	2	3	6	SI and GPRS surveys undertaken. Results of SI awaited however expected to be similar to P1 SI. Enabling works package to be undertaken which will assist in de-risking impact of unforeseen ground conditions prior to main works commencement.	2	2	4	SI ongoing.		Initial SI has suggested some pockets of asbestos - interpretive report being prepared. Surveys ongoing to find rising main position.	Aug-19	
1.3	SITE TRAFFIC Site traffic, both vehicle and pedestrian impacted by the construction traffic on the accessing/egressing the construction site. Potential impact on site logistics. Potential H&S implications. Failure to establish robust strategy for traffic management could result in delay to works.	PSCP + NHS	Dec 2021	2	4	8	Clear segregation of site traffic to be established through the Construction plan developed by the PSCP. Draft logistics plan for P2 issued - further phasing review arranged for 11/09/19. Temporary car-parking provision to be determined. On going discussions through pre-construction phase.	4	4	16	Requirement to review reconfiguration of parking, access road and ambulance drop off. Need to review pedestrian routes back to main entrance.		Hirst landscaping engaged to look at possible options for ambulance bay and increased parking provision. Updated logistics plan issued by Kier for review, inclusive of access roads.	Aug-19	
1.4	SITE ISSUES FOR ECOLOGY Roosting wildlife on site. Breeding seasons holding up works - additional cost/time impact.	PSCP	June 2020	2	2	4	Ecology expected to be as per P1 therefore lower risk. Bat survey to be undertaken also.	2	2	4	Bat roosts and nesting birds to be reviewed.		Update to original ecology report has been instructed.	Aug-19	
1.5	UNFORESEEN GROUND CONTAMINATION Discovery of contaminated land requires significant remedial works. Time/Cost impact.	PSCP	June 2020	2	3	6	It is known that full site remediation was carried out previously. Site survey results awaited to allow any remediation to be scoped. Conditions expected to be similar to Phase 1.	2	2	4	SI ongoing.		Initial SI has suggested some pockets of asbestos - interpretive report being prepared. Surveys ongoing to find rising main position.	Aug-19	
1.6	WAYLEAVE FOR EXISTING SERVICES ACROSS PROPOSED SITE Service routes clash with new build require diversion. Potential time/cost delay.	NHS	Jul 2020	2	3	6	Clarification of any existing wayleaves on the site to be obtained from NHS. GPR to be undertaken.	2	3	6	No wayleaves expected to be required due to existing service routes being used. (HV will be from existing sub-main and SPEN transformers). Fibre running through P2 site requires diversion.		GJH to engage with Virgin for fibre diversion. Capacity surveys ongoing to determine any new connections.	Aug-19	
1.7	UNCHARTERED SERVICES Unchartered services require revised works methodology/design leading to cost/programme implications. Loss of services to NHS..	PSCP	June 2020	2	3	6	GPR to be undertaken. Location of rising main TBC. Services to be surveyed and identified ASAP to allow any necessary diversions to be undertaken as part of the enabling works package. Estates noted fibre connection runs across site.	2	2	4			GC to pass on any existing information. Dalcon SI has also identified some services.	Aug-19	
1.8	WORKING IN A LIVE SITE PLANNED DISRUPTION Delays and reputational damage associated with disruption working in a live site.	PSCP	Dec 2021	2	4	8	Detailed programming and phasing of works to mitigate disruption to live site. And ongoing communication with Health Board will take place. Road to loading area will be taken over during works. Review to be undertaken with estates and clinical teams to try and minimise service continuity disruption. Refurbishment works to be carefully planned to avoid live theatre / ward disruption.	3	4	12	Tie in with wider site / clinical teams.		Regular reviews with clinical / ops team - full communication. Less tie ins required than previously envisaged. Relevant HAI-Scribes to be undertaken in advance of works.	Jan-20	

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1.9	SITE PARKING DURING CONSTRUCTION WORKS Insufficient access and parking on the operational site, during the construction period. Increased risk of local resident frustrations due to parking overspill in local area.	PSCP	Jul 2020	2	3	6	Temporary car parking options to be reviewed as part of logistics review.	3	3	9	Temporary parking provision.	Logistics review ongoing - temporary provisions being looked at.	Jan-20
1.10	ASBESTOS SURVEY AND ASSUMPTIONS OF COMPLETENESS Delay to commencement of construction to enable full extent of asbestos to be removed prior to commencement. Cost implications if significant asbestos found.	NHS	Jul 2020	2	2	4	Asbestos management survey information available obtained from NHS. No asbestos identified internally. SI to confirm any pockets of asbestos identified in the ground.	2	2	4	Specific surveys required prior to commencement.	Management surveys complete - to be issued to Kier team. R&D will be required prior to break through works. Boiler / plant to be checked also. SI to be issued (ground asbestos identified).	Aug-20
1.11	PROXIMITY OF SITE TO RIVER Potential flood risk creating cost and programme impact to works delivery.	NHS				0	Flood Risk discussion with Planners has taken place in P1 - perceived to be low risk. Flood Risk Assessment required to inform flood risk to site to mitigate potential flood risk during construction and occupation phase.			0	Less risk for P2 as further away from river.		Jan-20
1.12	UNEXPLODED 2ND WORLD WAR BOMBS Discovery of unexploded bombs during site excavation. Programme delay and cost associated with disarming and removing bombs discovered. Health and safety risk associated.	PSCP	Jul 2020	2	4	8	UXO surveys to be undertaken prior to enabling works. Agreed protocol in place should unexploded bombs be encountered. Probing will be required prior to any ground works on the site. UXO probing included in enabling works scope.	1	4	4		UXO probing will need to be scheduled prior to piling.	Nov-19
1.13	TEMPORARY POWER & WATER CONNECTIONS Closest source of power to the construction site is 75 m and through the live hospital building. Potential risk of disruption and stoppages.	NHS	Jul 2020	2	4	8	Dialogue required with Estates Team in advance of works commencement to plan access routes and controlled shut downs to coordinate connections.	3	4	12		Kier looking to bring in extra supply for site accom - don't expect issues - tie into existing.	Jan-20
1.14	DISABLED PARKING BAYS Site compound will require a number of the existing disabled parking bays to be taken out of use for the duration of the works.	NHS	Jul 2020	2	2	4	P2 will not affect Disabled Parking spaces.	5	2	10			Jan-20
1.15	ACCESS ROAD DILAPIDATION Potential for vehicle movement to service the works causing wear and tear and impacting condition of existing drainage.	PSCP	Jul 2020	2	2	4	Dilapidation survey to be carried out prior to works commencement, to enable differentiation between damage created by the works and pre-existing damage.	3	2	6	Existing condition survey.	Matterport planned prior to works commencement.	Jan-20
1.16	HELICOPTER LANDING Stoppages to work caused by helicopter landing on site.	NHS	Jul 2020	2	2	4	Protocol to be put in place by Kier for works (and particularly crane movement) to pause during helicopter landings on the site. Any prolonged stoppages that impact works progress will be reviewed through the Compensation Event process.	3	3	9	Agreed protocols for construction phase.	Flight path not over building. Glasgow airport to be notified of crane installation prior to commencement. Lights etc. to be on jib.	Jan-20
1.17	HAI Scribe Tie in from live site to existing hospital to be reviewed.			3	5	15	Tie in locations have been reduced. Specific HAI-Scribes to be undertaken prior to works.	2	5	10	Site protocol / strategy.	Need to monitor negative pressures, external weather ingress etc. Micro-biology required. (GJF) Timings of breakthrough to be agreed. First would need to be in October 19 for enabling works. Several scribe meetings will be required for break ins.	Nov-19

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2. Utility/Services Issues													
2.1	UTILITIES, IT AND TELECOMS Inadequate capacity in infrastructure leading to poor connectivity/service quality. Additional cost/ disruption post-completion to remediate.	NHS	Jul 2020	1	4	4	If required additional capacity to be applied for from the relevant utility suppliers. Assessment of loading currently being undertaken. Water, drainage, AHUs, Generators and resilience required all to be reviewed.	2	4	8	Fibre diversion required. Surveys required for existing services capacity.	Main fibre connection runs through middle of site - new connection / diversion required. GJH aim to progress this now. A.Goodman to be consulted. Infrastructure via Kier, connections etc via GJH.	Sep-19
2.2	UTILITIES CONNECTION DELAY DUE TO LATE APPLICATIONS POST CONTRACT Delay obtaining new utilities connection. Delay to works and building occupation.	PSCP	Jul 2020	3	4	12	Early engagement with utilities providers as required intended to enable connections to be made in line with the construction programme requirements.	2	4	8	Surveys done - believed only SPEN & Drainage are only new connections required. Gas & telecoms not required.	Engagement with relevant utility companies.	Sep-19
2.3	SCOTTISH WATER SEWER ENABLING WORKS Off site infrastructure works required to accommodate SW sewer works required.	NHS	Jul 2020	1	3	3	Conclude the application process with Business Stream and to firm up allowances in cost plan as required.	3	3	9	Capacity / levels review to be undertaken.	Depending on survey - pumping chamber may be required for tie in to sewer on Dumbaron Road.	Nov-19
2.4	SCOTTISH WATER OFF SITE WATER SUPPLY MITIGATION WORKS Off site infrastructure works required to accommodate SW works required.	NHS	Jul 2020	3	3	9	Conclude the application process with Business Stream and to firm up allowances in cost plan as required.	3	3	9		Plan to tie into existing network.	Nov-19
2.5	OFF SITE network upgrade delays (Sewerage - Scottish Water/ HV Supply - SPN) Delay and cost implications for connection of new utility supplies to the site.	PSCP	Jul 2020	2	4	8	Dialogue with utility providers throughout the design / pre-construction process as required.	2	4	8	New HV and additional drawdown from existing supply to be notified to SPEN.	Network upgrades not expected.	Nov-19
2.6	On Site Infrastructure Upgrades - Risk of existing generators, chillers, drainage, and other plant requiring upgrades to facilitate Phase 2 New Building.	PSCP	Jul 2020	3	3	9	Ongoing reviews by M&E team to confirm existing capacity. Likely new generators will be required.	3	2	6	Confirmation of location for new generators.	Network upgrades not expected.	Nov-19
2.7	Existing Service connections and isolation/disconnections Delay to disconnection will delay commencement of construction	PSCP + NHS	Jul 2020	2	3	6	Ongoing dialogue required to establish if any disconnections/isolations of live services are required.	3	3	9	Tie ins to existing supplies to be reviewed during M&E design.	Capacity currently being reviewed by GJH.	Nov-19
2.8	Achieving HFS/NHS thermal modelling requirement for the building. Outcomes may result in change in current thinking's on proposed fabric and m&e specifications.	PSCP	Dec 2018	2	4	8	Dialogue to continue with HFS.	3	4	12	Engagement with HFS required ASAP to look at design and M&E.	Thermal model will be carried out to demonstrate heating and cooling gains.	Jan-20
2.9	Planning and/or Building Control constraints may influence on use of certain LZCTs. E.g. air quality conditions impacting the use of CHPs, visual impacts of flues and PV arrays. Outcomes may result on current thinking on fabric and m&e specifications.	PSCP	Dec 2018	2	3	6	Dialogue with WDC ongoing.	3	3	9	No low carbon technology proposed.	Future proofing for tie ins to new LZCTs if they were installed in the future.	Jan-20
2.10	WATER PRESSURE Additional time/cost for enhancement of water pressure.	NHS	Jul 2020	3	2	6	Fire hydrant pressure checking required.	2	2	4	New pump sets already installed so do not expect issue here.		Nov-19
2.11	WATER TANKS Distance from existing water tanks to new building results in elevated water temperatures in the new building.	NHS	Jul 2020	1	3	3	Dialogue required with Estates Team to establish requirements.	3	3	9	Connecting to existing system. Design to allow for this.		Jan-20
2.12	EXISTING DRAINAGE PUMPING STATION CAPACITY The capacity of the existing pumping station is unknown. May be insufficient for building drainage requirements.	NHS	Jul 2020	1	3	3	Ongoing discussion with estates to establish if any further information available. If the existing pumping station capacity is insufficient a new pump may be required.	1	3	3	Connecting to existing system. Design to allow for this.		Jan-20

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3. Procurement and Commercial Issues													
3.1	CAPEX ESTIMATION ERROR The estimated cost of construction may be incorrect. Failure to present the works within the required affordability cap will impact on OBC and FBC approval.	PSCP	Dec 2018	3	4	12	Ongoing affordability checks carried out throughout the design process. VM to progress through design stages to minimise impact of compressed programme. Current forecast is over budget. Need to ensure timings tie in in advance of stage reports.	3	3	9		Aug-19	
3.2	CHANGES IN TAXATION Changes in taxation may affect the cost of the project.	NHS	Jul 2020	2	2	4	Ongoing review of emerging policy changes to be considered as required.	2	2	4		Jan-20	
3.3	INCORRECT COST ESTIMATE FOR COMMISSIONING NEW BUILDINGS Additional costs incurred due to incorrect cost estimate of commissioning activities required.	PSCP	Jul 2020	2	2	4	Ongoing affordability checks carried out throughout the design process. PSCP to review scope and affordability of proposed commissioning strategy during pre-construction phase.	2	2	4	Commission programme and relevant regs to be reviewed.	Soft landings approach to allow commissioning timescales to be reviewed.	Jan-20
3.4	INFLATION RISK Post Financial Close Impact on project affordability due to inflation exceeding forecast.	PSCP	Jul 2020	3	3	9	Inflation forecast ongoing. Affordability cap set against current inflations projections. Delays to construction timing due to decant works will increase this risk. Track against monthly indices - current economic / political picture unsettled & BREXIT.	3	3	9	Ongoing monitoring of any market changes due to Brexit.		Jan-20
3.5	NHS FF&E BUDGET INADEQUATE FOR PROCUREMENT OF SPECIFIED ELEMENTS Constructed building does not fit revised FF&E requirements. Time cost and quality impact.	NHS	Jul 2020	1	3	3	Detailed equipment schedules produced with NHS. Equipment working group to be established to ensure any changes are being identified early in the process.	2	3	6			Jan-20
3.6	BREXIT impact on regulatory process Potential time, cost or quality risk to the project to accommodate changes as required.	NHS	Jul 2020	1	2	2	Ongoing monitoring of regulatory changes.	1	2	2		Ongoing monitoring of any changes from Brexit.	Jan-20
3.7	EARLY ENGAGEMENT WITH SUBCONTRACTORS Early engagement means a premium is paid to sub-cons as not full market test.	PSCP	Jul 2020	1	3	3	PTE's to be undertaken and agreed rates from previous phases to be reviewed.	2	3	6		Piling, frame, M&E and precast envelope have been identified for early engagement. Liaison with Scot Gov to ensure approval of spend level prior to FBC.	Jan-20
3.8	BREXIT IMPACT ON CONTRACTOR PRICING Uncertainty in the market leading to premium in cost due to risk associated with Brexit uncertainty.	PSCP	Dec 2018	2	2	4	Market testing to be carried out as far as possible.	3	2	6		Full financial checks to be carried out during appointments also.	Jan-20
3.9	TIMING TO CONCLUDE COLLATERAL WARRANTIES Extended duration to conclude Collateral Warranties with subcontractors.	PSCP	Jul 2020	1	2	2	Early review of Collateral Warranties, to be tied into contract appointments and to align with HFS Framework requirements.	2	2	4		Early identification of which key sub cons require CWs. Engage with HFS on any wording changes.	Jan-20
3.10	SPEND BEFORE OBC / FBC Financial commitment required prior to OBC / FBC sign off.			4	3	12	VfM to be reviewed throughout. S.Gov and GJF comfortable to proceed provided VfM is demonstrated.			0		Scot Gov have confirmed agreement to proceed - planned pre-FBC spend to be agreed.	Sep-19
3.11	PROGRAMME Intensive turn around times / commercial agreements at key gateways			4	4	16	Team to continue to work together and agree items as quickly as possible. Stage 2 report targeted for Aug 19 to allow OBC submission to CIG for end of Sept 19.			0			Sep-19
3.12	CONTRACT Agreement of staged contracts.			3	3	9	Dialogue ongoing to concluded stages 1-3. Stage 4 discussions to commence ASAP.			0	Agreement required for Enabling Works and Stage 4.	Contracts to be drafted as far in advance of stage as possible to allow review and agreement in good time for signing.	Sep-19

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4. Design Risks													
4.1	FAILURE TO MEET PERFORMANCE REQUIREMENTS Building does not meet spatial design requirements. The building does not meet user requirements once constructed.	PSCP	Jul 2020	1	4	4	Health Planners engaged throughout the briefing and initial design stages to ensure spatial requirements are fully considered within the design. Staged review and sign off of based design by NHS carried out. Ongoing review of design against the brief, with key stakeholders.	2	4	8		ACRs now issued. 1:500s, 1:200s & 1:50s have been signed off. Supervisor / DM to monitor during design. Performance requirements are better defined for P2 compared to P1.	Sep-19
4.2	ARCHITECTURE & DESIGN SCOTLAND/HFS Lack of support from A&DS at the OBC and FBC (and Planning) stages. Delay/abortive works required to incorporate differing inputs from A&DS/HFS on design proposals.	PSCP	Dec 2018	1	3	3	Ongoing engagement with HFS (A&DS) throughout the design process. Formal issue of report awaited. Further discussions to be held in due course.	2	3	6	AD&S may not recommend approval. Risk between WDC & AD&S disagreement.	WDC D&P now not required. Liaison ongoing with A&DS, HFS and WDC.	Jul-19
4.3	FAILURE TO MEET ENERGY PERFORMANCE REQUIREMENTS Failure to meet targets and control energy costs. Additional revenue costs incurred through operational period. Carbon footprint increase.	NHS	Jul 2020	1	3	3	Ongoing review of design compliance with the Building regulations.	2	3	6		Energy required will be as per theatre CSPD requirements.	Sep-19
4.4	FAILURE TO DESIGN TO THE BRIEF Failure to translate the requirements of NHS into the design. The facility does not meet the clinical and technical requirements of NHS. Abortive design works are required resulting in cost and programme delays.	PSCP	Jul 2020	1	3	3	Ongoing review of design against the initial clinical and technical brief provided. VR sessions and intensive engagement ongoing with clinical teams.	2	3	6		VR done up front. All comments to date are positive.	Sep-19
4.5	CONTINUING DEVELOPMENT OF DESIGN The detail of the reviewable design data should be developed within an agreed framework and timetable for review and approval during the construction stage. Failure to do so may lead to additional design and construction costs.	PSCP	Jul 2020	2	3	6	Clear design freeze point to be established at end of 1:50 design stage. Design submissions to be clearly set out.	3	3	9		RDD to be agreed well in advance. Design freeze identified at 1:50s.	Sep-19
4.6	FAILURE TO BUILD TO DESIGN Misinterpretation of design or failure to build to specification during construction may lead to additional design and construction costs.	PSCP	Jul 2020	2	3	6	Regular progress meetings to be carried out throughout the construction phase to enable early identification of any breakdown in the design information. NEC Supervisor to review.	2	3	6	Full reviews of design proposals prior to construction.	Supervisor and PSCP quality plans to be put in place.	Jan-20
4.7	DESIGN EXCEEDS GIFA ALLOWANCES Impact clinical/therapeutic spaces to accommodate additional communication space requirements and/or increase in affordability cap.	PSCP	Dec 2018	1	3	3	SoA currently within accepted parameters.	2	3	6		SoA and GIFA genuinely aligned.	Jan-20
4.8	DESIGN STATEMENT COMPLIANCE Non-negotiable objectives set out in Design Statement not met by Ph 2 design. Failure to achieve the non-negotiable objectives detailed within the Design Statement will impact on obtaining FBC approval.	PSCP	Jul 2020	2	3	6	Design statement has been issued to the team by NHS. HFS / A&DS reviews will help ensure compliance. Project team to also review design against the design statement	2	3	6		Design statement as per P1. ACRs also issued to support this.	Jan-20
4.9	PHASE 1 DESIGN DICTATES FUTURE PHASES Development options in future phases limited due to phase 1. Potential compromise on future services.	NHS	Jul 2020	1	4	4	Phases 1, 2 and 3 are part of a larger agreed masterplan for the overall site which is agreed. Ongoing liaison between the Phase 1 and master planning to mitigate risk of phase 1 impacting future phases in this way. Early development of Phase 2 to mitigate this risk also.	3	4	12			Jul-19
4.10	NON- COMPLIANCE WITH THE MASTERPLAN Failure to achieve the strategic objectives outlined within the masterplan	NHS	Jul 2020	2	2	4	Ongoing review of emerging design and scope with defined masterplan objectives/	2	2	4		Plans in line with master plan.	Nov-19
4.11	CONTRACTOR DESIGN PORTION Design not complete due to coordination of CDP design creating programme delay, quality and cost.	PSCP	Jul 2020	2	3	6	Develop construction phase programme and early engagement with Subcontractors with design input.	3	3	9	User supply equipment specs for M&E CDP.	CDP identified as early as possible to allow design to be progressed now.	Nov-19
4.12	CLEAR IDENTIFICATION OF DEROGATIONS Failure to identify agreed derogations at the outset, lead to dispute of scope of works in construction delivery phase.	PSCP	Jul 2020	1	3	3	PSCP to produce a derogation schedule for NHS agreement and sign off for inclusion within the Stage 4 contract information.	4	3	12	Review of ACRs / regs.	ACRs review ongoing. SHTMs / Technical Standards believed to be in compliance just now.	Nov-19

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4.13	THEATRE / LAY-UP PREP LAYOUT Concern over pressure differential between lay-up prep area and UCV Theatre canopy. Layouts require to be reviewed to ensure compliance with SHTM 03-01.	PSCP / NHS	44743	4	4	16	Ongoing liaison with HFS to try and ascertain clear guidance on the issue. Suggestion to take issue to National Ventilation Group for review.	3	4	12		Ongoing review until agreed layout and air changes / pressures agreed.	Sep-19
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5. Construction and Development Risks												
5.1	NOISE LEVELS or DISTRUPTION DURING CONSTRUCTION Noise levels exceed the tolerances proposed resulting in staff and patient disruption. Enforced re-sequencing or revised methodology of the works potentially resulting in additional time/cost to the project delivery.	PSCP	Jul 2020	1	3	3	Agreements to be in place between the PSCP and NHS, prior to commencing construction regarding working hours and quiet working requirements (i.e. Protected meal times etc..). Design consideration regarding construction methodology used to minimise disruption. Construction noise strategy developed.	3	3	9	To be reviewed prior to enabling works commencement.	Nov-19
5.2	COMMISSIONING DEFECTS Problems with the new building following occupation. Disruption to users.	PSCP	Jul 2020	2	4	8	PSCP Contractor will be contractually obligated to address defects during defects period.	2	4	8	To be reviewed prior to enabling works commencement.	Nov-19
5.3	REPORTABLE ACCIDENTS HSE reportable accidents on site. H&S implications.	PSCP	Jul 2020	1	5	5	PSCP to have Health & Safety Plan in place prior to works commencing. Regular inspections of the site also to be carried out by the PSCP to enable early identification of any potential H&S risks.	1	5	5	To be reviewed prior to enabling works commencement.	Nov-19
5.4	LEGISLATIVE/REGULATORY CHANGE: NON-NHS SPECIFIC A change non-NHS specific legislation/regulations taking effect during the construction phase, leading to change which results in additional cost/time.	NHS	Jul 2020	2	3	6	NHS Policies included in Works Information pack. Sufficient contingency to be built in to the Target Price to accommodate unforeseen regulatory changes.	2	3	6	To be reviewed prior to enabling works commencement.	Nov-19
5.5	SUBCONTRACTOR DEFAULT In the event of Contractor default, additional costs may be incurred in appointing a replacement and may cause a delay.	PSCP	Jul 2020	2	4	8	PSCP to carry out appropriate due diligence of any subcontractors appointed. Any additional costs incurred as a result of default at PSCP expense. With the fall in tender price index moving against the rise in inflation this has increased this risk of subcontractor default.	2	4	8	To be reviewed prior to enabling works commencement.	Nov-19
5.6	BREEAM: Planned / targeted BREEAM credits not achieved. Failure to achieved BREEAM target agreed with HFS.	PSCP	Jul 2020	3	3	9	Early submission of information to BREEAM Advisor and ongoing review of BREEAM deliverables. Identify contingency BREEAM credits if required.	3	3	9	To be reviewed prior to enabling works commencement.	Nov-19
5.7	AIRTIGHTNESS: Failure to achieve stipulated design value. Failure to achieved thermal model planned outputs resulting in deviation from Planned TER score (If this is below the BER then this could lead to failure to meet building control requirements)	PSCP	Jul 2020	2	3	6	Design to be developed in accordance with identified parameters. Peer review of air tightness too to be carried out.	2	3	6	To be reviewed prior to enabling works commencement.	Nov-19
5.8	DAMAGE: damage caused to structure, fabric, finishes, MEP etc....as a result of construction works on site. Remedial works required. Potential programme disruption.	PSCP	Jul 2020	1	3	3	Careful sequencing of works and protection strategy to be put in place.	2	3	6	To be reviewed prior to enabling works commencement.	Nov-19
5.9	SCOPE GAPS: between Work Packages Scope gaps become evident during build phase.	PSCP	Jul 2020	1	3	3	Holistic design review to be carried out prior to works commencement.	3	3	9	To be reviewed prior to enabling works commencement.	Nov-19
5.10	MAINTENANCE / ACCESS: Inadequate allowance made for maintenance provisions e.g. access hatches, valve arrangements, hop over steps, changes required to MEP installation. Inadequate provision made resulting in cost and potential programme delay.	PSCP	Jul 2020	1	3	3	Holistic design review to be carried out prior to works commencement with NHS Estates. Regular integration on site.	2	3	6	To be reviewed prior to enabling works commencement.	Nov-19
5.11	ACOUSTICS: reverberation times require additional measures to be taken. Inadequate provision made resulting in cost.	PSCP	Jul 2020	1	3	3	Acoustician input to assist architectural design. Quality control and monitoring to be checked on site.	2	3	6	To be reviewed prior to enabling works commencement.	Nov-19

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5.12	ACOUSTICS: failure to achieve required design criteria. Additional works required to achieve specified performance criteria and re-testing required to areas.	PSCP	Jul 2020	1	3	3	Acoustician input to assist architectural design. Quality control and monitoring to be checked on site.	2	3	6	To be reviewed prior to enabling works commencement.		Nov-19
5.13	DDA COMPLIANCE: Additional works required to satisfy DDA requirements. Additional works required to satisfy DDA requirements not evident at Stage 2 e.g. level issues externally, colour contrast between components etc....	PSCP	Jul 2020	1	3	3	DDA compliance statement to be provided by IBI. DDA design review to be carried out.	1	3	3	To be reviewed prior to enabling works commencement.		Nov-19
5.14	EXTERNAL ROAD REPAIRS: additional road repairs required due to excessive wear and tear of site traffic. Additional works / preparation required to bring base course up to standard following use for site traffic.	PSCP	Jul 2020	2	2	4	PSCP to carry out site dilapidation survey in advance and return site in condition obtained.	4	2	8	To be reviewed prior to enabling works commencement.		Nov-19
5.15	CHANGE TO KEY STAFF: Due to length of contract duration there is a risk to a turn over in key staff members. Loss of continuity and relationships. Additional cost to bring new team members on board and bedding in period.	PSCP	Jul 2020	2	3	6		2	3	6	To be reviewed prior to enabling works commencement.		Nov-19
5.16	INFECTION CONTROL: Additional requirements not capture within Stage 2/3 design requested.	PSCP	Jul 2020	2	3	6	Ongoing engagement with Infection Control.	2	3	6	To be reviewed prior to enabling works commencement.		Nov-19
5.17	VIBRATION DISRUPTION Programme and cost implication due to unplanned stoppages.	PSCP	Jul 2020	1	3	3	Programme and methodology to be communicated to NHS and agreed in advance of works taking place.	2	3	6	To be reviewed prior to enabling works commencement.		Nov-19
5.18	BUILDABILITY Clash detection in design potential cost/programme and quality impact.	PSCP	Jul 2020	1	3	3	Use of BIM for clash detection. Review of existing as built information for any tie ins and early subcontractor engagement.	3	3	9	To be reviewed prior to enabling works commencement.		Nov-19
5.19	LOGISTICS Adjacency of building to existing building and main entrance. Potential disruption, health & safety risk. Programme/cost implication for delay.	PSCP	Jul 2020	1	3	3	Pre-construction logistics planning to enable early plan to be developed for agreement with NHS.	3	3	9	To be reviewed prior to enabling works commencement.		Nov-19
5.20	FALSE FIRE ALARMS IN EXISTING BUILDING Potential disruption to users.	PSCP	Jul 2020	2	3	6	Communication with Estates to agree any isolations required in advance of works being carried out on existing site.	2	3	6	To be reviewed prior to enabling works commencement.		Nov-19
5.21	FIRE DURING CONSTRUCTION STAGE Health and safety risk. Disruption to site operation. Time and cost implication.	PSCP	Jul 2020	2	4	8	Fire strategy to be put in place and agreed prior to construction commencement.	2	4	8	To be reviewed prior to enabling works commencement.		Nov-19
5.22	HAI-SCRIBE DELAY IMPACTS CONSTRUCTION PROGRESS Non-availability of Hai-scribe team impacts on works on site taking place.	NHS	Jul 2020	1	3	3	Early engagement with HAI-scribe team to ensure availability. Stage 3 HAI-scribe scheduled 7/11/18.	3	3	9	To be reviewed prior to enabling works commencement.		Nov-19
5.23	DEFECTS ACCESS Difficulty accessing clean areas following completion to address any defects identified.	NHS	44743	2	3	6	Rotation of theatres to take place to enable access as required. Potential for weekend working also.	3	3	9	To be reviewed prior to enabling works commencement.		Nov-19
6. Third Party/Stakeholder Issues													
6.1	PLANNING PERMISSION Failure to obtain planning permission programmed dates (16 weeks). Delay to obtaining key approvals and ultimately delay in the overall project programme.	PSCP	Dec 2018	2	4	8	Ongoing liaison with Planning Department throughout the planning process to mitigate risk of delay to obtaining planning approvals. Regular fortnightly meetings set up.	3	4	12	Short window for application and little room for slippage on sign-off timescales. Planning application to be submitted on 13th September. Master plan to WBC B&P board being discussed.		Aug-19

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6.2	BUILDING WARRANT APPROVAL Failure to obtain Building Warrant in line with programmed dates (16 weeks). Delay to obtaining key approvals and ultimately delay in the overall project programme.	PSCP	Dec 2018	4	4	16	Ongoing liaison with Building Control Department throughout the planning process to mitigate risk of delay to obtaining planning approvals. Regular fortnightly meetings set up.	4	4	16	Approvals currently taking longer than stat timescales.	IBI liaising with BCO to streamline process.	Aug-19
6.3	BUILDING REGULATIONS 2015 Building regulations more onerous than previous standards. Additional cost and design implications associated with obtaining 2015 Building Regulation Compliance.	PSCP	Jul 2020	2	4	8	Ongoing liaison with Building Control Department throughout the planning process to mitigate risk of delay to obtaining approvals. Extension classification and no requirement for sprinklers confirmed.	2	4	8		BCO confirmed classification of extension.	Aug-19
6.4	ROADS DEPT ENGAGEMENT to discuss impact on existing road network	PSCP	Jul 2020	3	4	12	Early consultation with roads	2	4	8	Closeout of transport actions with planning required.	GJH doing transport review. Parking & public transport being reviewed.	Jan-20
6.5	PLANNING CONDITIONS Planning conditions more onerous than anticipated from previous dialogue with the Planners. Additional cost to the project to comply with the planning condition.	PSCP	Jul 2020	3	4	12	Open dialogue with the Planners throughout pre-planning application stage	3	4	12		Pre-application engagement to try to mitigate conditions.	Aug-19
7. NHS Specific Issues													
7.1	NHS GROUP 2 & 3 EQUIPMENT Delay in obtaining group 2 and 3 items procured outwith the construction contract, in time for building occupation. Delay to building occupation where equipment is critical to service delivery.	NHS	Jul 2020	2	3	6	NHS Procurement of 2 and 3 items to be managed in parallel with the Construction Procurement timelines.	2	3	6	Early procurement of long lead items for theatres / CSPD.	Ongoing engagement for early identification of equipment for service tie ins.	Jan-20
7.2	NHS RESOURCES Insufficient resource availability from NHS to facilitate design and strategy development. Delay to overall project delivery - time/cost impact.	NHS	Jul 2020	2	3	6	NHS has identified key personnel for this purpose.	2	3	6	Microbiology input.	Estates to confirm if we have a specific estates resource to assist.	Jan-20
7.3	APPROVAL DELAYS Delay obtaining the necessary approvals to enable key milestones to be achieved (i.e.. NHS approvals, OBC, FBC, etc..). Delay to overall project delivery - time/cost impact.	NHS	Dec 2018	3	4	12	NHS has identified key personnel for this purpose. Approval dates detailed within the Project Programme to be adhered to by NHS. Where not possible, early notification by either party to be provided.	3	4	12		All parties working to Scot Gov programme otherwise slippage will occur. CIG approvals dates aligned.	Aug-19
7.4	FUNDING LIMITS NHS NHS availability of budget. Impact on ability to deliver the works.	NHS	Jul 2020	2	4	8	IA approved for Phase 2 & 3 provided. Testing budget to continue through submission of OBC and FBC.	2	4	8		Forecast costs being updated to ensure any budget challenges are raised now.	Aug-19
7.5	CHANGES IN THE RATE OF VAT Changes in the rate of VAT may increase the costs of the project.	NHS	Jul 2020	2	2	4	Revised VAT guidance to be issued by Scottish Government.	2	2	4	Guidance awaited.		Jan-20

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7.6	CHANGE IN DESIGN REQUIRED DUE TO EXTERNAL INFLUENCES SPECIFIC TO NHS There is a risk that the (SHTM etc..) designs will need to be changed due to legislative or regulatory changes specific to NHS.	NHS	Jul 2020	2	3	6	Design is being developed in accordance with the standard technical guidance (SHTM, SHPN, SHFN etc..). Policy guidance provided also being utilised to inform design. Any proposed derogation from the technical guidance to be agreed with NHS prior to concluding the design.	2	3	6	Microbiology and lay-up prep input required.	Engagement with HFS.	Jan-20
7.7	CLINICAL REGULATIONS Alterations to the current clinical service regulations/ best practice. Delay to project delivery to accommodate regulatory changes. Potential abortive works resulting in additional cost.	NHS	Jul 2020	2	3	6	User sign offs to be progressed with identified clinical users who will enable early identification of the changing clinical regulations.	2	3	6		Model recently reviewed - further update not expected.	Jan-20
7.8	NHS CHANGES TO APPROVED DESIGN BRIEF Programme and cost implications to project delivery.	NHS	Jul 2020	2	3	6	Ongoing engagement with NHS throughout design process to ensure brief is accurate.	2	3	6		None envisaged.	Jan-20
7.9	NHS COMMUNICATION STRATEGY Failure to inform users of works and the impact that this will have on their service delivery. Disruption to users. Potential delay to the works resultant of requirement to revise methodologies following consultation with NHS personnel.	NHS	Jul 2020	2	3	6	Engagement with NHS comms team ongoing to enable clear communication to internal and external parties regarding the works.	2	3	6		Liaison already started. GJH to engage with end users and steering group. Increased comms going forward.	Jan-20
7.10	THIRD PARTY LEGAL ACTION Consequence delay to works progress. Potential additional expense to NHS.	NHS	Jul 2020	2	3	6	Review with CLO to respond to any ongoing correspondence.	2	3	6		Risk to be monitored.	Jan-20
7.11	NEGOTIATION OF WAYLEAVES Scottish Power and Scottish Gas. Delay impact connecting services.	NHS	Jul 2020	2	3	6	Ongoing dialogue with Utilities providers.	2	3	6		None anticipated.	Jun 2018
7.12	CHANGE OF GOVERNMENT POLICY Potential to impact on delivery of future phases.	NHS	Jul 2020	1	3	3	Engagement with HFS and Scottish Gov.	2	3	6		IA approved in line with elective centres across Scotland.	Jan-20
7.13	PROGRAMME RISK Clinical orientation and commissioning delays due to lack of participant personnel availability Delay to building occupation.	NHS	Jul 2020	2	3	6	NHS to review the draft commissioning programme prepared by the PSCP providing any feedback in relation to availability of their resource in sufficient time ahead of commissioning commencing.	2	3	6	Detailed commissioning plan / programme to be issued.	Early communication of key dates for commissioning. TUV - SUD and Coms Manger involvement.	Jan-20
7.14	UNEXPECTED CHANGES IN MEDICAL TECHNOLOGY Unexpected changes in medical technology may lead to a need to re-scale or reconfigure the provision of services.	NHS	Jul 2020	2	2	4	Monitor through service users and capital planning. Process in project agreement to deal with change in the long term.	2	2	4		No changes envisaged that would impact project.	Jan-20
7.15	BOARD DO NOT SUPPORT DESIGN Board do not support proposed design identified within affordability parameters. Additional time and cost associated with redesign and construction.	PSCP	Dec 2018	2	3	6	Ongoing review of the emerging design with the Board to ensure full buy in is achieved.	2	3	6		Approval already granted for 1:500 and 1:200. Main entrance improved also.	Sep-18

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8. Programme Issues													
8.1	PROGRAMME RISK Poor construction performance and/or incorrect programme estimate. Delay to overall programme. Liquidated damages incurred by PSCP.	PSCP	Jul 2020	2	3	6	PSCP to closely monitor works progress once on site, to ensure appointed subcontractors are delivering works to the standards required and within the programme parameters.	2	3	6		Accelerated programme to be continually monitored.	Jan-20
8.2	PROGRAMME RISK Clinical orientation and commissioning delays due to lack of Contractor personnel availability. Delay to building handover.	PSCP	Jul 2020	2	3	6	PSCP to prepare a realistic commissioning programme that has committed resource for the commissioning phase of the works.	2	3	6			Jan-20
8.3	DESIGN PROGRAMME Inaccurate design programme for design release to support construction information. Potential delay in overall programme delivery if insufficient time allocated to the design programme.	PSCP	Dec 2018	2	3	6	PSCP design team leader to ensure that the design programme is realistic, including sufficient time for review and update of design as required.	2	3	6		Agreed programme for 1:500, 1:200 and 1:50 reviews with end users.	Jan-20
8.4	CONSTRUCTION PROGRAMME ESTIMATION ERROR Inaccurate estimation of construction phase duration. Construction handover date delayed.	PSCP	Jul 2020	2	3	6	PSCP to ensure that the construction programme is realistic and achievable,	2	3	6		Detailed reviews undertaken and ongoing as we move from OBC to FBC.	Jan-20
8.5	LEAD IN PERIODS: change in stipulated lead in periods. Change in lead in periods resulting in delay to programme.	PSCP	Jul 2020	2	3	6	Monitoring market activity as construction progresses. Place orders early where possible.	2	3	6		Liaison with key early sub-contractors to agree lead times.	Jan-20
8.6	ADDITIONAL STAFF: required at tail end of project to assist handover process. Additional provision of staff to manage works towards handover.	PSCP	Jul 2020	2	3	6	Workflow planning in parallel with programme.	2	3	6			Jan-20
8.7	INSTRUCTION TO STOP WORKS/NEW RESTRICTIONS: works suspended at hospital request due to nuisance / noise / vibration - operational issues not defined pre-construction. Implications could result in delay and disruption to planned sequence of works.	NHS	Jul 2020	2	3	6	Management processes in place to report any matters arising and regular liaison between NHS and PSCP.	2	3	6		Ongoing meetings between Estates, Capital and IC teams. Communication to clinical teams when disruptive works are programmed.	Jan-20
8.8	UTILITIES: Poor / sub-standard service provided. Implications could result in delay and disruption to planned sequence of works.	PSCP	Jul 2020	3	3	9	Existing service being utilised where possible.	2	3	6			Jun 2018

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8.9	NPO: working period requires NPO to maintain programme/ risk of overrun. NPO allowance to made.	PSCP	Jul 2020	2	2	4	Workflow planning in parallel with programme.	3	2	6			Jan-20
8.10	PERFORMANCE OF DESIGN TEAM: delays to issue of information / inadequate / incorrect information. Risk of late of inadequate information delaying and disrupting the planned progress of the works.	PSCP	Jul 2020	3	3	9	Production of construction issue information prior to commencing works on site to mitigate impact on critical path.	3	3	9			Jan-20
8.11	Scot Gov Timescales. Minimal / no float between tasks mean any delay causes slippage to programme.			3	4	12	Team to regularly review programme to ensure key milestones are being met. Get buy in from full team to achieve timescales.	4	4	16	Risk of error / less user engagement due to compressed programme.	Regular reviews with wider design team and GJF.	Jan-20
8.12	Sign off timescales / Response timescales. Delay in sign-off or information requests result in programme slippage.			3	3	9	Action tracker. Regular team reviews to ensure information flow. Early agreement of sign off dates.	4	3	12			Jan-20
8.13	Overlaps of Stage 2 / 3 & Stage 3 / 4. Risk of not having full approval of previous stage when next stage has already commenced.			3	3	9	Liaison with GJF Board, HFS and Scot Gov to ensure agreement to proceed with next phase prior to sign off.	4	3	12			Sep-19
8.14	P1 / P2 enabling overlap. Impact on site logistic of having P1 main works and P2 enabling works on site at same time.			2	4	8	Early development of P2 logistics plan. Sharing of P1 / P2 facilities during overlap.	3	4	12		Review if enabling works packages and ambulance bay can mitigate impact on main entrance. Temporary parking to be reviewed.	Jan-20
8.15	Phased handover. Risk of areas still having works ongoing while other areas are handed over (early handover of L2 & L3).			2	3	6	Ongoing programme reviews to minimise disruption and maximise early access for GJH.	3	3	9			Sep-19

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9. Early Warnings											
9.1	Date for issue of Employer's Requirements.					ACRs now issued and comments returned by Kier.				Superseded - comments from Kier / Design Team to be incorporated at Stage 4 - EWN closed..	CLOSED
9.2	PSCP Design Fees Issue Date.					Fees now agreed.				Now agreed - EWN closed.	CLOSED
9.3	Cost overrun based on SoA 1.02.					SoA now agreed - costs vs budget to continue to be reviewed.				Risk ongoing - currently £3.7M over. Detailed cost review ongoing. Potential VE required.	Aug-19
9.4	Agreement of Stage 2 & 3 fees.					Fees now agreed.				Now agreed - EWN closed.	CLOSED
9.5	Delay to Stage 2 Design - 1:200s.					1 week delay confirmed - betterment / recovery to be continually reviewed.				Superseded - 1 week slip overall - new programme now issued - EWN closed.	CLOSED
9.6	Planning comments in relation to current design (building height, form and links to master plan).					Ongoing fortnightly meeting with WDC to mitigate risk.				Ongoing discussions with WDC - generally happy with proposals. Transport to be resolved.	Jul-19
9.7	Stage 2 & 3 Design Fees Agreement.					Fees now agreed.				Now agreed - EWN closed.	CLOSED
9.8	CSPD Equipment					Design will have to be progressed on assumptions which may lead to later abortive works or changes to design.			CSPD confirmation of equipment.	Liaison ongoing to determine requirements / specs prior to completion of procurement exercise.	Aug-19
9.9	Fire Strategy The ACR's state that HTM05-02 is used for the Fire Strategy for the scheme – however, this document is not an HFS Publication and is not referred to in the Non-Domestic Technical Standards (or the new draft Standards due to come in force in October 2019). HTM05-02 differs in a number of key areas from SHTM81 (which is referred to in the Non-Domestic Technical Standards) and until we have a clear instruction regarding this matter progress in developing the Fire Strategy will be delayed.					AECOM confirmed SHTM & Scottish Building Regs take precedence.				EWN - Now Cloaed.	CLOSED
9.10	NDAP Comments Comments from NDAP meeting will have a significant delay to the design of the project if all comments are to be taken on board. Notes from meeting have been attached.					Comments being reviewed by Kier / IBI to see which can be incorporated. It is expected this will be entrance, canopy / glazing and landscaping.					Sep-19