mnp mason navarro pledge	**Project Title :** **RV West Byfleet**	Project Number : **220175**	Lead Engineer : **Thomas Akrigg**
		Division : **Building Structures**	Date : **16.10.2023**
Scope of Design :	**Stage 5 - Structural and Civil Engineering Works**		Form No / Revision : **WBF-MNP-ZZ-ZZ-RA-S-RA02**

To be read in conjunction with MNP drawings, specifications and reports. To be read in conjunction with Architect, M+E and Principal Designer information.

(1) Haz Ref	(2) Activity/Process/ Material/Element	(3) Hazard	(4) Stage of Work/ Groups at risk	(5) Initial Risk			(6) Risk Control Measures: Design action taken, record of decision process including option considered, design constraints and justification for options/actions not having been taken.	(7) Residual Risk			(8) Is there a 'significant' residual risk to be passed on? (Y/N)	(9) Parties responsible for residual risk	(10) Status (Active / Closed)
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General/Site wide													
1	Working near HV Cables - Refer to record information and Suvey Solutions Suvey (Oct 2020)	Risk of electrocution	Construction	C	4	S	The Contractor's attention is drawn to the presence of buried utilities. All services drawings to be obtained and checked by Contractor. A full utilities survey is to be carried out in the vicinity of the works, prior to excavation. Buried utilities to be proved by trial excavation and CAT scan techniques and marked on site. Works near services to be undertaken in strict accordance with the utility providers requirements and HSE guidance document HFG47 - avoiding danger from underground services.	B	4	H	Y	Principal Contractor	Active
2	Site access - Vehicle routings close to excavation	Risk of injury to construction workers and general public caused by vehicles	Construction	B	4	H	Vehicles will be operating close to construction site boundary. Contractor to develop site safety plan and operate safe	A	4	M	Y	Principal Contractor	Closed
3	Site access - laying materials off-site	Risk of injury to general public whilst transferring components and materials to site from an offsite laydown area.	Construction	C	4	S	Minimise vehicle import and export by design and avoid the use of large components to reduce the risk. Structural steel superstructure installations requires careful consideration to manage component sizes. Contractor to develop site safety plan and operate safe systems of access. Special consideration to be given to concrete deliveries and removal of waste.	B	4	H	Y	Principal Contractor	Active
4	Handling large components and plant (Eg Façade panels, beams, plant and equipment etc, full details of large components to be confirmed by Main Contractors logistics plan)	Risk of injury by crush or impact	Construction	C	3	H	Large components limited by design but inevitably there are some large components in the building. The Contractor is to assemble small components where possible and instigate a safe system of work when large components are installed. Manual handling limited to 20kg. Proper site controls to be adopted by the Contractor.	A	3	L	Y	Principal contractor	Active
5	Site access - difficult site access for vehicles	Risk of injury to construction personnel and general public	Construction	B	4	H	Design team to limit size of components and plant where possible and limit reinforcement lengths etc to reduce large items being delivered to site. Contractor to inspect access routes to provide safe access for all materials and plant, prior to construction taking place.	A	4	M	Y	Principal Contractor	Active

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6	Storage of materials	Failure of permanent super-structure due to improper construction stage loading.	Construction	B	4	H	Contractor to ensure that construction stage loads applied to structures are within allowances. Contractor to develop temporary works systems as required.	A	4	M	Y	Principal Contractor	Active
7	Site security	Site ingress by general public or non-authorised personnel.	Construction	B	3	M	Site security plan to be developed by Contractor and submitted to client team for review. Security measures to be periodically inspected to ensure security is maintained.	A	3	L	Y	Principal Contractor	Active
8	Adjacent live car park - User segregation	Existing car park to remain open whilst phase 1 of demolition is undertaken. Risk of car park users gaining access to construction site. Risk of construction activities impacting on car park users.	Construction	B	4	H	Contractor to develop robust hoarding, phasing and site security strategies to segregate construction and non-construction site uses and submit to client team for comment. Contractor to submit method statements and risk assessment for phasing.	A	4	M	Y	Principal Contractor	Active
9	Adjacent live neighbouring buildings - Services and utilities	Risk of existing building functionality being impacted throughout demolition works. Extensive below ground services cross the site and will require diversion or temporary replacement in order to facilitate works.	Construction	B	3	M	Contractor to develop phasing strategy accounting for existing site services and existing building provisions.	A	2	L	Y	Principal Contractor	Active
10	Existing drainage and Thames Water sewers	Risk of existing and neighbouring buildings losing functionalitiy through	Construction	B	2	M	Exisitng drainage to be proved by survey prior to commencement of works. Contractor and Client Team to	A	2	L	Y	Principal Contractor	Closed
11	Adjacent existing structures	Risk of undermining existing structures through proposed works. Particular attention is drawn to boundary walls.	Construction	B	3	M	Contractor to ensure proposed excavations are outside of zone of influence of existing foundations and that any necessary temporary works is designed by Contractors Temporary Works Engineer and adopted.	A	3	L	Y	Principal Contractor	Active

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12	Hoarding and phasing	Risk to site security, segregation of construction and non-construction activities, improper working space, collapse of excavations and personnel safety.	Construction	B	4	H	Full detailed construction phasing plan to be developed by Contractor and agreed with client and project team. Various construction activities adjacent to proposed phasing line. Method statements and risk assessments to be developed for these activities.	A	3	L	Y	Principal Contractor	Active
13	Contamination - End user	Risk of exposure to contaminants.	In use	B	3	M	GEA engaged with regard to remediation and risk mitigation strategy. Strategy to be agreed with local planning authority. Clean soil to be imported where permanent soft landscaping is proposed. Inert and contaminated soils to be clearly segregated with coloured geotextile/membrane. Strategy and warning systems to be clearly defined within O&M documentation.	A	3	L	Y	Principal Contractor	Active
14	Large concrete pours	Various concrete elements require large pours with significant number of concrete deliveries. Risk of vehicle impact and reduction in structural performance if joints are not fully considered.	Construction	C	3	H	Contractor to ensure safe system of works including vehicle and pedestrian segregation. Contractor to ensure joints and sequencing for concrete works are fully considered. Main Contractor to devlop logistics plan and submit to client team fro review prior to commencement of works.	A	3	L	Y	Principal Contractor	Active
15	Tree pit structure adjacent to highways	Undermining of highway structure leading to collapse or unacceptable movement.	Construction	C	3	H	Form of construction and sequence of installation to be developed by Contractor Team considering highway retention and appropriate temporary works. Proposal to be agreed with Local Authority prior to start of works.	B	3	M	Y	Principal Contractor	Closed
16	Tree pit structure with varied bearing	Excessive differential movement leading to planter failure or unacceptable movement.	Construction	C	3	H	Construction detailing considering movement joints to be developed by Contractor team.	B	2	M	Y	Principal Contractor	Closed
17	Vecihle impact - temporary	Collapse or damage to proposed structure due to vehicle impact during construction.	Construction	B	4	H	Contractor to develop suitable traffic management plan and plan and agree any required road closures with Local Authority to ensure safe system of works and that suitable working space is provided between proposed construction and hoarding line.	B	2	M	Y	Principal Contractor	Active

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18	Temporary structural stability and support	Risk of structural instability to horizontal and vertical structures during temporary condition.	Construction	B	4	H	Contractor to ensure competent temporary works designer is appointed and develops temporary works schemes for all necessary construction processes.	A	4	M	Y	Principal Contractor	Active
19	Temporary fall protection	Risk of construction personnel falling from height whilst permanent fall protection measures are yet to be installed.	Construction	B	4	H	Contractor to ensure safe system of works. Restrict working at height as much as is practical. Contractor to define and adopt temporary fall protection systems.	A	4	M	Y	Principal Contractor	Active

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Groundworks/Sub-structures													
20	UXO	Risk of encountering unexploded	Construction	B	4	S	Contractor to undertake additional Detailed Risk Assessment	A	4	M	Y	Principal	Closed
21	General excavation - Contaminated	Contact with contaminated soils.	Construction	E	3	S	Site investigation report did identify concentrations of	C	1	M	Y	Principal	Closed
22	General excavation - Buried asbestos	Exposure to asbestos containing	Construction	C	3	H	Contractor to engage specialist to define risk mitigation	B	3	M	Y	Principal	Closed
23	Unknown ground conditions	It has been reported that ground	Construction	B	2	M	If ground conditions are found to vary from that reported	A	2	L	Y	Principal	Closed
24	Made ground	Risk of unknowns associated with	Construction	D	2	H	Further site investigation to be undertaken where	B	2	M	Y	Principal	Closed
25	Ground water	Risk of groundwater being higher than	Construction	D	2	H	Contractor to review Site Investigation and note any	B	2	M	Y	Principal	Closed
26	Ground water contamination	Contact with conaminated water.	Construction	D	3	S	Site investigation report did identify concentrations of	D	1	H	Y	Principal	Closed
27	Ground gases	Risk of trapped gas within made	Construction	D	3	S	Ground works to be undertaken by competent individuals	B	3	M	Y	Principal	Closed
28	Damage to neighbouring infrastructure	Risk of damage to neighbouring public	Construction	C	2	H	Contractor to develop safe systyem of works with regard to	B	2	M	Y	Principal	Closed
29	Stability of excavations	Collapse of excavation. Varying ground	Construction	C	4	S	Contractor to develop strategy / method statement for deep	A	4	M	Y	Principal	Closed
30	Basement and sub-structure works	Collapse of excavation. Unexpected	Construction	B	4	H	Contractor to develop method statement and risk assessments	A	3	L	Y	Principal	Closed
31	Existing foundations unknown	Risk of ground obstructions to	Construction	C	3	H	Contractor to confirm existing foundation form and location	A	3	L	Y	Principal	Closed
32	Attenuation - Deep excavation	Risk of ground instability and	Construction	B	4	H	Contractor to develop strategy / method statement for deep	A	4	M	Y	Principal	Closed
33	Drainage connection within public highway	Risk of instability of excavation. Risk of construction and public traffic	Construction	B	4	H	Contractor to provide method statement for proposed works and gain local authority and utilities provider approval prior	A	4	M	Y	Principal Contractor	Closed
34	Basements and venting - Waterproofing and gas proofing	Risk of water or gas ingress to basement structures.	Construction	B	2	M	Contractor to develop water proofing strategy with specialist, supplier and design team.	A	2	L	Y	Principal Contractor	Closed
35	Emergency vehicle traffic	Risk of restricted access to emergency services.	Construction	C	4	S	Contractor to develop traffic management plan to ensure emergency vehicle access can be provided to construction site. Contractor to ensure materials adopted for access roads are suitable for vehicle loading.	A	4	M	Y	Principal Contractor	Active
36	Maintenance of car park vent shafts	Risk of blockage to vent	Operation	C	3	M	Contractor/Principal Designer to develop maintenance strategy.	B	3	L	Y	Principal Contractor/ Principal Designer	Active

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Enabling Works/ Demolition													
37	Demolition	Existing structures exist on the site	Construction	B	4	H	Contractor to develop safe system of works for demolition.	A	3	L	Y	Principal	Closed
38	Asbestos and other hazardous materials present on site	Risk of exposure to asbestos and other hazardous materials.	Construction	B	3	M	Full asbestos and hazardous materials survey to be carried out prior to contractor starting work on site. Any asbestos or	A	3	L	Y	Principal contractor	Closed
39	Non-occupied buildings	Some existing buildings are not	Construction	B	3	M	Contractor to undertake surveys of existing structures to	A	4	L	Y	Principal	Closed
40	Slab tying and unbalanced loading	Existing construction is not known but	Construction	B	3	M	Contractor to ensure beams are adequately	A	2	L	Y	Principal	Closed

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Super-structures													
41	Protection and exposure	Steel strength compromised by incorrect protection and over exposure.	Construction	B	2	M	Ensuring steelwork protected correctly against fire and exposure to water and chemicals. Ensure steelwork is not exposed incorrectly through construction stage.	A	1	L	Y	Principal Contractor	Active
42	Material junctions	Bearings or restraint of members compromised causing local failures.	Construction	C	3	H	Ensure junctions between materials i.e. steel-concrete and concrete and thermally broken concrete are undertaken by competent individuals and to engineers details. Individuals to be aware of weaknesses of each material and therefore to comply with bolt restrictions, minimum bearings and good practice. Contractor method statement to be reviewed by SE.	B	2	M	Y	Principal Contractor	Active
43	Temporary fall protection	Risk of personnel or equipment falling from height.	Construction	B	4	H	Temporary fall protection to be adopted. Works to be undertaken at low level as much as is practical. Contractor to develop safe system of works for undertaking works at height.	A	4	M	Y	Principal Contractor	Active
44	Large component installation	Risk of crushing. Risk of instability and reduction in structural integrity.	Construction	B	4	H	Contractor and Fabricator to develop safe sequence of works. Large components will require division into manageable components with full strength insitu connections at suitable locations.	A	4	M	Y	Principal Contractor	Active
45	Placing steel at height	Office structure adopts steel framed top floor. Risk of crushing and falling materials.	Construction	B	4	H	Contractor to develop safe system of works for lifting and installing steelwork at height. Contractor to ensure work is undertaken by competent individuals with relevant qualifications.	A	4	M	Y	Principal Contractor	Active
46	Pre-camber concrete	Pre-camber to concrete formwork. Risk to structural integrity and building serviceability if undertaken incorrectly.	Construction	B	3	M	Extent and level of pre-camber to be developed and agreed between Contractor, Engineer and Façade Engineer. Pre-camber to be limited to agreed percentage of structural self weight to eliminate risk of reversal of structural action.	A	3	L	Y	Principal Contractor	Active
47	Primary structural frame and façade interface -deflection and movement	Risk to façade structural integrity and serviceability	Construction	B	3	M	Sequencing of primary frame loading to be developed and agreed between Contractor, Engineer and Façade Engineer. Façade to be detailed to accommodate resultant long term deflections.	A	3	L	Y	Principal Contractor	Active

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48	Post-tensioned concrete - Specialist construction	Active reinforcement adopted. Risk of injury to personnel due to in built energy of reinforcement. Risk to structural integrity if not properly undertaken.	Construction	B	4	H	Contractor to engage specialist designer and sub-contractor. Site personnel to be aware of inherent risk of post tensioned construction.	A	4	L	Y	Principal Contractor	Active
49	Cast in elements	Various cast in elements. Risk of instability to secondary fixings. Risk of damage or compromise of strength to primary reinforcement.	Construction	B	3	M	Contractor to coordinate cast in elements with primary reinforcement requirements. Strategy/details to be agreed with Engineer and relevant designers.	A	3	L	Y	Principal Contractor	Active
50	Traditional and specialist concrete	Junctions between traditional and post tensioned concrete exist. Risk of reduction in structural performance.	Construction	B	3	M	Junctions to be carefully planned and detailed within Contractor team. Sequencing of construction to be considered.	A	3	L	Y	Principal Contractor	Active
51	Thermally broken concrete	Junctions between cold and warm structures exist. Thermal break system required. Improper installation could lead to local structural failure or reduction in structural serviceability.	Construction	B	4	H	Specialist design to be undertaken for thermal break connectors. Designers and specialist contractors to be made aware of resultant force applied to supporting structure. Contractor to develop sequencing strategy for installation of primary structural support and fixings for secondary structure support.	A	3	L	Y	Principal Contractor	Active
52	Primary movement joints	Overstressing of permanent structures leading to reduced building life span or compromise of servicability criteria.	Construction	C	2	H	Joint locations and detailing to be developed with Contractor Team allowing for suitable movement. Contractor to develop appropriate sequence of works considering joint detailing and locations.	A	1	L	Y	Principal Contractor	Active
53	Slab penetrations	Slab penetrations required to allow for service and public health distribution. Risk to structural integrity leading to local failures.	Construction	B	4	H	Contractor team to ensure all slab penetrations are coordinated and agreed. Contractor to ensure works are undertaken as per design documentation.	A	3	L	Y	Principal Contractor	Active
54	Column transitions and continuity	Columns forms vary between levels and changes of use. Risk of reduction in structural performance and local failure due to improper installation.	Construction	B	3	M	Design to limit complexity as much as practical. Contractor team to ensure transitions are managed within reinforcement detailing. Contractor to ensure installation as per design documentation.	A	2	L	Y	Principal Contractor	Active
55	Stepped slab continuity - PT/RC Transfers	Sections of adjacent slabs require different top of slab levels. Flat slabs reliant on continuity. Risk of reduction in structural integrity and serviceability.	Construction	B	3	M	Design to limit complexity as much as practical. Contractor team to ensure steps are managed within reinforcement detailing. Contractor to ensure installation as per design documentation.	A	2	L	Y	Principal Contractor	Active

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56	PT temporary joints	PT precompression not being achieved leading to reduced performance between proposed and as built structures	Construction	B	3	M	Contractor to engage specialist sub-contractor to work with Contractor Team and to define temporary movement joints should they be deemed necessary.	A	2	L	Y	Principal Contractor	Active
57	Moment connections and cantilever restraint	Fabricator designed moment connections are required to manage cantilevers. Steel structure could be over stressed if cantilevers are fully loaded without full back span connections in place.	Construction	A	3	L	Contractor to ensure cantilever and backspans are installed with connections inline with fabricator design prior to cantilevers being loaded.	A	2	L	Y	Principal Contractor	Active
58	Placement of large precast components	Risk of crushing by large structural components.	Construction	B	4	H	Contractor to develop safe system of works for lifting and installing precast units. Contractor to ensure works are undertaken by competent individuals with applicable qualifications.	A	4	M	Y	Principal Contractor	Active

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Author (Sign & Print Name): Thomas Akrigg
Checker (Sign & Print Name): Frank Navarro

Approver (Sign & Print Name): Frank Navarro

Likelihood	
Probability of Occurrence	Probability Index
So unlikely that probability is close to zero	A
Unlikely to occur, though conceivable	B
Likely to occur sometime	C
Occurrence not surprising. May occur more than once	D
Occurrence inevitable. May occur many times	E

Severity	
Potential Maximum Consequence (Hazard Severity)	Hazard Severity Index
Minor injury/illness resulting in lost time of 3 days or less	1
Injury/illness causing lost time more than 3 days	2
Major illness/injury to one or more persons not causing permanent disability	3
Single fatality or single/multiple permanent disability	4
Multiple fatality	5

Risk Level					
Hazard Severity Index	Probability Index				
	A	B	C	D	E
1	L	L	M	H	H
2	L	M	H	H	H
3	L	M	H	S	S
4	M	H	S	S	S
5	M	H	S	S	S

Risk Level Action

Risk Level	Description	Action by Designer
L	Low	Check that risks cannot be further reduced by simple design changes
M	Medium	
H	High	Amend design to reduce risk, or seek alternative option. Only accept option if justifiable on other grounds.
S	Severe	