Project and Site Constraints Table

MINISTRY OF EDUCATION
TE TĀHUHU O TE MĀTAURANGA

Project name	First Example Primary School	Design stage	Master Plan	Version no.	2	Date	XX March 2016

Purpose: for the Ministry's project lead and the design team to outline (and communicate) key physical and other (e.g. cultural, financial, amenity) project constraints / opportunities and confirm how these have been, or are to be, addressed. The completed table should "tell a story" by succinctly communicating what the key site issues / constraints / opportunities are and how these have influenced the design solution.

This information will form the basis for the Design Features Report (or similar) that will ultimately document the decisions made along the way to arriving at the final built form. Identifying the "magnitude" of the issues (i.e. the level of potential consequence and / or the risk level) will help to ensure people reviewing and signing-off at various design stages have confidence that the key site issues have been identified and addressed, or will be addressed in subsequent development stages.

It is not expected that all or detailed information is provided in each cell at the initial project stage - but the initial versions should reflect all known information.

Commence this section (blue) at initial project stage and develop through onward design stages.

	Constraints	**Insert details of hazard or event (without treatment).** List title, agency and date of relevant report(s).	**Proposed treatment(s) or strategies to address issues/constraints).** Briefly list other options considered that may have been discarded(will help demonstrate robustness of treatment strategy). Enter N/A if not applicable; outline any future investigations planned.
A. Geotechincal			
1.	Geotechnical model / zoning evaluation?	a) Eastern part of site prone to significant liquefaction and lateral spreading. SLS differential settlements 50 to 120mm. ULS differential settlements 50 to 150mm. Lateral spreading up to 500mm. b) Western part generally underlain by 3+m of silts overlying sand and gravel at 13+m. Very minor liquefiable lenses under SLS shaking. 3+m "crust" of generally non-liquefiable silts under ULS shaking.	a) Avoid development in this area. b) Depth-weighted analysis likely reduces surface liquefaction-related settlements. Readily re-levellable specifically designed shallow foundations. No ground improvement (e.g. gravel raft) warranted.
2.	Liquefiable ground?	As per above.	Refer above.
3.	Geomorphological issues?	Buried stream running adjacent to southern boundary of site. Might influence lateral spreading.	Avoid development within 50m of southern boundary. Develop this area for car parking or hardcourts.
4.	Groundwater depth and seasonal variation? What might impact(s) be on the site development?	Groundwater depth between 1 and 1.5m bgl. Will influence foundation design for static and earthquake situations.	Locate founding level above water table. Restrict any earthworks to upper 1m depth. Specific consideration / design for buried pipelines / tanks / manholes. Need to confirm potential seasonal variation.
5.	Compressible silts or peats or other soil? Time-dependent issues such as building additions that might settle more than pre-existing elements?	No.	n/a
6.	Expansive soils? What is site classification and has this been identified based on regional experience or site specific testing?	No.	n/a
7.	Rock fall that could impact on school grounds?	No.	n/a
8.	Landslide(s) that could impact on school grounds?	No.	n/a
9.	Sloping ground generally?	Sloping ground in western part adjacent to Noname River. Could be driver for lateral spreading.	Avoid development in this area.
10.	Land erosion e.g. tunnel gullies, slippage, coastal erosion?	No.	n/a
11.	Buried services likely to be impacted by liquefaction?	Stormwater detention tanks.	Use above ground swales / bunded areas.

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12.	Any areas of uncontrolled fill on site?	Site not listed on LLUR and nothing identified in site specific geotechnical investigation.	Nothing specifically required at this stage - maintain unit rate item in site earthworks specification and allow nominal sum in cost estimate.
13.	Other geotechnical / geological issues that could impact on the development?	No.	
14.	Tsunami hazard or other inundation threat?	No.	
15.	List all available reports.	A1 Consulting Ltd desktop geotechnical assessment report dated 31 December 2013. B2 Consulting Ltd geotechnical investigation for Block 3 dated 1 January 2015.	
B. Civil			
1.	Has a topographical survey been completed?	Detailed site survey not yet completed.	Need to incorporate suitable contingency allowance for earthworks volumes until survey can be completed.
2.	Has a cadastral check been completed to confirm site boundaries etc?	Boundaries not yet been checked.	High confidence in current boundary locations.
3.	Are there any water run-off or ponding issues on the site?	Stormwater ponds in eastern area of the site around Blocks 1 and 10 due to overland flow from adjacent One Big Park. Investigations into the causes for this are being investigated and potential resolution discussed with Council.	Further discussion with council underway to explore causes and potential resolution, which might include new stormwater drain / swale along northern boundary of school site and improved discharge to River. Prudent to identify a documented scope of work and allow some costs for this in project estimate and time in project programme. Note any proposed work to create a swale on park land may trigger contamination assessment. Monitor through concept design, with PSI commissioned to inform if necessary. Allow some cost in estimate to cover uncertainty.
4.	On site stormwater retention / detention? Capacity of local reticulation network?	Current peak flow within system is 34 l/s and anticipate development will introduce an additional 10 l/s.	Allow for increased stormwater pipe or on site detention.
5.	Fire protection system water supply - capacity of local town supply?	Testing shows inadequate water pressure / flow and no dispensation provided.	Site tank storage and pump required.
6.	Any fill required to be placed on site?	No major volumes expected other than hardfill for beneath floor slabs (or gravel raft, if required). Earthworks implies weather-related issues such as delays and encountering unexpected ground conditions during excavation.	Reduce fill requirements as much as possible. If soil excavation is anticipated then understand potential for encountering contaminated soil and include a documented (estimated) scope of work and cost estimate in project budget.
7.	Any retaining structures required?	No.	n/a
8.	Sewage disposal - onsite / offsite? Capacity of local reticulation network?	No information - wastewater services assessment underway.	Review existing capacity against demand once demand known. Suitable contingency allowance in project cost estimate.
9.	Other civil engineering-related issues that could impact on the development?	No.	n/a
10.	Is the site prone to flooding - has there been a check of existing site ground levels against 50 and 200 year flood inundation zones and to what extent these impinge on the site development?	Likely FFL for new buildings not yet identified - may require the floor levels of new buildings to be slightly elevated.	Option 1: Raised timber floors. Option 2: Earthworks filling beneath concrete floor slabs. Option 3: Increased depth of waffle slab.
11.	List all available reports.	AA2 Consulting Ltd report dated 2 January 2011. BB2 Consulting Ltd investigation report dated 3 January 2015.	
C. Buildings			

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1.	Refer to seismic assessment reports (e.g. Initial Seismic Assessment / ISA, Detailed Seismic Assessment / DSA, earthquake damage – Detailed Engineering Evaluation / DEE) and any available weathertightness reports. Summarise key issues (including areas of significant building damage).	Buildings with lowest %NBS to be demolished. Others all > 60%NBS. No existing buildings will be joined to new buildings. Some building repairs included in current scope along with modifications to develop ILE spaces. Refurbishment of Block 1. Likely some work on existing Block 4. Refurbishment work carries high uncertainty given unknowns once building work starts.	Source design / construction drawings for existing buildings and provide to design team. Provide a documented scope of work (even if only estimated) and generous allowance in budget / programme estimate. Careful scoping of work and incorporate detailed inspection by structural engineer to suitably advise scoping work.
2.	Are alterations to existing buildings included in development? What is the level of confidence on scope of refurbishment / alterations - existing as-builts available, detailed site inspection been completed, level of contingency? Have any buildings been altered previously - availability of former project documentation?	Major building refurbishment required for Block D - no as-builts available but structural engineer and builder have inspected the building.	High confidence on scope and allowed contingency of 30% for this building.
3.	Are there any heritage listed buildings? Note these and provide commentary. Might there be archaeological issues?	None known.	n/a
4.	Any snow loading issues?	No.	Design to code.
5.	Any high wind issues?	No.	Design to code.
6.	Is there any available floor level survey data and are there any conclusions / findings for future building design?	Most buildings (including both Type B and C foundations) experienced differential settlement of between 20 and 60mm during the CES. One building up to 150mm differential settlement (Block 13 - eastern boundary of site).	Building with major differential settlement and the one with large crack in floor slab are both to be demolished. The area around these buildings is within the no-build zone (western part of the site). Other buildings may require some re-levelling as part of refurbishment work, but mechanical jacking or ground injection expected to be suitable methods (ensure scope of work documented and adequate cost allowances made in project budget).
7.	Any other building / structural-related issues that could impact on development?	No.	n/a
8.	Fire protection - review / confirm need for sprinklers.	None expected if new buildings are less than 1000m². TBC at next stage.	Compliance with MOE guidelines.
9.	Weathertightness reviews?	Block 3 (Admin) and Block 15 (Hall) building reported (June 2013) identified some issues.	Block 15 (Hall) to be repaired as required. Ensure workscope documented and adequate cost included in budget estimate. Confirm no weathertightness issues for Blocks 1, 2A, 4, 7, 10, 11, 15 and 21. Block 3 (Admin) proposed to be demolished due to extensive weathertightness issues.
10.	List all available structural-related reports.		
11.	List all available reports.		
D. Infrastructure			
1.	Refer to any available reports (e.g. earthquake damage reports) and summarise key issues.		
2.	Other infrastructure-related issues that could impact on the development?		
3.	Electrical reticulation? Capacity of existing system to absorb development?	Some aspects of existing supply infrastructure may need upgrading e.g. new transformer.	Condition assessment of current infrastructure and evaluation of available capacity - provide contingency allowance in budget for Master Plan stage.
E. Traffic			

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1.	Site access issues?	Main pedestrian and vehicle entrance points located on Sandwich Rd. Secondary pedestrian access available from Roll Tce and Wrap St (via One Big Park). No significant issues expected.	Consider emergency and any maintenance vehicle access requirements as design progresses, including manoeuvrability of larger vehicles. Confirm with fire service that emergency tender access acceptable without need to construct purpose-design pavement.
2.	Opportunity for on-site student drop-off?	Available on-street parking supply considered to provide adequate capacity for school related activity.	Risk assessment to be carried out to confirm that pick-up and drop-off areas do not present future intolerable risk associated with vehicle / pedestrian conflict at next design stage.
3.	Separation of staff / visitor traffic and student drop-off?	As per existing, the school car park will be used and signposted for staff / service vehicles only.	Parents and members of the public requested not to use staff car park. Risk assessment to be carried out to confirm that pick-up and drop-off areas do not present future intolerable risk associated with vehicle / pedestrian conflict at next design stage.
4.	Proximity of car parking to administration building?	Master Plan "Option 2" staff car park located away from main foyer / entrance.	Option 2 is considering retaining a small car-park facility outside Block 21 to improve accessibility for visitors and disabled space users. Accessible pedestrian path from car park location to building entrances to be considered as designs are developed. Consideration to be given to reducing risk through good design, which might consider (but not limited to): - Consolidate parking areas to reduce fragmentation. - Separating pedestrian and vehicle travel routes. - Separating high-use areas such as pick-up / drop-off from staff and visitor parking. - Unobstructed visibility around parking / vehicle manoeuvring areas. - Clarity around traffic management measures.
5.	Potential pedestrian / vehicle conflict areas?		
6.	Other traffic-related issues that could impact on development?	None.	n/a
7.	Road noise?	Proximity to street frontage might compromise acoustics.	Obtain acoustic report. Allow for internal noise absorption. Also make allowance, at this stage, for external noise attenuation.
8.	Air traffic noise?	None.	n/a
9.	Additional consideration for Special Needs Unit?	There will be a requirement for on-site provision for Ferndale special needs education unit.	Drop-off and pick-up infrastructure for the Ferndale unit has been noted at the Master Plan stage, including recognition that special needs vehicles may be larger than normal cars. Concept design plans to be checked with vehicle tracking curves.
10.	List all available reports.		
F. Land contamination			
1.	Building demolition has occurred historically at the site? Are there, or could there be any residual soil contamination issues? Any history of asbestos use (e.g. building roofing / cladding materials, pipe lagging, insulation)?	Could there be asbestos contaminated ground that might be disturbed during site development? Will new development intersect areas where there has been historical demolition?	
2.	Has the site, or parts of the site, been associated with activities that are on the 'Hazardous Activities and Industries List' (HAIL) register, or any other register such as the 'Listed Land Use Register' (LLUR) in Canterbury?	No. It has been confirmed by CCC that the previous designation related to the park only, which is not part of the schools grounds.	

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3.	Old landfill areas?	Impacts on building locations, foundation types, etc. Landfill gas an issue?	Ground-mounted units to eliminate working at height.
4.	Other contamination-related issues that could impact on development?	Old USTs on site, or have any been removed? If UST removal has occurred in the past, was any associated contaminated soil cleaned up?	
5.	List all available reports.		
G. Safety-in-design			
1.	Any maintenance aspects that require access at height?	Roof cleaning / maintenance.	
2.	Any maintenance aspects that require access in confined space?	Internal / external lighting maintenance.	
3.	Safety issues to maintain the building(s)?	Maintenance of heat pump condenser units.	Ground-mounted units to eliminate working at height.
4.	Adequate passive surveillance across the site?	CPTED considerations.	Ensure connectivity through transparency between east to west ends of the site. Proposed cleared areas and visual links between opposite ends - refer drawings.
5.	Recessed doorways and re-entrant spaces are minimised and are in highly visible locations?		
6.	How are any changes in levels considered?		
7.	Opening of windows and doors could be potential conflict areas?		
8.	Pedestrian / vehicle conflict?	Refer above.	