

APPENDIX D – Process Analysis

01 - Appointment of representatives and replacement

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 1.1	Both parties will within 5 Business Days of the Effective Date designate in writing a person (the “Design and Construction Representative”) to be the party’s single point of contact with respect to the Design and the Construction.			Lloyd Bullock is noted as the Authority's Design and Construction Representative. Rob Forrester is the Design Builder's Construction Lead	Pass
Schedule 2 - 1.3	A party’s Design and Construction Representative will have full authority to act on behalf of and bind the party with respect to Design and Construction under this Agreement, including giving any review, acceptance, approval or confirmations which may be given by the Authority. Notwithstanding the above, a party’s Design and Construction Representative will not have the authority to execute or agree to any amendments or to give any waivers of this Agreement.	Various submittals	Submittal Schedule	The Authority did not have a consistent for confirming status of submittals and not all formal responses were issued from the Design and Construction Representative. This is a minor concern, as it is clear that the Design & Construction Representative was aware of formal responses.	Fail, minor concern on formal communications process.
Schedule 2 - 1.6 (a)	Establish CPJC within 20 days of Effective Date	CPJC Minutes #1	Initiated committee	The Effective Date was August 27, 2015 and the first CPJC meeting was held September 21, 2015. This requirement was satisfactorily achieved.	Pass
Schedule 2 - 1.6 (e)	CPJC will meet at least once a month unless otherwise agreed	CPJC Minutes #1	Hold monthly meetings	CPJC meetings were held roughly once per month	Pass
Schedule 2 - 1.6 (f)	Project Co will keep minutes of all recommendations and meetings of the Construction Period Joint Committee in accordance with Schedule 14 [Records and Reports] and circulate such minutes to the parties promptly within five Business Days of the making of the recommendation or the holding of the meeting.	CPJC Minutes #1 through #39	Keep minutes	CPJC minutes #3 and #30 missing on Aconex, although they are referenced within the following minutes. Sub-committee #6 missing on Aconex. The missing minutes may be reason to audit the responsibilities of Schedule 14. All minutes appear to have been distributed with 5 business days.	Fail, some minutes were missing on Aconex

02 - Project Co Requirements

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 3.4	Project Co will undertake and perform the Design and Construction in accordance with applicable Laws, and so that all elements of the Design and the Construction, including all workmanship, construction equipment and materials, and the supply and installation of Equipment, meet or exceed the requirements of applicable Laws	Code review (2016-07-20)	A code review was undertaken and issued as part of their drawing set.	This appears to be compliant with the requirements of the PA.	Pass
Schedule 2 - 3.5	Except as expressly provided otherwise in this Agreement, Project Co will obtain at its cost all Permits required for the Design and Construction	Various submittals	Submittal Schedule	This complies with the PA requirements.	Pass
Schedule 2 - 3.7	Project Co will obtain LEED Silver Certification of the Main Building in accordance with the following	LEED Application	LEED checklist was created and updated throughout the process, ultimately resulting in an application to CaGBC	This complies with the PA requirements to date, application is pending. The LEED Checklist that is associated with the application and provided by Morrison Hershfield is targeting LEED silver, targeting 55 points which is 10% over the requirement for silver certification.	Pass
Schedule 2 - 3.8	As a condition of Service Commencement Project Co will deliver to the Authority: (a) a LEED project checklist	LEED Checklist LEED Commencement Letter	PCo engaged Morrison Hershfield to produce. Checklist and report provided noting they are 10% above the threshold for LEED Silver	This complies with the PA requirements to date, application is pending. The LEED Checklist that is associated with the application and provided by Morrison Hershfield is targeting LEED silver, targeting 55 points which is 10% over the requirement for silver certification.	Pass
Schedule 2 - 3.10	a draft comprehensive threat and risk assessment report for the Facility ("Facility Threat and Risk Assessment") identifying specific risks and vulnerabilities to people, property and the Authority associated with the Facility and the surrounding community, and describing how the Design will mitigate these risks and vulnerabilities	Facility Threat and Risk Assessment (Draft) Network Threat and Risk Assessment (Final Draft)	Reports were produced in drafts to identify and provide mitigation strategies for threats and risk to the Facility and Network.	No concerns.	Pass
Schedule 2 - 3.11	deliver to the Authority a draft First Nations and Métis Design and Construction engagement plan (the "First Nations and Métis Design and Construction Engagement Plan" PCo: Performance Tracking and Reporting of the First Nations and Métis Design and Construction engagement plan	First Nations and Métis Design and Construction Engagement Plan First Nations and Métis Resources Performance Tracking and Reporting of the First Nations and Métis Design and Construction engagement plan	Noted their intention to use Banff Constructors Identified resources (Document: First Nations and Métis Resources)	Monthly reports confirmed that 16% of their workforce fulfilled this criteria, largely with Banff Builders. In discussing with the Authority, they provided the following: "The Authority accepts the plan by not showing concern for it, and continues to update it annually as a part of the Annual Service Plan. The First Nation and Metis Engagement was a part of the mobilization plan that was accepted (Reference Number: NBH-AUTH-GC-002413)"	Pass

03 - Design

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 4.2	(a) in accordance with Appendix 2B [User Consultation and Design Review], including providing Submittals to the Authority in accordance with the Submittal Schedule and undertaking consultation with representatives of the Facility Users (the “User Consultation Group”);	Submittal Schedule	Submittal schedule created and updated throughout process.	Process appears to be adequate	Pass
Schedule 2 - 4.2	(b) in phases progressively, with each phase capturing the information and detail of a previous phase, as follows: (1) Schematic Design Phase (2) Design Development Phase (3) Construction Documents Phase (A) at 50% completion; and (B) at 95% completion;	Various submittals	Submittal Schedule	Although it is apparent that comments were submitted back to Authority, it appears that al submittals received a 'Reviewed' status from the authority, although the inconsistent format for responses and the large number of resubmissions makes it challenging to verify that 100% of the approvals were in place.. A log of comments was kept with responses made. Construction Document sets were submitted in a piecemeal approach (IMIT, Accessory Buildings, Interior Fit Out, Interior Doors, Wayfinding, Deep Services, Glazing and Windows etc.). It does not appear complete sets of construction documents were ever submitted, which can make it difficult to cross-coordinate.	Pass, with a concern on the inconsistent response format from the Authority.
Schedule 2 - 4.2	Project Co will only issue drawings and specifications for construction purposes based on Reviewed Drawings and Specifications as described in Appendix 2B [User Consultation and Design Review]. Project Co will print drawings issued for construction purposes (“Issued For Construction Drawings”) on paper that is a distinct colour, and will provide copies of all Issued For Construction Drawings to the Authority as soon as possible after they are issued for construction.	IFC Drawings - dates vary by package IFC Specification - a table of contents was found, but the complete specification was not.	IFC submitted in several packages (IMIT, Accessory Buildings, Interior Fit Out, Interior Doors, Wayfinding, Deep Services, Glazing and Windows etc.), authority comments were tracked and responded to in several rounds.	Although it is apparent that comments were submitted back to PCo, it is not clear that submittals ever received a 'Reviewed' status from the authority. A log of comments was kept with responses made. Construction Document sets were submitted in a piecemeal approach (IMIT, Accessory Buildings, Interior Fit Out, Interior Doors, Wayfinding, Deep Services, Glazing and Windows etc.). It does not appear complete sets of construction documents were ever submitted, which can make it difficult to cross-coordinate.	Pass

03 - Design

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 4.4	Project Co will, at its cost and as part of the user consultation and design review process described in Appendix 2B [User Consultation and Design Review], provide and make available to the Authority for review the “mock-ups” and “prototype” rooms described in this Section 4.4. Project Co will include dates on the Submittal Schedule for construction of and for Authority review of mock-ups. The time periods for Authority review and comments on Submittals set out in Appendix 2B will apply to mock-ups.	1:1 Mock Ups of: - Typical private client room and adj. WR in Acute Client Care - Typical psych. care room, washroom and vestibule Operations Security Centre 3D Renderings of: - Typical private client room and adj. WR in Acute Client Care - Typical psych. care room, washroom and vestibule - Operations Security Centre - Main Entry/Lobby - Dining Area - Common activity area of the Acute Client Care Unit	A mock-up review meeting was conducted on 2017-01-05, minutes were distributed. Renderings were provided for the DD-1 User group meetings and subsequently revised on 2015-11-23. Further revised renderings based on Authority Feedback were submitted 2016-03-15	It appears the PCo provided more 1:1 scale mockups than were required. Notes were taken on changes and deficiencies but it was not clear how these were addressed by the PCo. A letter signed by Lloyd Bullock on July 24, 2018, confirms that the mock ups were provided in accordance with Schedule 2. Renderings were provided and revised. Further revisions were provided by the PCo for a fee.	Pass
Appendix 2B - 3	(f) Project Co will compile and maintain a register of the date, contents and status of the submission of all Submittals, including the date of receipt and content of all returned Submittals and comments thereon.	Submittal Schedule Tracking Document	Submittal schedule was created and maintained throughout the process.	A Submittal Schedule Tracking document was included in the monthly report.	Pass
Appendix 2B - 5	(b) Before commencing Construction of a particular component of the Project, Project Co will submit to the Authority a Submittal: (1) that fully addresses the User Group Consultation described in Section 4 of this Appendix; and (2) describing that component, including all necessary Design and other information as the Authority may reasonably require, including any Design reports and calculations, reasonably necessary for the Authority to conduct an appropriate review to confirm that the Design described in the Submittal conforms to the requirements of this Agreement (including the Design and Construction Specifications and the Proposal Extracts (Design and Construction)).	Reviewed status granted to prior submittals	Prior submittals	The authority did not grant reviewed status on design submittals therefore the terms of the PA automatically grant a status of 'Reviewed'.	Pass

04 - Change approval

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 4.6	The parties wish to create a single record of adjustments to the Design and Construction that are reflected in the Reviewed Drawings and Specifications, but which do not constitute Changes for which there are adjustments to payments or the Target Service Commencement Date. The adjustments include all inconsistencies with or differences from the Design and Construction Specifications, the Proposal Extracts, this Schedule 2 and any other parts of this Agreement. Project Co will maintain a list of all such adjustments, to be referred to as “Adds/Omits” or other name agreed to by the parties. Project Co will provide a copy of such list, and proposed updates to the list, together with each of the phases of Design set out in Section 4.2 above, and will modify the list for reasonable comments made by the Authority.	Project Agreement Language Changes version 10	Maintain a summary of required changes during design and construction	While there was a tracking mechanism in place, the final document provided appears to not include all know changes nor does it provide a clear indication of the adjustment required for all entries nor confirmation the Authority agrees with the change.	Fail, The tracking mechanism was not properly maintained.
Schedule 2 - 4.6	Upon the achievement of Service Commencement, the parties intend to agree on documentation to reflect such adjustments and may for convenience set out such adjustments in a Change Certificate. Unless otherwise agreed, at least 90 days prior to the Service Commencement Date, Project Co will provide the Authority with a draft Change Report (and, if requested by the Authority, a draft markup of the Design and Construction Specifications) setting out such adjustments, without adjustments to payments or to the Target Service Commencement Date, and the parties will seek to agree on final documentation within 30 days after the Service Commencement Date	Various submittals	Submittal Schedule	No draft Change Report has been provided at 90 prior t Service Commencement, nor is one in place at this time.	Fail, the lack of formal agreement and execution of these changes into the contract creates a great risk to the Project with variances as to what has been constructed and what is formally in the contract.
Schedule 6	Lengthy formal process for Change Reports and Change Certificates.	Change Reports and Change Certificates	Formal change process	All processes associated with Schedule 6 changes appears to have been adhered to by both parties.	Pass
Schedule 6 - 5.1	The parties may during the Design process agree to utilize an alternate procedure for agreeing on and tracking Changes that: (a) on an individual basis, are less than \$100,000 in value, including “no cost” Changes; (b) on a cumulative basis, are less than \$1,000,000 in value; (c) do not result in a change in the Target Service Commencement Date; (d) do not result in a change to the Financial Model; and (e) would not fall within the scope of Section 1.4 of this Schedule. In such cases the parties may, on an individual Change basis, agree to utilize the process set out in this Section 5 rather than the process set out in Section 1 of this Schedule (“Development Changes”).	Design Change Register	Tracking of all changes with a cost	The DCR was regularly maintained and changes formally added to the contract through Schedule 6 Changes when appropriate.	Pass

04 - Change approval

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 6 - 5.6	No later than the 10th day of each month, Project Co’s Design and Construction Representative will prepare and deliver to the Authority’s Design and Construction Representative, a register of all Development Changes agreed during the prior month (the “Development Change Register”).	Design Change Register	Tracking of all changes with a cost	Unsure about monthly, but the Authority appears to have been aware of the items that were tracked.	Pass
Schedule 6 - 5.7	Within 30 days after the issuance of the 95% construction documents pursuant to Section 4.2(b)(3) (Design Process) of Schedule 2 [Design and Construction Protocols], the Authority will prepare and deliver to Project Co a consolidated Change Certificate encompassing all of the agreed Development Changes, as set out in the applicable Development Change Registers.	Change Certificates	Implementing DCRs as Change Certificates	The DCRs were formally approved.	Pass
Schedule 6 - 5.8	Project Co agrees that the Authority is entitled to a credit from Project Co in the amount of \$40,250 in respect of certain costs related to the Independent Certifier which credit will be accounted for and reflected in either: (a) the Development Change Register, if the parties utilize the development change process described in this Section 5; or (b) a Change Certificate issued by the Authority in respect of a Change with a Net Change Value in an amount equal to or greater than \$40,250.	Change Certificate #6	Change Certificate approved	The credit was applied in Change Certificate #6	Pass

05 - Construction

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 5.9	Project Co will: (a) carry out the Construction in accordance with a phasing plan (the “Phasing Plan”) that includes the details for Project Co’s phasing of all parts of the Construction, including (1) all Site preparation; and (2) construction of the Facility, and Project Co will submit the Phasing Plan to the Authority not later than 20 Business Days after the Effective Date and will not proceed until the Phasing Plan has received the notation “Reviewed” under Appendix 2B [User Consultation and Design Review];	Project Schedule Phasing Plan	Submit phasing plan to the authority prior to 20 business days after the Effective Date. Authority to review within 15 days.	A phasing plan was submitted on 10/8/15. A 'reviewed' copy can not be found, but an email from Lloyd Bullock dated 04/01/16 notes 'We have what we need'.	Fail, Minor process concern by not formally providing a 'reviewed' status.
Schedule 2 - 5.9	(i) from the commencement of Construction until Service Commencement, provide a high-quality colour webcam service with one or more webcams that are linked to the Authority’s public website for the Project and that provide frequently refreshed high quality images showing the Construction activities at the Site, with the Authority to provide Project Co with one or more locations reasonably required by Project Co for Project Co to install cameras and supporting infrastructure and services (including internet service);	Webcam Access	Multivista was contracted to provide the Authority with this service	The multivista access is no longer available but from discussion with the Authority it appears that it was acceptable.	Pass
Schedule 2 - 5.16	Project Co will: (a) prior to start of any Construction, conduct a pre-construction survey of the Site and pre-construction surveys of all adjacent properties, infrastructure, roadways (including all underground services and installations) within a radius required by the Authority and in a form and detail satisfactory to the Authority, acting reasonably, which will without limitation meet the requirements set out in Section 5.17 (Photographic Documentation), and deliver a copy of the pre-construction survey reports to the Authority; and (b) conduct monitoring surveys at regular intervals throughout the Construction Period and at six months following Service Commencement, and deliver monitoring surveys to the Authority in a form and detail satisfactory to the Authority, acting reasonably.	Pre-Construction Site Survey Monitoring Surveys Post- Service Commencement	A pre-construction survey was conducted in 09/15 Monitoring surveys were conducted in 12/15, 09/17 but are limited to photography only. A 6mo. post service commencement survey can not be found.	The requirements for 'monitoring surveys' are not clear as to the number required throughout construction nor their contents. The PCo submitted two photographic monitoring survey's but there does not appear to be additional topographic surveys.	Pass, recommend topographical surveys be a requirement for future projects.

05 - Construction

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 5.17	<p>Project Co will provide a photo documentation service (“PDS”) of construction progress and as-built conditions for the Facility in accordance with the requirements of this Section.</p> <p>(a) Required Elements</p> <p>(1) The PDS will combine inspection-grade digital photography with an indexing, navigation and storage system to capture actual conditions throughout the Construction Period, including at critical milestones determined in consultation with the Authority. The PDS will incorporate the architectural drawings, making such drawings interactive using an on-line interface. For all PDS documentation referenced, indexing and navigation will be organized by both time (date-stamped) and location.</p>	Photo Documentation Service (PDS)	Multivista was contracted to provide the Authority with this service	The multivista access is no longer available but from discussion with the Authority it appears that it was acceptable as per the terms of the PA.	Pass
Schedule 2 - 5.17	<p>(3) Construction progress will be tracked through the PDS at regular intervals, monthly as a minimum. The PDS will capture:</p> <p>(A) a general overview of both the exterior and interior construction of the Facility, including all elevations and major site features; and</p> <p>(B) interior improvements by each area, including:</p> <p>(i) overlapping images of all in-floor/ceilings utilities within the building envelope;</p> <p>(ii) the mechanical, electrical, plumbing and all other systems prior to pre-insulation, sheet rock or dry wall installation and overlapping images of all finished systems located in the walls and ceilings of the Facility; and</p> <p>(iii) all interior walls, ceilings and floors in their post-inspection, completed condition, prior to occupancy</p>	Monthly Construction Progress Reports	<p>Monthly project reports were issued from 2015-09 to 2019-01</p> <p>Near completion, a 'Weekly Deficiency and Incomplete Works' report was updated, referencing items in Plan Grid.</p>	The monthly reports appear to be fairly extensive, including items we would hope to see: updated schedules, construction updates, invoiced total and projected invoicing, QA report, and updates on change orders. It also includes a section on First Nations and Metis Engagements as well as a photo section.	Pass

05 - Construction

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 5.18	Project Co will: (a) take all reasonable steps (including any specific steps reasonably required by the Authority) to minimize dust, noise and noxious odours (including diesel exhaust) from the Construction (including preparation of the Site) at the Site and to mitigate any adverse effects on the properties adjacent to the Site; and (b) without limiting Project Co’s obligation under Section (a) above: (1) comply with CSA Z317.13 (Infection Control during Construction, Renovation or Maintenance of Health Care Facilities), including “Preventative Measure IV”, at all times during the Construction Period; (2) engage a suitably qualified infection control professional as required to perform the functions of the infection control professional described in CSA Z317.13; and (3) monitor compliance with CSA Z317.13 on a daily basis during the Construction (including demolition and Site preparation) and deliver to the Authority no later than the 5 th the day of each month, a performance report for the previous month that: (A) describes the steps taken by Project Co to comply with CSA Z317.13; and (B) confirms that Project Co complied with CSA Z317.13 or identifies any failure by Project Co to comply.	Infection Protection Control (IPC) Plan	IPC plan was issued in 3/16 and modified several times until v8 which was issued in 4/19. Several monthly IPC inspections occurred between 2018-06	This appears compliant but is highly dependent on the Authority's IP&C team to determine. There are documented concerns at the Multi-Disciplinary Team minutes noting the IPC was not being followed at all times.	Fail, the IPC was not being followed at all times.
Schedule 2 - 5.22	Without limiting the obligations pursuant to Section 1.6 of this Schedule in respect of the Construction Period Joint Committee, at the Authority’s request, Project Co’s Design and Construction Representative will attend meetings to update the Authority on the progress of Construction and to discuss any issues that have arisen. The meetings will be at least weekly unless agreed otherwise by the Authority.	Weekly Construction Meetings	CPJC meetings were held monthly, minutes were issued and an Action Tracker maintained.	The CPJC meetings were required to be weekly as per Schedule 2, though it appears they were held monthly. Schedule 2 allows for a different period as agreed to by the Authority. It is not clear if the monthly meeting schedule was agreed to. It was assumed that this was agreed to.	Pass

05 - Construction

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 5.23	As-Built Drawings and Specifications: Project Co will: (1) throughout the Construction, update the Reviewed Drawings and Specifications and Issued For Construction Drawings (with respect to the drawings, such update will be in hard copy and "CAD" or other electronic format), including all final shop drawings, so as to produce accurate and complete as-built documents for the Facility; (2) from time to time upon request by the Authority, make available such as-built drawings and specifications in hard copy and "CAD" or other electronic format to the Authority's Design and Construction Representative for review to permit the Authority's Design and Construction Representative to monitor Project Co's compliance with the requirements of this Section and for the Authority's operational and other use; and (3) on or before Service Commencement provide three full-size hard copies plus electronic copies of drawings in both Autodesk Design Review 'DWF' and Adobe Reader 'PDF' format of the completed as-built drawings and specifications. Project Co will submit all electronic copies in compliance with the standards established by the Authority from time to time for electronic copies.	3 Hard and Soft Copies of the as-built drawings and specifications	Drawings and specifications to be issued to the Authority: 3 Hard and Soft Copies of the as-built drawings and specifications	Transmittal #164 documents 36x48 sets of drawings (all disciplines) to Adam Fehler. As-built specifications issued in 12/18. As-builts re-submitted in January 2020 due to concerns with their accuracy.	Fail, the as-builts were not provided in the appropriate time nor were they accurate at all time if a resubmission was required.
Schedule 2 - 5.23	(b) Maintenance Manuals: Project Co will: (1) on or before Service Commencement, make available Facility operation and maintenance manuals, specifications, warranties and related information, in either written or electronic form, for all the equipment and systems that have been included in the Design and Construction of the Facility for review by the Authority's Design and Construction Representative; and (2) organize and store such information in accordance with Schedule 14 [Records and Reports];	O&M Manuals	Maintenance Manuals have been submitted	It does not appear that the Authority has received O&M manuals. Adam Fehler requested these on 2019-09-18 after receiving a USB stick which only contained shop drawings. Subsequently, piecemeal submittals of Electrical and Mechanical sections of the O&M manuals were submitted - but it does not appear that a complete and final set has been submitted.	Fail, it does not appear the Authority had received all Maintenance Manuals at the time of Service Commencement.
Schedule 2 - 5.23	(d) Minutes of Meetings: Project Co will retain minutes of all meetings between the Authority and Project Co relating to the Design and Construction. Project Co will circulate such minutes to the Authority's Design and Construction Representative for review and comment within the time period specified in this Agreement for the particular meeting or if no time period is specified then within 5 days after the relevant meeting, and a reasonable period before any subsequent meeting so that all parties may consider the minutes and take required actions in advance of the subsequent meeting;	Weekly Construction Meetings - Minutes	Conduct, and distribute minutes	Meeting Minutes and Action tracker for Design & Construction appear to be provided weekly.	Pass

05 - Construction

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 5.23	(f) Monitoring Results: Project Co will retain all survey and monitoring records obtained in connection with Section 5.16 (Survey and Monitoring);	Survey Monitoring Results		See 5.16 above	
Schedule 2 - 5.23	(g) Utility Plans: Project Co will retain utility plans for the Facility and the Site;	Utility Plans		Submitted in the Civil As-builts	Pass
Schedule 2 - 5.23	(h) Landscape and Irrigation Plans: Project Co will retain landscape and irrigation plans for the Facility and the Site;	Landscape and irrigation plans		Irrigation was not included for additional LEED credits. It appears that his approach was agreed to in principal by the Authority as no comments nor a rejected status of the LEED checklist has been provided.	Pass
Schedule 2 - 5.23	(i) Copies of all Permits: Project Co will retain copies of all Permits for the Construction and occupation of the Facility;	Copies of Permits		Copies of construction, occupancy, and service commencement permits provided	Pass

06 - Equipment supply & installation

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 6.2	Project Co will, in consultation with the Authority, affix an Authority approved unique numerical asset identification tag or tags to each piece of equipment installed in the Facility, including: (a) all Equipment; and (b) all mechanical, HVAC and communications systems equipment	Asset Register (05-25-18)	An asset register was developed, comments provided by the Authority. Some columns not filled in (Asset tag number, purchase order number, lifespan, required utility)	A completed asset register was not found.	Fail, A complete asset register was not found.
Schedule 2 - 6.3	Project Co will create, maintain, update and share with the Authority, an asset register of all equipment installed in the Facility (the “Asset Register”) manufacturer, model and device type; -equipment item number; -unique asset tag number (and RFID number if applicable); -serial number; -purchase order or equipment purchase contract identifier; -equipment supplier and contact information for the equipment supplier; -installed location (room number); -date installed; -anticipated replacement date or timeframe; -warranty start date and expiry date; -required utility, HVAC or other connections; and -any other information that may be agreed upon by the Authority and Project Co.	Various submittals	Submittal Schedule	A completed asset register was not found.	Fail, A complete asset register was not found.

07 - Quality Management

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 8.3	Project Co will appoint a qualified expert in quality management ("Project Co's Quality Consultant") to develop, implement and oversee Project Co's Quality Assurance Program and Quality Assurance Plan. Project Co will not permit Project Co's Quality Consultant to perform any role in the Design and Construction except for the role described in this Section.	Quality Assurance Plan version 3		Project Co's Quality Consultant is a Graham employee; however, he is not directly involved in the actual execution of the project. He is designated as the representative for Quality and reports directly to Project Co's General Manager	Pass
Section 2 - 8.5	Project Co will promptly implement and strictly comply with the Quality Assurance Plan developed under this Section	Quality Assurance Plan version 3	Various quality assurance processes	It appears as though many quality assurance process noted in the Quality Assurance Plan were not strictly complied with at all times during design and construction. Examples include the Inspection and Test Plan and the Infection Prevention Control documents.	Fail, processes were not adhered.
Section 2 - 8.5 (a)	Project Co will deliver to the Authority a draft Quality Assurance Plan (that is customized for the Project, addresses all of the requirements of Section 8.4 and meets Good Industry Practice) within 20 Business Days of the Effective Date	Quality Assurance Plan version 3		Version 3 submitted January 13, 2016 and approved by April Matlock on February 11, 2020.	Pass
Section 2 - 8.6	Project Co will deliver to the Authority a monthly report of the Quality Assurance Plan prepared by Project Co's Quality Consultant covering all aspects of the Design and Construction completed in the reporting period that are relevant to the Quality Assurance Plan. Project Co will highlight any deficiencies identified and corrective actions taken to address such deficiencies during the period covered by such report. The report will include all supporting documentation including field reviews, photographs, reports and other material	Monthly Report	Submitted monthly report	There was a report issued monthly by the APP Quality Consultant.	Pass
Section 2 - 8.7	The Authority may, at its discretion, perform its own audits of the Quality Assurance Program and for that purpose Project Co will make available for review by the Authority, upon request from the Authority, all records of the Quality Assurance Program and the Quality Assurance Plan to permit the Authority to be satisfied that Project Co is following its Quality Assurance Plan.	This process audit	Requested quality assurance documents	Quality assurance documents not provided	Fail, additional quality assurance documents were requested during this audit and not provided.
Quality Assurance Plan - 1.3 bullet #4	Access Prairies' Quality Consultant will monitor and audit the implementation of this plan by conducting monthly site inspections, reviewing the Design-Builder's records and reports pertaining to the implementation of the Quality Assurance Plan and reporting his findings to Project Co	Monthly Report	Submitted monthly report	Yes, however the comments are very generic. No proof of actual audit, only general notes that documents were reviewed.	Pass, although the checklist noted in the Quality Assurance Plan was not provided to confirm the depth of the monthly review.

07 - Quality Management

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Quality Assurance Plan - 1.3 bullet #5	Access Prairies' Quality Consultant shall also monitor the Design-Builder's compliance to the project specific inspection and test plan, to be developed at a later date	Monthly Report	Monitor compliance to ITP	The ITP was created and updated, but was incomplete in the final version dated approximately 11 months prior to Service Commencement. Some of the blank ITP sections were known to have quality assurance processes (such as the roof inspections).	Fail, While the ITP document was created and updated during construction, the final version was incomplete and dated approximately 11 months before Service Commencement.
Quality Assurance Plan - 1.3 bullet #6	Access Prairies' Quality Consultant will ensure that the Design-Builder and Service Provider adhere to the requirements of the Interface Agreement related to design, warranty protocols, training and commissioning	Monthly Report	None noted	This was not mentioned in the monthly report	Fail, no confirmation that this process was adhered.
Quality Assurance Plan - 2.1	A Project Specific Inspection and Test Plan (ITP) will be developed by the Quality Designate and approved by the Quality Consultant for the SHNB-ICF Project. The Quality Designate is also responsible for regularly updating the ITP to address any change and updates on the progress of work. A sample ITP has been provided in Attachment 3.	Inspection and Test Plan	Monitor its compliance	The ITP was created and updated, but was incomplete in the final version dated approximately 11 months prior to Service Commencement. Some of the blank ITP sections were known to have quality assurance processes (such as the roof inspections).	Pass
Quality Assurance Plan - 2.1	The ITP shall be considered a live document and is expected to be updated regularly to reflect changes necessary to better address changes on site conditions and project requirements. The Authority through their representatives will be informed of the revisions and approval will be solicited if required.	Inspection and Test Plan	Monitor its compliance	The ITP was created and updated, but was incomplete in the final version dated approximately 11 months prior to Service Commencement. While some minor updates were referenced in the monthly report, it does contain sufficient detail on the changes to consider the Authority informed of the changes.	Fail, While the ITP document was created and updated during construction, the final version was incomplete and dated approximately 11 months before Service Commencement.
Quality Assurance Plan - 2.1.2 bullet #3	The construction schedule, project specifications and contract requirements will identify the construction activities within a project that require verification. Additional inspections can be added to activities that are critical to ensure the schedule, cost, high risk operations, long lead items or work performed by sub-contractors are in compliance.	Project schedule, specifications, contract requirements	Indicate required verifications	The project schedule does not include details of verifications, but does include a commissioning schedule.	Fail, There is no document that clearly details all activities that require verification as the ITP is not complete and the schedule does not include this level of task detail.
Quality Assurance Plan - 2.1.3 bullet #1	All inspection activities will be conducted in accordance with the approved ITP. The results of these inspections will be recorded on the appropriate inspection forms.	Inspection and Test Plan	Recorded on inspection forms and compliant with the ITP	Was this even required by the PA QAP? This is incredibly confusing to have a full testing plan in here separate from the Cx Plan	Fail, ITP was not complete so not all activities could be complied with. Not all ITP records requested to verify compliance were provided.
Quality Assurance Plan - 2.1.3 bullet #2	If the results of the inspection are not in conformance with the project requirements, the non-conformity will be handled as outlined in section 6.2 Non-Compliance Management.	Monthly Report	Non compliance management	When non-conformance items were identified, there was a process in place to manage them until rectified.	Pass

07 - Quality Management

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Quality Assurance Plan - 2.2	Graham-Carillion JV will perform a Preventative Measure Analysis (PMA) for each of the finishing phases of the Project in accordance with the recommendations of Z317.13 for approval by the Multi Disciplinary Team. Specific actions identified in the PMA's will be assigned to an appropriate Inspection and Test Report or Inspection Form. These inspection forms will be listed in the Inspection and Test Plan. A specific example is the requirement to clean stud cavities prior to boarding. The cleaning aspect will be added to the Pre-Board Inspection Report (804I-013 Pre-GWB Inspection Report). This step will ensure that PMA requirements are fully embedded in the overall Quality Assurance Plan and will not be missed during QA/QC inspections or routine site management processes. Please refer to the Infection Control Plan included in Attachment 2.	Inspection and Test Plan MDT Minutes	Not fully documented	The ITP is not complete, therefore this process could not have been adhered.	Fail, ITP was not complete so not all activities could be complied with. Not all ITP records requested to verify compliance were provided.
Quality Assurance Plan - 2.3.18	Completed verification checklists, as well as all pertinent start-up reports, will form a permanent record and will be inserted into the O&M Manuals, which will be presented for review to the Independent Certifier prior to Service	O&M Manuals	Not fully documented	There does not appear to be a record of all verification checklists and start-up reports provided at provided his was not included in the Independent Certifier pre Service Commencement checklist.	Fail, documents not provided at Service Commencement.
Quality Assurance Plan - 3.2	Evaluate the subcontractor's Quality program and ensure it is applicable to the contract scope of work. Quality shall be part of the evaluation criteria for subcontractor qualification. Other evaluation criteria such as Health Safety and Environment (HSE), Productivity, Finance, Insurance etc. shall be also included, if required.	None provided	None	No records were kept to confirm if this process was adhered.	Fail, no documentation maintained for subcontractor procurements.
Quality Assurance Plan - 3.4	Graham-Carillion JV will perform random quality assurance checks to verify that quality control activities are being implemented.	Monthly Report	Random quality assurance checks	While there were some random quality assurance checks noted in the monthly report, they appear to be minimal for the size of the project.	Pass, with concern on the quantity of quality assurance checks.
Quality Assurance Plan - 3.6	Access Prairies through Graham-Carillion JV is responsible to maintain documentation related to inspection and testing activities for all scope of work. This documentation will be maintained as per project filing requirements and/or PA requirements. As per project requirements, all subcontractor documentation related to QA/QC is to be submitted to Graham-Carillion JV	This process audit	Requested quality assurance documents	Quality assurance documents not provided	Fail, additional quality assurance documents were requested during this audit and not provided.
Quality Assurance Plan - 3.7.1 bullet #1	Evaluate the vendor's quality program prior to awarding the purchase contract. Quality shall be one of the evaluation criteria for Subcontractor qualification. Other evaluation criteria such as Health Safety and Environment (HSE), Productivity, Finance, Facility etc. shall be included based on purchasing process requirements;	None provided	None	No records were kept to confirm if this process was adhered.	Fail, no documentation maintained for subcontractor procurements.

07 - Quality Management

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Quality Assurance Plan - 7.4	Monthly checklist requirements	None provided	Generate a monthly checklist	Completed checklists not provided.	Fail, requested documents not provided to verify all items were checked monthly.
Quality Assurance Plan - 7.5	All design consultants engaged on the Project must adhere to the obligations set out in the Design QAP. These obligations require that all design consultants conduct quality reviews of their design documents for each scheduled submission to the Authority/ APP. Quality reviews utilize checklists to help identify typical omissions, errors and inconsistencies which may exist on documents. Quality checklists used by these consultants are typically edited versions of those prepared by professional governing bodies for engineers, architects and other professionals (e.g. CHOP). These completed checklists (by discipline) are in turn checked, reviewed and utilized by the design consultants to identify revisions and additions to their design documentation. Finally, quality checklists must be reviewed and signed off by the Design Quality Representative. The consultants’ checklists along with the cover sheet provided by GCJV are signed and dated by the design quality representative of each design consultant and issued to the GCJV Design Quality Representative via Aconex who conducts quality audits as part of the quality assurance protocol. All checklists and accompanying marked up design documents are digitally scanned and stored on Aconex.	Monthly Report	Design quality reviews	There are records as this occurring.	Pass
Quality Assurance Plan - Attachment 2 - 4.2 - Stage Four - bullet #1	Hyperchlorinate and flush system prior to substantial completion according to CSA Special Requirements for Plumbing Installations in Healthcare Facilities standard Z317.1;documentation of this process shall be provided to the MDT after the work has been done	Test results	Unclear	No record of this occurring was provided	Fail, no records provided
Quality Assurance Plan - Attachment 2 - 4.2 - Stage Four - bullet #3	Legionella (type of bacteria found in water) monitoring is undertake before, during and after construction of the plumbing system	Test results	Unclear	No record of this occurring was provided	Fail, no records provided
Quality Assurance Plan - Attachment 2 - 4.10	Check Lists <ul style="list-style-type: none">• MDT and CM to provide/develop checklists to verify areas are completed.• CM to complete the checklist.• The Multi–Disciplinary Team will inspect to ensure checklist items are complete.• Additional customized checklists may be developed if deemed necessary by the MDT	MDT Minutes	Unclear	No record of this occurring was provided	Fail, no records provided

08 - Project Schedule

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 10.2	Submit schedule once per month by the 15th.	Access Prairies Partnership Project Report, submitted monthly	Schedule submitted as part of monthly APP report	The schedule was submitted monthly	Pass
Schedule 2 - 10.4	Project Co will undertake the Design and Construction of the Facility in compliance with the Updated Project Schedule, as may be updated pursuant to this Agreement.	Various submittals	Submittal Schedule	The monthly report noted design and construction progress updates and included a monthly schedule, with the exception of one month where it was missed by a clerical error.	Pass While not a requirement of the Project Agreement, it is suggested that comparing updates to a baseline be a requirement for future projects to easily identify variances and confirm when tasks are completed.
Schedule 2 - 10.5	As soon as reasonably practicable, but in any event no later than 180 days prior to the Target Service Commencement Date, Project Co will deliver to the Authority’s Design and Construction Representative a move-in schedule in respect of the Facility (the “Facility Move-in Schedule”), indicating the anticipated dates when such areas will become available for occupation by the Authority so as to facilitate and permitthe Authority to progressively take up occupation in an efficient manner.	Move-in Schedule	Review move-in schedule 180 days prior to Service Commencement	While no formal move-in schedule was created at the required dte, discussions had begun and concern on the ability to meet the Service Commencement Date.	Pass

09 - Commissioning

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 12.1	Retain a qualified independent commissioning agent	Commissioning Plan - August 27, 2018		CDML is a qualified commissioning agent	Pass
Schedule 2 - 12.1	The commissioning agent will prepare a written report to confirm the foregoing and completion of the commissioning activities scheduled in the Commissioning Plan to be completed before Service Commencement.	Various submittals	Submittal Schedule	The Commissioning Plan created an extensive list of commissioning activities. However, the Commissioning Report does not confirm all activities were completed.	Fail, not all activities in the Commissioning Plan have been completed.
Schedule 2 - 12.1	Testing and commissioning will include a complete and successful demonstration in real time under full stress conditions for all equipment and systems that require or are provided with redundancy or spare capacity;	Commissioning Plan - August 27, 2018 Final Commissioning Report	The Commissioning Plan is the preparation document and the Commissioning Report is intended to confirm the activities were completed.	The Commissioning Plan created an extensive list of commissioning activities. However, the Commissioning Report does not confirm all activities were completed. No testing related to spare capacity or redundancy were implemented.	Fail, not all activities in the Commissioning Plan have been completed.
Schedule 2 - 12.1	Testing and commissioning will include end to end testing and commissioning of key equipment and systems to ensure complete operational readiness	Commissioning Plan - August 27, 2018 Final Commissioning Report	The Commissioning Plan is the preparation document and the Commissioning Report is intended to confirm the activities were completed.	The Commissioning Plan created an extensive list of commissioning activities. However, the Commissioning Report does not confirm all activities were completed. Documentation is missing for numerous tests, including end to end testing.	Fail, not all activities in the Commissioning Plan have been completed.
Schedule 2 - 12.2	will provide sufficient training and education to the Authority staff to enable the Authority to properly utilize such equipment and systems, including any training and education with respect to Equipment required under Appendix 2D [Equipment and Furniture] or the Design and Construction Specifications	Training records	Provided training	An appropriate level of training appears to have been completed prior to Service Commencement. Training of incomplete systems such as the RTLS are ongoing.	Pass
Schedule 2 - 12.2	All training will be completed before the Service Commencement Date unless agreed by the Authority, acting reasonably	Training records	Provided training	An appropriate level of training appears to have been completed prior to Service Commencement. Training of incomplete systems such as the RTLS are ongoing.	Pass
Schedule 2 - 12.3 (b)	supporting documentation, including as appropriate:				
Schedule 2 - 12.3 (b) (1)	design calculations and/or assumptions	Commissioning Plan - August 27, 2018	Inclusion of the requirement in the Cx Plan	Not included in the Commissioning Plan	Pass, 'as appropriate' creates vagueness on requirements.
Schedule 2 - 12.3 (b) (1)	manufacturer's specifications;	Commissioning Plan - August 27, 2018	Inclusion of the requirement in the Cx Plan	Not included in the Commissioning Plan	Pass, 'as appropriate' creates vagueness on requirements.
Schedule 2 - 12.3 (b) (2)	identification of all equipment and systems that require or are provided with redundancy or spare capacity and that will include complete successful demonstration in real time under full stress conditions	Commissioning Plan - August 27, 2019	Inclusion of the requirement in the Cx Plan	Not included in the Commissioning Plan	Pass, 'as appropriate' creates vagueness on requirements.
Schedule 2 - 12.3 (b) (3)	identification of post-disaster requirements and protocols for all equipment and systems to be commissioned; and	Commissioning Plan - August 27, 2020	Inclusion of the requirement in the Cx Plan	Not included in the Commissioning Plan	Pass, 'as appropriate' creates vagueness on requirements.

09 - Commissioning

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 12.3 (b) (4)	a description of all systems which will be tested and commissioned for integration to other systems	Commissioning Plan - August 27, 2018	Inclusion of the requirement in the Cx Plan	A list of all systems is included as well as an integration matrix. The audit did not verify if all appropriate integrations were included, however, the RTLS and OSC are systems with clear integration requirements that are not included in the integration matrix.	Fail, complete integration testing not planned or tests documented.
Schedule 2 - 12.3 (c)	a description of the training and education that Project Co intends to provide to the Authority's staff to enable the Authority to properly utilize the equipment and systems installed in the Facility, including all training and education to be completed before Service Commencement;	Commissioning Plan - August 27, 2018	Inclusion of the requirement in the Cx Plan	An appropriate level of training appears to have been completed prior to Service Commencement. Training of incomplete systems such as the RTLS are ongoing.	Pass
Schedule 2 - 12.3 (d)	the name of the commissioning agent and the names of other persons to be involved in testing, commissioning and training;	Commissioning Plan - August 27, 2018	Inclusion of the requirement in the Cx Plan	This requirement is included in the Commissioning Plan.	Pass
Schedule 2 - 12.3 (e)	a description of Project Co's system for managing records of tests, inspections, quality assurance and training;	Commissioning Plan - August 27, 2018	Inclusion of the requirement in the Cx Plan	This requirement is included in the Commissioning Plan, although not implemented as numerous tests were not completed.	Pass, with concern of incomplete tests.
Schedule 2 - 12.3 (f)	a general description of Project Co's transition plans for handover to the Authority of the Facility at Service Commencement;	Commissioning Plan - August 27, 2020	Inclusion of the requirement in the Cx Plan	Not included in the Commissioning Plan	Fail, not included
Schedule 2 - 12.3 (g)	a schedule, related to the Project Schedule, showing				
Schedule 2 - 12.3 (g) (1)	the timing of all testing and commissioning and training;	Commissioning Plan - August 27, 2018	Inclusion of the requirement in the Cx Plan	This requirement is included in the Commissioning Plan.	Pass
Schedule 2 - 12.3 (g) (2)	for each requirement of Service Commencement (described in Schedule 1 [Definitions and Interpretation]), the date upon which Project Co anticipates achieving the requirement; and	Commissioning Plan - August 27, 2019	Inclusion of the requirement in the Cx Plan	This requirement is included in the Commissioning Plan.	Pass
Schedule 2 - 12.3 (g) (3)	a matrix of all equipment and systems, including all integrated Equipment and systems, and how they integrate with each other, along with an overview of the procedures that will be followed to demonstrate that integration of all equipment and systems has been and will be achieved.	Commissioning Plan - August 27, 2018	Inclusion of the requirement in the Cx Plan	A list of all systems is included as well as an integration matrix. The audit did not verify if all appropriate integrations were included, however, the RTLS and OSC are systems with clear integration requirements that are not included in the integration matrix.	Fail, complete integration testing not planned or tests documented.
Schedule 2 - 12.4 (a) through (d)	Project Co will deliver to the Authority a draft of the Commissioning Plan for the Facility (that is complete, addresses all of the requirements of Section 12.3 of this Schedule and meets Good Industry Practice) not less than 12 months before the Target Service Commencement Date	Commissioning Plan submissions	Submission and Authority comments	The Commissioning Plan had numerous re-submissions and was never granted reviewed status by the Authority.	Fail, both parties did complete the Commissioning Plan review process.
Schedule 2 - 12.4 (e)	if the Authority does not accept the Commissioning Plan, the parties will, acting reasonably, diligently work together with a view to revising the Commissioning Plan to address the Authority's reasons for non-acceptance; and	Commissioning Plan - August 27, 2019	Submission and Authority comments	While the Commissioning Plan did not achieve Reviewed Status, there are records of working together to attempt to resolve the outstanding items	Pass

09 - Commissioning

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 12.4 (f)	if the Authority has not accepted the Commissioning Plan by the date that is 6 months before the Target Service Commencement Date, Project Co may refer the Dispute to the Dispute Resolution Procedure to determine whether Project Co’s proposed Commissioning Plan meets the requirements of this Agreement.	Commissioning Plan - August 27, 2019	Submission and Authority comments	While the Commissioning Plan did not achieve reviewed status 6 months before the Targeted Service Commencement Date, there is no record of Dispute Resolution exists.	Pass

BREAKDOWN OF RESPONSIBILITIES FOR EACH COMMISSIONED SYSTEM				AuditTesting Notes
<u>DEVELOPMENT OF SITES:</u>				
Commissioned System		Applicable Notes	Comments	
Site Grading		Various submittals		
Storm Sewers & Structures		1-6		
Sanitary Sewers & Structures		1-6		
Natural Gas Service		2-5	Completed Report to be provided by Mechanical Contractor	
Propane Gas Service		2-5	Completed Report to be provided by Mechanical Contractor	
Underground Communications Services		2-5		
Plantings		1-5		
Note	Action		Responsible Party	
1	Civil Engineer to provide specific report requirements to the general contractor		WSP	
2	General Contractor to provide completed reports and checklists to the Engineering of Record, copying the ICA and MCS/PNHR within 2 weeks or earlier of completion		GCJV	
3	ICA to ensure installation reports are complete and included in the final commissioning report		CDML	
4	Contractor to provide detailed O&M manual and as-built drawings to ICA for review		Contractor	
5	Engineer of record to review and approve		WSP	
6	Video surveillance inspection reports provided, Engineer of Record to review		Contractor	
<u>BUILDING ENVELOPE:</u>				
Commissioned System		Applicable Notes	Comments	
Air Barrier/Vapour Retarder		1-2	Require evidence or assurance that installed to drawings	
Roofing		1-2	Required 5 yrs. warranty	
Moisture Protection		1-2		
Doors and Windows		1-2	Evidence of required testing	Door PlanGrid report provided, nothing for windows
Curtainwall System		1-2		No documentation found.
Exterior Cladding		1-2		No documentation found.
Testing of Envelope		1-3	Includes water test, air test and heat loss scan	No water test. Partial air and heat loss
Note	Action		Responsible Party	
1	GCJV to conduct site inspections during construction and note any issues in the commissioning log		GCJV	
2	Architect to review and approve		Kasian	
3	Results to be submitted to MCS/PNHR within 2 weeks or earlier after completion and included in the ICA Final Report		CDML	
<u>FIRE PROTECTION SYSTEMS:</u>				
Commissioned System		Applicable Notes	Comments	
Wet Sprinkler		1-4, 6		
Chemical Fire Suppression		1-6		

BREAKDOWN OF RESPONSIBILITIES FOR EACH COMMISSIONED SYSTEM				Audit/Testing Notes
Fire and Smoke Detection Systems, Fire panel testing, alarm systems		1-6	.	There seems to be confusion on the project between sprinkler and fire alarm systems. Legacy Fire Protection provided a test report, but no fire alarm verification is documented prior to Service Commencement (documents are dated November 1, 2018).
Egress and Evacuation Systems		1-6		This is associated with the fire alarm system
Note	Action		Responsible Party	
1	Detailed training to be provided to owners/building operators by the contractor responsible for the installation of the system		Legacy Fire Protection	
2	Full O&M manual to be provided by the contractor detailing the operation, adjustment,		Legacy Fire Protection	
3	Contractor/Authority having jurisdiction shall complete the test requirements as illustrated in		Legacy Fire Protection	
4	ICA to witness testing as required, assemble and review completed checklists and test results and ensure commissioning has been successfully completed.		CDML	
5	ICA to perform specific scenario testing to verify proper operation and interaction with other		CDML	
6	Fire Protection Consultant of record to review and approve		WSP	
PLUMBING SYSTEMS:				
Commissioned System		Applicable Notes	Comments	
Domestic Water Distribution		1-8, 12-16		No record of setting of mixing valves or hands-free faucets
Medical Gas System		1-16		
Domestic Water Heating		1-8, 10-16		
5	ICA to perform specific scenario testing to verify proper operation and interaction with other		CDML	
6	Fire Protection Consultant of record to review and approve		WSP	
Note	Action		Responsible Party	
1	ICA to review system as part of Commissioning Design Review		CDML	
2	Contractor to submit detailed shop drawings to designers and ICA		Suer & Pollon	
4	Designer to provide responses for any comments provided by the ICA.		WSP	
5	ICA to develop installation verification checklists for the system and provided these sheets to the contractor during the commissioning kick-off meeting		CDML	
6	Contractor to complete installation verification checklists		Suer & Pollon	
7	Contractor to provide complete start-up report for equipment. Report to be sent to designers and ICA.		Suer & Pollon	Various start-up reports were missing as of Service Commencement
8	Contractor to complete hydrostatic testing, flushing, cleaning, and insulating and provide completed test reports to ICA for review. ICA to review for completeness		Suer & Pollon CDML	No water balancing or flushing included.

BREAKDOWN OF RESPONSIBILITIES FOR EACH COMMISSIONED SYSTEM			AuditTesting Notes
9	Contractor to verify performance of equipment by running system through two cycles of operation and provide a complete report to the ICA	Contractor	
10	ICA to develop a functional testing plan and checklists for the system	CDML	
11	Mechanical/Controls contractor to operate equipment for functional testing with ICA	CDML Suer & Pollon ESC	
12	Contractor to ensure that completed O&M requirements have been included in the project O&M manual. Manual to be provided to ICA for review	Suer & Pollon	
13	Contractor to coordinate owner training for system. Contractor and owner’s representative to provide training. Training agenda to be provided by ICA	Suer & Pollon CDML	
14	ICA to witness owner training.	CDML	
15	Engineer of record to review and approve	WSP	
16	Commissioning documentation should be submitted to the MCS/PNHR within 2 weeks or earlier after the commissioning test/verification	GCJV	
Heating, Ventilation and Air-Conditioning:			
Commissioned System	Applicable Notes	Comments	
Boilers	1-6, 8-18		
Cogeneration System	1-6, 8-18		
Hot Glycol heating distribution	1-6, 8-18		
Re-heat coils and Radiant Heating	1-6, 8-18		
Forced Flow heaters	1-6, 8-18		
Chillers	1-6, 8-18		
Chilled Glycol Distribution	1-6, 8-18		
Fluid Coolers	1-6, 8-18		
Air Handling Units/Air Distribution	1-18		
Air Filtration	1-6,9,11-18	Completed as part of AHU testing	
Air Humidification	1-6,9,11-18	Completed as part of AHU testing	
Air Heating	1-6,9,11-18	Completed as part of AHU testing	
Air Cooling	1-6,9,11-18	Completed as part of AHU testing	
Refrigeration	1-6,9,11-18		
Exhaust Fans	1-18		
Note	Action	Responsible Party	
1	ICA to review system as part of LEED Best Practice Commissioning Design Review	CDML	
2	Contractor to submit detailed shop drawings to designers and ICA	Suer & Pollon	
3	ICA to review shop drawing and provide comments to designer for inclusion in their review	CDML	
4	Designer to provide responses for any comments provided by the ICA.	WSP	
5	ICA to develop installation verification checklists for the system and provided these sheets to the contractor during the commissioning kick-off meeting	CDML	
6	Contractor to complete installation verification checklists	Suer & Pollon	

BREAKDOWN OF RESPONSIBILITIES FOR EACH COMMISSIONED SYSTEM			AuditTesting Notes
7	Duct pressurization testing to be performed as required by applicable codes and project requirements Sheet metal & Air Conditioning Contractors’ National Association (SMACNA). Results to be provided to ICA.	Suer & Pollon	Provided
8	Testing and balancing contractor to provided pre-balancing report (installation check) to ICA and designer for review	Testing and Balancing Contractor	FPT was completed before any balancing information was available.
9	Contractor to provide complete start-up report for equipment. Report to be sent to designers and ICA.	Suer & Pollon	
10	Contractor to complete hydrostatic testing, flushing, cleaning, and insulating and provide completed test reports to ICA for review. ICA to review for completeness	Suer & Pollon CDML	
11	ICA to develop a functional testing plan and checklists for the system	CDML	
12	Mechanical/Controls contractor to operate equipment for functional testing with ICA	CDML, Suer & Pollon ESC	
13	Testing and balancing contractor to adjust system to meet design requirements. Complete testing and balancing report to be provided to designer and ICA. ICA to spot check results of balancing on site with contractor	Testing and Balancing Contractor CDML	Not complete, is referenced in preliminary Cx report
14	Contractor to ensure that completed O&M requirements have been included in the project O&M manual. Manual to be provided to ICA for review	Suer & Pollon	
15	Contractor to coordinate owner training for system. Contractor and owner’s representative to provide training. Training agenda to be provided by CDML	Suer & Pollon CDML	
16	ICA to witness owner training.	CDML	
17	Engineer of record to review and approve	WSP	
18	Commissioning documentation should be submitted to the MCS/PNHR within 2 weeks or earlier after the commissioning test/verification	GCJV	
Mechanical Systems Testing, Adjusting and Balancing Verification:			
Commissioned System	Applicable Notes	Comments	
Air Balancing	1-5		Air balancing report is dated January 2019, well past Service Commencement
Water Balancing	1-5		No water balancing documentation
Note	Action	Responsible Party	
1	Contractor to provide a pre-balancing inspection and report to the ICA, clearly identifying any issues related to balancing (missing balancing valves, access to valves/dampers, etc.)	Testing and Balancing Contractor	
2	Contractor to work with ICA to develop a testing and balancing plan	Testing and Balancing Contractor CDML	
3	ICA to spot check balancing with Testing and Balancing Contractor. TAB Report accuracy: ICA will verify for accuracy 5% of the TAB contractor’s readings for both air and hydronic systems, this will be done using their equipment with the TAB contractor in attendance.	Testing and Balancing Contractor CDML	
4	Complete testing and balancing report to be provided to ICA and MCS/PNHR within 2 weeks of completion for review and included in the final O&M manuals and Cx Report	GCJV	
5	Engineer of record to review and approve	WSP	
Building Automation Systems:			
Commissioned System	Applicable Notes	Comments	

BREAKDOWN OF RESPONSIBILITIES FOR EACH COMMISSIONED SYSTEM			AuditTesting Notes
Operator Workstations	1-12		
Field Points	1-12		
Network Cabling	1-12		
Valves, Dampers and Actuators	1-12		
Meters	1-12		
Energy Monitoring	1-12		
Heating Systems	1-12		
Ventilation Systems	1-12		
Air Conditioning Systems	1-12		
Humidification Systems	1-12		
Note	Action	Responsible Party	
1	ICA to review system as part of LEED Best Practice Commissioning Design Review	CDML	
2	Contractor to submit detailed shop drawings to designers and ICA	GCJV FM	
3	ICA to review shop drawing and provide comments to designer for inclusion in their review	CDML	
4	Designer to provide responses for any comments by the ICA.	WSP	
5	Control system contractor to perform the following requirements prior to functional testing: <ul style="list-style-type: none">• Complete point-to-point checks• Calibration of all sensors• Confirmation that control sequences meet intended sequence• Check completeness of low-voltage wiring• Verify that interconnections with other systems (e.g. fire alarm) are working properly• Confirm operation and range of all automatic valves and dampers• Confirm correct response of variable speed drive controllers to their respective input Completed checks to be provided to designer and ICA for review	ESC	No documentation provided, only test methodology A controls document was provided, but it was the as-builts, not a testing record. Typically there would be a verification of a % of P2Ps, with a certain failure rate allowed
6	ICA to review completed installation checklists and approve prior to equipment start-up	CDML	
7	ICA to develop a functional performance test plan for the building automation system. Test forms will be provided to the controls contractor for comments prior to functional testing	CDML	
8	Controls contractor/Mechanical contractor to operate equipment for functional testing, as directed by the ICA. This testing will ensure equipment operation is verified in every mode of operation.	CDML GCJV FM Suer & Pollon	
9	Controls system contractor to provide detailed O&M manual and as-built controls to ICA and designer for review	ESC	
10	Controls contractor to provide detailed training to the owner and operator, as described in the project requirements. ICA to witness training	GCJV CDML	
11	Engineer of record to review and approve	WSP	
12	Commissioning documentation should be submitted to the MCS/PNHR within 2 weeks or earlier after the commissioning test/verification	GCJV	
Electrical System and Lighting System:			

BREAKDOWN OF RESPONSIBILITIES FOR EACH COMMISSIONED SYSTEM			AuditTesting Notes
Commissioned System	Applicable Notes	Comments	
Switchgear	2,3,5,7-10		Thermographic survey not provided
Distribution Panels	2,3,5,7-10		Thermographic survey not provided
Transformers	2,3,5,7-10		Thermographic survey not provided
Low Voltage Feeders	2,3,5,7-10		Thermographic survey not provided
Low Voltage Panel Boards	2,3,5,7-10		Thermographic survey not provided
Low-Voltage Motor Control Centers	2,3,5,7-10		Thermographic survey not provided
Wiring & Equipment Connections	2,3,5,7-10		Thermographic survey not provided
Diesel-Engine Generator Sets	1-10		Thermographic survey not provided
Cogeneration System	1-10		Thermographic survey not provided
Diesel-Engine Generator Controls	1-10		Thermographic survey not provided
Automatic Transfer Switches	1-10		Thermographic survey not provided
UPS Systems	2,3,5,7-10		Thermographic survey not provided
Lighting Fixtures	7-11		No record of light levels being verified
Emergency Lighting Fixtures	7-10		
Security System	4,6-8,10		Test sheet provided with no testing completed. No functional performance confirmed.
Power Factor Correction System	6-8,10		No functional performance report
Power Meters system	6-8,10		
Lighting Controls	1-11		
Variable Frequency Drives	1,4-10	S&P to provide start-up reports & training.	
Note	Action	Responsible Party	
1	ICA to review system/shop drawings as part of LEED Best Practice Commissioning	CDML	
2	Contractor to provide short circuit analysis, coordination survey, distribution harmonic analysis test results, and ground grid testing results to ICA for review.	Concept Group	
3	Contractor to provide thermographic survey report to ICA for review (Refer to 26 08 00).	Concept Group	
4	ICA to provide spot checks for functional performance of system	CDML	
5	Designer to provide responses for any comments by the ICA.	WSP	
6	Complete installation verification and functional performance report approved by the Engineer of record to be provided to the ICA and MCS/PNHR for review within 2 weeks of completion (Refer to Specification section 26 08 00 for testing requirements).	GCJV	
7	Contractor to ensure that completed O&M requirements have been included in the project O&M manual. Manual to be provided to ICA for review	Concept Group	
8	Contractor to coordinate owner training for system. Contractor and owner’s representative to provide training.	Concept Group CDML	
9	ICA to witness owner training.	CDML	

BREAKDOWN OF RESPONSIBILITIES FOR EACH COMMISSIONED SYSTEM			AuditTesting Notes
10	Engineer of record to review and approve	WSP	
11	Lighting Levels verified by Lighting Controls contractor and Engineer of Record	Concept Group	No record of light levels being verified
IMIT Systems:			
Commissioned System	Applicable Notes	Comments	
Structured Cabling	1-6	Includes the Analog Backbone Test, Network Data Drop Test Procedure, Telephone Test Procedure & Fiber Backbone.	
Integration Engine	1-6	Referenced in the applicable system Site Acceptance Test (SAT) documentation	No IMIT component to GIT
Distributed Antenna System (DAS)	1-6		
Wireless Access Points (WAP)	1-6		
Telephone System	1-6		
Public Address System (Fire Alarm Speakers)	1-6	Refer to Fire Alarm Test procedures	
Client Entertainment/ Education System	1-6		
Access Control/Facility Monitoring System	1-6	Refer to Interlocks & Door Test Procedures and Add Ranges Test Procedures	
Intercom System	1-6		
Graphical User Interface	1-6	Nodes Test Procedures and Screen Navigation Test Procedures	
Intrusion Detection and Perimeter Security	1-6		
Closed Circuit Television Monitoring System	1-6	Refer to Camera Test procedures	
Personal Assistance/Alarm (Vocera System)	1-7	Referenced in the applicable system Site Acceptance Test (SAT) documentation	
Resident Elopement System (RTLS)	1-7		Process is ongoing
Fire Alarm Interface	1-6		
Note	Action	Responsible Party	
1	ICA to conduct functional testing of a sample of installed equipment	CDML	No record of ICA performing any
2	ICA to perform specific scenario testing to verify proper operation and interaction with other systems. ICA to provide sequence of operation for scenarios to be tested.	CDML	No record of ICA performing any testing No approval of integrated tests Integrated test results that are provided are not legible
3	Contractor/Vendor to provide detailed training for the system	Delco Automation	
4	Contractor to provide detailed O&M manual for equipment	Delco Automation	
5	Engineer of record to review and approve	WSP	
6	Complete installation verification and functional performance report approved by the Engineer of record to be provided to the ICA and MCS/PNHR for review within 2 weeks of completion (Refer to Specification section 26 08 00 for testing requirements).	GCJV	

BREAKDOWN OF RESPONSIBILITIES FOR EACH COMMISSIONED SYSTEM

AuditTesting Notes	
7	Produce heat map for WAP as per Schedule 3 Section 7.8.16.1(5)(d) of the PA
Delco Automation	

10 - Operational readiness

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 12.2	<p>Project Co will be knowledgeable on the proper use and maintenance of all equipment and systems Project Co installs in the Facility, including all equipment and systems described in the Design and Construction Specifications and any other communication systems, and will provide sufficient training and education to the Authority staff to enable the Authority to properly utilize such equipment and systems, including any training and education with respect to Equipment required under Appendix 2D [Equipment and Furniture] or the Design and Construction Specifications. The Authority will identify the relevant Authority staff and make such staff available for training at reasonable times before the Service Commencement Date. All training will be completed before the Service Commencement Date unless agreed by the Authority, acting reasonably. Project Co will not be responsible for any delay resulting from the Authority's staff failing to attend training sessions at the times agreed for such sessions by the Authority provided that Project Co will make reasonable efforts to reschedule any such training sessions.</p> <p>Training may be after Service Commencement if required by the Authority, or at the request of Project Co with the consent of the Authority, acting reasonably.</p>	Training records	Provided training	An appropriate level of training appears to have been completed prior to Service Commencement. Training of incomplete systems such as the RTLS are ongoing.	Pass
Schedule 4 - 1.2	(a) Not more than six months after the Effective Date, the Authority and Project Co will establish, and will maintain throughout the Operating Period, a joint liaison committee (the "Operating Period Joint Committee"):	Various submittals	Submittal Schedule	OPJC was established 6 months after the Effective Date.	Pass
Schedule 4 - 3.1	(a) a report for the Facility, in substantially the form as the model plan attached as Appendix 4E ("Life Cycle Schedule") that sets out the design or anticipated service life of major elements in the Facility and the initial Project Co plans and strategies for Life Cycle replacement and/or refurbishment relating thereto, to be used as a basis for the Facility Life Cycle Plan; and	Life Cycle Schedule	Submit document	This process appears to have been adhered.	Pass
Schedule 4 - 3.1	(b) a Start-up Plan incorporating the following: (1) a schedule identifying the tasks to be completed prior to the Service Commencement Date and the targeted completion dates of such tasks such that Project Co will be in a position to commence delivery of the Services for the Facility upon Service Commencement;	Start-up Plan	Submit document	This process appears to have been adhered.	Pass
Schedule 4 - 3.1	(2) the Annual Service Plan for the first 12 months of the Operating Period	Annual Service Plan	Submit document	This process appears to have been adhered.	Pass
Schedule 4 - 3.1	(3) a preliminary Five Year Maintenance Plan;	Preliminary five year maintenance plan	Submit document	This process appears to have been adhered.	Pass

10 - Operational readiness

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 4 - 3.1	(5) a detailed description of all elements of the Performance Monitoring Program and how such program will be implemented at the Service Commencement Date; and	PMR	Submit document	This process appears to have been adhered.	Pass
Schedule 4 - 3.1	(6) a preliminary Quality Management Plan that indicates how Project Co will establish and implement the QMS and monitor and measure its Services activities commencing on the Service Commencement Date,	Service Period Quality Management Plan	Submit document	This process appears to have been adhered.	Pass

11 - Service
Commencement

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 13.1	Prior to and as a condition of issuance of a Certificate of Service Commencement, Project Co will, in cooperation with the Authority’s Design and Construction Representative and the Independent Certifier, prepare a complete list of Defects that are apparent upon inspection of the Facility at that time (the “Deficiencies”) and deliver to the Authority’s Design and Construction Representative the list of Deficiencies. Subject to the right of Project Co to refer matters to the Dispute Resolution Procedure as set out below, the list of Deficiencies will include all items required by the Authority to be included on such list.	Service Commencement Certificate	Created list of deficiencies	List of deficiencies provided at Service Commencement.	Pass
Schedule 2 - 13.2	Project Co acknowledges that the Independent Certifier will need sufficient time to complete any inspections, consult with the Authority, and consider the list of Deficiencies, and accordingly Project Co will: (a) at least 30 days (but no more than 60 days) before the Target Service Commencement Date, deliver to the Independent Certifier and the Authority’s Design and Construction Representative a notice setting out: (1) a description of all outstanding Design and Construction to be completed by Project Co prior to Service Commencement; and (2) a list of all Defects that Project Co is aware of at the time of the notice; and (b) assist the Independent Certifier to make any advance inspections requested by the Independent Certifier	Service Commencement Certificate	Created list of deficiencies	List of deficiencies provided in advance of Service Commencement.	Pass

11 - Service
Commencement

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 13.3	<p>If Project Co believes it has achieved the requirements for Service Commencement and complied with Section 13.2 then Project Co may apply to the Independent Certifier (with a copy to the Authority’s Design and Construction Representative) for a Certificate of Service Commencement. No later than 5 Business Days after application by Project Co for a Certificate of Service Commencement, as the case may be, the parties will require the Independent Certifier to, in cooperation with Project Co’s Design and Construction Representative and the Authority’s Design and Construction Representative, make an inspection of the Facility, review the basis for Project Co’s application for Service Commencement, and then within a further 5 Business Days:</p> <p>(a) if Service Commencement has been achieved, issue a certificate indicating that Service Commencement has been achieved (a “Certificate of Service Commencement”), together with comments on the list of Deficiencies (if any) and attaching a copy of the list of Deficiencies; or</p> <p>(b) if Service Commencement has not been achieved, provide Project Co and the Authority’s Design and Construction Representative with a list of all incomplete Design and Construction that must be completed prior to Service Commencement.</p> <p>A Certificate of Service Commencement issued by the Independent Certifier will be final and not referable to the Dispute Resolution Procedure or otherwise subject to dispute between the parties.</p>	Service Commencement Certificate	Manage Service Commencement process	This process appears to have been adhered.	Pass

11 - Service
Commencement

Clause	Requirement	Document(s)	Process Implemented	Analysis	Pass / Fail
Schedule 2 - 13.5	Upon issuance of a Certificate of Service Commencement, Project Co will proceed expeditiously to correct each of the Deficiencies by the date that is 30 days after the Service Commencement Date, or such later date as may be reasonably required to provide sufficient time to correct the Deficiencies and that is agreed by the Authority, acting reasonably (each of the Deficiencies having its own “Deficiency Deadline”). Each of the Deficiencies which has not been fully corrected by its Deficiency Deadline will be deemed (without the requirement for any further action by the Authority) to have generated a Demand Maintenance request on that day and thereafter the applicable provisions of this Agreement, including applicable Rectification Periods and Deductions, will apply to each such deemed request. Nothing in this Section 13 limits Project Co’s responsibilities for correction of Defects that are identified after the preparation of the list of Deficiencies.	Service Commencement Certificate	Created list of deficiencies	This process appears to have been adhered.	Pass
Schedule 1 - Service Commencement item (b)	an occupancy permit has been issued for the Facility or the City has issued a temporary occupancy permit or other written permission that is sufficient for occupancy of the Facility by the Authority for the Authority Activities	Closeout matrix August 28, 2020		While an occupancy permit was provided, there is an omission with no documented fire alarm verification conducted prior to Service Commencement. It is believed the sprinkler system letter was mistakenly accepted in place of the fire alarm system verification report.	Fail, fire alarm verification not completed prior to Service Commencement.
Schedule 1 - Service Commencement item (c)	Project Co has delivered to the Authority a report from the commissioning agent retained by Project Co under Section 12.1 of Schedule 2 [Design and Construction Protocols] confirming completion of all commissioning activities scheduled in the Commissioning Plan to be completed before Service Commencement;	Closeout matrix August 28, 2020		All activities were not complete. The CxA letter and preliminary report do not appear to meet this requirement.	Fail, incomplete commissioning at Service Commencement
Schedule 1 - Service Commencement item (d)	Project Co has completed the training of Authority staff as required by Section 12.2 of Schedule 2 [Design and Construction Protocols];	Closeout matrix August 28, 2020		Notes some training was outstanding as of this date	Pass

12 - RTLS

Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.20	Real Time Location System (RTLS)					
7.8.20.1(1)	In consultation with the Authority, design and install a complete RTLS solution for the Facility and Site that includes the following applications and systems:	Yes			April 4, 2017 FRD minutes item RTLS1.20 notes agreement to delete this clause. No formal change has been approved. PA Tracker notes <i>"Delete requirement RTLS integration with electronic health record and healthcare information system."</i>	Minute wording is not complete, this clause should not be deleted, only the sub clauses (d) and (e).
7.8.20.1(1)(d)	staff to Client interactions with automatic association to the eHR;	Yes			April 4, 2017 FRD minutes item RTLS1.20 notes agreement to delete this clause. No formal change has been approved. PA Tracker notes <i>"Delete requirement RTLS integration with electronic health record and healthcare information system."</i>	Formally remove clause from the Project Agreement if requirement still not desired by the Authority.
7.8.20.1(1)(e)	Client to medical device interactions with automatic associations to the eHR;	Yes			April 4, 2017 FRD minutes item RTLS1.20 notes agreement to delete this clause. No formal change has been approved. PA Tracker notes <i>"Delete requirement RTLS integration with electronic health record and healthcare information system."</i>	Formally remove clause from the Project Agreement if requirement still not desired by the Authority.
7.8.20.1(1)(i)	staff presence within an Client room with automatic association to the nurse call system;	Yes				Confirm if clause is still required with change to Nurse Call system.
7.8.20.1(1)(j)	Provide an interface between the video surveillance system and the fire alarm system such that when a fire alert or fire alarm is activated, the video surveillance cameras in the vicinity of the fire alarm or alert will automatically be displayed in the Operations Security Centre.	Yes	None	None	No test procedure found to verify this requirement.	Add scenario to commissioning process.
7.8.20.1(3)	Project Co will consult with the Authority to ensure that departmental tracking/dashboard displays in each department listed above are capable of displaying real-time location mapping of RTLS-tagged staff, Client and equipment.	Yes			FRD 3.4.1 <i>"Users will be able to access their associated departmental monitoring and reporting interface through the RTLS web portal from any workstation on the Authority network and sign on automatically with their current Active Directory credentials."</i>	Add scenario to commissioning process. Change Project Agreement clause to agreed functionality.

12 - RTLS

Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.20.1(4)	Provide for staff work flow analysis to enable time-in-room tracking for staff and compliance with room/fire exit checks according to a frequency established by the Authority, including the appropriate PC based software to view information and create alerts and reports.	Yes			FRD 3.4.3.2 "To complete a security round, a staff member must take the designated tag and check a room or area by entering that room/area (RTLS zone) and waiting for the security check-in to occur (5-10 seconds). A security check must be completed for each area every several hours. The time interval between required checks is specific to each room/area. In some cases, a grace period is added to the time interval to minimize nuisance alarms. Once the 'Alarm Interval' as elapsed without a check-in, the alarm will be annunciated. For example, each client room must be checked every 24 hours (Check Interval) and the Alarm Interval is 32 hours. If a room/area is not checked within the designated Alarm Interval, an alarm will be annunciated on the touchscreens in the alarm banner only (No graphical icon) indicating a 'Security Check Not Completed in Room', where 'Room' will be replaced with the	Add scenario to commissioning process. Change Project Agreement clause if revised functionality is approved.
7.8.20.1(5)	The RTLS system will have the capability to allow the Hospital Information system (HIS) to report from the RTLS system and pull data from the RTLS system for the purposes of reporting and analytics for items such as workflow optimization and time-in-use tracking. All data points within the RTLS system will be available for HIS access.	Yes			FRD 3.4.1 "The RTLS hosts a web service API that makes available the data for all tags and their location. The HIS, via the message broker, can access the data points in the RTLS system for reporting and analytics. This system capability can be leveraged by the Authority as required."	Add scenario to commissioning process. Change Project Agreement clause to agreed functionality.
7.8.20.1(6)	All data points within the RTLS system will be capable of being retained for the purposes of reporting for a minimum 30 days	Yes	None	None	No test procedure found to verify this requirement.	Verify requirement as part of commissioning process.
7.8.20.1(7)	The RTLS equipment and asset location system will provide for asset utilisation, preventative maintenance and provide custom reports for such.	Yes	None	None	No test procedure found to verify this requirement.	Verify requirement as part of commissioning process.

12 - RTLS

Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.20.1(11)	Test all aspects of the RTLS network and provide heat maps for the Facility indicating the channel coverage, signal level, data rate and noise floor for the wireless network.	Yes	Passive 5Ghz Wireless Survey Report - July 24, 2018	Performed a passive wireless survey	Survey appears to have been completed to confirm requirement.	Authority IT representative to confirm if documentation is acceptable to confirm requirement.
7.8.20.1(12)	The RTLS system will provide 100% coverage throughout the Facility including elevator cabs, mechanical spaces, service areas, facility exterior, stairwells, parking lots and outdoor courtyards.	Yes	Passive 5Ghz Wireless Survey Report - July 24, 2018	Performed a passive wireless survey	Survey appears to have been completed to confirm requirement.	Authority IT representative to confirm if documentation is acceptable to confirm requirement.
7.8.20.2(2)	Tags must have a minimum of 12 months of battery life in a typical usage scenario.	Yes	None	None	Battery life is noted as a challenge with revised system.	Revise Project Agreement if requirement change is accepted by the Authority.
7.8.20.3(1)(a)	tracking of Client, staff and equipment locations in all areas within the Facility to floor and room level;	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	Accuracy Test Pass – Within 10 seconds of the Tag activation (pull), the badge updates the location to the expected room and/or zone. Outside of the expected room shall be noted in the test results.	SAT notes accuracy to with room or adjacent room, which appears to align with the contemplated change.	SAT appears to include all rooms within the main facility. Other clauses have more requirements for accuracy and locations.
7.8.20.3(1)(b)	all entry/exit locations to the Facility and each Department must have an RTLS array capable of determining direction of travel and be interfaced with the corresponding access control system such that a 'lock- down' of a door based on 'tag' credentials will be initiated automatically;	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	<p>Action: Ensure unit sally-port door is "maintained unlocked" and closed. Using a designated tag, approach the unit sally port.</p> <p>Observation:</p> <ul style="list-style-type: none">• Interior unit sally-port door is locked <p>Action: Stand outside of unit or building.</p> <p>Observation:</p> <ul style="list-style-type: none">• Alarm is annunciated to IPFusion Workstations. Alarm is then handled as described in the FRD. In order to reset the alarm, the patient tag must be back in the unit by the Nurse's desk	<p>FRD 3.4.2.1 The RTLS will be integrated with Access Control such that if an unauthorized tag enters a door lockdown zone the door(s) will be locked thereby not allowing clients through the door. Door lockdown functionality to be implemented on 6 units including three 12 bed Non-Secure (WRVA, WRVB, WRVC), two 24 bed non secure (WPVA, WPVB), and the secure 30 bed (ERVA). When a client approaches the Unit sally port the system will attempt to lock the doors. Staff can unlock/override door with access control cards or touchscreen control. Note that sometimes the doors would be held open and would not be able to be closed/secured.</p> <p><i>In the case where doors do not lock in time (held open, tail gating, speed) an alarm will be triggered if the client tag reaches the corridor zone. This alarm will also cause a message to be sent to the unit staff group in Vocera. The door lockdown zones and associated doors are detailed in Appendix F – RTLS Lock Down Zones and Doors "</i></p>	<p>The Project Agreement and the FRD do not indicate the acceptable proximity.</p> <p>Confirm requirement is acceptable to the Authority.</p>

12 - RTLS

Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.20.3(1)(c)	Client tags must be non-line of sight and must work when covered with bed sheets and shirt sleeves;	Yes				Include the following in commissioning: Test the various tag types in typical scenarios where they will be covered.
7.8.20.3(1)(d)	the RTLS system will provide absolute detection of tags within elevator cabs. Provide additional exciters in each elevator cab to ensure adequate accuracy	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	Accuracy Test Pass – Within 10 seconds of the Tag activation (pull), the badge updates the location to the expected room and/or zone. Outside of the expected room shall be noted in the test results.	SAT notes accuracy to with room or adjacent room and included elevators on each floor.	Requirement appears to have been commissioned.
7.8.20.3(1)(e)	alerting and reporting based on Client location, Client proximity to location, Client duration in location and Client proximity to other tagged items or persons;	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	Accuracy Test Pass – Within 10 seconds of the Tag activation (pull), the badge updates the location to the expected room and/or zone. Outside of the expected room shall be noted in the test results.	SAT notes accuracy to with room or adjacent room. This clause may be revision based on other contemplated changes.	Authority to confirm if functionality is required. If required, include the following in commissioning: Verify proximity and location reporting.
7.8.20.3(1)(f)	each treatment/procedural area and Client room will be capable of associating a RTLS tagged medical device with a Client via the HIS when the device is brought to within 1.5m of an Client bed location;	Yes	None	None	April 4, 2017 FRD minutes item RTLS1.20 notes agreement to delete this clause, and HIS integration was removed in Change Certificate #13. PA Tracker notes the following description <i>"Replace the 1.5m and 3.0m density requirement with room level accuracy for small rooms and zone level accuracy for larger rooms (2-3 zones) for functionality and integration capabilities of the RTLS."</i> PA Tracker notes <i>"Delete requirement RTLS integration with electronic health record and healthcare information system."</i> <i>No formal change to the Project Agreement has been approved.</i>	Formally remove or revise clause from the Project Agreement if requirement still not desired by the Authority.

12 - RTLS

Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.20.3(1)(g)	each treatment/procedural area and Client room will be capable of associating a RTLS tagged staff member with a Client the HIS when the staff member is within 1.5m of an Client bed location;	Yes	None	None	<p>April 4, 2017 FRD minutes item RTLS1.20 notes agreement to delete this clause, and HIS integration was removed in Change Certificate #13. PA Tracker notes the following description <i>"Replace the 1.5m and 3.0m density requirement with room level accuracy for small rooms and zone level accuracy for larger rooms (2-3 zones) for functionality and integration capabilities of the RTLS."</i></p> <p>PA Tracker notes <i>"Delete requirement RTLS integration with electronic health record and healthcare information system."</i></p> <p><i>No formal change to the Project Agreement has been approved.</i></p>	Formally remove or revise clause from the Project Agreement if requirement still not desired by the Authority.
7.8.20.3(1)(h)	each treatment/procedural area and Client room will be capable of signaling to HIS that a RTLS tagged staff member is present within a treatment/procedural area or Client room;	Yes	None	None	<p>April 4, 2017 FRD minutes item RTLS1.20 notes agreement to delete this clause, and HIS integration was removed in Change Certificate #13.</p> <p>PA Tracker notes "Delete requirement RTLS integration with electronic health record and healthcare information system."</p> <p>No formal change to the Project Agreement has been approved.</p>	Formally remove clause from the Project Agreement if requirement still not desired by the Authority.
7.8.20.3(1)(i)	the RTLS will interface with the HIS and the nurse call system, and this interface will support the 'staff presence' functionality of the nurse call system and will provide automatic call acknowledgement when an RTLS tagged staff member is within 2 meters of the Client in treatment/procedural area or Client room;	Yes	None	None	<p>Is this still required with HIS integration deletion as per Change Certificate #13 and other contemplated changes?</p>	Authority to confirm if functionality is required. If required, include the following in commissioning: Verify proximity accuracy.

12 - RTLS

Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.20.3(1)(j)	identifying equipment and asset location, Client location, staff location, and staff duress location within the Facility by floor, within a 3 m x 3 m or smaller area;	Yes	None	None	PA Tracker notes the following description <i>"Replace the 1.5m and 3.0m density requirement with room level accuracy for small rooms and zone level accuracy for larger rooms (2-3 zones) for functionality and integration capabilities of the RTLS."</i> No formal change to the Project Agreement has been approved.	Formally revise clause in the Project Agreement if requirement still not desired by the Authority.
7.8.20.3(1)(k)	reporting on tag and RTLS infrastructure health and availability;	Yes	None	None	No test procedure found to verify this requirement.	Include the following in commissioning: Verify reporting functionality for all tag types.
7.8.20.3(1)(l)	reporting on tag movement and tag location relative to other tag locations;	Yes	None	None	No test procedure found to verify this requirement.	Include the following in commissioning: Verify reporting functionality for all tag types.
7.8.20.3(1)(m)	reporting on tag button press and alerting based on button press;	Yes	None	None	No test procedure found to verify this requirement.	Include the following in commissioning: Verify reporting functionality for all tag types.
7.8.20.3(1)(n)	reporting on compliance to security rounds throughout the Facility and Site	Yes			See 7.8.20.1(4)	
7.8.20.3(1)(q)	tags must be resistant to tampering and will immediately alarm if the tag is cut, damaged or modified or removed from the Client or equipment without authorisation;	Yes	None	None	No test procedure found to verify this requirement.	Include the following in commissioning: Verify functionality for all tag types.
7.8.20.3(1)(t)	integrate with HIS systems, using HIS system's interfacing to import/export Client information and location information; and	Yes			April 4, 2017 FRD minutes item RTLS1.20 notes agreement to delete this clause, and HIS integration was removed in Change Certificate #13. No formal change to the Project Agreement has been approved.	Formally remove clause from the Project Agreement if requirement still not desired by the Authority.
7.8.20.3(1)(u)	integrate with the Client entertainment/education system for the purposes of displaying clinician information on the display based upon staff presence within a Client room.	Yes			April 4, 2017 FRD minutes item RTLS1.21 notes agreement to delete this clause. PA Tracker notes <i>"Delete requirement for RTLS integration with the Client Entertainment/ Education system."</i> No formal change has been approved.	Formally remove clause from the Project Agreement if requirement still not desired by the Authority.
7.8.20.3(3)	Design the RTLS to be Facility-wide including all buildings and courtyards with no 'Dead-Zones'.	Yes	Passive 5Ghz Wireless Survey Report - July 24, 2018	Performed a passive wireless survey	Survey appears to have been completed to confirm requirement.	Authority IT representative to confirm if documentation is acceptable to confirm requirement.
7.8.20.3(4)	Design and provide RTLS System that includes 25% growth after system commissioning has been completed.	Yes	None	None	No test procedure found to verify this requirement.	Include the following in commissioning: Verify growth capacity.
7.8.21	Equipment and Asset Tracking					

12 - RTLS

Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.21.2(1)	The equipment and asset tracking system will be capable of locating and tracking a particular piece of equipment anywhere within the Facility and Site.	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	Accuracy Test Pass – Within 10 seconds of the Tag activation (pull), the badge updates the location to the expected room and/or zone. Outside of the expected room shall be noted in the test results.	SAT notes numerous locations within the facility. It appears thorough for the main facility, however it does not appear to include all other facilities and site locations.	Include the following in commissioning: Verify all locations.
7.8.21.2(2)(b)	are capable of displaying real-time location mapping of RTLS-tagged staff and equipment.	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	Speed Test Pass – Within 10 seconds of the Tag activation (pull), the badge updates location to the workstation screen.	Ten seconds does not appear to be a reasonable processing time for the duress alert. This test is not adequate to verify the functionality of the PA requirement.	Include the following in commissioning: Initiate real time location change of state and observe an immediate notification (within 1 second).
7.8.21.2(4)(a)	facilitates each treatment/procedural area and Client room to be capable of associating a RTLS tagged medical device with a Client via the HIS when the device is brought to within 1.5m of an Client bed location;	Yes			<p>April 4, 2017 FRD minutes item RTLS1.20 notes agreement to delete this clause, and HIS integration was removed in Change Certificate #13. PA Tracker notes the following description <i>"Replace the 1.5m and 3.0m density requirement with room level accuracy for small rooms and zone level accuracy for larger rooms (2-3 zones) for functionality and integration capabilities of the RTLS."</i></p> <p>PA Tracker notes <i>"Delete requirement RTLS integration with electronic health record and healthcare information system."</i></p> <p>No formal change to the Project Agreement has been approved.</p>	Formally remove or revise clause from the Project Agreement if requirement still not desired by the Authority.

12 - RTLS

Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.21.2(4)(b)	has the capacity to send an alarm signal if a particular piece of equipment or a Client pass through a door that leads to the exterior of the Facility;	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	Action: Ensure unit sally-port door is “maintained unlocked” and closed. Using a designated tag, approach the unit sally port. Observation: • Interior unit sally-port door is locked Action: Stand outside of unit or building. Observation: • Alarm is annunciated to IPFusion Workstations. Alarm is then handled as described in the FRD. In order to reset the alarm, the patient tag must be back in the unit by the Nurse’s desk	Key word is 'pass through'. FRD 3.4.3.1 <i>"RTLS tagged Client leaving the facility: Anytime a RTLS tagged client leaves the building through an exit, an alarm will be annunciated to OSC/BOSC identifying the client and location."</i> <i>This test is for the approach, not particular tags exiting the facility.</i>	Include the following in commissioning: Simulate tag passing through all exterior doors (or allowable zones for restricted tags) and observe the alarm.
7.8.21.2(4)(c)	provides alerting for RTLS tagged equipment and asset location based on: (c).1 location within the Facility; (c).2 movement within the Facility; (c).3 quantity of devices or lack thereof within a given location/area in the Facility (for example a low number of wheelchairs or a large number of infusion pumps requiring cleaning); (c).4 status of a tag (low battery, tag removal, tamper, failure); and (c).5 activation of a tag push button.	Yes			April 4, 2017 FRD minutes item RTLS1.22 notes agreement to delete this clause. PA Tracker notes <i>"Remove requirement for RTLS to track par alarms."</i> No formal change has been approved. FRD 3.4.3.1 notes tag status alarms low battery, tag offline/failure, and staff duress alarms	Formally remove clause from the Project Agreement if requirement still not desired by the Authority.
7.8.21.2(4)(d)	upon the initiation of an alert the system will identify the location of the event and the particular piece of equipment;	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	Speed Test Pass – Within 10 seconds of the Tag activation (pull), the badge updates location to the workstation screen.	Ten seconds does not appear to be a reasonable processing time for the duress alert. This test is not adequate to verify the functionality of the PA requirement, that is also supported by section 3.5.1 of the FRD which requires <i>"... by pulling their staff safety switch on the RTLS tag, the alarm will immediately be annunciated at OSC/BOSC..."</i> .	Include the following in commissioning: Initiate alert and observe an immediate notification (within 1 second).

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.21.2(4)(e)	includes, at all entry/exit locations to the Facility and at each Department, an RTLS array that is capable of determining direction of travel and will be interfaced with the corresponding access control system such that a 'lock-down' of a door based on 'tag' credentials will be initiated automatically;	Yes			April 4, 2017 FRD minutes item RTLS1.16 notes agreement to delete this clause. No formal change has been approved.	Formally remove clause from the Project Agreement if requirement still not desired by the Authority.
7.8.21.2(4)(f)	annunciates on the Nurse Station; and	Yes				Verify as part of commissioning process.
7.8.21.2(4)(g)	interfaces with the video surveillance system such that when RTLS-tagged equipment exits through a department or Main Building perimeter door, all local video surveillance cameras associated with the door are displayed at the Nurse Station and the Operations Security Centre. Equipment and asset tracking tags will have a push button for request for service functionality.	Yes			April 4, 2017 FRD minutes item RTLS1.18 notes agreement to delete this clause. No formal change has been approved. PA Tracker notes "Delete requirement for automatic video switching for RTLS tagged equipment."	Formally remove clause from the Project Agreement if requirement still not desired by the Authority.
7.8.22	Client Tracking / Wandering					
7.8.22.2(1)	The Client tracking / wandering system will be capable of locating and tracking a Client anywhere within the Facility.	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	Accuracy Test Pass – Within 10 seconds of the Tag activation (pull), the badge updates the location to the expected room and/or zone. Outside of the expected room shall be noted in the test results.	SAT notes numerous locations within the facility. It appears thorough for the main facility, however it does not appear to include all other facilities and site locations.	Include the following in commissioning: Verify all locations.
7.8.22.2(5)(a)	performs alerting and reporting based on Client location, Client proximity to location, Client duration in location and Client proximity to other tagged items or persons;	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	Accuracy Test Pass – Within 10 seconds of the Tag activation (pull), the badge updates the location to the expected room and/or zone. Outside of the expected room shall be noted in the test results.	SAT notes accuracy to with room or adjacent room. This clause may be revision based on other contemplated changes.	Authority to confirm if functionality is required. If required, include the following in commissioning: Verify proximity and location reporting.

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.22.2(5)(b)	provides association of an RTLS tagged medical device with a tagged Client via the HIS when the device is brought to within 1.5m of an Client bed location;	Yes			<p>April 4, 2017 FRD minutes item RTLS1.20 notes agreement to delete this clause, and HIS integration was removed in Change Certificate #13. PA Tracker notes the following description <i>"Replace the 1.5m and 3.0m density requirement with room level accuracy for small rooms and zone level accuracy for larger rooms (2-3 zones) for functionality and integration capabilities of the RTLS."</i></p> <p>PA Tracker notes <i>"Delete requirement RTLS integration with electronic health record and healthcare information system."</i></p> <p>No formal change to the Project Agreement has been approved.</p>	Formally remove or revise clause from the Project Agreement if requirement still not desired by the Authority.
7.8.22.2(5)(c)	has the capacity to send an alarm signal if a particular piece of equipment or a Client pass through a door that leads to the exterior of the Facility;	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	<p>Action: Ensure unit sally-port door is “maintained unlocked” and closed. Using a designated tag, approach the unit sally port.</p> <p>Observation:</p> <ul style="list-style-type: none">• Interior unit sally-port door is locked <p>Action: Stand outside of unit or building.</p> <p>Observation:</p> <ul style="list-style-type: none">• Alarm is annunciated to IPFusion Workstations. Alarm is then handled as described in the FRD. In order to reset the alarm, the patient tag must be back in the unit by the Nurse’s desk	<p>Key word is 'pass through'. FRD 3.4.3.1 <i>"RTLS tagged Client leaving the facility: Anytime a RTLS tagged client leaves the building through an exit, an alarm will be annunciated to OSC/BOSC identifying the client and location."</i></p> <p><i>This test is for the approach, not particular tags exiting the facility.</i></p>	Include the following in commissioning: Simulate tag passing through all exterior doors (or allowable zones for restricted tags) and observe the alarm.
7.8.22.2(5)(d)	provides alerting for RTLS tagged Clients based on: (d).1 location within the Facility; (d).2 movement within the Facility; and (d).3 status of a tag (low battery, tag removal, tamper, failure); and	Yes	None	None	Movement within the facility may require a more definitive statement to support the Security Compliance Rounds functionality.	Include the following in Commissioning: Verify requirement of movement within the facility.

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.22.2(5)(e)	upon the initiation of an alert the system will identify the location of the event and the particular Client and annunciate on the local clinical department and protection services workstation and status boards.	Yes	None	None	No test procedure found to verify this requirement.	Verify alert is identified on all noted boards as part of commissioning process.
7.8.22.2(6)	Each department utilizing the Client tracking system will be provided with a wireless Client tracking tag test device that audibly and visually indicates on a pass / fail basis the functionality and battery life of the Client tracking tag. The testing device will be a closed loop device/station that allows for full functional testing without activating the Facility’s Client tracking alarm system and will provide audit function as required.	Yes	None	None	No test procedure found to verify this requirement.	Include the following in commissioning: Validate each required department has the test device. Confirm functionality of the test device in each department.
7.8.22.2(7)	At all entry/exit locations to the Facility and at each Department, provide an RTLS array that is capable of determining direction of travel and proximity to a secure door. This functionality will be interfaced with the corresponding access control system such that a ‘lock-down’ of a door will be initiated automatically.	Yes			See 7.8.20.3(1)(b)	See 7.8.20.3(1)(b)
7.8.22.2(8)	The Client tracking / wandering system will interface with the video surveillance system such that when an RTLS-tagged Client exits through a Department or Facility perimeter door, all local video surveillance cameras associated with the door are displayed at the local security services workstation, the Operations Security Centre, and a local audible/visual alarm is activated at the point of exit. The event will also be transmitted to the staff communication system.	Yes			<p>April 4, 2017 FRD minutes item RTLS1.18 notes agreement to delete this clause. It is then followed by item RTLS1.19 which notes to revise as follows: 7.8.22.2(8) – “The Client tracking / wandering system will interface with the video surveillance system such that when an RTLS-tagged Client exits through a Department or Facility perimeter door, all local video surveillance cameras associated with the door are displayed at the local security services workstation, the Operations Security Centre, and a local audible/visual alarm is activated at the point of exit. The event will also be transmitted to the staff communication system.”</p> <p>PA Tracker notes "Delete requirement for "a local audible/ visual alarm is activated at the point of exit"</p>	<p>Revise Project Agreement if requirement change is accepted by the Authority.</p> <p>Include the following in commissioning: Verify the agreed upon functionality for each camera zone.</p>

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.22.2(9)	The Client tracking / wandering system will interface with all elevators such that these elevators will not operate when an unaccompanied tagged Client is present in the elevator cab. The elevator inhibit feature will not operate when the Client is accompanied by an authorised companion or staff tag.	Yes			April 4, 2017 FRD minutes item RTLS1.17 notes agreement to delete this clause. No formal change has been approved. Noted in PA Tracker as well.	Formally remove or revise clause from the Project Agreement if requirement still not desired by the Authority.
7.8.25	Nurse Call Systems					
7.8.25.1(1)	The nurse call system will utilize the latest proven technology used in facilities similar to the Facility.	Yes			Change Certificate #6 (DCR #179) changed the requirement as follows. <i>ASCOM system was removed from the non-secure side -retain conduit and raceway for future use. ASCOM system removed from secure side and replace with Harding system with the functionality that was identified by the authority.</i> There is no clear detailing of the "functionality that was identified by the authority." The PA Tracker does not provide additional details for changes to the rest of section 7.8.25.	Confirm what 'functionality that was identified by the Authority' encompasses.
7.8.25.1(2)	The nurse call system in a smart hospital environment is a hub for interfacing technologies and systems. Incorporate in the planning, design and installation the multiple virtual and physical interfaces, and pathways that are required to support an integrated Client centric system. Pathways, interconnections, and interfacing are also required to control of the Client entertainment/education system from the smart bed (where applicable).	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.1(3)	Prior to designing and installing the nurse call system and as required by the Authority, identify the technical capabilities of the nurse call system, hardware interface and integration requirements, system layout, and functionality in consultation with the Authority and the Authority's clinical staff.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.1(4)	Installation of the nurse call system will be to the satisfaction of the Authority including programming, configuration, interfacing, testing and commissioning of the system.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.1(5)	Train Authority staff on the nurse call system, training schedule to be determined in consultation with the Authority.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.25.1(6)	Provide a full feature audio and visual nurse call system with full duplex communications in any and all Client use and Client care areas/rooms/units of the Facility including: private Client room – medical and other locations for code white/panic alarm function.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.1(7)	The nurse call system will be:	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.1(7)(a)	the primary communication device for Clients to contact staff in each clinical use and Client care area; and	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.1(7)(b)	the primary communication device for Authority staff to alert other staff that they need assistance in a clinical use or Client care area.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.2(1)	Comply with all applicable standards, including UL1069, CSA C22.2 and CSA Z32-09.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(1)	In consultation with the Authority, Interface and Integrate the nurse call system with other systems.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(2)	Interface the nurse call system with other systems in a seamless manner to achieve the integrated functional requirements as determined in consultation with the Authority.	Yes			What are the Authority functionality requirements?	Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(3)	The nurse call system will fully interface with the HIS to enable bi-directional communications and transfer of all required data.	Yes			Is this still required with HIS integration deletion as per Change Certificate #13?	Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(5)	Interface the nurse call system with the RTLS and the HIS such that the system is capable of signaling the presence of an individual staff member in a particular room via the dome light, staff console, or status board. Interface the RTLS to the nurse call system to enable automatic nurse call cancellation based on the staff presence within or entering a room.	Yes			Is this still required with HIS integration deletion as per Change Certificate #13?	Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(6)	The nurse call system will provide a full range of software applications as offered by the nurse call vendor’s most current systems intended for use in large mental health facilities. The applications will include system administration and supervision, staff assignment and messaging, staff tracking and presence, workload and workflow management and statistical reporting.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.25.3(7)	The nurse call system will have the capability to allow the HIS to report from the nurse call system and pull data from the nurse call system for the purposes of reporting and analytics for items such as workflow optimization. All data points within the nurse call system will be available for the HIS access.	Yes			Is this still required with HIS integration deletion as per Change Certificate #13?	Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(8)	All data points within the nurse call system will be capable of being retained for the purposes of reporting for a minimum 30 days.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(9)	Provide network separation of the nurse call system as per Section 7.8.6.1(2). Provide all network equipment for the nurse call system and integrate this network, in consultation with the Authority, with other Facility networks.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(10)	Utilize standard Category 6A (or greater based on standard in place at the time of procurement) cabling and connectors for nurse call cabling as applicable.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(11)	Install nurse call terminal cabinets in telecommunication rooms as reviewed by the Authority. All nurse call network horizontal runs to telecommunications rooms (TR) will be terminated in accordance with Appendix 3F(i) [Structured Telecommunications Cabling Systems].	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(12)	The nurse call system will annunciate on the wireless staff communication system (staff communication device, wireless phone devices, PDA's or phones) for near instant alarm response as a secondary alerting system. The nurse call system will operate seamlessly with the wireless staff communication devices and allow two-way VoIP communication into all Client locations.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(13)	The nurse call system will utilize VoIP communications between all major components including staff consoles, Client stations, staff stations and all telephones and staff communication devices.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(14)	At a minimum, provide a staff console in each clinical nursing area including care team stations, care hubs, nurse stations, reception, and administrative.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(15)	Staff consoles will be colour, touch screen, user configurable, allow multiple screens, soft key enabled and hands-free full duplex capability with handset for private conversations.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(16)	Staff consoles will have the capability to redirect all calls to other staff consoles on a manual, automatically scheduled basis, call escalation, or console failure.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(17)	Client stations will be installed at each Client bed location, Client care area, and each Client use area as identified in Section 7.8.25.1(6)	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.25.3(18)	In each private Client room-medical provide the following:	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(18)(a)	one Client station for each bed location; and	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(18)(b)	one bath station with audio and call button capability.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(19)	Client stations will be individually programmable to allow multiple call classification and priority levels. Client stations will be capable of connecting two alarm inputs. Provide the ability to disable any nurse call system input from any staff console.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(20)	Client stations located in psychiatric areas will have a suitable physical barrier or enclosure that enables staff to prohibit access to the Client station by a Client.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(21)	Where smart beds are planned the nurse call Client station will fully interface with the full range of smart bed call and audio functions.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(22)	The nurse call system will provide an interface such that the audio from the Client entertainment/education system will be connected and audible through the smart bed speakers.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(23)	The nurse call system will also provide an interface such that any smart bed is capable of controlling Client lighting at bed head side.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(24)	The nurse call system will not have any cords included as part of the solution; only buttons will be acceptable.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(25)	Provide multi-call classification dome light (minimum 4 LEDs) to annunciate staff presence, or calls in all rooms with nurse call devices. Locate dome lights in a manner that allow Authority staff the best possible view from the outside of the room where the nurse call device is located. Provide zone lights at all corridor intersections to direct and lead staff from anywhere within or outside the unit to the origin of the call.	Yes			Not present during February 2020 site review.	Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.25.3(26)	Provide a code blue system with code blue buttons at locations determined in consultation with the Authority including each area as identified in Section 7.8.25.1(6), all clinical use areas, Client care areas, care team stations, care hubs, nurse stations, reception, administrative areas, Client therapy rooms, Client lounges, and private Client rooms. Provide a code blue system that is interfaced with the following systems: access control, Authority network, staff communication system, radio system, elevator controls, public address system.	Yes			PA Tracker notes <i>"There is no radio system in the Facility."</i>	Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(27)	Provide a code blue system that achieves the following sequence of operation:	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(27)(a)	Upon a Code Blue button activation a priority call signal will be annunciated at the staff console, a pop-up message will also be displayed on all switchboard workstations that will indicate the precise origin of the code blue call.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(27)(b)	Provide dome/zone lights at all corridor intersections elevator lobbies to direct and lead the code blue team from anywhere within or outside the unit to the origin of the code blue call.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(27)(c)	A message will be automatically sent to all unit based staff communication and paging devices as directed and determined by the Authority.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(27)(d)	Upon authentication of the code blue event by the unit clinical staff to the switchboard, a code blue signal will be manually initiated by the switchboard staff. The code blue signal will comprise a coded message on the public address system, and a text message which is sent to the code blue team's staff communication devices, and a pre-recorded message to be sent to the radio system.	Yes			PA Tracker notes <i>"There is no radio system in the Facility."</i>	Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(27)(e)	Switchboard staff will also activate an elevator homing command by way of keyswitch at the switchboard location.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(27)(f)	Switchboard will also activate a pushbutton which confirms to the access control system that the code blue event is genuine. The access control system determines the origin of the code blue call from the nurse call system. The access control system provides the code blue response team with an unrestricted route to the origin of the code blue call.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(27)(g)	Each code blue team member will have the ability to recall any elevator from any elevator lobby by means of an elevator recall keyswitch. The code blue team will assume control of the elevator by means of a code blue keyswitch located inside each elevator cab.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.25.3(27)(h)	Upon cancellation of the code blue call at the Client station all systems will reset and resume normal operation.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(28)	Provide code white system as part of the nurse call system with code white buttons at locations determined in consultation with the Authority including: each area as identified in Section 7.8.25, all clinical use areas, Client care areas, care team stations, care hubs, nurse stations, reception, administrative, Client therapy rooms, Client lounges and private Client rooms. Provide a code white system that is interfaced with the following systems: access control, Authority network, staff communication system, radio system, elevator controls, public address system.	Yes			PA Tracker notes <i>"There is no radio system in the Facility."</i>	Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(29)	Provide adequate staff/duty stations for each nurse call system to ensure that tones are heard throughout each department. Provide the capability to mute at each staff/duty station.	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(30)	Provide all end use devices for 5 additional Client rooms and 1 additional Nurse Station, including:	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(30)(a)	Client stations;	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(30)(b)	washroom stations;	Yes				Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(30)(c)	dome lights;	Yes			Not present during February 2020 site review.	Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(30)(d)	staff stations;	Yes			Not present during February 2020 site review.	Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(30)(e)	duty station.	Yes			Not present during February 2020 site review.	Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.8.25.3(31)	Provide 1 additional station gateway and power switch.	Yes			Not present during February 2020 site review.	Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.8.25.3(32)	Provide the Ascom Telligence System for the nurse call system and ensure the nurse call system will align with the Authority's nurse call solutions at its other facilities.	Yes			DCR #179 changed the requirement as follows. ASCOM system was removed from the non-secure side -retain conduit and raceway for future use. ASCOM system removed from secure side and replace with Harding system with the functionality that was identified by the authority.	Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179).
7.9	Electronic Safety and Security (Division 28)					
7.9.2	Fire Alarm System					
7.9.2.2(11)	Fully integrate the fire alarm system with the sprinkler system, BMS, HVAC system, elevator controls, access control system, nurse call, and emergency generator plant. Provide a Graphic Command Centre (GCC) in the security centre with a duplicate on-line backup located as directed by the Authority. The GCCs will display fire alarm status and event. It will include integrated software to display and operate a fire alarm control panel, fire alarm colour graphics annunciator menuing, the building management system (BMS) for fan control, and an elevator status/control panel. The fire alarm annunciator will include alphanumeric display and graphic representation of the Facility including all zones.	Yes	Tyco Fire Alarm Verification Report dated November 1st, 2018		PA Tracker notes " <i>Remove requirement for integration between the fire system and the nurse call system (nurse call system deleted - refer to DCR 179)</i> ".	All remaining functionality of this clause verified as part of fire alarm system commissioning.
7.9.2.2(12)	Provide functionality to notify and integrate the fire alarm system with the radio system to automatically broadcast voice messages to all security services radios. The voice message will relay the specific alarm message produced by the addressable fire alarm system. Provide all middleware and converters required to interface the radio system with the fire alarm system. Confirm actual programming, priorities, and overrides with the Authority prior to implementation.	Yes			PA Tracker notes " <i>There is no radio system in the Facility.</i> "	Remove PA clause if no longer required.
7.9.2.2(13)	Include exterior speaker broadcast system to provide emergency broadcast coverage for all areas accessible to Facility Users other than when in a vehicle. Include zoning for all call and all other areas determined by the Authority based on the design of the Facility. The system will automatically broadcast messages with specific alarm messages. Provide all middleware and converters to interface the exterior speaker system with the fire alarm system.	Yes	Tyco Fire Alarm Verification Report dated November 1st, 2018			All remaining functionality of this clause verified as part of fire alarm system commissioning.

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.9.2.3(1)(a)	Stage 1: (a).1 Silent stage 1 alarm throughout Facility. (a).2 Audible signal at OSC, BOSC and Nurse Stations. (a).3 Zone alarm on fire alarm graphic displays. (a).4 The OSC will be able to cancel the alarm if investigation reveals false alarm within five minutes. (a).5 Authorized third party (external) agency contracted by the Authority for monitoring of the fire alarm system.	Yes	Tyco Fire Alarm Verification Report dated November 1st, 2018	Various	Full functionality of this clause appears to be verified.	
7.9.2.3(1)(b)	Stage 2: (b).1 A Stage 2 alarm may be initiated by any of the following: (b).1.1 If first stage alarm has not been acknowledged after 5 minutes. (b).1.2 Inserting a key in a key switch at a manual pull station. (b).1.3 Inserting a key in a key switch in a staff workstation. (b).1.4 Initiated from OSC or BOSC. (b).2 For stage 2 alarm, speakers will sound in a temporal pattern at 120 strokes per minute in the alarm zone. (b).3 Speakers will sound at 20 strokes per minute in all other zones. (b).4 If the alarm zone is in a Client wing, trigger an automatic 'Fire Unlock' of all Client room doors in the Client wing. All exit doors will remain locked. (b).5 If the alarm zone is in visiting area, trigger an automatic lock release of all secure visiting booth doors. All exit doors will remain locked.	Yes	Tyco Fire Alarm Verification Report dated November 1st, 2018	Testing isolated to fire alarm panel programming, not the separate requirements noted in this clause.	Full functionality of this clause does not appear to be verified. For example, the test report note "Manual transfer from alert signal (stage 1) to alarm signal (stage 2) operates", but this is a standard test definition and does confirm (b).1.3 & (b).1.4. Clause (b).2 through (b).5 do not appear to be verified.	Include verification of this requirement in the commissioning process.
7.9.2.3(4)	Synchronize the fire alarm system clock with the security systems and the synchronized clock system.	Yes	None	None	No test procedure found to verify this requirement.	Verify as part of commissioning process.
7.9.3	Electronic Security Systems					
7.9.3.1(18)	Ensure that all areas of parking including stairwells are capable of being viewed with PTZ and fixed video surveillance in accordance with Section 7.9.7.2(7)(c). Coverage will be to a level that will allow facial identification.	Yes				Include the following in commissioning: Screenshots proving resolution and coverage.
7.9.4	Access Control					
7.9.4.1(8)	Locking systems will be FAIL SECURE for the Secure Client side of the Facility and FAIL SAFE for the Non- Secure Client side of the Facility as a preference, or as required by code. Integrate the access control and monitoring system with the alarm interface unit and event recorder to provide graphic display of door position status and operating interface for central locking/unlocking of doors.	Yes	None	None	No test procedure found to verify this requirement.	Authority Having Jurisdiction to review compliance to NBC article 3.4.6.16. Include the following in commissioning: Verify fail secure and fail safe requirements under a localized power failure scenario.
7.9.4.1(9)	Design the access control system to permit full control functionality from off-site and on-site workstations.	Yes	None	None	No test procedure found to verify this requirement.	Verify as part of commissioning process.

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.9.4.1(10)	Integrate the access control system with the video surveillance system such that when an alarm is initiated at an access controlled door all local video surveillance cameras associated with the door are displayed at the Operations Security Centre.	Yes	None	None	FRD 3.9.2.2 "When a door icon is selected from a Touchscreen Workstation, it will automatically display the associated cameras on the Selected Asset Video panes. This provides increased efficiency as with a single touch the operator can select the door and call up the cameras to visually verify who is at the door. "	Verify as part of commissioning process.
7.9.4.1(12)	The access control system will integrate with the Client wandering system to prevent unauthorized egress.	Yes			See 7.8.20.3(1)(b)	See 7.8.20.3(1)(b)
7.9.4.2(3)	Ensure all mag lock controlled doors can be manually unsecured by means of a key switch which directly interrupts power to the doormag(s). Provide a key override on each side of the door(s).	Yes	None	None	Which doors have mag locks? Key override on each side of the door was not observed and no commissioning documents have been provided.	Include the verification of this requirement in the commissioning process.
7.9.4.2(5)	Design all IPCRs to require simultaneous operation of a local pushbutton and proximity card to enter the room. A single card reader inside the room will enable egress. Provide each IPCR with a remote release toggle switch and door locked/unlocked indicators at the local nurse station. Clearly label all switches and indicators to indicate their function.	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.4.2(7)	Design all access control panels to have either integral battery backup for 2 hour continual operation and be connected to vital power, or be connected to UPS power. For access controls and door hardware components required on secure doors in the Facility which do not fail secure, provided battery backup for 60 minutes and UPS power. Determination of these battery backed secure doors will be made by the Authority during the design phase.	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.4.2(8)	For all remote power supplies serving access control components and door hardware, provide battery backup for 4 hour continual operation and connection to vital power.	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.4.2(9)	For each access controlled door and its associated electrical door hardware components, including door strikes, door mags and hold open devices, provide individually fused, battery-backed circuits. Ensure that individual power supply units will not serve more than 8 doors, or more than 1 department, or multiple floors of the building, or an area greater than 2000m2.	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.4.2(10)	All doors will have their hardware keyed to provide fail-safe mechanical override of the access control.	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.9.4.2(12)	Project Co will provide a user interface at the Operations Security Centre and Nurse Stations that will provide the following functionality:	Yes				
7.9.4.2(12)(b)	ability to configure and control each door or monitored point,	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.4.2(13)	Integrate the access control system with all codes emergency response procedures to provide unrestricted access through designated code travel routes. Sally Port doors will not automatically lock or unlock.	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.4.2(14)	Provide each access controlled door with the capability to emit an audible tone/alarm signal to annunciate door held open and door forced open. Ensure this tone is adjustable in volume and has a programmable option allowing the tone to be silenced or removed for door functionality as required on access or egress.	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.4.2(16)	Provide access control system capability to lock down departments or other areas in the event of an emergency or per an established schedule on a door by door basis or global command. Determine and program final access control system configuration in consultation with the Authority.	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.4.2(21)	Provide delayed egress operation and alarms at emergency exit doors; alarms to annunciate audibly locally and via the integrated access system. See Appendix 3D(v) [Door Operation Matrix].	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.4.2(22)	Interconnect and interface all electronically controlled doors for remote “lock & unlock” capability through the access control system on a door-by-door or global command basis.	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.4.2(32)	Provide pan/tilt colour video intercom communications between the secure side of main entry doors and reception/care stations in departments and areas that are strictly controlled. Provide momentary remote pushbutton operation to release main entry doors when activated by staff or security staff. Integrate the video intercom system with the access control system as required.	Yes	None	None	FRD 3.9.2.1 " <i>When a door icon is selected from a Touchscreen Workstation, it will automatically connect the associated intercom if there is one. This provides increased efficiency as with a single touch the operator can select the door and open audio channel to speak with whomever is at the door. "</i>	Include the verification of this requirement in the commissioning process.
7.9.4.2(33)	All delayed-egress doors intended for ns and collaboration desk, and at the protection services monitoring stations via the access control system. Design alarms to be silenced through use of a key switch that will be integral to the panic hardware.	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.4.2(34)	Provide integration with the applicable control and reporting capabilities included with the security workstations located in the Operations Security Centre.	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.9.4.2(35)	Provide an additional 25% of end user devices, controllers and licenses.	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.5	Staff Duress system					
7.9.5.1(3)	The staff duress system will provide 100% coverage throughout the Facility including elevator cabs, mechanical spaces, service areas, Facility exterior, stairwells, courtyards and parking lots.	Yes		Various network heat maps.	The available documentation does not appear to indicate 100% coverage of exterior locations.	Authority IT representative to review documentation to confirm 100% coverage is achieved or provide minimum acceptable levels for the heat maps.
7.9.5.2(1)	Design the staff duress system to be capable of locating and tracking a staff member anywhere within the Facility.	Yes			No test procedure found to verify this requirement. Does this require logging of the staff members path of travel?	Include the following in commissioning: Track a staff tag as it moves through a unit.
7.9.5.2(2)	Project Co will consult with the Authority to ensure that departmental tracking/dashboard displays in each Secure Client and Non-Secure Client area of the Facility are capable of displaying real-time location mapping of RTLS-tagged staff.	Yes			Subjective clause.	Authority to confirm they are satisfied with the dashboard displays.
7.9.5.2(3)	Project Co will provide a PC based application that will provide a presentation of staff locations by superimposing positional data on a Facility floor plan and providing staff tag based information.	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	Accuracy Test Pass – Within 10 seconds of the Tag activation (pull), the badge updates the location to the expected room and/or zone. Outside of the expected room shall be noted in the test results.	Section 1.2 of the FRD details facility naming standards.	Include the following in commissioning: Validate that facility floor plan positional data is instantly recognizable to staff (i.e., using identical room numbering and naming conventions)
7.9.5.2(4)(a)	the system will be capable of identifying the staff duress tag location within the Facility by floor, within a 3 m x 3 m or smaller area;	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	Accuracy Test Pass – Within 10 seconds of the Tag activation (pull), the badge updates the location to the expected room and/or zone. Outside of the expected room shall be noted in the test results.	PA Tracker notes the following description "Replace the 1.5m and 3.0m density requirement with room level accuracy for small rooms and zone level accuracy for larger rooms (2-3 zones) for functionality and integration capabilities of the RTLS." No formal change to the Project Agreement has been approved. SAT notes accuracy to with room or adjacent room, which appears to align with the contemplated change.	Include the following in commissioning: Initiate staff duress in all rooms, corridors, and stairwells, as well as ensuring the perimeter of the exterior and all buildings constructed by Project Co. Formally revise clause in the Project Agreement if requirement still not desired by the Authority.

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.9.5.2(4)(b)	the system will alert a duress system tag based on: (b).1 operation of the staff duress pendant pushbutton; or (b).2 status of a tag (low battery, pendant failure);	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	Speed Test Pass – Within 10 seconds of the Tag activation (pull), the badge updates location to the workstation screen.	Ten seconds does not appear to be a reasonable processing time for the duress alert. This test is not adequate to verify the functionality of the PA requirement, that is also supported by section 3.5.1 of the FRD which requires <i>"... by pulling their staff safety switch on the RTLS tag, the alarm will immediately be annunciated at OSC/BOSC..."</i> .	Include the following in commissioning: Initiate staff duress tag and observe an immediate notification (within 1 second).
7.9.5.2(4)(c)	staff duress location tracking must update continuously when activated;	Yes			No test procedure found to verify this requirement. This is also supported by section 3.5.1 of the FRD which requires <i>"... it will automatically update the location of the alarm if the activated staff tag moves between zones."</i>	Include the following in commissioning: After staff duress initiated, have tag move as if running from a situation and confirm the location is being tracked in real time (no delays). If zones are deemed sufficient, this clause should be revised.
7.9.5.2(4)(d)	the system will interface and integrate with the nurse call system such that the system annunciates an alarm from either system in a similar fashion.	Yes			No test procedure found to verify this requirement.	Confirm if this functionality is required by the Authority. Otherwise delete clause in relation to Change Certificate #6 (DCR #179). If required, include the following in commissioning: Observe staff duress alarm at nurse call system.
7.9.5.2(4)(e)	the system will integrate with the radio system to automatically broadcast voice messages to all security services radios. The voice message will indicate individual room location from which the staff duress call was initiated. Provide all middleware and converters required to interface the radio system with the RTLS wireless staff duress system;	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	Vocera Test Pass – Within 10 seconds of the Tag pull, a message is sent to the 'Security' group wireless staff communication badges with correct event information.	Ten seconds does not appear to be a reasonable processing time for the duress alert. This test is not adequate to verify the functionality of the PA requirement, that is also supported by section 3.5.1 of the FRD which requires <i>"At the same time, a message will be automatically sent to the assigned response team for that area so they can immediately begin running to assist the staff in duress"</i> . PA Tracker notes "There is no radio system in the Facility."	Include the following in commissioning: Observe the immediate automated message for each room through activation of the alarm by an staff duress tag.

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.9.5.2(4)(f)	upon the initiation of an alert the system will identify the location of the event and the particular staff member on the local clinical department and security services workstation and status boards.	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	Accuracy Test Pass – Within 10 seconds of the Tag activation (pull), the badge updates the location to the expected room and/or zone. Outside of the expected room shall be noted in the test results.	A small amount of testing should include different staff tags to ensure the staff member identification is correct.	Include the following in commissioning: Observe the location and staff member matching the room and tag that initiated the alert.
7.9.5.2(4)(g)	the system will interface with the video surveillance system such that when an RTLS-tagged staff member activates a staff duress system pendant, all local video surveillance cameras associated with the event are displayed at the Nurse Station and at the Operations Security Centre. The event will also be transmitted to the staff communication system.	Yes	SHNB RTLS & Staff Duress SAT (REV 3) - January 27, 2020	Camera Test Pass – Within 10 seconds of the Tag activation (pull), the video surveillance panes switch to cameras viewing the RTLS zone where the Staff Duress was triggered.	Ten seconds does not appear to be a reasonable processing time for the duress alert.	Include the following in commissioning: Observe the correct cameras are immediately activated at the nurse stations and the OSC, and transmitted to the staff communication system. This should occur for all cameras in the facility.
7.9.5.2(4)(h)	provide a “man-down” feature for the staff duress system.	Yes	April 4, 2017 FRD minutes item RTLS1.2	No verification process found.	Notes agreement to delete this clause. PA Tracker notes <i>"Remove requirement for man-down alarms (RTLS)."</i> No formal change has been approved.	Formally remove clause from the Project Agreement if requirement still not desired by the Authority. If still required, include the following in commissioning: Validate the definition of "man-down" and recreate the situation for each tag type.
7.9.5.2(5)	Provide each department utilizing wireless duress with a wireless duress pendent test device that audibly and visually indicates on a pass / fail basis the functionality and battery life of the duress pendent. The testing device will be a closed loop device/station that allows for full functional testing without activating the Facility's staff duress system and will provide audit function as required.	Yes			No test procedure found to verify this requirement.	Include the following in commissioning: Validate each required department has the test device. Confirm functionality of the test device in each department.
7.9.6	Intrusion Detection and Perimeter Security					
7.9.6.1(1)(b)	Provide a complete and fully functional Perimeter Intrusion Detection System to effectively detect, report and record any perimeter intrusion and to effectively monitor the activities in the following areas: the Secure Perimeter, the Secure Zone, the Threat Perimeter, the Threat Perimeter Zone and the Area of Interest.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.6.1(1)(d)	Provide 24 hours per day /7 days per week video surveillance of all access points to the Facility (pedestrian or vehicle) within the Area of Interest Zone, including all access points and loading zones, Sally Ports in Secure Client areas and Non-Secure Client areas and other structures, including those housing electrical or mechanical equipment, and all areas surrounding such access points, loading zones, building and structures.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.6.2	Performance Criteria	Yes				

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.9.6.2(3)	Control each system with keypad(s) located inside the department or area being protected	Yes			<p>PA Tracker notes "Addition of motion detection devices and/or keypad card readers in lieu of a separate intrusion alarm system. The motion detection devices are added to areas where periods of no occupancy are to be monitored, annunciation of motion goes to the OSC when armed using the card access systems. The keypad card reader require dual layers of authentication after normal operating hours or always in the case of the pharmacy.</p> <p>Pharmacy - keypad card reader & motion detection Cash Office</p> <p>in Admin - keypad card reader</p> <p>Finance Office area - keypad card reader Human</p> <p>Resources Office area - keypad card reader Health Records</p> <p>Storage - keypad card reader & motion detection Stores - motion detection</p> <p>Hazmat Storage - keypad card reader & motion detection Primary</p> <p>Equipment Room - keypad card reader</p> <p>Telecom Equipment Room - keypad card reader"</p>	

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.9.6.2(4)	Local alarm controllers will be integrated with the Authority’s existing intrusion monitoring system which resides in the Operations Security Centre. The intrusion alarms will report to digital receivers via its own phone line through a dedicated telephone line and be backed up over the LAN/WAN.	Yes			PA Tracker notes "Addition of motion detection devices and/or keypad card readers in lieu of a separate intrusion alarm system. The motion detection devices are added to areas where periods of no occupancy are to be monitored, annunciation of motion goes to the OSC when armed using the card access systems. The keypad card reader require dual layers of authentication after normal operating hours or always in the case of the pharmacy. Pharmacy - keypad card reader & motion detection Cash Office in Admin - keypad card reader Finance Office area - keypad card reader Human Resources Office area - keypad card reader Health Records Storage - keypad card reader & motion detection Stores - motion detection Hazmat Storage - keypad card reader & motion detection Primary Equipment Room - keypad card reader Telecom Equipment Room - keypad card reader"	

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.9.6.2(5)	Install intrusion detection systems in all areas where protection of physical assets is critical including:	Yes			PA Tracker notes "Addition of motion detection devices and/or keypad card readers in lieu of a separate intrusion alarm system. The motion detection devices are added to areas where periods of no occupancy are to be monitored, annunciation of motion goes to the OSC when armed using the card access systems. The keypad card reader require dual layers of authentication after normal operating hours or always in the case of the pharmacy. Pharmacy - keypad card reader & motion detection Cash Office in Admin - keypad card reader Finance Office area - keypad card reader Human Resources Office area - keypad card reader Health Records Storage - keypad card reader & motion detection Stores - motion detection Hazmat Storage - keypad card reader & motion detection Primary Equipment Room - keypad card reader Telecom Equipment Room - keypad card reader"	
7.9.6.2(6)	Ensure the intrusion alarm system and all associated alarm panels are compatible and remotely programmable and monitored from Operations Security Centre.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.6.2(7)	Integrate the intrusion alarm system with the radio system to automatically broadcast voice messages to all security services radios. The voice message will indicate the specific department area from which the call was initiated. Provide all middleware and converters required to interface the radio system with the intrusion alarm system.	Yes			PA Tracker notes "There is no radio system in the Facility."	
7.9.6.2(8)(d)	Supplemented with security sensors that will alert security staff in Operation Security Center that someone is moving in proximity to the Threat Perimeter, allowing a security response if required.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.9.6.2(8)(f)	Non-Secure Clients in non-secure areas are allowed freedom of movement outdoors. Provide an Area of Interest Zone perimeter boundary that serves as a visual “marker” for Non-Secure Clients in the non-secure outdoor areas of the Facility. This boundary will be highly permeable so that it does not restrict free movement, but it will be able to be monitored by unobtrusive sensors and cameras to ensure Client safety.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.6.2(8)(g)	Secure Clients on the secure side of the Facility are not allowed freedom of movement on the exterior of the building. These Clients are secured within the building or within secure outdoor activity courtyards. The purpose of the Threat Perimeter is to restrict or limit approaches toward the Main Building from the outside. Therefore, the boundary will be less permeable in order to inhibit ease of approach to the Main Building. This boundary will be monitored with unobtrusive sensors and cameras.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.6.2(8)(h)	The PIDS will report alarms to the Operations Security Centre.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.6.2(8)(j)	The perimeter coverage will be broken into zones. Configure the zones such that a single camera covers an entire zone. No zones will be configured to require two cameras for total coverage. Zone lengths will not exceed 60 meters.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.6.2(8)(k)	Design the PIDS to employ color video surveillance cameras in a video motion detection-based system with integral DVR/NVR capabilities and video services.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.6.2(8)(l)	The system will have integral DVR / NVR recording capabilities. (l).1 The video images from the perimeter security system will be available over the video surveillance system in a manner similar to the cameras required for the video surveillance system.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.6.2(9)	Provide an additional 25% of end-user devices and controllers.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.7	Video Surveillance					
7.9.7.1(3)	Provide video surveillance throughout the Facility, and exterior areas for the purpose of viewing and recording video to enhance the level of security and assist Authority staff in providing a safe environment for Facility Users and the general public while protecting the physical assets. With respect to video surveillance coverage of doors, provide as a minimum, video surveillance in accordance with Appendix 3D(v) [Door Operation Matrix].	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.9.7.1(5)	Ensure the system is able to record clear images of individuals, which would allow distinction of gender, ethnicity and age category. Ensure the system will provide recorded images of sufficient quality to be used as court evidence in Canada.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.7.1(7)	Interface requirements between the video surveillance system and other systems are described in Appendix 3D(viii)[IMIT Systems Integration Matrix].	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.7.1(10)	Provide 100% coverage in all areas in the Facility except as indicated in this Schedule.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.7.2(3)	Provide video storage capacity for minimum of 30 days at 15 frames per second, minimum HD (1920 x 1080p) resolution. Provide the option of recording each camera at various resolution levels and frames per second depending on use and location, as well as by schedule or event. Provide file servers, workstations, and optical storage devices and connection to network. The system will have activity detection and incorporate smart search capabilities. Provide playback speed capable of 5x normal rate. During alarm conditions, allow for higher recording rates.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.7.2(4)	Provide sufficient storage capability to allow for retention of video images for 30 days, as described in this Section, for all cameras included as part of the Facility at system commissioning, including 25% growth at time of commissioning.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.7.2(5)	Integrate the video surveillance system with other systems identified in Appendix 3D(viii) [IMIT Systems Integration Matrix].	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.7.2(7)(c)	Provide fixed cameras in locations that have PTZ cameras to ensure all areas are properly covered at all times with no area left uncovered during PTZ movement.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.7.2(7)(d)	Provide outdoor cameras complete with weatherproof housing and internal heater/ defroster/blower/wiper as required for suitable operation under varying environmental conditions.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.7.2(7)(g)	Provide controller at Operations Security Centre and BOSC to view and control all PTZ video surveillance cameras	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.7.2(7)(j)	Integrate all entry and exit points to departments and associated areas require recorded video surveillance to the video surveillance security system as identified in Appendix 3D(v) [Door Operation Matrix]. Where required by the Authority, provide video monitors for department staff to monitor local video surveillance cameras associated with the department.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
7.9.7.2(8)	Provide video surveillance equipment to monitor and record the identity of all persons entering and exiting the Facility's main entrances, corridor/links and utilizing elevators in strictly controlled high risk departments and associated areas, as identified in consultation with the Authority.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
7.9.7.2(12)	Provide an interface between the video surveillance system and the fire alarm system such that when a fire alert or fire alarm is activated, the video surveillance cameras in the vicinity of the fire alarm or alert will automatically be displayed in the Operations Security Centre.	Yes	None	None	FRD 3.8.2.1 <i>"The Fire System will be integrated with the video surveillance system such that when a smoke detector or pull station is activated, the Fire Zone in that area will go into alarm. The fire zones will have a video camera that will display the camera feed when it is selected from the alarm banner or the fire zone icon."</i>	Include the verification of this requirement in the commissioning process.
7.9.7.2(13)	Design and provide for 25% growth in cameras and video storage at the time of commissioning.	Yes	OSC / BOSC SAT dated May 16, 2018	Various	Testing is incomplete. This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
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FRD 2.3.4.1	When a user logs out of a Touchscreen Workstation, preferences will be saved for the following: <ul style="list-style-type: none">• Camera Layout: Which cameras were displayed on which video panes.• System Visibility: Which icons were visible/hidden.• Current Screen: Which map/screen was last displayed. When a user logs back into that Touchscreen Workstation, their preferences will be restored automatically	Yes	None	None	This clause does not appear to have been verified.	Include the verification of this requirement in the commissioning process.
FRD 2.4	The facility has two levels of control, Unit control and Full control. Unit control Touchscreen Workstations have control of a local specific area. These workstations only have the ability to monitor and control their local area without access of anything else in the facility. Unit Control Posts include all of the nurse's desks, visitation, and admitting and discharge. Full control means that a Touchscreen Workstation has the ability to monitor and control everything in the facility at all times. Full control is only available at OSC and BOSC Touchscreen Workstations	Yes	None	None	Does this conflict with anything in PA?	Include the verification of this requirement in the commissioning process.

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
FRD 2.5	A Security Threat Level will dictate the way a functional area operates and change behavior and operation of security assets such as doors. The Security Threat Level will also restrict which commands can be issued in order to maintain the threat level. For example, if Security Threat Level 4 disables card readers, the users will not be able to enable card readers from the touchscreen without first going to a lower Security Threat Level where readers can be enabled.	Yes	None	None	All different security threat levels should be validated in each functional area.	Include the verification of this requirement in the commissioning process.
FRD 2.13	Integration Engine Redundancy and Failover Server Redundancy Hardware Level Redundancy: Hypervisor Level Redundancy: Application Level Redundancy: Workstation Redundancy	Yes	None	None	All redundancy situations should be validated through simulated failures (removing cables, etc.)	Include the verification of this requirement in the commissioning process.
FRD 3.4.1	Users will be able to track the movement of people and assets, send messages, generate reports, monitor the health/status of tags, and find people or assets based on itemized lists, categories, pre-configured rules, last known location, or by typing the name of the person or asset.	Yes	None	None		Include the verification of this requirement in the commissioning process.
FRD 3.9.1.4	Functionality by door type	Yes	None	None	All of these sequences should be validated.	Include the verification of this requirement in the commissioning process.
FRD 3.9.3.1	On the Secure side, all private client room doors on a unit can be locked from a Touchscreen Workstation simultaneously by touching a ‘Lockdown’ button and choosing ‘Lockdown’ from the command pane. Pressing the lockdown button locks all private client room doors and disables the exit request pushbutton located in private client room.	Yes	None	None		Include the verification of this requirement in the commissioning process.
FRD 3.9.3.2 & Appendix E	Interlocks	Yes	None	None	Long list of interlocks that should be verified.	Include the verification of this requirement in the commissioning process.
FRD 3.9.3.3	Some doors will be given the functionality to trigger Door Forced Open alarms. When one of these doors is opened through means other than a valid card reader or Touchscreen Workstation, the door will trigger a forced open alarm. This alarm will be displayed in the alarm banner and on the door icon. The alarm will be processed as described in section 2.10.	Yes	None	None		Include the verification of this requirement in the commissioning process.
FRD 3.9.3.7	When interacting with doors there are a number of commands that can be issued. Commands are specific to the type of door, so only a subset of the commands may be available.	Yes	None	None		Include the verification of this requirement in the commissioning process.

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Clause	Requirement	Verifiable?	Document(s)	Process Implemented	Analysis	Recommendation
FRD 3.9.3.8	To simplify the number of states/colours displayed on a door icon, the readers will be displayed as one or two bars along the center of the door icon. These icons show state only and are not selectable as reader commands are issued by selecting the door. When a card reader is enabled or disabled, it will graphically change state on the touchscreen. The following colour table lists all of the possible states for readers and their associated colour.	Yes	None	None		Include the verification of this requirement in the commissioning process.
FRD	There are telephone, wireless, intercom requirements.	Yes			Review adding to scope for functionality review	