The following changes in the bid documents are effective immediately. This amendment will form part of the contract documents.

DRAWINGS

1 Architectural
.1 Not Used

2 Structural
.1 Not Used

3 Mechanical
.1 Drawing M-001 – Cover Page and Legend
.1 **Revision** of drawing M-001, attached with this addendum.

.2 M-100 Mechanical – Fire Protection – Basement Ground 2nd and 3rd Floor – Demolition
.1 **Revision** of drawing M-100, attached with this addendum.

.3 M-110 Mechanical – Fire Protection – Basement Ground 2nd and 3rd Floor – New Layout
.1 **Revision** of drawing M-110, attached with this addendum.

.4 M-111 Mechanical – Fire Protection – 3rd and 4th Floor – New Layout
.1 **Revision** of drawing M-111, attached with this addendum.

.5 M-112 Mechanical – Fire Protection – 4th Floor and Details – New Layout
.1 Revision of drawing M-112, attached with this addendum.

.6 M-120 Mechanical – Fire Protection – Sections – New Layout
.1 Revision of drawing M-120, attached with this addendum.

.7 M-410 Mechanical – Ventilation – Ground 2nd 3rd and 4th Floor – New Layout
.1 Revision of drawing M-410, attached with this addendum.

.8 M-420 Mechanical – Ventilation – Sections – New Layout
.1 Revision of drawing M-420, attached with this addendum.

4 Electrical
.1 Not Used

SPECIFICATIONS

1 Architectural

.1 Section 01 31 13 - Project Coordination

.1 **Add** new article 3 as follows :

3 Submittals

1. Submit coordination/interference drawings to the Departmental Representative indicating the following:
    a. All critical Architectural, Mechanical and Electrical elements shown in relation to one another and dimensioned. These submissions should also reflect adjustments made in shop drawings submissions from sub-trades.
    b. All dimensions are to be field confirmed.
    c. Potential conflicts/interferences/discrepancies between elements are to be clearly noted with suggestions made to correct where possible.
    d. Drawings should include plan, section and elevation views as minimum.
    e. There should be 3 submissions minimum: Initial submission for approval, revised submission following Departmental representative review and Final As-built submission.
2. Departmental Representative to provide CADD drawings to be used as basis for preparation for these drawings. This will include signing and returning a terms of use waiver for the files provided.

.2 Section 05 59 66 - Sheet Steel Shielding

.1 **Renumber** existing lines .2 & .3 to .3 & .4.

.2 **Add** the following to Article 3.4

.2 Testing will be confirmed primarily with electrical continuity of the steel shield between floor, walls and ceiling surfaces, as well as integrity of dielectric breaks for services passing through them that have been detailed as part of the contract documents.

2 Structural

.1 Not Used

3 Mechanical

.1 Section 21 12 01 – Standpipe and Hose Assembly

.1 **Delete** article 1.3.1 entirely.

.2 **Add** new article 1.3.2.2 as follows:

.2 4-4N – Standpipe and Hose Systems

.3 **Change** article 2.1.1 as follows:

.1 System designed to FM Global Data Sheet 4-4N – Standpipe and Hose Systems and following parameters:

.4 **Change** article 2.3.1.1 as follows:

.1 Ferrous: to FM Global Data Sheet 4-4N – Standpipe and Hose Systems

.5 **Change** article 2.3.2 as follows:

.2 Fittings and joints to FM Global Data Sheet 4-4N – Standpipe and Hose Systems

.6 **Change** article 2.4.1 as follows:
.1 To FM Global 4-4N and ULC listed: surface type as indicated, constructed of 1.6 mm thick steel, 180 degrees opening door of 2.5 mm thick steel with hinge same side as water supply and latching device.

.7 **Change** article 3.2.1 as follows:
.1 Install and test to acceptance in accordance with FM Global Data Sheet 4-4N – Standpipe and Hose Systems.

.8 **Change** article 3.4.1.1 as follows:
.1 In accordance with FM Global, data sheet 1-53 - Anechoic Chambers and 4-4N Standpipe and Hose Systems.

.9 **Add** new article 3.4.1.2 as follows:
.2 Contractor is to provide own testing means including but not limited to: water, pump, etc. due to final piping configuration not connected to City's water main.

.10 **Delete** article 3.4.4.3 entirely.

.11 **Change** article 3.4.8.1 as follows:
.1 In addition to reports required by FM Global Data Sheet 4-4N – Standpipe and Hose Systems, include the following:

.2 Section 21 13 16 – Dry Pipe Sprinkler Systems

.1 **Delete** article 1.3.1 entirely.

.2 **Add** new articles 1.3.3.2, 1.3.3.3 and 1.3.3.4 as follows:
.2 2-0 – Installation Guidelines for Automatic Sprinklers
.3 3-0 – Hydraulics of Fire Protection Systems
.4 2-81 – Fire Protection Systems Inspection, Testing and Maintenance and Other Fire Loss Prevention Inspections

.3 **Change** article 1.5.3.1.1 as follows:
.1 Prepare 760 mm by 1050 mm detail working drawings of system layout in accordance with FM Global 3-0.

.4 **Change** article 1.7.1.2 as follows:
.2 Provide spare sprinklers and tools in accordance with FM Global 2-0.

.5 **Change** article 2.1 as follows:
2.1 HYDRAULIC CALCULATIONS

.6 **Delete** articles 2.1.1, 2.1.2, 2.1.3 and 2.1.4 entirely:

.7 **Add** articles 2.1.5, 2.1.6 and 2.1.7 as follows:
.5 The fire protection Contractor is responsible to hire a Professional Engineer specialized in fire protection, entitled to practice in the Province of Ontario, to produce signed and sealed hydraulic calculations and installations, in accordance with FM Global Data Sheet 1-53 – Anechoic Chambers (sole protection of chamber surrounding occupancies), FM Global Data Sheet 3-0 – Hydraulic of Fire Protection Systems.

.6 Hydraulic calculations produced by the Contractor's Engineer must reflect actual installation in the anechoic chamber. Installation must follow drawings. Any deviation from drawings must be pre-approved by Departmental Representative and be reflected on the hydraulic calculations. Any proposed deviation/modification must not result in an increase of total water pressure drop indicated on the drawings.

.7 Seismic installation drawings for sprinkler will have to be sealed and stamped by a Professional Engineer registered with "Professional Engineers of Ontario".

.8 **Change** article 2.2.1 as follows:

.1 System has been designed in accordance with FM Global Data Sheet 1-53 and 3-0, using following parameters:

.9 **Delete** articles 2.2.1.2.1 and 2.2.1.2.2 entirely.

.10 **Change** article 2.2.1.2.3 as follows:

.3 Density of Application of Water: 0.41L/s per m^2 over the most remote 186 m^2 of floor area.

.11 **Change** article 2.4.1.1 as follows:

.1 Galvanized Steel: to FM Global 2-0 – Installation Guidelines for Automatic Sprinklers, and 1-53 – Anechoic Chambers.

.12 **Change** article 2.4.2 as follows:

.2 Fittings and joints to FM Global 2-0 – Installation Guidelines for Automatic Sprinklers, and 1-53 – Anechoic Chambers:

.13 **Change** article 2.4.4.1 as follows:

.1 Where fire protection piping penetrates RF shielding, install waveguide pipe penetration designed to pass fire protection piping into or out of an R.F. shielded chamber without compromising the overall R.F. shielding effectiveness of the chamber. Cut-off frequency of at least 1.0 Ghz.

.14 **Change** article 2.6 as follows:

2.6 SPRINKLER HEAD TYPES

.15 **Add** article 2.6.2 as follows:

.2 Extended coverage, upright, K11.2, quick response. Sprinklers to be installed in the pendent position or wall position, refer to drawings. Sprinkler heads to be extended 150mm beyond the tip of the adjacent cones as indicated by FM Global Data Sheet 1-53 – Anechoic Chambers and drawings. Sprinklers are to be installed around the quiet zone areas in order to provide additional coverage. Same spacing as indicated in Sub-section 2.2 – Engineering Design Criteria. Although FM Global 1-53 – Anechoic Chambers indicates not to use extended coverage sprinklers, agreement has been reached to use extended coverage sprinklers for sprinklers located around the quiet zones area (refer to drawings).

.16 **Delete** articles 2.7 and 2.8 entirely

.17 **Change** article 3.2.1 as follows:

.1 Install, inspect and test to acceptance in accordance with FM Global – Data Sheets 1-53 – Anechoic Chambers, 2-0 – Installation Guidelines for Automatic Sprinklers, and 2-81 – Fire Protection System Inspection, Testing and Maintenance.

.18 **Add** new article 3.2.4 as follows:

.4 Contractor is to provide own testing means including but not limited to: water, pump, etc. due to final piping configuration not connected to City's water main.

.3 Section 23 05 29 – Hanger and Support for HVAC Piping and Equipment

.1 **Add** new article 1.3.3.1 as follows:

.1 Data Sheet 2-0 – Installation Guidelines for Automatic Sprinklers.

.2 **Change** articles 3.3.2 and 3.3.3 as follows:

.2 Fire protection: to applicable fire code and FM Global 2-0 (for piping feeding Anechoic Chamber).

.3 Gas piping: up to NPS 1/2: every 1.8 m.

.3 **Delete** articles 3.3.4, 3.3.5, .3.3.6 and 3.3.7 entirely.

.4 Section 23 05 48 – Vibration and Seismic Controls for HVAC Piping and Equipment

.1 **Add** new article 1.3.4.2 as follows:

.2 2-8 – Earthquake Protection for Water-Based for Fire Protection Systems.

.2 **Change** articles 2.2.3.1 follows:

.1 Fire protection systems (control room): to NFPA 13.

.3 **Add** new article 2.2.3.4 as follows:

.4 Fire Protection systems (anechoic chamber): FM Global Data Sheets 1-53 and 2-8.

.5 Section 23 07 13 – Duct Insulation

.1 **Change** table at article 3.4.2.1.1 as follows:

.1 Finishes: conform to following table:

	TIAC Code	
	Rectangular	Round
Indoor, concealed (control room)	none	none
Indoor, exposed (Anechoic Chamber)	CRF/1	CRD/1
Indoor, exposed (Loading Dock Bay)	CRF/1	CRD/1

.6 Section 23 32 48 – Acoustical Air Plenums

.1 Refer to paragraph Part 4 – Performance and change table at article .1 as follows:

.1 Schedule

Silencer Info			Performance Data			Total Size (mm)			Silver Dynamic Insertion Loss (dB)								Notes
Tag	Quantity	Fan or Area Served	Flow (l/s)	PD (Pa)	Velocity (m/s)	W	H	L	63	125	250	500	1K	2K	4K	8K	
SI-1	1	RTU-9	2005	56	6	900(400)	900	1750	*4*	*12*	*24*	29	*35*	*31*	25	20	1
SI-2	1	RTU-9	2005	52	-6	750	450	1500	10	14	21	22	23	17	16	14	2

.2 Refer to paragraph Part 4 – Performance, Notes change articles 1.c and 1.d as follows:

c. Inlet leg length: 400mm

d. Outlet leg length: 1200mm

4 Electrical

.1 Section 28 32 00 – Air Sampling Smoke System

.1 **Change** article 1.5.5 as follows:

.5 ASSD apparatus shall include 5 independent configurable alarm, trouble relay and fire relay outputs for interface to the existing Edwards EST 3 panel.

.2 **Delete** article 1.5.7 entirely.

.3 **Change** article 1.7.3.1 as follows:

.1 A Professional Engineers (P. Eng) license in Fire Protection Engineering, a P.Eng license in Electrical Engineering, a P.Eng who is regularly engaged in the design of fire detection and alarm systems, or certified fire alarm technician working under the direct supervision of a P.Eng as qualified above.

END OF ADDENDUM