



361A Old Finch Ave.
Toronto, ON M1B 5K7
www.torontozoo.com

Tel: 416-392-5900
Fax: 416-392-5934

2020-01-21

**REQUEST FOR TENDER
ORANGUTAN OUTDOOR EXHIBIT CONSTRUCTION
RFT#: TZC T 57-2019-12
ADDENDUM # 3**

This addendum shall be incorporated into, and form part of TZC T 57-2019-12 and take precedence over all requirements of the previously issued bid documents including plans. This addendum must be signed by the bidder (signing officer) in the appropriate space and must be attached to the Form for submission by the bidder. This Addendum consists of one (1) page and the documents listed below.

1. Addendum #3:

Please see the attached addendum #A003 from Zeidler Architects dated January 20, 2020.

Receipt of the Addendum shall be acknowledged as part of your submission.

The Board of Management of the Toronto Zoo reserves the right to reject any or all Quotations or to accept any quotation, should it deem such action to be in its interests.

If you have any queries regarding this matter, please contact Mr. Peter Vasilopoulos, Supervisor, Purchasing & Supply, at 416-392-5916.

Yours truly,

Peter Vasilopoulos
Supervisor, Purchasing & Supply

I/we hereby acknowledge receipt of this addendum and make allowance in my bid.

Signed (Must be Signing Officer of Firm)

Name of Firm

Date:

Date Issued: 2020 January 20
Project Name: **Toronto Zoo Orangutan Outdoor Exhibits**
To: Ben Knoop
Toronto Zoo
361A Old Finch Avenue
Toronto, ON M1B 5K7
Project Number: 18-1-086
RFT Reference No.: TZC T-57-2019-12 (issued 2019-12-17)

Addendum

ADD #A003

Note: *This addendum is issued prior to closing of tender to provide for certain revisions to or clarifications in the work. The revisions covered by this addendum shall be carried out in accordance with the requirements of the specifications. The following addendum items are included and shall become part of the contract.*

1. General:

1.1 Security Questions & Answers

Question: *In an effort to get the most accurate pricing across and also avoid as many exclusions as possible, would it be possible for you please to send me the following information?*

- *the Server ID (of the AVIGILON NVR) for the Toronto Zoo?*
- *Version*
- *Model*
- *Storage available*
- *Storage requirements*
- *Picture of front and back*
- *Location*
- *Rack*

Also, do you have any details on the following:

- *Existing UPS*
- *Existing Switches – (i.e. # of Ports / throughput?)*
- *Existing Switches – quantity”*

Answer:

The Toronto Zoo do not have any free ports in this area. Therefore, we require:

- Network switch PoE 48port. 10GB back bone
- 2x 10GB fiber Gbix
- UPS for new switch only (this would not power the camera in the event of a power outage).

Other camera requirements:

- Cameras to be ONVIF Compliant

Note: the cameras need to be connected into the Zoo's network. The rack for the network is in the basement of the Indo-Malaya Pavilion as indicated in the tender docs.

2. Architectural – prepared by Zeidler

2.1 Specifications issued for #A003 dated January 20, 2020:

2.1.1 Refer to enclosed Architectural drawing revision List

2.1.2 See attached architectural specs, all revisions are in ***Bold & Italic.***

3. Mechanical – prepared by Quasar

3.1 Specifications and Drawings issued for Mechanical Addendum No.3 dated January 20, 2020 – see attached.

4. Generator – prepared by McGregor & Allsop

4.1 Specification & Drawings issued for Addendum #1 dated January 17, 2020 – see attached.

END OF ADD #A003

Sincerely,

ZEIDLER ARCHITECTURE INC.



Lena Chow, Associates

cc: Zeidler Architecture Inc.



DRAWING LIST WITH REVISION DESCRIPTION

Toronto Zoo Orangutan Exhibits

JOB # 18-1-086

DATE UPDATED: JANUARY 20, 2019

Drawing Series	Drawing No.	Drawing Title	Revision Description	Issued for Addendum #A003 01/20/2020
ARCHITECTURAL GENERAL				
MECHANICAL				
Corrected from MA-100	MA-200	MECHANICAL SYMBOLS AND DRAWING LIST-Habitat 2	Rename sheet numbering in this series from M*100 to M*200. (Habitat 2)	Y
Corrected from MP-101	MP-201	PLUMBING - HABITAT 2 - NEW WORK PLAN		
Corrected from MP-102	MP-202	PLUMBING - HABITAT 2 - ENLARGED NEW WORK PLAN		
Corrected from MX-100	MX-200	MECHANICAL DETAILS_HABITAT 2		
SPECIFICATIONS DIVISION SECTION				
		Owner (O) Architect (A) Civil Consultant (C) Electrical Consultant (E) Landscape Consultant (L) Mechanical Consultant (M) Structural Consultant (S)	Issued as part of Addendum A003	2020.01.20 Addendum 3
Div. 0 - Introductory Information, Bidding Requirements, Contract Requirements				
	A 00 01 10	Table of Contents	New Sections issued during addenda have been added to the table of contents	
Div. 10 - Specialties				
	A 10 80 00	Miscellaneous Specialties	Hot vine product and verbiage has been added to this Section.	

Drawing Series	Drawing No.	Drawing Title	Revision Description	Issued for Addendum #A003 01/20/2020
	M 25 05 02	Building Automation Systems	Setpoint Building Automation Inc. has been added to the list of acceptable vendors. See mech Addendum #3 issued by Quasar	
Div. 32 - Exterior Improvements				
	A 32 31 55	Electric Fencing	New Section added for electric fence required for the Project.	

Design Discipline

Documents prepared by the respective Consultants are designated by the following discipline symbols:

- Owner (O)
- Architect (A)
- Civil Consultant (C)
- Electrical Consultant (E)
- Landscape Consultant (L)
- Mechanical Consultant (M)
- Structural Consultant (S)

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

Document	Title	Discipline	Pages
	Cover Page	A	1
00 01 10	Table of Contents	A	6
	Refer to Owner's Document 0 Sections under separate cover.	O	
00 72 00	General Conditions: "Agreement Between Owner and Contractor", "Definitions", and "General Conditions of the Stipulated Price Contract", Standard Contract Document CCDC2 - 2008.	A	Not Included

DIVISION 01 - GENERAL REQUIREMENTS

Section	Title	Discipline	Pages
01 11 00	Summary of Work	A	6
01 21 00	Allowances	A	2
01 31 00	Coordination	A	4
01 31 19	Project Meetings	A	2
01 32 13	Schedule	A	2
01 33 00	Submittal Procedures	A	8
01 40 00	Quality Requirements	A	6
01 41 00	Regulatory Requirements	A	5
01 50 00	Temporary Controls and Facilities	A	11
01 60 00	Product Requirements	A	11
01 70 00	Contract Closeout	A	2
01 71 23	Field Engineering	A	2
01 73 29	Cutting and Patching	A	3
01 74 00	Cleaning	A	2
01 78 23	Operation and Maintenance Manuals	A	4
01 78 39	Record Documents	A	2

DIVISION 02 - EXISTING CONDITIONS

Section	Title	Discipline	Pages
02 32 00	Geotechnical Information	A	1
	- Soil Investigation	O	32
	- Geotechnical Investigation Report	O	29
02 40 00	Demolition and Removals	A	8

DIVISION 03 - CONCRETE

Section	Title	Discipline	Pages
03 00 50	Testing of Concrete	S	5
03 10 00	Concrete Forming and Accessories - Landscape	L	3
03 20 00	Concrete Reinforcement - Landscape	L	3
03 21 00	Concrete Reinforcement	S	11
03 30 00	Structural Cast-in-Place Concrete	S	13
03 33 00	Architectural Concrete	A	8
03 33 01	Cast-in-Place Concrete - Landscape	L	9
03 35 00	Concrete Finishing	S	9
03 37 13	Shotcrete	S	12

DIVISION 04 - MASONRY

Section	Title	Discipline	Pages
04 20 00	Unit Masonry	A	9

DIVISION 05 - METALS

Section	Title	Discipline	Pages
05 00 50	Testing of Structural Steel, Steel Framing and Steel Decking	S	13
05 12 00	Structural Steel Framing	S	12
05 16 00	Steel Cabling	A	4
05 31 00	Steel Decking	S	7
05 50 00	Miscellaneous and Metal Fabrications	A	17
05 59 64	Wire Mesh Panels and Doors	A	9
	- Reference Photographs	A	5

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

Section	Title	Discipline	Pages
	Refer to Structural Drawings for Structural Specifications.	S	
06 10 00	Rough Carpentry	A	7
06 20 00	Finish Carpentry	A	9

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

Section	Title	Discipline	Pages
07 14 16	Cold Fluid Applied Waterproofing	A	16
07 16 16	Cementitious Waterproofing	A	7
07 19 00	Water Repellent Sealer	A	4
07 21 00	Thermal Insulation	A	3
07 26 00	Vapour Retarders	A	5
07 31 16	Metal Shingles	A	6
07 41 23	Cedar Wood Siding	A	4
07 61 00	Metal Roofing (Alternative Price)	A	7
07 62 00	Flashing and Sheet Metal	A	5
07 92 00	Sealants	A	5

DIVISION 08 - OPENINGS

Section	Title	Discipline	Pages
08 11 13	Metal Doors and Frames	A	7
08 45 13	Polycarbonate Panels	A	5
08 51 23	Steel Windows	A	9
08 52 00	Wood Windows	A	7
08 70 00	Finish Hardware	A	5
08 80 00	Miscellaneous Glass and Glazing	A	6
08 80 01	Exhibit Laminated Glazing	A	10

DIVISION 09 - FINISHES

Section	Title	Discipline	Pages
09 21 16	Gypsum Board	A	7
09 51 00	Acoustical Ceilings	A	5
09 65 16	Resilient Sheet Flooring	A	6
09 67 23	Epoxy Flooring	A	5
09 91 00	Painting	A	10
09 97 13	Exterior Steel Coatings	A	4

DIVISION 10 - SPECIALTIES

Section	Title	Discipline	Pages
10 80 00	Miscellaneous Specialties	A	5

DIVISION 11 - EQUIPMENT

Section	Title	Discipline	Pages
11 24 23	Fall Protection Systems	A	7

DIVISION 20 - MECHANICAL, GENERAL

Section	Title	Discipline	Pages
20 05 00	Common Work Results for Mechanical	M	28
20 05 10	Mechanical Work General Instructions	M	23
20 05 13.13	Variable Frequency Drives for Mechanical Equipment	M	12
20 05 17	Sleeves and Sleeve Seals for Mechanical Piping	M	2
20 05 48.13	Vibration Controls for Mechanical Systems	M	4
20 05 93	Testing, Adjusting, and Balancing for Mechanical Systems	M	5
20 07 00	Mechanical Systems Insulation	M	9

DIVISION 22 - PLUMBING

Section	Title	Discipline	Pages
22 06 69	Facility Plumbing Services	M	4
22 11 00	Facility Water Distribution	M	7
22 13 00	Facility Sanitary Sewerage	M	6
22 30 00	Plumbing Equipment	M	4
22 42 00	Commercial Plumbing Fixtures	M	3

DIVISION 23 - HEATING, VENTILATING AND AIR CONDITIONING

Section	Title	Discipline	Pages
23 23 00	Refrigerant Piping	M	4
23 34 00	HVAC Fans	M	3
23 81 26	Split-System Air-Conditioners	M	3
23 82 39.19	Wall and Ceiling Unit Heaters	M	2

DIVISION 25 - INTEGRATED AUTOMATION

Section	Title	Discipline	Pages
25 05 01	Automatic Control Systems	M	11
25 05 02	Building Automation System	M	18

DIVISION 26 - ELECTRICAL

Section	Title	Discipline	Pages
26 05 00	Common Work Results for Electrical	E	19
26 05 19	Low-Voltage Electrical Power Conductors and Cables	E	6
26 05 26	Grounding and Bonding for Electrical Systems	E	6
26 05 29	Hangers and Supports for Electrical Systems	E	5
26 05 33.13	Conduit for Electrical Systems	E	5
26 05 33.16	Boxes for Electrical Systems	E	5
26 05 43	Underground Ducts and Raceways for Electrical Systems	E	4
26 05 53	Identification for Electrical Systems	E	6
26 05 83	Wiring Connections	E	4
26 08 00	Commissioning of Electrical Systems	E	7
26 08 50	Commissioning of Lighting	E	3
26 09 23	Lighting Control Devices	E	10
26 24 16	Panelboards	E	11
26 27 26	Wiring Devices	E	7
26 27 26.10	Outdoor Ground Box	E	3
26 28 13	Fuses	E	3
26 28 16.02	Molded Case Circuit Breakers	E	3
26 28 16.16	Enclosed Switches	E	2
26 51 19	LED Interior Lighting	E	13
26 56 19	LED Exterior Lighting	E	5

DIVISION 27 - COMMUNICATIONS

Section	Title	Discipline	Pages
27 05 00	Common Work Results for Communications	E	7
27 05 26	Grounding and Bonding fo Communications Systems	E	5
27 05 28	Pathways for Communications Systems	E	2
27 05 28.63	Pathways for Video Surveillance	E	2
27 05 29	Hangers and Supports for Communications Systems	E	6
27 05 44	Sleeves and Sleeve Seals for Communications Pathways and Cabling	E	5
27 05 53	Identification for Communications Systems	E	2
27 08 11	Testing and Record Documentation for Communications	E	3
27 10 00	Structured Cabling	E	9

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

Section	Title	Discipline	Pages
28 20 00	Video Surveillance	E	11

DIVISION 31 - EARTHWORK

Section	Title	Discipline	Pages
31 00 00	Earthwork	A	10
31 05 17	Aggregates	C	4
31 23 10	Excavating, Trenching, Backfilling	C	6
31 23 13	Site Grading	C	5
31 25 00	Erosion and Sedimentation Control	C	2

DIVISION 32 - EXTERIOR IMPROVEMENTS

Section	Title	Discipline	Pages
	Refer to Landscape Drawings for irrigation Specifications.	L	
32 11 19	Granular Sub-Base	C	4
32 11 23	Granular Base	C	4
32 12 16	Asphalt Paving - Landscape	L	5
32 14 13.19	Permeable Pavers	L	8
32 17 43	Paving Snow Melting Systems	E	5
32 18 16	<i>Rubber Surfacing</i>	L	4
32 31 55	<i>Electric Fencing</i>	A	3
32 91 21	Planting Soil	L	13
32 93 10	Trees, Shrubs, and Groundcover Planting	L	12

DIVISION 33 - UTILITIES

Section	Title	Discipline	Pages
33 05 14	Manholes and Catch Basin	C	4
33 11 17	Water Systems	C	5
33 31 13	Sanitary Sewers	C	4
33 44 00	Storm Sewers	C	5
33 44 01	Subdrains	C	3
36 46 23	Drainage Boards	A	4

END OF DOCUMENT

-
- 1 General
- 1.1 **SECTION INCLUDES**
- .1 Labour, Products, equipment and services necessary for miscellaneous specialties work in accordance with the Contract Documents.
- 1.2 **REFERENCES**
- .1 ***CSA C22.1, Canadian Electrical Code, Part 1, Safety Standards for Electrical Installations.***
- 1.3 **DESIGN REQUIREMENTS**
- .1 Appearance of finished work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved samples and are assembled or installed to minimize contrast.
- .2 ***Hot vines:***
- .1 ***Design hot vines as required for Work of the Project and to be in conformance with CSA C22.1, requirements of authorities having jurisdiction and to meet Owner's Project requirements.***
- .2 ***Hot vine components to withstand live, dead, lateral, seismic, handling, transportation and installation loads.***
- 1.4 **SUBMITTALS**
- .1 Product data:
- .1 Submit duplicate copies of manufacturer's Product data for each Product specified in accordance with Section 01 33 00 indicating:
- .1 Performance criteria, compliance with appropriate reference standard(s), characteristics, and limitations.
- .2 Product transportation, storage, handling and installation requirements.
- .2 Shop drawings:
- .1 Submit shop drawings in accordance with Section 01 33 00 indicating:
- .1 Elevations, sections, details, dimensions, materials, gauges, and finishes.
- .2 Details shall indicate fasteners, anchorage assemblies and components and erection details and interfacing with other Work.
- .3 Structural engineering stamp to be provided on shop drawings for play structures and anchorage of dead trees.
- .3 Samples:
- .1 Submit sample in accordance with Section 01 33 00 of the following:
- .1 For each exposed product and for each colour and texture specified.
- .2 ***Two samples of each hot vine and each fastening required for installation, showing finish and size.***

- .4 Certificates/certification: Provide certificates demonstrating compliance of play structures with performance requirements of the Section.
- .5 Closeout submittals: Submit cleaning and maintenance instructions for miscellaneous specialties for incorporation into Operations and Maintenance Manuals in accordance with Section 01 78 23.

1.5 **QUALITY ASSURANCE**

- .1 Obtain third party certification of playground equipment to meet CSA certification.
- .2 Installers qualifications:
 - .1 *Installer qualifications (play structures and trees):*** Perform work of this Section by a company that has a minimum of five years proven experience in the installation of play structures and trees of a similar size and nature and that is approved by manufacturer. Submit to Consultant, installer's current certificate of approval by the material manufacturer as proof of compliance.
 - .2 *Installer qualifications (hot vines):*** ***Perform work of this Section by a company that has a minimum of five years proven experience in the installation of hot vines of a similar size and nature and that is approved by manufacturer. Submit to Consultant, installer's current certificate of approval by the material manufacturer as proof of compliance.***
- .3 Retain a Professional Engineer, licensed in Province of Ontario, with experience in Work of comparable complexity and scope, to perform following services as part of Work of this Section:
 - .1 Design of play structures.
 - .2 Design of anchorage components to concrete foundations as required for dead trees.
 - .3 *Design of hot vines.***
 - .4 Review, stamp, and sign shop drawings and design calculations.

1.6 **DELIVERY, STORAGE, AND HANDLING**

- .1 Package or crate, and brace products to prevent distortion in shipment and handling. Label packages and crates, and protect finish surfaces by sturdy wrappings.

2 Products

2.1 **MANUFACTURED UNITS**

- .1 Orangutan play structure:
 - .1 Conforming to CSA requirements for playground equipment.
 - .2 Modified log pile with netting for orangutans. Manufactured by Whole Trees Structures or approved alternative.
 - .3 Provision of anchors as required for complete installation and anchorage details to concrete foundations to be by the Contractor. Coordinate with Section 03 30 00 as required for concrete work.

- .2 Play structure 1:
 - .1 Conforming to CSA requirements for playground equipment.
 - .2 Maze structure with non-structural black locust. Manufactured by Whole Trees Structures or approved alternative. Provide four (4) vertical tree trunks and balance beam logs.

- .3 Play structure 2:
 - .1 Conforming to CSA requirements for playground equipment.
 - .2 Rope course non-structural black locust with Anaconda foot rope and elevated hand rope. Manufactured by Whole Trees Structures or approved alternative.

- .4 Standing dead trees:
 - .1 Provide six (6) black locust natural vertical trees by manufactured by Whole Trees Structures or approved alternative.
 - .2 7000 mm (7 m) is the anticipated tree height but the final tree height will be selected by Consultant from standard available trees.
 - .3 Provide four (4) eye-bolt attachments per tree, consisting of two (2) on top and two (2) on bottom as directed by the Consultant.
 - .4 Provision of anchors as required for complete installation and anchorage details to concrete foundations to be by the Contractor. Coordinate with Section 03 30 00 as required for concrete work.

- .5 **Hot vines:**
 - .1 ***Provide hot vines for wrapping around platform supports and climbing poles as shown on Contract Drawings and as required to obtain aesthetic required for the Work.***
 - .2 ***Insulated wires are to have an appearance of natural vines and are to be energized by and connected to an electric fence charger.***
 - .3 ***Standard hot vines and custom hot vines as manufactured by Total Habitat or approved alternative.***
 - .4 **Charger:**
 - .1 ***UL approved, surface mounted, charger unit with key hole mounting points for fixing, 'Gallagher M360 Charger'.***
 - .2 ***Charger to be located in location as approved by the Owner.***

- .5 **Fasteners:**
 - .1 **Provide all fastenings as required for complete installation of hot vines. Types as recommended by manufacturer and approved by the Owner for use in exhibit.**
 - .2 **Include corrosion resistant fastenings necessary to fasten the Work.**
- .6 **Power supply: In accordance with Division 26 - Electrical.**
- .7 **Provide grounding as required for the Work.**

2.2 FABRICATION

- .1 Factory assembly: Assemble components in the factory to greatest extent possible to minimize field assembly. Clearly mark units for assembly in the field.

3 Execution

3.1 EXAMINATION

- .1 Verify condition and dimensions of previously installed Work upon which this Section depends. Report defects to Consultant. Commencement of work of this Section means acceptance of existing conditions.

3.2 PREPARATION

- .1 Verify substrate surfaces are solid, free from surface water, dust, oil, grease, projections and other foreign matter detrimental to performance.
- .2 Provide information and templates required for installation of work of this Section, and assist or supervise, or both, the setting of anchorage devices, and construction of other work incorporated with products specified in this Section in order that they function as intended.

3.3 INSTALLATION

- .1 Install miscellaneous specialties level and securely and rigidly anchored to substrate in accordance with authorities having jurisdiction, reviewed shop drawings, and manufacturer's written instructions.
- .2 Coordinate with other Sections in advance and build-in or make provisions for installation of work other Sections.
- .3 Post setting: Set cast-in support posts in concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.

- .4 Posts set into voids in concrete: Form or core-drill holes for installing posts in concrete to depth recommended in writing by manufacturer of site furnishings and 19 mm larger than O.D. of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with non-shrink, non-metallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.
- .5 Pipe sleeves: Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with non-shrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.
- .6 **Hot vines:**
 - .1 ***Install hot vines and associated components in accordance with reviewed shop drawings, manufacturer's written instructions and to meet the satisfaction of the Consultant.***
 - .2 ***Locate and securely fasten hot vines as required for an installation that is secure and safe for animals in the exhibit.***
 - .3 ***Adjust any hot wire components as required.***
 - .4 ***Power supply to hot wires shall be provided by Division 26 - Electrical.***
 - .5 ***Comply with requirements of Division 26 - Electrical, CSA C22.1 and Ontario Hydro Electrical Safety Code.***
- .7 Ensure final installation is rigid, secure, level and free from defects detrimental to appearance or performance.
- .8 After installation, adjust miscellaneous specialties in accordance with manufacturer's written instructions.

3.4 **CLEANING**

- .1 Clean exposed surfaces prior to acceptance by Consultant.

END OF SECTION

- 1 General
- 1.1 **SECTION INCLUDES**
 - .1 Labour, Products, equipment and services necessary for electric fencing work in accordance with the Contract Documents.
- 1.2 **REFERENCES**
 - .1 CSA C22.1, Canadian Electrical Code, Part 1, Safety Standards for Electrical Installations.
- 1.3 **DESIGN REQUIREMENTS**
 - .1 Design electric fencing as required for Work of the Project and to be in conformance with CSA C22.1 and requirements of authorities having jurisdiction.
 - .2 Fencing components to withstand live, dead, lateral, seismic, handling, transportation and installation loads.
- 1.4 **SUBMITTALS**
 - .1 Shop drawings:
 - .1 Submit shop drawings in accordance with Section 01 33 00 indicating:
 - .1 Construction, assembly, elevations, sections, details, and interfacing with other Work.
 - .2 All anchorage and fastening components and installation details.
 - .2 Samples:
 - .1 Submit following samples in accordance with Section 01 33 00:
 - .1 Two samples of each fencing component, showing finish and size.
- 1.5 **QUALITY ASSURANCE**
 - .1 Installers qualifications: Perform work of this Section by a company that has a minimum of five years proven experience in the installation of electric fencing of a similar size and nature and that is approved by manufacturer. Submit to Consultant, installer's current certificate of approval by the material manufacturer as proof of compliance.
 - .2 Retain a Professional Engineer, licensed in Province of Ontario, with experience in Work of comparable complexity and scope, to perform following services as part of work of this Section:
 - .1 Design of electric fencing.
 - .2 Review, stamp, and sign shop drawings and design calculations.

1.6 **MAINTENANCE MATERIALS**

- .1 Submit extra wire and wire hangers amounting to 2% of gross fence area. Submit Products which are part of same production run as installed Products. Store maintenance Products as directed by Consultant.

2 Products

2.1 **ACCEPTABLE MANUFACTURERS**

- .1 Gallagher.
- .2 Or approved alternative.

2.2 **MATERIALS**

- .1 Electric fencing components:
 - .1 Provide electric fence for around top of habitat walls as shown on Contract Drawings.
 - .2 Charger:
 - .1 UL approved, surface mounted, fence charger unit with key hole mounting points for fixing, 'Gallagher M360 Charger'.
 - .2 Charger to be located in easily accessible area to zoo keeper area. Specific location of charger to be approved by the Owner.
 - .3 Wire and wire hangers:
 - .1 Heavy duty, hot wire, single strand wire, fabricated from conductive metals, 'Gallagher Turbo Wire' by Gallagher, complete with insulators for mounting or setting into walls.
 - .2 Maximum of 150 m of wire along tops of habitat walls and wire hangers spaced at maximum 2 m on centre.
 - .4 Provide separate grounding unit.
 - .5 Accessories and components:
 - .1 Provide tensioners, insulators, wire tighteners and additional components and accessories as required for complete and secure installation.
 - .2 Include corrosion resistant anchors and fastenings necessary to anchor work of this Section.
- .2 Power supply: In accordance with Division 26 - Electrical.

2.3 **FABRICATION**

- .1 Fabricate electric fencing components in accordance with reviewed shop drawings and manufacturer's written instructions.
- .2 Fabricate work of this Section square, plumb, straight, true and accurately fitted. Provide adequate reinforcing and anchorage.

3 Execution

3.1 **EXAMINATION**

- .1 Verify condition and dimensions of previously installed Work upon which this Section depends. Report defects to Consultant. Commencement of Work means acceptance of existing conditions.

3.2 **INSTALLATION**

- .1 Install electric fencing and associated components in accordance with reviewed shop drawings, manufacturer's written instructions and to meet requirements of authorities having jurisdiction.
- .2 Coordinate this work with the work of other Sections to provide the necessary conditions for electric fencing as required.
- .3 Locate and securely fasten electric fencing components as required for an installation that is taut, level, plumb and secure.
- .4 Adjust any fencing components as required.
- .5 Power supply to electric fencing shall be provided by Division 26 - Electrical.
- .6 Comply with requirements of Division 26 - Electrical, CSA C22.1 and Ontario Hydro Electrical Safety Code.

3.3 **CLEANING**

- .1 Upon completion of the work, remove all protective coverings from electric fencing.

END OF SECTION

CONTROLS	
SYMBOL	DESCRIPTION
	SUPPLY FAN
	RETURN EXHAUST FAN
	EXHAUST FAN
	HEATING COIL
	COOLING COIL
	PRE-HEAT COIL
	FILTERS
	HUMIDIFIER
	THERMOMETER
	SUPPLY AIR
	EXHAUST AIR
	OUTDOOR AIR
	RETURN AIR
	MOTORIZED DAMPER
	MOTOR STARTER PANEL
	MOTOR CONTROL CENTER
	VARIABLE FREQUENCY DRIVE
	NORMALLY OPEN
	NORMALLY CLOSED
	ELECTRO-PNEUMATIC SWITCH
	PRESSURE ELECTRIC SWITCH
	HUMIDITY SENSOR
	TEMPERATURE SENSOR
	BUILDING AUTOMATED SYSTEM
	ANALOG INPUT
	ANALOG OUTPUT
	DIGITAL INPUT
	DIGITAL OUTPUT
	BAS GRAPHICS POINT
	CARBON MONOXIDE SENSOR
	NOX SENSOR
	OXYGEN SENSOR
	OCCUPANCY SENSOR
	GAS DETECTION SYSTEM CONTROL PANEL

PLUMBING	
SYMBOL	DESCRIPTION
	SANITARY DRAINAGE - ABOVE GROUND
	SANITARY DRAINAGE - UNDERGROUND
	SANITARY DRAINAGE (ACID RESISTANT) - ABOVE GROUND
	SANITARY DRAINAGE (ACID RESISTANT) - UNDERGROUND
	STORM DRAINAGE - ABOVE GROUND
	STORM DRAINAGE - UNDERGROUND
	PUMPED DISCHARGE
	DOMESTIC COLD WATER SUPPLY
	DOMESTIC HOT WATER SUPPLY
	DOMESTIC HOT WATER RECIRC.
	TEMPERED WATER
	ACID RESISTANT VENT
	VENT
	GAS
	REVERSE OSMOSIS PIPING
	RADIO ISOTOPE DRAIN
	COMPRESSED AIR
	HEAT TRACING
	RUNNING TRAP
	P-TRAP
	BACKFLOW PREVENTER
	BACK WATER VALVE
	DENOTES FIXTURE TYPE PER SPECIFICATION
	EMERGENCY SHOWER
	EYE WASH
	CLEANOUT IN FLOOR
	CLEANOUT IN CEILING
	HOSE BIBB
	NON FREEZE HOSE BIBB
	SINGLE GAS OUTLET
	DOUBLE GAS OUTLET
	ROOF DRAIN
	CONTROL FLOW ROOF DRAIN
	VENT THROUGH ROOF
	RAIN WATER LEADER
	DENOTES FIXTURE TYPE PER SPECIFICATION
	SCUPPER DRAIN
	MANHOLE
	CATCH BASIN
	TRENCH GRATE & FRAME
	AREA DRAIN
	FUNNEL FLOOR DRAIN
	FLOOR DRAIN
	HUB DRAIN
	FLOOR SINK
	TERRACE DECK DRAIN
	FLOOR DRAIN - FLUSHING RIM
	WATER METER ASSEMBLY
	GAS METER
	COMPRESSED AIR OUTLET

VENTILATION	
SYMBOL	DESCRIPTION
	FUSIBLE LINK FIRE DAMPER (DOUBLE LINE)
	FUSIBLE LINK FIRE DAMPER (SINGLE LINE)
	BACK DRAFT DAMPER (DOUBLE LINE)
	BACK DRAFT DAMPER (SINGLE LINE)
	SMOKE DAMPER (DOUBLE LINE)
	SMOKE DAMPER (SINGLE LINE)
	BALANCING DAMPER (DOUBLE LINE)
	BALANCING DAMPER (SINGLE LINE)
	RECTANGULAR DUCTWORK - DIMENSION AS SHOWN
	ROUND DUCTWORK - DIMENSION AS SHOWN
	DUCTWORK (SINGLE LINE) - DIMENSION AS SHOWN
	COMBINATION SMOKE/FIRE DAMPER (DOUBLE LINE)
	COMBINATION SMOKE/FIRE DAMPER (SINGLE LINE)
	SUPPLY RISER UP
	EXHAUST/RETURN RISER UP
	SUPPLY RISER DOWN
	EXHAUST/RETURN RISER DOWN
	MITRED ELBOW WITH AIR TURNING VANES
	DUCT RISE (DOUBLE LINE)
	DUCT RISE (SINGLE LINE)
	MOTORIZED DAMPER
	SUPPLY GRILLE
	EXHAUST/RETURN GRILLE
	CEILING SUPPLY AIR DIFFUSER
	SUPPLY AIR LINEAR SLOT DIFFUSER
	CEILING EXHAUST/RETURN GRILLE
	BRANCH TAKE-OFF WITH ADJUSTABLE SPLITTER DAMPER IN SUPPLY DUCT (DOUBLE LINE)
	BRANCH TAKE-OFF WITH ADJUSTABLE SPLITTER DAMPER IN SUPPLY DUCT (SINGLE LINE)
	OPEN ENDED DUCT WITH BALANCING DAMPER AND BELLMOUTH, DIRECTION AS SHOWN (DOUBLE LINE)
	OPEN ENDED DUCT WITH BALANCING DAMPER AND BELLMOUTH, DIRECTION AS SHOWN (SINGLE LINE)
	FLEXIBLE DUCT CONNECTION
	DIFFUSER TAG
	GRILLE TAG
	ACOUSTICALLY LINED DUCTWORK (DOUBLE LINE)
	ACOUSTICALLY LINED DUCTWORK (SINGLE LINE)
	SILENCER (ATTENUATOR)
	FLEXIBLE DUCT (DOUBLE LINE)
	FLEXIBLE DUCT (SINGLE LINE)
	RETURN AIR OPENING IN WALL ABOVE FINISHED CEILING
	FLEXIBLE DUCT CONNECTION WITH BALANCING DAMPER ON TAKE-OFF
	DUCT MOUNTED HEATING COIL (DOUBLE LINE)
	DUCT MOUNTED HEATING COIL (SINGLE LINE)
	VARIABLE AIR VOLUME BOX CW REHEAT COIL, 8 DENOTES SIZE, 111 DENOTES AIR QUANTITY IN LITRES/SEC.
	DUCT TRANSITION FROM RECTANGULAR TO ROUND
	RECTANGULAR DUCT BREAK
	ROUND DUCT BREAK
	SINGLE LINE DUCT BREAK

HEATING & COOLING	
SYMBOL	DESCRIPTION
	HEATING WATER RETURN
	HEATING WATER SUPPLY
	HEATING GLYCOL RETURN
	HEATING GLYCOL SUPPLY
	CONDENSER WATER RETURN
	CONDENSER WATER SUPPLY
	CHILLED WATER RETURN
	CHILLED WATER SUPPLY
	CHILLED GLYCOL RETURN
	CHILLED GLYCOL SUPPLY
	CONDENSATE DRAIN
	REFRIGERANT GAS
	REFRIGERANT LIQUID
	LOW PRESSURE STEAM
	LOW PRESSURE CONDENSATE
	HIGH PRESSURE STEAM
	HIGH PRESSURE CONDENSATE
	VENT
	STEAM VENT
	FUEL OIL SUPPLY
	FUEL OIL RETURN
	FUEL OIL VENT
	ELECTRIC BASEBOARD HEATER OUTPUT AS SHOWN (KW)
	ELECTRIC CABINET HEATER
	CABINET HEATER
	UNIT HEATER
	CONVECTOR - LENGTH - HEAT OUTPUT (KW)
	WALL FIN - LENGTH - HEAT OUTPUT (KW)
	UNION
	MANUAL AIR VENT
	AUTOMATIC AIR VENT
	EXPANSION COMPENSATOR
	EXPANSION SWING
	PIPE ANCHOR
	PIPE GUIDE
	PIPE SLEEVE
	FLOAT & THERMOSTATIC TRAP
	INVERTED BUCKET TRAP
	ELECTRIC TRACING
	RADIANT PANEL - 8 DENOTES DEPTH, 600mm DENOTES HEIGHT, 1100mm DENOTES LENGTH & 2.1 HEAT OUTPUT (KW)

GENERAL	
SYMBOL	DESCRIPTION
	EXISTING TO REMAIN
	EXISTING TO BE DEMOLISHED
	EXISTING TO BE REMOVED FOR RELOCATION
	EXISTING RELOCATED IN NEW WORK
	NEW WORK
	CONNECT TO EXISTING
	PIPE TURNING DOWN
	PIPE TURNING UP
	PRESSURE REDUCING VALVE
	ROOM THERMOSTAT
	ROOM HUMIDISTAT
	PUMP
	AUTOMATIC CONTROL VALVE - TWO WAY
	AUTOMATIC CONTROL VALVE - THREE WAY
	ISOLATION VALVE
	BALANCING VALVE
	CHECK VALVE
	STRAINER - OVER 50MM WITH VALVED FLUSHING DRAIN
	PIPE BRANCH OFF TOP
	PIPE BRANCH OFF BOTTOM
	RELIEF VALVE (PIPE TO DRAIN)
	PRESSURE GAUGE
	THERMOMETER
	CAP

Drawing List	
Sheet Number	Sheet Title
MA-200	MECHANICAL SYMBOLS AND DRAWING LIST - HABITAT 2
MP-201	PLUMBING - HABITAT 2 - NEW WORK PLAN
MP-202	PLUMBING - ENLARGED NEW WORK PLAN
MX-200	MECHANICAL DETAILS - HABITAT 2

NO.	REV.	ISSUED FOR	DATE
1	0	ISSUED FOR PROGRESS REVIEW	2019-12-04
2	0	ISSUED FOR ADDENDUM 2	2020-01-10
3	0	ISSUED FOR ADDENDUM 3	2020-01-20

STAMP

CONTRACTOR SHALL CHECK ALL DIMENSIONS ON THE WORK AND REPORT ANY DISCREPANCY TO THE CONSULTANT BEFORE PROCEEDING. THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNTIL AUTHORIZED IN WRITING BY CONSULTANT.

250 ROWNTREE DAIRY RD, WOODBRIDGE, ON
 TEL: 905-507-0800
 WEB: WWW.QUASARCG.COM

Zeidler Architecture Inc.
 315 Queen St. West, Suite 200
 Toronto, Ontario, Canada M5V 2K2
 1-416-596-8300 / 416-596-1408

CLIENT: **TORONTO ZOO**

361A Old Finch Ave., Toronto ON M1B 5K7 · 416-392-5929

PROJECT: **ORANGUTAN EXHIBIT**

DRAWING NAME: **MECHANICAL SYMBOLS AND DRAWING LIST - HABITAT 2**

PROJECT NO.: CM-18-391	DRAWN BY: DB	CHECKED BY: DB
------------------------	--------------	----------------

DRAWING NUMBER: _____

SCALE: AS SHOWN 08.2019

MA-200



TENDER ADDENDUM # 1	
Date Issued:	January 17, 2020
Project Number & Name:	Project # Generator Replacement INDO Malaya Pavilion, 2018282
Owner:	
No. of Pages:	3

DISTRIBUTION			
	Name	Company	Email
<input checked="" type="checkbox"/>	Ben Knoop	Toronto Zoo	bknoop@torontozoo.ca
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			

The following items are changes to the tender documents for this project. All material and workmanship are to be as described in the contract documents unless otherwise stated. Please include these revisions with your bid.

ITEM #	DESCRIPTION	
1.1	DRAWING E-2 SINGLE LINE DIAGRAM DEMOLITION AND NEW	<ul style="list-style-type: none"> - Refer to attached drawing and note that the grounding for the customer owned existing transformer is to be demolished. - Refer to attached drawing and note that the new drawing does not show a ground attached to the customer owned existing transformer or the new diesel generator "G-1". - Refer to attached drawing and note that the splitter designation has changed from 1200A to 1600A
1.2	DRAWING E-5 DETAILS	<ul style="list-style-type: none"> - Refer to attached drawing and note the addition of a ground fault protection scheme (detail 6). - Note the addition of a protection device numbers table Note a change in the textbox referring to the grounding and bonding detail (detail 1).
1.3	DRAWING E-7: CUSTOM 1600A SPLITTER "SPL"	<ul style="list-style-type: none"> - Refer to attached drawing and note the change to the drawing title from "CUSTOM 2000A SPLITTER 'SPL'" to "CUSTOM 1600A SPLITTER 'SPL'". - Refer to attached drawing and note the change to the splitter box designation from 1200A to 1600A.

- Contractors are to review all changes, additions and deletions to the work listed in this document, the revised drawings and all associated contract documents and incorporate these items into the tender price.
- This Addendum shall form part of the contract.
- A copy of this Addendum shall be included with the tender submission.



Prepared by: Daniel Ciocirlie,
Electrical Engineering
Technologist



Reviewed by: Neil Spence, C.Tech
Director of Electrical Engineering,
Building Systems

