NMS SPECIFICATIONS

Introductory Information

PROCUREMENT & CONTRACTING REQUIREMENTS GROUP

Division 00 - Procurement and Contracting Requirements

Procurement Requirements

GENERAL REQUIREMENTS SUBGROUP

Division 01 - General Requirements

FACILITIES CONSTRUCTION SUBGROUP

Division 09 - Finishes

Division 14 – Conveying Equipment

END OF SECTION

SUMMARY OF HOIST PERFORMANCE REQUIREMENTS

(This Procurement Form Supplement shall be submitted by lowest responsive Bidder within 24 hours upon request by Contract Administrator)

Item	HOIST PARAMETERS [2]	Vendor Information *(Vendor to indicate response by checking appropriate box ☒, or with text or numerical inputs as appropriate)*		
		YES		NO
1	Hoist Model #			model no.
2	Lifting capacity (lbs)			lbs
3	Lifting height (inches)			inches
4	Pit depth (inches)			inches
5	Travel (wheelbase) range cassette(ft)			feet
6	Travel range frame (ft)			feet
7	Minimum wheelbase (in)			inches
8	Lifting/lowering time (sec)			sec
9	Compressed air supply (CFM/PSI)	cfm		psi
10	Electrical supply			
11	Motor power (HP)			hp
12	Pit style cover system (V/O/X) [1]	V	O	X
		☐	☐	☐
13	Parking pockets (1) - bolsters flush with the floor when lowered into parking position? [1]	☐	☐	☐
14	Integrated covers for parking pockets? [1]	☐	☐	☐
15	Maximum installation depth (inches) (moveable or fixed type)			inches
16	Below grade wheel spotting dishes (V/O/X) [1]	V	O	X
		☐	☐	☐
17	Liquid detection system [1]	☐	☐	☐
18	Automatic Sump pump [1]	☐	☐	☐
19	Red/Green stack light [1]	☐	☐	☐
20	Hoist Alarm/buzzer [1]	☐	☐	☐
21	Remote control [1]	☐	☐	☐

SUMMARY OF HOIST PERFORMANCE REQUIREMENTS

(This Procurement Form Supplement shall be submitted by lowest responsive Bidder within 24 hours upon request by Contract Administrator)

Item	HOIST PARAMETERS [2]	Vendor Information *(Vendor to indicate response by checking appropriate box ☒, or with text or numerical inputs as appropriate)*		
		YES		NO
22	Remote control wireless option [1]	☐	☐	☐
23	Pedestal control for redundancy and safety [1]	☐	☐	☐
24	Price includes shipping	☐		☐
25	Price includes installation	☐		☐
26	Price includes piston oil, ballast	☐		☐
27	Piston capacity (lbs)			lbs
28	Warranty parts (years)			years
29	Warranty labour (years)			years
30	Containment corrosion warranty (years)			years
31	Hoist corrosion warranty (yrs)			years
32	Total hydraulic fluid quantity (gallons)			gal
33	Hydraulic fluid type environment friendly? (Y/N)	☐		☐
34	Confined space – is pit deeper than 4 ft? (Y/N)	☐		☐
35	Confined space design for serviceability (Y/N)	☐		☐
36	Synchronization between rams (Y/N)	☐		☐
37	Variable speed lift control (Y/N)	☐		☐
38	Lift height measurement system (Y/N)	☐		☐
39	Maximum height restriction (Y/N)	☐		☐
40	Ram locking system increment (inches)			inches
41	Ram locking system, number of positions			positions
42	Ram locking start height (inches)			inches
43	Can user tell if lock bar is engaged (Y/N)	☐		☐
44	Corrosion protection for ram locking system (Y/N)	☐		☐
45	Maximum spread of lifting adaptors (outside to outside, in inches)			inches

SUMMARY OF HOIST PERFORMANCE REQUIREMENTS

(This Procurement Form Supplement shall be submitted by lowest responsive Bidder within 24 hours upon request by Contract Administrator)

Item	HOIST PARAMETERS [2]	Vendor Information *(Vendor to indicate response by checking appropriate box ☒, or with text or numerical inputs as appropriate)*	
		YES	NO
46	Minimum spread of lifting adaptors (outside to outside, in inches)		inches
47	Does unit come with 'go back to a home position' option? (Y/N)	☐	☐
48	Minimum 7,500 lb hoist cover point load rating on a 2 by 2-inch jackstand?	☐	☐
49	Minimum 13,500 lb hoist covers drive overload rating capacity (Y/N)?	☐	☐
50	Cover plates designed with no trip hazards (Y/N)	☐	☐
51	Do rear hoist cover plates have any extrusions that limits jackstand placement, transmission jacks, or a trip hazard? (Y/N)	☐	☐
52	Are controls/interface/functions the same for all models? (Y/N)	☐	☐
53	Does display provide safety notifications? (Y/N)	☐	☐
54	Does display provide notifications scheduled maintenance? (Y/N)	☐	☐
55	Is there a provision to lower hoist due to power outage or electrical component failure? (Y/N)	☐	☐
56	Hoist electrical components in pit? (Y/N)	☐	☐
57	Does hoist provide protection against accidental hit on saddle? (Y/N)	☐	☐
58	Local parts supplier? (Y/N)	☐	☐
59	Local labour for repairs/warranty? (Y/N)	☐	☐
60	Meets ANSI / ALI ALCTV standards? (Y/N)	☐	☐
61	Capability of withstanding harsh environments:		
61a	Water? (Y/N)	☐	☐
61b	Sand? (Y/N)	☐	☐
61c	Salt? (Y/N)	☐	☐
62	Drainage for floor washing? (Y/N)	☐	☐

SUMMARY OF HOIST PERFORMANCE REQUIREMENTS

(This Procurement Form Supplement shall be submitted by lowest responsive Bidder within 24 hours upon request by Contract Administrator)

Item	HOIST PARAMETERS [2]	Vendor Information *(Vendor to indicate response by checking appropriate box ☒, or with text or numerical inputs as appropriate)*	
		YES	NO
63	Fail safe failure mode? (Y/N)	☐	☐
64	Range of motion stops? (Y/N)	☐	☐
65	Provide dBA at one meter.		dBA
66	Buzzer alarm? (Y/N)	☐	☐
67	Visual alarm? (Y/N)	☐	☐
68	Leak monitoring system? (Y/N)	☐	☐
69	Notice of maintenance/inspection requirements? (Y/N)	☐	☐
70	Estimated annual maintenance cost (under normal conditions)	☐	☐

Notes:

1. **V**=Standard; X=Not Available; O=Optional
2. "Hoist Parameters" to be read in conjunction with requirements stipulated in Section 14 45 29 - Two Post Inground Bus Hoist.

END OF DOCUMENT

1.01 WORK OF THIS CONTRACT

.1 Work of this Contract comprises the pre-purchase of six Bus Hoists for the Winnipeg Transit Garage Building located at 421 Osborne Street, Winnipeg, Manitoba in support of the Winnipeg Transit Hoist Replacement Program.

.2 Work includes:

.1 Supply and Installation of Bus Hoists.

.2 Vehicle lift Shop Drawings.

.3 Delivery of Bus Hoists to City owned facility for temporary storage.

.4 Handling of Bus Hoists to accommodate installation.

.5 Operation and Maintenance Manual documentation.

.6 Manufacturers warranty.

.7 Other closeout documentation.

1.02 REFERENCES AND CODES

.1 Perform Work in accordance with the Manitoba Building Code 2023, and other codes of provincial (territorial] or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes and referenced documents.

.3 Wherever codes, standards, regulations are referenced throughout the Contract Documents they mean the latest editions including amendments, supplements and revisions as of the date of bid closing.

1.03 CONSTRUCTION SCHEDULE

.1 The City specifically requests that delivery of the vehicle lifts occur no later than 120 Business days from award of Contract.

.2 For Total Performance of this goods and service refer to The City of Winnipeg Tender 454-2024 clause D11 “Delivery and Installation” for additional scheduled milestones.

1.04 DIVISION OF WORK

.1 Division of the Work among Subcontractors and Suppliers is solely Contractor's responsibility. Contract Administrator and The City assume no responsibility to act as an arbiter to establish subcontract limits between Sections or Divisions of the Work.

1.05 WORK BY OTHERS

.1 Co-operate with other contractors in carrying out their respective works and carry out instructions from Contract Administrator and The City.

1.06 SPECIFICATION LANGUAGE AND STYLE

.1 Division 01 - General Requirements apply to the Work of all Sections in the project manual.

.2 These Specifications are written in the imperative mood and in streamlined form. The imperative language is directed to Contractor, unless stated otherwise.

.3 Complete sentences by reading "shall", " Contractor shall", "shall be", and similar phrases by inference. Where a colon (:) is used within sentences and phrases, read the words "shall be" by inference.

.4 The word “shall” when used in the Specifications means “has a duty to.”

.5 Fulfill and perform all indicated requirements whether stated imperatively or otherwise.

.6 When used in the context of a Product, read the word “provide” to mean “supply and install to result in a complete installation ready for its intended use”.

1.07 FUTURE WORK

.1 Installation of Bus Hoists included in this Contract to occur during a future separate contract.

END OF SECTION

1.01 RESTRICTIONS ON USE OF PREMISES

.1 Limit use of premises for Work to allow:

.1 The City occupancy

.2 Public usage.

.2 Coordinate use of premises under direction of Contract Administrator and The City.

1.02 ACCESS AND EGRESS

.1 Maintain fire department access and occupant egress.

.2 Keep within limits of Work and avenues of ingress and egress.

1.03 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Contract Administrator and The City to facilitate work as stated.

.2 Maintain existing services to building and provide for personnel and vehicle access.

1.04 CONTRACTOR USE OF PREMISES

.1 Confine delivery activities to designated areas as directed by Contract Administrator and The City.

.2 Execute delivery with least possible interference or disturbance to normal use of premises. Make arrangements with Contract Administrator and The City to facilitate work as stated.

1.05 THE CITY OCCUPANCY

.1 The City will occupy premises during entire construction period.

.2 Cooperate with The City in scheduling operations to minimize disruptions and to facilitate The City usage.

1.06 RESTRICTED HOURS OF WORK IN OCCUPIED FACILITIES

.1 Work may not be performed during The City's normal business hours which are Monday to Friday from 8:00 hrs to 17:00 hrs.

.2 Allow for hours of Work restrictions in construction progress schedule.

1.07 MAINTAINING LIFE SAFETY SYSTEMS IN OCCUPIED FACILITIES

.1 Maintain operational life safety systems and public access to exits in occupied areas during all stages of the *Work*.

1.08 SPECIAL REQUIREMENTS

.1 Deliver materials outside of peak traffic hours 17:00 hr to 19:00 hrs and 13:00 hrs to 15:00 hrs unless otherwise approved by Contract Administrator and The City.

.2 Ensure that personnel employed on site become familiar with and follow regulations including safety, fire, traffic, and security regulations.

1.09 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions.

END OF SECTION

1.01 SUMMARY

.1 Section includes Cash Allowances carried by the Contractor.

1.02 GENERAL

.1 Reference to Trade Sections or Divisions, where noted, indicates where the description of work to be performed for this Cash Allowance is defined.

.2 Contract Price includes the cash allowances, if any, stated in the Contract Documents. The scope of work or costs included in such cash allowances shall be as described in the Contract Documents.

.3 The Contract Price, and not the cash allowances, includes the Contractor's overhead and profit in connection with such cash allowances.

.4 Expenditures under cash allowances shall be authorized by the Contract Administrator.

.5 Where the actual cost of the Work under any cash allowance exceeds the amount of the allowance, the Contractor shall be compensated for the excess incurred and substantiated plus an amount for overhead and profit on the excess as set out in the Contract Documents. Where the actual cost of the Work under any cash allowance is less than the amount of the allowance, The City shall be credited for the unexpended portion of the cash allowance, but not for the Contractor’s overhead and profit on such amount.

.6 The Contract Price shall be adjusted by Change Order to provide for any difference between the amount of each cash allowance and the actual cost of the work under that cash allowance.

.7 The value of the work performed under a cash allowance is eligible to be included in progress payments.

.8 The Contractor and the Contract Administrator shall jointly prepare a schedule that shows when the Contract Administrator and The City must authorize ordering of items called for under cash allowances to avoid delaying the progress of the Work.

1.03 CASH ALLOWANCES

.1 Cash Allowance No. 01 – Bus Hoist Manufacturer Services - Installation.

.2 Reference Section 01 78 00 - Closeout Submittals, Section 01 79 00 - Demonstration and Training, Section 01 91 13 - General Commissioning (Cx) Requirements, Section 14 45 29 – Two Post Inground Bus Hoist, installation services are indicated as follows:

- .1 Section 01 78 00 - Closeout Submittals:
  - .1 As-Builts / Record drawings.
  - .2 Warranty.
  - .3 Warranty Management Plan.
- .2 Section 01 79 00 - Demonstration and Training:
  - .1 Demonstration and training for bus hoists.
- .3 Section 01 91 13 - General Commissioning (Cx) Requirements:
  - .1 Testing and Inspections.
  - .2 Commissioning.
- .4 Section 09 91 00 - Painting:
  - .1 Painting of select bus hoist metal components as specified.

.5 Section 14 45 29 – Two Post Inground Bus Hoist

.1 Installation of six bus hoists, including handling of bus hoists from Winnipeg Transit storage area to new pit locations.

.2 Cash Allowance No. 01 Total Amount…….$ 60,000

END OF SECTION

1.01 SUMMARY

.1 Section Includes:

.1 Shop drawings

.2 Product data, test reports, certificates.

.3 Manufacturer’s instructions and field reports

1.02 DEFINITIONS

.1 Action Submittals: Written and graphic information and physical samples that require Contract Administrator’s responsive action. Unless specifically noted otherwise in individual section, the following are considered Action Submittals:

.1 Product Data

.2 Shop Drawings

.3 Reports

.4 Closeout Submittals

.2 Informational Submittals: Written and graphic information and physical samples that do not require Contract Administrator’s responsive action. Submittals may be rejected for not complying with requirements. Unless specifically noted otherwise in individual section, the following are considered Informational Submittals:

.1 Certificates

.2 Maintenance Data

.3 Material Safety Data Sheets (SDS)

.4 Inspection Reports

.5 Manufacturer’s Instructions

1.03 ADMINISTRATIVE

.1 Submit to Contract Administrator submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.4 Where items or information is not produced in SI Metric units converted values are acceptable.

.5 Review submittals prior to submission to Contract Administrator. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

.6 Notify Contract Administrator, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.7 Verify field measurements and affected adjacent Work are coordinated.

.8 Contractor's responsibility for errors and omissions in submission is not relieved by Contract Administrator review of submittals.

.9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Contract Administrator ‘s review.

.10 Keep one reviewed copy of each submission on site.

.11 Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Contract Administrator’s receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

.1 Submittals that are received by the Contract Administrator after 1:00 pm on working days will be considered as have been received on the next working day.

.2 Initial Review: Allow five working days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Contract Administrator will advise Contractor when a submittal being processed must be delayed for coordination.

.3 Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.

.4 Resubmittal Review: Allow five working days for review of each resubmittal.

1.04 SUBMITTAL SCHEDULE

.1 Submittal Schedule: Submit, as an Action Submittal, a list of submittals, arranged in chronological order by dates required by demolition schedule. Include time required for review when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Contract Administrator and additional time for handling and reviewing submittals required by those corrections.

.2 Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction progress schedule.

.1 Initial Submittal: Submit for review concurrently with the Construction Progress Schedule.

.1 Allow five working days for Contract Administrator review of submittal schedule.

.2 Format: Arrange the following information in a tabular format:

.1 Scheduled date for first submittal.

.2 Specification Section number and title.

.3 Submittal Category: Action; Informational.

.4 Name of Subcontractor.

.5 Description of the Work covered.

.6 Scheduled date for Contract Administrator’s final release or approval scheduled dates.

.2 Final (Revised) Submittal: Submit within 14 days of initial submittal.

.1 Submit revised submittal schedule to reflect Contract Administrator review comments and changes in current status and timing for submittals.

.3 Progress Submittals: Submit updated Submittal Schedule at monthly intervals to coincide with project meetings.

1.05 SHOP DRAWINGS AND PRODUCT DATA

.1 Submit shop drawings for Contract Administrator’s review.

.2 This review by the Contract Administrator is for the sole purpose of ascertaining conformance with the general concept of the scope of work. This review shall not mean that the Contract Administrator approves the content inherent in the shop drawings,

responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve the Contractor of their responsibilities for errors or omissions in the shop drawings or of their responsibility for meeting all requirements of the contract documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of the work of all sub-trades.

.3 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.4 Shop drawings that do not include the stamp, date, and signature of the person responsible for reviewing the shop drawings before submittal to the Contract Administrator, will be rejected and returned without being examined.

.5 Submit shop drawings bearing stamp and signature of qualified professional engineer registered or registered in Province of Manitoba, Canada and who holds a "certificate of authorization" from the EGM, where specifically requested in the specifications. Shop drawings not bearing the required Engineer's seal will be rejected and returned without being examined.

.6 Indicate materials, methods of construction and explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.7 Adjustments made on shop drawings by the Contract Administrator are not intended to change the Contract Price. If it is deemed that such adjustments affect the value of Work, state such in writing to the Contract Administrator prior to proceeding with fabrication or the Work.

.8 Make changes in shop drawings that the Contract Administrator may require, consistent with Contract Documents. When resubmitting, notify the Contract Administrator in writing of any revisions other than those requested.

.9 Accompany submissions with transmittal letter, containing:

- .1 date,
- .2 project title and number,
- .3 contractor's name and address,
- .4 identification and quantity of each shop drawing, product data, and samples, and
- .5 other pertinent data.

.10 Submissions include:

- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and Address of:
  - .1 Subcontractor,
  - .2 Supplier, and
  - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:

.1 Layout, showing dimensions, including identified field dimensions, and clearances.

.2 Setting details

.3 Capacities

.4 Performance characteristics

.5 Standards

.6 Operating weight

.7 Relationship to adjacent work.

.8 Other

.12 Submit one digital file in Adobe PDF file format of the following submittals:

.1 Shop drawings for each requirement requested in specification sections and as the Contract Administrator may reasonably request.

.2 Product data sheets or brochures for requirements requested in specification Sections and as requested by Contract Administrator where shop drawings will not be prepared due to standardized manufacture of product.

.3 Test reports for requirements requested in specification Sections and as requested by Contract Administrator.

.1 Report signed by authorized official of testing laboratory

.2 Testing must have been within three years of date of contract award for project.

.4 Certificates for requirements requested in specification Sections and as requested by Contract Administrator.

.1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.

.2 Certificates must be dated after award of project contract, complete with project name.

.5 Manufacturers' instructions for requirements requested in specification Sections and as requested by Contract Administrator.

.1 Pre-printed material describing installation of product, system or material, including special notices and material safety data sheets concerning impedances, hazards and safety precautions.

.6 Manufacturer's field reports for requirements requested in specification Sections and as requested by Contract Administrator.

.1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

.13 Delete information not applicable to project.

.14 Supplement standard information to provide details applicable to project.

.15 If upon review by the Contract Administrator, no errors or omissions in compliance with the Contract Documents are discovered or if only minor corrections are made, copies will be returned, and Work may proceed. If, however, shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through the same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

.16 No extension of Contract Time will be allowed for delays in the Work which may be caused for Contract Administrator‘s rejection of shop drawings.

.17 Shop drawings, which contain deviations from the Contract Documents which are not presented to the Contract Administrator in writing will be rejected and returned without being examined.

1.06 TESTING

.1 Keep one set of photographs on site.

.2 Provide one set of photographs to Contract Administrator.

1.07 CERTIFICATES AND TRANSCRIPTS

.1 Prior to commencement of the Work, provide evidence of compliance with worker's compensation legislation at the place of the Work, including payments due thereunder.

.2 Submit transcription of insurance immediately after award of Contract.

END OF SECTION

1.01 SUMMARY

.1 Section Includes:

.1 Product quality, availability, storage, handling, protection, and transportation.

.2 Manufacturer's instructions.

.3 Substitution procedures.

1.02 REFERENCE STANDARDS

.1 Within text of each Specification section, reference may be made to reference standards.

.2 Conform to these reference standards, in whole or in part as specifically requested in Specifications.

.3 If there is question as to whether any product or system is in conformance with applicable standards, Contract Administrator reserves right to have such products or systems tested to prove or disprove conformance.

.4 Cost for such testing will be borne by the City in event of conformance with Drawings and Specifications or by Contractor in event of non-conformance.

.5 Conform to latest date of issue of referenced standards in effect on date of submission of Bids, except where specific date or issue is specifically noted.

1.03 QUALITY ASSURANCE

.1 Products, Materials, equipment and articles (referred to as products throughout specifications) incorporated in Work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

.3 Should any dispute arise as to quality or fitness of products, decision rests strictly with Contract Administrator based upon requirements of Drawings and Specifications.

.4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout buildings.

.5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.04 AVAILABILITY

.1 Immediately upon receiving Letter of Intent, review product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of materials, equipment or articles are foreseeable, notify Contract Administrator within two days discovery of such in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

.2 In the event of failure to notify the Contract Administrator at commencement of Work, and should it subsequently appear that Work may be delayed for such reason, the Contract Administrator reserves the right to substitute more readily available products of similar character, at no increase in Contract Price or contract time.

1.05 SUBSTITUTIONS

.1 The Work is based on the materials and methods specified in the Specifications.

.2 Substitutions are permitted during Bid period only, make application in accordance with B7 Substitutes.

1.06 STORAGE HANDLING AND PROTECTION

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

.5 Remove and replace damaged products at own expense and to satisfaction of Contract Administrator.

.6 Touch-up damaged factory finished surfaces to Contract Administrator's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.07 TRANSPORTATION

.1 Pay the costs of transportation of products required in the performance of Work.

END OF SECTION

1.01 SUMMARY

.1 Section Includes:

.1 As-builts.

.2 Equipment and systems.

.3 Product data, materials, and related information.

.4 Operation and maintenance data.

.5 Warranties and bonds.

.6 Warranty Management Plan.

1.02 PRICE AND PAYMENT PROCEDURES

.1 Allowances:

.1 Refer to Section 01 21 00 – Allowances.

.2 Work of this Section is affected by Cash Allowance No. 1 for the provision of manufacturer's installation services.

1.03 SUBMISSION

.1 Submittals: In accordance with Section 01 33 00 - Submittal Procedures.

1.04 FORMAT

.1 Three hard copy (binders), one electronic format (PDF). Organize data in the form of an instructional manual.

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf, letter size format with spine and face pockets.

.3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.

.4 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.5 Arrange content by systems, process flow, under Section numbers and sequence of Table of Contents.

.6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.7 Text: Manufacturer's printed data, or typewritten data.

.8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

1.05 CONTENTS – EACH VOLUME

.1 Table of Contents:

.1 Provide title of project.

.2 Date of submission; names.

.3 Addresses and telephone numbers of Contract Administrator and Contractor with name of responsible parties.

.4 Schedule of products and systems indexed to content of volume.

.2 For each product or system:

.1 List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

1.06 AS-BUILTS

.1 Conform to The City of Winnipeg Tender 454-2024 clause D16 – “Records.”

1.07 RECORDING ACTUAL SITE CONDITIONS

.1 Record information on one set of black line opaque drawings, and within copy of Specifications. Make arrangements of black line opaque copies.

.2 Annotate with coloured felt tip marking pens, maintaining separate colours for each major system, for recording changed information.

.3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.

.4 Contract Drawings and Shop Drawings: Legibly mark each item to record actual construction, including:

.1 Measured locations of utilities and appurtenances referenced to visible and accessible features of construction.

.2 Field changes of dimension and detail.

.3 Changes made by change orders.

.4 Details not on original Contract Drawings.

.5 References to related shop drawings and modifications.

.5 Specifications: Legibly mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

.2 Changes made by Addenda and change orders.

.6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

1.08 WARRANTIES AND BONDS

.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

.2 List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principals.

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.

.4 Except for items put into use with the City’s permission, leave date of beginning of time of warranty until the Date of Total Performance is determined.

.5 Verify that documents are in proper form, contain full information, and are notarized.

.6 Co-execute submittals when required.

.7 Retain warranties and bonds until time specified for submittal.

1.09 WARRANTY MANAGEMENT PLAN

.1 Develop warranty management plan to contain information relevant to Warranties.

.2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Contract Administrator for review.

.3 Warranty management plan to include required actions and documents to assure that the City receives warranties to which it is entitled.

.4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.

.5 Submit, warranty information made available during construction phase, to Contract Administrator for review prior to each monthly pay estimate.

.6 Assemble approved information in binder and submit upon acceptance of work.

.7 Except for items put into use with The City's permission, leave date of beginning of time of warranty until Date of Total Performance is determined.

.8 Conduct joint four-month and nine-month warranty inspection, measured from time of acceptance, by Contract Administrator.

.9 Include information contained in warranty management plan as follows:

.1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractor, Subcontractors, manufacturers or suppliers involved.

.2 Contractor's plans for attendance at four and nine-month post-construction warranty inspections.

.3 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

.10 Respond in a timely manner to oral or written notification of required construction warranty repair work.

.11 Written verification will follow oral instructions. Failure to respond will be cause for the Contract Administrator to proceed with action against Contractor.

END OF SECTION

1.01 SUMMARY

.1 Section Includes:

.1 Roles and responsibilities of training.

1.02 RELATED REQUIREMENTS

.1 Section 01 91 13 - General Commissioning (CX) Requirements

.2 Section 14 45 29 – Two Post Inground Bus Lift

1.03 PRICE AND PAYMENT PROCEDURES

.1 Allowances:

.1 Refer to Section 01 21 00 – Allowances.

.2 Work of this Section is affected by Cash Allowance No. 1 for the provision of manufacturer’s support services during future Work.

1.04 ACRONYMS

.1 Cx - Commissioning

.2 CxA - Commissioning Agent (Contract Administrator)

.3 O&M - Operation and Maintenance

.4 FCT - Functional Test

.5 MAI - Manufacturers Authorized Installer

.6 TAB - Testing, Adjusting and Balancing

1.05 DEFINITIONS

.1 Commissioning Authority (CxA): Means the Contract Administrator.

.2 Trainees: Means personnel selected for operating and maintaining this facility, including building operators, maintenance staff, security staff, and technical specialists as required.

1.06 ADMINISTRATIVE REQUIREMENTS

.1 Demonstrate operation and maintenance of equipment and systems to City's personnel two weeks prior to date of substantial inspection.

.2 City: Provide list of personnel to receive instructions, and co-ordinate their attendance at agreed-upon times.

.3 Preparation:

.1 Verify conditions for demonstration and instructions comply with requirements.

.2 Verify designated personnel are present.

.3 Ensure equipment has been inspected and put into operation in accordance with Section 01 91 13 and Section 14 45 29.

.4 Ensure testing, adjusting, and balancing has been performed in accordance with Section 01 91 13 and equipment and systems are fully operational.

.4 Demonstration and Instructions:

.1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment at agreed upon times, at the equipment location.

.2 Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.

.3 Review contents of manual in detail to explain aspects of operation and maintenance.

.4 Prepare and insert additional data in operations and maintenance manuals when needed during instructions.

1.07 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit schedule of time and date for demonstration of each item of equipment two weeks prior to designated dates, for CxA approval.

.3 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.

.4 Give time and date of each demonstration, with list of persons present.

.5 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

1.08 INSTRUCTORS

.1 Vendor and certified factory-trained manufacturers' personnel to provide instruction on the following:

.1 Start-Up, operation, shut-down of equipment, components and systems.

.2 Control features, reasons for, results of, implications on associated systems of, adjustment of set points of control and safety devices.

.3 Servicing, maintenance and adjustment of systems, equipment and components.

1.09 TRAINING OBJECTIVES

.1 Training to be detailed and duration to ensure:

.1 Safe, reliable, cost-effective, energy-efficient operation of systems in normal and emergency modes under all conditions.

.2 Effective on-going inspection, measurements of system performance.

.3 Proper preventive maintenance, diagnosis and trouble-shooting.

.4 Ability to update documentation.

.5 Ability to operate equipment and systems under emergency conditions until appropriate qualified assistance arrives.

1.10 TRAINING MATERIALS

.1 Training Plans:

.1 Formal training plans for each system shall be prepared by the Vendor for review by the CxA.

.2 Training Materials to Include:

.1 "As-Built" Contract Documents (as available at time of training)

.2 TAB and FCT Reports (as available at time of training)

.3 O&M Manuals

.3 Vendor, City, and CxA will review training plan.

.4 Training materials to be in a format that permits future training procedures to same degree of detail.

.5 Supplement Training Materials:

.1 Multimedia presentations.

.2 Manufacturer's training videos.

1.11 SCHEDULING

.1 Include in Commissioning schedule time for training.

.2 Deliver training during regular working hours.

.3 Training to be completed prior to acceptance of facility.

1.12 RESPONSIBILITIES

.1 Vendor:

.1 Providing detailed training plan and schedule.

.2 Implementation of training activities.

.3 Quality of training, training materials

.2 Upon completion of training, provide written report to CxA, signed by instructor.

1.13 TRAINING CONTENT

.1 Training to include demonstrations by Instructors using the installed equipment and systems.

.2 Content Includes:

.1 Review of facility and occupancy profile.

.2 Functional requirements.

.3 System philosophy, limitations of systems and emergency procedures.

.4 Review of system layout, equipment, components and controls.

.5 Equipment and system start-up, operation, monitoring, servicing, maintenance and shut-down procedures.

.6 System operating sequences, including step-by-step directions for starting up, shut-down, operation of valves, dampers, switches, adjustment of control settings and emergency procedures.

.7 Maintenance and servicing.

.8 Trouble-shooting diagnosis.

.9 Inter-action among systems during integrated operation.

.10 Review of O&M documentation.

.3 Provide specialized training as specified in relevant technical sections of the specifications.

END OF SECTION

1.01 SUMMARY

.1 Section Includes:

.1 General requirements relating to commissioning of two post inground bus lifts, specifying general requirements to performance verification of components, and equipment.

1.02 RELATED REQUIREMENTS

.1 Section 01 79 00 – Demonstration and Training

.2 Section 14 45 29 – Two Post Inground Bus Lift

1.03 PRICE AND PAYMENT PROCEDURES

.1 Allowances:

.1 Refer to Section 01 21 00 – Allowances.

.2 Work of this Section is affected by Cash Allowance No. 1 for the provision of manufacturer's installation services during future Work.

1.04 ACRONYMS

.1 Cx - Commissioning

.2 CxA - Commissioning Authority (Contract Administrator)

.3 O&M - Operation and Maintenance

.4 CVF - Component Verification Form

.5 FCT - Functional Test

.6 MAI - Manufacturers Authorized Installer

.7 TAB - Testing, Adjusting and Balancing

1.05 DEFINITIONS

.1 Commissioning Authority (CxA): Means Stantec Consulting Ltd.

1.06 GENERAL

.1 Commissioning is a formal, systematic process of ensuring that building systems perform interactively according to the design intent and The City's operational needs.

.2 Commissioning during the construction phase is intended to achieve the following specific objectives according to the Contract Documents:

.1 Applicable equipment and systems are installed according to the manufacturer's recommendations and to industry accepted standards and that they receive adequate operational checkout by installing contractors.

.2 Proper performance of equipment and systems is documented.

.3 O&M documentation left on site is complete.

.4 City's operating personnel are adequately trained.

.3 The Contractor is responsible for demonstrating equipment and systems, troubleshooting and making adjustments as required to the satisfaction of the CxA.

.1 Systems to be operated at full capacity under various modes to determine if they function correctly and consistently at peak efficiency. Systems to be interactively

tested with each other as intended in accordance with Contract Documents and design criteria.

.2 During these checks, adjustments to be made to enhance performance to meet environmental or user requirements.

1.07 NON-CONFORMANCE TO PERFORMANCE VERIFICATION REQUIREMENTS

.1 Should equipment, system components, and associated controls be incorrectly installed or malfunction during Cx, the Contractor shall correct deficiencies, re-verify equipment and components within the non-functional system, including related systems as deemed required by the CxA and/or related design authority, to ensure effective performance.

.2 Contractor costs for corrective work, additional tests, and inspections to ensure proper performance of such items to be borne by Contractor.

.3 Contractor shall pay for all CxA expenses associated with excessive retesting of systems.

1.08 COORDINATION

.1 The following are members of the commissioning team:

.1 Commissioning Authority (Contract Administrator)

.2 Contractor

.3 Manufacturers Authorized Installer

.4 Electrical Subcontractor

.5 Any other installing Subcontractors or suppliers of equipment.

1.09 CONFLICTS (BETWEEN SPECIFICATION SECTIONS)

.1 Report conflicts between requirements of this section and other specification sections to the Contractor before start-up and obtain clarification.

.2 Failure to report conflict and obtain clarification (through RFI process) will result in application of the design authority's intent on the issue.

1.10 COMMISSIONING SCHEDULE

.1 The Contractor will provide Cx schedule to CxA for review and comment.

.2 The Contractor will provide adequate time for Cx activities prescribed in technical sections and commissioning sections including:

.1 Commissioning site visits

.2 Component verification completion

.3 Startup and pre-functional activities

.4 Performance Verification testing dates

.5 City training

.3 All parties are responsible to address scheduling problems and make necessary notifications in a timely manner in order to expedite the commissioning process.

1.11 SYSTEMS TO BE COMMISSIONED

.1 The commissioning of the two post inground bus hoists will be performed under this Contract with oversight of the CxA. The Contractor is also required to comply with contract requirements for systems not included in this list.

.1 Operating Performance Verifications:

.1 Hoist:
.1 Vertical travel.
.2 Clearance to structure.
.2 Controls:
.1 Wall Mounted/Pendant Controls:
.1 Disconnect switch.
.2 On/Off.
.3 Emergency stop
.4 Up/down
.5 Key operated return override.
.6 Other components.

.2 Functional Performance Verification:
.1 Controls:
.1 Vertical Travel:
.1 Speed up.
.2 Speed down.
.2 Emergency Stop:
.1 Disconnect switch.
.2 Key operated return override.
.3 Pinch-point safety strips
.2 Load Test:
.1 Load test hoist.
.2 Full vertical travel
.3 Emergency stop
.4 Park safety latches

1.12 MEETINGS

.1 Commissioning Kickoff Meeting. The CxA will schedule, plan and conduct a commissioning scoping meeting with the entire commissioning team in attendance.

.2 Miscellaneous Meetings. Other meetings will be planned and conducted by the CxA at the discretion of the CxA as construction progresses. These meetings will cover coordination, deficiency resolution and planning issues with particular Subcontractors.

1.13 SUBMITTALS (SHOP DRAWINGS)

.1 The CxA requires submittal documentation for facilitating the commissioning work. These requests will be integrated into the normal submittal process and protocol of the construction team.

.2 These submittals to the CxA do not constitute compliance for O&M manual documentation. The O&M manuals are the responsibility of the Contractor, though the CxA will review them and provide feedback, where in the opinion of the CxA, correction is required. O&M manuals must be submitted in electronic (pdf) format.

1.14 COMPONENT VERIFICATION FORMS and INITIAL CHECKOUT

.1 The following procedures apply to all equipment to be commissioned.

.2 Component Verification Forms (CVF). CVF checklists document that the equipment and systems are installed in accordance with the design intent and good practice. CVFs for a given system must be successfully completed prior to Functional Testing.

.1 CVFs will be developed in an electronic format (pdf) by the CxA after the award of the construction contract and electronic copies will be provided to the Contractor. The Contractor and Subcontractors are responsible to execute and document the CVF on site, and return to the CxA for inclusion in the final report. The CxA will verify the installation and accuracy of the CVFs using an audit process.

.2 CVFs are used to track and document that the proper equipment has been specified, submitted and installed. The forms capture typical maintenance information such as tag #, model, service, location, nameplate data, static submittal data, etc.

.3 Issues identified during commissioning inspections will be documented by the CxA on the issue tracking log.

.1 The Contractor shall respond to issues and ensure correction.

1.15 SYSTEM START-UP

.1 Start-up Plan. The Contractor will provide a detailed start-up plan for all commissioned equipment for review by the CxA.

.2 The start-up plan will include blank start-up forms (provided by manufacturer, or otherwise) for commissioned systems.

.1 The CxA may attend start-up at their discretion to ensure that start-up documentation and procedures are being followed as required.

.2 The Contractor and vendors shall execute start-up.

.3 Provide the CxA with a signed and dated copy of the completed start-up report.

.3 Start-up documentation to include:

.1 Factory and on-site test certificates for specified equipment.

.2 Pre-start-up inspection reports.

.3 Signed installation/start-up check lists.

.4 Start-up reports,

.5 Step-by-step description of complete start-up procedures, to permit Contract Administrator to repeat start-up at any time.

.4 Submit required startup documentation including, but not limited to:

.1 Equipment:

.1 Inground Telescopic Piston Lift

1.16 FUNCTIONAL TESTING

.1 Refer to this article for the list of systems to be commissioned.

.2 Functional Testing (FCT) demonstrates that each system is operating according to the documented design intent and Contract documents. Each system should be operated through all modes of operation (seasonal, occupied, unoccupied, warm-up, cool-down, part and full load). Verifying the sequences of operation is required for all modes. Proper responses to modes and conditions such as power failure, freeze conditions, fire alarm conditions, equipment failure, etc. may also be tested.

.3 Functional Tests will be developed in an electronic format (pdf) after award of the Construction Contract by the CxA and electronic copies will be provided to Contractors.

.4 The Component Verification Forms (CVFs) for a given system's equipment must be completed prior to the Functional Test.

.5 The Contractor and/or vendors shall execute the Functional Tests as a pre-functional test to verify correct system operation and provide the CxA with a signed and dated copy of the completed tests prior to formal Functional Testing with the CxA present.

.6 Issues identified during Functional Testing will be documented by the CxA on the issue tracking log.

.1 The Contractor shall respond to issues and ensure correction.

1.17 SEVEN DAY INTEGRATED SYSTEM TESTING

.1 A seven Day Integrated Systems Test will be completed to ensure proper performance and operation.

.2 General Acceptance requires that the systems operate as one entity as intended and that documentation is provided indicating such.

.3 Issues identified during seven-day testing will be documented by the CxA on the issue tracking log.

.1 Contractors shall respond to issues and ensure correction.

1.18 ISSUE TRACKING LOG

.1 Contractors shall respond to issues noted on the issue tracking log within seven calendar days indicating the corrective action taken.

.2 CxA may request the Contractor demonstrate successful resolution of items noted on the tracking log.

1.19 TRAINING

.1 Refer to 01 79 00 - Demonstration and Training for requirements.

1.20 SYSTEMS MANUAL

.1 Contractor to provide the following documentation to the CxA for inclusion in the systems manual:

.1 As-built architectural drawings (electronic copy)

.2 As-built mechanical drawings (electronic copy)

.3 As-built electrical drawings (electronic copy)

.4 As-built controls drawings and cut sheets (electronic copy)

.5 Operations and Maintenance manuals (electronic copy)

1.21 AUTHORITIES HAVING JURISDICTION (I.E. GOVERNMENT AND UTILITY AUTHORITIES)

.1 Where specified start-up, testing or commissioning procedures duplicate verification requirements of authority having jurisdiction, arrange for CxA to witness procedures so as to avoid duplication of tests and to facilitate expedient acceptance of facility.

.2 Obtain certificates of approval, acceptance and compliance with rules and regulation of authority having jurisdiction.

.3 Provide copies to CxA within seven calendar days of test.

END OF SECTION

1.01 SUMMARY

.1 Section Includes:

.1 General requirements relating to commissioning of two post inground bus lifts, specifying general requirements to performance verification of components, and equipment.

1.02 RELATED REQUIREMENTS

.1 Section 01 79 00 – Demonstration and Training

.2 Section 14 45 29 - Two Post Inground Bus Hoist

1.03 PRICE AND PAYMENT PROCEDURES

.1 Allowances:

.1 Refer to Section 01 21 00 – Allowances.

.2 Work of this Section is affected by Cash Allowance No. 1 for the provision of manufacturer's installation services during future Work.

1.04 COMMISSIONING AGENCY

.1 Contract Administrator will act as commissioning agent to provide commissioning services for the Project.

1.05 VENDOR RESPONSIBILITIES

.1 Prepare each system ready for commissioning. Verify systems installation is complete and in operation.

.2 Coordinate commissioning with and assist commissioning agency.

.3 Perform and document verification, performance testing, adjusting, and balancing operations.

.4 Cooperate with commissioning agency and provide access to equipment and systems.

.5 Provide personnel and operate systems at designated times, and under conditions required for proper commissioning.

.6 Make instruments available to commissioning agency to facilitate spot checks during commissioning.

.7 Participate in commissioning meetings.

.8 Complete commissioning forms as requested by commissioning agency.

.9 Correct deficiencies identified in commissioning process.

.10 Incorporate commissioning data into operation and maintenance manual.

.11 Ensure that commissioning agent participates in demonstration and training as specified in Section 01 79 00 – Demonstration and Training.

1.06 COMMISSIONING AGENT RESPONSIBILITIES

.1 The commissioning agent will:

.1 Prepare a commissioning plan, including systems to be commissioned, forms, checklists and responsibilities of commissioning team members.

.2 Implement the commissioning plan and lead the commissioning team through start-up, verification, performance testing, training, and document preparation.

.3 Convene, chair, prepare and distribute minutes of commissioning meetings.

.4 Supervise commissioning activities and witness inspections and tests.

.5 Review verification and performance test results and direct Vendor to correct defects or deficiencies in the Work.

.6 Initiate Change Orders or Change Directives identified as necessary by the commissioning process.

.7 Make periodic site visits for the purpose of selective checking of accuracy of commissioning form submissions, witness testing, and review of mock-ups.

.8 Review content of operations and maintenance manual.

.9 Assign operations and maintenance personnel to participate in meetings, and witnessing of demonstration, and training.

.10 Designate a person to acknowledge receipt of reports.

1.07 SCHEDULE OF EQUIPMENT AND SYSTEMS TO BE COMMISSIONED

.1 The commissioning of the two post inground bus hoists will be performed under this Contract.

.1 Operating Performance Verifications:

.1 Hoist:

.1 Vertical travel.

.2 Clearance to structure.

.2 Controls:

.1 Wall Mounted/Pendant Controls:

.1 Disconnect switch.

.2 On/Off.

.3 Emergency stop

.4 Up/down

.5 Key operated return override.

.6 Other components.

.2 Functional Performance Verification:

.1 Controls:

.1 Vertical Travel:

.1 Speed up.

.2 Speed down.

.2 Emergency Stop:

.1 Disconnect switch.

.2 Key operated return override.

.3 Pinch-point safety strips.

.2 Load Test:

.1 Load test hoist.

.2 Full vertical travel

.3 Emergency stop

.4 Park safety latches

END OF SECTION

Part 1 General

1.01 SUMMARY

.1 Section Includes:

.1 Paint all new work as indicated and as specified.

.2 Refer to all drawing and coordinate with work of other trades. Claims for extras to the Contract will not be accepted due to the failure of the Contractor to become fully aware of all work that is required.

1.02 PRICE AND PAYMENT PROCEDURES

.1 Allowances:

.1 Refer to Section 01 21 00 – Allowances.

.2 Work of this Section is affected by Cash Allowance No. 1 for the provision of manufacturer's installation services during future work.

1.03 RELATED REQUIREMENTS

.1 Sections with Items Requiring Site Finishing:

.1 Section 14 45 29 – Two Post Inground Bus Hoist.

1.04 REFERENCE STANDARDS

.1 ASTM International

.1 ASTM D4541-17, Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers

.2 ASTM D4752 – 10(2015), Standard Practice for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub

.3 ASTM D7091 – 13, Standard Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals

.2 Master Painters Institute (MPI)

.1 Architectural Painting Specifications Manual (2014)

.3 Environmental Protection Agency (EPA)

.1 Test Method for Measuring Total Volatile Organic Compound Content of Consumer Products, Method 24 (for Surface Coatings) of the Environmental Protection Agency (EPA)

.2 SW-846, Test Method for Evaluating Solid Waste, Physical/Chemical Methods

1.05 ACTION / INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit product data and manufacturer's installation/application instructions for each paint and coating product to be used on project.

.3 Samples:

.1 Indicate where colour availability is restricted.

.2 Submit duplicate 200 by 300 mm sample panels of each paint, stain, clear coating, and special finish with specified paint or coating in colours, gloss/sheen and textures required to MPI Painting Specification Manual standards submitted on the following substrate materials:

.1 3 mm plate steel for finishes over metal surfaces.

.3 When approved, sample panels shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.

1.06 CLOSEOUT SUBMITTALS

.1 Upon completion, submit records of products used. List products in relation to finish system and include the following:

.1 Product name, type and use.

.2 Manufacturer's product number.

.3 Colour numbers.

.4 MPI Environmentally Friendly classification system rating.

.5 Manufacturer's Material Safety Data Sheets (MSDS).

1.07 QUALITY ASSURANCE

.1 Contractor shall have a minimum of five years proven satisfactory experience. When requested, provide a list of last three comparable jobs including, job name and location, specifying authority, and project manager.

.2 Qualified journeymen who have a "Tradesman Qualification Certificate of Proficiency" shall be engaged in painting work. Apprentices may be employed provided they work under the direct supervision of a qualified journeyman in accordance with trade regulations.

.3 Conform to latest MPI requirements for painting work including preparation and priming.

.4 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) shall be in accordance with MPI Painting Specification Manual "Approved Product" listing and shall be from a single manufacturer for each system used.

.5 Other paint materials such as linseed oil, shellac, turpentine, etc. shall be the highest quality product of an approved manufacturer listed in MPI Painting Specification Manual and shall be compatible with other coating materials as required.

.6 Retain purchase orders, invoices and other documents to prove conformance with noted MPI requirements when requested by Contract Administrator.

.7 Standard of Acceptance:

.1 Horizontal and vertical surfaces: no defects visible from a distance of 1 m at 90° to surface.

.2 Final coat to exhibit uniformity of colour and uniformity of sheen across full surface area and shall be acceptable to Contract Administrator.

1.08 ENVIRONMENTAL PERFORMANCE REQUIREMENTS

.1 Provide paint products meeting MPI "Environmentally Friendly" E1, ratings based on VOC (EPA Method 24) content levels.

.2 Where indoor air quality (odour) is a problem, use only MPI listed materials having a minimum E2 rating.

1.09 SCHEDULING OF WORK

.1 Submit work schedule for various stages of painting to Contract Administrator for review. Submit schedule minimum of 48 hours in advance of proposed operations.

.2 Obtain written authorization from Contract Administrator for any changes in work schedule.

.3 Schedule painting operations to prevent disruption of occupants in and about the building.

1.10 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Labels shall clearly indicate:

.1 Manufacturer's name and address.

.2 Type of paint or coating.

.3 Compliance with applicable standard.

.4 Colour number in accordance with established colour schedule.

.3 Remove damaged, opened and rejected materials from site.

.4 Provide and maintain dry, temperature controlled, secure storage.

.5 Observe manufacturer's recommendations for storage and handling.

.6 Store materials and supplies away from heat generating devices.

.7 Store materials and equipment in a well ventilated area with temperature range 7°C to 30°C.

.8 Store temperature sensitive products above minimum temperature as recommended by manufacturer.

.9 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Contract Administrator. After completion of operations, return areas to clean condition to approval of Contract Administrator.

.10 Remove paint materials from storage only in quantities required for same day use.

.11 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.

.12 Fire Safety Requirements:

.1 Provide one 9 kg Type ABC dry chemical fire extinguisher adjacent to storage area.

.2 Store oily rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.

.3 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

1.11 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal, and Waste Reduction Work Plan.

.2 Paint and related materials (thinners, solvents, etc.) are regarded as hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from Provincial Ministries of Environment and Regional levels of Government.

.3 Material which cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.

.4 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.

.5 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into ground the following procedures shall be strictly adhered to:

.1 Retain cleaning water for water-based materials to allow sediments to be filtered out.

.2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.

.3 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.

.4 Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.

.5 Empty paint cans are to be dry prior to disposal or recycling (where available).

.6 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.

.7 Set aside and protect surplus and uncontaminated finish materials: Deliver to or arrange collection by, individuals, or organizations for verifiable re-use or re-manufacturing.

.8 Close and seal tightly partly used sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.

1.12 SITE CONDITIONS

.1 Temperature, Humidity and Substrate Moisture Content Levels:

.1 Unless specifically pre-approved by the Contract Administrator and the applied product manufacturer, perform no painting work when:

.1 Ambient air and substrate temperatures are below 10°C.

.2 Substrate temperature is over 32°C unless paint is specifically formulated for application at high temperatures.

.3 Substrate and ambient air temperatures are expected to fall outside MPI or paint manufacturer's prescribed limits.

.4 The relative humidity is above 85% or when the dew point is less than 3°C variance between the air/surface temperature.

.5 Rain or snow is forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.

.2 Surface and Environmental Conditions:

.1 Apply paint finish only in areas where dust is no longer being generated by related construction operations or when wind or ventilation conditions are such that airborne particles will not affect quality of finished surface.

.2 Apply paint only to adequately prepared surfaces and to surfaces within moisture limits noted herein.

.3 Apply paint only when previous coat of paint is dry or adequately cured.

.3 Additional Interior Application Requirements:

.1 Apply paint finishes only when temperature at location of installation can be satisfactorily maintained within manufacturer's recommendations.

Part 2 Products

2.01 MATERIALS

.1 Paint materials listed in the MPI Approved Products List (APL) are acceptable for use on this project.

.2 Paint materials for paint systems shall be products of a single manufacturer.

.3 Only qualified products with E2 "Environmentally Friendly" rating are acceptable for use on this project.

2.02 COLOURS

.1 Contract Administrator will provide Colour Schedule after receipt of product data and samples.

.2 Selection of colours may be from several different manufacturers. Match colour samples exactly regardless of manufacturer.

.3 Second coat in a three-coat system to be tinted slightly lighter colour than topcoat to show visible difference between coats.

2.03 MIXING AND TINTING

.1 Perform colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials is allowed only with Contract Administrator's written permission.

.2 Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.

.3 Where thinner is used, addition shall not exceed paint manufacturer's recommendations. Do not use kerosene or any such organic solvents to thin water-based paints.

.4 Thin paint for spraying according in strict accordance with paint manufacturer's instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Contract Administrator.

.5 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.04 GLOSS/SHEEN RATINGS

.1 Paint gloss is defined as sheen rating of applied paint.

.2 Gloss levels in accordance with MPI Architectural Painting Specifications Manual, defined as follows:

Gloss Level	Description	Gloss @ 60º	Sheen @ 85º
G1	traditional matte finish - flat	Max. 5 units	Max. 10 units
G2	high hide sheet flat - 'velvet-like'	Max.10 units	10 - 35 units
G3	traditional 'eggshell-like'	10 - 25 units	10 - 35 units
G4	'satin-like'	20 - 35 units	Min. 35 units
G5	traditional semi-gloss	35 - 70 units	
G6	traditional gloss	70 - 85 units	
G7	high gloss	< 85 units	

.3 Gloss level ratings of interior painted surfaces as follows, except where specified otherwise:

Interior Surfaces	Gloss
Structural steel and metal fabrications	G5

2.05 INTERIOR PAINTING SYSTEMS

.1 Paint interior surfaces in accordance with the following MPI Painting Specification Manual requirements.

.2 All paint systems specified herein are premium grade unless otherwise indicated.

.3 Structural Steel and Metal Fabrications: Columns, beams, joists, including bus lift floor plates specified in Section 14 45 29 - Two Post Inground Bus Hoist, etc.

.1 INT 5.1F - Polyurethane, Pigmented (over epoxy primer).

Part 3 Execution

3.01 GENERAL

.1 Perform preparation and operations for painting in accordance with MPI Painting Specifications Manual requirements, except where indicated otherwise.

.2 Apply paint materials in accordance with paint manufacturers' written application instructions.

.3 Paint all new work, except prefinished items or where indicated otherwise.

3.02 EXISTING CONDITIONS

.1 Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to Contract Administrator damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.

.2 Conduct moisture testing of surfaces to be painted using a properly calibrated electronic moisture meter, except test concrete floors for moisture using a simple "cover patch test" and report findings to Contract Administrator.

.3 Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

3.03 PROTECTION

.1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore such surfaces as directed by Contract Administrator.

.2 Protect items that are permanently attached such as Fire Labels on doors and frames.

.3 Protect factory finished products and equipment.

.4 Remove electrical cover plates, surface mounted equipment, fittings and fastenings prior to undertaking any painting operations. Store items and re-installed after painting is completed.

.5 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.

.6 As painting operations progress, place "WET PAINT" signs in occupied areas to approval of Contract Administrator.

3.04 CLEANING AND PREPARATION

.1 Clean and prepare surfaces in accordance with MPI Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:

.1 Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or compressed air.

.2 Wash surfaces with a biodegradable detergent, and bleach where applicable, and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.

.3 Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.

.4 Allow surfaces to drain completely and allow to dry thoroughly.

.5 Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.

.6 Use trigger operated spray nozzles for water hoses.

.7 Many water-based paints cannot be removed with water once dried. However, minimize the use of kerosene or any such organic solvents to clean up water-based paints.

.2 New exposed and unexposed wood surfaces to receive shop applied primer before installation. Use same primers as specified for exposed surfaces and as follows:

.1 Apply solvent based sealer to MPI #36 over knots, pitch, sap and resinous areas.

.2 Apply wood filler to nail holes and cracks.

.3 Tint filler to match stains for stained woodwork.

.3 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove visible defects.

.4 Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements. Remove traces of blast products from surfaces, pockets and corners to be painted by brushing with clean brushes, blowing with clean dry compressed air, or vacuum cleaning.

.5 Touch up of shop primers with primer as specified in applicable section. Major touch-up including cleaning and painting of field connections, welds, rivets, nuts, washers, bolts, and damaged or defective paint and rusted areas, shall be by supplier of fabricated material.

.6 Do not apply paint until prepared surfaces have been reviewed by Contract Administrator.

3.05 APPLICATION

.1 Method of application shall be acceptable to Contract Administrator.

.2 Apply paint by air sprayer. Conform to manufacturer's application instructions unless specified otherwise.

.3 Brush and Roller Application:

.1 Apply paint in a uniform layer using brush and/or roller of types suitable for application.

.2 Work paint into cracks, crevices and corners.

.3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.

.4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces shall be free of roller tracking and heavy stipple unless approved by Contract Administrator.

.5 Remove runs, sags and brush marks from finished work and repaint.

.4 Spray Application:

.1 Provide and maintain equipment that is suitable for intended purpose, capable of properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.

.2 Keep paint ingredients properly mixed in containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.

.3 Apply paint in a uniform layer, with overlapping at edges of spray pattern.

.4 Brush out immediately all runs and sags.

.5 Use brushes to work paint into cracks, crevices and places which are not adequately painted by spray.

.5 Use dipping, sheepskins or daubers only when no other method is practical in places of difficult access and only when specifically authorized by Contract Administrator.

.6 Apply coats of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.7 Painting coats specified are intended to cover surface completely. If necessary apply additional coats until satisfactory coverage is obtained. Provide additional coats at not additional cost to Contract.

.8 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.9 Sand and dust between coats to remove visible defects.

.10 Doors and Frames:

.1 Finish top, bottom, edges and cutouts of doors after fitting as specified for door surfaces.

.2 Finish exposed edges of laminated plastic covered wood doors. Apply wood stain and clear sealer as specified for stained wood surfaces.

.3 Finish surfaces of doors and frames that will be concealed behind protective plates and coverings, door frame guards. Use same finish formula specified for visible portion of door.

.4 For exterior doors and frames indicated for painting/staining, use exterior quality paint/stain on both interior and exterior sides of door and frame.

.5 For doors and frames to receive epoxy coatings, finish both sides of doors and frames with same finish formula.

.11 Do not paint door and miscellaneous hardware, unless indicated otherwise.

.12 Do not paint nameplates, signage, fire labels, or other markers or signs indicated to remain.

.13 Do not paint copper, bronze, chromium plate, nickel, stainless steel, aluminum, lead and other bright metals, unless specified otherwise.

.14 Clean shop applied paint surfaces that become marked. Touch up with primer and paint as required.

3.06 RESTORATION

.1 Clean and re-install all hardware items removed before undertaken painting operations.

.2 Remove protective coverings and warning signs as soon as practical after operations cease.

.3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress, using compatible solvent.

.4 Protect freshly completed surfaces from paint droppings and dust with methods acceptable to Contract Administrator. Avoid scuffing newly applied paint.

END OF SECTION

Part 1 General

1.01 SUMMARY

.1 Section Includes:

.1 The supply and installation of inground, two piston hoist lifts.

.2 Provision of Product Data, Shop Drawings and maintenance data for inground hoist lifts.

1.02 RELATED REQUIREMENTS

.1 Section 00 43 39 – Form C: Procurement Form Supplements- Summary of Hoist Performance Requirements.

1.03 PRICE AND PAYMENT PROCEDURES

.1 Allowances:

.1 Refer to Section 01 21 00 – Allowances.

.2 Work of this Section is affected by Cash Allowance No. 1 for the provision of manufacturer's installation services during future work.

1.04 COORDINATION OF RELATED WORK

.1 Provide templates for installation of equipment and anchor bolts.

.2 Grading of floor slab to suit hoist installation.

.3 Service conduit in floor from power units to hoists.

.4 Electrical power requirements for power unit and control circuits by Division 26 up to control panel disconnect.

.5 Power wiring after control panel disconnect by this Section, to requirements of Division 26.

.6 Control wiring and conduit by this Section, to requirements of Division 26.

.7 Refer to Mechanical, Industrial Contract Drawings for hoist configuration, design and details read in conjunction with Structural Contract Drawings for hoist pit details and coordination requirements for concrete and formwork.

1.05 DEFINITIONS

.1 Rise: Means the distance platform rises up, measured from finished floor to upper most position.

.2 Safe Zone: Means location where operator must stand while lifting bus, in accordance with OHSA.

1.06 REFERENCE STANDARDS

.1 American Society of Civil Engineers (ASCE)

.1 ANSI/ALI ALCTV - 2011, Standard for Automotive Lifts - Safety Requirements for Construction, Testing and Validation

.2 ANSI/ALI ALOIM - 2020, Standard for Automotive Lifts - Safety Requirements for Operation, Inspection and Maintenance.

.3 ANSI/ASME B31.1 - 2020, Power Piping.

.2 Canadian Standards Group (CSA)

.1 CAN/CSA B167 (R2007), Safety Standard for Maintenance and Inspection of Overhead Cranes, Gantry Cranes, Monorails, Hoists and Trolleys

.2 CSA C22.1 - 2021, Canadian Electrical Code

.3 CSA W47.1;19, Certification of Companies for Fusion Welding of Steel

.4 CSA W59 - 2018, Welded Steel Construction (Metal Arc Welding).

.3 SAE J343 Revised 2017-12-20, Test and Test Procedures for SAE 100R Series Hydraulic Hose and Hose Assemblies.

1.07 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 Submittals Procedures.

.2 Product Data:

.1 Performance criteria, compliance with appropriate reference standard, characteristics, limitations and trouble-shooting protocol.

.2 Product transportation, storage, handling and installation requirements.

.3 Provide hydraulic pump curves and sound rating data, showing point of operation, bhp and efficiency.

.4 Provide hydraulic unit and control component product data, including but not limited to, relief valves, flow valves, solenoid valves, hoses, pistons, compressed air devices, control panels, switches, PLC and motors.

.3 Shop Drawings:

.1 Elevations, sections, details and operating components, dimensions, gauges, finishes of hoists, hydraulic power units, framing, cover plates and accessories and relationship of operating components to adjacent construction.

.2 Complete electrical wiring diagrams including electrical schematics and complete written sequence of operation.

.3 Coordination drawings indicating clearances to building structure and building services, including but not limited to walls, roof structure, heaters, light fixtures and duct work.

.4 Complete hydraulic schematics.

.5 Submit details of disassembly for maintainable components.

.4 Training Plan:

.1 Submit Training Course Material and Training Schedule in accordance with Section 01 79 00.

.5 Commissioning:

.1 Submit Commissioning Plan, Commissioning Procedures, Certificate of Readiness, Deficiency Report and Commissioning Closeout Report, in accordance with Section 01 91 13.

1.08 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals. Maintenance Data: For inground hoist lifts to include in maintenance manuals.

.2 Identification: Manufacturing name, type, year, serial number, number of units, capacity and identification of related systems.

.1 Functional description detailing operation and control of components.

.2 Performance criteria and maintenance data.

.3 Operating instructions and precautions.

.4 Safety precautions.

.5 Component parts availability including names and addresses of spare part suppliers.

.6 Consumables.

.7 Lubrication schedule indicating lubrication points and type of lubricant recommended.

.8 Maintenance and troubleshooting guidelines/protocol and recommended equipment to conduct analysis and repair.

.9 Start-up and test reports.

.10 Inspection and test reports as required by authority having jurisdiction.

.11 Final commissioning report.

.12 Pre-Start Health and Safety Conformance Letter.

.13 Extended Warranty.

.14 Electrical Testing Laboratories (ETL) certification of hoist assembly.

.15 Manufacturer’s Instructions:

.1 Installation instructions for all hoist components.

.2 Delivery and storage instructions for all hoist components.

.16 Spare parts list.

1.09 QUALITY ASSURANCE

.1 Hoist Manufacturer:

.1 Have minimum of ten years experience in design, supply and installation of inground piston hoist lifts with minimum of ten units operating in the field.

.2 Manufacturers agent (Supplier) to be resident in the City of Winnipeg and capable of servicing Winnipeg Transit.

.3 Be responsible for overall compatibility and co-ordination of bus hoist product and its associated parts, including but not limited to, special fabrications, pre-assembled parts supplied by other companies, hydraulic pumps, hydraulic cylinders, etc.

.4 Adhere to written system of policies and procedures in accordance with ANSI/ALI ALCTV.

.5 Ensure hoist equipment certified to meet or exceed requirements of ANSI/ALI ALCTV.

.3 Designer’s Qualifications:

.1 Equipment, hoist and all appurtenances licensed and approved for use in Manitoba.

.2 Review, stamp and sign fabrication and erection shop drawings and design calculations.

.3 Conduct shop and site inspections, prepare and submit inspection reports verifying this part of Work is in accordance with Contract Documents and reviewed shop drawings.

.4 Monitor and be able to report on supplier's and fabricator's quality control tests and reports for compliance with Contract Documents.

.5 Replacement Parts and Parts Supply Chain Inventory:

.1 Hoist supplier to provide listing and costs of custom fabricated parts most subject to wear and anticipated early replacement, which should be kept in inventory by supplier. Minimum inventory levels 1 for each unique part, unless more required, to ensure specified maintenance intervals and down time achieved.

.6 Pre-installation meetings:

.1 Following shop drawing and product data submissions, supplier or manufacturer to review final shop drawing and product data submissions with Contract Administrator and Winnipeg Transit officials.

1.10 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

1.11 SITE CONDITIONS (OPERATING CONDITIONS)

.1 In general, all devices to withstand harsh environmental conditions, with exposure to water, sand and salt in large quantities for extended periods of time.

.2 Garage and hoists in operation 24 hours per day, 365 days per year. Each hoist to be capable to operate through 10 up/down cycles each day.

.3 Design hoist equipment to withstand likely encountered conditions, but not limited to:

.1 Humid summer conditions: Condensation may form on equipment located at or below grade level.

.2 Floor washing: Water and debris may enter hoist equipment and pit openings.

.3 Drainage failure: Hoist pits may occasionally become waterlogged.

.4 Loose parts: Repair activities often result in small parts being dropped to floor. Protect hoist equipment from such parts becoming lodged in hoist mechanisms, especially safety devices.

1.12 SAFETY

.1 In general, provide safety features in accordance with ANSI/ALI ACTV and OSHA.

.2 Provide secondary safety locking devices in event main electrical power and/or hydraulics fail, while hoisting is occurring or as a result of any additional failure while buses are in a hoisted position

.3 Design equipment and select products for fail safe failure mode.

.4 Protect critical safety devices and hoist components from fouling due to water spray, dropped parts, and debris.

.5 Limit unintentional desynchronization of platforms to maintain level plane of hoisted vehicle.

.6 Provide key switch overrides for functions not required for normal use or could result in dangerous conditions.

.7 Limit up and down motion speeds to ANSI/ALI ACTV.

.8 Protect personnel from all pinch points, shear points, and rotating parts.

.9 Install warning labels at all potential sources of danger.

.10 Provide stops to prevent travel beyond normal range of motion. Protect hoisted buses from contacting building structure and any other equipment within proximity of hoist area.

.11 Provide mechanisms and procedures to safely lower hoisted vehicles after failure has occurred.

.12 Provide mechanisms and procedures to lock out hoist equipment not safe for use.

.13 Locate controls so operators cannot operate them from beneath vehicles and only when standing in safe position.

.14 Design and select equipment within hoist pits for Class 1 Division 2 environments.

.15 Limit noise from operating equipment to 80 dBA at 1 metre.

.16 Quick release fittings: Designed to prevent injury to maintainers.

1.13 WARRANTY

.1 Subject to warranty provided under the General Conditions, provide optional pricing for additional warranty on hoist equipment as described below.

.2 Five-year optional performance warranty from date of Substantial Performance:

.1 Warrant against failure all parts subject to normal use.

.2 Warrant any deficiency to meet design criteria and requirements of this specification.

.3 Coverage: Complete replacement of affected work.

.3 Ten-year optional corrosion warranty from date of Substantial Performance:

.1 Warrant against failure all corroded parts.

.2 Coverage: Complete replacement of affected work.

.4 Optional recommended warranty, as suggested by Supplier.

1.14 TRAINING

.1 Provide training as noted below.

.2 Maintenance Training:

.1 Plant Maintenance – Millwrights/Electricians:

.1 Allow a minimum of four hours of total in-class time (through remote presentation) to train for repair and maintenance aspects unique to the newly installed equipment and which is substantially different from the existing hoist equipment.

.2 Training tailored to maintenance staff.

.2 Training to be provided by certified technical staff.

1.15 SPARE PARTS

.1 Supplier to provide list of recommended spare parts as necessary for one year of operation, post warranty period.

Part 2 PRODUCTS

2.01 DESIGN REQUIREMENTS

.1 General:

.1 Hoist equipment to meet or exceed requirements of ANSI/ALI ALCTV.

.2 Consider hoist installation as heavy industrial application and design equipment accordingly.

.3 Design hoist system with minimum of simple, rugged components.

.4 Design equipment for minimum operating life of 25 years.

.5 Two post style, pit mounted.

.6 Hydraulically powered lifting mechanisms.

.7 Factors of safety: Load bearing elements including hoist pit structure to meet or exceed factors of safety described in ANSI/ALI ALCTV.

.8 All material welded to CSA-W47.1 and CSA-W59.

.9 Drive on, back off arrangement into angled stall locations.

.10 To suit Winnipeg Transit modified bunk spacing and configurations required for Excelsior and older model buses. Bidder to coordinate with City/bus manufacturer to obtain required bunk details in order to ensure all adapters and saddles are appropriate and required for Winnipeg Transit fleet. Unsuitable or unnecessary items will not be accepted.

.11 Use high pressure, low volume hydraulic power system to minimize hydraulic oil inventory.

.12 Hoist and associated services to withstand wet environment typical of region.

.2 Performance: Two post inground lifts that shall meet at least the following specifications

.1 Each Two post inground lift shall consist of two lifting units in line with the longitudinal axis of the vehicle, each lifting assembly equipped as to engage the axle and/or suspension as specified. One of the two lifting units is moveable fore and aft to affect variable spacing between lifting units and generally located for the front axle. The other lifting unit is fixed and generally located under the rear axle.

.2 Total lift capacity: 70,000 lbs (31 751 kg).

.3 Loading: 35,000 lbs. (15 875 kg) front post and 35,000 lbs. (15 875 kg) rear post.

.4 Front post shall be movable to provide proper engagement with vehicles ranging in wheelbases from 165 inches (4 190 mm) to 305 inches (7 747 mm)

.3 Corrosion Control and Protection:

.1 Applies to:

.1 All materials at or below grade.

.2 Materials imbedded in concrete.

.3 Materials exposed to moisture, water, salt or condensation.

.4 Any other material in electrical contact with above materials.

.2 Provide warranty to replace and upgrade to satisfaction of the Commission all components found corroded during warranty period.

.3 Design and select components as if subjected to heavy industrial environments.

.4 Select and assemble materials to resist or eliminate galvanic corrosion.

.5 Materials: stainless steel, chrome plated steel, or hot-dipped galvanized steel and/or cast iron. Rams to be chrome plated.

.6 Thickness of plating, dipping, etc. selected to meet minimum 25 years hoist life.

.7 Unprotected steel and iron not permitted. Frames and angle brackets shall be hot-dipped galvanized.

.8 Metals such as copper, brass, and related alloys not permitted, except where completely and permanently isolated from other less noble metals.

.9 Design equipment to withstand and control condensation.

.10 Hoist equipment to withstand and control water and debris from such activities, including soaps and detergents, oils and grease.

.4 Water Proofing Measures:

.1 Provide mechanisms to remove water trapped within hoist components, such as drainage holes, channels, notches and the like, to control water standing in frames and recesses.

.2 Prevent water from entering hoist components. Provide watertight construction wherever feasible.

.5 Hoist Controls:

.1 Control system shall conform to all current NEC, UL 201 and OSHA Codes.

.2 Main lift controls shall be provided via a remote pendant control hanging from a reel and retractable. It should be easily accessible to the operator and long enough to reach both front and rear of the bus without interfering with any other equipment. Alternately, a wireless remote control unit may also be used.

.3 Redundant controls shall be provided via a wall mounted control box. The wall control box shall not be deeper than twelve inches and shall be located such that it does not impede on the clear access around each bus required for maintenance personnel, equipment, tools and bus drive-thru exiting.

.4 Waterproof-rated.

.5 Connection cable to pendant to be provided with an additional five ft length (minimum) from standard length normally provided, to allow for future relocation.

.6 Controls to be provided with both audible(buzzer) and visual alarms. Visual alarms to be visible from all required line-of-sight directions.

.6 Environmental Protection:

.1 Provide features to mitigate loss of oil to environment due to leaks, ruptures, etc.

.2 Design tanks, hydraulic devices, etc. to minimize total oil capacity.

.3 Provide oil level monitoring and indication of leaks, sudden oil loss, etc.

.7 Coordination of Design:

.1 Coordinate revisions of hoist work with other trades impacted by those revisions.

.2 Make adjustments to hoist pit layout indicated on Contract Drawings to suit final arrangement of hoist equipment. Submit complete and detailed shop drawings of final hoist and pit design.

.3 Locate other appurtenances such as hoist cabinets, control panels and controls to avoid interference with other services while maximizing floor space.

.4 Coordinate sloping of floor in hoist area with adjacent work.

.8 Maintenance:

.1 In general, design and select equipment for scheduled maintenance intervals every six months. Select equipment and design hoists to limit down time for maintenance to two days total duration for each year.

.2 Locate hydraulic power units within the pit to minimize interference with work and to ensure maintenance access.

.3 Provide features to permit repairs and maintenance without use of hoist electrical supply or hydraulic power.

.4 Provide mechanism to drain hydraulic oil safely from cylinders into tank, providing means to lower raised buses safely to ground without electric power.

.5 Bearings sealed with grease fittings or lubricated for life ball bearing wheels.

.6 Design and arrange parts requiring maintenance and/or replacement removable with minimal disassembly or removal of adjacent equipment.

.7 Select and/or keep inventory of parts to ensure 24 hours availability for maintenance for life of hoist.

.8 Make and arrange components subject to wear such as lock dogs, axles, wheels, bearings, guides, rails, seals, wipers, etc. easily replaceable.

.9 Provide list of consumables required for routine and scheduled maintenance.

.10 Provide list of recommended spare parts, including cost and identifying source of suppliers and long lead items.

2.02 MANUFACTURERS AND PRODUCTS

.1 Subject to compliance with requirements specified in this section and as established by the basis of design materials, manufacturers offering products that may be incorporated into the work, but not limited to, include the following:

.1 Rotary, Vehicle Service Group; MOD 35.

.2 Stertil-Koni USA Inc.; In-Ground DIAMONDLIFT 64-70.

.2 Equipment described herein and as shown on Contract Drawings is representative of typical installation, manufacturer to make revisions to meet all requirements of specifications and site conditions. Provide complete, optimized and fully functional system.

2.03 MATERIALS

.1 Structural Steel and Metal Fabrications:

.1 Galvanizing: CSA G164M to minimum 700 g/m² galvanized coating. Galvanize after fabrication or touch up welds with Galvafroid.

.2 Steel Framing, Anchor Bolts, Anchors, etc.: minimum 3 coatings hot-dipped galvanized steel, as required and as indicated on Drawings.

.2 Hydraulic Hose:

.1 Flexible braided hose of size and material compatible with fluid and pressure conditions. Burst pressure minimum four times listed working pressure. In accordance with SAE J517 standard.

.2 Quick-release fittings at each end to prevent twisting of hose during installation and 90 degree elbows at each end. In accordance with SAE J516 standard. Observe: MOL advisory on quick release fittings.

.3 Compressed Air:

.1 Hoses: Anaconda Type T1 hose of Teflon with stainless steel wire braid, burst pressure 552 bar, test pressure 276 bar.

.2 Filter/Regulator/Lubricator assemblies.

2.04 INGROUND HOIST LIFT

.1 General:

.1 Heavy duty, two post inground, hoist piston lift installation.

.2 Entire lift assembly to consist of electrohydraulic lift, exterior mounted control console and accessories as specified herein.

.3 Supply lift with sufficient lengths of hydraulic hose, air hose and electrical cable to permit location to control console in safe position from hoisted vehicle.

.4 Use standard hydraulic fittings throughout lift.

.5 Dynamic lifting capacity 1.4 times nominal lifting capacity.

.6 Each 2-post lift shall consist of two lifting units in line with the longitudinal axis of the vehicle, each lifting assembly equipped as to engage the axle and/or suspension as specified. One of the two lifting units is moveable fore and aft to affect variable spacing between lifting units and generally located for the front axle. The other lifting unit is fixed and generally located under the rear axle.

.7 Total lift capacity: 70,000 lbs (31 751 kg).

.8 Loading: 35,000 lbs. (15 876 kg) front post and 35,000 lbs. (15 876 kg) rear post.

.9 Front post shall be movable to provide proper engagement with vehicles ranging in wheelbases from 165 inches (4 190 mm) to 305 inches (7 747 mm)

.10 Front Post shall rise 66 inches (1 676 mm) to top of jack assembly.

.11 Rear Post shall rise 69 inches (1 753 mm) to top of jack assembly.

.12 Front and Rear Diameter: 10-5/8 inches (270 mm).

.13 Lifting Rate: 1140 mm per minute, minimum capability

.14 Descending Rate: 2400 mm per minimum, maintained

.15 Moveable and fixed lifting units synchronization: 2-inches (50 mm).

.16 Electrical lift system labeled and listed by Third Party Testing Laboratory such as UL, CE, TUV, ITS or other recognized laboratory.

.17 Hydraulic system operates at high pressure and with single acting hydraulic cylinders (power up, gravity down).

.18 Provide secondary safety locking devices in event main electrical power and/or hydraulics fail while hoisting is occurring, or as a result of any additional failure while buses are in a hoisted position

.2 Lift:

.1 Flush mounted, drive on, back off arrangement.

.2 Units shall consist of frames, pumps, lift posts, a common motor assembly complete with relief valves, and check valves mounted on an appropriately sized hydraulic fluid reservoir. The power unit shall be factory assembled and tested.

.3 Lifts must be equipped with home pockets for rear saddles to sit flush with floor surface, and for front saddles to sit above floor, creating an unobstructed floor that minimizes tripping hazards

.4 Provide front and rear hoist adapters, supplied for each individual lift, capable of lifting all of Winnipeg Transit buses and compatible with existing sets. Provide Ultra Low Profile adapter assembly, part number FD2386YL.

.5 Unit floor frames shall be structural and have the option to be installed suspended from a thickened slab or on a load bearing foundation slab.

.6 Covers should be shaped to include a full-length interlocking hinge and shall fit together tightly and uniformly to promote smooth travel so as to prevent jamming and twisting. Covers shall be flush to finished floor level.

.7 The covers for the moveable lifting unit trench shall be engineered to accept a 7,500 lbs (3,402 kg) point load on a contact area of 2 by 2-inch (50 by 50 mm) as well as a drive-over load 6 by 9-inch (150 by 230 mm tire contact area) of 13,500 lbs./6,124 kg. Cover plates and saddles shall withstand direct and torsional wheel loads from bus traffic without permanent damage or bending. Bus traffic directly onto cover plates will be frequent. Standard cover plates are unacceptable due to proven track record of bending.

.8 Front and rear locking legs shall be rated at same capacity as the corresponding jacking units.

.9 The locking latches shall be spring loaded to the locked position and shall be released at the control location.

.10 Saddles to be Ultra Low profile to provide required clearance.

.1 Acceptable Saddle Assembly: FD2386YL as indicated on Drawing Q-001.

.11 The lift locking leg shall be attached to the saddle to prevent rotation insuring proper location of releases at all times. The locking leg shall prevent rotation of the piston assembly.

.3 High-Pressure Hydraulic Cylinder:

.1 Full hydraulic single acting high pressure with nominal working pressure of 150 bar and integral check valve limits peak pressure to 240 bar.

.2 Ram accurately machine polished steel. Outer cylinder casing ST52.2BK steel.

.3 Replaceable high pressure seals and packings.

.4 Ram protected from external water spray.

.4 Safety Features:

.1 General:

.1 “Up” and “Down” push buttons of dead man type, automatically returning to neutral position when released by operator.

.2 Contain hydraulic cylinders and locking devices to prevent damage from dirt, grime, contaminants and potentially falling objects.

.3 Check valves fitted in each cylinder to prevent lift from collapsing in event hydraulic hose ruptures while lift ascending or descending.

.4 Flow regulating valves to maintain maximum speed of 40 mm/s on descent.

.2 Safety Locks:

.1 Minimum of twelve locking positions throughout its lifting and lowering cycle.

.2 Minimum safety factor of not less than three.

.3 One set of locks mounted to each lifting cylinder.

.4 Locks designed with upper and lower locking jaw to ensure minimum amount of travel in event of hydraulic fluid leak and maintain height of lift.

.5 Locks operated by air cylinder requiring shop air of 90 to 125 PSI at control panel.

.6 Locks automatically disengaged when lift “lower” control operated, and automatically reengaged when lift “lower” control released.

.7 Locks to automatically engage as lift ascends, to ensure positive lock engagement in event of hydraulic failure.

.5 Manufacturers Name Plates:

.1 Product Type S-2 as per Section 20 05 53.

.2 Provide "caution" sign 100 by 200 mm, wall mounted at each control unit.

.3 Labeling in accordance with ANSI/ALI ALOIM.

.4 ETL Certification label.

2.05 HYDRAULIC POWER UNIT AND CONTROLS

.1 Hydraulic Power Unit:

.1 Hydraulic power unit shall be located within the pit to minimize interference with other work and to ensure maintenance access. Hydraulic power unit to consist of one gear pump driven by 600 V, 3 Phase, 60 Hz, or smaller motor mounted on oil reservoir/tank.

.2 One pump/motor/tank assembly per hoist.

.3 Select and arrange hydraulic distribution block/manifold, control valves, relief valves, pump, motor, filters, tanks, motors and other hydraulic system components to facilitate maintenance access for service, adjustment and replacement of all components.

.4 Select flow control, solenoid, check and relief valves and filters suited to application in accordance with industry standards, maximum system pressure rating, operating conditions, hydraulic fluid, durability and availability.

.2 Controls:

.1 All components recognized by third party testing laboratory such as UL, CSA, CE, or TUV.

.2 Main lift controls shall be provided via a remote pendant control hanging from a reel and retractable. It should be easily accessible to the operator and long enough to reach both front and rear of the bus without interfering with any other equipment.

.3 Redundant controls shall be provided via a wall mounted control box. The wall control box shall not be deeper than twelve inches and shall be located such that it does not impede on the clear access around each bus required for maintenance personnel, equipment, tools and bus drive-thru exiting.

.4 Control voltage rated to maximum of 24 VAC.

.5 Electrical enclosures for control components rated NEMA 4X waterproof and include as minimum:

.1 System disconnect.

.2 "Power on" pilot lamp.

.3 "Up" control and "down" control.

.4 "Mechanical lock down button".

.6 Connection cable to pendant to be provided with an additional five feet of length from the standard length traditionally provided, to allow for future relocation.

.7 Controls to come with audible and visual alarm

2.06 FINISHES

.1 Steel and Cast-Iron: Galvanized in accordance with CAN/CSA G164-M, all interior and exterior surfaces, 700 g/m².

.2 Pinch Points and Other Safety Zones: Paint in accordance with Section 09 91 00.

.1 Colour: Safety yellow.

.3 Floor Cover Plates: Paint in accordance with Section 09 91 00.

Part 3 Execution

3.01 PREPARATION

.1 Coordinate hoist pit requirements with installer.

.2 Supply layout drawings of hoist pits, dimensioned to building grid lines.

.3 Coordinate location of PVC ducts between hoist control panel and pit.

3.02 TESTING AND INSPECTION

.1 Upon completion of the Work, test and inspect in presence of the Contract Administrator, the Work for compliance with Specifications and manufacturer's drawing.

.2 Make good work found defective in manner acceptable to the Contract Administrator and reinspected, all at no cost to the City.

.3 Make any necessary adjustments to satisfaction of the Contract Administrator before hoists put into operation.

.4 Tests consist of:

.1 Performing all functions of hoisting system, including power unit;

.2 Perform following checks and issue test and inspection certificate for each hoist:

.1 Check accessibility and readability of operating and safety labels.

.2 Check rated load capacity of hoist with vehicle of suitable weight.

.3 Check all structural components including welds.

.4 Check all electrical components and wiring.

.5 Check all hydraulic and solenoid valves, hoses, piping, tubing, and fittings.

.6 Check all controls.

.7 Check all fastening devices for tightness including anchor bolts.

.8 Check exposed surfaces and edges.

.9 Operate hoist and check operation of positive stop and lift locks with representative vehicle.

.10 Check raising and lowering speed with representative vehicle.

.11 Check all points requiring lubrication.

.12 Check operation of synchronization or equalization system with representative vehicle.

.13 Operate hoist with representative vehicle; stop at midpoint of travel for period of one hour and measure drop, if any.

.5 Proof Load Test:

.1 Perform load test at certified rated capacity of hoist. Load apparatus to have evenly distributed load to test rated capacity of each cylinder.

.2 Operate hoist through full stroke cycle 2 times while loaded.

.3 Park hoist on mechanical safety devices for five minutes with power unit de-energized.

.4 No visible apparent deformation of any hoist component to result from load test. No impaired function observed during load test.

.5 Perform load test after installation and prior to all operational and functional tests.

.6 Operational and Functional Tests:

.1 Other operation tests with representative vehicle provided by the Commission:

.1 Operate lift through 5 cycles to demonstrate control functions and safety devices.

.2 Lowering speed test.

.3 Synchronization devices test.

.4 Out of level test.

.5 Front post movement test.

.6 Hydrostatic pressure test of hydraulic system at 1.5 times maximum operating pressure for one minute.

.7 Provide all labour, materials, apparatus and equipment required to perform all proof load, operational and functional tests as specified. To use the City’s buses, provide one-week advance notice to the Contract Administrator.

3.03 COMMISSIONING

.1 Perform Commissioning in accordance with Section 01 91 13

3.04 DEMONSTRATION AND TRAINING

.1 Engage a factory-authorized service representative to train City's maintenance personnel to operate, adjust, and maintain hoists. Refer to Section 01 79 00.

3.05 MAINTENANCE

.1 Maintain all equipment and systems installed until Substantial Performance.

.2 Check operation of each hoist with City's personnel present and before date of Substantial Completion and not more than one month before end of warranty period. Determine that operation systems and devices are functioning properly.

3.06 FORMS

.1 Section 00 43 39 - Form C: Procurement Form Supplements - Summary of Hoist Performance Requirements shall be submitted by lowest responsive Bidder within 24 hours upon request by Contract Administrator.

END OF SECTION