



RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

Public Works and Government Services Canada
ATB Place North Tower
10025 Jasper Ave./10025 ave. Jaspe
5th floor/5e étage
Edmonton
Alberta
T5J 1S6
Bid Fax: (780) 497-3510

**SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION**

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address
Raison sociale et adresse du
fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution
Public Works and Government Services Canada
ATB Place North Tower
10025 Jasper Ave./10025 ave Jasper
5th floor/5e étage
Edmonton
Alberta
T5J 1S6

Title - Sujet Waterton Visitor Centre Project	
Solicitation No. - N° de l'invitation 5P427-180003/A	Amendment No. - N° modif. 003
Client Reference No. - N° de référence du client 5P427-180003	Date 2019-03-05
GETS Reference No. - N° de référence de SEAG PW-\$PWU-183-11576	
File No. - N° de dossier PWU-8-41260 (183)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2019-03-20	Time Zone Fuseau horaire Mountain Standard Time MST
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Tikhonovitch (RPC), Alex	Buyer Id - Id de l'acheteur pwu183
Telephone No. - N° de téléphone (780) 901-7940 ()	FAX No. - N° de FAX (780) 497-3510
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

ADDENDUM #2

The contents of this addendum are as follows:

- 1.0 General Content
- 2.0 Architectural Related Content
- 3.0 Structural Related Content
- 4.0 Mechanical Related Content
- 5.0 Landscape Related Content
- 6.0 Civil Related Content
- 7.0 Interpretive Related Content

1.0 GENERAL CONTENT

1.1 QUESTIONS & ANSWERS

Q1: With regard to Appendix 4 – Qualification Form, it is not possible for us to provide prior to closing the requested information on the concrete contract, the 3D model contractor, or the AV contractor. In a competitive bid situation, it is not until closing day we will know who we will be carrying for this work. Can you please advise which contractors have pre-qualified for these scopes?

A1: The specialized sub-contractors identified in the qualification form for evaluation purposes (Appendix 4) must be the contractors that are utilized in the development of the bid. It is the responsibility of the general contractor to obtain these sub-contractors – there are no pre-qualified contractors identified as part of this tender. It is encouraged for general contractors to review the List of Interested Suppliers on the buyandsell website for this tender.

Q2: Could you please confirm there is no cash allowance for the Telus and Fortis utility connections and that we are to include these costs in our bid.

A2: There is no cash allowance for these utility connections. The general contractor must carry a suitable allowance for these connections based on the scope of the project and information available from the tender documents.

2.0 ARCHITECTURAL RELATED CONTENT

2.1 QUESTIONS & ANSWERS

Q3: On Landscape drawing L100 there is no legend designation for 08-02.

A3: See Addendum 1.

Q4: Specification section 04 43 26, item 2.3.1 refers to finish schedule for stone size, colour and shape. Finish schedule does not address.

A4: See Addendum 1.

Q5: Specification section 01 71 00, item 1.4.8: what is meant by this sentence? Does this refer to the mechanical and electrical infrastructure within the building or survey work outside of the building?

A5: Sentence refers to mechanical and electrical site services.

Q6: The back-delivery truck access it looks like there is a different shading, is that concrete or asphalt?

A6: See Landscape drawing L350 for limits of concrete surfaces. Architectural drawing A02-01 matches these surfaces.

Q7: Is there a waste transfer stations in the town?

A7: Yes, but the contractor cannot use it. It is for park residents only. All waste must be disposed of outside of the National Park.

Q8: Is the glulam supplier applying the fire-retardant coating to the exterior beams. If not, what type of burn rating are you looking for?

A8: Fire-retardant coating is not a requirement. Flame spread rating to be 40, smoke development classification to be 30.

Q9: Is the fire-retardant coating required on the exterior soffit?

A9: A fire-retardant coating is not required for the exterior soffit.

Q10: On the interior wood decking is that factory finished, or site finished. If it is site finished which system would be the preferred system? Is the wood decking to be back-primed

A10: Interior wood decking to be site finished. See addendum item below for type of wood finish. Wood decking will not be back-primed. Exterior wood deck finish to be as per specification item: Section 09 91 13, Exterior Painting, item 2.6.6.3.

Q11: What is floor finish for room a102? Drawings appear to differ from finish schedule.

A11 As specified and indicated. Drawings and Specification Document coincide/coordinate.

Q12: What is the pattern for floor finishes in rooms a105 and a108

A12: Resilient Sheet Flooring as specified. No pattern, except for inherent pattern of homogeneous product. Installation direction to be determined based on most cost effective (least waste) solution.

Q13: What type of stair finish for room A105.

A13: As specified and indicated on drawings. Refer to drawings and 09 99 90 Room Finish Schedule.

Q14: What is the floor finish for the corridor on the mezzanine south.

A14: As specified and indicated on drawings. Refer to drawings and 09 99 90 Room Finish Schedule.

2.2 SPECIFICATIONS

2.2.1 Add to Specification Sections:

- 01 35 21 LEED Requirements
- 01 47 15 Sustainable Requirements Construction
- 01 47 17 Sustainable Requirements Contractors Verification
- 01 79 00 Demonstration and Training
- 01 91 13 General Commissioning Requirements
- 01 91 31 Commissioning Plan
- 01 91 41 Commissioning Training

2.2.2 Section 07 52 00 Modified Bituminous Membrane Roofing

- Item: 1.1.21
 - o Sentence to read: "CSA A123.21-14: Standard test method for the dynamic wind uplift resistance of membrane-roofing system, Includes Update No 1 (2014)"

2.2.3 Section 09 91 23 Interior Painting

- Item 2.6.7.3.
 - o Delete: Item in its entirety.

2.3 DRAWINGS

2.3.1 Drawing A02-02

- Detail 3
 - o Delete: detail in its entirety
 - o Substitute: sketch detail 2S-06a

2.3.2 Drawing A04-01

- Plan A
 - o Revise storm water, servicing building C as per associated sketch drawing ASK-20

2.3.3 Drawing A04-06

- Plan A
 - o Extend roof overhangs as per associated sketch drawing ASK-19.

2.3.4 Drawing A07-03

- Detail 8
 - o Delete: detail in its entirety
 - o Substitute: sketch detail ASK-18

3.0 **STUCTURAL RELATED CONTENT**

3.1 **DRAWINGS**

3.1.1 **Drawing S1.8; Main Floor Finish Plan**

- Delete: Main Floor Finish Plan
Add: **SSK-03**

3.1.2 **Drawing S2.2; Mezzanine/Low Roof Plan**

- W760 steel beams supporting canopy and terminating at gridline D2 shall be coped at bottom ends along gridline D2 to suit architectural details.

3.1.3 **Drawing S4.0; Sections and Details**

- Delete Section 2/S4.0
Add: **SSK-02.**

4.0 MECHANICAL RELATED CONTENT

4.1 SPECIFICATIONS

- 4.1.1 Section 22 05 15 Plumbing Specialties and Accessories:**
- Change 3.17.2 to read "Training: provide training in accordance with Section 01 91 41 Commissioning Training, supplemented as specified."
- 4.1.2 Section 22 10 10 Plumbing Pumps:**
- Change 3.6.1 to read "In accordance with Section 01 91 41 Commissioning Training, supplemented as specified."
- 4.1.3 Section 23 08 01 Performance Verification Mechanical Piping Systems:**
- Change 1.10.1 to read "In accordance with Section 01 91 41 Commissioning Training, supplemented as specified herein."
- 4.1.4 Add Section 23 72 00 Reverse Flow Heat Recovery Units (attached):**
- Add specifications section 23 72 00 as per attached.
- 4.1.5 Add Section 23 81 23 Split Air Conditioning Units (attached):**
- Add specifications section 23 81 23 as per attached.
- 4.1.6 Section 25 90 01 EMCS: Site Requirements, Applications and Systems Sequences of Operation:**
- Delete 1.2.3.4.6 Humidity Control. Humidification controls for Building A are packaged and not through EMCS.

4.2 DRAWINGS

- 4.2.1 Reference drawing M01-01 Mechanical Legend and Schedules:**
- Plumbing Fixture Schedule: L-1 and L-2, change faucet from "Delta DEMD-301LF 1.9 l/min" to "Delta DEMD-301LF 1.3 l/min". Faucets to be hardwired.
 - Air Outlet, Grilles and Louvre Schedule: Change S4 from "custom, sidewall, brushed aluminum, 16 gauge perforated grille" to "DFR sidewall with flange mounting, brushed aluminum, 16 gauge grille".
- 4.2.2 Reference drawing M02-00 Foundation Plan and sketch MAD1.5:**
- Add storm piping as shown on MAD1.5
- 4.2.3 Reference drawing M02-01 Crawl Space Plans (attached):**
- Building A Crawl Space Ventilation Plan Detail 1: Add fire place combustion air duct, and revise air balance as shown from air terminal unit TB-110.
 - Building A Crawl Space Plumbing and Heating Plan Detail 2: Revise heating water piping east wall to suit radiation above
- 4.2.4 Reference drawing M02-02 Roof Plan:**
- Grids B1-C7/Ba-Bh: Roof drains over Buildings B and C to be changed from "100 RD" to "75 RD" – typical for 8 drains.
- 4.2.5 Reference drawing M03-01 Building A Plumbing & Heating Plan and attached sketch MAD1.1:**
- Building A Plumbing and Heating Plan-Main Level Detail 1: Interpretive A102 – Refer to sketch MAD1.1 for revised piping and bare fin on east wall.
- 4.2.6 Reference drawing M03-02 Building B&C Plumbing & Heating Plan (attached):**
- Revise storm piping as shown on revised plans (attached). Building C storm drops deleted – and connection shown on arch plans.
 - Detail 1 Building B Plumbing & Heating Plan: Revise radiant panels and glycol piping as shown on revised plan (attached).
- 4.2.7 Reference drawing M04-01 Building A Ventilation Plan (attached):**
- Building A Ventilation Plan – Main Level Detail 1: Revise grille lengths and number of grilles as per attached plan. Add fire place combustion air louvre. Add sheet metal liner as per keynote 8.
 - Building A Ventilation Plan – Mezzanine Level Detail 2: Revise grille lengths and number of grilles as per attached plan.

- 4.2.8 Reference drawing M04-02 Building B&C Ventilation Plan (attached):**
- Building B Ventilation Plan Detail 1: Add ducting and motorized damper as shown on attached. Revise grille locations and plenums as shown on attached.
 - Building C Ventilation Plan Detail 2: Add fire dampers as shown on attached. Refer to attached for additional ducting and grille tags.
- 4.2.9 Reference drawing M05-03 Canopy Fire Protection Plan and attached sketch MAD1.3:**
- Detail 1: Refer to attached MAD1.3 for revisions to piping.
- 4.2.10 Reference drawing M06-01A Mechanical Room and Washroom Plans:**
- Detail 1 Mechanical Room Lower Level Plan: Fire extinguisher to be 2.5kG in semi-recessed cabinet.
- 4.2.11 Reference drawing M06-01B Mezzanine Mechanical Room Plans and attached sketch MAD1.4:**
- Detail 1: Refer to MAD1.4 for revisions to duct branches.
- 4.2.12 Reference drawing M06-03 Mechanical Sections and attached sketch MAD1.2:**
- Section 2: Refer to attached MAD1.2 for revisions to grille placement (upper) and air gap behind grille.
- 4.2.13 Reference drawing M06-04 Building BC Mechanical Plans and sketch MAD1.6 :**
- Detail 1 AM100 Lower Level Plan: Add fixture tag SS-1.
 - Detail 1 AM100 Lower Level Plan: Add 2.5kG fire extinguisher in surface cabinet.
 - Add dampers as shown on MAD1.6 and revise exhaust duct drop as shown on MAD1.6.
- 4.2.14 Reference drawing M07-02 Ventilation Schematics**
- Detail 2, Note 1: Add "Provide return air duct mounted control humidistat, air proving switch, and duct high limit sensor. All to be wired to humidifier."
 - Detail 2: Delete BACNET control interface requirements from humidifier.
 - Detail 2: Replace building static pressure sensor with optical rain sensor.
- 4.2.15 Reference drawing M07-04 Schematics and Details**
- Delete: Radon Detail 10/M07-04
 - Detail 11 Typical Radiant Panel Piping Detail: Add balancing valve to branch return line from panel.

5.0 LANDSCAPE RELATED CONTENT

5.1 DRAWINGS

5.1.1 Drawing L808 – Soil Cell Details 02

Delete: Detail 1/1808

Add: LSK-01

6.0 CIVIL RELATED CONTENT

6.1 QUESTIONS and CLARRIFICATIONS

Q15: Do water main service require a hot-tap connection or can the contractor shut off valves and temporarily shut off to wherever those mains are headed to?

A15: Parks Canada staff can be made available to isolate the water main so no hot tap will be required. 24 hr notice will be required.

Q16: Is there a temporary access road that's going off towards Vimy Avenue or is that just where the project ends?

A16: There is an existing alley way which provides access to cottage properties on Harebell Ave. It must remain open for this purpose. This should not be a construction access to the site.

Q17: Are we required to just replace the road structure in which we tie- in or is there a certain amount of Cameron Falls linearly all the way down?

A17: The contractor is responsible to replace all disturbed road structure at all tie-in locations. Any existing road structure that is disturbed or damaged by the contractor will be replaced at the contractor's expense.

Q18: Is an acceptable alternative to the storm pipe an option or does it have to be SDL?

A18: Profile storm pipe or SDR storm pipe will be acceptable.

6.2 DRAWINGS

6.2.1 Drawing C100

Replace with attached drawing within this addendum.

7.0 INTERPRETIVE RELATED CONTENT

7.1 QUESTIONS & ANSWERS

Q19: Details on the 2 doors from X1.01 are missing. What is the intent of these doors and are there additional details to formulate a quote?

A19: The intent of the ram is to assist in opening the door upwards so a single individual can lift it to gain access to the interior. The size of the ram will be determined by the weight of the door and should be determined by the fabricator. The concealed hinge can be surface mounted on top, sized sufficiently to take the weight of the door. The term concealed was meant to keep the hinge as discrete as possible.

Q20: Will each of the 4 nodes will have a unique topographic design etched into them? Will the image be provided? Are the topo lines to be 1-2mm in depth?

A20: The topographic design is the same on all 4 nodes. Yes, the file will be provided. All lines should be routed to a depth 2mm and the minor topographic lines, approximately 80%, are 1mm wide and the major topographic lines, approximately 20%, are 2mm wide. The term "etched" should be changed to "C'n'C routed".

7.2 SPECIFICATIONS

7.2.1 Appendix A Exhibit Description

General Note: all changes to this section are highlighted in red

Delete: All cross through text is deleted

Add: All added text is in brackets [new text]

7.2.2 Appendix F Graphic Schedule

See updated Graphic Schedule

7.3 DRAWINGS

7.3.1 Drawing X0.00 Cover Sheet

- Add: General Note #2 - The Contractor shall submit to the Departmental Representative, Engineering documents and approvals, where required, for all Exhibit structures, Concrete work and Foundations.
- Revise: 1.02 Crown of the Continent exhibit items list
- Revise: 1.09 Respecting Wildlife exhibit items list

7.3.2 Drawing X0.01 Site Plan

- Revise: Exhibit number callouts

7.3.3 Drawing X0.02 Exhibit Floor Plan

- Revise: Reception Desk back wall

7.3.4 Drawing X0.03 Exhibit Floor Plan

- Revise: Reception Desk back wall

7.3.5 Drawing X1.02 Exhibit 1.02 Crown of the Continent

- Revise: Material notes
- Revise: Canada/USA graphic number
- Add: Provincial and State Boarder lines
- Add: Provincial and State graphics

7.3.6 Drawing X1.03 Convergence Nodes

- Revise: Material notes indicating depth and width of CNC topo lines
- Revise: Convergence Node graphic location schedule

7.3.7 Drawing X1.05 Exhibit 1.08 Cultural Convergence Partnership Posts

- Revise: Material note from "polycarbonate" to "black resin"
- Add: Isometric notes for clarity on English/French graphic locations

-
- 7.3.8 Drawing X1.06 Exhibit 1.09 Respecting Wildlife**
- Revise: Material note from “polycarbonate” to “black resin”
 - Add: Isometric notes for clarity on Blackfoot/English/French graphic locations
- 7.3.9 Drawing X1.07 Exhibit 1.09 Respecting Wildlife**
- Revise: Exhibit Item numbers
 - Add: Material noted: all 1.09 Respecting Wildlife animal sculptures to be sculpted concrete with integral colouring”. Level of detail to match the biodiversity images on x2.04
- 7.3.10 Drawing X2.02 Exhibit 2.01 Welcome Stone**
- Delete: Image references
- 7.3.11 Drawing X2.03 Exhibit 2.02 Interior Orientation Kiosk**
- Revise: Revised 2.02-1 graphic layout
 - Add: General Note – 2.04 Biodiversity Wall drawings for reference only. Tendered under separate package.
- 7.3.12 Drawing X2.04 Exhibit 2.04 Biodiversity Wall**
- Add: General Note – 2.04 Biodiversity Wall drawings for reference only. Tendered under separate package.
 -
- 7.3.13 Drawing X2.08 Exhibit 2.07 365 Days**
- Revise: Material noted from “clear polycarbonate” to “clear acrylic”
- 7.3.14 Drawing X2.09 Exhibit 2.06 Forces of Nature**
- Revise: Detail 1 Exhibit Plan
- 7.3.15 Drawing X2.10 Exhibit 2.06 Forces of Nature**
- Revise: Exhibit Elevations Details 3 and 5
- 7.3.16 Drawing X2.17 Exhibit 2.02 Interior Orientation Kiosk - Reception**
- Revise: Graphic sizes and layout

7.4 Reference Documents

- 7.4.1 Draft Interpretive Text & Graphics Document (for reference only)**
- See attached documents

**ARCHITECTURAL
RELATED ITEMS**

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 35 43 Environmental Procedures.
- .2 Section 01 47 15 Sustainable Requirements: Construction
- .3 Section 01 47 17 Sustainable Requirements: Contractors Verification.
- .4 Section 01 61 01 LEED Product Requirements.
- .5 Section 01 61 01A Material Submittal Form.
- .6 Section 01 73 33 IAQ Management.
- .7 Section 01 74 21 Construction Waste Management and Disposal.
- .8 Section 01 91 13 General Commissioning Requirements.
- .9 Section 01 91 31 Commissioning Plan.
- .10 Section 01 91 41 Commissioning Training.
- .11 Section 31 25 00 LEED Erosion and Sedimentation Control.

1.2 REFERENCE STANDARDS

- .1 American Society of Heating Refrigeration and Air-Conditioning (ASHRAE)
 - .1 ANSI/ASHRAE 52.2-2007, Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size (ANSI approved).
- .2 ANSI/BIFMA
 - .1 ANSI/BIFMA Standard Method M7.1-2011 (2016), Standard Test Method for Determining VOC Emissions from Office Furniture Systems, Components, and Seating.
 - .2 ANSI/BIFMA e3-2011, Furniture Sustainability Standard.
- .3 ASTM International
 - .1 ASTM E892-1987 (1992), Tables for Terrestrial Solar Spectral Irradiance at Air Mass 1.5 for a 37-Deg Tilted Surface (Withdrawn 1999).
 - .1 Replaced by ASTM G173-2003 (2012), Standard Tables for Reference Solar Spectral Irradiances: Direct Normal and Hemispherical on 37 Deg Tilted Surface.
 - .2 ASTM E903-2012, Standard Test Method for Solar Absorbance, Reflectance, and Transmittance of Materials Using Integrated Spheres.
 - .3 ASTM E1980-2011, Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.
- .4 Canada Green Building Council (CaGBC)
 - .1 U.S. Green Building Council, LEED v4 Reference Guide for Building Design and Construction.
 - .2 The LEED Scorecard is included at the end of this section.
- .5 California Air Resources Board (CARB)
 - .1 CARB 93120 Airborne Toxic Control Measure (ATCM) for Formaldehyde Emissions from Composite Wood Products
- .6 California Department of Public Health (CDPH)
 - .1 Standard Method for VOC Emissions v1.1-2004 (2010), CA Section 01350.
- .7 CSA International
 - .1 CAN/CSA-Z809-2016, Sustainable Forest Management.
- .8 Carpet and Rug Institute (CRI)

- .1 CRI Green Label Indoor Air Quality (IAQ) Test Program - Green Label Testing Program.
- .9 Forest Stewardship Council (FSC)
 - .1 ic.fsc.org
- .10 International Organization for Standardization (ISO)
 - .1 ISO 14021-1999 (R2016), Environmental Labels and Declarations – Self-Declared Environmental Claims (Type II Environmental Labelling).
 - .2 ISO 14025-2006, Environmental Labels and Declarations – Type III Environmental Declarations – Principles and Procedures.
 - .3 ISO 14040-2006, Environmental Management – Life Cycle Assessment – Principles and Framework.
 - .4 ISO 14044-2006, Environmental Management – Life Cycle Assessment – Requirements and Guidelines.
- South Coast Air Quality Management District (SCAQMD), California State
 - .5 SCAQMD Rule 1113-A2011, Architectural Coatings.
 - .6 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.
- .11 Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
 - .1 ANSI/SMACNA 008-2008, IAQ Guideline for Occupied Buildings Under Construction.
- .12 Sustainable Forestry Initiative (SFI)
 - .1 SFI-2010-2014 Standard.
- .13 U.S. Environmental Protection Agency (EPA) Compendium of Methods for the Determination of Pollutants in Indoor Air
- .14 United States Federal Trade Commission (US Federal Trade Commission)
 - .1 16 CFR Part 260-2012, Guides for the Use of Environmental Marketing Claims.

1.3 DEFINITIONS

- .1 FSC - Forest Stewardship Council.
- .2 CFC - Chlorofluorocarbons.
- .3 Chain-of-Custody Certification - certificates signed by manufacturers certifying that wood used to make products was obtained from FSC certified forests. Certificates include evidence that mill is certified for chain-of-custody by FSC-accredited certification body.
- .4 HCFC - Hydro Chlorofluorocarbons.
- .5 Bio-based Materials – bio-based materials must meet the Sustainable Agriculture Network's Sustainable Agriculture Standard. Bio-based raw materials must be tested using ASTM Test Method D6866 and be legally harvested, as defined by the exporting and receiving country. Exclude hide products, such as leather and other animal skin material.
- .6 Extended Producer Responsibility – products purchased from a manufacturer (producer) that participates in an extended producer responsibility program or is directly responsible for extended producer responsibility.
- .7 Local Materials – products sourced (extracted, manufactured, purchased) within 160 km radius of the project site are valued at 200% of their base contributing cost.
- .8 Recycled Content - percentage by weight of product constituents that have been recovered or otherwise diverted from solid waste stream, either pre-consumer or post-consumer.
 - .1 Wastes and scraps from manufacturing process that are combined with other materials after minimal amount of reprocessing for use in further production of same product are not recycled materials.
 - .2 Discarded materials from one manufacturing process that are used as materials in another manufacturing process are pre-consumer recycled materials.

- .9 Reused Materials – includes salvaged, refurbished, or reused products.

1.4 OBJECTIVES

- .1 Construct a building that uses land, water, energy and material resources appropriately and efficiently and provides a safe, comfortable and productive indoor environment for building constructors and occupants in accordance with the LEED requirements.
- .2 The Contractor shall assist in achieving the following LEED v4 BD+C New Construction prerequisites and credits if identified in the LEED Scorecard (01 35 21A):

Prerequisite / Credit	Related LEED Specification Section(s)
SSp1: Construction Activity Pollution Prevention	31 25 00 LEED Erosion and Sedimentation Control
EAp1: Fundamental Commissioning and Verification	01 91 13 General Commissioning Requirements Refer to mechanical and electrical specifications
EAc1: Enhanced Commissioning	01 91 13 General Commissioning Requirements Refer to mechanical and electrical specifications
MRp2 and MRc5: Construction and Demolition Waste Management	01 74 21 Construction Waste Management and Disposal
MRc2: Building Product Disclosure and Optimization – Environmental Product Declarations: Option 1 – EPDs	01 61 01 LEED Product Requirements
MRc3: Building Product Disclosure and Optimization – Sourcing of Raw Materials: Option 2 – Leadership Extraction Practices	01 61 01 LEED Product Requirements
MRc4: Building Product Disclosure and Optimization – Material Ingredients: Option 1 – Material Ingredient Reporting	01 61 01 LEED Product Requirements
IEQc2: Low-Emitting Materials – Categories: Paints and Coatings Adhesives and Sealants Flooring Composite Wood Ceilings, Walls, Thermal and Acoustic Insulation Furniture	01 61 01 LEED Product Requirements
IEQc3: Construction Indoor Air Quality Management Plan	01 73 33 Indoor Air Quality Management
IEQc4: Indoor Air Quality Assessment: Option 1 – Flush-Out	01 73 33 Indoor Air Quality Management

1.5 DESCRIPTION OF WORK

- .1 LEED certification requires the cooperation and diligence of all project participants for a successful application and achievement of LEED certification.
- .2 The Departmental Representative reserves the right to seek compensation from the Contractor where failure to achieve Certification is a result of direct neglect or misrepresentation, in whole or in part, of any material or construction method.

- .3 The Green Design Coordinator (site superintendent or other individual designated by the Contractor) shall be responsible for coordinating all construction activities associated with LEED certification.
- .4 LEED Action Plans: Provide preliminary submittals (LEED Materials Plan, 31 25 00 - LEED Erosion and Sedimentation Control Plan, 01 35 46 - Indoor Air Quality Management Plan and 01 74 19 - Construction Waste Management Plan) within 10 days of the date established for commencement of the Work indicating how the LEED requirements for this project will be met.
- .5 Prior to mobilization on-site, the Contractor shall hold a kick-off meeting with the Departmental Representative to review all LEED requirements for the project.
- .6 The Contractor shall ensure that all shop drawings, cut-sheets, and other product literature for all equipment relevant to the credits listed above is provided to the Departmental Representative for approval 14 days prior to ordering.
- .7 The Contractor shall ensure that all schedules or forms are submitted complete and on time to the Departmental Representative throughout the project.

1.6 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for all products as required and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 43 - Environmental Procedures.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Alberta, Canada.
- .4 Sustainable Design Submittals:
 - .1 Submit required letters, calculations, spreadsheets and templates prepared by Departmental Representative for submittal to CaGBC.
 - .2 Submit additional LEED submittal requirements included in other sections.
 - .1 When submitted items are duplicated to that submitted to comply with other requirements, submit duplicate copies as separate submittals for compliance with indicated LEED requirements.
 - .3 Submit Project Cost Data: provide statement for total cost for building materials used for project. Include cost breakdown indicating total cost of mechanical and electrical components.
 - .4 Submit: LEED Action Plans: provide preliminary submittals within 14 days of date for start of Work indicating how the following requirements will be met.
 - .1 Materials and Resources Credit MRc5 Construction and Demolition Waste Management: Divert 75% From Landfill across four Material Streams.
 - .1 Construction Waste Management Plan in accordance with Section 01 74 21 - Construction Waste Management and Disposal.
 - .2 LEED Materials Plan. Written confirmation of understanding of the requirements and credits to be met for the project. List of proposed products and materials expected to contribute to the following LEED credits:
 - .1 MRc2 – Building Product Disclosure and Optimization – Environmental Product Declarations: **Option 1 – EPDs**
 - .2 MRc3 – Building Product Disclosure and Optimization – Sourcing of Raw Materials: **Option 2 – Leadership Extraction Practices**
 - .3 MRc4 – Building Product Disclosure and Optimization – Material Ingredients: **Option 1 – Material Ingredient Reporting**

-
- .4 IEQc2 – Building Product Disclosure and Optimization – Low-Emitting Materials: **Paints and Coatings; Flooring; Composite Wood; Ceilings, Walls, Thermal and Acoustic Insulation; Furniture**
 - .3 Environment Quality Credit EQc3 Construction IAQ Management Plan. Submit Indoor Air Quality (IAQ) Plan for construction phase of construction in accordance with Section 01 73 33 IAQ Management.
 - .4 Submit monthly LEED Progress Reports: with Applications for Progress Payments, submit reports comparing actual construction and purchasing activities with LEED action plans for the following:
 - .1 Construction Waste Management Plan
 - .2 LEED Materials Plan
 - .3 Indoor Air Quality Management Plan
 - .5 LEED Documentation Submittals:
 - .5 LEED Documentation Submittals:
 - .1 Submit product data for lighting fixtures for Sustainable Sites Credit SSC6 Light Pollution Reduction. Submit data for exterior lighting fixtures.
 - .2 Submit product data for plumbing fixture for Water Efficiency Credits WEc1 Outdoor Water Use Reduction and WEc2 Indoor Water Use Reduction. Submit Data for plumbing fixtures indicating water flow rates.
 - .3 Submit product data for Water Efficiency Credit WEc4 Water Metering. Submit product data and wiring diagrams for water meters to measure water consumption performance.
 - .4 Submit product data for Energy and Atmosphere Prerequisite EAp4 Fundamental Refrigerant Management.
 - .1 Include product data for new HVAC equipment indicating absence of CFC refrigerants.
 - .5 Submit product data for Energy and Atmosphere Credit EAc6 Enhanced Refrigerant Management. Submit product data for new HVAC equipment indicating absence of HCFC refrigerants and refrigerant type and charge for each piece of equipment.
 - .6 Submit Construction Waste Management Plan for Materials and Resources Credit MRc5 Construction and Demolition Waste Management: Divert 75% From Landfill across four Material Streams.
 - .7 Submit LEED Material Submittal Form for all products from Canadian National Master Construction Specification (NMS): Divisions 3-10, Division 12, Division 31, and Division 32.
 - .1 Review all materials and products submitted by sub-trades and own forces and ensure that they are in accordance with LEED credit requirements in Section 01 61 01 LEED Product Requirements.
 - .2 Obtain from sub-trade or own forces one completed and signed Material Submittal Form (01 61 01A) for each material or product.
 - .3 Ensure each signed Material Information Form has appended to it the relevant backup documentation as described in Section 01 61 01.
 - .4 Submit this documentation to the Departmental Representative for review at least 14 days prior to ordering the product or material.
 - .8 Submit product data and shop drawing for Indoor Environmental Quality Credit EQc1 Enhanced Indoor Air Quality Strategies. Submit product data and shop drawings for carbon dioxide monitoring system.
 - .9 Provide submittals for Environment Quality Credit EQc3 Construction IAQ Management Plan. Include the following:
 - .1 Construction Indoor Air Quality Management Plan.
 - .2 MERV rating for temporary filtration media as per ASHRAE 52.2. used during construction period.
 - .3 Product data for filtration media installed before occupancy.
-

- .4 Construction documentation submit photographs at several different times during construction along with description of each utilized IAQ measure in accordance with SMACNA, documenting protection of ducts and on-site stored or installed absorptive materials from moisture.
- .10 Provide submittals for Indoor Environmental Quality Credit EQc4 Indoor Air Quality Assessment. Include the following:
 - .1 Signed statement describing building air flush-out procedures including start and completion dates of flush out and statement that filtration media was replaced after flush-out.
 - .2 Product data for filtration media used during flush-out and during occupancy.
- .11 Submit product data and shop drawing for Indoor Environmental Quality Credit EQc5 Thermal Comfort. Submit product data and shop drawings for HVAC equipment, sensors and control systems used for airflow, temperature and humidification control.

Part 2 Products

Not used.

Part 3 Execution

Not used.

END OF SECTION

Part 1 General

1.1 PRECEDENCE

- .1 For Federal Government Projects, Division 01 Sections take precedence over technical specifications in other Divisions of this Project Manual.

1.2 RELATED REQUIREMENTS

- .1 Section 01 35 21 LEED Requirements.
- .2 Section 01 61 01 LEED Product Requirements.
- .3 Section 01 61 01A Material Submittal Form
- .4 Section 01 73 33 IAQ Management
- .5 Section 01 74 21 Construction Waste Management and Disposal.
- .6 Section 01 91 13 General Commissioning Requirements.
- .7 Section 01 91 31 Commissioning Plan.
- .8 Section 01 91 41 Commissioning Training.
- .9 Section 31 25 00 LEED Erosion and Sedimentation Control.

1.3 REFERENCE STANDARDS

- .1 American National Standard Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
 - .1 ANSI/ASHRAE 52.2-2007, Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particulate Size (ANSI approved).
- .2 Canada Green Building Council (CaGBC)
 - U.S. Green Building Council, LEED v4 Reference Guide for Building Design and Construction.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-92.1-1989, Sound Absorptive Prefabricated Acoustical Units.
- .4 CSA Group
 - .1 AAMA/WDMA/CSA 101/I.S.2/A440-11, NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights.
 - .2 CAN/CSA-B45.0 Series-2002 (R2008), Plumbing Fixtures.
 - .3 CAN/CSA-Z809-2016, Sustainable Forest Management.
- .5 Forest Stewardship Council (FSC)
 - .1 ic.fsc.org
- .6 National Air Duct Cleaners Association (NADCA)
 - .1 NADCA ACR-2006, Assessment Cleaning and Restoration.
 - .2 NADCA Standard 05-1997, Requirements for the Installation of Service Openings in HVAC Systems.
- .7 National Research Council Canada (NRC)
 - .1 National Energy Code of Canada for Buildings 2015 (NECB).
- .8 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
 - .1 SCAQMD Rule 1113-A2011, Architectural Coatings.
 - .2 SCAQMD Rule 1168- A2005, Adhesives and Sealants Applications.

.9 Sheet Metal and Air Conditioning National Contractors Association (SMACNA)

.1 IAQ Guideline for Occupied Buildings Under Construction, 2008.

.10 Sustainable Forestry Initiative (SFI)

.1 SFI-2010-2014 Standard.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Submittals required:

.1 Submit name and experience of Green Design Co-ordinator to Departmental Representative for approval.

.2 Compliance Report indicating requirement to purchase energy efficient and environmentally benign products.

.3 Use Report indicating understanding of requirement to use materials and methods of construction, which improve energy and water efficiency, reduce hazardous by-products, and use recycled materials, or materials, which can be reused.

.4 Ensure Energy Report: indicates EnerGuide and Energy Star ratings of new equipment and appliances.

.5 Building systems and material evaluation report.

.3 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 43 - Environmental Procedures. Indicate VOC emissions, including CDPH v1.1-2010 emissions compliance per section 01 61 01 LEED Product Requirements prior to installation or use:

.1 Adhesives.

.2 Caulking compounds.

.3 Sealants.

.4 Insulating materials.

.5 Fireproofing or fire stopping materials.

.6 Paints.

.7 Carpets.

.8 Floor and wall patching or levelling materials.

.9 Lubricants.

.10 Clear finishes for wood surfaces.

.4 Construction Schedule:

.1 Submit schedule of construction prior to start of work, in co-ordination with scheduling requirements, including:

.1 Sequence of finish applications and allowances for curing times.

.2 Identification of finish types. See Table A

.3 Schedule and duration of proposed temporary ventilation.

.4 Delivery schedules of manufactured materials which are anticipated to off-gas in timely manner, which will allow for airing of those materials prior to their scheduled installation.

.5 Indicate and schedule commissioning procedures and temporary usages of building mechanical systems, identifying types of filtration and schedule for filter replacement.

.5 IAQ Management Plan:

.1 Submit Indoor Air Quality (IAQ) Management Plan for construction and preoccupancy phases of building in accordance with Section 01 73 33 IAQ Management.

1.5 HAZARDOUS MATERIALS

- .1 Take measures to ensure chemical spills do not enter drains.
- .2 Provide proper storage and containment of herbicides and indoor pesticides.
 - .1 Design and construction of storage spaces for hazardous materials in accordance with authorities having jurisdiction.
 - .2 Include ventilation of areas, which contain potential sources of air contamination.
 - .1 Comply with standards for storage of flammable, combustible and hazardous materials, explosives, compressed gas cylinders, and reactive, corrosive and oxidizing materials.
 - .3 Storage conditions, ventilation requirements, construction materials storage areas, containers, drums and tanks, compatibility issues, and labelling: in accordance with federal and municipal guidelines supplemented as follows:
 - .1 Confine storage of chemicals and hazardous wastes to designated areas with security of access.
 - .2 Ensure access to hose bib and water for mixing concentrated chemicals.
 - .3 Include containment to prevent spills from entering drains.
 - .4 Include venting to exterior.
 - .5 Keep storage areas under negative pressure, where possible.

1.6 EROSION AND SEDIMENTATION CONTROL

- .1 Follow methods and procedures specified in Section 31 23 33.01 - Excavating, Trenching and Backfilling and 31 25 00 LEED Erosion and Sedimentation Control.
- .2 Establish long-term soil stabilization program as indicated.
- .3 Develop an Erosion and Sedimentation Control Plan to control stormwater runoff and other erosion measures.
- .4 Protect stockpiled topsoil.

1.7 REDUCING SITE DISTURBANCES

- .1 When building is on a previously undeveloped site comply with following requirements:
 - .1 Avoid major alterations to sensitive topography, vegetation and wildlife habitat in areas indicated.
 - .2 Create traffic patterns, that cause minimum site disruptions, as per Departmental Representative's approval.
- .2 Minimize disturbances to watershed using site water management measures to ensure that watersheds and groundwater will be preserved.
- .3 Construct and erect erosion barriers to locations indicated and as directed by Departmental Representative.
- .4 Take measures to avoid soil compaction.
- .5 Re-grade and plant vegetation in accordance with Section 31 22 13 - Rough Grading.

1.8 BUILDING ENVELOPE

- .1 Include insulation to optimize reduction of heat losses or heat gains through building envelope.
- .2 Maintain integrity of building envelope using air barriers and vapour retarders and avoid thermal bridging to provide thermal comfort and prevent condensation.
 - .1 Air leakage through air barrier system within roof area: not to exceed 0.15 l/s*m²@ 75 Pa.
 - .2 Air leakage through air barrier system within area of exterior walls (excluding windows): not to exceed 0.30 l/s*m
 - .3 Air leakage through floor: not to exceed 0.10 l/s*m²@ 75 Pa.

- .4 Air leakage through windows: not to exceed limits specified in AAMA/WDMA/CSA 101/I.S.2/A440.

1.9 GENERAL BUILDING DESIGN

- .1 Green design facilitation is used on this project to support green design integration.
 - .1 Green Design Co-ordinator provided by Contractor.
 - .2 Submit name and experience of Green Design Co-ordinator to Departmental Representative for approval.
 - .3 Have Green Design Co-ordinator report to Departmental Representative.
 - .4 Role of Green Design Co-ordinator in accordance with Section 01 35 21 LEED Requirements.
- .2 Indicate in writing to Departmental Representative:
 - .1 Compliance Report: indicating requirement to purchase energy efficient and reduced environmental impact products.
 - .2 Use Report: indicate understanding of requirement to use materials and methods of construction, which improve energy and water efficiency, reduce hazardous by-products, and use recycled materials, or materials which can be reused.
 - .3 Energy Report: to indicate that new equipment and appliances meet energy efficiency criteria.

1.10 INDOOR AIR QUALITY

- .1 IAQ Performance
 - .1 Meet indoor air quality product requirements as described in section 01 61 01 LEED product requirements.
 - .2 Meet indoor air quality management requirements and procedures as described in Section 01 73 33 IAQ Management
- .2 Environmental Tobacco Smoke (ETS) Control
 - .1 Smoking will not be permitted within 7.5 m of the buildings during construction.
- .3 Carbon Dioxide (CO2) Monitoring
 - .1 Provide carbon dioxide monitors in densely occupied spaces (>25 people per 93 square meters) to assess and monitor air quality and ventilation rates.

1.11 GENERAL CONSTRUCTION MATERIALS/PRACTICES

- .1 Materials and Resources
 - .1 Use uncontaminated demolition materials for fill and hardcore and/or granular base.
 - .2 Incorporate reused building materials as indicated.
 - .3 Use products and services that meet criteria of EcoLogo guidelines.
 - .4 Provide list of non-endorsed products and services, provided the green labelled product or services are capable of meeting specified performance requirements.
- .2 Construction Waste Management
 - .1 Follow recommendations and requirements of this projects construction, renovation and demolition (CRD) waste management plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

1.12 CEILINGS

- .1 Utilize ceiling tiles (panels) that:
 - .1 Meeting CDPH v1.1-2010 emissions requirements.
 - .2 Comply with CAN/CGSB-92.1.

- .3 Have noise reduction coefficient (NRC) of at least 0.50 when tested on E400 mounting in accordance with CAN/CGSB-92.1.
- .4 Contain, when calculated on 12-month rolling average:
 - .1 Over 75 % recycled material by weight of finished product, if made from cellulose fibre.
 - .2 Over 35 % recycled material by weight of finished product if made from glass fibre or mineral composition.
- .5 Submit Material Submittal Form for all ceiling products per Section 01 61 01 LEED Product Requirements.

1.13 PAINTS, STAINS, AND VARNISHES

- .1 Use paints and coatings meeting CDPH v1.1-2010 emissions requirements.
- .2 Use paints and coatings with VOC limits to SCAQMD Rule 1113.
- .3 Submit Material Submittal Form for all paints and coatings per Section 01 61 01 LEED Product Requirements.

1.14 SEALANTS AND ADHESIVES

- .1 Use sealants and adhesives meeting CDPH v1.1-2010 emissions requirements.
- .2 Use adhesives with VOC limits to SCAQMD Rule 1168.
- .3 Use sealant products with VOC limits to SCAQMD Rule 1168.
- .4 Submit Material Submittal Form for all sealants and adhesives per Section 01 61 01 LEED Product Requirements.

1.15 FLOORING

- .1 Provide flooring meeting CDPH v1.1-2010 emissions requirements.
- .2 Carpet systems: in compliance with Carpet and Rug Institute Green Label Indoor Plus Air Quality Test Program.
- .3 Undercushion materials: in compliance with the Carpet and Rug Institute Green Label Indoor Air Quality Test Program.
- .4 Resilient flooring: in compliance with FloorScore certification standard or equivalent.
- .5 Submit Material Submittal Form for all flooring products per Section 01 61 01 LEED Product Requirements.

1.16 HVAC EQUIPMENT

- .1 Identify sources of external contamination in writing to Departmental Representative.
- .2 Include filtration system with MERV 13 to ASHRAE 52.2.

1.17 LIGHTING

- .1 Integrate lighting controls as specified related to room occupancy, circulation space, day-lighting, and number of work stations (in office areas) using stepped or dimming day-light controls.
- .2 Lighting Fixtures
 - .1 Include high efficiency lamps and luminaries with electronic ballasts. Lamps and luminaries to have following requirements:
 - .1 Fit electronic ballasts to luminaries.
 - .2 Include task lighting as indicated.
 - .3 Include personal controls as indicated.

1.18 PLUMBING FIXTURES

- .1 Water Efficiency
 - .1 Include showerheads, kitchen and bathroom faucets with low flow models and aerators.
- .2 Water Use Reduction
 - .1 Install water metres as indicated.
 - .2 Use low-flow electronic sensor faucet.
 - .3 Include low flow toilets to CAN/CSA-B45.0, maximum 4.2 Litres/flush.
 - .4 Include urinals to CAN/CSA-B45.0, maximum flow rate of 0.5 Litres/flush cycle complete with adjusting flush valves for minimum acceptable volume.
 - .5 Include water saving showerheads: flow rates 5.7 l/min.

1.19 EXTERIOR SITE

- .1 Take measures to prevent soil erosion before, during, and after construction by controlling storm-water runoff and wind erosion. Use:
 - .1 Detention ponds.
 - .2 Infiltration trench.
- .2 Landscape and Exterior Design
 - .1 Planting requirements: in accordance with Section 32 94 00 - Trees, Shrubs and Ground Cover Planting; Section - 32 93 00 Sodding;

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 PRECEDENCE

- .1 For Federal Government projects, Division 1 Sections take precedence over technical specifications in other Divisions of the Project Manual.

1.2 RELATED REQUIREMENTS

- .1 Section 01 35 21 LEED Requirements.
- .2 Section 01 61 01 LEED Product Requirements.
- .3 Section 01 73 33 IAQ Management.
- .4 Section 01 74 21 Construction Waste Management and Disposal.
- .5 Section 01 91 13 General Commissioning Requirements.
- .6 Section 01 91 31 Commissioning Plan.
- .7 Section 01 91 41 Commissioning Training.
- .8 Section 31 25 00 LEED Erosion and Sedimentation Control.

1.3 REFERENCE STANDARDS

- .1 American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
 - .1 ASHRAE 55-2010, Thermal Environmental Conditions for Human Occupancy.
 - .2 ASHRAE 62-2010, Ventilation for Acceptable Indoor Air Quality.

1.4 HAZARDOUS MATERIALS

- .1 Provide written reports for chemical spills.
- .2 Provide copies of associated Material Safety Data Sheets (MSDS).
- .3 Provide location and layout of storage areas include:
 - .1 Location of water source.
 - .2 Location, type and size of venting equipment. Demonstrate controls and operation to Departmental Representative.
 - .3 Location and contents of spill kits including eye wash stations. Demonstrate contents, operation and use to Departmental Representative.
 - .4 Demonstration and measurements of negative pressure of storage areas.

1.5 SITE SELECTION

- .1 Provide report indicating ecology enhancement measures taken for site.
- .2 Provide site plan indicating location of buffer zones designed to minimize polluted run-off, where site is located near body of water.

1.6 EROSION AND SEDIMENTATION CONTROL

- .1 Provide copy of erosion control plan, including drawings with erosion and sedimentation control measures highlighted per Section 31 25 00 LEED Erosion and Sedimentation Control.

1.7 BUILDING ENVELOPE

- .1 Provide product specification and data sheets indicating solar heat gain coefficient of exterior glazing.

1.8 GENERAL BUILDING DESIGN

- .1 Provide Green design facilitator reports and indicate which areas evaluated by report where incorporated in building construction.
- .2 Indicate in writing to Departmental Representative:
 - .1 Compliance Report: List energy efficient and environmentally benign products purchased for this project:
 - .2 Use Report: List materials and methods of construction used, which improved:
 - .1 Energy and water efficiency:
 - .2 Reduced hazardous by-products:
 - .3 Products, materials or systems purchased that used recycled materials:
 - .4 Products, materials or systems purchased that are constructed of materials which can be reused.
 - .5 Post-consumer content of used or recycled, materials and assemblies.
 - .3 Energy Report: List Energuide ratings for new equipment and appliances:
 - .4 List purchased assemblies and systems designed for disassembly:

1.9 INDOOR AIR QUALITY

- .1 Indoor Environmental Quality
 - .1 Provide written report indicating strategies, methods and materials that were incorporated into project to control mould growth.
 - .2 Provide floor plan indicating areas that will generate high contaminants and indicate dedicated exhaust points.
- .2 IAQ Performance
 - .1 Provide inspection report from Departmental Representative indicating that project complies with ASHRAE 62.
- .3 Environmental Tobacco Smoke (ETS) control
 - .1 Provide confirmation letter from Departmental Representative indicating that smoking is prohibited inside building.
- .4 Carbon Dioxide (CO₂) Monitoring
 - .1 Provide written report describing potential sources of external contamination and measures that have been taken to minimize impacts on interior air.
 - .2 Provide inspection letter from Departmental Representative indicating location of CO₂ sensors and that project is in compliance with ASHRAE 62.
- .5 Construction IAQ Management Plan
 - .1 Provide written report indicating:
 - .1 Measures taken to minimize impacts on interior air during construction as defined in Sheet Metal and Air Conditioning National Contractors Association Indoor Air Quality Guideline for Occupied Buildings Under Construction Guideline.
 - .2 Efficiency of filtration media efficiency used during construction phase and dates filtration media was changed.
 - .3 Provisions taken to protect HVAC system from contamination during construction procedures.
 - .4 Meet IAQ management requirements and procedures as described in Section 01 73 33 IAQ Management.
 - .2 Provide letter from Departmental Representative confirming dates of building flushout.
- .6 Indoor Chemical and Pollutant Source Control
 - .1 Provide inspection report from Departmental Representative indicating design measures that were taken to reduce potential breeding grounds for Legionella.

- .2 Provide floor plan indicating:
 - .1 Entry points and permanent entry way systems that were installed to minimize contamination.
 - .2 Location of areas with structural deck to deck partitions with separate outside exhausting, no air re-circulation and negative pressure where chemical use occurs including: housekeeping areas.

1.10 GENERAL CONSTRUCTION MATERIALS/PRACTICES

- .1 Materials and Resources
 - .1 Provide written report indicating:
 - .1 Total amount of granular road base material that was used on site and what percentage of this material was post-consumer demolition material.
 - .2 Which components of project design were reused building materials.
- .2 Storage and Collection of Recyclables
 - .1 Provide floor and site plans indicating:
 - .1 Location of collection sites for recyclable materials and storage facilities.
 - .2 Location of composting facilities.
- .3 Construction Waste Management
 - .1 Submit copy of the waste audit and waste management workplan developed for project as described in Section 01 74 21 Construction Waste Management and Disposal.
 - .2 Submit waybills for waste materials removed from site during construction along with destination point.
- .4 Resource Reuse
 - .1 Provide written report including specifications:
 - .1 Describing salvaged and refurbished materials used during construction, including origin of salvaged materials.
 - .2 Showing calculations that indicate what percentage of total project's materials were salvaged or refurbished.
- .5 Recycled Content
 - .1 Meet LEED product requirements per Section 01 61 01 LEED Product Requirements.
 - .2 Provide product specification and data sheets for products containing recycled content indicating the percentage of post consumer and post industrial content.
 - .3 Provide calculations indicating what percentage of total project's materials contained recycled content.
- .6 Local/Regional Materials
 - .1 Meet LEED product requirements per Section 01 61 01 LEED Product Requirements.
 - .2 Provide product specification and data sheets for locally manufactured materials installed.
 - .3 Provide calculations indicating what percentage of total project's materials were locally manufactured.
- .7 Bio-based Materials
 - .1 Meet LEED product requirements per Section 01 61 01 LEED Product Requirements.
 - .2 Provide product specification and data sheets for products containing bio-based materials installed.
 - .3 Provide calculations indicating what percentage of total project's materials contained bio-based materials.
- .8 Wood
 - .1 Meet LEED product requirements per Section 01 61 01 LEED Product Requirements.

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- .2 Provide documentation from supplier declaring that wood materials were harvested from sustainable forestry practices.
 - .3 Provide calculations indicating what percentage of total project's wood materials were certified as sustainably harvested.
 - .4 Provide environmental product declarations (EPDs) from suppliers if applicable.
 - .5 Provide raw material sourcing data showing applicable extraction criteria.
 - .6 Provide material ingredients reporting data showing applicable inventory criteria.
 - .9 Low-Emitting Materials
 - .1 Meet LEED product requirements per Section 01 61 01 LEED Product Requirements.
 - .2 Provide MSDS sheets or testing results indicating VOC emission rates for following materials:
 - .1 Adhesives.
 - .2 Sealants.
 - .3 Caulkings.
 - .4 Paints and coatings.
 - .5 Flooring products.
 - .6 Composite wood products.
 - .7 Ceiling, wall, thermal and acoustic insulation products.
 - .8 Furniture.
 - .3 Provide MSDS sheets indicating resin type for composite wood and agrifibre materials.
 - 1.11 INSULATION**
 - .1 Meet LEED product requirements per Section 01 61 01 LEED Product Requirements.
 - .2 Provide product specification and data sheets indicating:
 - .1 CDPH Standard Method v1.1 emissions compliance.
 - .2 Recycled content of each type of insulation material installed.
 - .3 Blowing agent used to expand or install insulation materials.
 - 1.12 CEILINGS**
 - .1 Meet LEED product requirements per Section 01 61 01 LEED Product Requirements.
 - .2 Provide product specification sheets indicating:
 - .1 CDPH Standard Method v1.1 emissions compliance.
 - .2 Noise reduction coefficient of installed ceiling tiles.
 - .3 Average recycled content.
 - 1.13 PAINTS, STAINS, VARNISHES**
 - .1 Meet LEED product requirements per Section 01 61 01 LEED Product Requirements.
 - .1 CDPH Standard Method v1.1 emissions compliance.
 - .2 Provide MSDS sheets for paints, stains and varnishes indicating VOC emission rate and chemical composition.
 - 1.14 SEALANTS, ADHESIVES AND COMPOUNDS**
 - .1 Meet LEED product requirements per Section 01 61 01 LEED Product Requirements.
 - .1 CDPH Standard Method v1.1 emissions compliance.
 - .2 Provide MSDS sheets for sealants, adhesives and other compounds indicating VOC emission rate and chemical composition.
-

1.15 FLOORING

- .1 Meet LEED product requirements per Section 01 61 01 LEED Product Requirements.
- .2 Provide manufacturers verification that:
 - .1 Textile floor covering meet or exceed the emission rates of Carpet and Rug Institute Green Label Plus Program.
 - .2 Foam undercushion materials were not manufactured with ozone depleting substances.
 - .3 Resilient, engineered wood, and tile flooring and subflooring meets CDPH Standard Method v1.1 emissions compliance.
- .3 Provide product specification and data sheets indicating recycled content of rubber undercushion.
- .4 Provide manufactures verification that resilient flooring is manufactured with recycled content.

1.16 HVAC EQUIPMENT

- .1 Ozone Depletion and HVAC and Refrigeration Equipment
 - .1 New buildings: provide equipment specifications indicating refrigerant information for HVAC and refrigeration equipment.
- .2 Controllability of Systems
 - .1 Provide floor plans indicating location of:
 - .1 Lighting controls.
 - .2 Operable windows.
 - .3 Individual controls for airflow, temperature, and lighting.
- .3 Thermal Comfort
 - .1 Provide inspection report from Departmental Representative stating that project:
 - .1 Complies with ASHRAE 55.
 - .2 Allows for inclusion of permanent temperature and humidity monitoring system to provide for control over thermal comfort performance and humidification and/or dehumidification systems of building.
- .4 Ventilation Effectiveness
 - .1 Mechanically ventilated building: Provide inspection report from Departmental Representative stating that ventilation rates are in compliance with ASHRAE 129.
 - .2 Naturally ventilated buildings: Provide drawings indicating location of inlets, outlets and proposed flow patterns.
 - .3 Provide results of modelling simulation indicating that ventilation techniques used on this project achieve even air distribution and flow patterns.
 - .4 Provide documentation indicating mechanical ventilation of enclosed parking areas.
 - .5 Provide documentation indicating location of filter media sites and verification that media is properly sized and easily accessible for cleaning.

1.17 LIGHTING

- .1 Light Pollution Control
 - .1 Provide inspection report from Departmental Representative that lighting systems have been installed in accordance with Illuminating Engineering Society of North America VDT Lighting Standards to Avoid Glare for Visual Display Terminals.
- .2 Daylight and Views
 - .1 Provide floor plans indicating direct line of sight zone, including calculations indicating percentage of interior space that will have direct line of sight to perimeter glazing.
 - .2 Provide inspection report from Departmental Representative indicating location of light sensing controls to adjust electric lighting in response to available daylight.

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- .3 Lighting Design
 - .1 Provide inspection report from Departmental Representative that illuminance levels have been calculated on occupants and activities in accordance with ANSI/IES Office Lighting, IESNA Recommended Practice for Office Lighting (RP1).
 - .2 Provide documentation indicating lighting zones, controls and location of task lighting.
 - 1.18 ACOUSTIC CONTROL**
 - .1 Provide site drawings indicating location of undesirable noise conditions both internal and external.
 - 1.19 PLUMBING FIXTURES**
 - .1 Water Use Reduction
 - .1 Provide product specification and data sheets for water consuming products indicating flow/flush performance rates.
 - 1.20 ENERGY**
 - .1 Energy and Atmosphere
 - .1 Provide product specification and data sheets indicating that heat generating equipment utilizes low-NOx, low-SOx and low-CO burners.
 - .2 Energy Performance
 - .1 Provide floor plans indication location of installed energy meters.
 - .3 Optimize Energy Performance
 - .1 Provide documentation indicating energy efficient measures incorporated into building.
 - .4 Renewable Energy
 - .1 Provide documentation, product specification and data sheets for on-site renewable energy systems that have been installed.
 - .5 Transportation
 - .1 Provide site plan indicating:
 - .1 Location of bicycle storage facilities.
 - .2 Location of shower facilities.
 - 1.21 JANITORIAL SERVICES**
 - .1 Provide MSDS sheets for janitorial products.
 - .2 Provide manufacturer's literature indicating percentage of recycled content.
 - .3 Provide copy of plan for implementation of integrated pest management plan.
 - 1.22 EXTERIOR SITE**
 - .1 Storm Water Management
 - .1 Provide pre-construction and post construction plans indicating:
 - .1 Grading to retain irrigation, reduce runoff and divert water from building.
 - .2 Reduction in paved area to allow storm water to seep into ground.
 - .3 Increase in vegetation.
 - .4 Water retention storage areas ponds, surface storm water retention areas and rock marshes.
 - .5 Use of grading to direct water flow.
 - .2 Landscape and Exterior Design
-

- .1 Provide documentation illustrating principles of xeriscaping that have been incorporated into site plan and project.
 - .2 Provide documentation regarding incorporation of integrated pest management into exterior site maintenance plan.
- .3 Water Efficient Landscaping
 - .1 Provide documentation detailing systems that have been designed to divert grey-water for landscape purposes.
 - .2 Provide site plan indicating location of cisterns, water retention ponds and other rain water collection facilities.
- 1.23 MEASUREMENT AND VERIFICATION**
 - .1 Provide copy of commissioning plan.
- Part 2 Products**
- 2.1 NOT USED**
 - .1 Not Used.
- Part 3 Execution**
- 3.1 NOT USED**
 - .1 Not Used.

END OF SECTION

Part 1. General

1.1 RELATED REQUIREMENTS

.1 Sections of work which may have requirements related to this Section include, but are not limited to:

- 01 91 31 Commissioning Plan
- 01 91 41 Commissioning Training
- 22 05 00 Common work results for plumbing
- 23 08 01 Performance verification mechanical piping systems
- 25 01 11 EMCS: start-up, verification and commissioning
- 25 05 01 EMCS: general requirements
- 26 05 00 Common Work Results for Electrical

1.2 LEED COMMISSIONING SCOPE OF WORK

Third-party commissioning (Cx) is required for this project for all of the building energy systems. Cx is a planned program of procedures to verify the project achieves Departmental Representative's requirements.

The Cx work included in the commissioning process involves a complete and thorough evaluation of the installation, operation and performance of all components, systems, and sub-systems.

Commissioning is a collaborative process which requires support from the design team, contractors, and suppliers. Timely and accurate documentation is essential for the process to be effective.

Documentation required as part of the commissioning process shall include but not be limited to:

- Pre-start, and start-up procedures.
- Air and water balancing
- Functional Performance Testing (FPT), including seasonal testing.

- .1 Cx scope for this building includes the following building energy systems
- .1 Heating, ventilating, air conditioning, and refrigeration (HVAC&R) systems (mechanical and passive) and associated controls
 - .2 Lighting and daylighting controls
 - .3 Electrical distribution systems
 - .4 Domestic hot water systems
 - .5 Renewable energy systems.

1.3 CONTRACTOR'S ROLES AND RESPONSIBILITIES

- .1 Assist the CxA in all verification tasks. Include cost to complete the commissioning requirements in the contract price.
 - .2 Notify the CxA two weeks in advance for equipment and system start-ups, testing, balancing, and functional testing.
 - .3 Provide the start-up verification documentation supplied by the manufacturer to the commissioning authority (CxA) for review.
 - .4 Demonstrate at site approximately 20% of the results recorded in the air and hydronic balancing reports as directed by the CxA.
 - .5 Provide proof of calibration all sensors.
 - .6 Provide qualified personnel to demonstrate equipment and systems operation per design and the approved shop drawings.
-

-
- .1 Testing procedures will be prepared by the CxA and witnessed at their discretion. These tests include verification that all components, equipment, systems, and interfaces between systems operate in accordance with contract documents, including all operating modes, interlocks, control responses, and specific responses to life safety or emergency events.
 - .7 Provide electrical measurements at electrical distribution panels, including load and phase balance measurements, pull test, megger test.
 - .8 Provide written notification that the work on the equipment in the Cx scope has been completed in accordance with the contract documents, and that the equipment, systems, and sub-systems are operating as required.

Part 2. Products

- .1 Provide a manual with all the information necessary to operate, maintain, and retest all energy-consuming systems within the building.
- .2 The scope and format shall include:
 - .1 System single-line diagrams
 - .2 Approved Submittals
 - .3 As-built drawings
 - .4 As-built sequence of operation
 - .5 Original setpoints for all systems as-built
 - .6 Recommended schedule for recommissioning
 - .7 Recommended schedule for sensor recalibration
 - .8 Spare parts list
 - .9 Equipment preventive maintenance schedules
 - .10 Confirmation of completed training and occupants

Part 3. Execution

- .1 Trend BMS controlled points to demonstrate operation of all commissioned systems.

END OF SECTION

Part 1 General

1.1 SUMMARY

- .1 Section Includes:
 - .1 Attached Commissioning Plan by Mission Green Buildings
- .2 Related Requirements
 - .1 01 91 13 General Commissioning Requirements
 - .2 01 91 41 Commissioning Training

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION



Cx Plan

for

Waterton Interpretive Centre Waterton, AB



February 27, 2019

Prepared By: Carl Desjardine, LEED AP BD+C (cdesjardine@missiongreenbuildings.com)

Reviewed By: Mauricio Bustamante, P.Eng. (mbustamante@missiongreenbuildings.com)

A. OVERVIEW

A1. COMMISSIONING GOALS AND OBJECTIVES

The Waterton Interpretive Centre, designed by FWBA Architects for Parks Canada Agency, will serve as the new, relocated, and redesigned visitors' centre for Waterton Lakes National Park. It will be a year-round facility that will act as an information hub for all visitors to the National Park and will be integrated into the hamlet of Waterton. Parks Canada desires the principle of sustainability to be highly integrated into the design and construction of this new building.

This project is targeting LEED Canada v4 BD+C Silver certification and has been registered with the CaGBC. Mission Green Buildings has been retained to provide commissioning services to meet the Fundamental Commissioning prerequisite and the Enhanced Commissioning credit for LEED.

MGB's goal is to work collaboratively with the project team to ensure that the project's goals relative to commissioning are met as efficiently as possible.

A2. COMMISSIONING SCOPE

LEED v4 BD+C requires that at least the following energy-related systems are included in the Cx process:

- Mechanical, including HVAC&R equipment and controls
- Plumbing, including domestic hot water systems, pumps, and controls
- Electrical, including service, distribution, lighting and lighting controls
- Renewable energy systems
- Building envelope (requirements only: must be documented in the OPR)

Systems not included in the scope include the following:

- Building envelope
- Life safety systems
- Communications and data systems
- Fire protection and fire alarm systems

A3. CX TEAM ROLES

Building Owner: Parks Canada

Primary Contact: Andrew Oosting; andrew.oosting@pc.gc.ca

Prime Consultant: FWBA Architects

Primary Contact: Jordan Alexander Stearne; jordan.stearne@fwbarch.com

Mechanical Consultant: The HIDI Group

Primary Contact: Chris Saunders; chris.saunders@hidi.com

Electrical Consultant: SMP Engineering

Primary Contact: Neil Popson; npopson@smpeng.com

Commissioning Authority: Mission Green Buildings

Primary Contact: Mauricio Bustamante; mbustamante@missiongreenbuildings.com (403.714.2971)

Andrej Simjanov; asimjanov@missiongreenbuildings.com (587.216.3735)

Reza Naghash; rnaghash@missiongreenbuildings.com (403.540.0849)

Sustainability Consultant: Mission Green Buildings
Primary Contact: Erik Heck; eheck@missiongreenbuildings.com (403.400.4567)

A4. COMMUNICATION PROTOCOL AND COORDINATION

Per the LEED intent MGB will communicate directly with Parks Canada Agency regarding all Cx events. However, to enhance and simplify the process MGB will always copy the relevant project team members and maintain communication with them as required. Commissioning meetings during the construction period will be chaired by MGB as described in Section B below.

A5. SCHEDULE

The following Cx activities will be undertaken during the design phase:

1. Owner's Project Requirements (OPR). **The Cx process aims at verifying that the OPR is met.**
2. Reviews of the project design documents were completed by MGB as follows:
 - Design Development Report Cx Review (April 2, 2018)
 - Issued for 66% Drawings and Specifications Review (September 20, 2018)
 - Issued for 99% Specification Review (January 02, 2019)
3. The Cx specifications will be incorporated into the Tender documentation.

The following Cx activities will be undertaken during construction:

1. M&E shop drawing submittals will be reviewed consultants and CxA concurrently. Again, MGB review comments are intended for consideration by consultants only. Direction to the contractor is issued by the consultant.
2. Equipment is not "temporarily" started (for heating or cooling) until pre-start checklist items and all manufacturers' pre-start procedures are completed and moisture, dust and other environmental and building integrity issues have been addressed.
3. Functional performance testing does not begin until pre-functional, start-up and TAB is completed for a given system.
4. The controls system and equipment it controls are functionally tested only once all points have been calibrated and pre-functional checklists are completed.
5. Construction expecting to start: April 1st 2019.
6. In the period between September 2020 and September 2021, MGB will work with Parks Canada Agency to address any operational adjustments that may be needed and to close any outstanding Cx issues within the first-year warranty.

B. COMMISSIONING PROCESS

B1. DESIGN-STAGE PROJECT MEETINGS AND DOCUMENTATION REVIEWS

MGB attended project meetings as needed.

MGB will revise, append and finalize the Cx Plan as needed throughout the life of the project based on input from the Owner, Parks Canada Agency as well as from the design and construction teams. The preliminary Cx Plan (this document) will be included into the Schematic Design Report.

MGB has reviewed the design development report, design drawings, specifications and control sequences. MGB will verify inclusion of system manual requirements and requirements for operator and occupant training in construction documents.

These reviews will also comment on compliance with the documented project requirements as well as with good engineering practices. They will address any items that may affect testing or operation of the commissioned systems. Design reviews were completed approximately at 66% and 99% drawing stage.

B2. CONTRACTOR'S SUBMITTALS

The general contractor will provide MGB with a set of submittals relative to the equipment and systems within the commissioning scope. These submittals are to include performance and controls information as well as installation and start-up procedures and O&M data. MGB will aim to review each submittal concurrently with the design team and submit review comments within a week of receipt.

The subcontractors, general contractor, Architects or Engineers will notify MGB of any new design intent or operating parameter changes, added control strategies and sequences of operation, or other change orders that may affect the commissioned systems or the commissioning schedule.

B3. SITE OBSERVATIONS AND COMMISSIONING MEETINGS

MGB will make periodic site visits to witness equipment and system installations. Each site visit will be coordinated with the general contractor and/or site supervisor. Any deficiencies or issues found, if not able to be corrected immediately, will be documented in a Cx Site Visit Report. This document will be regularly updated and will detail adjustments or alterations required to correct the equipment installation and identify the responsible party.

MGB will hold regular Cx meetings and may attend selected job-site meetings in order to remain informed on construction progress and to update parties involved in commissioning. The number and frequency of these meetings will be determined and modified as the project proceeds.

B4. PRE-FUNCTIONAL CHECKLISTS

These checklists document the installation of equipment and ensure that the systems are installed as per design, and best engineering practices. For the Waterton Interpretive Centre, MGB will generate the required checklists and will complete them on site following the review of equipment installation.

B5. DEVELOPMENT OF FUNCTIONAL TESTING AND VERIFICATION PROCEDURES

Functional performance testing verifies the intended operation of individual components and system interactions under various conditions and modes of operation. The systems are run through all of the sequences of operation and the response of components is verified. Testing proceeds from components to subsystems to systems, and finally to interlocks and connections between systems.

MGB will prepare all functional performance test plans so that the complete sequence of operations is included. A copy will be provided for contractors review prior to execution of each test in order to confirm the test's feasibility and its impact on equipment safety, warranty or equipment protection.

B6. AIR AND WATER BALANCING REVIEW AND VERIFICATION

Balancing of HVAC systems (TAB) is an important process to confirm that the required design flowrates are achieved by hydronic and air systems. As done with other contractor submittals, MGB will review the balancing report. Once the report is approved, MGB will work with the balancer to witness on site a random sampling of 20% of the readings in the report.

B7. EXECUTION OF FUNCTIONAL TESTING PROCEDURES

These tests will be scheduled through the general contractor and subcontractors. Under the supervision of MGB, the installing subcontractor will perform the hardware and/or software manipulations required for the testing. Owner maintenance team members are encouraged to be present in order to assist in system observations or gain familiarity with the equipment and the relative testing procedures.

MGB will witness and record the results of all functional performance testing. Any deficiencies or issues found will be discussed and decisions regarding corrections made with as little escalation as possible, preferably between MGB, the sub-contractor and the general contractor. If not able to be corrected immediately, issues will be documented in a Cx Site Visit Report. This document will be regularly updated and will detail adjustments or alterations required to correct the system operation and identify the responsible party.

B8. RECORD DRAWINGS, OPERATIONS AND MAINTENANCE MANUALS

The O&M manuals and record drawings prepared by the contractors for the owner's maintenance personnel will be reviewed for completeness. The contractors are encouraged to submit O&M manuals at the earliest possible date. Materials may be added, or requested from the contractors, to stress and enhance the importance of system interactions, troubleshooting, long-term preventative maintenance and operation or warranty.

B9. TRAINING AND ORIENTATION OF OWNER PERSONNEL AND OCCUPANTS

Effective training of maintenance personnel is critical to the long term performance of any new or renovated building. The collaborative nature of our approach to commissioning actively encourages their participation and solicits feedback from the future building operators starting with the installation verification and especially during the functional and integrated testing.

MGB will assist the Parks Canada Agency and the general contractor in organizing and evaluating the training sessions. The contractors will need to provide a detailed agenda for each piece of equipment or system for which training is required ahead of the training session, describing the training scope, duration, and methods, along with the name and qualifications of the trainers.

MGB may witness some or all of the training sessions. The current scope does not include recording of these training sessions.

B10. SYSTEMS MANUAL AND ONGOING COMMISSIONING PLAN

MGB will develop and provide a Systems Manual to give future operating staff the information needed to understand and optimally operate the commissioned systems in a single easy-to-use document. It is in addition to the O&M manuals submitted by the contractors and focuses on operating rather than maintaining the equipment, particularly highlighting interactions between systems.

A section of this manual includes details on how to carry out ongoing commissioning checks and testing through the life of the building in the same way that they were done during construction to verify that building systems are always running as intended.

B11. WARRANTY PERIOD Cx ACTIVITIES

Seasonal variation in operations or control strategies may require additional testing during peak cooling and heating seasons to verify systems performance. During the warranty period, contractors will need to complete seasonal testing and other deferred testing. Where possible, the control sequences will be tested as part of item #7 above; complete testing forms will also be provided by MGB as part of the same. Contractors will need to document any final adjustments to the O&M manuals and the record drawings due to this testing.

Additionally, MGB will maintain presence into the warranty period for a comprehensive operation and performance review. We will solicit input from the operations staff and occupants about the performance of the building systems. The construction team will first try and resolve any issues before requesting assistance however MGB will remain available to assist them and Parks Canada Agency in troubleshooting any problems in order to operate the building as originally intended.

B12. COMMISSIONING REPORT

A Final Commissioning Report will be compiled which summarizes all of the tasks, findings, and documentation of the commissioning process. The report will address the actual performance of the building systems in reference to the design documents. It will document the tests and Cx activities done by various sub-contractors and MGB, deficiencies that were discovered and the measures taken to correct them, and any lingering issues and their impact on the building's performance and recommendations for improvements.

Part 1. General

1.1 SUMMARY

- .1 Section Includes:
 - .1 This Section specifies roles and responsibilities of Commissioning Training.
- .2 Related Requirements
 - .1 Section 01 91 13 General Commissioning Requirements
 - .2 Section 01 91 31 Commissioning Plan
 - .3 Section 01 79 00 Demonstration and Training

1.2 TRAINEES

- .1 Trainees: personnel selected for operating and maintaining this facility. Includes Property Manager, building operators, maintenance staff, security staff, and technical specialists as required.
- .2 Trainees will be available for training during later stages of construction for purposes of familiarization with systems.

1.3 INSTRUCTORS

- .1 Departmental Representative will provide:
 - .1 Descriptions of systems.
 - .2 Instruction on design philosophy, design criteria, and design intent.
- .2 Contractor 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 Instructions on servicing, maintenance and adjustment of systems, equipment and components.
- .3 Contractor and equipment manufacturer to provide instruction on:
 - .1 Start-up, operation, maintenance and shut-down of equipment they have certified installation, started up and carried out PV tests.

1.4 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.

1.5 TRAINING MATERIALS

- .1 Instructors to be responsible for content and quality.
- .2 Training materials to include:
 - .1 "As-Built" Contract Documents.

- .2 Operating Manual.
- .3 Maintenance Manual.
- .4 Management Manual.
- .5 TAB and PV Reports.
- .3 Project Manager, Commissioning Manager and Property Manager will review training manuals.
- .4 Training materials to be in a format that permits future training procedures to same degree of detail.
- .5 Supplement training materials:
 - .1 Transparencies for overhead projectors.
 - .2 Multimedia presentations.
 - .3 Manufacturer's training videos.
 - .4 Equipment models.

1.6 SCHEDULING

- .1 Include in Commissioning Schedule time for training.
- .2 Deliver training during regular working hours, training sessions to be minimum 2 hours in length.
- .3 Training to be completed prior to acceptance of facility.

1.7 RESPONSIBILITIES

- .1 Be responsible for:
 - .1 Implementation of training activities,
 - .2 Coordination among instructors,
 - .3 Quality of training, training materials,
- .2 Departmental Representative will evaluate training and materials.
- .3 Upon completion of training, provide written report, signed by Instructors, witnessed by Departmental Representative.

1.8 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 construction specifications.

1.9 VIDEO-BASED TRAINING

- .1 Manufacturer's videotapes to be used as training tool with Departmental Representative's review and written approval 3 months prior to commencement of scheduled training.
- .2 On-Site training videos:
 - .1 Videotape training sessions for use during future training.
 - .2 To be performed after systems are fully commissioned.
 - .3 Organize into several short modules to permit incorporation of changes.
- .3 Production methods to be high quality.

Part 2. Products

2.1 NOT USED

- .1 Not Used.

Part 3. Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

1. GENERAL

1.1 Related Sections

- .1 Section 01 33 00 - Submittals, Shop Drawings, Product Data and Samples
- .2 Section 01 91 13 - General Commissioning Requirements
- .3 Section 01 91 31 – Commissioning Plan
- .4 Section 01 91 41 – Commissioning Training

1.2 Description

- .1 Demonstrate operation and maintenance of equipment and systems to the Departmental Representative after the completion of equipment commissioning.
- .2 The Departmental Representative will provide list of personnel to receive instructions, and will co-ordinate their attendance at agreed-upon times.

1.3 Quality Control

- .1 When specified in individual Sections require manufacturer to provide authorized representative to demonstrate operation of equipment and systems, instruct Departmental Representative, and provide written report that demonstration and instructions have been completed.

1.4 Submittals

- .1 Submittals: in accordance with Section 01 33 00 - Submittals, Shop Drawings, Product Data and Samples
- .2 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Departmental Representative's 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.

1.5 Conditions for Demonstrations

- .1 Equipment has been inspected and put into operation.
- .2 Testing, adjusting, and balancing have been performed and equipment and systems are fully operational.
- .3 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

1.6 Preparation

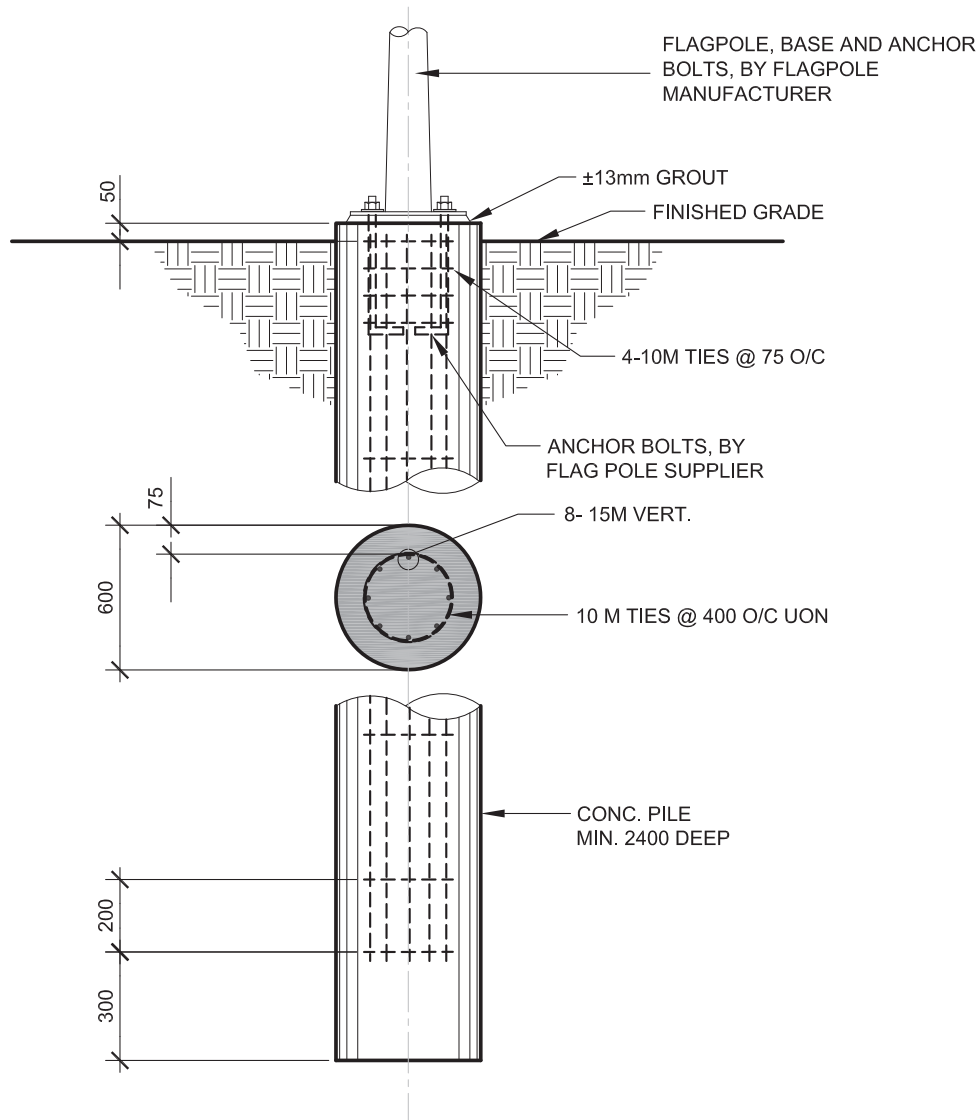
- .1 Verify that conditions for demonstration and instructions comply with requirements.
- .2 Verify that designated personnel are present.

1.7 Demonstration and Instructions

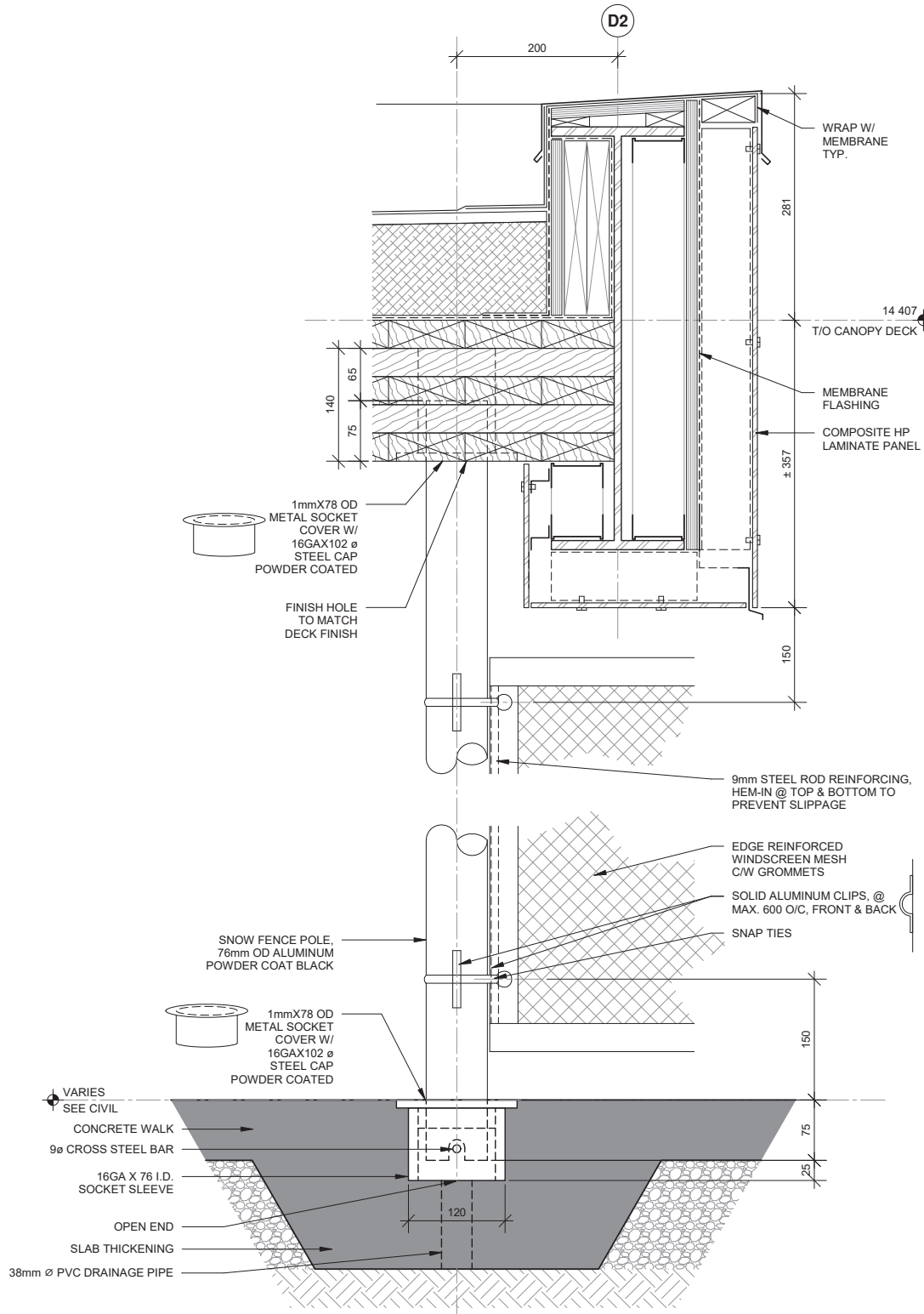
- .1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, and maintenance of each item of equipment at agreed upon times, at the designated location.

-
- .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 need for additional data becomes apparent during instructions.
 - .5 Refer to Mechanical and Electrical specification sections, and for training requirements for the Mechanical and Electrical systems.
 - .6 Refer to Section 01 91 41 - Commissioning Training for additional Training requirements.
- 1.8 Time Allocated for Instructions
- .1 Time Allocated for Instructions: ensure amount of time required for instruction of each item of equipment or system as follows:
 - .1 Section 22 - Plumbing System: 2 hours of instruction.
 - .2 Section 23 - Heating Plant: 4 hours of instruction.
 - .3 Section 23- Cooling and Ventilation System: 8 hours of instruction.
 - .4 Section 25 – HVAC Control System: 8 hours of instruction.
 - .5 Section 26 - Electrical Distribution System: 2 hours of instruction.
 - .6 Section 26 - Lighting Control System: 4 hours of instruction.

END OF SECTION



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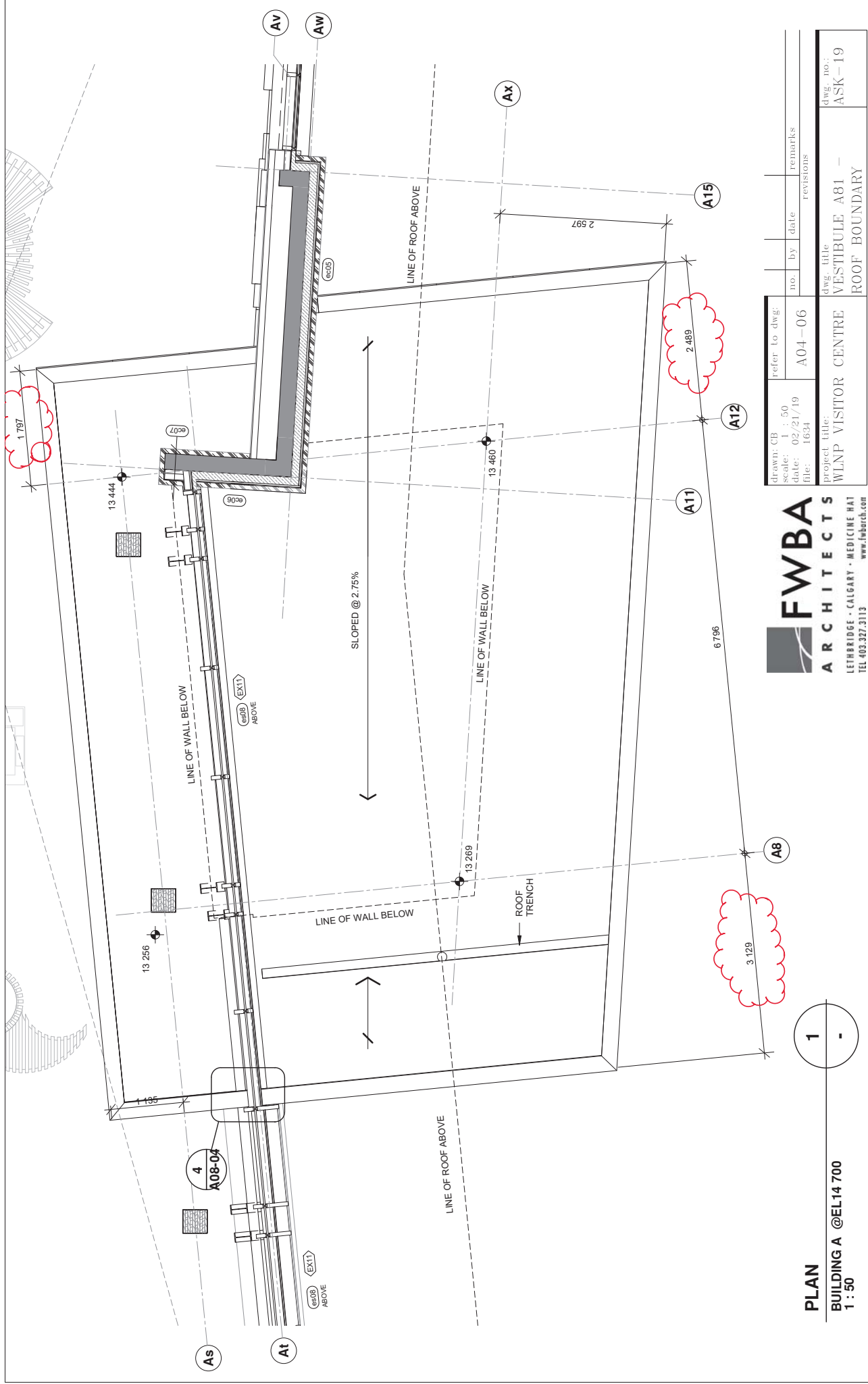


DETAIL

TYPICAL SNOW FENCE POLE
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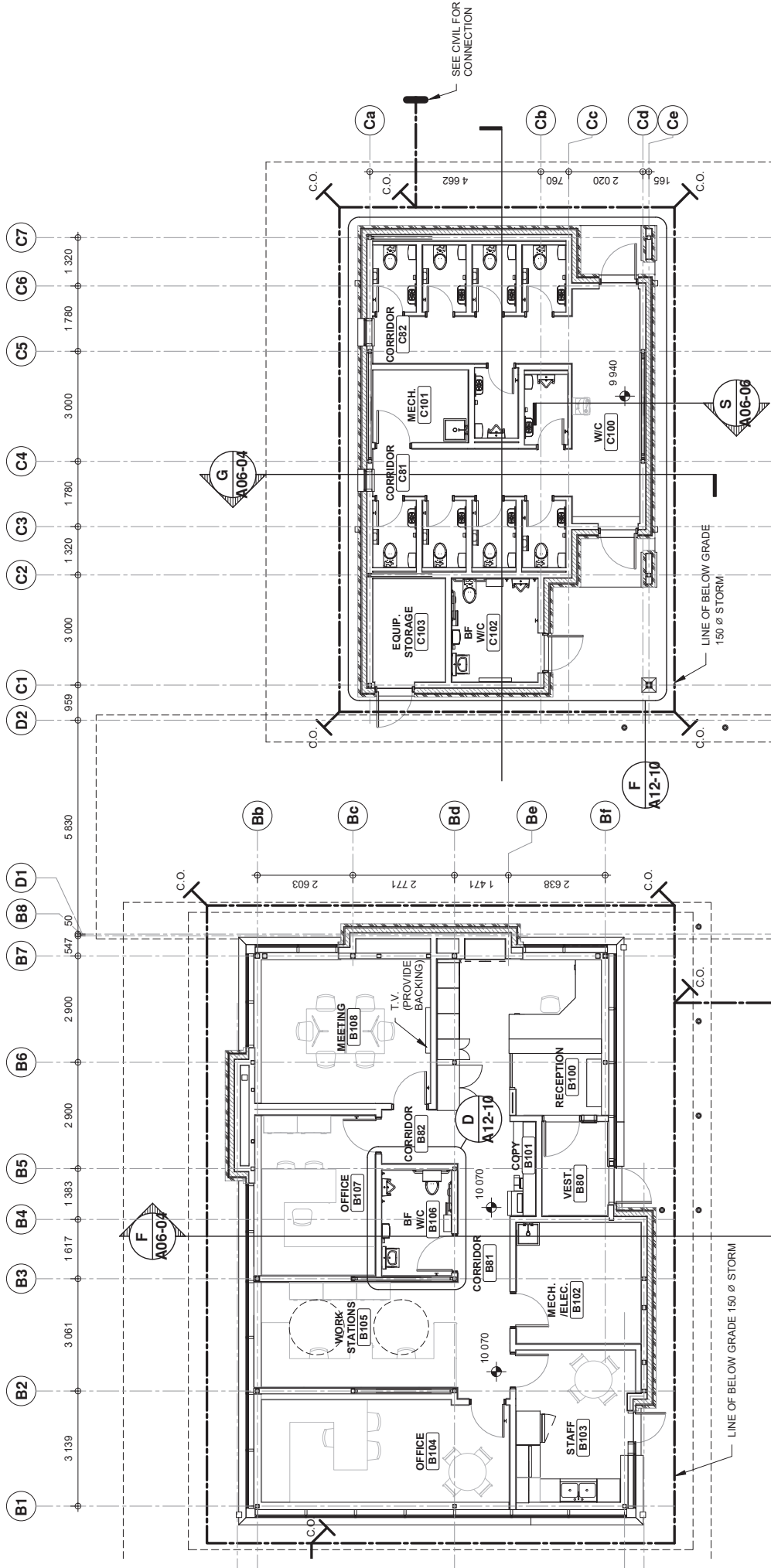


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PLAN
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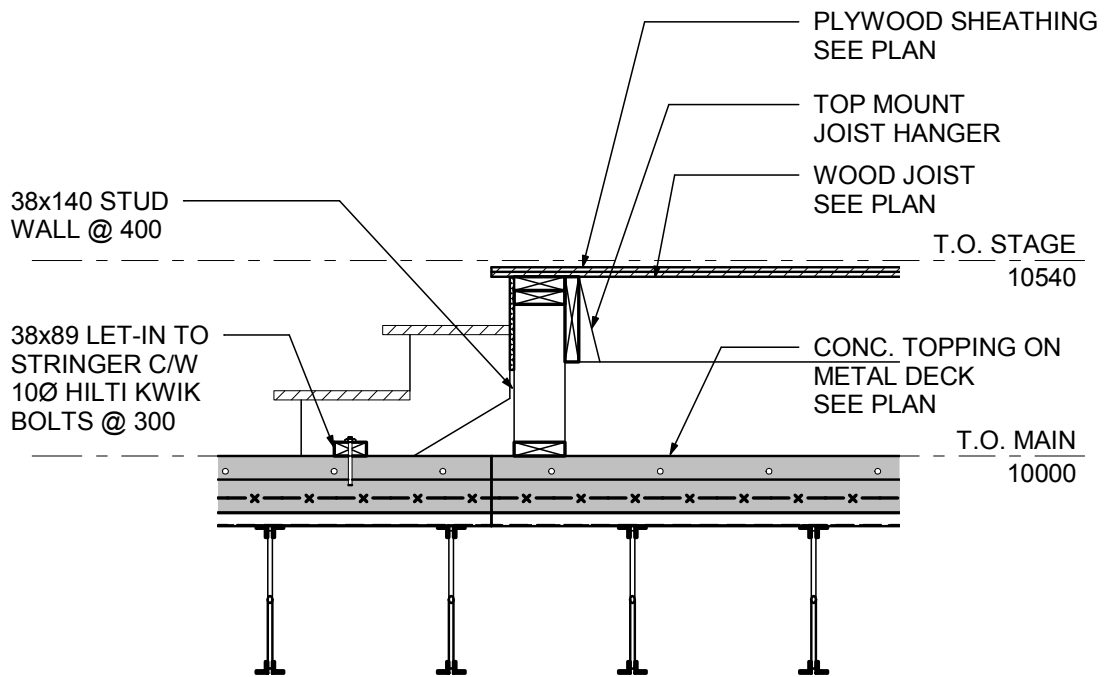
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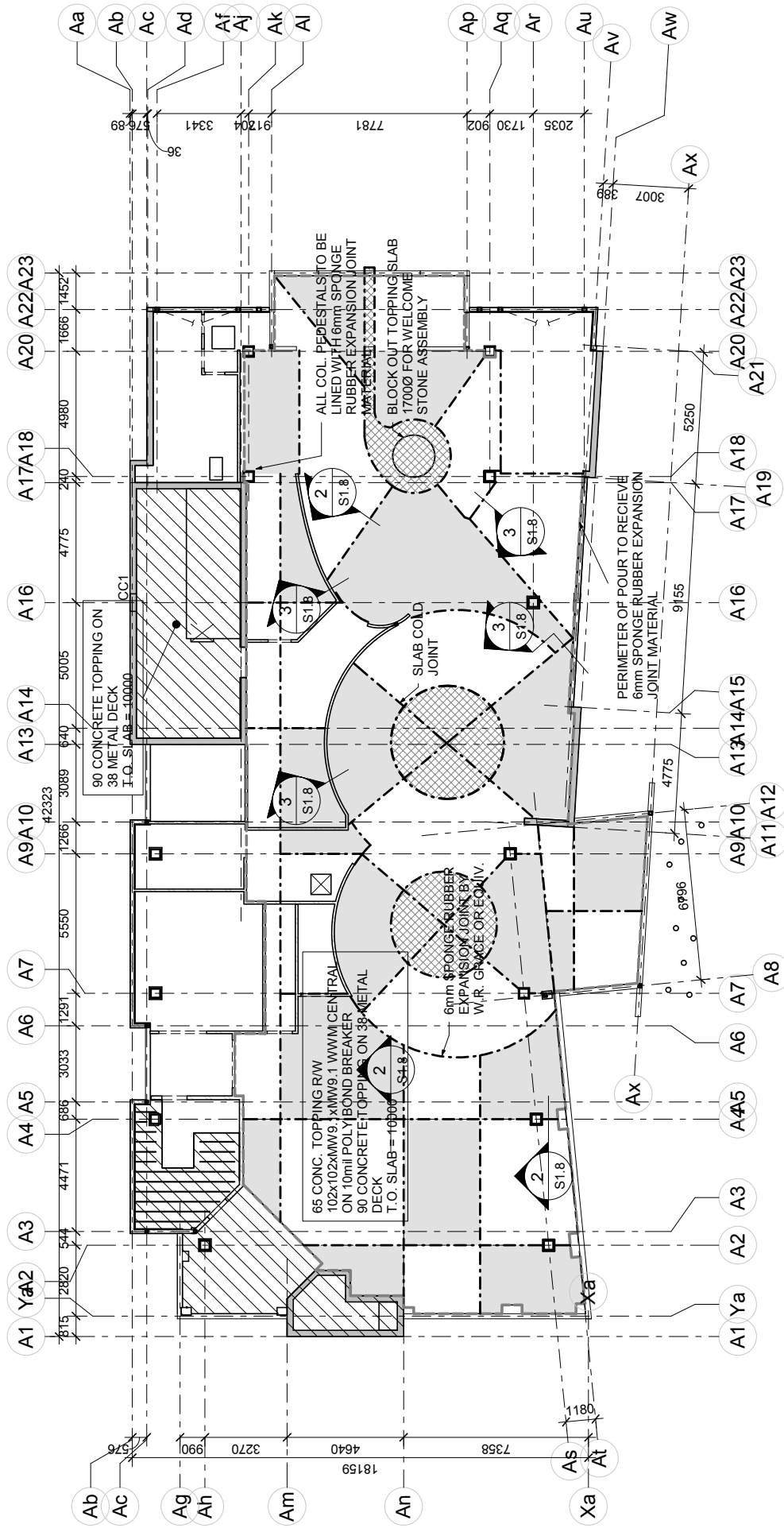
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STRUCTURAL RELATED ITEMS




2
S4.0 1 : 20

 ISL Engineering and Land Services	Drawing	Project	Project No.	Sketch
	REVISED STAIR TO STAGE DETAIL 2/S4.0	WATERTON VISITOR CENTRE	26739	SSK-02
	Rev. STRUCTURAL ADDENDUM #2	Report	2019.02.26	
			Scale 1 : 20	



MAIN FLOOR FINISH PLAN

1 : 150

 ISL Engineering and Land Services	Drawing	Project	WATERTON VISITOR CENTRE	Project No. 20739 Date 2019.02.28 Scale 1:150	Sketch SSK-03
	REVISED MAIN FLOOR FINISH PLAN	Report			
Rev: STRUCTURAL ADDENDUM #2					

**MECHANICAL
RELATED ITEMS**

1. GENERAL

1.1 Reference Standards

- .1 American National Standards Institute/Air Movement and Control Association (ANSI/AMCA)
 - .1 ANSI/AMCA Standard 99, Standards Handbook.
 - .2 ANSI/ASHRAE 51 (ANSI/AMCA 210), Laboratory Methods of Testing Fans for Aerodynamic Performance Rating.
 - .3 ANSI/AMCA Standard 300, Reverberant Room Method for Sound Testing of Fans.
 - .4 ANSI/AMCA Standard 301, Methods for Calculating Fan Sound Ratings from Laboratory Test Data.
- .2 Canada Green Building Council (CaGBC)
 - .1 LEED V4 Building Design and Construction (BD+C) New Construction (NC) – Silver Certification.

1.2 Action and Informational Submittals

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for HVAC fans and include product characteristics, performance criteria, physical size, finish and limitations, unit weight, required clearances, wall, door and base construction details, coil rack and drain pan details, and isolator selections.
- .3 Shop Drawings:
 - .1 Provide:
 - .1 Fan performance curves showing point of operation, kW and efficiency.
 - .2 Sound rating data at point of operation.
 - .3 Product data of filter media, filter performance data, filter assembly, filter frames.
 - .2 Indicate:
 - .1 Motors, sheaves, bearings
 - .2 Minimum performance achievable with variable speed controllers as appropriate.
 - .3 Electrical requirements for power supply wiring diagrams for interlock and control wiring, clearly indicating factory-installed and field-installed wiring.
- .4 Sustainable Design Submittals:
 - .1 LEED Canada submittals: in accordance with Section 01 35 21 - LEED Requirements.
 - .2 Construction Waste Management:
 - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
 - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75 % of construction wastes were recycled or salvaged.
 - .3 Recycled Content:
 - .1 Submit listing of recycled content products used, including details of required percentages or recycled content materials and products, showing their costs and percentages of post-consumer content, and total cost of materials for project.

- .4 Regional Materials: submit evidence that project incorporates required percentage 20% of regional materials and products, showing their cost, distance from project to furthest site of extraction or manufacture, and total cost of materials for project.

1.3 Maintenance Material Submittals

.1 Extra Materials:

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

- .1 Provide:

- .1 Matched sets of belts.
 - .2 Furnish list of individual manufacturer's recommended spare parts for equipment, include:
 - .1 Bearings and seals.
 - .2 Addresses of suppliers.
 - .3 List of specialized tools necessary for adjusting, repairing or replacing.

1.4 Delivery, Storage and Handling

- .1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials indoors in dry location off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect HVAC fans from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Develop Waste Reduction Workplan Construction Waste Management Plan related to Work of this Section and in accordance with Section 01 35 21 - LEED Requirements.
- .5 Packaging Waste Management: remove for reuse by manufacturer and return of padding, pallets, crates, packaging materials as specified in Construction Waste Management Plan Waste Reduction Workplan in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal Section 01 35 21 - LEED Requirements.

1.5 Quality Assurance

- .1 The following are to be used as selection criteria and are to be as specified: Airflow rates, external static pressures, reverse flow energy performance. The following are to be equaled or bettered: Unit with supply temperature swing greater than 3 degrees at all flow rates is not acceptable. This must be accomplished without need to change dampers cycle timing.
- .2 Provide unit produced by a recognized manufacturer who maintains a local service agency and parts stock. Units specified in this section must have minimum five years documented experience on product.
- .3 Mmajor components shall be products of the manufacturer regularly engaged in production of such equipment.
- .4 Fans shall conform to AMCA bulletins regarding testing and construction. (Airfoil fans shall bear the AMCA certified rating seal for airflow and sound).
- .5 Coils shall be ARI certified.

- .6 Filter media shall be ULC listed.
- .7 Unit shall be factory CSA approved.
- .8 Fans shall conform to AMCA bulletins regarding testing and construction. Airfoil fans shall bear the AMCA certified rating seal for airflow and sound.
- .9 All units shall be factory tested before shipping.

2. PRODUCTS

2.1 Description

- .1 Indoor/Outdoor packaged energy recovery unit. Unit is designed as a complete stand-alone energy recovery ventilator, supporting a dedicated HVAC system or a complete 100% air make-up air unit with fans, heat accessory coil module.
- .2 Units of any size supplied without cassette housings and interconnecting ducts are not acceptable.
- .3 System must utilize a "Reverse Flow" regeneration type fresh air / exhaust air recovery methodology.
- .4 Unit must meet or exceed a sensible temperature output effectiveness of 90% wintertime, 80% summertime +/- 5%. Based on manufactures published catalog.
- .5 Thermal storage capacity(heat sink) must be no less than 48KG for very 238L/s of capacity per side.
- .6 No deviation of cycle time on main damper from set 60 to 70 seconds per charge cycle. Must have less than 3% cross contamination, no re-circulated air is acceptable.
- .7 Downsizing units to 85% summer / 75% winter +/-5 effectiveness is not acceptable.
- .8 Unit must have a wintertime latent return effectiveness of 70%.
- .9 Unit must have the ability to maintain a 90% effectiveness at varying flow rates if required by the system design.
- .10 A unit with a supply temperature swing variance greater than 3-degrees at all flow rates is not acceptable. This must be accomplished without the need to change the dampers cycle timing.
- .11 No pre-filtration or frost control is required. Units that require pre-heat, bypass or any type of frost control are not acceptable.

2.2 Warranty

- .1 Units shall have a 1-year warranty on all parts with exclusion of the cassettes (Not valid if not installed according to manufacturer's recommendation).
- .2 Energy transfer cassettes shall have a 10-year conditional warranty.

2.3 Unit Construction

- .1 Double-walled, insulated, air pressure tight casing assemblies. No through metal shall be allowed. Where dissimilar metals are used, they shall be dialectically isolated from one another to prevent galvanic action. All Seals and gaskets shall be easily changeable and constructed of EPDM rubber which is ultra violet and ozone stable and have a normal temperature range from -40 to 54°C.
- .2 Assembled panels shall be a minimum of 60mm thick and shall be fabricated with the minimum 1.6mm solid exterior sheet and 1.6mm solid inside panel. Each panel shall have an integral formed channel of all four sides for added structural stability. Inner panels shall be sealed to each other using a double bead of polyurethane adhesive sealant and mechanically fastened.

- .3 Wall panels are to be fastened to the channel base by means of a 25mm tack weld on 300mm centers, staggered from inside to outside of the housing. All seams and joints are finish caulked with non-hardening polyurethane sealant.
- .4 Interior panel insulation shall be 1.36 kg density fiberglass. Panel U-value shall not exceed 0.397 (W/m² K). UL fire rating, flame spread 10-20, fuel contributed 10-15, smoke developed 0-20.
- .5 Acoustical housing sections shall consist of 60mm panels and shall be fabricated of minimum 1.613mm solid outer panel and 1.006mm perforated inner sheet. Perforated sheets shall have 24mm diameter holes spaced no more than 4.76mm on center in a staggered pattern. The insulation shall be 1.36 kg fiberglass with 19.05 (micron) polyethylene covering between the insulation and the perforated coversheet.
- .6 The acoustical performance of the housing must meet the following criteria and be verified by independent NRTL test data.
Sound absorption Per ASTM C423-90a
Absorption coefficients – Sabine/ft²

Octave Band	125	250	500	1000	2000	4000	NRC
57.15mm panels w/ poly	0.36	0.75	1.00	1.00	0.90	0.77	0.90
62.97mm panels w/o poly	0.16	0.86	1.07	1.06	1.01	0.87	1.00
100mm panels w/ poly	0.90	1.15	1.04	1.03	0.97	0.76	1.05
100mm panels w/o poly	0.86	1.13	1.06	1.07	1.06	0.99	1.10

- .7 The structure shall be self-supporting. Where roof spans and wall loadings require additional structural strength, it shall be furnished by heavier panel gauges, or additional structural members capable of withstanding a differential pressure of 2488.4Pa. Maximum allowable panel deflection is 1/200th of the panel span at full rated unit static pressure.
- .8 Exterior skin to be galvalume steel.
- .9 Roof panels to be same construction as the wall. Unit roof construction to be pitched for water drainage.

2.4 Damper Section

- .1 Bearings shall be sealed and will not require any additional maintenance when shaft sizing of shaft less than 25mm are utilized.
- .2 EPDM Rubber will be used for seals. Seals are to be attached without the use of adhesives for ease of maintenance and replacement.
- .3 Damper blade is to be insulated and of a double walled, single blade design.
- .4 All size units must utilize an electric damper drive system as standard equipment.
- .5 Units requiring multiple drive actuators with additional linkage are not acceptable.

2.5 Base

- .1 Unit casing shall be built up on a structural steel channel base suitably sized to prevent deflection during rigging. The perimeter base channel shall be turned web side in to provide a suitable rigging bracket location at the base. The entire unit floor will be constructed of galvalume steel. All seams in the floor shall be tack welded and sealed. The floor shall be braced by structural steel members at a maximum of 600mm on center. Formed steel for the channel base shall not be acceptable.
- .2 The entire depth of the channel shall be insulated with R-19 fiberglass insulation. The sides of the floor pan shall be insulated to prevent condensation at the channel base.
- .3 Unit drain pans when coils are required in the wet sections will be continuously welded, watertight 304 stainless steel with 40mm drain connections. Each pan will pitch for positive condensate drainage.

- .4 Units without an integral structural base are not accepted.

2.6 Fans

- .1 Provide fan wheel diameter and class construction as scheduled. Fans must carry the AMCA seal for airflow and sound.
- .2 Provide airfoil blades on all fans wheels. Provide forward curved blades where scheduled. Provide solid shafts keyed to the fan wheel. Coat fan shaft with rust inhibitor. Hollow shafts will not be acceptable.
- .3 Fan bearings shall be self-aligning pillow block, grease lubricated, extra heavy-duty anti-friction ball or spherical roller type, selected for an L10 life of 80,000 hours at design operating conditions. Bearings are to be mounted on the integral fan scroll bracing.
- .4 Fan and motor shall be mounted on an all welded, structural steel, prime coated and internal isolation base with springs. The outlet of the fan shall be separated from the unit casing by means of a factory installed flexible connection. The internally mounted motor shall be provided on a slide rail base to allow proper adjustment of belt tension.
- .5 Provide open expanded metal belt guard having sides of galvanized steel and expanded metal face with opening for fan tachometer readings.
- .6 Provide fixed pitch sheaves rated at 150% of motor nameplate power. Allow for one (1) drive change for air balancing purposes (parts only, labour by air balancer).

2.7 Access Doors

- .1 All access doors, if equipped, are to be double wall construction, fabricated and insulated with the same gauge and quality of materials as the main housing. Structural steel shall be provided within the door and frame. All hinges and latches shall be mounted to structural steel. Mounting to sheet metal only is not acceptable.
- .2 Each door and frame shall be fabricated with integral flanges, working together to form a double gasketed seal effective against positive or negative pressure. Access doors shall have an integral flange, which supports a neoprene gasket, which mates to the doorframe. Each door frame shall be constructed of same gauge galvanized sheet metal as unit casing and shall have an offset, flange used to support a second neoprene gasket which matches to a flat surface on the door. The door and frame gaskets shall have radius corners to provide a uniform gasket surface. Gaskets bent at 90° or mitered in the corners will not be acceptable. All gaskets are to be mechanically fastened to mounting flange; the use of glue or self-adhesive gasket is not acceptable.
- .3 All access doors are to be hinged using a minimum of two chrome plated, high-pressure die-cast zinc, heavy duty, flush offset hinges with nylon bearings. The offset in the hinges shall be sufficient to prevent over-compression of the door's gasketed sealing system, and minimize gasket wipe. Piano hinges shall not be acceptable. All fastening hardware on outdoor access doors shall be stainless steel.
- .4 All access doors shall be provided with a minimum of two heavy-duty, chrome plated latches, die-cast from a non-corrosive zinc aluminum alloy. Latches shall be provided with both interior and exterior turn handles. Exterior handle shall contact matching chrome plated ramp and provide adequate pressure to form a positive gasket seal.
- .5 Where inspection only access is required, bolt on access panels with gaskets will be provided.
- .6 Piano type hinges and clasp type door latches are not acceptable.
- .7 Hinges mounted directly in to sheet metal are not acceptable.

2.8 Heat Transfer Cassettes

- .1 The characteristics of various finished aluminum products are determined in part by their alloy content. The Reverse Flow energy recovery system utilizes pure aluminum plates of 1100 alloy to offer excellent corrosion resistance. The structural frames and optional storm louvers are constructed of 1.524mm thick 304 stainless steel.
- .2 The energy transfer cassettes consist of 63 corrugated plates per module and have a minimum thickness of 0.70mm, maximum 0.81mm. With a sensible energy recovery effective rate of 90% winter 80% summer +/- 5% and latent recovery of up to 70% during cold winter conditions. System will not require freeze protection to -40°C under standard applications.
- .3 Each individual cassette must weigh 47.6 kg and be sized to flow 235 e/s to achieve a 90% effectiveness rate.
- .4 Energy transfer cassettes shall be easily accessible individually.
- .5 All cassettes are removable and cleanable with a pressure washer if ever required.
- .6 Units without a multilevel corrosion control system are not accepted.

2.9 Drain Pans

- .1 Coating throughout. Pans are provided in all plenum sections, fans are Vinyl coated in & out and the exhaust.
- .2 Provide capped drain connection on the side of the unit for drainability of the base pan for the following sections:
 - .1 Fresh Air Plenum
 - .2 Humidification Section

2.10 Filters

- .1 Filters shall be 51mm Camfil Farr Aeropleat IV+ pleated, disposable type. The filter shall be MERV 8 rating per ASHRAE Standard 52.2-1999.
- .2 Filters shall be installed in a prefabricated channel rack.
- .3 Filters shall be lift out from upstream access section.

2.11 Hydronic Coil

- .1 Enclose coils in coil sections with headers and U-bends fully contained within the casing.
- .2 Extend coil supply and return header connections, drain and vent fittings through casing. Coil connections shall be of same material as the coil headers.
- .3 Coil racks to be galvanized steel angle, providing independent support for each coil. Provide removable coil access panels in the unit casing.
- .4 Maximum heating coil face velocity 2.5 m/s.
- .5 Heating coils to be aluminum fin with copper tubing

2.12 Controls

- .1 An integral control panel shall be mounted on top of the damper section in an enclosed weather tight environmentally controlled compartment.
- .2 Controls include the following components:
 - .1 Damper control timer with built-in economizer cycle. (Built in clock with 6 points of input, 4 output)

-
- .2 Four-way cylinder control valve.
 - .3 On/off switch and building power connection block.
 - .4 Portable compressor package (optional)
 - .5 Electric damper
 - .3 Fused main disconnect will be provided when optional fan options are selected.
 - .4 All service parts are to be stocked readily available.
 - .5 EMCS Interface – hardwired
- 2.13 Electrical
- .1 All components are fully wired and tested prior to shipment.
 - .2 All electrical components used are individually CSA and UL listed. The unit must be field certified after installation by others if so required.
 - .3 Unit manufacturer shall wire all components to single point for field connection.
3. **EXECUTION**
- 3.1 Installation
- .1 Install units in accordance to manufacturers recommendations. Ensure adequate clearance to all components requiring access and servicing.
 - .2 Install units on a flat surface level on 100mm housekeeping pad within 6mm and of sufficient strength to support the units.
 - .3 Provide components furnished as per manufacturer's literature.
 - .4 Provide piping connections to coils such that individual coils can be isolated, drained, and removed. Provide valved pressure gauge connections and thermometer wells on the entering and leaving piping.
 - .5 Provide valves in water piping upstream and downstream of each coil for isolating the coils for maintenance, and to balance and trim the system.
 - .6 Provide drain valves with hose end connection, cap, chain, and vent cocks to each coil.
 - .7 Provide strainers ahead of all pumps and automatic modulating valves.
 - .8 Field power wiring shall be provided by Division 26 - Electrical. Provide certified wiring schematics to Division 26 – Electrical for associated equipment.
 - .9 Field control wiring shall be provided by Division 25 – Integrated Automation. Provide certified control wiring schematics to Controls Contractor.
 - .10 Provide condensate traps in accordance with manufacturers recommendations. Pipe all drain pan connections the nearest floor drain with appropriately sized trap.
 - .11 Before starting up any fans inspect and clean the inside of all air handling systems including fans, ducts, coils, and terminal units to ensure that they are completely free from dust and debris.
 - .12 Refer to schedule on drawings for heat recovery unit sizes and capacities.

END OF SECTION

1. GENERAL

1.1 Reference Standards

- .1 Canada Green Building Council (CaGBC)
 - .1 LEED V4 Building Design and Construction (BD+C) New Construction (NC) – Silver Certification.
- .2 CSA Group (CSA)
 - .1 BSA B52, Mechanical Refrigeration Code
 - .2 CAN/CSA-C656, Performance Standard for Single Package Central Air-Conditioners and Heat Pumps.

1.2 Action and Informational Submittals

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for air conditioning components and accessories and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Provide installation drawings including layout, locations and schedules with details required for installation of systems.
 - .2 Provide layout schematics. Illustrate and dimension clearance space requirements for installation and maintenance access.
 - .3 Provide the following technical data:
 - .1 Physical: dimensions, weights (shipping and operating).
 - .2 Clearances for operation, maintenance, servicing, cleaning and component replacement.
 - .4 Electrical: motor power voltage and phase, motor efficiency, wiring diagrams.
 - .5 Capacities and ratings.
 - .6 Installation: complete installation instructions.
 - .7 All trim and ancillary equipment.

1.3 Closeout Submittals

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for air conditioning components for incorporation into manual.

1.4 Delivery, Storage and Handling

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements] [with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

-
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground in dry location, indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect air conditioning components from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
 - .4 Develop Waste Reduction Workplan related to Work of this Section and in accordance with Section 01 35 21 - LEED Requirements.
 - .5 Packaging Waste Management: remove for reuse and return of padding, packaging materials, as specified in Construction Waste Management Plan in accordance with Section Section 01 35 21 - LEED Requirements.
- 2. PRODUCTS**
- 2.1 Type
 - .1 Provide packaged, air cooled, factory assembled, prewired unit, consisting of cabinet, evaporator fans and motors, compressors, cooling coil, filters, controls.
 - 2.2 Cabinet
 - .1 Fabricate of structural steel base frame suitably cross braced for rigidity, capable of supporting the compressors and other mechanical equipment and fitted with removable enclosing panels and doors.
 - .2 Doors and panels shall close against pressure tight magnetic non-perishable rubber seals. Provide concealed hinges and fastening devices.
 - .3 Thermally and acoustically line cabinet interior with fireproof material.
 - 2.3 Evaporator Fans and Motors
 - .1 Provide direct drive, double inlet, forward curved centrifugal fans, statically and dynamically balanced with permanently lubricated ball bearings.
 - .2 Each fan shall be independently driven by heavy duty drip proof permanently lubricated ball bearing motor with built-in current and overload protection.
 - 2.4 Compressors
 - .1 Provide scroll type compressors resiliently mounted, with positive lubrication and inherent motor protection.
 - .2 Compressors shall be capable of removal without dismantling other components.
 - 2.5 Evaporator Coils
 - .1 Provide horizontally split face coils constructed of seamless copper tubes expanded into aluminum fins.
 - .2 Provide minimum of two refrigeration circuits each complete with thermal expansion valve, filter drier, moisture indicator, sight glass, shut-off valves and charging valves.
 - 2.6 Filters
 - .1 Provide disposable pleated fabric filters mounted in rigid holding frames.
-

2.7 Condensers

- .1 Provide air cooled units with matched air cooled condenser consisting of corrosion resistant cabinet, incorporating copper tube aluminum fin condenser coils arranged for minimum of two circuits and multiple direct drive condenser fans with inherently protected motors. Operating controls shall permit fan cycling for head pressure control. Outdoor unit shall be completely factory assembled. The unit shall be capable of operating at -40degC ambient temperature without additional low ambient control. Unit must be test run at factory.

2.8 Control Panel and Controls

- .1 Provide pre-wired control panel within unit casing. Panel shall incorporate the various contactors and switching devices including switches to permit manual operation of the various circuits. Code wiring terminal points for identification.
- .2 Control system shall incorporate devices with wide gradual throttling range which cause system to pass from cooling to heating mode only when temperature fluctuation from normal has persisted for a given time span. Hunting and stop-start procedures for compressors shall be avoided.
- .3 Provide programmable thermostat with each air conditioning system.

2.9 Refrigerant Piping, Valves, Fittings and Accessories within Unit

- .1 To CSA B52.
- .2 Include for each refrigerant circuit:
- .1 Thermal expansion valve, external equalizing type.
- .2 Combination filter-dryer.
- .3 Solenoid valves.
- .4 Liquid sight glass with moisture indicator.
- .5 Suction line insulation: flexible elastomeric unicellar to ASTM C547, 12 mm minimum thickness.
- .6 [Liquid refrigerant receiver].

2.10 Refrigerant Charge

- .1 Charge refrigerant system at factory, seal and test.
- .2 Holding charge of refrigerant applied at factory.

3. EXECUTION

3.1 Examination

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for air conditioning components installation in accordance with manufacturer's written instructions.
- .1 Visually inspect substrate in presence of Departmental Representative.

3.2 General

- .1 Install as indicated, to manufacturer's recommendations, and to EPS 1/RA/2.
- .2 Manufacturer to certify installation.
- .3 Run drain line from cooling coil condensate drain pan to terminate over nearest floor drain.

3.3 Equipment Preparation

- .1 Provide services of manufacturer's field engineer to set and adjust equipment for operation as specified.

3.4 Cleaning

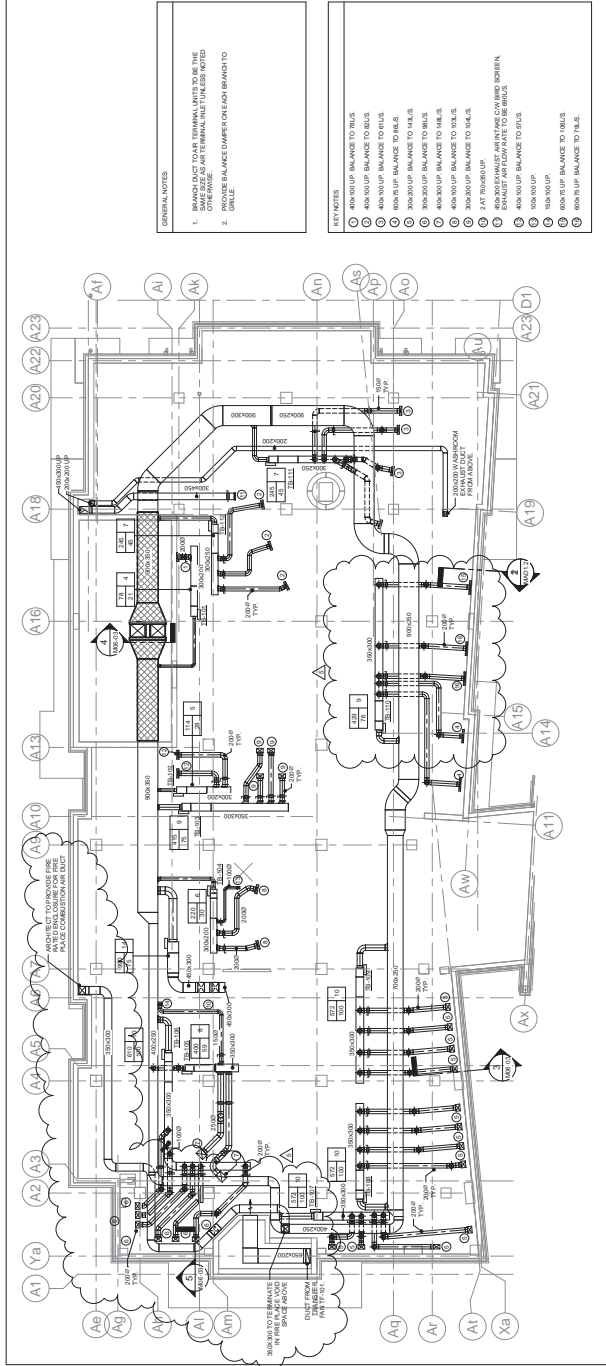
- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Remove surplus materials, rubbish, tools and equipment.
- .3 Waste Management: separate waste materials for recycling in accordance with Section 01 35 21 - LEED Requirements and 01 74 21 Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.5 Protection

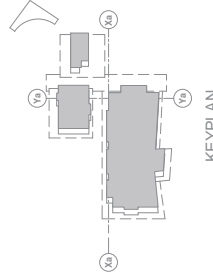
- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by computer room air conditioning installation.

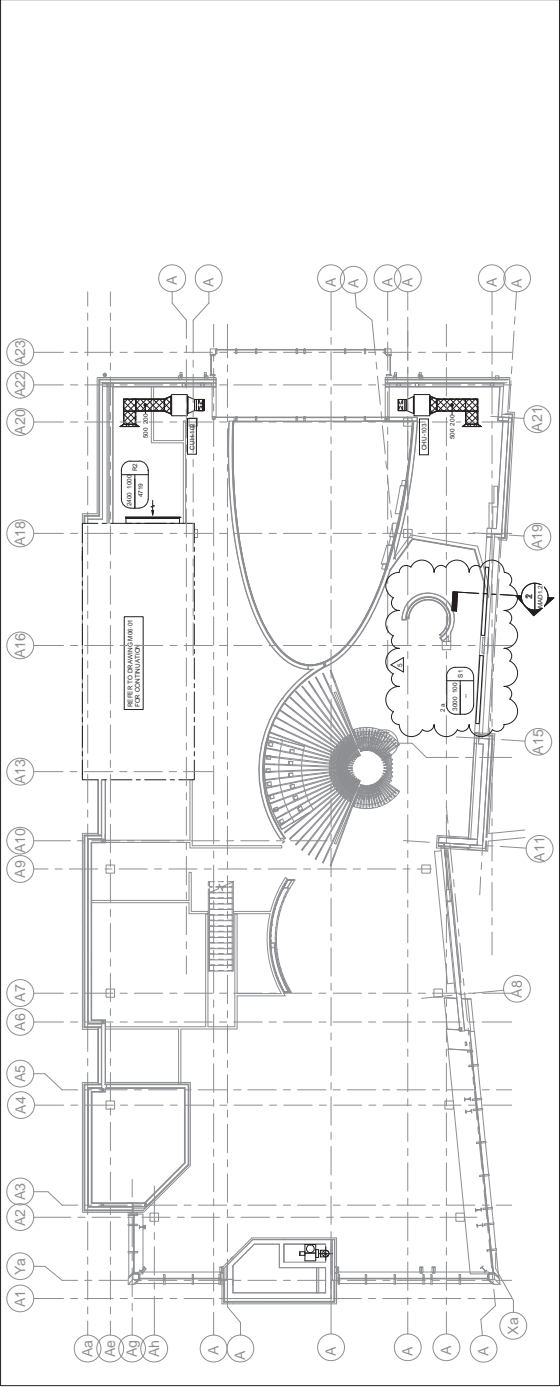
END OF SECTION

2 BUILDING A CRAWL SPACE PLUMBING AND HEATING PLAN

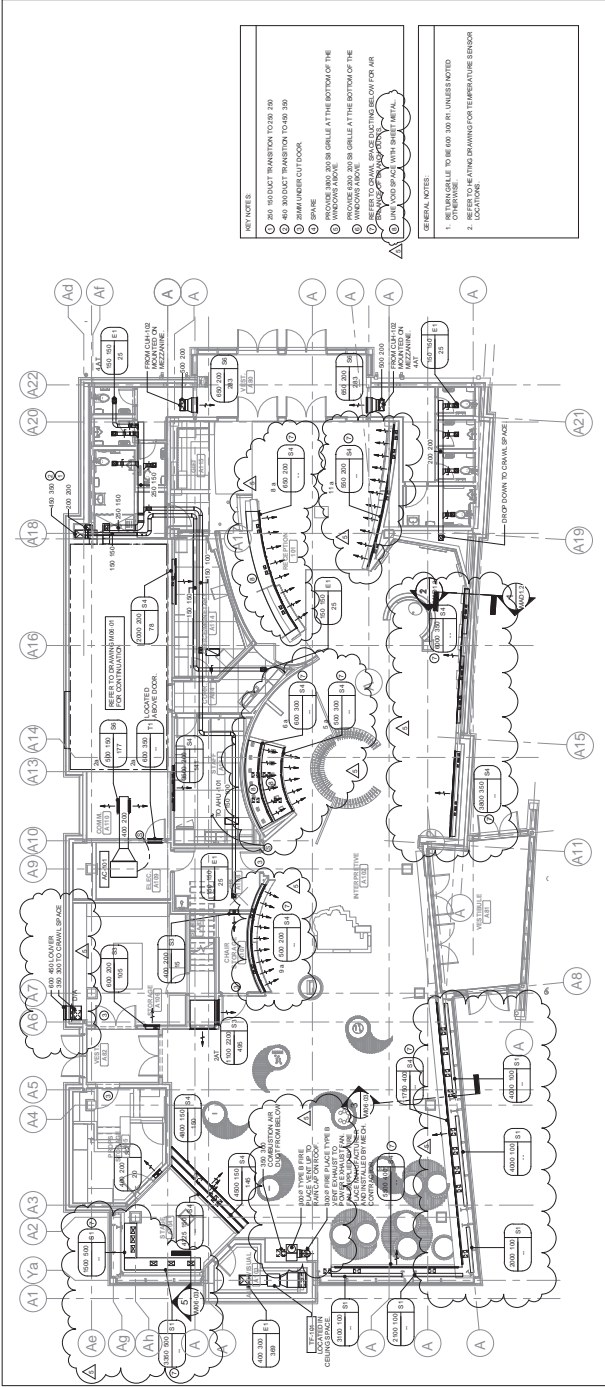


1 BUILDING A CRAWL SPACE VENTILATION PLAN

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2. BUILDING A VENTILATION PLAN-MEZZANINE LEVEL



1. BUILDING A VENTILATION PLAN-MAIN LEVEL

NOTES

no.	by	date	revisions
5	JO	20/02/2019	Revised to Addendum M1
4	JS	05/01/2019	Issued for BP-7 Tender
3	JS	10/07/2018	Issued for BP-7 Review
2	JS	10/07/2018	Issued for BP-7 Review
1	JS	18/04/2018	Issued for 30% Review

no.	by	date	revisions
1	JO	20/02/2019	Revised to Addendum M1

FWBA
ARCHITECTS
LITTONVILLE - GALLERY - RESIDENTIAL
TEL: 403.227.2315 www.fwba.ca

THE MID GROUP
10000 Midway Road, Suite 100
Calgary, AB T2C 1A5 Canada
Tel: 403.271.1100

drawn:	JO
scale:	1:100
file:	3016-0068

project:

WLNP VISITOR
CENTRE
WATERTON LAKES, ALBERTA

client:

PARKS CANADA

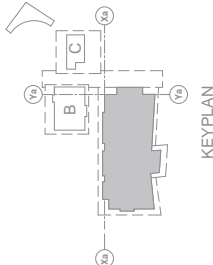
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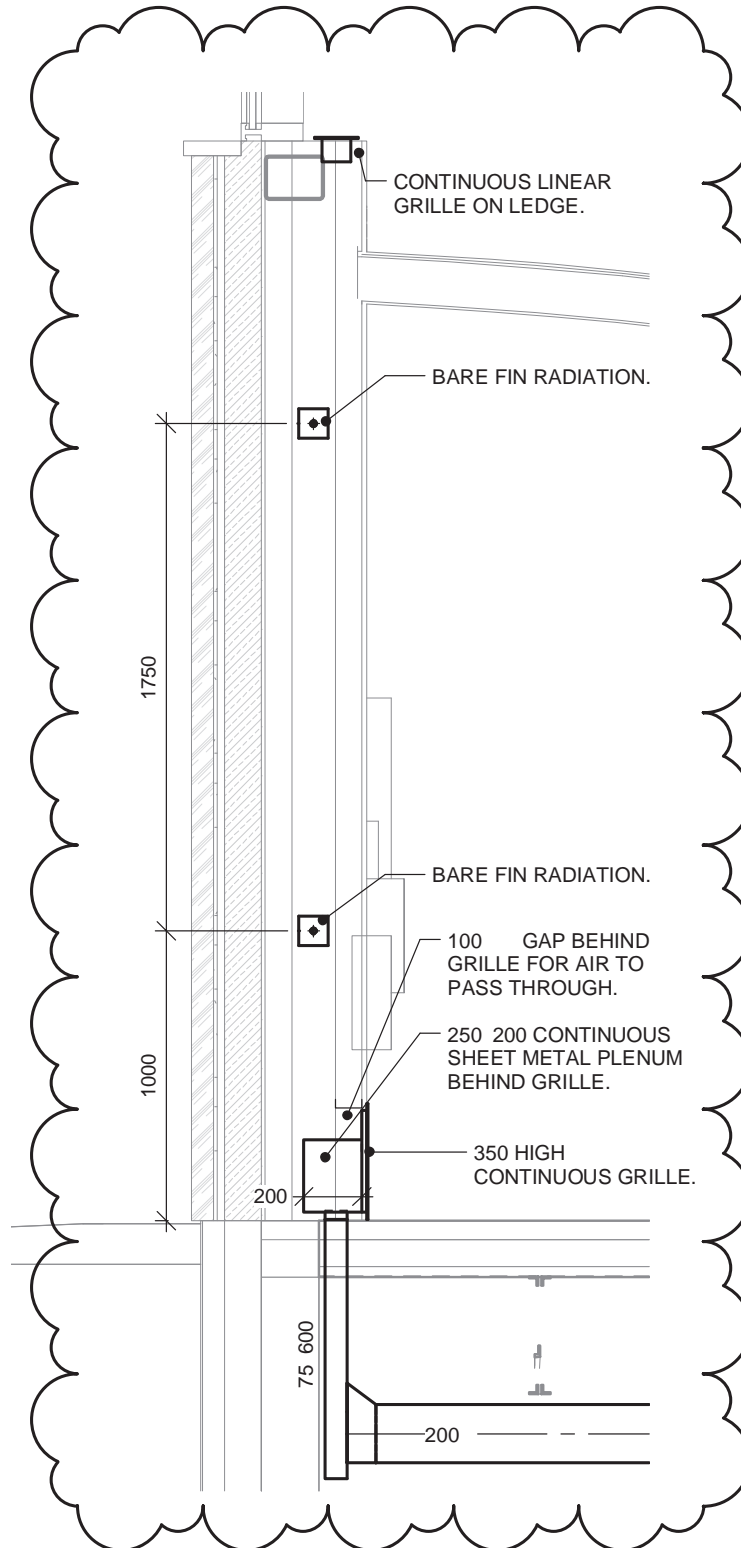
BUILDING A
VENTILATION PLAN

drawing no:

M04-01

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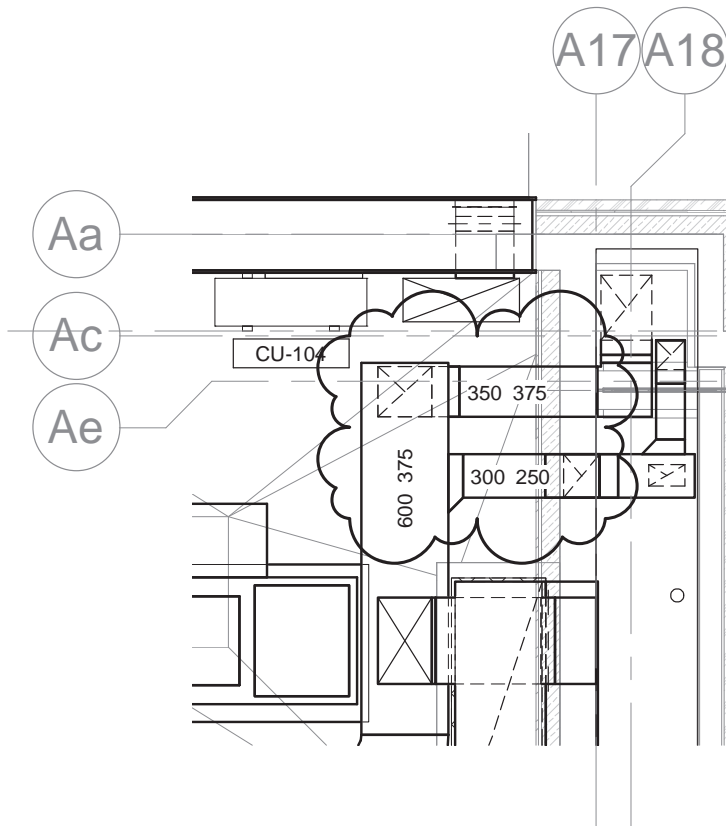


WLNP VISITOR CENTRE
EAST DISPLAY WALL HEATING AND VENTILATION DETAIL



THE HIDI GROUP
 11012 MacLeod Trail South, Suite 240
 Calgary, AB T2J 6A5 Canada
 t. 403 271 0100 | HIDI.com

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PARTIAL MEZZANINE MECHANICAL
ROOM LOWER LEVEL PLAN



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Calgary, AB T2J 6A5 Canada
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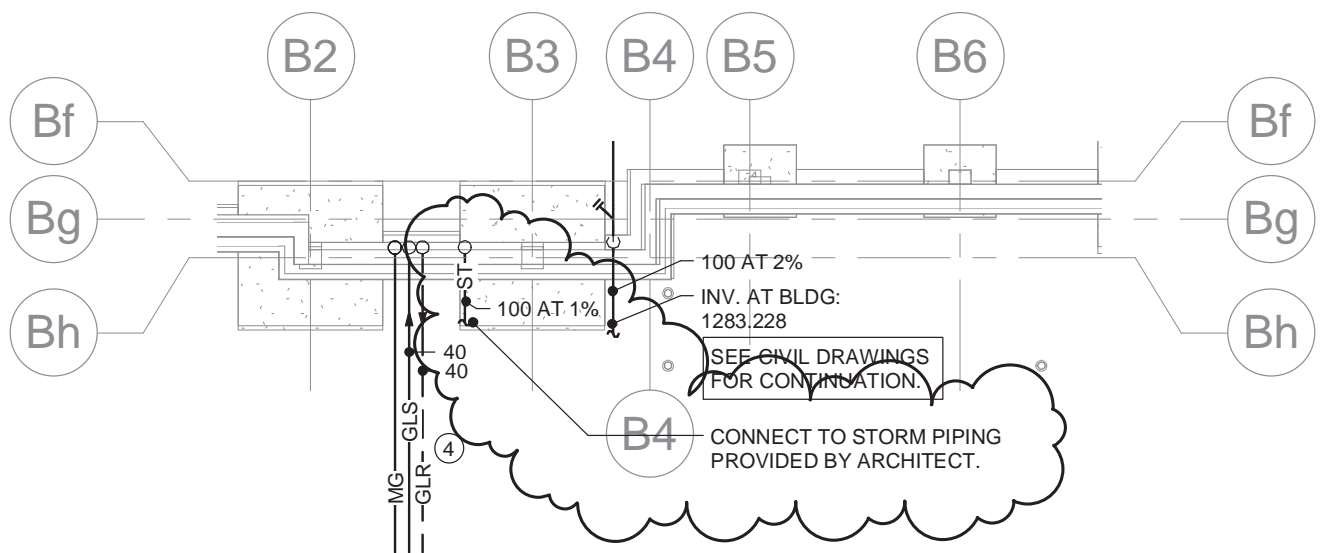
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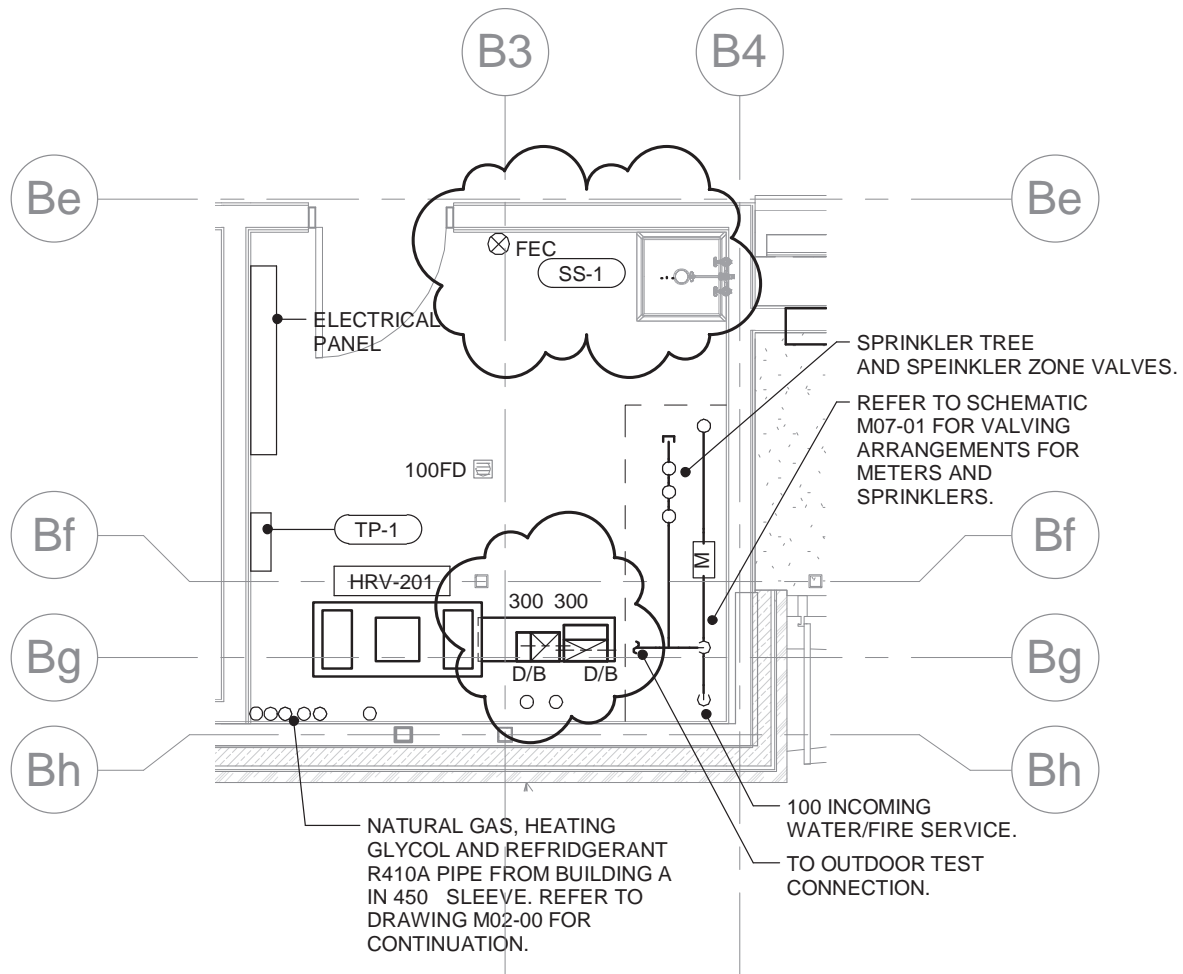


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PARTIAL FOUNDATION PLAN



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WLNP VISITOR CENTRE
AM100 LOWER LEVEL PLAN



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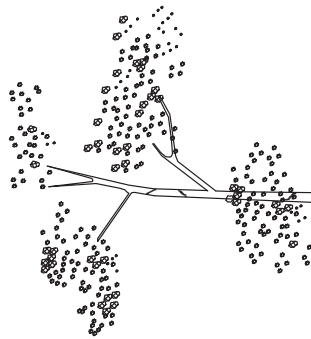
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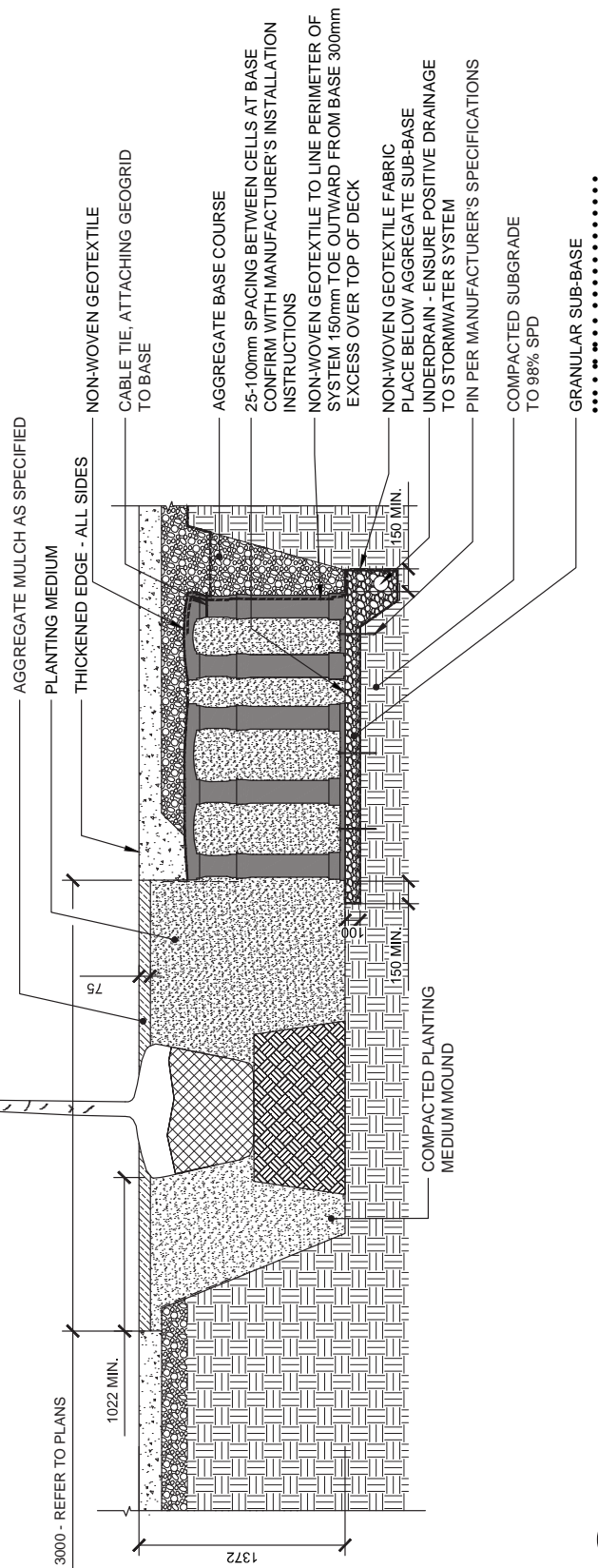
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**LANDSCAPING
RELATED ITEMS**



NOTES:


- 1. 450mm DEPTH MIN. 2.032mm THICK COPOLYMER POLYPROPYLENE ROOT BARRIER ON ALL SIDES OF PLANTER OPENINGS
- 2. COORDINATE UTILITIES AND IRRIGATION INSTALL REQUIREMENTS



1 SOIL CELLS DETAIL REV01

1:30

P-WIC-128

	Drawing	SOIL CELLS DETAIL REVISIONS	Project	WATERTON VISITOR CENTRE	Project No.	26739	Sketch	LSK01
	Rev.	LANDSCAPE ADDENDUM #2	Report		Date	2018.03.01		
					Scale			

**CIVIL
RELATED ITEMS**

**INTERPRETIVE
RELATED ITEMS**

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Architectural floor plan of the second floor of the WLPNP building. The plan shows various rooms, including a large central hall, a curved staircase, and several smaller rooms. Key areas are labeled: "WELCOME TO WLPNP" near the top left, "DISCOVER THE UNKNOWN" near the center, "MAKE YOUR OWN MEMORIES" near the bottom right, and "FLEXIBLE EXHIBIT SPACE" near the bottom left. The plan also includes a grid system with letters A through G along the top and bottom, and numbers 1 through 10 along the left and right sides. A legend at the bottom right explains the symbols used for different types of furniture and fixtures.

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KEYPLAN

no.	by	date	remarks
7	-	03/01/19	ADDENDUM 02
6	-	01/11/19	ISSUED FOR BP
5	-	01/03/19	ISSUED FOR TENDER
4	-	11/08/18	ISSUED FOR 99% CD
3	-	07/06/18	ISSUED FOR 66% CD
2	-	03/03/18	ISSUED FOR 30% CD
1	-	01/01/18	ISSUED FOR CD

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ARCHITECTS
LETHBRIDGE - CALGARY - MEDICINE HAT
TEL. 403.272.2113
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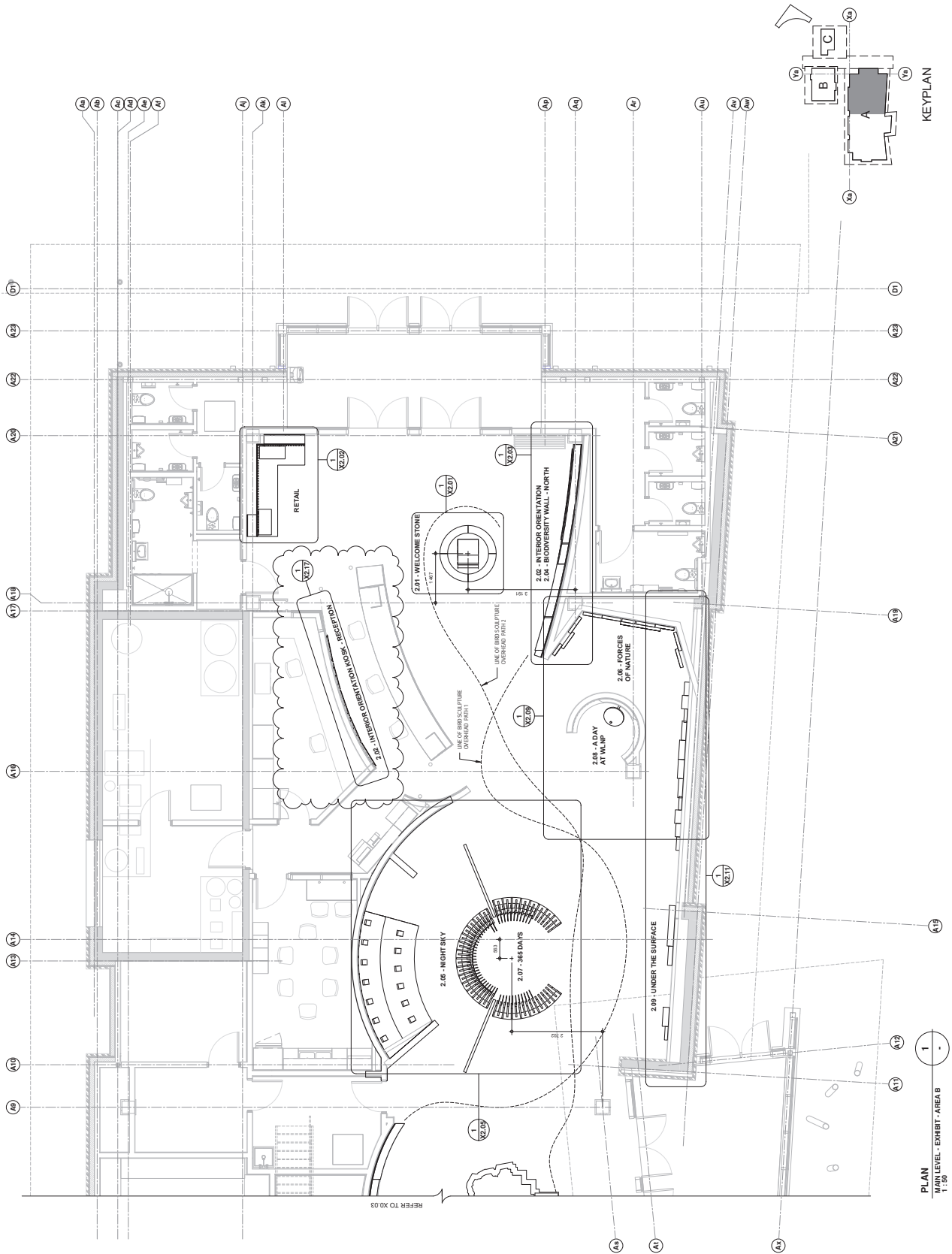
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**WLNP VISITOR
CENTRE**
Wind Flower Ave.
Waterton, Alberta

PARKS CANADA

**MAIN LEVEL
EXHIBIT FLOOR
PLAN - OVERALL**



NOTES

7 - 000119 ADDENDUMS
8 - 010019 ISSUED FOR TENDER
9 - 010019 ISSUED FOR TENDER
10 - 010019 ISSUED FOR TENDER
11 - 010019 ISSUED FOR TENDER
12 - 010019 ISSUED FOR TENDER
13 - 010019 ISSUED FOR TENDER
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ARCHITECTS
LITTONVILLE - CALVERT - WESTERN RD
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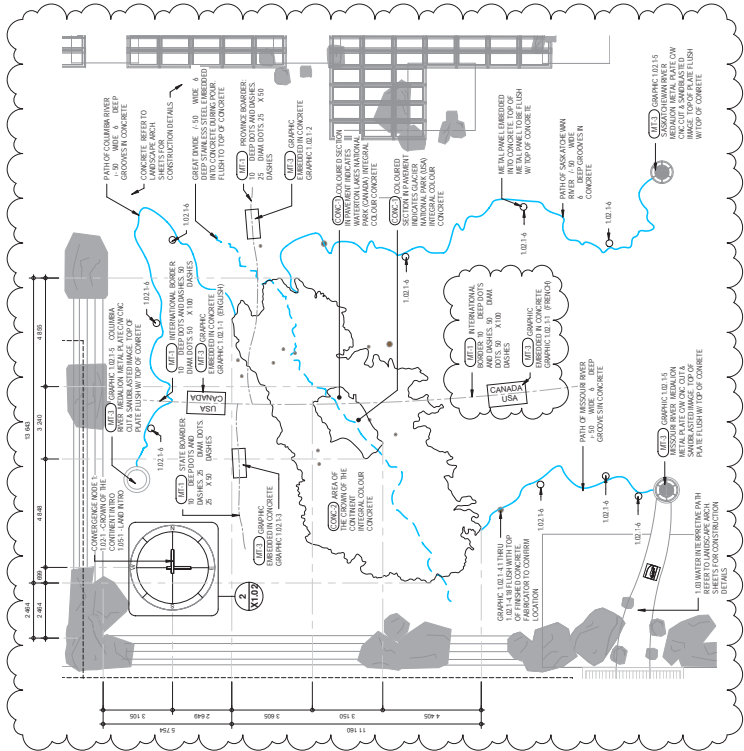
Panther
CREATIVE

client: WIMP VISITOR CENTRE
location: WIMP VISITOR CENTRE
address: WIMP VISITOR CENTRE
city: WIMP VISITOR CENTRE
province: WIMP VISITOR CENTRE
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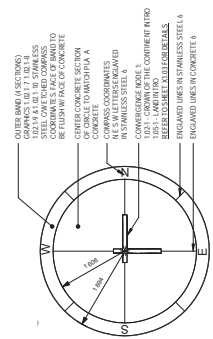
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scale: 1:50
date: 1654

PARKS CANADA
drawing title: EXHIBIT FLOOR PLAN - BUILDING A AREA B
drawing no: X0.04

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PLAN 1.02 CROWN OF THE CONTINENT 1:100



PLAN 1.02 CROWN OF THE CONTINENT - COMPASS 1:100

- CROWN OF THE CONTINENT NOTES
1. REFER TO LANDSCAPE SHEETS FOR FURTHER INFORMATION & CONSTRUCTION DETAILS
 2. REFER TO ALL GRAPHIC CALLOUTS AND DETAILS FOR MATERIALS, FINISHES, DIMENSIONS, AND CONSTRUCTION DETAILS
 3. REFER TO SPECIFICATION APPENDIX A, DETAIL DESCRIPTION FOR THE CONCRETE WORK AND GRAPHIC CALLOUTS

NOTES

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FWBA ARCHITECTS

LESTER B. F. ARCHITECTS - CREST - RESIDENTIAL

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Panther CREATIVE

drawn: N.Y.

checked: 03/07/19

scale: As indicated

file: 100119

project: WLNP VISITOR CENTRE

location: Waterfront, Alberta

client:

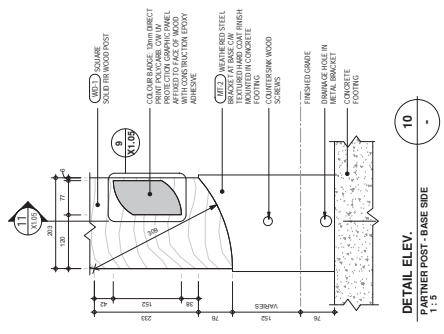
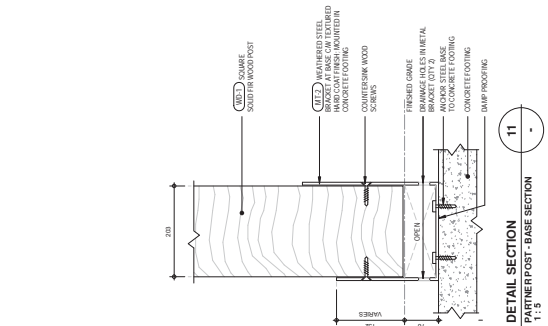
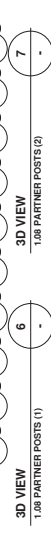
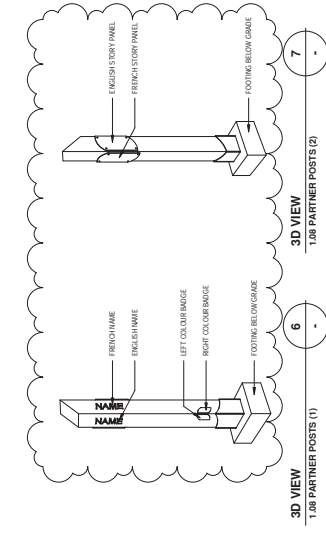
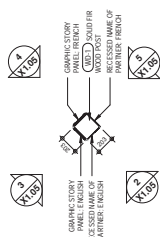
PARKS CANADA

drawing title: 1.02 CROWN OF THE CONTINENT MAP

drawing no: X1.02

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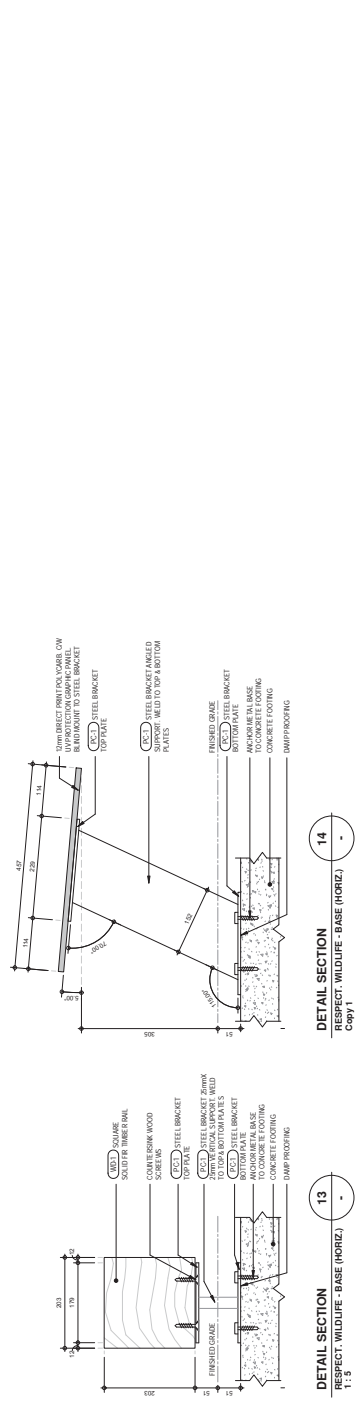
CULTURAL CONFORMANCE PARTNER POST NOTES:
1. REFER TO LANDSCAPE PLAN XUBI FOR LOCATIONS. 2. ALL DRAWINGS/DESIGN DETAILS SUBJECT TO APPROVAL BY STRUCTURAL ENGINEER. 3. REFER TO TEXT & GRAPHIC DOCUMENT FOR FINAL GRAPHIC SETS, SHAPES AND LOGOS. 4. REFER TO TEXT & GRAPHIC DOCUMENT FOR ETCHED NAME FONT STYLE AND POINT SIZE.



DETAIL SECTION
PARTNER POST - BASE SECTION
1:5

DETAIL ELEV.	10
PARTNER POST - BASE SIDE 1:5	-

RESPECTING AND LIFETIME NOTES	<ol style="list-style-type: none"> 1. REFER TO LANDSCAPE PLAN 001 FOR LOCATIONS. 2. ALL DRAWINGS / DESIGN / DETAILS SUBJECT TO APPROVAL BY STRUCTURAL ENGINEER. 3. REFER TO TEXT & GRAPHIC DOCUMENT FOR FINAL GRAPHIC SIZE, SHAPES AND LAYOUTS. 4. REFER TO TEXT & GRAPHIC DOCUMENT FOR ETCHED FONT STYLE AND POINT SIZE.
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ANIMAL SCULPTURES:			INTERACTION SKETCH		IMAGE REFERENCE	
ANIMAL	APPROX. SIZE: HEIGHT - 90cm, LENGTH - 1.3m ORIENTATION: TIMBER RAIL - VERTICAL INTERACTION: RUBBING ANTLERS AGAINST		PLAN	ELEVATION		
1.09.8 MULE DEER						
1.09.9 MOUNTAIN BLUE BRG BEAVER						
1.09.10 BEAVER						

TOTAL 9
REFER TO LANDSCAPE PLAN X0.01 FOR LOCATIONS

EXHIBIT LEGEND - 109 RESPECTS WILDLIFE				
EXHIBIT ELEMENT		INTERACTION SKETCH		
1.09.2	WOLF	APPROX. SIZE: HEIGHT - 65cm, LENGTH - 1.1m ORIENTATION: TIMBER RAIL - HORIZONTAL		
1.09.3	BLACK BEAR	APPROX. SIZE: HEIGHT - 2m ORIENTATION: TIMBER RAIL - VERTICAL INTERACTION: RUBBING BACK ON POST		
1.09.4	BADGER	APPROX. SIZE: HEIGHT - 30cm, LENGTH - 80cm ORIENTATION: TIMBER RAIL - HORIZONTAL INTERACTION: CLIMBING OVER		
1.09.5	GROUND SQUIRREL	APPROX. SIZE: HEIGHT - 16cm, LENGTH - 41cm ORIENTATION: TIMBER RAIL - HORIZONTAL INTERACTION: SITTING ON TOP		
1.09.6	GOLDEN EAGLE	APPROX. SIZE: HEIGHT - 70cm LOCATION: 1.09.1 - AIR INTRO INTERACTION: PERCHED ON TOP		
1.09.7	BIG HORN SHEEP	APPROX. SIZE: HEIGHT - 50cm, LENGTH - 1.6m ORIENTATION: TIMBER RAIL - HORIZONTAL INTERACTION: LAYING BESIDE		

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date

remarks

FWBA ARCHITECTS

LITERBREE - GILBERT - RESIDENT 842

TEL: 403.337.5113

www.fwba.ca

consultants

Panther CREATIVE

drawn: N.Y.

checked: J.C.

scale: As indicated

file: 1634

project: WLNIP VISITOR CENTRE

Waterloo, Alberta

client: PARKS CANADA

drawing title: 2.01 WELCOME STONE

drawing no: X2.01

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3

2.01 WELCOME STONE

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ENLARGED PLAN

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1

2.01 WELCOME STONE

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ENLARGED PLAN

1:20

2

2.01 WELCOME STONE - WEST

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ELEVATION

1:20

3

2.01 WELCOME STONE - N/S.

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ELEVATION

1:20

4

2.01 WELCOME STONE - EAST

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ELEVATION

1:20

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2.01 WELCOME STONE

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3D VIEW

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6

2.01 WELCOME STONE

1:10

SECTION

1:10





1
X0.04



TY WALL



NOTES

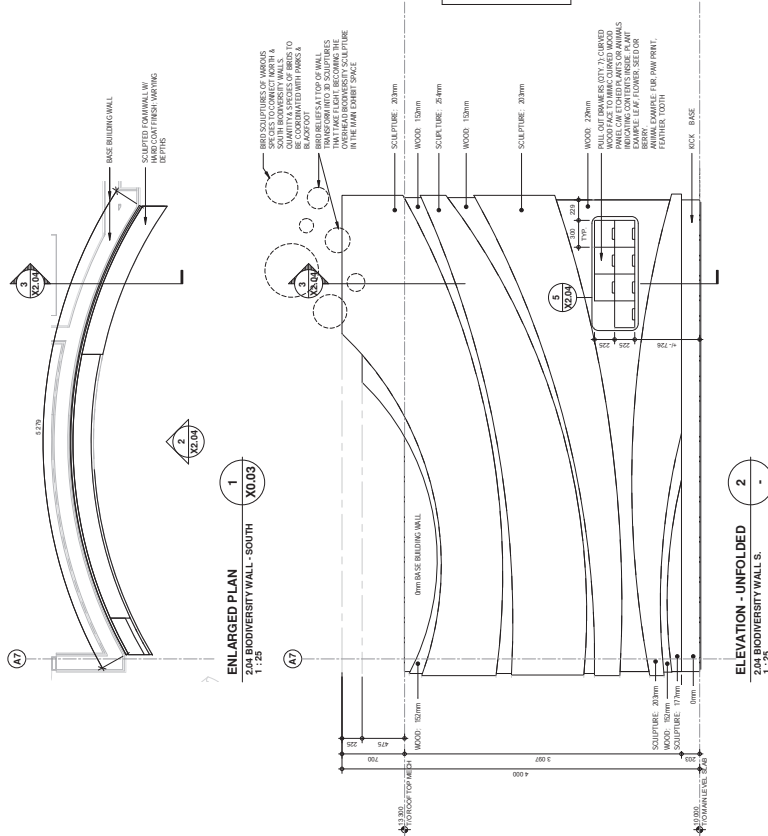
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usage:									
<div><div><div><div>FWBA</div><div>ARCHITECTS</div><div>1150 EAST 3RD ST S13</div><div>EDMONTON, ALBERTA T6C 1G6</div><div>www.fwba.ca</div></div></div></div>									
consultants									
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		drawing title:							
drawing:	WLPN VISITOR CENTRE			drawn by:	WLPN VISITOR CENTRE				
scale:	As indicated			client:	WLPN VISITOR CENTRE				
sheet:	1034								
CLIENT:									
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PROJECT LOCATION:									
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DRAWING TITLE:									
<div><div>2.02 INTERIOR ORIENTATION & WALL</div><div>2.04 BIOD. WALL</div></div>									
drawing no:									
X2.03									

1150 EAST 3RD ST S13
EDMONTON, ALBERTA T6C 1G6
TEL: 780-443-3333

1150 EAST 3RD ST S13
EDMONTON, ALBERTA T6C 1G6
TEL: 780-443-3333

[illegible]

* 2.04 BIODIVERSITY WALL DRAWINGS FOR REFERENCE ONLY. TO BE TENDERED UNDER SEPARATE PACKAGE



drawing no:
X2.04

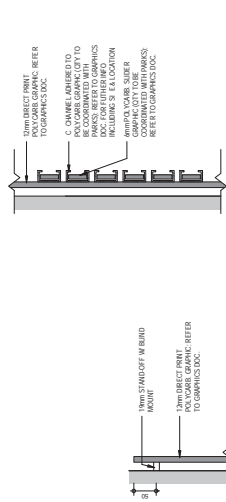
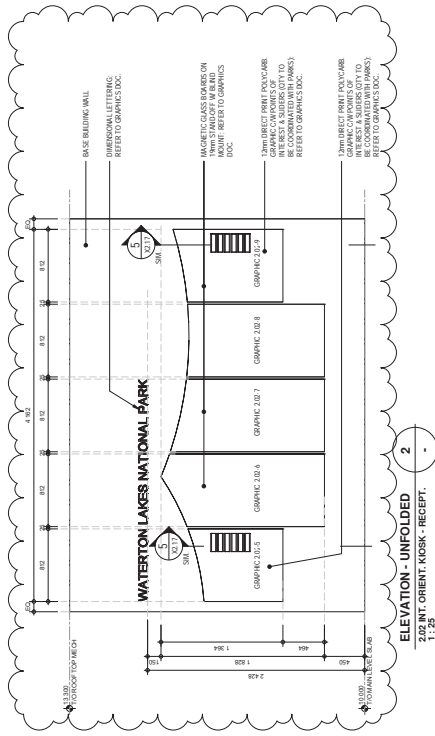
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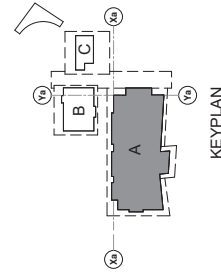
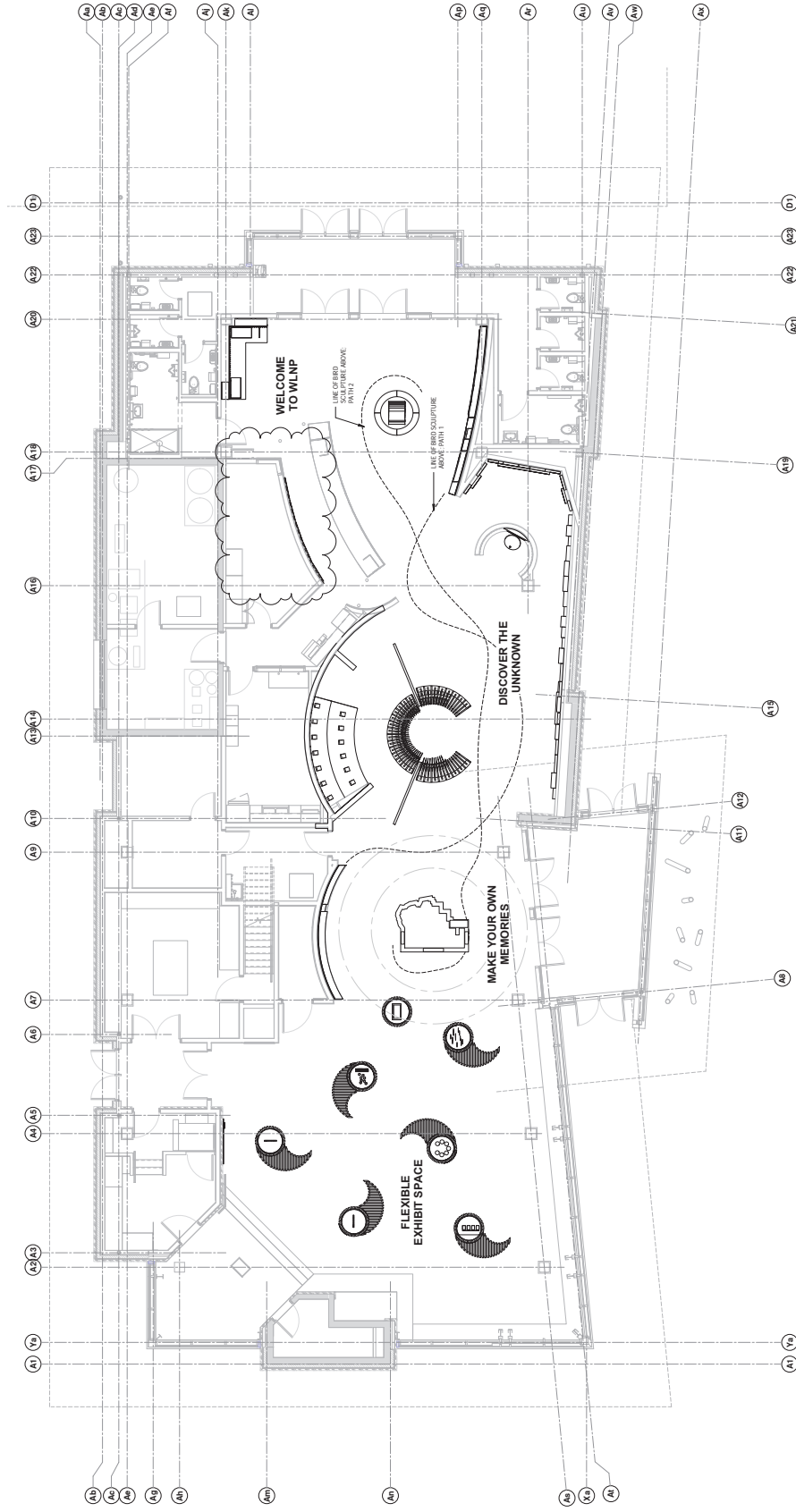
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PLAN	1
MAIN LEVEL - EXHIBIT - OVERALL	-
1 : 75	

NOTES

	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.	z.	aa.	ab.	ac.	ad.	ae.	af.	ag.	ah.	ai.	aj.	ak.	al.	am.	an.	ao.	ap.	aq.	ar.	as.	at.	au.	av.	aw.	ax.	ay.	az.	ba.	bb.	bc.	bd.	be.	bf.	bg.	bh.	bi.	bj.	bk.	bl.	bm.	bn.	bo.	bp.	bq.	br.	bs.	bt.	bu.	bv.	bw.	bx.	by.	bz.	ca.	cb.	cc.	cd.	ce.	cf.	cg.	ch.	ci.	cj.	ck.	cl.	cm.	cn.	co.	cp.	cq.	cr.	cs.	ct.	cu.	cv.	cw.	cx.	cy.	cz.	da.	db.	dc.	dd.	de.	df.	dg.	dh.	di.	dj.	dk.	dl.	dm.	dn.	do.	dp.	dq.	dr.	ds.	dt.	du.	dv.	dw.	dx.	dy.	dz.	ea.	eb.	ec.	ed.	ee.	ef.	eg.	eh.	ei.	ej.	ek.	el.	em.	en.	eo.	ep.	eq.	er.	es.	et.	eu.	ev.	ew.	ex.	ey.	ez.	fa.	fb.	fc.	fd.	fe.	ff.	fg.	fh.	fi.	fj.	fk.	fl.	fm.	fn.	fo.	fp.	fq.	fr.	fs.	ft.	fu.	fv.	fw.	fx.	fy.	fz.	ga.	gb.	gc.	gd.	ge.	gf.	gg.	gh.	gi.	gj.	gk.	gl.	gm.	gn.	go.	gp.	gq.	gr.	gs.	gt.	gu.	gv.	gw.	gx.	gy.	gz.	ha.	hb.	hc.	hd.	he.	hf.	hg.	hh.	hi.	hj.	hk.	hl.	hm.	hn.	ho.	hp.	hq.	hr.	hs.	ht.	hu.	hv.	hw.	hx.	hy.	hz.	ia.	ib.	ic.	id.	ie.	if.	ig.	ih.	ii.	ij.	ik.	il.	im.	in.	io.	ip.	iq.	ir.	is.	it.	iu.	iv.	iw.	ix.	iy.	iz.	ja.	jb.	jc.	jd.	je.	jf.	jj.	jk.	jl.	jm.	jn.	jo.	jp.	jq.	jr.	js.	jt.	ju.	kv.	kw.	kx.	ky.	kz.	la.	lb.	lc.	ld.	le.	lf.	lg.	lh.	li.	lj.	lk.	ll.	lm.	ln.	lo.	lp.	lq.	lr.	ls.	lt.	lu.	lv.	lw.	lx.	ly.	lz.	ma.	mb.	mc.	md.	me.	mf.	mg.	mh.	mi.	mj.	mk.	ml.	mm.	mn.	mo.	mp.	mq.	mr.	ms.	mt.	mu.	mv.	mw.	mx.	my.	mz.	na.	nb.	nc.	nd.	ne.	nf.	ng.	nh.	ni.	nj.	nk.	nl.	nm.	nn.	no.	np.	nq.	nr.	ns.	nt.	nu.	nv.	nw.	nx.	ny.	nz.	oa.	ob.	oc.	od.	oe.	of.	og.	oh.	oi.	oj.	ok.	ol.	om.	on.	oo.	op.	oq.	or.	os.	ot.	ou.	ov.	ow.	ox.	oy.	oz.	pa.	pb.	pc.	pd.	pe.	pf.	pg.	ph.	pi.	pj.	pk.	pl.	pm.	pn.	po.	pp.	pq.	pr.	ps.	pt.	pu.	pv.	pw.	px.	py.	pz.	qa.	qb.	qc.	qd.	qe.	qf.	qg.	qh.	qi.	qj.	qk.	ql.	qm.	qn.	qo.	qp.	qq.	qr.	qs.	qt.	qu.	qv.	qw.	qx.	qy.	qz.	ra.	rb.	rc.	rd.	re.	rf.	rg.	rh.	ri.	rj.	rk.	rl.	rm.	rn.	ro.	rp.	rq.	rr.	rs.	rt.	ru.	rv.	rw.	rx.	ry.	rz.	sa.	sb.	sc.	sd.	se.	sf.	sg.	sh.	si.	sj.	sk.	sl.	sm.	sn.	so.	sp.	sq.	sr.	ss.	st.	su.	sv.	sw.	sx.	sy.	sz.	ta.	tb.	tc.	td.	te.	tf.	tg.	th.	ti.	tj.	tk.	tl.	tm.	tn.	to.	tp.	tq.	tr.	ts.	tt.	tu.	tv.	tw.	tx.	ty.	tz.	ua.	ub.	uc.	ud.	ue.	uf.	ug.	uh.	ui.	uj.	uk.	ul.	um.	un.	uo.	up.	uq.	ur.	us.	ut.	uu.	uv.	uw.	ux.	uy.	uz.	va.	vb.	vc.	vd.	ve.	vf.	vg.	vh.	vi.	vj.	vk.	vl.	vm.	vn.	vo.	vp.	vq.	vr.	vs.	vt.	vu.	vv.	vw.	wx.	wy.	wz.	xa.	xb.	xc.	xd.	xe.	xf.	xg.	xh.	xi.	xj.	xk.	xl.	xm.	xn.	xo.	xp.	xq.	xr.	xs.	xt.	xu.	xv.	xw.	xx.	xy.	xz.	ya.	yb.	yc.	yd.	ye.	yf.	yg.	yh.	yi.	yj.	yk.	yl.	ym.	yn.	yo.	yp.	yq.	yr.	ys.	yt.	yu.	yv.	yw.	yx.	yy.	yz.	za.	zb.	zc.	zd.	ze.	zf.	zg.	zh.	zi.	zj.	zk.	zl.	zm.	zn.	zo.	zp.	zq.	zr.	zs.	zt.	zu.	zv.	zw.	zx.	zy.	zz.	aa.	ab.	ac.	ad.	ae.	af.	ag.	ah.

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Panther
CREATIVE

Drawn:	NV
Date:	03/01/19
Case:	1 : 75
File:	1634

PARKS CANADA

Drawing title:

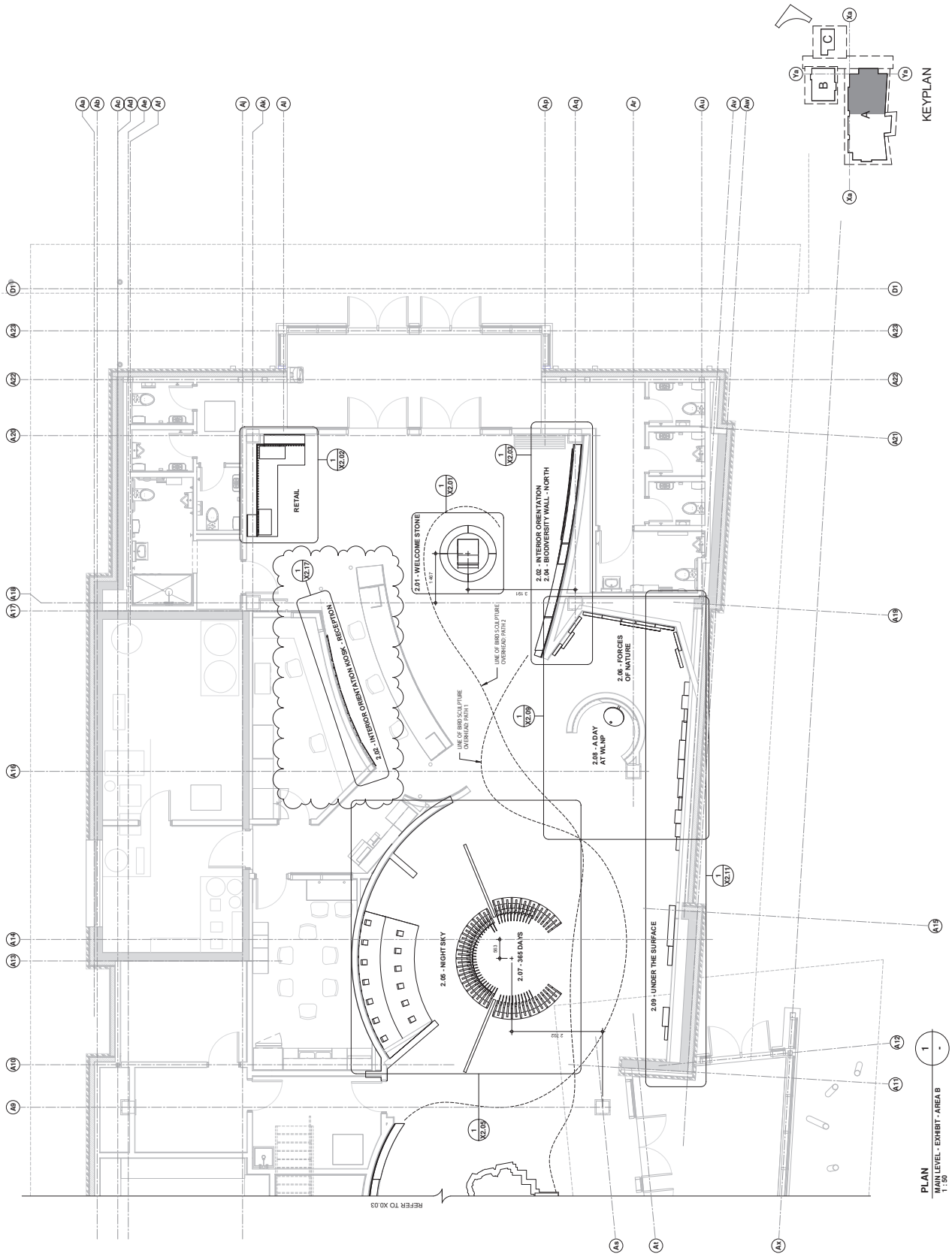
**MAIN LEVEL
EXHIBIT FLOOR
PLAN - OVERALL**

drawing no:

X0.02

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NOTES

7

000119

ADDENDUMS

SP

6

013019

ISSUED FOR TENDER

SP

5

110819

ISSUED FOR 90% CD

SP

4

000119

ISSUED FOR 90% CD

SP

3

000119

ISSUED FOR 90% CD

SP

2

013019

ISSUED FOR 90% CD

SP

1

013019

ISSUED FOR 90% CD

SP

Rev

By

Date

Remarks

FWBA

ARCHITECTS

LITTONVILLE - CALVERT - RESIDENT 847

TEL: 403.277.5113

WWW.FWBA.CA

Panther

CREATIVE

Drawn

11/11/19

Scale

1:50

File

1634

Project

WLMV VISITOR CENTRE

1000 University Ave, W

Waterton, Alberta

Client

PARKS CANADA

Drawing Title

EXHIBIT FLOOR

PLAN - BUILDING A

AREA B

Drawing No

X0.04

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1. REFER TO LANDSCAPE SHEETS FOR FURTHER INFORMATION & CONSTRUCTION DETAILS.
2. REFER TO TEXT & GRAPHICS DOCUMENT FOR DETAILED FINISHES AND MATERIALS. REFER TO GRAPHICS FILE FOR DETAILED DATA.
3. REFER TO SPECIFICATION APPENDIX A: EXHIBIT DESCRIPTION, EXHIBIT 1.02 CROWN OF THE CONTINENT FOR DESCRIPTION OF THE CONCRETE WORK AND GRAPHIC RILAYS.

Issue:

project

client.

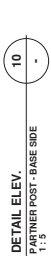
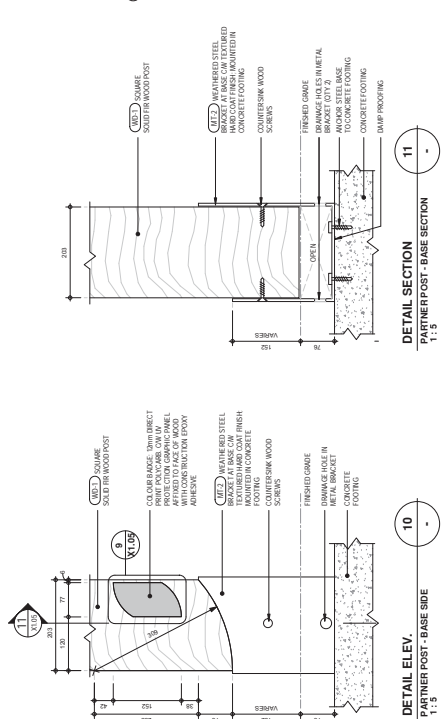
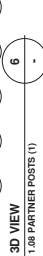
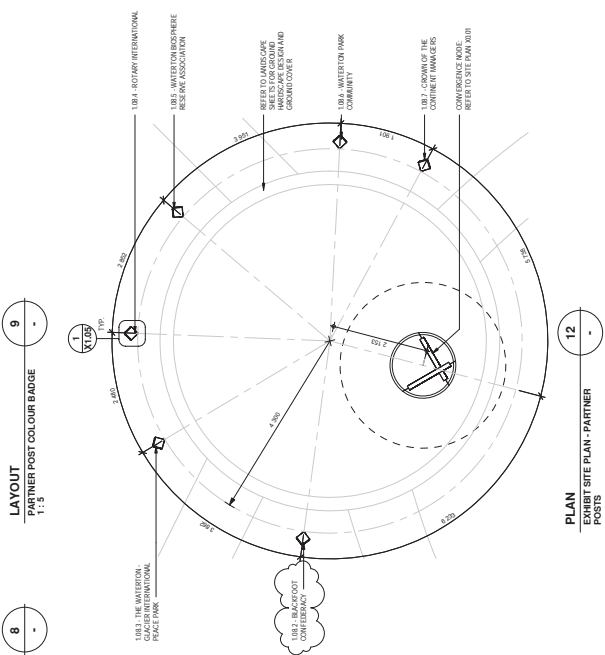
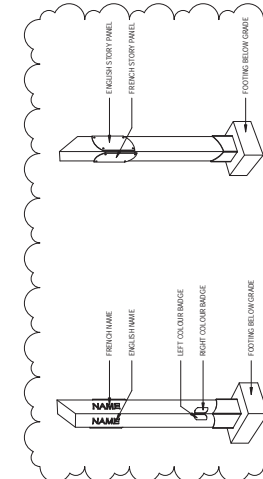
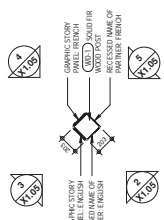
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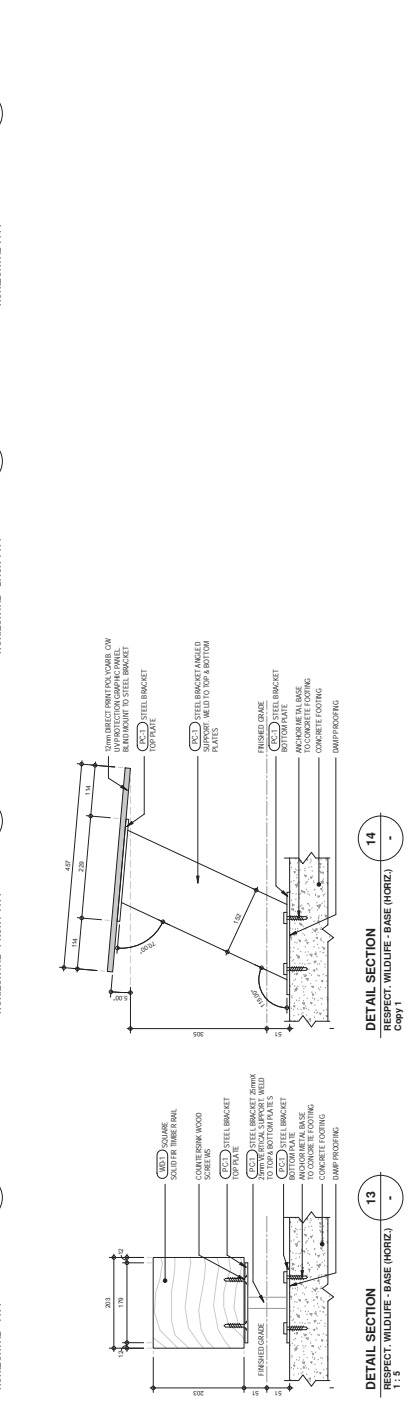
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RESPECTING AND LIFETIME NOTES	<ol style="list-style-type: none"> 1. REFER TO LANDSCAPE PLAN 001 FOR LOCATIONS. 2. ALL DRAWINGS / DESIGN / DETAILS SUBJECT TO APPROVAL BY STRUCTURAL ENGINEER. 3. REFER TO TEXT & GRAPHIC DOCUMENT FOR FINAL GRAPHIC SIZE, SHAPES AND LAYOUTS. 4. REFER TO TEXT & GRAPHIC DOCUMENT FOR ETCHED FONT STYLE AND POINT SIZE.
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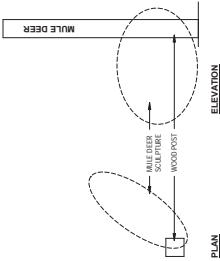

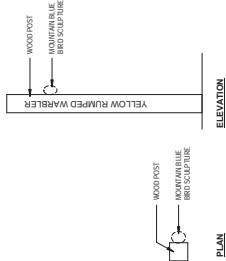

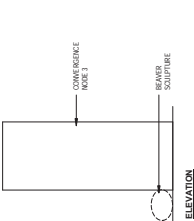

ANIMAL SCULPTURES:			IMAGE REFERENCE
ANIMAL	INTERACTION SKETCH		
100-8 MULE DEER	<div>APPROX. SIZE: HEIGHT - 90cm, LENGTH - 1.3m</div> <div>ORIENTATION: TIMBER RAIL - VERTICAL</div> <div>INTERACTION: RUBBING ANTLEERS AGAINST</div>		
100-9 MOUNTAIN BLUE BIRD	<div>APPROX. SIZE: LENGTH - 15cm</div> <div>ORIENTATION: TIMBER RAIL - VERTICAL</div> <div>INTERACTION: RUNNING UP SIDE</div>		
100-10 BEAVER	<div>APPROX. SIZE: HEIGHT - 80cm, LENGTH - 105cm</div> <div>LOCATION: 100-1: LAND/WATER CONVERGENCE NODE</div> <div>INTERACTION: CHAMMING BASE</div>		
TOTAL: 9 REFER TO LANDSCAPE PLAN X0.01 FOR LOCATIONS			

EXHIBIT LEGEND - 109 RESPECTING WILDLIFE				INTERACTION SKETCH	IMAGE REFERENCE
EXHIBIT ELEMENT					
1.09.2	APPROX. SIZE: HEIGHT - 65cm, LENGTH - 1.1m	ORIENTATION: TIMBER RAIL - HORIZONTAL	WOLF		
1.09.3	APPROX. SIZE: HEIGHT - 2m	ORIENTATION: TIMBER RAIL - VERTICAL	BLACK BEAR		
1.09.4	APPROX. SIZE: HEIGHT - 30cm, LENGTH - 60cm	ORIENTATION: TIMBER RAIL - HORIZONTAL	BADGER		
1.09.5	APPROX. SIZE: HEIGHT - 16cm, LENGTH - 41cm	ORIENTATION: TIMBER RAIL - HORIZONTAL	GROUND SQUIRREL		
1.09.6	APPROX. SIZE: HEIGHT - 70cm	LOCATION: 1.07 1 - AIR INTRO	GOLDEN EAGLE		
1.09.7	APPROX. SIZE: HEIGHT - 50cm, LENGTH - 1.6m	ORIENTATION: TIMBER RAIL - HORIZONTAL	BIG HORN SHEEP		

NOTES

7

-

000119

ADDENDUMS

8

-

013019

ISSUED FOR TENDER

9

-

110819

ISSUED FOR 60% CD

10

-

010919

ISSUED FOR 90% CD

11

-

003019

ISSUED FOR 90% CD

12

-

010119

ISSUED FOR 90% CD

13

-

010119

ISSUED FOR 90% CD

no.

by

date

remarks

FWBA ARCHITECTS
LITTHOUSE - GALLERY - RESIDENT BLDG
TEL: 403.337.5113
www.fwba.ca

consultants
Panther CREATIVE

drawn: NY
checked: NY
scale: As indicated
file: 1624

project:
WLNIP VISITOR CENTRE
Waterloo, Ontario
Waterloo, Alberta

client:
PARKS CANADA

drawing title:
2.01 WELCOME STONE

drawing no:
X2.01

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3

2.01 WELCOME STONE

1:20

ENLARGED PLAN

1:20

1

2.01 WELCOME STONE

1:20

ENLARGED PLAN

1:20

2

2.01 WELCOME STONE - WEST

1:20

ELEVATION

1:20

3

2.01 WELCOME STONE - N/S.

1:20

ELEVATION

1:20

4

2.01 WELCOME STONE - EAST

1:20

ELEVATION

1:20

5

2.01 WELCOME STONE

1:20

3D VIEW

1:20

6

2.01 WELCOME STONE

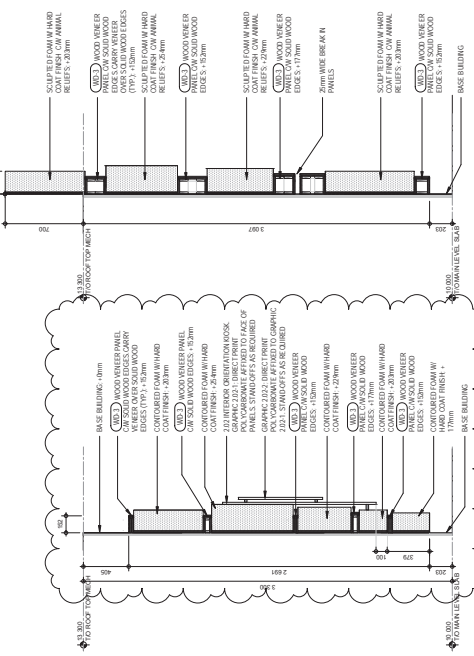
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SECTION

1:10



ENLARGED PLAN
2.04 BIODIVERSITY WALL - NORTH
1 : 25



ELEVATION - UNFOLDED

SECTION
2.02 INTERIOR ORIENTATION KIOSK
1:20

SECTION
2.04 BIODIVERSITY WALL
1:20

[illegible]

2.04 BIODIVERSITY WALL DRAWINGS
FOR REFERENCE ONLY. TO BE
TENDERED UNDER SEPARATE
PACKAGE

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Panther
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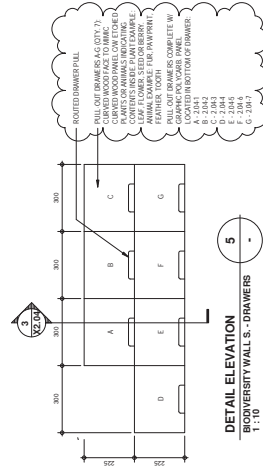
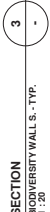
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date:	03/01/19
scale:	As indicated
file:	1634

client: **PARKS CANADA**

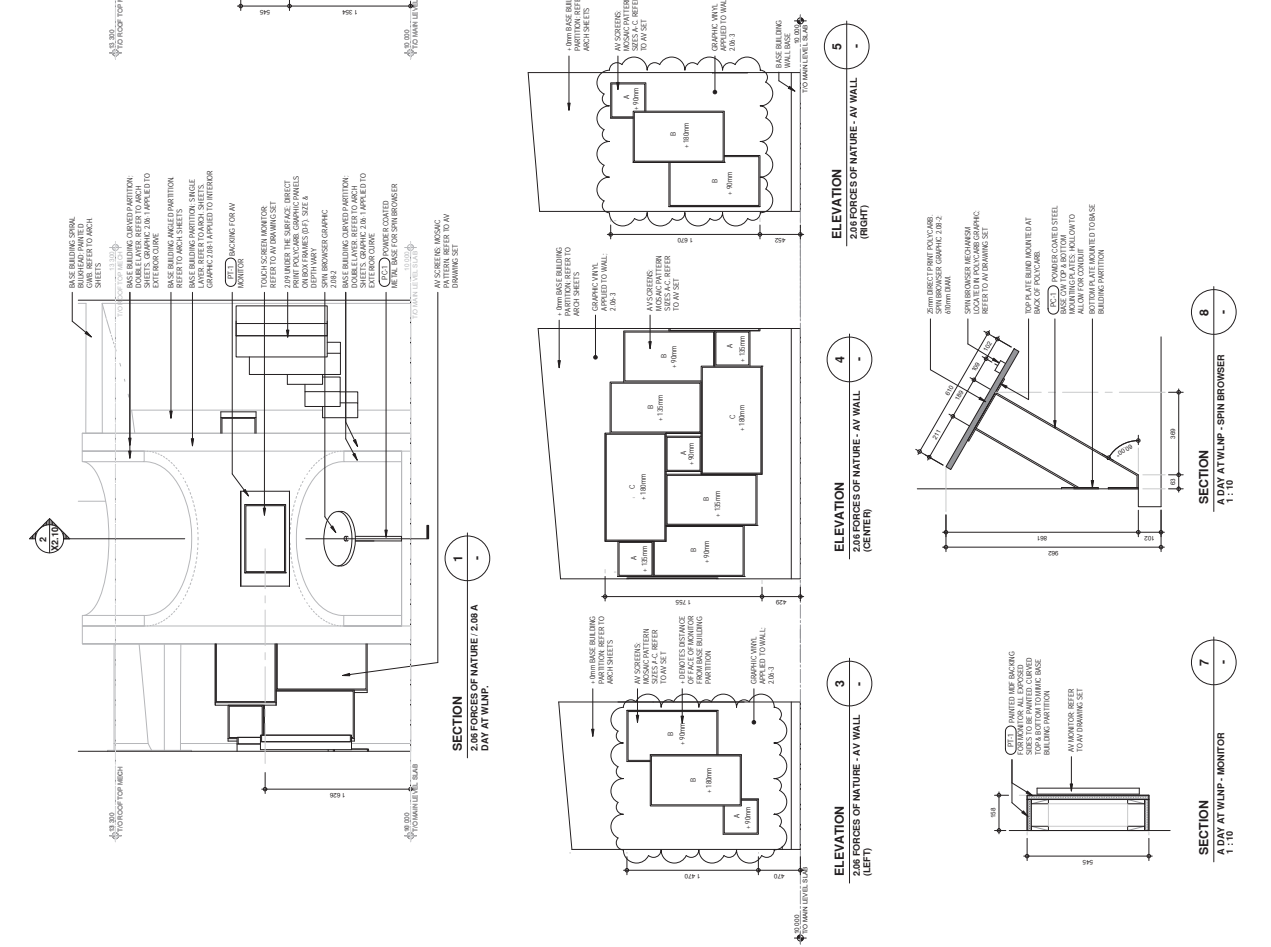
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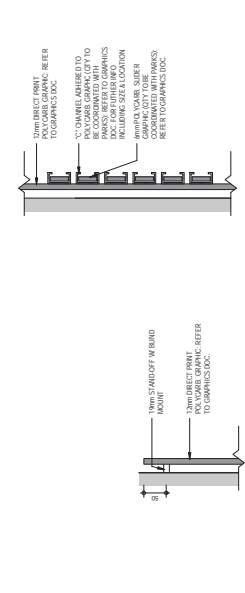
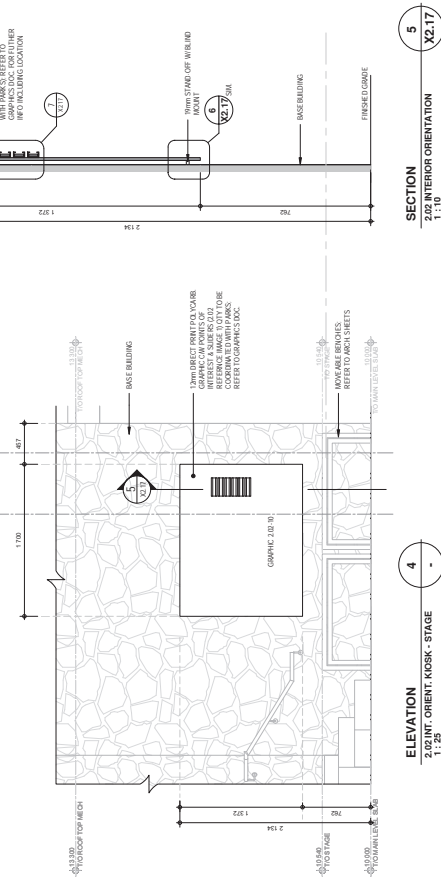
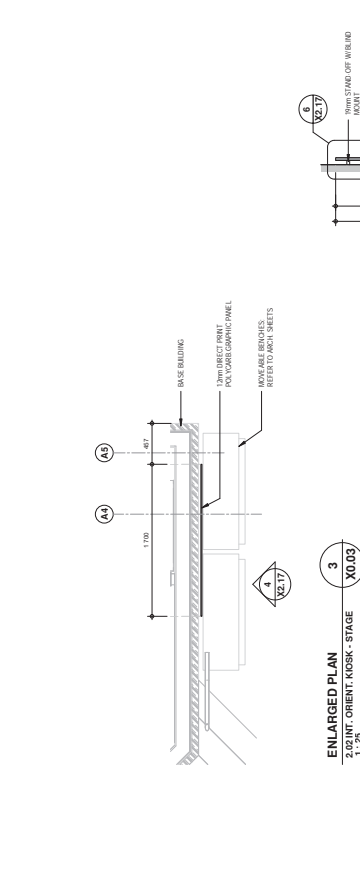
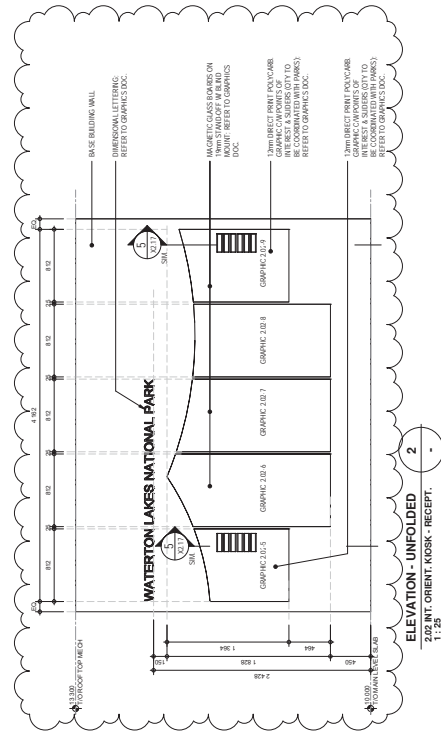
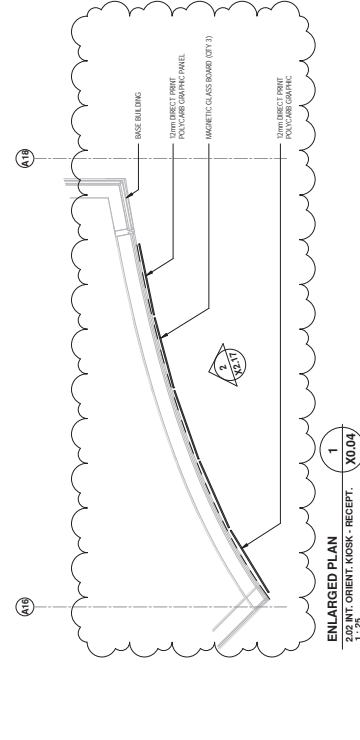
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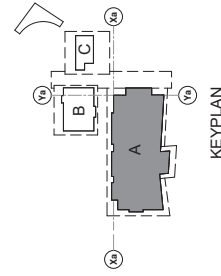
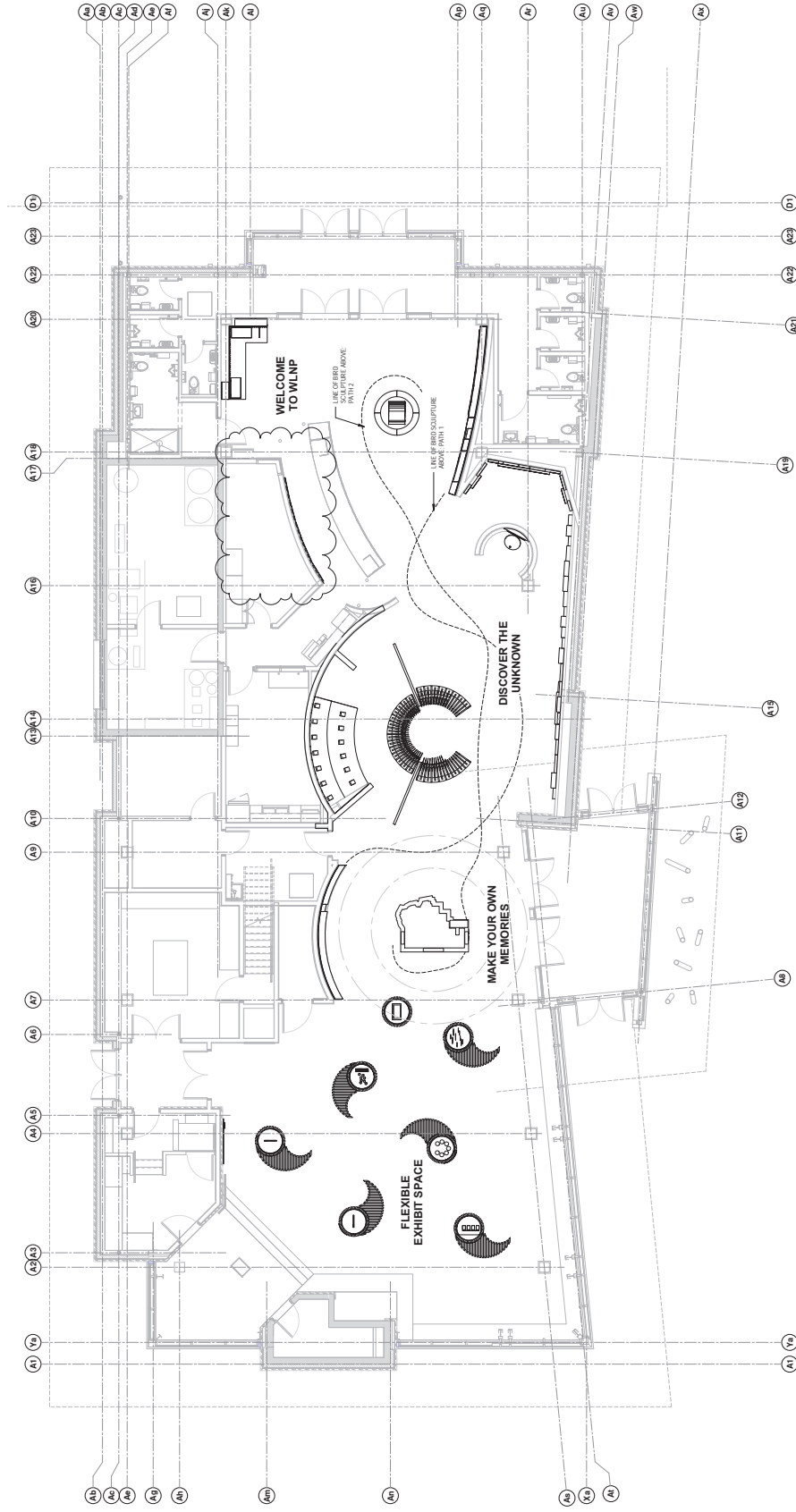




NOTES			
1	01/01/19	ISSUED FOR TENDER	
2	00/01/19	ADDENDUM 02	
no.	by	date	remarks
<div> <div> FWBA ARCHITECTS LITTONSHEE - CLIENT - WEBSITE: www.fwba.com TEL: 403.377.5113 </div> <div> Panther CREATIVE </div> </div>			
<div> <div> grant: WY contract: 03/01/19 scale: As indicated file: 1634 </div> <div> project: </div> </div>			
<div> <div> WLNP VISITOR CENTRE Waterfront Lakes National Park Waterloo, Alberta </div> <div> client: </div> </div>			
<div> <div> PARKS CANADA </div> <div> drawing title: </div> </div>			
<div> <div> 2.02 INTERIOR ORIENTATION KIOSKS </div> <div> drawing no: </div> </div>			
<div> <div> X2.17 </div> <div> DRAWING INFORMATION: THIS DRAWING IS THE PROPERTY OF FWBA ARCHITECTS. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED. IT IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF FWBA ARCHITECTS. </div> </div>			

EXHIBIT FINISH & MATERIAL SCHEDULE					
SL. NO.	MATERIAL	SUPPLIER/AMF PACT	PRODUCT REFERENCE	COLOR/FINISH REFERENCE	REMARKS
PF-1	FORM LAMINATE	CONTRACT TEL: 9843 743 000 WWW.FORMA.CO.IN	FORM LAMINATE	COLOR: BEAUT SATIN COLOR: BEAUT SATIN FINISH: MATTE (M)	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.
PF-1	PANEL	AMITH/W/FAHRI TEL: 9803 233 000 WWW.AMITHWFAHRI.COM	COLOR: GREY TO MATCH FINISH: TEXTURED FINISH	COLOR: GREY TO MATCH FINISH: TEXTURED FINISH	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.
PF-2	PANEL	GOO SYSTEMS CANADA CONTRACT TEL: -	SCREEN GLASS	COLOR: BRIGHT FINISH: -	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.
MO-1	WOOD	CONTRACT TEL: -	DOUGLAS FIR	COLOR: LIGHT NATURAL TO TYPE: DIMENSIONAL LAMBER PANELS AVAILABLE	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.
MO-2	WOOD	CONTRACT TEL: -	DOUGLAS FIR	COLOR: LIGHT NATURAL LAMBER FINISH: CLEAR COAT	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.
MO-3	WOOD	CONTRACT TEL: -	DOUGLAS FIR	COLOR: ROYALTON TYPE: SHETTY TREKLER FINISH: CLEAR COAT	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.
MO-4	WOOD	CONTRACT TEL: -	ASH	COLOR: ROYALTON TYPE: DIMENSIONAL LAMBER FINISH: CLEAR COAT	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.
MO-5	WOOD	CONTRACT TEL: -	DOUGLAS FIR	COLOR: ROYALTON TYPE: DIMENSIONAL LAMBER FINISH: CLEAR COAT	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.
ME-1	METAL	CONTRACT TEL: -	MILD STEEL	COLOR: LEAVE NATURAL FINISH: PRIMER SATIN W. CLEAR COAT	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.
ME-2	METAL	CONTRACT TEL: -	MILD STEEL	COLOR: CHEMICALLY INDUCED RUST FINISH: PRIMER SATIN W. CLEAR COAT	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.
ME-3	METAL	CONTRACT TEL: -	STAINLESS STEEL	COLOR: LEAVE NATURAL FINISH: POLISH	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.
CONC-1	CONCRETE	INTERSTATE 8708 WWW.INTERSTATE8708.COM	CONCRETE POINTE	PRODUCT: COLORED AGGREGATE COLOR: SANDROCK GREEN COLOR CODE: 05-01-01	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.
CONC-2	CONCRETE	INTERSTATE 8708 WWW.INTERSTATE8708.COM	CONCRETE POINTE	PRODUCT: COLORED AGGREGATE COLOR: TOMCATO BROWN COLOR CODE: 05-01-01	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.
CONC-3	CONCRETE	CONTRACT TEL: -	SCULPTED CONCRETE	PRODUCT: COLORED AGGREGATE COLOR: TOMCATO BROWN COLOR CODE: 05-01-01	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.
RO-1	ROCK	CONTRACT TEL: -	ROCK FINISH	PRODUCT: COLORED AGGREGATE COLOR: TOMCATO BROWN COLOR CODE: 05-01-01	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.
PC-1	POWDER COAT	POWERSIDE FINISHES TEL: 9843 743 000 WWW.POWERSIDEFINISHES.COM	POWDER COAT	COLOR: BLACK COLOR CODE: 05-01-01	PROVIDE SAMPLE FOR DESIGN CONSULTATIVE REVIEW IN APPROVAL ORDER.

[illegible]



PLAN	1
MAIN LEVEL - EXHIBIT - OVERALL	-
1 : 75	

1

NOTES

	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.	z.	aa.	ab.	ac.	ad.	ae.	af.	ag.	ah.	ai.	aj.	ak.	al.	am.	an.	ao.	ap.	aq.	ar.	as.	at.	au.	av.	aw.	ax.	ay.	az.	ba.	bb.	bc.	bd.	be.	bf.	bg.	bh.	bi.	bj.	bk.	bl.	bm.	bn.	bo.	bp.	bq.	br.	bs.	bt.	bu.	bv.	bw.	bx.	by.	bz.	ca.	cb.	cc.	cd.	ce.	cf.	cg.	ch.	ci.	cj.	ck.	cl.	cm.	cn.	co.	cp.	cq.	cr.	cs.	ct.	cu.	cv.	cw.	cx.	cy.	cz.	da.	db.	dc.	dd.	de.	df.	dg.	dh.	di.	dj.	dk.	dl.	dm.	dn.	do.	dp.	dq.	dr.	ds.	dt.	du.	dv.	dw.	dx.	dy.	dz.	ea.	eb.	ec.	ed.	ee.	ef.	eg.	eh.	ei.	ej.	ek.	el.	em.	en.	eo.	ep.	eq.	er.	es.	et.	eu.	ev.	ew.	ex.	ey.	ez.	fa.	fb.	fc.	fd.	fe.	ff.	fg.	fh.	fi.	fj.	fk.	fl.	fm.	fn.	fo.	fp.	fq.	fr.	fs.	ft.	fu.	fv.	fw.	fx.	fy.	fz.	ga.	gb.	gc.	gd.	ge.	gf.	gg.	gh.	gi.	gj.	gk.	gl.	gm.	gn.	go.	gp.	gq.	gr.	gs.	gt.	gu.	gv.	gw.	gx.	gy.	gz.	ha.	hb.	hc.	hd.	he.	hf.	hg.	hh.	hi.	hj.	hk.	hl.	hm.	hn.	ho.	hp.	hq.	hr.	hs.	ht.	hu.	hv.	hw.	hx.	hy.	hz.	ia.	ib.	ic.	id.	ie.	if.	ig.	ih.	ii.	ij.	ik.	il.	im.	in.	io.	ip.	iq.	ir.	is.	it.	iu.	iv.	iw.	ix.	iy.	iz.	ja.	jb.	jc.	jd.	je.	jf.	jj.	jk.	jl.	jm.	jn.	jo.	jp.	jq.	jr.	js.	jt.	ju.	jv.	jw.	jx.	ky.	kz.	la.	lb.	lc.	ld.	le.	lf.	lg.	lh.	li.	lj.	lk.	ll.	lm.	ln.	lo.	lp.	lp.	lr.	ls.	lt.	lu.	lv.	lw.	lx.	ly.	lz.	ma.	mb.	mc.	md.	me.	mf.	mg.	mh.	mi.	mj.	mk.	ml.	mm.	mn.	mo.	mp.	mq.	mr.	ms.	mt.	mu.	mv.	mw.	mx.	my.	mz.	na.	nb.	nc.	nd.	ne.	nf.	ng.	nh.	ni.	nj.	nk.	nl.	nm.	nn.	no.	np.	nq.	nr.	ns.	nt.	nu.	nv.	nw.	nx.	ny.	nz.	oa.	ob.	oc.	od.	oe.	of.	og.	oh.	oi.	oj.	ok.	ol.	om.	on.	oo.	op.	oq.	or.	os.	ot.	ou.	ov.	ow.	ox.	oy.	oz.	pa.	pb.	pc.	pd.	pe.	pf.	pg.	ph.	pi.	pj.	pk.	pl.	pm.	pn.	po.	pp.	pq.	pr.	ps.	pt.	pu.	pv.	pw.	px.	py.	pz.	qa.	qb.	qc.	qd.	qe.	qf.	qg.	qh.	qi.	qj.	qk.	ql.	qm.	qn.	qo.	qp.	qq.	qr.	qs.	qt.	qu.	qv.	qw.	qx.	qy.	qz.	ra.	rb.	rc.	rd.	re.	rf.	rg.	rh.	ri.	rj.	rk.	rl.	rm.	rn.	ro.	rp.	rq.	rr.	rs.	rt.	ru.	rv.	rw.	rx.	ry.	rz.	sa.	sb.	sc.	sd.	se.	sf.	sg.	sh.	si.	sj.	sk.	sl.	sm.	sn.	so.	sp.	sq.	sr.	ss.	st.	su.	sv.	sw.	sx.	sy.	sz.	ta.	tb.	tc.	td.	te.	tf.	tg.	th.	ti.	tj.	tk.	tl.	tm.	tn.	to.	tp.	tq.	tr.	ts.	tt.	tu.	tv.	tw.	tx.	ty.	tz.	ua.	ub.	uc.	ud.	ue.	uf.	ug.	uh.	ui.	uj.	uk.	ul.	um.	un.	uo.	up.	uq.	ur.	us.	ut.	uu.	uv.	uw.	ux.	uy.	uz.	va.	vb.	vc.	vd.	ve.	vf.	vg.	vh.	vi.	vj.	vk.	vl.	vm.	vn.	vo.	vp.	vq.	vr.	vs.	vt.	vu.	vv.	vw.	wx.	wy.	wz.	xa.	xb.	xc.	xd.	xe.	xf.	xg.	xh.	xi.	xj.	xk.	xl.	xm.	xn.	xo.	xp.	xq.	xr.	xs.	xt.	xu.	xv.	xw.	xx.	xy.	xz.	ya.	yb.	yc.	yd.	ye.	yf.	yg.	yh.	yi.	yj.	yk.	yl.	ym.	yn.	yo.	yp.	yq.	yr.	ys.	yt.	yu.	yv.	yw.	yx.	yy.	yz.	za.	zb.	zc.	zd.	ze.	zf.	zg.	zh.	zi.	zj.	zk.	zl.	zm.	zn.	zo.	zp.	zq.	zr.	zs.	zt.	zu.	zv.	zw.	zx.	zy.	zz.	aa.	ab.	ac.	ad.	ae.	af.	ag.	ah.

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Results

Drawn:	NV
Date:	03/01/19
Case:	1 : 75
File:	1634

**WLNP VISITOR
CENTRE**
Wind Flower Ave.
Waterton, Alberta

PARKS CANADA

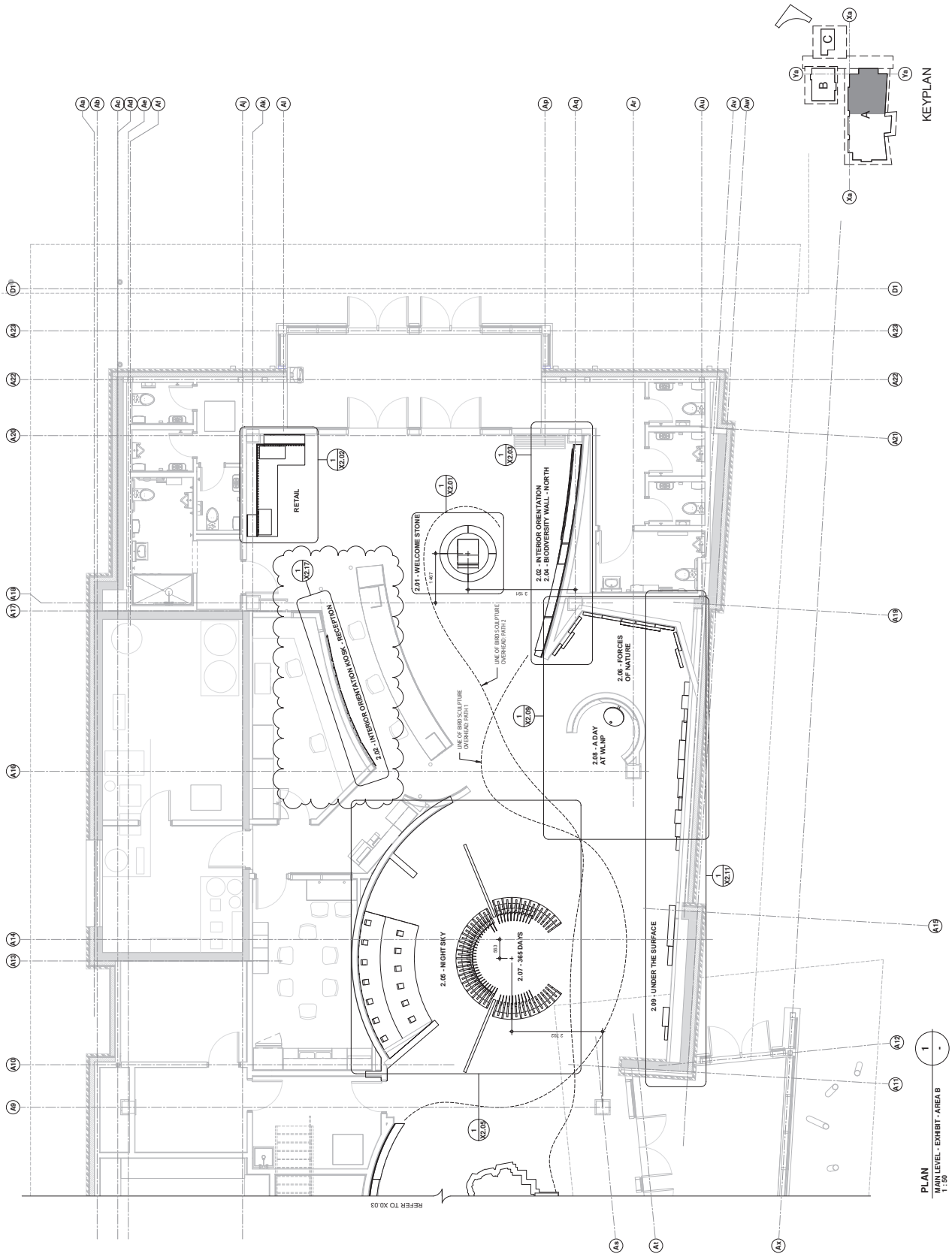
Drawing title:

**MAIN LEVEL
EXHIBIT FLOOR
PLAN - OVERALL**

X0.02

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NOTES

7 - 000119 ADDENDUMS
8 - 010319 ISSUED FOR TENDER
9 - 010319 ISSUED FOR TENDER
10 - 010319 ISSUED FOR TENDER
11 - 010319 ISSUED FOR TENDER
12 - 010319 ISSUED FOR TENDER
13 - 010319 ISSUED FOR TENDER
14 - 010319 ISSUED FOR TENDER
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16 - 010319 ISSUED FOR TENDER
17 - 010319 ISSUED FOR TENDER
18 - 010319 ISSUED FOR TENDER
19 - 010319 ISSUED FOR TENDER

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CREATIVE

drawn by
checked by
scale
date

1: 50
1: 50
1: 50
1634

project

WIMP VISITOR
CENTRE
1000 W. 10th Ave.
Winnipeg, Manitoba
Client:

drawing title

PARKS CANADA
EXHIBIT FLOOR
PLAN - BUILDING A
AREA B

drawing no.

X0.04

DATE
DRAWN BY
CHECKED BY
SCALE
DATE
PROJECT
CLIENT
DRAWING NO.

1634
1: 50
1: 50
1: 50
1634
WIMP VISITOR
CENTRE
1000 W. 10th Ave.
Winnipeg, Manitoba
Client:
PARKS CANADA
EXHIBIT FLOOR
PLAN - BUILDING A
AREA B
drawing no.
X0.04



no.	by	date	remarks
7	-	03/01/19	ADDENDUM 02
6	-	01/11/19	ISSUED FOR BP
5	-	01/11/19	ISSUED FOR TENDER
4	-	11/03/18	ISSUED FOR 99% CD
3	-	07/06/18	ISSUED FOR 66% CD
2	-	03/06/18	ISSUED FOR 30% CD
1	-	01/31/18	ISSUED FOR DD



Panther
CREATIVE

drawn:	NV
date:	03/01/19
scale:	As indicated
file:	1634

**WLNP VISITOR
CENTRE**
Wind Flower Ave.
Waterton, Alberta

PARKS CANADA

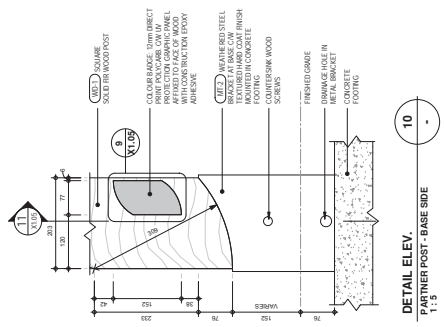
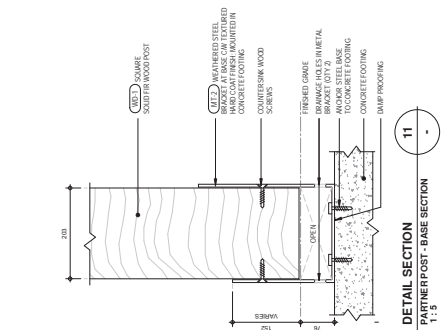
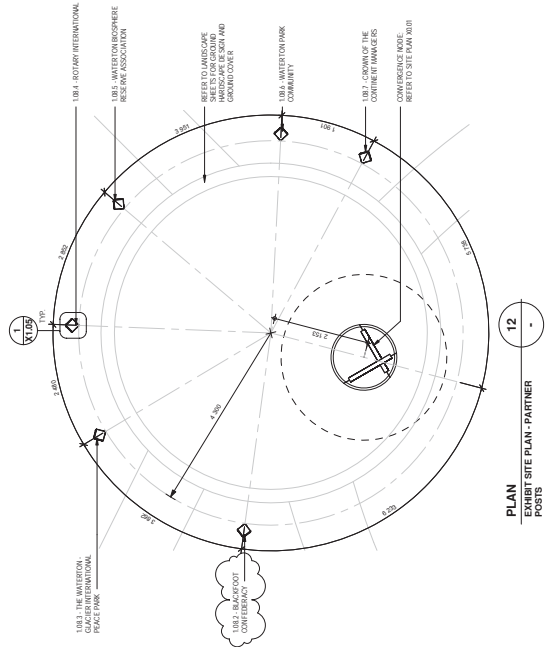
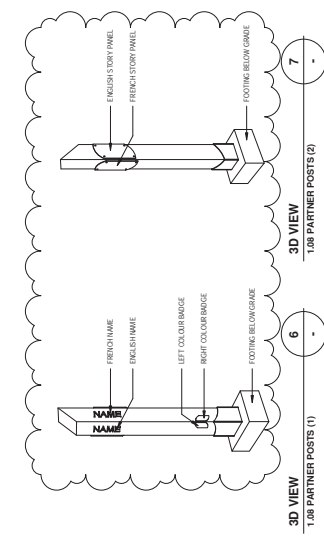
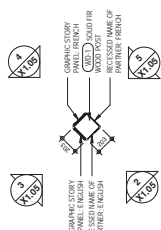
1.02 CROWN OF THE CONTINENT MAP

X1.02

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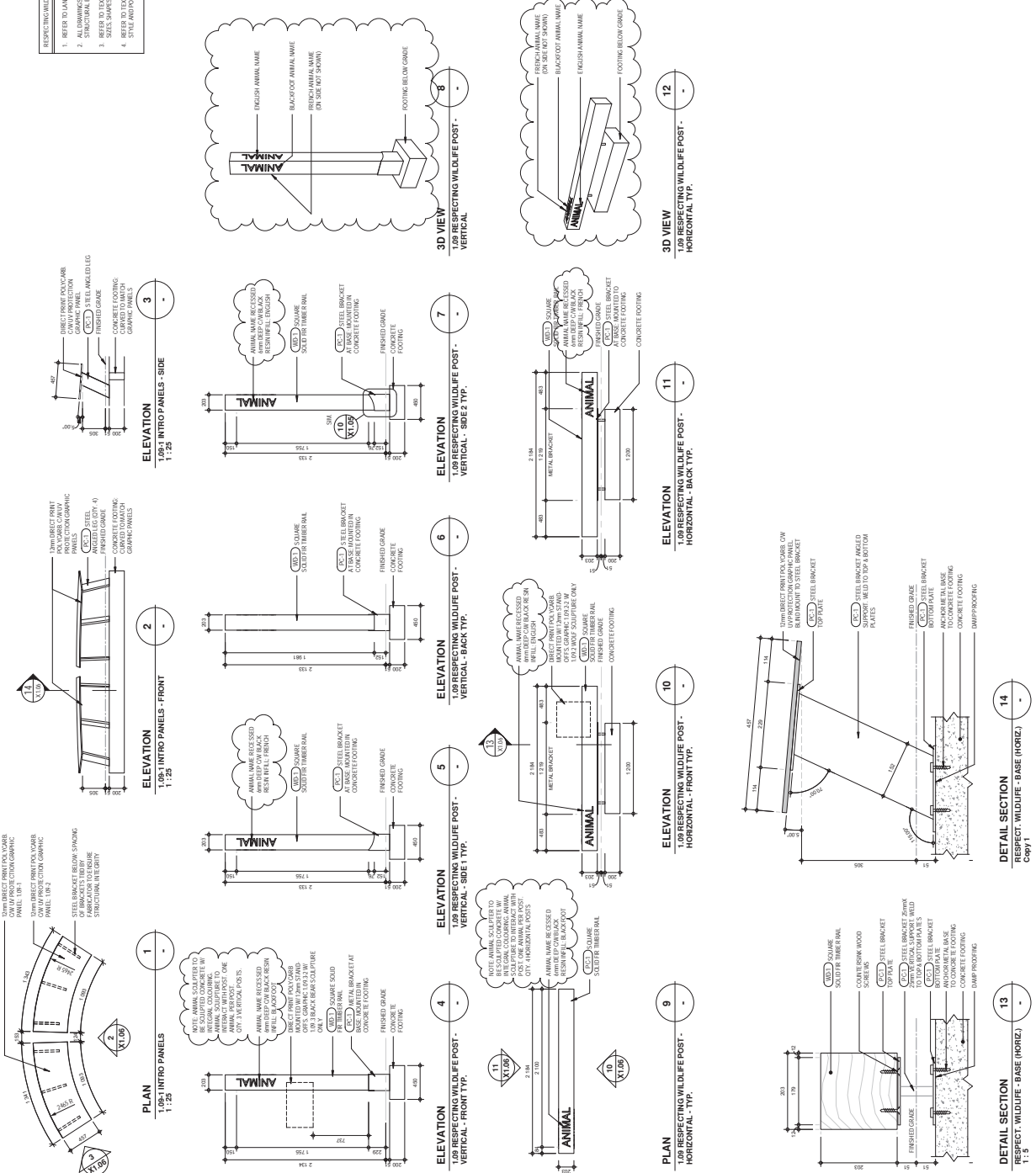
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CULTURAL CONFORMANCE PARTNER POST NOTES
1. REFER TO LANDSCAPE PLAN XREF FOR LOCATIONS.
2. ALL DRAWINGS/DESIGN DETAILS SUBJECT TO APPROVAL BY STRUCTURAL ENGINEER.
3. REFER TO TEXT & GRAPHIC DOCUMENT FOR FINAL GRAPHIC SIZES, SHIMS AND ANCHORS.
4. REFER TO TEXT & GRAPHIC DOCUMENT FOR ETCHED NAME FONT STYLE AND POINT SIZE.



RESPECTING AND LIFE NOTES:

1. REFER TO LANDSCAPE PLAN AND/OR LOCATIONS.
2. ALL DRAWINGS/DESIGN/DETAILS SUBJECT TO APPROVAL BY STRUCTURAL ENGINEER.
3. REFER TO TEXT & GRAPHIC DOCUMENT FOR FINAL GRAPHIC SIZES, SHIMS AND LATENTS.
4. REFER TO TEXT & GRAPHIC DOCUMENT FOR ETCHED FONT STYLE AND POINT SIZE.



ANIMAL SCULPTURES:			INTERACTION SKETCH		IMAGE REFERENCE	
ANIMAL						
1.00.8	MOUNTAIN BLUE MULE DEER	APPROX. SIZE: HEIGHT - 90cm, LENGTH - 1.3m ORIENTATION: TIMBER RAIL - VERTICAL INTERACTION: RUBBING ANTLERS AGAINST				
1.00.9	MOUNTAIN BLUE BRD	APPROX. SIZE: LENGTH - 15cm ORIENTATION: TIMBER RAIL - VERTICAL INTERACTION: RUNNING UP SIDE				
1.00.10	BEAVER	APPROX. SIZE: HEIGHT - 80cm, LENGTH - 105cm LOCATION: 1.04.1 - LAND/WATER CONVERGENCE NODE INTERACTION: CHAWING BASE				
TOTAL: 9			TOTAL: 9			
*REFER TO LANDSCAPE PLAN X0.01 FOR LOCATIONS			*REFER TO LANDSCAPE PLAN X0.01 FOR LOCATIONS			

EXHIBIT LEGEND - 109 RESPECTING WILDLIFE				EXHIBIT ELEMENT	APPROX. SIZE:	HEIGHT - 1.09m	LENGTH - 1.1m	ORIENTATION:	INTERACTION SKETCH	IMAGE REFERENCE
1.09.2	WOLF	APPROX. SIZE:	HEIGHT - 65cm	LENGTH - 1.1m	ORIENTATION:	TIMBER RAIL - HORIZONTAL	INTERACTION:	STANDING BESIDE DEN UNDER LOG	<p>WOOD POST</p> <p>WOOD SCULPTURE</p> <p>WOLF</p> <p>PLAN</p>	
1.09.3	BLACK BEAR	APPROX. SIZE:	HEIGHT - 2m	ORIENTATION:	TIMBER RAIL - VERTICAL	INTERACTION:	RUBBING BACK ON POST	<p>WOOD POST</p> <p>BLACK BEAR SCULPTURE</p> <p>BLACK BEAR</p> <p>WOOD POST</p> <p>WOOD POST</p> <p>ELEVATION</p> <p>PLAN</p>		
1.09.4	BADGER	APPROX. SIZE:	HEIGHT - 30cm	LENGTH - 80cm	ORIENTATION:	TIMBER RAIL - HORIZONTAL	INTERACTION:	CLIMBING OVER	<p>WOOD POST</p> <p>BADGER</p> <p>WOOD POST</p> <p>BADGER SCULPTURE</p> <p>PLAN</p>	
1.09.5	GROUND SQUIRREL	APPROX. SIZE:	HEIGHT - 18cm	LENGTH - 41cm	ORIENTATION:	TIMBER RAIL - HORIZONTAL	INTERACTION:	SITTING ON TOP	<p>WOOD POST</p> <p>GROUND SQUIRREL SCULPTURE</p> <p>GROUND SQUIRREL</p> <p>GROUND SQUIRREL SCULPTURE</p> <p>PLAN</p>	
1.09.6	GOLDEN EAGLE	APPROX. SIZE:	HEIGHT - 70cm	LOCATION:	1.07 1 - AIR INTRO	INTERACTION:	PERCHED ON TOP	<p>GOLDEN EAGLE SCULPTURE</p> <p>CONVERGENCE NODE 3</p> <p>ELEVATION</p> <p>PLAN</p>		
1.09.7	BIG HORN SHEEP	APPROX. SIZE:	HEIGHT - 50cm	LENGTH - 1.6m	ORIENTATION:	TIMBER RAIL - HORIZONTAL	INTERACTION:	LAYING BESIDE	<p>WOOD POST</p> <p>BIGHORN SHEEP SCULPTURE</p> <p>BIGHORN SHEEP</p> <p>WOOD POST</p> <p>ELEVATION</p> <p>PLAN</p>	

NOTES

7

-

000119

ADDENDUMS

8

-

013019

ISSUED FOR TENDER

9

-

110819

ISSUED FOR 60% CD

10

-

013019

ISSUED FOR 100% CD

11

-

003019

ISSUED FOR 30% CD

12

-

013119

ISSUED FOR 40% CD

13

-

013119

ISSUED FOR 40% CD

rev

by

date

remarks

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WWW.FWBA.CA

consultants
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drawn: N.Y.
checked: N.Y.
scale: As indicated
file: 1634

project:
WLNP VISITOR CENTRE
Waterloo, Ontario
Waterloo, Alberta

client:
PARKS CANADA

drawing title:
2.01 WELCOME STONE

drawing no:
X2.01

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3

2.01 WELCOME STONE

1:20

ENLARGED PLAN

1

X0.04

1

2.01 WELCOME STONE - WEST

1:20

2

2.01 WELCOME STONE - N/S.

1:20

3

2.01 WELCOME STONE - EAST

1:20

4

2.01 WELCOME STONE

1:20

5

2.01 WELCOME STONE

1:20

6

2.01 WELCOME STONE

1:10

3D VIEW
2.01 WELCOME STONE

5

2.01 WELCOME STONE

1:20

6

2.01 WELCOME STONE

1:10

SECTION
2.01 WELCOME STONE

NOTES

7

ADDITIONAL

000119

ISSUED FOR 2D

6

ADDITIONAL

011119

ISSUED FOR 2D

5

ADDITIONAL

110819

ISSUED FOR 2D

4

ADDITIONAL

030919

ISSUED FOR 2D

3

ADDITIONAL

030919

ISSUED FOR 2D

2

ADDITIONAL

030919

ISSUED FOR 2D

1

ADDITIONAL

030919

ISSUED FOR 2D

REV

BY

DATE

REMARKS

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NAME

PROJECT

CLIENT

WLNIP VISITOR

CENTRE

Waterloo, Ontario

Waterloo, Ontario

DATE

REV

03-07-20

1634

drawing title

2.02 INTERIOR & ORIENTATION

2.04 BIOD. WALL

drawing no

X2.03

SCALE

1:20

1

2

3

4

* 2.04 BIODIVERSITY WALL DRAWINGS FOR REFERENCE ONLY TO BE TENDERED UNDER SEPARATE PACKAGE

ENLARGED PLAN
2.04 BIODIVERSITY WALL - NORTH
1:20

ELEVATION - UNFOLDED
2.04 BIODIVERSITY WALL N
1:20

SECTION
2.02 INTERIOR ORIENTATION KIOSK
1:20

SECTION
2.04 BIODIVERSITY WALL
1:20

SECTION
2.04 BIODIVERSITY WALL
1:20

2.04 BIODIVERSITY WALL DRAWINGS
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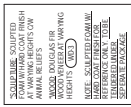
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drawn:	NV
date:	03/01/19
scale:	As Indicated
file:	1634

client:

drawing no: **X2.04**

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[illegible]

2.04 RECOVERED WALL - REFERENCE IMAGE (3)

204 RECOVERY WALL - REFERENCE IMAGE (7)

2.04 RECOVER CITY WALL. REFERENCE IMAGE (C)

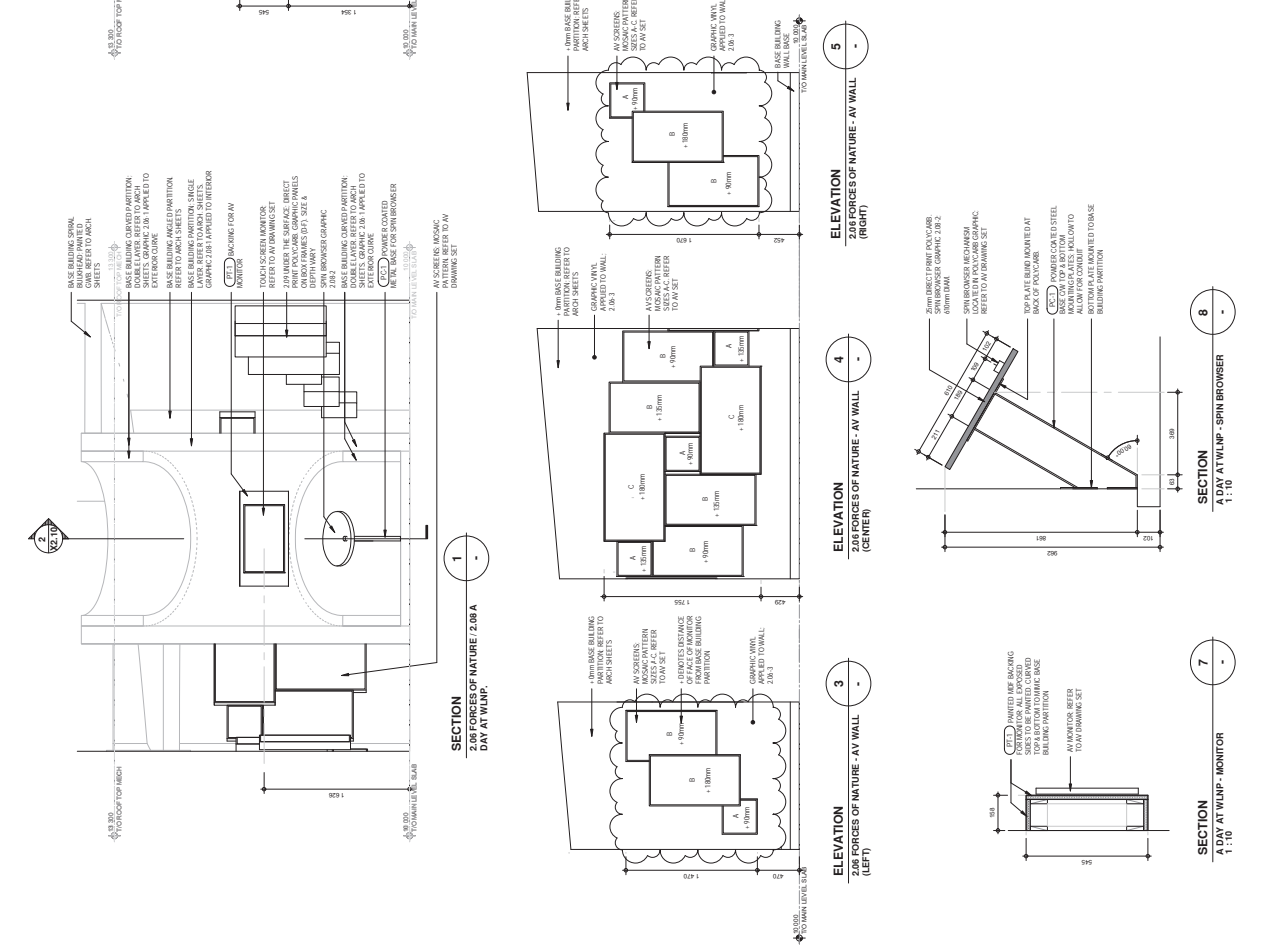
204 BIOUNIVERSITY WALL - REFERENCE IMAGE (7)

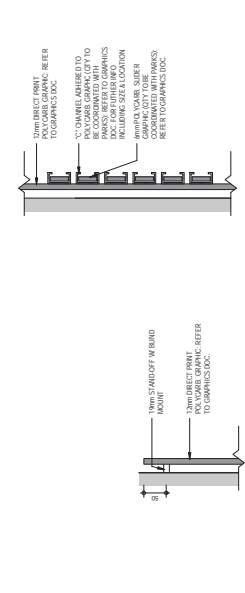
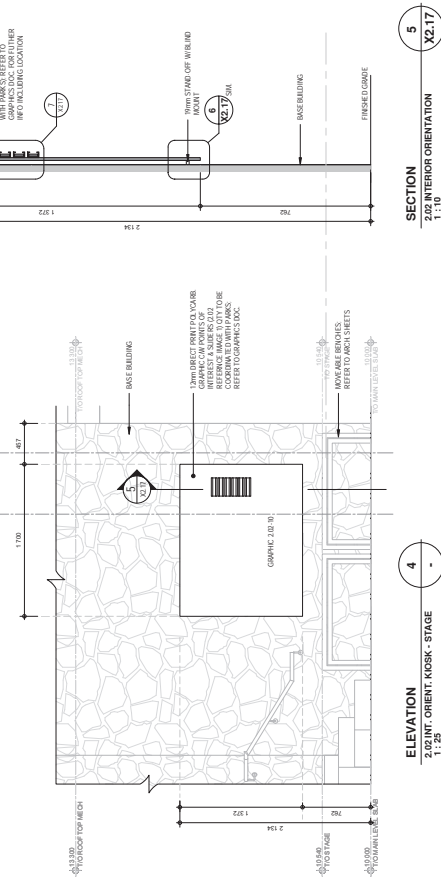
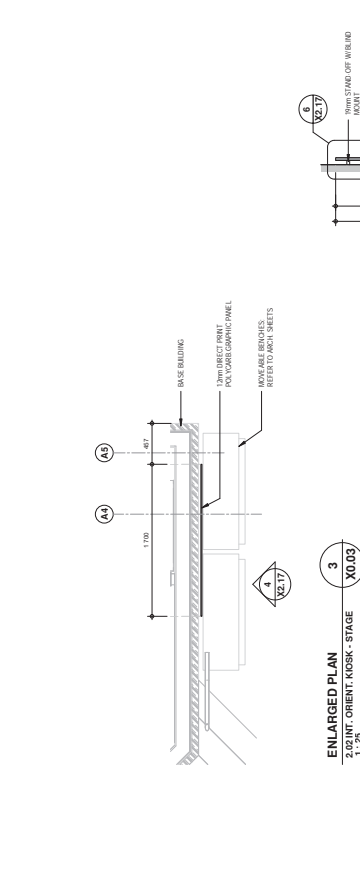
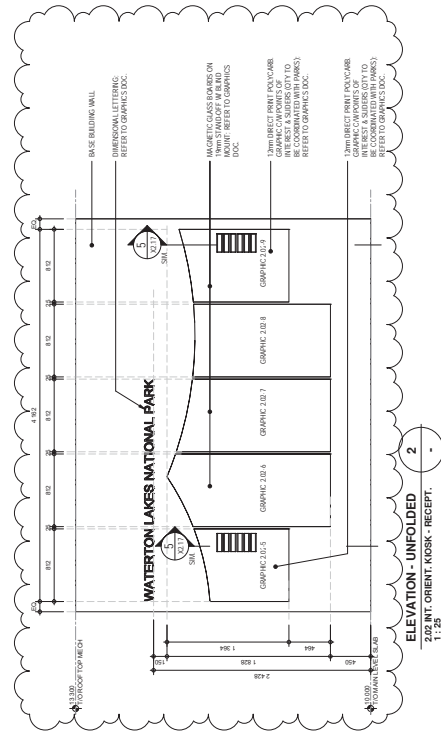
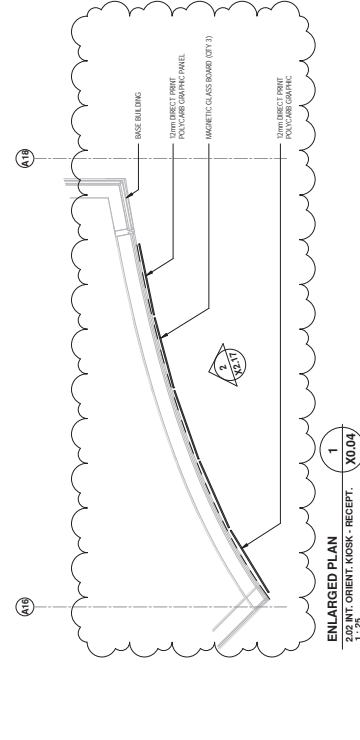
2.04 BIO DIVERSITY WALL - REFERENCE IMAGE (A)

2.04 BIOGEOGRAPHY WALL - REFERENCE IMAGE (S)

2.04 BIODIVERSITY WALL - REFERENCE IMAGE (4)

[illegible]

[illegible]



NOTES			
1	01/01/19	ISSUED FOR TENDER	
2	03/01/19	ADDENDUM 02	
no.	by	date	remarks
<div> <div>FWBA ARCHITECTS</div> <div>LITVINCHUK - CLIENT - WEBSITE: www.fwba.com</div> <div>TEL: 403.277.5113</div> </div> <div> <div>Panther CREATIVE</div> </div>			
<div> <div>grant: WLP</div> <div>contract: 03/01/19</div> <div>scale: As indicated</div> <div>file: 1634</div> </div> <div> <div>project: WLP VISITOR CENTRE</div> <div>location: Waterton Lakes National Park, Waterton, Alberta</div> <div>client: PARKS CANADA</div> </div> <div> <div>drawing title: 2.02 INTERIOR ORIENTATION KIOSKS</div> <div>drawing no: X2.17</div> </div>			

EXHIBITRY DESCRIPTION

The following is a list and description of the interpretive exhibits and visitor experience at the WLNP Visitor Centre. This specification section is to be used in conjunction with the exhibit drawing sheets and Text & Graphics Document for a full understanding of the exhibit, AV and graphic integration.

1.0 Exterior Exhibits:

1.01 Exterior Orientation Area

Visitor Experience:

Visitors approach a series of graphics that welcome them to the park and help orient them to WLNP and the amenities it has to offer. These graphics also provide information on current conditions and how to stay safe while visiting the Park.

Exhibit Items:

n/a

Exhibit Graphics:

1.01-1 Park Map

~~1.01-2 Notice Board/Regulatory Information~~

~~1.01-3 Town Map~~

~~1.01-4 Park Images~~

~~1.01-5 Blackfoot Traditional Territory Map~~

1.01-6 Display Board #1

1.01-7 Display Board #2

Exhibit AV:

n/a

Notes:

~~Graphics are layered over each other and secured to exterior of base building wall.~~

[A graphic orientation panel is flanked by two enclosed lockable display cases.]

Refer to architectural drawings for details on base building wall.

1.02 Crown of the Continent Map

Visitor Experience:

Visible in the concrete town plaza is the area encompassing the Crown of the Continent indicated with a multiple pour integral coloured concrete treatment. The area of the Crown of the Continent is indicated with brown concrete, while the area of Waterton Lakes National Park and Glacier National Park are indicated with a green concrete. The boundaries of both the Crown of the Continent and Parks is created by the seam line between each coloured pour.

Embedded in the concrete during each pour are metal bars and graphics that shall be flush with the finished concrete. A dotted ~~stainless steel~~ [metal] line indicates national, state and provincial boundaries along with the Great Continental Divide. Radiating from the Map are three rivers: the Columbia, Saskatchewan and Missouri. These rivers will be sandblasted into the concrete after the concrete has cured.

Along each river path are three Community Name Plates (nine in total) that list various communities along each river that rely on its waters as a source of drinking water, as well as a places for recreation.

Exhibit Items:

1.02.1 Map Features

Coloured concrete showing the boundaries of the COC
Coloured concrete showing the boundaries of WLNP
Coloured concrete showing the boundaries of Glacier National Park
Sandblasted river paths in concrete (3 mm deep and 25mm wide)
~~Stainless Steel~~ Metal flat bar embedded into concrete to indicate the Canada/US border and alternate thickness ~~Stainless Steel~~ metal flat bar embedded into concrete to indicate province/state borders
Stainless steel Medallions embedded into concrete that indicate city locations. City names to be etched into top of metal graphic.
Three (3) ~~mild~~ [stainless] steel medallions with river names and their terminus (Columbia River: Pacific Ocean; Saskatchewan River: Hudson's Bay; Missouri River: Gulf of Mexico)
Nine (9) Community Name Plates – stainless steel medallions embedded in concrete with a list of communities that rely on the river for potable water and recreation.
~~Stainless Steel~~ Metal flat bar embedded into concrete to indicate Great Continental Divide

1.02.2 Convergence Node –

Graphic secured to a mild steel structure that has been chemically rusted and sealed with a clear finish to simulate surface weathering over time
Graphic structure is positioned within a coloured concrete ~~compass-pattern~~ [pad]. [A] ~~on the~~ Stainless steel ~~dimensional letters indicating north, south, east and west~~ [ring with cut out N, S, E and W letters encircles the graphic structure]. Position relative to true north.

Exhibit Graphics

1.02-1 Crown of the Continent Introduction (side 2a)

1.02-2 NOT USED

1.02-3 Etched Topo Lines (side 1b)

1.02-4 Etched Topo Lines (side 2b)

1.02-5 Etched Animal Element (side 1a)

1.02-6a Etched English Word (LAND)

1.02-6b Etched Blackfoot Word

1.02-6c Etched French Word (LA TERRE)

1.02.1-1 Canada/US Border

1.02.1-2 Alberta/British Columbia Border

1.02.1-3 Montana/Idaho Border

1.02.1-4.1 through 1.02.1-4.18 City Name Medallions

1.02.1-5a Saskatchewan River Medallion
1.02.1-5b Columbia River Medallion
1.02.1-5c Missouri River Medallion

~~1.02.1-5d thru 1.02.1-5f~~ [1.02.1-6a thru 1.02.1-6c] Saskatchewan River Community Panels

~~1.02.1-6a thru 1.02.1-5e~~ [1.02.1-6d thru 1.02.1-6f] Columbia River Community Panels

~~1.02.1-6d thru 1.02.1-5f~~ [1.02.1-6g thru 1.02.1-6i] Missouri River Community Panels

[1.02.1-7 Convergence Node 1 Compass]

Exhibit AV
n/a

1.03 Water Path

Visitor Experience:

The eastern site path running along the road from the main plaza to the Cultural Convergence Node is the Water Interpretive path. This path is populated with subtle mild steel graphics of different animals that can be found in and along the lakes, streams and rivers of WLNP. The steel is chemically rusted and sealed with a clear finish to simulate surface weathering over time.

Exhibit Items:

- 1.03.1 Northern leopard frog cut out
- 1.03.2 Spotted sandpiper cut out
- 1.03.3 River otter cut out
- 1.03.4 Bull trout cut out

Exhibit Graphics

1.03-1 Water Intro Panel (side 1a of 1.04.1)

- 1.03.1-1 Northern leopard frog species ID
- 1.03.2-1 Spotted sandpiper species ID
- 1.03.3-1 River otter species ID
- 1.03.4-1 Bull trout species ID

Exhibit AV
n/a

1.04 Water & Land Convergence Node

Exhibit Items:

- 1.04.1 Convergence Node
 - Graphic secured to a mild steel structure that is chemically rusted and sealed with a clear finish to simulate surface weathering over time
 - Graphic structure is positioned on a concrete pad

Exhibit Graphics

- 1.04-1 Water & Land Graphic (side 2a of 1.04.1)
- 1.04-2 NOT USED
- 1.04-3 Etched Topo Lines (side 1b)
- 1.04-4 Etched Topo Lines (side 2b)
- 1.04-5 Etched Animal Element (side 1a)
- 1.04-6a Etched English Word (WATER)
- 1.04-6b Etched Blackfoot Word (?)
- 1.04-6c Etched French Word (L'EAU)

Exhibit AV
n/a

1.05 Land Path

Visitor Experience:

The central site path running from the plaza to the Cultural Convergence Node and through the interpretive centre is the Land Interpretive path with subtle graphics of different animals that can be found in and along the land within WLNP.

Exhibit Items:

- 1.05.1 Wolverine cut out
- 1.05.2 Cougar cut out
- 1.05.3 Coyote cut out

Exhibit Graphics

- 1.05-1 Land Intro Panel (side 1a on 1.02.1)
- 1.05.1-1 Wolverine species ID
- 1.05.2-1 Cougar species ID
- 1.05.3-1 Coyote species ID

Exhibit AV
n/a

1.06 Land & Air Convergence

Exhibit Items:

- 1.06.1 Convergence Node
 - Graphic secured to a mild steel structure that is chemically rusted and sealed with a clear finish to simulate surface weathering over time
 - Graphic structure is positioned on a concrete pad

Exhibit Graphics

- 1.06-1 Land & Air Graphic
- 1.06-2 NOT USED
- 1.06-3 Etched Topo Lines (side 1b)
- 1.06-4 Etched Topo Lines (side 2b)
- 1.06-5 Etched Animal Element (side 1a)
- 1.06-6a Etched English Word (AIR)
- 1.06-6b Etched Blackfoot Word (?)
- 1.06-6c Etched French Word (L'AIR)

Exhibit AV

n/a

1.07 Air Path

Visitor Experience:

The western site path running through the breezeway from the plaza to the Cultural Convergence Node is the Air Interpretive path with subtle graphics of different animals that can be found on the land within WLNP.

Exhibit Items:

- 1.07.1 Sand hill crane cut out
- 1.07.2 Osprey cut out
- 1.07.3 Trumpeter Swan cut out
- 1.07.4 Common Nighthawk cut out

Exhibit Graphics

- 1.07-1 Air Intro Panel
- 1.07.1-1 Sand hill crane species ID
- 1.07.2-1 Osprey species ID
- 1.07.3-1 Trumpeter Swan species ID
- 1.07.4-1 Common Nighthawk species ID

Exhibit AV

n/a

1.08 Cultural Convergence

Visitor Experience:

All three interpretive paths (Water, Land & Air) come together at the Cultural Convergence Node that honours the nations and organizations that help steward, preserve and protect WLNP. The node is comprised of a Convergence Node structure placed at the convergence points of six radiating spokes. The spokes are created by stepping stones placed in the landscape. Each radiating path leads to a Partnership post.

Exhibit Items:

- 1.08.1 Convergence Node
 - Graphic secured to a mild steel structure that is allowed to naturally weather over time
 - Graphic structure is positioned on a concrete pad
- 1.08.2 Blackfoot Partner Post
- 1.08.3 Waterton-Glacier International Peace Park Partner Post
- 1.08.4 Rotary International Partner Post
- 1.08.5 Waterton Biosphere Reserve Association Partner Post
- 1.08.6 Waterton Park Community Partner Post
- 1.08.7 Crown of the Continent Managers Partner Post

Exhibit Graphics

- 1.08-1 Cultural Convergence Intro Panel (side 1a)
- 1.08-2 Cultural Convergence Panel (side 2a)
- 1.08-3 Etched Topo Lines (side 1b)
- 1.08-4 Etched Topo Lines (side 2b)
- 1.08-5 Etched Cultural Element (side 1a)

1.08-6a Etched English Word (PEOPLE)
1.08-6b Etched Blackfoot Word (?)
1.08-6c Etched French Word (LES GENS)

1.08.2-1a Blackfoot (English)
1.08.2-1b Blackfoot (French)

1.08.2-2a Blackfoot Story Panel (English)
1.08.2-2b Blackfoot Story Panel (French)

1.08.2-3a BF Colour Badge (Left)
1.08.2-3b BF Colour Badge (Right)

1.08.3-1a Waterton-Glacier International Peace Park (English)
1.08.3-1b Waterton-Glacier International Peace Park (French)

1.08.3-2a Waterton-Glacier International Peace Park Story Panel (English)
1.08.3-2b Waterton-Glacier International Peace Park Story Panel (French)

1.08.3-3a Waterton-Glacier International Peace Park (Left)
1.08.3-3b Waterton-Glacier International Peace Park (Right)

1.08.4-1a Rotary International (English)
1.08.4-1b Rotary International (French)

1.08.4-2a Rotary International Story Panel (English)
1.08.4-2b Rotary International Story Panel (French)

1.08.4-3a Rotary International Colour Badge (Left)
1.08.4-3b Rotary International Colour Badge (Right)

1.08.5-1a Waterton Biosphere Reserve Association (English)
1.08.5-1b Waterton Biosphere Reserve Association (French)

1.08.5-2a Waterton Biosphere Reserve Association Story Panel (English)
1.08.5-2b Waterton Biosphere Reserve Association Story Panel (French)

1.08.5-3a Waterton Biosphere Reserve Association Colour Badge (Left)
1.08.5-3b Waterton Biosphere Reserve Association Colour Badge (Right)

1.08.6-1a Waterton Park Community (English)
1.08.6-1b Waterton Park Community (French)

1.08.6-2a Waterton Park Community Story Panel (English)
1.08.6-2b Waterton Park Community Story Panel (French)

1.08.6-3a Waterton Park Community Colour Badge (Left)
1.08.6-3b Waterton Park Community Colour Badge (Right)

1.08.7-1a Crown of the Continent Managers (English)

1.08.7-1b Crown of the Continent Managers (French)

1.08.7-2a Crown of the Continent Managers Story Panel (English)

1.08.7-2b Crown of the Continent Managers Story Panel (French)

1.08.7-3a Crown of the Continent Managers Colour Badge (Left)

1.08.7-3b Crown of the Continent Managers Colour Badge (Right)

Exhibit AV

n/a

1.09 Respect Wildlife

Visitor Experience:

Nine animal sculptures and species ID posts are placed in the landscape, except for the Beaver and Golden Eagle sculptures which will be integrated into the Land and Water Convergence Node and Land and Air Convergence Node structures.

Once they come to the Respecting Wildlife Intro Panel, visitors will discover what it means to “leave no trace”, how to determine what is a safe distance from all wildlife and why it is important to respect them. They are then asked to see if they can find all nine species while standing at that spot or walking the site paths.

Exhibit Items:

1.09.1 Intro Panel Structure

1.09.2 Wolf Sculpture

1.09.3 Black Bear Sculpture

1.09.4 Badger Sculpture

1.09.5 Ground Squirrel Sculpture

1.09.6 Golden Eagle Sculpture

1.09.7 Big Horn Sheep Sculpture

1.09.8 Mule Deer Sculpture

1.09.9 Mountain Bluebird Sculpture

1.09.10 Beaver Sculpture

Exhibit Graphics

1.09-1 Respect Wildlife Intro Panel

1.09-2 Rule of Thumb

1.09.2-1 Wolf species ID

1.09.2-2 Wolf Family Story Panel

1.09.3-1 Black Bear species ID

1.09.3-2 Rubbing Tree Story Panel

1.09.4-1 Badger species ID

1.09.5-1 Ground Squirrel species ID

1.09.7-1 Big Horn Sheep species ID

1.09.8-1 Mule Deer species ID

1.09.10-1 Mountain Bluebird species ID

Exhibit AV
n/a

1.10 Plant ID

Visitor Experience:

While exploring the site, visitors can learn the English, French and Blackfoot names of various plant species growing on the site.

Exhibit Items:
1.10.1 Species ID stands

Exhibit Graphics
1.10-1 Species ID (quantity TBD)

Exhibit AV
n/a

2.0 Interior Exhibits:

2.01 Welcome Stone

Visitor Experience:

Visitors entering from either the north or east vestibule will trigger an audio recording. When entering from the north vestibule, the audio will be a welcome message spoken in the Blackfoot language. Located within the north vestibule will be a graphic panel that is an interpretation but not a direct translation of the welcome message.

When entering from the east vestibule, visitors will trigger an audio of the Blackfoot treaty message. Located in the east vestibule will be a graphic panel that is an interpretation but not a direct translation of the treaty message.

Once visitors have passed through the north vestibule into the main lobby area, they are greeted with the Welcome Stone, ~~custom-fabricated rockwork~~ with ~~recessed-text~~ [a welcome graphic panel] in both French and English.

Exhibit Items:

2.01.1 ~~Sculpted~~ Stone

Exhibit Graphics

2.01-1 Welcome Message

2.01-2 Display Boards (x2)

2.01-3 Welcome Song Interpretation

2.01-4 Treaty Song Interpretation

Exhibit AV

2.01-A Blackfoot Welcome Song (audio in north vestibule)

2.01-B Blackfoot Treaty Song (audio in east vestibule)

2.02 Interior Orientation Area

To their left, as visitors enter the north reception area, they discover the Park Orientation Kiosk. The information is the same as 2.01 Exterior Orientation Kiosk.

Exhibit Items:

[2.02.1 Interior Orientation Kiosk – Lobby

2.01.2 Orientation Kiosk – Reception

2.01.3 Orientation Kiosk – Stage]

Exhibit Graphics

2.02-1 Welcome Panel

2.02-2 Park Map

2.02-3 Town/Territory Map

2.02-4 Regulatory Information

2.02-5 Fixed Notice Board #1

2.02-6 Display Board #1

2.02-7 Display Board #2

- 2.02-8 Display Board #3
- 2.02-9 Fixed Notice Board #2
- 2.02-10 Interior Orientation Kiosk (stage)

Exhibit AV

- 2.02-A Looping Updatable Information on monitor

[2.03 Retails]

2.04 Biodiversity Wall

Visitor Experience:

The Biodiversity Wall is composed of three sections and an AV kiosk:

1. North Wall
2. South Wall
3. Overhead Bird Sculpture

When visitors enter from either the north or east vestibules, they are immediately captivated by the 2D sculptural walls that depict the amount of biodiversity in WLNP.

The walls are an artistic representation depicting both the flora and fauna of the area along with some reference to the dramatic landscapes of prairie meeting the Rocky Mountains.

Connecting the north and south Biodiversity Walls is an overhead bird sculpture.

Built within the south wall are seven drawers that visitors can pull out to discover a touchable prop and learn more about the types of mammals, fish, reptiles, etc. that live in the Park.

In proximity to the south Biodiversity wall is a touchscreen interactive. Visitors can approach the touchscreen to explore an illustration of the two Biodiversity Walls and overhead sculpture.

Exhibit Items:

- 2.04.1 North Wall (*Not in scope. For reference only*)
- 2.04.2 South Wall (*Not in scope. For reference only*)
- 2.04.3 Overhead Sculpture (*Not in scope. For reference only*)
- 2.04.4 Pull Out Drawers (x7) (*Not in scope. For reference only*)
- 2.04.5 AV Kiosk (*In scope*)

Exhibit Graphics (In scope)

- 2.04-1 Bird Drawer
- 2.04-2 Fish Drawer
- 2.04-3 Amphibian & Reptile Drawer
- 2.04-4 Mammal Drawer
- 2.04-5 Vascular Plant Drawer
- 2.04-6 Non-Vascular Plant Drawer
- 2.04-7 Invertebrates Drawer
- 2.04-8 ~~x~~ [-21] Labels (quantity ~~TBD~~ [14])

Exhibit AV (In scope)

2.04-A Exploring Biodiversity Interactive AV Kiosk

Notes:

The scope of work included in this tender is the AV kiosk base, AV hardware, AV graphics and software programing and graphics production.

2.05 Night Sky

Visitor Experience:

Visitors enter the Night Sky theatre and find a seat along the benches, which have back rests that are reclined to give a good view of the screen overhead.

Between shows (when the lights are up), daytime sounds are paired with looping photographs and captions identifying the places within the Park that visitors can visit and enjoy. There will also be Blackfoot images incorporated into the looping slides.

When the show is about to start, the lights fade to dusk and onscreen the sun sets. Gradually the sounds turn to night time sounds and an animation of illustrated bats flies across the screen turning the image to the night sky and the lights are in Showtime mode.

A narration begins. It is the voice of an Indigenous storyteller, who weaves together stories of the night sky from Blackfoot and Western perspectives. Stories of the constellations are paired with stories about night time species, such as bats, insects and migrating birds. Visitors gain a greater appreciation for the night sky as well as the species that come alive at night—those that rely on dark night skies for survival.

Near the end of the program the sun rises, the lights come back up and morning sounds and images take over as a new day begins.

Exhibit Items:

2.05.1 Benches

~~2.05.2 Projector Housing Unit~~

Exhibit Graphics

2.05-1 Night Sky Intro Mural

2.05-2 Night Sky Exit Mural

2.05-3 Mural – Environmental Graphic

2.05-4 Mural – Star Treatment (part 1)

2.05-5 Mural – Star Treatment (part 2)

Exhibit AV

2.05-A 5 to 7-minute presentation with sounds and lighting controls

2.06 Forces of Nature

Visitor Experience:

As visitors walk into the Forces of Nature area they are presented with a bank of tiled screens to their left.

The video begins with a spark on the lower left-hand screen and turns into a conflagration representing the 2017 Kenow fire.

Overhead, visitors first hear the crash of lightning, then the ignition of a fire that eventually builds into an inferno where the visitor feels completely immersed.

The fire fades to reveal footage shot by Sherpa Cinema of the aftermath of the Park, which then fades to black and starts over again. Sherpa Cinema content is to be provided by the Client.

The show loops, so visitors may enter at any point.

Exhibit Items:

n/a

Exhibit Graphics

2.06-1 Intro Mural w/ Stories

2.06-2 Renewal Wall Environmental Graphic Background

2.06-2.1 thru 2.06-2.10 Renewal Mosaic Graphic Panels

2.06-3 Mosaic Screen Wall Background

Exhibit AV

2.06-A Tiled Screens of looping Fire video & hardware

2.07 365 Days

Visitor Experience:

Visitors walk into a stylized teepee structure made of ash wood. Once inside the teepee, they are surrounded by two arrays of two locations within the Park. Each array is comprised of 52 custom photographs, one photo for each week of the year. Custom photographs are to be provided by the Client.

Between the top and bottom photo arrays is a spiralling graphic panel depicting the 13 moons of the year. The Blackfoot name of the moon corresponds with the time of year shown in the image.

Exhibit Items:

2.07.1 Teepee Structure

Exhibit Graphics

2.07-1 Intro Mural

2.07-2.1 Moon Phases

2.07-2.2 Moon Phases

2.07-2.3 Moon Phases

2.07-3.1/104 Images of WLNP (quantity: 104 photos)

Exhibit AV

n/a

2.08 A Day at WLNP

Visitor Experience:

By touching a button on a touchscreen, visitors can choose to explore a 24-hour time period of either the spring or autumn equinoxes or summer or winter solstices. By turning the spin browser wheel on the adjoining graphic panel, they can scroll back and forth through 24-hours of footage from each of these days. A time bar is included at the bottom of the screen. Custom photographs are to be provided by the Client.

Exhibit Items:

2.08.1 Graphic Support Structure

Exhibit Graphics

2.08-1 Intro Mural

2.08-2 Story Panel

Exhibit AV

2.08-A Spin Browser & Touchscreen

2.09 Under the Surface

Visitor Experience:

Visitors can approach a wall mosaic of overlapping graphic panels.

Exhibit Items:

n/a

Exhibit Graphics

2.09-1 Under the Surface Environmental Graphic Background

2.09-2.1 thru 2.09-2.15 Under the Surface Mosaic Graphic Panels

Exhibit AV

n/a

2.10 Topographical Map

Visitor Experience:

Centred within the east entry is a 3D printed topographic model that can be used as an orientation tool for visitors. The map will show the boundaries, roads, points of interest and trails within WLNP. Visitors can use a graphic key at the edge of the map to learn the Blackfoot names for these places along with other culturally important sites.

Three LED interpretive lighting effects will be integrated into the topographic map as well.

Push Button LEDs:

Located on the topographic map are three push buttons that activate an LED light treatment embedded in the topographic map.

One push button, when pushed, will highlight the migration routes of native animals. The other push button, when pushed, will highlight the traditional Blackfoot and other indigenous peoples trade routes through WLNP and the third, when pushed, will highlight culturally significant areas for the Blackfoot peoples.

When one button is pushed, a light goes on.

Exhibit Items:

- 2.10.1 3D Model
- 2.10.2 Exhibit Base

Exhibit Graphics

- 2.10-1.1 Where Mountains Meet Prairies
- 2.10-1.2 Lewis Thrust
- 2.10-2 Topo Map with Map Key
- 2.10-3 Blood Indian Reserve
- 2.10-4 The Land Tells a Story: Wildlife Corridors
- 2.10-5 The Land Tells a Story: Trade Routes
- 2.10-6 The Land Tells a Story: Pipestone Gathering

Exhibit AV

- 2.10-A Push Button

2.11 Know Before You Go

Exhibit Items:

- 2.11.1 Exhibit Module
- 2.11.2 Manikin

Exhibit Graphics

- 2.11-1 Know Before You Go

Exhibit AV

n/a

2.12 Trip Planning

Visitor Experience:

An interactive graphic is secured to the base of the exhibit module. The base has 13 slots with 13 tethered graphic medallions nested in the slots. The image on the base graphic is a stylized illustration of a backpack. Within the backpack are eight magnetized slots.

Printed on the 13 tethered medallions are:

- Hiking Shoes
- Water Bottle
- Clothing
- Food
- Cell Phone
- First Aid Kit
- Flip Flops
- iPad
- Bear Bell
- Umbrella
- Hat
- Socks

- Fireworks

The visitor is asked to pack the backpack with the appropriate items. Visitors can choose any of the 13 tethered medallions. They will know it's a correct choice if the magnetic medallion is attracted to the magnetic slot (i.e. positive charge to negative charge). They will know it is an incorrect choice if the medallion is repulsed by the slot (i.e. positive charge to positive charge).

Exhibit Items:

- 2.12.1 Exhibit Module
- 2.12.2 Pack Your Bag Interactive

Exhibit Graphics

- 2.12-1 Trip Planning Intro
- 2.12-2 Interactive Graphic Base
- 2.12-3.1 thru 2.12-3.13 Magnetic Graphics

Exhibit AV

n/a

2.13 Awareness in the Environment

Visitor Experience:

Under a clear acrylic dome secured to the exhibit base is a stylized vignette of a WLNP hiking trail.

Along the top of the acrylic dome are two strips that represent the sun's path. One strip is at a lower angle representing the winter sun and the other strip is close to centre, representing the summer sun. Along each strip are times of the day with noon being at the strip's apex on the dome.

Visitors are invited to run their finger along the strip. When they touch any part of the strip, the corresponding lights under their finger light up. As visitors move their finger along the strip the light source moves with their finger mimicking the movement of the sun across the sky.

Exhibit Items:

- 2.13.1 Exhibit Module
- 2.13.2 What Time Is It Interactive

Exhibit Graphics

- 2.13-1 Awareness in the Environment Intro
- 2.13-2 Interactive Base

2.13-3.1 thru 2.13-3.3 Silhouette Cut-Outs

2.13-4 ~~Time-Graphic~~ [Summer Sun Angle]
[2.13-5 Winter Sun Angle]

Exhibit AV

- 2.13-A LED Lighting with touch sensor

2.14 Animal Awareness

Visitor Experience:

Secured to the exhibit module base is a graphic that contains seven clear acrylic spheres. The top half of each sphere is transparent to reveal a scat sample of the following species:

1. Black bear in the fall
2. Black bear in the spring
3. Deer
4. Cougar
5. Snowshoe hare
6. Coyote
7. Grouse

Visitors can discover the answer to whose scat it is by rotating the sphere 180 degrees to reveal a graphic image of the animal, which is hidden from view under the graphic.

~~A weight concealed in the graphic portion of the sphere resets the game so that only the scat is showing.~~

Exhibit Items:

2.14.1 Exhibit Module

2.14.2 Whose Scat is That Interactive

Resin scat of bear, deer, cougar, snowshoe hare, coyote and grouse

Exhibit Graphics

2.14-1 Animal Awareness Intro

2.14-2 Whose Scat is That graphic base.

2.14-3 Black bear photo

2.14-4 Black bear photo

2.14-5 Deer photo

2.14-6 Cougar photo

2.14-7 Snowshoe hare photo

2.14-8 Coyote photo

2.14-9 Grouse photo

Exhibit AV

n/a

2.15 2017 Kenow Fire (Changeable Exhibit)

Visitor Experience:

Visitors can slide a map of WLNP through four clear acrylic windows to see how large the 2017 Kenow Fire was at certain times along a graphic timeline.

Exhibit Items:

2.15.1 [Exhibit Module]

[2.15.2] 2017 Kenow Fire Slider Interactive

Exhibit Graphics

2.15-1 2017 Kenow Fire Intro

2.15-2 2017 Kenow Fire Timeline

2.15-3 WLNP Map Slider
2.15-4/7 Extent of fire

Exhibit AV
n/a

2.16 Washrooms

Visitor Experience:

As visitors enter the washroom they see a photo of one of the ecological zones within WLNP. Opening the door, they are face to face with a stylized close-up of an animal found in that ecological zone located on the back wall of the washroom.

When visitors wash their hands, a sound is triggered of a species that relies on the water at WLNP for survival. A graphic explains that the waters of WLNP are home to many species of animals so please use wisely.

Exhibit Items:
n/a

Exhibit Graphics

2.16-1 thru 2.16-7 Washroom Sounds

2.16-8.1 Ecological Photo
2.16-8.2 Animal Photo

2.16-9.1 Ecological Photo
2.16-9.2 Animal Photo

2.16-10.1 Ecological Photo
2.16-10.2 Animal Photo

2.16-11.1 Ecological Photo
2.16-11.2 Animal Photo

2.16-12.1 Ecological Photo
2.16-12.2 Animal Photo

2.16-13.1 Ecological Photo
2.16-13.2 Animal Photo

2.16-14.1 Ecological Photo
2.16-14.2 Animal Photo

2.16-15.1 Ecological Photo
2.16-15.2 Animal Photo

2.16-16.1 Ecological Photo
2.16-16.2 Animal Photo

2.16-17.1 Ecological Photo
2.16-17.2 Animal Photo

Exhibit AV

2.16-A thru 2.16-G Audio of difference species found in WLNP. One species sound per washroom, seven sounds in total.

END OF SECTION
(EXHIBITRY DESCRIPTION)

Waterton Lakes National Park GRAPHIC SCHEDULE											
	A	B	C	D	E	F	G	H	I	Q	S
1											
2											
3											
4							DESIGNER:	Panther Creative			
5							PREPARED BY:				
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A		B		D	E	F	G	H	I	Q	S
1	Waterton Lakes National Park										
2	GRAPHIC SCHEDULE										
3											
4	DATE PREPARED:					DESIGNER:	Panther Creative				
5	CITY:	Waterton				PREPARED BY:					
6	LOCATION:	WLNP									
7	CLIENT:	Parks Canada									
8	LAST UP DATE:	2019-03-01									
10											
11	ID#	Item Name	Graphic Code	Qty	Overall / Nominal Dim.		Substrate		Drw#	Notes	
13	1.0	Exterior Exhibits			Horiz't (mm)	Vert (mm)	Thickness (mm)				
50	1.02.1-4.6	City Name: Pincher Creek	GP-004-2	1	90 approx	12	10		X1.02	Stainless steel disc 102mm diameter	
51	1.02.1-4.7	City Name: Cardston	GP-004-2	1	90 approx	12	10			Stainless steel disc 102mm diameter	
52	1.02.1-4.8	City Name: Eureka	GP-004-2	1	90 approx	12	10			Stainless steel disc 102mm diameter	
53	1.02.1-4.9	City Name: Whitefish	GP-004-2	1	90 approx	12	10			Stainless steel disc 102mm diameter	
54	1.02.1-4.10	City Name: Kalispell	GP-004-2	1	90 approx	12	10			Stainless steel disc 102mm diameter	
55	1.02.1-4.11	City Name: Polson	GP-004-2	1	90 approx	12	10			Stainless steel disc 102mm diameter	
56	1.02.1-4.12	City Name: Browning	GP-004-2	1	90 approx	12	10			Stainless steel disc 102mm diameter	
57	1.02.1-4.13	City Name: Choteau	GP-004-2	1	90 approx	12	10			Stainless steel disc 102mm diameter	
58	1.02.1-4.14	City Name: Cranbrook	GP-004-2	1	90 approx	12	10			Stainless steel disc 102mm diameter	
59	1.02.1-4.15	City Name: Calgary	GP-004-2	1	90 approx	12	10			Stainless steel disc 102mm diameter	
60	1.02.1-4.16	City Name: Lethbridge	GP-004-2	1	90 approx	12	10			Stainless steel disc 102mm diameter	
61	1.02.1-4.17	City Name: Great Falls	GP-004-2	1	90 approx	12	10			Stainless steel disc 102mm diameter	
62	1.02.1-4.18	City Name: Missoula	GP-004-2	1	90 approx	12	10			Stainless steel disc 102mm diameter	
63											
64	1.02.1-5a	Metal River Medallions: Saskatchewan River	GP-004-3	1	610 dia.	-	10			Stainless steel disc 610mm diameter	
65	1.02.1-5b	Metal River Medallions: Columbia River	GP-004-3	1	610 dia.	-	10			Stainless steel disc 610mm diameter	
66	1.02.1-5c	Metal River Medallions: Missouri River	GP-004-3	1	610 dia.	-	10			Stainless steel disc 610mm diameter	
67	1.02.1-6a	Community Name Plates: Saskatchewan River Community Panel a	GP-004-4	1	305 dia.	-	10			Stainless steel disc 305mm diameter	
68	1.02.1-6b	Community Name Plates: Saskatchewan River Community Panel b	GP-004	1	305 dia.	-	10			Stainless steel disc 305mm diameter	
69	1.02.1-6c	Community Name Plates: Saskatchewan River Community Panel c	GP-004	1	305 dia.	-	10		X1.02	Stainless steel disc 305mm diameter	
70	1.02.1-6d	Community Name Plates: Columbia River Community Panels Panel d	GP-004	1	305 dia.	-	10			Stainless steel disc 305mm diameter	

Waterton Lakes National Park GRAPHIC SCHEDULE											
	A	B	D	E	F	G	H	I	Q	S	
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5	CITY:	Waterton			PREPARED BY:						
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7	CLIENT:	Parks Canada									
8	LAST UP DATE:	2019-03-01									
10	ID#	Item Name	Graphic Code	Qty	Overall / Nominal Dim.		Thickness (mm)	Substrate	Drw#	Notes	
11					Horiz't (mm)	Vert (mm)					
13	1.0	Exterior Exhibits									
71	1.02.1-6e	Community Name Plates: Columbia River Community Panels Panel e	GP-004	1	305 dia.	-	10	Stainless steel disc 305mm diameter			
72	1.02.1-6f	Community Name Plates: Columbia River Community Panels Panel f	GP-004	1	305 dia.	-	10	Stainless steel disc 305mm diameter			
73	1.02.1-6g	Community Name Plates: Missouri River Community Panels Panels Panel g	GP-004	1	305 dia.	-	10	Stainless steel disc 305mm diameter			
74	1.02.1-6h	Community Name Plates: Missouri River Community Panels Panels Panel h	GP-004	1	305 dia.	-	10	Stainless steel disc 305mm diameter			
75	1.02.1-6i	Community Name Plates: Missouri River Community Panels Panels Panel i	GP-004	1	305 dia.	-	10	Stainless steel disc 305mm diameter			
77	1.03	Water Path									
79	1.03-1	Water Intro Panel (side 1a) other side is 1.04.1)		1	720	1670	12	Polycarbonate	X1.03		
80	1.03.1-1	Northern leopard frog species ID	GP-003-4	1	559	381	10	Weathered Steel			
81	1.03.2-1	Spotted sandpiper species ID	GP-003-4	1	457	381	10	Weathered Steel	X1.04		
82	1.03.3-1	River otter species ID	GP-003-4	1	838	635	10	Weathered Steel			
83	1.03.4-1	Bull trout species ID	GP-003-4	1	635	368	10	Weathered Steel			
85	1.04	Water & Land Convergence Node									
87	1.04-1	Water & Land Graphic (side 2a of 1.04.1) Other side is 1.03-1	GP-001	1	737	1956	12	Polycarbonate			
88	1.04-2	NOT USED									
89	1.04-3	Etched Topo Lines (side 1b)	GP-003-1	1	1067	2362	10	Weathered Steel			
90	1.04-4	Etched Topo Lines (side 2b)	GP-003-1	1	1067	1905	10	Weathered Steel	X1.03		
91	1.04-5	Etched Animal Element (side 1a)	GP-003-2	1	241	264	10	Weathered Steel			
92	1.04-6a	Etched English Word (WATER)	GP-003-3	1	175	29	10	Weathered Steel			
93	1.04-6b	Etched Blackfoot Word (AOHKli)	GP-003-3	1	175	29	10	Weathered Steel			
94	1.04-6c	Etched French Word (L'EAU)	GP-003-3	1	175	29	10	Weathered Steel			
96	1.05	Land Path									
98	1.05-1	Land Intro Panel (side 1a) Other side is 1.02.1)	GP-001	1	720	1670	12	Polycarbonate	X1.03		
99	1.05.1-1	Wolverine species ID	GP-003-4	1	1041	813	10	Weathered Steel			
100	1.05.2-1	Cougar species ID	GP-003-4	1	1856	1194	10	Weathered Steel	X1.04		
101	1.05.3-1	Coyote species ID	GP-003-4	1	1473	965	10	Weathered Steel			
103	1.06	Land & Air Convergence									
105	1.06-1	Land & Air Graphic (side 2a) other side is 1.07-1	GP-001	1	737	1956	12	Polycarbonate			
106	1.06-2	NOT USED									
107	1.06-3	Etched Topo Lines (side 1b)	GP-003-1	1	1067	2369	10	Weathered Steel			
108	1.06-4	Etched Topo Lines (side 2b)	GP-003-1	1	1067	1905	10	Weathered Steel	X1.03		
109	1.06-5	Etched Animal Element (side 1a)	GP-003-2	1	240	300	10	Weathered Steel			

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8		LAST UP DATE:	2019-03-01								
10											
11		ID#	Item Name	Graphic Code	Qty	Horiz't (mm)	Overall / Nominal Dim. Vert (mm)	Thickness (mm)	Substrate	Drw#	Notes
13		1.0	Exterior Exhibits								
110		1.06-6a	Etched English Word (AIR)	GP-003-3	1	175	29	10	Weathered Steel		
111		1.06-6b	Etched Blackfoot Word (?)	GP-003-3	1	175	29	10	Weathered Steel		
112		1.06-6c	Etched French Word (L'AIR)	GP-003-3	1	175	29	10	Weathered Steel		
114		1.07	Air Path								
116		1.07-1	Air Intro Panel (side 2b) Other side is 1.06-1	GP-001	1	720	1670	12	Polycarbonate	X1.03	
117		1.07-1-1	Sand hill crane species ID	GP-005	1	1270	927	10	Weathered Steel		
118		1.07-2-1	Osprey species ID	GP-005	1	1041	1041	10	Weathered Steel		
119		1.07-3-1	Trumpeter Swan species ID	GP-005	1	1778	1041	10	Weathered Steel	X1.04	
120		1.07-4-1	Common Nighthawk species ID	GP-005	1	1041	711	10	Weathered Steel		
121											
123		1.08	Cultural Convergence								
125		1.08-1	Cultural Convergence Panel (side 1a)	GP-001	1	720	1670	12	Polycarbonate		
126		1.08-2	Cultural Convergence Panel (side 2a)	GP-001	1	720	1670	12	Polycarbonate		
127		1.08-3	Topo Lines (side 1b)	GP-003-1	1	1067	2369	10	Weathered Steel		
128		1.08-4	Topo Lines (side 2b)	GP-003-1	1	1067	1905	10	Weathered Steel	X1.03	
129		1.08-5	Top Element (side 1a)	GP-003-2	1	225	198	10	Weathered Steel		
130		1.08-6a	English Word (PEOPLE)	GP-003-3	1	120pt	42	10	Weathered Steel		
131		1.08-6b	Blackfoot Word (?)	GP-003-3	1	120pt	42	10	Weathered Steel		
132		1.08-6c	French Word (LE GENES)	GP-003-3	1	120pt	42	10	Weathered Steel		
133											
134		1.08.2-1a	Blackfoot (English)	GP-005	1	512	29		8x8 Douglas Fir		
135		1.08.2-1b	Blackfoot (French)	GP-005	1	512	29		8x8 Douglas Fir		
136		1.08.2-2a	Blackfoot Story Panel (English)	GP-001	1	190.5	444.5	6	Polycarbonate	X1.05	
137		1.08.2-2b	Blackfoot Story Panel (French)	GP-001	1	190.5	444.5	6	Polycarbonate		
138		1.08.2-3a	BF Colour Badget (Left)	GP-001	1	73	170	6	Polycarbonate		
139		1.08.2-3a/b	BF Colour Badget (Right)	GP-001	1	73	170	6	Polycarbonate		
140											
141		1.08.3-1a	Waterton-Glacier International Peace Park (English)	GP-005	1	832	29		8x8 Douglas Fir		
142		1.08.3-1b	Waterton-Glacier International Peace Park (French)	GP-005	1	832	29		8x8 Douglas Fir		
143		1.08.3-2a	Waterton-Glacier International Peace Park Story Panel (English)	GP-001	1	190.5	444.5	6	Polycarbonate	X1.05	
144		1.08.3-2b	Waterton-Glacier International Peace Park Story Panel (French)	GP-001	1	190.5	444.5	6	Polycarbonate		
145		1.08.3-3a	Waterton-Glacier International Peace Park Color Badge (Left)	GP-001	1	73	170	6	Polycarbonate		
146		1.08.3-3b	Waterton-Glacier International Peace Park Color Badge (Right)	GP-001	1	73	170	6	Polycarbonate		

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13	1.0													Exterior Exhibits																							
147																																					
148	1.08.4-1a													Rotary International (English)													GP-005	1	1057		29		8x8 Douglas Fir	X1.05			
149	1.08.4-1b													Rotary International (French)													GP-005	1	1057		29		8x8 Douglas Fir				
150	1.08.4-2a													Rotary International Story Panel (English)													GP-001	1	190.5		444.5		6		Polycarbonate		
151	1.08.4-2b													Rotary International Story Panel (French)													GP-001	1	190.5		444.5		6		Polycarbonate		
152	1.08.4-3a													Rotary International Colour Budget (Left)													GP-001	1	73		170		6		Polycarbonate		
153	1.08.4-3b													Rotary International Colour Budget (Right)													GP-001	1	73		170		6	Polycarbonate			
154																																					
155	1.08.5-1a													Waterton Biosphere Reserve Association (English)													GP-005	1	802		29		8x8 Douglas Fir	X1.05			
156	1.08.5-1b													Waterton Biosphere Reserve Association (French)													GP-005	1	802		29		8x8 Douglas Fir				
157	1.08.5-2a													Waterton Biosphere Reserve Association Story Panel (English)													GP-001	1	190.5		444.5		6		Polycarbonate		
158	1.08.5-2b													Waterton Biosphere Reserve Association Story Panel (French)													GP-001	1	190.5		444.5		6		Polycarbonate		
159	1.08.5-3a													Waterton Biosphere Reserve Association Colour Budget (Left)													GP-001	1	73		170		6		Polycarbonate		
160	1.08.5-3b													Waterton Biosphere Reserve Association Colour Budget (Right)													GP-001	1	73		170		6	Polycarbonate			
161																																					
162	1.08.6-1a													Waterton Park Community (English)													GP-005	1	767		29		8x8 Douglas Fir	X1.05			
163	1.08.6-1b													Waterton Park Community (French)													GP-005	1	767		29		8x8 Douglas Fir				
164	1.08.6-2a													Waterton Park Community Story Panel (English)													GP-001	1	190.5		444.5		6		Polycarbonate		
165	1.08.6-2b													Waterton Park Community Story Panel (French)													GP-001	1	190.5		444.5		6		Polycarbonate		
166	1.08.6-3a													Waterton Park Community Colour Budget (Left)													GP-001	1	73		170		6		Polycarbonate		
167	1.08.6-3b													Waterton Park Community Colour Budget (Right)													GP-001	1	73		170		6	Polycarbonate			
168																																					
169	1.08.7-1a													Crown of the Continent Managers (English)													GP-005	1	622		29		8x8 Douglas Fir	X1.05			
170	1.08.7-1b													Crown of the Continent Managers (French)													GP-005	1	622		29		8x8 Douglas Fir				
171	1.08.7-2a													Crown of the Continent Managers Story Panel (English)													GP-001	1	190.5		444.5		6		Polycarbonate		
172	1.08.7-2b													Crown of the Continent Managers Story Panel (French)													GP-001	1	190.5		444.5		6		Polycarbonate		
173	1.08.7-3a													Crown of the Continent Managers Colour Budget (Left)													GP-001	1	73		170		6		Polycarbonate		
174	1.08.7-3b													Crown of the Continent Managers Colour Budget (Right)													GP-001	1	73		170		6	Polycarbonate			
175																																					

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11	ID#	Item Name	Graphic Code	Qty	Horiz't (mm)	Overall / Nominal Dim.		Substrate	Drw#	Notes	
13	1.0	Exterior Exhibits									
177	1.09	Respect Wildlife									
179	1.09-1	Respect Wildlife Intro Panel	GP-001	1	1273.7	811.4	12	Polycarbonate			
180	1.09-2	Rule of Thumb	GP-001	1	1273.7	844.6	12	Polycarbonate			
181	1.09-2-1a	Wolf species ID: Eng	GP-005	1	185	49		8x8 Douglas Fir			
182	1.09-2-1b	Wolf species ID: /Fr	GP-006	1	170	49		8x8 Douglas Fir			
183	1.09-2-1c	Wolf species ID: BF	GP-007	1	256	49		8x8 Douglas Fir			
184	1.09-2-2	Wolf Family Story Panel	GP-001	1	1068	460	12	Polycarbonate			
185	1.09-3-1a	Black Bear species ID:Eng	GP-005	1	397	49		8x8 Douglas Fir			
186	1.09-3-1b	Black Bear species ID:/Fr	GP-005	1	360	49		8x8 Douglas Fir			
187	1.09-3-1c	Black Bear species ID:BF	GP-005	1	446	49		8x8 Douglas Fir			
188	1.09-3-2	Rubbing Tree Story Panel	GP-001	1	1068	460	12	Polycarbonate			
189	1.09-4-1a	Badger species ID: Eng	GP-005	1	266	49		8x8 Douglas Fir			
190	1.09-4-1b	Badger species ID: Fr	GP-005	1	317	49		8x8 Douglas Fir			
191	1.09-4-1c	Badger species ID: BF	GP-005	1	350	49		8x8 Douglas Fir			
192	1.09-5-1a	Ground Squirrel species ID:Eng	GP-005	1	629	49		8x8 Douglas Fir			
193	1.09-5-1b	Ground Squirrel species ID:Fr	GP-005	1	692	49		8x8 Douglas Fir			
194	1.09-5-1c	Ground Squirrel species ID:BF	GP-005	1	469	49		8x8 Douglas Fir			
195	1.09-7-1a	Big Horn Sheep species ID:Eng	GP-005	1	541	49		8x8 Douglas Fir			
196	1.09-7-1b	Big Horn Sheep species ID:Fr	GP-005	1	761	49		8x8 Douglas Fir			
197	1.09-7-1c	Big Horn Sheep species ID:BF	GP-005	1	894	49		8x8 Douglas Fir			
198	1.09-8-1a	Mule Deer species ID:Eng	GP-005	1	367	49		8x8 Douglas Fir			
199	1.09-8-1b	Mule Deer species ID:Fr	GP-005	1	401	49		8x8 Douglas Fir			
200	1.09-8-1c	Mule Deer species ID:BF	GP-005	1	355	49		8x8 Douglas Fir			
201	1.09-0-1a	Mountain Bluebird species ID:Eng	GP-005	1	893	49		8x8 Douglas Fir			
202	1.09-0-1b	Mountain Bluebird species ID:Fr	GP-005	1	976	49		8x8 Douglas Fir			
203	1.09-0-1c	Mountain Bluebird species ID:BF	GP-005	1	619	49		8x8 Douglas Fir			
205	1.10	Demonstration Garden									
207	1.10-1	Species ID	GP-001	1	125	54	6	polycarbonate			
208	1.10-2	Species ID	GP-001	1	125	54	6	polycarbonate			
209	1.10-3	Species ID	GP-001	1	125	54	6	polycarbonate			
210	1.10-4	Species ID	GP-001	1	125	54	6	polycarbonate			
211	1.10-5	Species ID	GP-001	1	125	54	6	polycarbonate			
212	1.10-6	Species ID	GP-001	1	125	54	6	polycarbonate			
213	1.10-7	Species ID	GP-001	1	125	54	6	polycarbonate			
214	1.10-8	Species ID	GP-001	1	125	54	6	polycarbonate			
215	1.10-9	Species ID	GP-001	1	125	54	6	polycarbonate			
216	1.10-10	Species ID	GP-001	1	125	54	6	polycarbonate			

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13		1.0	Exterior Exhibits								
217		1.10-11	Species ID	GP-001	1	125	54	6	polycarbonate		
218		1.10-12	Species ID	GP-001	1	125	54	6	polycarbonate		
219		1.10-13	Species ID	GP-001	1	125	54	6	polycarbonate		
220		1.10-14	Species ID	GP-001	1	125	54	6	polycarbonate		
221		1.10-15	Species ID	GP-001	1	125	54	6	polycarbonate		
222		1.10-16	Species ID	GP-001	1	125	54	6	polycarbonate		
223		1.10-17	Species ID	GP-001	1	125	54	6	polycarbonate		
224		1.10-18	Species ID	GP-001	1	125	54	6	polycarbonate		
225		1.10-19	Species ID	GP-001	1	125	54	6	polycarbonate		
226		1.10-20	Species ID	GP-001	1	125	54	6	polycarbonate		
227		1.10-21	Species ID	GP-001	1	125	54	6	polycarbonate		
228		1.10-22	Species ID	GP-001	1	125	54	6	polycarbonate		
229		1.10-23	Species ID	GP-001	1	125	54	6	polycarbonate		
230		1.10-24	Species ID	GP-001	1	125	54	6	polycarbonate		
231											
233		1.0	Interior Exhibits								
235		2.00	Welcome Stone								
237		2.01-1	Welcome Message	GP-006	1	500	400	12	Tempered Glass	X2.01	
238		2.01-2	Display Boards	GP-002	2	1016 da.	-	12	Magnetic glas		
239		2.01-3	Welcome Song Interpretation	GP-001	1	610	510	12	Polycarbonate		
240		2.01-4	Treaty Song Interpretation	GP-001	1	610	510	12	Polycarbonate		
241											
243		2.02	Interior Orientation Area								
245		2.02-1	Welcome Panel	GP-001	1	3827	1060	12	Polycarbonate	X2.01	
246		2.02-2	Park Map	GP-001	1	2100	1300	12	Polycarbonate		
247		2.02-3	Town/Terr-Map-Now part of 2.02.1								
248		2.02-4	Reg Info-Now part of 2.02.1								
249		2.02-5	Fixed Notice Board #1 (Left)	GP-001	1	812	1338	12	Polycarbonate		
250		2.02-6	Magnetic Glass Display Board #1 (left)	GP-003	1	812	1830	12	Magnetic Glass		
251		2.02-7	Magnetic Glass Display Board #2 (middle)	GP-004	1	812	1740	12	Magnetic Glass		
252		2.02-8	Magnetic Glass Display Board #3 (right)	GP-005	1	812	1591	12	Magnetic Glass		

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11											
13		1.0	Exterior Exhibits								
253		2.02-9	Fixed Notice Board #2 (right)	GP-001	1	812	1012	12	Polycarbonate	x2.17	
254		2.02-10	Orientation Kiosk Welcome Panel (stage)	GP-001	1	1700	1372	12	Polycarbonate		
255		2.02-11	Magnetic Glass Display Board above brochure rack	GP-002	1	1830	915	12	Magnetic Glass		
256		2.02-12	Sun	GP-010	3	100	100	1			
257		2.02-13	Sun w/ Cloud	GP-010	3	100	100	1			
258		2.02-14	Cloud w/ Sun	GP-010	3	100	100	1			
259		2.02-15	Sun/Cloud/Rain	GP-010	3	100	100	1			
260		2.02-16	Sun/Cloud/Snow	GP-010	3	100	100	1			
261		2.02-17	Sun/Cloud/Snow/Snow	GP-010	3	100	100	1			
262		2.02-18	Cloud w/ Rain	GP-010	3	100	100	1			
263		2.02-19	Cloud w/ Snow	GP-010	3	100	100	1			
264		2.02-20	Cloud w/ Lightning	GP-010	3	100	100	1			
265		2.02-21	Cloud/Lightning/Rain	GP-010	3	100	100	1			
266		2.02-22	Sun/Cloud/Lightning	GP-010	3	100	100	1			
267		2.02-23	Sun/Cloud/Lightning/Rain	GP-010	3	100	100	1			
268		2.02-24	Wind	GP-010	3	100	100	1			
269		2.02-25	Smoke	GP-010	3	100	100	1			
271		2.04	Biodiversity Wall								
273		2.04-1	Bird Drawer	GP-001	1	300	225	12	Polycarbonate	X2.03, X2.04	
274		2.04-2	Fish Drawer	GP-001	1	300	225	12	Polycarbonate		
275		2.04-3	Amphibian & Reptile Drawer	GP-001	1	300	225	12	Polycarbonate		
276		2.04-4	Mammal Drawer	GP-001	1	300	225	12	Polycarbonate		
277		2.04-5	Vascular Plant Drawer	GP-001	1	300	225	12	Polycarbonate		
278		2.04-6	Rare and Diverse Plant Drawer	GP-001	1	300	225	12	Polycarbonate		
279		2.04-7	Invertebrates Drawer	GP-001	1	300	225	12	Polycarbonate		
280		2.04-8	Labels	GP-009	1	25	76				
281		2.04-9	Labels	GP-009	1	25	76				
282		2.04-10	Labels	GP-009	1	25	76				
283		2.04-11	Labels	GP-009	1	25	76				
284		2.04-12	Labels	GP-009	1	25	76				
285		2.04-13	Labels	GP-009	1	25	76				
286		2.04-14	Labels	GP-009	1	25	76				
287		2.04-15	Labels	GP-009	1	25	76				
288		2.04-16	Labels	GP-009	1	25	76				
289		2.04-17	Labels	GP-009	1	25	76				
290		2.04-18	Labels	GP-009	1	25	76				
291		2.04-19	Labels	GP-009	1	25	76				

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2		GRAPHIC SCHEDULE									
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5		CITY:	Waterton			PREPARED BY:					
6		LOCATION:	WLNP								
7		CLIENT:	Parks Canada								
8		LAST UP DATE:	2019-03-01								
10											
11		ID#	Item Name	Graphic Code	Qty	Horiz't (mm)	Overall / Nominal Dim. Vert (mm)	Thickness (mm)	Substrate	Drw#	Notes
13		1.0	Exterior Exhibits								
292		2.04-20	Labels	GP-009	1	25	76				
293		2.04-21	Labels	GP-009	1	25	76				
294											
296		2.05	Night Sky								
298		2.05-1	Night Sky Intro Mural	GP-009	1	2460	2826				
299		2.05-2	Night Sky Exit Mural	GP-007	1	2015	3300				
300		2.05-3	Mural - Environmental Graphic	GP-007	1	2700	3300				
301		2.05-4	Mural- Star treatment Design part 1	GP-007	1	2570	2826			x2.05, X2.06	
302		2.05-5	Mural- Star treatment Design part 2	GP-007	1	2570	2826				
304		2.06	Forces of Nature								
306		2.06-1	Intro Mural w/ Stories	GP-007	1	2499	4000				
307		2.06-2	Renewal Wall Environmental Graphic Background	GP-007	1	5400	3500				
308		2.06-2.1	Renewal Wall Photo Panel 1	GP-001	1	396	396	12	Polycarbonate		
309		2.06-2.2	Renewal Wall Photo Panel 2	GP-001	1	396	396	12	Polycarbonate		
310		2.06-2.3	Renewal Wall Photo Panel 3	GP-001	1	396	396	12	Polycarbonate		
311		2.06-2.4	Renewal Wall Photo Panel 4	GP-001	1	573	1018	12	Polycarbonate		
312		2.06-2.5	Renewal Wall Photo Panel 5	GP-001	1	573	1018	12	Polycarbonate		
313		2.06-2.6	Renewal Wall Photo Panel 6	GP-001	1	573	1018	12	Polycarbonate		
314		2.06-2.7	Renewal Wall Photo Panel 7	GP-001	1	573	1018	12	Polycarbonate		
315		2.06-2.8	Renewal Wall Photo Panel 8	GP-001	1	396	396	12	Polycarbonate		
316		2.06-2.9	Renewal Wall Photo Panel 9	GP-001	1	396	396	12	Polycarbonate		
317		2.06-2.10	Renewal Wall Photo Panel 10	GP-001	1	396	396	12	Polycarbonate		
318		2.06-3 left	Mosaic Screen Wall Background	GP-007	1	1914	3128				
319		2.06-3 centre	Mosaic Screen Wall Background	GP-007	1	3236	3382				
320		2.06-3 right	Mosaic Screen Wall Background	GP-007	1	1808	3516				
322		2.07	365 Days								
324		2.07-1	Intro Mural	GP-007	1	2460	2826				
325		2.07-2.1	Moon Phases	GP-001	1	1614	457	12	Polycarbonate	X2.08	
326		2.07-2.2	Moon Phases	GP-001	1	2764	457	12	Polycarbonate		
327		2.07-2.3	Moon Phases	GP-001	1	1210	457	12	Polycarbonate		
329		2.08	A Day at WLNP								
331		2.08-1	Intro Mural	GP-007	1	4100	2798				
332		2.08-2	Story Panel	GP-001	1	550	550	12	Polycarbonate	X2.09, X2.10	
334		2.09	Under the Surface								
336		2.09-1	Under the Surface Environmental Graphic Background	GP-007	1	5400	3500				

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10	ID#	Item Name	Graphic Code	Qty	Horiz't (mm)	Overall / Nominal Dim. Vert (mm)	Thickness (mm)	Substrate	Drw#	Notes
11										
13	1.0	Exterior Exhibits								
337	2.09-1.1	Illustration Panel	GP-001	1	396	396	12	Polycarbonate		
338	2.09-1.2	Photo Panel	GP-001	1	573	1018	12	Polycarbonate		
339	2.09-1.3	Photo Panel	GP-001	1	680	1209	12	Polycarbonate		
340	2.09-1.4	Photo Panel	GP-001	1	573	1018	12	Polycarbonate		
341	2.09-1.5	Photo Panel	GP-001	1	573	1018	12	Polycarbonate		
342	2.09-1.6	Photo Panel	GP-001	1	1209	680	12	Polycarbonate		
343	2.09-1.7	Photo Panel	GP-001	1	396	396	12	Polycarbonate	X2.11	
344	2.09-1.8	Photo Panel	GP-001	1	573	1018	12	Polycarbonate		
345	2.09-1.9	Photo Panel	GP-001	1	396	396	12	Polycarbonate		
346	2.09-1.10	Photo Panel	GP-001	1	396	396	12	Polycarbonate		
347	2.09-1.11	Photo Panel	GP-001	1	680	1209	12	Polycarbonate		
348	2.09-1.12	Photo Panel	GP-001	1	396	396	12	Polycarbonate		
349	2.09-1.13	Photo Panel	GP-001	1	573	1018	12	Polycarbonate		
350	2.09-1.14	Photo Panel	GP-001	1	573	1018	12	Polycarbonate		
351	2.09-1.15	Photo Panel	GP-001	1	680	1209	12	Polycarbonate		
353	2.10	Topographical Map								
355	2.10-1.1	Mts meet Praries / Geological Story	GP-007	1	3198	610				
356	2.10-2.1	Lewis Thrust- Is part of 2.10-1.1							X2.12	
357	2.10-2	Topeo-Map-with-Map Key								
358	2.10-3	Blood Indian Reserve	GP-001	1	673	250	12	Polycarbonate		
359	2.10-4	The Land Tells a Story: Wildlife Corridors	GP-001	1	300	132	12	Polycarbonate		
360	2.10-5	The Land Tells a Story: Trade Routes	GP-001	1	650	132	12	Polycarbonate		
361	2.10-6	The Land Tells a Story: Pipestone Gathering	GP-001	1	300	132	12	Polycarbonate		
363	2.11	Know Before You Go								
365	2.11-1	Know Before You Go Panel	GP-001	1	628	1462	12	Polycarbonate	X2.13	
367	2.12	Trip Planning								

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11										
13										
369	2.12-1	Trip Planning Intro Panel	GP-001	1	468	1087	12	Polycarbonate		
370	2.12-2	Interactive Graphic Base	GP-001	1	914	914	12	Polycarbonate		
371	2.12-3.1	Magnetic Round Disk	GP-001	1	76 diam		12	Polycarbonate		
372	2.12-3.2	Magnetic Round Disk	GP-001	1	76 diam		12	Polycarbonate		
373	2.12-3.3	Magnetic Round Disk	GP-001	1	76 diam		12	Polycarbonate		
374	2.12-3.4	Magnetic Round Disk	GP-001	1	76 diam		12	Polycarbonate		
375	2.12-3.5	Magnetic Round Disk	GP-001	1	76 diam		12	Polycarbonate		
376	2.12-3.6	Magnetic Round Disk	GP-001	1	76 diam		12	Polycarbonate		
377	2.12-3.7	Magnetic Round Disk	GP-001	1	76 diam		12	Polycarbonate	X2.13, X2.16	
378	2.12-3.8	Magnetic Round Disk	GP-001	1	76 diam		12	Polycarbonate		
379	2.12-3.9	Magnetic Round Disk	GP-001	1	76 diam		12	Polycarbonate		
380	2.12-3.10	Magnetic Round Disk	GP-001	1	76 diam		12	Polycarbonate		
381	2.12-3.11	Magnetic Round Disk	GP-001	1	76 diam		12	Polycarbonate		
382	2.12-3.12	Magnetic Round Disk	GP-001	1	76 diam		12	Polycarbonate		
383	2.12-3.13	Magnetic Round Disk	GP-001	1	76 diam		12	Polycarbonate		
385	2.13	Awareness in the Environment								
387	2.13-1	Awareness in the Environment Intro Panel	GP-001	1	468	1087	12	Polycarbonate		
388	2.13-2	Interactive Base	GP-001	1	914	914	12	Polycarbonate		
389	2.13-3.1	Tree Silhouette Cut-Outs Illustration	GP-001	1	600	150	12	Polycarbonate	X2.14	
390	2.13-3.2	Hiker Silhouette Cut-Outs	GP-001	2	100	190	12	Polycarbonate		
391	2.13-3.3	Animal Silhouette Cut-Outs	GP-001	1	190	102	12	Polycarbonate		
392	2.13-4	Summer Sun Angle	GP-008	1	483	28				
393	2.13-5	Winter Sun Angle	GP-008	1	483	28				
395	2.14	Animal Awareness								
397	2.14-1	Animal Awareness Intro Panel	GP-001	1	468	1087	12	Polycarbonate		
398	2.14-2	Who's Scat is that interactive graphic base.	GP-001	1	914	914	12	Polycarbonate		
399	2.14-3	round disc	GP-001	1	152.4	152.4	12	Polycarbonate		
400	2.14-4	round disc	GP-001	1	152.4	152.4	12	Polycarbonate		
401	2.14-5	round disc	GP-001	1	152.4	152.4	12	Polycarbonate	X2.14, X2.16	
402	2.14-6	round disc	GP-001	1	152.4	152.4	12	Polycarbonate		
403	2.14-7	round disc	GP-001	1	152.4	152.4	12	Polycarbonate		
404	2.14-8	round disc	GP-001	1	152.4	152.4	12	Polycarbonate		
405	2.14-9	round disc	GP-001	1	152.4	152.4	12	Polycarbonate		
407	2.15	2.15 2017 Kenow Fire (Changeable Exhibit)								
409	2.15-1	2017 Kenow Fire Intro Panel	GP-001	1	468	1087	12	Polycarbonate		
410	2.15-2	2017 Kenow Fire Interactive Graphic Timeline	GP-001	1	914	914	12	Polycarbonate		
411	2.15-3	WLNP Map Slider handle	GP-001	1	41 diam		12	Polycarbonate	X2.14, X2.16	

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11	ID#	Item Name	Graphic Code	Qty	Horiz't (mm)	Overall / Nominal Dim. Vert (mm)	Thickness (mm)	Substrate	Drw#	Notes
13	1.0	Exterior Exhibits								
412	2.15-4 - 7	Extent of fire graphic	GP-001	4	162	112	12	Polycarbonate		
414	2.16	Washrooms								
416	2.16-1.1	Sound graphic	GP-001	1	150	100	6	polycarbonate		
417	2.16-1.2	Sound graphic	GP-001	1	150	100	6	polycarbonate		
418	2.16-1.3	Sound graphic	GP-001	1	150	100	6	polycarbonate		
419	2.16-1.4	Sound graphic	GP-001	1	150	100	6	polycarbonate		
420	2.16-1.5	Sound graphic	GP-001	1	150	100	6	polycarbonate		
421	2.16-1.6	Sound graphic	GP-001	1	150	100	6	polycarbonate		
422	2.16-1.7	Sound graphic	GP-001	1	150	100	6	polycarbonate		
423	2.16-1.8	Sound graphic	GP-001	1	150	100	6	polycarbonate		
424	2.16-1.9	Sound graphic	GP-001	1	150	100	6	polycarbonate		
425	2.16-1.10	Sound graphic	GP-001	1	150	100	6	polycarbonate		
426										
427	2.16.2-2	Door graphic	GP-007	1	700	2133				
428	2.16.2-3	Door graphic	GP-007	1	700	2133				
429	2.16.2-4	Door graphic	GP-007	1	700	2133				
430	2.16.2-5	Door graphic	GP-007	1	700	2133				
431	2.16.2-6	Door graphic	GP-007	1	700	2133				
432	2.16.2-7	Door graphic	GP-007	1	700	2133				
433	2.16.2-8	Door graphic	GP-007	1	700	2133				
434	2.16.2-9	Door graphic	GP-007	1	700	2133				
435	2.16.2-10	Door graphic	GP-007	1	700	2133				
436	2.16.2-11	Door graphic	GP-007	1	700	2133				
437	2.16.2-12	Door graphic	GP-007	1	700	2133				
438	2.16.2-13	Door graphic	GP-007	1	700	2133				
439	2.16.2-14	Door graphic	GP-007	1	700	2133				
440	2.16.2-15	Door graphic	GP-007	1	700	2133				
441	2.16.2-16	Door graphic	GP-007	1	700	2133				
442	2.16.2-17	Door graphic	GP-007	1	700	2133				
443	2.16.2-18	Door graphic BF W/C A118	GP-007	1	965	2133				
444										
462	2.16.3-7	Wall graphicBF W/C A118		1	2010	2438				
463										
464	NOTE:	Parks Canada will all photos and images								
465										
466	GRAPHIC CODES									

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1	Waterton Lakes National Park									
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11										
13	1.0	Exterior Exhibits								
467	GP-001	Artcraft Digital Diamond or equivalent. All edges are to be beveled or eased and all corners eased or rounded to ensure public safety. Black Edge.								
468	GP-002	Artwork to be printed on 3M IJ180 with a GBC Artic sand 3mm lamination transmounted to magnetic glass substrate. All edges are polished. Any sharp edges are eased.								
469	GP-003 - 1	Weather Steel. Topo lines are CNC routed. 80% or lines are minor 1 mm wide by 1mm deep. 20% are major lines 2mm wide by 1 mm deep. Weathered steel. All edges are to be eased and all corners eased or rounded to ensure public safety.								
470	GP-003 - 2	Weathered steel. Animal element is CNC routed 3mm deep. All edges are to be eased and all corners eased or rounded to ensure public safety.								
471	GP-003 - 3	Weather Steel. Text element is CNC routed 3mm deep. All edges are to be eased and all corners eased or rounded to ensure public safety.								
472	GP-004 - 1	Weathered Steel. Animal shape is cut out of steel. Text is CNC routed 3mm deep and filled with white or black epoxy (color that offers the most contrast to the metal). The background wavy pattern is CNC routed 1mm deep. All edges are to be eased and all corners eased or rounded to ensure public safety.								
473	GP-004 - 2	Stainless Steel. All edges are to be eased and all corners eased or rounded to ensure public safety. Individually cut letters.								
474	GP-004 - 3	Stainless Steel. All edges are to be eased and all corners eased or rounded to ensure public safety. Text element is CNC routed 3mm deep								
475		Stainless Steel. All edges are to be eased and all corners eased or rounded to ensure public safety. North America, the outer rim, and the "N,W,S,E" and their tic markings are highest level and level with grade. The text in the rim and background (ocean area) are CNC routed 2mm. The background wavy pattern is CNC routed to 1mm deeper than the background. The blue river is recessed 2mm and filled with a blue epoxy or equivalent.								

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11										
13	1.0	Exterior Exhibits								
476	GP-004 - 4	Stainless Steel. All edges are to be eased and all corners eased or rounded to ensure public safety. Inner place name text and outer rim are highest level. The text in the rim and background is CNC routed to 2mm. The background wavy pattern is CNC routed to 1mm deeper than the background.								
477	GP-004-5	Stainless Steel 10mm thick. All edges are to be eased and all corners eased or rounded to ensure public safety. Letters are CNC routed 6mm. Where edges meet, edges are CNC routed to create a line across the rim.								
478	GP-005	Text is CNC routed 6mm. To be filled with black epoxy or painted black with protective finish.								
479	GP-006	Tempered glass. All edges are to be eased and polished to ensure public safety.								
480	GP-007	Artwork to be printed on 3M IJ180 with a GBC Artic sand 3mm lamination. Applies directly to finished wall. All live edges to be protected.								
481	GP -008	Vinyl text and line cut out trans mounted to inside of acrilcyc dome. Color: Black								
482	GP-009	5mm white foamcore direct printed one color								
483	GP-010	Artwork to be printed on 3M IJ180 with a GBC Artic sand 3mm lamination mounted to 1mm thick magnets								