



Parks Canada

Parcs Canada

Strategic Asset Management,  
Western and Northern Region

Gestion Stratégique des Biens,  
Région de l'Ouest et du Nord

# Canada

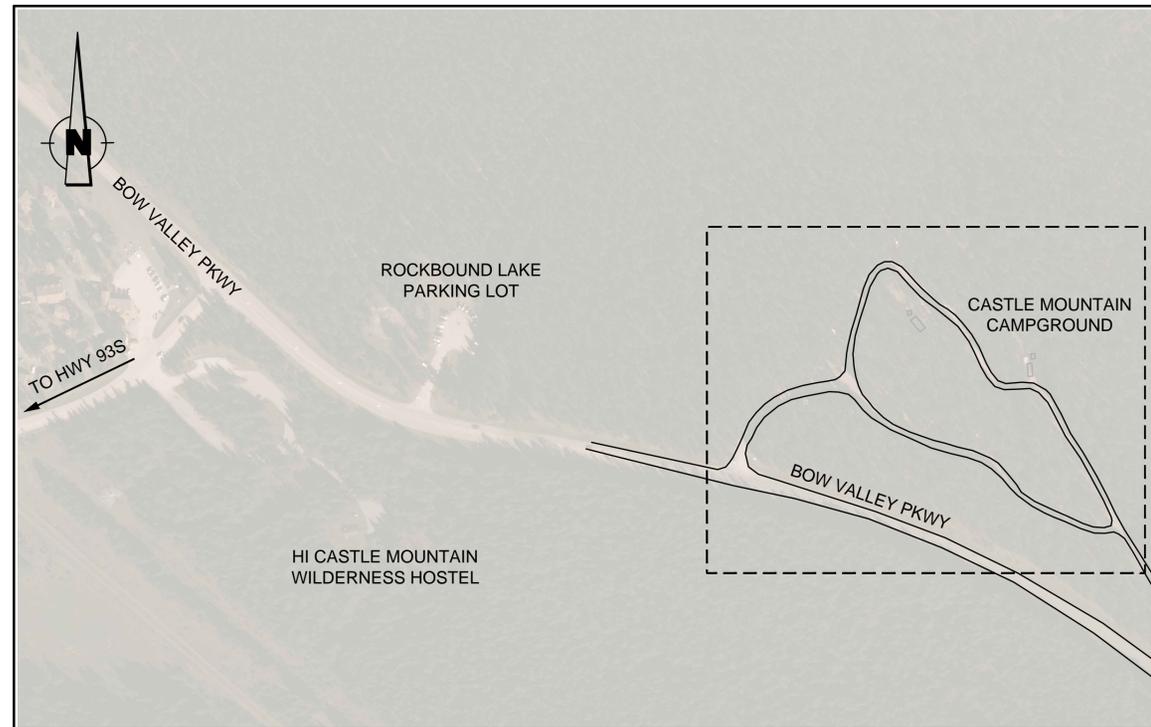
## CASTLE MOUNTAIN CAMPGROUND (PHASE 2)

### INFRASTRUCTURE REHABILITATION BANFF NATIONAL PARK, ALBERTA

CONSULTANT PROJECT No. 19M-01812-00

DATE: 03-AUG-2022

ISSUED FOR TENDER

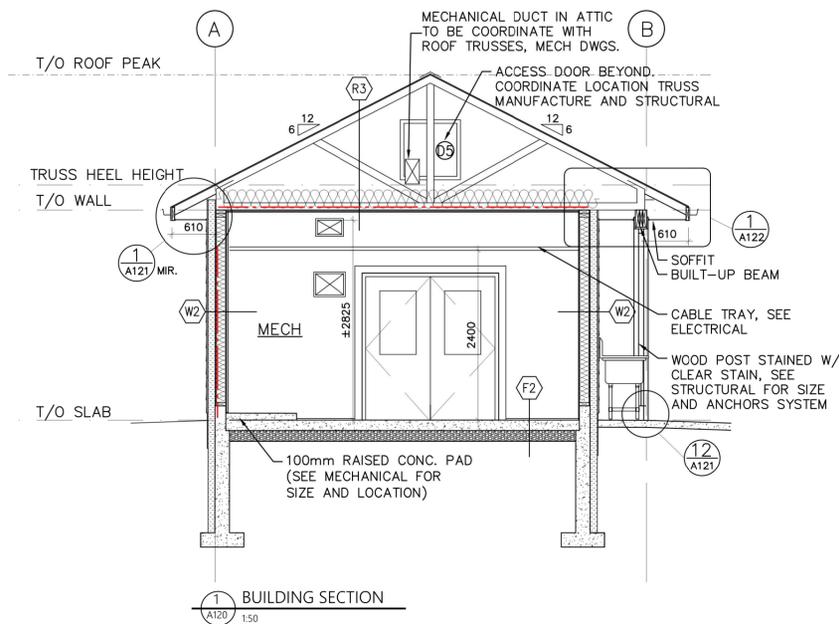


SITE LOCATION PLAN  
SCALE 1:2500

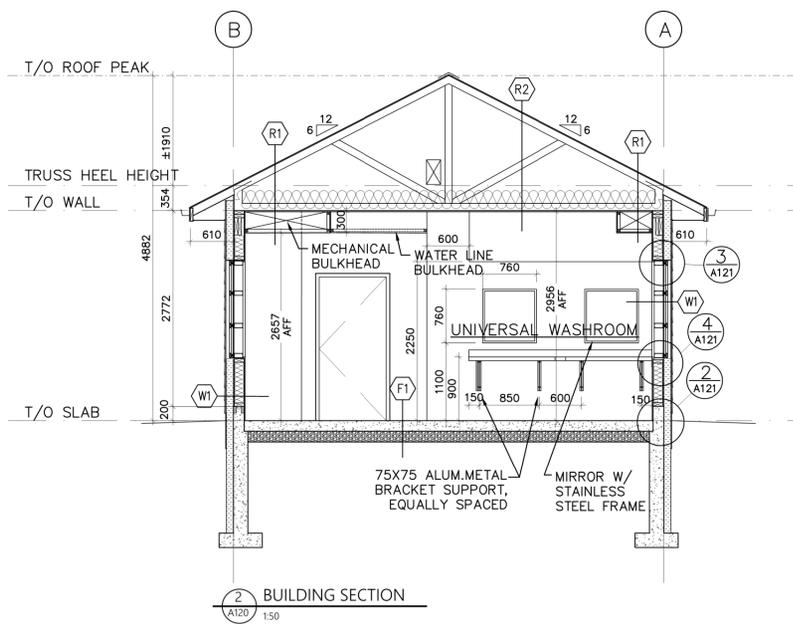
DRAWING INDEX	
DWG No.	DRAWING TITLE
C100	TITLE SHEET & INDEX
C101	EXISTING SITE PLAN - OVERALL PLAN
C101A	DEMOLITION AND REMOVALS - VEGETATION CLEARING AND STRIPPING
C102	NEW WASHROOM AREA UNDERGROUND WATER AND SANITARY PLAN
C103	SITE GRADING PLAN - DESIGN GRADE
C104	UNDERGROUND PROFILE - NORTH WATER ALIGNMENT
C104A	SITE RESTORATION PLAN
C400	CIVIL DETAILS
C401	CIVIL DETAILS
C402	CIVIL DETAILS
A100	WASHROOM BUILDING ELEVATIONS
A110	WASHROOM BUILDING FOUNDATION PLAN FLOOR PLAN
A111	WASHROOM BUILDING ROOF PLAN FINISH PLAN
A120	BUILDING SECTIONS
A121	DETAILS
A122	DETAILS
S100	GENERAL NOTES
S101	GENERAL NOTES
S110	TYPICAL DETAILS
S111	TYPICAL AND PROJECT DETAILS
S112	TYPICAL DETAILS
S200	FOUNDATION, MAIN FLOOR PLAN AND SECTIONS
S201	ROOF PLAN AND ROOF LOADING LEGEND
M100	MECHANICAL WASHROOM BUILDING COVER SHEET, LEGEND, SCHEDULES
M200	MECHANICAL WASHROOM BUILDING FOUNDATION PLAN
M300	MECHANICAL WASHROOM BUILDING VENTILATION, PLUMBING PLAN
M400	MECHANICAL WASHROOM BUILDING DETAILS
E000	ELECTRICAL COVER SHEET
E100	SITE PLAN - POWER RENOVATION LAYOUT
E200	POWER & SYSTEMS AND LIGHTING PLAN
E1.2	ELECTRICAL DETAILS
E1.3	ELECTRICAL DETAILS
E302	ELECTRICAL DETAILS
E303	ELECTRICAL DETAILS, PANEL SCHEDULES & SINGLE LINE DIAGRAM



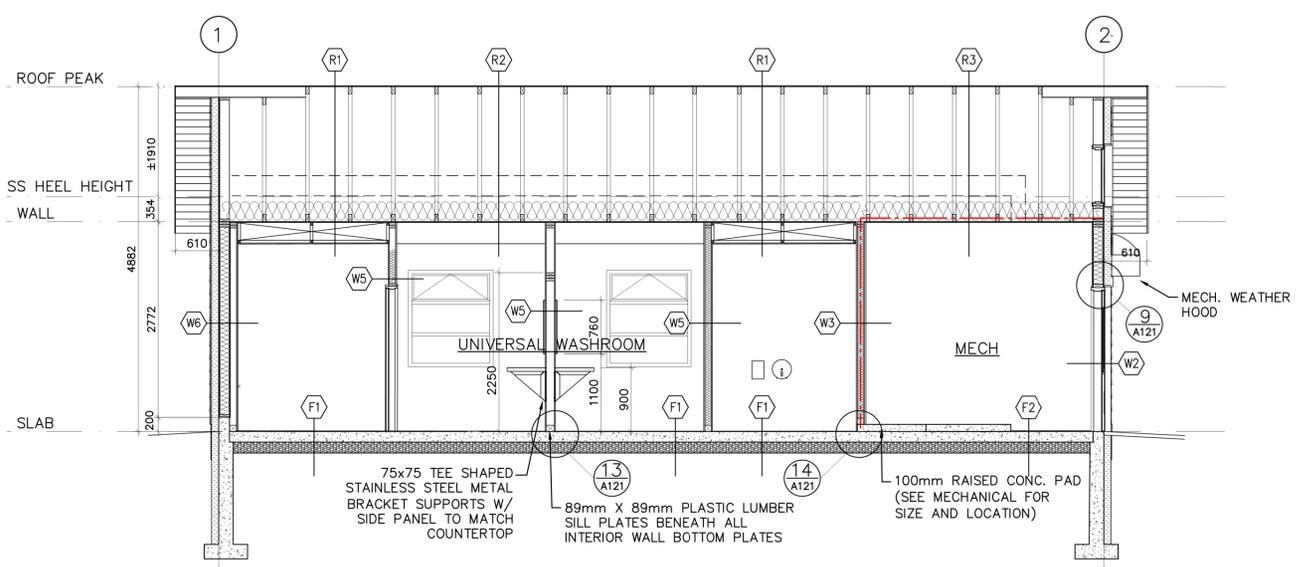
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1 BUILDING SECTION  
A120 1:50



2 BUILDING SECTION  
A120 1:50



3 BUILDING SECTION  
A120 1:50

- (F1) FLOOR SLAB:  
CONCRETE FLOOR SLAB (SEE STRUCTURAL)  
FLOOR FINISH IN ALL OTHER AREAS TO BE NON-SLIP  
COMMERCIAL GRADE EPOXY COATING
- (F2) FLOOR SLAB:  
CONCRETE FLOOR SLAB (SEE STRUCTURAL)  
FLOOR FINISH IN MECH. AND JANITOR ROOM  
TO BE POLISHED AND SEALED CONCRETE.

NOTE:  
1. TRUSSES AS PER MANUFACTURE AND STRUCTURAL FRAMING PLANS  
2. INSULATION/VENTILATION STOPS AS REQUIRED  
3. ATTIC INSULATION TO BE RODENT PROOF  
4. SHEET METAL ROOFING SAMPLE TO BE SUBMITTED TO PCA FOR REVIEW AND PRIOR TO ORDERING.  
5. W3, W4, AND W5 WALLS TO HAVE PLASTIC LUMBER SILL PLATES IN CONTACT CONCRETE SURFACES IN ACCORDANCE WITH DETAILS  
6. SEE A111 FOR SPECIFIED RFP PANELING COLOUR FOR ALL INTERIOR WALLS.  
7. BATT INSULATION TO BE SELECTED TO BE MOISTURE AND MOLD RESISTANT.  
8. CONTRACTOR TO COMPLETE SAMPLE OF EPOXY FLOORING FOR DEPARTMENTAL REPRESENTATIVE APPROVAL PRIOR TO PROCEEDING WITH INSTALLATION THROUGH ENTIRE WASHROOM.

- WALLS**
- (W1) TYPICAL EXTERIOR WALL  
EXTERIOR FINISH (SEE ELEVATIONS)  
100mm HORIZONTAL Z FURRING GIRT @ 610mm O.C. MAX.  
KNIGHT WALL SYSTEMS, THERMAZEE OR EQUIVALENT  
100mm HORIZONTAL Z FURRING GIRT @ 610mm O.C. MAX. WITH VERTICAL PANEL RAILS @ SIDING MANUFACTURE RECOMMENDED SPACING, KNIGHT WALL SYSTEMS, THERMAZEE OR EQUIVALENT  
100mm EPS RIGID INSULATION  
SOPREMA WRAP OR SIDING MANUFACTURE'S EQUIVALENT  
9.5mm PLYWOOD SHEATHING  
38x140 WOOD STUDS @ 400mm O.C.  
(SEE ADDITION STRUCTURAL NOTES RE: STUD SPACING)  
R-20 INSULATION  
6 MIL POLY. VAPOUR BARRIER  
12.7mm MOLD RESISTANT G.W.B.  
3.2mm FRP PANELING, FLOOR TO CEILING FOR PANEL
- (W2) TYPICAL MECHANICAL ROOM EXTERIOR WALL  
EXTERIOR FINISH (SEE ELEVATIONS)  
100mm HORIZONTAL Z FURRING GIRT @ 610mm O.C. MAX.  
KNIGHT WALL SYSTEMS, THERMAZEE OR EQUIVALENT  
100mm HORIZONTAL Z FURRING GIRT @ 610mm O.C. MAX. WITH VERTICAL PANEL RAILS @ SIDING MANUFACTURE RECOMMENDED SPACING, KNIGHT WALL SYSTEMS, THERMAZEE OR EQUIVALENT  
100mm EPS RIGID INSULATION  
SOPREMA WRAP OR SIDING MANUFACTURE'S EQUIVALENT  
9.5mm PLYWOOD SHEATHING  
38x140 WOOD STUDS @ 400mm O.C.  
(SEE ADDITION STRUCTURAL NOTES RE: STUD SPACING)  
R-20 INSULATION  
6 MIL POLY. VAPOUR BARRIER  
12.7mm MOLD RESISTANT G.W.B.(FIRE TAPED)  
19mm PLYWOOD SHEATHING  
3.2mm FRP PANELING, FLOOR TO CEILING FOR PANEL
- (W3) TYPICAL MECHANICAL ROOM INTERIOR WALL  
3.2mm FRP PANELING, FLOOR TO CEILING (MECH. ROOM SIDE)  
19mm PLYWOOD SHEATHING (MECH. ROOM SIDE)  
1 LAYERS 15.9mm FIRE & WATER RESISTANT G.W.B. (MECH. ROOM SIDE)  
6 MIL. POLY. VAPOUR BARRIER  
38x89 WOOD STUDS @ 400mm O.C.  
R-20 SOUND BATT INSULATION  
15.9mm FIRE & MOLD RESISTANT G.W.B. (WASHROOM SIDE)  
3.2mm FRP PANELING, FLOOR TO CEILING (WASHROOM SIDE)
- (W4) TYPICAL INTERIOR WALL  
3.2mm FRP PANELING, FLOOR TO CEILING (WHRM. ROOM SIDE)  
15.9mm FIRE AND MOLD RESISTANT G.W.B. (WHRM. ROOM SIDE)  
38x89 WOOD STUDS @ 400mm O.C.  
15.9mm FIRE AND MOLD RESISTANT G.W.B.  
12.7mm PLYWOOD SHEATHING (JANITOR ROOM SIDE)  
3.2mm FRP PANELING, FLOOR TO CEILING (JANITOR ROOM SIDE)
- (W5) TYPICAL INTERIOR WALL  
3.2mm FRP PANELING, FLOOR TO CEILING  
12.7mm MOLD RESISTANT G.W.B.  
38x89 WOOD STUDS @ 400mm O.C.  
R-20 SOUND BATT INSULATION  
12.7mm MOLD RESISTANT G.W.B.  
3.2mm FRP PANELING, FLOOR TO CEILING
- (W6) EXTERIOR WALL  
EXTERIOR FINISH (SEE ELEVATIONS)  
100mm HORIZONTAL Z FURRING GIRT @ 610mm O.C. MAX.  
KNIGHT WALL SYSTEMS, THERMAZEE OR EQUIVALENT  
100mm HORIZONTAL Z FURRING GIRT @ 610mm O.C. MAX. WITH VERTICAL PANEL RAILS @ SIDING MANUFACTURE RECOMMENDED SPACING, KNIGHT WALL SYSTEMS, THERMAZEE OR EQUIVALENT  
100mm EPS RIGID INSULATION  
SOPREMA WRAP OR SIDING MANUFACTURE'S EQUIVALENT  
9.5mm PLYWOOD SHEATHING  
38x140 WOOD STUDS @ 400mm O.C.  
(SEE ADDITION STRUCTURAL NOTES RE: STUD SPACING)  
R-20 INSULATION  
6 MIL POLY. VAPOUR BARRIER  
38x89 WOOD STUDS @ 400mm O.C.  
12.7mm MOLD RESISTANT G.W.B.  
3.2mm FRP PANELING, FLOOR TO CEILING FOR PANEL
- ROOFS**
- (R1) OVER INTERIOR HEATED SPACES  
26 GA. CORRUGATED STEEL ROOF TO BE INSTALLED ON 19mm x 89mm WOOD STRAPPING @ MAXIMUM 600MM CENTERS, WESTFORM METALS, PROFILE:DURACLAD OR EQUIVALENT, COLOR MELLOCHERS GREEN (PARKS GREEN)  
1 LAYER SOPREMA ROOF WRAP EQUIVALENT  
MIN. 915mm WIDE ICE & WATER SHIELD EAVE PROTECTION  
15.5mm EXTERIOR GRADE PLYWOOD SHEATHING W/ H-CLIPS TRUSSES AS PER MANUFACTURER / ENG  
R-40 BATT (MIN) INSULATION  
6 MIL POLY. VAPOUR BARRIER  
12.7mm MOLD RESISTANT G.W.B.(FIRE TAPED, SANDED, PRIMED AND PAINTED WERE EXPOSED, COLOUR WHITE)  
BULKHEAD AND FALSE WASHROOM CEILINGS 38x89 WOOD STUDS @400 O.C  
12.7mm MOLD RESISTANT G.W.B.(FIRE TAPED, SANDED, PRIMED AND PAINTED, COLOUR WHITE)
- (R2) OVER INTERIOR HEATED SPACES  
26 GA. CORRUGATED STEEL ROOF TO BE INSTALLED ON 19mm x 89mm WOOD STRAPPING @ MAXIMUM 600MM CENTERS, WESTFORM METALS, PROFILE:DURACLAD OR EQUIVALENT, COLOR MELLOCHERS GREEN (PARKS GREEN)  
1 LAYER SOPREMA ROOF WRAP EQUIVALENT  
MIN. 915mm WIDE ICE & WATER SHIELD EAVE PROTECTION  
15.5mm EXTERIOR GRADE PLYWOOD SHEATHING W/ H-CLIPS TRUSSES AS PER MANUFACTURER / ENG  
R-40 BATT (MIN) INSULATION  
6 MIL POLY. VAPOUR BARRIER  
12.7mm MOLD RESISTANT G.W.B.(FIRE TAPED, SANDED, PRIMED AND PAINTED WERE EXPOSED, COLOUR WHITE)
- (R3) OVER INTERIOR MECHANICAL & JANITOR ROOMS  
26 GA. CORRUGATED STEEL ROOF TO BE INSTALLED ON 19mm x 89mm WOOD STRAPPING @ MAXIMUM 600MM CENTERS, WESTFORM METALS, PROFILE:DURACLAD OR EQUIVALENT, COLOR MELLOCHERS GREEN (PARKS GREEN)  
1 LAYER SOPREMA ROOF WRAP EQUIVALENT  
MIN. 915mm WIDE ICE & WATER SHIELD EAVE PROTECTION  
15.5mm EXTERIOR GRADE PLYWOOD SHEATHING W/ H-CLIPS TRUSSES AS PER MANUFACTURER / ENG  
R-40 BATT (MIN) INSULATION  
6 MIL POLY. VAPOUR BARRIER  
2-LAYERS OF 15.9 mm FIRE & MOLD RESISTANT G.W.B.(FIRE TAPED, SANDED, PRIMED AND PAINTED WERE EXPOSED, COLOUR WHITE)

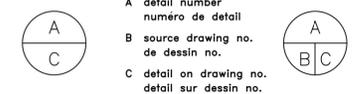
LEGEND

STUDIO ARCHITECTURE  
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No.	Date/Date	Description/Description	Drawn by Dessiné par	Approved Approuvé
11	08/08/22	ISSUED FOR TENDER	CD/RF	CD
10	05/07/22	ISSUED FOR PCA REVIEW	CD/RF	CD
9	02/06/22	ISSUED FOR PCA REVIEW	CD/RF	CD
8	09/02/22	ISSUED FOR FINAL REVIEW	CD/RF	CD
7	02/02/22	ISSUED FOR REVIEW	CD/RF	CD
6	22/12/21	ISSUED FOR REVIEW	CD/RF	CD
5	15/11/21	ISSUED FOR REVIEW	SM/RF	RF
4	10/11/21	ISSUED FOR REVIEW	SM/RF	RF
3	03/09/21	ISSUED FOR REVIEW	SM/RF	RF
2	03/08/21	ISSUED FOR REVIEW	SM/RF	RF
1	14/02/20	ISSUED FOR 65% REVIEW	CW/RF	RF

Revision / Revision



Consultant's Name  
Nom de l'expert-conseil

Eng. Stamp  
Sceau de l'ingénieur

**FINDLAYGROUP**  
OF COMPANIES  
202 729 10 ST  
CANMORE, AB  
T1W 2A3

Public Works and Government Services Canada  
Travaux publics et Services gouvernementaux Canada

Client Services Team Southern Alberta Operations Branch  
Le Client Entretien l'Équipe Alberta Méridionale Branche d'Opérations



Client/client  
Parks Canada Agency  
L'Agence Parcs Canada

Western and Northern Region  
Ouest et Nord du Canada

Project title/Titre du projet  
**CASTLE MOUNTAIN CAMPGROUND (PHASE 2)**  
**BANFF NATIONAL PARK, ALBERTA**

Drawing title/Titre du dessin  
**BUILDING SECTIONS**

Surveyed by/Arpenté par PARKS CANADA	Drawn by/Dessiné par CW	Date/Date 04FEB2020
Designed by/Concept par FDG	Reviewed by/Revisé par RF	Scale/Echelle AS SHOWN
PWSC Project Manager/Administrateur de Projets TPSC MATTHEW WHALEN		
Client Acceptance/Acceptation du client		Approved by/Approuvé par
Park Responsible Officer/Agent Responsable		PWSC Project Manager/Administrateur de Projets TPSC
Project No./No. du projet 19M-01812-00	Asset No./No. du bien -	Sheet No./No. de la feuille <b>13</b> 33
Drawing Reference No./No. de référence du dessin <b>A120</b>		

## GENERAL

- THIS IS A METRIC PROJECT. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN MILLIMETERS AND ALL FORCES ARE IN METRIC UNITS (PER TG-ABBR-02).
  - "WSP-S" REFERS TO WSP CANADA STRUCTURAL CONSULTANT.
  - PRIOR TO CONSTRUCTION, REVIEW STRUCTURAL DRAWINGS IN CONJUNCTION WITH DRAWINGS PROVIDED BY ALL OTHER CONSULTANTS. CONFIRM ALL DIMENSIONS, ELEVATIONS AND HEADROOM CLEARANCES, AND COORDINATE ALL OPENINGS, SLEEVES AND EMBEDDED ITEMS.
  - REPORT ANY DISCREPANCIES OR CONFLICTS BEFORE PROCEEDING WITH THE WORK.
  - DO NOT CUT OR DRILL ANY OPENINGS IN STRUCTURAL MEMBERS WITHOUT WRITTEN PERMISSION FROM WSP-S.
  - VERIFY EXISTING DIMENSIONS AND CONDITIONS ON SITE PRIOR TO CONSTRUCTION.
  - USE THESE DRAWINGS ONLY FOR THE PURPOSE IDENTIFIED IN THE REVISIONS COLUMN. DO NOT CONSTRUCT FROM THESE DRAWINGS UNLESS MARKED "ISSUED FOR CONSTRUCTION".
  - DO NOT USE INFORMATION ON THESE DRAWINGS FOR ANY OTHER PROJECT OR WORKS.
  - DO NOT SCALE THESE DRAWINGS.
  - UNLESS OTHERWISE NOTED ON DRAWINGS, FOLLOW TYPICAL DETAILS SHOWN ON S110 AND S111. TYPICAL DETAILS SHOW STRUCTURAL INTENT RATHER THAN ACTUAL CONDITIONS FOR THIS PROJECT. IF A TYPICAL DETAIL INCLUDES A CROSS REFERENCE TO ANOTHER TYPICAL DETAIL WHICH IS NOT INCLUDED IN THE DRAWING SET, THE CROSS REFERENCED DETAIL IS NOT APPLICABLE ON THIS PROJECT.
  - ALL SECTIONS, DETAILS AND STATEMENTS NOTED AS "TYPICAL" APPLY TO LIKE / SIMILAR CONDITIONS IN THE STRUCTURE.
  - REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR REQUIRED FIRE RATING, SPRAYED FIREPROOFING, INTUMESCENT PAINTING AND ALL OTHER MEASURES REQUIRED TO ACHIEVE IT.
  - REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR WATERPROOFING, SEALERS, ETC.
  - DRAWINGS SHOW COMPLETED STRUCTURE ONLY. THEY DO NOT SHOW TEMPORARY WORKS FOR WHICH THE CONTRACTOR IS RESPONSIBLE AND WHICH MAY BE REQUIRED FOR EXECUTION OF THE PROJECT, INCLUDING TEMPORARY SHORING, BRACING, GUYS AND TIE DOWNS. THE CONTRACTOR TO ESTABLISH CONSTRUCTION PROCEDURE AND SEQUENCE TO ENSURE SAFETY OF THE WHOLE STRUCTURE AND ALL ITS COMPONENTS DURING ERECTION.
  - EXTENT OF ALL TEMPORARY SHORING FOR EXCAVATION WHICH MAY BE REQUIRED IS NOT NECESSARILY SHOWN ON STRUCTURAL DRAWINGS, CONTRACTOR TO DETERMINE. REFER TO SPECIFICATIONS FOR TEMPORARY SHORING REQUIREMENTS.
  - DESIGN AND CONSTRUCTION REVIEW OF ALL TEMPORARY WORKS TO BE CARRIED OUT BY A PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR, LICENSED IN THE PLACE WHERE THE PROJECT IS LOCATED.
  - ANCHOR BOLTS AND OTHER EMBEDDED ITEMS ARE DESIGNED FOR LOADS ACTING ON THE COMPLETED STRUCTURE ONLY AND ARE NOT TO BE USED OR RELIED UPON FOR TEMPORARY SUPPORT OR BRACING DURING ERECTION UNLESS REVIEWED AND APPROVED BY THE CONTRACTOR'S ENGINEER RESPONSIBLE FOR THE ERECTION PROCEDURES.
  - CONSTRUCTION LOADS ON COMPLETED STRUCTURE NOT TO EXCEED DESIGN LOADS INDICATED ON DRAWINGS. FULL DESIGN LOADS MAY ONLY BE APPLIED AFTER THE CONCRETE REACHES ITS DESIGN STRENGTH.
  - UNLESS SHOWN ON STRUCTURAL DRAWINGS, DESIGN OF NON STRUCTURAL AND SECONDARY STRUCTURAL ELEMENTS AND THEIR CONNECTIONS TO THE PRIMARY BUILDING STRUCTURE ARE NOT WITHIN THE SCOPE OF SERVICES PROVIDED BY WSP-S. SUCH ELEMENTS INCLUDE (BUT ARE NOT LIMITED TO) THE FOLLOWING:
    - MISCELLANEOUS STEEL ELEMENTS: STAIRS, RAILINGS, GUARDRAILS.
    - PARTITIONS: MASONRY, GLASS, WOOD AND STEEL STUDS, PREFABRICATED PANELS
    - BULKHEADS, SUSPENDED CEILINGS, INTERIOR AND EXTERIOR SIGNAGE.
    - EXTERIOR CLADDING: PRECAST PANELS, METAL WALL SYSTEMS, CURTAIN WALLS AND WINDOWS.
    - SKYLIGHTS, SNOW FENCES, GUTTERS, ROOF ANCHORS, WINDOW WASHING SYSTEMS, CHIMNEYS AND STACKS.
    - SUPPORTS FOR MECHANICAL AND ELECTRICAL EQUIPMENT: HANGERS, BRACES, POSTS, RACKS, SLEEPPERS, SEISMIC RESTRAINTS, SUPPORT PLATFORMS AND PADS, SERVICE PLATFORMS.
    - LANDSCAPING ELEMENTS: WALLS, CURBS, BENCHES, PLANTERS, WATER FEATURES.
    - LIGHT POLES, FLAG POLES, SIGNS AND THEIR FOUNDATIONS.
- WSP-S WILL NOT REVIEW DESIGN, DETAILING AND INSTALLATION OF THESE ELEMENTS, FOR WHICH SUPPLIERS AND / OR SPECIALTY PROFESSIONAL ENGINEERS ARE RESPONSIBLE. THE ONLY REVIEW PROVIDED (WHERE APPLICABLE) WILL BE FOR IMPACT ON THE BASE BUILDING STRUCTURE.
- MAINTAIN A QUALITY CONTROL PLAN FOR STRUCTURAL WORK, AND MAKE IT AVAILABLE TO THE CONSULTANT UPON REQUEST. AT A MINIMUM, THE PLAN TO INCLUDE:
    - NAMES OF PERSONNEL RESPONSIBLE FOR EXECUTION OF THE PLAN.
    - MEANS AND METHODS FOR CONFIRMING MATERIAL COMPLIANCE WITH SPECIFICATIONS AND ASSOCIATED DOCUMENTATION PROCEDURES.
    - PROGRAM FOR CONFIRMING AND DOCUMENTING COMPLIANCE WITH REQUIRED SUB-TRADE QUALIFICATIONS AND QUALIFICATIONS OF THEIR INDIVIDUAL EMPLOYEES AND SUB-CONTRACTORS.
    - PROCEDURES FOR REVIEWING FIELD COMPLIANCE WITH CONSTRUCTION DOCUMENTS, INCLUDING DOCUMENTATION OF LOCATIONS REVIEWED, PHOTOGRAPHS TAKEN AND TIMING OF REVIEW. THE CONTRACTOR'S REVIEW TO BE COMPLETED PRIOR TO REVIEW BY THE CONSULTANT.
    - PROCEDURES FOR RECTIFYING DEFICIENCIES NOTED BY THE CONTRACTOR, SUB-CONTRACTORS, CONSULTANTS AND INDEPENDENT INSPECTION AGENCIES.
  - FOR INSPECTION AND TESTING REQUIREMENTS, REFER TO SPECIFICATIONS.
  - IN CASE OF DISCREPANCY BETWEEN GENERAL NOTES, DRAWINGS AND SPECIFICATIONS, COMPLY WITH THE MOST STRINGENT REQUIREMENTS.

## DESIGN DATA

- STRUCTURAL DESIGN IS IN ACCORDANCE WITH THE 2019 NATIONAL BUILDING CODE (NBCC), SUPPLEMENTED BY THE USER'S GUIDE - NBC 2015 STRUCTURAL COMMENTARIES.
- CONCRETE ELEMENTS ARE DESIGNED PER CSA A 23.3-14 - DESIGN OF CONCRETE STRUCTURES.
- SAWN LUMBER AND GLUE LAMINATED LUMBER STRUCTURAL ELEMENTS ARE DESIGNED PER CSA 086-14 - ENGINEERING DESIGN IN WOOD.
- THE VALUES FOR CLIMATIC DATA USED IN THE DETERMINATION OF DESIGN LOADS HAVE BEEN OBTAINED FROM THE 2019 NBCC FOR THE SPECIFIC LOCATION OF LAKE LOUISE, ALBERTA.
- BASED ON THE USE AND OCCUPANCY, THE BUILDING IS DESIGNED TO THE REQUIREMENTS OF A NORMAL IMPORTANCE CATEGORY.
- SELF WEIGHT (SWT) IS DUE TO THE WEIGHT OF THE STRUCTURE ITSELF. IT VARIES WITH THE STRUCTURAL SYSTEM, AND INCLUDES CONCRETE TOPPING ON STEEL DECK.
- SUPERIMPOSED DEAD LOADS (SDL) ARE NON-STRUCTURAL DEAD LOADS DUE TO NON-STRUCTURAL TOPPING, FINISHES, PARTITIONS, ROOFING MATERIALS, SUSPENDED EQUIPMENT, PAVERS, SOIL, ETC.
- DEAD LOAD (DL) IS THE SELF WEIGHT OF THE STRUCTURE PLUS THE SUPERIMPOSED DEAD LOAD.

- UNLESS OTHERWISE NOTED, DESIGN LOADS SHOWN ON DRAWINGS ARE SPECIFIED (UNFACTORED) LOADS, TO BE USED FOR ULS DESIGN. FOR SLS DESIGN, THESE LOADS CAN BE REDUCED BY MULTIPLYING WITH THE RATIO OF APPROPRIATE IMPORTANCE FACTORS  $\gamma(\text{SLS}) / \gamma(\text{ULS})$  GIVEN BELOW.
- IF ONLY ONE VALUE IS GIVEN FOR A LOAD, CONSIDER IT LIVE LOAD.
- FOR CONNECTION LOADS, "+" SIGN INDICATES TENSION AND "-" SIGN INDICATES COMPRESSION, EXCEPT FOR COLUMN LOADS WHERE "+" SIGN INDICATES COMPRESSION AND "-" SIGN INDICATES TENSION.
- SNOW:  
 $S_s = 5.5 \text{ kPa}$        $S_r = 0.1 \text{ kPa}$        $I_s(\text{ULS}) = 1.0$        $I_s(\text{SLS}) = 0.9$   
MINIMUM UNFACTORED SNOW LOAD =  $4.5 \text{ kPa} \times I_s$
- RAIN:  
24 HOUR RAINFALL = 55 mm
- LATERAL LOADS IN THIS STRUCTURE ARE RESISTED BY SHEAR WALLS, AND ARE DETERMINED BASED ON THE WIND AND SEISMIC DATA BELOW.
- WIND:  
 $q_{50} = 0.33 \text{ kPa}$        $I_w(\text{ULS}) = 1.0$        $I_w(\text{SLS}) = 0.75$   
BUILDING IS: LOW RISE  
TERRAIN TYPE: OPEN  
INTERNAL PRESSURE CATEGORY: 2  
 $C_e = 0.9$   
WIND LOAD AT GRADE LEVEL FOR DESIGN OF OVERALL BUILDING LATERAL LOAD RESISTING SYSTEM:  
0.7 kPa.  
WIND LOAD AT GRADE LEVEL OUTSIDE THE END ZONES FOR DESIGN OF SECONDARY STRUCTURAL ELEMENTS (GIRTS, WIND COLUMNS, ETC. BUT NOT INCLUDING CLADDING): 0.79 kPa.
- SEISMIC:  
 $S_a(0.2) = 0.25$        $P_G A = 0.13$        $I_e F_a S_a(0.2) = 0.25$   
 $S_a(0.5) = 0.14$        $R_d = 3.0$   
 $S_a(1.0) = 0.07$        $R_o = 1.7$       SITE CLASSIFICATION = C  
 $S_a(2.0) = 0.04$        $I_e = 1.0$   
SEISMIC FORCE RESISTING SYSTEM (SFRS): NAILED SHEAR WALLS (WOOD-BASED PANEL)

## SHOP DRAWINGS

- REFER TO SPECIFICATIONS FOR SHOP DRAWINGS WHICH NEED TO BE SUBMITTED FOR REVIEW.
- REVIEW OF SHOP DRAWINGS BY WSP-S IS ON A SAMPLING BASIS, FOR GENERAL CONFORMITY WITH STRUCTURAL CONTRACT DOCUMENTS. IT IS NOT A DETAILED CHECK AND MUST NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR OF HIS RESPONSIBILITY TO MAKE THE WORK ACCURATE AND IN CONFORMITY WITH ALL THE CONTRACT DOCUMENTS. TO REVIEW SHOP DRAWINGS AND TO COORDINATE WORK OF INTERFACING TRADES AND MANUFACTURE OF INTERFACING PRODUCTS.
- REVIEW OF SHOP DRAWINGS DOES NOT IMPLY ANY CHANGE IN ANY OTHER CONSULTANTS' OR PROFESSIONALS' RESPONSIBILITIES RELATED TO DESIGN OF SPECIFIC ITEMS AS OUTLINED BY THE SPECIFICATIONS.
- IF REQUIRED, ELECTRONIC FILES OF THE FULL SET OF STRUCTURAL DRAWINGS ARE AVAILABLE "AS-IS" AT A COST OF \$100.00 PER SHEET, FOR USE AS BACKGROUND IN SHOP DRAWING PREPARATION, PROVIDED THAT THE OWNER AND THE OWNER'S CONSULTANTS ARE NOT HELD RESPONSIBLE FOR ANY ERRORS OR OMISSIONS ON THE DRAWINGS. THESE DRAWINGS ARE NOT TO BE SCALED.
- ALLOW A MINIMUM OF 10 WORKING DAYS FOR REVIEW OF EACH SUBMISSION OF SHOP DRAWINGS IN WSP-S OFFICE. ALLOW MORE TIME WHEN LARGE QUANTITIES OF SHOP DRAWINGS ARE SUBMITTED. SUBMIT IN GENERAL CONFORMITY WITH THE SEQUENCE OF CONSTRUCTION INTENDED.
- AFTER REVIEW, THE DRAWINGS WILL BE STAMPED AND RETURNED. DO NOT COMMENCE FABRICATION UNTIL RETURNED SHOP DRAWINGS HAVE BEEN EXAMINED.
- SHOP DRAWINGS MARKED "REVIEWED" CAN BE USED FOR FABRICATION. DO NOT MAKE ANY CHANGES OR ADDITIONS TO THESE DRAWINGS WITHOUT NOTIFYING THE CONSULTANT.
- SHOP DRAWINGS MARKED "REVIEWED AS NOTED" CAN BE USED FOR FABRICATION AFTER THE REVISIONS NOTED ARE IMPLEMENTED. DO NOT MAKE ANY FURTHER CHANGES OR ADDITIONS TO THESE DRAWINGS WITHOUT NOTIFYING THE CONSULTANT.
- SHOP DRAWINGS MARKED "REVISE AND RESUBMIT" REQUIRE SUBSTANTIAL REVISIONS AND MUST BE RESUBMITTED FOR ADDITIONAL REVIEW PRIOR TO FABRICATION. ALL CHANGES AND ADDITIONS TO THE PREVIOUS SUBMISSION TO BE CLEARLY IDENTIFIED ON THE RESUBMITTED DRAWINGS. ONLY THE IDENTIFIED CHANGES WILL BE REVIEWED ON RE-SUBMISSION.
- SHOP DRAWINGS MARKED "REVIEWED FOR IMPACT ON BASE STRUCTURE ONLY" SHOW WORKS WHICH ARE NOT WITHIN THE SCOPE OF STRUCTURAL CONSULTING SERVICES BUT AFFECT BEHAVIOUR OF THE BASE STRUCTURE. WSP-S WILL NOT REVIEW DESIGN OF THESE WORKS AND ASSUMES THAT THE INDICATED WEIGHTS AND ALL OTHER LOADS IMPOSED ON THE BASE STRUCTURE ARE CORRECTLY IDENTIFIED BY THE DESIGNER / SUPPLIER OF THESE ELEMENTS.
- DRAWINGS MARKED "NOT REVIEWED" SHOW WORKS WHICH ARE NOT WITHIN THE SCOPE OF STRUCTURAL CONSULTING SERVICES AND DO NOT IMPACT THE BASE BUILDING STRUCTURE.
- WSP-S WILL NOT REVIEW DESIGN AND IMPLEMENTATION OF ANY TEMPORARY WORKS, NOR ASSESS IMPACT OF THESE WORKS ON THE BASE STRUCTURE, THE CONTRACTOR AND / OR THE PROFESSIONAL ENGINEER ENGAGED BY THE CONTRACTOR MUST ENSURE THAT THE BASE STRUCTURE IS NOT ADVERSELY AFFECTED BY THE TEMPORARY WORKS AND CONSTRUCTION PROCESS AND THAT TEMPORARY LOADS DO NOT EXCEED THE DESIGN LOADS INDICATED ON STRUCTURAL DRAWINGS.
- DO NOT USE SHOP DRAWINGS AS A MEANS TO PROPOSE SUBSTITUTIONS OR ALTERNATIVES TO THE MATERIALS, PRODUCTS OR DETAILS INDICATED IN CONTRACT DOCUMENTS. SUCH SHOP DRAWINGS WILL BE MARKED "REVISE AND RESUBMIT".
- PROVIDE FINAL RECORD DRAWINGS AFTER ALL CORRECTIONS ARE MADE.

## FIELD REVIEW

- WSP-S WILL PROVIDE PERIODIC FIELD REVIEW OF A REPRESENTATIVE SAMPLE OF THE STRUCTURAL WORKS DETAILED ON THESE DRAWINGS FOR GENERAL CONFORMANCE WITH CONTRACT DOCUMENTS. THESE REVIEWS DO NOT REPLACE THE CONTRACTOR'S RESPONSIBILITY TO IMPLEMENT AND MAINTAIN A QUALITY CONTROL PROGRAM, AND DO NOT MAKE WSP-S A GUARANTOR OF THE CONTRACTOR'S WORK.
- CONSTRUCTION REVIEW REPORTS WILL OUTLINE ANY DEFICIENCIES FOUND.
- ASSIST WSP-S DURING FIELD REVIEW, AND PROVIDE SAFE ACCESS TO WORK AREAS AS REQUIRED.
- CHECK THE WORK PRIOR TO FIELD REVIEW TO CONFIRM IT IS COMPLETED AND IN ACCORDANCE WITH CONTRACT DOCUMENTS.
- BRING TO THE ATTENTION OF WSP-S ANY DEFICIENCIES FOUND IN THE WORK TOGETHER WITH A PROPOSAL FOR REMEDY. WSP-S WILL DECIDE WHAT CORRECTIVE ACTION MAY BE TAKEN AND ISSUE THE NECESSARY INSTRUCTIONS.
- PROVIDE REASONABLE NOTICE (NOT LESS THAN 24 HOURS) TO ALLOW FOR THE FIELD REVIEW OF THE FOLLOWING:
  - CONCRETE WALLS AND BEAMS BEFORE CLOSING FORMS
  - ALL OTHER CONCRETE BEFORE EACH CONCRETE POUR
  - WOOD FRAMING BEFORE COVERING UP
- SCHEDULE REVIEW WORK TO OCCUR DURING NORMAL BUSINESS HOURS.

- ORGANIZE FOR FIELD REVIEW OF ALL PROPRIETARY PRODUCTS AND OTHER STRUCTURAL WORKS DESIGNED BY SPECIALTY ENGINEERS. THE REVIEW TO BE BY THE ENGINEERS RESPONSIBLE FOR THE DESIGN OR BY OTHER ENGINEERS DESIGNATED BY THE ENGINEERS RESPONSIBLE FOR THE DESIGN AND LICENSED IN THE PLACE WHERE THE PROJECT IS LOCATED. SUBMIT CONSTRUCTION REVIEW REPORTS FOR CONSULTANT'S RECORD.

## EXCAVATION, BACKFILL AND COMPACTION

- REFER TO GEOTECHNICAL REPORT NUMBER 181-13597-12, PREPARED BY WSP ON JANUARY 21, 2019 FOR ALL EXCAVATION, BACKFILL AND COMPACTION REQUIREMENTS.
- VERIFY GEOTECHNICAL INFORMATION ON SITE AND OBTAIN ADDITIONAL DATA IF REQUIRED.
- PRIOR TO COMMENCING EXCAVATION, LOCATE AND IDENTIFY ALL EXISTING UNDERGROUND STRUCTURES AND SERVICES.
- MAINTAIN STRUCTURES AND SERVICES WHICH ARE TO REMAIN OPERATIONAL OR WHICH WILL BE RE-USED, DESIGN AND PROVIDE PROTECTION AND SUPPORT, WHERE REQUIRED, OBTAIN APPROVAL FROM THE AUTHORITIES HAVING JURISDICTION AND DIVERT OR RELOCATE EXISTING SERVICES. REMOVE ALL OTHER STRUCTURES AND SERVICES.
- ESTABLISH LINES OF EXCAVATION AS REQUIRED NOT TO EXCEED MAXIMUM SLOPE OF EXCAVATION GIVEN IN THE GEOTECHNICAL REPORT. ANY DEVIATIONS FROM THIS DETAIL TO BE APPROVED BY THE GEOTECHNICAL CONSULTANT AND WSP-S.
- DESIGN AND PROVIDE SHORING AND BRACING FOR EXCAVATION WHERE NECESSARY.
- EXCAVATE TO EXPOSE NATIVE UNDISTURBED SOIL, AND TO ALLOW FOR MINIMUM COMPACTED BACKFILL AND CONSTRUCTION CLEARANCES AS REQUIRED. REMOVE ALL TOPSOIL, LOOSE FILL, DEBRIS, SOFT SPOTS AND ORGANIC MATERIALS.
- DIG TRENCHES FOR MECHANICAL AND ELECTRICAL SERVICES TO PROVIDE UNIFORM CONTINUOUS BEARING AND SUPPORT BEDDING MATERIAL ON UNDISTURBED SOIL. REFER TO MECHANICAL, ELECTRICAL AND CIVIL DRAWINGS FOR TRENCH CONSTRUCTION DETAILS. AT A MINIMUM, FILL TRENCHES WITH SAND TO 300 (12") ABOVE PIPES OR CONDUITS.
- LEGALLY DISPOSE OF ALL EXCAVATED MATERIALS, OR STORE ON SITE FOR BACKFILLING OPERATIONS IN ACCORDANCE WITH GEOTECHNICAL RECOMMENDATIONS AND PROJECT SPECIFICATIONS.
- PROTECT BOTTOM OF EXCAVATION FROM EXCESSIVE MOISTURE. USE GRANULAR FILL OR LEAN CONCRETE (MUD SLAB) AS RECOMMENDED IN THE GEOTECHNICAL REPORT. SLOPE FOR DRAINAGE. PROVIDE DRAINAGE TRENCHES AND PITS AND PUMP OUT WATER AS REQUIRED.
- GEOTECHNICAL ENGINEER TO REVIEW AND APPROVE ALL EXCAVATIONS BEFORE BACKFILLING OR PLACING CONCRETE.
- ALL BACKFILLING MATERIALS TO BE SOUND AND CLEAN, FREE FROM DEBRIS, ORGANIC AND FROZEN MATTER, WITH NO REACTIVE MINERALS NOR FRIABLE MATERIALS WITH SWELLING POTENTIAL.
- GEOTECHNICAL ENGINEER TO REVIEW AND APPROVE ALL BACKFILLING MATERIALS.
- UNLESS NOTED OTHERWISE IN THE GEOTECHNICAL REPORT, BACKFILL TO GRADES INDICATED IN LIFTS NOT EXCEEDING 150(6"), USE MECHANICAL COMPACTION EQUIPMENT. DO NOT PLACE BACKFILL OVER FROZEN SOIL.
- USE ONLY LIGHT, HAND-OPERATED EQUIPMENT FOR COMPACTION ADJACENT TO BASEMENT WALLS AND RETAINING WALLS. DO NOT BACKFILL UNTIL ELEMENTS PROVIDING LATERAL SUPPORT, INCLUDING SLABS ON GRADE AND ALL SUSPENDED LEVELS, ARE COMPLETED AND CONCRETE HAS REACHED 75% OF ITS DESIGN STRENGTH. FOR ELEMENTS THAT ARE TO BE BACKFILLED ON BOTH SIDES, PLACE BACKFILL SIMULTANEOUSLY ON BOTH SIDES SUCH THAT HEIGHTS DO NOT VARY BY MORE THAN 500 (1'-8") FROM ONE SIDE TO THE OTHER.
- MAINTAIN MOISTURE CONTENT IN BACKFILLING MATERIAL AS REQUIRED TO ACHIEVE THE SPECIFIED COMPACTION. PROTECT FROM EXCESSIVE MOISTURE DURING AND AFTER THE BACKFILLING OPERATION.
- UNLESS NOTED OTHERWISE IN THE GEOTECHNICAL REPORT, COMPACT BACKFILL TO ACHIEVE THE FOLLOWING STANDARD PROCTOR MAXIMUM DRY DENSITIES:
  - BELOW SLAB ON GRADE: 98%
  - BELOW PAVEMENT AND SIDEWALKS: 98%
  - BELOW LANDSCAPED AREAS: 95%
- AN INDEPENDENT INSPECTION AND TESTING AGENCY TO MONITOR COMPACTION AND CONDUCT DENSITY TESTING DURING INSTALLATION OF ALL GRANULAR MATERIALS.
- SITE SURFACE IS CURRENTLY SITTING LOWER THAN FINISHED SUBGRADE SURFACE. IF THERE IS A DEFICIT OF MATERIAL AVAILABLE WITHIN THE WASHROOM FOOTPRINT, THE CONTRACTOR IS TO LEVEL AND COMPACT AVAILABLE SUBGRADE MATERIAL INSIDE OF WASHROOM FOOTPRINT, AND TOP UP WITH SUITABLE IMPORTED GRAVEL MATERIAL TO ALLOW FLOOR SLAB TO BE COMPLETED.

## FOUNDATIONS

- STRUCTURAL DESIGN IS BASED ON THE GEOTECHNICAL REPORT PREPARED BY WSP CANADA INC., REPORT NUMBER 181-13597-12, DATED JANUARY 21, 2019.
- REFER TO THE GEOTECHNICAL REPORT FOR DETAILED INFORMATION ON GEOTECHNICAL CONDITIONS, FOUNDATION RECOMMENDATIONS, AND FOR ALL EARTHWORK INCLUDING EXCAVATION, BACKFILL AND SUBGRADE PREPARATION.
- ASSUMED FOOTING BEARING RESISTANCE:  
375 kPa AT ULS (ULTIMATE LIMIT STATES DESIGN)
- CONSTRUCT ALL FOOTINGS ON STRATA CAPABLE TO PROVIDE THE BEARING RESISTANCE NOTED, BUT NOT ABOVE THE ELEVATIONS INDICATED ON DRAWINGS.
- STRUCTURAL DRAWINGS SHOW FOOTINGS AT ELEVATIONS WHERE THE REQUIRED BEARING RESISTANCE IS ANTICIPATED. GEOTECHNICAL CONSULTANT TO REVIEW AND APPROVE IN WRITING ALL BEARING SURFACES PRIOR TO CONSTRUCTING FOOTINGS.
- IF THE ASSUMED BEARING RESISTANCE IS NOT OBTAINED AT THE UNDERSIDE OF FOOTING ELEVATION INDICATED ON DRAWINGS, EXTEND EXCAVATION UNTIL COMPETENT SOIL IS REACHED, AND PROVIDE LEAN CONCRETE FILL (OR CONCRETE SAME AS SPECIFIED FOR THE FOOTING) TO UNDERSIDE OF FOOTING. DO NOT DROP DOWELS; MAINTAIN THE SPECIFIED PROJECTION REQUIRED FOR LAPS.
- PROVIDE MIN. 50 (2") DEEP MUD SLAB AS REQUIRED TO PROTECT BOTTOM OF EXCAVATION AND PLACE REBAR, AND IN ALL CASES WHERE RECOMMENDED IN GEOTECHNICAL REPORT OR SHOWN ON DRAWINGS.
- UNLESS OTHERWISE NOTED, THE LONGER DIMENSION OF RECTANGULAR SPREAD FOOTINGS TO BE PARALLEL TO THE LONGER COLUMN DIMENSION (FOR CONCRETE COLUMNS), OR TO COLUMN WEB (FOR STEEL COLUMNS).
- FOR FROST PROTECTION, MINIMUM DISTANCE FROM FINISHED GRADE TO UNDERSIDE OF FOOTING TO BE NOT LESS THAN:
  - AT BUILDING PERIMETER ADJACENT TO HEATED AREAS: 1500mm
  - IN UNHEATED AREAS: 2100mm
- WHERE UNDERSIDES OF PERIMETER WALLS ARE SHOWN SUCH THAT THE REQUIRED FROST PROTECTION INDICATED ABOVE IS NOT PROVIDED, PROVIDE FROST CUSHION BELOW THE FULL LENGTH OF WALLS. REFER TO GEOTECHNICAL REPORT FOR MINIMUM THICKNESS OF THE FROST CUSHION.
- UNLESS OTHERWISE NOTED, LONGER DIMENSION OF RECTANGULAR PIER TO BE PARALLEL TO THE LONGER COLUMN DIMENSION (FOR CONCRETE COLUMNS), OR TO THE COLUMN WEB (FOR STEEL COLUMNS)
- UNLESS OTHERWISE NOTED, CENTRE FOOTINGS AND PIERS UNDER CENTROID OF COLUMNS. WHERE THERE ARE NO COLUMNS ABOVE, CENTER UNDER WALLS OR GRADE BEAMS. FOR LOCATIONS OF PILES AT WALL / GRADE BEAM CORNERS, SEE TC-FDN-18.
- MODULUS OF SUBGRADE REACTION ASSUMED FOR DESIGN OF SLABS ON GRADE IS 15kN/m3. CONSTRUCT SUBGRADE IN ACCORDANCE WITH SOILS REPORT.
- LOCATE ALL EXISTING UNDERGROUND SERVICES PRIOR TO EXCAVATION.

- THE LINE OF SLOPE BETWEEN ADJACENT EXCAVATIONS FOR FOOTINGS OR TRENCHES NOT TO EXCEED A RISE OF 1 IN A RUN OF 1. REFER TO TYPICAL DETAIL TC-FDN-41.
- KEEP EXCAVATION DRAINED AND FREE OF WATER AT ALL TIMES.
- PROTECT FOOTINGS, PIERS, FOUNDATION WALLS, SLABS-ON-GRADE AND ADJACENT SOIL AGAINST FREEZING AND FROST ACTION AT ALL TIMES DURING CONSTRUCTION. DO NOT POUR CONCRETE AGAINST FROZEN EARTH.
- DO NOT USE EARTH FORMS UNLESS APPROVED IN WRITING BY WSP-S AND GEOTECHNICAL CONSULTANT. FOR ELEMENTS APPROVED TO BE CAST AGAINST SOIL, INCREASE FOOTING SIZE SHOWN ON DRAWINGS AS REQUIRED TO OBTAIN 75 (3") CONCRETE COVER AGAINST SOIL.
- UNLESS OTHERWISE NOTED, LAP ALL HORIZONTAL GRADE BEAM REINFORCEMENT WITH CLASS B LAPS. CARRY CONTINUOUSLY THROUGH PIERS AND PILE CAPS WHERE APPLICABLE.
- PLACE ANCHOR RODS AND DOWELS BEFORE CONCRETE IS CAST. USE TEMPLATES TO KEEP IN POSITION.
- UNLESS NOTED OTHERWISE, PROVIDE DRAINAGE WITH WEEPING TILE TIED INTO MECHANICAL DRAINAGE SYSTEM AT ALL BASEMENT WALLS. REFER TO GEOTECHNICAL REPORT FOR FREE DRAINING BACKFILL REQUIREMENTS AND GROUND WATER FLOW.
- FOR ELEMENTS THAT ARE TO BE BACKFILLED ON BOTH SIDES, PLACE BACKFILL SIMULTANEOUSLY ON BOTH SIDES SUCH THAT HEIGHTS DO NOT VARY BY MORE THAN 600 (2'-0") FROM ONE SIDE TO THE OTHER.

## CAST-IN-PLACE CONCRETE

- CONCRETE IS SPECIFIED PER ALTERNATIVE 1 - PERFORMANCE SPECIFICATION, AS OUTLINED IN CSA A23.1. THE CONTRACTOR AND THE CONCRETE SUPPLIER TO MEET ALL CERTIFICATION, DOCUMENTATION, AND QUALITY CONTROL REQUIREMENTS.
- CONTRACTOR AND CONCRETE SUPPLIER TO ENSURE THAT PLASTIC AND HARDENED MIX PROPERTIES MEET SITE REQUIREMENTS FOR PLACING, FINISHING AND THE SPECIFIED PERFORMANCE REQUIREMENTS.
- CONCRETE SUPPLIER TO BE CERTIFIED BY THE ALBERTA READY MIXED CONCRETE ASSOCIATION.
- CEMENT TO BE PORTLAND CEMENT TYPE GU UNLESS NOTED OTHERWISE OR REQUIRED BY EXPOSURE CLASS.
- CONCRETE TO BE NORMAL DENSITY (MIN. 2300 kg/m3) UNLESS NOTED OTHERWISE.
- NOMINAL MAXIMUM SIZE OF COARSE AGGREGATE TO BE 20 (3/4") UNLESS NOTED OTHERWISE.
- UNLESS NOTED OTHERWISE, CONCRETE TO BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:  
SLABS:
  - EXPOSURE CLASS: N
  - MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS: 25 MPa
  - NOMINAL SIZE OF COARSE AGGREGATE: 20 (3/4")
  - AIR CONTENT RANGE: 4%-7%FOUNDATIONS:
  - EXPOSURE CLASS: F2
  - MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS: 25 MPa
  - NOMINAL SIZE OF COARSE AGGREGATE: 20 (3/4")
  - AIR CONTENT RANGE: 4%-7%
- REFER TO CSA A23.1 FOR THE MAXIMUM WATER/CEMENT RATIO, MINIMUM COMPRESSIVE STRENGTH, AIR CONTENT, CURING REQUIREMENTS, CHLORIDE ION PENETRABILITY AND ALTERNATE CEMENT TYPES TO MEET THE REQUIREMENTS FOR THE NOTED EXPOSURE CLASS.
- WHERE REQUIRED BY SPECIFICATIONS, PROVIDE MINIMUM AMOUNT OF SUPPLEMENTAL CEMENTING MATERIALS SPECIFIED FOR THE OVERALL PROJECT.
- DO NOT ADD WATER TO CONCRETE ON SITE.
- CONVEY CONCRETE FROM TRUCK TO FINAL LOCATION BY METHODS WHICH WILL PREVENT SEPARATION OR LOSS OF MATERIAL. MAXIMUM FREE FALL NOT TO EXCEED 1.5m (5'-0"). CONSOLIDATE CONCRETE USING MECHANICAL VIBRATORS.
- PLACE CONCRETE AS CLOSE AS POSSIBLE TO FINAL LOCATION TO AVOID SEGREGATION. VIBRATE ALL CONCRETE.
- PROTECT CONCRETE FROM FREEZING. DO NOT PLACE CONCRETE AGAINST FROZEN GROUND. USE COLD WEATHER CONCRETING METHODS IN ACCORDANCE WITH CSA-A23.1.
- PROTECT CONCRETE FROM EXCESSIVE HEAT AND DRYING. USE HOT WEATHER CONCRETING METHODS IN ACCORDANCE WITH CSA-A23.1.
- CONTRACTOR IS RESPONSIBLE TO PROVIDE HEATING AND HOARDING, IF REQUIRED.
- SLABS
  - DO NOT USE STEEL TROWEL TO FINISH AIR-ENTRAINED CONCRETE.
  - FOR SLABS-ON-GRADE, LOCATE ALL CONDUITS, PIPES, OR HEATING CABLES EMBEDDED IN CONCRETE CLEAR OF THE TOP ONE THIRD OF THE SLAB THICKNESS TO AVOID DAMAGE DURING SAWCUTTING.
  - FOR SLABS TO RECEIVE RESILIENT FLOORING AND OTHER SENSITIVE FLOOR FINISHES, REFER TO SPECIFICATIONS FOR SPECIAL CURING REQUIREMENTS. MONITOR SLAB MOISTURE CONTENT AND DO NOT APPLY FINISHES BEFORE THE MOISTURE CONTENT IS FOUND TO BE WITHIN THE ACCEPTABLE RANGE.
- CONSTRUCTION & CONTROL JOINTS
  - PROVIDE JOINTS WHERE SPECIFIED OR SHOWN ON DRAWINGS. LOCATE SO AS NOT TO IMPAIR THE REQUIRED STRENGTH OF THE STRUCTURE. SUBMIT JOINT LAYOUT FOR WSP-S REVIEW AND APPROVAL A MINIMUM OF 2 WEEKS PRIOR TO POURING CONCRETE. REFER TO TYPICAL DETAILS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
  - UNLESS OTHERWISE NOTED, PROVIDE STANDARD CONTINUOUS 38 x 89 (2x4) FORMED KEYS AT ALL CONSTRUCTION JOINTS. CENTER AT JOINTS AND CHAMFER SIDES.
  - IF A SPECIFIC CONSTRUCTION JOINT DETAIL IS SHOWN ON DRAWINGS, IT CAN NOT BE SUBSTITUTED BY ANY ALTERNATIVE CONSTRUCTION JOINT DETAIL.
  - SLABS ON GRADE: UNLESS NOTED OTHERWISE, PROVIDE CONSTRUCTION JOINTS AT 30m (100ft) MAXIMUM IN BOTH DIRECTIONS, WITH CONTROL JOINTS IN BETWEEN AT 25 TIMES THE SLAB THICKNESS, BUT NOT MORE THAN 4.5 m (15ft). LONGER DIMENSION OF ANY SOG SEGMENT CREATED BY CONSTRUCTION AND CONTROL JOINTS NOT TO EXCEED 1.25 TIMES THE SHORTER DIMENSION OF THE SEGMENT. CONSIDER SLAB DEPRESSIONS AND PITS WHEN PROPOSING LAYOUT, AND SHOW ON LAYOUT DRAWINGS. COMPLETE SAWCUTTING WITHIN 6 TO 18 HOURS OF PLACING CONCRETE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
  - HORIZONTAL CONSTRUCTION JOINTS IN CONCRETE WALLS (OTHER THAN AT UNDERSIDE OF SLABS) ARE NOT PERMITTED, EXCEPT WHERE SHOWN ON THESE DRAWINGS.
  - FOUNDATION WALLS: PROVIDE VERTICAL CONSTRUCTION JOINTS AT 30m (100ft) MAXIMUM.

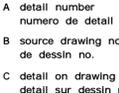
## LEGEND

DRAWING LIST	
DRAWING No	DRAWING NAME
S100	GENERAL NOTES
S110	TYPICAL DETAILS
S111	TYPICAL AND PROJECT DETAILS
S112	TYPICAL DETAILS
S200	FOUNDATION, MAIN FLOOR PLAN AND SECTIONS



No.	Date/Date	Description/Description	Drawn by Dessine par	Approved Approuve
11	2022.08.08	ISSUED FOR TENDER	RDP	EML
10	2022.08.03	ISSUED FOR REVIEW	RDP	EML
9	2022.02.09	ISSUED FOR FINAL REVIEW	RDP	EML
8	2022.02.01	ISSUED FOR PC REVIEW	RDP	EML
7	2021.11.03	ISSUED FOR PC REVIEW	RDP	EML
6	2021.10.13	ISSUED FOR PC REVIEW	RDP	EML
5	2021.10.01	ISSUED FOR PC REVIEW	RDP	EML
4	2021.09.03	ISSUED FOR PC REVIEW	RDP	EML
3	2021.08.13	ISSUED FOR PC REVIEW	RDP	EML
2	2020.02.14	ISSUED FOR 65% REVIEW	RDP	EML
1	2019.08.20	ISSUED FOR REVIEW	RDP	EML

Revision / Revision



Consultant's Name Nom de l'expert-consult	Eng. Stamp Sceau de l'ingénieur
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	Public Works and Government Services Canada	Travaux publics et Services gouvernementaux Canada
	Client Services Team Southern Alberta Operations Branch	Le Client Entretien L'Equipe Alberta Meridionale Branche d'Operations

# Canada

Client/client	Parks Canada Agency	L'Agence Parcs Canada
	Western and Northern Region	Ouest et Nord du Canada

Project title/Titre du projet
<b>CASTLE MOUNTAIN CAMPGROUND (PHASE 2)</b>
<b>BANFF NATIONAL PARK, ALABETA</b>

Surveyed by/Arpente par <b>PARKS CANADA</b>	Drawn by/Dessine par RDP	Date/Date 08AUG2022
Designed by/Concept par KAV	Reviewed by/Revise par EML	Scale/Echelle NTS

PWGSC Project Manager/Administrateur de Projets TPSGC <b>MATTHEW WHALEN</b>	
Client Acceptance/Acceptation du client	Approved by/Approuve par

Park Responsible Officer/Agent Responsable	PWGSC Project Manager/Administrateur de Projets TPSGC
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Project No./No. du projet 19M-01812-00	Asset No./No. du bien	Sheet No./ No. de la feuille <b>16</b> 33
Drawing Reference No./No. de reference du dessin <b>S100</b>		

## CONCRETE REINFORCEMENT

- REINFORCEMENT TO CONFORM TO THE FOLLOWING STANDARDS:  
DEFORMED BARS - CSA G30.18, GRADE 40R, UNLESS GRADE 500R / 500W IS INDICATED ON DRAWINGS. WHERE REBAR ARE SHOWN TO BE WELDED USE ONLY GRADE 400W/500W.  
WELDED WIRE FABRIC - ASTM A1064/A1064M, YIELD STRENGTH 450 MPA, SUPPLIED IN FLAT SHEETS ONLY.
- ALL REINFORCING BAR SIZES ARE METRIC; "M" IS NOT NECESSARILY MARKED AFTER A BAR SIZE. FOR EXAMPLE, 10-15B NOTED ON PLAN INDICATES 10 BARS OF 15M DIAMETER, PLACED AT BOTTOM.
- BARS MARKED CONTINUOUS TO BE TERMINATED IN STANDARD HOOKS AT ENDS AND SPLICED USING CLASS B LAPS. FOR LAP LENGTHS AND DEVELOPMENT LENGTHS, REFER TO TYPICAL DETAILS TC-REINF-01.
- ALL REBAR HOOKS TO BE STANDARD LENGTH 90° OR 180° HOOKS. REBAR LENGTHS LISTED ON DRAWINGS DO NOT INCLUDE THE HOOK LENGTH.
- UNLESS A SPECIFIC STIRRUP SHAPE IS INDICATED ON PLANS OR SCHEDULES, ALL STIRRUPS TO BE CLOSED HOOPS.
- WHERE TWO BARS OF DIFFERENT SIZE ARE LAPPED IN TENSION, SPLICE LENGTH TO BE EQUAL TO THE SMALLER BAR'S TENSION LAP SPLICE, OR TO THE LARGER BAR'S TENSION DEVELOPMENT LENGTH, WHICHEVER IS LONGER.
- WHERE TWO BARS OF DIFFERENT SIZE ARE LAPPED IN COMPRESSION, SPLICE LENGTH TO BE EQUAL TO THE SMALLER BAR'S COMPRESSION LAP SPLICE, OR TO THE LARGER BAR'S COMPRESSION DEVELOPMENT LENGTH, WHICHEVER IS LONGER.
- PROVIDE ADDITIONAL SUPPORT BARS AS REQUIRED TO ADEQUATELY SUPPORT AND SECURE ALL REINFORCEMENT AND PREVENT MOVEMENT WHEN PLACING CONCRETE.
- PROVIDE SUFFICIENT CHAIRS TO REINFORCING TO MAINTAIN SPECIFIED CONCRETE COVER.
- ALL REINFORCING TO BE CLEAN, FREE OF LOOSE SCALE, OIL, DIRT, RUST, AND ANY OTHER FOREIGN COATING THAT AFFECT BONDING CAPACITY.
- MINIMUM CLEAR SPACING BETWEEN ADJACENT BARS TO BE AT LEAST 1.4 TIMES THE BAR DIAMETER OR 1.4 TIMES THE NOMINAL MAXIMUM SIZE OF THE COARSE AGGREGATE, WHICHEVER IS MORE.
- UNLESS NOTED OTHERWISE ON DRAWINGS MINIMUM CONCRETE COVER TO PRINCIPAL REINFORCEMENT TO BE AS FOLLOWS:

EXPOSURE CLASS:	N/F2
SURFACES CAST AGAINST GROUND	75 (3")
FOOTINGS	≤ 35M: 40 (1-5/8")
SLAB ON GRADE - TOP COVER	≤ 25M: 40 (1-5/8")
SLAB ON GRADE NOT CAST AGAINST GROUND - BOTTOM COVER	
(CAST ON MUD SLAB, VAPOUR BARRIER, RIGID INSULATION)	≤ 30M: 60 (2-3/8")
FOUNDATION WALLS	≤ 25M: 40 (1-5/8")

- NOTES:
- COVERS SHOWN ABOVE ASSUME 20 (3/4") MAXIMUM NOMINAL SIZE OF CONCRETE AGGREGATE (Øa). REFER TO CONCRETE MIX DESIGN TABLE IN CAST-IN-PLACE CONCRETE NOTES FOR CONCRETE WITH LARGER AGGREGATE SIZE, AND INCREASE COVER TO REINFORCING CLOSEST TO THE SURFACE BY 1.0x Øa FOR 2.0x Øa FOR "C1" CONCRETE.
  - FOR BARS WITH 90° HOOKS, MINIMUM COVER NOT TO BE LESS THAN SHOWN ON TC-REINF-01.
  - INCREASE THE COVER SPECIFIED FOR PT REINFORCING TO ACCOMMODATE THE MINIMUM COVER TO THE MILD STEEL CROSSING OVER IT.
- SLABS
- UNLESS NOTED OTHERWISE, DO NOT ELIMINATE OR CUT REINFORCEMENT TO ACCOMMODATE MECHANICAL AND ELECTRICAL SLEEVES, OPENINGS OR HARDWARE. SPREAD REINFORCING AROUND SLEEVES.

## POST-INSTALLED ANCHORS AND DOWELS

- UNLESS OTHERWISE NOTED, PROVIDE STRUCTURAL ANCHORS AS FOLLOWS:
  - WHERE DRILLED CONCRETE ANCHORS (DCA) OR DRILLED MASONRY ANCHORS (DMA) ARE NOTED ON DRAWINGS, PROVIDE HILTI KWIK BOLT - TZ2 EXPANSION ANCHORS OR APPROVED EQUIVALENT. LOCATE DMA MIN. 35 (1-3/8") FROM ANY VERTICAL MORTAR JOINT. DO NOT INSTALL DMA INTO HOLLOW MASONRY, ADVISE WSP-S IF HOLLOW MASONRY IS FOUND ON SITE WHERE DMA HAVE BEEN SPECIFIED.
  - WHERE ADHESIVE CONCRETE ANCHORS (ACA) ARE NOTED ON DRAWINGS, PROVIDE HILTI HIT-HY 200 ADHESIVE ANCHORING SYSTEM WITH HILTI HIT-Z ANCHOR RODS OR APPROVED EQUIVALENT.
  - WHERE ADHESIVE MASONRY ANCHORS (AMA) ARE NOTED ON DRAWINGS, PROVIDE HILTI HIT-HY 270 ADHESIVE ANCHORING SYSTEM WITH HAS-V THREADED RODS OR APPROVED EQUIVALENT.
  - WHERE REBAR DOWEL ANCHORS (RDA) ARE NOTED ON DRAWINGS, PROVIDE HILTI HIT-RE 500 V3 (FOR ANCHORAGE TO CONCRETE) OR HILTI HIT-HY 270 (FOR ANCHORAGE TO SOLID OR GROUTED MASONRY) ADHESIVE ANCHORING SYSTEM INSTALLED USING HILTI SAFESSET HOLLOW DRILL BIT TECHNOLOGY OR APPROVED EQUIVALENT.
  - WHERE HOLLOW MASONRY ANCHORS (HMA) ARE NOTED ON DRAWINGS, PROVIDE HILTI HIT-HY 270 ADHESIVE ANCHORING SYSTEM WITH HIT-SC MESH SLEEVE AND HAS-V THREADED RODS OR APPROVED EQUIVALENT.
- IN ORDER TO BE ACCEPTED, ANY ALTERNATIVES TO THE HILTI PRODUCTS SPECIFIED ABOVE MUST BE ACCOMPANIED BY TESTING DATA AND ICC-ES REPORTS DEMONSTRATING THAT THEIR PERFORMANCE (INCLUDING SUITABILITY FOR SEISMIC APPLICATIONS, CAPACITY IN CRACKED CONCRETE AND CAPACITY REDUCTIONS DUE TO SPACING AND EDGE DISTANCE) IS EQUIVALENT TO THE PERFORMANCE OF HILTI PRODUCTS. IN ADDITION, THAT PERFORMANCE MUST BE ACHIEVED USING INSTALLATION TOOLS AND PROCEDURES WHICH DO NOT REQUIRE DRILLED HOLES TO BE CLEANED PRIOR TO ANCHOR INSTALLATION.
- ANCHORS LOCATED OUTSIDE THE BUILDING ENVELOPE'S VAPOUR BARRIER TO BE STAINLESS STEEL.
- CONCRETE TO BE MINIMUM 28 DAYS OLD AT THE TIME OF ANCHOR INSTALLATION.
- USE DRILLING AND INSTALLATION TOOLS AND PROCEDURES PER MANUFACTURER'S RECOMMENDATIONS. DO NOT CORE DRILL UNLESS SPECIFICALLY NOTED ON DRAWINGS. HOLE DIAMETERS NOT TO EXCEED THOSE REQUIRED BY MANUFACTURER.
- WHERE CORE DRILLING IS SPECIFIED, CLEAN AND ROUGHEN HOLES PER MANUFACTURER'S RECOMMENDATION.
- ARRANGE FOR THE ANCHOR MANUFACTURER TO CONDUCT ON SITE TRAINING FOR INSTALLATION OF ALL THE PRODUCTS SPECIFIED, AND FOR ALL CONDITIONS ENCOUNTERED (E.G. HORIZONTAL, INCLINED, OVERHEAD). ALL INSTALLERS MUST COMPLETE THE SUPPLIER CERTIFIED INSTALLER TRAINING PROGRAM. SUBMIT COPIES OF COMPLETION CERTIFICATES FOR WSP-S RECORD.
- ARRANGE FOR A MANUFACTURER'S TECHNICAL REPRESENTATIVE TO BE PRESENT DURING INSTALLATION OF FIRST FEW ANCHORS OF EACH SIZE AND TYPE. SUBMIT SITE REPORTS INDICATING ANCHOR TYPES AND SIZES INSTALLED, LOCATIONS AND INSTALLERS' NAMES.
- ANCHOR AND DOWEL CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS AND THEIR PROXIMITY TO CONCRETE AND MASONRY EDGES; THEREFORE, ALL ANCHORS MUST BE INSTALLED WITH CLEARANCES AND EDGE DISTANCES INDICATED ON DRAWINGS
- UNLESS CORE DRILLING IS SPECIFIED ON DRAWINGS, DO NOT CUT REINFORCEMENT TO ACCOMMODATE DRILLED ANCHORS AND DOWELS. SCAN THE STRUCTURE TO LOCATE REINFORCEMENT PRIOR TO FABRICATING STRUCTURAL STEEL FASTENED BY DRILLED ANCHORS.

- WHEN OBSTRUCTIONS PREVENT DRILLING HOLES IN SPECIFIED LOCATIONS TO THE REQUIRED DEPTH, RELOCATE AT NO EXTRA COST TO THE CONTRACT. OBTAIN WSP-S APPROVAL OF NEW LOCATIONS BEFORE DRILLING; MODIFICATIONS TO CONNECTED MEMBERS AND ADDITIONAL ANCHORS / DOWELS MAY BE REQUIRED. FILL ABANDONED HOLES WHICH ARE CLOSER THAN 3 TIMES THE HOLE DIAMETER FROM THE RELOCATED ANCHORS WITH HILTI HY-200 ADHESIVE OR WITH 30 MPa GROUT. DO NOT TIGHTEN ANCHORS UNTIL THE FILLER HAS FULLY CURED.
  - UNLESS OTHERWISE NOTED ON DRAWINGS, EMBEDMENT LENGTHS FOR POST-INSTALLED HILTI ANCHORS TO BE:
- | ANCHOR SIZE | EXPANSION ANCHORS   |                    | ADHESIVE ANCHORS                |                                     |  |
|-------------|---------------------|--------------------|---------------------------------|-------------------------------------|--|
|             | INTO CONCRETE (DCA) | INTO MASONRY (DMA) | INTO CONCRETE (ACA)             | INTO SOLID OR GROUTED MASONRY (AMA) | INTO HOLLOW MASONRY (HMA)  |
|             | KB-TZ2              |                    | HIT-Z ROD + HIT HY-200 ADHESIVE | HAS-V ROD + HIT HY-270 ADHESIVE     | HAS-V ROD + HIT-SC SCREEN + HIT HY-270 ADHESIVE<br>HOLLOW CONCRETE BLOCK<br>HOLLOW BRICK |
| 10 (3/8")   | 64 (2-1/2")         |                    |                                 | 86 (3-3/8")                         | 50 (2") 80 (3-1/8")  |
| 12 (1/2")   | 83 (3-1/4")         |                    |                                 | 114 (4-1/2")                        | 50 (2") 80 (3-1/8")  |
| 16 (5/8")   | 102 (4")            |                    |                                 | 143 (5-5/8")                        | - -  |
| 19 (3/4")   | 121 (4-3/4")        |                    |                                 | 171 (6-3/4")                        | - -  |
- NOTES:
- ALL EMBEDMENT LENGTHS SHOWN ARE EFFECTIVE EMBEDMENT LENGTHS; FOR REQUIRED HOLE DEPTHS FOLLOW HILTI RECOMMENDATIONS.
  - SEE DRAWINGS FOR EMBEDMENT LENGTHS OF REBAR DOWEL ANCHORS (RDA).
- IF ANCHORS OTHER THAN THE HILTI PRODUCTS SPECIFIED ABOVE ARE APPROVED TO BE USED, ANCHOR SUPPLIER TO ESTABLISH THE EMBEDMENT LENGTHS REQUIRED TO ACHIEVE PERFORMANCE EQUIVALENT TO THE HILTI PRODUCTS EMBEDDED AS INDICATED IN THE TABLE ABOVE.
  - DO NOT BEND POST INSTALLED DOWELS AND RODS AFTER INSTALLATION.
  - DO NOT WELD TO PLATES FASTENED WITH ADHESIVE ANCHORS AFTER THE ADHESIVE IS PLACED.

## WOOD FRAMING

- CONFORM TO CSA 086.
- MATERIALS:
  - LUMBER: GRADE MARKED TO CONFORM TO CSA 0141; KILN DRIED; SPF NO. 2 OR BETTER; MOISTURE CONTENT NOT TO EXCEED 19% AT TIME OF MANUFACTURE AND INSTALLATION; UNLESS NOTED OTHERWISE.
  - PLYWOOD SHEATHING: TO CSA 0151 SOFTWOOD SPRUCE; OR CSA 0121 DOUGLAS FIR
  - PARALLEL STRAND LUMBER (PSL): MINIMUM GRADE 2.0E, 2900Fb (Fb=37MPa) OR BETTER
  - LAMINATED STRAND LUMBER (LSL): MINIMUM GRADE 1.3E, 1700Fb (Fb=29.7MPa) OR BETTER
  - NAILS: COMMON ROUND STEEL WIRE NAILS
  - WOOD BOLTS: ASTM A307. ALL ANCHOR BOLTS TO BE STAINLESS STEEL OR GALVANIZED TO ACCOMMODATE PRESSURE TREATED SILL PLATE.
  - LAG SCREWS: ANSII/ASME B18.12.1. MACHINE THREADED (NOT CAST-THREADED). PREDRILL PRIOR TO LAG SCREW INSTALLATIONS.
  - WOOD CONNECTORS: MANUFACTURED BY SIMPSON STRONG - TIE COMPANY OR APPROVED EQUIVALENT. INSTALL IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
  - HOT DIP GALVANIZING: ASTM A123/A123M, MINIMUM ZINC COATING OF 600 g/m². FOR ALL EXTERIOR STEEL TIMBER CONNECTION COMPONENTS, UNLESS NOTED OTHERWISE.
- UNLESS NOTED OTHERWISE, ALL WOOD FRAMING DETAILS TO BE IN ACCORDANCE WITH PART 9 OF THE REFERENCED BUILDING CODE.
- PROTECT ALL WOOD PRODUCTS FROM THE ELEMENTS AS REQUIRED TO MAINTAIN THEIR INTEGRITY.
- PROVIDE ALL ERECTION BRACING REQUIRED TO KEEP THE STRUCTURE STABLE AND IN ALIGNMENT DURING CONSTRUCTION.
- SUBSTITUTION OF COMMON NAILS WITH POWER DRIVEN NAILS OF THE SAME LENGTH AND DIAMETER IS ACCEPTABLE. SUBSTITUTION OF POWER DRIVEN NAILS OF SMALLER DIAMETER MUST BE APPROVED IN WRITING BY WSP-S PRIOR TO USE. POWER DRIVEN NAILS NOT TO BE OVER-DRIVEN INTO WOOD OR SHEATHING.
- MEMBER SIZES INDICATED ON DRAWINGS ARE A MINIMUM AND ARE TO BE INCREASED AS REQUIRED TO MEET DESIGN FOLLOWING THE ORIGINAL DESIGN INTENT.
- PROPOSED NOTCHING AND DRILLING OF FRAMING MEMBERS MUST BE SUBMITTED TO THE ENGINEER RESPONSIBLE FOR THOSE FRAMING MEMBERS FOR THEIR REVIEW. SIGNIFICANT NOTCHES CONFORMING TO PART 9 MAY BE REJECTED IF THEY COMPROMISE THE STRUCTURAL INTEGRITY.
- ALL COMPONENTS OF BUILT UP MEMBERS TO BE CONTINUOUS FOR FULL SPAN. DO NOT SPLICE OR USE BUTT JOINTS.
- UNLESS NOTED OTHERWISE, BUILT-UP TIMBER COLUMNS TO BE FASTENED AS PER TYPICAL DETAIL TW-FAST-01.
- UNLESS NOTED OTHERWISE ON PLAN OR BY FLOOR/ROOF SYSTEM ENGINEER, BUILT-UP BEAMS TO BE FASTENED AS PER TYPICAL DETAIL TW-FAST-02.
- CARRY ALL POSTS DOWN TO FOUNDATION. PROVIDE SOLID VERTICAL BLOCKING OF MATCHING SIZE OR LARGER AND IN LINE WITH POSTS AT FLOOR LEVELS.
- USE JOISTS HANGERS WHERE JOISTS FRAME INTO SIDES OF SUPPORTS.
- PROVIDE SOLID BLOCKING BETWEEN JOISTS AT INTERIOR SUPPORTS, AND PROVIDE CROSS-BRIDGING BETWEEN JOISTS AT MAX. 2100 (7'-0") ON CENTRE ALONG LENGTH OF SPAN, UNLESS NOTED OTHERWISE.
- ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED WOOD. REFER TO PLANS FOR ADDITIONAL REQUIREMENTS.
- PROVIDE SOLID WOOD BACKING FOR ALL INTERIOR FIXTURE MOUNTING. IE. 3/4" PLYWOOD OR DIMENSIONAL LUMBER FASTENED TO ADJACENT STUDS.
- PREFABRICATED WOOD ROOF TRUSSES:
  - TRUSSES TO BE SUPPLIED BY A MEMBER OF THE CANADIAN WOOD TRUSS ASSOCIATION.
  - DESIGN TO THE REFERENCED BUILDING CODE FOR LOADS GIVEN ON THE STRUCTURAL DRAWINGS.
  - DESIGN FOR THE MAXIMUM DEFLECTIONS NOTED IN PLAN NOTES.
  - COMPLY WITH THE TRUSS PLATE INSTITUTE OF CANADA (TPIC) DESIGN SPECIFICATIONS FOR LIGHT METAL PLATE CONNECTED WOOD TRUSSES. SUBMIT SHOP DRAWINGS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE PLACE WHERE THE PROJECT IS LOCATED PRIOR TO FABRICATION. SHOP DRAWINGS TO INCLUDE MATERIAL GRADES, CALCULATIONS, LAYOUT DRAWINGS, BEARINGS AND ANCHORAGE DETAILS. CONNECTION DETAILS BETWEEN TRUSSES AND THEIR SUPPORTS, AND TEMPORARY AND PERMANENT BRACING AND BRIDGING DETAILS AFFECTING THE STRUCTURAL CAPACITY OF THE TRUSSES.

- ALIGN WEB PATTERNS ON ADJACENT TRUSSES FOR MECHANICAL DUCT ALIGNMENTS, ETC. UNLESS NOTED OTHERWISE.
- DESIGN TRUSSES TO SUPPORT ALL OVERBUILD FRAMING AS REQUIRED TO ACCOMMODATE THE ROOF GEOMETRY. ROOF SHEATHING NOT TO BE INTERRUPTED BY OVERBUILD CONSTRUCTION.
- VAULTED TRUSSES NOT TO RELY ON LOAD BEARING WALLS TO RESTRAIN HORIZONTAL SPREADING OF THE TRUSS.
- PROVIDE A STAMPED LETTER FROM THE ENGINEER RESPONSIBLE FOR TRUSS DESIGN CONFIRMING THAT THE TRUSS CALCULATIONS (INCLUDING LOAD INPUTS INTO THE PROGRAM USED FOR THE TRUSS DESIGN) HAVE BEEN REVIEWED.

## LEGEND



No.	Date/Date	Description/Description	Drawn by Dessine par	Approved Approuve
11	2022.08.08	ISSUED FOR TENDER	RDP	EML
10	2022.08.03	ISSUED FOR REVIEW	RDP	EML
9	2022.02.09	ISSUED FOR FINAL REVIEW	RDP	EML
8	2022.02.01	ISSUED FOR PC REVIEW	RDP	EML
7	2021.11.03	ISSUED FOR PC REVIEW	RDP	EML
6	2021.10.13	ISSUED FOR PC REVIEW	RDP	EML
5	2021.10.01	ISSUED FOR PC REVIEW	RDP	EML
4	2021.09.03	ISSUED FOR PC REVIEW	RDP	EML
3	2021.08.13	ISSUED FOR PC REVIEW	RDP	EML
2	2020.02.14	ISSUED FOR 65% REVIEW	RDP	EML
1	2019.08.20	ISSUED FOR REVIEW	RDP	EML

Revision / Revision



A detail number  
numero de detail  
B source drawing no.  
de dessin no.  
C detail on drawing no.  
detail sur dessin no.



Consultant's Name Nom de l'expert- conseil	Eng. Stamp Sceau de l'ingenieur
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	Public Works and Government Services Canada	Travaux publics et Services gouvernementaux Canada
	Client Services Team Southern Alberta Operations Branch	Le Client Entretien l'Equipe Alberta Meridional Branche d'Operations

# Canada

Client/client	Parks Canada Agency	L'Agence Parcs Canada
	Western and Northern Region	Ouest et Nord du Canada

Project title/Titre du projet

## CASTLE MOUNTAIN CAMPGROUND (PHASE 2)

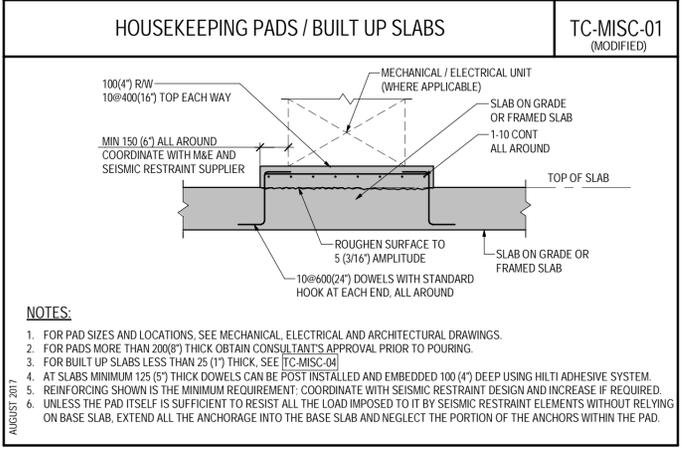
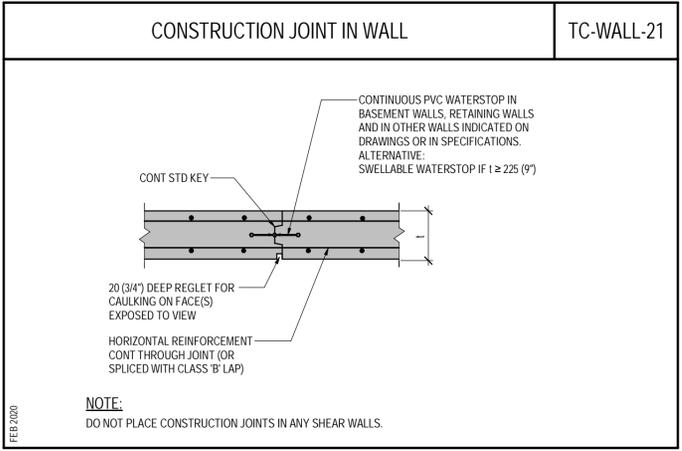
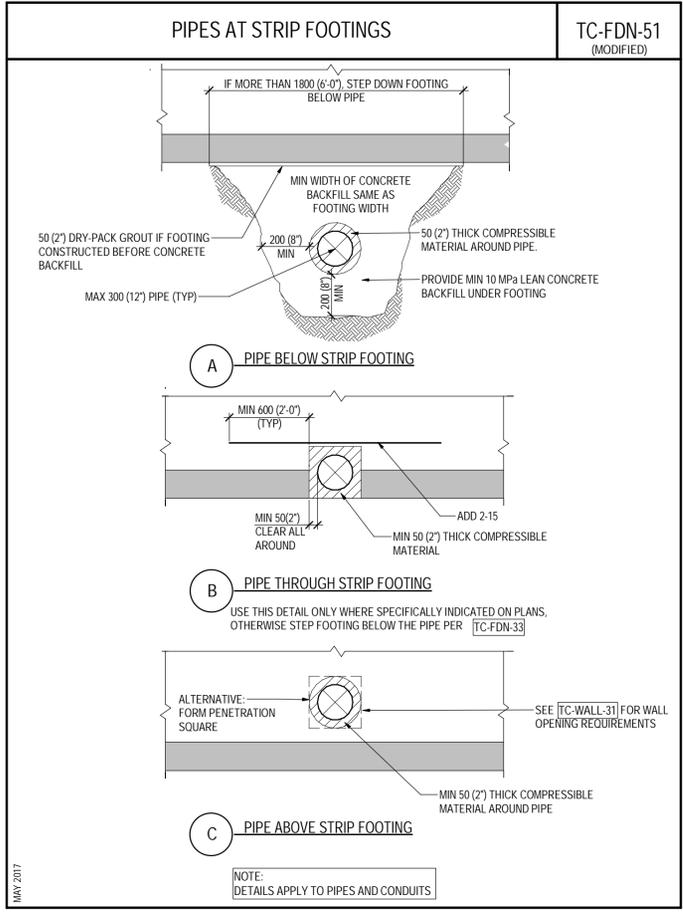
BANFF NATIONAL PARK, ALABETA

Drawing title/Titre du dessin

## GENERAL NOTES

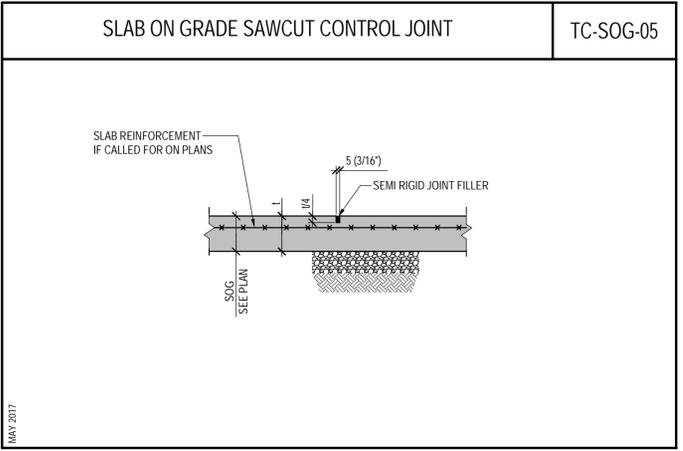
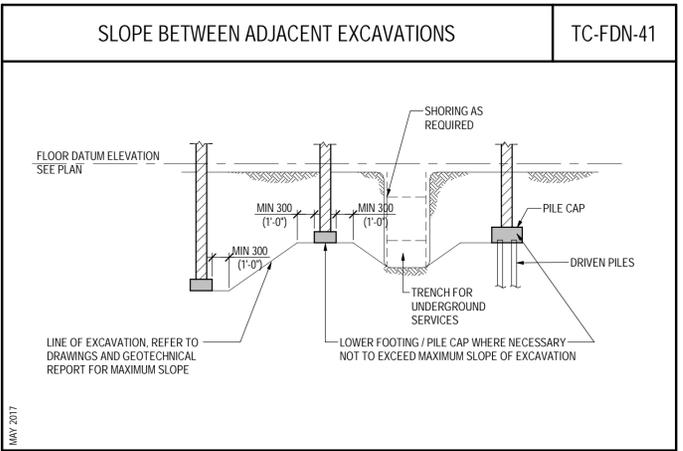
Surveyed by/Arpente par PARKS CANADA	Drawn by/Dessine par RDP	Date/Date 08AUG2022
Designed by/Concept par KAV	Reviewed by/Revise par EML	Scale/Echelle NTS
PWGSC Project Manager/Administrateur de Projets TPSGC MATTHEW WHALEN		
Client Acceptance/Acceptation du client		Approved by/Approuve par
Park Responsible Officer/Agent Responsable		PWGSC Project Manager/Administrateur de Projets TPSGC
Project No./No. du projet 19M-01812-00	Asset No./No. du bien	Sheet No./ No. de la feuille 17
Drawing Reference No./No. de reference du dessin S101		33

DRAWING ABBREVIATIONS				TG-ABBR-01			
ABUT	ABUTMENT	DP	DEEP	td	TENSION DEVELOPMENT LENGTH OF REBAR	SPEC	SPECIFICATIONS
ACA	ADHESIVE CONCRETE ANCHORS	DWG	DRAWING	tdc	COMPRESSION DEVELOPMENT LENGTH OF REBAR	SPP	SPRUCE PINE FIR
ADL	ADDITIONAL	DWL	DOWEL	tdh	TENSION EMBEDMENT LENGTH WITH STANDARD HOOK	SR	STUD RAIL
AEC	ARCHITECTURALLY EXPOSED CONCRETE	EA	EACH	LE	LEFT END	SS	STAINLESS STEEL
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL	ECR	EPOXY COATED REINFORCEMENT	LG	LONG	ST	STRAIGHT
AIFB	ASPHALT IMPREGNATED FIBERBOARD	EBF	ECCENTRICALLY BRACED FRAME	LL	LOWER LEVEL	STD	STANDARD
ALT	ALTERNATE	EE	EACH END	LLH	LONG LEG HORIZONTAL	STE	SHEAR TRANSFER ELEMENTS
AMA	ADHESIVE MASONRY ANCHORS	EF	EACH FACE	LLV	LONG LEG VERTICAL	STG	STAGGERED
ARCH	ARCHITECTURAL	EJ, EXP JT	EXPANSION JOINT	LNG	LONGITUDINAL	STR	STIRRUP
A-ROD	ANCHOR ROD	ELECT	ELECTRICAL	LSH	LONG SIDE HORIZONTAL	STIF	STIFFENER
ASPH	ASPHALT	EL	ELEVATION	LP	LOW POINT	STL	STEEL
AVG	AVERAGE	ELEV	ELEVATOR	LWT	LIGHT WEIGHT	STR	SEISMIC STRAP
B, BOT	BOTTOM	EMBED	EMBEDMENT	MAX	MAXIMUM	STRUCT	STRUCTURAL
BOF	BOTTOM OF FOOTING	ENG	ENGINEER	MC	MOMENT CONNECTION (→ ←)	SWT	SELF WEIGHT
BOP	BOTTOM OF PILE	EOD	EDGE OF DECK	MECH	MECHANICAL	SYMM	SYMMETRICAL
BCE	BOTTOM CHORD EXTENSION	EOS	EDGE OF SLAB	MEZZ	MEZZANINE	t	THICKNESS
BCP	BORED CONCRETE PILE	ES	EACH SIDE	MF	MOMENT FRAME	TB	TRANSFER BEAM
BEW	BOTTOM EACH WAY	EQ	EQUAL	MIN	MINIMUM	TBB	TOP BASIC BARS
BLL	BOTTOM LOWER LAYER	EW	EACH WAY	MISC	MISCELLANEOUS	T	TOP
BP	BASE PLATE	EX, EXIST	EXISTING	MJ	MOVEMENT JOINT	TDL	TENSION DEVELOPMENT LENGTH
BRG	BEARING	EXT	EXTERIOR	ML	MIDDLE LAYER	TEW	TOP EACH WAY
BRP	BEARING PLATE	FC	FUTURE COLUMN	NF	NEAR FACE	T&G	TONGUE AND GROOVE
BSMT	BASEMENT	FD	FLOOR DRAIN	NIC	NOT IN CONTRACT	TJ	TIE JOIST
BUL	BOTTOM UPPER LAYER	FF	FAR FACE	NOM	NOMINAL	TLL	TOP LOWER LAYER
BUP	BOTTOM OF UNDERPINNING	FIN	FINISHED	NTS	NOT TO SCALE	T/O	TOP OF
C	CAMBER	FL	FLOOR	O/C	ON CENTER	TOB	TOP OF (GRADE) BEAM
CA	COLUMN ABOVE ONLY (NO COLUMN BELOW)	FMC	FULL MOMENT CONNECTION (FOR FULL MOMENT CAPACITY)	OD	OUTSIDE DIAMETER	TOC	TOP OF CONCRETE
CANT	CANTILEVER	FND	FOUNDATION	OF	OUTSIDE FACE	TOF	TOP OF FOOTING
CAT	CATEGORY (FOR AESS)	FTG	FOOTING	OPP	OPOSITE	TOS	TOP OF STEEL
CB	COLUMN BELOW ONLY (NO COLUMN ABOVE)	GA	GAUGE	OWSJ	OPEN WEB STEEL JOIST	TOP	TOP OF PILE
CDL	COMPRESSION DEVELOPMENT LENGTH	GALV	GALVANIZED	PAF	POWDER ACTUATED FASTENERS	TOW	TOP OF WALL
CEL	CUT OFF ELEVATION FOR PILES	GB	GRADE BEAM	PC	PILE CAP	TPC	TOP OF PILE CAP
CIP	CAST-IN PLACE	GEN	GENERAL	PL	PLATE	TRS	TRANSVERSE
CJ	CONTROL JOINT	GL	GRIDLINE	PROJ	PROJECT, PROJECTION	TS	TENSION SPURCE 'A'
CLR	CLEAR	GRD	GROUND	PS	PIPE SUPPORT	TSB	TENSION SPURCE 'B'
CL	CENTRELINE	h	TOTAL THICKNESS, SLAB THICKNESS AWAY FROM DROP PANEL	PT	POST TENSIONED	TUL	TOP UPPER LAYER
CMU	CONCRETE MASONRY UNITS	hd	SLAB OVERALL THICKNESS AT DROP PANEL	PTL	PRESSURE TREATED LUMBER	TYP	TYPICAL
CNT	STEEL DECK CORE NOMINAL THICKNESS	H, HORIZ	HORIZONTAL	R	RADIUS	U-BAR	'U' SHAPED BAR
COMP	COMPOSITE	(H)	HIGH BEAM	RA	ROOF ANCHOR	UDB	UNIFORMLY DISTRIBUTED BARS
COL	COLUMN	HC	HOLLOWCORE	RD	ROOF DRAIN	UIF	UNDERSIDE OF FOOTING
CONC	CONCRETE	HD	HOLD DOWN	RE	RIGHT END	UL	UPPER LEVEL
CONT	CONTINUOUS	HDG	HOT DIPPED GALVANIZED	REIN	REINFORCEMENT	ULS	ULTIMATE LIMIT STATE
CONT'D	CONTINUED	HEF	HORIZONTAL EACH FACE	REM	REMAINDER	US	UNDERSIDE
CONST. J.	CONSTRUCTION JOINT	HIF	HORIZONTAL INSIDE FACE	REQD	REQUIRED	UN, UNO	UNLESS NOTED OTHERWISE
CP	CONNECTION PLATE	HH	HOOK EACH END	REV	REVISION	UPT	UPTURNED
CPL	CAP PLATE	HIC	HORIZONTAL IN CENTRE	RF	RIGID FRAME	V, VERT	VERTICAL VERTICALS
CS	COMPRESSION LAP SPLICE	HOF	HORIZONTAL OUTSIDE FACE	RL	REFERENCE LINE	VB	VERTICAL BRACING
COV	CLEAR COVER	HP	HIGH POINT	RSS	RETAINED SOIL SYSTEM	VEF	VERTICAL EACH FACE
CAW	COMPLETE WITH, CONNECT WITH	HSC	HORIZONTAL SLOTTED CONNECTION	RTU	ROOF TRUSS UNIT	VIF	VERTICAL INSIDE FACE
CWS	(SEE TO GENERAL NOTES)	IBI	INTEGRITY BARS INTERIOR	RET. WALL	RETAINING WALL	VIC	VERTICAL IN CENTRE
CLS	(SEE TO GENERAL NOTES)	IBE	INTEGRITY BARS EXTERIOR	RW	REINFORCE WITH	VOF	VERTICAL OUTSIDE FACE
DCA	DRILLED CONCRETE ANCHOR, SEE GENERAL NOTES	IBA	INTEGRITY BARS ADDED	r.w.	REQUIRED WITH	VSC	VERTICALLY SLOTTED CONNECTION
DEMO	DEMOLITION	IBB	INTEGRITY BOTTOM BARS (THROUGHOUT)	SDF	STEP DOWN FOOTING (IN DIRECTION OF ARROW)	WB	WALL BELOW
DET	DETAIL	ID	INSIDE DIAMETER	SEC	SECTION	WC	WIND COLUMN
D.FIR-L	DOUGLAS FIR-LARCH	INT	INTERIOR	SIM	SIMILAR	w/o	WITHOUT
DIA, Ø	DIAMETER	IF	INSIDE FACE	SJ	STEEL JOIST	WP	WORK POINT
DIV	DIVIDER BEAM	JG	JOIST GIRDER	SL	SLAB SHELF ANGLE	WSP-S	WSP STRUCTURAL
DMA	DRILLED MASONRY ANCHOR, SEE GENERAL NOTES	KB	KNEE BRACING	SLBB	SHORT LEG BACK TO BACK	WWF	WELDED WIRE FABRIC
DN	DOWN	(L)	LOW BEAM	SLS	SERVICEABILITY LIMIT STATE	ZRP	ZINC RICH PAINT
DNW	DOUBLE NUT AND WASHER	2-L	BACK TO BACK ANGLES	SOG	SLAB-ON-GRADE	Yc	CONCRETE DENSITY



### LOADING ABBREVIATIONS

At	FACTORED AXIAL LOAD IN kN (- INDICATES TENSION, - INDICATES COMPRESSION)
Ct	FACTORED COMPRESSION IN kN
fc	COMPRESSIVE STRENGTH OF CONCRETE, IN MPa
fy	YIELD STRENGTH IN MPa
Mt	FACTORED MOMENT IN kN.m
Mx	FACTORED MOMENT ABOUT X-X (STRONG) AXES IN kN.m
My	FACTORED MOMENT ABOUT Y-Y (WEAK) AXES IN kN.m
MPL	MASONRY PARTITION LOAD IN kN/m
MT	FACTORED TORSION IN kN.m
Rt	FACTORED VERTICAL REACTION IN kN
RHt	FACTORED HORIZONTAL REACTION IN kN
P	SPECIFIED (UNFACTORED) POINT LOAD IN kN
PI	FACTORED POINT LOAD IN kN
Vt	FACTORED SHEAR IN kN
Tt	FACTORED TENSION IN kN



### LEGEND

**PERMIT TO PRACTICE**  
WSP CANADA INC.

PROFESSIONAL ENGINEER  
No. 67237  
2022-08-08  
PERMIT NUMBER: P007641  
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

No.	Date/Date	Description/Description	Drawn by Dessine par	Approved Approuve
11	2022.08.08	ISSUED FOR TENDER	RDP	EML
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9	2022.02.09	ISSUED FOR FINAL REVIEW	RDP	EML
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2	2020.02.14	ISSUED FOR 65% REVIEW	RDP	EML
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Revision / Revision

A detail number  
numero de detail

B source drawing no.  
de dessin no.

C detail on drawing no.  
detail sur dessin no.

**WSP**

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Public Works and  
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Southern Alberta  
Operations Branch

Travaux publics et  
Services gouvernementaux  
Canada

Le Client Entretien l'Equipe  
Alberta Meridional  
Branche d'Operations

# Canada

Client/client

**Parks Canada**  
Agency

Western and  
Northern Region

L'Agence Parcs  
Canada

Ouest et Nord  
du Canada

Project title/Titre du projet

## CASTLE MOUNTAIN CAMPGROUND (PHASE 2)

BANFF NATIONAL PARK, ALABETA

Drawing title/Titre du dessin

## TYPICAL DETAILS

Surveyed by/Arpente par <b>PARKS CANADA</b>	Drawn by/Dessine par RDP	Date/Date 08AUG2022
Designed by/Concept par KAV	Reviewed by/Revise par EML	Scale/Echelle NTS
PWGSC Project Manager/Administrateur de Projets TPSGC MATTHEW WHALEN		
Client Acceptance/Acceptation du client		Approved by/Approuve par
Park Responsible Officer/Agent Responsable		PWGSC Project Manager/Administrateur de Projets TPSGC
Project No./No. du projet 19M-01812-00	Asset No./No. du bien	Sheet No./ No. de la feuille <b>18</b>
Drawing Reference No./No. de reference du dessin <b>S110</b>		33

### CONCRETE WALL CORNERS AND INTERSECTIONS

TC-WALL-01

**NOTES:**

- IF WALLS ARE NOT PERPENDICULAR TO EACH OTHER, ALL BAR BENDS TO MATCH THE WALL INTERSECTION ANGLE.
- FOR SHEAR WALL CORNER AND INTERSECTION DETAILS, SEE TC-WALL-41 TO TC-WALL-43

### TENSION DEVELOPMENT LENGTHS AND LAP SPLICES FOR BARS GRADE 400 MPa

TC-REINF-01

#### TENSION DEVELOPMENT LENGTHS $l_d$ FOR GRADE 400 INDIVIDUAL BLACK BAR IN NORMAL DENSITY CONCRETE

BAR SIZE	$f_c = 25$		$f_c = 30$		$f_c = 35$		$f_c = 40$		$f_c = 50$		$f_c = 60$	
	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP
10	300 (12)	380 (15)	300 (12)	350 (14)	300 (12)	320 (13)	300 (12)	300 (12)	300 (12)	300 (12)	300 (12)	300 (12)
15	440 (17)	570 (23)	400 (16)	520 (21)	370 (14)	480 (19)	350 (14)	450 (18)	310 (12)	400 (16)	300 (12)	370 (14)
20	580 (23)	750 (30)	530 (21)	690 (27)	490 (19)	640 (25)	460 (18)	600 (24)	410 (16)	530 (21)	380 (15)	490 (19)
25	900 (36)	1170 (46)	830 (32)	1070 (42)	770 (30)	990 (39)	720 (28)	930 (37)	640 (25)	830 (33)	590 (23)	760 (30)
30	1080 (43)	1410 (55)	990 (39)	1290 (51)	920 (36)	1190 (47)	860 (34)	1110 (44)	770 (30)	1000 (39)	700 (28)	910 (36)
35	1260 (50)	1640 (65)	1160 (46)	1500 (60)	1070 (42)	1390 (55)	1000 (40)	1300 (52)	900 (35)	1160 (46)	820 (32)	1060 (42)
45	1620 (64)	2110 (83)	1480 (59)	1930 (76)	1370 (54)	1780 (71)	1290 (51)	1670 (66)	1150 (46)	1490 (59)	1050 (42)	1360 (54)
55	1980 (78)	2580 (102)	1810 (72)	2350 (93)	1680 (66)	2180 (86)	1570 (62)	2040 (81)	1410 (56)	1820 (72)	1280 (51)	1670 (66)

#### CLASS B TENSION LAP SPLICE LENGTHS FOR GRADE 400 INDIVIDUAL BLACK BAR IN NORMAL DENSITY CONCRETE

BAR SIZE	$f_c = 25$		$f_c = 30$		$f_c = 35$		$f_c = 40$		$f_c = 50$		$f_c = 60$	
	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP
10	390 (16)	490 (19)	390 (16)	450 (18)	390 (16)	420 (17)	390 (16)	390 (16)	390 (16)	390 (16)	390 (16)	390 (16)
15	570 (23)	740 (29)	520 (21)	670 (27)	480 (19)	620 (25)	450 (18)	580 (23)	400 (16)	520 (20)	390 (16)	480 (19)
20	750 (29)	980 (39)	690 (27)	890 (35)	640 (25)	830 (33)	600 (24)	770 (30)	530 (21)	690 (27)	490 (19)	630 (25)
25	1170 (46)	1530 (61)	1070 (42)	1390 (55)	990 (39)	1290 (51)	930 (37)	1210 (48)	830 (33)	1080 (43)	760 (30)	990 (39)
30	1410 (56)	1830 (72)	1290 (51)	1670 (66)	1190 (47)	1550 (61)	1110 (44)	1450 (57)	1000 (39)	1300 (51)	910 (36)	1180 (46)
35	1640 (65)	2130 (84)	1500 (60)	1950 (77)	1390 (55)	1800 (72)	1300 (52)	1690 (67)	1160 (46)	1510 (59)	1060 (42)	1380 (54)

**FOR EPOXY BARS MULTIPLY VALUES IN TABLE BY 1.5 EXCEPT THAT A MULTIPLIER OF 1.2 CAN BE USED WHEN CLEAR COVER IS MORE THAN 3x BAR DIAMETER AND CLEAR SPACING BETWEEN BARS IS MORE THAN 6x BAR DIAMETER.**  
**FOR SEMI LOW DENSITY CONCRETE (1850- $f_c$  ≤ 2150 kg/m<sup>3</sup>) MULTIPLY VALUES IN TABLE BY 1.2. FOR LOW DENSITY CONCRETE ( $f_c$  ≤ 1850 kg/m<sup>3</sup>) MULTIPLY VALUES IN TABLE BY 1.3.**  
**FOR BUNDLED BARS, MULTIPLY VALUES IN TABLE BY 1.1 FOR A TWO BAR BUNDLE, 1.2 FOR A THREE BAR BUNDLE AND 1.33 FOR A FOUR BAR BUNDLE.**  
**\*TOP\* MEANS THAT THERE IS MORE THAN 300 (12") OF CONCRETE BELOW, AND LESS THAN 300 (12") OF CONCRETE ABOVE THE HORIZONTAL BAR WITHIN THE INDIVIDUAL CONCRETE POUR. ALL HORIZONTAL BARS IN WALLS TO BE CONSIDERED "TOP".**  
**ALL VERTICAL BARS ARE CONSIDERED "BOTTOM"**

#### MINIMUM TENSION EMBEDMENT LENGTHS WITH STANDARD END HOOKS $l_{db}$ FOR GRADE 400 BAR IN NORMAL WEIGHT CONCRETE

BAR SIZE	$f_c = 25$	$f_c = 30$	$f_c = 35$	$f_c = 40$	$f_c = 50$	$f_c = 60$
10	150 (6")	150 (6")	150 (6")	150 (6")	150 (6")	150 (6")
15	210 (8")	200 (8")	180 (7")	170 (7")	150 (6")	150 (6")
20	280 (11")	260 (10")	240 (10")	230 (9")	190 (8")	190 (8")
25	350 (14")	320 (13")	300 (12")	280 (11")	240 (9")	230 (9")
30	420 (17")	390 (16")	360 (14")	340 (14")	290 (11")	280 (11")
35	490 (20")	450 (18")	420 (17")	390 (16")	340 (13")	320 (13")

**FOR EPOXY BARS MULTIPLY VALUES IN TABLE BY 1.5 EXCEPT THAT A MULTIPLIER OF 1.2 CAN BE USED WHEN CLEAR COVER IS MORE THAN 3x BAR DIAMETER AND CLEAR SPACING BETWEEN BARS IS MORE THAN 6x BAR DIAMETER.**  
**FOR LOW DENSITY CONCRETE ( $f_c$  ≤ 1850 kg/m<sup>3</sup>) MULTIPLY VALUES IN TABLE BY 1.3**  
**FOR HOOKS WITH COVER LESS THAN SHOWN IN DETAILS 'A', 'B' AND 'C' MULTIPLY VALUES IN TABLE BY 1.5**

**FOR VALUES NOT PROVIDED IN TABLES INTERPOLATE BETWEEN THE NEAREST VALUES PROVIDED.**

### COMPRESSION DEVELOPMENT LENGTHS AND LAP SPLICES FOR BARS GRADE 400 MPa

TC-REINF-02

#### COMPRESSION DEVELOPMENT LENGTH $l_{dc}$ FOR GRADE 400 INDIVIDUAL BARS

BAR SIZE	$f_c = 25$	$f_c = 30$ AND HIGHER
10	220 (9")	200 (8")
15	310 (12")	280 (11")
20	370 (15")	350 (14")
25	480 (19")	440 (17")
30	570 (23")	530 (21")
35	690 (27")	630 (25")
45	864 (34")	790 (31")
55	1070 (42")	970 (38")

**FOR BUNDLED BARS, MULTIPLY VALUES IN TABLE BY 1.1 FOR A TWO BAR BUNDLE, 1.2 FOR A THREE BAR BUNDLE AND 1.33 FOR A FOUR BAR BUNDLE.**

#### COMPRESSION LAP SPLICE FOR BAR 400 INDIVIDUAL BARS

BAR SIZE	STANDARD LAP
10	300 (12")
15	440 (17")
20	590 (23")
25	730 (29")
30	880 (35")
35	1030 (41")

### SILL PLATE ANCHORAGE

TW-WALL-01 (MODIFIED)

**NOTE:** ANCHOR BOLTS TO BE STAINLESS STEEL OR GALVANIZED TO ACCOMMODATE PRESSURE TREATED SILL PLATE

### SILL PLATE ANCHORAGE AT HOLD-DOWN

TW-WALL-02 (MODIFIED)

**NOTE:** ANCHOR BOLTS TO BE STAINLESS STEEL OR GALVANIZED TO ACCOMMODATE PRESSURE TREATED SILL PLATE

### SHEAR WALL ELEVATION WITH HOLD-DOWNS

TW-WALL-21

**REFER TO SHEAR WALL SCHEDULE**

### RADON PIT SECTION

PD1

**SECTION**

- REINFORCED CONCRETE SLAB ON GRADE. REFER TO STRUCTURAL DETAILS.
- SOIL GAS IMPERMEABLE VAPOR SUPPRESSION MEMBRANE.
- VOID SPACE (UNDERSLAB GAS SUCTION PIT).
- COMPACTED SOIL GAS PERMEABLE GRANULAR FILL.
- GEOTEXTILE FABRIC, (IF REQUIRED)

**SECTION**

**NOTES:**

- ONE UNDERSLAB GAS SUCTION PIT REQUIRED PER 100,000 SQ FT OF FLOOR AREA.
- COORDINATE FINAL LOCATIONS OF PIT(S) WITH OWNER PRIOR TO FLOOR SLAB INSTALLATION.

### LEGEND

PERMIT TO PRACTICE  
WSP CANADA INC.

PROFESSIONAL ENGINEER  
Alberta (Licence No. 67237)  
2022-08-08  
PERMIT NUMBER: P007641

No.	Date/Date	Description/Description	Drawn by Dessine par	Approved Approuve
11	2022.08.08	ISSUED FOR TENDER	RDP	EML
10	2022.08.03	ISSUED FOR REVIEW	RDP	EML
9	2022.02.09	ISSUED FOR FINAL REVIEW	RDP	EML
8	2022.02.01	ISSUED FOR PC REVIEW	RDP	EML
7	2021.11.03	ISSUED FOR PC REVIEW	RDP	EML
6	2021.10.13	ISSUED FOR PC REVIEW	RDP	EML
5	2021.10.01	ISSUED FOR PC REVIEW	RDP	EML
4	2021.09.03	ISSUED FOR PC REVIEW	RDP	EML
3	2021.08.13	ISSUED FOR PC REVIEW	RDP	EML
2	2020.02.14	ISSUED FOR 65% REVIEW	RDP	EML
1	2019.08.20	ISSUED FOR REVIEW	RDP	EML

Revision / Revision

A C	A B C
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Consultant's Name: WSP Canada Inc. Eng. Stamp: [Stamp]  
 Nom de l'expert-conseil: WSP Canada Inc. Eng. Stamp: [Stamp]

**WSP**

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Travaux publics et Services gouvernementaux Canada

Le Client Entretien l'Equipe Alberta Meridional Branche d'Operations

Canada

Client/client: Parks Canada Agency / L'Agence Parcs Canada  
 Western and Northern Region / Ouest et Nord du Canada

## CASTLE MOUNTAIN CAMPGROUND (PHASE 2)

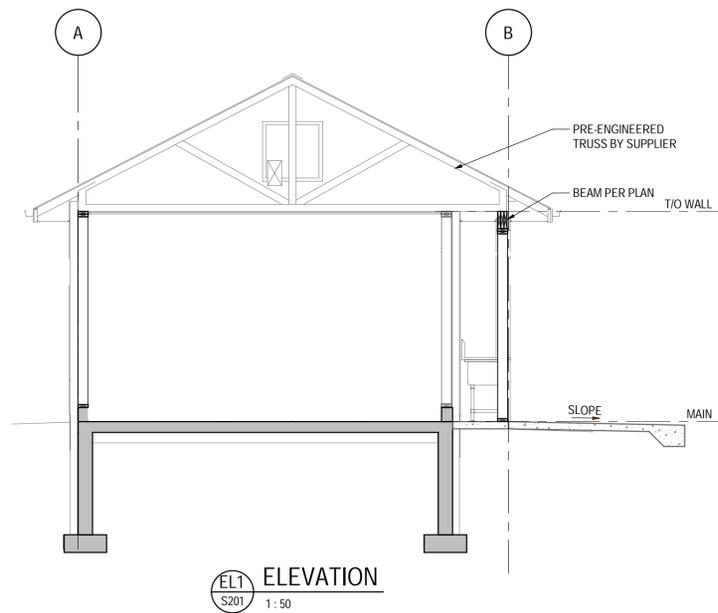
BANFF NATIONAL PARK, ALABETA

### TYPICAL AND PROJECT DETAILS

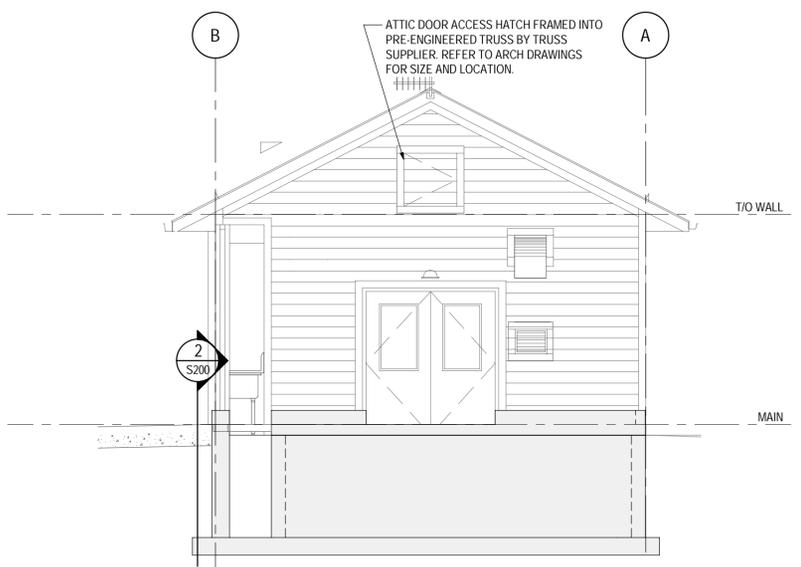
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Designed by/Concept par: KAV	Reviewed by/Revise par: EML	Scale/Echelle: NTS
PWGSC Project Manager/Administrateur de Projets TPSGC: MATTHEW WHALEN		
Client Acceptance/Acceptation du client: Approved by/Approuve par		
Project No./No. du projet: 19M-01812-00    Asset No./No. du bien:    Sheet No./No. de la feuille: 19		
Drawing Reference No./No. de reference du dessin: S111		



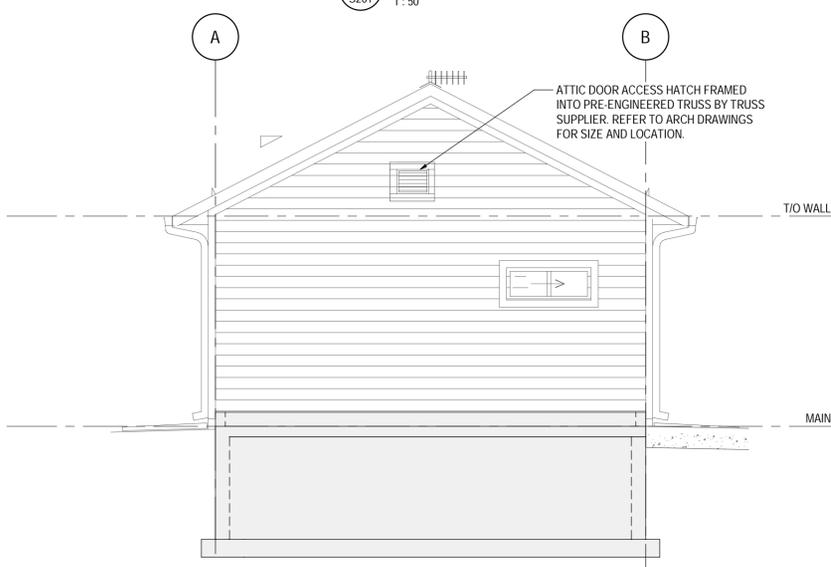




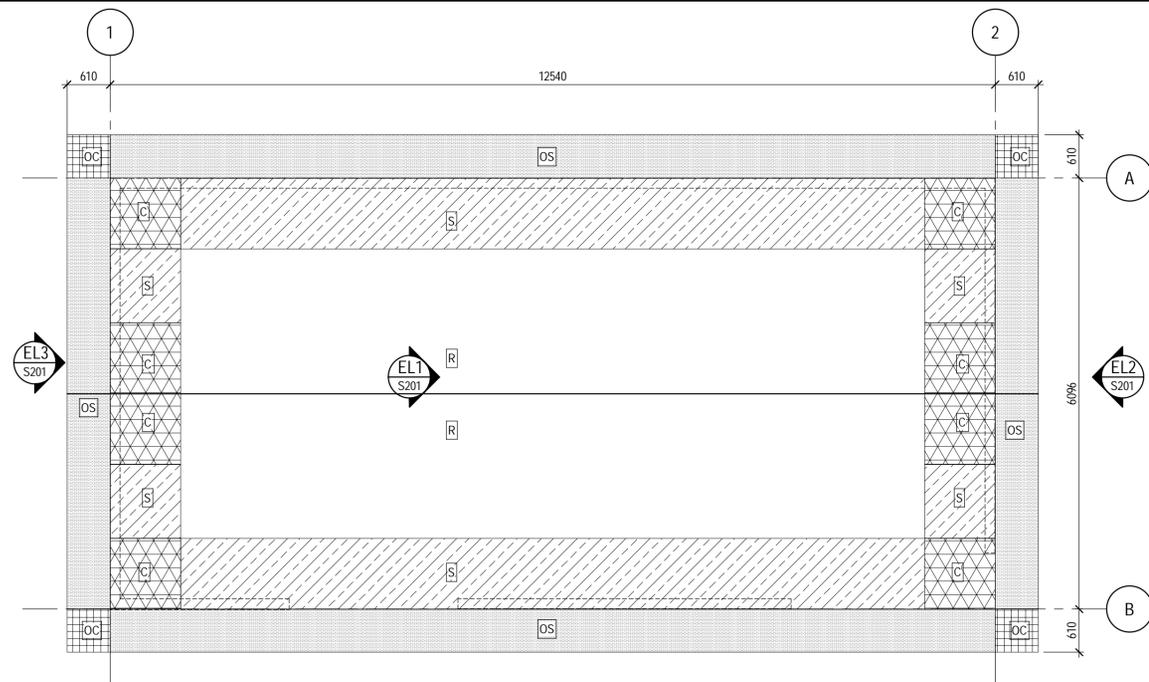
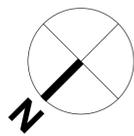
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S201 1:50



EL2 ELEVATION  
S201 1:50



EL3 ELEVATION  
S201 1:50



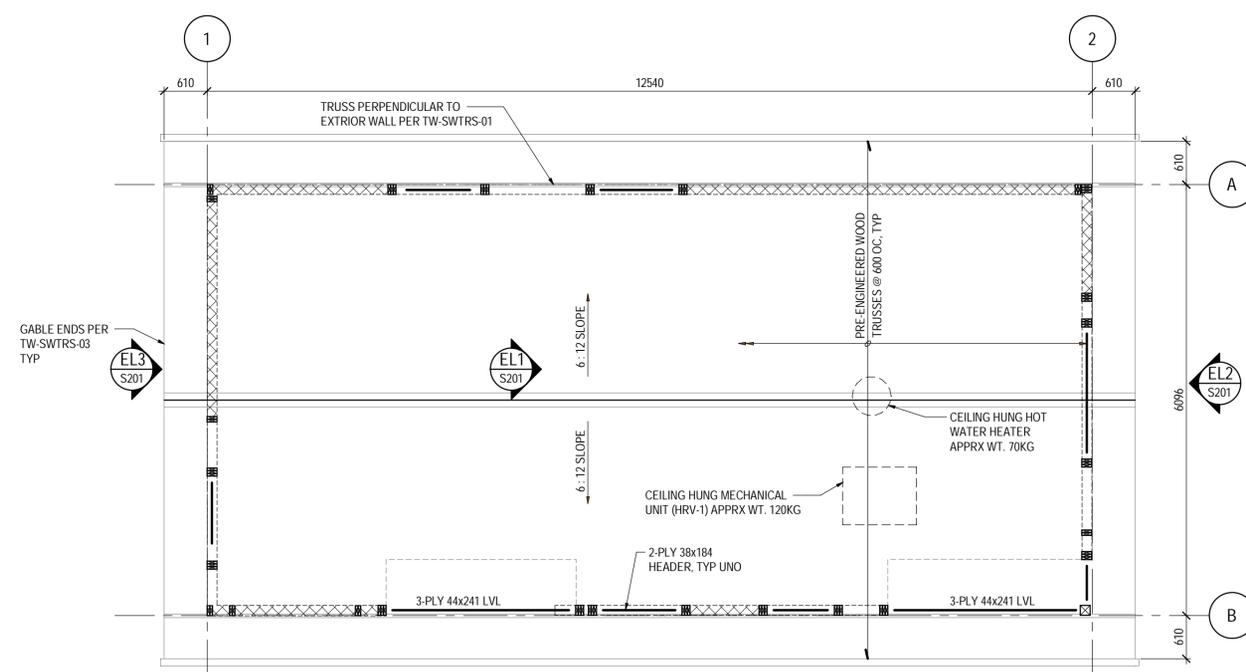
ROOF - WIND LOAD SCHEDULE  
1:50

WIND LOAD SCHEDULE			
PATTERN	AREA	SUCTION	PRESSURE
R		0.92	0.5
S		1.25	0.5
C		1.66	0.5
OS		1.40	0.65
OC		2.60	0.65

NOTES:  
 1. WIND LOADS SHOWN ARE UNFACTORED IN kPa. LOAD FACTORS SHALL BE USED IN ACCORDANCE WITH THE 2019 NBC (AE).  
 2. WIND LOADS APPLY TO STRUCTURAL COMPONENTS AND CLADDING.  
 3. REFER TO GENERAL NOTES DESIGN DATA FOR IMPORTANCE FACTOR RELATED TO WIND.

ROOF FRAMING PLAN NOTES

- SEE GENERAL NOTES ON S100. SEE TYPICAL DETAILS ON S110 TO S112.
- UNLESS NOTED OTHERWISE ON PLAN, DESIGN LOADS ARE:  
 LIVE LOAD (SNOW) = 4.5 kN/m<sup>2</sup> MINIMUM AND 1.3kN APPLIED ANYWHERE ALONG THE LENGTH OF THE TRUSS  
 SUPERIMPOSED DEAD LOAD = 0.76 kN/m<sup>2</sup>  
 SELF WEIGHT = 0.25 kN/m<sup>2</sup>  
 WIND LOAD = REFER TO WIND LOAD SCHEDULE
- TRIM SIDES OF OPENINGS IN SHEATHING WITH 2x8 TRIMMERS. COORDINATE OPENINGS WITH ARCHITECTURAL/MECHANICAL/ELECTRICAL DRAWINGS.
- PROVIDE SOLID BLOCKING BETWEEN TRUSSES AT SUPPORTS AND WHERE INDICATED ON SECTION DETAILS.
- PROVIDE 16 (5/8") TONGUE AND GROOVE PLYWOOD UNBLOCKED ROOF SHEATHING. GLUE AND NAIL TO SUPPORTING FRAMING WITH 64 (2 1/2") LONG NAILS @ 150 (6") CENTRES AT ALL PANEL EDGES AND @ 300 (6") CENTRES AT INTERMEDIATE SUPPORTS. SHEATHING TO BE ORIENTED WITH LONG DIMENSION PERPENDICULAR TO ROOF JOISTS.
- DESIGN ENGINEERED ROOF TRUSSES AND OTHER ENGINEERED ROOF FRAMING FOR SNOW ACCUMULATION AND/OR DRIFT LOAD PATTERNS IN ACCORDANCE WITH THE NATIONAL BUILDING CODE, OR AS NOTED ON PLAN, WHICHEVER IS MORE STRINGENT.
- PRE-ENGINEERED WOOD TRUSSES:
  - "GT" ON PLAN DENOTES GIRDER TRUSS.
  - DESIGN ROOF TRUSSES FOR LOADS INDICATED ABOVE, PLUS 1.3kN SPECIFIED POINT LOAD APPLIED ANYWHERE ALONG THEIR LENGTH, UNLESS NOTED OTHERWISE ON PLAN. MINIMUM BOTTOM CHORD LOADING IS AS FOLLOWS:  
 SDL = 0.5kPa + SWT  
 LL = 0.5 kPa (THIS IS IN ADDITION TO TOP CHORD LL INDICATED ABOVE)
  - DESIGN ROOF TRUSSES FOR A MAXIMUM TOTAL LOAD DEFLECTION OF = L/240, AND A MAXIMUM LIVE LOAD DEFLECTION = L/360.
  - "DRAG TRUSS" ON PLAN DENOTES WOOD TRUSS LOCATED ON OR IN-LINE WITH WOOD SHEAR WALL BELOW. REFER TO SECTIONS FOR CONNECTIONS AND DETAILS. DESIGN TRUSSES TO TRANSFER FACTORED AXIAL FORCE INDICATED ON PLAN FROM ROOF SHEATHING TO DOUBLE TOP PLATE ON WALL. PROVIDE TRUSS BLOCKING AS PER TYPICAL DETAILS.
  - TRUSS MANUFACTURER TO PROVIDE TRUSS PANEL BLOCKING ABOVE WALLS WHERE INDICATED ON PLAN. TRUSS BLOCKING TO BE DESIGNED TO TRANSFER FORCES NOTED ON PLAN FROM ROOF SHEATHING TO SHEAR WALL BELOW.



ROOF FRAMING PLAN  
1:50

LEGEND

PERMIT TO PRACTICE  
 WSP CANADA INC.  
 FOR SIGNATURE: [Signature]  
 FOR REG. NO.: 67237  
 DATE: 2022-08-08  
 PERMIT NUMBER: P007641  
 The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

No.	Date/Date	Description/Description	Drawn by Dessine par	Approved Approuve
9	2022.06.16	ISSUED FOR PCA REVIEW	RDP	EML
8	2022.02.09	ISSUED FOR FINAL REVIEW	RDP	EML
7	2022.02.01	ISSUED FOR PC REVIEW	RDP	EML
6	2021.11.03	ISSUED FOR PC REVIEW	RDP	EML
5	2021.10.01	ISSUED FOR PC REVIEW	RDP	EML
4	2021.09.17	ISSUED FOR PC REVIEW	RDP	EML
3	2021.08.13	ISSUED FOR PC REVIEW	RDP	EML
2	2020.02.14	ISSUED FOR 65% REVIEW	RDP	EML
1	2019.08.20	ISSUED FOR REVIEW	RDP	EML

Revision / Revision

A	detail number numero de detail
B	source drawing no. de dessin no.
C	detail on drawing no. detail sur dessin no.

Consultant's Name  
Nom de l'expert-conseil

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Eng. Stamp  
Sceau de l'ingénieur

Public Works and Government Services Canada  
Travaux publics et Services gouvernementaux Canada

Client Services Team  
Southern Alberta Operations Branch

Le Client Entretien l'Equipe Alberta Meridional Branche d'Operations

Client/client

Parks Canada Agency  
L'Agence Parcs Canada

Western and Northern Region  
Ouest et Nord du Canada

Project title/Titre du projet

CASTLE MOUNTAIN CAMPGROUND (PHASE 2)

BANFF NATIONAL PARK, ALABETA

Drawing title/Titre du dessin

ROOF PLAN AND ROOF LOADING LEGEND

Surveyed by/Arpente par PARKS CANADA	Drawn by/Dessine par RDP	Date/Date 08AUG2022
Designed by/Concept par KAV	Reviewed by/Revise par EML	Scale/Echelle AS SHOWN

PWGSC Project Manager/Administrateur de Projets TPSGC  
MATTHEW WHALEN

Client Acceptance/Acceptation du client  
Approved by/Approuve par

Project No./No. du projet  
19M-01812-00

Asset No./No. du bien

Sheet No./No. de la feuille  
22

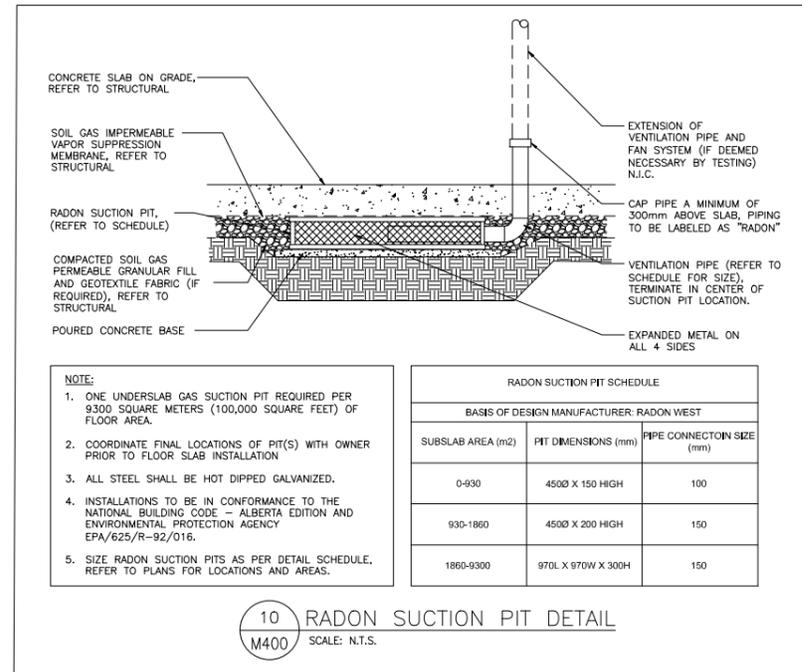
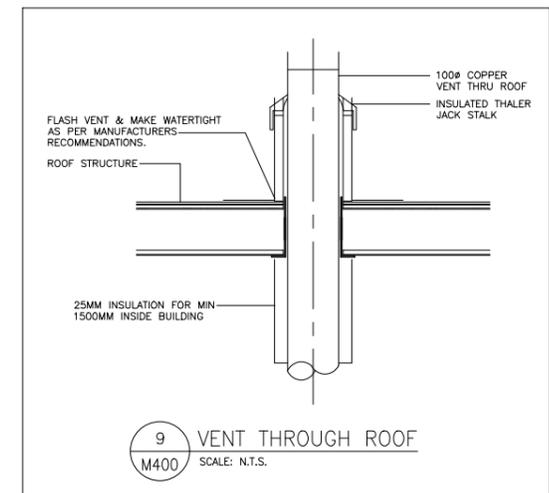
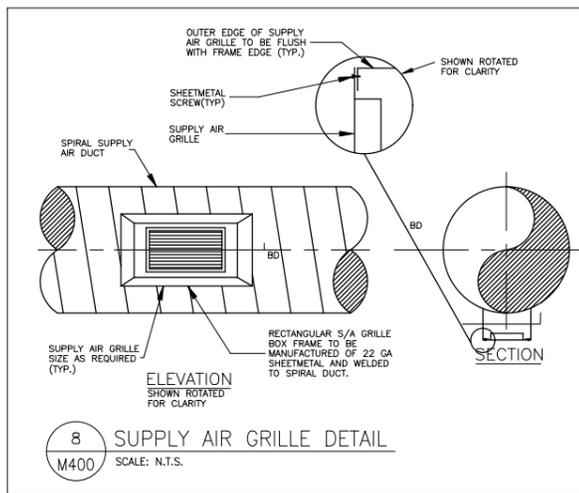
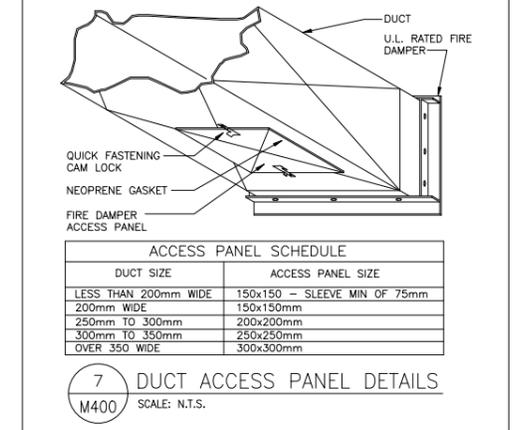
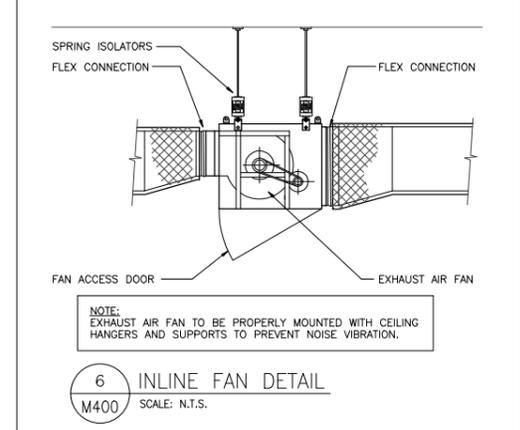
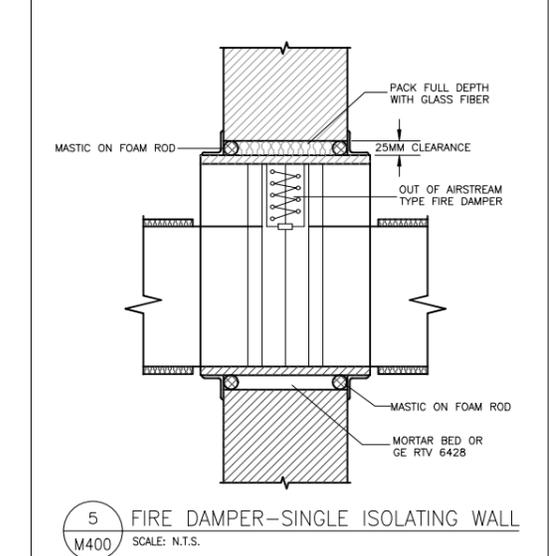
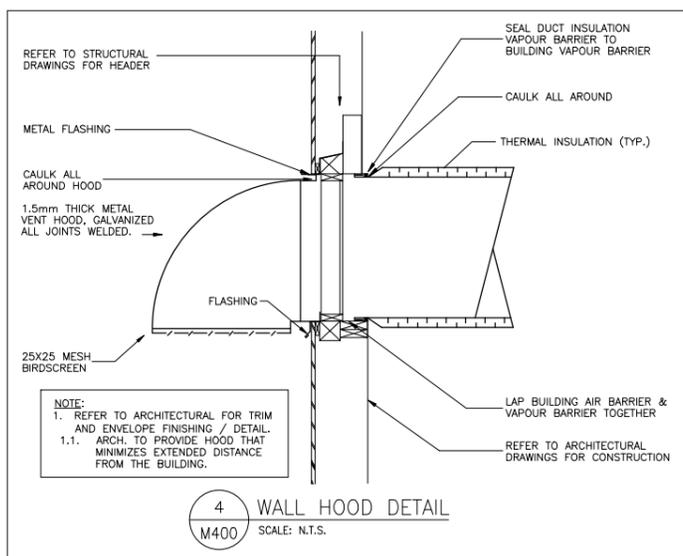
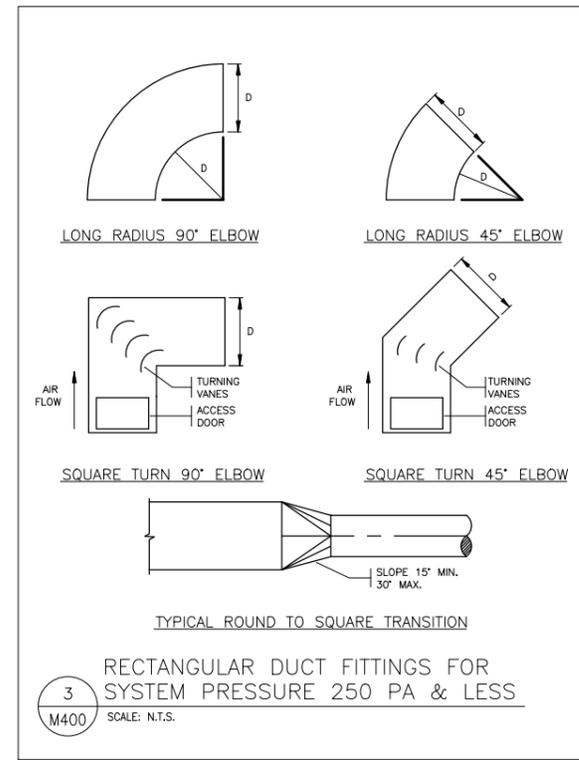
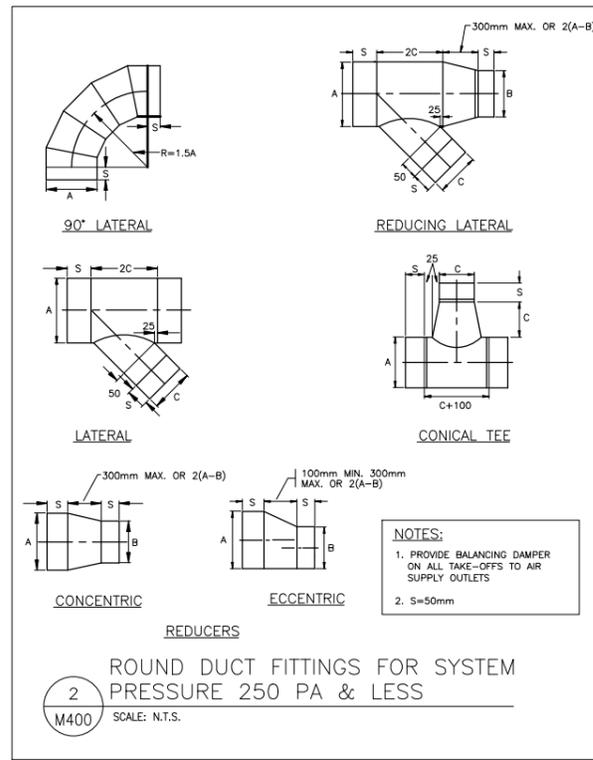
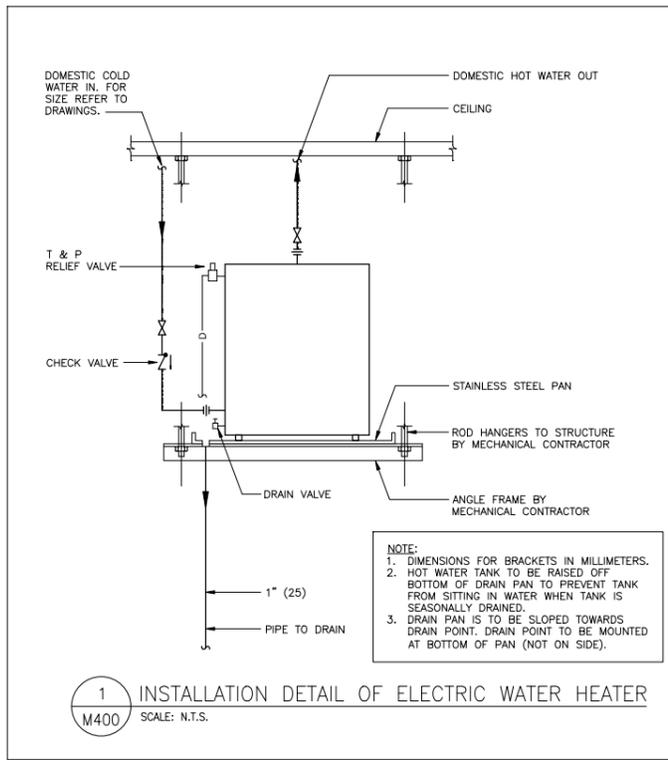
Drawing Reference No./No. de reference du dessin  
S201

33









**LEGEND**

PERMIT TO PRACTICE  
WSP CANADA INC.  
RM SIGNATURE: \_\_\_\_\_  
RM APEGA ID #: 63127  
DATE: 2022-08-03  
PERMIT NUMBER: P007641  
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

No.	Date/Date	Description/Description	Drawn by Dessiné par	Approved Approuvé
9	03/08/22	ISSUED FOR TENDER	AT	SG
8	09/06/22	ISSUED FOR REVIEW	OG	SG
7	09/06/22	ISSUED FOR REVIEW	OG	SG
6	09/02/22	ISSUED FOR REVIEW	OG	SG
5	04/02/22	ISSUED FOR REVIEW	OG	SG
4	03/11/21	ISSUED FOR REVIEW	OG	SG
3	20/10/21	ISSUED FOR REVIEW	OG	SG
2	20/09/21	ISSUED FOR REVIEW	OG	SG

Revision / Revision

A detail number  
numéro de détail

B source drawing no.  
de dessin no.

C detail on drawing no.  
détail sur dessin no.

Consultant's Name  
Nom de l'expert-conseil

Eng. Stamp  
Sceau de l'ingénieur

**wsp**

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Client Services Team  
Southern Alberta Operations Branch

Le Client Entretien l'Équipe Alberta Méridionale  
Branche d'Opérations

**Canada**

Client/client  
Parks Canada Agency  
L'Agence Parcs Canada

Western and Northern Region  
Ouest et Nord du Canada

Project title/Titre du projet  
**CASTLE MOUNTAIN CAMPGROUND (PHASE 2)**

BANFF NATIONAL PARK, ALBERTA

Drawing title/Titre du dessin  
**MECHANICAL WASHROOM BUILDING DETAILS**

Surveyed by/Arpenté par	Drawn by/Dessiné par	Date/Date
PARKS CANADA	AT	03AUG2022
Designed by/Concept par	Reviewed by/Revisé par	Scale/Échelle
SG	DA	AS SHOWN
PWGSC Project Manager/Administrateur de Projets TP50C MATTHEW WHALEN		
Client Acceptance/Acceptation du client		Approved by/Approuvé par
Park Responsible Officer/Agent Responsable		PWGSC Project Manager/Administrateur de Projets TP50C
Project No./No. du projet	Asset No./No. du bien	Sheet No./No. de la feuille
19M-01812-00	-	26
Drawing Reference No./No. de référence du dessin		
M400		33