



**Dawson Old Courthouse
Klondike National Historic Site Complex
Foundation Replacement
Statement of Work**



04 June 2014

STATEMENT OF WORK
Old Courthouse Foundation Replacement
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Objective

Replacement of Old Courthouse foundation walls, including new concrete footings and perimeter drainage.

Background

Introduction

The building was designed by Thomas W. Fuller and constructed in 1900-1901 to serve as a courthouse for Dawson City. It functioned as a Courthouse until 1910 and then remained vacant until 1914 when it was taken over by the Northwest Mounted Police. In 1954 after their hospital burnt down the Old Courthouse was leased by the Sisters of St. Ann to serve as Dawson City's hospital until 1967 when the building was acquired by Parks Canada. It served as Parks Canada's office, other Yukon Government offices and housed Yukon College, all at different times until 2009. The building is classed as a recognized building by the Federal Heritage Building Review Office (FHBRO) and is a Level 1 cultural resource. See Drawings 1&2, Appendix A for 1987 floor plan.

It was recognized that the building required code upgrades in order to fulfill the requirements of a modern office building to attract tenants. When the last tenant left the building a retrofit of the building was commenced. Asbestos bearing vermiculite insulation was removed from the attic. The interior was partially stripped of several generations of suspended ceilings, floor and wall coverings. Over the hundred years plus history of the building, numerous structural members had been comprised by installation of services (plumbing, electrical, etc.) and numerous interior modifications. These were exacerbated by the 1979 flood which affected the Courthouse building. In 2009-10 the entire ground floor structural beams and joists were either replaced and/or sistered. Creosote coated wooden columns in the basement were replaced by steel teleposts and the floor was re-levelled (see figures #1 & 2).

The building has approximate dimensions of 13.6 m x 30.5 m, two floors plus an unfinished basement and a small attic space. The current perimeter foundation walls are not the original walls. In the early 1980's the foundation walls were replaced to correct damage that occurred during the 1979 flood (see figure #3 and Appendix A, drawing #3). The foundation is coated in creosote and that adds to the air quality problems in the building. Some bulging inwards and fracturing of wall studs in certain areas of the foundation walls is evident (see figure #4). During

the spring, water frequently infiltrates into the basement space (see figure #5) . Poor perimeter drainage may be the cause of both problems and the installation of proper drainage and piping when the foundation is replaced should alleviate the problem.

Scope

The basic elements of the project include:

1. Excavation around perimeter;
2. Stabilization of building;
3. Removal of existing foundation walls;
4. Pouring of concrete footings;
5. Installation of PWF foundation walls;
6. Incorporation of shear walls to tie into existing sleeper timbers;
7. Insulation and waterproofing of foundation;
8. Installation of perimeter drainage, gravel, and tie into storm sewer;
9. Replacement of fill around building and contouring;
10. Replacement of exterior basement stairs;
11. Installation of above ground vents in upper foundation wall;
12. Installation of basement floor geotextile and clean gravel.

Items 1 - 10 above are covered by Drawing #4: Dawson City Old Courthouse, Exterior Basement Wall and Shear Walls, R.014979.001, February 2012, and Appendix A: Specifications (Former Territorial Courthouse NHS, Old Courthouse Foundation, 2011 March 23). Items 11-12 are not mentioned in the specs/drawings but will form part of this contract.

The excavation for the foundation will need to be fenced for public safety reasons. Extra attention and barricades may need to be supplied for the south end of the building which is adjacent to Turner Street (see figure #6). Dawson City municipal officials should be consulted prior to work commencing on the Turner Street side in order to ensure their requirements are met. This side of the excavation may require shoring to minimize disturbance to the road. All shoring shall meet any occupational health and safety requirements.

The excavated ground is likely to contain artifacts. None of the excavated material should be disposed of unless directed by Parks Canada. If any artifacts are uncovered in digging they should be set aside. Parks Canada staff may periodically examine excavation material for artifacts. It is recommended that excavation extent be kept to a minimum distance away from the building to minimize disturbance of previously unexcavated ground that may contain more artifacts. Safety considerations as far as slope angle and access for construction would outweigh

any other factors. Excavated material should be placed on liners as per requirements in the Environmental section.

The exit stairway on the south side of the building (Turner Street) will need to be removed and replaced after excavation is complete (see figure #7). The north side exit stairway has already been removed (see figure #8) and need not be replaced.

There are external stairs to the basement from the rear of the building (see figures# 9 and 10). These shall be replaced with new PWF stairs, new hatch, and double steel doors as per Sections J-J and K-K on Drawing R.014979.001.

It will be up to the Contractor to determine the best method of stabilizing the building when old walls are removed, footings poured and new walls installed. If the building is lifted it must be ensured that it be replaced in a level condition and all existing internal teleposts are re-adjusted and load bearing. There is a quantity of blocking material that was used during floor stabilization in the basement that can be used by the Contractor (see figure #11). This shall be removed from the basement when the project is completed.

There are three areas with piping penetrations through the walls: 1) an unused cast iron drainage pipe that can be cut off outside the wall perimeter and sealed (see figure #12); 2) piping from the boiler shack in the rear of the building which will remain in place and (see figure #13); 3) current water supply line which will also remain in place (see figure #14). The location of city water and sewer lines is shown in Appendix A, Drawing 3. The existing sewer line is below the foundation wall at an unknown depth and care should be taken when excavating in this area.

The power supply for the building enters underground from the west, off Front Street (see figure #15) side of the building to a panel on the foundation wall (see figure #16). The underground cable penetrates the foundation wall at approximately one metre below ground level through a 64 mm diameter conduit. This will need to be addressed and the panel and wiring reinstalled in the same location. A temporary panel was installed on the east wall for floor repairs. Power for this comes from a separate temporary line installed from the Carriage Shed behind the Courthouse. The temporary panel may be relocated and used by the Contractor if desired (see figure #17).

Care must be taken when excavating for foundation, to prevent damage to services. The Contractor is responsible for cable/piping locates prior to excavation.

Parks Canada desires that screened vents be installed in the above ground portion of the walls. These are not indicated on the drawings. The vents should fit between the studs and be approximately 360 mm x 200 mm. Four evenly spaced on each of the west and east walls and two on each of the north and south walls will provide minimum requirements.

An exterior perimeter drainage is expected to be tied into the catchbasin located at the southwest corner of the building, Appendix A Drawing 4 shows city stormwater lines and catchbasin locations. If elevations do not allow tie in to the stormdrain the perimeter drainage will be tied into an internal vertical culvert sump that is already in place (see figure #18). Currently a perforated HDPE perimeter drain exists on the inside of the foundation wall, just below ground level. This can be removed and will be replaced with the exterior perimeter drain.

The original building included 254 x 203 mm creosoted timbers buried in the ground to provide lateral stability to the foundation walls and bearing for posts (see figure #19 &20). Shear walls for the new foundation will tie into these buried timbers to provide lateral stability (see details on Drawing 6, Appendix A).

It is desired that the floor of the basement which comprises silt, a layer of damaged geotextile and sporadic clean gravel be leveled and covered with another layer of geotextile and 15 centimetres of clean gravel.

Figure # 21-24 show the building exterior from all sites. Note that bump out on the northeast corner, the entrance porch on the east side and the exterior stairs to the basement that need to be considered when planning the foundation replacement.

Figure # 25-26 show ground conditions from an excavation done along the north wall when floor repairs were being made and large beams needed to be brought in through the basement.

When placing backfill material ensure that the lower drainage layer is covered with geotextile and that the remaining backfill material is free draining with no fine silt, clay, or organic components. Backfill must be sloped away from the building, and topsoil/organic layer placed on top.

Environmental

The following recommendations from a YESAA Environmental Screening (2010-0040) of the project must be adhered to by the Contractor:

- During the project, excavated materials (including soils, timbers and liquids) shall be treated as special waste until otherwise proven;
- Stockpiles of soil shall be stored in such a manner which prevents the entry of contaminants into the environment;
- Any liners used for storage of materials shall be removed and disposed of;
- The Contractor shall utilize appropriate erosion control measures such that soil does not enter the nearby water courses as a result of the project;

- Any water encountered during excavation of soil shall be tested for contaminants and contained and /or disposed of in such a manner that does not result in contaminant entry into the environment or release of sediments into watercourses;
- The Contractor shall implement a site-specific health and safety plan;
- The Contractor shall ensure that qualified personnel are on-site to oversee any activities that have the potential to expose workers to materials that may be contaminated;
- During excavation, temporary fencing shall be installed around the excavation area to secure the site and limit public access;
- During excavation, the Contractor shall post signage to notify users of the area of work being carried out;
- Pits and/or trenches left open overnight shall be fenced off and appropriately lit;
- The Contractor shall follow the “Minimum Requirements for Unqualified Workers and/or Equipment Operating near Overhead Power Lines”.

Tasks/Specifications

1. The Courthouse is a historic structure and all work shall follow the Standards and Guidelines for the Conservation of Historic Places in Canada;
2. Detailed specifications and drawings are provided in Appendix A

Client Support

Parks Canada can supply all drawings relevant to the work that we have in our possession.

Access via telephone and e-mail will be available to Public Works and Government Services Canada Heritage Conservation Engineers who designed the foundation.

Electrical supply is provided to the temporary circuit box in the basement. There is no water, sanitation services or heat currently supplied to the building.

Contractor Responsibilities

The Contractor is responsible for:

- All travel arrangements to and from the site and room and board during the job duration;
- Supply of water and sanitary services for the job duration;
- All requirements for occupational health and safety;
- All electrical, piping locates;
- All required building permits;

- Any temporary electrical supply requirements;
- Site barriers and warning signs for any excavations;
- Ensure no access can be gained to building by the public during operations;
- Removal of all waste materials to an approved landfill;
- The Contractor must comply with all applicable legislation, codes, guidelines for work on National Historic Sites;
- Maintain a photographic record of the job;
- Provide as-built drawings should modifications be made to the current design.

Meetings

It is anticipated that the following meetings will be required:

- i. Initial on site meeting prior to job commencement;
- ii. Post-construction on site meeting;
- iii. Any other meetings/teleconferences as requested by the client or Contractor.

Deliverables

- Complete replacement of foundation as per drawings and specifications;
- Fresh layer of geotextile and gravel on basement floor;
- Replacement of soil and grading to match undisturbed ground and sloped away from the building;
- Disposal of all waste;
- Photographic record in electronic format of the work;
- As built drawings if any variations from original plans.

Project Administration Requirements

The Contractor shall maintain direct communication with the Parks Canada Technical Authority. All formal directions regarding project scope, budget, schedule, etc. must come from the Parks Canada Technical Authority, in writing.

The Contractor shall not respond to requests for project related information or questions from the media. All media related inquiries are to be directed to the Parks Canada's Technical Authority.

Schedule

Due to weather conditions all work shall be completed before October 31, 2014.

FIGURES



Figure 1: Basement prior to joist and column replacement



Figure 2: Basement after joist and column replacement



Figure 3: Existing Foundation Walls



Figure 4: Deformation in Northwest corner of foundation wall



Figure 5: Spring seepage through foundation wall



Figure 6: Turner Street looking towards Front Street



Figure 7: South side (Turner St.) exit stairway



Figure 8: North side exit stairways removed



Figure 9: External basement staircase hatch



Figure 10: External basement stairs



Figure 11: Blocking available in basement



Figure 12 : Old sewer connection



Figure 13 : Boiler piping entrance, east wall

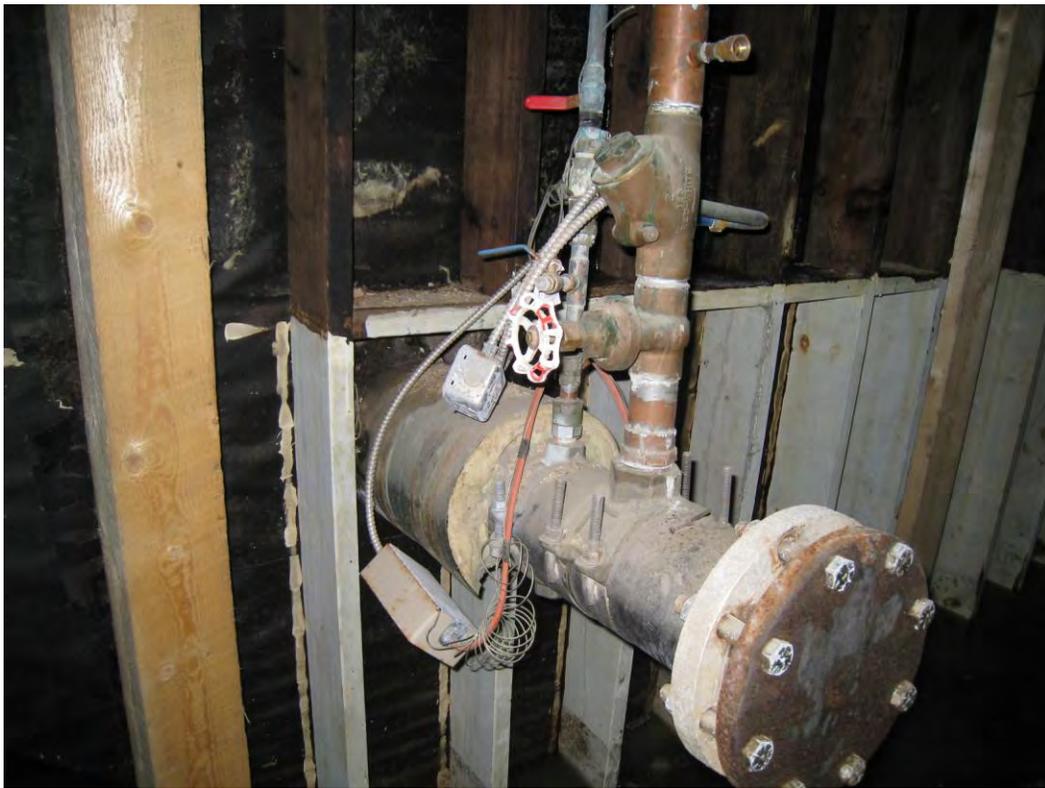


Figure 14: Water Supply, east wall



Figure 15: Power from pole to underground



Figure 16: Main circuit box, west wall



Figure 17 : Temporary Power circuit box, east wall



Figure 18: Culvert sump (just visible on left) in SE corner of building



Figure 19: Buried sleeper beam at foundation wall



Figure 20: Buried sleeper beam supporting old column



Figure 21: East Elevation



Figure 22: North Elevation



Figure 23: West Elevation



Figure 24: South Elevation



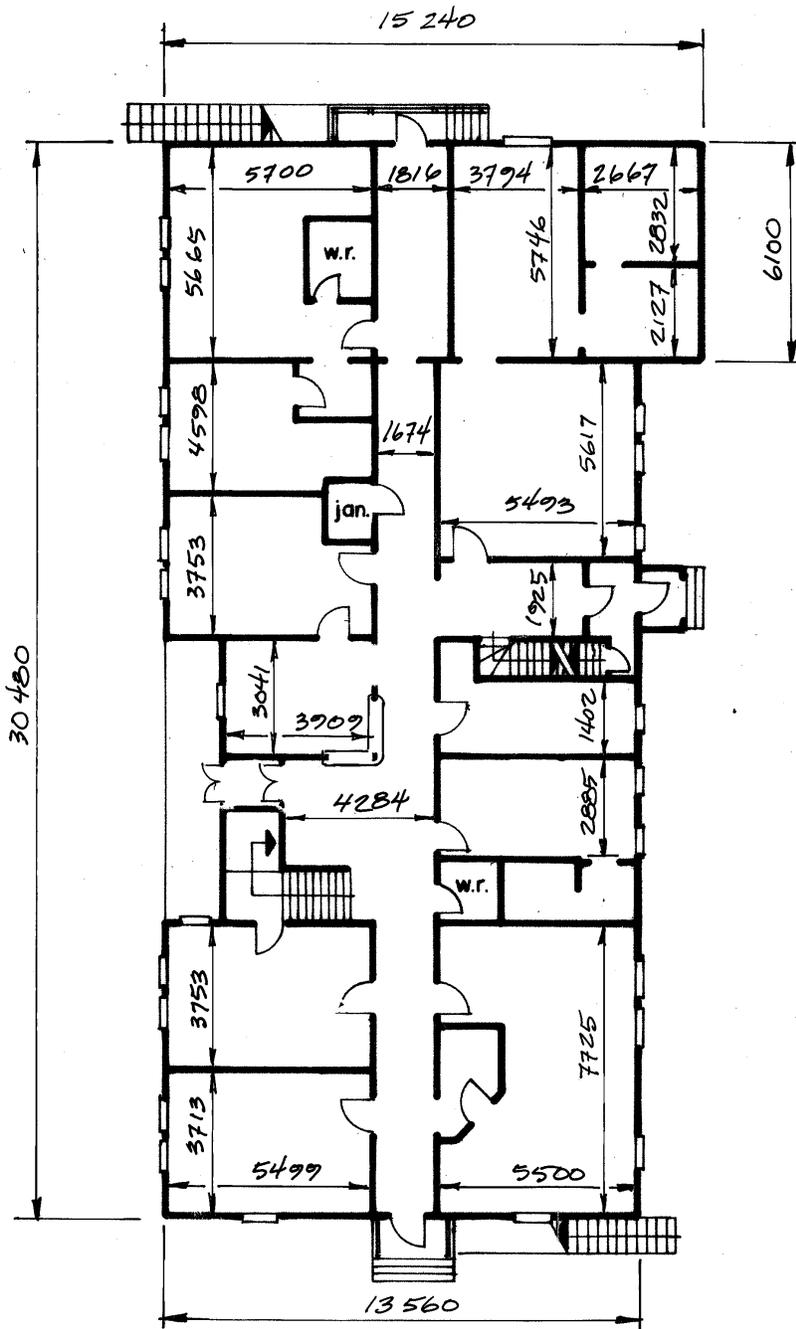
Figure 25: North side excavation 2010



Figure 26: North side excavation 2010

APPENDIX A - DRAWINGS

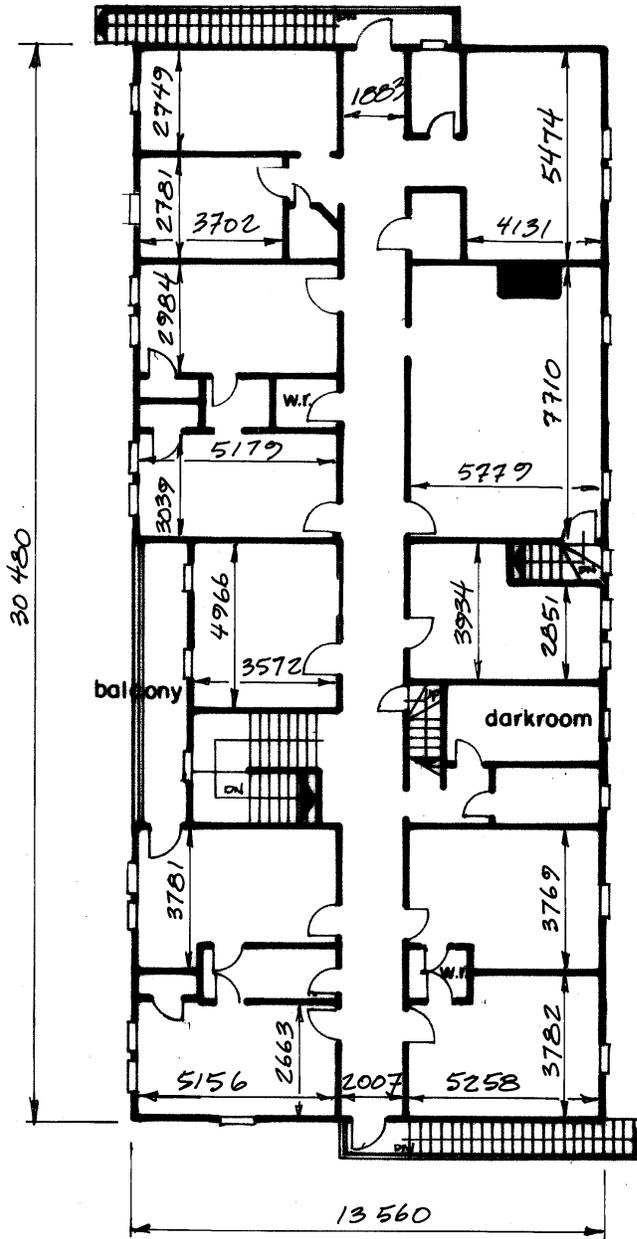
Drawing 1: Courthouse Ground Floor Plan	HPKHS/87/P56/01	1987
Drawing 2: Courthouse Second Floor Plan	HPKHS/87/P5602	1987
Drawing 3: Dawson Water and Sewer Infrastructure		2009
Drawing 4: Dawson Stormwater Drainage Network		2011
Drawing 5: Courthouse Foundation Repairs	HPKHS/81/P2	1981
Drawing 6: Courthouse Basement Plan & Sections	R.014979.001	2012



GROUND FLOOR PLAN

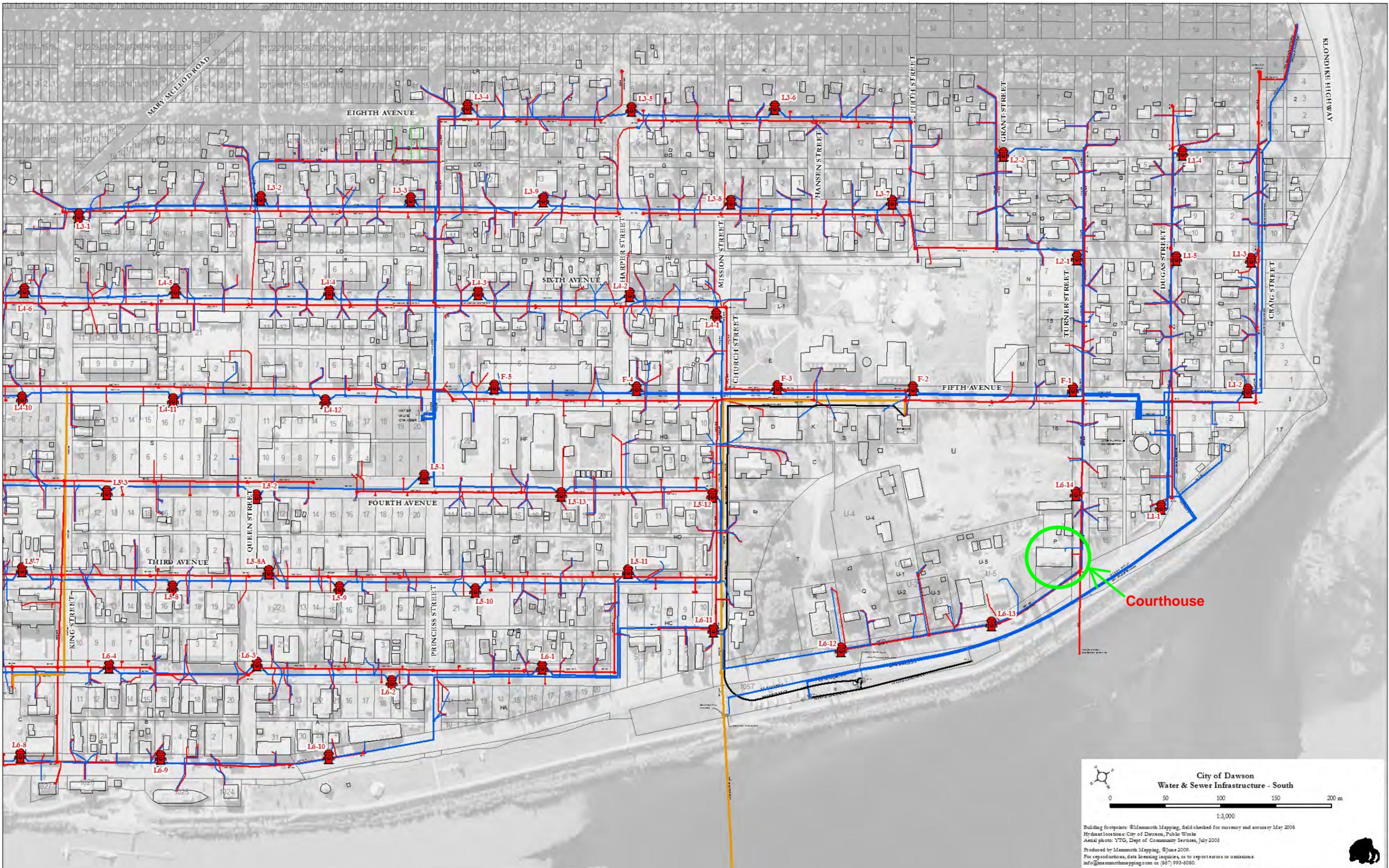
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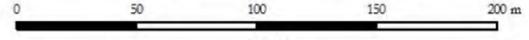


SECOND FLOOR PLAN
scale 1:200






City of Dawson
Water & Sewer Infrastructure - South



1:3,000

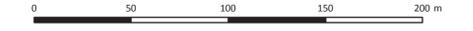
Building footprints: ©Mammoth Mapping, field checked for currency and accuracy May 2008
 Hydrant locations: City of Dawson, Public Works
 Aerial photo: VTG, Dept of Community Services, July 2003
 Produced by Mammoth Mapping, ©June 2009
 For reproductions, data licensing inquiries or to report errors or omissions
 info@mammothmapping.com or (867) 993-6080.





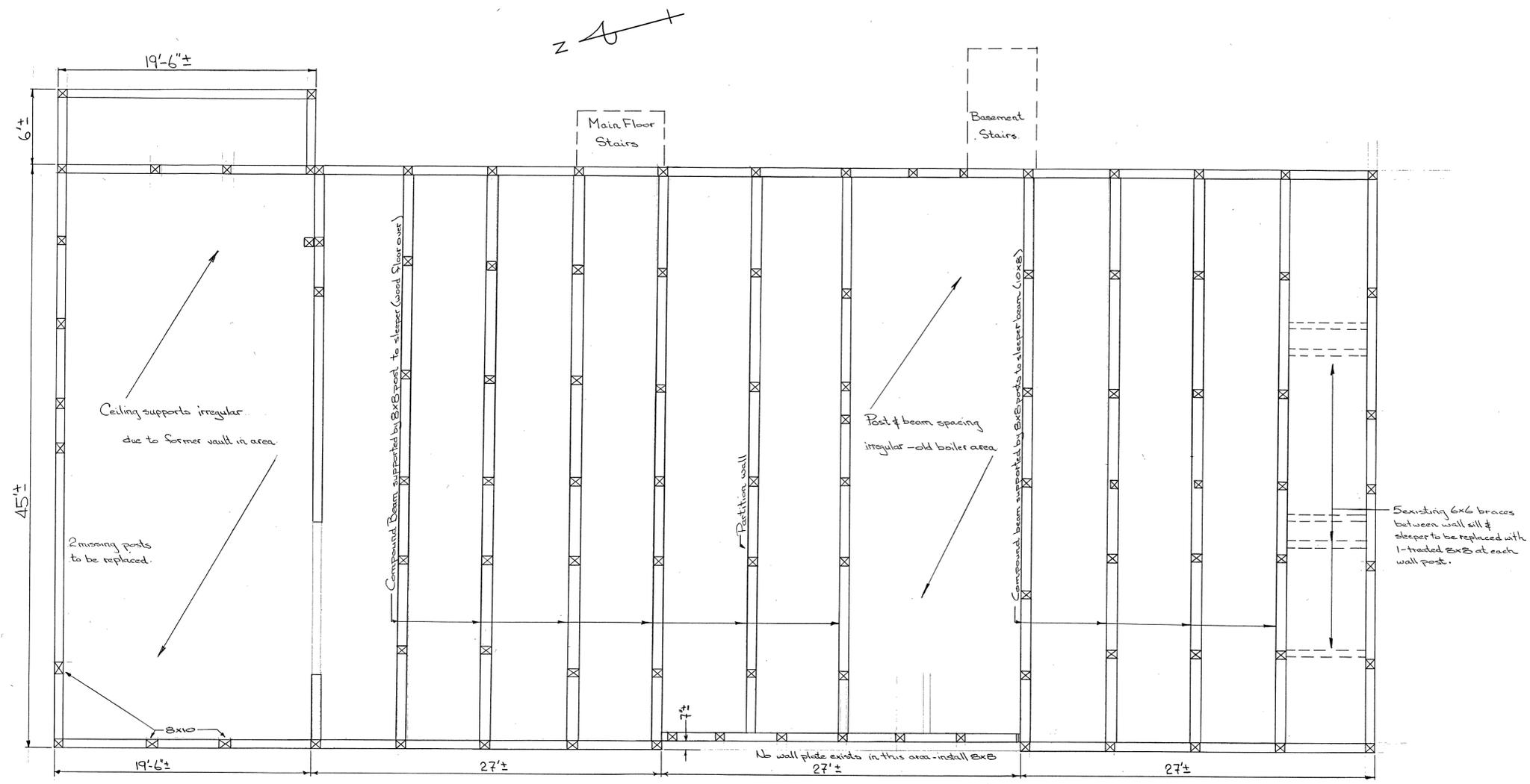
**Stormwater drainage network
Dawson City core area**

- Catch basin
- Manhole
- Underground pipe



1:2,000
 Stormwater drainage: City of Dawson, February 2010. Positions accurate within approx. +/- 5m.
 Building footprints: Mammoth Mapping, May 2008
 Aerial photo: Community Services (YTG), July 2003
 THIS MAP PRODUCED BY MAMMOTH MAPPING © FEBRUARY 2011.
 www.mammothmapping.com - info@mammothmapping.com - (867) 993 6080





PLAN scale: 1/4" = 1'-0"

All posts are 8x8 unless otherwise noted

revisions	date

A	detail no.	détail no.
B	location dwg. no.	sur dessin no.
C	drawing no.	dessin no.

drawn by / tracé par	scale / échelle
designed by / établi par	
checked by / vérifié par	
job captain / chef du projet	date
responsible officer / officier responsable	date

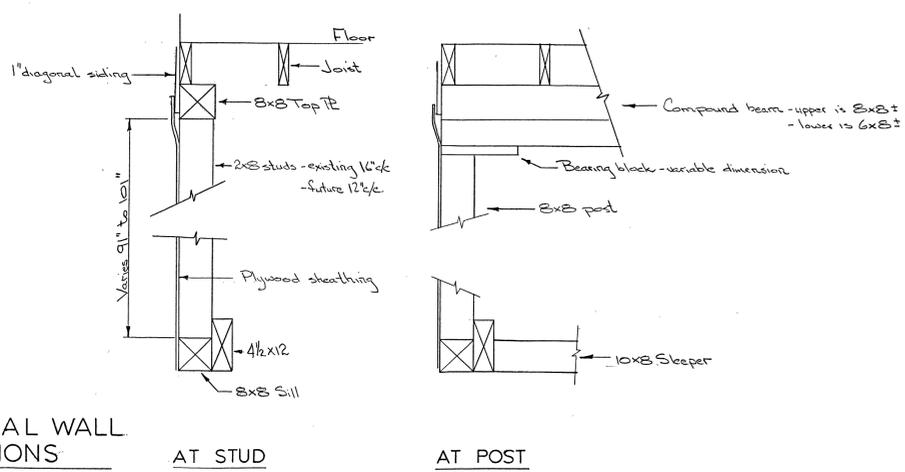
project title / titre du projet
COURTHOUSE

location / lieu
DAWSON CITY, YT.

drawing title / titre du dessin
FOUNDATION REPAIRS

reference no. / no de référence
HPKHS/BI/PZ

dwg no. / dessin no.



TYPICAL WALL SECTIONS
scale: 3/4" = 1'-0"

Works to be performed

- The following works are to be performed to repair the foundations. The work applies to all areas unless otherwise noted. In general, work should progress in sections.
- General excavation around the perimeter to permit removal of sheathing. All material to be salvaged for use as backfill. Contractor shall provide adequate trench shores as required.
 - Remove existing 3/4" plywood sheathing. Good materials are to be salvaged, nails removed, and set aside for re-use. Care is to be exercised to maximize salvage. Use care in removing plywood and in providing flat storage.
 - Remove existing studs and posts and inspect for damage. Salvageable material is to receive 2 brush coats of 5% pentachlorophenol. Exercise caution so as to maximize salvage.
 - Inspect sill and side beam. Replace as necessary. (Replacement known to be necessary along north & south walls and approximately 30 ft of west wall.)
 - Inspect wall beams; straighten as required.
 - Install new/repairs 8x8 fir posts in location of originals. Ensure that building is level as work progresses. Adjust interior beams and posts as required.
 - Install new/salvaged studs (2x8 No.1 fir) at 12" centres.
 - Install new (5/8") or salvaged (3/4") exterior sheathing as selected by the Engineer. Face grain to be horizontal. Part sheets are a sill level.
 - Excavate in south end to expose sleeper beams and thrust beams.

- Remove interior posts & inspect. Salvageable material to be treated with 2 brush coats of 5% pentachlorophenol.
- Inspect & repair/replace thrust beams and sleeper beams.
- Install new/salvaged posts ensuring building is level.
- Install building paper to exterior of plywood.
- Backfill to original grade and mound 6 inches to allow for future settling of fill.

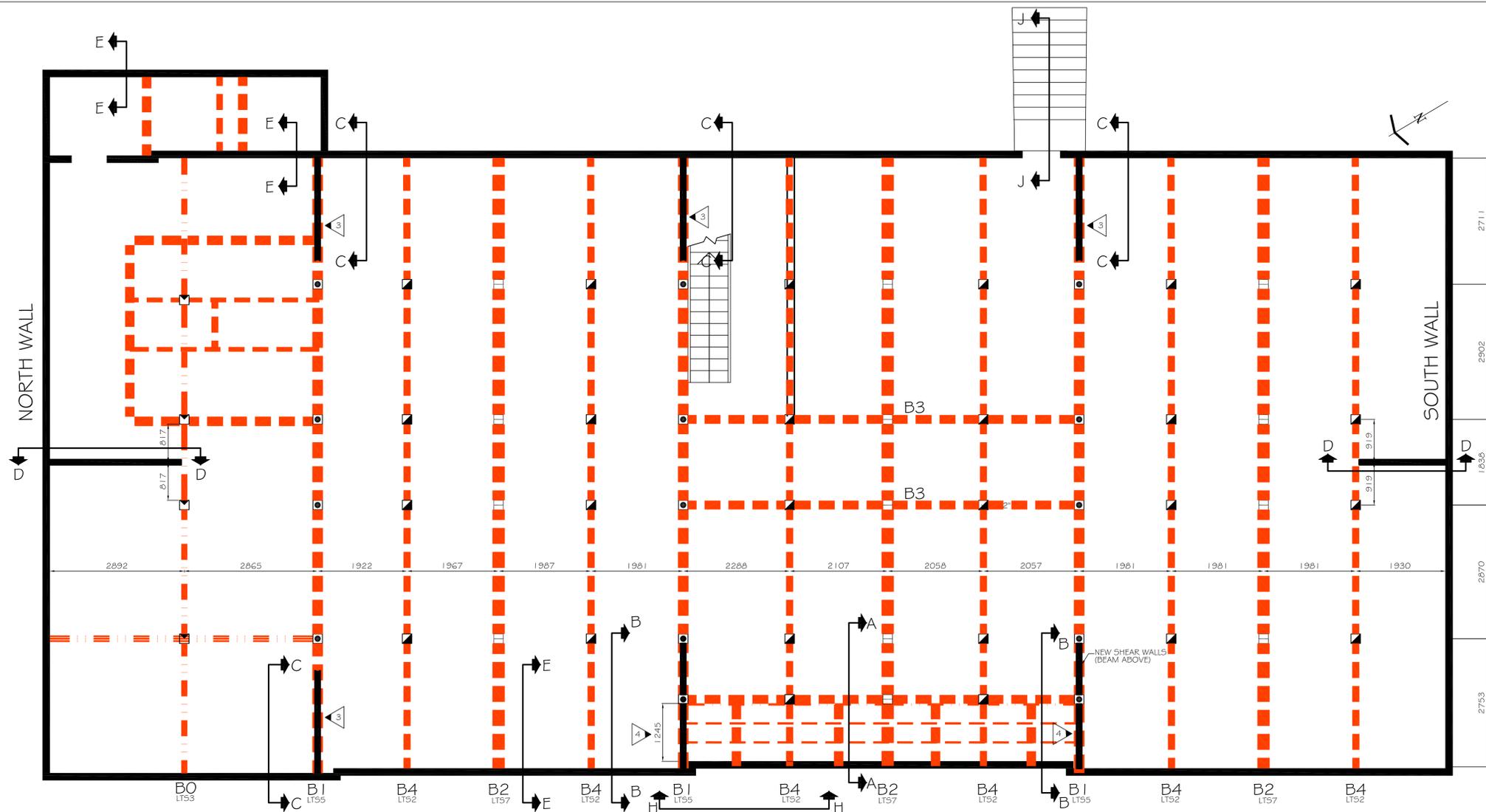
Nailing Patterns

Studs toenailed to sill	3" nails	2 each side
Studs toenailed to wall beam	3" nails	2 each side
Plywood to studs, posts, beams	2" nails	6" centres on edges 15" centres on interior
Side member to sill	6" spikes	2 per foot - staggered
Bottom of post	4" nails	3 per side (face)
Top of post	4" nails	3 per side (face)

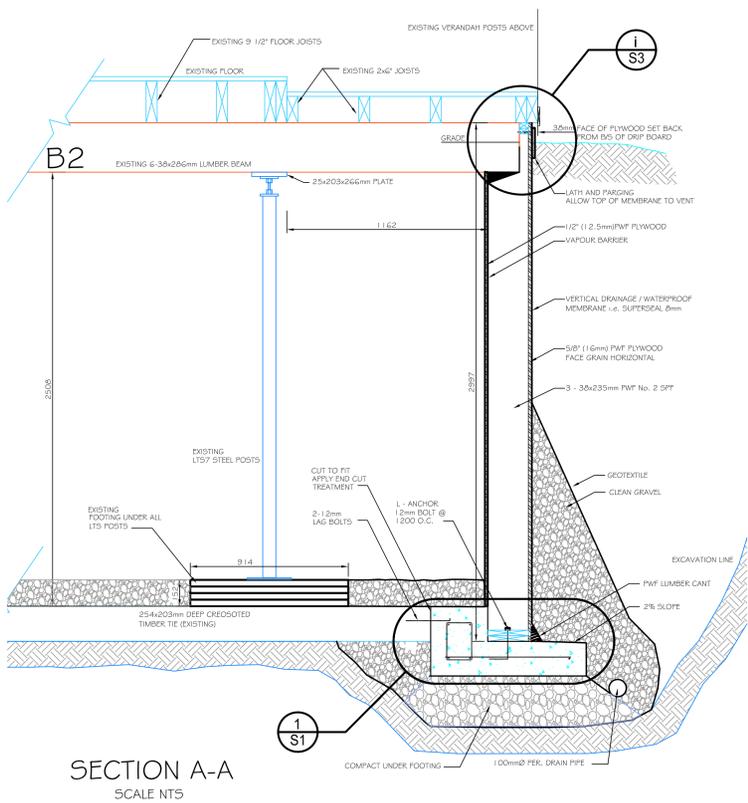
Plywood repairs
All old nail holes are to be patched with fibre gum. Full sheets with damaged edges are to be trimmed to sound material for use as filler strips at base of wall.

Wood
Existing & new wood is No. 1 Fir treated with wood preservative.

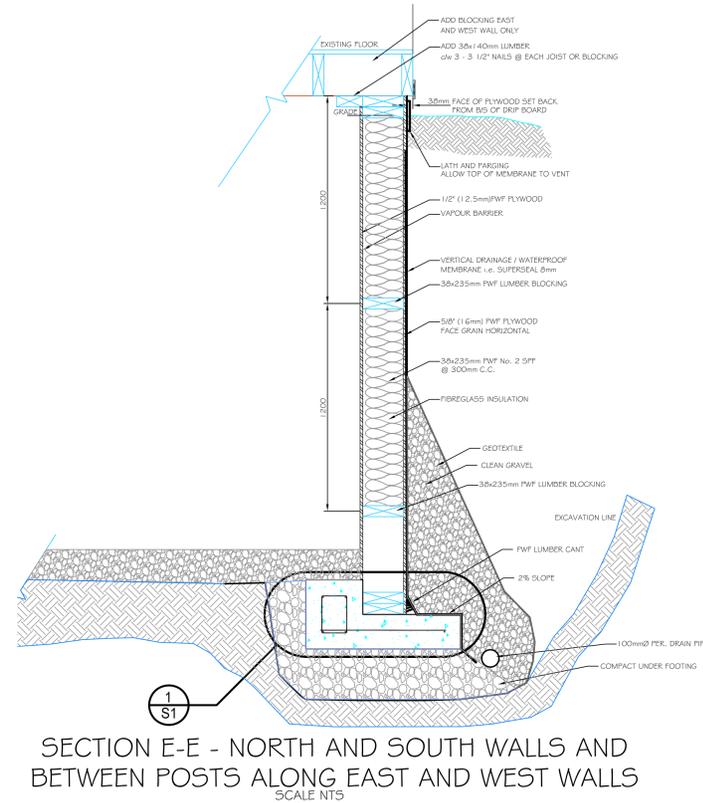
Note
Insulation, interior sheathing, and interior partitions not included in this contract.



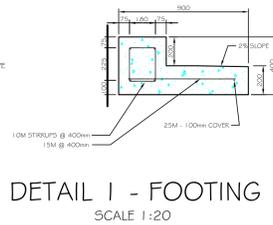
PLAN VIEW
SCALE N.T.S.



SECTION A-A
SCALE N.T.S.



SECTION E-E - NORTH AND SOUTH WALLS AND
BETWEEN POSTS ALONG EAST AND WEST WALLS
SCALE N.T.S.



DETAIL I - FOOTING
SCALE 1:20

Dawson Courthouse - Existing Beams and Posts
Table

Beam Number	Material	Width x Depth	Telepost
B0	Parallel SP 2.0E	133 x 254	LT53
B1	6 - 38 x 286 LUMBER	286 x 286	LT55
B2	7 - 38 x 286 LUMBER	286 x 286	LT57
B3	2 - 34 x 235 LVL 2.0E 2960 Fb LUMBER		
B4	4 - 38 x 235 LUMBER	152 x 235	LT92

Notes:

- Scope of work is to replace exterior PWF walls and footings plus add interior shear walls.
- Specified loads: snow 2.3kPa, wind on walls 0.78 kPa, live load on floors 4.8 kPa and equivalent fluid density of backfill on PWF 580 kg/m³.
- Preserved wood lumber and plywood to CSA Standard CAN/CSA S406, which requires pressure treatment to CSA Standard O80.15 and stamped for use in Preserved Wood Foundations (PWF).
- All cuts in PWF lumber to be brush coated with a copper naphthenate preservative prepared with a solvent conforming to CAN/CSA O80.201 and applied until the wood absorbs no more preservative.
- All fasteners, framing anchors and metal straps to be hot-dipped galvanized or stainless steel.
- All lumber to be SPP No. 2 or better.
- Concrete compressive strength 30 MPa and reinforcing steel strength 300 MPa.
- Vertical drainage mat / waterproof membrane listed in registry of product evaluations by Canadian Construction Materials Centre under 07 11 19.01 Rigid Polyethylene or Polypropylene Dimpled Membrane and 33 46 23.01 Foundation Wall Drainage Systems - Dimpled Membrane. Dimples applied to the wall and no coating applied to the plywood.
- Steel brackets and hangers from manufacturers listed in registry of product evaluations by Canadian Construction Materials Centre under 05 23.06 Jost Hangers.
- Geotextile to be woven polypropylene with a pore size / apparent opening size of between 0.25mm and 0.45mm.
- Clean gravel to be coarse crushed stone or sand and gravel containing not more than 10% material that will pass a 4mm sieve.
- Footings to be placed on undisturbed soil or well-compacted soil with a bearing strength of at least 75kPa.

No.	Date	Description	Drawn by	Approved

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-consultant
Eng. Stamp / Scellé de l'ingénieur

Public Works and Government Services / Travaux publics et Services gouvernementaux Canada
Client Services Team / Le Client Engagement / Alberta Southern Alberta Operations Branch / Alberta Meridionale Branch d'Operations

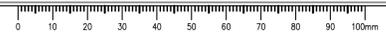
Canada

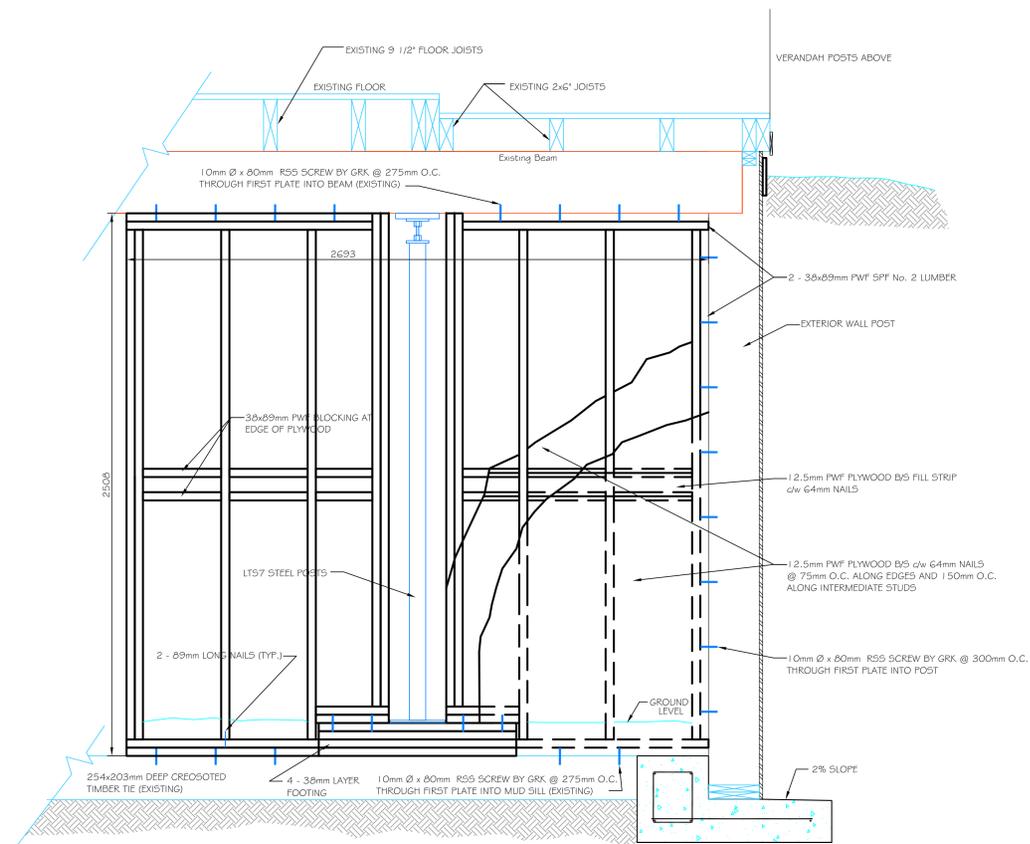
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Western and Northern Region / Ouest et Nord du Canada

Project Title / Titre du projet
DAWSON CITY OLD COURTHOUSE
EXTERIOR BASEMENT WALLS AND SHEAR WALLS
Yukon

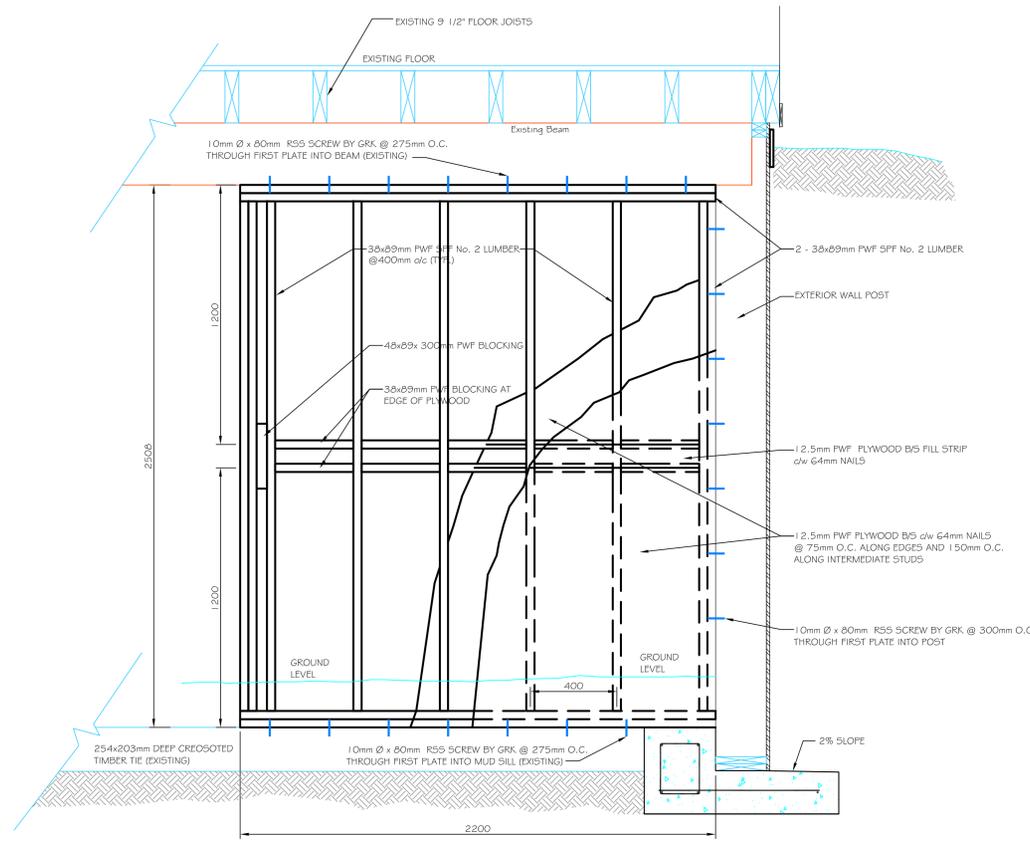
Drawing Title / Titre du dessin
Basement Plan and Sections

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Designed by/Concept par: Gerard van Rijn / Reviewed by/Revisé par: Bob Kurklopa / Scott/Chelle / As Noted
PWOSC Project Manager/Administrateur de Projets PWOSC: Gerard van Rijn / Client Acceptance/Acceptation du client: Approved by/Approuvé par: [Signature]
Project No./No. du projet: R.014979.001 / Sheet No./No. de la feuille: 51 of 3

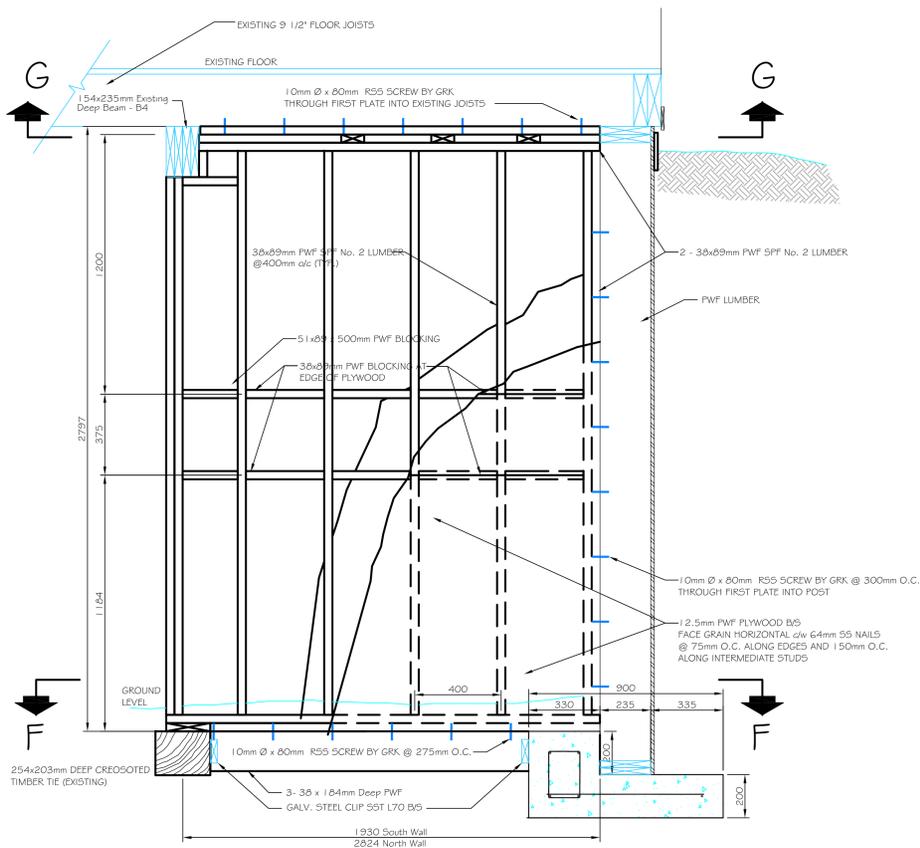




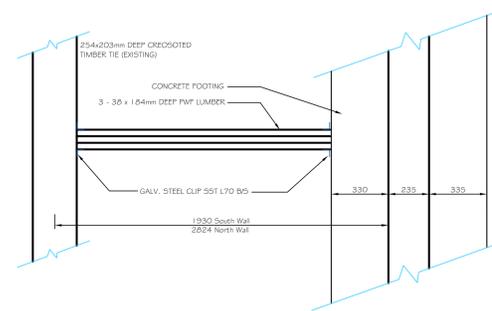
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SHEAR WALL AT VERANDAH AT LOCATION SHOWN BY
(TWO REQUIRED)
SCALE NTS



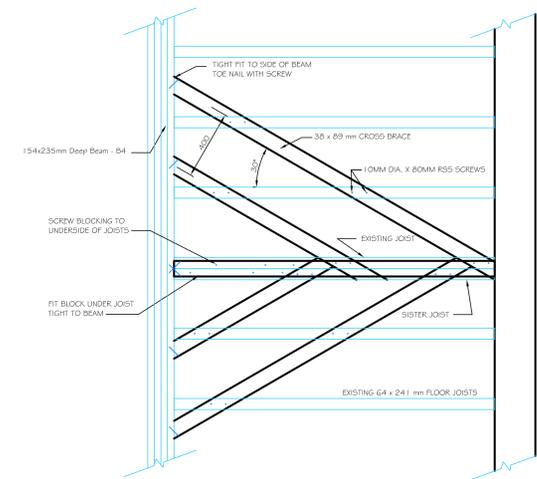
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SHEAR WALL AT EAST AND WEST WALLS AT LOCATION SHOWN BY
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SCALE NTS



SECTION D-D
NORTH & SOUTH SHEAR WALL SECTION
SCALE NTS



SECTION F - F
PLAN OF BRACING UNDER BOTTOM OF SHEAR WALL &
BETWEEN BOTTOM OF EXTERIOR WALL AND EXISTING MUD SILL
SCALE NTS



SECTION G-G
PLAN OF BRACING BETWEEN TOP OF SHEAR WALL &
UNDERSIDE OF FIRST FLOOR JOISTS
SCALE NTS

No.	Date	Description	Drawn by	Approved

Revision / Révision	
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-consultant	Eng. Stamp / Scellé de l'ingénieur
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Client Services Team Southern Alberta Operations Branch	Le Client Engagement / Equipement Alberta Meridional Branche d'Operations

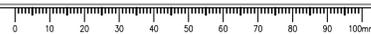


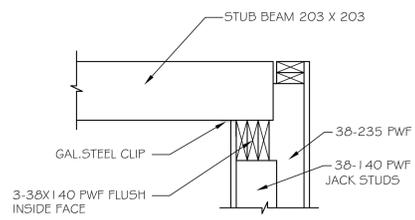
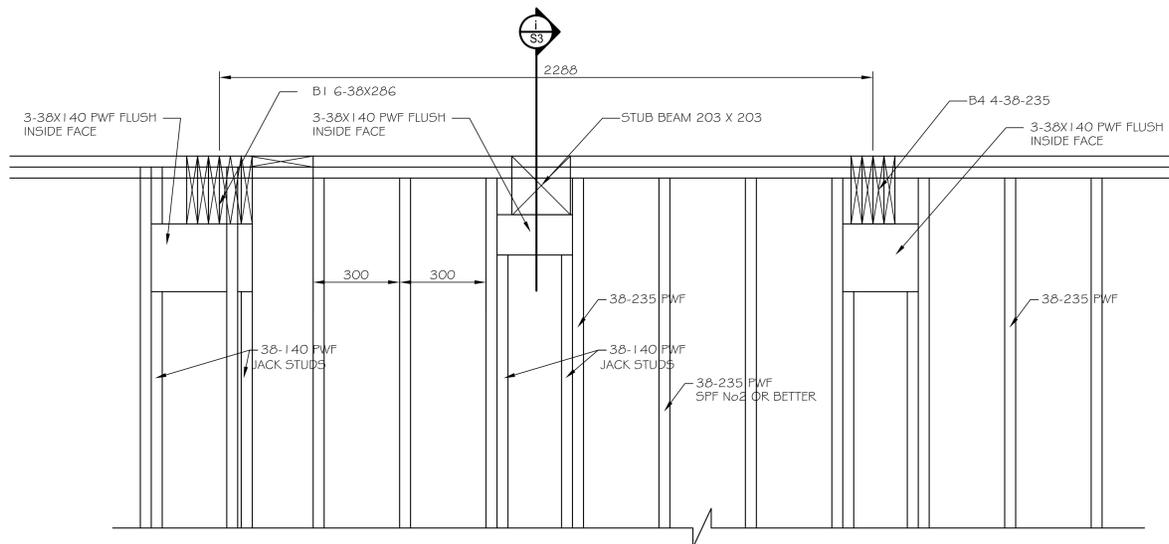
Client / Client	Parks Canada Agency	L'Agence Parcs Canada
	Western and Northern Region	Ouest et Nord du Canada

Project Title / Titre du projet
DAWSON CITY OLD COURTHOUSE
EXTERIOR BASEMENT WALLS AND SHEAR WALLS
Yukon

Drawing Title / Titre du dessin
Basement Plan and Sections

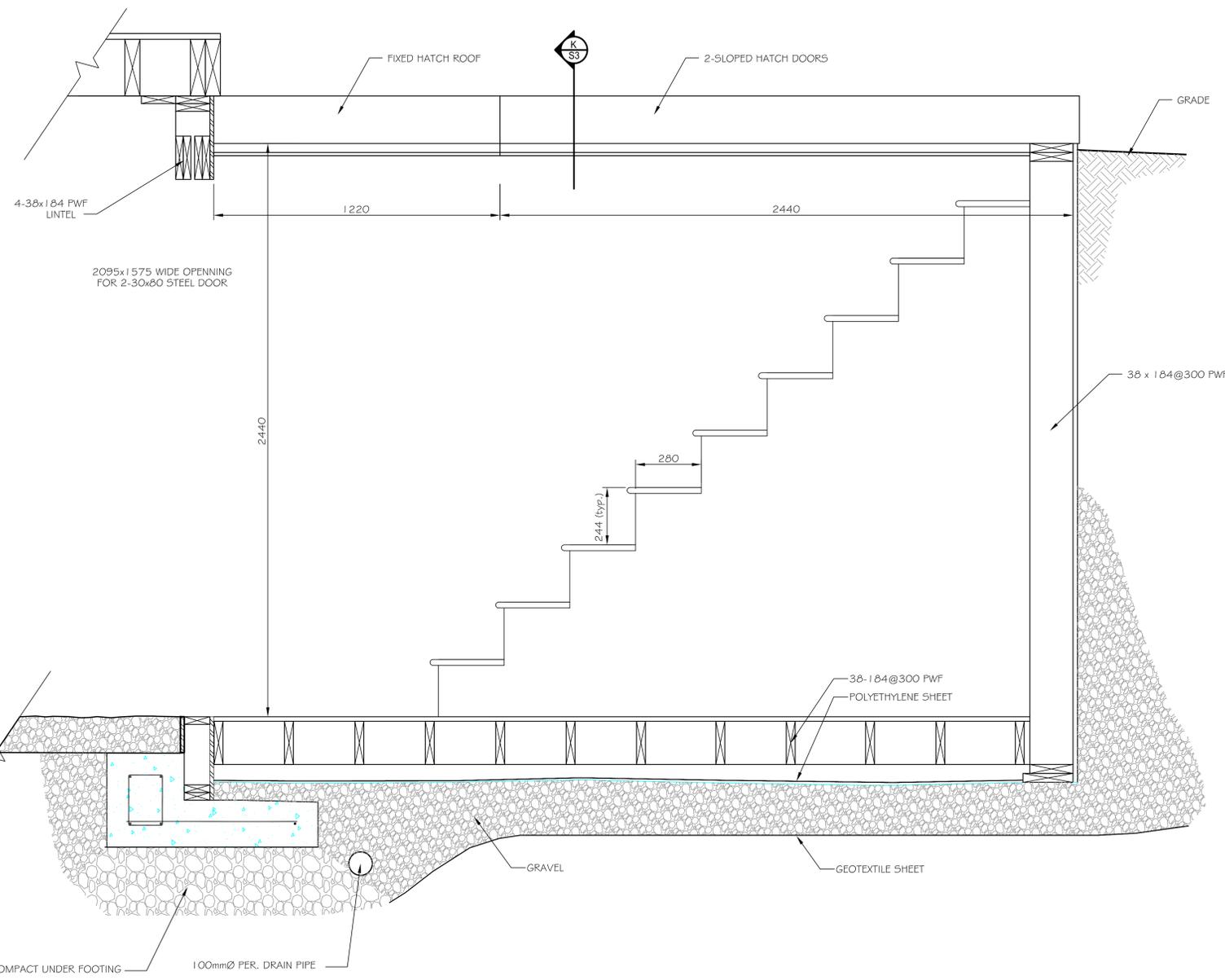
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Gerard van Rijn	P.M. Rasko	Feb 2012
Designed by / Concept par	Reviewed by / Révisé par	Scale / Echelle
Gerard van Rijn	Bob Kirkhope	As Noted
PWOSC Project Manager / Administrateur de Projets TPSC		
Client Acceptance / Acceptation du client		
Approved by / Approuvé par		
PWOSC Project Manager / Administrateur de Projets TPSC		
Project No. / No. du projet	Asset No. / No. du bien	Sheet No. / No. de la feuille
R.014979.001		52 of 3



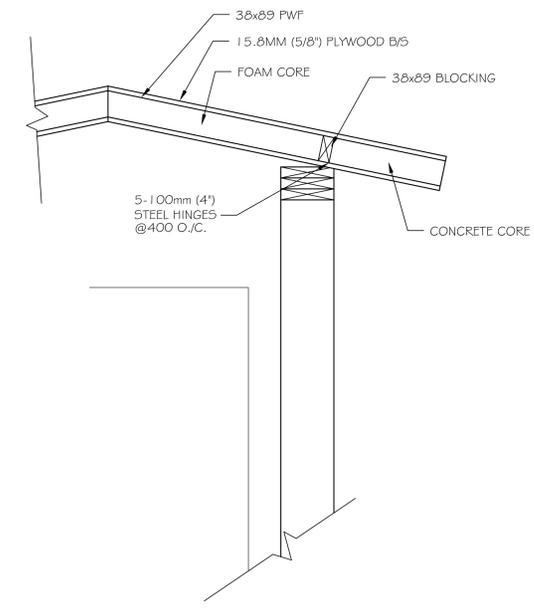


SECTION i - i
EXISTING BEAM & NEW WALL FRAMING
SCALE 1:10

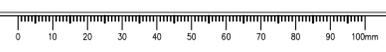
SECTION H - H
TYPICAL EXISTING BEAM & NEW WALL FRAMING
SCALE 1:10



SECTION J - J
SECTION THROUGH EXTERIOR STAIRS
SCALE 1:10



SECTION K - K
SECTION THRU EXTERIOR STAIR WALL @ ROOF
SCALE 1:10



Revision / Revision		No.		Date		Description		Drawn by / Dessiné par		Approved / Approuvé	
A detail number / numéro de détail		B source drawing no. / de dessin no.		C detail on drawing no. / détail sur dessin no.		A		B		C	
Consultant's Name / Nom de l'expert-consultant						Eng. Stamp / Scellé de l'ingénieur					
Public Works and Government Services Canada						Travaux publics et Services gouvernementaux Canada					
Client Services Team Southern Alberta Operations Branch						Le Client Engagé(e) Alberta Méridional Branch Opérations					
Canada						Canada					
Client/Client: Parks Canada Agency						L'Agence Parcs Canada					
Western and Northern Region						Ouest et Nord du Canada					
Project Title/Titre du projet: DAWSON CITY OLD COURTHOUSE EXTERIOR BASEMENT WALLS AND SHEAR WALLS Yukon											
Drawing Title/Titre du dessin: Basement Section Details											
Surveyed by/Arpenté par		Drawn by/Dessiné par		Date/Date		Designed by/Concept par		Reviewed by/Revisé par		Scale/Echelle	
Gerard van Rijn		P.M. Rasko		Feb 2012		Gerard van Rijn		Bob Kirkhope		As Noted	
PWSC Project Manager/Administrateur de Projets TPSC: Gerard van Rijn											
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		Asset No./No. du bien		Sheet No./No. de la feuille		Drawing Reference No./No. de référence du dessin					
R.014979.001				53 of 3							

APPENDIX B - SPECIFICATIONS

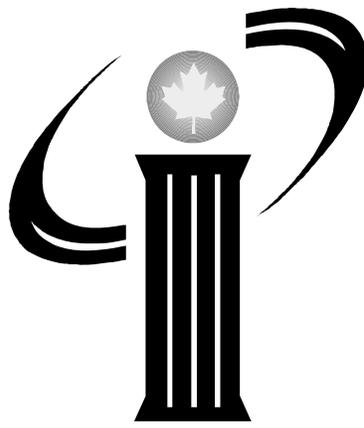
Project No. R.014979.001
Specifications for Former Courthouse
Basement Replacement
Parks Canada Agency
Location: Dawson City, Yukon



Approval & Sign-off

PWGSC Project Manager: P.M. Habiluk P. Eng.	
PWGSC OH&S:	
PWGSC A&ES	

January 2012



Project #R.014979.001

Former Territorial Courthouse
National Historic Site

Foundation Replacement

2012 January

SPECIFICATIONS



<u>Section</u>	<u>Title</u>	<u>Pages</u>
<u>Division 01 - General Requirements</u>		
01 11 00	SUMMARY OF WORK	5
01 32 15	CONSTRUCTION PROGRESS DOCUMENTATION	4
01 33 00	SUBMITTAL PROCEDURES	6
01 35 33	HEALTH AND SAFETY REQUIREMENTS	4
01 35 43	ENVIRONMENTAL/ CULTURAL PROCEDURES	2
01 45 00	QUALITY CONTROL	3
01 51 00	TEMPORARY UTILITIES	3
01 52 00	CONSTRUCTION FACILITIES	3
01 56 00	TEMPORARY BARRIERS & ENCLOSURES	2
01 61 00	COMMON PRODUCT REQUIREMENTS	6
01 74 11	CLEANING	3
01 74 21	WASTE MANAGEMENT & DISPOSAL	4
01 77 00	CLOSEOUT PROCEDURES	2
01 78 00	CLOSEOUT SUBMITTALS	6
<u>Division 02 - Existing Conditions</u>		
02 41 99	DEMOLITION FOR MINOR WORKS	5
<u>Division 03 - Concrete</u>		
03 20 00	Concrete Reinforcing	5
03 30 00	Cast-in-Place Concrete	9
<u>Division 06 - Wood, Plastics, and Composites</u>		
06 10 11	Rough Carpentry	4
<u>Division 07 - Thermal and Moisture Protection</u>		
07 46 23	Historic - Wood Siding Rehabilitation	5
<u>Division 31 - Earthwork</u>		
31 00 99	Earthwork for Minor Works	4

PART 1 - GENERAL

- 1.1 SECTION INCLUDES
- .1 Title and description of Work.
 - .2 Existing services.
 - .3 Contractor use of premises.
 - .4 Owner furnished items.
 - .5 Conservation Work Expectation
- 1.2 PRECEDENCE
- .1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections.
- 1.3 WORK COVERED BY CONTRACT DOCUMENTS
- .1 Work of this Contract comprises the rehabilitation of the exterior foundation walls in the Former Territorial Courthouse National Historic Site, Dawson City, Yukon Territory.
 - .2 The Former Territorial Courthouse is a 'classified' federal heritage building.
- 1.4 PROJECT SCHEDULE
- .1 Completion is preferred on or before October 31, 2011. Work MUST be complete by 31 March, 2012.
- 1.5 CONTRACT METHOD
- .1 Construct Work under single, stipulated price contract.
- 1.6 CONTRACTOR USE OF PREMISES
- .1 If passing through the public area caution is required.
 - .2 Unrestricted use of the Old Courthouse site.
 - .3 Limit use of premises for Work, for storage, and for access, to allow:
 - .1 Public usage of the larger site.

.4 Co-ordinate use of premises under direction of Departmental Representative.

1.7 OWNER OCCUPANCY .1 Co-operate with Owner to ensure protection of public on the larger site.

1.8 OWNER FURNISHED ITEMS.1 Not Used

.2 Contractor Responsibilities:
.1 Handle products at site, including moving and storage.
.2 Protect products from damage, and from exposure to elements.

1.9 EXISTING SERVICES .1 Notify, Engineer and utility companies of intended interruption of services and obtain required permission. Electrical service is from a pole adjacent to the site.
.2 Where Work involves breaking into or connecting to existing services, give Engineer 48 hours notice for necessary interruption of water or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to site operations.
.3 Establish location and extent of service lines in area of work before starting Work. Notify Engineer of findings.

1.10 DOCUMENTS REQUIRED .1 Maintain at job site, one copy each document as follows:
.1 Contract Drawings.
.2 Specifications.
.3 Addenda.
.4 Reviewed Shop Drawings.
.5 List of Outstanding Shop Drawings.
.6 Change Orders.
.7 Other Modifications to Contract.
.8 Field Test Reports.
.9 Copy of Approved Work Schedule.
.10 Health and Safety Plan and Other Safety

Related Documents.

.11 Other documents as specified.

1.11 SMOKING

- .1 Smoking will not be tolerated in the vicinity of the Work.

1.12 PROTECTION OF
EXISTING BUILDING AND
HISTORIC FEATURES

- .1 Protect existing property and building from damage during performance of the work.
- .2 Do not overload or unduly stress any part of the building. Do not cut, drill, or otherwise sleeve any load bearing structural members without written approval from the Engineer unless specifically indicated in the Contract documents.
- .3 As an historic structure, all existing material is of importance, no matter how rudimentary the technology or worn the material. Only rotted and deteriorated elements are to be repaired or replaced. Elements of the building that are not being addressed as part of this Work are to be protected.
- .4 Use self-supporting and self-bracing screens and coverings that will not damage existing historic features and finishes. Do not use fasteners that anchor directly into existing floors, walls and ceilings, and features and finishes being protected.
- .5 The method of protection is to be discussed with and approved by the Engineer before they are assembled and used.
- .6 Be responsible for all damage incurred due to improper or inadequate protection. If damage occurs as a result of inadequate or improper protection, repair and make good to original condition at no cost to the contract.

1.13 CONSERVATION
WORK EXPECTATION

- .1 Maintain up to date 'as built' drawings. The Engineer will review the 'as built' drawings for completeness. Refer to Section 01 45 00 for further information.

- .2 In the execution of the work, it is important that the approach be one of caution. Care should be taken so as not to stain, scar or damage existing historic materials during the course of undertaking the conservation process.
- .3 Preservation and respect of existing building fabric will involve choosing repair techniques over the replacement of deteriorated elements and will involve minimal disturbance in the accomplishment of the work.
- .4 "Repair or consolidation measures which retain original material are always preferable to those intended to replace it. Replacement should occur only where a majority of an element is decayed beyond repair." This conservation principle must be adhered to during the work. The repair ethic is more time consuming but the historic integrity of the resource is maintained to a more complete degree, therefore undue damage to historic material will not be tolerated.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not used.

PART 1 - GENERAL

- 1.1 Section Includes .1 Construction Schedule.
- .2 Progress Photographs.
- .3 As-built documentation.
- 1.2 Related Sections .1 Section 01780 - Closeout Submittals.
- 1.3 Schedules Required .1 Submit schedules as follows:
- .1 Construction Progress Schedule.
- .2 Format:
- .1 Prepare schedule in form of a horizontal bar chart.
- .2 Provide a separate bar for each major item of work or operation.
- .3 Split horizontally for projected and actual performance.
- .4 Provide horizontal time scale identifying first work day of each week.
- .5 Format for listings: chronological order of start of each item of work.
- 1.4 Submissions .1 Submit initial format of schedule with tender bid. If tender is accepted schedule will be returned to finalize.
- .2 Submit 2 copies of final schedule to Engineer.
- .3 Engineer will review schedule and return review copy within 2 days after receipt.
- .4 Resubmit finalized schedule within 7 days after return of review copy.
- .5 Submit revised progress schedule with each application for payment.

- .6 Distribute copies of revised schedule to:
 - .1 Job site office.
 - .2 Subcontractors.
 - .3 Other concerned parties.
- .7 Instruct recipients to report to Contractor within 5 days, any problems anticipated by timetable shown in schedule.

1.5 Project Meetings

- .1 Regular construction meetings will be scheduled during the course of the work to monitor construction progress and to identify problems and action required for their solution, to expedite work.
- .2 Frequency: as determined by schedule or directed by Engineer or Contractor.
- .3 Attendees are to be both Contractor's and Engineer's representative, qualified to act on behalf of the party represented.
- .4 Agenda will be to review minutes of previous meeting, review items of significance that would affect progress and other topics for discussion as appropriate to the current status of the work.
- .5 Engineer will write and distribute minutes of the meetings.

1.6 Progress Documentation

- .1 Digital photographs submitted as follows:
 - .1 Images grouped in folder designated by the date on which they were taken.
 - .2 All folders copied to a CD, and labelled with the project title, project number and date.
- .2 Viewpoints: viewpoints determined by Engineer during start-up meeting.
- .3 Frequency: before the start of work, intervals as decided at the start-up meeting, completion of project.
- .4 Submit photos of work completed monthly with progress statement.

- 1.7 As-built Record
- .1 Engineer will supply two sets of project drawings to contractor.
 - .2 Contractor to document construction changes on one set. Refer to Section 01 78 00 - Closeout Submittals for description of expectation.
 - .3 Transfer notes neatly to second set to hand over as part of closeout submittals.

PART 2 - PRODUCTS

- 2.1 Not Used
- .1 Not Used.

PART 3 - EXECUTION

- 3.1 Not Used
- .1 Not Used.

PART 1 - GENERAL

- 1.1 SECTION INCLUDES
- .1 Shop drawings and product data
 - .2 Samples
- 1.2 PRECEDENCE
- .1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.
- 1.3 RELATED SECTIONS
- .1 Section 01 45 00 - Quality Control
 - .2 Section 01 78 00 - Closeout Submittals.
- 1.4 ADMINISTRATIVE
- .1 Submit to Engineer submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
 - .2 Do not proceed with Work affected by submittal until review is complete.
 - .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
 - .4 Where items or information is not produced in SI Metric units converted values are acceptable.
 - .5 Review submittals prior to submission to Engineer. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

- .6 Notify Engineer, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Engineer's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Engineer review.
- .10 Keep one reviewed copy of each submission on site.

1.5 SHOP DRAWINGS AND
PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .3 Allow 5 days for Engineer's review of each submission.
- .4 Adjustments made on shop drawings by Engineer are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Engineer prior to proceeding with Work.
- .5 Make changes in shop drawings as Engineer may require, consistent with Contract Documents.

When resubmitting, notify Engineer in writing of revisions other than those requested.

- .6 Accompany submissions with transmittal letter, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.

- .7 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.

- .8 After Engineer's review, distribute copies.

- .9 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Engineer may reasonably request.

- .10 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Engineer where shop drawings will not be prepared due to standardized manufacture of

product.

- .11 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Engineer.
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - .2 Testing must have been within 3 years of date of contract award for project.
- .12 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Engineer.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .13 Submit electronic copies of manufacturer's instructions for requirements requested in specification Sections and as requested by Engineer.
 - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .14 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Engineer.
 - .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .15 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Engineer.
- .16 Delete information not applicable to project.
- .17 Supplement standard information to provide

details applicable to project.

- .18 If upon review by Engineer, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .19 Review of shop drawings is for sole purpose of ascertaining conformance with general concept. This review shall not mean that PWGSC approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting all requirements of construction and Contract Documents. Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of all sub-trades.

1.6 SAMPLES

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Engineer's business address.
- .3 Notify Engineer in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Engineer are not intended to change Contract Price. If adjustments affect value of Work, state such

in writing to Engineer prior to proceeding with Work.

- .6 Make changes in samples which Engineer may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.7 MOCK-UPS .1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

1.8 PROGRESS PHOTOGRAPHS .1 Submit progress photographs as discussed during the start up meeting.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

PART 1 - GENERAL

- 1.1 SECTION INCLUDES .1 Health and safety considerations required to ensure that PWGSC shows due diligence towards health and safety on construction sites, and meets the requirements laid out in PWGSC/RPB Departmental Policy DP 073 - Occupational Health and Safety - Construction.
- 1.2 PRECEDENCE .1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.
- 1.3 RELATED SECTIONS .1 Section 01 33 00 - Submittal Procedures.
.2 Section 01 56 00 - Temporary Barriers and Enclosures
.3 Section 31 23 33 - Trenching and Backfilling
- 1.4 REFERENCES .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.
.2 National Building Code of Canada (NBC):
.1 Part 8, Safety Measures at Construction and Demolition Sites.
.3 Canadian Standards Association (CSA) as amended:
.1 CSA Z797-2009 Code of Practice for Access Scaffold
.2 CSA S269.1-1975 (R2003) Falsework for Construction Purposes
.3 CSA S350-M1980 (R2003) Code of Practice for Safety in Demolition of Structures
.4 Fire Protection Engineering Services, HRSDC:
.1 FCC No. 301, Standard for Construction Operations.
.2 FCC No. 302, Standard for Welding and

Cutting.

- .5 American National Standards Institute (ANSI):
 - .1 ANSI A10.3, Operations - Safety Requirements for Powder-Actuated Fastening Systems.
- .6 Province of British Columbia:
 - .1 Workers Compensation Act Part 3-Occupational Health and Safety.
 - .2 Occupational Health and Safety Regulation
- .7 Yukon Territory
 - .1 Occupational Health and Safety Act, R.S.Y. Part 10 Construction and Building Safety
- .8 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 - .1 Material Safety Data Sheets (MSDS).

1.5 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within 3 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
- .3 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to authority having jurisdiction.
- .4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5 Submit copies of incident and accident reports.
- .6 Engineer will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 2 days after receipt of plan. Revise plan as appropriate and resubmit plan to Engineer within 2 days

after receipt of comments from Engineer.

.7 Engineer's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

.8 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.6 FILING OF NOTICE

.1 File Notice of Project with Provincial authorities prior to beginning of Work.

1.7 SAFETY ASSESSMENT

.1 Perform site specific safety hazard assessment related to project.

1.8 MEETINGS

.1 Schedule and administer Health and Safety meeting with Engineer and owner prior to commencement of Work.

1.9 REGULATORY REQUIREMENTS

.1 Do Work in accordance with Regulatory Requirements.

1.10 GENERAL REQUIREMENTS

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

.2 Engineer may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

- 1.11 RESPONSIBILITY
- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
 - .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.
- 1.12 COMPLIANCE REQUIREMENTS
- .1 Comply with Occupational Health and Safety A.t, General Safety Regulation, Yukon Territory Reg.
 - .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.
- 1.13 UNFORSEEN HAZARDS
- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Engineer verbally and in writing.
- 1.14 POSTING OF DOCUMENTS
- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Engineer.
- 1.15 CORRECTION OF NON-COMPLIANCE
- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Engineer.
 - .2 Provide Engineer with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Engineer may stop Work if non-compliance of health and safety regulations is not corrected.

1.16 WORK STOPPAGE

.1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not used.

PART 1 - GENERAL

- 1.1 Precedence .1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.
- 1.2 Fires .1 Fires and burning of rubbish on site not permitted.
- 1.3 Disposal of Wastes .1 Do not bury rubbish and waste materials on site.
.2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.
.3 Remove all demolition, construction and trade waste from the site on a regular basis. Maintain the site in a tidy condition, free from the accumulation of waste products, debris and litter.
- 1.4 Pollution Control .1 Control emissions from equipment and plant to local authorities emission requirements.
- 1.5 Wildlife .1 Avoid or terminate activities on site that attract or harass wildlife.
- 1.6 Relics and Artifacts .1 Protect relics, artifacts, items of historical or scientific interest such as discarded buried items, possible evidence of native habitation, and similar objects found during the course of the work.
.2 Give immediate notice to Engineer and await Engineer's written instruction before proceeding with work in this area.
.3 Relics, artifacts and items of historical or scientific interest remain the property of the crown.

PART 2 - PRODUCTS

2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

3.1 Not Used .1 Not Used.

PART 1 - GENERAL

- 1.1 Section Includes .1 Mock-ups.
- 1.2 Precedence .1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.
- 1.3 Related Sections .1 Section 01 33 00 - Submittal Procedures.
.2 Section 01 78 00 - Closeout Submittals.
- 1.4 Inspection .1 Allow Engineer access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Engineer instructions, or law of Place of Work.
.3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
.4 Engineer may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.

- 1.5 Rejected Work
- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Engineer as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
 - .2 Make good other Contractor's work damaged by such removals or replacements promptly.
 - .3 If in opinion of Engineer it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner may deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which shall be determined by Engineer.

- 1.6 Mock-ups
- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of all Sections required to provide mock-ups.
 - .2 Construct in all locations acceptable to Engineer.
 - .3 Prepare mock-ups for Engineer's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in Work.
 - .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
 - .5 If requested, Engineer will assist in preparing a schedule fixing dates for preparation.
 - .6 Mock-ups may remain as part of Work.

- 1.7 Equipment and Systems
- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.
 - .2 Refer to Specification Sections for definitive requirements.

PART 2 - PRODUCTS

- 2.1 Not Used
- .1 Not Used.

PART 3 - EXECUTION

- 3.1 Not Used
- .1 Not Used.

PART 1 - GENERAL

- 1.1 INSTALLATION AND REMOVAL
- .1 Provide temporary utilities controls in order to execute work expeditiously.
 - .2 Remove from site all such work after use.
- 1.2 DEWATERING
- .1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.
- 1.3 WATER SUPPLY
- .1 Provide continuous supply of potable water for construction use.
 - .2 Arrange for connection with appropriate utility company and pay costs for installation, maintenance and removal.
 - .3 Pay for utility charges at prevailing rates.
- 1.4 TEMPORARY HEATING AND VENTILATION
- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
 - .2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.
 - .3 Provide temporary heat and ventilation in enclosed areas as required to:
 - .1 Facilitate progress of Work.
 - .2 Protect Work and products against dampness and cold.
 - .3 Prevent moisture condensation on surfaces.
 - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
 - .5 Provide adequate ventilation to meet health regulations for safe working environment.
 - .4 Maintain temperatures of minimum 10 degrees C

in areas where construction is in progress.

- .5 Ventilating:
 - .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
 - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
 - .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
 - .4 Ventilate storage spaces containing hazardous or volatile materials.
 - .5 Ventilate temporary sanitary facilities.
 - .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

- .6 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
 - .1 Conform with applicable codes and standards.
 - .2 Enforce safe practices.
 - .3 Prevent abuse of services.
 - .4 Prevent damage to finishes.
 - .5 Vent direct-fired combustion units to outside.

- .7 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.5 TEMPORARY POWER AND LIGHT

- .1 Provide and pay for temporary power during construction for temporary lighting and operating of power tools.

- .2 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance and removal.

1.6 FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and

governing codes, regulations and bylaws.

- .2 Burning rubbish and construction waste materials is not permitted on site.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

PART 1 - GENERAL

- 1.1 INSTALLATION AND REMOVAL .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, location of trailer to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Provide construction facilities in order to execute work expeditiously.
- .3 Remove from site all such work after use.
- 1.2 SCAFFOLDING .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding as required.
- 1.3 SITE STORAGE/LOADING .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.
- 1.4 CONSTRUCTION PARKING .1 Parking will be permitted on site provided it does not disrupt performance of Work.
- .2 Provide and maintain adequate access to project site.
- 1.5 EQUIPMENT, TOOL AND MATERIALS STORAGE .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

- 1.6 SANITARY FACILITIES .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.
- 1.7 CONSTRUCTION SIGNAGE .1 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.
- .2 Maintain approved signs and notices in good condition for duration of project, and dispose of off site on completion of project or earlier if directed by Engineer.
- 1.8 CLEAN-UP .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.

PART 2 - PRODUCTS

- 2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

- 3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL .1 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

- .2 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

PART 1 - GENERAL

- 1.1 Precedence .1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.
- 1.2 Related Sections .1 Section 01 11 00 - Summary of Work.
- 1.3 Installation and Removal .1 Provide temporary controls in order to execute Work expeditiously.
.2 Remove from site all such work after use.
- 1.4 Guard Rails and Barricades .1 Provide secure, rigid guard rails and barricades around work site to keep the visiting public away from the Work.
.2 Provide as discussed at Site Meeting.
- 1.5 Weather Enclosures .1 Provide weather tight closures to unfinished openings into the building.
.2 Design enclosures to withstand wind pressure.
- 1.6 Public Traffic Flow .1 Provide barricades as required to perform Work and protect the public who will be in the vicinity
- 1.7 Protection for Off-Site and Public Property .1 Protect surrounding public property from damage during performance of Work.
.2 Be responsible for damage incurred.
- 1.8 Protection of .1 Provide protection for finished and partially

- Building Finishes finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
 - .3 Be responsible for damage incurred due to lack of or improper protection.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

- 3.1 Not Used .1 Not Used.

PART 1 - GENERAL

- 1.1 Section Includes
- .1 Product quality, availability, storage, handling, protection, and transportation.
 - .2 Manufacturer's instructions.
 - .3 Quality of Work, coordination and fastenings.
 - .4 Existing facilities.
- 1.2 Precedence
- .1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.
- 1.3 Related Sections
- .1 Section 01 11 00 - Summary of Work.
- 1.4 Quality
- .1 Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in Work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
 - .2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
 - .3 Should any dispute arise as to quality or fitness of products, decision rests strictly with Engineer based upon requirements of Contract Documents.
 - .4 Unless otherwise indicated in specifications,

maintain uniformity of manufacture for any particular or like item throughout building.

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

1.5 Availability

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of products are foreseeable, notify Engineer of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Engineer at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Engineer reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.6 Storage, Handling and Protection

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

- .6 Store sheet materials and lumber on flat, solid supports and keep clear of ground.
- .7 Remove and replace damaged products at own expense and to satisfaction of Engineer.
- .8 Touch-up damaged factory finished surfaces to Engineer's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.7 Transportation

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

1.8 Manufacturer's Instructions

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions.
- .2 Notify Engineer in writing, of conflicts between specifications and manufacturer's instructions, so that Engineer may establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Engineer to require removal and re-installation at no increase in Contract Price or Contract Time.

1.9 Quality of Work

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Engineer if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Engineer reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with

Engineer, whose decision is final.

- 1.10 Co-Ordination
- .1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.
 - .2 Be responsible for coordination and placement of openings, sleeves and accessories.
- 1.11 Concealment
- .1 In finished areas, conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
 - .2 Before installation, inform Engineer if there is interference. Install as directed by Engineer.
- 1.12 Remedial Work
- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
 - .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.
- 1.13 Fastenings
- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
 - .2 Prevent electrolytic action between dissimilar metals and materials.
 - .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.

- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.14 Fastenings Equipment

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.15 Protection of Work in Progress

- .1 Prevent overloading of any part of building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Engineer.

1.16 Existing Utilities

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having

jurisdiction. Stake and record location of capped service.

PART 2 - PRODUCTS

2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

3.1 Not Used .1 Not Used.

PART 1 - GENERAL

- 1.1 Section Includes .1 Progressive cleaning.
- .2 Final cleaning.
-
- 1.2 Precedence .1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.
-
- 1.3 Related Section .1 Section 01 74 19 - Construction/Demolition Waste Management And Disposal.
- .2 Section 01 77 00 - Closeout Procedures.
-
- 1.4 Project Cleanliness .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.
- .2 Remove waste materials from site at regularly scheduled times or dispose of as directed by Engineer. Do not burn waste materials on site.
- .3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4 Provide on-site containers for collection of waste materials and debris.
- .5 Provide and use clearly marked separate bins for recycling. Refer to Section 01 74 19 - Construction/Demolition Waste Management And Disposal.
- .6 Remove waste material and debris from site and deposit in waste container at end of each working day.

- .7 Dispose of waste materials and debris off site.
- .8 Clean interior areas prior to start of finish work, and maintain areas free of dust and other contaminants during finishing operations.
- .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.5 Final Cleaning

- .1 When Work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris including that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review, remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris including that caused by Owner or other Contractors.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Engineer. Do not burn waste materials on site.
- .6 Make arrangements with and obtain permits from

authorities having jurisdiction for disposal of waste and debris.

- .7 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, and floors.
- .8 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .9 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .10 Remove dirt and other disfiguration from exterior surfaces.
- .11 Clean equipment and fixtures to a sanitary condition; clean or replace filters of mechanical equipment.
- .12 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

PART 2 - PRODUCTS

2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

3.1 Not Used .1 Not Used.

PART 1 - GENERAL

- 1.1 SECTION INCLUDES .1 Text and procedures for systematic Waste Management Program for rehabilitation projects.,
- 1.2 RELATED SECTIONS .1 Not used
- 1.3 PRECEDENCE .1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.
- 1.4 DEFINITIONS
- .1 Recyclable: Ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse by others.
 - .2 Recycle: Process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
 - .3 Recycling: Process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
 - .4 Reuse: Repeated use of product in same form but not necessarily for same purpose. Reuse includes:
 - .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
 - .2 Returning reusable items including pallets or unused products to vendors.
 - .5 Salvage: Removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.

- 1.5 STORAGE, HANDLING AND PROTECTION
- .1 Unless specified otherwise, materials for removal become Contractor's property.
 - .2 Protect structural components not removed for demolition from movement or damage.
 - .3 Protect surface drainage, mechanical and electrical from damage and blockage.
 - .4 Separate materials to be disposed of into wood, metal and packaging.
 - .5 Handle materials in accordance with requirements for acceptance by designated facilities.
 - .1 On-site source separation is recommended.

- 1.6 DISPOSAL OF WASTES
- .1 Do not bury rubbish or waste materials.
 - .2 Do not dispose of waste, volatile materials, mineral spirits, oil, or paint thinner into waterways, storm, or sanitary sewers.

- 1.7 SCHEDULING
- .1 Coordinate Work with other activities at site to ensure timely and orderly progress of Work.

PART 2 - PRODUCTS

- 2.1 NOT USED
- .1 Not Used.

PART 3 - EXECUTION

3.1 APPLICATION

- .1 Handle waste materials in accordance with appropriate regulations and codes.

3.2 CLEANING

- .1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.
- .2 Clean-up work area as work progresses.
- .3 Source separate materials to be disposed of.

PART 1 - GENERAL

- 1.1 Section Includes .1 Administrative procedures preceding preliminary and final inspections of Work.
- 1.2 Precedence .1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.
- 1.3 Related Sections .1 Section 01 78 00 01 78 00 - Closeout Submittals.
- 1.4 Inspection and Declaration .1 Engineer's Inspection: Engineer and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor shall correct Work accordingly.
- .2 Completion: submit written certificate that following have been performed:
- .1 Work has been completed and inspected for compliance with Contract Documents.
 - .2 Defects have been corrected and deficiencies have been completed.
 - .3 Equipment and systems have been tested, adjusted and balanced and are fully operational.
 - .4 Certificates required by Utility companies have been submitted.
 - .5 Operation of systems have been demonstrated to Owner's personnel.
 - .6 Work is complete and ready for Final Inspection.
- .3 Final Inspection: when items noted above are completed, request final inspection of Work by Owner, Engineer, and Contractor . If Work is deemed incomplete by Owner and Engineer, complete outstanding items and request reinspection.

PART 2 - PRODUCTS

2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

3.1 Not Used .1 Not Used.

PART 1 - GENERAL

- 1.1 Section Includes .1 As-built, samples, and specifications.
- .2 Operation and maintenance data.
- .3 Maintenance materials.
-
- 1.2 Precedence .1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.
-
- 1.3 Related Sections .1 Section 01 45 00 - Quality Control.
- .2 Section 01 77 00 - Closeout Procedures.
-
- 1.4 As-builts and Samples.1 In addition to requirements in General Conditions, maintain at the site for Engineer one record copy of:
- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Change Orders and other modifications to the Contract.
- .5 Reviewed shop drawings, product data, and samples.
- .6 Field test records.
- .7 Inspection certificates.
- .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- .3 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .4 Keep record documents and samples available

for inspection by Engineer.

1.5 Recording Actual Site Conditions

Record information on set of black line opaque drawings, provided by Engineer.

- .2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on original Contract Drawings.
 - .7 References to related shop drawings and modifications.
- .5 Specifications: legibly mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
 - .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

1.6 Maintenance

- .1 Provide maintenance and extra materials, in

Materials

quantities specified in individual specification sections.

- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue all items. Submit inventory listing to Engineer. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.7 Storage, Handling and Protection

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and to satisfaction of Engineer.

PART 2 - PRODUCTS

2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

3.1 Not Used .1 Not Used.

PART 1 - GENERAL

1.1 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA S350-M1980(R1998), Code of Practice for Safety in Demolition of Structures.
 - .2 National Building Code of Canada (NBC), 2010, Division B, Part 8 "Safety Measures at Construction and Demolition Sites"

1.2 SUBMITTALS

- .1 Submit shop drawings in accordance with Sections 01 33 00 - Submittal Procedures
- .2 Before proceeding with demolition of load bearing walls or of other walls submit for review by Departmental Representative shoring and underpinning drawings prepared by qualified professional engineer registered or licensed in the Yukon Territory, showing proposed method.

1.2 WASTE MANAGEMENT AND DISPOSAL

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

1.3 SITE CONDITIONS

- .1 Should material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify Departmental Representative immediately.
 - .1 Do not proceed until written instructions have been received from Departmental Representative.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not used.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Inspect building and site with Departmental Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

.3 Notify and obtain approval of utility companies before starting demolition.

.4 Disconnect, cap, plug or divert, as required, existing public utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.

.1 Immediately notify Departmental Representative and utility company concerned in case of damage to any utility or service, designated to remain in place.

.2 Immediately notify the Departmental Representative should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

3.2 PROTECTION

- .1 Prevent movement, settlement, or damage to adjacent structures, utilities, and landscaping features and parts of building to remain in place. Provide bracing and shoring required.
- .2 Protect building systems, services and equipment.
- .3 Provide temporary dust screens, covers, railings, supports and other protection as required.
- .4 Do Work in accordance with Section 01 35 30 - Health and Safety Requirements

3.3 SALVAGE

- .1 Refer to demolition drawings and specifications for items to be salvaged for reuse.
- .2 Remove items to be reused, store as directed by Departmental Representative, and re-install under appropriate section of specification.

3.4 DEMOLITION

- .1 Remove parts of existing building to permit new construction. Sort materials into appropriate piles for reuse and recycling.
- .2 Trim edges of partially demolished building elements to tolerances as defined by Departmental Representative to suit future use.

3.5 DISPOSAL

- .1 Dispose of removed materials, to appropriate recycling facilities or reuse facilities except where specified otherwise, in accordance with authority having jurisdiction.

3.6 PARTIAL DEMOLITION

- .1 Demolish existing perimeter foundation wall only after approved bracing and shoring is implemented.
- .2 The building will not be occupied or used for any purpose other than construction for the duration of this Work.

PART 1 - GENERAL

- 1.1 RELATED SECTIONS .1 Section 03 30 00 - Cast-in-Place Concrete.
- 1.2 MEASUREMENT PROCEDURES .1 No measurement will be made under this Section.
.1 Include reinforcement costs in items of concrete work in Section 03 30 00 - Cast-In-Place Concrete.
- 1.3 REFERENCES .1 American Concrete Institute (ACI)
.1 SP-66-04, ACI Detailing Manual 2004.
.1 ACI 315-99, Details and Detailing of Concrete Reinforcement.
.2 ACI 315R-04, Manual of Engineering and Placing Drawings for Reinforced Concrete Structures.
- .2 American Society for Testing and Materials International (ASTM)
.1 ASTM A 185/A 185M-05a, Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
.2 ASTM A 497/A 497M-05a, Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete.
.3 ASTM A 775/A 775M-04a, Standard Specification for Epoxy-Coated Reinforcing Steel Bars.
- .3 Canadian Standards Association (CSA International)
.1 CSA-A23.1-04/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
.2 CSA-A23.3-04, Design of Concrete Structures.
.3 CAN/CSA-G30.18-M92(R2002), Billet-Steel Bars for Concrete Reinforcement, A National Standard of Canada.
.4 CSA W186-M1990(R2002), Welding of

Reinforcing Bars in Reinforced Concrete Construction.

- .4 Reinforcing Steel Institute of Canada (RSIC)
 - .1 RSIC-2004, Reinforcing Steel Manual of Standard Practice.

1.4 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare reinforcement drawings in accordance with RSIC Manual of Standard Practice.
- .3 Submit shop drawings including placing of reinforcement and indicate:
 - .1 Bar bending details.
 - .2 Lists.
 - .3 Quantities of reinforcement.
 - .4 Sizes, spacings, locations of reinforcement and mechanical splices if approved by Departmental Representative, with identifying code marks to permit correct placement without reference to structural drawings.
- .4 Detail lap lengths and bar development lengths to CSA-A23.3, unless otherwise indicated.
 - .1 Provide type A tension lap splices unless otherwise indicated.
- .5 Quality Assurance: in accordance with Section 01 45 00 - Quality Control and as described in PART 2 - SOURCE QUALITY CONTROL.
 - .1 Upon request submit in writing to Departmental Representative proposed source of reinforcement material to be supplied.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 47 21 - Waste Management and Disposal.
 - .2 Place materials defined as hazardous or toxic in designated containers.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Substitute different size bars only if permitted in writing by Departmental Representative.
- .2 Reinforcing steel: billet steel, grade 350, deformed bars to CAN/CSA-G30.18, unless indicated otherwise.
- .3 Reinforcing steel: weldable low alloy steel deformed bars to CAN/CSA-G30.18.
- .4 Cold-drawn annealed steel wire ties: to ASTM A 497/A 497M.
- .5 Welded steel wire fabric: to ASTM A 185/A 185M.
- .6 Chairs, bolsters, bar supports, spacers: to CSA-A23.1/A23.2.
- .7 Mechanical splices: subject to approval of Departmental Representative.

2.2 FABRICATION

- .1 Fabricate reinforcing steel in accordance with CSA-A23.1/A23.2 and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada.
- .2 Obtain Departmental Representative's approval for locations of reinforcement splices other than those shown on placing drawings.
- .3 Upon approval of Departmental Representative weld reinforcement in accordance with CSA W186.

2.3 SOURCE QUALITY CONTROL

- .1 Upon request, inform Departmental of proposed source of material to be supplied.

PART 3 - EXECUTION

3.1 PREPARATION .1 Not used.

3.2 FIELD BENDING .1 Do not field bend or field weld reinforcement except where indicated or authorized by Departmental Representative.
.2 When field bending is authorized, bend without heat, applying slow and steady pressure.
.3 Replace bars, which develop cracks or splits.

3.3 PLACING REINFORCEMENT.1 Place reinforcing steel as indicated on placing drawings and in accordance with CSA-A23.1/A23.2.
.2 Prior to placing concrete, obtain Departmental Representative's approval of reinforcing material and placement.
.3 Ensure cover to reinforcement is maintained during concrete pour.

PART 1 - GENERAL

- 1.1 RELATED SECTIONS .1 Section 03 20 00 - Concrete Reinforcing.
- 1.2 MEASUREMENT PROCEDURES .1 Cast-in-place concrete will not be measured but will be paid for as a fixed price item.
- 1.3 REFERENCES
- .1 American Society for Testing and Materials International (ASTM)
- .1 ASTM C 260-01, Standard Specification for Air-Entraining Admixtures for Concrete.
- .2 ASTM C 494/C 494M-05, Standard Specification for Chemical Admixtures for Concrete.
- .3 ASTM C 1017/C 1017M-03, Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
- .2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-51.34-M86(R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .3 Canadian Standards Association (CSA International)
- .1 CSA-A23.1/A23.2-2004, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .2 CSA A283-00(R2003), Qualification Code for Concrete Testing Laboratories.
- .3 CAN/CSA-A3000-03, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
- .1 CSA-A3001-03, Cementitious Materials for Use in Concrete.

- 1.4 ACRONYMS AND TYPES
- .1 Cement: hydraulic cement or blended hydraulic cement (XXb - where b denotes blended).
 - .1 Type GU or GUb - General use cement.
 - .2 Type MS or MSb - Moderate sulphate-resistant cement.
 - .3 Type MH or MHb - Moderate heat of hydration cement.
 - .4 Type HE or Heb - High early-strength cement.
 - .5 Type LH or LHb - Low heat of hydration cement.
 - .6 Type HS or HSb - High sulphate-resistant cement.
 - .2 Fly ash:
 - .1 Type F - with CaO content less than 8%.
 - .2 Type CI - with CaO content ranging from 8 to 20%.
 - .3 Type CH - with CaO greater than 20%.
 - .3 GGBFS - Ground, granulated blast-furnace slag.

- 1.5 DESIGN REQUIREMENTS
- .1 Alternative 1 - Performance: in accordance with CSA-A23.1/A23.2, and as described in MIXES of PART 2 - PRODUCTS.

- 1.6 SUBMITTALS
- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit inspection results and reports for review by Departmental Representative and do not proceed without written approval when deviations from mix design or parameters are found.
 - .3 Concrete pours: submit accurate records of poured concrete items indicating date and location of pour, quality, air temperature and test samples taken as described in PART 3 - FIELD QUALITY CONTROL.
 - .4 Concrete hauling time: submit for review by Departmental Representative deviations exceeding maximum allowable time of 2 hours

for concrete to be delivered to site of Work and discharged after batching.

1.7 QUALITY ASSURANCE

- .1 Quality Assurance: in accordance with Section 01 45 00 - Quality Control.
- .2 Site Meetings: convene pre-installation meeting one week prior to beginning site work.
 - .1 Ensure key personnel, site supervisor, Departmental Representative attend.
 - .2 Verify project requirements.
- .3 Submit to Departmental Representative, minimum 4 weeks prior to starting concrete work, valid and recognized certificate from plant delivering concrete.
 - .1 When plant does not hold valid certification, provide test data and certification by qualified independent inspection and testing laboratory that materials used in concrete mixture will meet specified requirements.
- .4 Minimum 4 weeks prior to starting concrete work, submit proposed quality control procedures for review by Departmental Representative on following items:
 - .1 Falsework erection.
 - .2 Hot weather concrete.
 - .3 Cold weather concrete.
 - .4 Curing.
 - .5 Finishes.
 - .6 Formwork removal.
 - .7 Joints.
- .5 Quality Control Plan: submit written report, as described in PART 3 - VERIFICATION, to Departmental Representative verifying compliance that concrete in place meets performance requirements of concrete as established in PART 2 - PRODUCTS.
- .6 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 33 - Health and Safety Requirements.

1.8 DELIVERY, STORAGE AND HANDLING.1

Concrete hauling time: maximum allowable time for concrete to be delivered to site of Work and discharged not to exceed 120 minutes after batching.

.1 Modifications to maximum time limit must be agreed to Departmental Representative and concrete producer as described in CSA A23.1/A23.2.

.2 Deviations to be submitted for review by Departmental Representative.

.2 Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.

.3 Waste Management and Disposal:

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Waste Management and Disposal.

.2 Divert unused concrete materials from landfill to local quarry facility approved by Departmental Representative.

.3 Provide an appropriate area on the job site where concrete trucks can be safely washed.

.4 Unused admixtures and additive materials must not be disposed of into sewer systems, into lakes, streams, onto ground or in other location where it will pose health or environmental hazard.

.5 Prevent admixtures and additive materials from entering drinking water supplies or streams. Using appropriate safety precautions, collect liquid or solidify liquid with inert, noncombustible material and remove for disposal. Dispose of waste in accordance with applicable local, Provincial/Territorial and National regulations.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Cement: to CAN/CSA-A3001, Type GU.
- .2 Water: to CSA-A23.1.
- .3 Aggregates: to CAN/CSA-A23.1/A23.2.
- .4 Admixtures:
 - .1 Air entraining admixture: to ASTM C 260.

2.2 MIXES

- .1 Alternative 1 - Performance Method for specifying concrete: to meet Departmental Representative performance criteria in accordance with CAN/CSA-A23.1/A23.2.
 - .1 Ensure concrete supplier meets performance criteria as established below and provide verification of compliance as described in PART 3 - VERIFICATION.
 - .2 Provide concrete mix to meet following hard state requirements:
 - .1 Durability and class of exposure: N
 - .2 Minimum compressive strength at 28 days age: 35 MPa.
 - .3 Intended application: footings.
 - .4 Surface texture: steel trowel finish.
 - .5 Geometrical requirements: 2% slope for drainage as per drawings.
 - .3 Provide quality management plan to ensure verification of concrete quality to specified performance.
 - .4 Concrete supplier's certification.

PART 3 - EXECUTION

3.1 PREPARATION

- .1 Obtain Departmental Representative's approval before placing concrete.
 - .1 Provide 24 hours notice prior to placing of concrete.
- .2 Place concrete reinforcing in accordance with Section 03 20 00 - Concrete Reinforcing
- .3 During concreting operations:
 - .1 Development of cold joints not allowed.
 - .2 Ensure concrete delivery and handling facilitates placing with minimum of re-handling, and without damage to existing structure or Work.
- .4 Ensure reinforcement and inserts are not disturbed during concrete placement.
- .5 Prior to placing of concrete obtain Departmental Representative's approval of proposed method for protection of concrete during placing and curing in adverse weather.
- .6 Protect previous Work from staining.
- .7 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, air temperature and test samples taken.
- .8 Do not place load upon new concrete until authorized by Departmental Representative.

3.2 CONSTRUCTION

- .1 Do cast-in-place concrete work in accordance with CSA-A23.1/A23.2.
- .2 Finishing and curing:
 - .1 Finish concrete in accordance with CSA-A23.1/A23.2.
 - .2 Use procedures as reviewed by Departmental Representative or those noted in CSA-A23.1/A23.2 to remove excess bleed water.

Ensure surface is not damaged.

3.3 SURFACE TOLERANCE .1 Not Used

3.4 FIELD QUALITY CONTROL.1 Site tests: conduct following test in accordance with Section 01 45 00 - Quality Control and submit report as described in PART 1 - SUBMITTALS.

- .1 Concrete pours.
- .2 Slump tests.

.2 Inspection and testing of concrete and concrete materials will be carried out by testing laboratory designated by Departmental for review in accordance with CSA-A23.1/A23.2.

- .1 Ensure testing laboratory is certified in accordance with CSA A283.

.3 Departmental Representative will pay for costs of tests.

.4 Inspection or testing by Consultant will not augment or replace Contractor quality control nor relieve Contractor of his contractual responsibility.

3.5 VERIFICATION .1 Quality Control Plan: ensure concrete supplier meets performance criteria of concrete as established in PART 2 - Products, by Departmental Representative and provide verification of compliance as described in PART 1 - QUALITY ASSURANCE.

PART 1 - GENERAL

- 1.1 Related Sections .1 Section 01 74 19 - Construction/Demolition Waste Management And Disposal.
- 1.2 References .1 Canadian Standards Association (CSA International)
.1 CSA B111-1974(R1998), Wire Nails, Spikes and Staples.
.2 CAN/CSA-G164-M92(R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
.3 CSA O121-M, Douglas Fir Plywood.
.4 CAN/CSA-O141-91(R1999), Softwood Lumber.
.5 CSA O151-M1978(R1998), Canadian Softwood Plywood.
.6 CAN/CSA-O322, Procedure for Certification of Pressure-Treated Wood Materials for Use in Preserved Wood Foundations-
.7 CAN/CSA-O325.0-92(R1998), Construction Sheathing.
.8 CAN/CSA-O80.15, Preservative Treatment of Wood for Building Foundation Systems, Basements and Crawl Spaces by Pressure Process.
- .2 National Lumber Grades Authority (NLGA)
.1 Standard Grading Rules for Canadian Lumber 2000.
- 1.3 Quality Assurance .1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.
- .2 Plywood identification: by grade mark in accordance with applicable CSA standards.
- .3 Plywood, OSB and wood based composite panel construction sheathing identification: by grademark in accordance with applicable CSA standards.
- .4 PWF lumber and plywood by qualification mark to CAN/CSA-Standard O322

- 1.4 Waste Management and Disposal
- .1 Separate and recycle waste materials in accordance with Section 01 74 21 Waste Management And Disposal.
 - .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
 - .3 Divert unused wood materials from landfill to recycling or composting facility approved by Engineer.
 - .4 Do not dispose of preservative treated wood through incineration.
 - .5 Do not dispose of preservative treated wood with materials destined for recycling or reuse.
 - .6 Dispose of treated wood, end pieces, wood scraps and sawdust at sanitary landfill approved by Engineer.
 - .7 Dispose of unused wood preservative material at official hazardous material collections site approved by Engineer.
 - .8 Do not dispose of unused preservative material into sewer system, into streams, lakes, onto ground or in other locations where they will pose health or environmental hazard.

PART 2 - PRODUCTS

- 2.1 Lumber Material
- .1 Lumber: unless specified otherwise, softwood, S4S, Species Group SPF, Grade No 2 or better, moisture content 19% or less in accordance with following standards:
 - .1 CAN/CSA-O141.
 - .2 NLGA Standard Grading Rules for Canadian Lumber.
 - .2 PWF Lumber: unless specified otherwise, S4S, Grade stamp indicating species as: either D

Fir (N), W Hem(N), Hem Fir (N), L Pine (N0, J Pine (N0 Alpine Fir(N), B Fir (N) or P Pine ; Grade No 2 or better, moisture content 19% or less; in accordance with following standards:

- .1 CAN/CSA-0141.
- .2 NLGA Standard Grading Rules for Canadian Lumber.
- .3 CAN/CSA-0322

- .3 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
 - .1 Rough is acceptable.
 - .2 Board sizes: "Standard" or better grade.
 - .3 Dimension sizes: "Standard" light framing or better grade.
 - .4 Post and timbers sizes: "Standard" or better grade.

2.2 Plywood Material

- .1 PWF plywood, grade marked 'Hem-Fir', in accordance with following standards:
 - .1 CAN/CSA-0121.
 - .2 CAN/CSA-0151.
 - .3 CAN/CSA-0322

.2

2.3 Accessories

- .1 Nails, spikes and staples: to CSA B111.
- .2 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.
- .3 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.

2.4 Finishes

- .1 Galvanizing: to CAN/CSA-G164, use galvanized fasteners for exterior work interior highly humid areas pressure- preservative fire-retardant treated lumber.

- 2.5 Wood Preservative
- .1 Surface-applied wood preservative: clear , zinc or copper naphthenate solution, water repellent preservative.
 - .2 Structures built with wood treated with pentachlorophenol and inorganic arsenicals must not be used for storing food nor should the wood come in contact with drinking water.

PART 3 - EXECUTION

- 3.1 Preparation
- .1 Treat surfaces of material with wood preservative, before installation.
 - .2 Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3 minute soak on lumber and one minute soak on plywood.
 - .3 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.
 - .4 Treat material as follows:
 - .1 Sleepers.
 - .2 Wood in contact with the soil.

- 3.2 Installation
- .1 Comply with requirements of NBC, supplemented by the following paragraphs.
 - .2 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.
 - .3 Install fascia backing, nailers, and other wood supports as required and secure using galvanized fasteners.

3.3 Erection

- .1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.
- .2 Countersink bolts where necessary to provide clearance for other work.

PART 1 - GENERAL

- .1 SECTION INCLUDES
- .1 Requirements for identifying siding to be repaired, and repair process.
- .2 RELATED SECTIONS
- .2 Section 01 11 00 - Summary of Work (Conservation Expectation)
- .3 Section 01 33 00 - Submittal Procedures.
- .4 Section 01 74 19 - Construction/Demolition Waste Management and Disposal.
- .5 Section 06 10 10 - Rough Carpentry
- .6 Section 09 03 61 - Refinishing Exterior Wood Surfaces.
- .3 REFERENCES
- .7 Canadian Standards Association (CSA International).
.1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
.2 CAN/CSA-Z808-96, A Sustainable Forest Management System: Guidance Document.
- .8 National Lumber Grades Authority (NLGA).
.1 NLGA Standard Grading Rules for Canadian Lumber 2003.
- .4 SUBMITTALS
- .9 Product Data:
.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
.2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures.
- .10 Samples:
.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit duplicate 600mm long with profile specified.

.5 QUALITY ASSURANCE

.11 Meeting will be conducted to verify project requirements.

.6 WASTE MANAGEMENT AND DISPOSAL

.12 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

.13 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.14 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.

.15 Divert unused metal materials from landfill to metal recycling facility approved by Engineer.

.16 Divert unused wood materials from landfill to recycling ,reuse, composting facility approved by Engineer.

.17 Divert unused caulking material from landfill to official hazardous material collections s.te approved by Departmental Representative

.18 Do not dispose of unused caulking materials into the sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

.7 REHABILITATION CONTEXT

- .1 Types of siding deterioration are:
- .2 Rot in sections of the siding or at the board ends
- .3 UV deteriorated or severely weathered surfaces.
- .4 Split, or broken boards
- .5 Warped or curled boards
- .6 Biological growth on the surface of the

siding.

.7 Missing pieces of siding that have been replaced by temporary infill of dressed lumber.

- .19 The general worn and weathered aspect of the Foaling Barn siding is referred to as the 'patina of age' and is to be retained.

PART 2 - PRODUCTS

.1 MATERIALS

- .20 Lumber siding: to NLGA Standard Grading Rules for Canadian Lumber.
.1 Vertical Boards: SPF species, rough, #2 grade or better, thickness and board width to match existing.
- .21 Fasteners: nails to CSA B111, hot galvanized steel, sized as required, smooth shank type with flat head.

PART 3 - EXECUTION

.1 PREPARATION

- .22 Remove horizontal lumber and wire from the outer wall along the north and west elevations.
- .23 Prior to removing the deteriorated siding review locations with Engineer.
- .24 Remove deteriorated siding and dispose of it according to the Waste Management Plan.
- .25 Only extent of rotted, split or broken siding to be removed, which may require blocking to be placed in wall to secure a butt joint between two sections of siding.
- .26 Review condition of the substrate with Engineer prior to commencing the re-siding.

.2 REHABILITATION
PROCESS

- .1 The process for repairing sections of rot:
 - .2 Cut section of rotted material out by overcutting 100mm past the area of deterioration. Dispose of according to Section 01 74 21 - Waste Management and Disposal
 - .3 Place blocking in wall to provide nailing surface for new material, if required. Ensure a minimum of 25mm surface for attaching the new material.
 - .4 Place new 'in kind' material and use screws to attach to structure.
 - .5 Where the bottom edges of the siding are rotted and are to be cut over an extended length, vary the height of the board and batten being replaced.

- .27 Severe UV deterioration found on the south wall of Stalls 10, 11 and 13, has a ridged and friable surface, and leaves the wood unable to hold a protective finish.
 - .1 Replace battens and boards as indicated with 'in kind' material

- .28 Split and broken boards or battens that are compromising the water-tightness of the wall
 - .1 Replace the section of board in question or the whole of the board if more than 50% is affected.
 - .2 Ensure adequate blocking in wall behind a spliced section.

- .29 Warped or curled boards found on the upper west wall of the east wing.
 - .1 Replace these sections of siding with new 'in kind' material.
 - .2 Place adequate blocking in wall behind spliced section to ensure the edges get properly screwed in place.

- .30 Biological growth on siding is generally found along the lower portion of the north wall. Much of the bottom of the north wall is rotted and will be replaced with new material. This process will apply to the sections that are not rotted.
 - .1 Place drop cloths to contain the material that will come off the wall, as loose paint may be removed in the process.
 - .2 Using a stiff bristle brush clean the surfaces of the siding to remove the lichen and moss build-up.
 - .3 After cleaning and new siding material

installed, apply solution to sterilize affected area. Refer to Section 09 03 61 for directions (P1). Protect the environment in the vicinity.

- .31 Temporary infills or patches have been installed with dressed lumber or plywood.
 - .1 Carefully remove the temporary material and dispose of according to Section 01 74 21 - Waste Management and Disposal.
 - .2 Replace with rough lumber, matching the dimensions of the surrounding boards or battens.

.3 INSTALLATION

- .32 Fasten wood siding in straight, aligned lengths, using screws to attach to structure.
- .33 Ensure adequate attachment surface in wall to secure siding.

.4 CLEANING

- .34 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

PART 1 - GENERAL

.1 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM D 698-00a1, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft³) (600kN-m/m³).
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

.2 REGULATIONS

- .3 Shore and brace excavations, protect slopes and banks and perform all work in accordance with Provincial and Municipal regulations whichever is more stringent.
- .4 No blasting will be permitted.

.3 TESTS AND INSPECTIONS

- .5 Do not begin backfilling or filling operations until material has been approved for use by Departmental Representative.
- .6 Not later than 48 hours before backfilling or filling with approved material, notify Departmental Representative so that compaction tests can be carried out by designated testing agency.
- .7 Before commencing work, conduct, with Departmental Representative condition survey of existing structures, trees and other plants, lawns, fencing, service poles, wires, rail tracks and paving, survey bench marks and monuments which may be affected by work.

.4 BURIED SERVICES

- .8 Before commencing work verify the location of all buried services on and adjacent to the site.
- .9 Arrange with appropriate authority for relocation of buried services that interfere with execution of work. Pay costs of relocating services.
- .10 Remove obsolete buried services within 2 m of foundations. Cap cut-offs.

.5 PROTECTION

- .11 Protect excavations from freezing.
- .12 Keep excavations clean, free of standing water, and loose soil.
- .13 Where soil is subject to significant volume change due to change in moisture content, cover and protect to Departmental Representative's approval.
- .14 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.
- .15 Protect buried services that are required to remain undisturbed.

PART 2 - PRODUCTS

.1 MATERIALS

- .16 Granular A B Type I B Type II M Select Subgrade.
- .17 White Channel Gravel

PART 3 - EXECUTION

.1 SITE
PREPARATION

.18 Remove obstructions from surfaces to be excavated within limits indicated.

.2 CLEARING AND
GRUBBING

.19 Remove trees, stumps, logs, brush, shrubs, bushes, vines, undergrowth, rotten wood, dead plant material, exposed boulders and debris within areas designated on drawings.

.20 Dispose of cleared and grubbed material off site daily to disposal areas acceptable to authority having jurisdiction.

.3 EXCAVATION

.21 Topsoil stripping:

.1 Do not handle topsoil while in wet or frozen condition or in any manner in which soil structure is adversely affected.

.2 Avoid mixing topsoil with subsoil.

.3 Strip topsoil over areas to be covered by new construction, over areas where grade changes are required, and so that excavated material may be stockpiled without covering topsoil.

.4 Stockpile in locations as indicated as directed by Departmental Representative.

.22 Excavate as required to carry out work, in all materials met. Do not disturb soil or rock below bearing surfaces. Notify Departmental Representative when excavations are complete. If bearings are unsatisfactory, additional excavation will be authorized in writing and paid for as additional work. Excavation taken below depths shown without Departmental Representative's written authorization to be filled with concrete of same strength as for footings at Contractor's expense.

.23 Excavate for slabs and footings to subgrade levels. In addition, remove all topsoil, organic matter, debris and other loose and harmful matter encountered at subgrade level.

.4 BACKFILLING

.24 Inspection: do not commence backfilling until fill material and spaces to be filled have been inspected and approved by Departmental Representative.

.25 Remove snow, ice, construction debris, organic soil and standing water from spaces to be filled.

.26 Lateral support: maintain even levels of backfill around structures as work progresses, to equalize earth pressures.

.27 Compaction of subgrade: compact existing subgrade under footings and slabs on grade, to same compaction as specified for fill. Fill excavated areas with selected subgrade material gravel and sand compacted as specified for fill.

.28 Placing:
.1 Place backfill, fill and basecourse material in 150 mm lifts.

.29 Compaction: compact each layer of material to following densities for material to ASTM D 698:
.1 To underside of basecourses: 95%.
.2 Basecourses: 100%.
.3 Elsewhere: 90%.

.30 Under slabs and paving:
.1 Use up to bottom of granular base courses.
.2 Use for base courses.

.31 In trenches:
.1 Up to 300 mm above pipe or conduit: sand placed by hand.
.2 Over 300 mm above pipe or conduit: native material approved by Departmental Representative.

.32 Under seeded and sodded areas: use site excavated material to bottom of topsoil except

in trenches and within 600 mm of foundations.

- .33 Blown rock material, not capable of fine grading, is not acceptable, imported material must be placed on this type of material.
- .34 Against foundations (except as applicable to trenches and under slabs and paving): excavated material or imported material with no stones larger than 200 mm diameter within 600 mm of structures.
- .35 Underground tanks: use sand to bottom of granular base courses or to bottom of topsoil, as applicable.

.5 GRADING

- .36 Grade so that water will drain away from buildings, walls and paved areas, to catch basins and other disposal areas approved by Departmental Representative.

.6 SHORTAGE AND SURPLUS

- .37 Supply all necessary fill to meet backfilling and grading requirements and with minimum and maximum rough grade variance.
- .38 Dispose of surplus material off site.

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section [_____].

1.02 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CGSB 1.59-[97], Alkyd Exterior Gloss Enamel.
 - .2 CAN/CGSB 1.189-[00], Exterior Alkyd Primer for Wood.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-O121-[M1978(R2003)], Douglas Fir Plywood.
- .3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as Of: May 14, 2004.

1.03 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.04 HOARDING

Not used

1.05 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs, and [_____].
- .2 Provide [as required by governing authorities] [as indicated].

1.06 WEATHER ENCLOSURES

- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.
- .3 Design enclosures to withstand wind pressure [and snow loading].

1.07 DUST TIGHT SCREENS

- .1 Provide dust tight screens or [insulated] partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
- .2 Maintain and relocate protection until such work is complete.

1.08 ACCESS TO SITE

- .1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.09 PUBLIC TRAFFIC FLOW

- .1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.10 FIRE ROUTES

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.11 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

1.12 PROTECTION OF BUILDING FINISHES

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Confirm with [Departmental Representative] [DCC Representative] [Consultant] locations and installation schedule [3] days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

1.13 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for [reuse] [and] [recycling] in accordance with Section [01 74 21 - Construction/Demolition Waste Management And Disposal].

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

A-NMS015600++

CANADIAN NATIONAL
MASTER CONSTRUCTION
SPECIFICATION

TEMPORARY BARRIERS AND
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END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section [_____].

1.02 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C 553-[02], Specification for Mineral Fibre Blanket Thermal Insulation for Commercial and Industrial Applications.
 - .2 ASTM C 665-[01e1], Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
 - .3 ASTM C 1320-[05], Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction.
- .2 Canadian Gas Association (CGA)
 - .1 CAN/CGA-B149.1-[05], Natural Gas and Propane Installation Code Handbook.
 - .2 CAN/CGA-B149.2-[05], Propane Storage and Handling Code.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA B111-[1974(R2003)], Wire Nails, Spikes and Staples.
- .4 Underwriters Laboratories of Canada (ULC)
 - .1 CAN/ULC-S604-[M1991], Type A Chimneys.
 - .2 CAN/ULC-S702-[1997], Standard for Mineral Fibre Insulation.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section [01 33 00 - Submittal Procedures].
- .2 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.

1.04 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 not used
- .3 not used
- .4 Health and Safety Requirements: do construction occupational health and safety in accordance with Section [01 35 29.06 - Health and Safety Requirements].

1.05 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for [reuse] [and] [recycling] in accordance with Section [01 74 21 - Construction/Demolition Waste Management And Disposal].

- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal [paper] [plastic] [polystyrene] [corrugated cardboard] packaging material [in appropriate on-site] for recycling in accordance with Waste Management Plan.

2 PRODUCTS

2.01 SUSTAINABLE REQUIREMENTS

- .1 Materials and products in accordance with Section [01 47 15 - Sustainable Requirements: Construction].
 - .1 [_____].
- .2 Verification requirements in accordance with Section [01 47 17 - Sustainable Requirements: Contractor's Verification], include:
 - .1 Materials and resources.
 - .2 Storage and collection of recyclables.
 - .3 Construction waste management.
 - .4 Resource reuse.
 - .5 Recycled content.
 - .6 Local/regional materials.
 - .7 Low-emitting materials.

2.02 INSULATION

- .1 Batt and blanket mineral fibre: to [ASTM C 553] [ASTM C 665] [CAN/ULC S702].
 - .1 not used
 - .2 Thickness: as indicated.

2.03 ACCESSORIES

- .1 Insulation clips:
 - .1 Impale type, perforated 50 x 50 mm cold rolled carbon steel 0.8 mm thick, adhesive back, spindle of 2.5 mm diameter annealed steel, length to suit insulation, 25 mm diameter washers of self locking type.
- .2 Nails: galvanized steel, length to suit insulation plus [25] mm, to CSA B111.
- .3 Staples: [12] mm minimum leg.
- .4 Tape: as recommended by manufacturer.

3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.02 INSULATION INSTALLATION

- .1 Install insulation to maintain continuity of thermal protection to building elements and spaces [and to ASTM C 1320] [_____].
- .2 Install insulation with factory applied vapour barrier facing warm side of building spaces [and vapour permeable membrane facing cold side]. Lap ends and side flanges of membrane over framing members. Retain in position with [nails] [staples] [insulation clips] [wire ties] installed as recommended by manufacturer. Tape seal butt ends [and lapped side flanges]. Do not tear or cut vapour barrier.
- .3 Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.
- .4 Do not compress insulation to fit into spaces.
- .5 Keep insulation minimum [75] mm from heat emitting devices such as recessed light fixtures, and minimum [50] mm from [sidewalls of CAN/ULC-S604 Type A chimneys] [and] [CAN/CGA-B149.1 and CAN/CGA-B149.2 [Type B] [and] [L] vents].
- .6 Do not enclose insulation until it has been inspected and approved by [Departmental Representative] [DCC Representative] [Consultant].

3.03 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

1 GENERAL

1.01 PRODUCTS INSTALLED BUT NOT SUPPLIED UNDER THIS SECTION

- .1 not used

1.02 RELATED REQUIREMENTS

- .1 Section [_____].

1.03 MEASUREMENT AND PAYMENT

- not used

1.04 REFERENCES

- .1 ASTM International
 - .1 ASTM C 4-[04(2009)], Standard Specification for Clay Drain Tile and Perforated Clay Drain Tile.
 - .2 ASTM C 136-[06], Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .3 ASTM C 444M-[03(2009)], Standard Specification for Perforated Concrete Pipe [Metric].
 - .4 ASTM C 654M-[05a], Standard Specification for Porous Concrete Pipe [Metric].
 - .5 ASTM D 698-[10], Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft² (600 kN-m/m²)).
- .2 Bureau de normalisation du Québec (BNQ)
 - .1 BNQ 3624-115-[04], Polyethylene (PE) Pipe and Fittings-Flexible Corrugated Pipes for Drainage-Characteristics and Test Methods.
- .3 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC Version 1.0-[2004], LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations (including Addendum [2007]).
- .4 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-8.1-[88], Sieves, Testing, Woven Wire, Inch Series.
 - .2 CAN/CGSB-8.2-[M88], Sieves, Testing, Woven Wire, Metric.
- .5 CSA International
 - .1 CAN/CSA-B1800-[06], Thermoplastic Non-pressure Pipe Compendium.
 - .2 CAN/CSA-G401-[07], Corrugated Steel Pipe Products.
- .6 U.S. Environmental Protection Agency (EPA) / Office of Water
 - .1 EPA 832/R-92-005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.05 ADMINISTRATIVE REQUIREMENTS

- .1 Inform [Departmental Representative] [DCC Representative] [Consultant] of proposed source of bedding and filter materials and provide access for sampling at least [4] weeks prior to commencing work.

1.06 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 [pipes, pipe fittings, tiles, and aggregate] and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Samples:
 - .1 not used
- .4 Certificates:
 - .1 Submit manufacturer's certification that drain pipe materials meet requirements of this Section.
 - .2 Certification to be marked on pipe.
- .5 Test and Evaluation Reports:
 - .1 not used
- .6 Sustainable Design Submittals:
 - not used

1.07 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section [01 61 00 - Common Product Requirements] [and] [with manufacturer's written instructions].
- .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 in accordance with manufacturer's recommendations.
 - .2 Store and protect [pipes and tiles] from [damage].
 - .3 Replace defective or damaged materials with new.
- .4 not used
- .5 not used

2 PRODUCTS

2.01 MATERIALS

- .1 Perforated corrugated steel pipe:
 - .1 To [CAN/CSA-G401].
 - .2 Asphalt coated, type AC.

.3 Metal thickness unless otherwise indicated, as follows:

<u>Diameter</u>	<u>Thickness of metal</u>
150 to 200 mm	1.2 mm
250 to 300 mm	1.6 mm

- .2 Perforated concrete pipe: to [ASTM C 444M], type [1].
- .3 Clay drain tile: to [ASTM C 4].
- .4 Plastic pipe and fittings: to [BNQ 3624-115], nominal inside diameter [100] mm.
- .5 Perforated plastic pipe and fittings: to [CAN/CSA-B1800]. Nominal pipe sizes 100 mm.
- .6 Porous concrete pipe: to [ASTM C 654M].
- .1 Class: [standard strength] [extra strength].
- .2 Internal diameter: [_____] mm.
- .7 Bedding gravel or crushed stone; hard, durable particles, graded evenly in size from 16 to 8 mm.
- .8 Granular filter material in accordance with Section [31 05 16 - Aggregate Materials] and following requirements:
- .1 Screened stone or gravel.
- .2 Gradations to be within limits specified when tested to [ASTM C 136]. Sieve sizes to [CAN/CGSB-8.1] [CAN/CGSB-8.2].
- .9 Table:
- | <u>Sieve Designation</u> | <u>% Passing</u> |
|--------------------------|------------------|
| 200 mm | - |
| 75 mm | - |
| 50 mm | - |
| 38.1 mm | - |
| 25 mm | - |
| 19 mm | - |
| 12.5 mm | [100] |
| 9.5 mm | - |
| 4.75 mm | [70-100] |
| 2.00 mm | [60- 95] |
| 0.425 mm | [15- 40] |
| 0.180 mm | [0- 10] |
| 0.075 mm | - |
- .10 Aggregate for French drain: open graded, hard, durable particles between 16 mm and 8 mm in size.
- .11 Geotextile filter: In accordance with Section [31 32 19.01 - Geotextiles].

3 EXECUTION

3.01 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for sub-drainage piping installation in accordance with manufacturer's written instructions.

- .1 Visually inspect substrate in presence of the Technical Authority.
- .2 Inform the Technical Authority of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied

3.02 PREPARATION

- .1 Temporary Erosion and Sedimentation Control:
 - .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to [requirements of authorities having jurisdiction] [sediment and erosion control drawings] [sediment and erosion control plan, specific to site, that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent].
 - .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
 - .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.03 TRENCHING

- .1 Do [excavating] [trenching] and backfilling in accordance with Section [31 23 33.01 - Excavating, Trenching and Backfilling].
- .2 Place bedding and filter material after approval of excavation by the Technical Authority.

3.04 BEDDING

- .1 Place 100 mm layer of bedding as indicated and compact to minimum 95% of maximum density to ASTM D 698.

3.05 INSTALLATION OF PIPE SUB-DRAINS

- .1 Lay pipe drains on prepared bed, true to line and grade with inverts smooth and free of sags or high points.
 - .1 Ensure barrel of each pipe is in contact with bed throughout full length.
- .2 Begin laying at outlet and proceed in upstream direction.
- .3 Lay perforated pipes with perforations at 4 o'clock and 8 o'clock positions.
- .4 Lay bell and spigot pipe with bell ends facing upstream.
 - .1 Do not mortar joints.
- .5 Cover joints pipe with two-ply tar paper strips not less than 150 mm wide.
 - .1 Use strips of sufficient length to permit ends to be laid flat on bedding and turned outward on either side of pipe for a minimum distance of 75 mm.
- .6 Make joints tight in accordance with manufacturer's instructions.

- .7 Make watertight connections to existing drains, new or existing manholes and catch basins where indicated or as directed by the Technical Authority.
- .8 Plug open upstream ends of pipes with watertight concrete, steel or wood bulkheads.
- .9 Surround pipe with bedding gravel and compact as directed
- .10 Surround and cover drain with filter material in uniform 150 mm layers [as indicated] [to an elevation of at least 150 mm above top of drain] and compact to at least 95% maximum density to ASTM D 698.
- .11 Wrap or sleeve perforated pipe with geotextile filter as indicated.
- .12 Backfill remainder of trench to Section [31 23 33.01 - Excavating, Trenching and Backfilling and as indicated.
- .13 Do not place bedding surround and backfill materials in frozen condition.
- .14 Protect sub-drains against flotation during installation.
- .15 not used.
- .16 Seal top surface of backfilled excavation with asphalt seal in accordance with Section [33 46 16.01 - Sub-drain Backfill Sealing with Asphalt].

3.06 CONNECTIONS TO MUNICIPAL FACILITIES

- .1 Connect pipe sub-drains to municipal storm sewer system where indicated.

3.07 INSTALLATION OF FRENCH DRAINS

- .1 Install French drains as indicated.
- .2 Backfill remainder of trench to Section 31 23 33.01 - Excavating, Trenching and Backfilling and as indicated.
 - .1 Install clay seal at top of French as indicated.

3.08 CLEANING

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

END OF SECTION