

# Addendum/Addenda

No./N° 4
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Project Description / Description de projet  M-38 Flexible Research Facility		
Solicitation No./ N° de sollicitation  16-22072	Project No./N° de projet  5044-M38	W.O. No./N° d'ordre de travail
Departmental Representative / représentant ministériel  Allan Smith	Date  2016 Sep 20	
<b>Notice:</b> This addendum shall form part of the tender documents and all conditions shall apply and be read in conjunction with the original plans and specifications.		<b>Nota:</b> Cet addenda fait partie intégrale des dossiers d'appel d'offres; toutes les conditions énoncées doivent être lues et appliquées en conjonction avec les plans et les devis originaux.

## DRAWINGS

### Structural drawings S01 through S06:

The entire set of are revised and re-issued with this addendum.

### Civil drawings C02 through C06:

These civil drawings are revised and reissued with this addendum, as CIMA civile addendum no. CIV-01 2016-8-20.

### Electrical drawing E01:

Revise note 2 to read "PROVIDE NEW PRE-CAST MANHOLE, REFER TO E02 NOTES"

**Mechanical drawing M04:**

Refer to "NOTES"

**Change:**

1. PROVIDE A NEW ENERGY RECOVERY VENTILATOR. STANDARD OF ACCEPTANCE: MANUFACTURER: RENEW AIRE, MODEL: HE2XRT, MOTOR: 240V/1 $\phi$ , 2x1.5 H.P, C/W 1.12x0.96x0.36 METER FACTORY MANUFACTURER CURB, EXACT LOCATION TO BE COORDINATED ON SITE.

**To:**

1. PROVIDE A NEW ENERGY RECOVERY VENTILATOR (38HRU01)  
STANDARD OF ACCEPTANCE: MANUFACTURER: RENEW AIRE,  
MODEL: HE2XRTV  
MOTOR: 240V/1 $\phi$ , 2x1.5 H.P,  
SUMMER/WINTER TOTAL EFFICIENCY: 60%/70% at 1000 SCFM (at AHRI 1060 STANDARD CONDITIONS)  
NOMINAL SHIPPING WEIGHT: 335 KG  
TEFC PREMIUM EFFICIENCY MOTORS  
AIR FLOW: 1300 SCFM @ 0.5 IN W.G EXTERNAL STATIC  
CONTRACTOR SHALL PROVIDE A NEW SECTION OF FRESH AIR AND EXHAUST INSULATED DUCTWORK (250x600mm) FROM UNIT TO 1000mm INTO BUILDING.  
UNIT TO BE C/W:

- FACTORY MANUFACTURER CURB (1.12x0.96x0.36 METER), EXACT LOCATION TO BE COORDINATED ON SITE WITH NRC.
- DOUBLE WALL CONSTRUCTION
- ONBOARD VFD'S FOR BOTH AIR STREAMS
- MOTORIZED OUTSIDE AIR AND EXHAUST DAMPERS
- DUCTWORK TO BE
- EXTERIOR PAINT COLOR: WHITE
- TWO SPARE SETS OF MERV-8 FILTERS
- AHRI CERTIFIED
- MANUFACTURER RECOMMENDED WIND LOAD RETROFIT INSTALLATION

ALTERNATE MANUFACTURER: ALDES CANADA

**ALTERNATES****Mechanical equipment acceptable alternates:**

1. Exhaust Fan: Alternate manufacturer: Cook Fan
2. Ceiling Fan: Alternate manufacturer: Banvil 2000

Note: Final acceptance of all alternates will be based on official shop drawing submittals during construction. It is the contractor's responsibility to allow for all direct and indirect modification to the project as a result of alternate selections.

## REFERENCE INFORMATION

### **KWC Architectural addendum no.1:**

Addendum no. 1 issued by KWC Architects is attached to this addendum.

### **Contractor Environmental Protection Plan:**

An environmental protection plan which shall be implemented by the contractor is attached to this addendum.

### **Building M36 drawings:**

Three original construction drawings showing the general size and shape of the M36 North East entrance, where steam piping shall be modified under this contract, are attached to this addendum.

### **Contractor's site access and parking map:**

A Google Earth map showing the contractor's site access route in red and parking areas in yellow is attached to this addendum.

### **Bidder's questions and answers:**

Tender Period Questions no. 1, a document to address requests for information or clarifications received from the bidders, is attached to this addendum.

### **Attendees list:**

The list of attendees at the 2 mandatory site visits is attached to this addendum.

End of Addendum No.1



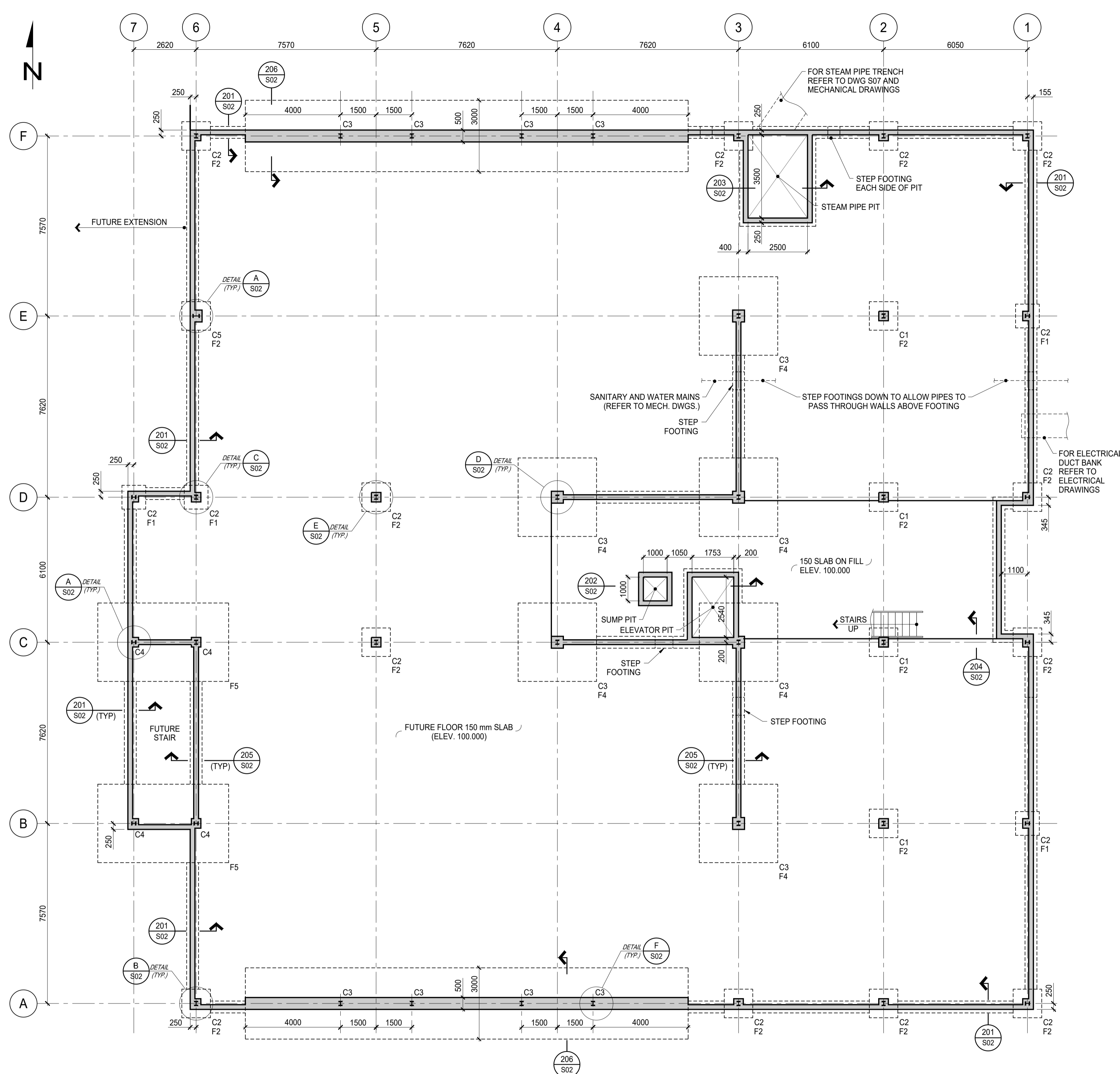
**GENERAL NOTES:**

- ALL FOOTINGS SHALL BEAR ON SOLID ROCK WITH A BEARING CAPACITY OF 1000 kPa (U.L.S.)
  - REFER TO "GEOTECHNICAL INVESTIGATION PROPOSED FLEXIBLE LABORATORY FACILITY M-26 NATIONAL RESEARCH COUNCIL CANADA (NRC) - PREPARED BY GOLDER ASSOCIATES, DATED JANUARY 2016.
  - THE CONTRACTOR SHALL EXCAVATE ALL SOIL AND ROCK TO AN ELEVATION 1650 mm BELOW THE FINISHED GROUND FLOOR SLAB. THE UNDERSIDE OF ALL FOOTINGS SHALL THEREFORE BE AT AN ELEVATION OF 98.350 OR LOWER TO SUIT PITS, SERVICES, ETC.
  - THE WALL FOOTINGS SHALL STEP IN ACCORDANCE WITH DETAIL 11/S01.
  - ROCK EXCAVATION FOR ADJACENT FOOTINGS, SERVICES ETC. SHALL CONFORM TO DETAIL 12/S01.
  - BACKFILL SHALL BE GRADED CRUSHED STONE COMPACTED TO 95% MODIFIED PROCTOR DRY DENSITY.
  - FOR LOCATION AND SIZE OF FLOOR, WALL AND ROOF OPENINGS, REFER TO MECHANICAL DRAWINGS.
- CONCRETE:**
- CONCRETE COVER (CLEAR TO REINFORCING STEEL)
    - U/S FOOTING = 75 mm
    - FOOTING SIDES AND TOP = 50 mm
    - WALLS = 38 mm
    - PIERS = 50 mm
  - CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 25 MPa.
  - NOTIFY THE ENGINEER BEFORE EACH CONCRETE POUR.
  - REINFORCING STEEL SHALL CONFORM TO CSA G30.18-09, GRADE 400.
  - HORIZONTAL WALL REINFORCING STEEL SHALL BE CONTINUOUS WITH CORNER BARS.
  - THE CONTRACTOR SHALL TAKE THREE CONCRETE COMPRESSION TEST CYLINDERS FOR EACH CONCRETE POUR. ONE SHALL BE TESTED AT 7 DAYS AND TWO AT 28 DAYS.
  - THE CONTRACTOR SHALL SUBMIT FOR REVIEW SHOP DRAWINGS AND BAR LISTS FOR THE REINFORCING STEEL.
  - THE CONCRETE FLOOR SLAB SHALL RECEIVE A STEEL-TROWELED FINISH, AND WATER-CURED FOR A PERIOD OF 7 DAYS. THE SLAB SHALL BE SAW-CUT INTO PANELS NOT EXCEEDING 8.0 m x 8.0 m, 48 HOURS AFTER SLAB IS POURED.
  - ALL CONCRETE WORK SHALL CONFORM TO CSA A23.1-04 AND CSA A23.2-04.
  - PROOFROLL SUBGRADE AND PROVIDE 200 mm CRUSHED STONE UNDER SLABS ON GRADE. THE SLABS ON GRADE SHALL BE 150 mm THICK AND REINFORCED WITH 15M @ 300 EACH WAY MID. DEPTH.

FOOTING SCHEDULE		
MARK	SIZE	REINFORCING
F1	1000 x 1000 x 600	6 - 15M T+B EACH WAY
F2	1200 x 1200 x 600	8 - 15M T+B EACH WAY
F3	1500 x 1500 x 600	12 - 15M T+B EACH WAY
F4	3300 x 3300 x 600	11 - 25M T+B EACH WAY
F5	5500 x 3300 x 600	15M @ 300 T+B EACH WAY

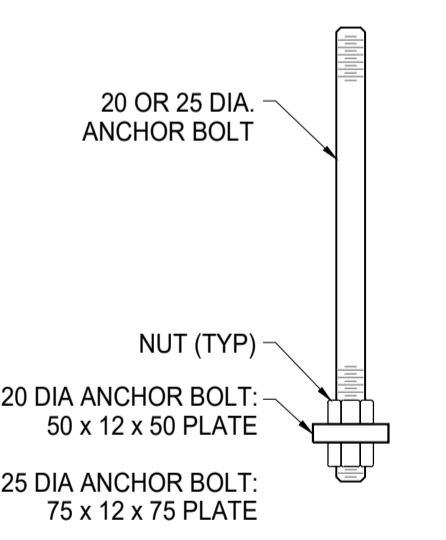
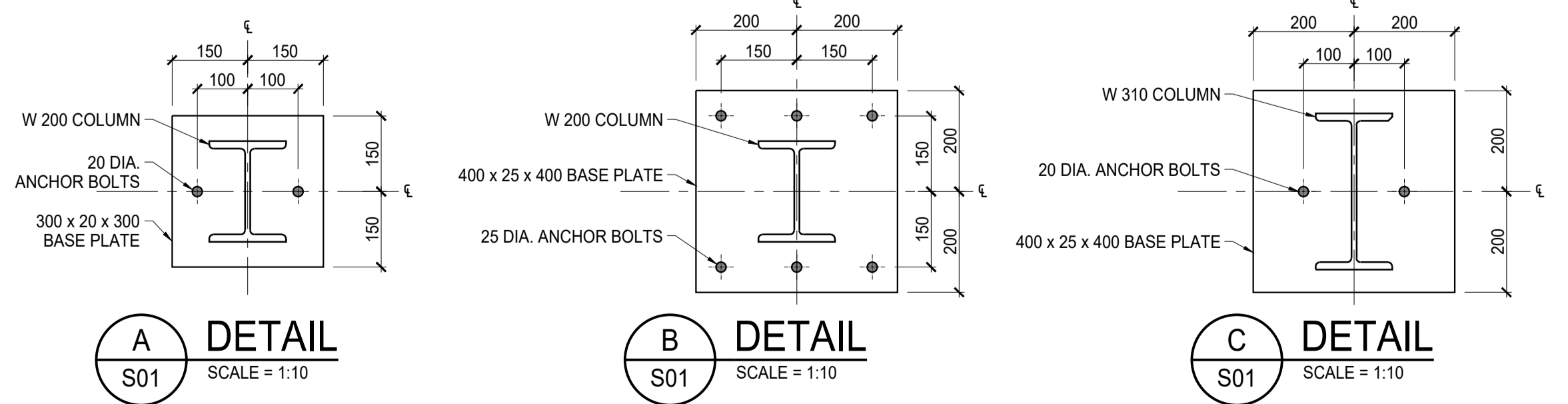
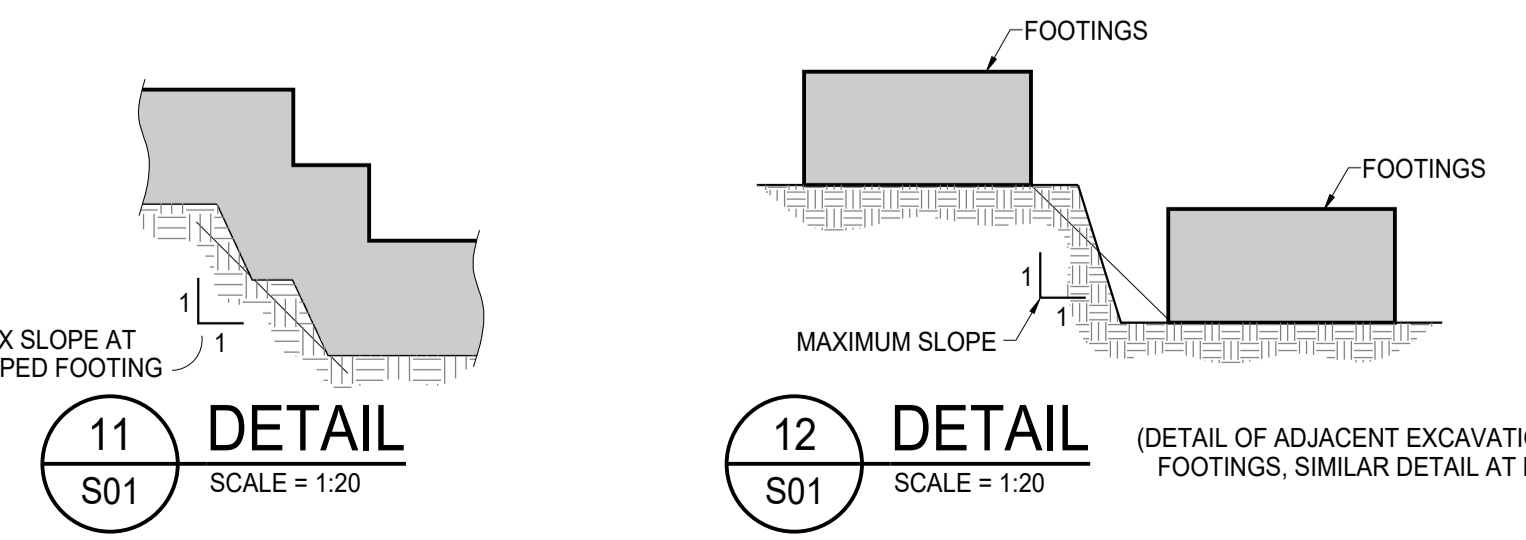
COLUMN SCHEDULE				
MARK	SIZE	BASE PLATE	ANCHOR BOLTS	BASE PLATE DETAIL
C1	W 200 x 52	300 x 20 x 300	2 - 20 DIA. x 600	A / S01
C2	W 200 x 59	300 x 20 x 300	2 - 20 DIA. x 600	A / S01
C3	W 200 x 71	400 x 25 x 400	6 - 25 DIA. x 1250	B / S01
C4	W 200 x 59	400 x 25 x 400	6 - 25 DIA. x 1250	B / S01
C5	W 310 x 67	400 x 25 x 400	2 - 20 DIA. x 600	C / S01

REFER TO DETAIL X/S01 FOR LENGTH OF ANCHOR BOLTS AND WASHER SIZE

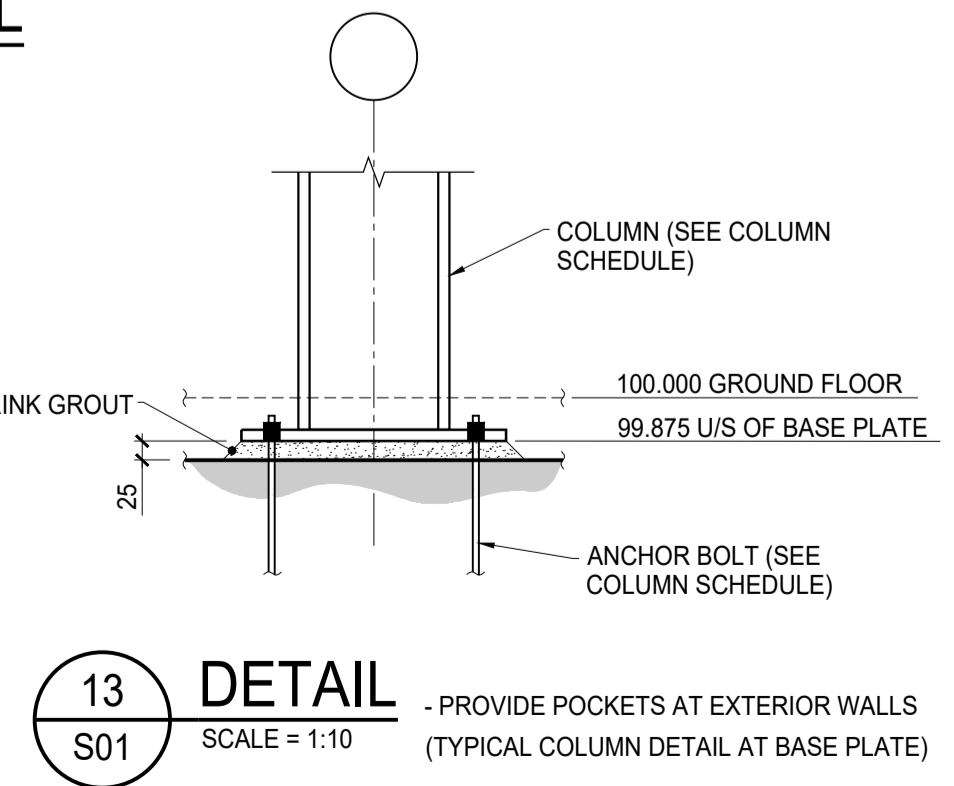


**FOUNDATION / GROUND FLOOR PLAN**

- SCALE = 1:100
- GROUND FLOOR ELEV. 100.000 (100.600 ELEVATION GEODETIC)
  - LIVE LOAD 24.00 kPa



**X** DETAIL SCALE = 1:5



**13** DETAIL SCALE = 1:10 - PROVIDE POCKETS AT EXTERIOR WALLS (TYPICAL COLUMN DETAIL AT BASE PLATE)

No.	Date	Revision	By:
1	AUG 23, 2016	ISSUED FOR TENDER	R.L.
0	JULY 6, 2016	PRELIMINARY	R.L.

Verify all dimensions and site conditions and be responsible for same.  
 Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.

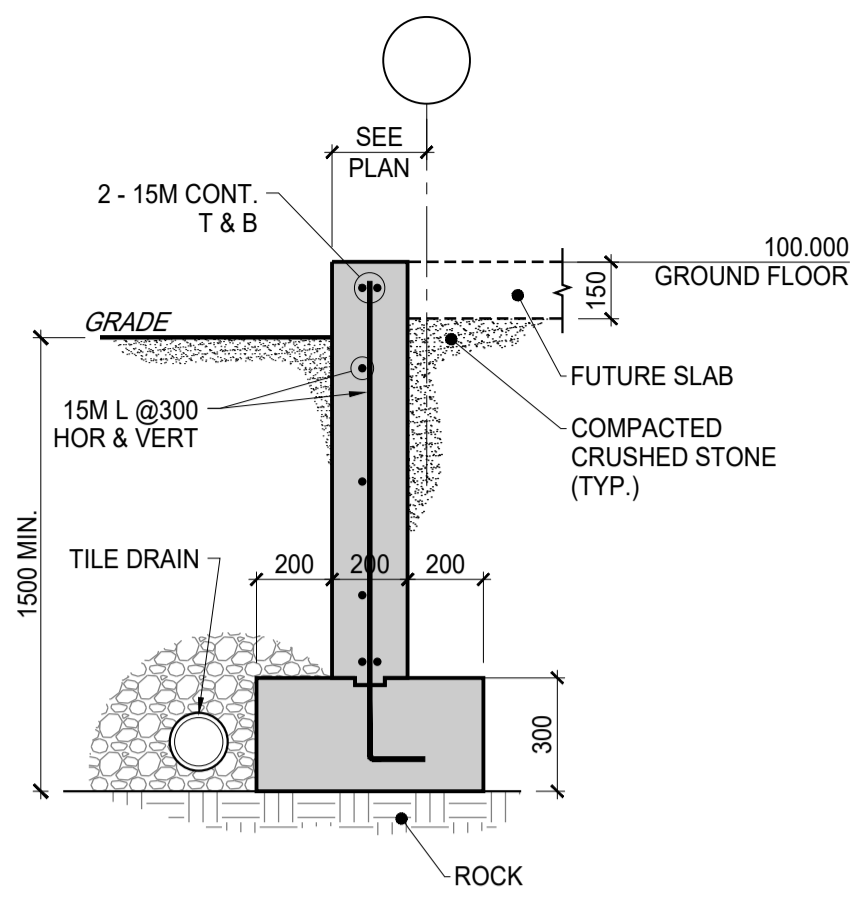
A Detail no. No. du détail  
 B Location drawing no. sur dessin no.  
 C Drawing no. dessin no.

**BUILDING M-38 FLEXIBLE RESEARCH FACILITY MONTREAL ROAD CAMPUS**

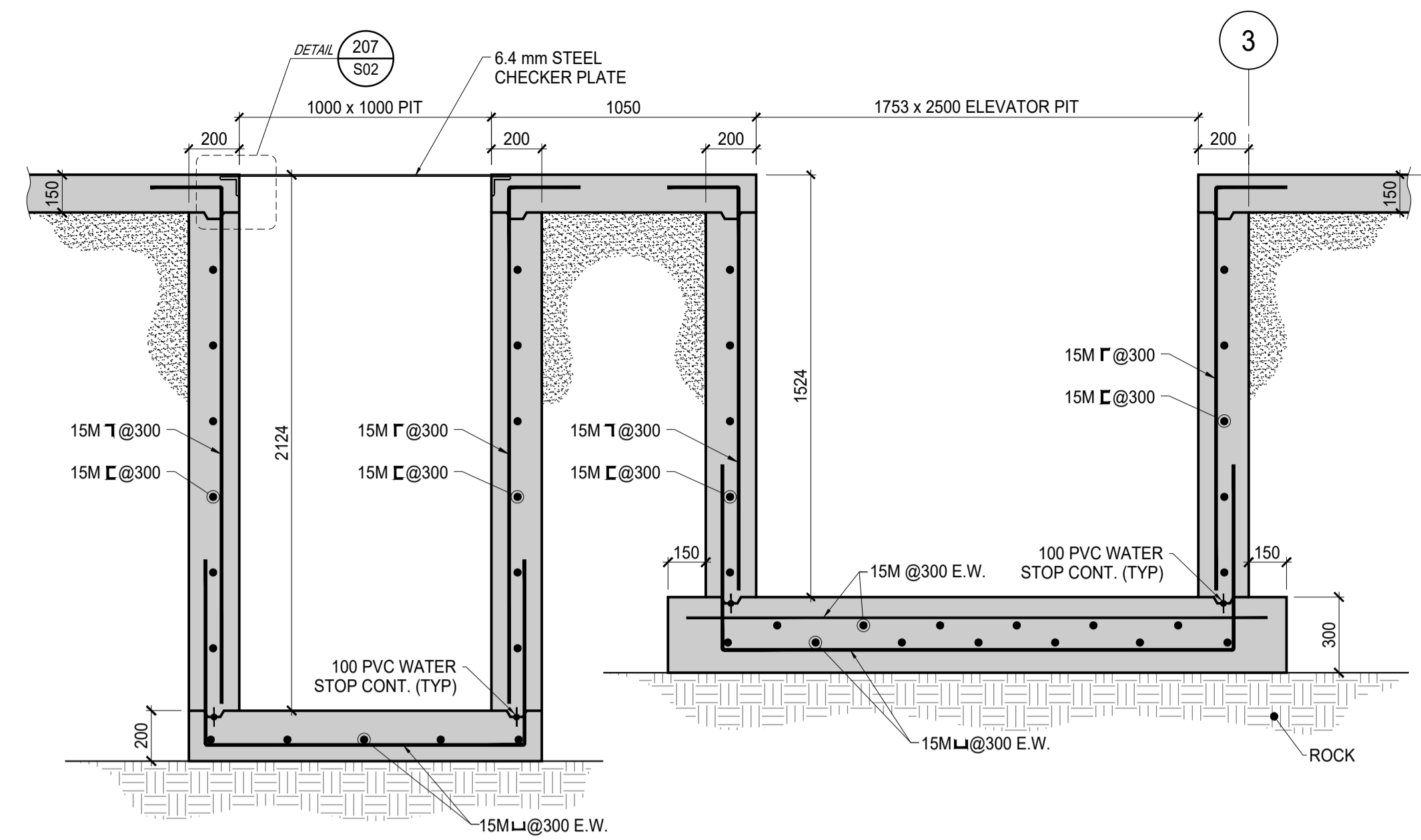
**STRUCTURAL: FOUNDATION PLAN AND DETAILS**

designed	conçu	date	date
R.L.		JUNE, 2016	
drawn	dessiné	scale	échelle
M.P.		AS SHOWN	
checked	vérifié	sheet	feuille
R.L.		S01 of S07	
approved	approuvé	W.O.no.	D.T.no.

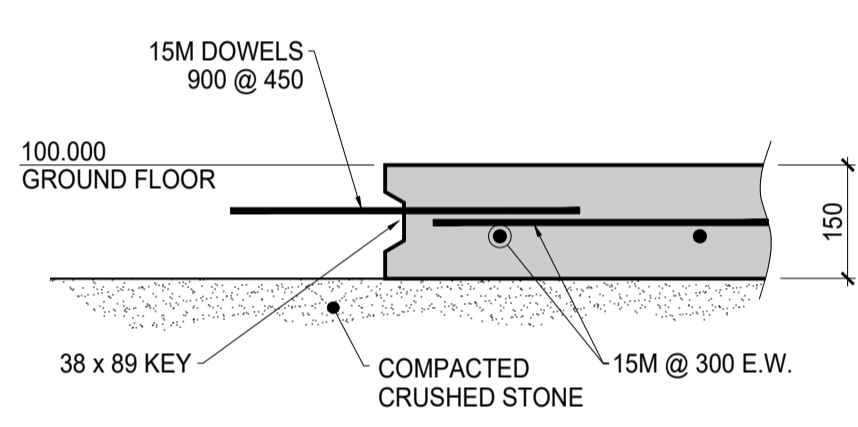
dwg no. **5049-S01** dessin no.



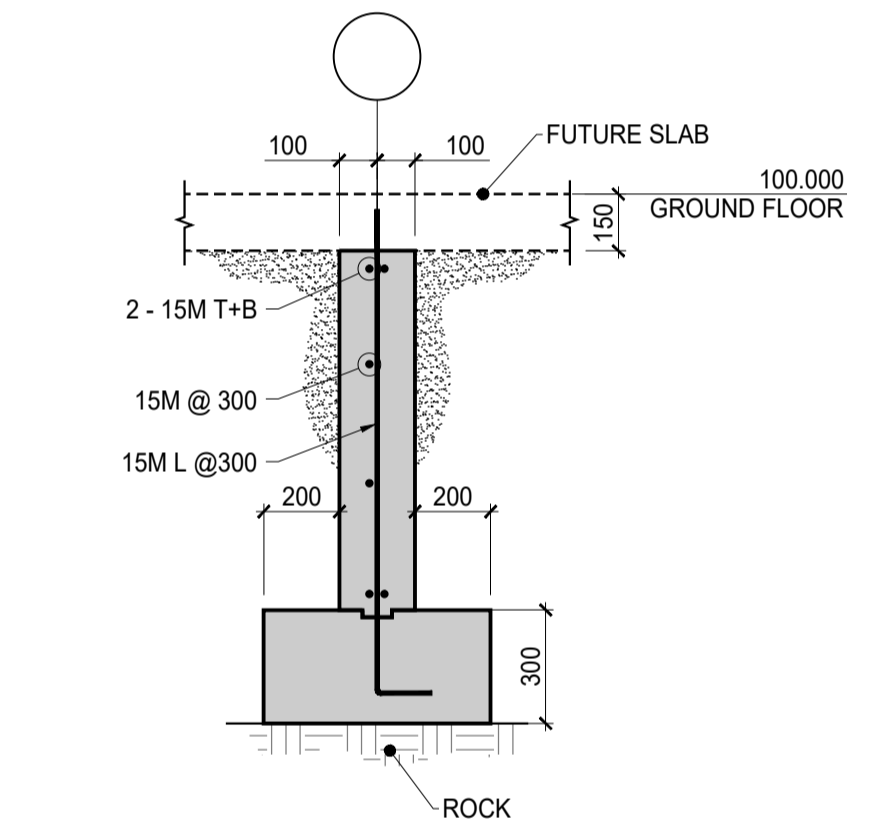
**201 SECTION** (TYPICAL UNLESS NOTED)  
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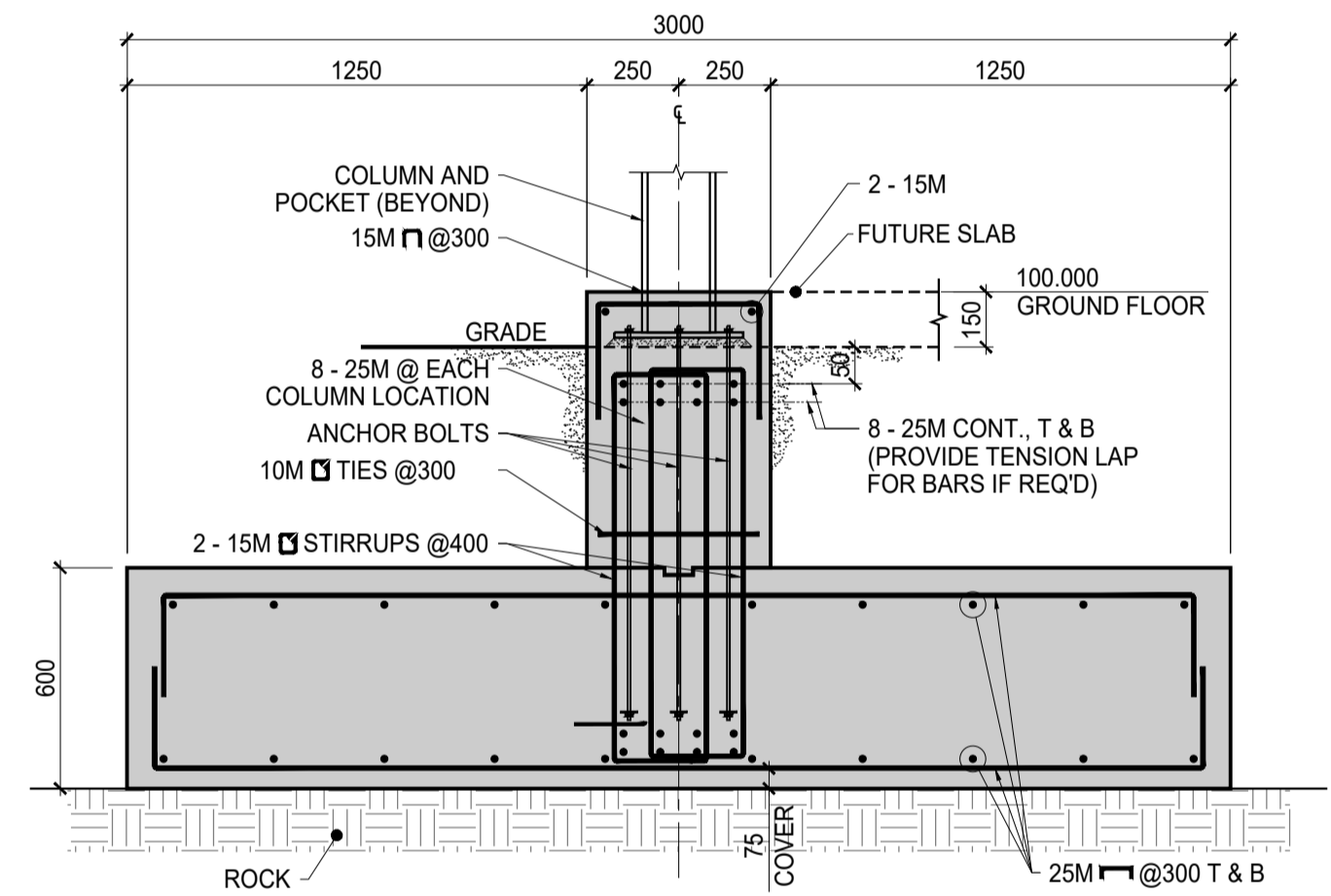
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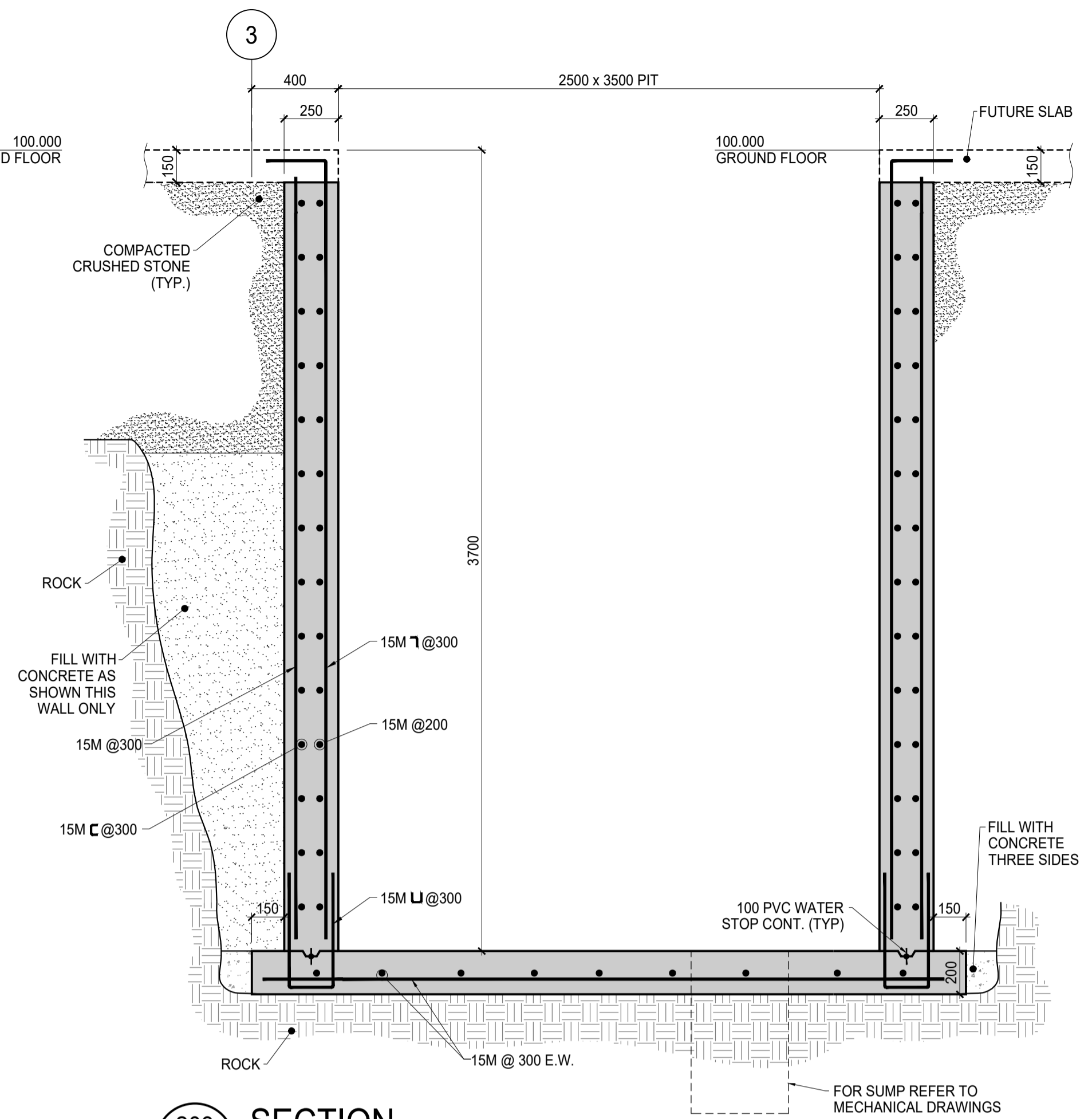
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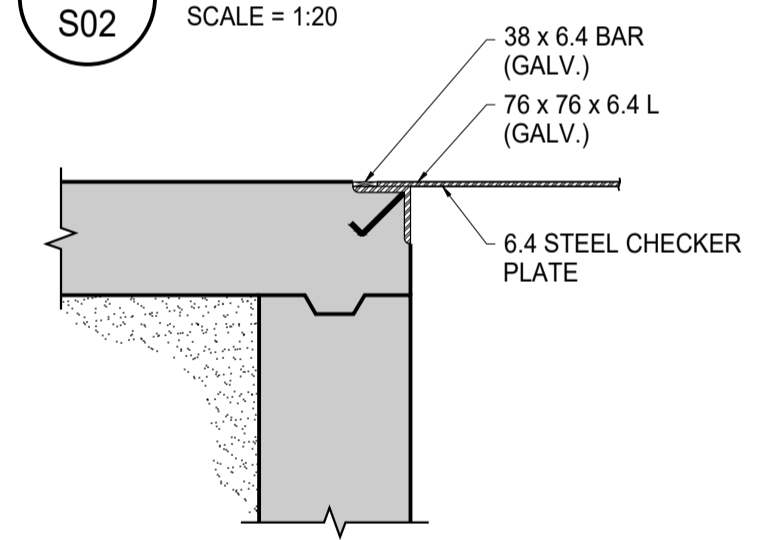
**205 SECTION** (TYPICAL INTERIOR WALL U/I)  
 SCALE = 1:20



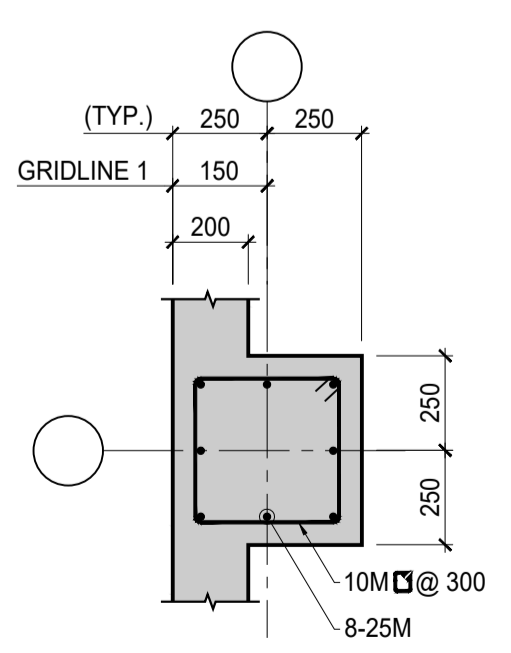
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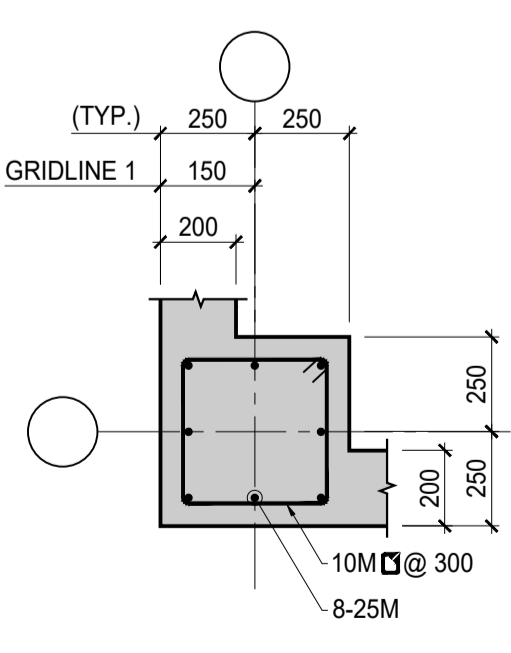
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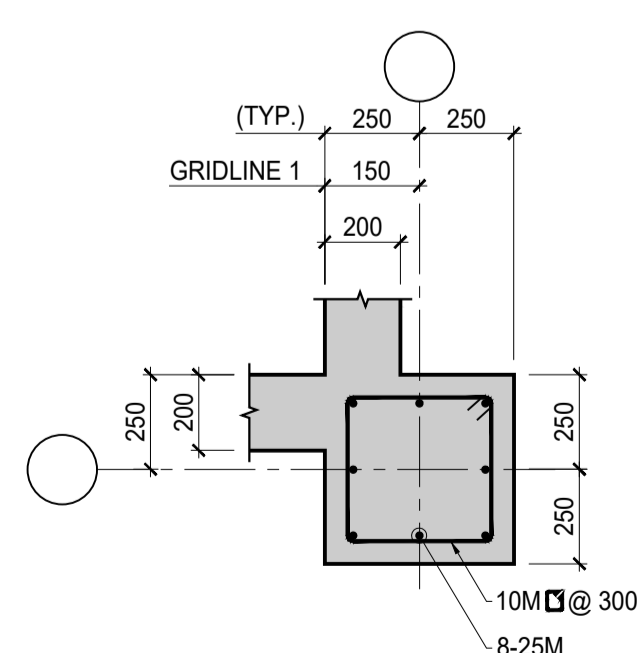
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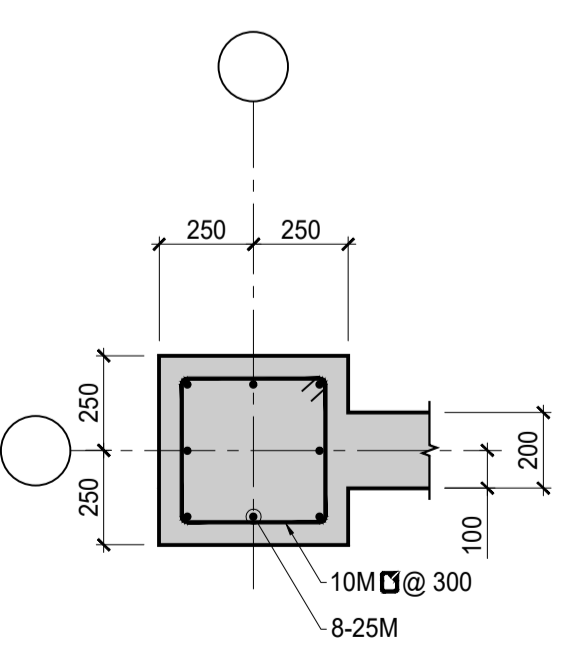
**A DETAIL**  
 SCALE = 1:20



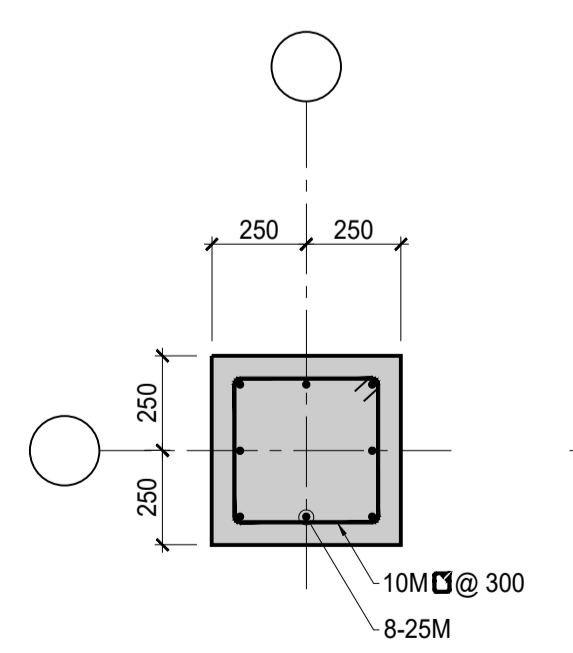
**B DETAIL**  
 SCALE = 1:20



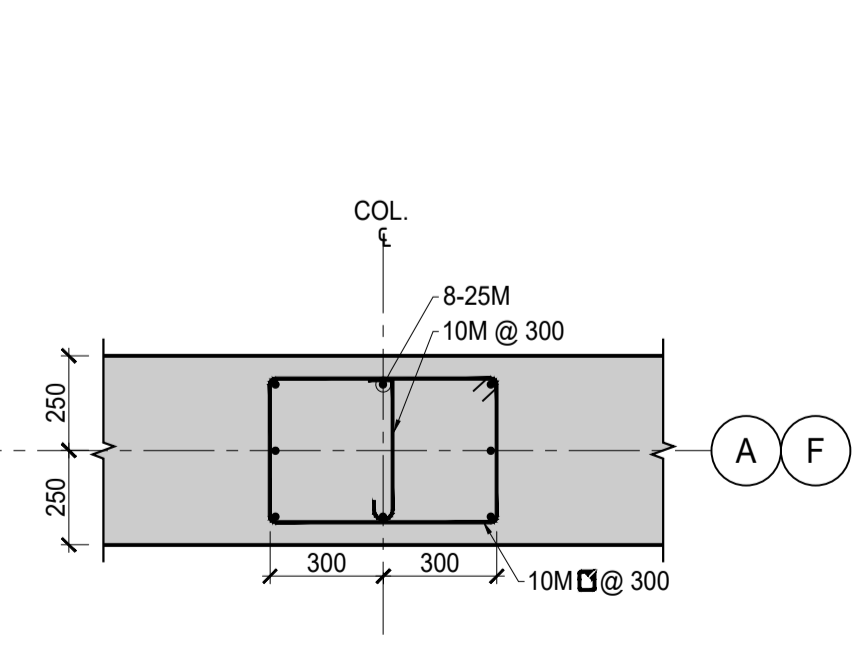
**C DETAIL**  
 SCALE = 1:20



**D DETAIL**  
 SCALE = 1:20



**E DETAIL**  
 SCALE = 1:20



**F DETAIL**  
 SCALE = 1:20

**PIER AND PILASTER DETAILS**  
 • PROVIDE DOWELS IN FOOTING TO MATCH VERTICAL STEEL

No.	Date	Revision	By:
1	AUG 23, 2016	ISSUED FOR TENDER	R.L.
0	JULY 6, 2016	PRELIMINARY	R.L.

• Verify all dimensions and site conditions and be responsible for same.  
 • Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.

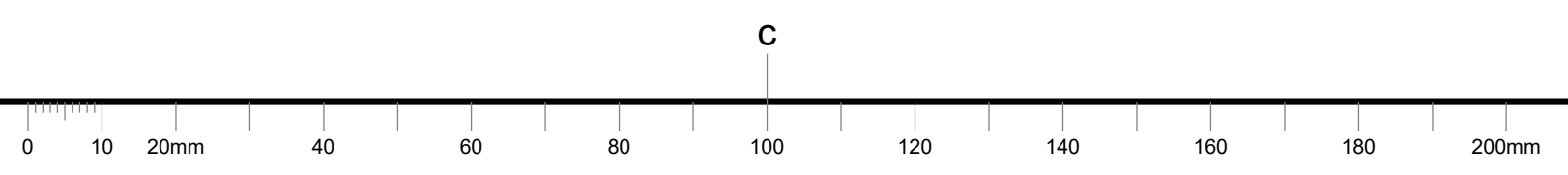
A	A Detail no. No. du détail	A
C	B Location drawing no. sur dessin no.	B C
	C Drawing no. dessin no.	

project  
**BUILDING M-38**  
**FLEXIBLE RESEARCH FACILITY**  
 MONTREAL ROAD CAMPUS

drawing  
**STRUCTURAL:**  
**FOUNDATION DETAILS**

designed	conçu	date	date
R.L.		JUNE, 2016	
drawn	dessiné	scale	échelle
M.P.		AS SHOWN	
checked	vérifié	sheet	feuille
R.L.		S02 of de S07	
approved	approuvé	W.O.no.	D.T.no.

dwg no. **5049-S02** dessin no.





**GENERAL NOTES:**

**STRUCTURAL STEEL:**

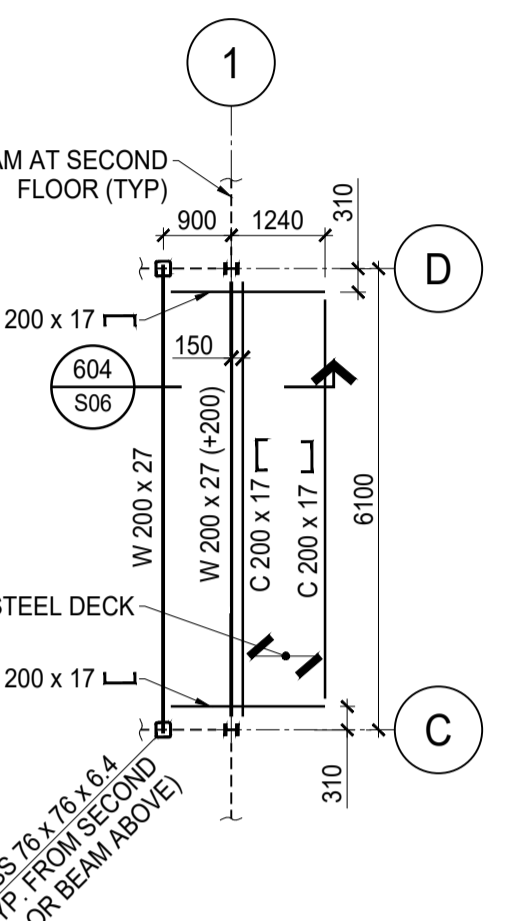
- ALL STRUCTURAL STEEL SHALL CONFORM TO CSA G40.20-04 AND CSA G40.21-04, GRADE 350.
- ANCHOR BOLTS SHALL BE A307 STEEL
- ALL STRUCTURAL STEEL SHALL RECEIVE ONE SHOP COAT OF PRIMER CONFORMING TO CAN/CSG 1-40.97, "ANTI-CORROSIVE STRUCTURAL STEEL ALKYD PRIMER."
- ALL WELDING MATERIALS SHALL CONFORM TO CSA W48.06.
- WELDING SHALL CONFORM TO CSA W59-03 (R2008) AND SHALL BE CARRIED OUT BY WELDERS QUALIFIED BY THE CANADIAN WELDING BUREAU.
- THE CONTRACTOR SHALL SUBMIT FOR REVIEW SHOP DRAWINGS FOR REVIEW, INCLUDING ERECTION AND SHOP DETAIL DRAWINGS, BEFORE THE START OF FABRICATION.
- THE STEEL CONTRACTOR SHALL VERIFY DIMENSIONS ON SITE BEFORE THE START OF FABRICATION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
- ALL STRUCTURAL STEEL WORK SHALL CONFORM TO CSA S16-09.

**STEEL FLOOR AND ROOF JOISTS:**

- STEEL JOISTS SHALL BE DESIGNED FOR THE UNFACTORED LOADS NOTED ON THE DRAWINGS.
- THE JOISTS SHALL BE DESIGNED FOR AN ADDITIONAL LIVE LOAD OF 2225 N, LOCATED ANYWHERE ALONG THE LENGTH OF THE JOIST.
- JOIST SHOES SHALL BE 64 mm OR 125 mm DEEP.
- THE JOIST SUPPLIER SHALL SUBMIT FOR REVIEW SHOP DRAWINGS AND DESIGN CALCULATIONS FOR ALL JOISTS.

**STEEL DECK:**

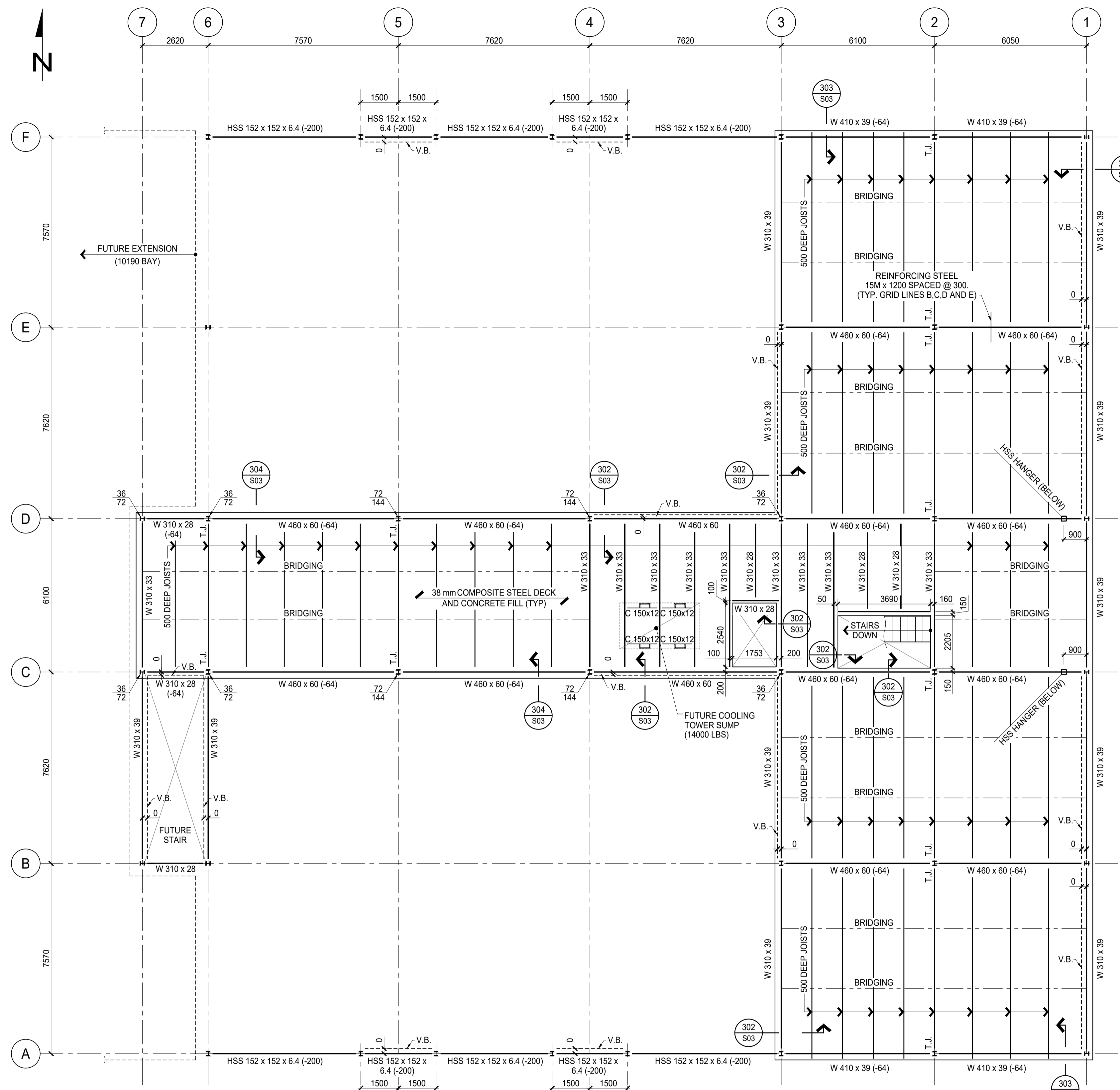
- STEEL DECK SHALL CONFORM TO ASTM A653M, GRADE 200.
- ROOF DECK SHALL BE 38 mm DEEP x 0.91 mm.
- FLOOR DECK SHALL BE COMPOSITE, 38 mm DEEP x 0.91 mm.
- DECK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A653M.
- THE DECK SHALL BE CONTINUOUS OVER 3 SPANS MINIMUM AND SHALL BE FASTENED TO SUPPORTING MEMBERS WITH #12 HEX HEAD SCREWS AT 150 mm SPACING AT PERIMETER A 300 mm SPACING AT INTERIOR BEAMS.
- SUBMIT SHOP DRAWINGS FOR FLOOR AND ROOF DECK INSTALLATION.



**CANOPY PLAN**  
 SCALE = 1:100  
 T.O.S. = 103.900  
 DESIGN LIVE LOAD = 4.80 kPa (100 LBS / SQ.FT.)

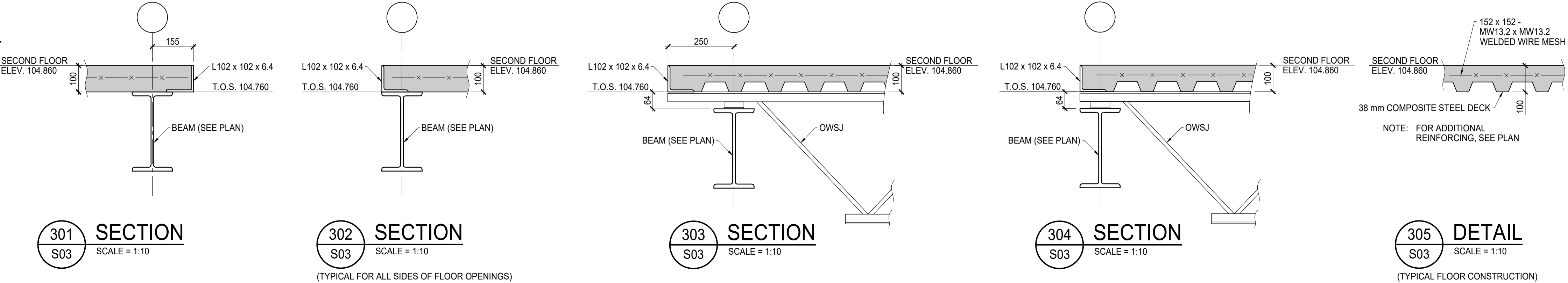
**WIND LOADS:**

- THE REFERENCE WIND PRESSURE IS BASED ON FIG. I-7, INCLUDING THE FOLLOWING PARAMETERS:  
 $q = 0.41 \text{ kPa}$ ,  $P = 0.56 \text{ kPa}$ , 1.50 RETURN PERIOD,  $C_g = 2.0$  (BUILDING),  $C_g = 2.5$  (CLADDING),  $C_e = 0.7$ ,  $1w_{uls} = 1.0$ ,  $1w_{sls} = 0.75$
- ROOF:  $C_p = -1.5$ ,  $C_p^* = -2.0$  (CORNERS),  $C_p^* = -2.0$  (EDGES)  
 BUILDING:  $C_{pCg} = +1.3$  OR  $+1.95$   
 INTERNAL - CATEGORY 2:  $C_{pi} = -0.45$  TO  $+0.3$
- WIND ROOF UPLIFT:  
 $P_{NET} = P_e - P_i$   
 $P_e = 1w q C_e C_p C_g$   
 $P_i = 1w q C_e C_{pi} C_{gi}$   
 $P_f = 1.4 P_{NET} - 0.9 P_d$



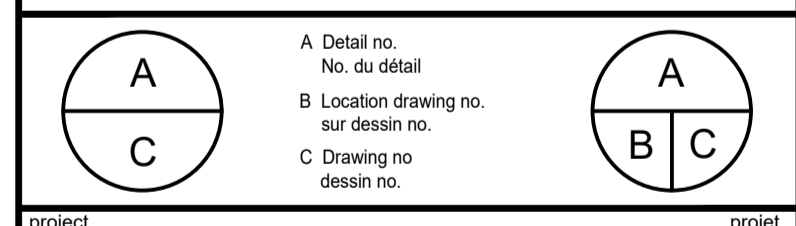
**SECOND FLOOR PLAN**

SCALE = 1:100  
 T.O.S. = 104.760 U/N  
 V.B. = VERTICAL BRACING  
 T.J. = TIE JOIST  
 DESIGN LOADS  
 DEAD LOAD = 2.88 kPa (60 LBS / SQ.FT.)  
 LIVE LOAD = 4.80 kPa (100 LBS / SQ.FT.)  
 DL DESIGN COLUMN FOR ADDITIONAL FUTURE UNFACTORED LOADS IN KN  
 CONTRACTOR SHALL COORDINATE ELEVATOR SHAFT SIZE WITH ELEVATOR SHOP DRAWINGS.



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Verify all dimensions and site conditions and be responsible for same.  
 Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.

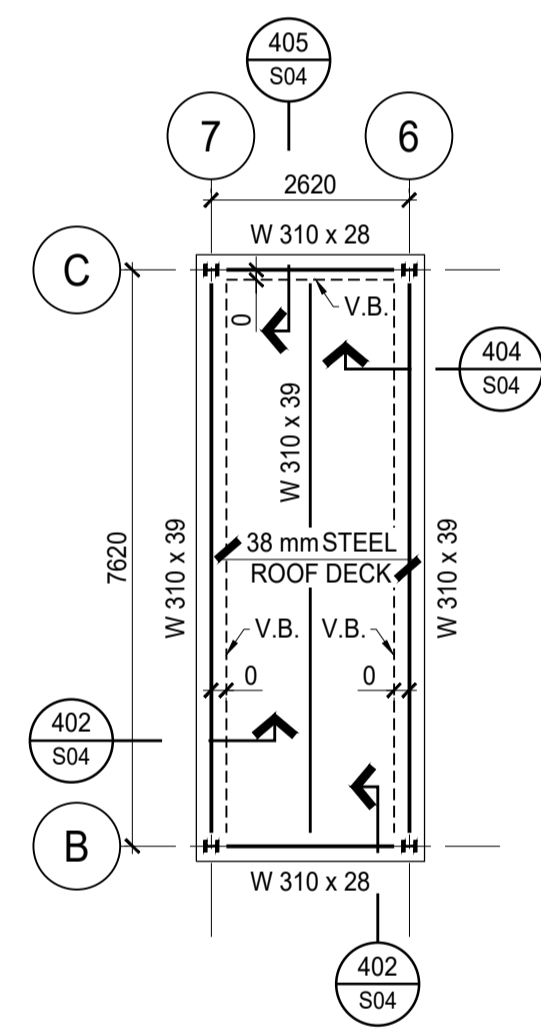
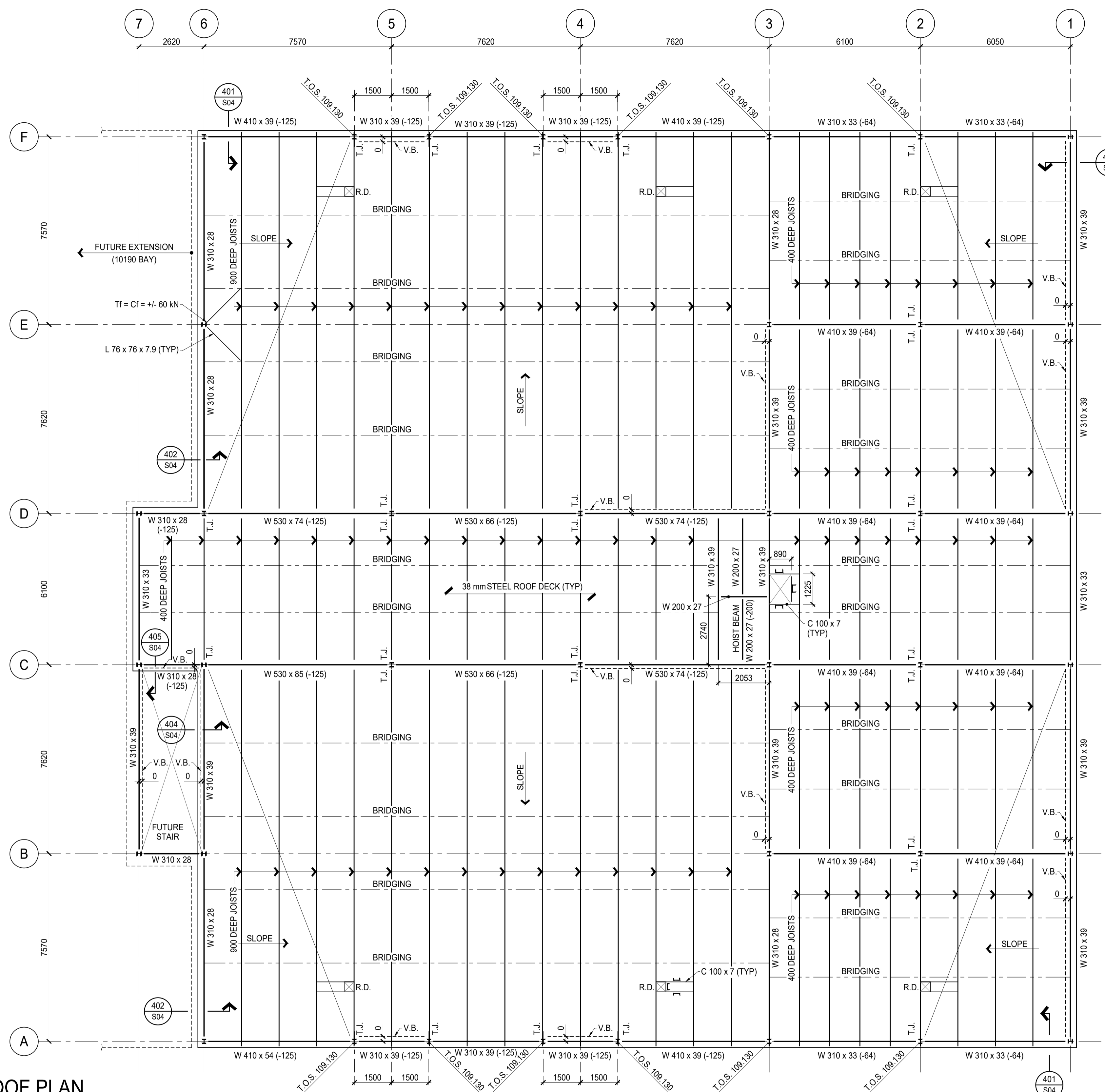


**BUILDING M-38 FLEXIBLE RESEARCH FACILITY MONTREAL ROAD CAMPUS**

**STRUCTURAL: SECOND FLOOR PLAN AND DETAILS**

designed	conçu	date	date
R.L.		JUNE, 2016	
drawn	dessiné	scale	échelle
M.P.		AS SHOWN	
checked	vérifié	sheet	feuille
R.L.		S03 of S07	
approved	approuvé	W.O.no.	D.T.no.

dwg no. **5049-S03** dessin no.



**HIGH ROOF PLAN**  
 SCALE = 1:100  
 T.O.S. = 112.200  
 V.B. = VERTICAL BRACING  
 DESIGN LOADS  
 DEAD = 1.44 kPa (30 LBS/SQ. FT.)  
 LIVE = 2.30 kPa (48 LBS/SQ. FT.)

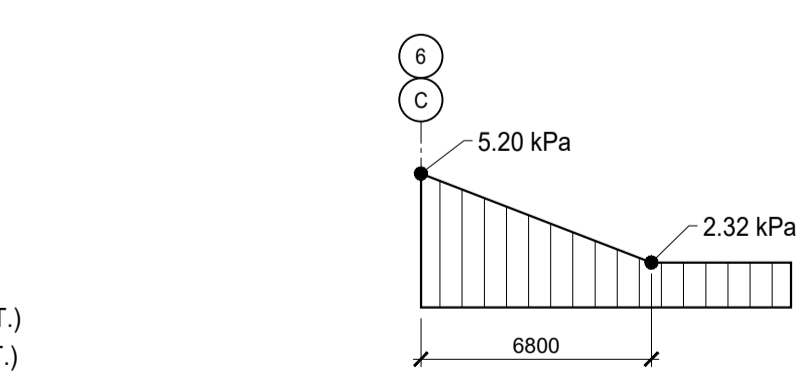
**ROOF PLAN**  
 SCALE = 1:100

T.O.S. = 109.330 U/N  
 V.B. = VERTICAL BRACING  
 T.J. = TIE JOIST  
 R.D. = ROOF DRAIN

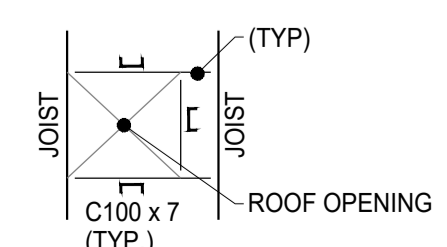
DESIGN LOADS  
 DEAD = 1.75 kPa (35 LBS/SQ. FT.)  
 LIVE = 2.32 kPa (48 LBS/SQ. FT.)

DESIGN COLUMNS C3, C4, D3 AND D4 FOR ADDITIONAL LOAD OF 10,000 LBS FOR FUTURE COOLING TOWER. EXTEND COLUMNS 600 mm ABOVE ROOF.

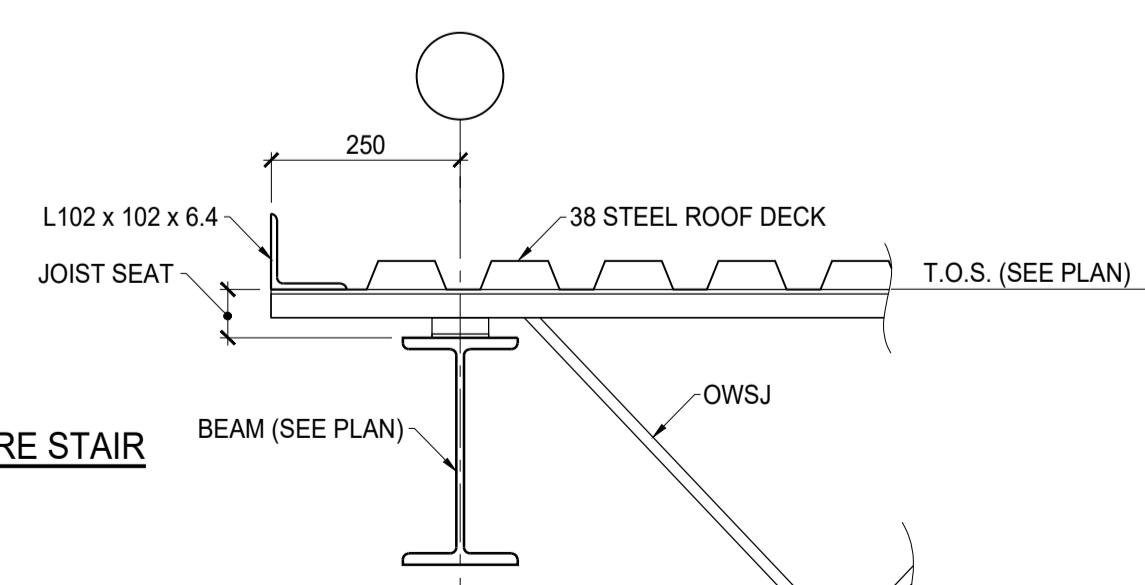
IN TENDER PRICE, INCLUDE FRAMING OF 3 ADDITIONAL ROOF OPENINGS.



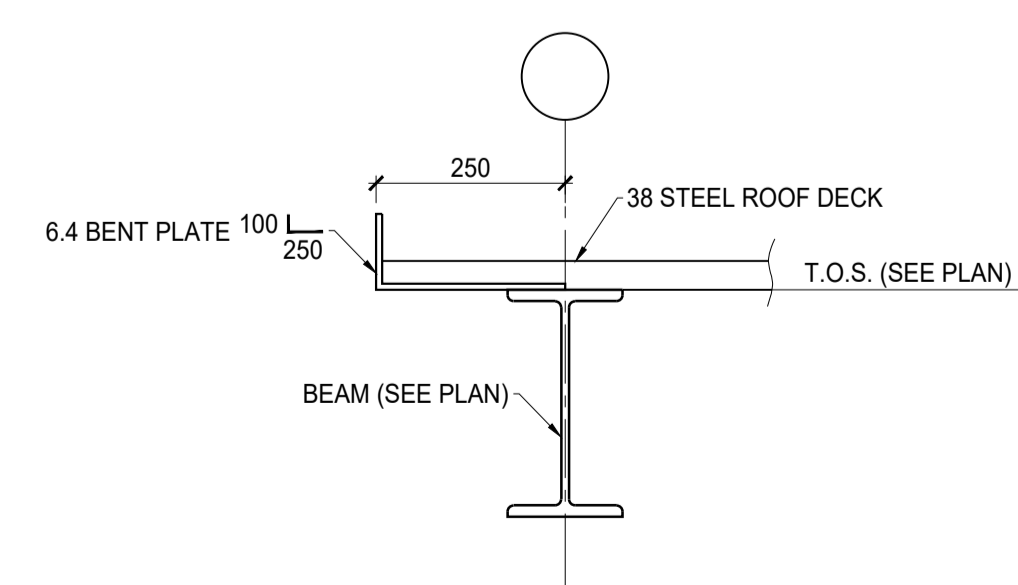
**SNOW ACCUMULATION LOADS AT FUTURE STAIR**  
 N.T.S.



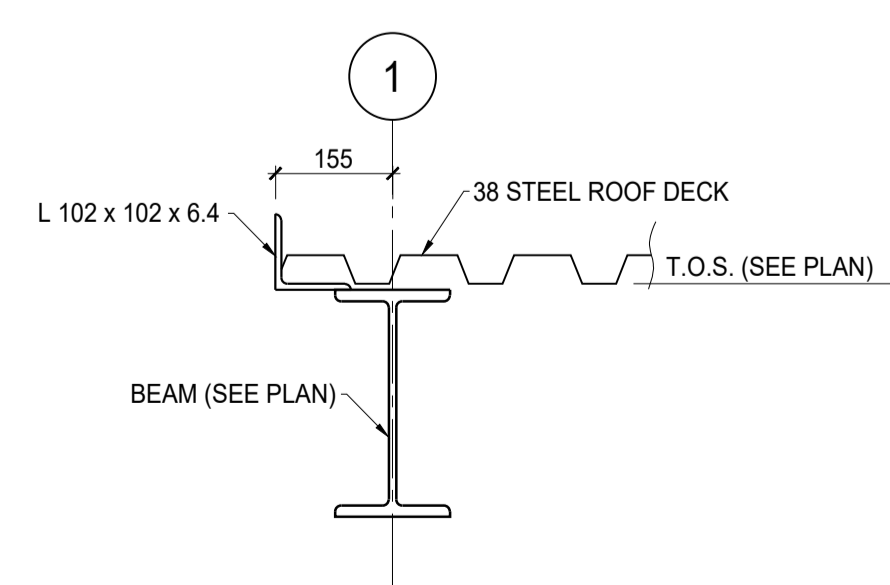
**ROOF OPENING**  
 N.T.S.



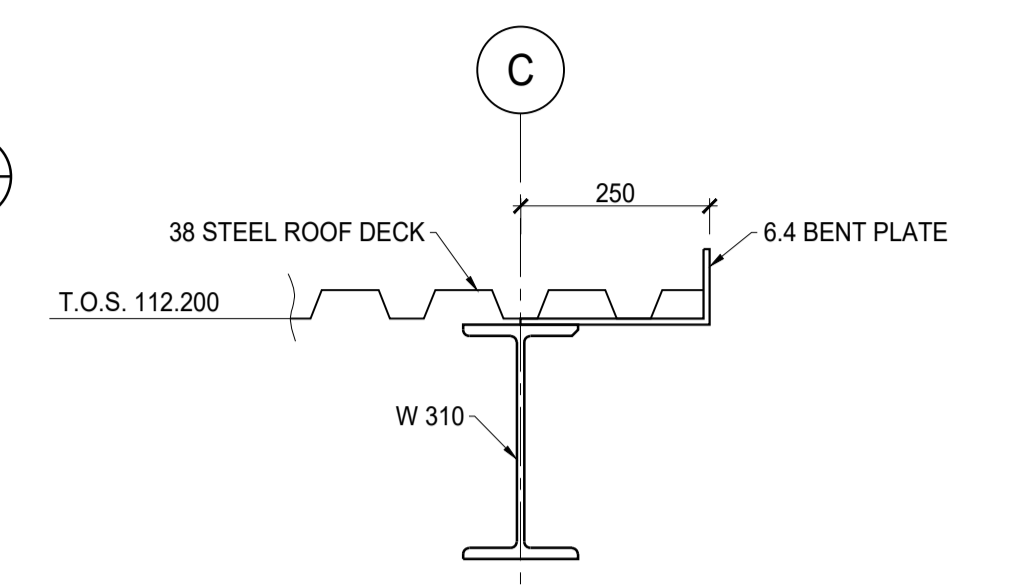
**401 SECTION**  
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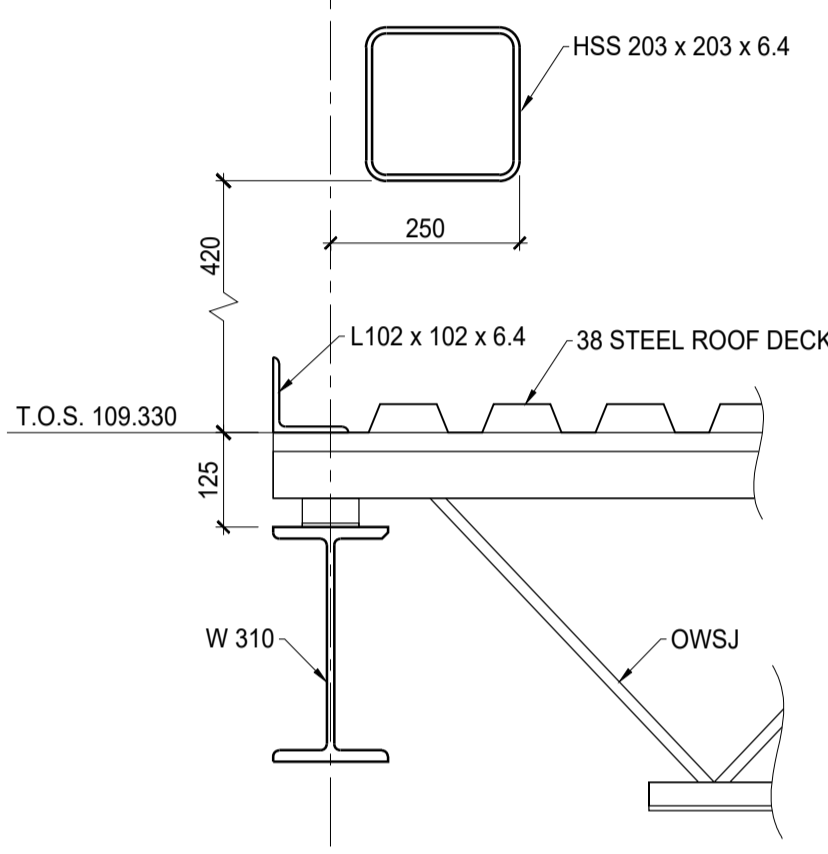
**402 SECTION**  
 SCALE = 1:10



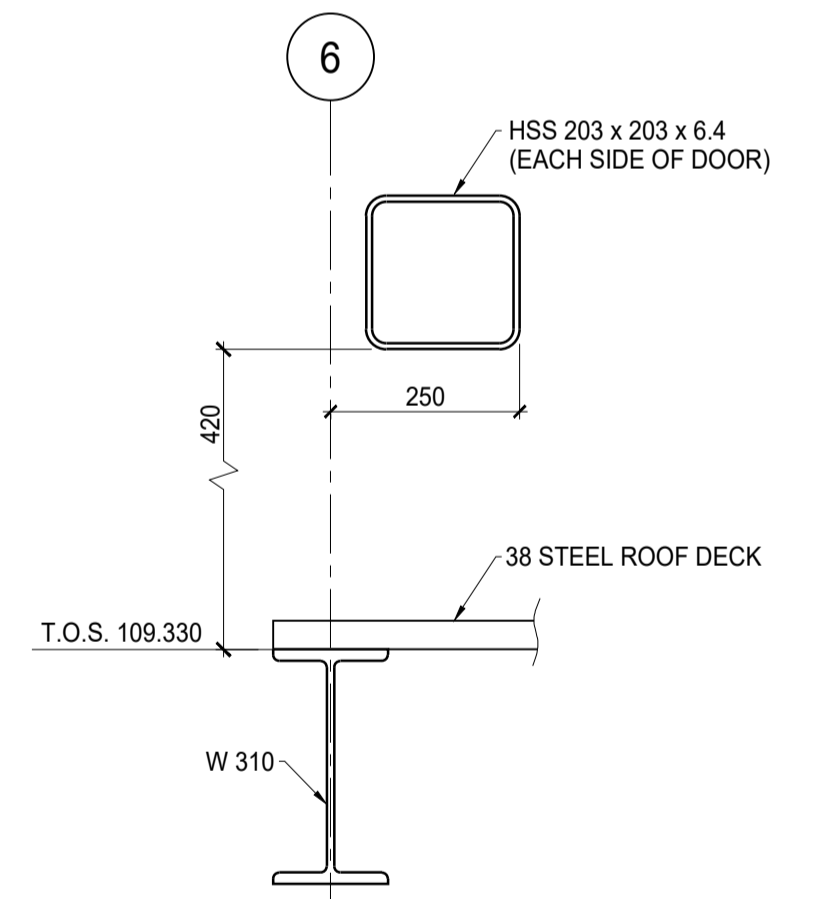
**403 SECTION**  
 SCALE = 1:10



**405 SECTION**  
 SCALE = 1:10



**404 SECTION**  
 SCALE = 1:10



**406 SECTION**  
 SCALE = 1:10

No.	Date	Revision	By:
1	AUG 23, 2016	ISSUED FOR TENDER	R.L.
0	JULY 6, 2016	PRELIMINARY	R.L.

- Verify all dimensions and site conditions and be responsible for same.
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.

A	A Detail no. No. du détail
B	B Location drawing no. sur dessin no.
C	C Drawing no. dessin no.

**BUILDING M-38**  
**FLEXIBLE RESEARCH FACILITY**  
 MONTREAL ROAD CAMPUS

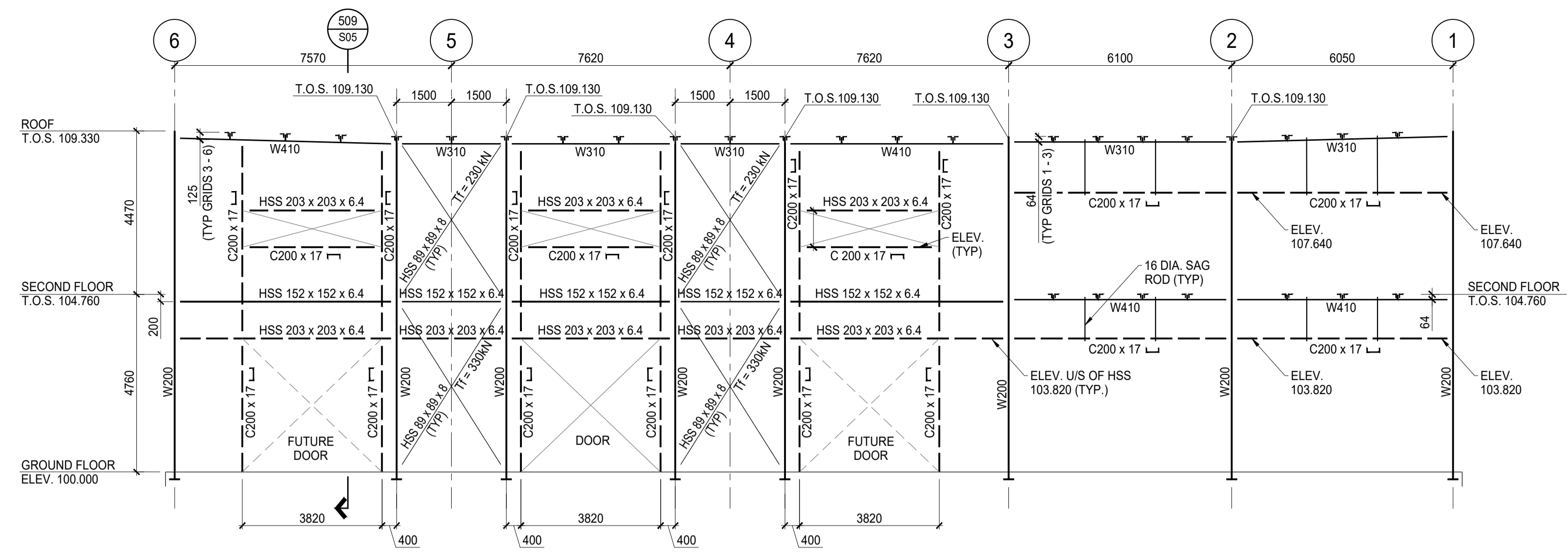
**STRUCTURAL:**  
**ROOF PLAN AND DETAILS**

designed	conçu	date	JUNE, 2016
drawn	dessiné	scale	AS SHOWN
checked	vérifié	sheet	S04 of de S07
approved	approuvé	W.O.no.	D.T.no.

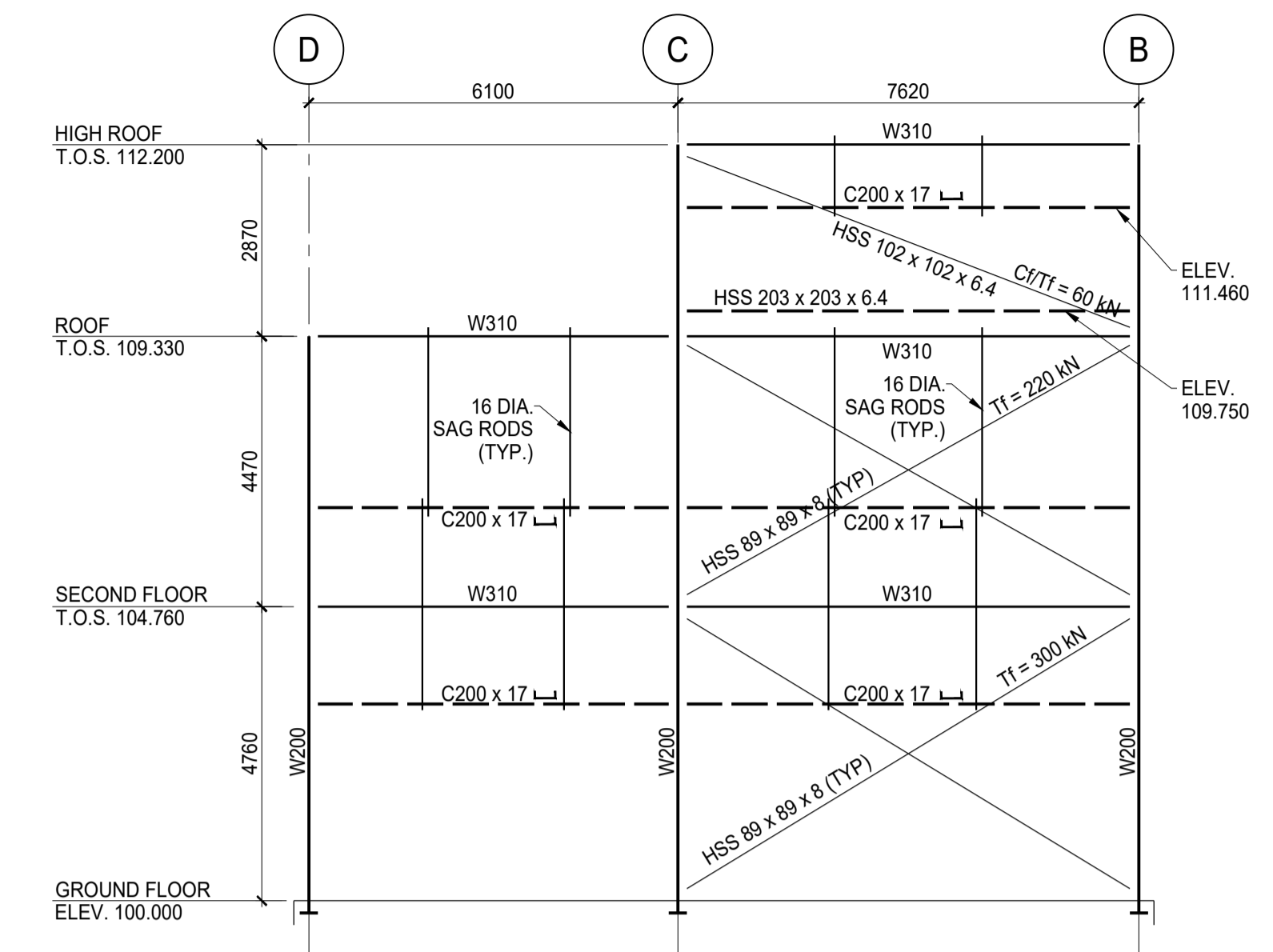
dwg no. **5049-S04** dessin no.



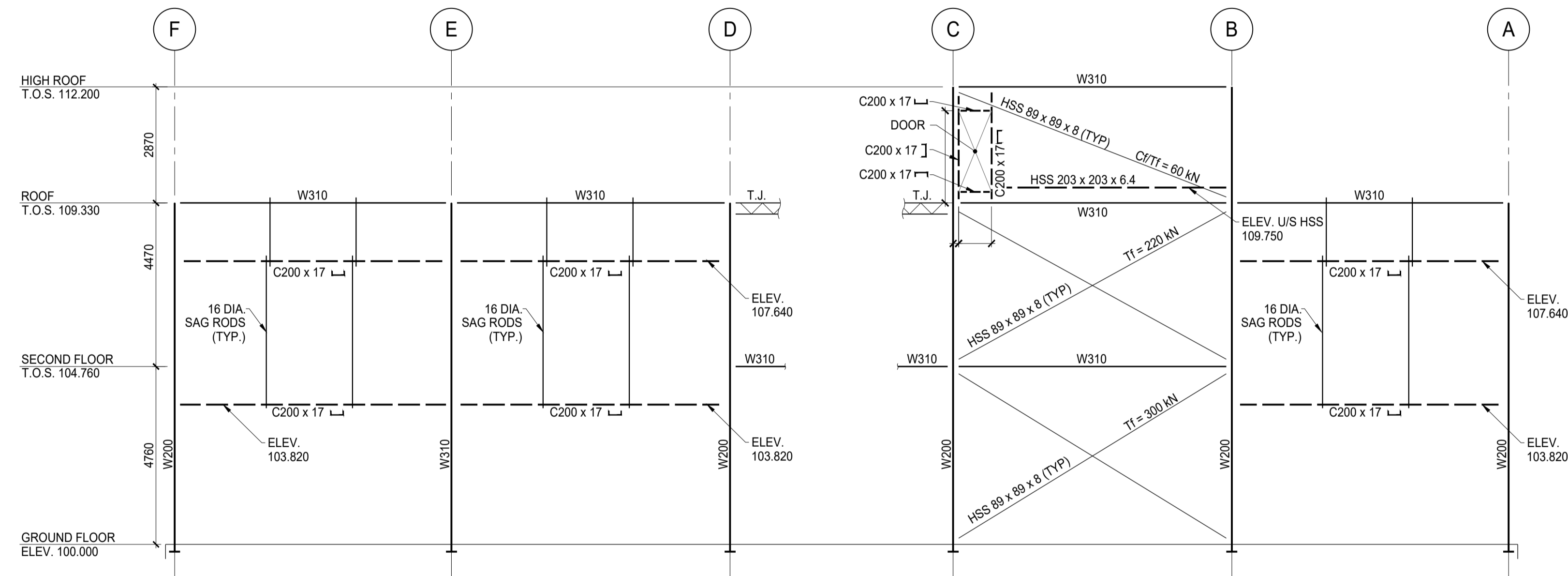
**Leibe Engineering Associates**  
 Consulting Engineers / Ingenieurs-Conseils  
 22 Antares Drive, Suite 201  
 Ottawa, Ontario, K2E 7Z6  
 tel: (613) 723-7765 fax: (613) 723-0095



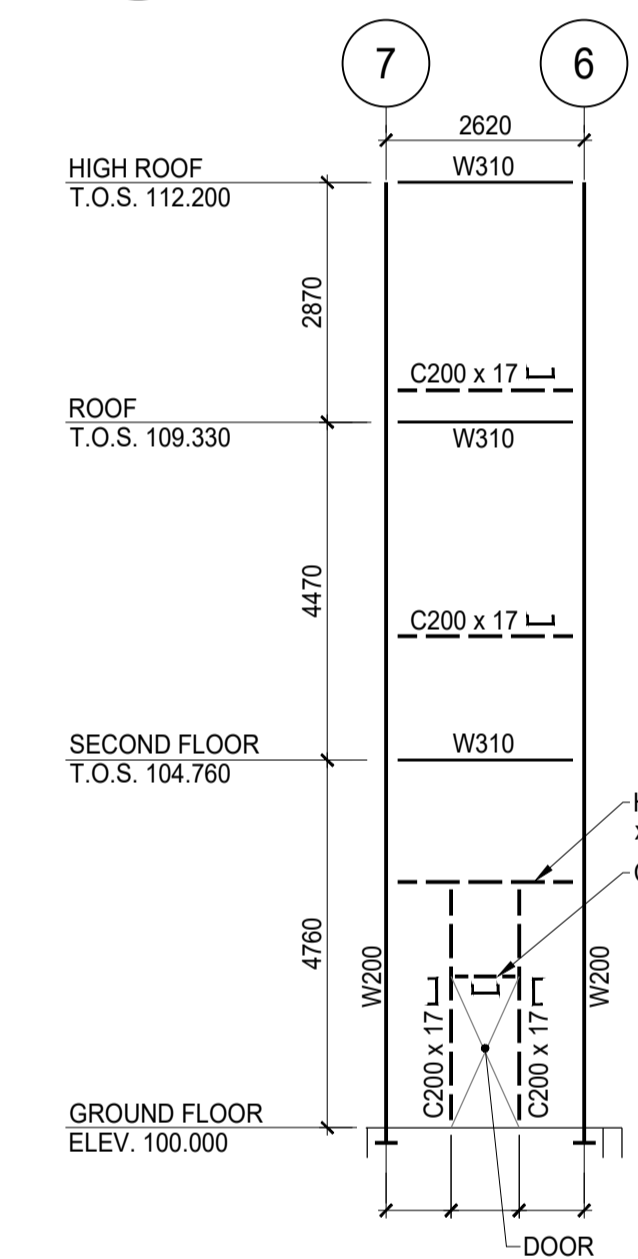
**501 ELEVATION - GRID LINE A**  
 SCALE = 1:100  
 GIRTS AND LINTELS



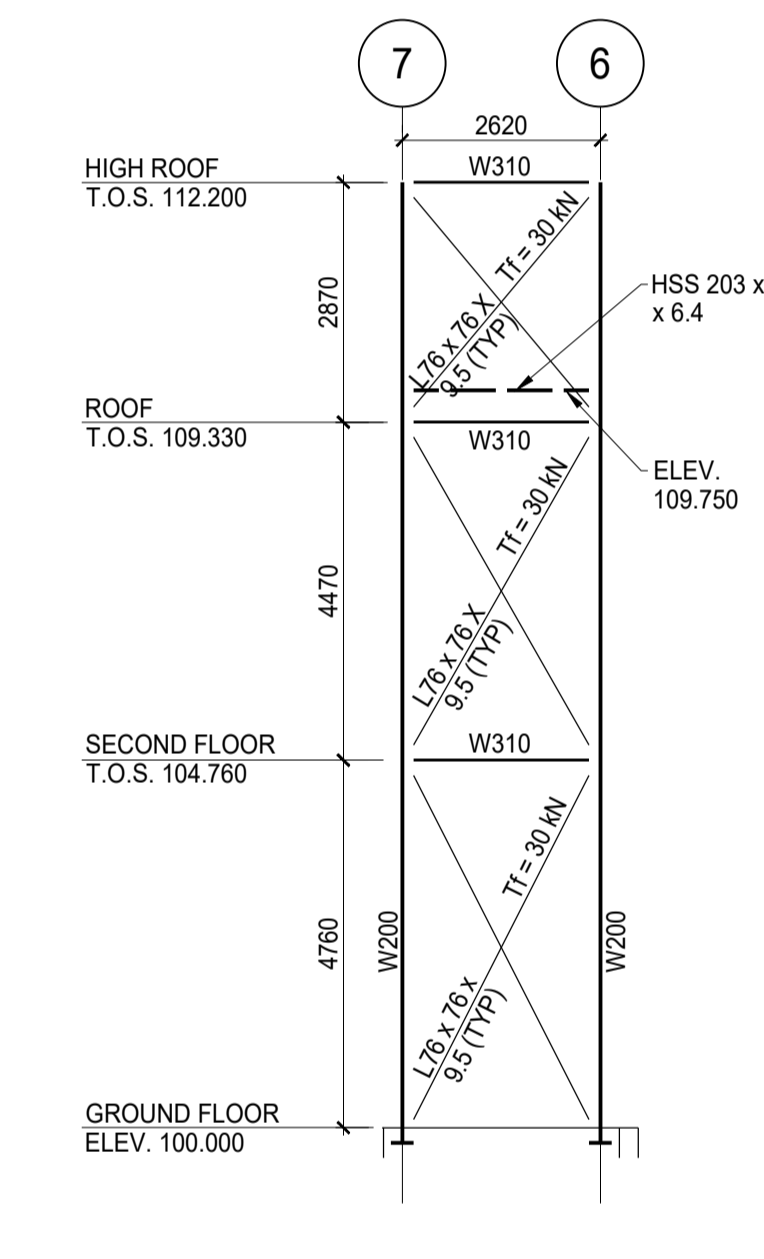
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 SCALE = 1:100  
 GIRTS AND LINTELS



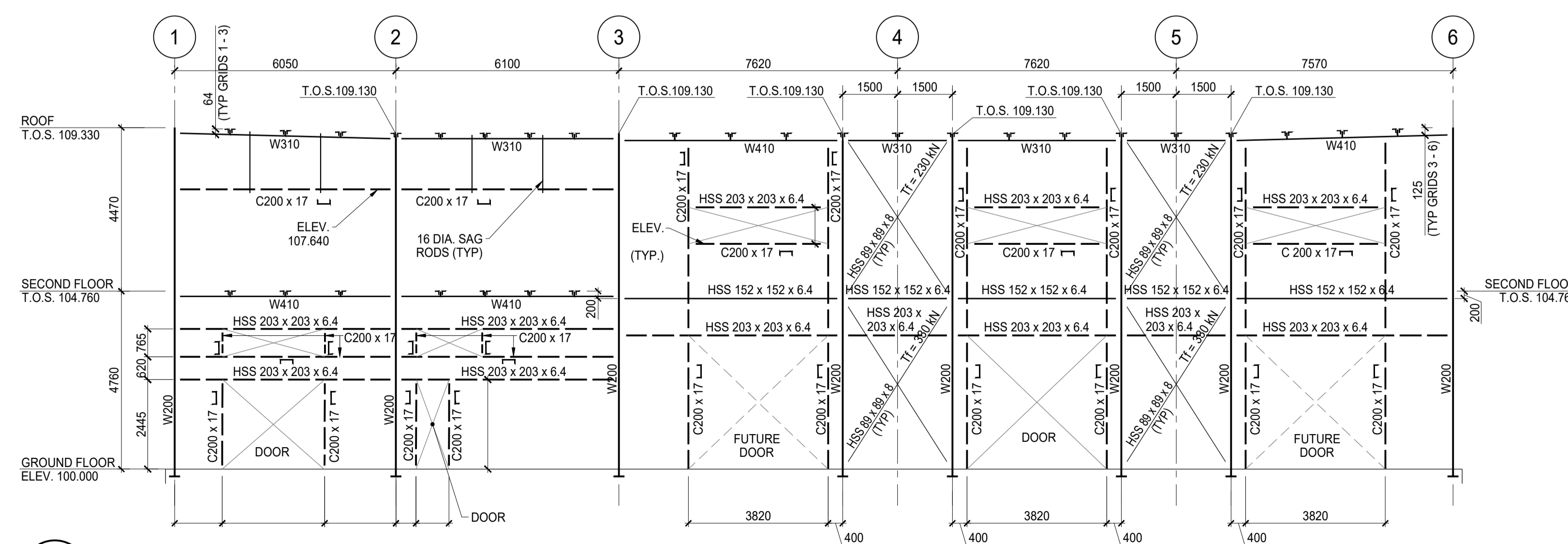
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 SCALE = 1:100  
 GIRTS AND LINTELS



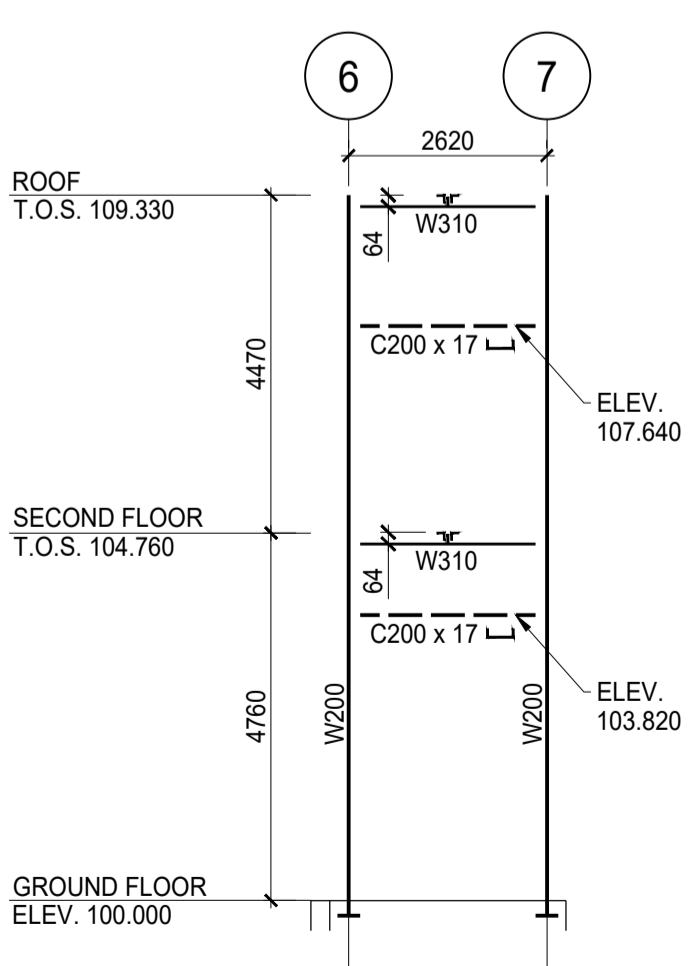
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 SCALE = 1:100  
 GIRTS AND LINTELS



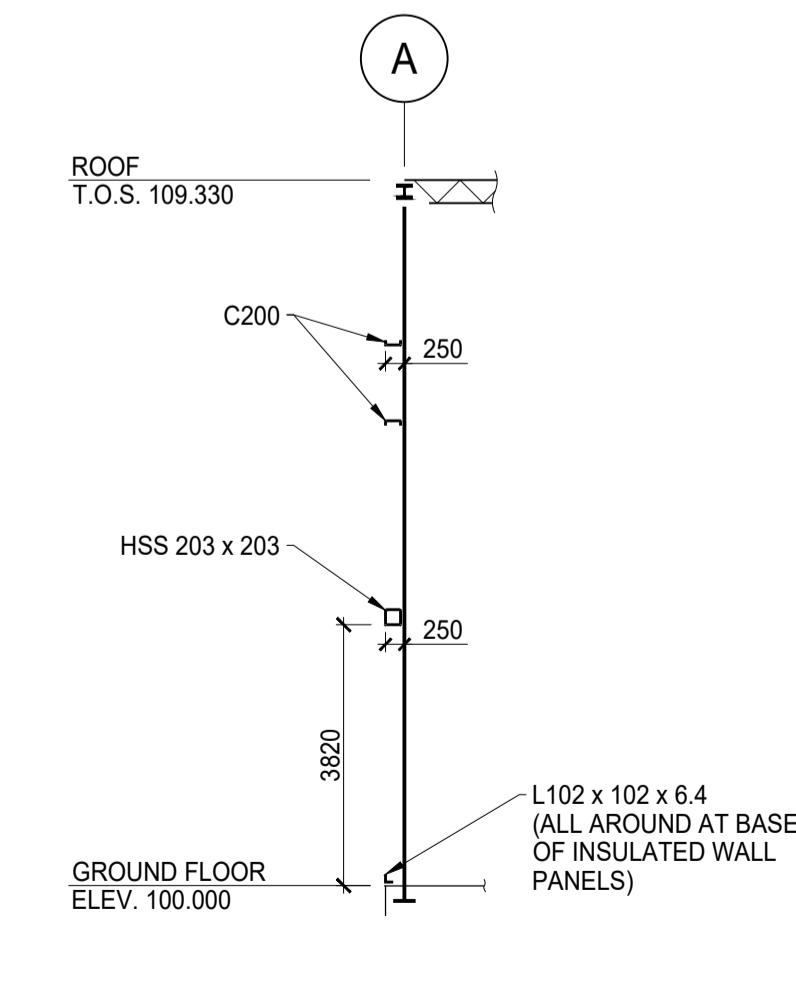
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 SCALE = 1:100  
 GIRTS AND LINTELS



**503 ELEVATION - GRID LINE F**  
 SCALE = 1:100  
 GIRTS AND LINTELS



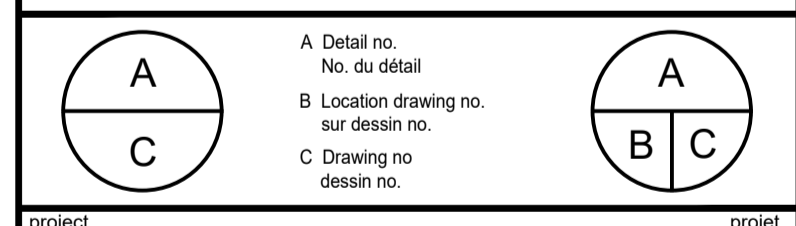
**508 ELEVATION - GRID LINE D**  
 SCALE = 1:100  
 GIRTS AND LINTELS



**509 SECTION**  
 SCALE = 1:100  
 (TYPICAL WALL SECTION LOCATING GIRTS AND LINTELS SHOWN ON WALL ELEVATIONS)

No.	Date	Revision	By:
1	AUG 23, 2016	ISSUED FOR TENDER	R.L.
0	JULY 6, 2016	PRELIMINARY	R.L.

- Verify all dimensions and site conditions and be responsible for same.
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.



**BUILDING M-38**  
**FLEXIBLE RESEARCH FACILITY**  
 MONTREAL ROAD CAMPUS

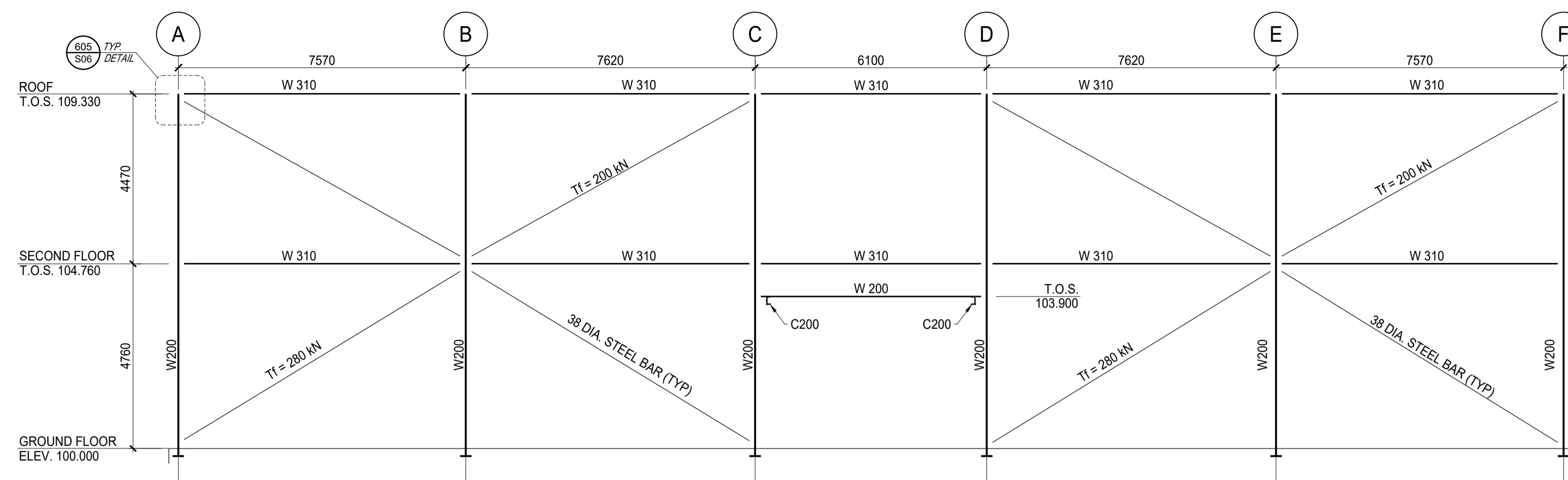
**STRUCTURAL:**  
**WALL ELEVATIONS**

designed	conçu	date	date
R.L.		JUNE, 2016	
drawn	dessiné	scale	échelle
M.P.		AS SHOWN	
checked	vérifié	sheet	feuille
R.L.		S05 of S07	
approved	approuvé	W.O.no.	D.T.no.

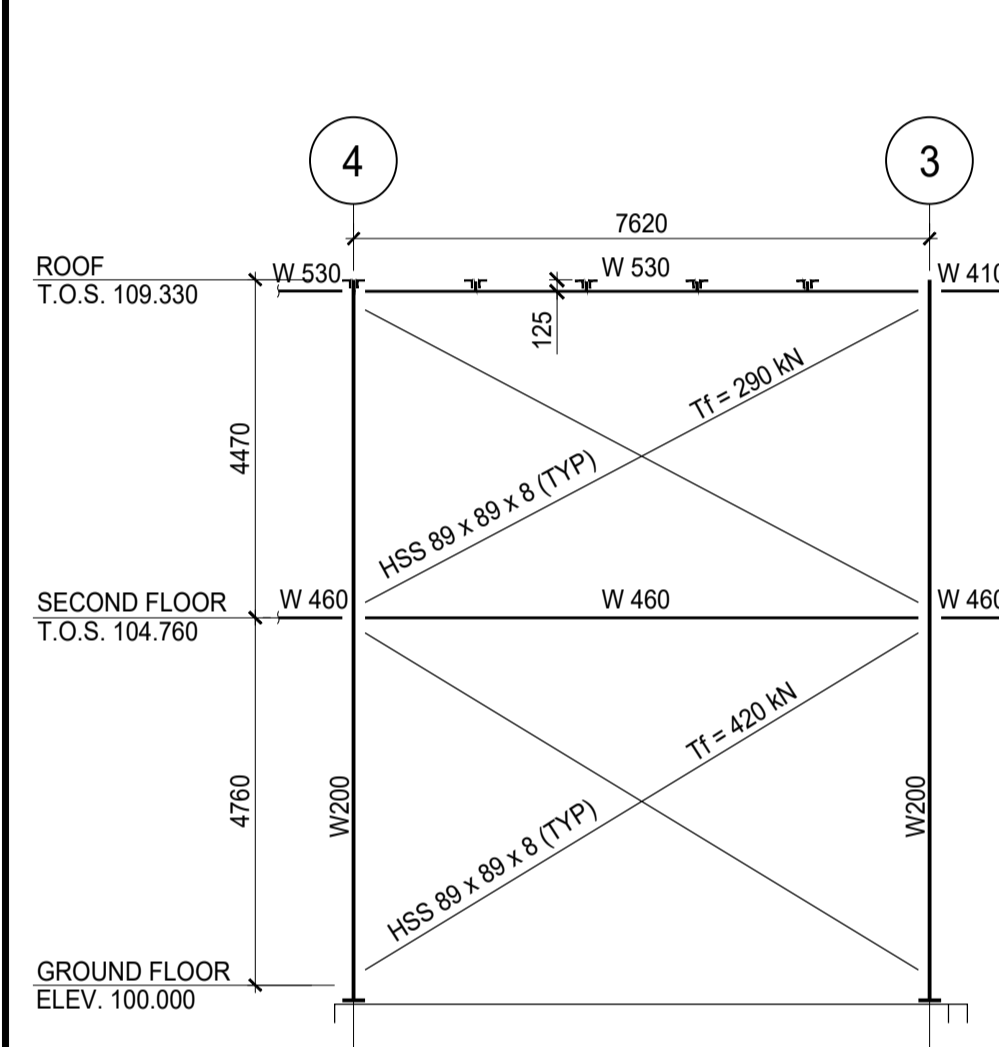
dwg no. **5049-S05** dessin no.

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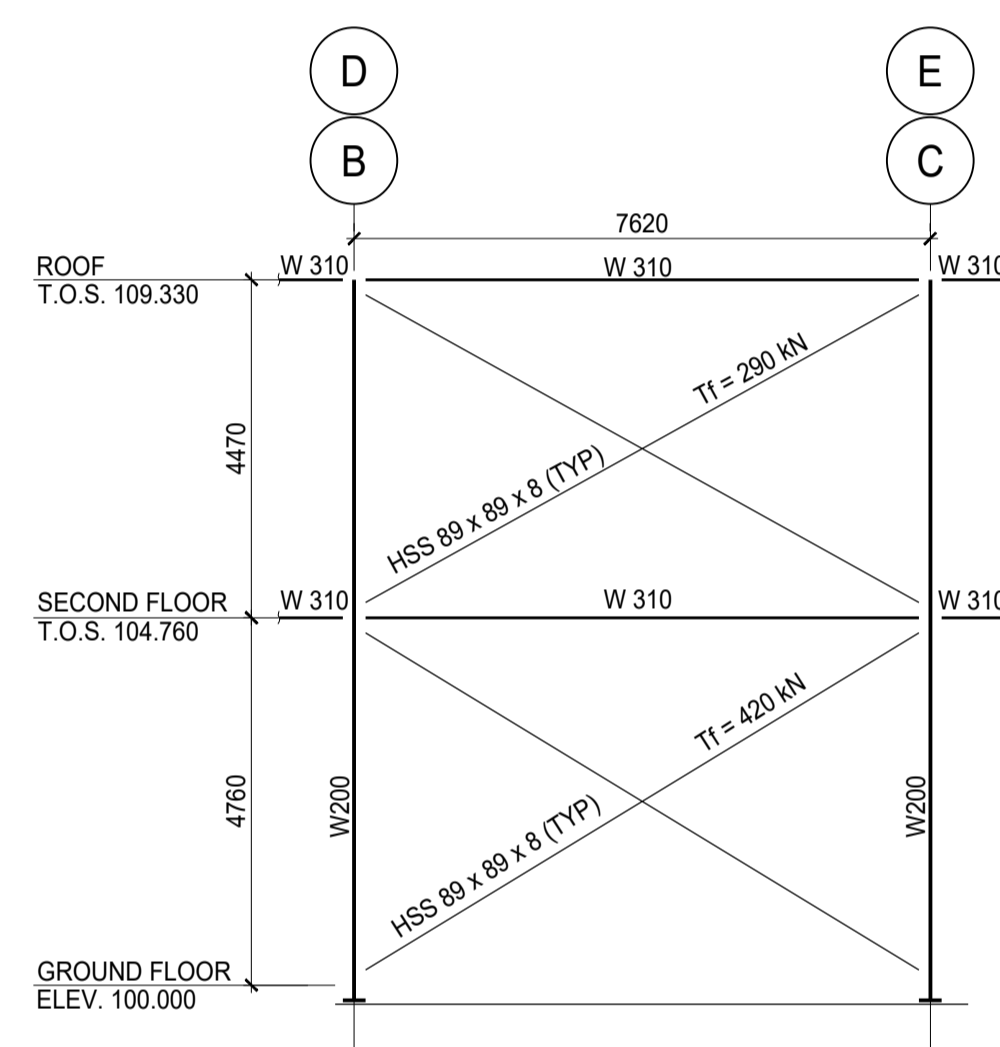




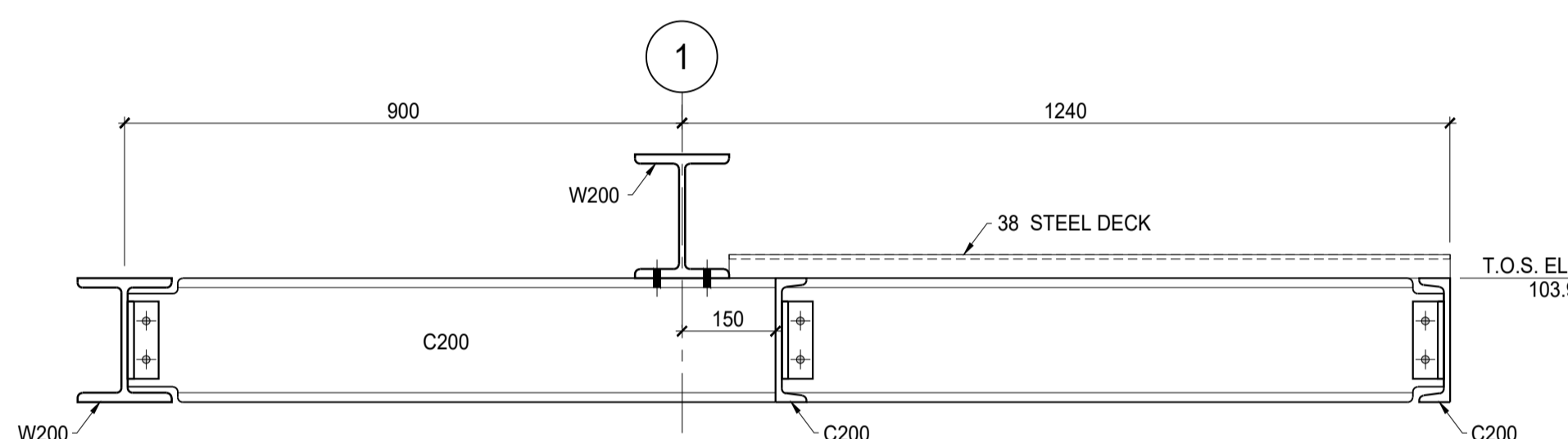
**601 ELEVATION - GRID LINE 1**  
 S06 SCALE = 1:100



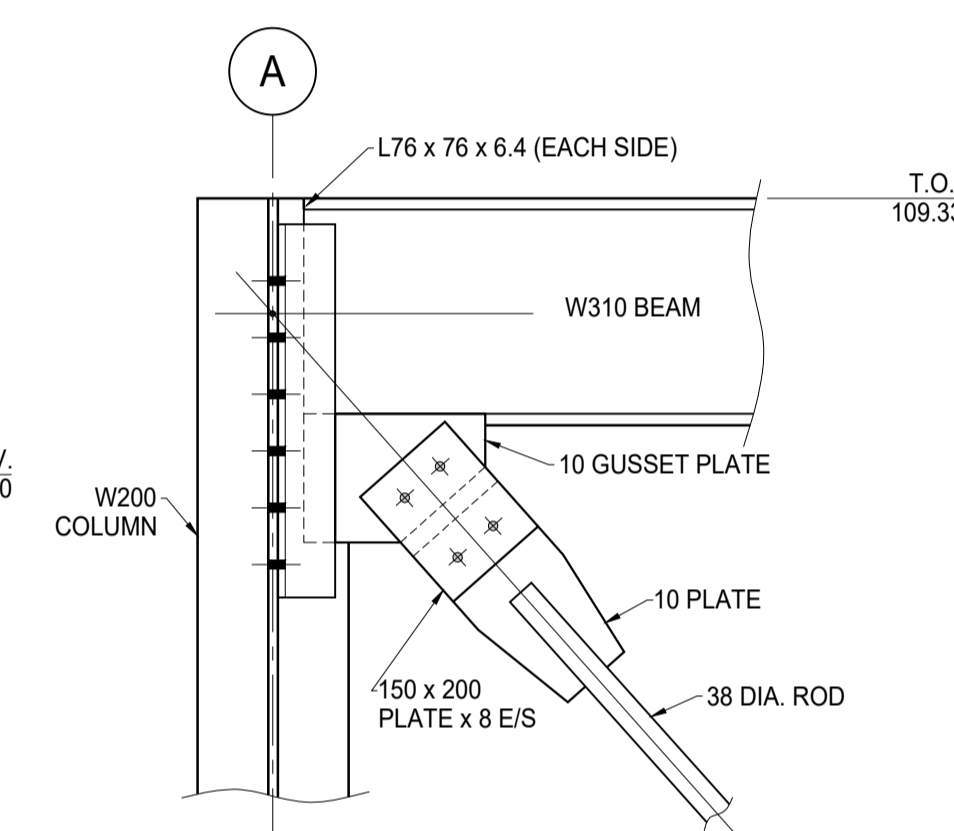
**602 ELEVATION - GRID LINE C AND D**  
 S06 SCALE = 1:100



**603 ELEVATION - GRID LINE 3**  
 S06 SCALE = 1:100



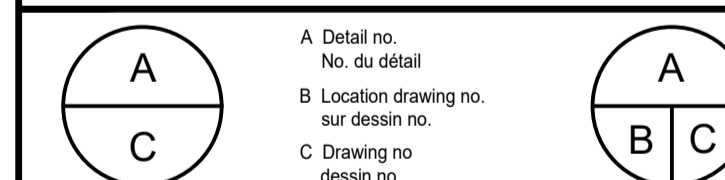
**604 SECTION**  
 S06 SCALE = 1:10



**605 DETAIL (SIMILAR AT EACH END)**  
 S06 SCALE = 1:10

No.	Date	Revision	By:	Par:
1	AUG 23, 2016	ISSUED FOR TENDER	R.L.	
0	JULY 6, 2016	PRELIMINARY	R.L.	

- Verify all dimensions and site conditions and be responsible for same.
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.

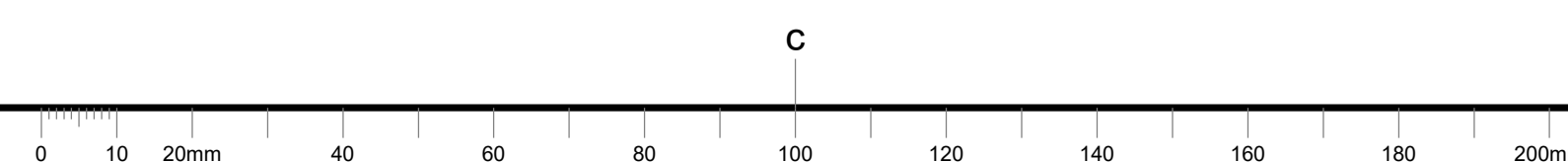


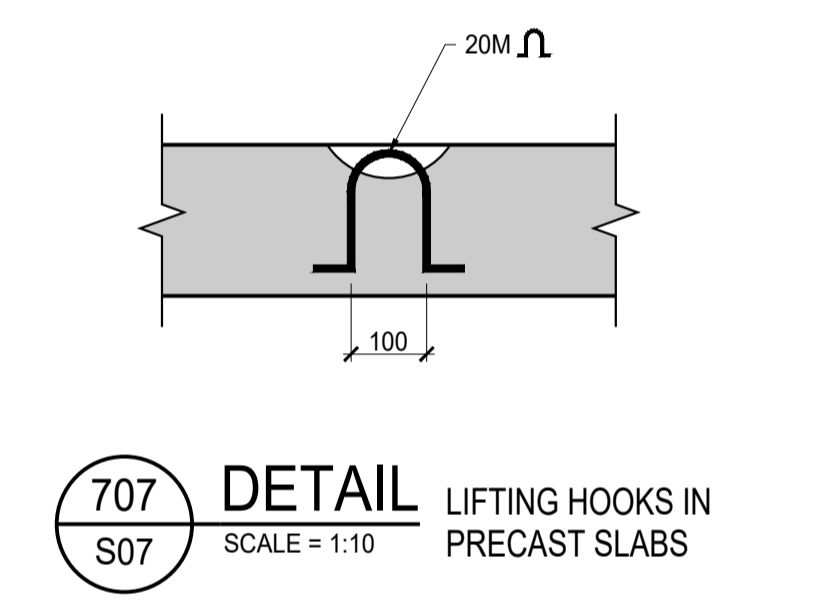
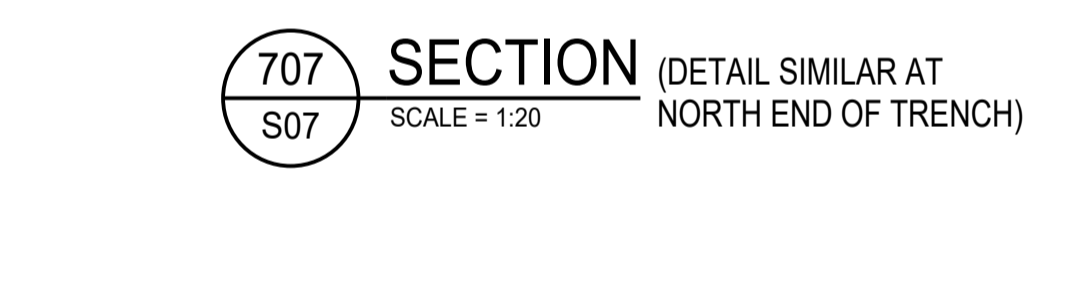
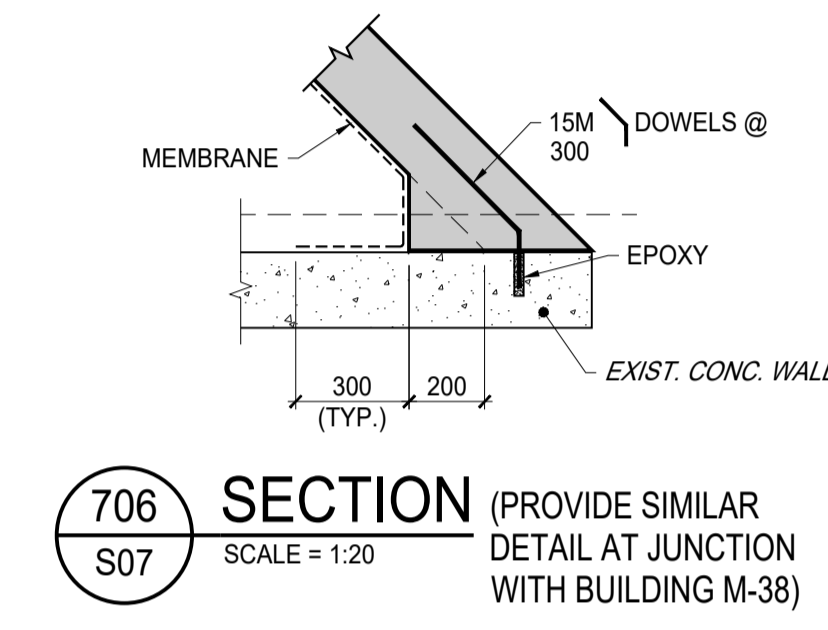
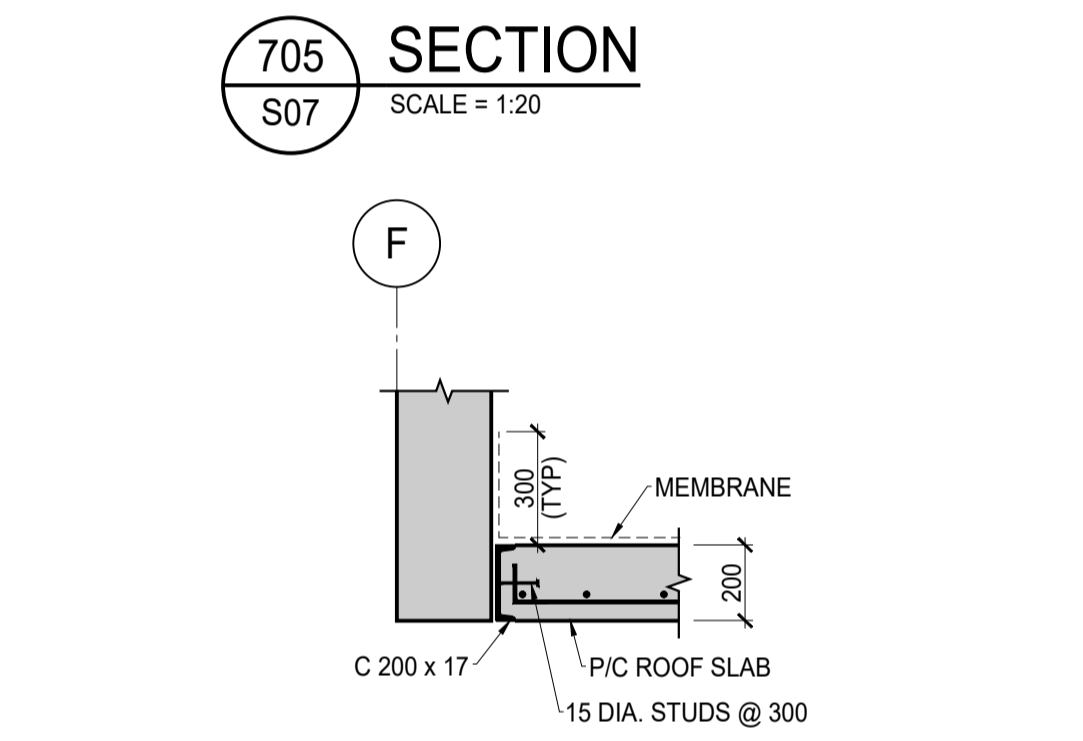
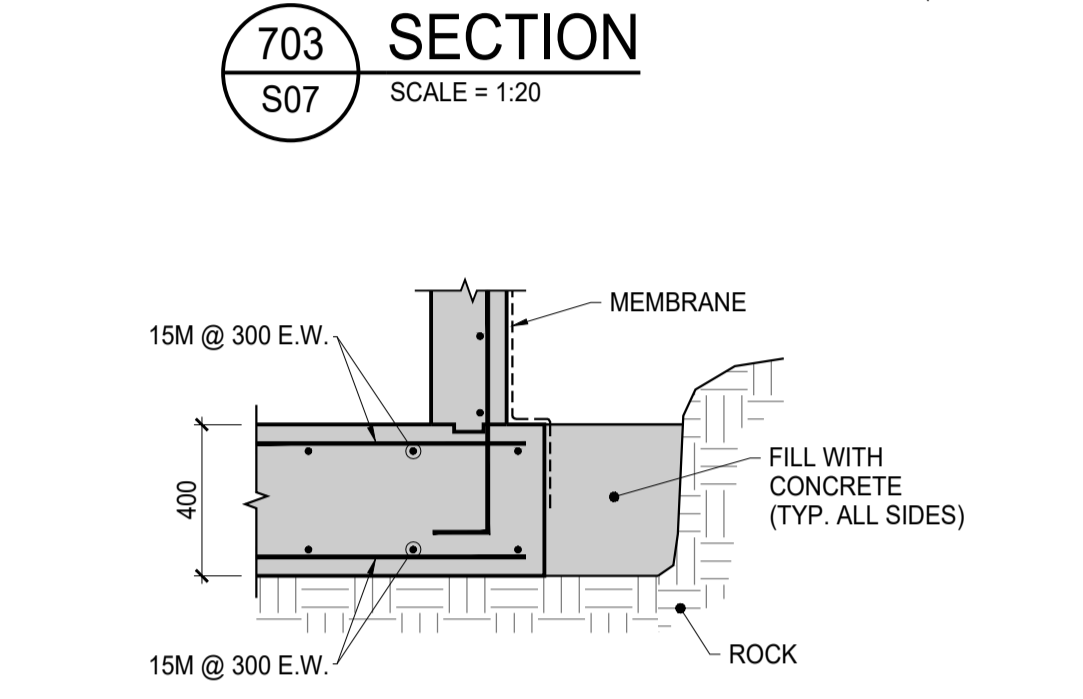
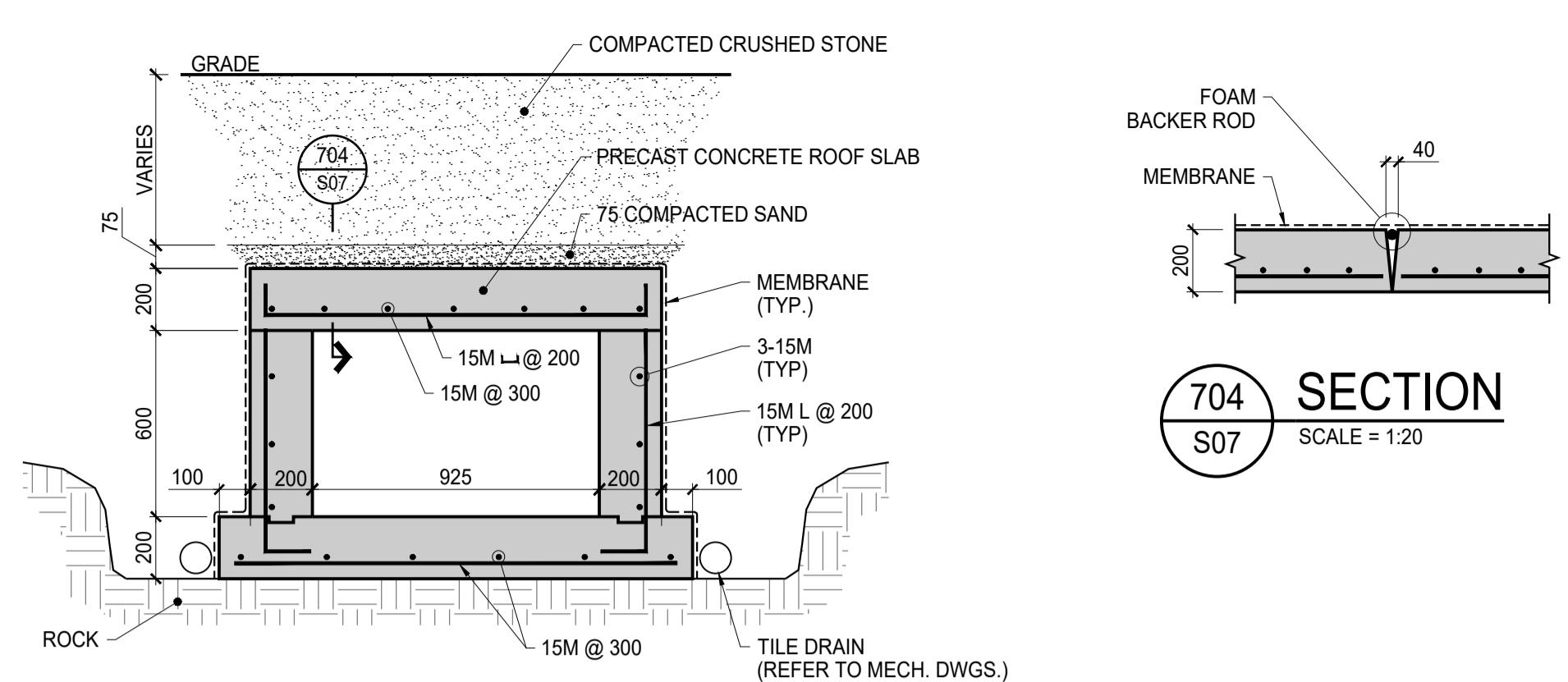
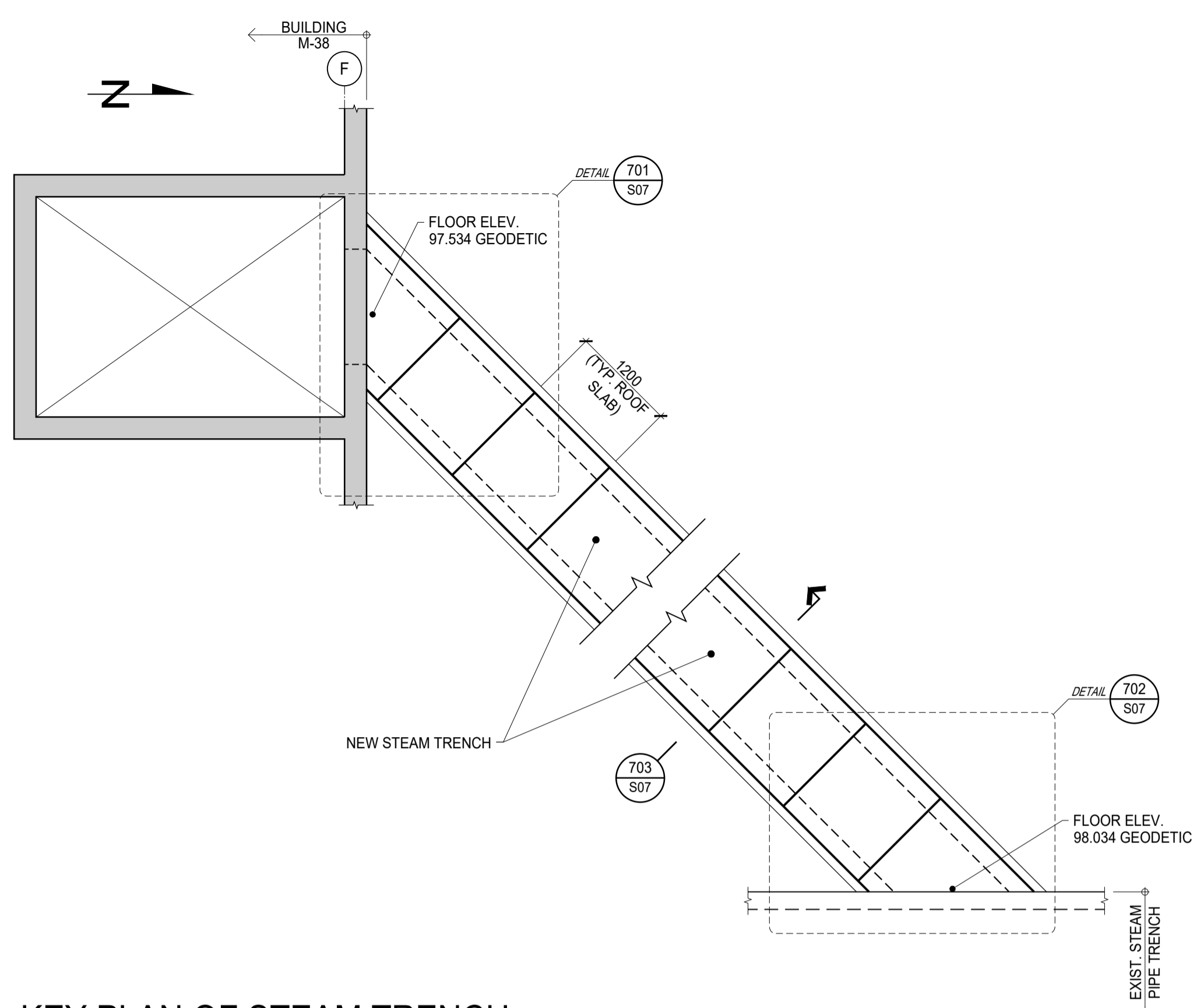
project **BUILDING M-38**  
**FLEXIBLE RESEARCH FACILITY**  
 MONTREAL ROAD CAMPUS

drawing **STRUCTURAL:**  
**WALL ELEVATIONS AND DETAILS**

designed	conçu	date	JUNE, 2016
drawn	dessiné	scale	AS SHOWN
checked	vérifié	sheet	S06 of S07
approved	approuvé	W.O.no.	D.T.no.

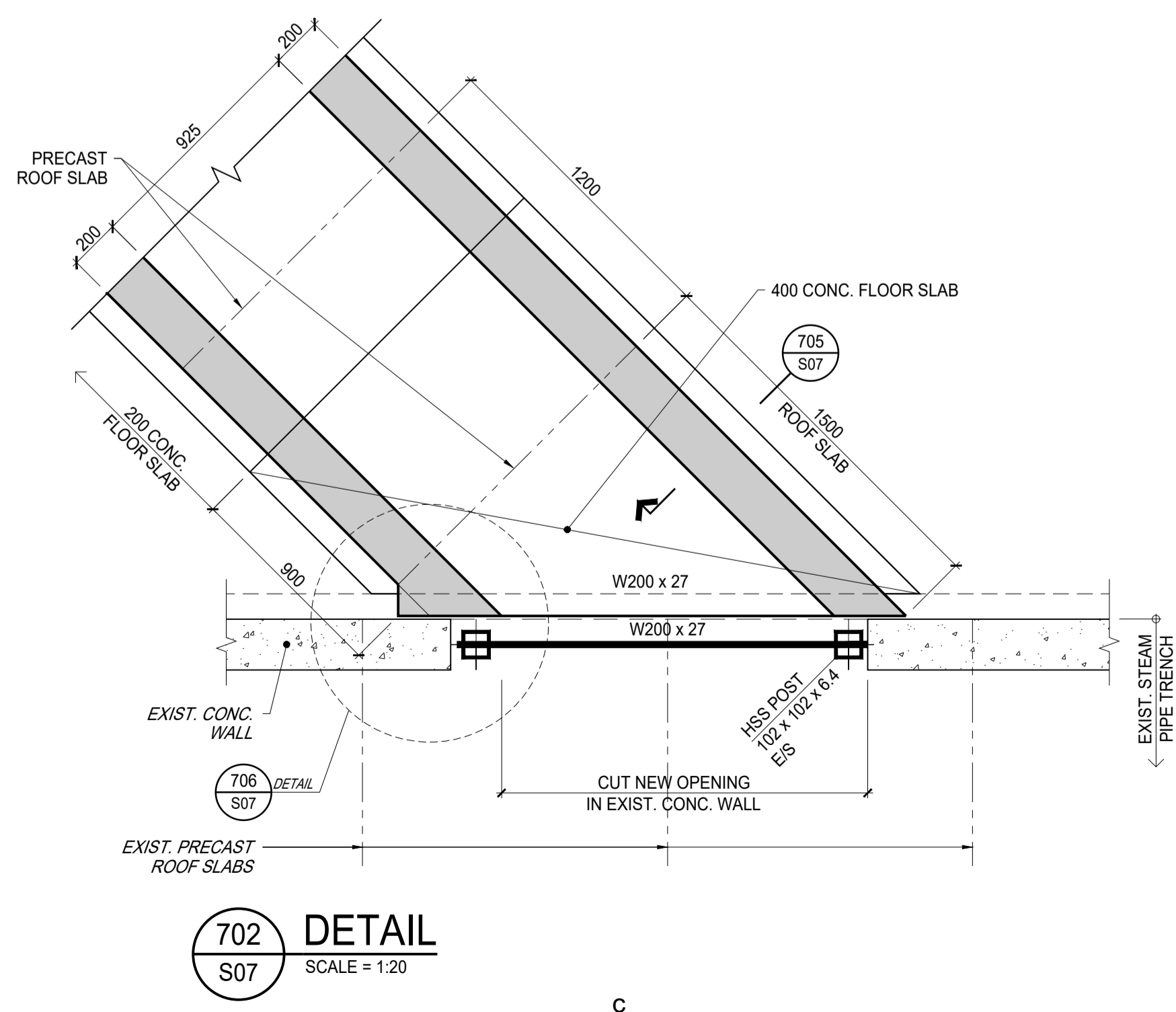
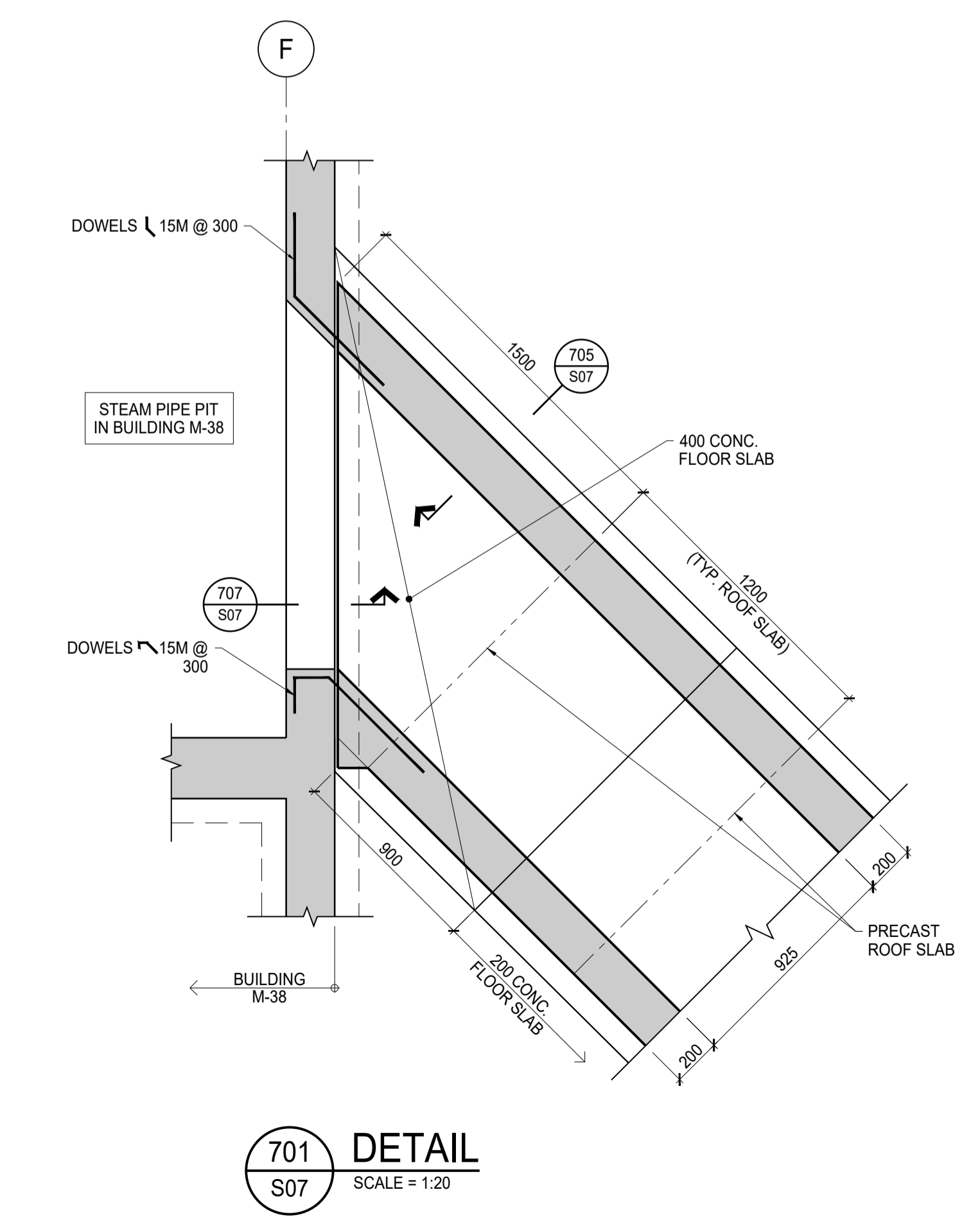
dwg no. **5049-S06** dessin no.





**KEY PLAN OF STEAM TRENCH**

- FOR LOCATION AND ELEVATION, REFER TO CIVIL AND MECHANICAL DRAWINGS.
- FOR STEAM PIPE ANCHORAGES, REFER TO MECHANICAL DRAWINGS.



**GENERAL NOTES:**

**CIVIL WORK:**

- EXCAVATE, AS REQUIRED, TO ELEVATIONS SHOWN ON MECHANICAL DRAWINGS.
- BACKFILL MINIMUM 75 mm ABOVE ROOF SLABS WITH SAND AND COMPACT TO 95% PROCTOR DRY DENSITY.
- THE REMAINDER OF THE BACKFILL SHALL BE 20 mm GRADED CRUSHED STONE COMPACTED TO 95% PROCTOR DRY DENSITY.
- AT ROADWAY, REINSTATE ASPHALT PAVEMENT.
- IN OTHER AREAS, PLACE MINIMUM OF 100 mm TOP SOIL AND GRASS SEED.

**CONCRETE WORK:**

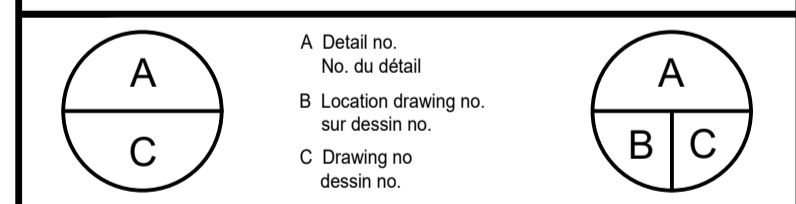
- CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 35 MPa, WITH 6% ENTRAINED AIR.
- REINFORCING STEEL SHALL CONFORM TO CSA G30.18-09, GRADE 400.
- CONCRETE COVER TO REINFORCING STEEL SHALL BE AS FOLLOWS:
  - CONCRETE SLABS = 75 mm
  - PRECAST CONCRETE SLABS = 50 mm
- THE CONTRACTOR SHALL SUBMIT BAR LISTS AND PLACING DRAWINGS FOR THE REINFORCING STEEL.
- THE CONTRACTOR SHALL TAKE THREE CONCRETE COMPRESSION TEST CYLINDERS FOR EACH CONCRETE POUR. ONE SHALL BE TESTED AT 7 DAYS AND TWO AT 28 DAYS.
- THE CONCRETE FLOOR SLABS SHALL RECEIVE A WOOD FLOAT FINISH.
- THE PRECAST CONCRETE SLAB SUPPLIER SHALL SUBMIT SHOP DRAWINGS FOR CONCRETE ROOF SLABS.
- ALL CONCRETE WORK SHALL CONFORM TO CSA A23.1-04 AND CSA A23.2-04.
- NOTIFY THE ENGINEER BEFORE EACH CONCRETE POUR.

**MEMBRANE:**

- THE MEMBRANE SHALL BE SOPREMA COLPHENE TORCH 'N STICK, OR EQUIVALENT, AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- THE CONTRACTOR SHALL SUBMIT TECHNICAL LITERATURE FOR THE PROPOSED MEMBRANE.

No.	Date	Revision	By:
1	AUG 23, 2016	ISSUED FOR TENDER	R.L.
0	JULY 28, 2016	PRELIMINARY	R.L.

Verify all dimensions and site conditions and be responsible for same.  
 Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.

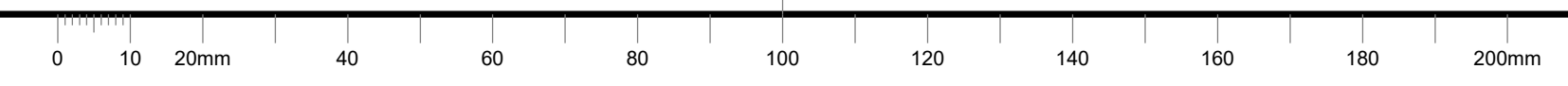


**BUILDING M-38**  
**FLEXIBLE RESEARCH FACILITY**  
 MONTREAL ROAD CAMPUS

**STRUCTURAL:**  
**STEAM PIPE TRENCH PLAN AND DETAILS**

designed	conçu	date	date
R.L.		JUNE, 2016	
drawn	dessiné	scale	échelle
M.P.		AS SHOWN	
checked	vérifié	sheet	feuille
R.L.		S07	of/de S07
approved	approuvé	W.O.no.	D.T.no.

dwg no. **5049-S07** dessin no.



**GENERAL NOTES**

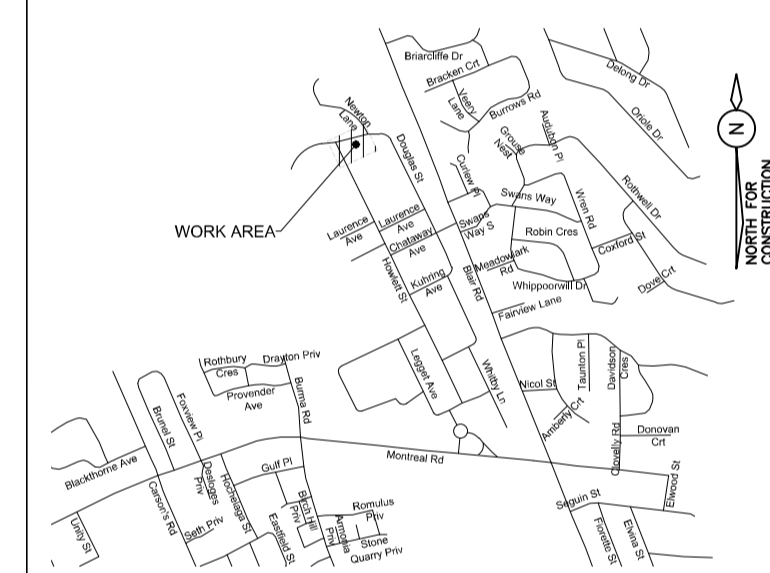
- CONTRACTORS TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO DEMOLITION OR CONSTRUCTION AND REPORT ANY ERRORS OR OMISSIONS TO DEPARTMENTAL REPRESENTATIVE.
- CONTRACTORS MUST VISIT THE SITE & FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE WORK.
- PREVENT THE SPREAD OF DUST & DEBRIS BEYOND THE WORK AREA AND CLEAN ALL SURFACES AT COMPLETION.
- MAKE GOOD ALL SURFACES AFFECTED BY THIS WORK.
- COORDINATE ALL SHUTDOWNS WITH THE DEPARTMENTAL REPRESENTATIVE.
- PROVIDE ALL LABOUR AND MATERIAL REQUIRED TO FORM A COMPLETE, FUNCTIONAL SYSTEM AS DESCRIBED ON DRAWINGS.



A000630C

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 Ottawa ON K2P 2G8  
 Téléphone : 613 860-2462  
 Télécopie : 613 860-1870  
 www.cima.ca

**KEY PLAN**



- LEGEND**
- HEAVY DUTY PAVEMENT
  - NEW ASPHALT SIDEWALK (DETAIL 202)
  - CONCRETE
  - DITCH
  - EDGE OF PAVEMENT
  - TOP OF SLOPE
  - BOTTOM OF SLOPE

- CONCRETE SIDEWALK AT BUILDING
- ASPHALT RAMP
- CONCRETE CURBS
- ASPHALT SIDEWALK
- ELECTRICAL MANHOLE (SEE ELECTRICAL)
- ACCESSIBLE PARKING SPACE MARKING AND SIGN (BOLLARD)
- PAINTED AREA (115mm PAINTED YELLOW STRIPES 750mm O.C. AT 45 DEGREE)
- RETAINING WALL
- EXISTING FIRE-HYDRANT
- RIVERSTONE (COLORED) DRAINING PIT (SEE DETAIL 502)
- RIVERSTONE BED (COLORED) WITH NO DRAIN

**NOTE :**  
 1) ALL AISLES TO BE ASPHALT HEAVY DUTY, EXCEPT SIDEWALKS.  
 2) BUILDING PAD "AS PER GEOTECHNICAL REPORT"

**NOTE OF CAUTION**

THE GEODETIC COORDINATES OF EVERY ITEM INCLUDED AS PART OF THIS DOCUMENT HAVE NO LEGAL VALUE. THE SITE LAYOUT MUST BE COMPLETED USING THE OFFICIAL BENCHMARKS OF AN ACCREDITED LAND SURVEYOR.

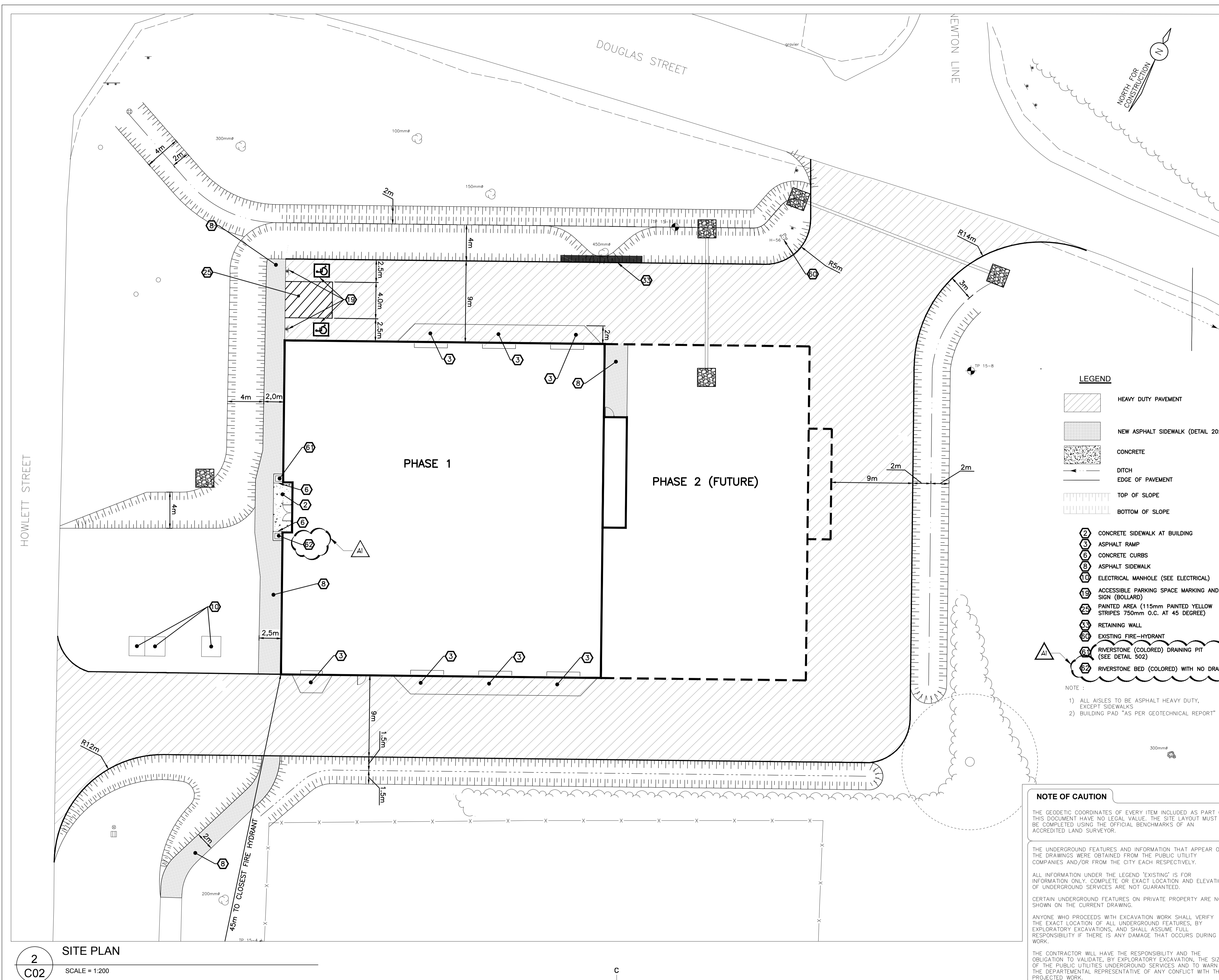
THE UNDERGROUND FEATURES AND INFORMATION THAT APPEAR ON THE DRAWINGS WERE OBTAINED FROM THE PUBLIC UTILITY COMPANIES AND/OR FROM THE CITY EACH RESPECTIVELY.

ALL INFORMATION UNDER THE LEGEND "EXISTING" IS FOR INFORMATION ONLY. COMPLETE OR EXACT LOCATION AND ELEVATION OF UNDERGROUND SERVICES ARE NOT GUARANTEED.

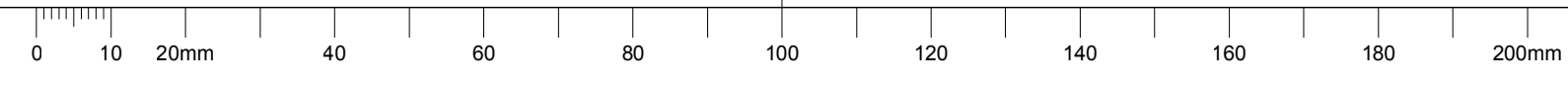
CERTAIN UNDERGROUND FEATURES ON PRIVATE PROPERTY ARE NOT SHOWN ON THE CURRENT DRAWING.

ANYONE WHO PROCEEDS WITH EXCAVATION WORK SHALL VERIFY THE EXACT LOCATION OF ALL UNDERGROUND FEATURES, BY EXPLORATORY EXCAVATIONS, AND SHALL ASSUME FULL RESPONSIBILITY IF THERE IS ANY DAMAGE THAT OCCURS DURING WORK.

THE CONTRACTOR WILL HAVE THE RESPONSIBILITY AND THE OBLIGATION TO VALIDATE, BY EXPLORATORY EXCAVATION, THE SIZE OF THE PUBLIC UTILITIES UNDERGROUND SERVICES AND TO WARN THE DEPARTMENTAL REPRESENTATIVE OF ANY CONFLICT WITH THE PROJECTED WORK.



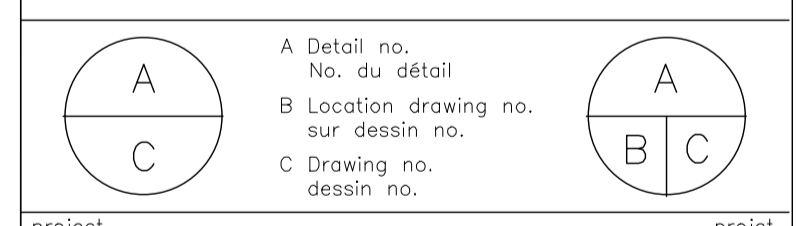
**2**  
**C02**  
 SCALE = 1:200



No.	Date	Revision	By:	For:
2	SEPT 20, 2016	ADDENDUM CIV-01		CLL
1	AUG 29, 2016	TENDER		CLL

Date Printed: \_\_\_\_\_ Date imprimée: \_\_\_\_\_

- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité



project: \_\_\_\_\_ projet: \_\_\_\_\_

**BUILDING M-38, MONTREAL ROAD CAMPUS**

**1200 MONTREAL ROAD CAMPUS  
 OTTAWA, ONTARIO**

drawing: \_\_\_\_\_ dessin: \_\_\_\_\_

**SITE -PLAN**

designed	conçu	date	date
C. L-LEBEL		JULY 22, 2016	
drawn	dessiné	scale	échelle
R.YANTHA		1:200	
checked	vérifié	sheet	of/de
C. L-LEBEL		2	of/de 6
approved	approuvé	W.O.no.	D.T.no.
C. LYON		-	
dwg.no.			dessin no.
<b>5049-C02</b>			

1.0 GENERAL - GRADING

- 1.1 Unless otherwise indicated, all materials and construction methods to be in accordance with the latest edition of the standardized specifications from OPSS, the City of Ottawa standard specifications and drawings, and all other governing authorities as they apply.
1.2 The boreholes and test pits shown on the plan are for information purposes only. Their location on the plan is approximate.
1.3 Site preparation includes clearing, grubbing, stripping of topsoil, demolition, removal of unsuitable materials, cut, fill and rough grading of all areas to receive finished surfaces, including the preparation of the building pad and the temporary ditch.
1.4 The location of underground municipal services and public utilities are approximate. The Contractor must determine the exact location, size, material and elevation of all existing utilities (on-site and off-site) prior to any excavation work.
1.5 Contractor shall refer to the boreholes and test pits records to obtain information about observed stratigraphy on site.
1.6 All material shall conform to the OPS specifications, be compacted as per the requirements and be approved by the consultant prior to delivery to the site.
1.7 Compaction shall conform to the following requirements:

- Exposed subgrade: 95% Standard Proctor (SPMDD)
- Granular foundations: 100% Standard Proctor (SPMDD)
- Asphalt: 97% Marshall Density
- Subgrade fill (pavement areas - OPSS Select Subgrade Material): 95% Standard Proctor (SPMDD)

- 1.8 If groundwater is encountered during construction, dewatering of excavations could be required. It is assumed that groundwater may be controlled by sump and pumping methods. The contractor shall obtain a 'permit to take water' (PTTW) if site conditions require taking more than a total of 50 000 l/day.
1.9 Maintain benchmarks and landmark references as is, otherwise these references will be repositioned by a certified land surveyor at the Contractor's expense.
1.10 The Contractor is responsible for obtaining all permits required to complete all works and bear cost of same, including road cut permit and associated costs.
1.11 Temporary excavation in the overburden should be sloped at 1 horizontal and 1 vertical from the base of the excavation and as per the requirements of the occupational health and safety act (OHS) and local regulations.
1.12 During the construction period the Contractor is responsible for installing and maintaining temporary traffic signage, including traffic signs, traffic markings and temporary traffic lights, and flagmen, as required by the NRC, City, the MTO, and other governing authorities.
1.13 The Contractor must control surface runoff from precipitation during construction.
1.14 Unless they are to be modified within the contract documents scope of work, all altered existing infrastructures must be reinstated to its original condition.

2.0 DEMOLITION

- 2.1 The Contractor must visit the premises in order to be aware of all the elements to be removed and demolished. No claim due to a bad evaluation of work to be carried out will be accepted.
2.2 The Contractor must perform all demolition required to complete the proposed work as specified in the drawings.
2.3 The Contractor must conform to all laws, codes, ordinances, and regulations adopted by federal, provincial or municipal government councils and government agencies, applying to work which it carried out.
2.4 The Contractor must protect and maintain in service the existing works which must remain in place. If they are damaged, the Contractor must immediately make the replacements and necessary repairs to the satisfaction of the Owner's representative and without additional expenses to the Owner.
2.5 The Contractor is the only person in charge of safety on the building site. The Contractor is responsible for providing adequate protection of the workers, other personnel and the general public, protection of materials, as well as maintaining in good condition the completed works and works to be completed. The Contractor must provide at any time:
(a) A sufficient number of fences, barriers, posters, guards and others to ensure safety;
2.6 The Contractor must discard demolition materials in the authorized licensed landfills and in conformity with the applicable laws and regulations. The Contractor must be able to provide, upon request, copies of the disposal tickets to the Owner's representative.
2.7 The Contractor must ensure all reinstatement for the demolition required in ALL Electrical conduits and Steam pipes installation. For Road or Parkings, reinstatement shall be as per the Heavy Duty pavement structure detail (202). For the walkways, it shall be as per the Asphalt sidewalk (108) detail. For any landscaping, sodding must be used as per specifications.

3.0 EXCAVATION AND BACKFILL - BUILDING FOOTPRINT, PARKING AREAS AND ACCESS ROADS

- 3.1 All surface vegetation, rootmat, organics, underlying topsoil, debris, fill, soft drainage ditch sediments, test pit backfill and other deleterious material shall be removed from beneath the proposed building footprint. All loose or disturbed materials shall be removed and replaced with compacted fill.
3.2 Beneath the proposed parking, access roads and landscaped areas, all surface vegetation, rootmat, organics, topsoil, debris, soft drainage ditch sediments, test pit backfill and other deleterious material shall be removed.
3.3 Earth removal shall be inspected by a geotechnical engineer to ensure that all unsuitable materials are removed prior to placement of fill, concrete and/or others, and to confirm the compaction degree and the conditions of the founding soils. All unsuitable materials shall be hauled off-site and disposed as per provincial and municipal regulations.
3.4 Subgrade shall be approved by experienced geotechnical personnel before proceeding with placement of fill.
3.5 All soft areas revealed under surface compaction shall be removed, to a minimum depth of 500mm, and replaced with compacted subgrade fill (OPSS granular B type I or II) as directed by the Geotechnical Consultant. Transition around sub-excavation, where backfill and native material are not of similar nature, shall be sloped at 3H:1V within 1.5 m of finished surface.

GRADING

- 3.6 Structural fill, used for building pad preparation, shall consist of OPSS granular "A" or granular "B" type II material, approved by the Geotechnical Consultant prior to delivery to the site.
3.7 Subgrade fill, used for grading beneath the parking areas, access roads and sidewalks, shall consist of OPSS granular "B" type I or II, approved by the Geotechnical Consultant prior to delivery to the site.
3.8 All structural and subgrade fill shall be placed in lifts no thicker than 300 mm and compacted using suitable methods.
3.9 In general landscaping areas where settlement of the ground surface is of minor concern, non-specified existing fill, along with site excavated soil may be used.
3.10 Non-specified fills and site-excavated soils are not suitable for use as backfill against foundation walls.
3.11 All heavy equipment shall not operate directly on the subgrade.
3.12 Provisions shall be made for erosion and sediment control measures prior to stripping the site of vegetation and other deleterious materials.
3.13 No contaminated materials have been detected on site. However, if contaminated material is found, all excavated material that needs to be disposed off-site shall be disposed of as per all "Ontario Ministry of the Environment" (MOE) regulations.
3.14 The Contractor is responsible to provide a confirmation that the imported material used as subgrade fill is free of any contaminants such as Petroleum Hydrocarbons (C10-C50), PAH (Polycyclic Aromatic Hydrocarbons), MAH (Monocyclic Aromatic Hydrocarbons) and metals like mercury, silver, arsenic, cadmium, cobalt, chromium, copper, tin, manganese, molybdenum, nickel, lead and zinc.
3.15 The Contractor is responsible for constructing all temporary access roads, as required to complete the work.
3.16 It is expected that some bedrock removal may be required. Consideration should be given to line-drilling in conjunction with hoe-ramming or controlled blasting.

4.0 PAVEMENT STRUCTURE

- 4.1 Heavy duty pavement to be constructed as per details.
4.2 Transition between existing and proposed pavement shall be constructed as per details.
4.3 Asphalt concrete material shall conform to OPSS Form 1150. Minimum Performance Graded (PG) 58-34 asphalt cement must be used for this project.
4.4 Asphalt mix design shall be reviewed and approved by a geotechnical engineer prior to start of paving.

5.0 LANDSCAPING

- 5.1 Erosion Blanket shall be installed as specified 0.75m from centreline to top of ditch to stabilize embankments until vegetation is established.
5.2 Sodding shall be installed as specified and provide any sodding reinstatement. Sodding shall be Number 1 Grade Turfgrass Nursery Sod, placed as per OPSS 803. Any disturbed areas beyond the limits shown on the drawings shall be reinstated with 150mm topsoil and sod at no additional cost.

SERVICES

7.0 GENERAL - SERVICING

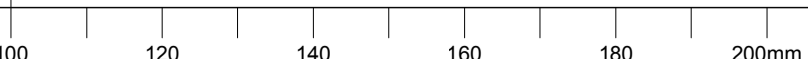
- 7.1 Unless otherwise indicated, all materials and construction methods to be in accordance with the latest edition of the standardized specifications from OPSS, the City of Ottawa standard specifications and drawings and all other governing authority requirements as they apply.
7.2 The location of underground municipal services and public utilities is approximate. Contractor must determine the exact location, size, material and elevation of all existing services and existing utilities prior to any excavation work.
7.3 The Contractor shall be responsible for obtaining all permits required to complete all works and bear cost of same, including water permit and associated costs.
7.4 The Contractor shall be responsible for all excavation, backfill, reinstatement of all areas disturbed during construction to existing condition or better and all associated works to the satisfaction of the engineer and municipal authorities.
7.5 Within landscaping areas, backfill for service trenches may consist of excavated material replaced and compacted in lifts.
7.6 A minimum of 150 mm of OPSS granular "A" must be used for pipe bedding for sewer and water pipes and must extend to the spring line of the pipe.
7.7 Re-use of organic free, moist (not wet) overburden material should generally be possible.
7.8 Well fractured bedrock is acceptable as backfill provided the rock fill is placed at least 300 mm above the top of the pipe and that all stones greater than 300 mm in their longest dimension are removed.
7.9 It may happen that services will be placed in both bedrock and overburden materials.
7.10 Trench backfill material within the frost zone (approx. 1.8 m below finished grade) must match the soils exposed at the trench walls to reduce potential frost heave.
7.11 The Contractor shall be responsible for making or arranging all connections to the existing sewers as per requirements of the governing authorities.
7.12 This drawing to be read in conjunction with architectural, mechanical and electrical.
7.13 Connections to existing for storm and sanitary sewers must be performed as per detail included in the present plans.

9.0 SANITARY SEWER

- 9.1 Sanitary sewer pipes must be PVC SDR-35, unless otherwise indicated on the drawings.
9.2 All sanitary and combined sewers to be T.V. inspected by the Contractor as per the City of Ottawa and the Owner's standards.
9.3 All polyvinylchloride (PVC) sanitary pipes shall meet current MOE specifications / City of Ottawa standards.
9.4 Sanitary manholes to be as per OPSD 701.01 and sizes specified on drawing.
9.5 Sanitary sewer manhole excavations to be backfilled with granular 'B' compacted to 100% Standard Proctor Density (SPMDD).
9.6 Sanitary manholes frame and cover to be as per OPSD 401.01, Type 'A' closed cover.

C

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PROVIDE ALL LABOUR AND MATERIAL REQUIRED TO FORM A COMPLETE, FUNCTIONAL SYSTEM AS DESCRIBED ON DRAWINGS.



110-240 Catherine Street
Ottawa ON K2P 2G8
Telephone: 613 860-2462
Telecopier: 613 860-1870
www.cima.ca

KEY PLAN

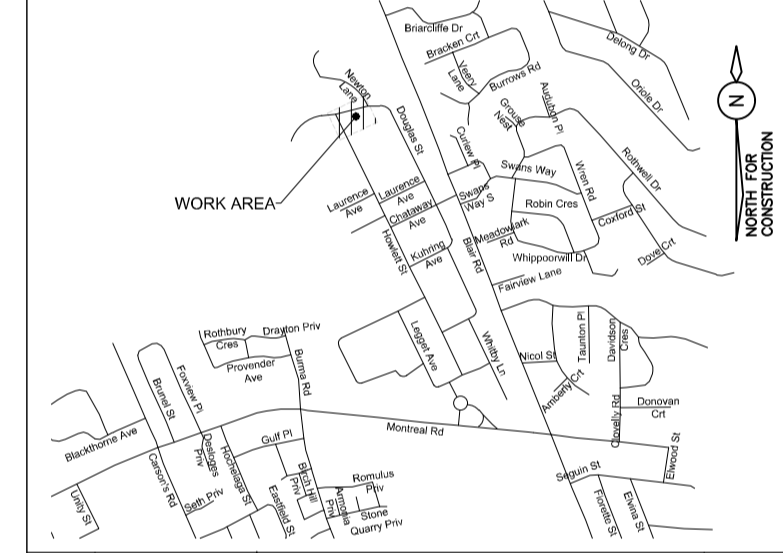
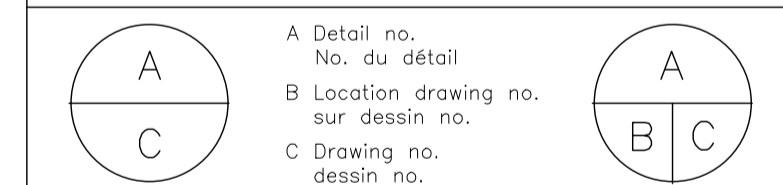


Table with 4 columns: No., Date, Revision, By/For. Includes entries for SEPT 20, 2016 and AUG 29, 2016.

- Verify all dimensions and site conditions and be responsible for same.
Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité.



project / projet
BUILDING M-38, MONTREAL ROAD CAMPUS

1200 MONTREAL ROAD CAMPUS
OTTAWA, ONTARIO

SPECIFICATIONS AND NOTES

Table with 4 columns: designed, drawn, checked, approved, dwg.no. Includes entries for C. L-LEBEL, R.YANTHA, C. L-LEBEL, and C. LYON.

5049-C03

THE UNDERGROUND FEATURES AND INFORMATION THAT APPEAR ON THE DRAWINGS WERE OBTAINED FROM THE PUBLIC UTILITY COMPANIES AND/OR FROM THE CITY EACH RESPECTIVELY.
ALL INFORMATION UNDER THE LEGEND 'EXISTING' IS FOR INFORMATION ONLY. COMPLETE OR EXACT LOCATION AND ELEVATION OF UNDERGROUND SERVICES ARE NOT GUARANTEED.
CERTAIN UNDERGROUND FEATURES ON PRIVATE PROPERTY ARE NOT SHOWN ON THE CURRENT DRAWING.
ANYONE WHO PROCEEDS WITH EXCAVATION WORK SHALL VERIFY THE EXACT LOCATION OF ALL UNDERGROUND FEATURES, BY EXPLORATORY EXCAVATIONS, AND SHALL ASSUME FULL RESPONSIBILITY IF THERE IS ANY DAMAGE THAT OCCURS DURING WORK.

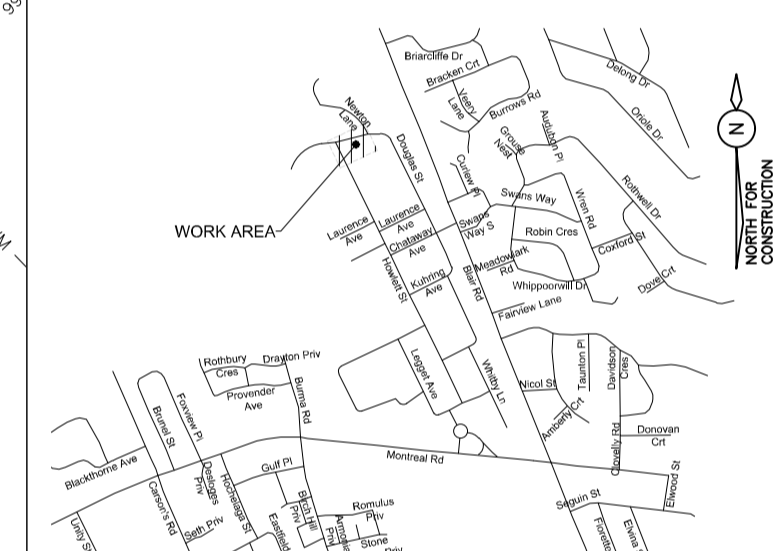
NOTE OF CAUTION
THE GEODETIC COORDINATES OF EVERY ITEM INCLUDED AS PART OF THIS DOCUMENT HAVE NO LEGAL VALUE. THE SITE LAYOUT MUST BE COMPLETED USING THE OFFICIAL BENCHMARKS OF AN ACCREDITED LAND SURVEYOR.

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THE CONTRACTOR WILL HAVE THE RESPONSIBILITY AND THE OBLIGATION TO VALIDATE, BY EXPLORATORY EXCAVATION, THE SIZE OF THE PUBLIC UTILITIES UNDERGROUND SERVICES AND TO WARN THE ENGINEER OF ANY CONFLICT WITH THE PROJECTED WORK.

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**KEY PLAN**



**LEGEND**

- HEAVY DUTY PAVEMENT
- NEW ASPHALT SIDEWALK
- EROSION BLANKET
- SODDING
- RIPRAP TYPE I
- RETAINING WALL
- TOP OF SLOPE
- BOTTOM OF SLOPE
- DUCT BANK
- STEAM LINE
- DITCH
- EDGE OF PAVEMENT
- WATERMAIN
- SANITARY SEWER
- STORM SEWER
- PERFORATED DRAIN (SEE DRAWING M01 FOR MORE DETAILS AND SPECIFICATIONS)

**NOTE OF CAUTION**

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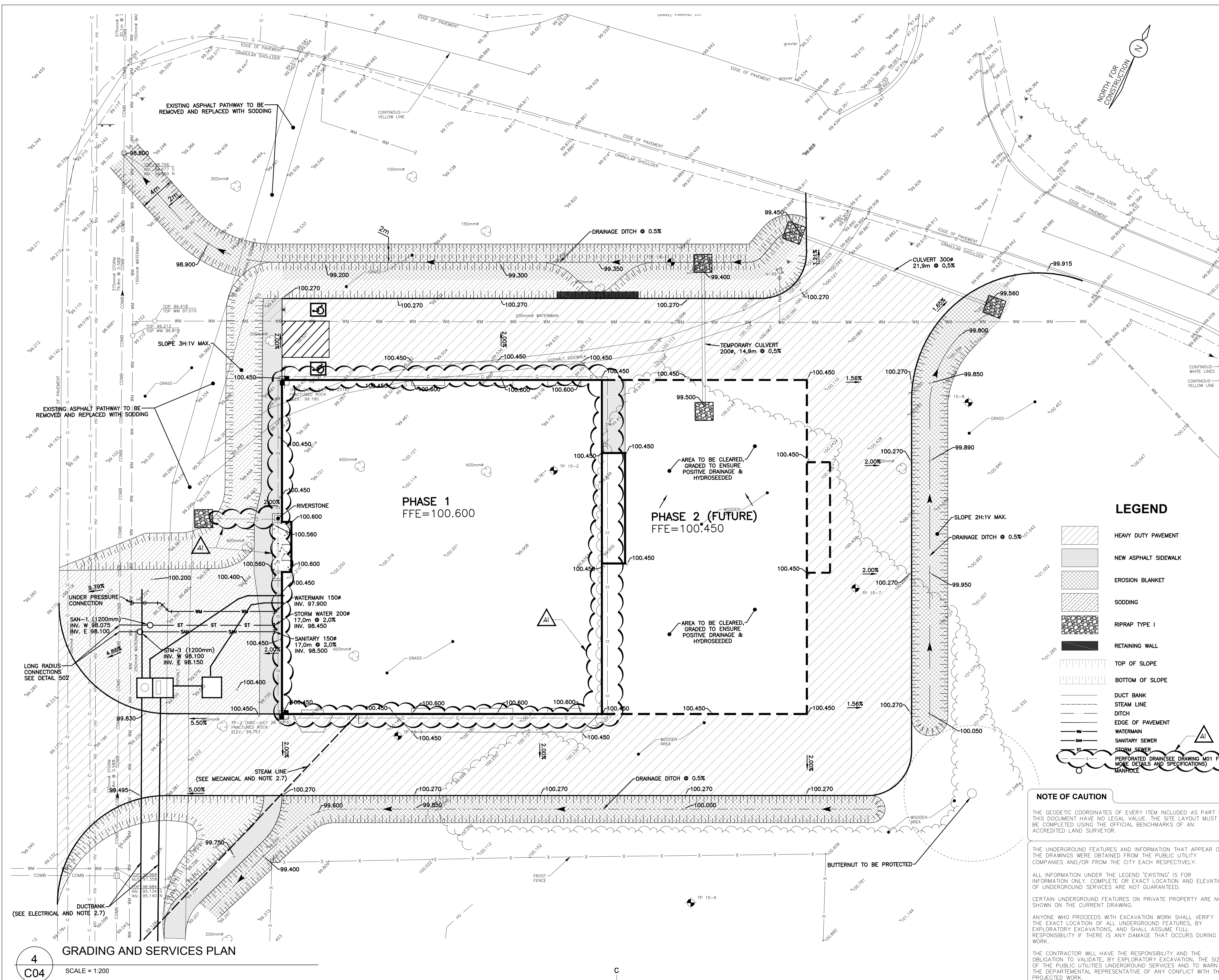
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**GRADING AND SERVICES PLAN**

4  
**C04**  
 SCALE = 1:200

project **BUILDING M-38, MONTREAL ROAD CAMPUS** projet

1200 MONTREAL ROAD CAMPUS  
 OTTAWA, ONTARIO

drawing **GRADING AND SERVICES PLAN** dessin

designed **C. L-LEBEL** conçu **JULY 22, 2016** date

drawn **R.YANTHA** dessinée scale **1:200** échelle

checked **C. L-LEBEL** vérifiée sheet **4** of/de **6** feuille

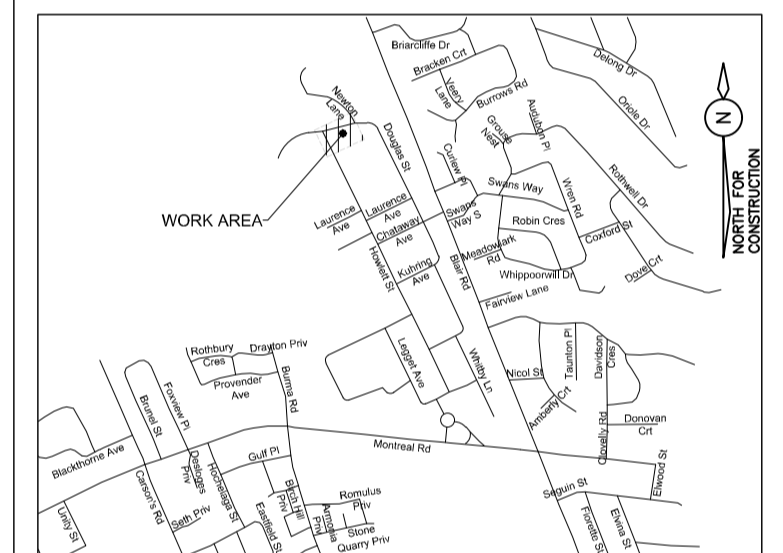
approved **C. LYON** approuvé W.O.no. - D.T.no. -

dwg.no. **5049-C04** dessin no.

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**KEY PLAN**



No.	Date	Revision	By:
2	SEPT 20, 2016	ADDENDUM CIV-01	CLL
1	AUG 29, 2016	TENDER	CLL

Date Printed: \_\_\_\_\_ Date imprimée: \_\_\_\_\_

- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité

A	A Detail no. No. du détail	A
B	B Location drawing no. sur dessin no.	B
C	C Drawing no. dessin no.	C

project: **BUILDING M-38, MONTREAL ROAD CAMPUS** projet

1200 MONTREAL ROAD CAMPUS  
 OTTAWA, ONTARIO

drawing: **DETAILS** dessin

designed: **C. L-LEBEL** conçu date: **JULY 22, 2016** date

drawn: **R.YANTHA** dessiné scale: **NTS** échelle

checked: **C. L-LEBEL** vérifié sheet: **5** of/de **6** feuille

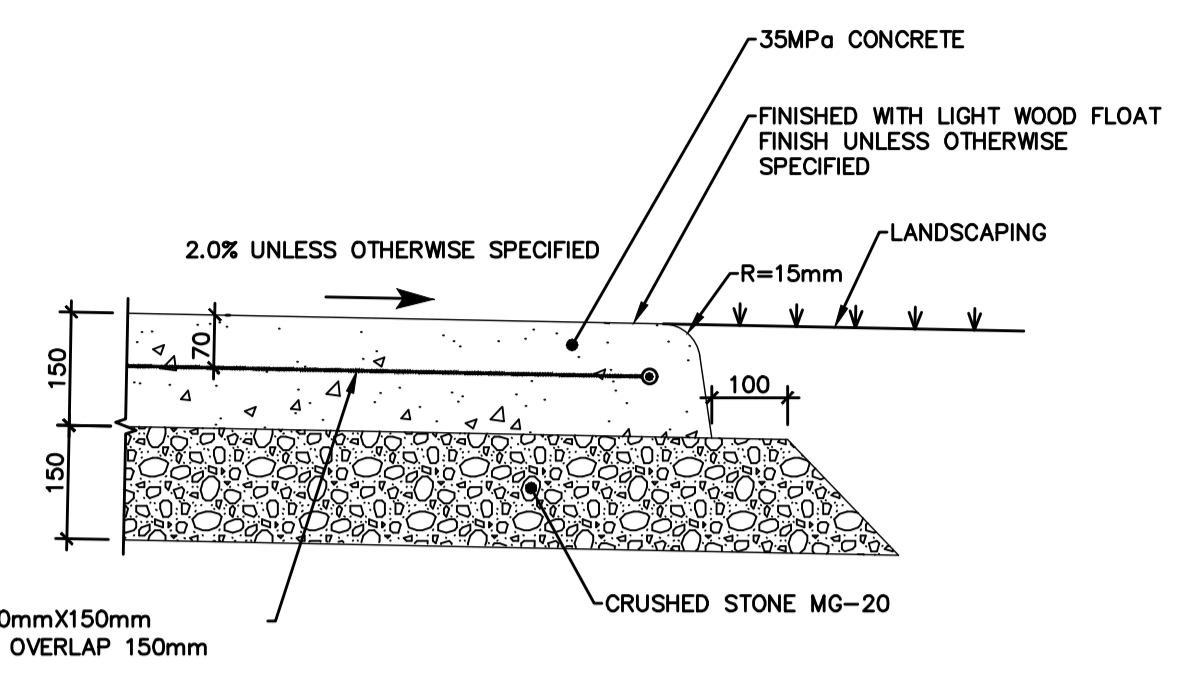
approved: **C. LYON** approuvé W.O.no.: - D.T.no.:

dwg.no.: **5049-C05** dessin no.:

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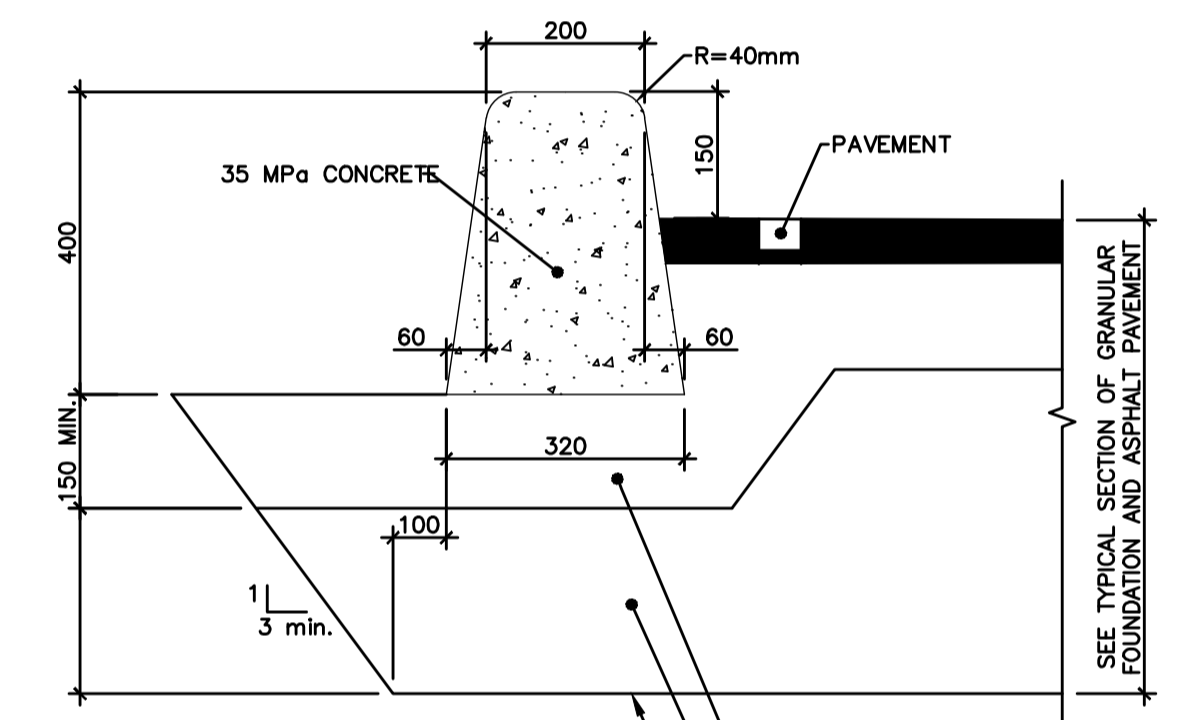
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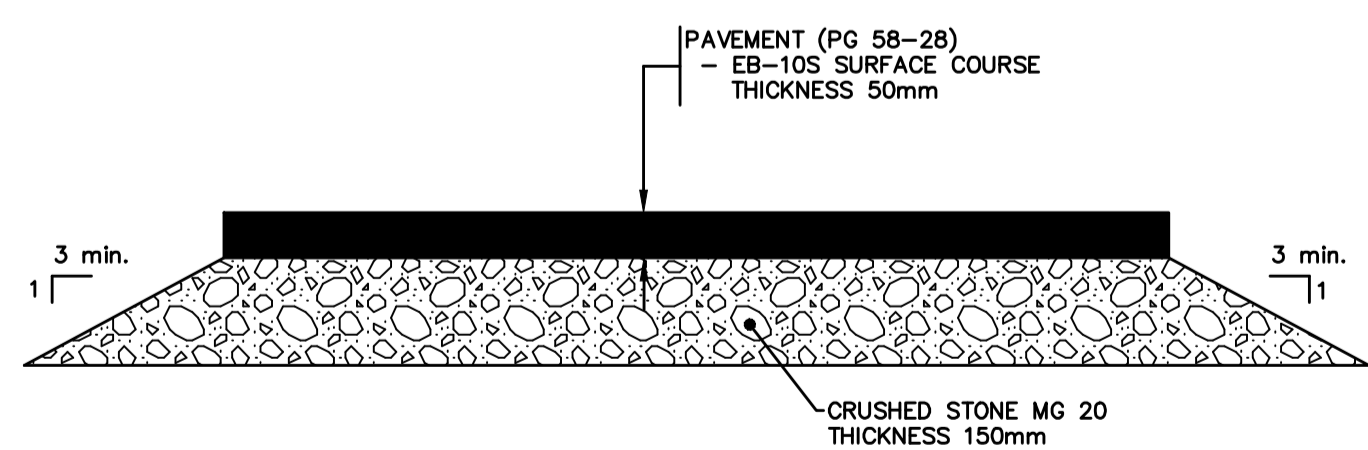
- NOTES:**
- CLASSE DE BÉTON: C-2; CONCRETE CLASSE: C-2
  - WATER / BINDER MAX. RATIO : 0.45
  - MINIMAL COMPRESSIVE STRENGTH AT 28 DAYS: 35MPa
  - MAXIMUM NOMINAL Ø FOR AGGREGATE: 20mm
  - AIR CONTENT: 5% À 8%
  - SLUMP: 80mm ± 30mm POUR COFFRAGE FIXE / 30mm ± 30mm POUR COFFRAGE GLISSANT;
  - SEE DETAIL 109 FOR EXPANSION, CONTROL AND CONSTRUCTION JOINTS

**101** **SIDEWALK SLAB - TYPE**

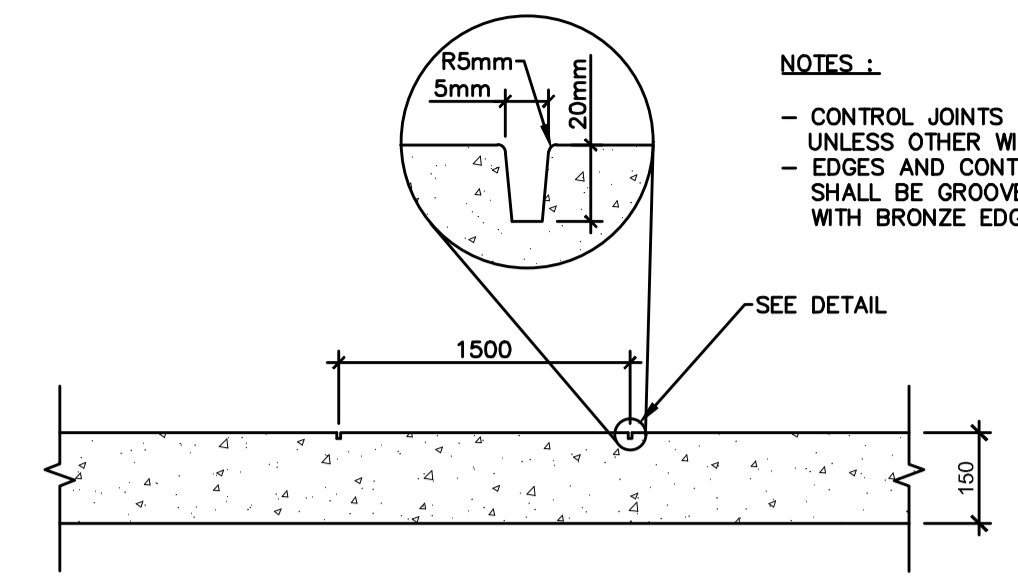


- NOTES:**
- WHERE THE CONCRETE CURB DOES NOT FINISH FLUSH WITH A SIDEWALK, A WALL OR ANY EXISTING CURB OR SIDEWALK, THE CURB SHOULD FINISH WITH A 3:1 SLOPE
  - CONTROLE AND EXPANSION JOINT SEE DETAIL 118

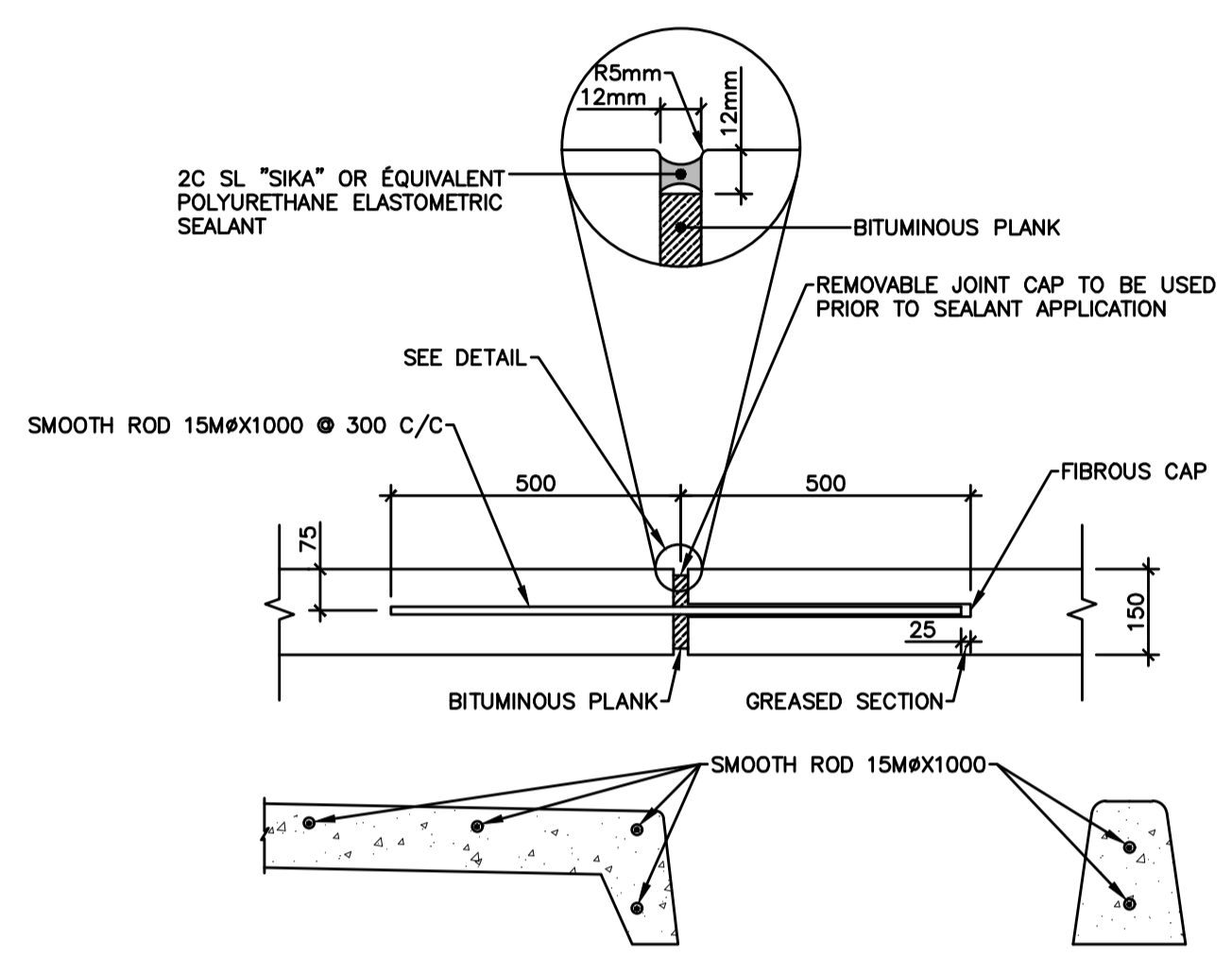
**112A** **CONCRETE CURB DETAIL (TYPICAL)**



**108** **ASPHALT SIDEWALK**



**205** **TYPICAL SECTION - TRANSITION BETWEEN DIFFERING PAVEMENT STRUCTURES**

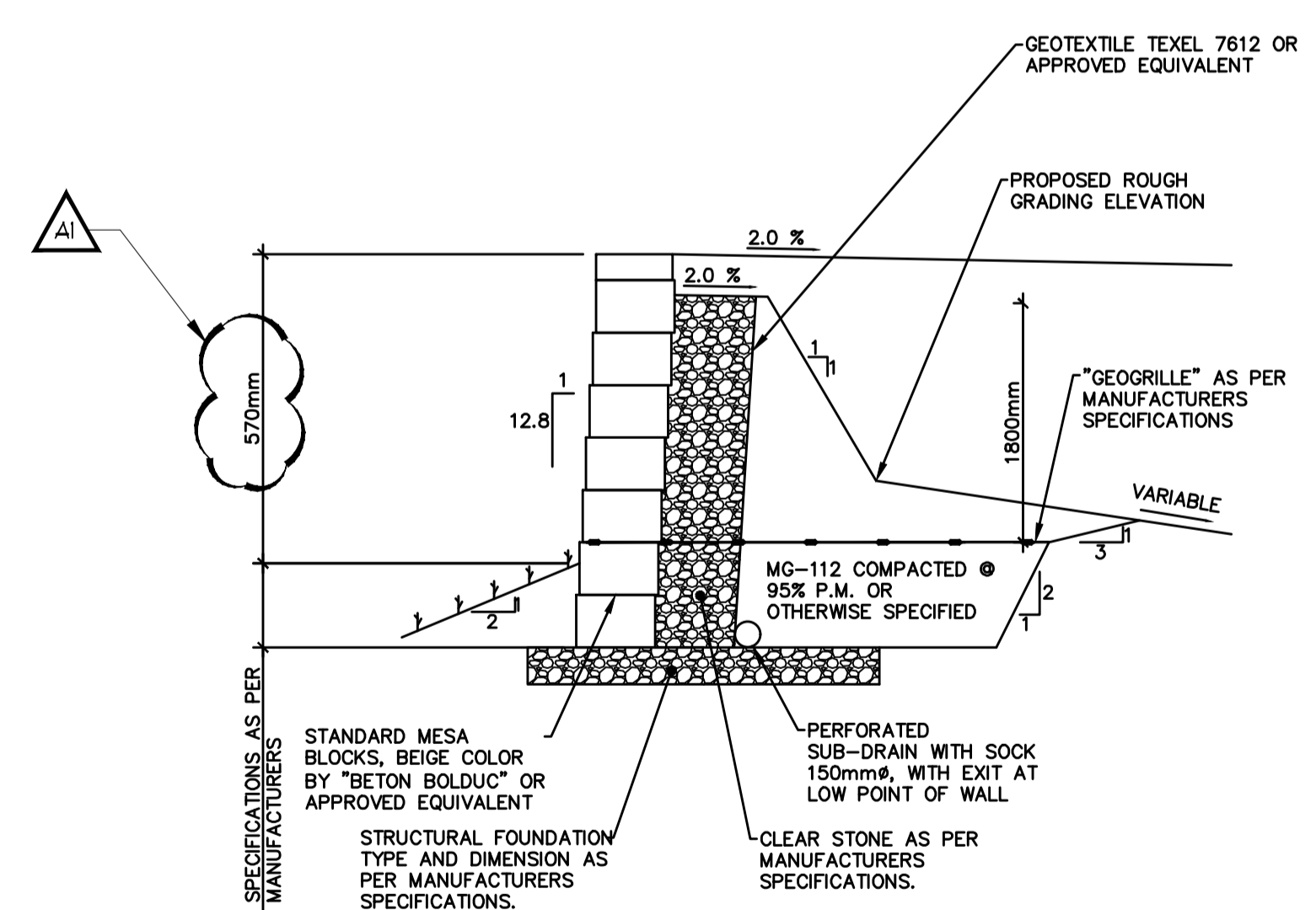


**202** **TYPICAL SECTION - GRANULAR FOUNDATION AND ASPHALT PAVEMENT (HEAVY DUTY)**

- NOTES:**
- EXPANSION JOINTS OF CONCRETE WORK AT 6.0m C/C MAX. DIRECTION CHANGE AND AT CONTACT WITH CONCRETE STRUCTURES
  - EDGES AND CONTROL JOINTS SHALL BE GROOVED, TOOLED AND BURNISHED WITH BRONZE EDGERS AND GROOVERS.

**CONSTRUCTION AND EXPANSION JOINT FOR CONCRETE WORK**

**109**



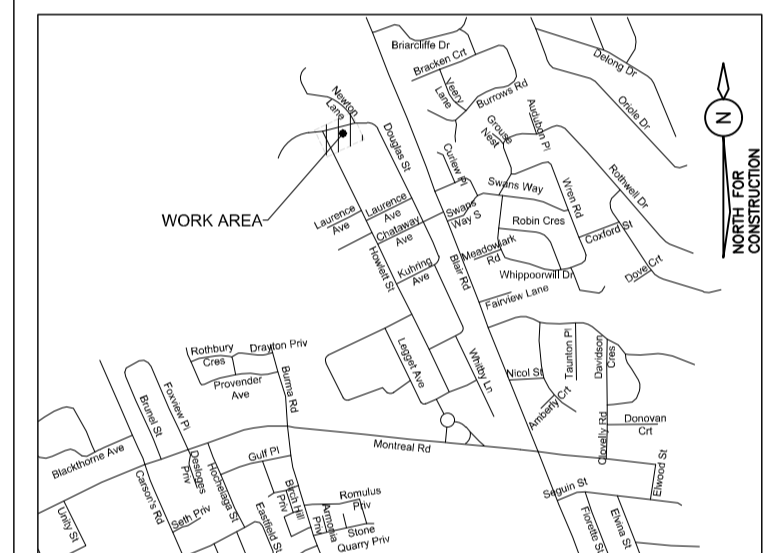
- NOTES:**
- A TRANSITION IS REQUIRED WHERE SUBGRADE FILL MATERIAL HAS DIFFERENT FROST SUCEPTIBILITY. TRANSITION SHALL REACH A MAXIMUM DEPTH OF 1.8 m BELOW PROJECTED PAVEMENT ELEVATION. THE CONTRACTOR MUST SUBMIT THE RETAINING WALL DESIGN AND SHOP DRAWINGS SEALED AND SIGNED BY AN PED LICENSED ENGINEER PRIOR TO START CONSTRUCTION.

**129** **TYPICAL RETAINING WALL SECTION (MESA)**

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1	AUG 29, 2016	TENDER	CLL

Date Printed: \_\_\_\_\_ Date imprimée: \_\_\_\_\_

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A	A Detail no. / No. du détail	A
B	B Location drawing no. / sur dessin no.	B
C	C Drawing no. / dessin no.	C

project: **BUILDING M-38, MONTREAL ROAD CAMPUS** projet

**1200 MONTREAL ROAD CAMPUS OTTAWA, ONTARIO**

drawing: **DETAILS** dessin

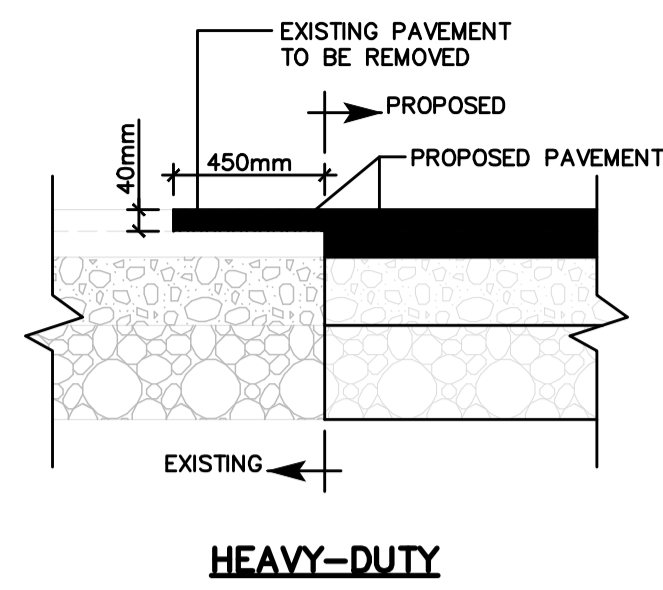
designed: **C. L-LEBEL** conçu date: **JULY 22, 2016** date

drawn: **RYANTHA** dessiné scale: **NTS** échelle

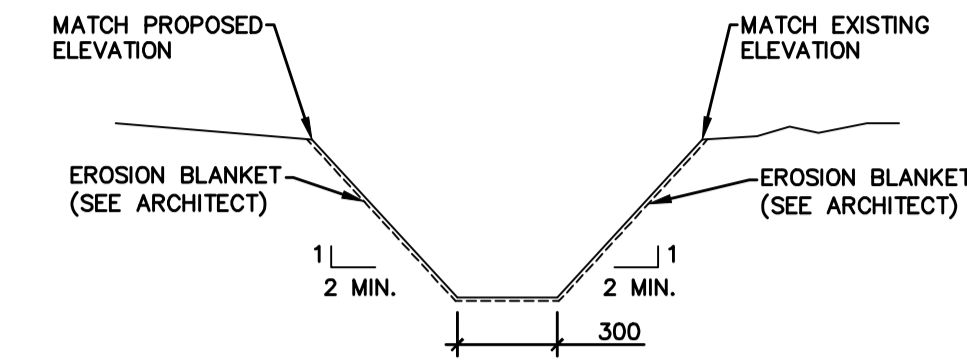
checked: **C. L-LEBEL** vérifié sheet: **6** of/de **6** feuille

approved: **C. LYON** approuvé W.O.no.: **-** D.T.no.:

dwg.no.: **5049-C06** dessin no.:



**206 TYPICAL SECTION - TRANSITION BETWEEN EXISTING AND PROPOSED PAVEMENT**

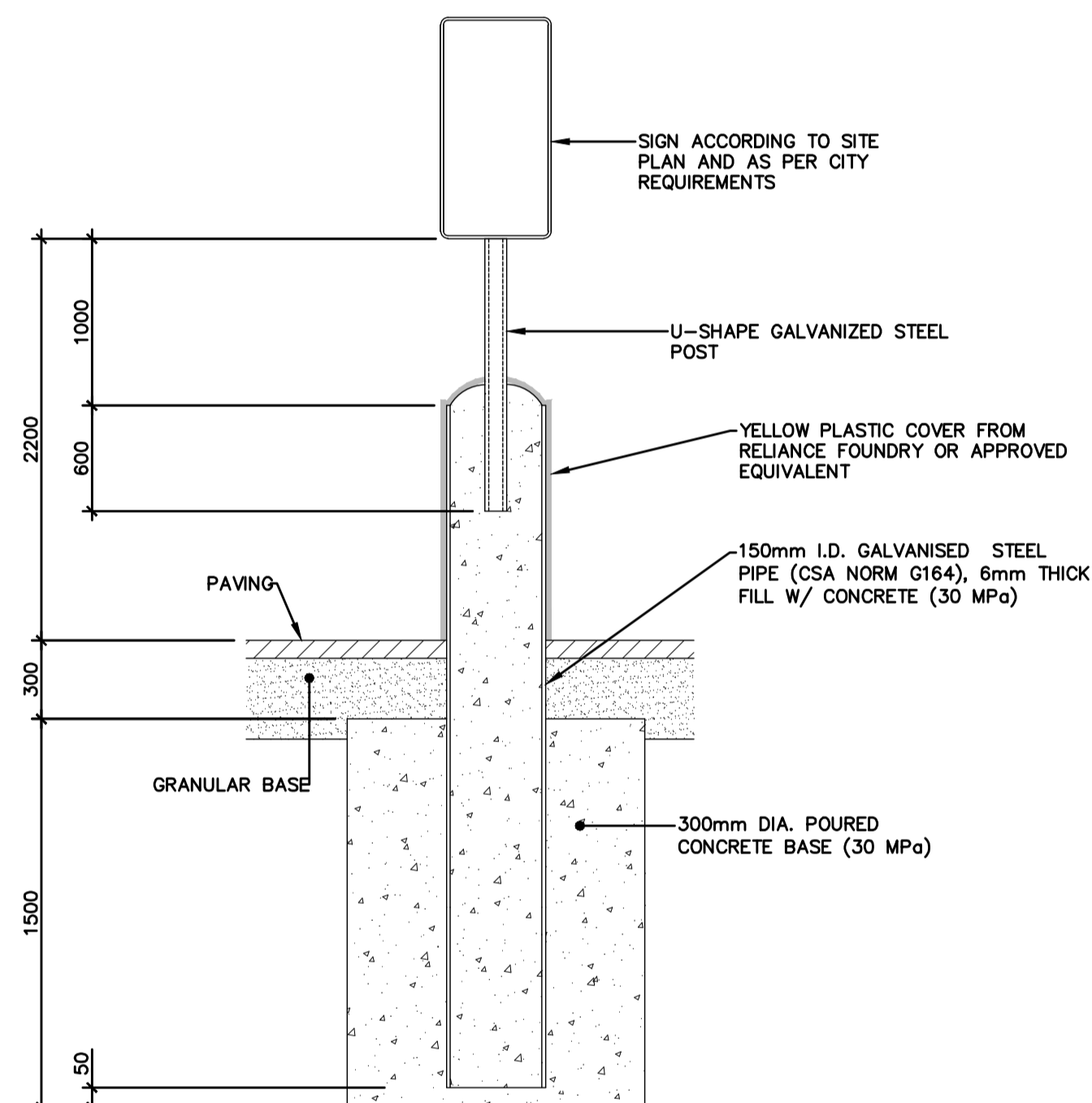


**318 DRAINAGE DITCH**

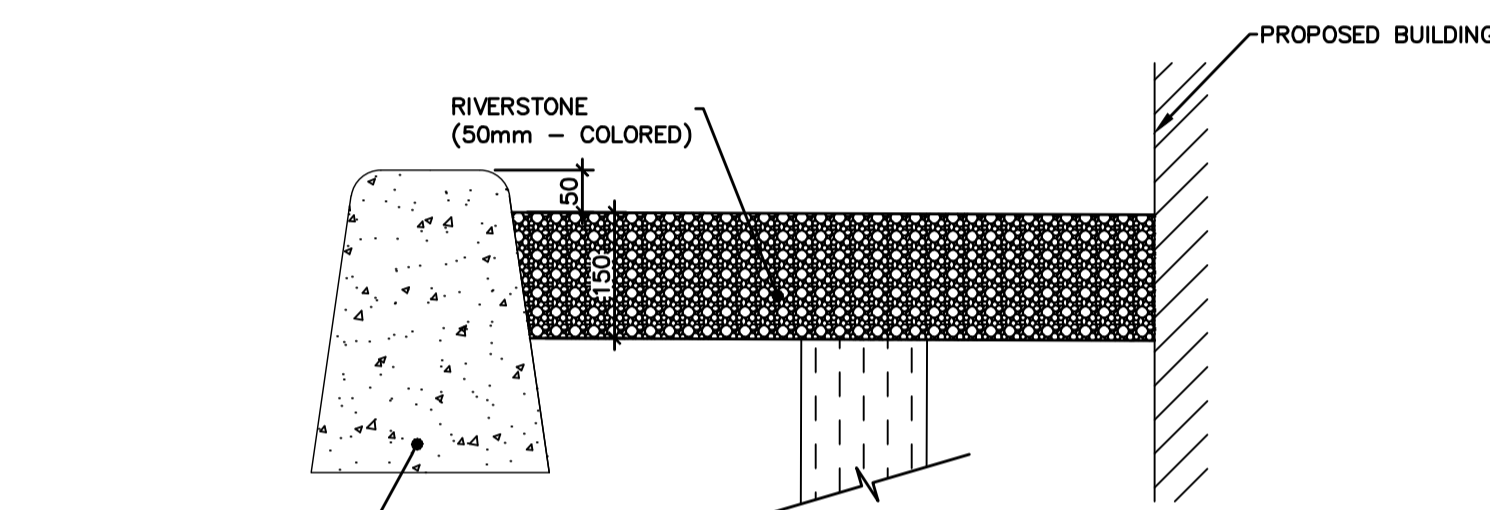
**ACCESSIBLE PARKING SIGN**



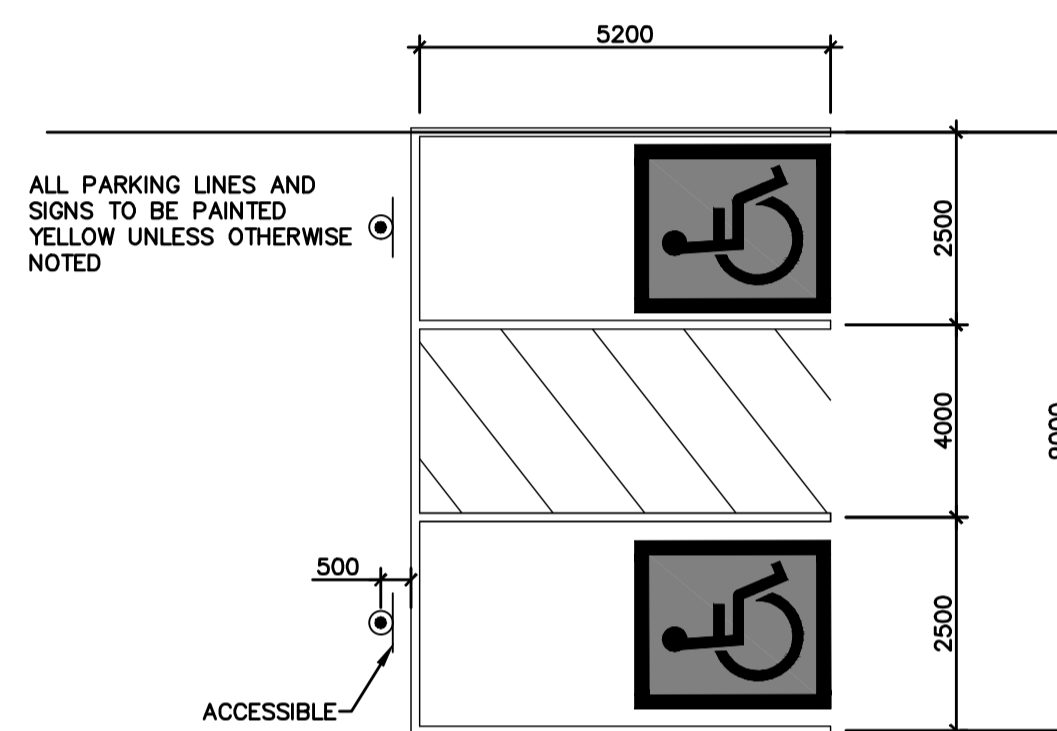
P-150-5



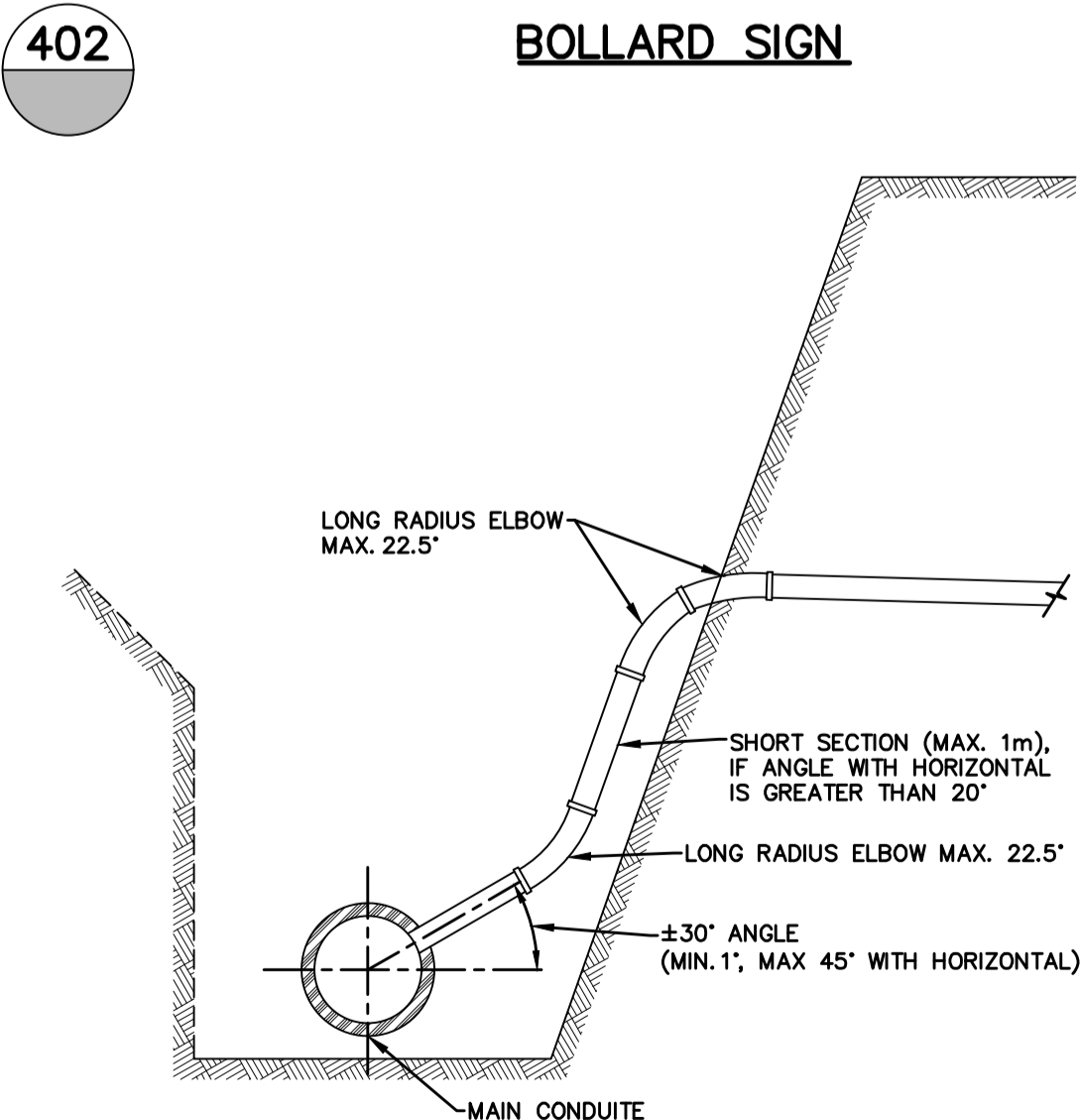
**402 BOLLARD SIGN**



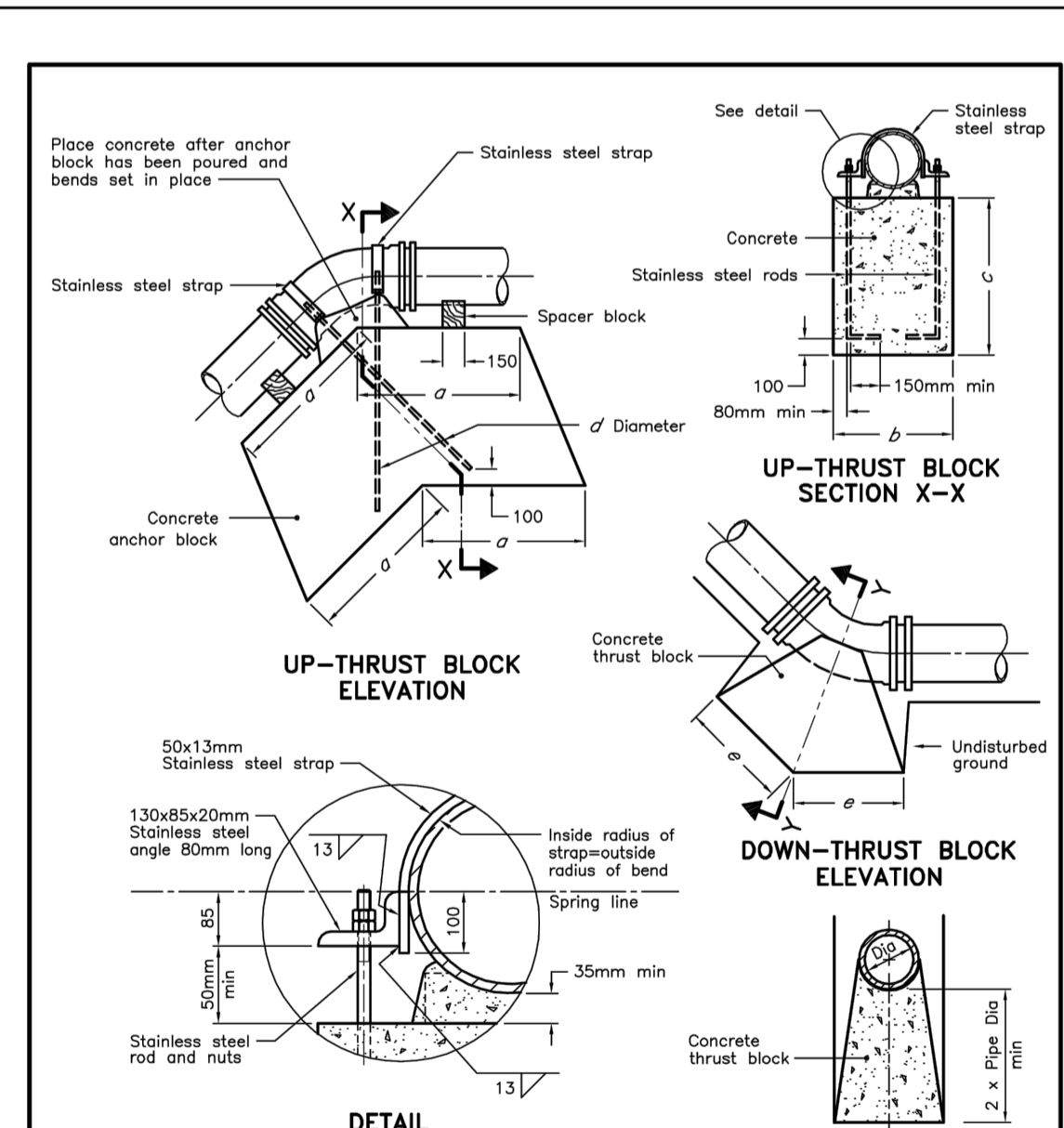
**502 PROPOSED CONCRETE CURB**



**409 PARKING STALLS**

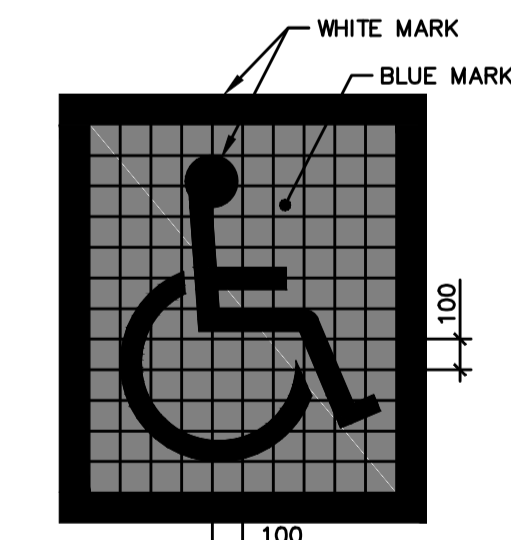


**501 SLOPE AND ORIENTATION OF SEWERS CONNECTIONS**



**NOTES:**  
 A Concrete shall be placed to within 50mm of the face of the bell.  
 B Bond breaker shall be used between concrete and fittings.  
 C This blocking is for bends up to 45° for up-thrust and 90° for down-thrust.  
 D This OPSD shall be read in conjunction with OPSD 1103.021.  
 E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2013 Rev 3  
**CONCRETE THRUST BLOCKS FOR VERTICAL BENDS**  
 OPSD 1103.020



**405 TRAFFIC SYMBOLS**

- 1-TRAFFIC ARROWS AND SYMBOLS PAINTED WHITE COLOUR ON PAVEMENT UNLESS OTHERWISE SPECIFIED.
- 2-ALL PAVEMENT MARKINGS SHALL BE AS PER CITY REQUIREMENTS.

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NRC Project No: 5044  
PROJECT NAME: M-38  
DATE: September 19-2016

---

The following changes in the tender documents are effective immediately. This addendum will form part of the contract documents.

### **SPECIFICATIONS;**

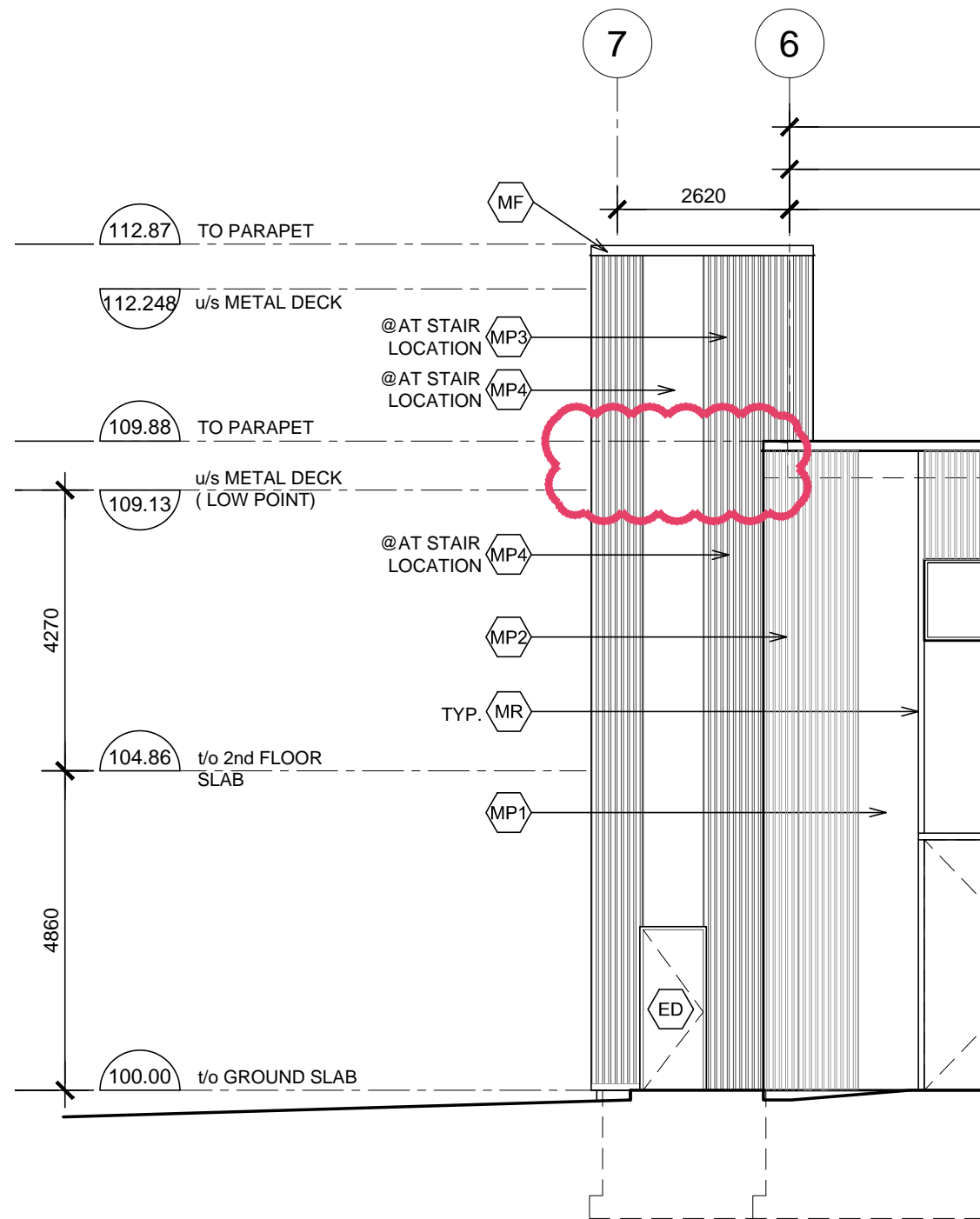
1. **Refer to 07 46 50 –Preformed Siding**
  - .1 Revise item 2.1.(.2) to read **915mm wide**, panel height as detailed.
2. **Refer to 07 46 50 –Preformed Siding**
  - .1 Revise item 2.1.(.6.2) to read “Type 1 - Kingspan – **“Microrib”** exterior surface

### **DRAWINGS;**

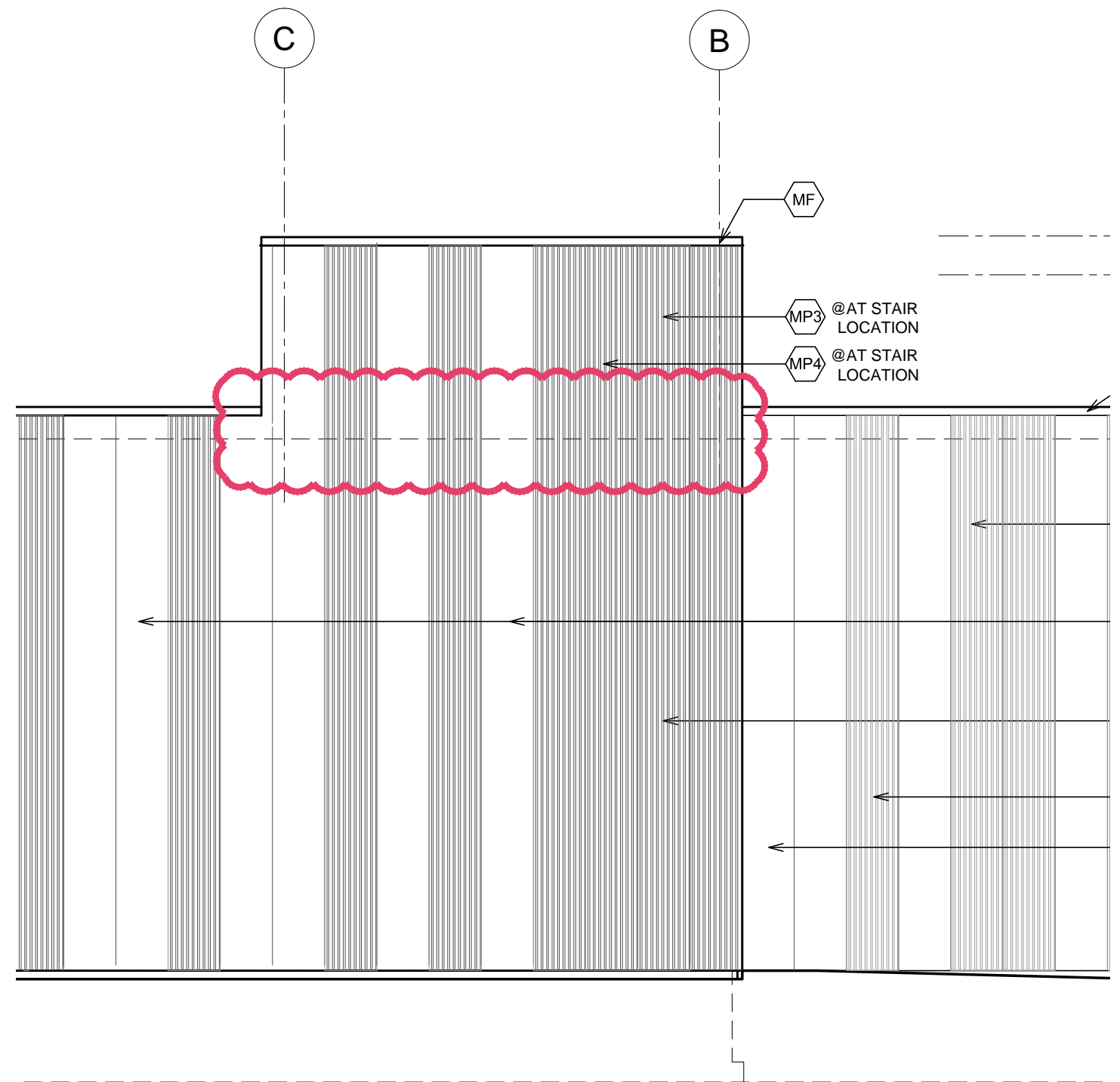
1. **Reference drawing 5044-A00 - Cover**
  - .1 Revise all type W3 to read 13mm FIBER REINFORCED CEMENT BOARD PANEL TO **600mm** BELOW GRADE
2. **Reference drawing 5044-A05 & A05a – Building Elevations**
  - .2 Revise elevation to remove horizontal reveal. No horizontal reveal is required Refer to revised elevations 2/A05 and 1 A05a on attached ASK-01.
3. **Reference drawing 5044-A05– Building Elevations**
  - .3 Revise elevations 1 and 2/A05. Remove all vertical reveals as indicated by elevation tag “MR”. Horizontal reveal to remain as per elevation tag “MR”.
4. **Reference drawing 5044-2/A05 – Building Elevations**
  - .4 Revise elevation TAG for center overhead door from **FD** to **OD**.

**END OF KWC ADDENDUM no. 01**





**2**  
A05 ELEVATION  
SCALE = 1:100



**1**  
A05a ELEVATION  
SCALE = 1:100



title

REVISED ELEVATIONS

project **M-38**

**5044** project NO

scale

1 : 50

date

19-SEPT-16

drawn

CD

project

1629

drawing no.

**ASK-01**

rev.

# M38-5044 Flexible Research Facility - Environmental Review

## Appendix B: Contractor Environmental Protection Plan

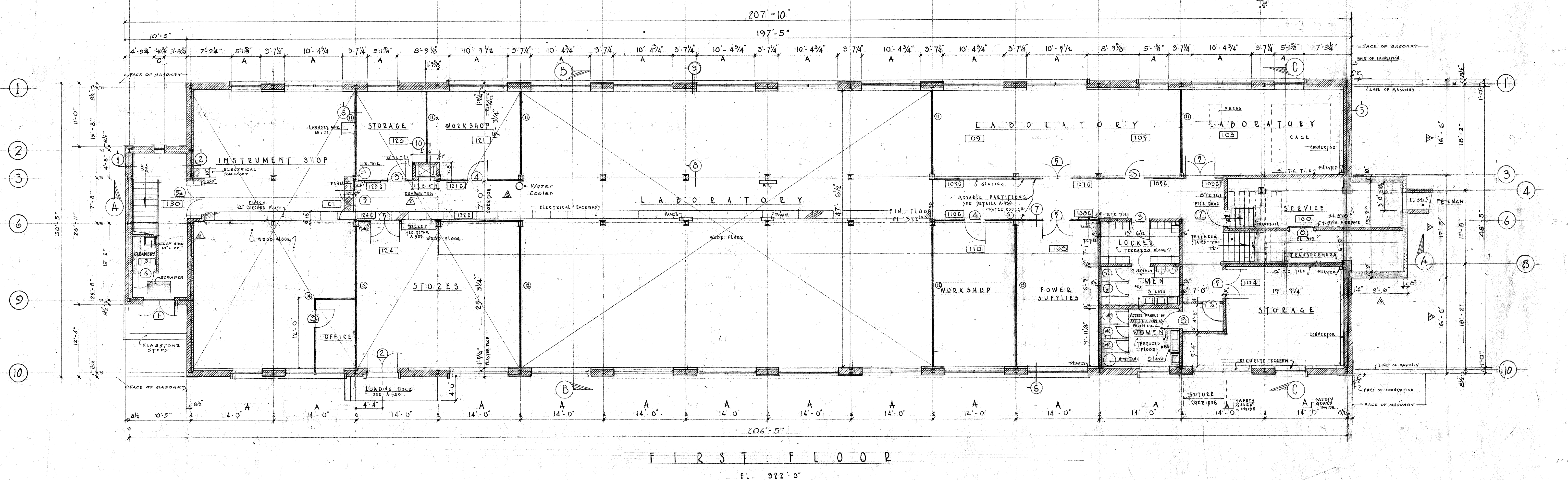
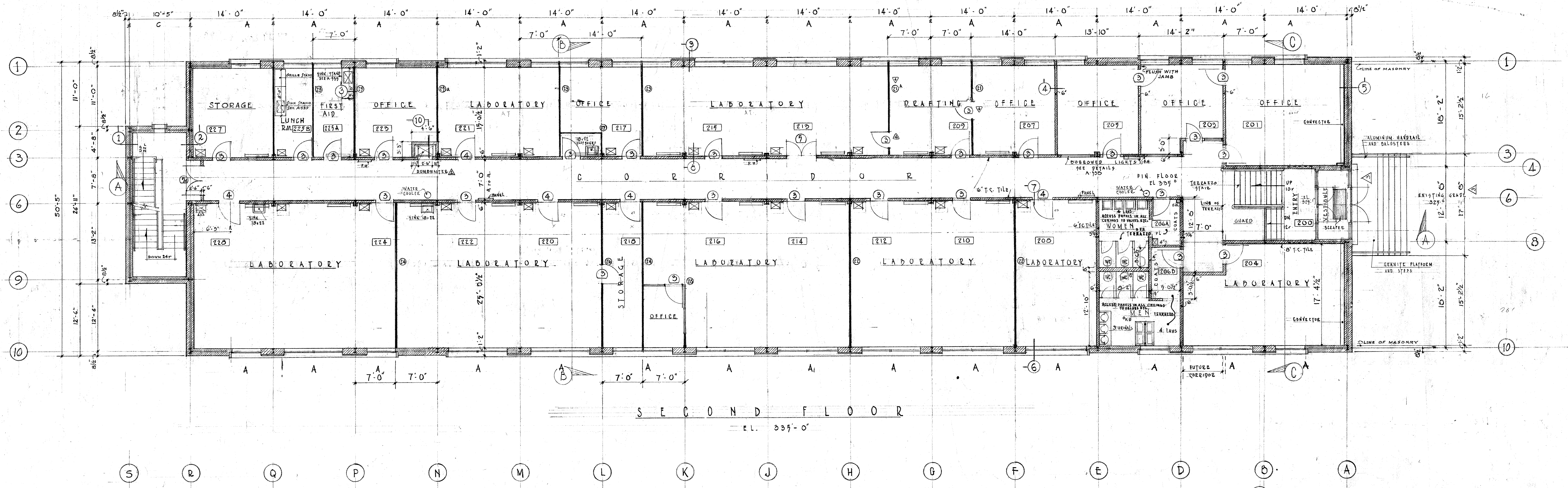
### Project Description:

This project involves the construction of a flexible, modular research building to be located across the road from building M-39 at the NRC Montreal Road Campus (1200 Montreal Road, Ottawa, ON). The new building number will be M-38.

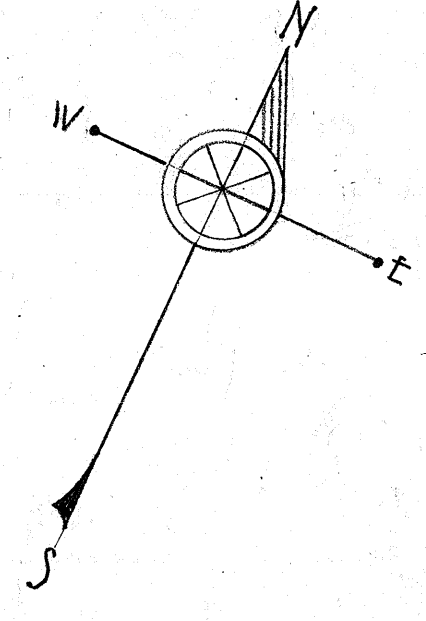
### Contractor Environmental Protection Plan:

1. To help mitigate impacts related to air emissions and noise, all equipment used during construction will be in good working order, free from leaks, and meet applicable standards and regulations regarding noise and air emissions (e.g., Occupational Health and Safety Act, provincial Drive Clean standards, etc.). Equipment idling should also be reduced or eliminated when possible.
2. Vegetation will not be removed unless necessary.
3. Disturbed areas will be re-vegetated as soon as possible and any native trees that are over 30cm diameter at breast height that are removed will be replaced at a ratio of 3:1. Replacement trees must be native to the area and should be at least be 5 cm diameter if a deciduous tree or 2 m tall if a coniferous tree. Replacement trees should be tended for a minimum of two years.
4. Native trees over 30cm diameter at breast height or other desirable trees (e.g. apple trees) that will not be removed must be protected during construction. This can be accomplished by installing snow fence or other markings around the critical root zone to ensure no disturbance in that area. The critical root zone extends outward from the trunk of each tree for a distance 12 times the tree's diameter at breast height.
5. There is a single Butternut tree located in the large patch of trees approximately 45 m northwest of M-48 (UTM coordinates: 18 T 451369N; 5033721E). This tree is affected by Butternut canker and is very sick (Leckie, 2015a; Leckie, 2015b). However, since this is a federally-listed endangered species, this tree will not be removed and will be protected during construction. No disturbance will take place within the critical root zone (3.3m) and disturbance should be minimized to the extent possible within 7.5 m of the tree.
6. The construction area will be visually searched immediately prior to construction and any wildlife species will be allowed to transit the site before excavation begins. If a Milksnake is encountered during construction, stop work and contact the Environmental Operations Office for advice.
7. The site is located within the C3 bird nesting zone in Canada and has a regional nesting period from the beginning of April to the end of August. Tree clearing should take place outside of this window. If this is not possible, contact the Environmental Operations Office who will conduct a bird nest survey. If an occupied nest is found, the nest will be left in place undisturbed along with the neighbouring vegetation until nesting is completed.
8. If excavation reveals a potential archaeological artifact or deposit stop work immediately and notify the NRC Project Manager who will contact Parks Canada for instructions on how to proceed.
9. Adequate spill containment materials will be readily available and employees and contractors working on the project will review NRC emergency procedures with the NRC Project Manager.
10. As a safety precaution, all underground services must be located prior to commencement of work.

FOR PENTHOUSE PLAN  
SEE A 537



LEGEND	
A, D, C	WINDOW TYPES - SEE SHEET A 530
(2)	DOOR TYPES - " - A 530
(D, L, P, S)	MOVABLE PARTITION TYPES - " - A 530
(A, D, C)	BUILDING SECTIONS - " - A 532
(1)	WALL SECTIONS - " - A 540
	TERRA COTTA TILE
	CONCRETE
	MOVABLE PARTITION
	ELEVATION OF FINISHED FLOOR ABOVE SEA LEVEL



1/8" = 1'-0"

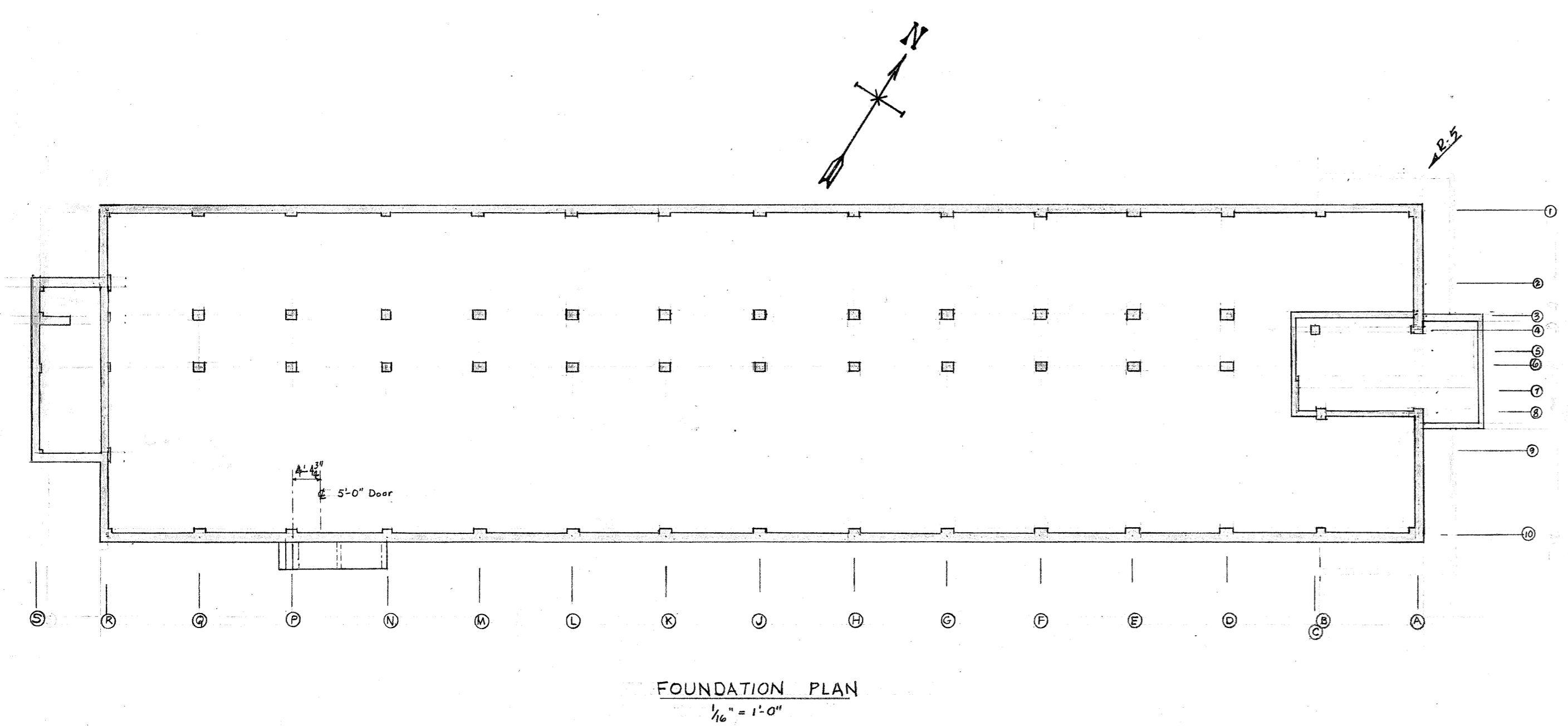
REVISIONS		REVISIONS	
NO.	DATE	NO.	DATE
1	2/15/55	1	2/15/55
2	2/15/55	2	2/15/55
3	2/15/55	3	2/15/55
4	2/15/55	4	2/15/55
5	2/15/55	5	2/15/55

<b>NATIONAL RESEARCH COUNCIL</b> PLANT ENGINEERING SERVICES OTTAWA CANADA		DATE MARCH 29, 1955 DESIGNED BY F. L. G. CHECKED BY C. J. G. APPROVED BY	TITLE <b>M36 LABORATORY</b> MONTREAL ROAD LABORATORIES ARCHITECTURAL FLOOR PLANS	SCALE 1/8" = 1'-0" DWG. NO. <b>A-533</b>
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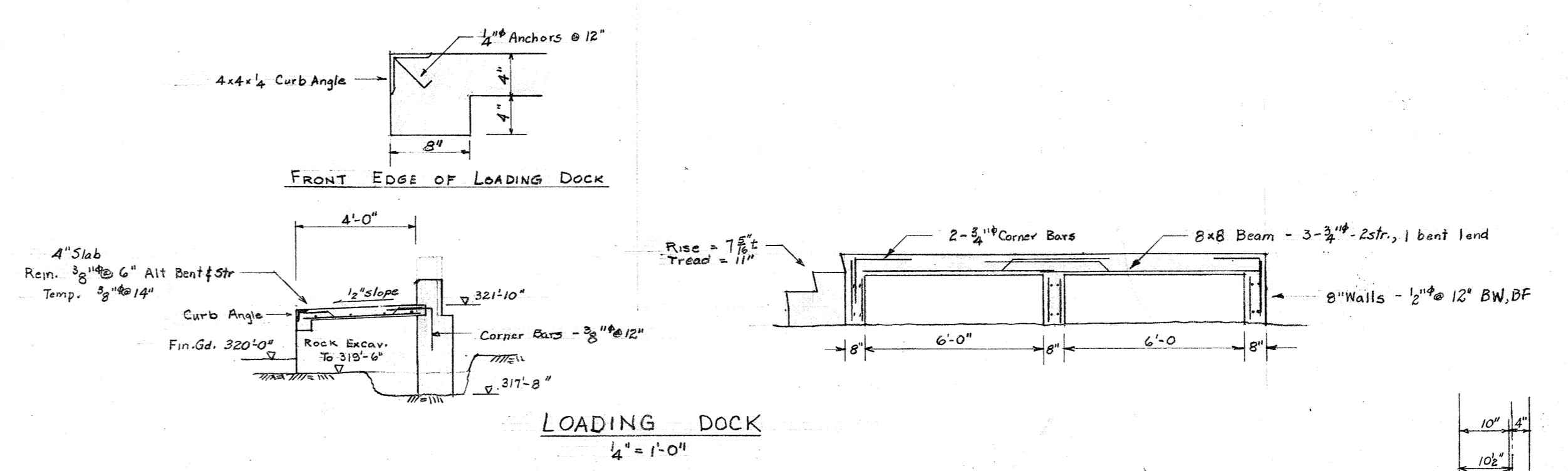
A533

554

R-1



- NOTES
1. 3/4" x 12" Corner bars at intersections of all walls.
  2. Clear concrete cover over reinforcement
  3. Surfaces exposed to weather - 1/2"
  4. Surfaces not exposed to weather - 1"



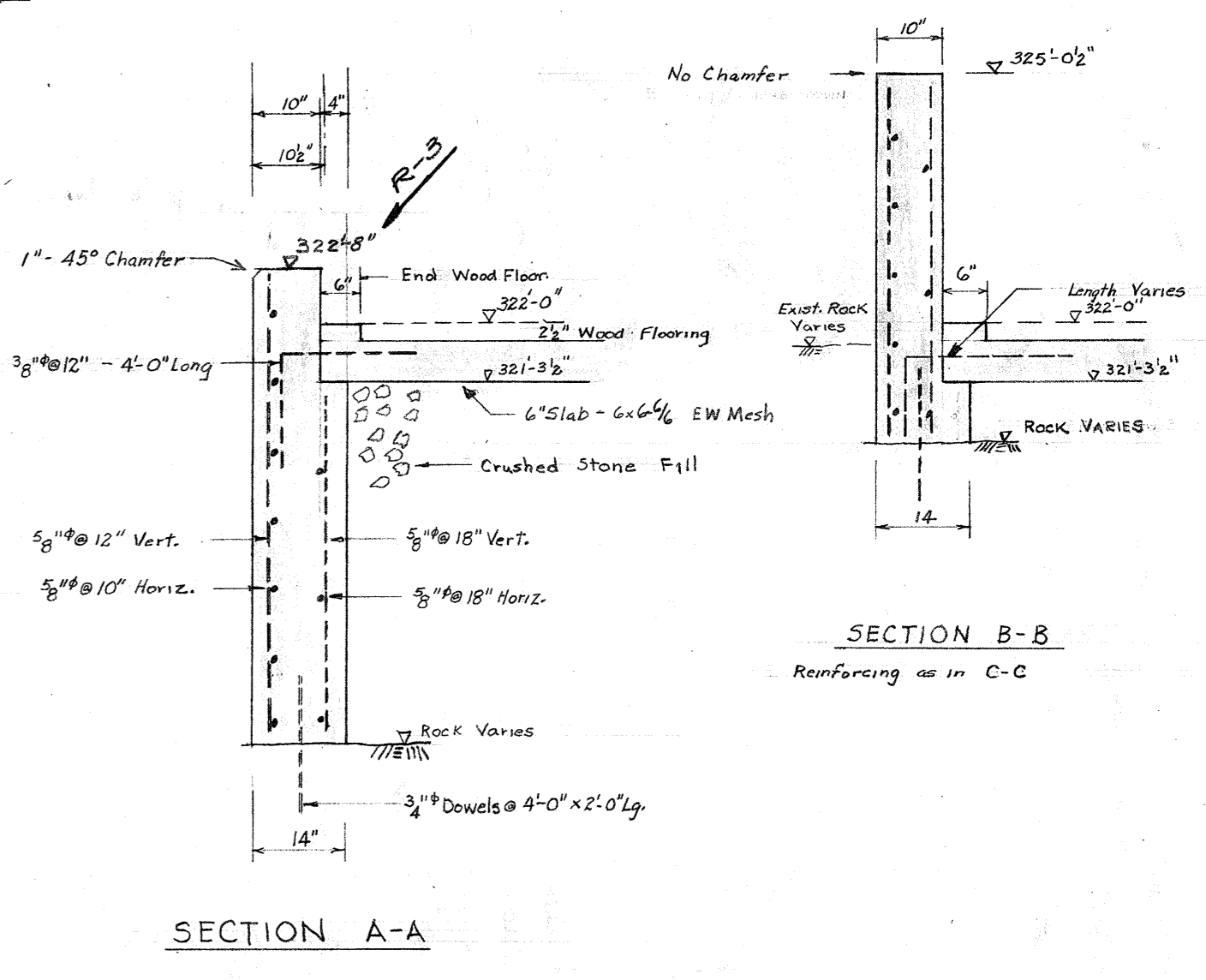
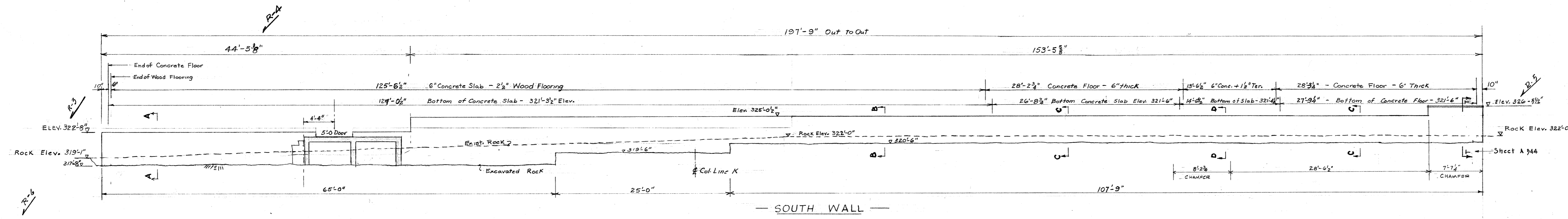
R-3

R-4

R-3

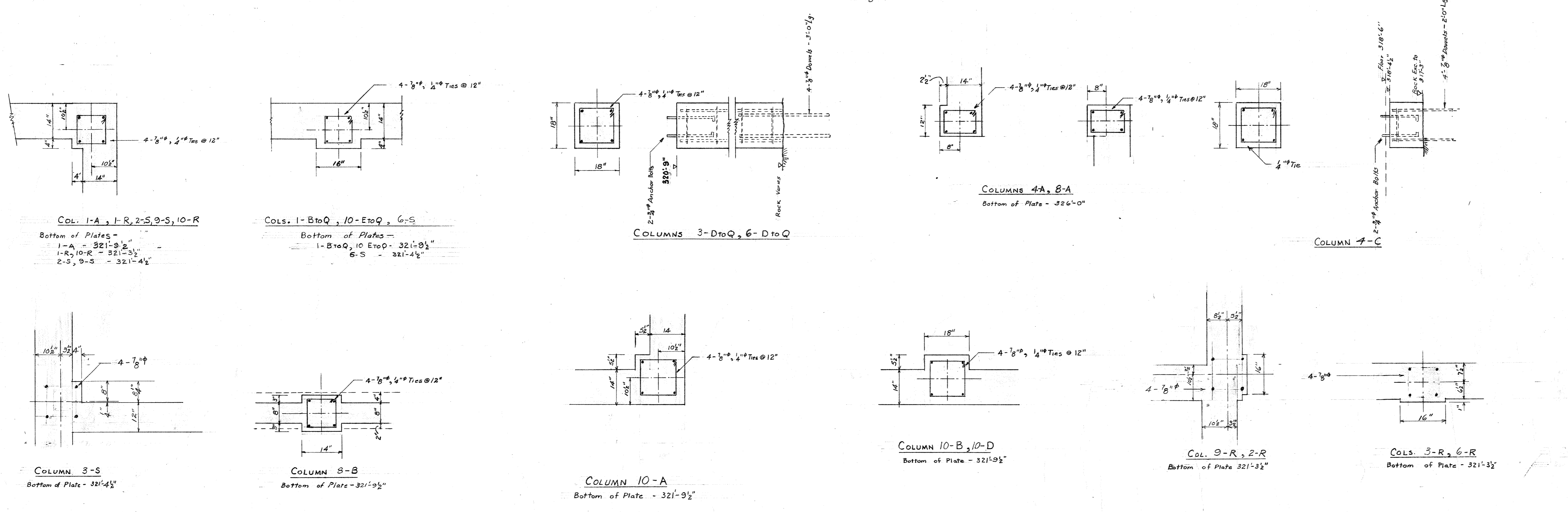
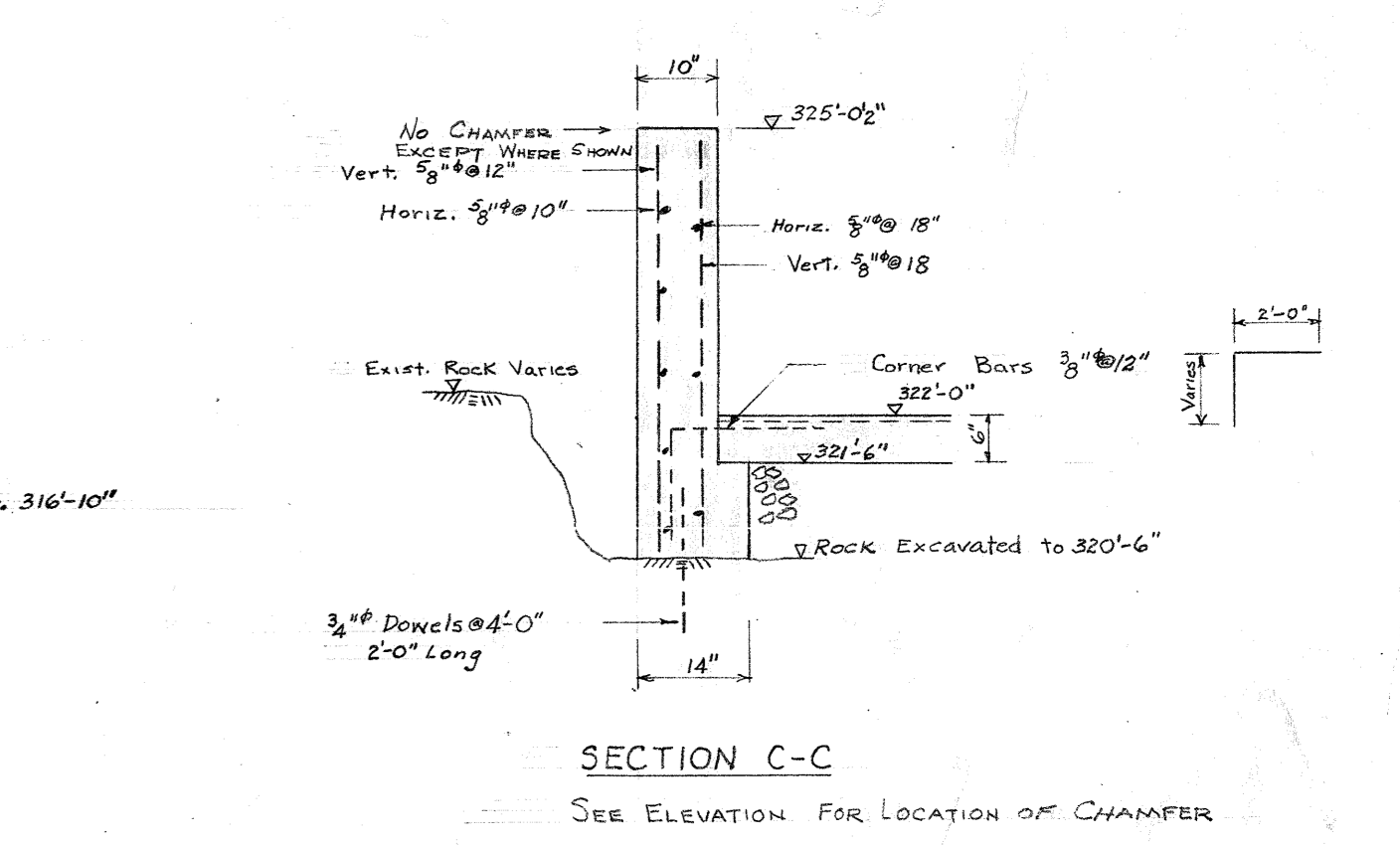
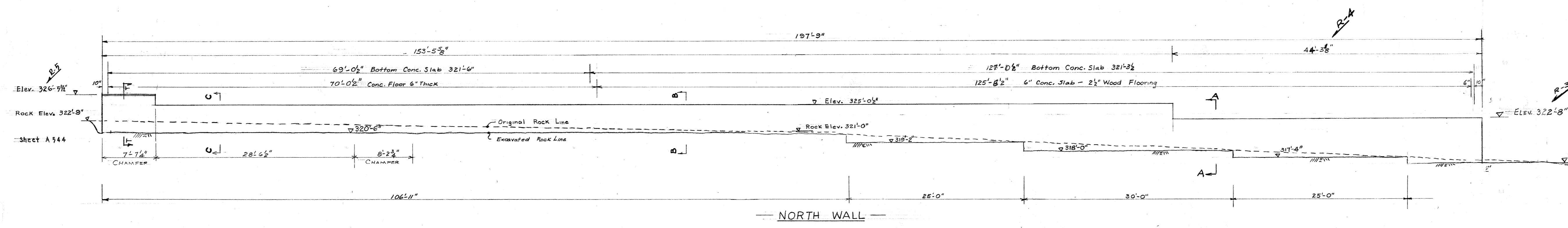
R-1

R-6



Note  
Actual rock elevations differ from assumed elevations shown.  
Dept. of Public Works have actual elevations.

R-5



FOUNDATION WALL SECTIONS  
1/2" = 1'-0"

REVISIONS			
NO.	DATE	CHANGE	BY
1	7/18/55	General Revision	J.W.D.
2	9/7/55	General Revision	J.W.D.
3	10/1/55	FOR TENDERS	J.W.D.
4	10/1/55	ELEVATIONS OF WALL TO AGREE WITH ARCHITECTURAL DRAWING	D.P.W.
5	10/1/55	LOCATION OF STAIRCASE REVISED	D.P.W.

NATIONAL RESEARCH COUNCIL  
PLANT ENGINEERING SERVICES  
OTTAWA CANADA

DATE  
MARCH 30, 1955  
DESIGNED BY  
J. W. D.  
CHECKED BY  
E.P.  
APPROVED BY

TITLE  
M36 LABORATORY  
MONTREAL ROAD LABORATORIES  
STRUCTURAL  
FOUNDATIONS

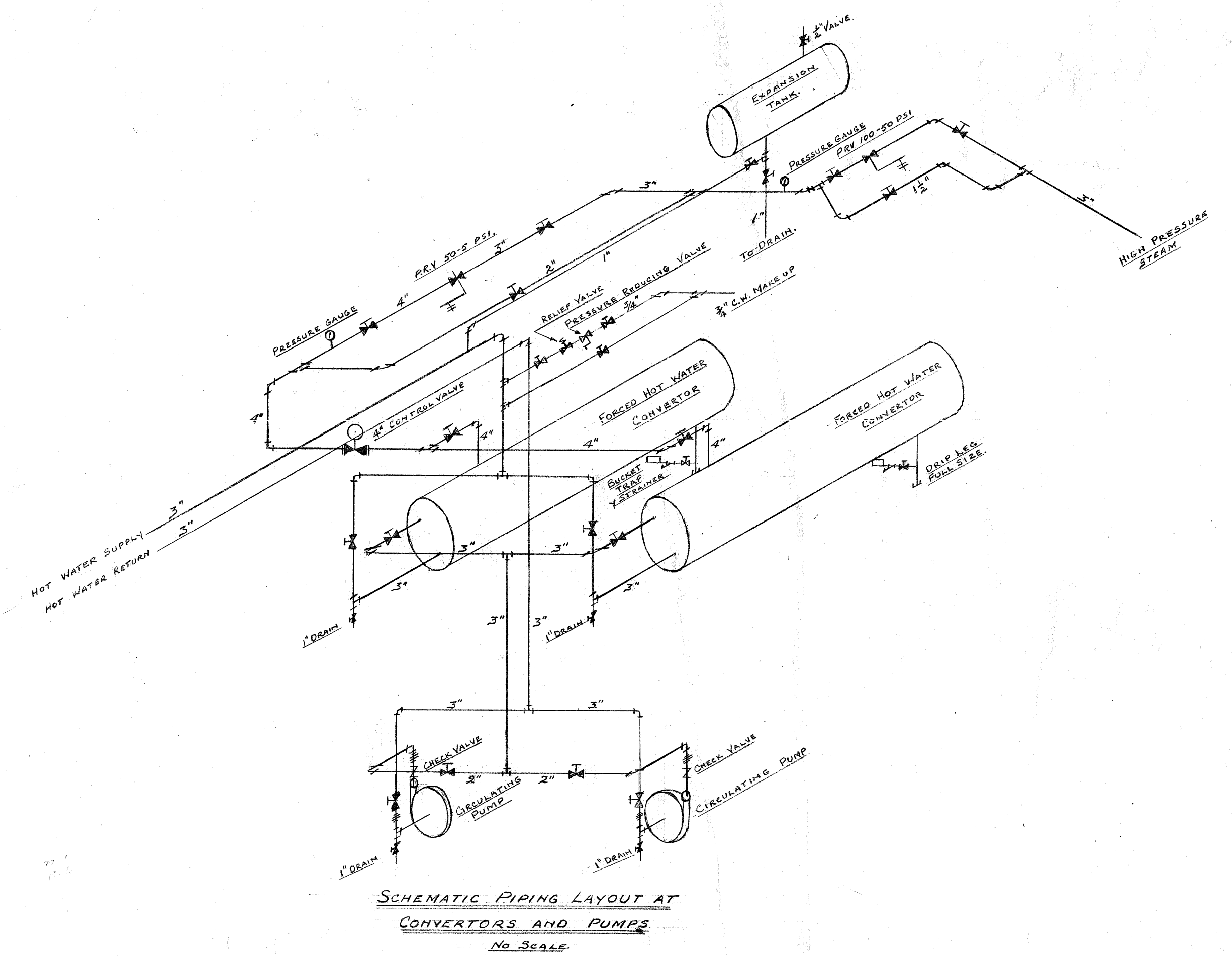
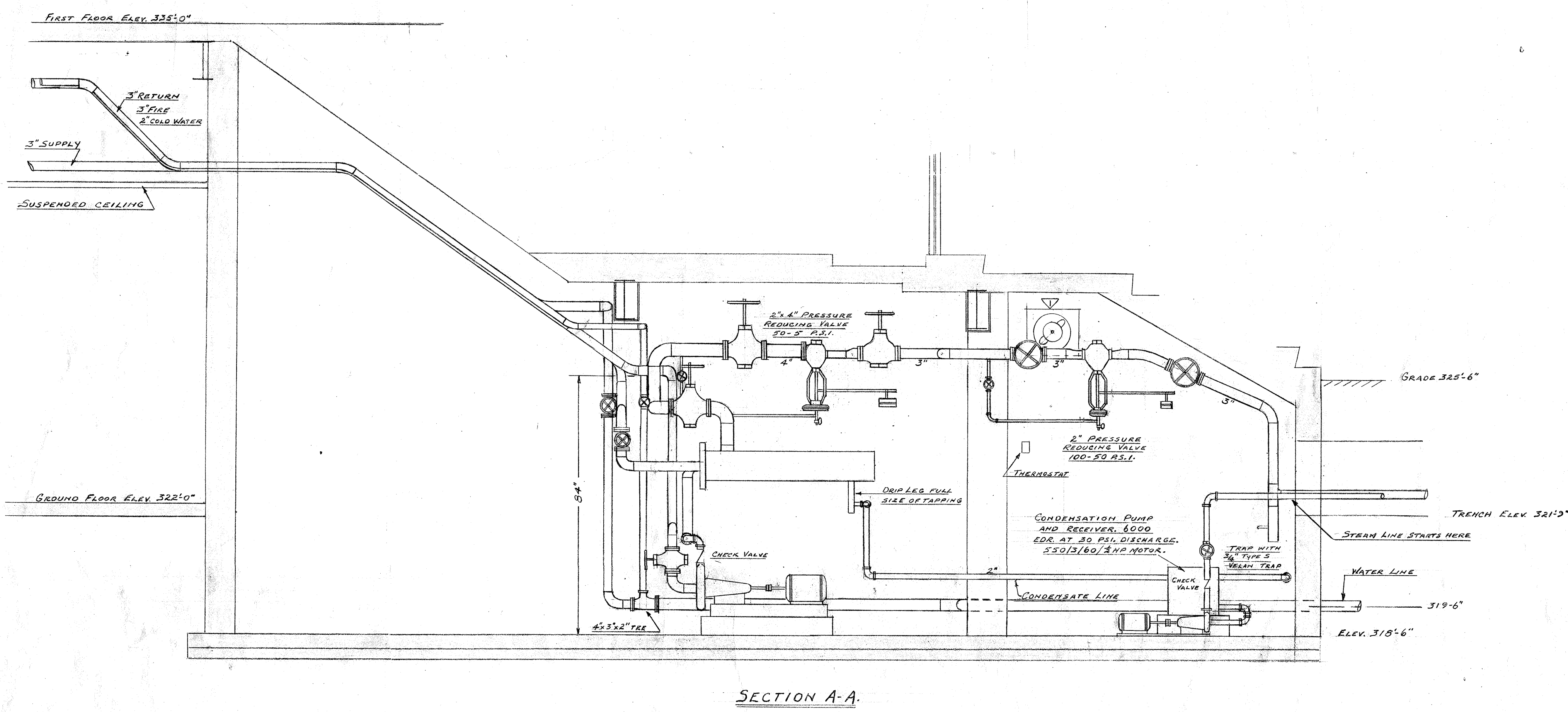
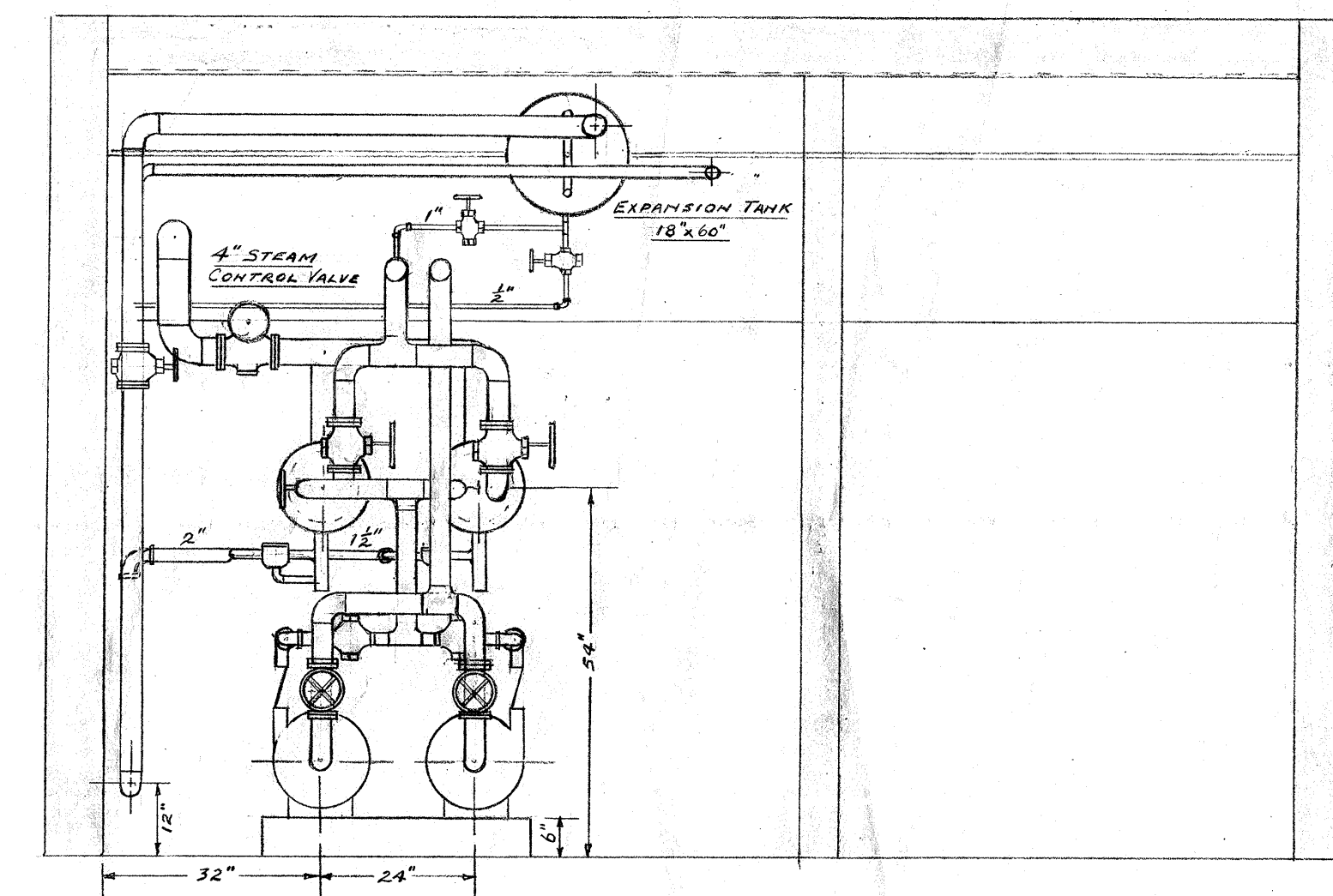
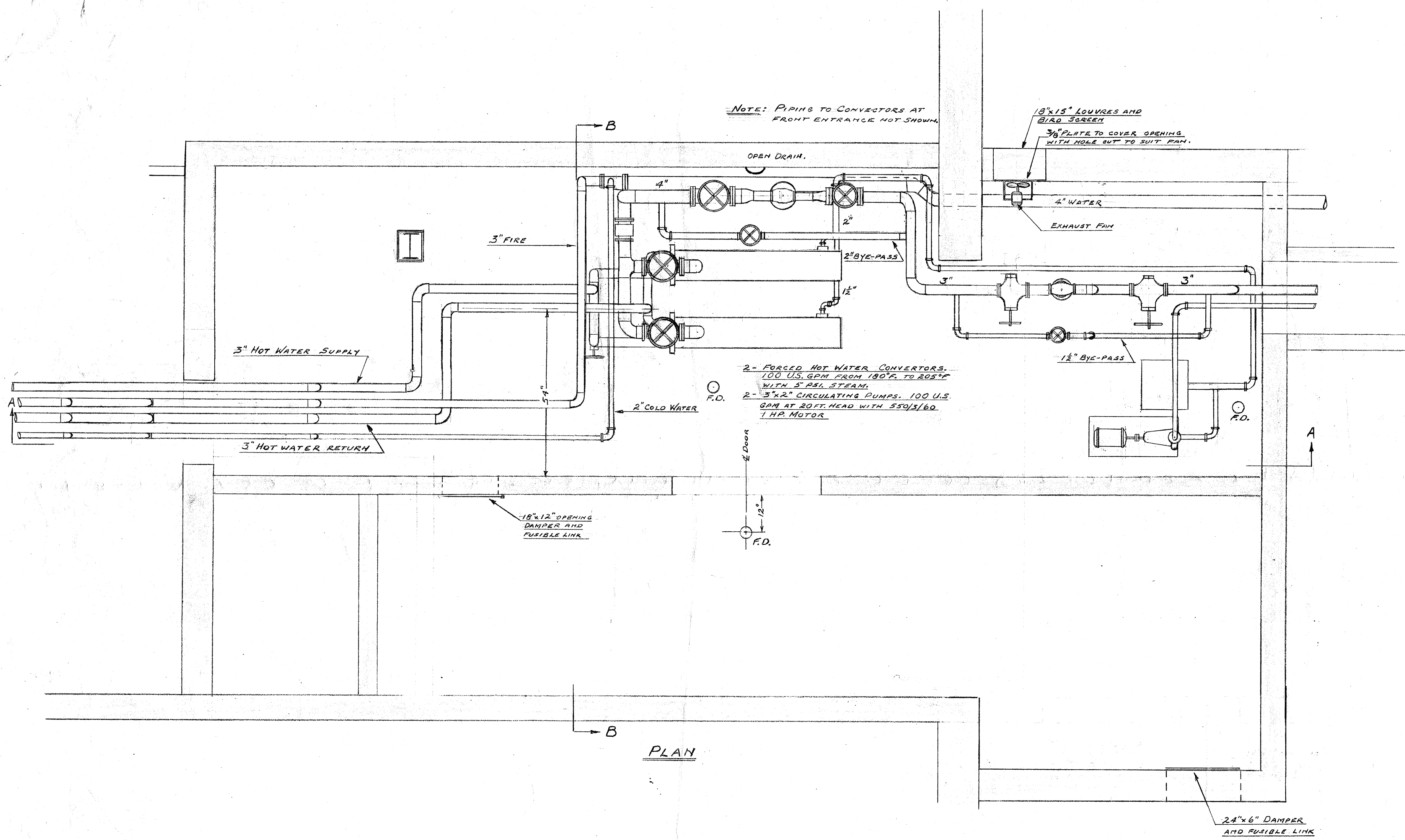
SCALE  
AS NOTED  
D.W.B. No.  
A-543

A543 R-5

R-5

R-5

A543



REVISIONS			
NO.	DATE	CHANGE	BY
R1	12/11/55	EXHAUST FAN RAISED	ELG

NATIONAL RESEARCH COUNCIL  
PLANT ENGINEERING SERVICES  
OTTAWA CANADA

DATE MARCH 30, 1955  
DESIGNED BY N.H.  
DRAWN BY N.H.  
CHECKED BY E.J.  
APPROVED BY

TITLE M36 LABORATORIES  
MONTREAL ROAD LABORATORIES  
MECHANICAL  
SERVICE ROOM - PIPING & EQUIPMENT

SCALE 1/4" = 1'-0"  
D.W. NO. A-550

A550

A550

# Untitled Map

Write a description for your map.

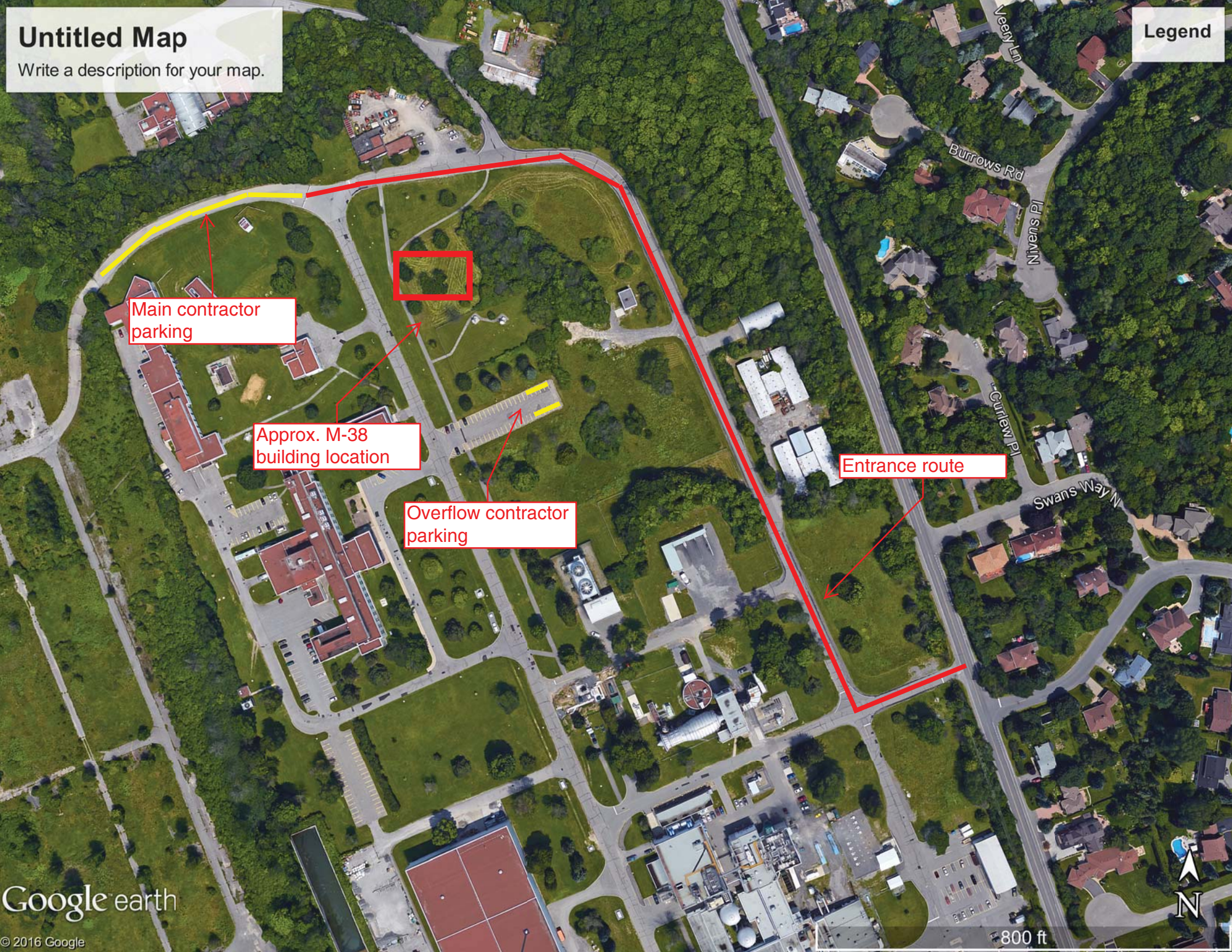
Legend

Main contractor parking

Approx. M-38 building location

Overflow contractor parking

Entrance route



**Mandatory Site Visit Attendance / Visite de chantier obligatoire**

Project Description / Description de projet	M-38 - Flexible Research Facility		Closing Date	September 27th	Closing time	2:00 PM
Solicitation No./N° de sollicitation	16-22072		1st Showing	September 13th	Showing Time	9:00 AM
Departmental Representative / représentant	Allan Smith		2nd Showing	September 15th		

COMPANY/COMPAGNIE	NAME/NOM	SIGNATURE	PHONE/TELEPHONE	FAX/TELECOPIEUR	EMAIL/COURRIEL
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MCDONALD BROTHERS	LARRY SAURINE	[Signature]	613 831-6223	613-831-5528	LARRY@MBC.CA
buttean east	Robert McKinnay	[Signature]	613 857-1980		rmckinnay@butteanEAST.COM
REHEIN Construction	JOHN MCCARTHY	[Signature]	(613)831-2335	(613) 831-8779	j.mccarthy@rehein.com
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BMI	JADE ANZURES	[Signature]	613-325-6016	613 235 2126	jade@bmi-ind.com
S.C Sulphur Const	FRANCIS SULPHER	[Signature]	613-384-5550	613-384-5589	estimating@csulphur.com
GEMMA PROPERTIES	ANDREW DEACON	[Signature]	514-829-0073		andrew.deacon@mountainview.com
Down Develo.	ANDY LIBBOS	[Signature]	613-224-7268	613-224-0579	ESTIMATING@DOWN.COM
GRAEBECK Const	Rhonda Shartland	[Signature]	613-591-9100 ext 25	413-591-9109	Rhonda@graebek.com / hbie@graebek.com
SECUN MORTIS	MICHAEL MARTINE	[Signature]	817-213-4116		MICHAEL@SECUNMORTIS.COM
AND Contractors	Torin Moore	[Signature]	613-267-4265	613-267-4212	Torin@andcontractors.ca
GALLEC CONTRACTING	RAFIK OUIDJIDA	[Signature]	613.834-0709	613-830-3338	RAFIK@GALLEC CONTRACTING.COM
FULLER CONST	JOEY KROEGER	[Signature]	613 820 6000		BID@FULLER.CA

**NRC-CNRC**

**Mandatory Site Visit Attendance / Visite de chantier obligatoire**

Project Description / Description de projet M-38 - Flexible Research Facility		Closing Date September 27th		Closing time 2:00 PM
Solicitation No./N° de sollicitation 16-22072		1st Showing September 13th		Showing Time 9:00 AM
Departmental Representative / représentant Allan Smith		Addendum Deadline September 20th / 12:00		
Signature		September 16th		
Project No./No de projet		PHONE/TELEPHONE		FAX/TELECOPIEUR
COMPANY/COMPAGNIE	NAME/NOM	SIGNATURE		EMAIL/COURRIEL
S+R Mechanical	Steven Daoust		613 293 1885	Steven.daoust@srmech.com
Serge Zimda Const	Serge Zimda		(613) 745-7872	Serge@zimdacons(ruction.ca
Niaron	Jose Correa		(905) 262-5492 x237	Jose@niaron.ca
PCS	Kyle Avery		613-240-0608	Kavery@PCS66.ca
Fed Buret	Georges Avoush		613-262-3807	Estimation@edhomet.com
Fap len	Doug Lee		8135212550	dlee@taplenconstruction.com
Dacuse construction	Mario Beaulne		613.590.1694	Bid@dc.ca.
Boutan Construction	Jason St Louis		613-932-2022	stlouis@syboursaga.com
Jumper Construction	Christopher DesRiviers		613-791-1145	christopher@jumper.com
FRECON CONSTRUCTION	BRAD DEBESKIEWICZ		413 445 2944	BRADLEY@FRECON.CA
EASTERN WELDING	BOODIE MACLEOD		613-931-2984	bid@easternwelding.ca
McNoltz-Mechanica	Derek Debarone		613 889 6661	derek@mcnoltz.ca



This document is issued to address requests for information or clarifications received from the bidders.

1. Q Upon review of the specifications this project has a construction duration of 24 weeks. Can this timeline be extended to 52 weeks? If one takes into account that the first 4 weeks are pretty well dedicated to the issuance of contracts, front end submittals and the shop drawing review process, one is only left with 5 months to deliver the building. Not to mention that this project is to be constructed in the upcoming winter months which will most definitely affect labour productivity most importantly the slab-on-grade construction, the second floor concrete deck, roofing and the exterior yard piping.  
A **NRC cannot extend the construction period to 52 weeks. Substantial completion of the building and buried services is required by March 31<sup>st</sup>. Paving and sodding may need to wait until spring 2017.**
2. Q Will you be issuing a soils report as part of the tender documents?  
A **Soils reports were provided in Addendum No 1 and Addendum No. 3.**
3. Q I found nothing in the documents regarding the Building Permit. Is the General Contractor responsible for this cost or will the Owner (NRC) be paying for this?  
A **According to article GC14 of the General Conditions, Section C of the specifications, the contractor shall carry the cost of a municipal building permit.**
4. Q The geotechnical information does not cover the area of work which makes the pricing of rock removal impossible within the lump sum as the nearest geotech puts the rock at 1m depth but on site where we are to work bedrock appears on the surface, could a rate per m3 for rock removal be introduced?  
A **Two copies of a geotechnical report for an area close by were posted in error. The report that relates to the test pits shown on the civil drawings is attached to addendum no. 3.**
5. Q Structural FOUNDATION PLAN requires rock to be excavated to 1650 mm below floor slab. Architectural FOUNDATION PLAN states future slab area to be unexcavated Please define the extent of the floor area that is to have the rock excavated to 1650mm below slab. Also is it necessary for the rock to be removed from site or can it be used as shatter fill somewhere?  
A **The entire building footprint shall be excavated to 1650 mm below the finished ground floor slab. Excavated rock shall be removed from the site.**
6. Q Please confirm that the USF of the typical wall strip footing is to be at 98.5 Geodetic level (100.6 – 1.65)  
A **The underside of the footings, except at pits and trenches, shall be at project elevation 98.350 according the structural drawing S01. This corresponds to geodetic elevation 98.95 m.**
7. Q What is the purpose of the rip rap pad at the front of the building? Is there a drain to this?  
A **See the revised civil drawings attached to Addendum No. 4.**
8. Q Does this building require perimeter drainage?  
A **A perimeter foundation drain is specified on mechanical drawing M01and on the revised civil drawings attached to Addendum No. 4.**

9. Q The Geotechnical Report in addendum 1 and 2 appears to be the wrong document – please send the report that relates to the test pits on the drawing.  
A **Refer to the answer for question 4 above.**
10. Q In this case the secondary containment system is designed much like that with a more common ‘pad mount’ transformer. That is to say, designed around the perimeter of the transfer vault. In rare instances the vault is designed to capture the escaping oil and we simply design a geomembrane liner inside the vault to protect the concrete. Before I design the system I wanted to confirm it will be the more traditional ‘perimeter’ design.  
A **You are required to provide perimeter design.**
11. Q Please clarify the width of the insulated metal panels required. The specification notes 42” wide though the elevations show 36” wide. This is critical as there are specific joint locations that line up with the OH doors and windows and are drawn showing full width panels. As shown, if the panels are 42” we would have to cut half the panels to create the reveal joints which would create a lot of wasted material and the panels would not all be the same width. Please advise the intent of the design and the width of the panels.  
A **See KWC architectural Addendum No. 1 attached to NRC Addendum No. 4.**
12. Q Is there a horizontal reveal joint between the panels at the low roof and the panels at the upper wall between grids C and D on 1/A05A?  
A **See KWC architectural Addendum No. 1 attached to NRC Addendum No 4.**
13. Q Please confirm if space will be available across the street at Building M-37 for parking and materials laydown for this new project, or indicate if we are to provide our own on site area for parking etc.  
A **A map showing contractor’s parking is included in Addendum No. 4.  
The contractor shall use the off road space around the building site for materials laydown.**
14. Q When tying into existing services (steam, electrical, plumbing), will shutdowns affect any of the existing buildings nearby?  
A **Steam service connections will require a shutdown affecting existing buildings. These shutdowns shall be coordinated with the Departmental representative well in advance.**
15. Q Please confirm if any trees currently on site are to be saved?  
A **As shown on the civil drawing C04, an endangered butternut tree shall be protected during construction, and the large trees shown north of the building site shall be saved.**
16. Q Would you please clarify and provide additional information on the steam trench noted on drawing S07:  
a) Please provide specifications on the precast roof.  
b) Please confirm if the walls are cast-in-place or precast. Typically precast trench covers are inclusive of the walls and ceiling.  
c) Please provide dimensions (centres) of each precast section.  
d) Please provide connections details from cast-in-place to precast member.  
A **Answers:**  
**a) Precast concrete specifications are the same as for the cast-in-place concrete.**  
**b) The trench walls are poured-in-place concrete.**  
**c) Precast concrete roof sections typically are 1200 mm wide.**

**d) The precast concrete roof slabs are supported on the cast-in place walls without a connection, similar to other locations on the NRC campus.**

17. Q Please confirm if we are required to carry the costs of the building permit in our tender price.  
A **According to article GC14 of the General Conditions, Section C of the specifications, the contractor shall carry the cost of a municipal building permit.**
18. Q According to the footing schedule noted on drawing S01 we are to provide an 'F3' type footing however, upon review of the structural drawings there appears to be no such type of footing. Is 'F3' required?  
A **The 'F3' footing is no longer required.**
19. Q -According to the general notes of drawing S01 we are to refer to a geotechnical report prepared by Golder & Associates however, it appears that this document is missing from the specifications. Please provide the document.  
A **See the answer for question no. 2.**
20. Q Dwg S01 - First general note indicates rock is to be excavated to an elevation of 1650 mm below the finished floor elevation. Can you confirm if this is for the entire area of the building, or if it is for the location of the footings only? We understand deeper excavation is needed at the elevator pit, steam pit, and sump pit.  
A **See the answer for question no. 5.**
21. Q Dwg S01 - Should there be stepped footings between the F4 footing at grid C3, and the two adjoining F4 footings at grids C4 and B3?  
A **Stepped footings shall be provided in accordance with the General Notes on the revised structural drawing S01, which is attached to addendum no. 4.**
22. Q 2/A05 - middle overhead door is marked as FD or Future Door. Should this not be OD or overhead roll up door?  
A **See KWC architectural Addendum No. 1 attached to NRC Addendum No. 4.**
23. Q W3 on A00 - Does the rigid insulation go to 400 mm below grade as well as the fiber reinforced cement board panel, or does it go deeper. The sections do not show, and the spec says to refer to dwgs. Please clarify.  
A **See KWC architectural Addendum No. 1 attached to NRC Addendum No. 4.**
24. Q Would you please provide the list of attendees at both mandatory site visits.  
A **The list is attached to addendum no 4.**
25. Q According to notes 10 and 17 of drawing M01 we are to tie the weeping tile to sump pit 38SUP01 however upon review of the enlarged piping layout it appears that these two lines do not enter the pit. Please provide a revised piping layout drawing including details of these two lines entering the pit.  
A **The weeping tile lines shall piped into the storm water sump pit as directed on site.**
26. Q Please issue a civil drawing indicating the location of the perforated subdrain as this item is typically provided by the civil contractor and not the mechanical contractor.  
A **This is addressed on the revised civil drawings attached to Addendum No. 4.**
27. Q According to note 3.13 of drawing C03 we are responsible to dispose of contaminated materials however, upon review of the geotechnical report there appears to be no presence of

contaminants. We assume that should contaminated soils be encountered that this item would be treated as additional to the original contract.

A **This is addressed on the revised civil drawings attached to Addendum No. 4.**

28. Q Are we supposed to be providing the transformer, switchgear and cabling? It is not mentioned in the documents. Please clarify.

A **None of these items are to be provided under this contract.**

29. Q There is a note on the Structural drawings stating that "The Contractor shall excavate the rock to an elevation of 1650mm below the ground floor slab", however, the GeoTech report states that the footings can be constructed directly on the bedrock with the addition of insulation in order to meet the criteria of minimum frost protection. Which method are we to employ?

A **The structural drawings govern.**

30. Q Please confirm that the length of the retaining wall is 9 meters.

A **As per drawing C02 the retaining wall length is about 9 meters.**

31. Q It would appear that wall height noted on the left hand side of the detail does not match the elevations provided on the grading drawing.

A **This is addressed on the revised civil drawings attached to Addendum No. 4.**

32. Q Please clarify the extent of the asphalt pathway removal (drawing C06).

A **Removal to be as required to complete the work. It is indicated on plan C04.**

33. Q Please confirm if concrete curbing is required around the perimeter of the heavy duty asphalt paving.

A **Curbing is not specified on the plans, therefore it is not planned.**

34. Q Please provide a detail of the vertical reveal trim. It is recommended that the panel be continuous behind the joint to minimize air infiltration.

A See KWC architectural Addendum No. 1 attached to NRC Addendum No. 4.

**End of tender Period Questions no. 1**