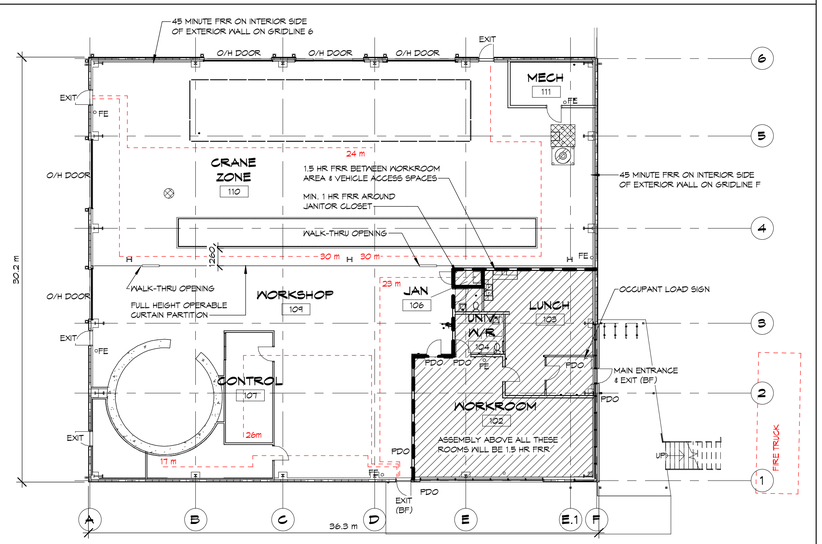
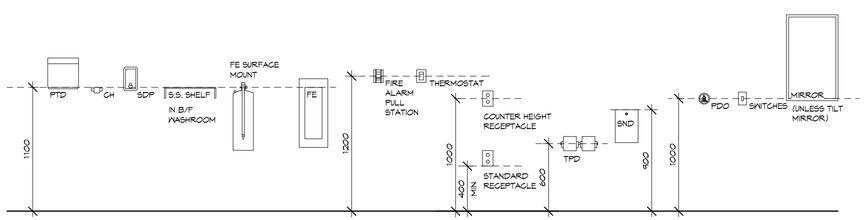


3 LIFE SAFETY PLAN

SCALE: 1 : 200 — 0m 4m 8m 12m 16m 20m

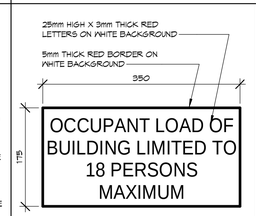
TYPICAL MOUNTING HEIGHTS



LEGEND OF SYMBOLS

- ROOM NAME AND NUMBER, REFER TO INTERIOR FINISH SCHEDULE FOR FINISHES
- SECTION NUMBER / SECTION REFERENCE / SHEET WHERE DETAILED
- SHEET WHERE DETAILED / ELEVATION REFERENCE / ELEVATION NUMBER
- WALL TYPE, REFER TO LEGEND OF WALL TYPES
- KEYNOTE, REFER TO NOTES ON SAME SHEET
- DOOR NUMBER , REFER TO DOOR SCHEDULE
- WINDOW TYPE, REFER TO LEGEND OF WINDOW TYPES
- NEW DOOR AND FRAME, REFER TO DOOR SCHEDULE
- EXISTING DOOR AND FRAME

OCCUPANT LOAD SIGN



NOTE: CONTRACTOR TO PROVIDE ONE (1) OCCUPANT LOAD SIGNS. SIGN TO BE POSTED ON WALL ADJACENT TO ENTRANCE DOOR, AT 1500mm ABOVE FLOOR LEVEL TO CENTER OF SIGN

LIST OF ABBREVIATIONS

&	AND	JAN	JANITOR
@	AT	JNSH	JANITOR SHELF
#	NUMBER		
		KPL	KICK PLATE
ACT	ACOUSTIC TILE		
ADJ.	ADJUSTABLE	LAM	LAMINATE
AFF	ABOVE FINISH FLOOR	LAV	LAVATORY
ALUM	ALUMINUM	LCK	LOCK
ANOD	ANODIZED	LSD	LIQUID SOAP DISPENSER
APPROX	APPROXIMATE	LTCH	LATCH
ARCH	ARCHITECTURAL		
AUTO	AUTOMATIC	m	METRE (S)
		MAS	MASONRY
BITUM	BITUMINOUS	MAT'L	MATERIAL
BO	CONCRETE-FILLED BOLLARD	MAX	MAXIMUM
BM	BEAM	MECH	MECHANICAL
BF	BARRIER-FREE	MH	MANHOLE
		MIN	MINIMUM
CB	CONCRETE BLOCK	MISC	MISCELLANEOUS
CG	CORNER GUARD	mm	MILLIMETER (S)
CH	COAT HOOK	MR	MIRROR
CJ	CONTROL JOINT		
CLG	CEILING	N	NORTH
CLSR	CLOSER	NIC	NOT IN CONTRACT
CMU	CONCRETE MASONRY UNIT	NTS	NOT TO SCALE
COL	COLUMN	NO.	NUMBER
CONC	CONCRETE		
CONT	CONTINUOUS	O.C.	ON CENTER
CT	CERAMIC TILE	OD	OUTSIDE DIAMETER
CTR	CENTER	OHD	OVERHEAD DOOR
C/W	COMPLETE WITH		
		PDO	POWER DOOR OPERATOR
DBL	DOUBLE	PLAM	PLASTIC LAMINATE
DET	DETAIL	PLYWD	PLYWOOD
DIA	DIAMETER	PREFIN	PRE FINISHED
DIM	DIMENSION	PSH	PUSH
DN	DOWN	PT	PAINT
DS	DOWNSPOUT	PTD	PAPER TOWEL DISPENSER
DWG	DRAWING	PUL	PULL
EA	EACH	R	RISER
EB	EXPANSION BOLT	RAD	RADIUS
ECB	EMERGENCY CALL BUTTON	RB	RUBBER
EJ	EXPANSION JOINT	REINF	REINFORCED
ELEV	ELEVATION	REQD	REQUIRED
ELEC	ELECTRICAL	REV	REVISIONS
EMERG	EMERGENCY	RH	ROBE HOOK
EP	ELECTRICAL PANEL	RM	ROOM
EPT	EPOXY PAINT		
EQ	EQUAL	SCHED	SCHEDULE
EQUIP	EQUIPMENT	SD	SMOKE DETECTOR
EX	EXISTING	SDP	SOAP DISPENSER
EXIST	EXISTING	SECT	SECTION
EXP	EXPOSED	SH	SHELF
EXT	EXTERIOR	SHT	SHEET
		SHTV	SHEET VINYL
FA	FIRE ALARM	SIM	SIMILAR
FD	FLOOR DRAIN	SNDD	SANITARY NAPKIN DISPENSER
FE	FIRE EXTINGUISHER	SND	SANITARY NAPKIN DISPOSAL
FEC	FIRE EXTINGUISHER AND CABINET	SPEC	SPECIFICATION
F.F.	FINISH FLOOR	SQ	SQUARE
FIN	FINISH(ED)	SS	STAINLESS STEEL
FL	FLOOR	STD	STANDARD
FND	FOUNDATION	STL	STEEL
FTG	FOOTING	STOR	STORAGE
FURN	FURNITURE	STP	STOP
		SUSP	SUSPENDED
GA	GAGE, GAUGE	SIM	SIMILAR
GALV	GALVANIZED	SWP	SWEEP
GB	GRAB BAR		
GB-L	"L" SHAPED GRAB BAR	T	TREAD
GB-FD	FOLD DOWN GRAB BAR	TEMP	TEMPERED
GC	GENERAL CONTRACTOR	THR	THRESHOLD
GL	GLASS/GLAZING	THRU	THROUGH
G/L	GRID LINE	TPD	TOILET PAPER DISPENSER
GWB	GYPSUM WALL BOARD	TYP	TYPICAL
GYP	GYPSUM		
		U/S	UNDERSIDE
HB	HOSE BIBB	UNIV	UNIVERSAL
HDWR	HARDWARE		
HM	HOLLOW METAL	V	VINYL
HNG	HINGE	VARN	VARNISHED
HO	HOLD OPEN	VB	VAPOUR BARRIER
HORIZ	HORIZONTAL	VCT	VINYL COMPOSITE TILE
HT	HEIGHT	VERT	VERTICAL
HVAC	HEATING, VENTILATING, AIR CONDITIONING	VEST	VESTIBULE
		VT	VINYL TILE
ID	INSIDE DIAMETER		
IMP	INSULATED METAL PANEL	W/	WITH
INFO	INFORMATION	WD	WOOD
INSUL	INSULATION / INSULATED	WSTRP	WEATHERSTRIPPING
INT	INTERIOR	WR, WR	WASHROOM
INV	INVERT	W/O	WITHOUT

LIST OF DRAWINGS

001	COVER PAGE, LIFE SAFETY PLAN, CODE MATRIX
101	SITE PLAN & DETAILS
102	SITE DETAILS
F1	FOUNDATION PLAN
F2	PIER & WALL DETAILS
F3	BURIED PIPE TESTING PIT FOUNDATION
F4	TRIAXIAL FOUNDATION
F5	CENTRIFUGE FOUNDATION PLAN & SECTION
F6	INTERIOR DECK FOUNDATION PLAN, SECTION & DETAILS
F7	FRONT ENTRANCE FOUDATION PLAN
S0	STRUCTURAL NOTES
S1	INTERIOR DECK FLOOR PLAN & DETAILS
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303	BUILDING ELEVATIONS
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307	WALL SECTIONS
308	WALL SECTIONS & DETAILS
309	EQUIPMENT SECTIONS & DETAILS
310	CANOPY SECTIONS & DETAILS
311	WINDOW & CURTAIN WALL ELEVATIONS
312	DETAILS & INTERIOR ELEVATIONS
313	MILLWORK ELEVATIONS & DETAILS
314	WINDOW & CURTAIN WALL SECTION DETAILS
315	METAL PANEL DETAILS
316	INTERIOR FINISH, DOOR SCHEDULE, FURNISHINGS
400	FLOOR PLAND PLUMBING
401	FLOOR PLANS - HVAC
402	GROUND SOURCE SYSTEM PIPING SCHEMATIC AND MECH ROOM PIPING LAYOUT
403	DETAILS
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E500	LEGEND & DETAILS
E501	SITE PLAN - ELECTRICAL
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E503	LIGHTING LAYOUT - GROUND FLOOR
E504	POWER & SYSTEMS LAYOUT - GROUND FLOOR
E505	SINGLE LINE DIAGRAM
E506	FIRE ALARM SYSTEM
E507	FIRE ALARM SYSTEM
E508	SCHEDULES
E509	SCHEDULES (CONTD.)
C0	EXISTING CONDITIONS, REMOVALS AND EROSION CONTROL
C1	PROPOSED GRADING AND DRAINAGE, SERVICING PLAN
C2	DETAILS
C3	STORMWATER DRAINAGE PLAN
C4	STORMWATER DRAINAGE PLAN
L1	LANDSCAPE PLAN
L2	LANDSCAPE DETAILS

ONTARIO BUILDING CODE MATRIX

FIRM NAME : COLBOURNE & KEMBEL, ARCHITECTS INC.
CERTIFICATE OF PRACTICE NUMBER: 3424
NAME OF PROJECT: CASTLE LABORATORY
PROJECT LOCATION: 950 JOHNSON STREET, KINGSTON, ON

ITEM	ONTARIO BUILDING CODE INFORMATION		OBC REFERENCE		
1	PROJECT DESCRIPTION ☐ CHANGE OF USE	☒ NEW ☐ ADDITION ☐ ALTERATION	☐ PART 11 11.1 TO 11.4	☒ PART 3 1.1.2 (A)	☐ PART 9 1.1.2 (A) 9.10.1.3.
2	MAJOR OCCUPANCY(S)	GROUP F DIV 2		3.1.2.1(1)	9.10.1.3.
3	BUILDING AREA (m2)	NEW: 1080 m^2		1.4.1.2. (A)	1.4.1.2. (A)
4	GROSS AREA (m2)	NEW: 1080 m^2		1.4.1.2. (A)	1.4.1.2. (A)
5	NUMBER OF STOREYS	ABOVE GRADE: 1	BELOW GRADE: N/A	1.4.1.2. (A) AND 3.2.1.1.	1.4.1.2. (A) AND 9.10.4.
6	NUMBER OF STREETS/ACCESS ROUTES	1		3.2.2.10. AND 3.2.5.	9.10.20
7	BUILDING CLASSIFICATION	3.2.2.10 GROUP F DIV 2 UP TO 4 STOREYS		3.2.2.20. - 83.	9.10.2
8	SPRINKLER SYSTEM PROPOSED	☐ ENTIRE BUILDING ☐ BASEMENT ONLY ☐ IN LIEU OF ROOF RATING ☒ NOT REQUIRED		3.2.2.20. - 83. 3.2.1.5. 3.2.2.17. INDEX	9.10.8.2. INDEX
9	STAND PIPE REQUIRED	☐ YES	☒ NO	3.2.9.	N/A
10	FIRE ALARM REQUIRED	☐ YES	☒ NO	3.2.4.	9.10.18.
11	WATER SUPPLY /SUPPLY IS ADEQUATE	☒ YES	☐ NO	3.2.5.7.	N/A
12	HIGH BUILDING	☐ YES	☒ NO	3.2.6.	N/A
13	CONSTRUCTION RESTRICTIONS ACTUAL CONSTRUCTION	☐ COMBUSTIBLE ☐ NON-COMBUSTIBLE ☒ BOTH ☐ COMBUSTIBLE ☐ NON-COMBUSTIBLE ☒ BOTH		3.2.2.25.	9.10.6
14	IMPORTANCE CATEGORY	☐ LOW ☒ MED ☐ HIGH ☐ POST-DISASTER		4.1.2.1.(3) 5.2.2.1. (2)	9.4.1.1, 4.1.2.1.(3) 5.2.2.1.(2)
	SITE CLASS (A,B,C,D,E FROM GEOTECHNICAL REPORT)	C		4.1.8.4	4.1.8.4
	EARTHQUAKE IMPORTANT FACTOR (IE)	1.0		T.4.1.8.5	T.4.1.8.5
	ACCELERATION BASE COEFFICIENT (Fa)	1.0		T.4.1.8.4.B	T.4.1.8.4.B
	5% SPECTRAL RESPONSE ACCELERATIONS Sa (0.2)	0.161		4.1.8.4.1.(1) & SB-1, T.1.2.	4.1.8.4.1.(1) & SB-1, T.1.2.
	SEISMIC HAZARD INDEX	NORMAL		4.1.8.18.(1)	4.1.8.18.(1)
	DESIGN FOR SEISMIC REQUIRED FOR CATEGORIES 6 TO 21. TABLE 4.1.1.18. (EQUAL OR ABOVE 0.357) (YES OR NO)	NO		4.1.8.18.(2)	4.1.8.18.(2)
15	MEZZANINE(S) AREA (M2)	N/A		3.2.1.1(3)-(8).	9.10.4.1
16	OCCUPANT LOAD BASED ON OCCUPANCY: A2 - ASSEMBLY	☐ m2/PERSON ☒ DESIGN OF BUILDING LOAD 18 PERSONS		3.1.17.	9.9.1.3
17	BARRIER FREE DESIGN	☒ YES	☐ NO (EXPLAIN)	3.8.	9.5.2.
18	HAZARDOUS SUBSTANCES	☐ YES	☒ NO	3.3.1.2. AND 3.3.1.19.	9.10.1.3.(4)
19	REQUIRED FIRE RESISTANCE RATING SEE NOTE #1	HORIZONTAL ASSEMBLIES FRR (HOURS) / LISTED DESIGN NUMBER OR DESCRIPTION (SB-2)		3.2.2.25	9.10.8 and 9.10.9
	FLOORS	3/4 HOURS	SEE NOTE 1		
	ROOF	3/4 HOURS	IF COMBUSTIBLE		
	MEZZANNE	3/4 HOURS	N/A		
	FRR OF SUPPORTING MEMBERS		LISTED DESIGN NUMBER OR DESCRIPTION (SB-2)		
	FLOORS	3/4 HOURS	SEE NOTE 1		
	ROOF	3/4 HOURS	IF COMBUSTIBLE		
	MEZZANNE	3/4 HOURS	N/A		

NOTE #1: SINCE THIS PROJECT HAS A NON-COMBUSTIBLE ROOF, HAS NO MEZZANNE, AND HAS NO ABOVE GRADE FLOOR, THE ABOVE FRR REQUIREMENTS FROM OBC 3.2.2.10 ARE NOT APPLICABLE TO THIS PROJECT. HOWEVER, OBC TABLE 3.1.3.1 REQUIRES A 1.5-HR FRR SEPARATION BETWEEN THE STORAGE GARAGE AND THE OTHER OCCUPANCIES WITHIN THIS BUILDING. THE FOLLOWING ASSEMBLIES WILL BE USED:

WALLS: ULC U301 (2 HR) — 2 LAYERS 16mm TYPE 'X' GWB BOTH SIDES OF 38x89 WOOD STUDS @406mm O.C. 89mm MINERAL WOOL INSULATION

CEILING: ULC L538 (2 HR) — 3 LAYERS 16mm TYPE 'C' CSG, CERTAINTEED GYPSUM INC. RESILIENT FURRING CHANNELS @ 406 O.C. 3 LAYERS 16mm TYPE 'X' GWB, ENDS STAGGERED WOOD I' JOISTS MIN 38x235 @ 450 O.C. MAX. SUPPORTING 16mm THICK WOOD STRUCTURAL PANELS MIN. GRADE UNDERLAYMENT OR SIMPLE FLOOR FACE GRAIN PERPENDICULAR TO JOISTS & JOISTS STAGGERED. REFER TO STRUCTURAL FOR A DESIGNED I-JOISTS.

ITEM													
20	SPATIAL SEPARATION - CONSTRUCTION OF EXTERIOR WALLS											TABLE 3.2.3.1.(C) AND 3.2.3.7.	9.10.14
	WALL	AREA OF EBF (m2)	L.D. (m)	L/H OR H/L	PERMITTED MAX % OF OPENINGS	PROPOSED % OF OPENINGS	FRR (HOURS)	LISTED DESIGN OR DESCRIPTION	EBF CLADDING PERMITTED	EBF CLADDING ACTUAL	EBF CONSTRUCTION PERMITTED	EBF CONSTRUCTION ACTUAL	COMMENTS
	NORTH	297	13.4m	3:1 to 10:1	26.5%	24.5%	45 MIN	SB-2	NON-COMBUSTIBLE	NON-COMBUSTIBLE	NON-COMBUSTIBLE	NON-COMBUSTIBLE	
	EAST	222	14.5m	3:1 to 10:1	36%	29.1%	45 MIN	SB-2	NON-COMBUSTIBLE	NON-COMBUSTIBLE	COMBUSTIBLE NON-COMBUSTIBLE	NON-COMBUSTIBLE	
	SOUTH	292	45.6m	3:1 to 10:1	100%	7.7%	--	--	COMBUSTIBLE NON-COMBUSTIBLE	NON-COMBUSTIBLE	COMBUSTIBLE NON-COMBUSTIBLE	NON-COMBUSTIBLE	
	WEST	236	29.6m	3:1 to 10:1	100%	20.7%	--	--	COMBUSTIBLE NON-COMBUSTIBLE	NON-COMBUSTIBLE	COMBUSTIBLE NON-COMBUSTIBLE	NON-COMBUSTIBLE	
21	TRAVEL DISTANCE: MAX PERMITTED: 30m ACTUAL PROVIDED: 30m												
22	REQUIRED WIDTHS: STAIRS AND RAMPS: MIN 900mm WIDTH, MIN. 2050mm CLEAR HEIGHT OVER STAIRS — ACTUAL: N/A EXIT DOORS: MIN 800mm WIDTH, MIN. 2030mm CLEAR HEIGHT (1980mm CLEAR UNDER CLOSERS) — ACTUAL 1015 WIDE X 2150 TALL CORRIDORS: MIN 1100mm WIDTH, MIN. 2100mm CLEAR HEIGHT — ACTUAL N/A												
23	SB-10 REQUIREMENTS: CLIMATE ZONE: 6 ROOFS: MIN. R-25 + R-11 + R-11 LINER SYSTEM WALLS ABOVE GRADE: MIN. R-13 + R-19 CONTINUOUS INSULATION FLOORS: MIN. R-15 FOR 1220mm (F 0.46 MIN)								PROVIDED ROOFS: R-48 WALLS ABOVE GRADE: R-49 CONTINUOUS INSULATION FLOORS: R-15 FOR 1220mm (F 0.45) R-5 CONTINUOUS (F 0.46				
24	WASHROOM CALCULATIONS: NUMBER OF PERSONS OF EACH SEX: 9 AS PER OBC 3.7.4.9, ONE WATER CLOSET & LAVATORY IS REQUIRED FOR EACH SEX. PROVIDED: 1 UNISEX WASHROOM 1 UNISEX UNIVERSAL WASHROOM												
25	OTHER:												

NOTES:

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No.	BY	REVISIONS/SUBMISSIONS	DATE
2	RHM	ISSUED FOR TENDER, PERMIT, AND CONSTRUCTION	2023.05.11
1	RHM	RE-ISSUED FOR SITE PLAN CONTROL	2023.02.07

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1340 ARLINGTON PARK PLACE
KINGSTON, ONTARIO K7M 8M8
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PROJECT
CASTLE LABORATORY

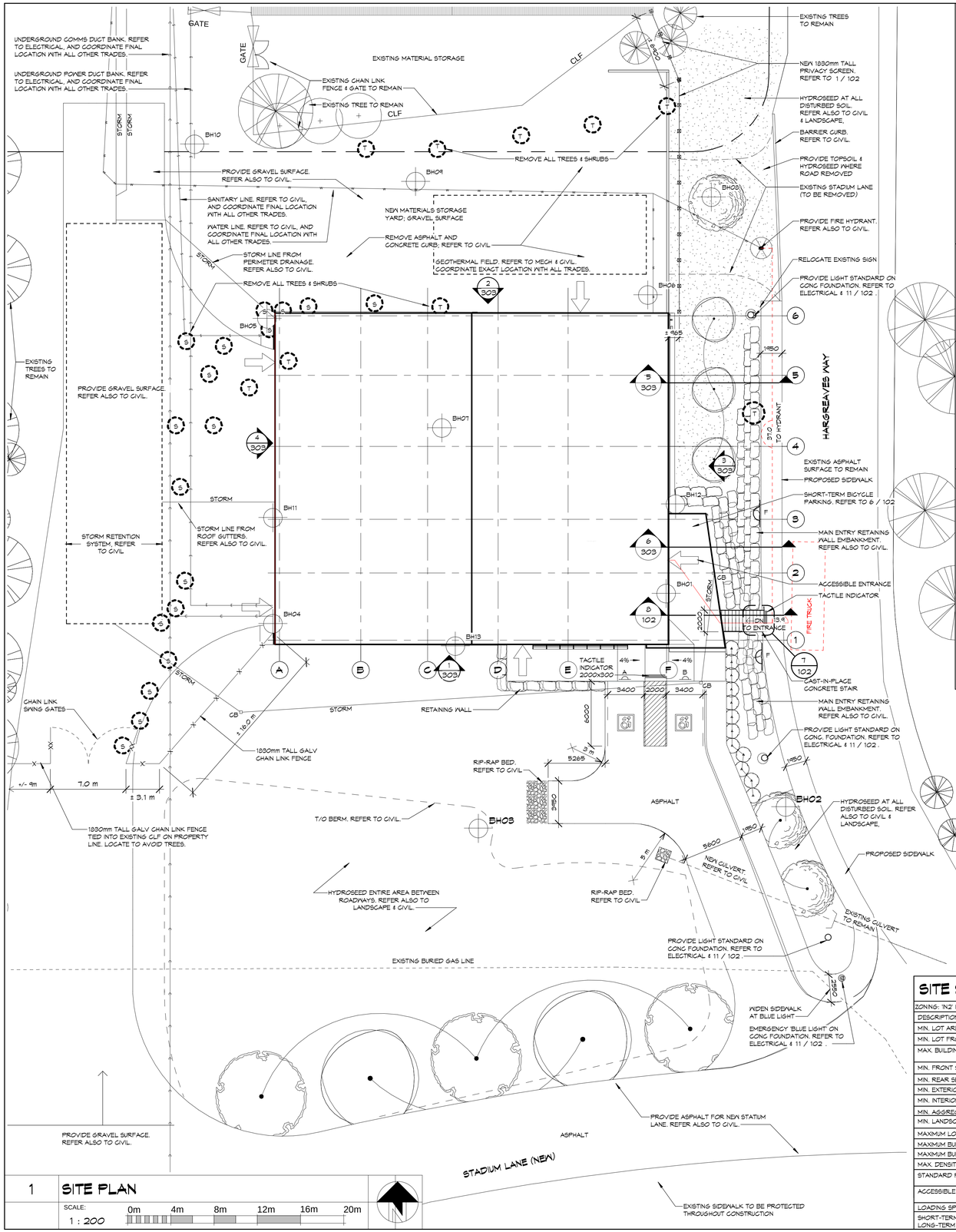
TENDER NO: Q-2022-031-EL
262 HARGREAVES WAY, KINGSTON, ON

DRAWING
COVER PAGE, LIFE SAFETY PLAN, CODE MATRIX

SCALE
As indicated

PROFESSIONAL SEAL
ONTARIO ASSOCIATION OF ARCHITECTS
RHONDA LORRAINE HORNE-MCCRAY
LICENCE 8076
NOT FOR PERMIT OR CONSTRUCTION WITHOUT SEAL AND ISSUED NOTE

DRAWN	DATE
TJK	DEC 2021
CHECKED	PRINTED
RHM	
REVIEWED	DRAWING No.
RHM	001
PROJECT No.	
21075	



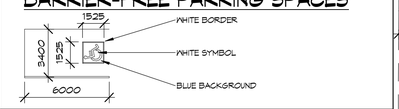
1 SITE PLAN

SCALE: 1 : 200 (0m 4m 8m 12m 16m 20m)

LEGEND

- ENTRANCE
- GRAVEL SURFACE
- MH — MANHOLE - REFER TO CIVIL
- CB — CATCH BASIN - REFER TO CIVIL
- HP — HYDRO POLE
- B — STEEL BOLLARD FILLED WITH CONCRETE. REFER TO 11 / 102
- T/S — REMOVE EXISTING TREE (T) OR SHRUB (S), C/W ROOT BALL
- NEW EXTERIOR LIGHT. REFER TO ELECTRICAL DRAWING.
- BHXX — BORE HOLE MARKER. REFER TO GEOTECHNICAL REPORT.

BARRIER-FREE PARKING SPACES



SIGNAGE

STREET SIGNAGE TO BE MOUNTED ON 44x44 GALV STEEL PERFORATED POSTS, SET 1200mm INTO GRADE, INSTALLED PLUMB.

- A — SIGN TYPE A: BARRIER FREE REGULATORY SIGN "VAN ACCESSIBLE"
- B — SIGN TYPE : BARRIER FREE REGULATORY SIGN
- F — SIGN TYPE F: FIRE ROUTE SIGNAGE "FIRE ROUTE TOW AWAY ZONE" WITH PICTORIALS SIGN. MOUNTED HEIGHT BETWEEN 1.9 TO 2.5 METERS FROM GRADE TO BOTTOM EDGE.

GENERAL SITE NOTES:

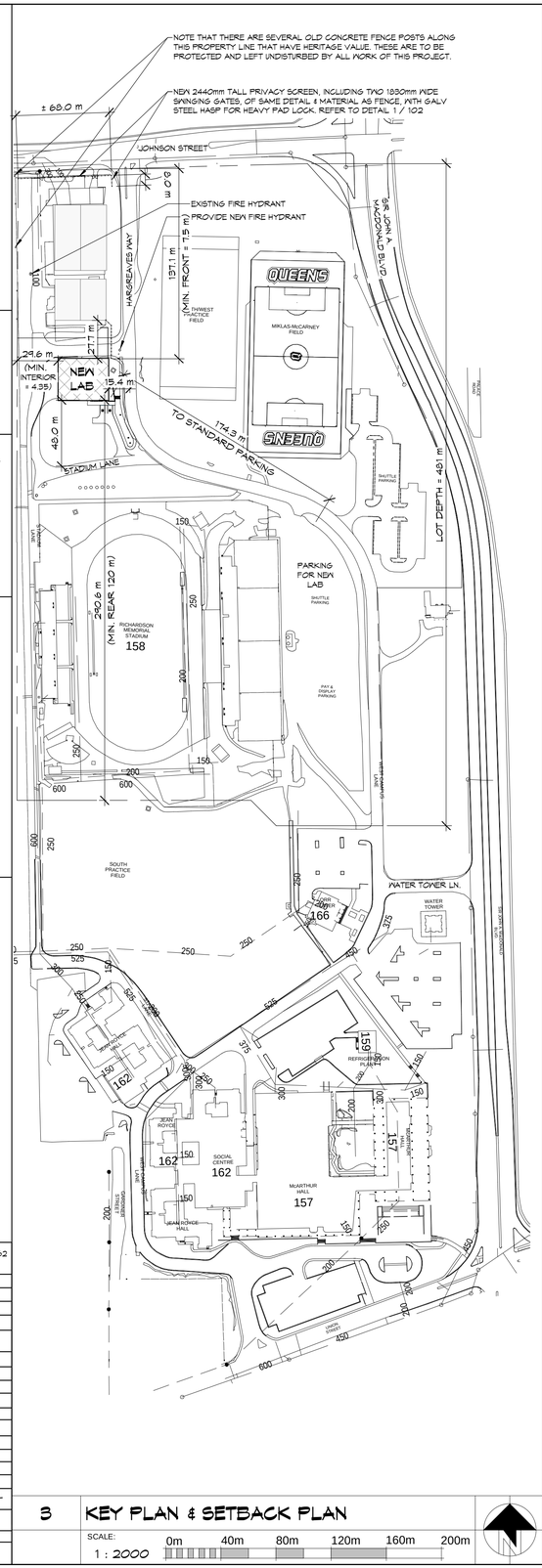
1. PROVIDE ALL NECESSARY TRENCHING AND ROCK REMOVAL FOR STRUCTURAL, MECHANICAL & ELECTRICAL SCOPE. HATCHED & LABELED AREAS IN PLAN DELINEATE APPROXIMATE EXCAVATION AREAS FOR MECHANICAL AND/OR ELECTRICAL WORK, BUT ARE NOT MEANT TO BE EXHAUSTIVE. REFER ALSO TO STRUCTURAL, MECHANICAL, ELECTRICAL & CIVIL FOR ALL EXCAVATION & TRENCHING, AND FULLY COORDINATE ON SITE FOR FULL EXTENT AND EXACT LOCATION OF TRENCHING.
2. PROVIDE CONTINUOUS SILT FENCE AT THE DOWNSLOPE SIDE OF WORK SITE, AND ANY EXCAVATED AREAS AND MATERIALS STORAGE AREA.
3. ALL ADJACENT BUILDINGS WILL BE OCCUPIED THROUGHOUT CONSTRUCTION. COORDINATE WITH USER TO ENSURE ACCESS TO ALL ADJACENT BUILDINGS, AND TO MINIMIZE INTERRUPTIONS OF SERVICES DURING CONSTRUCTION. FIRE ACCESS TO ALL ADJACENT BUILDINGS MUST BE PRESERVED THROUGHOUT CONSTRUCTION.
4. REMOVE ALL ROCK AS NECESSARY FOR INSTALLATION OF ALL ASPECTS OF WORK. REFER TO GEOTECHNICAL REPORT AND TO BUILDING SECTIONS FOR APPROXIMATE LOCATIONS OF BEDROCK.
5. BACKFILL ALL EXCAVATIONS WITH FREE-DRAINING GRANULAR, WITH A MINIMUM OF 300mm TOPSOIL.
6. LAYDOWN SPACE ON SITE WILL BE ARRANGED WITH OWNER, AND MUST NOT INTERFERE WITH USE OF NEARBY BUILDINGS OR FIRE TRUCK ACCESS.
7. FOR MORE INFORMATION ON BORE HOLES REFER TO GEOTECHNICAL REPORT. CONTRACTOR SHALL ASSUME THAT BEDROCK AND SOIL CONDITIONS IN GENERAL ARE SIMILAR TO CONDITIONS INDICATED BY GEOTECHNICAL REPORT.
8. RAINWATER LEADERS ARE TO DISCHARGE INTO STORMWATER MANAGEMENT SYSTEM. REFER ALSO TO CIVIL.
9. PROVIDE TACTILE WALKING SURFACE INDICATORS WHERE SHOWN IN PLAN, REFER ALSO TO CIVIL PLANS FOR TACTILE INDICATOR AT CROSSWALK.

SITE STATISTICS

CITY OF KINGSTON BY-LAW NO. 2022-62

ZONING: IN2 INSTITUTIONAL MAJOR ZONE - AREA G — USE: POST-SECONDARY INSTITUTION

DESCRIPTION	PERMITTED/REQ'D	PROVIDED	COMMENTS
MIN. LOT AREA	N/A	114,940m²	
MIN. LOT FRONTAGE	N/A	253m	ON JOHNSON STREET
MAX. BUILDING HEIGHT	LESSER OF 10.7 OR 3 STOREYS	8.7m 1 STOREY	
MIN. FRONT SETBACK	7.5m	137.3m	
MIN. REAR SETBACK	120m	290.6m	481m LOT DEPTH X 25%
MIN. EXTERIOR SETBACK	4.35m	210.6m	50% OF BUILDING HEIGHT
MIN. INTERIOR SETBACK	4.35m	24.6m	50% OF BUILDING HEIGHT
MIN. AGGREGATE INT. SETBACKS	N/A	N/A	
MIN. LANDSCAPED OPEN SPACE	N/A	N/A	
MAXIMUM LOT COVERAGE	N/A	N/A	
MAXIMUM BUILDINGS PER LOT	N/A	N/A	
MAXIMUM BUILDING DEPTH	N/A	N/A	
MAX. DENSITY OF HABITATION UNITS	51/HECTARE	N/A	
STANDARD PARKING SPACES	NONE REQ'D	300 SPACE PARKING LOT LOCATED NEARBY WILL PROVIDE STANDARD PARKING FOR NEW LAB	
ACCESSIBLE PARKING SPACES:	NONE REQ'D (NO CLASSROOMS)	1 TYPE 'A' ACCESSIBLE SPACE 1 TYPE 'B' ACCESSIBLE SPACE	
LOADING SPACES	NONE REQ'D	N/A	
SHORT-TERM BICYCLE PARKING	NONE REQ'D	4 PROVIDED	
LONG-TERM BICYCLE PARKING	NONE REQ'D	N/A	



3 KEY PLAN & SETBACK PLAN

SCALE: 1 : 2000 (0m 40m 80m 120m 160m 200m)

NOTES:

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3	RHM	ISSUED FOR TENDER, PERMIT, AND CONSTRUCTION	2023.05.11
2	RHM	RE-ISSUED FOR SITE PLAN CONTROL	2023.05.09
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info@c&a.ca www.c&a.ca

PROJECT
CASTLE LABORATORY

TENDER NO: Q-2022-031-EL

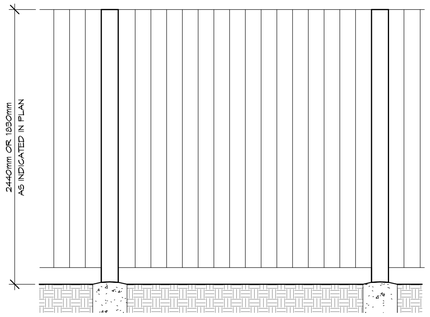
262 HARGREAVES WAY, KINGSTON, ON

DRAWING
SITE PLAN & DETAILS

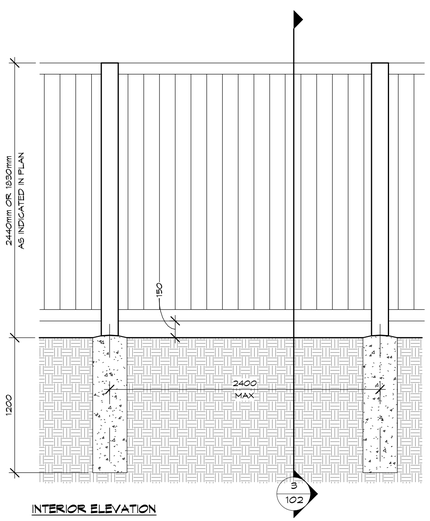
SCALE: As indicated

PROFESSIONAL SEAL: ONTARIO ASSOCIATION OF ARCHITECTS — RHONDA LORRAINE HORNE-MCCOY, LICENCE 6075 — NOT FOR PERMIT OR CONSTRUCTION WITHOUT SEAL AND ISSUED NOTE

DRAWN	DATE
TB	DEC 2021
CHECKED: TB	PRINTED
REVIEWED: TB	DRAWING No. 101
PROJECT No. 21075	



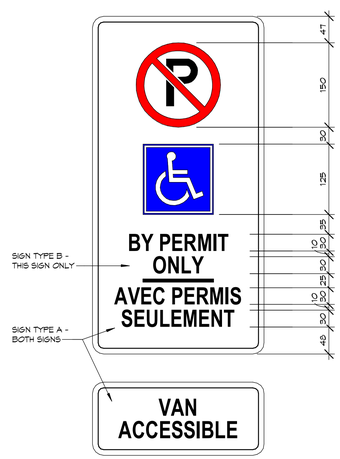
EXTERIOR ELEVATION



INTERIOR ELEVATION

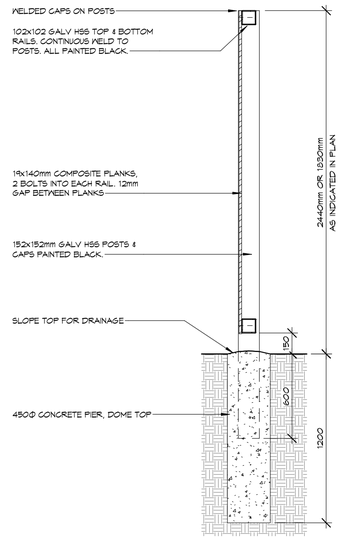
1 PRIVACY SCREEN ELEVATIONS

SCALE: 1 : 25 — 0m 0.5m 1m 1.5m 2m 2.5m



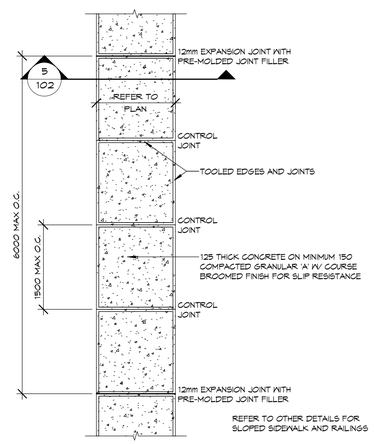
2 BARRIER FREE PARKING SIGNS

SCALE: 1 : 5 — 0m 0.1m 0.2m 0.3m 0.4m 0.5m



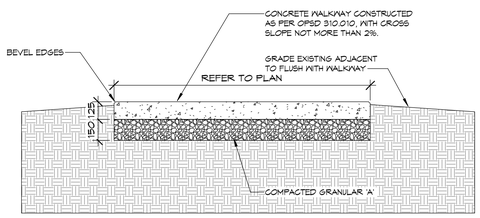
3 PRIVACY SCREEN SECTION DETAIL

SCALE: 1 : 20 — 0m 0.5m 1m 1.5m 2m 2.5m



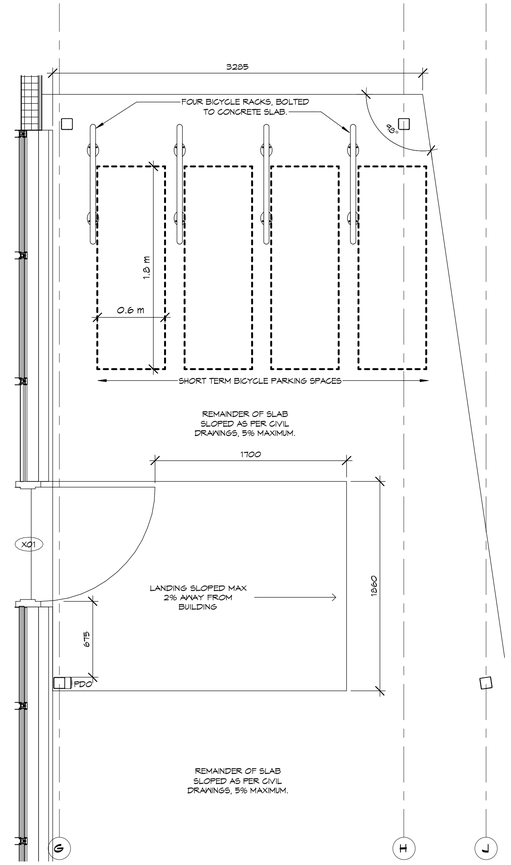
4 TYPICAL SIDEWALK PLAN DETAIL

SCALE: 1 : 50 — 0m 1m 2m 3m 4m 5m



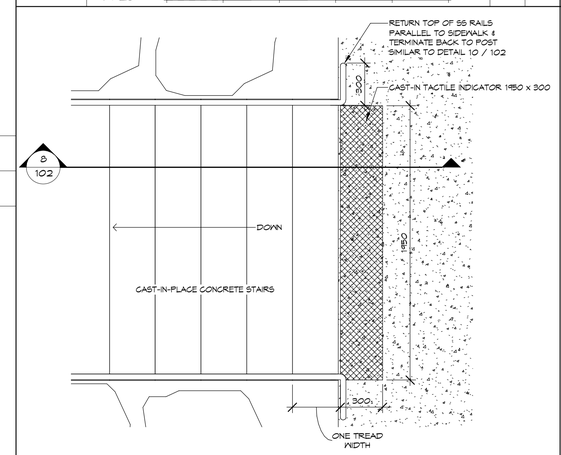
5 TYPICAL SIDEWALK SECTION DETAIL

SCALE: 1 : 20 — 0m 0.4m 0.8m 1.2m 1.6m 2m



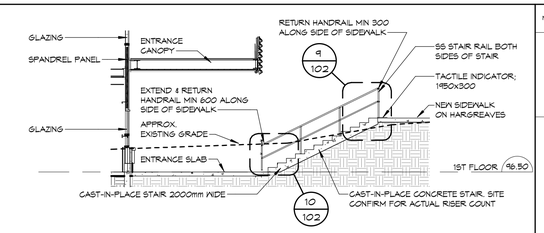
6 ENTRANCE SLAB DETAIL PLAN

SCALE: 1 : 25 — 0m 0.5m 1m 1.5m 2m 2.5m



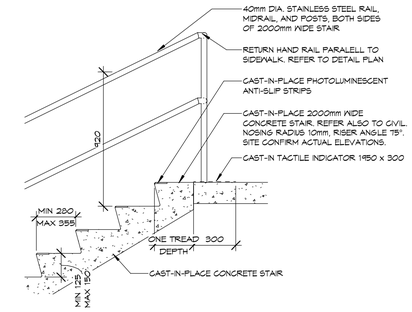
7 STAIR PLAN DETAIL

SCALE: 1 : 20 — 0m 0.4m 0.8m 1.2m 1.6m 2m



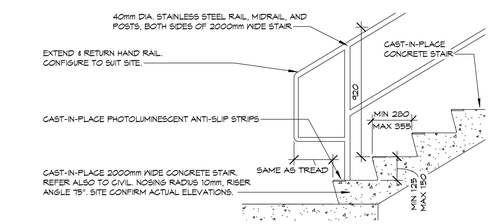
8 NORTH GRADE STAIR

SCALE: 1 : 100 — 0m 2m 4m 6m 8m 10m



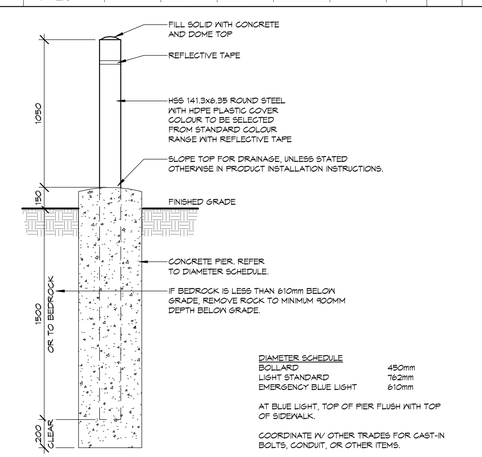
9 TOP EXT STAIR DETAIL SECTION

SCALE: 1 : 20 — 0m 2m 4m 6m 8m 10m



10 BOTTOM EXT STAIR DETAIL SECTION

SCALE: 1 : 20 — 0m 2m 4m 6m 8m 10m



DIAMETER SCHEDULE

BOLLARD	450mm
LIGHT STANDARD	762mm
EMERGENCY BLUE LIGHT	610mm

AT BLUE LIGHT, TOP OF PIER FLUSH WITH TOP OF SIDEWALK.

COORDINATE W/ OTHER TRADES FOR CAST-IN BOLTS, CONDUIT, OR OTHER ITEMS.

11 TYPICAL PIER FOUNDATION DETAIL

SCALE: 1 : 20 — 0m 0.4m 0.8m 1.2m 1.6m 2m

NOTES:

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DRAWINGS MUST NOT BE SCALED. VERIFY DIMENSIONS ON SITE

No.	BY	REVISIONS/SUBMISSIONS	DATE
3	RHM	ISSUED FOR TENDER, PERMIT, AND CONSTRUCTION	2023.05.11
2	RHM	RE-ISSUED FOR SITE PLAN CONTROL	2023.05.09
1	RHM	RE-ISSUED FOR SITE PLAN CONTROL	2023.02.07

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PROJECT
CASTLE LABORATORY

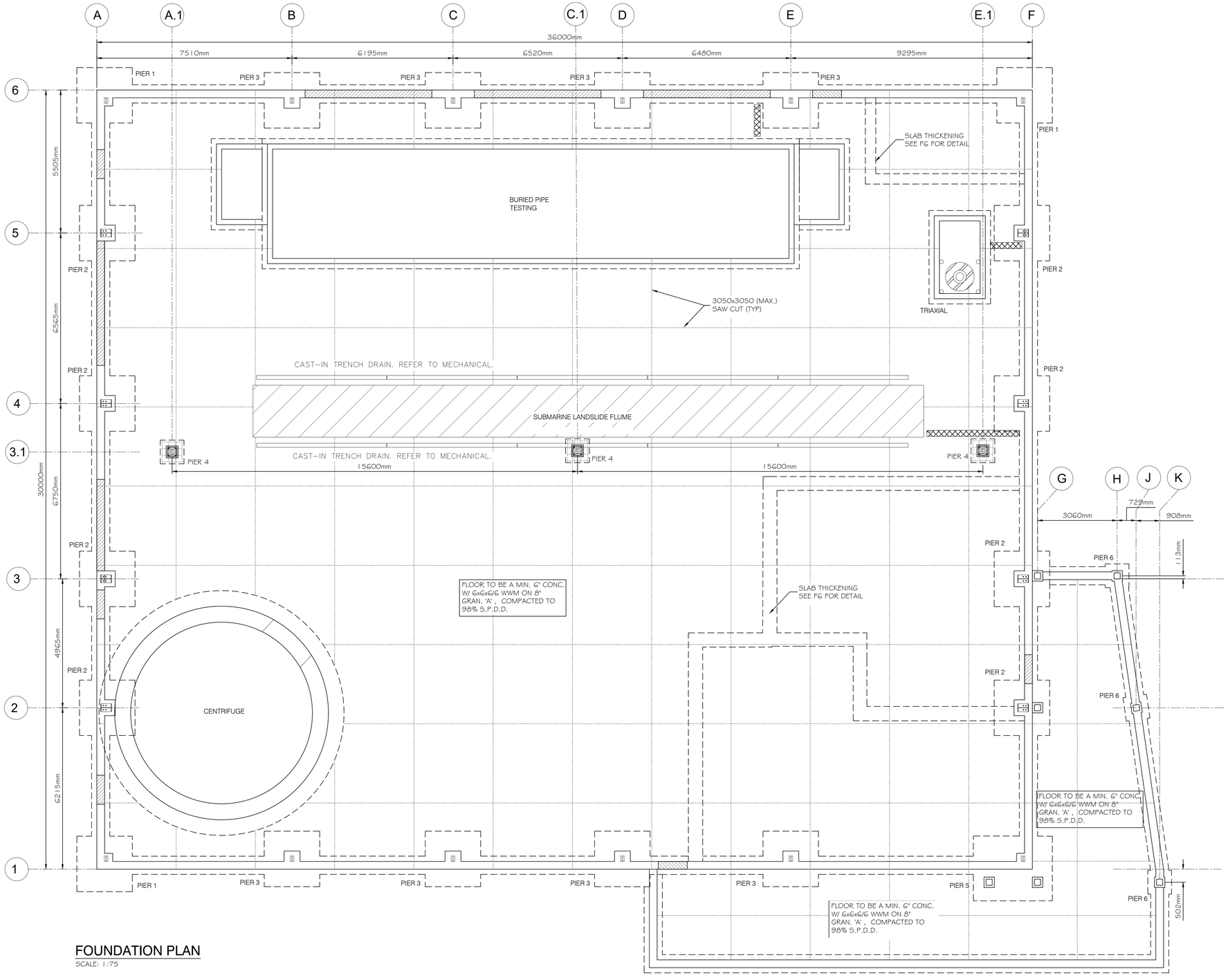
TENDER NO: Q-2022-031-EL
262 HARGREAVES WAY, KINGSTON, ON

DRAWING
SITE DETAILS

SCALE
As indicated

PROFESSIONAL SEAL
ONTARIO ASSOCIATION OF ARCHITECTS
RHONDA LORRAINE HORNE-MCCOAY
LICENCE 6075
NOT FOR PERMIT OR CONSTRUCTION WITHOUT SEAL AND ISSUED NOTE

DRAWN	DATE
TJK	DEC 2021
CHECKED	PRINTED
RHM	
REVIEWED	DRAWING No.
RHM	102
PROJECT No.	
21075	



FOUNDATION PLAN

SCALE: 1:75

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NOTE:
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No.	By	Date	Revisions
1.	TB	2023 05 11	FOR TENDER & PERMIT

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NORTH
PROJECT

LICENSED PROFESSIONAL ENGINEER
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100172021
2023 05 12
PROVINCE OF ONTARIO

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Project Title:
CASTLE LABORATORY
370 HARGREAVES WAY,
Kingston, Ontario

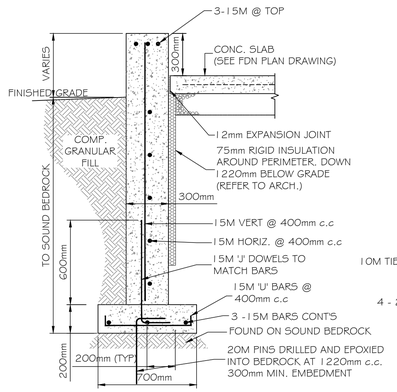
Drawing Title:
FOUNDATION PLAN

Design:	Checked:	Approved:	Project No.:
TB	ED	BDC	9996
Drawn: TB	Checked: BDC	Date: 2022 05 04	Contract No.:

Scale:
Horizontal: AS SHOWN
Vertical: AS SHOWN

Drawing No.: F1

REV DATE: 5/12/2023



TYP. WALL SECTION

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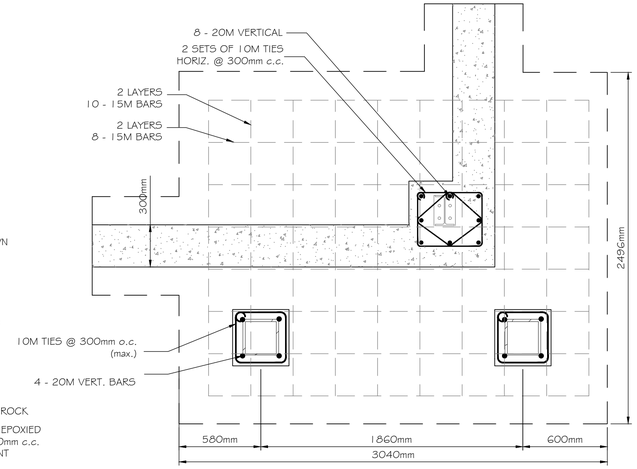

PIER 5

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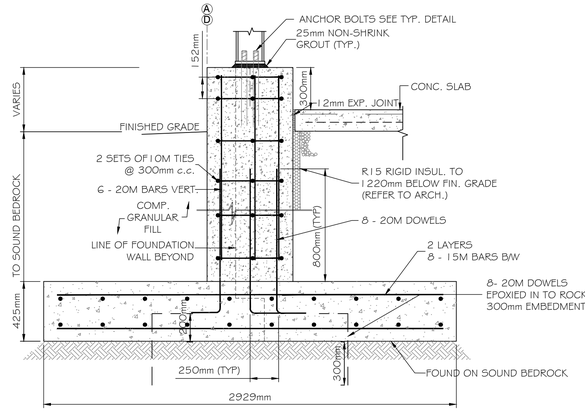

PIER 5- SECTION

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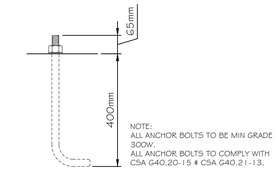
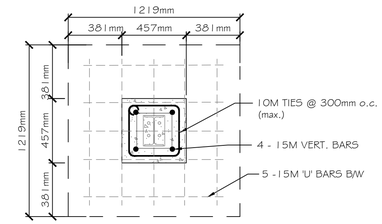


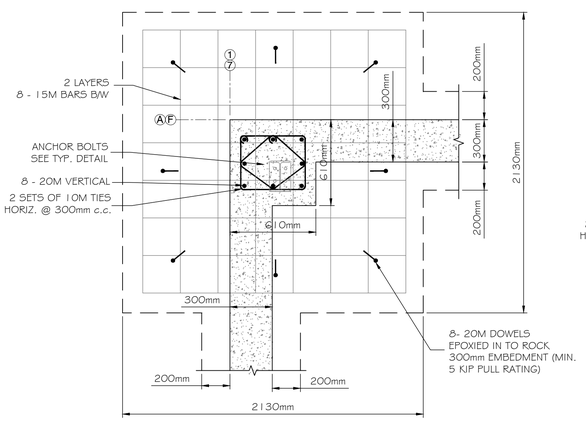
TYP. ANCHOR BOLT DETAIL

SCALE: 1:10



PIER 6

SCALE: 1:20



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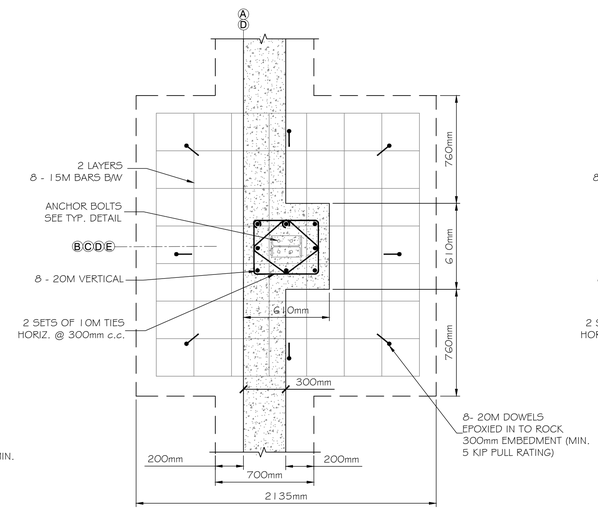
SCALE: 1:20



PIER 2

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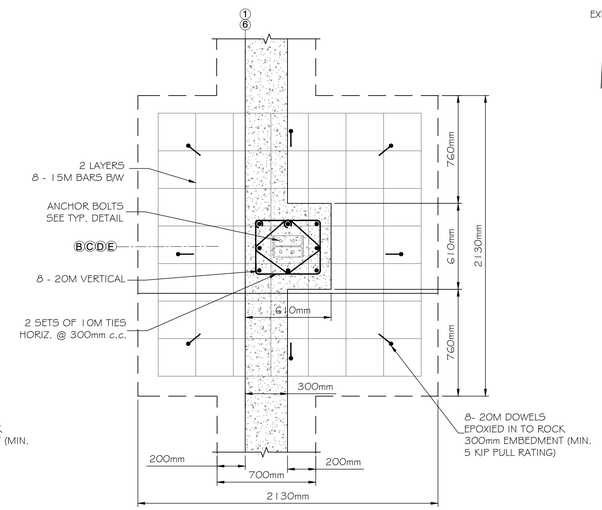

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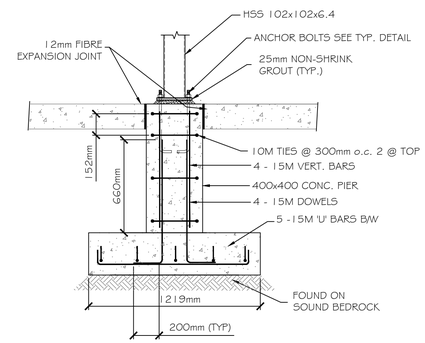

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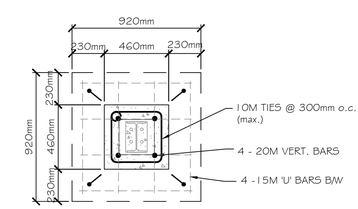

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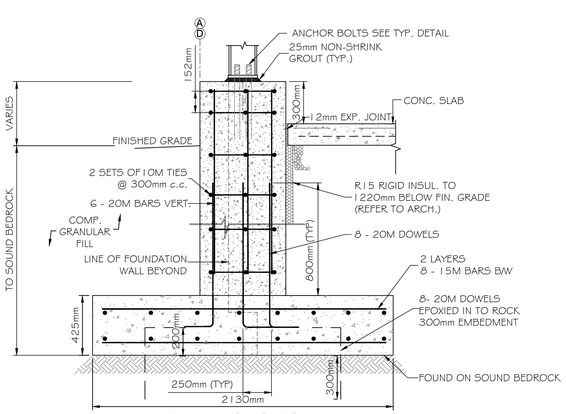

PIER 1- SECTION

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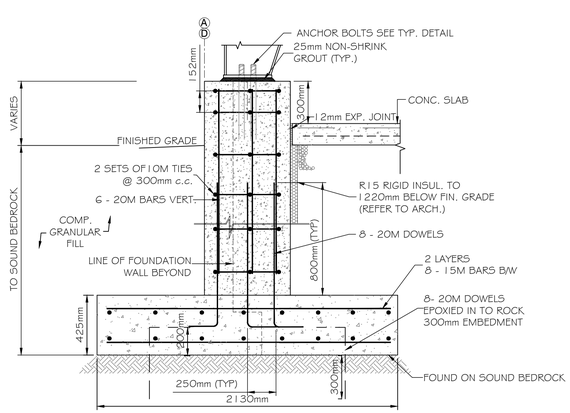

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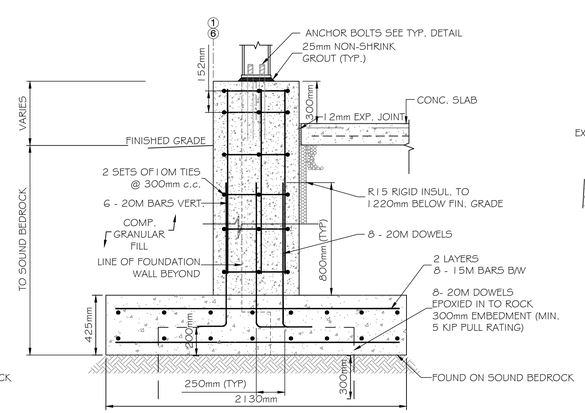

PIER 3- SECTION

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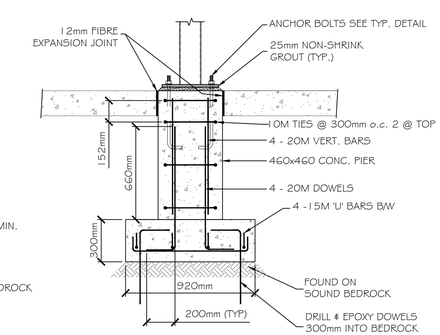

PIER 4 SECTION

SCALE: 1:20

NOTE:
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COLBOURNE & KEMBEL, ARCHITECTS INC.
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No.	By	Date	Revisions
1	TB	2023 05 11	FOR TENDER & PERMIT

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LICENSED PROFESSIONAL ENGINEER
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100172021
2023 05 12
PROVINCE OF ONTARIO

EASTERN ENGINEERING GROUP INC.
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Facsimile: (613) 345-0008
www.EastEng.com

Project Title:

CASTLE LABORATORY

370 HARGREAVES WAY,
Kingston, Ontario

Drawing Title:

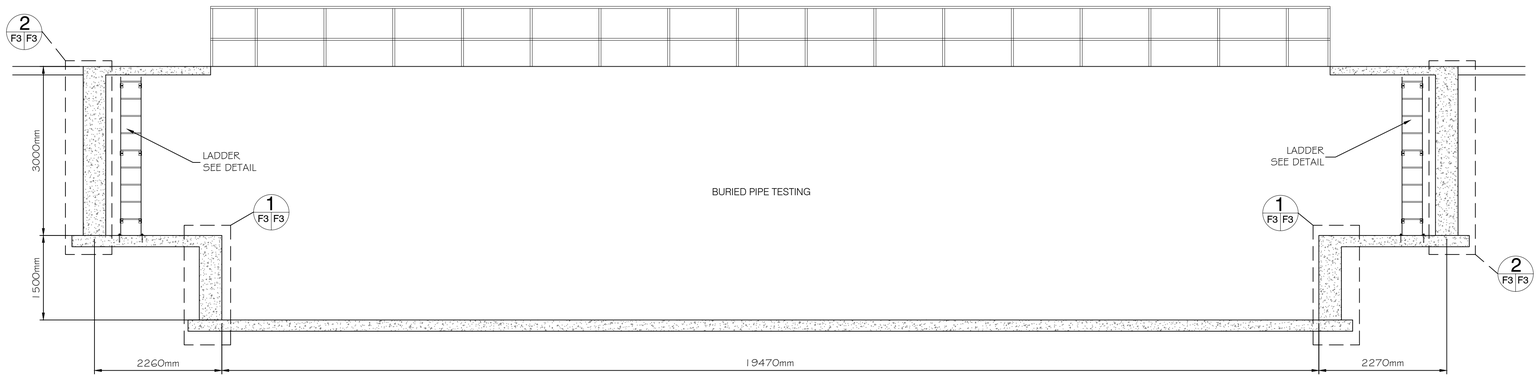
PIER & WALL DETAILS

Design:	Checked:	Approved:	Project No.:
TB	ED	BDC	9996
Drawn:	Checked:	Date:	Contract No.:
TB	BDC	2022 05 04	

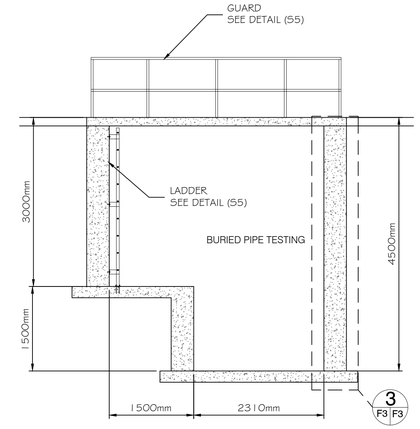
Scale: Horizontal: AS SHOWN; Vertical: AS SHOWN

Drawing No.: F2

REV DATE: 5/12/2023



3 F3 F3 SECTION
SCALE: 1:50



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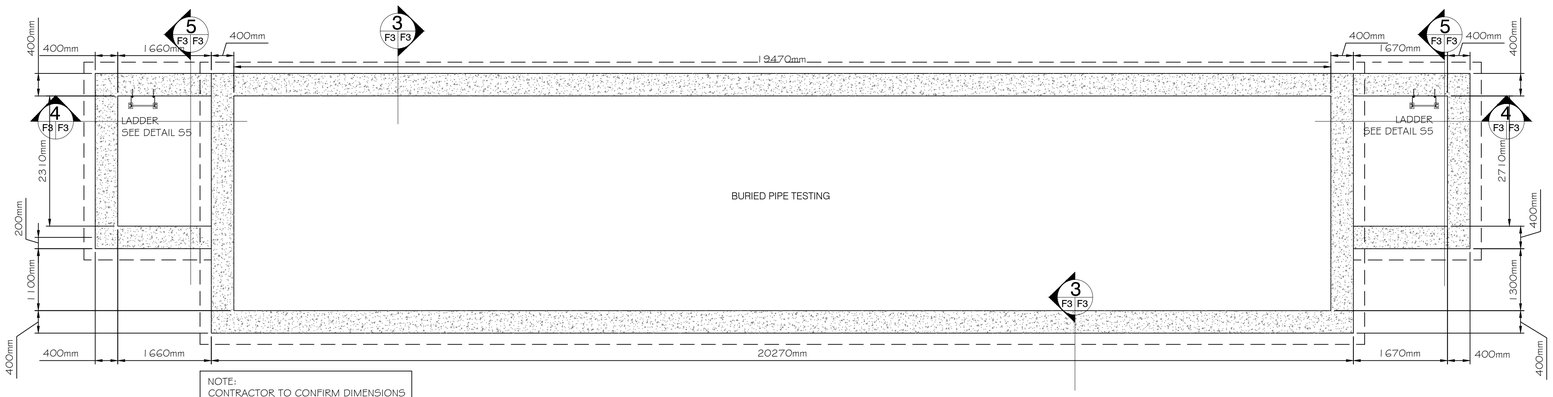
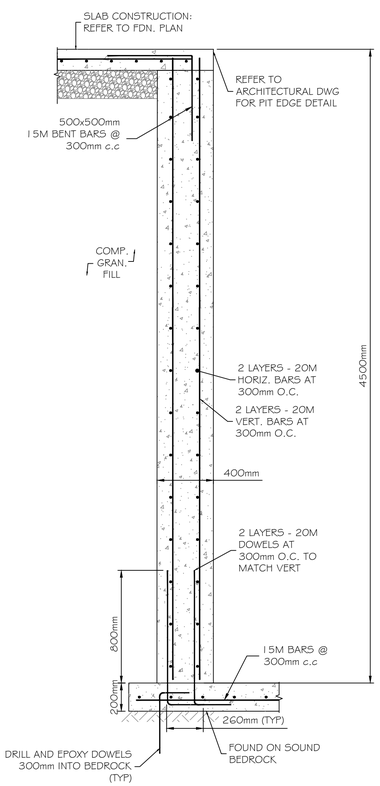


NOTE:
CONTRACTOR TO CONFIRM DIMENSIONS AND REFER TO GEO-TECH REPORT FOR REMOVAL OF ROCKS TO ACHIEVE REQUIRED PIT DEPTH

BURIED PIPE TESTING FOUNDATION PLAN

SCALE: 1:50



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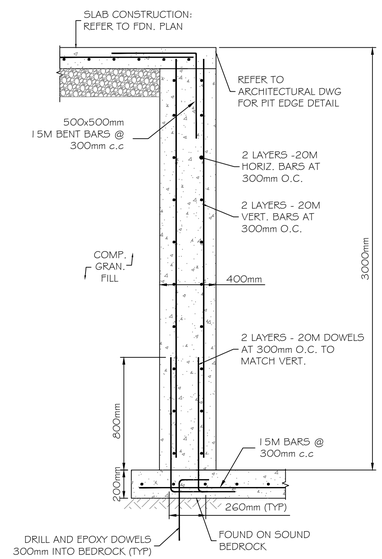

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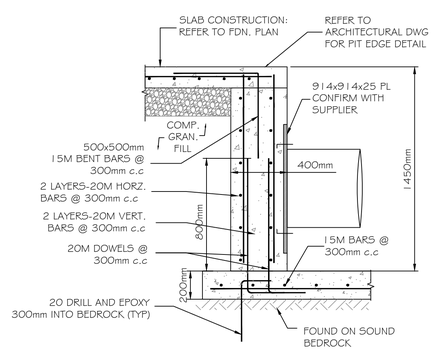

1 F3 F3 FOUNDATION SECTION
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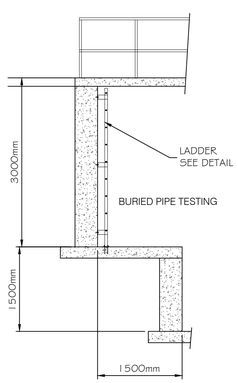

5 F3 F3 SECTION
SCALE: 1:50

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COLBOURNE & KEMBEL, ARCHITECTS INC.
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No.	By	Date	Revisions
1	TB	2023 05 11	FOR TENDER & PERMIT

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PROJECT NORTH

LICENSED PROFESSIONAL ENGINEER
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100172021
2023 05 12
PROVINCE OF ONTARIO

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Project Title:
CASTLE LABORATORY
370 HARGREAVES WAY,
Kingston, Ontario

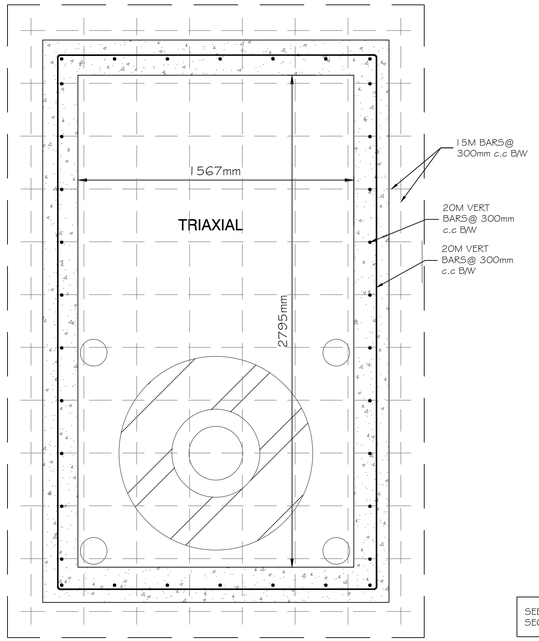
Drawing Title:
BURIED PIPE TESITNG PIT FOUNDATION

Design: TB	Checked: ED	Approved: BDC	Project No.: 9996
Drawn: TB	Checked: BDC	Date: 2022 05 04	Contract No.:

Scale:
Horizontal: AS SHOWN
Vertical: AS SHOWN

Drawing No.: F3

REV DATE: 5/12/2023



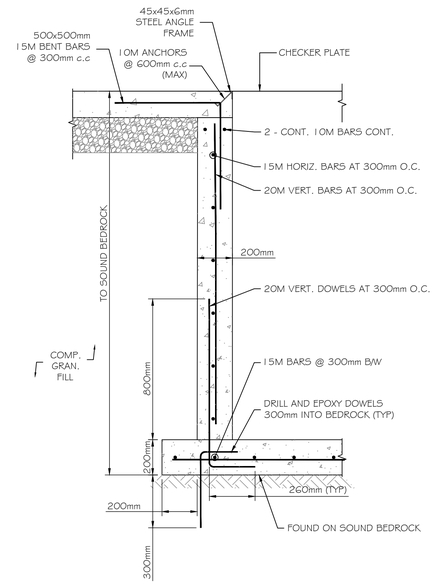
TRIAXIAL FOUNDATION PLAN

SCALE: 1:16

SEE DWG-309-142 FOR EQUIPMENT SECTION AND DETAIL

COORDINATE FINAL PIT DIMENSIONS, INCLUDING DEPTH, WITH THE TRI-AXIAL MANUFACTURER

PLEASE COMFIRM DINENSIONS



SECTION 6 (F4 | F4)

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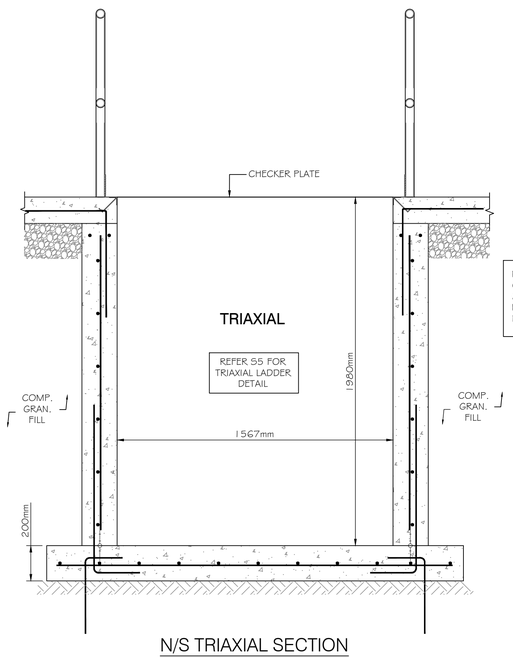
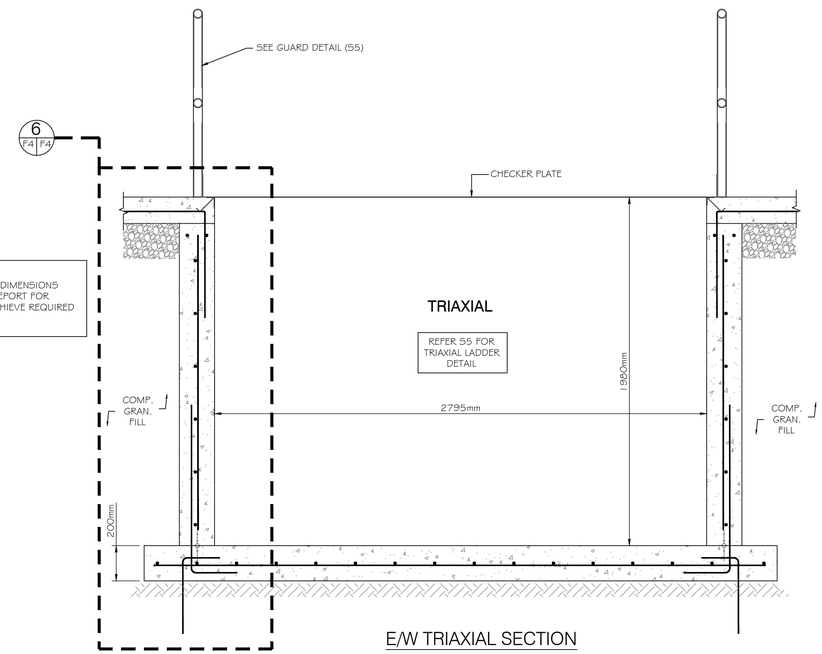


N/S TRIAXIAL SECTION

SCALE: 1:16

NOTE:
CONTRACTOR TO CONFIRM DIMENSIONS AND REFER TO GEO-TECH REPORT FOR REMOVAL OF ROCKS TO ACHIEVE REQUIRED PIT DEPTH



E/W TRIAXIAL SECTION

SCALE: 1:16

COLBOURNE & KEMBEL, ARCHITECTS INC.
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NOTE:
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No.	By	Date	Revisions
1	TB	2023 05 11	FOR TENDER & PERMIT

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PROJECT NORTH

LICENSED PROFESSIONAL ENGINEER
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100172021
2023 05 12
PROVINCE OF ONTARIO

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Project Title:

CASTLE LABORATORY

370 HARGREAVES WAY,
Kingston, Ontario

Drawing Title:

TRIAXIAL FOUNDATION

Design:	Checked:	Approved:	Project No.:
TB	ED	BDC	9996
Drawn:	Checked:	Date:	Contract No.:
TB	BDC	2022 05 04	

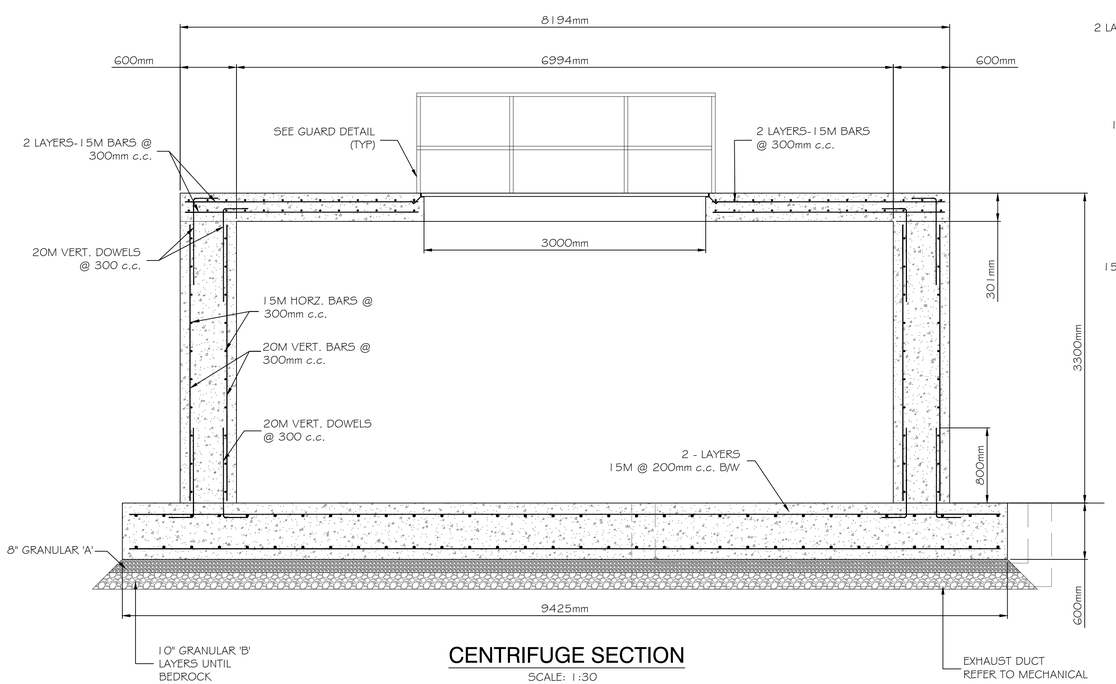
Scale:
Horizontal: AS SHOWN
Vertical: AS SHOWN

Drawing No.:

F4

REV DATE: 5/12/2023

NOTE:
CO-ORDINATE FINAL CENTRIFUGE ENCLOSURE AND ANCHORING REQUIREMENTS WITH THE CENTRIFUGE MANUFACTURER, INCLUDING CASTING IN ANY ANCHORS REQUIRED FOR EQUIPMENT INSTALLATION



CENTRIFUGE SECTION

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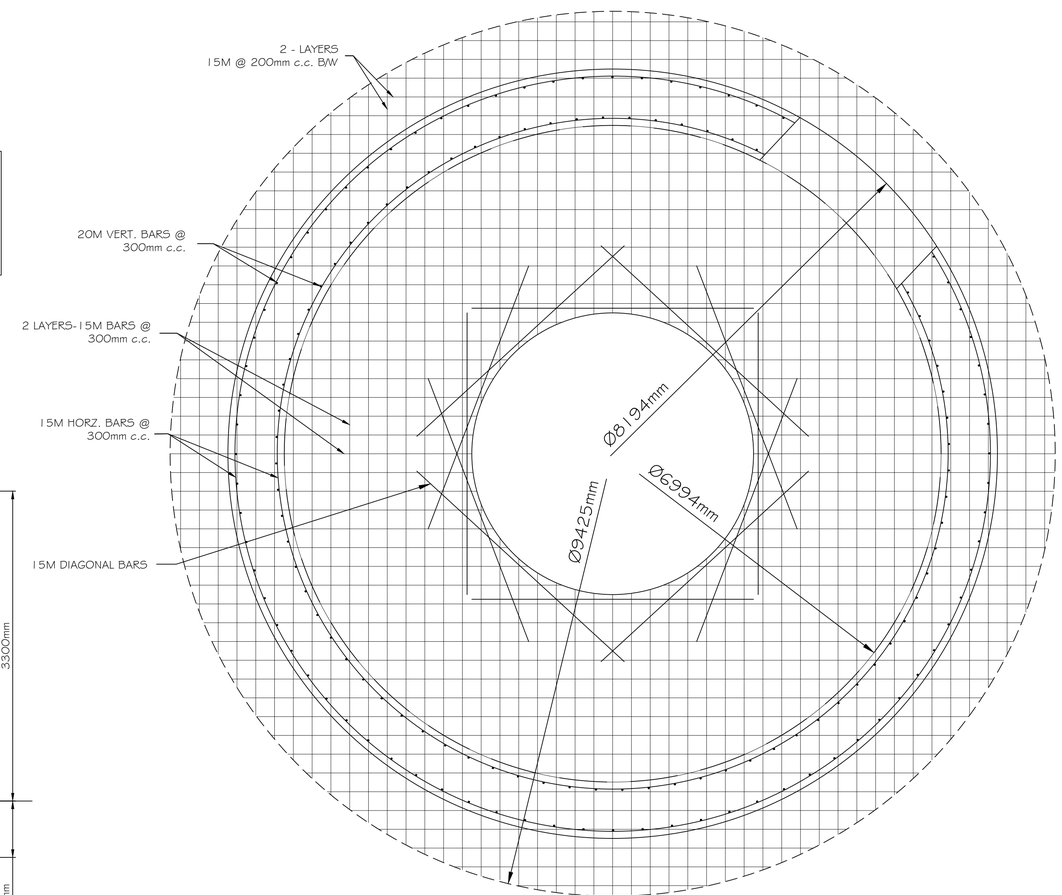

CENTRIFUGUE PLAN

SCALE: 1:30

COLBOURNE & KEMBEL, ARCHITECTS INC.
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NORTH
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Drawing Title:
CENTRIFUGE FOUNDATION PLAN & SECTION

Design: TB	Checked: ED	Approved: BDC	Project No.: 9996
Drawn: TB	Checked: BDC	Date: 2022 05 04	Contract No.:

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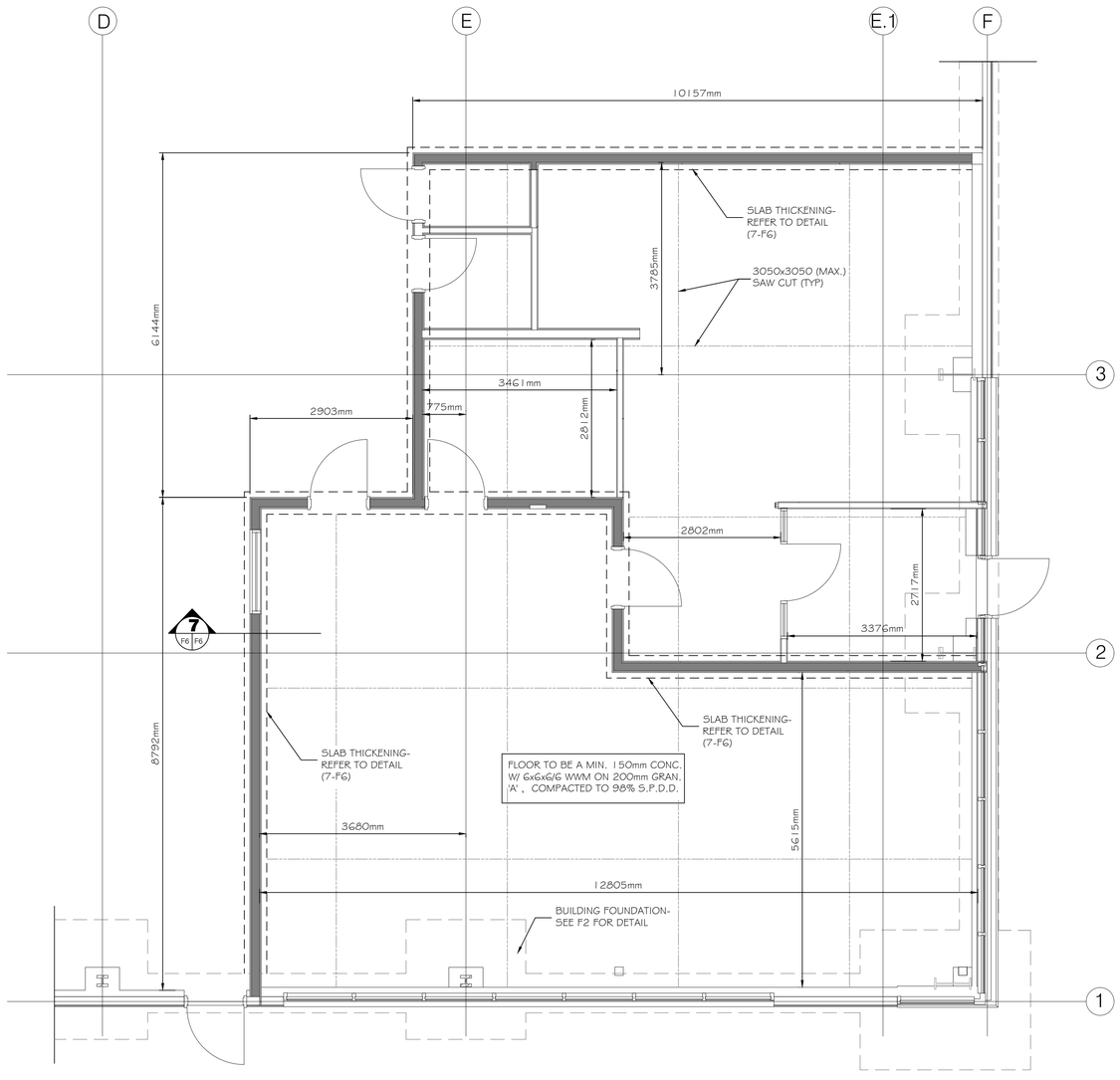
Drawing No.: F5

REV DATE: 5/12/2023



INTERIOR DECK FOUNDATION PLAN

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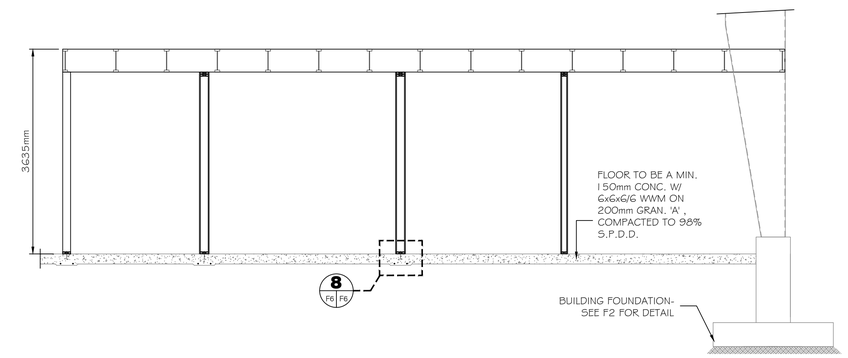

7 F6 F6 INTERIOR DECK SECTION

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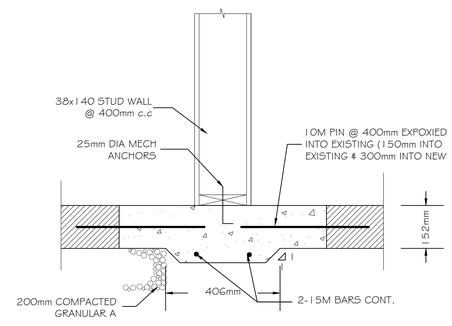

8 F6 F6 SECTION

SCALE:- 1:10

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NORTH
PROJECT

LICENSED PROFESSIONAL ENGINEER
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Project Title:

CASTLE LABORATORY

370 HARGREAVES WAY,
Kingston, Ontario

Drawing Title:

INTERIOR DECK
FOUNDATION PLAN
SECTION& DETAILS

Design:	Checked:	Approved:	Project No.:
TB	ED	BDC	9996
Drawn:	Checked:	Date:	Contract No.:
TB	BDC	2022 05 04	

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Drawing No.:

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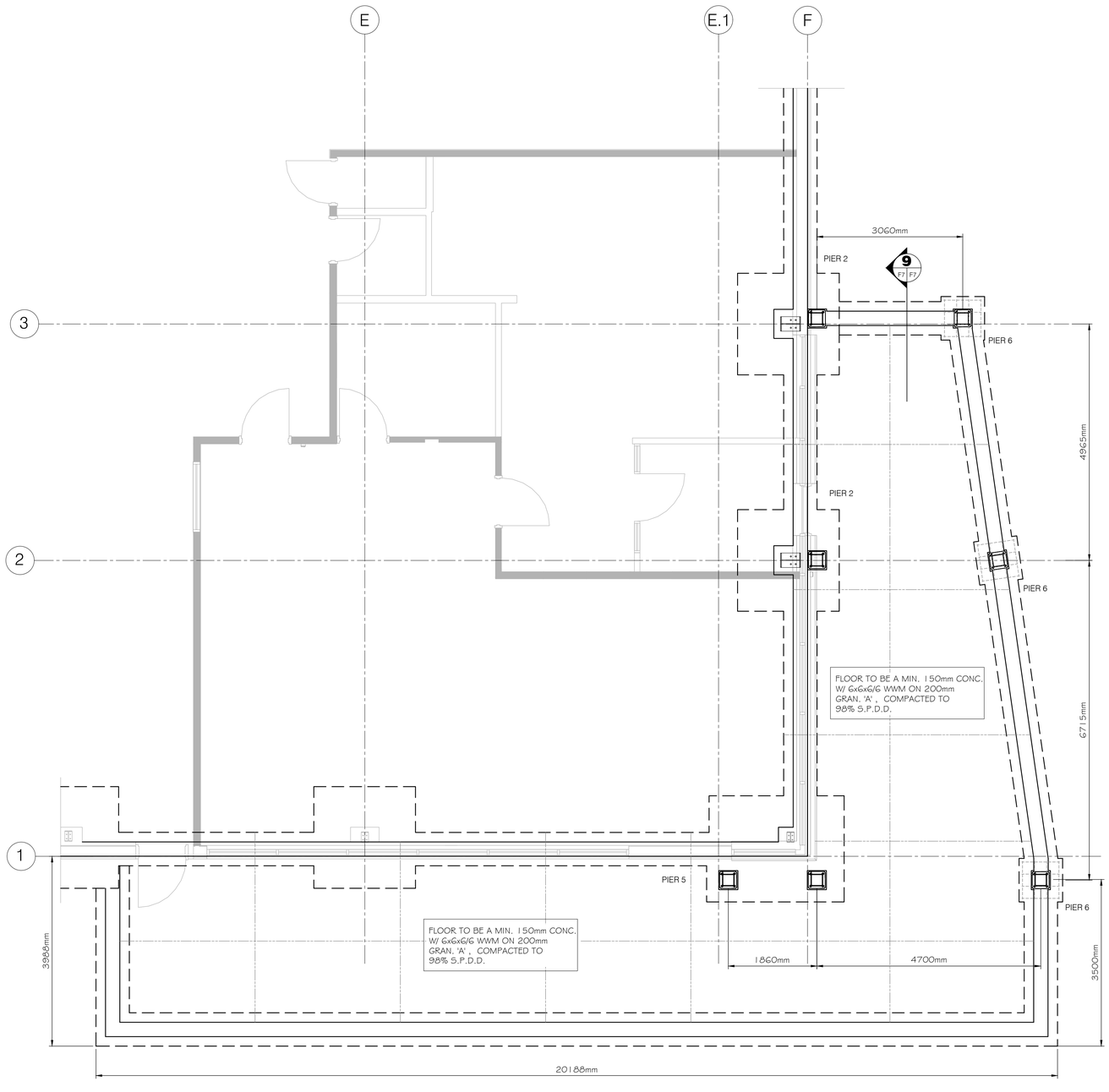
REV DATE: 5/12/2023



FRONT ENTRANCE FOUNDATION PLAN

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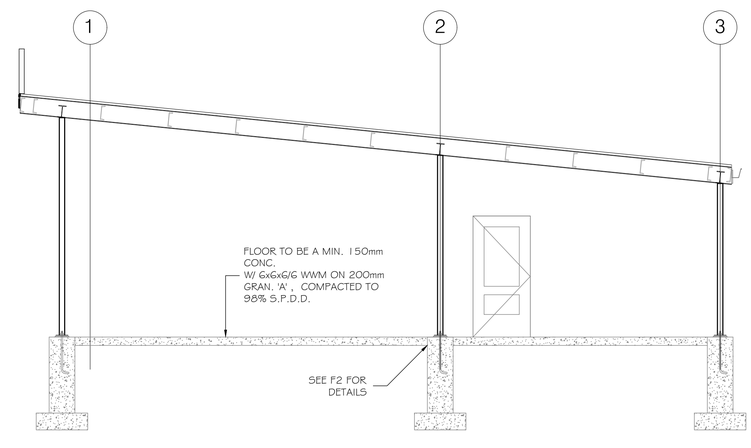

SECTION 9

SCALE: 1:50 F7 F7

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NOTE:
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1	TB	2023 05 11	FOR TENDER & PERMIT

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DRAWINGS ARE NOT TO BE SCALED

PROJECT NORTH

LICENSED PROFESSIONAL ENGINEER
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2023 05 12
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CASTLE LABORATORY

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Drawing Title:

FRONT ENTRANCE FOUNDATION PLAN

Design:	Checked:	Approved:	Project No.:
TB	ED	BDC	9996
Drawn: TB	Checked: BDC	Date: 2022 05 04	Contract No.:

Scale:
Horizontal: AS SHOWN
Vertical: AS SHOWN

Drawing No.: F7

REV DATE: 5/12/2023

GENERAL NOTES

GOVERNING CODE - ONTARIO BUILDING CODE OF CANADA, 2012 EDITION:

1. DESIGN LOADS: **(UNFACTORED)**

GROUND SNOW LOAD: Ss = 2.1 kPa
Sr = 0.4 kPa
Is = 1.0

ROOF:	DEAD LOAD	=	1.25 kPa (0.5 kPa ALLOWANCE FOR SOLAR ON NEW)
	SNOW LOAD	=	2.48 kPa
FLOOR LOADS:			
	DEAD LOAD	=	2.87 kPa
	LIVE LOAD	=	4.78 kPa (INCLUDING EXITS)
MEZ LOADS:			
	DEAD LOAD	=	1.75 kPA
	LIVE LOAD	=	1 kPA

WIND LOAD: q (1/50) = 0.47 kPa
Iw = 1.0

SEISMIC: Sa (0.2)= 0.161, Sa (1.0)= 0.065, Sa(5.0)= 0.0089, PGV = 0.091
Sa (0.5)= 0.110, Sa (2.0)= 0.034, Sa(10.0)= 0.0038, PGA =0.098, SITE CLASS: "C"
F(0.2) = 1.00

DESIGN LIVE LOADS TO INCLUDE POINT LOAD REQUIREMENTS AS PER ARTICLE 4.1.6.10 OF THE 2012 ONTARIO BUILDING CODE. FACTORED LOADS SHOWN ON DRAWINGS USE LOAD FACTORS LL = 1.5 AND DL = 1.25 PER ONTARIO BUILDING CODE.

FOUNDATIONS - GENERAL:

1. THE FOUNDATION HAS BEEN DESIGNED FOR AN ASSUMED ALLOWABLE BEARING CAPACITY OF 150 KPa (3133 psf). REFER TO GEO-TECHNICAL REPORT No. 1591.00-102 PREPARED BY MALROZ ENGINEERING Inc. SOME ADJUSTMENT MAY BE REQUIRED TO SUIT SITE CONDITIONS.
2. FOOTINGS MAY NOT BE POURED INTO AN EARTH-FORMED TRENCH.
3. OPEN EXCAVATIONS SHALL BE DE-WATERED AS REQUIRED. MEASURES MAY BE REQUIRED TO PROTECT BEARING MATERIALS FROM DEGRADATION DUE TO EXTREME WEATHER AND CLIMATIC CONDITIONS.
4. BOTTOM OF EXTERIOR FOOTINGS SHALL BEAR ON NATIVE UNDISTURBED SOIL. FOOTING ELEVATIONS MAY NEED TO BE ADJUSTED.
5. THE ENGINEER SHALL INSPECT ALL REBAR AND FORMWORK PRIOR TO PLACING CONCRETE. FORMWORK SHALL BE COMPLETE AT THE TIME OF INSPECTION, REINFORCEMENT MUST BE MINIMUM 95% COMPLETE AT TIME OF INSPECTION. PROVIDE MINIMUM 24 HOUR NOTICE AT THE FOLLOWING SCHEDULED EVENTS:
   - 5.1. FOOTING PLACEMENT
   - 5.2. FOUNDATION WALL/PIER PLACEMENT
   - 5.3. SLAB ON GRADE PLACEMENT
6. WHERE FOUNDATION WALLS ARE TO HAVE EARTH PLACED ON EACH SIDE, PLACE FILL SIMULTANEOUSLY SO AS TO MAINTAIN A COMMON ELEVATION ON EACH SIDE OF THE WALL. ALL FILL TO BE GRANULAR MATERIAL AS APPROVED BY ENGINEER.
7. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ADEQUATE BRACING AND SUPPORT OF FORMWORK TO ENSURE WALLS ARE PLUMB WITHIN ACCEPTABLE LIMITS (1:500).
8. GRANULAR FILL SHALL BE MINIMUM 150mm GRANULAR "A" COMPACTED TO 98% S.P.D.D, ALL OTHER FILL ON SITE SHALL BE GRANULAR B TYPE II COMPACTED TO 98% S.P.D.D. U.N.O. GRANULAR FILL SHALL BE COMPACTED IN MAXIMUM 255mm LIFTS. FILL NOT SPECIFIED ON THE DRAWINGS TO BE USED ON SITE MUST BE APPROVED BY THE DESIGNER PRIOR TO PLACEMENT.

CONCRETE:

1. DESIGN OF CONCRETE ELEMENTS SHALL CONFORM TO CSA-A23.3-14. PROVIDE CONCRETE AND PERFORM WORK TO CSA A23.3-14.
2. TEST CONCRETE IN ACCORDANCE WITH CSA-A23.3-14.
3. CONCRETE REQUIREMENTS:

LOCATION CONDITION	MIN. DESIGN STR. Mpa = TYPE (DAYS) C = COMPRESSION F= FLEXURAL	CEMENT	AIR (%)	MAX AGG. (mm)	EXP.	SLUMP
INT. SLAB ON GRADE	25C (28)	GU	5-8	20	N	40mm
FOOTINGS	25C (28)	GU	< 3	20	N	40mm
INTERIOR PIERS	25C (28)	GU	< 3	20	N	40mm
FOUNDATION WALLS	25C (28)	GU	5-8	20	F-2	40mm
EXTERIOR PIERS	35C (28)	GU	5-8	20	C-1	80mm +/- 30mm

- WHERE SPECIFIED STRENGTH EXCEED THOSE IMPLIED BY EXPOSURE CLASS, SPECIFIED STRENGTH GOVERNS.
- ALL CONCRETE TO BE NORMAL WEIGHT 2400 KG/CUBIC METER
- WATER CEMENT RATIOS FOR EXPOSURE CLASSES AS PER TABLES 7 - 9, CAN/CSA-A23.1-14.
- DO NOT USE ANY ADMIXTURE CONTAINING CHLORIDE FOR CONCRETE WITH S-2 EXPOSURE.
- NORMAL PORTLAND CEMENT TO BE USED FOR CONCRETE.

4. CONTROL JOINTS FOR SLAB ON GRADE: SAWCUT AT LOCATIONS SHOWN ON DRAWINGS BUT NOT EXCEEDING 15'-0" SPACING. UNLESS OTHERWISE NOTED.
5. NO COLUMN OR WALL FORMS SHALL BE REMOVED BEFORE CONCRETE HAS REACHED 10 Mpa FOR ARCHITECTURAL CONCRETE AND 8 Mpa FOR OTHER COLUMNS OR WALLS.
6. NO SLAB FORMS OR BEAM FORMS SHALL BE REMOVED BEFORE CONCRETE HAS REACHED 17 Mpa.
7. STRENGTH OF CONCRETE FOR STRIPPING TO BE DETERMINED BY FIELD-CURED CYLINDERS. ALTERNATE METHODS, IF ACCEPTABLE TO THE STRUCTURAL DESIGN ENGINEER, MAY BE USED.
8. RESHORING TO BE APPROVED BY THE ENGINEER PRIOR TO STRIPPING.
9. CONCRETE SLABS SHALL BE WET CURED FOR NO LESS THAN 7 DAYS, WET CURING SHALL BE COMPLETED WITH TERRAFIX 270R NON-WOVEN GEOTEXTILE BLANKETS (WHITE). SUBSTITUTIONS ARE NOT PERMITTED.
10. ALL SLABS, BEAMS, GIRDERS, ETC. TO BE SHORED UNTIL CONCRETE REACHES DESIGN STRENGTH.
11. CONCRETE SHALL BE PLACED AND MAINTAINED AT TEMPERATURES BETWEEN 4°C - 28°C, CURING SHALL BE CONTROLLED TO ENSURE SHRINKAGE IS MINIMALIZED.
12. BE RESPONSIBLE FOR THE MIX DESIGN. MIX DESIGN SHALL BE PROPORTIONED WITH DUE CONSIDERATION TO EXTREME TEMPERATURES - WINTER OR SUMMER AND CONSULT GENERAL CONTRACTOR TO DETERMINE REQUIREMENTS. ADMIXTURES AND ADDITIVES SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT.

REINFORCING NOTES:

1. REINFORCING STEEL: NEW DEFORMED BARS TO CSA/G30.18-09 (R2014), "BILLET STEEL BARS FOR CONCRETE REINFORCEMENT", GRADE 400R, BARS TO BE WELDED CONFORM TO CAN/CSA G30.18-09, GRADE 400W. ANCHOR BOLTS TO ASTM A307. EPOXY COATED REBAR TO ASTM A775. PLACE REBAR TO CAN/CSA-A23.1-14.
2. PROVIDE CLEAR CONCRETE COVER OVER REBAR AS FOLLOWS:
   - A) SURFACE POURED AGAINST GROUND — 75 mm
   - B) FORMED SURFACES EXPOSED TO GROUND OR WEATHER — 40 mm
   - C) FORMED SURFACES NOT EXPOSED TO GROUND OR WEATHER:
     - BEAMS (TO STIRRUPS) — 40 mm
     - COLUMNS (TO VERTICALS) — 50 mm
     - SLABS, WALLS — 20 mm
   - D) PARKING SURFACES AND EXTERIOR TOP OF SLAB: — 40 mm
3. REINFORCING WORK TO BE INSPECTED BY THE ENGINEER. NOTIFY THE ENGINEER 24 HOURS IN ADVANCE. CONTRACTOR MUST ENSURE MINIMUM 95% STEEL ARE IN PLACE FOR THE INSPECTION.
4. REBAR LAP SPLICE LENGTHS (UNLESS NOTED ON DRAWINGS)

BAR SIZE	COMP. SPLICES (mm)	TENSION SPLICE "CLASS B" 25 Mpa	TENSION SPLICE "CLASS B" 30 Mpa	FOR CONCRETE STRENGTHS (mm) 35 Mpa	FOR CONCRETE STRENGTHS (mm) 40 Mpa
10M	330	430 (560)	380 (510)	360 (460)	330 (430)
15M	480	610 (790)	535 (790)	510 (660)	480 (610)
20M	580	740 (940)	660 (865)	610 (815)	580 (760)
25M	740	1170 (1525)	1065 (1400)	990 (1295)	940 (1220)

TOP BAR SPLICE LENGTHS ARE DENOTED IN BRACKETS AND SHOULD BE USED WHEN HORIZONTAL SPLICE BARS ARE PLACED SUCH THAT THERE IS MORE THAN 300mm OF CONCRETE POURED BELOW THE BAR.

REBAR EMBEDMENT LENGTHS (UNLESS NOTED ON DRAWINGS)

BAR SIZE	COMPRESSION EMBEDMENT FOR CONCRETE STRENGTH (mm) 20 Mpa	25 Mpa	30 Mpa	TENSION EMBEDMENT FOR CONCRETE STRENGTH (mm) 25 Mpa	30 Mpa	35 Mpa	40 Mpa
10M	250(330)	230 (380)	200 (250)	330 (430)	305 (380)	80 (360)	50 (330)
15M	360 (450)	300 (400)	275 (360)	460 (610)	430 (530)	80 (510)	360 (480)
20M	430 (555)	380 (485)	360 (450)	560 (735)	510 (660)	80 (610)	60 (585)
25M	535 (710)	485 (635)	450 (585)	915 (1170)	840 (1070)	760 (990)	10 (940)
30M	635 (840)	585 (740)	535 (685)	1070 (1400)	90 (1270)	15 (1170)	40 (1120)
35M	760 (990)	685 (900)	635 (810)	1295 (1675)	170 (1525)	090 (1420)	1015 (1320)

TOP BAR DEVELOPMENT LENGTHS ARE DENOTED IN BRACKETS AND SHOULD BE USED WHEN HORIZONTAL BARS ARE PLACED SUCH THAT THERE IS MORE THAN 300 mm OF CONCRETE POURED BELOW THE BAR.

5. MIN. REINFORCING AROUND OPENINGS LARGER THAN 300 MM: 2 - 15M EACH SIDE OF OPENING, EXTENDED 600 MM PAST CORNERS.
6. DOWELS SHALL BE PLACED BEFORE CONCRETE IS POURED. TEMPLATES SHALL BE USED TO ENSURE CORRECT PLACEMENT OF DOWELS. DOWELS TO MATCH VERTICAL BARS.
7. PROVIDE SUFFICIENT CHAIRS AND SUPPORT BARS TO MAINTAIN CONCRETE COVER AS SPECIFIED.

STRUCTURAL STEEL:

1. FABRICATE AND ERECT STRUCTURAL STEEL TO CAN/CSA S16.1-14. SUBMIT TWO SETS OF PRINTS OF SHOP DRAWINGS SHOWING ALL DETAILS AND MATERIAL SPECS. FOR REVIEW PRIOR TO FABRICATION. SHOP DRAWINGS WILL NOT BE REVIEWED UNLESS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN ONTARIO, FOR THOSE CONNECTIONS AND COMPONENTS DESIGNED BY THE FABRICATOR. THIS ENGINEER OR HIS REP. SHALL VISIT THE SITE TO SATISFY HIMSELF THAT THESE CONNECTIONS AND COMPONENTS SUBSTANTIALLY COMPLY WITH HIS SEALED SHOP DRAWINGS. THIS ENGINEER SHALL PROVIDE A LETTER TO THE CONSULTANT TO THIS EFFECT. THE ENGINEER SHALL ALSO PROVIDE SEALED SKETCHES FOR ALL FIELD MODIFICATIONS, MADE TO THIS DESIGN.
2. PROVIDE STRUCTURAL STEEL TO CSA G40.21-13 WITH THE FOLLOWING GRADES;

WIDE FLANGE BEAMS AND COLUMNS	350 W
CHANNELS	350 W
HSS SECTIONS (CLASS H)	350 W
STRUCTURAL BARS, PLATES & ANGLES	300 W
MISCELLANEOUS STEEL	300 W
PIPE COLUMNS	ASTM A53 GR.B

3. PROVIDE ERECTION BOLTS TO ASTM A325, MINIMUM M20. DESIGN BOLTED CONNECTIONS TO ASTM A325 ASSUMING THREADS IN THE SHEAR PLANE.
4. WELD TO CASA W59-13 BY FABRICATORS CERTIFIED TO CSA W47.1-09 WELDING OF REINFORCING BARS SHALL CONFORM TO CSA W186-M1990(R2012). PRIOR TO SITE WELDING THE FABRICATOR MUST OBTAIN A HOT WORKS PERMIT FROM THE UCDSB PROJECT MANAGER. TOUCH UP ALL IN FIELD WELDS WITH ANTI-RUST PAINT OR COLD GALVANIZING PAINT AS APPLICABLE.
5. MINIMUM WELDS FOR CONNECTIONS SHALL BE 5mm FILLET WELDS AND WHERE EXPOSED IN FINISHED BUILDING WELDS SHALL BE GROUND SMOOTH.
6. ALL STUD ANCHORS AND DEFORMED BAR ANCHORS SHALL BE FUSION WELDED TO PLATES AS PER MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS.
7. CONNECTIONS NOT DETAILED ON THE STRUCTURAL DRAWINGS SHALL BE DESIGNED BY THE STEEL FABRICATOR. MINIMUM BEAM SHEAR IS 70% OF THE TOTAL BEAM LOAD CAPACITY AS LISTED IN "CISC MANUAL BEAM LOADS TABLES" FOR THE GIVEN SPAN OF THE BEAM U.N.O. UNUSUAL LOADINGS SHOWN ON PLANS ARE SPECIFIED LOADS. SEE LEGEND FOR EXPLANATION OF THESE LOADS.
8. UNLESS OTHERWISE NOTED, ALL CONNECTIONS SHALL BE SIMPLE CONNECTIONS. FOR BEAMS TO FACE OF HSS COLUMN CONNECTIONS PROVIDE DOUBLE ANGLE OR TEE-TYPE CONNECTIONS PER CISC HANDBOOK.
9. FOR CONNECTIONS NOT DESCRIBED ABOVE NOR DETAILED ON THE STRUCTURAL DRAWINGS (I.E. SMALL FRAMING MEMBERS) USE ANY TYPE OF SIMPLE CONNECTION AND DESIGN FOR THE SPECIFIED LOAD SHOWN.
10. SIMPLE BEAM TO COLUMN CONNECTIONS SHALL BE DESIGNED TO DELIVER SHEAR ONLY TO THE FACE OF THE COLUMN. SEISMIC AND DRAG STRUT CONNECTIONS SHALL BE DESIGNED TO DELIVER SHEAR ONLY TO THE CENTER LINE OF THE COLUMN.
11. UNLESS OTHERWISE NOTED, CONNECTIONS ARE TO BE WELDED OR BOLTED WITH HIGH STRENGTH BOLTS IN BEARING TYPE CONNECTIONS (MIN. 2 - 20 DIA. BOLTS).
12. BOLTED CONNECTIONS FOR DRAG STRUT LINES ARE TO BE PRE-TENSIONED. THE PRIME STRUCTURAL CONSULTANT SHALL HAVE FINAL APPROVAL ON ALL CONNECTIONS.
13. TEMPORARY BRACING DURING CONSTRUCTION TO BE DESIGNED BY CONTRACTOR (WHOEVER IS RESPONSIBLE FOR ERECTION). CONTRACTOR IS RESPONSIBLE FOR SAFETY ON SITE.
14. COORDINATE WITH MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS TO AVOID CONFLICT WITH STRUCTURAL ELEMENTS.
15. NO BURNING OF HOLES SHALL BE ALLOWED IN STRUCTURAL STEEL ANYWHERE.
16. FOR MISC. STEEL SUCH AS RAILINGS, AWNINGS AND NON-STRUCTURAL ARCH. STEEL NOT DETAILED ON STRUCTURAL DRAWINGS, STRUCTURAL ENGINEER SHALL CHECK SHOP DRAWINGS AND COMMENT ON THE ABILITY OF THE SHOWN MEMBERS AND CONNECTIONS TO RESIST LOADS AND OTHER EFFECTS REQUIRED BY ONTARIO BUILDING CODE 2012. OVERALL DETAILING TO COMPLY WITH ARCHITECTURAL DRAWINGS AND ARE THE SUB-CONTRACTOR'S RESPONSIBILITY. ALL RAILINGS AND STAIR SHOP DRAWINGS TO BE STAMPED BY P.ENG. OF ONTARIO.
17. ALL INTERIOR STEEL (NOT REQUIRING FIREPROOFING) SHALL BE PAINTED WITH ONE COAT OF PRIMER TO CISC/CPMA 1-73A (REFER TO ARCHITECTURAL DRAWINGS). ALL SITE WELD AND WELDING CONNECTIONS TO BE TOUCHED-UP WITH ANTI-RUST PAINT.
18. STEEL EXPOSED TO EXTERIOR CLIMATE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH CAN/CSA-G164-M29 (2003). MIN. ZINC COATING OF 600g/m². TOUCH UP IN FIELD WITH COLD GALVANIZING PAINT AS REQUIRED.
19. PROVIDE NAIL HOLES (2 MIN.) IN MISC. STEEL CAST INTO CONC. TO FACILITATE NAILING TO FORM WORK.
20. SEE NOTE "8" IN STEEL DECKING NOTES FOR FRAMING AT OPENINGS.
21. CHECK MECHANICAL AND ARCHITECTURAL DRAWINGS FOR OPENINGS, MECHANICAL UNITS, HOLES, ETC. TO BE MADE. OPENINGS SHOWN ON STRUCTURAL DRAWINGS FOR MECHANICAL UNITS, DUCTS AND PIPES ARE APPROXIMATE ONLY IN SIZE AND LOCATION. THE MECHANICAL CONTRACTOR MUST PROVIDE CONFIRMATION OF THE LATEST INFORMATION TO THE GENERAL CONTRACTOR AT THE STRUCTURAL STEEL AND METAL DECK SHOP DRAWING APPROVAL STAGE OF THE PROJECT.
22. THE STEEL STRUCTURE IS A NON-SELF-SUPPORTING STEEL FRAME AND IS DEPENDENT UPON DIAPHRAGM ACTION THE DECK FLOORS AND ATTACHMENT TO THE WALL SYSTEM FOR STABILITY AND FOR RESISTANCE TO WIND AND SEISMIC FORCES. PROVIDE ALL TEMPORARY SUPPORTS REQUIRED FOR STABILITY AND FOR RESISTANCE TO WIND AND SEISMIC FORCES UNTIL THESE ELEMENTS ARE COMPLETE AND ARE CAPABLE OF PROVIDING THIS SUPPORT.
23. THE FABRICATOR IS RESPONSIBLE FOR THE DESIGN OF ALL CONNECTIONS. CONNECTIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE SCHEMATIC AND ARE ONLY INTENDED TO SHOW THE RELATIONSHIP OF MEMBERS CONNECTED. CONNECTION DETAILS INDICATED ON THE DRAWINGS SHALL BE INCORPORATED INTO FABRICATOR'S CONNECTION DESIGN. SEE SPECIFICATIONS. ALL SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY THE FABRICATOR'S ENGINEER WITH THE ENGINEER'S SEAL FOR THE PROVINCE WHERE THE STRUCTURE IS LOCATED. ENGINEER'S SEAL MAY BE QUALIFIED "FOR DESIGN OF CONNECTIONS ONLY".
24. REFER TO SCHEDULE ON DWG FOR NON-BEARING WALL LINTELS NOT SHOWN ON STRUCTURAL DWG. REFER TO ARCH. & MECH. DWG. FOR OPENING SIZES AND LOCATIONS.
25. PROVIDE HOLES IN STEEL MEMBER FOR ATTACHMENT OF OTHER MATERIALS EXCEPT AT CRITICAL TENSILE SECTIONS OF BEAMS.
26. PROVIDE MASONRY ANCHORS IN CONFORMANCE WITH THE O.B.C. AT ALL LOCATIONS WHERE COLUMNS, BEAMS OR JOISTS IN CONTACT WITH OR ADJACENT TO MASONRY.
27. STEEL BEAMS BEARING ON MASONRY SHALL HAVE 200mm MIN. BEARING UNLESS NOTED AND TO BE ANCHORED TO MASONRY WITH 38X6 STRAP ANCHOR X 300mm LONG WELDED TO BEAM WEB AT TOP OF BEAM.

OPEN WEB STEEL JOIST

1. DESIGN AND FABRICATE OPEN WEB STEEL JOISTS TO CAN/CSA S16-14 (S16 AND CSA S136-16 FOR COLD ROLLED SECTIONS) FOR DEPTHS AND LOADING SHOWN ON THE DRAWINGS. DESIGN JOISTS FOR A FACTORED POINT LOAD OF 2.0 KN APPLIED AT ANY PANEL POINT.
2. CAMBER REQUIREMENTS AND DEFLECTION LIMITATIONS TO CSA S16-14 UNLESS NOTED ON DRAWINGS.
3. JOIST SEAT DESIGN REQUIREMENTS:
   A) TOTAL JOISTS SEAT DEPTH TO BE 100mm UNLESS OTHERWISE NOTED.
   B) ALL JOIST SEAT CONNECTIONS TO BE WELDED TO JOIST P.ENG. DESIGN.
4. MINIMUM GAUGE OF TOP CHORD TO BE 3.2mm.
5. EXTEND BOTTOM CHORD WHERE INDICATED ON FRAMING PLAN. DESIGN CHORD EXTENSIONS FOR 10 KN FACTORED TENSION OR COMPRESSION, UNLESS NOTED OTHERWISE.
6. JOISTS BEARING ON MASONRY WALLS TO HAVE 100mm MINIMUM BEARING UNLESS NOTED.
7. MINIMUM BEARING OF JOISTS ON STEEL SHALL BE 65mm.
8. PROVIDE TIE JOISTS (T.J.) AT ALL COLUMNS.
9. DELIVER ALL MATERIALS TO JOB SITE WHEN REQUIRED BY THE STRUCTURAL STEEL CONTRACTOR. IN CONFORMANCE WITH THE GENERAL CONSTRUCTION SCHEDULE.
10. ALL VISUALLY EXPOSED SURFACES OR SURFACES EXPOSED TO WEATHER AND NOT REQUIRING FIREPROOFING SHALL BE PAINTED WITH ONE COAT OF PRIMER TO CISC/CPM 1-73A.
11. OPEN WEB STEEL JOIST SUPPLIER TO PROVIDE RECOMMENDED ERECTION PROCEDURE INSTRUCTIONS TO THE SITE SUPERINTENDENT AS PER CWB REGULATION 34.42 "ERECTION INSTRUCTIONS".
12. OPEN WEB STEEL JOIST SUPPLIER TO COORDINATE WITH MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS TO AVOID CONFLICTS WITH STRUCTURAL ELEMENTS.
13. NO MECHANICAL EQUIPMENT TO BE INSTALLED ON ROOF UNLESS CALLED FOR ON STRUCTURAL DRAWINGS.
14. ALL JOISTS ARE TO BE DESIGNED TO WITHSTAND LIVE + DEAD LOAD, POINT LOADS AND MOMENTS SHOWN ON PLAN AND ALL WIND UP-LIFTS IF APPLICABLE AS CALLED FOR IN O.B.C. LATEST ISSUE.
15. JOISTS SHALL BE PROVIDED COMPLETE WITH BRIDGING, BEARINGS ANCHORAGE, CONNECTION DETAILS, CAMBER, ETC., AS REQUIRED. ALL JOIST SHOP DRAWINGS, DESIGN CALCULATION AND COMPUTER OUTPUTS SHALL BEAR THE SIGNED SEAL OF A PROFESSIONAL ENGINEER OF ONTARIO TO BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO WORK.
16. NO COLD FORMED ANGLES OR SHAPES LESS THAN 5mm THICK WILL BE ACCEPTED.
17. NO LOADS ARE TO BE APPLIED TO JOIST CHORDS BETWEEN PANEL POINTS OTHER THAN THOSE INCLUDED IN JOIST DESIGN.

METAL DECK:

1. DESIGN, FABRICATE, AND INSTALL STEEL DECK TO CSA S136-16 AND THE CSSBI 101M84 GRADE A UNLESS OTHERWISE NOTED. FOR ROOFS UNLESS OTHERWISE NOTED ON PLAN. MINIMUM COATING DESIGNATION ZF275 (G30) HOT DIPPED GALVANIZED FINISH. PROVIDE METAL GAUGE AND FASTENERS TO CARRY THE VERTICAL LOADS SPECIFIED ON THE DRAWINGS. TOUCH UP WITH COLD GALVANIZING PAINT.
2. DECKING PROFILE: AS NOTED ON DRAWING.
3. INSTALL DECKING CONTINUOUS OVER 3 SPANS EXCEPT WHERE OTHERWISE APPROVED.
4. FASTEN DECK TO STEEL WITH HILTI X-HSN 24 FASTENERS IN PATTERN 36/7 & @ 150 mm c/c ALONG ALL PERIMETER BEAMS AND JOISTS. DECK EDGES TO BE CLINCHED AND SIDE LAPPED AT 150 mm MAX.
5. WELDERS SHALL BE CERTIFIED BY THE CANADIAN WELDERS BUREAU TO THE REQUIREMENTS OF CSA W47.1-09, DIV. 1 OR 2.1. THE INSTALLATION WELDING PROCEDURES SHALL BE APPROVED BY THE CANADIAN WELDING BUREAU. THE WELDERS SHALL HAVE CURRENT QUALIFICATIONS FOR ACT SPOT WELDING BY THE C.W.B.
6. SUBMIT TWO SETS OF PRINTS OF SHOP DRAWINGS SHOWING DETAILS, MATERIAL SPECIFICATIONS, FASTENING SCHEDULE AND DESIGN LOADS.
7. WATER ON THE STEEL DECK OR BETWEEN THE DECK AND THE SUPPORTING STEEL SHALL BE REMOVED PRIOR TO PUDDLE WELDING OR STUD WELDING.
8. CHECK MECHANICAL AND ARCHITECTURAL DRAWINGS FOR OPENINGS, MECH. UNITS, HOLES, ETC. TO BE MADE IN METAL DECKING. OPENINGS SHOWN ON STRUCTURAL DRAWINGS FOR MECHANICAL UNITS, DUCTS AND PIPES ARE APPROXIMATE ONLY IN SIZE, LOCATION AND QUANTITY. THE MECHANICAL CONTRACTOR MUST PROVIDE CONFIRMATION OF THE LATEST INFORMATION TO THE GENERAL CONTRACTOR AT THE STRUCTURAL STEEL AND METAL DECK SHOP DRAWING APPROVAL STAGE OF THE PROJECT. CUT OPENINGS IN DECKING WHERE INDICATED ON THE DRAWINGS AND IN COOPERATION WITH OTHER TRADES. REINFORCE OPENINGS BETWEEN 150 AND 600 WITH 75 X 75 X 6 ANGLE PERPENDICULAR TO FLUTES. OPENINGS LARGER THAN 600mm FRAMED BY STRUCTURAL ERECTOR.
9. PERIMETER DECK CLOSURES TO BE PROVIDED BY THE STEEL DECK CONTRACTOR UNLESS STRUCTURAL STEEL DECK CLOSURES ARE SHOWN ON THE DRAWINGS. CLOSURES SHALL PROVIDE STRAIGHT AND TRUE FINISHED EDGE (+/-0 6 mm).
10. PROVIDE SUPPORT FOR METAL DECK AT WALLS AND OPENINGS WHERE REQUIRED.

LIGHTWEIGHT STEEL (METAL STUD) NOTES:

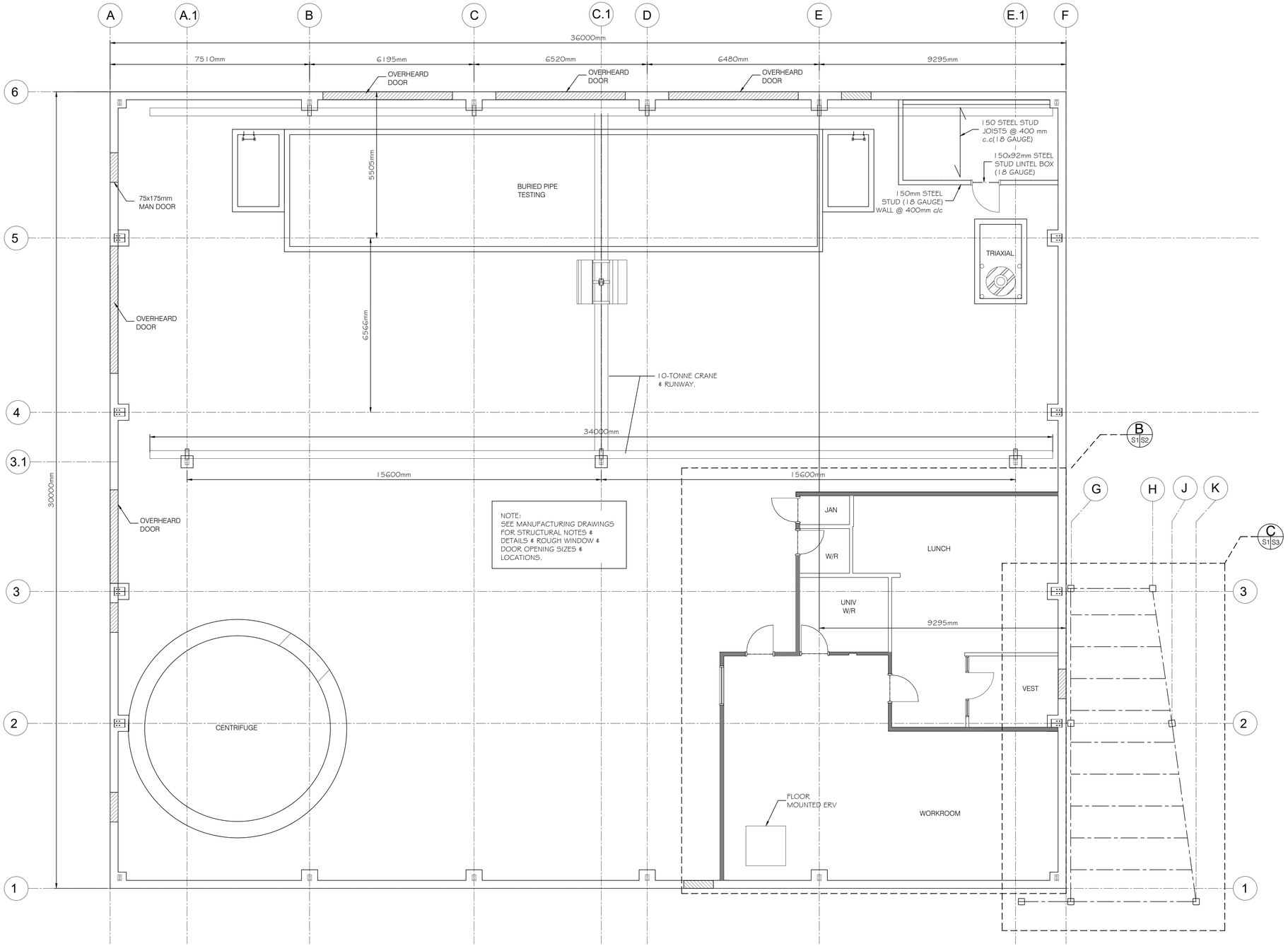
1. UNLESS NOTED OTHERWISE, LIGHTWEIGHT STEEL FRAMING (LSF) AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE O.B.C., CSA S136-16 AND GUIDE SPECIFICATIONS CSSBI S6, INCLUDING METALLIC COATING. STEEL STUDS AND TRACKS SHALL BE PROVIDED WITH A MINIMUM METALLIC COATING DESIGNATION OF Z275 (G90).
2. LIGHTWEIGHT STEEL SPECIALISTS CONTRACTOR MUST RETAIN A PROFESSIONAL ENGINEER TO DESIGN THE LIGHTWEIGHT STEEL FRAMING SYSTEM; TO PREPARE, SEAL AND SIGN ALL SHOP DRAWINGS; AND TO PERFORM PERIODIC FIELD REVIEWS. ALL COSTS TO BE CARRIED BY THE LIGHTWEIGHT STEEL CONTRACTOR. THE FIELD REVIEWS SHALL INCLUDE REVIEW OF MILL TEST REPORTS. WELDED AND SCREWED CONNECTIONS TO MAIN STRUCTURE, MEMBER SIZES, LOCATION AND MATERIAL THICKNESS, COATING THICKNESS, ERECTION TOLERANCES AND ALL FIELD CUTTING AND MODIFICATIONS.
3. SUBMIT 2 SETS OF SHOP DRAWINGS TO THE ARCHITECT/ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL SHOW BOTH DESIGN AND INSTALLATION REQUIREMENTS.
4. ALL LIGHTWEIGHT STEEL SHALL CONFORM TO ASTM A446 GRADE A. 228MPa YIELD FOR STEEL 1.22mm OR THINNER. ALL LIGHTWEIGHT STEEL SHALL CONFORM TO ASTM A446 GRADE D, 345 MPa YIELD FOR STEEL 1.5mm OR THICKER.
5. THICKNESS OF LIGHTWEIGHT STEEL MUST BE DETERMINED BY SPECIALIST'S ENGINEERING ACCORDANCE WITH DESIGN CRITERIA. STEEL MUST NOT BE LESS THAN THE FOLLOWING THICKNESS: MINIMUM 1.15mm THICK FOR WALL STUDS BACKING MASONRY VENEER. FOR OTHER APPLICATIONS, USE MINIMUM 0.88mm THICK FOR STUD UP TO 184mm, AND 1.15mm FOR 203mm STUD.
6. BRIDGING CHANNEL SHALL BE MINIMUM 1.15mm FOR WALL STUDS AND 1.44mm FOR FLOOR JOISTS. CLIP ANGLE SHALL BE MINIMUM 1.44mm FOR WALL STUDS AND 1.82mm FOR FLOOR JOISTS.
7. LIGHTWEIGHT STEEL MEMBERS SHALL BE SPACED AT A MAXIMUM 400mm ON CENTER. ADJUST MATERIAL THICKNESS AND SPACINGS AS REQUIRED BY THE DESIGN CRITERIA.
8. WHERE APPLICABLE, LIGHTWEIGHT STEEL SYSTEM MUST BE DESIGNED AND INSTALLED TO MEET FIRE RATED ASSEMBLIES AS SPECIFIED BY THE ARCHITECT.
9. PROVIDE BRIDGING FOR RESTRAINING MEMBER ROTATION AND TRANSLATION. DO NOT RELY ON COLLATERAL SHEATHING. MAXIMUM BRIDGING SPACING AS FOLLOWS: 150mm FOR WIND BEARING STUDS, 1200mm FOR LOAD BEARING STUDS AND 2100mm FOR JOISTS. SHOP DRAWINGS SHALL SHOW ANCHORAGE AND SPLICE DETAILS FOR BRIDGING.
10. POWER ACTUATED/LOW VELOCITY FASTENERS ARE NOT PERMITTED FOR SECURING STUDS TO MASONRY OR CONCRETE. USE HILTI X-END PIN OR APPROVED EQUAL FOR SECURING TO STRUCTURAL STEEL.
11. SHEET STEEL SCREWS TO BE BUILDEX TEK SELF DRILLING SELF TAPPING SCREWS OR APPROVED EQUIVALENT. TYPICALLY #6-20 FOR SECURING ROOF SHEATHING, #8-18 FOR FLOOR SHEATHING AND FOR FLAT ROOF, #10-16 FOR STRUCTURAL FRAMING.
12. WELDING OF STEEL OF 0.7mm TO 3.5mm THICKNESS BY ARC WELDING TO CSA-S136-07(R2012) PERFORMED WITH THE APPLICABLE REQUIREMENTS OF CSA W59.
13. FOR INTERIOR WALLS:
    ALL STUDS, BRIDGING AND TRACKS SHALL BE DESIGNED FOR A WIND LOAD OF 0.3kPa ON THE WALL SYSTEM, TO CSA S136-07(R2012) AND IN ACCORDANCE WITH O.B.C. MAXIMUM DEFLECTION UNDER WIND LOAD MUST NOT EXCEED SPAN/360.
14. FOR JOISTS:
    DEFLECTION LIMITS: L/360 FOR ROOF; L/480 FOR FLOOR.
15. ALL INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL CONNECTORS USED SHALL BE OF CORROSIVE RESISTANCE MATERIAL COMPATIBLE WITH GALVANIZED COATING OF STUDS.
16. LIGHTWEIGHT STEEL CONTRACTOR IS FULLY RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF THE LIGHTWEIGHT STEEL SYSTEM, INCLUDING ALL CONNECTION DETAILS, BRICK TIE CONNECTIONS, AND ANCHORS TO THE MAIN STRUCTURE. SUBMIT FIELD REVIEW REPORTS TO THE ARCHITECT/ENGINEER CERTIFYING THE LIGHTWEIGHT STEEL SYSTEM HAS BEEN COMPLETED IN GENERAL COMPLIANCE WITH THE APPLICABLE BUILDING CODES.

WOOD

1. ALL LUMBER TO BE MIN. NO. 2 SPF TO CSA 086-09 ENGINEERING DESIGN IN WOOD.
2. ROOF TRUSSES TO BE DESIGNED TO PART 4 OF THE ONTARIO BUILDING CODE TO THE LOADS SPECIFIED. TRUSS MANUFACTURER TO SUPPLY SHOP DRAWINGS AND LAYOUT DRAWING STAMPED BY PROFESSIONAL ENGINEER LICENSED IN PROVINCE OF ONTARIO. TRUSSES TO BE DESIGNED FOR BEARING SURFACES AS SHOWN ON DRAWINGS. ALL ROOF TO HAVE HURRICANE CLIPS TO RESIST UPLIFT LOADS.
3. FLOOR SYSTEM TO BE ENGINEERED SYSTEM. CONTRACTOR TO PROVIDE SHOP DRAWINGS SHOWING LAYOUT AND LOADS. CONTRACTOR TO PROVIDE SHOP DRAWINGS WITH SEAL OF PROFESSIONAL ENGINEER LICENSED IN PROVINCE OF ONTARIO.
4. NAILING TO ONTARIO BUILDING CODE UNLESS NOTED OTHERWISE.

LIGHTWEIGHT STEEL (METAL STUD) NOTES:

1. UNLESS NOTED OTHERWISE, LIGHTWEIGHT STEEL FRAMING (LSF) AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE O.B.C., CSA S136-07(R2012) AND GUIDE SPECIFICATIONS CSSBI S6, INCLUDING METALLIC COATING.
2. LIGHTWEIGHT STEEL SPECIALISTS CONTRACTOR MUST RETAIN A PROFESSIONAL ENGINEER TO DESIGN THE LIGHTWEIGHT STEEL FRAMING SYSTEM; TO PREPARE, SEAL AND SIGN ALL SHOP DRAWINGS; AND TO PERFORM PERIODIC FIELD REVIEWS. ALL COSTS TO BE CORNED BY THE LIGHTWEIGHT STEEL CONTRACTOR. THE FIELD REVIEWS SHALL INCLUDE REVIEW OF MILL TEST REPORTS.



STRUCTURAL PLAN

SCALE: 1:75

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1	TB	2023 05 11	FOR TENDER & PERMIT

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PROJECT NORTH

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Project Title:

CASTLE LABORATORY

370 HARGREAVES WAY,
Kingston, Ontario

Drawing Title:

INTERIOR DECK
FLOOR PLAN & DETAILS

Design:	Checked:	Approved:	Project No.:
TB	ED	BDC	9996
Drawn:	Checked:	Date:	Contract No.:
TB	BDC	2022 05 04	

Scale:
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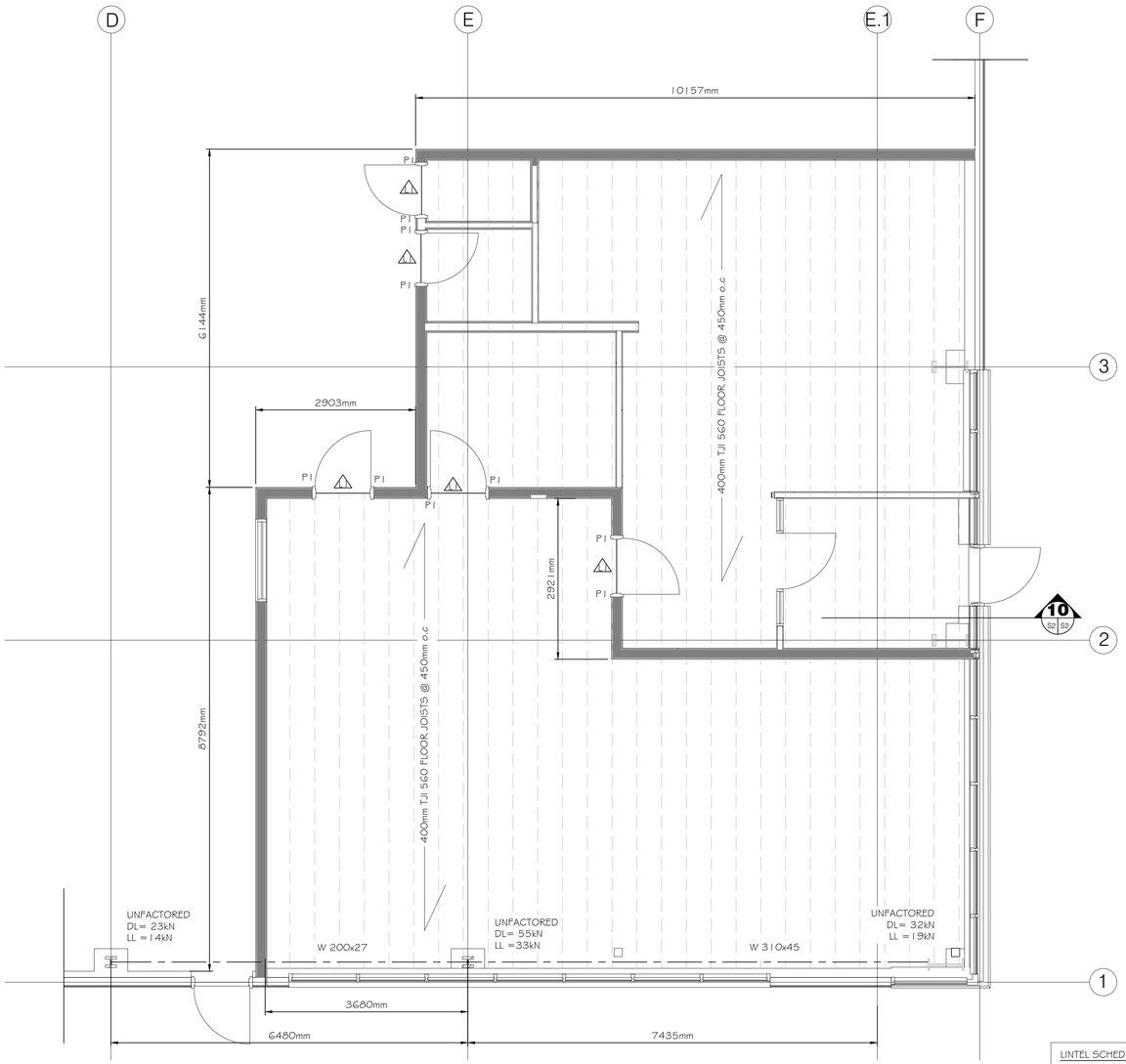
Drawing No.:
S1

REV DATE: 5/12/2023



B S1 S3 INTERIOR DECK FLOOR PLAN
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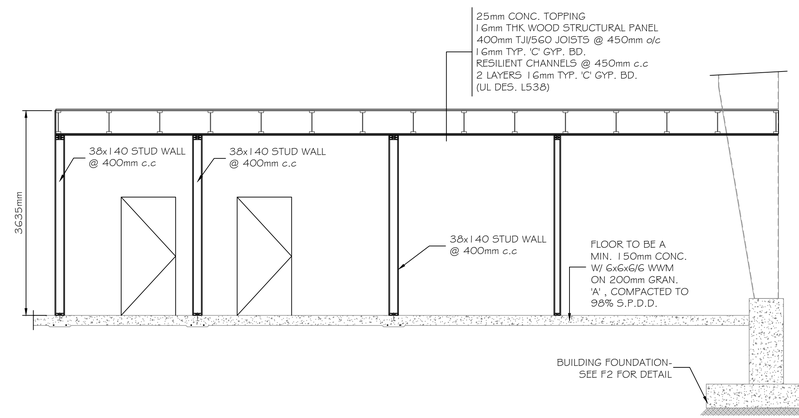
LINTEL SCHEDULE

1 - 2PLY-38x235

P1 - 2-38x140



10 S2 S2 INTERIOR DECK SECTION
SCALE: 1:50

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S2

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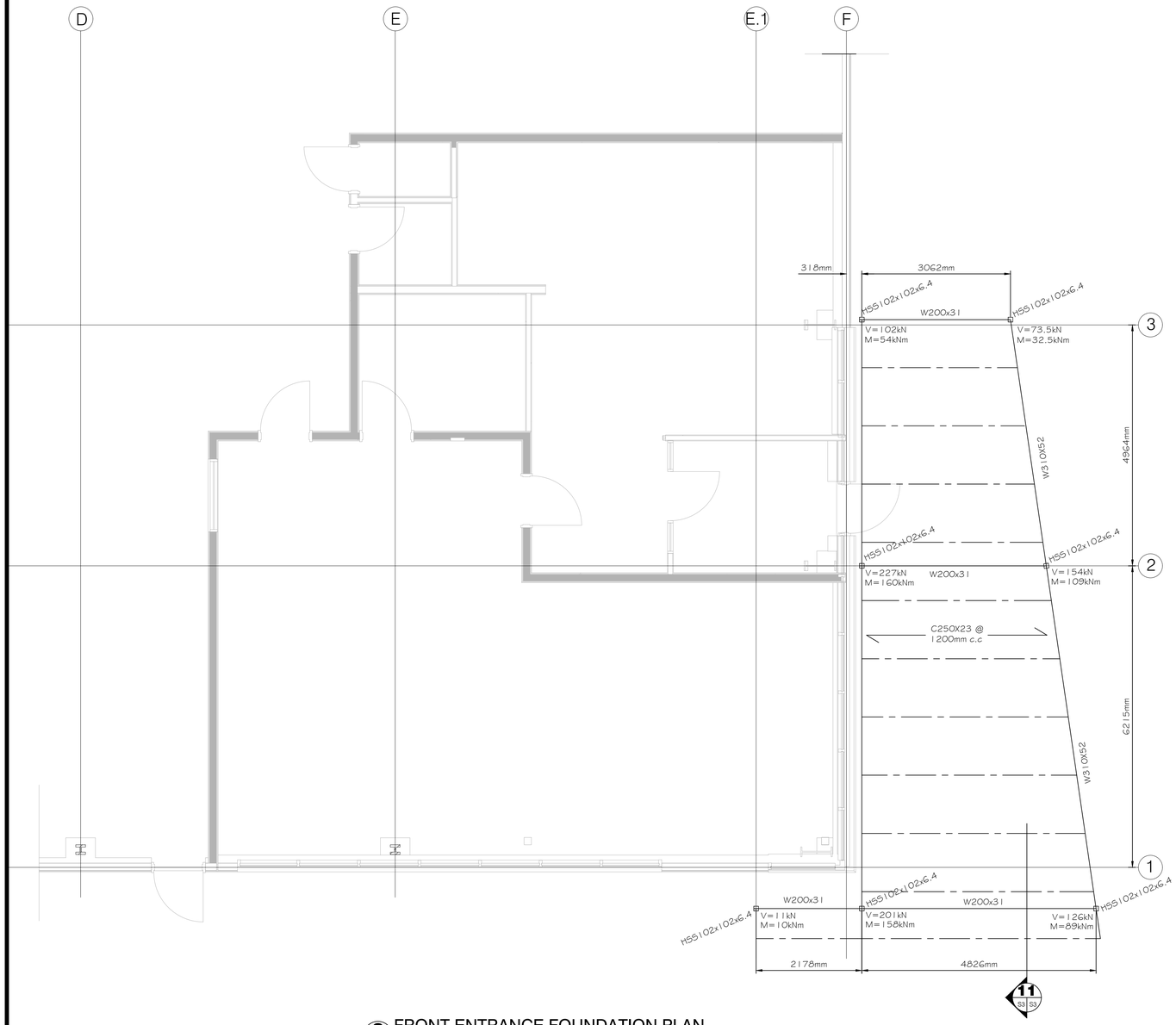

C S1 S4 FRONT ENTRANCE FOUNDATION PLAN

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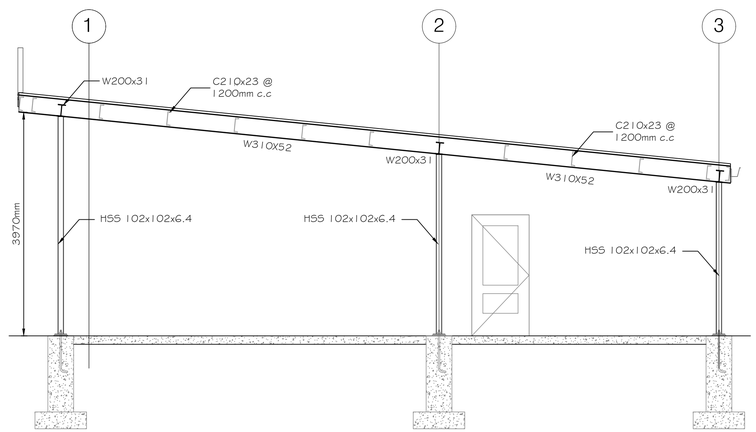

SECTION 11 S3 S3

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FRONT ENTRANCE FLOOR PLAN

Design:	Checked:	Approved:	Project No.:
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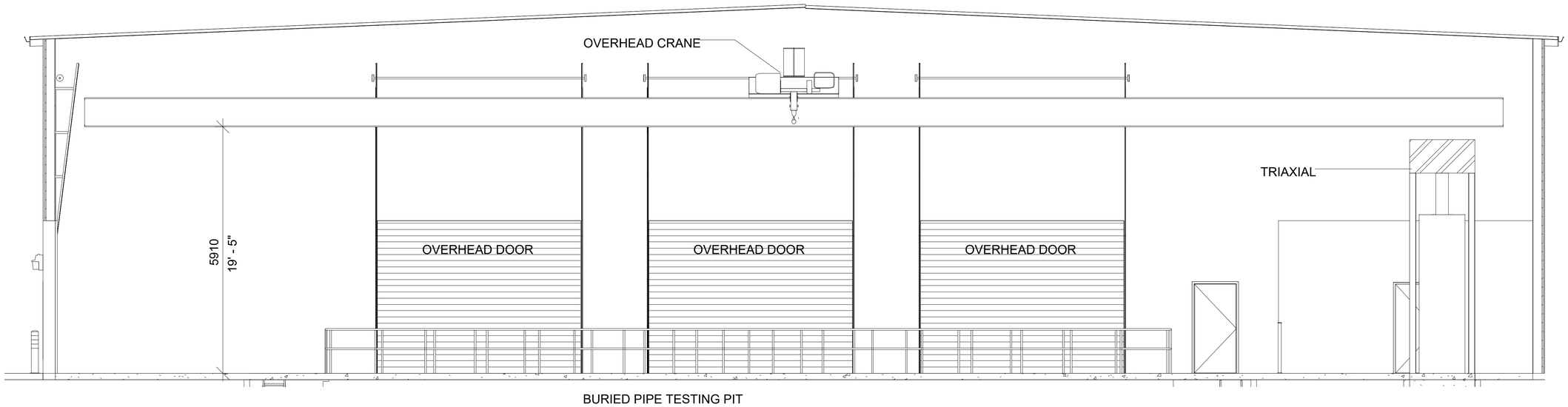
REV DATE: 5/12/2023



CRANE ELEVATION

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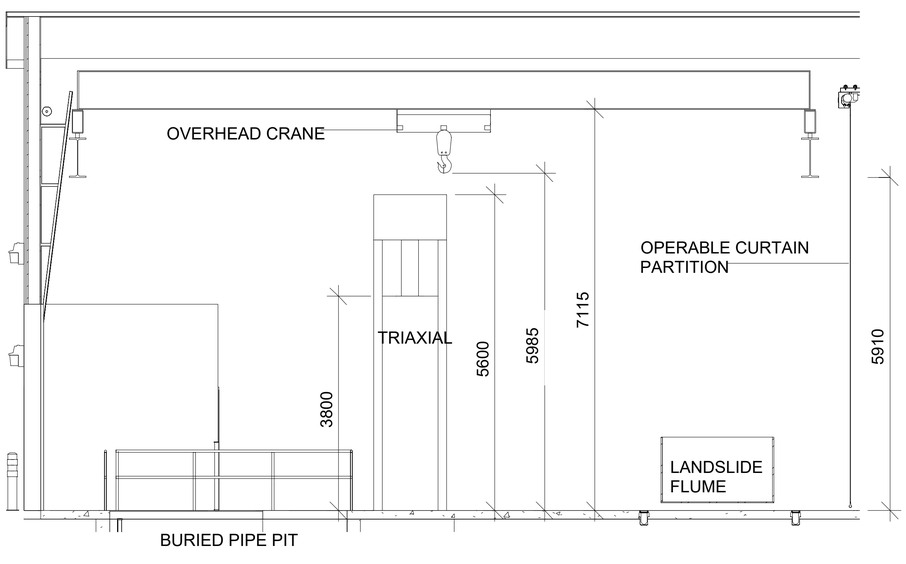

SECTION

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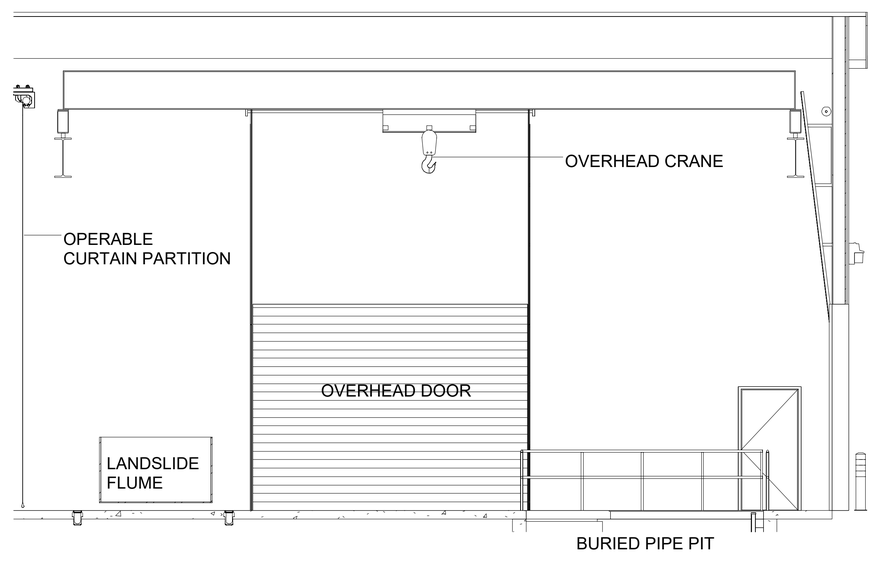

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NORTH PROJECT

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CRANE SUPPORT DETAILS

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TB	BDC	2022 05 04	

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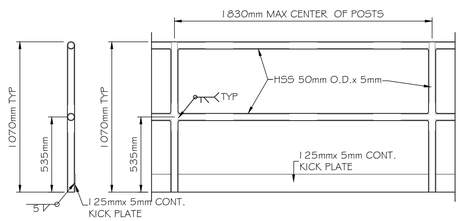
REV DATE: 5/12/2023



GUARD DETAILS

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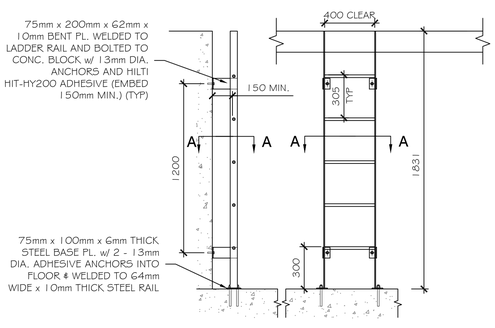
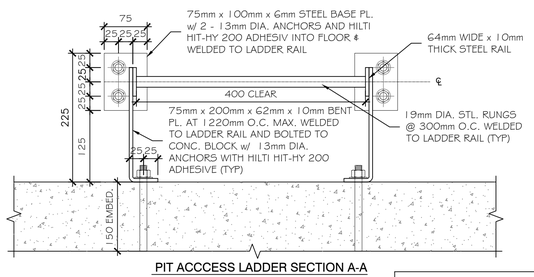


PIT ACCCESS LADDER ELEVATION



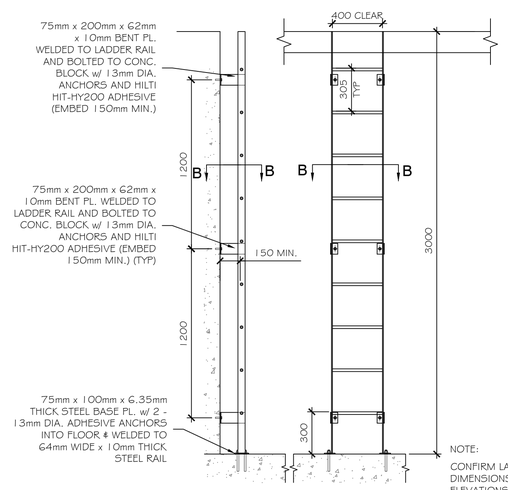
PIT ACCCESS LADDER SECTION A-A

NOTE:

CONFIRM LADDER DIMENSIONS AND ELEVATIONS PRIOR TO ERECTION.

TRIAXIAL PIT ACCESS LADDER DETAILS

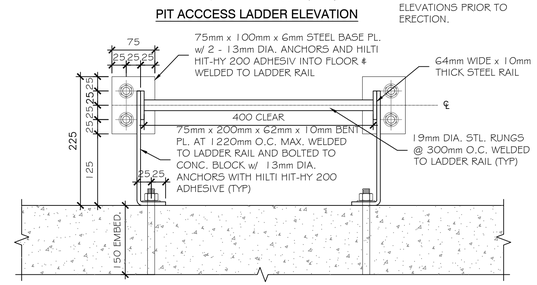
SCALE: 1:20



NOTE:

CONFIRM LADDER DIMENSIONS AND ELEVATIONS PRIOR TO ERECTION.

PIT ACCCESS LADDER ELEVATION



PIT ACCCESS LADDER SECTION B-B

BURIED PIPE TESTING PIT ACCESS LADDER DETAILS

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PROJECT NORTH

LICENSED PROFESSIONAL ENGINEER
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Drawing Title:

CONNECTIONS & DETAILS

Design:	Checked:	Approved:	Project No.:
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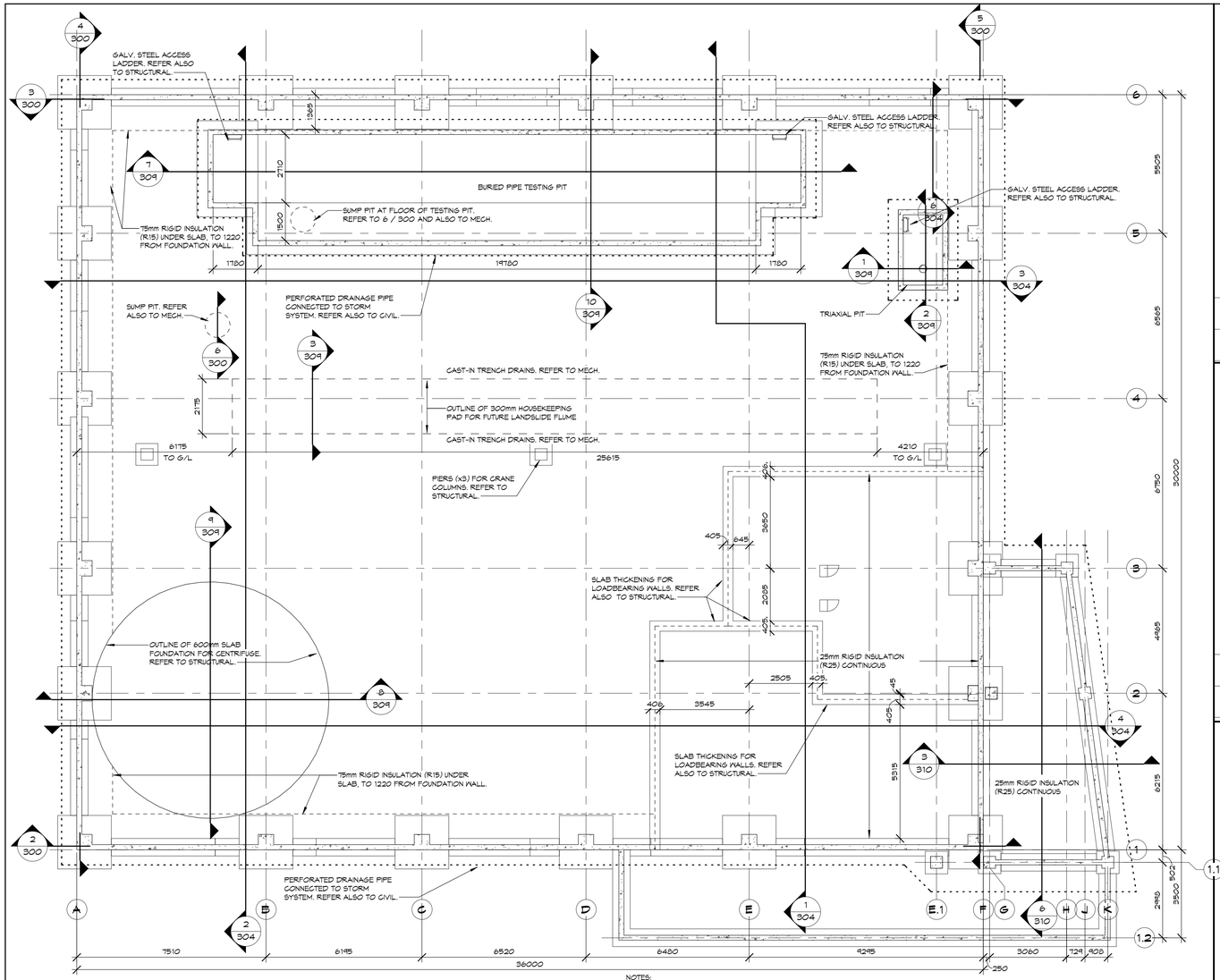
Vertical: AS SHOWN

Drawing No.: S5

REV DATE: 5/12/2023



NOTES:
1. REFER TO STRUCTURAL DRAWINGS FOR DETAILS ON FOUNDATIONS, FOOTINGS, AND PIERS.
2. FOOTINGS ARE TO BEAR ON SOUND BEDROCK. REFER TO GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION, AND ALLOW FOR ALL NECESSARY EXCAVATION & ROCK REMOVAL.

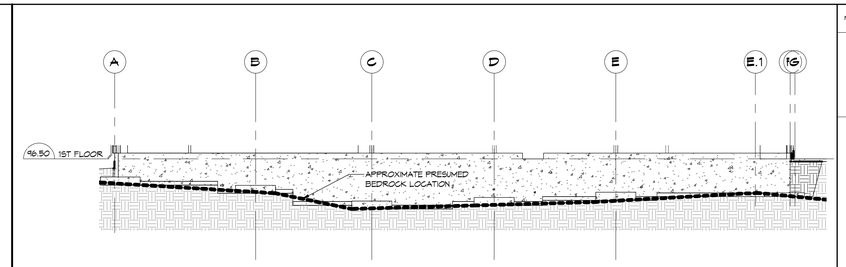
= APPROXIMATE PATH OF PERFORATED DRAINAGE PIPE DRAINING INTO STORM SYSTEM. REFER ALSO TO CIVIL.

= OUTLINE OF HORIZONTAL SUB-SLAB RIGID INSULATION. THICKNESS AS INDICATED.

= OUTLINE OF ABOVE-SLAB HOUSEKEEPING PAD

1 FOUNDATION PLAN

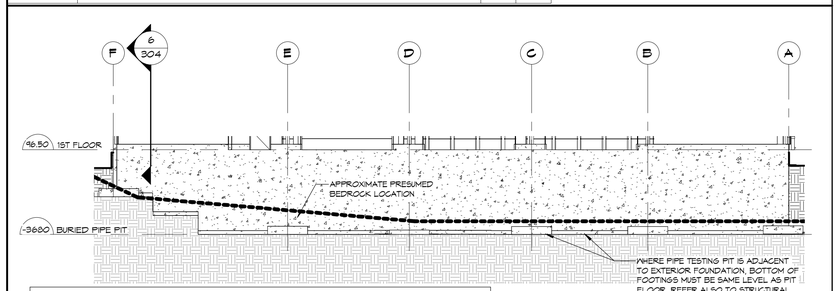
SCALE: 1 : 100 (0m 2m 4m 6m 8m 10m)



NOTE: FOOTINGS ARE TO BEAR ON SOUND BEDROCK. FOUNDATION STEPPING IS CONCEPTUAL ONLY. REFER TO STRUCTURAL DRAWINGS AND GEOTECHNICAL REPORT. CONTRACTOR TO SITE CONFIRM BEDROCK DEPTHS AND STEP FOUNDATIONS ACCORDINLY.

2 SOUTH FOUNDATION LONG SECTION

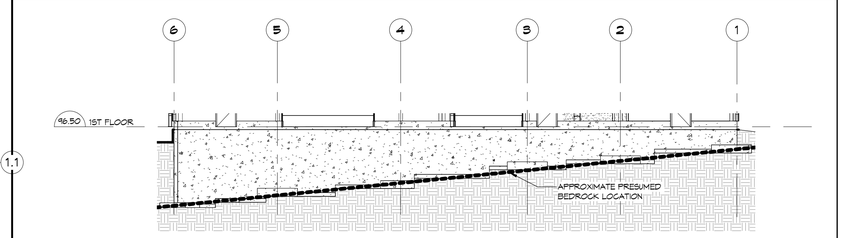
SCALE: 1 : 150 (0m 3m 6m 9m 12m 15m)



NOTE: FOOTINGS ARE TO BEAR ON SOUND BEDROCK. FOUNDATION STEPPING IS CONCEPTUAL ONLY. REFER TO STRUCTURAL DRAWINGS AND GEOTECHNICAL REPORT. CONTRACTOR TO SITE CONFIRM BEDROCK DEPTHS AND STEP FOUNDATIONS ACCORDINLY.

3 NORTH FOUNDATION LONG SECTION

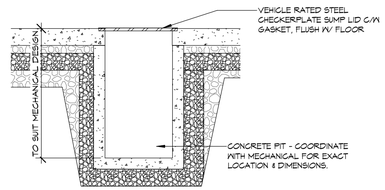
SCALE: 1 : 150 (0m 3m 6m 9m 12m 15m)



NOTE: FOOTINGS ARE TO BEAR ON SOUND BEDROCK. FOUNDATION STEPPING IS CONCEPTUAL ONLY. REFER TO STRUCTURAL DRAWINGS AND GEOTECHNICAL REPORT. CONTRACTOR TO SITE CONFIRM BEDROCK DEPTHS AND STEP FOUNDATIONS ACCORDINLY.

4 WEST FOUNDATION LONG SECTION

SCALE: 1 : 150 (0m 3m 6m 9m 12m 15m)

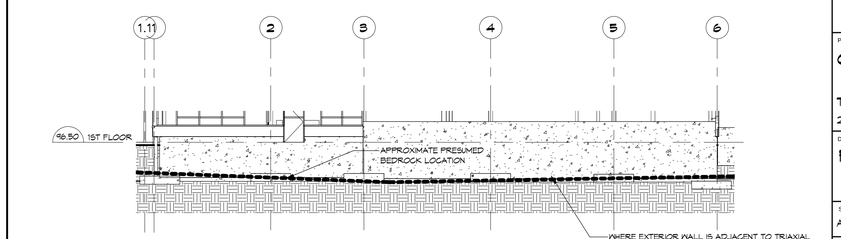


REMOVE BEDROCK AS NECESSARY FOR SUMP PIT INSTALLATION

REFER TO MECHANICAL FOR DESIGN DETAILS. FULLY COORDINATE WITH MECHANICAL.

6 SUMP PIT TYPICAL SECTION

SCALE: 1 : 25 (0m 0.5m 1m 1.5m 2m 2.5m)



NOTE: FOOTINGS ARE TO BEAR ON SOUND BEDROCK. FOUNDATION STEPPING IS CONCEPTUAL ONLY. REFER TO STRUCTURAL DRAWINGS AND GEOTECHNICAL REPORT. CONTRACTOR TO SITE CONFIRM BEDROCK DEPTHS AND STEP FOUNDATIONS ACCORDINLY.

5 EAST FOUNDATION LONG SECTION

SCALE: 1 : 150 (0m 3m 6m 9m 12m 15m)

NOTES:

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PROJECT
CASTLE LABORATORY

TENDER NO: Q-2022-031-EL
262 HARGREAVES WAY, KINGSTON, ON

DRAWING
FOUNDATION PLAN

SCALE
As indicated

PROFESSIONAL SEAL
ONTARIO ASSOCIATION OF ARCHITECTS
Rhonda Horne - McGregor
RHONDA LORRAINE HORNE-MCGREGOR
LICENCE
6076
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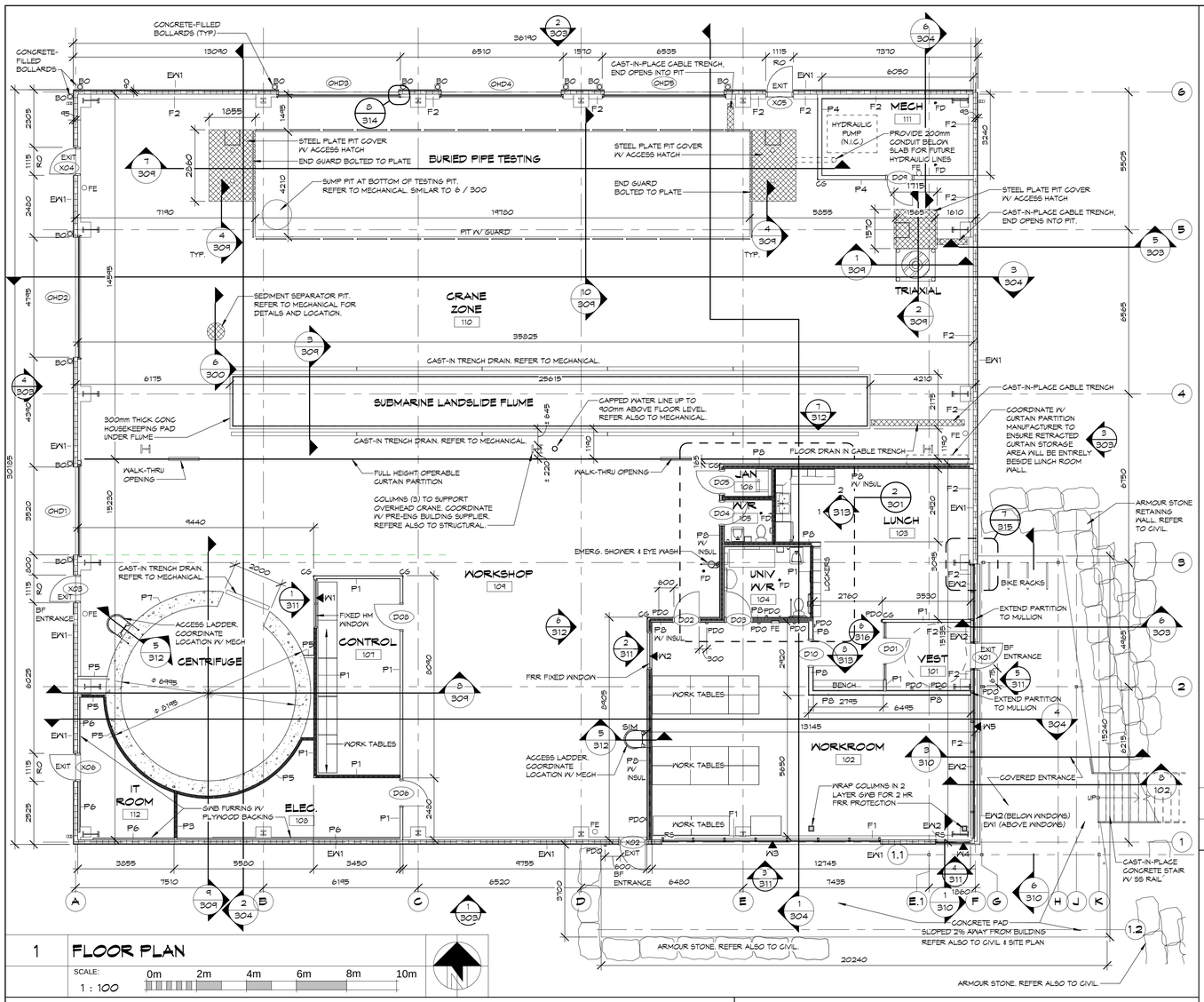
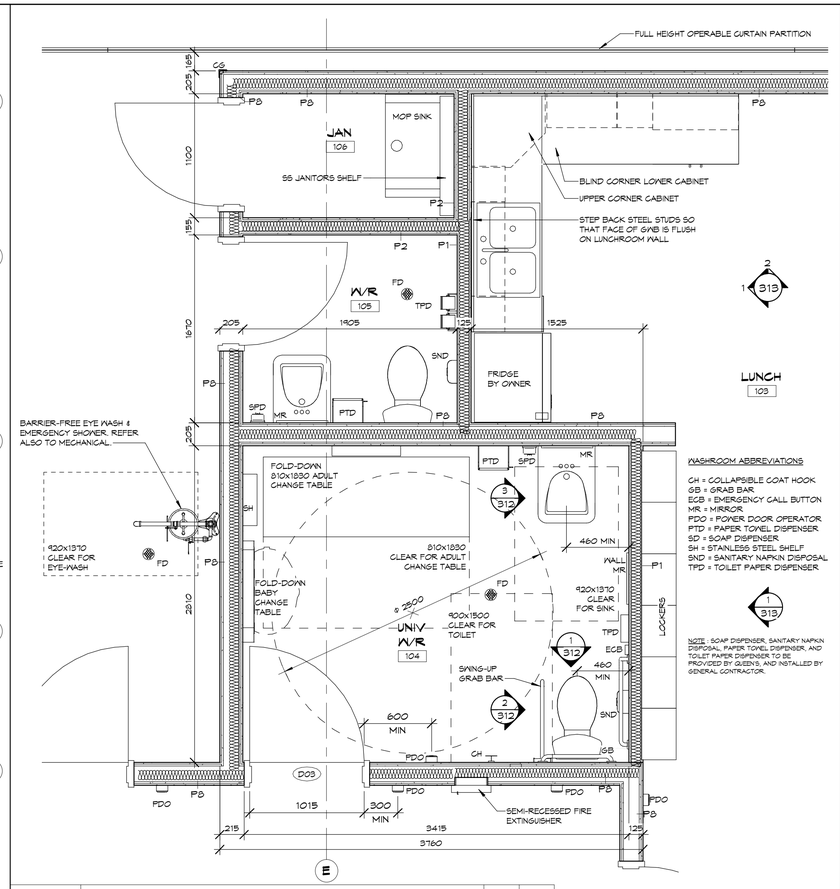
DRAWN	DATE
TJK	DEC 2021
CHECKED	PRINTED
RHM	
REVIEWED	DRAWING No.
RHM	300
PROJECT No.	
21075	



1 FLOOR PLAN

SCALE: 1 : 100 — 0m 2m 4m 6m 8m 10m



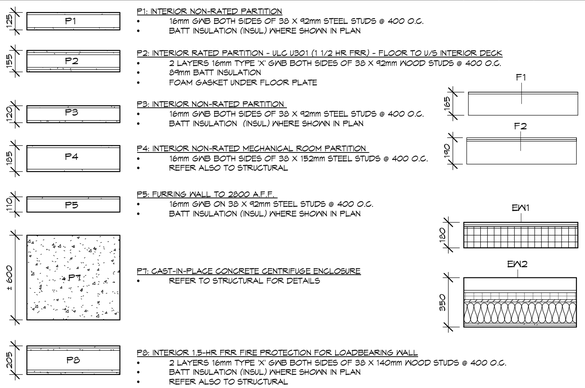
WASHROOM ABBREVIATIONS

CH = COLLAPSIBLE COAT HOOK
GB = GRAB BAR
ECB = EMERGENCY CALL BUTTON
MR = MIRROR
PDO = POWER DOOR OPERATOR
PTD = PAPER TOWEL DISPENSER
SD = SOAP DISPENSER
SH = STAINLESS STEEL SHELF
SND = SANITARY NAPKIN DISPOSAL
TPD = TOILET PAPER DISPENSER

NOTE: SOAP DISPENSER, SANITARY NAPKIN DISPOSAL, PAPER TOWEL DISPENSER, AND TOILET PAPER DISPENSER TO BE PROVIDED BY QUEENS, AND INSTALLED BY GENERAL CONTRACTOR.

2 WASHROOM & LUNCH ROOM PLAN

SCALE: 1 : 25 — 0m 0.5m 1m 1.5m 2m 2.5m



P1: INTERIOR NON-RATED PARTITION
- 16mm GNB BOTH SIDES OF 38 X 92mm STEEL STUDS @ 400 O.C.
- BATT INSULATION (INSUL) WHERE SHOWN IN PLAN

P2: INTERIOR RATED PARTITION - ULC U301 (1 1/2 HR FRR) - FLOOR TO U/S INTERIOR DECK
- 2 LAYERS 16mm TYPE 'X' GNB BOTH SIDES OF 38 X 92mm WOOD STUDS @ 400 O.C.
- 89mm BATT INSULATION
- FOAM GASKET UNDER FLOOR PLATE

P3: INTERIOR NON-RATED PARTITION
- 16mm GNB BOTH SIDES OF 38 X 92mm STEEL STUDS @ 400 O.C.
- BATT INSULATION (INSUL) WHERE SHOWN IN PLAN

P4: INTERIOR NON-RATED MECHANICAL ROOM PARTITION
- 16mm GNB BOTH SIDES OF 38 X 152mm STEEL STUDS @ 400 O.C.
- REFER ALSO TO STRUCTURAL

P5: FURRING WALL TO 2800 A.F.F.
- 16mm GNB ON 38 X 92mm STEEL STUDS @ 400 O.C.
- BATT INSULATION (INSUL) WHERE SHOWN IN PLAN

P7: CAST-IN-PLACE CONCRETE CENTRIFUGE ENCLOSURE
- REFER TO STRUCTURAL FOR DETAILS

P8: INTERIOR 1.5-HR FRR FIRE PROTECTION FOR LOADBEARING WALL
- 2 LAYERS 16mm TYPE 'X' GNB BOTH SIDES OF 38 X 140mm WOOD STUDS @ 400 O.C.
- BATT INSULATION (INSUL) WHERE SHOWN IN PLAN
- REFER ALSO TO STRUCTURAL

F1: FURRING WALL
13mm GNB
152mm STEEL STUD
TO U/S OF WINDOW SILL
PAINTED

F2: FURRING WALL
2 LAYERS 13mm MOISTURE RESISTANT FIRE CODE 'C' GNB
162 S125-PLAT 25 METAL STUDS @ 600 O.C. BETWEEN GIRTS, FULL HEIGHT OF WALL
PAINTED

EN1: EXTERIOR IMP W/ RAINSCREEN CLADDING
PRE FINISHED METAL SIDING
12mm HAT CHANNELS
150mm INSULATED METAL PANEL (R4.4)

EN2: EXTERIOR WALL W/ MASONRY BASE
90 MASONRY VENEER, TO 800mm A.F.F.
16 AIR SPACE
VAPOUR BARRIER
50mm RIGID INSULATION (R10)
16mm PLYWOOD
152 STEEL STUDS @ 400 O.C. W/ MINERAL WOOL BATT INSULATION (R22)
2 LAYERS 13mm MOISTURE RESISTANT FIRE CODE 'C' GNB

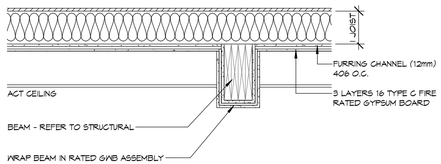
3 WALL TYPE LEGEND

SCALE: 1 : 20 — 0m 0.4m 0.8m 1.2m 1.6m 2m

OPTIONS FOR INTERIOR DECK, 90-MINUTE FIRE RESISTANCE RATED:

ULC L538:

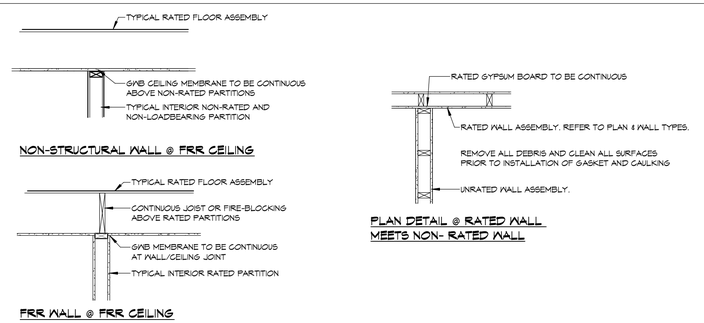
- SUB-FLOORING: 16mm THICK WOOD STRUCTURAL PANELS MIN. GRADE UNDERLAYMENT OR SINGLE FLOOR FACE GRAIN PERPENDICULAR TO JOIST & JOINTS STAGGERED.
- WOOD JOISTS: MIN. 38mm x 235mm "I" JOISTS SPACED AT 480mm O.C. MAX., FIRESTOPPED. REFER TO STRUCTURAL FOR PROJECT SPECIFIC JOIST DESIGN.
- RESILIENT FURRING CHANNELS: 0.5mm ELECTROGALVANIZED STEEL, SPACED 406mm O.C. CHANNELS PERPENDICULAR TO JOISTS OR TRUSSES.
- GYPSUM BOARD: 3 LAYERS 16mm THICK 1200mm WIDE. TYPE C - CGC, CERTANTEED GYPSUM INC



4 INTERIOR FRR DECK ASSEMBLY

REFERENCE: 304

SCALE: 1 : 20 — 0m 0.4m 0.8m 1.2m 1.6m 2m



5 RATED ASSEMBLY JOIN DETAILS

SCALE: 1 : 20 — 0m 0.4m 0.8m 1.2m 1.6m 2m

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PROJECT
CASTLE LABORATORY

TENDER NO: Q-2022-031-EL
262 HARGREAVES WAY, KINGSTON, ON

DRAWING
FLOOR PLANS

SCALE
As indicated

PROFESSIONAL SEAL
ONTARIO ASSOCIATION OF ARCHITECTS
RHONDA LORRAINE HORNE-MCGRAY
LICENCE 6075
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TJK	DEC 2021
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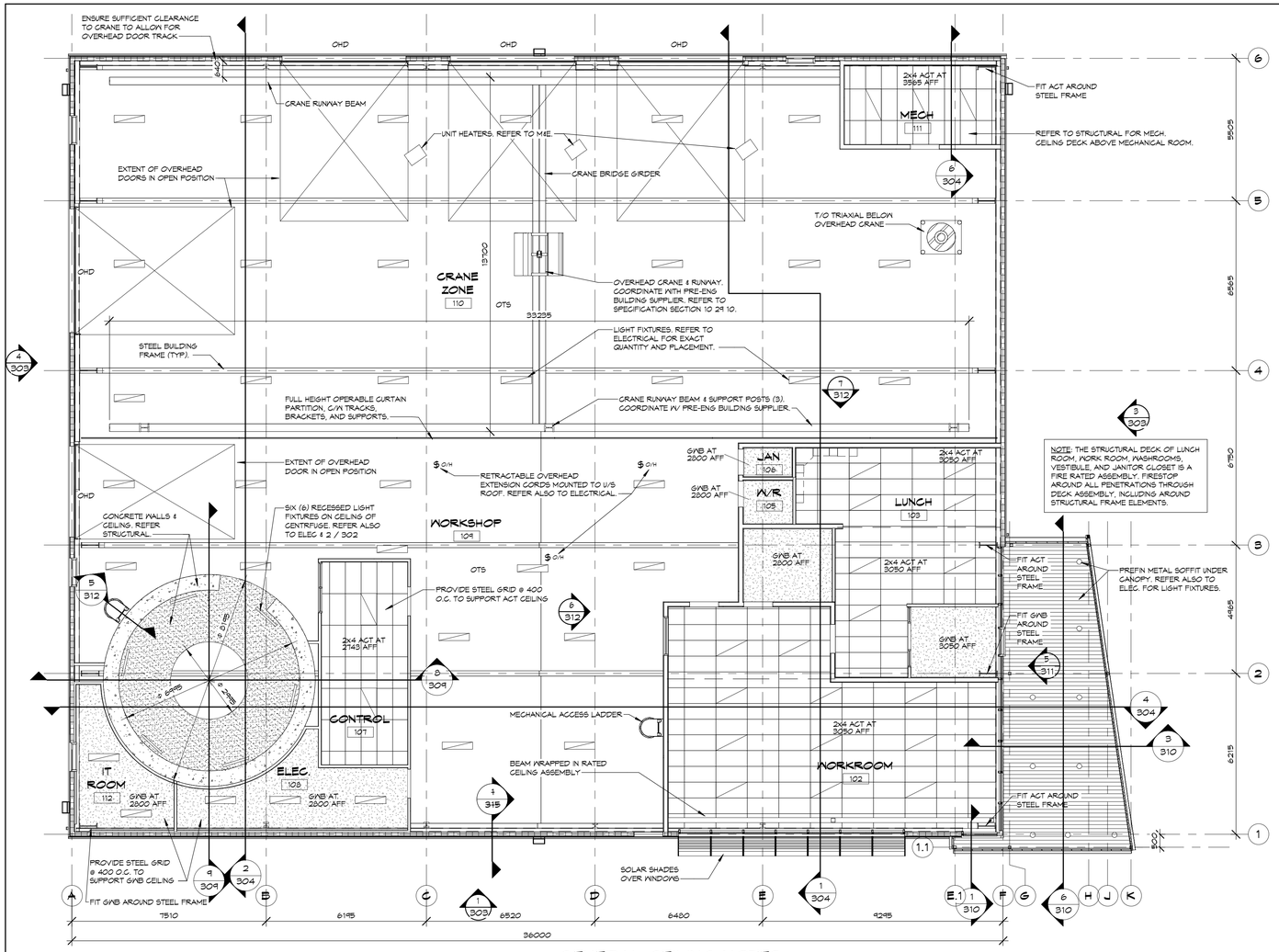
REVIEWED: RHM	DRAWING No. 301
PROJECT No. 21075	

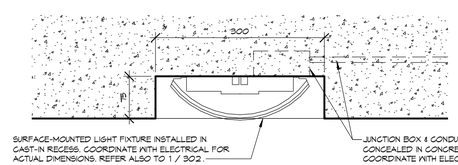


1 REFLECTED CEILING PLAN

SCALE: 1 : 100 (0m, 2m, 4m, 6m, 8m, 10m)

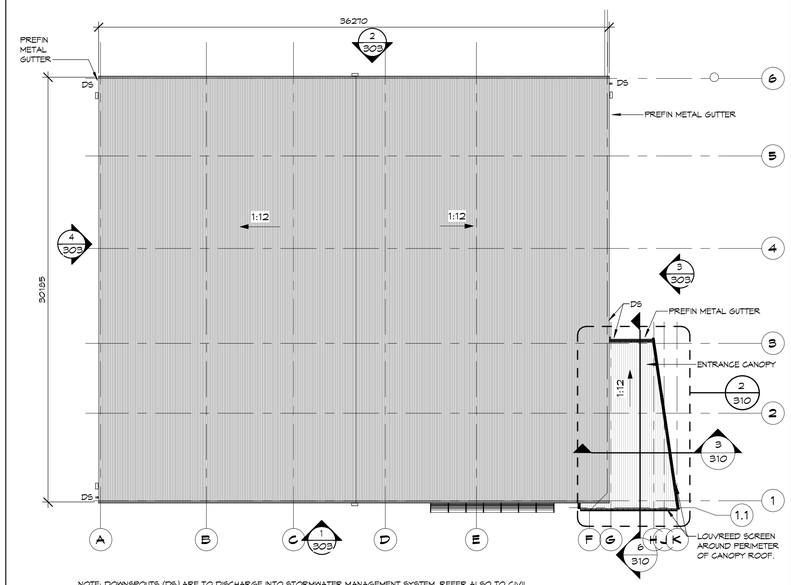
GENERAL CEILING NOTES:

1. REFER ALSO TO MECHANICAL & ELECTRICAL FOR ADDITIONAL WORK ON CEILING. COORDINATE CEILING FINISHES TO SUIT M&E ITEMS AND INSTALLATION.
2. PLACE LIGHT FIXTURES CENTRED IN SPACES, AND SYMMETRICAL.
3. IN OTS AREAS, COORDINATE LIGHT FIXTURES & CONDUIT WITH MECHANICAL AND STRUCTURAL. RUN CONDUIT TIGHT TO DECK. ENSURE FIXTURES DO NOT INTERFERE WITH FULL RANGE OF OVERHEAD CRANE.
4. PROVIDE RATED ACCESS HATCHES AS NECESSARY FOR MECHANICAL & ELECTRICAL ITEMS. FULLY COORDINATE WITH M&E TRADES.
5. CEILING ASSEMBLY ABOVE VEST 101, WORKROOM 102, LUNCH 103, UNIV W/R 104, W/R 105, AND JAN 106 IS A 2-HOUR FRR ASSEMBLY. FIRE STOP AT ALL PENETRATIONS AND AT PERIMETER. ALL THESE ROOMS TO HAVE A GWB CEILING THAT EXTENDS ABOVE ALL NON-RATED PARTITIONS. WHERE ACT CEILING IS SHOWN, A GWB CEILING IS TO BE INSTALLED ABOVE THAT AS PART OF THE RATED ASSEMBLY, AS PER DETAIL 4 / 301.
6. IN ROOMS 108 & 112, PROVIDE STEEL STUD GRID FOR SUSPENSION OF GWB CEILINGS.
7. IN ROOMS 107 & 111, ACT CEILING IS NOT TO BE SUSPENDED FROM ROOF. PROVIDE GRID SUPPORTS FROM WALLS AS NECESSARY TO SUSPEND ACT.
8. AT ACT CEILINGS, COORDINATE WITH MECHANICAL AND ELECTRICAL TO SUSPEND GRID AS HIGH ABOVE FLOOR AS POSSIBLE WHILE ALLOWING ROOM FOR ALL M&E COMPONENTS.
9. NOTE THAT ROOF PURLINS WILL BE VISIBLE FROM BELOW, BUT ARE NOT SHOWN IN THIS PLAN FOR THE SAKE OF CLARITY.
10. PAINT ALL EXPOSED STRUCTURAL STEEL.



2 CENTRIFUGE LIGHT FIXTURE SECTION

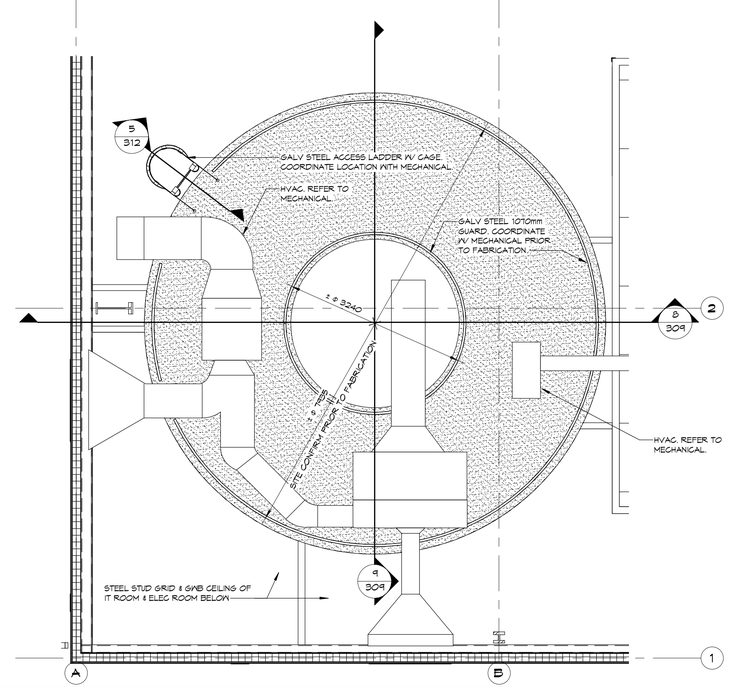
SCALE: 1 : 5 (0m, 0.1m, 0.2m, 0.3m, 0.4m, 0.5m)



NOTE: DOWNSPOUTS (DS) ARE TO DISCHARGE INTO STORMWATER MANAGEMENT SYSTEM. REFER ALSO TO CIVIL.

3 ROOF PLAN

SCALE: 1 : 200 (0m, 4m, 8m, 12m, 16m, 20m)



4 CENTRIFUGE DECK PLAN

SCALE: 1 : 50 (0m, 1m, 2m, 3m, 4m, 5m)

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KINGSTON, ONTARIO K7M 8M8
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PROJECT
CASTLE LABORATORY

TENDER NO: Q-2022-031-EL
262 HARGREAVES WAY, KINGSTON, ON

DRAWING
ROOF PLAN, REFLECTED CEILING PLAN

SCALE: As indicated

PROFESSIONAL SEAL: ONTARIO ASSOCIATION OF ARCHITECTS — RHONDA LORRAINE HORNE-MCCOLLAY, LICENCE 8075 — NOT FOR PERMIT OR CONSTRUCTION WITHOUT SEAL AND ISSUED NOTE

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TJK	DEC 2021
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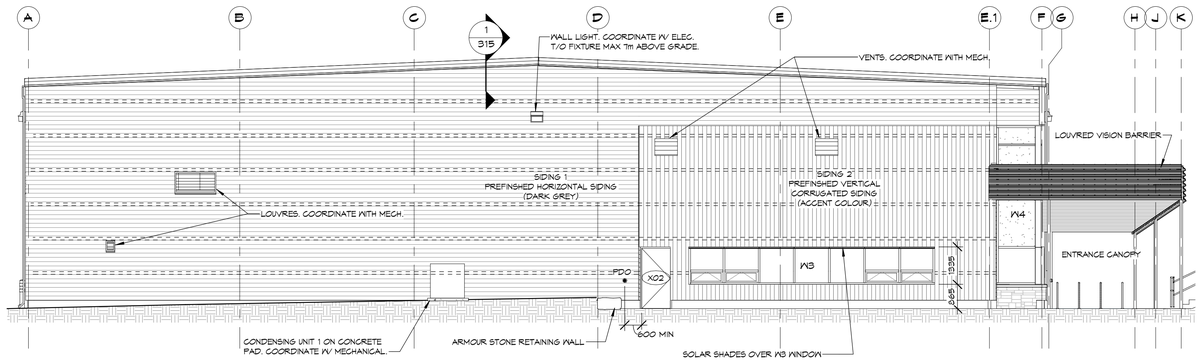
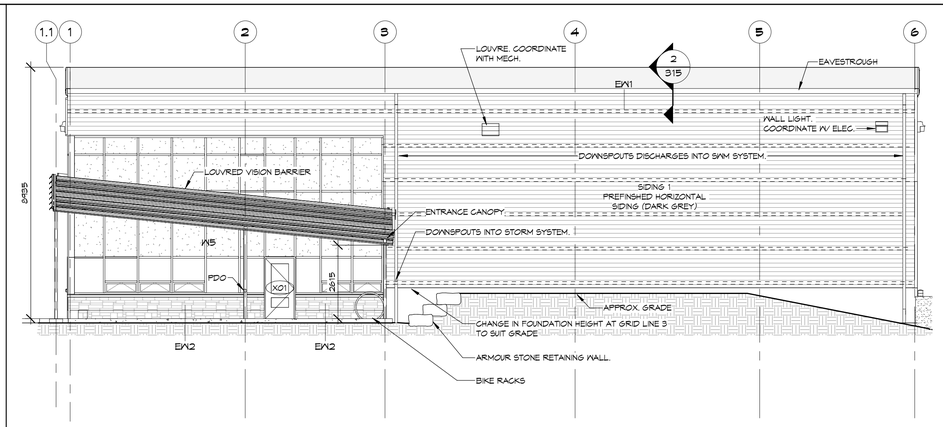
REVIEWED: RHM	DRAWING No.
PROJECT No. 21075	302



NOTE: GIRT CONFIGURATION IS SCHEMATIC ONLY. COORDINATE WITH STEEL BUILDING MANUFACTURER, CLADDING MANUFACTURER, AND CURTAINWALL MANUFACTURER TO ENSURE ALL NECESSARY FRAMING AND STRUCTURAL SUPPORTS ARE PROVIDED FOR DOOR & WINDOW OPENINGS.

1 SOUTH ELEVATION

SCALE: 1 : 100 — 0m 2m 4m 6m 8m 10m

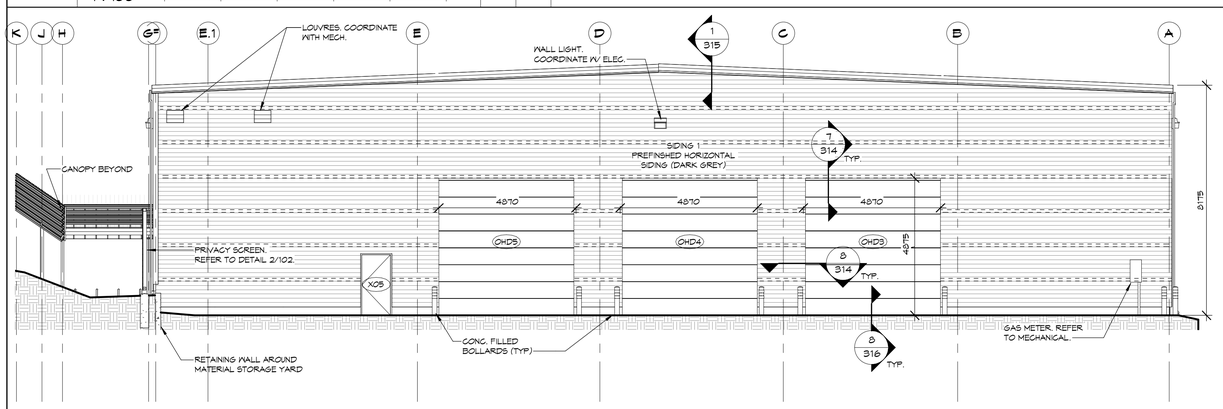


NOTE: GIRT CONFIGURATION IS SCHEMATIC ONLY. COORDINATE WITH STEEL BUILDING MANUFACTURER, CLADDING MANUFACTURER, AND CURTAINWALL MANUFACTURER TO ENSURE ALL NECESSARY FRAMING AND STRUCTURAL SUPPORTS ARE PROVIDED FOR DOOR & WINDOW OPENINGS.

THIS FACADE: 45 MIN RATED WALL FROM INTERIOR FOR LIMITING DISTANCE COMPLIANCE TO TABLE 9.2.3.7.

3 EAST ELEVATION

SCALE: 1 : 100 — 0m 2m 4m 6m 8m 10m

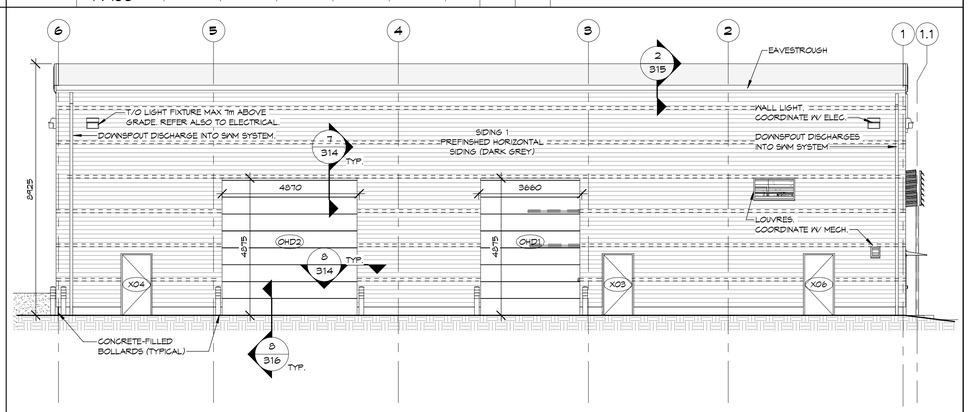


NOTE: GIRT CONFIGURATION IS SCHEMATIC ONLY. COORDINATE WITH STEEL BUILDING MANUFACTURER, CLADDING MANUFACTURER, AND CURTAINWALL MANUFACTURER TO ENSURE ALL NECESSARY FRAMING AND STRUCTURAL SUPPORTS ARE PROVIDED FOR DOOR & WINDOW OPENINGS.

THIS FACADE: 45 MIN RATED WALL FROM INTERIOR FOR LIMITING DISTANCE COMPLIANCE TO TABLE 9.2.3.7.

2 NORTH ELEVATION

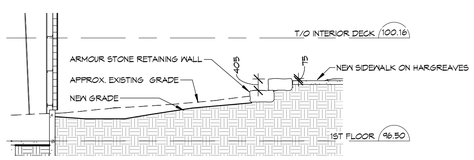
SCALE: 1 : 100 — 0m 2m 4m 6m 8m 10m



NOTE: GIRT CONFIGURATION IS SCHEMATIC ONLY. COORDINATE WITH STEEL BUILDING MANUFACTURER, CLADDING MANUFACTURER, AND CURTAINWALL MANUFACTURER TO ENSURE ALL NECESSARY FRAMING AND STRUCTURAL SUPPORTS ARE PROVIDED FOR DOOR & WINDOW OPENINGS.

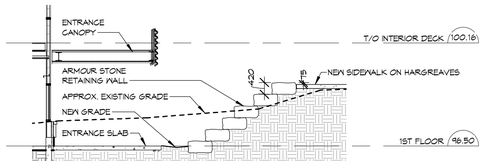
4 WEST ELEVATION

SCALE: 1 : 100 — 0m 2m 4m 6m 8m 10m



5 NORTH GRADE SECTION 1

SCALE: 1 : 100 — 0m 2m 4m 6m 8m 10m



6 NORTH GRADE SECTION 2

SCALE: 1 : 100 — 0m 2m 4m 6m 8m 10m

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PROJECT
CASTLE LABORATORY

TENDER NO: Q-2022-031-EL
262 HARGREAVES WAY, KINGSTON, ON

DRAWING
BUILDING ELEVATIONS

SCALE
1 : 100

PROFESSIONAL SEAL
ONTARIO ASSOCIATION OF ARCHITECTS
RHONDA LORRAINE HORNE-MCGRAY
LICENCE
6076
NOT FOR PERMIT OR CONSTRUCTION WITHOUT SEAL AND ISSUED NOTE

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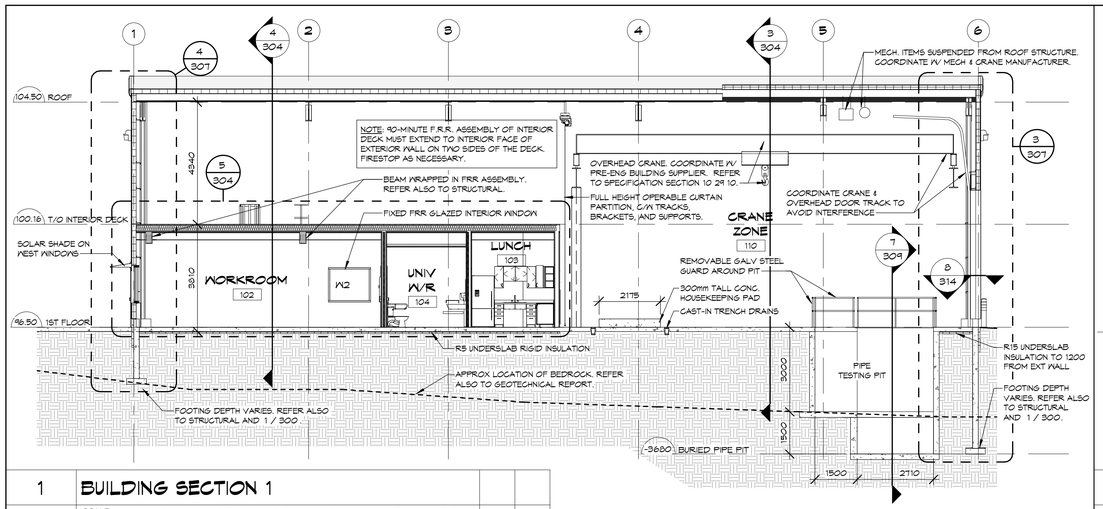
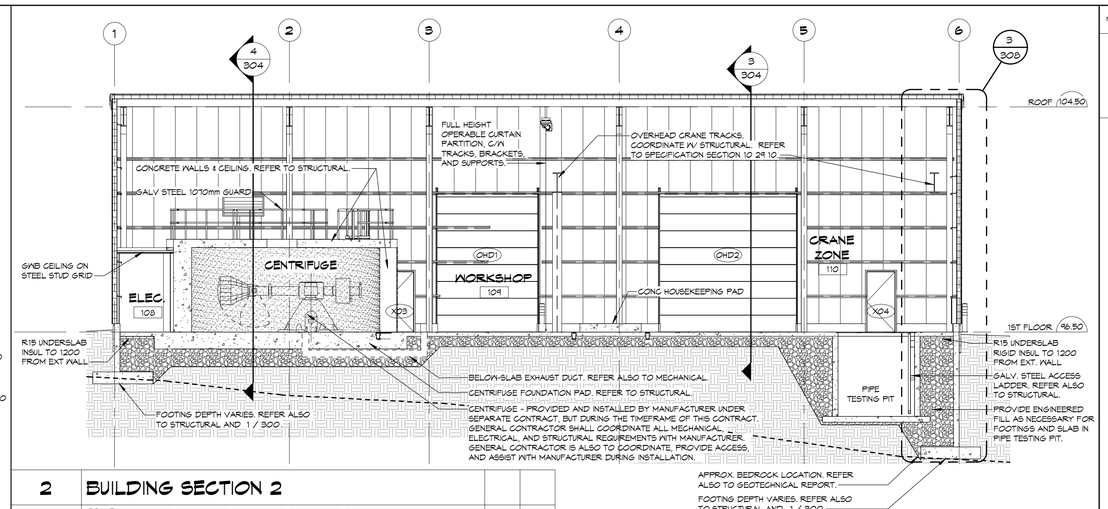
CG	DEC 2021
CHECKED	PRINTED
RHM	8/16/2022
REVIEWED	DRAWING No.
RHM	
PROJECT No.	
21075	303



1 BUILDING SECTION 1

SCALE: 1 : 100 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)



2 BUILDING SECTION 2

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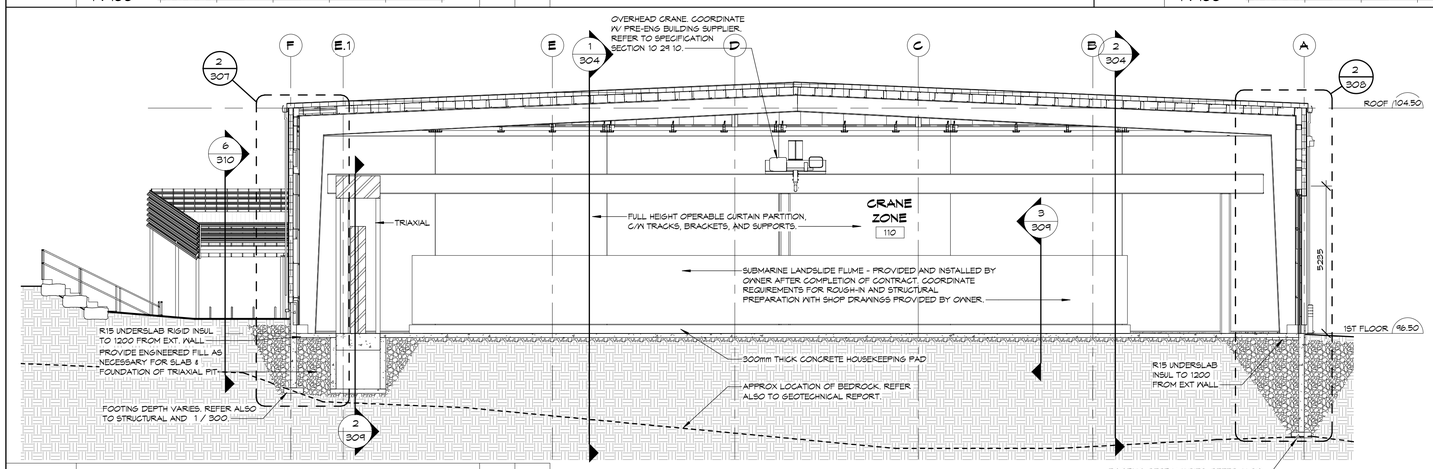

3 BUILDING SECTION 3

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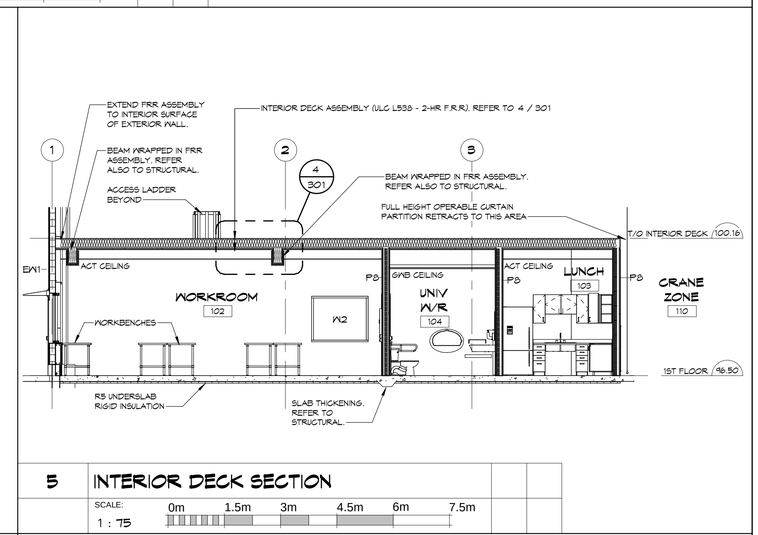
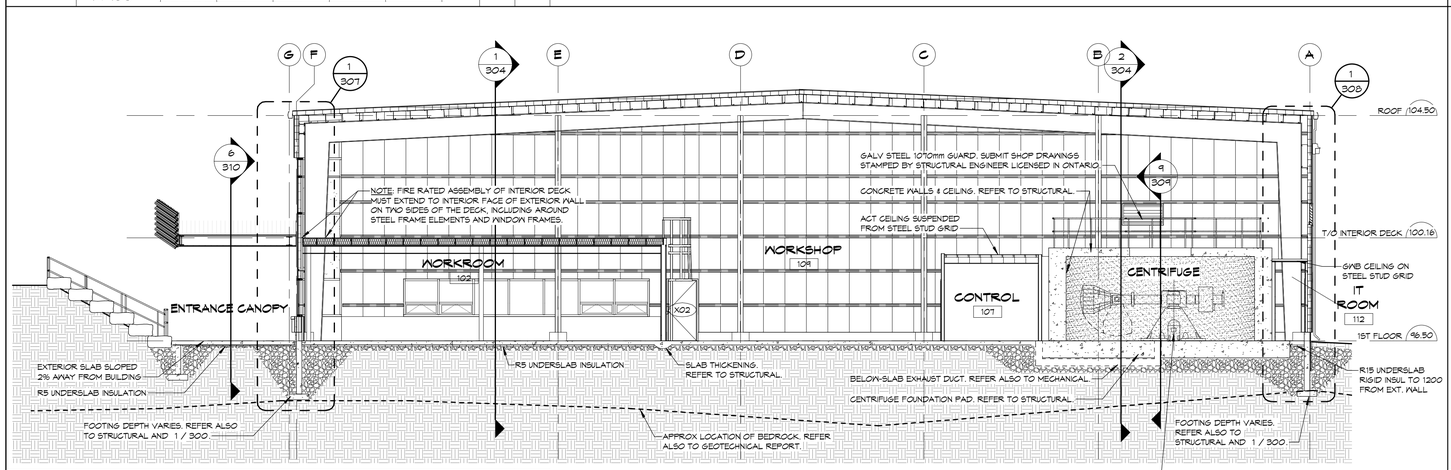


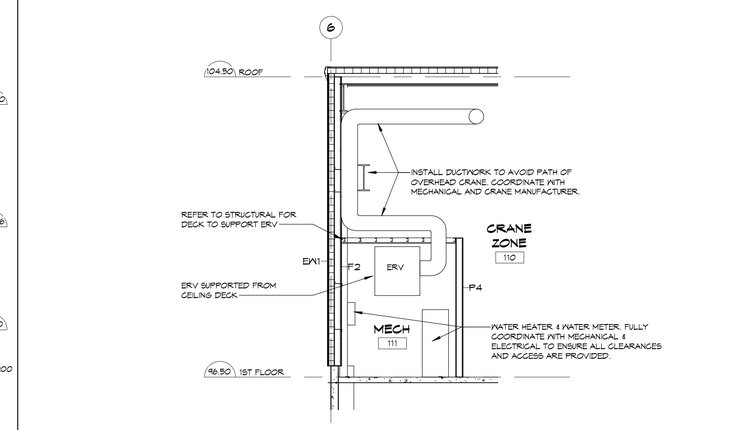
5 INTERIOR DECK SECTION

SCALE: 1 : 75 (0m 1.5m 3m 4.5m 6m 7.5m)



4 BUILDING SECTION 4

SCALE: 1 : 100 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)



6 MECH ROOM SECTION

SCALE: 1 : 75 (0m 1.5m 3m 4.5m 6m 7.5m)

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COLBOURNE & KEMBEL, ARCHITECTS INC.
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PROJECT
CASTLE LABORATORY

TENDER NO: Q-2022-031-EL
262 HARGREAVES WAY, KINGSTON, ON

DRAWING
BUILDING SECTIONS

SCALE
As indicated

PROFESSIONAL SEAL
ONTARIO ASSOCIATION OF ARCHITECTS
RHONDA LORRAINE HORNE-MCCOLLY
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TJK	DEC 2021
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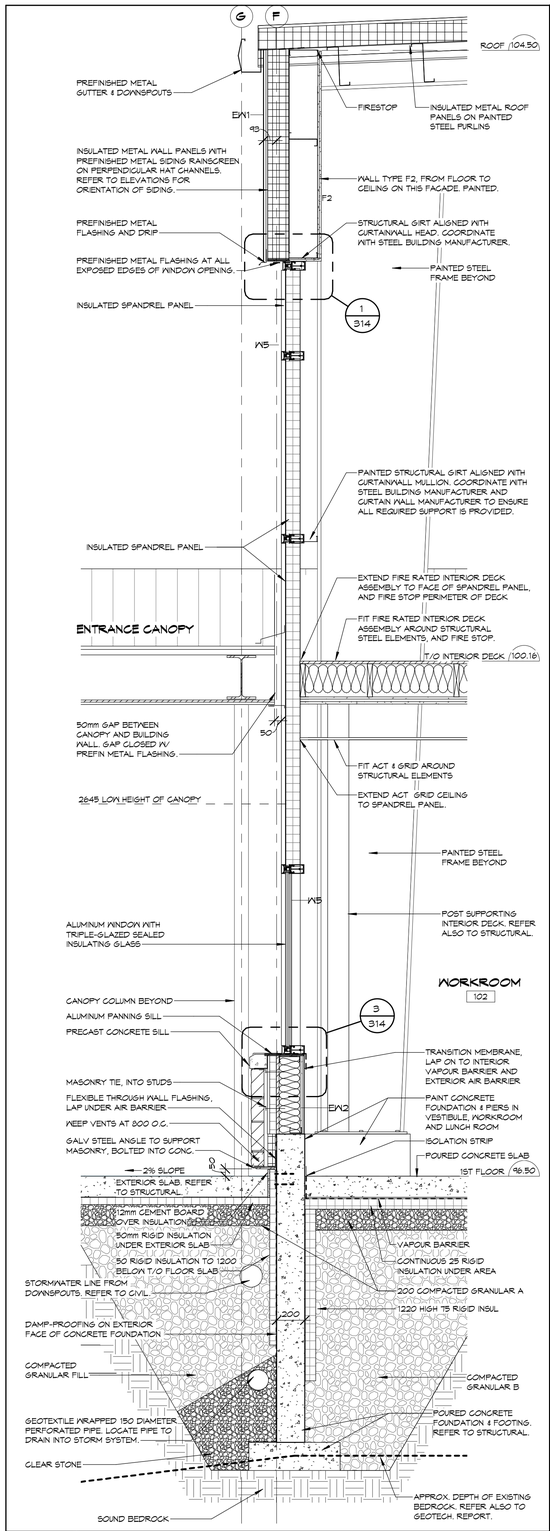
RHM	304
PROJECT No.	
21075	



1 EAST WALL SECTION 1

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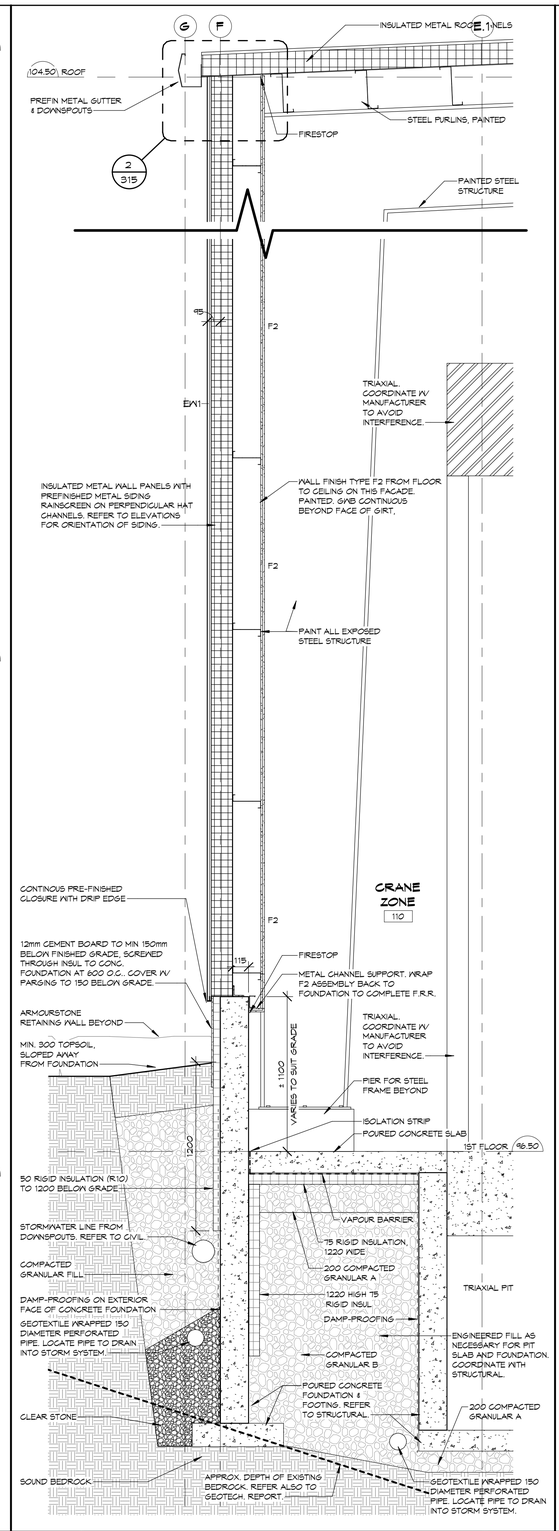
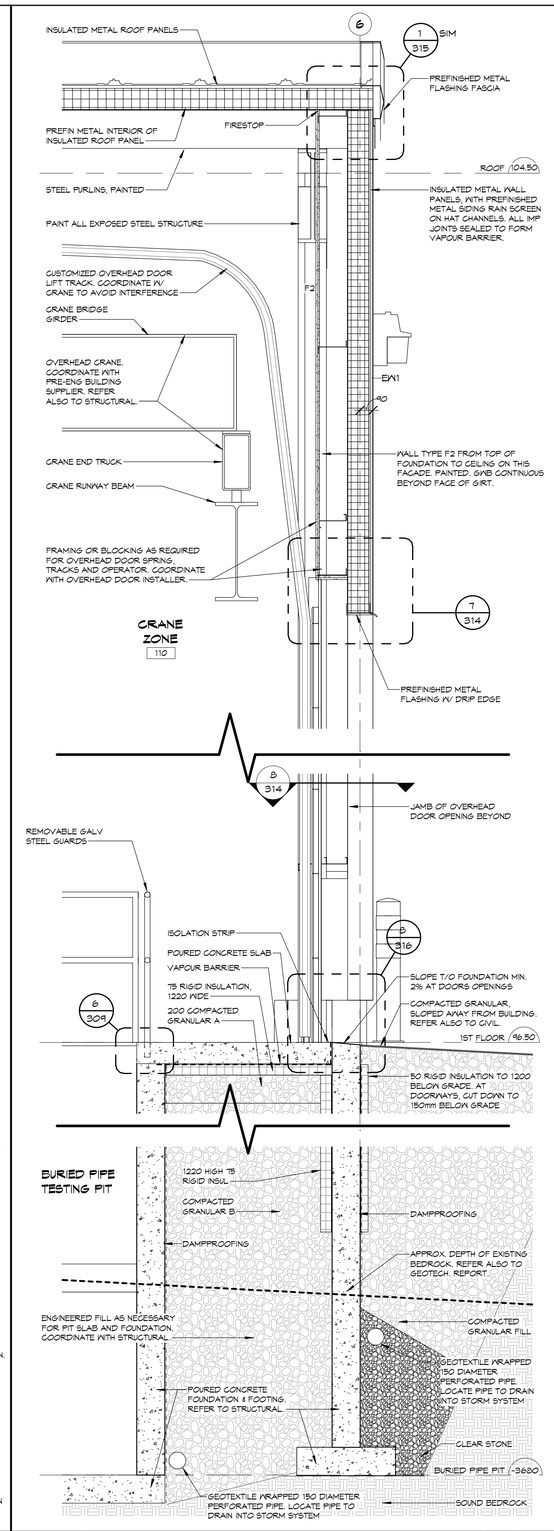


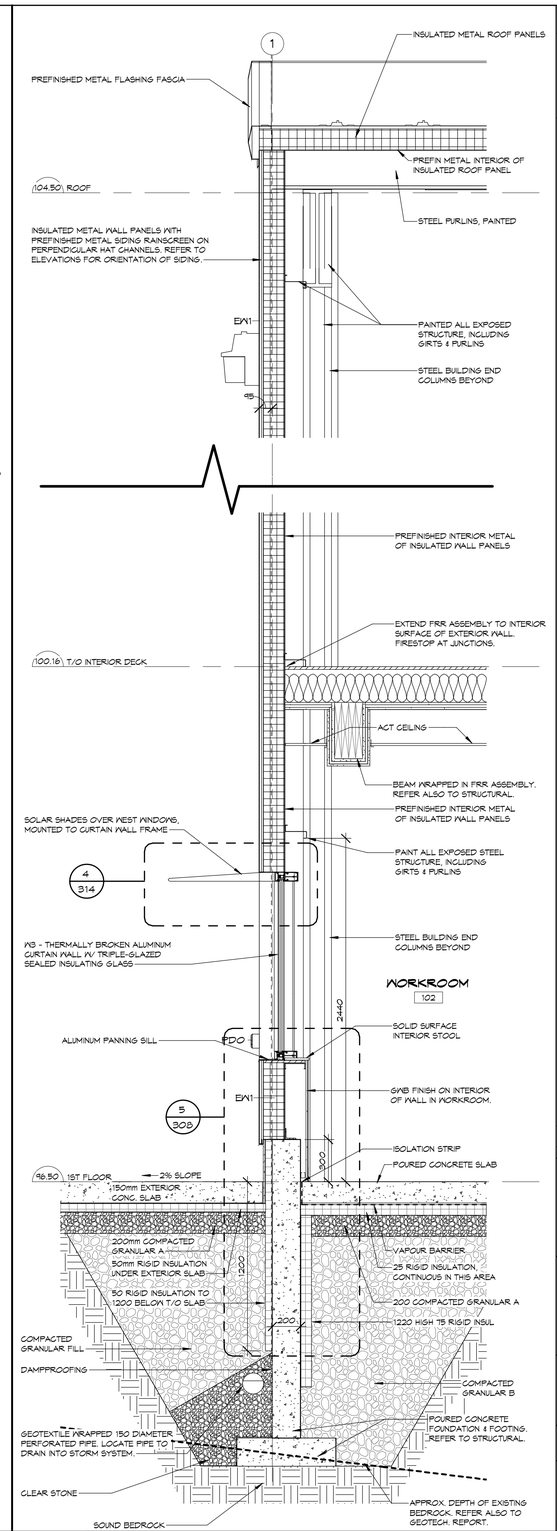
2 EAST WALL SECTION 2

SCALE: 1 : 20 (0m 0.4m 0.8m 1.2m 1.6m 2m)



3 NORTH WALL SECTION @ OH DOOR

SCALE: 1 : 20 (0m 0.4m 0.8m 1.2m 1.6m 2m)



4 SOUTH WALL SECTION @ WINDOW

SCALE: 1 : 20 (0m 0.4m 0.8m 1.2m 1.6m 2m)

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CASTLE LABORATORY

TENDER NO: Q-2022-031-EL

262 HARGREAVES WAY, KINGSTON, ON

DRAWING
WALL SECTIONS

SCALE 1 : 20

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TJK	DEC 2021
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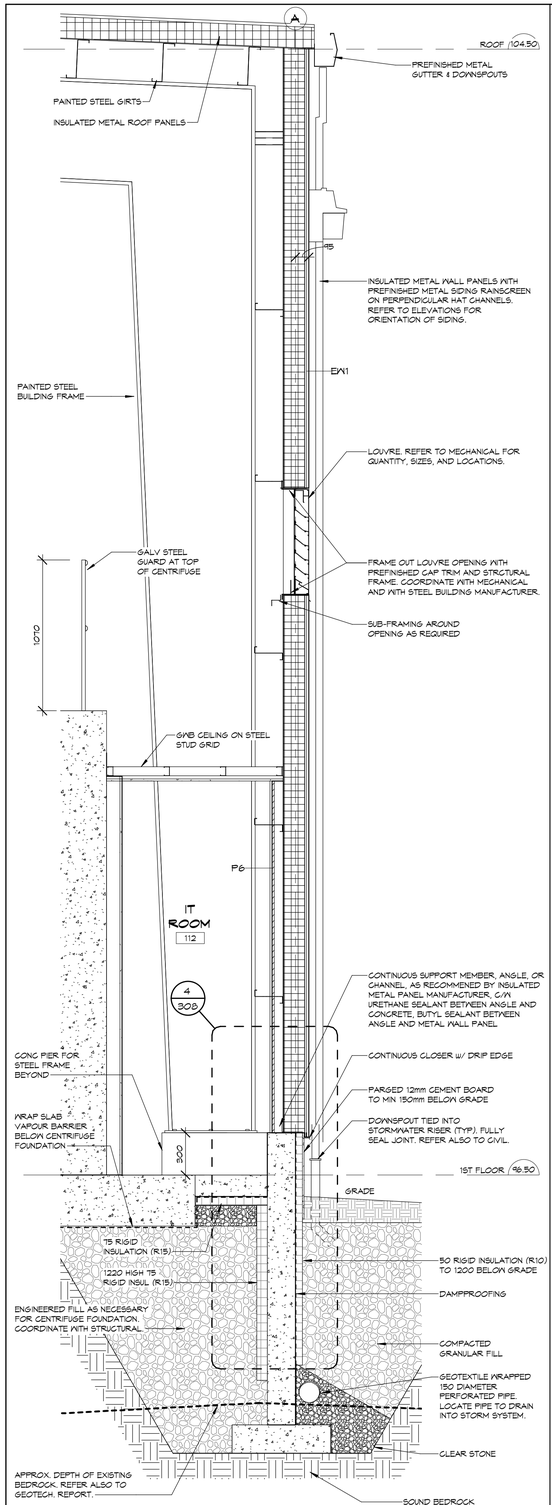
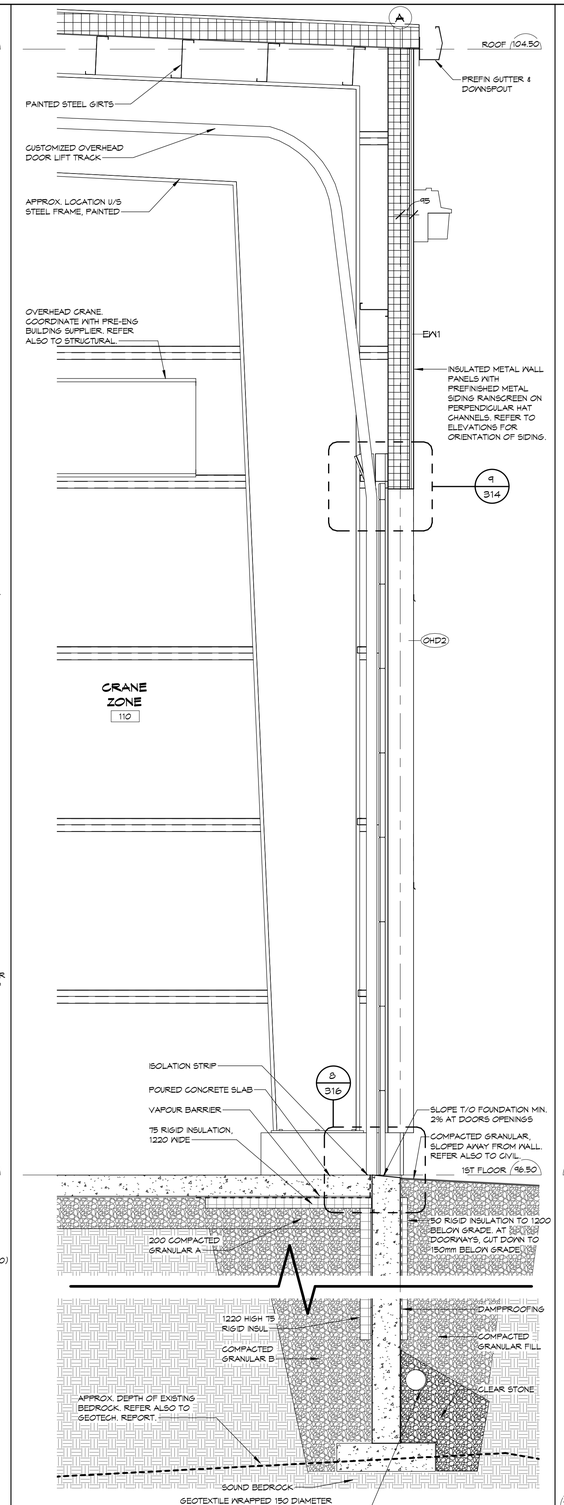
RHM	
REVIEWED	DRAWING No.
RHM	307
PROJECT No.	
21075	



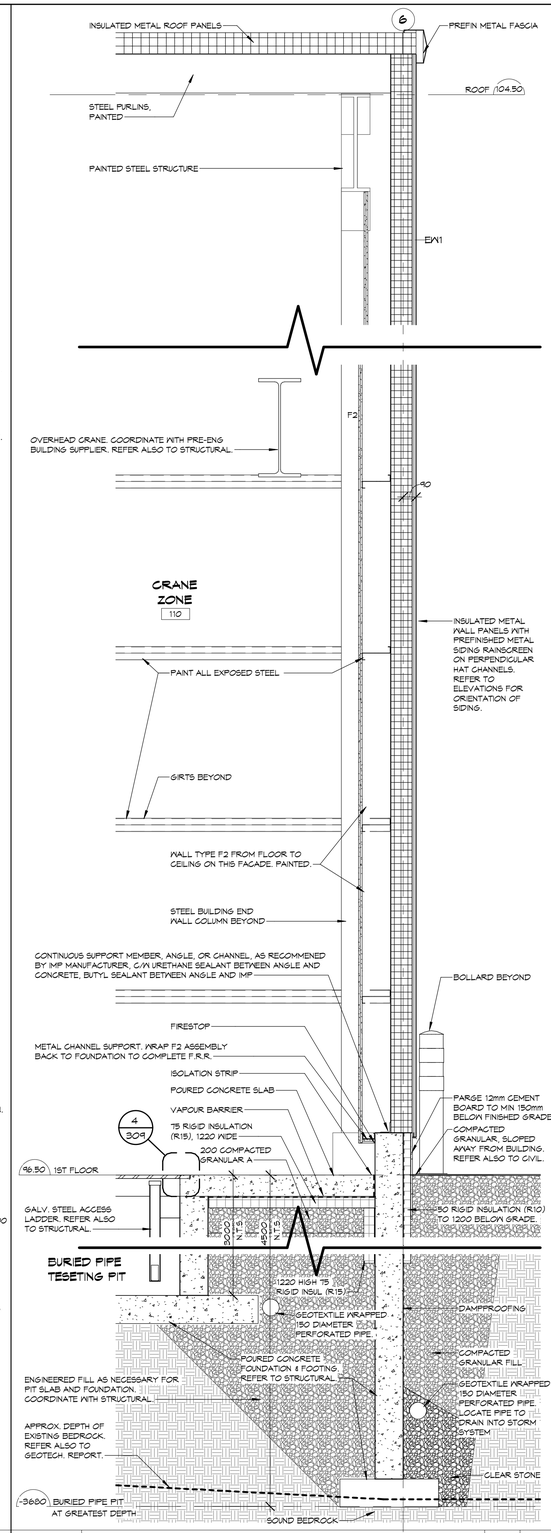
1 WEST WALL SECTION

SCALE: 1 : 20 — 0m 0.4m 0.8m 1.2m 1.6m 2m



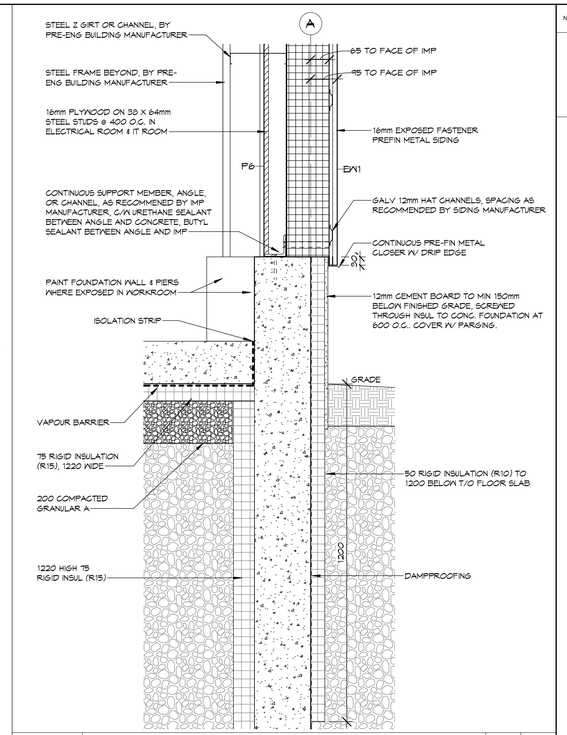
2 WEST WALL SECTION @ OH DOOR

SCALE: 1 : 20 — 0m 0.4m 0.8m 1.2m 1.6m 2m



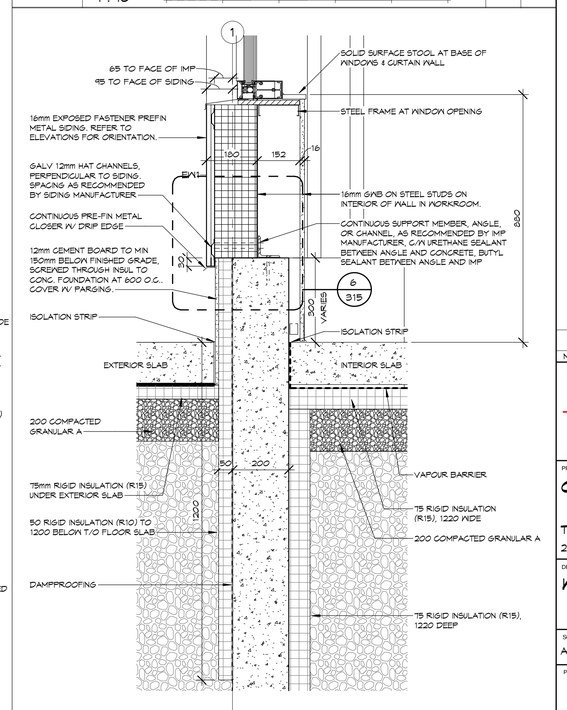
3 NORTH WALL SECTION

SCALE: 1 : 20 — 0m 1m 2m 3m 4m 5m



4 TYPICAL DETAIL WALL @ FOUNDATION

SCALE: 1 : 10 — 0m 0.2m 0.4m 0.6m 0.8m 1m



5 TYPICAL EXT WALL @ FOUNDATION

SCALE: 1 : 10 — 0m 0.2m 0.4m 0.6m 0.8m 1m

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TENDER NO: Q-2022-031-EL
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TJK	DEC 2021
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RHM	
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RHM	308
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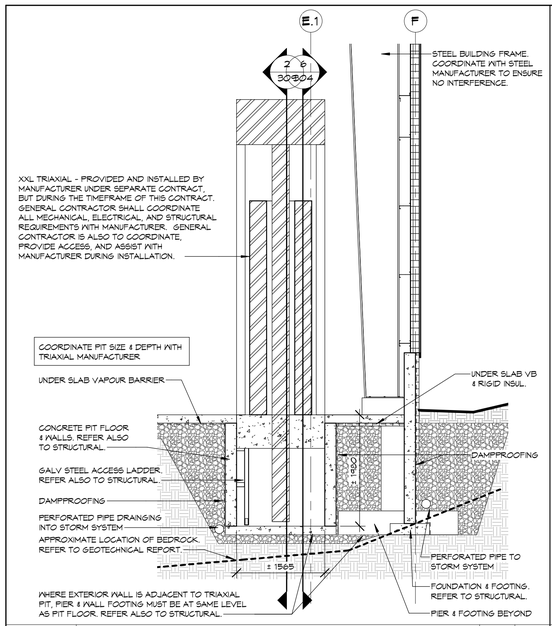
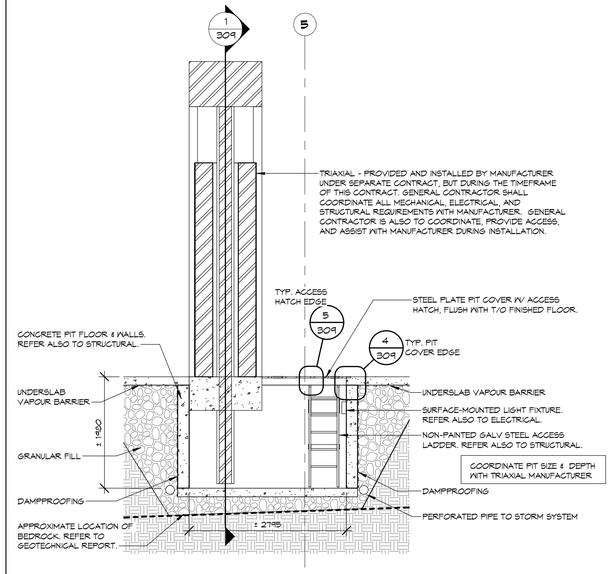
21075	



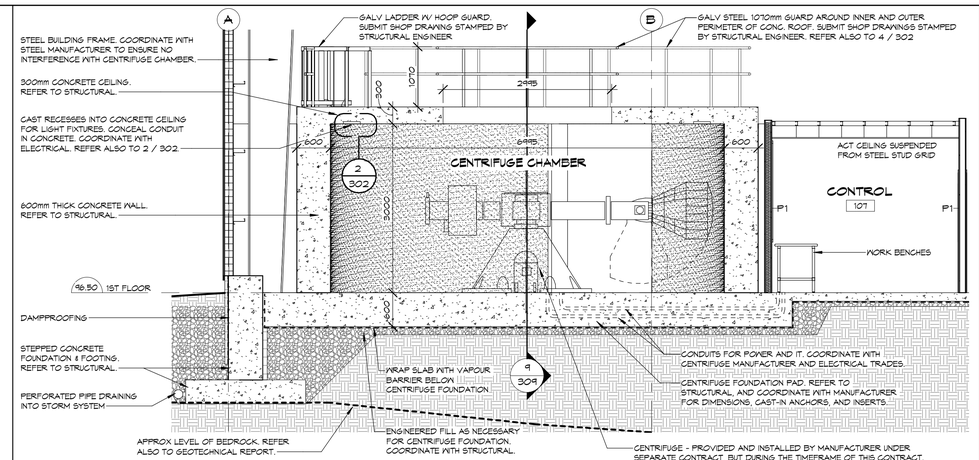
1 TRIAXIAL SECTION E-W

SCALE: 1 : 50 (0m 1m 2m 3m 4m 5m)



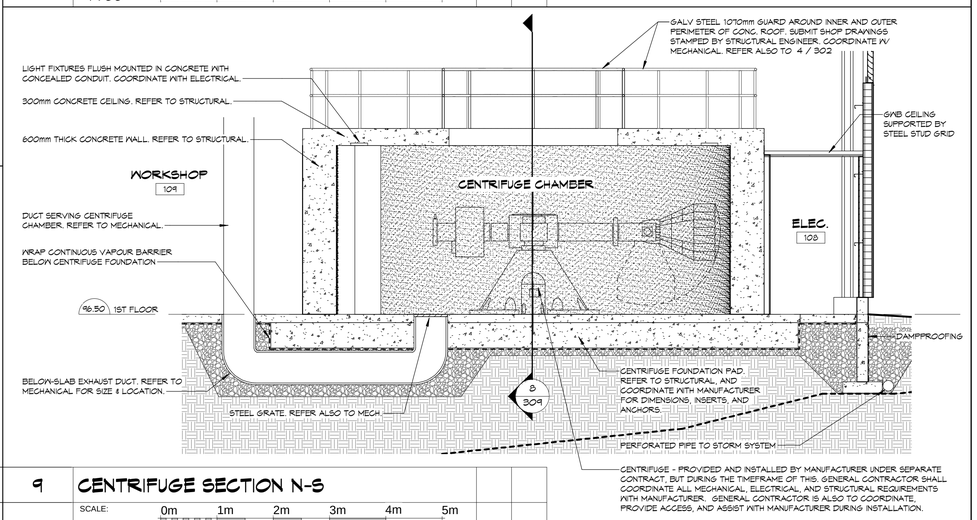
2 TRIAXIAL SECTION N-S

SCALE: 1 : 50 (0m 1m 2m 3m 4m 5m)



8 CENTRIFUGE SECTION E-W

SCALE: 1 : 50 (0m 1m 2m 3m 4m 5m)



9 CENTRIFUGE SECTION N-S

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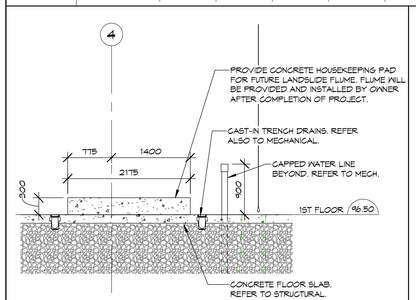
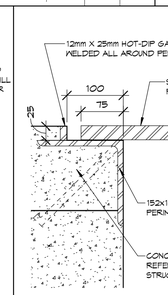


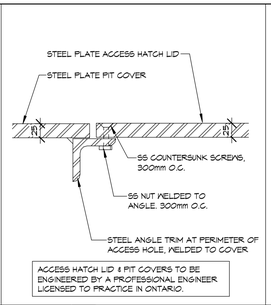
3 LANDSLIDE FLUME PAD SECTION

SCALE: 1 : 50 (0m 0.8m 1.5m 2.3m 3m 3.8m)



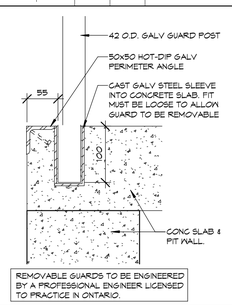
4 PIT COVER EDGE

SCALE: 1 : 5



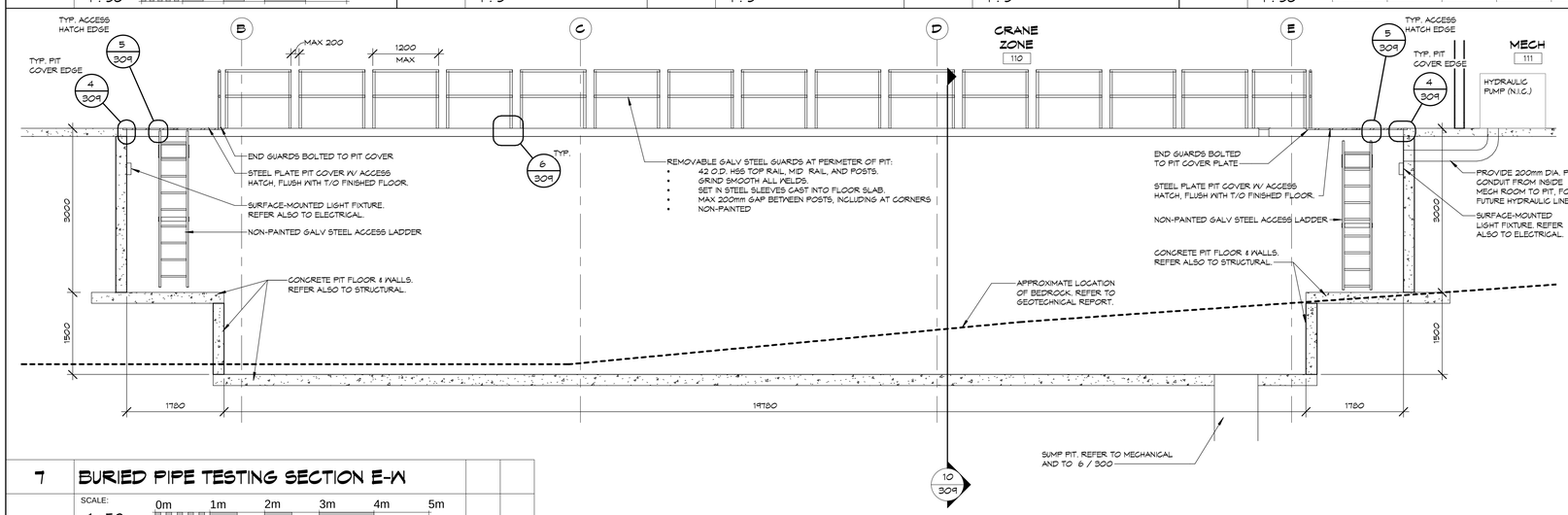
5 ACCESS HATCH LID

SCALE: 1 : 5



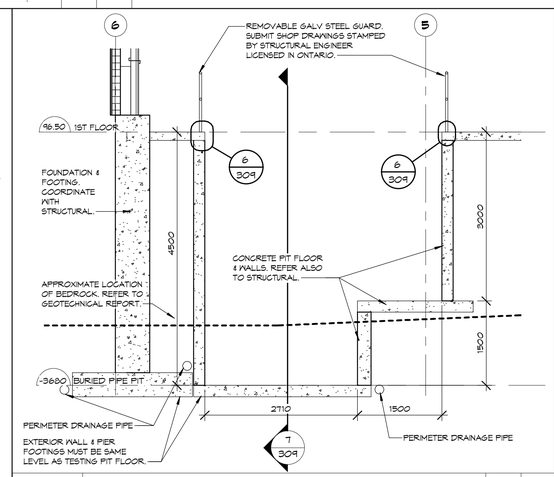
6 REMOVABLE GUARD

SCALE: 1 : 5



7 BURIED PIPE TESTING SECTION E-W

SCALE: 1 : 50 (0m 1m 2m 3m 4m 5m)



10 BURIED PIPE TESTING SECTION N-S

SCALE: 1 : 50 (0m 1m 2m 3m 4m 5m)

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TENDER NO: Q-2022-031-EL
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TJK	DEC 2021
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RHM	309
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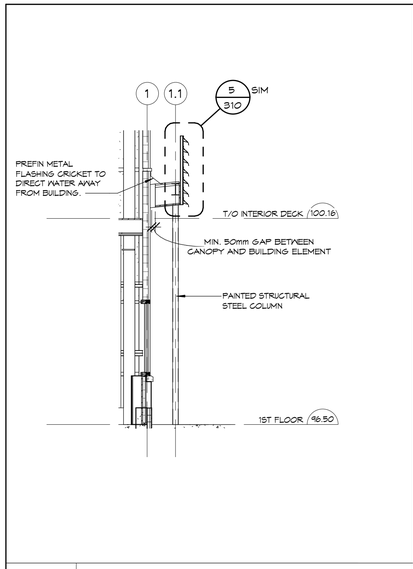
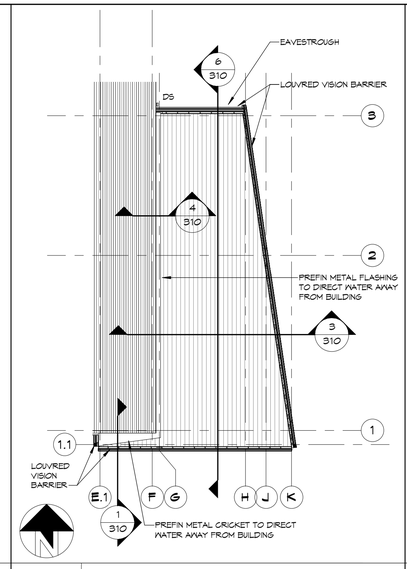
21075	



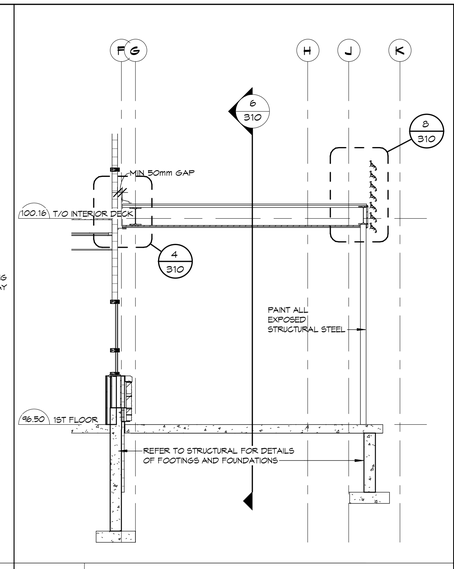
1 CANOPY WEST ELEVATION

SCALE: 1 : 50 — 0m 0.8m 1.5m 2.3m 3m 3.8m



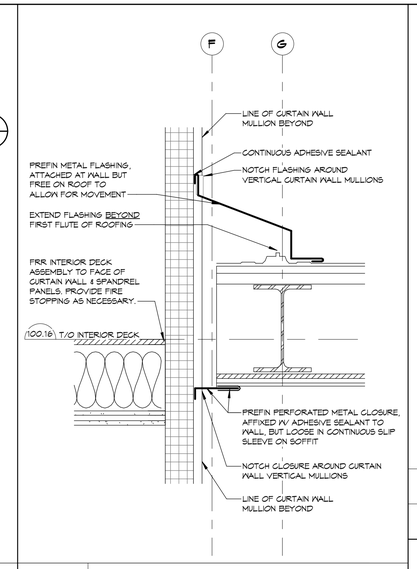
2 CANOPY ROOF PLAN

SCALE: 1 : 100 — 0m 1.5m 3m 4.5m 6m 7.5m



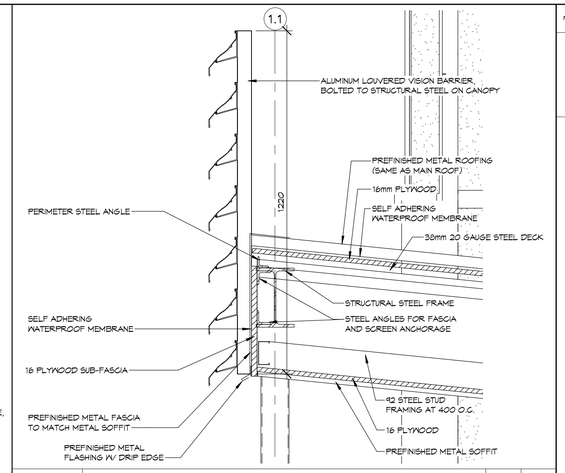
3 CANOPY SECTION 2

SCALE: 1 : 50 — 0m 0.8m 1.5m 2.3m 3m 3.8m



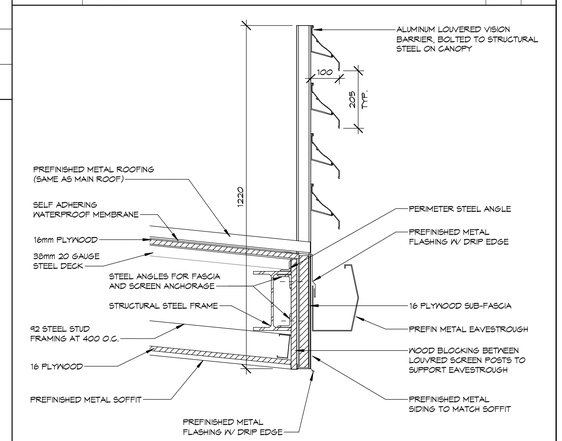
4 CANOPY @ WALL TYP

SCALE: 1 : 10 — 0m 0.2m 0.3m 0.5m 0.6m 0.8m



5 LOUVRED BARRIER SECTION 1

SCALE: 1 : 10 — 0m 0.2m 0.4m 0.6m 0.8m 1m



7 LOUVRED BARRIER SECTION 2

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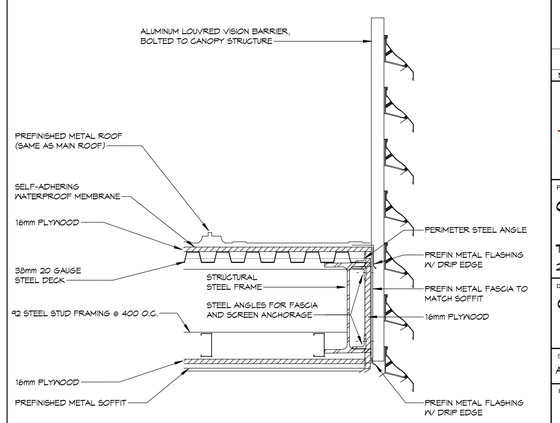
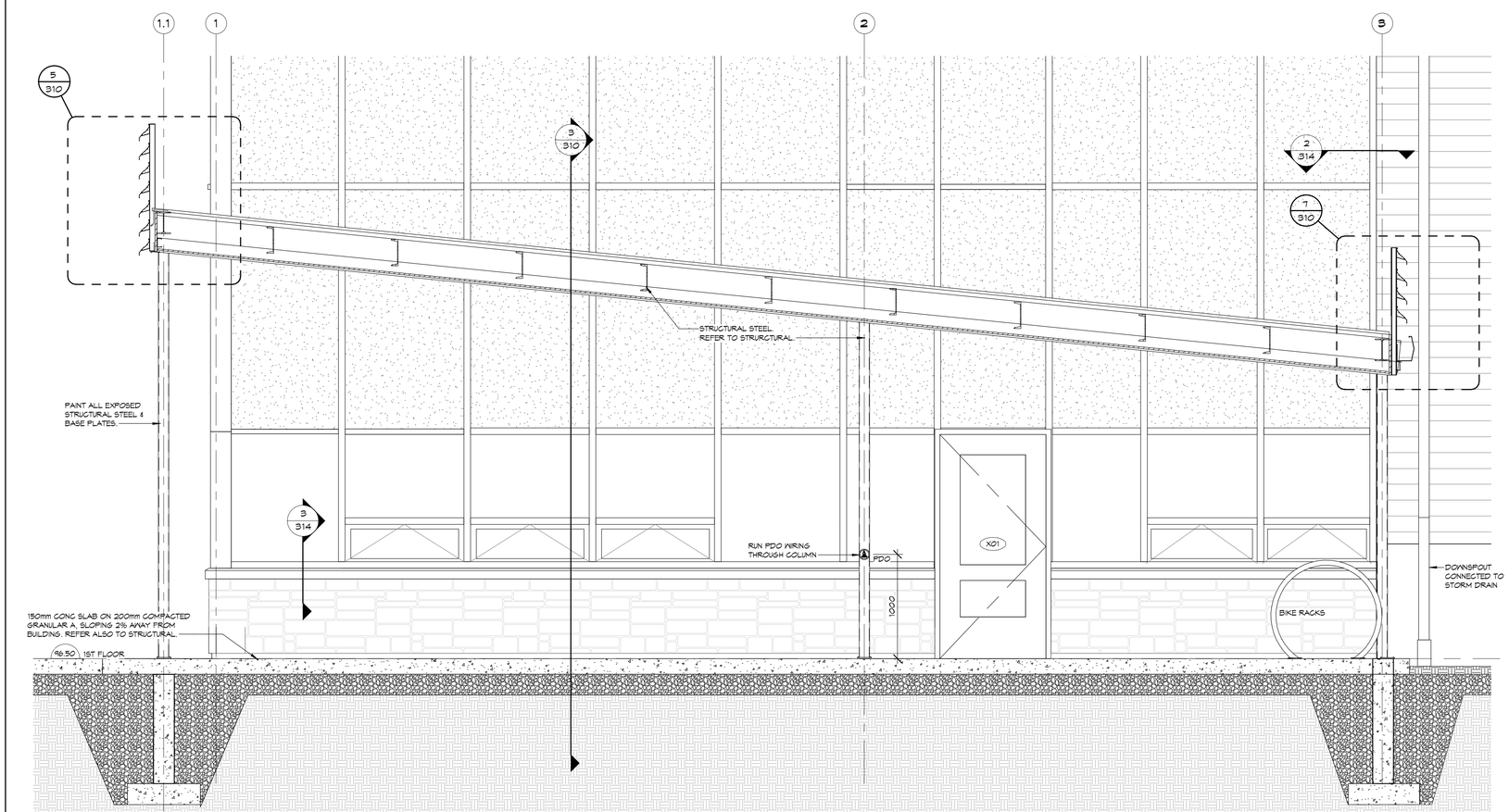


8 LOUVRED BARRIER SECTION 3

SCALE: 1 : 10 — 0m 0.2m 0.4m 0.6m 0.8m 1m



6 CANOPY SECTION 1

SCALE: 1 : 25 — 0m 0.5m 1m 1.5m 2m 2.5m

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PROJECT
CASTLE LABORATORY

TENDER NO: Q-2022-031-EL
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SCALE
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TJK	DEC 2021
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RHM	310
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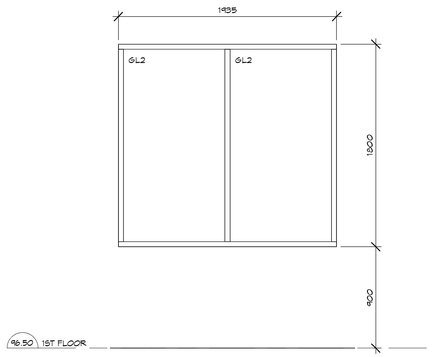
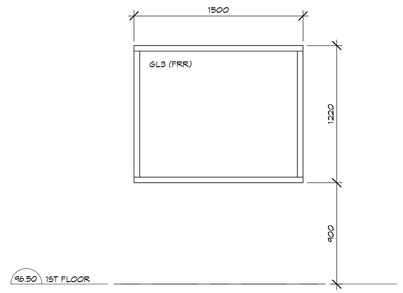
21075	



1 W1 ELEVATION

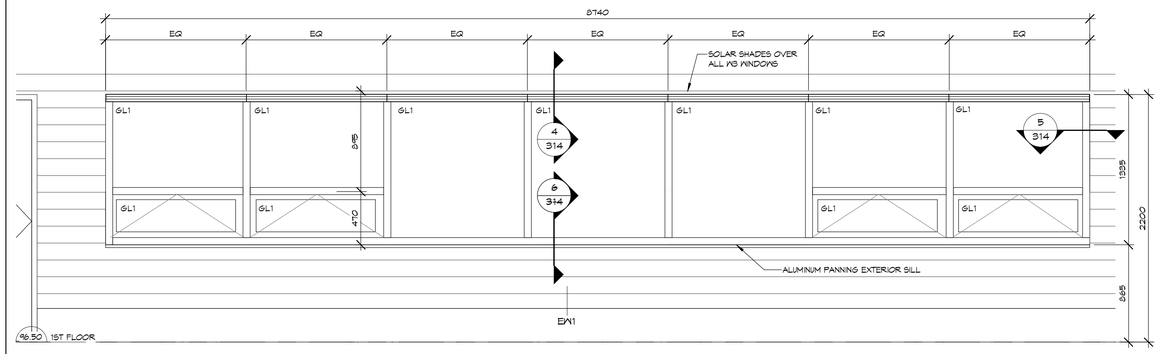
SCALE: 1 : 25 (0m 0.5m 1m 1.5m 2m 2.5m)



2 W2 ELEVATION

REFERENCE: 301

SCALE: 1 : 25 (0m 0.5m 1m 1.5m 2m 2.5m)



3 W3 ELEVATION

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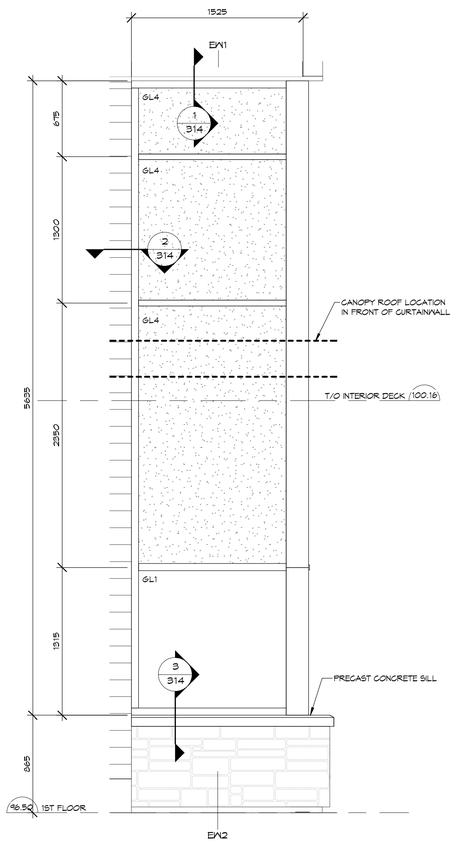
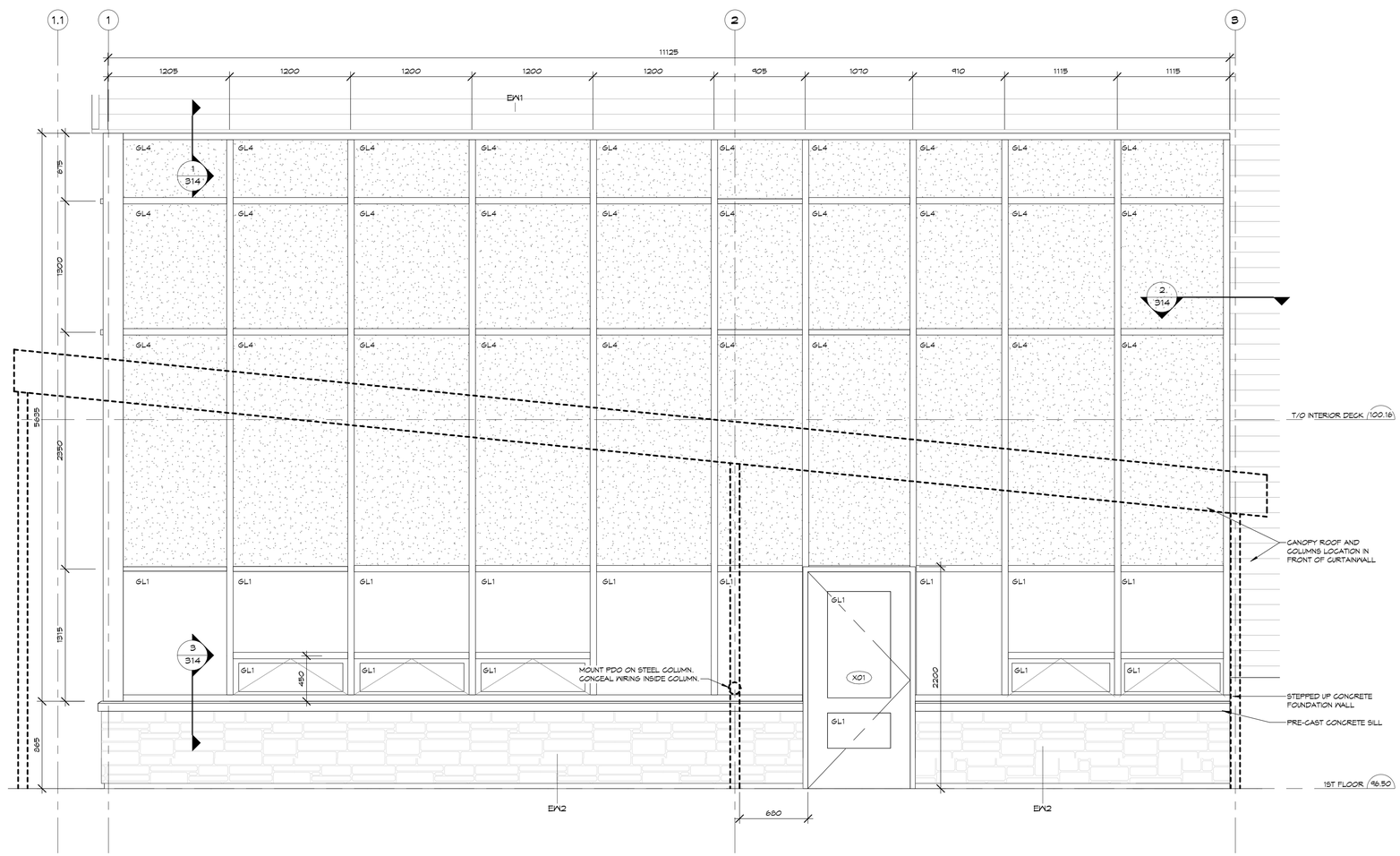


4 W4 ELEVATION

SCALE: 1 : 25 (0m 0.5m 1m 1.5m 2m 2.5m)



5 W5 ELEVATION

SCALE: 1 : 25 (0m 0.5m 1m 1.5m 2m 2.5m)

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1	RHM	ISSUED FOR TENDER, PERMIT, AND CONSTRUCTION	2023.05.11

COLBOURNE & KEMBEL, ARCHITECTS INC.
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info@ck.on.ca www.ck.on.ca

PROJECT

CASTLE LABORATORY

TENDER NO: Q-2022-031-EL

262 HARGREAVES WAY, KINGSTON, ON

DRAWING

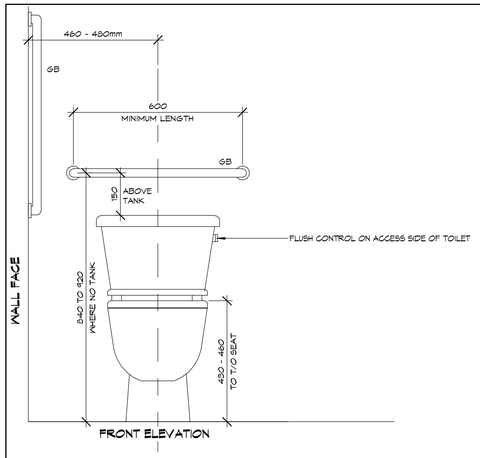
WINDOW & CURTAIN WALL ELEVATIONS

SCALE 1 : 25

PROFESSIONAL SEAL

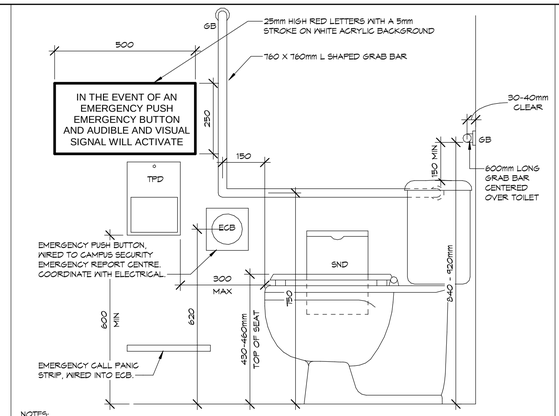
ONTARIO ASSOCIATION OF ARCHITECTS
Rhonda Horne-McCoy
RHONDA LORRAINE HORNE-MCCOY
LICENCE 8076
NOT FOR PERMIT OR CONSTRUCTION WITHOUT SEAL AND ISSUED NOTE

DRAWN	DATE
TJK	DEC 2021
CHECKED: RHM	PRINTED
REVIEWED: RHM	DRAWING No.
PROJECT No. 21075	311



1 B/F TOILET FRONT ELEVATION

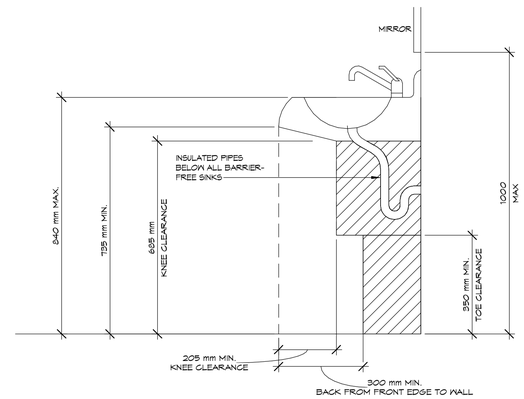
SCALE: 1 : 10 (0m 0.2m 0.4m 0.6m 0.8m 1m)



NOTES:
1. PAPER TOWEL DISPENSER, TOILET PAPER DISPENSER AND SANITARY NAPKIN DISPOSAL PROVIDED BY QUEEN'S, INSTALLED BY GC.
2. MOUNT SOAP AND TOWEL DISPENSERS, HAND DRYERS, AND WASTE RECEPTACLES WITH THEIR OPERATING DEVICES (CRANKS, LEVERS, BUTTONS, SLOTS, ETC.) AT HEIGHTS STIPULATED, REFER TO B / 001.
3. ALL GRAB BARS TO BE 30 - 40mm DIA. W/ 50mm CLEAR FROM WALL SURFACE, AND HAVE SLIP RESISTANT SURFACE.

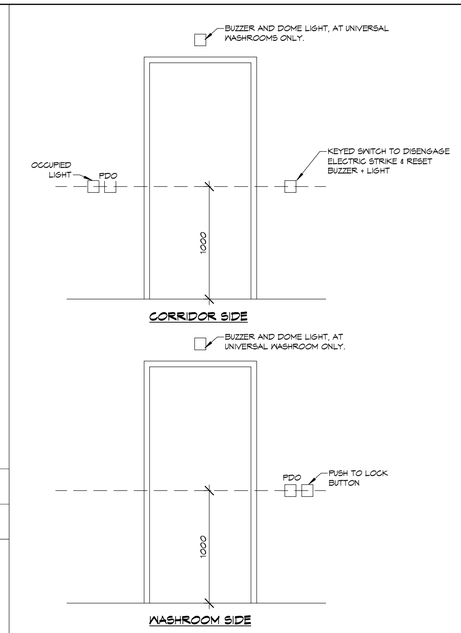
2 B/F TOILET SIDE ELEVATION

SCALE: 1 : 10 (0m 0.2m 0.4m 0.6m 0.8m 1m)



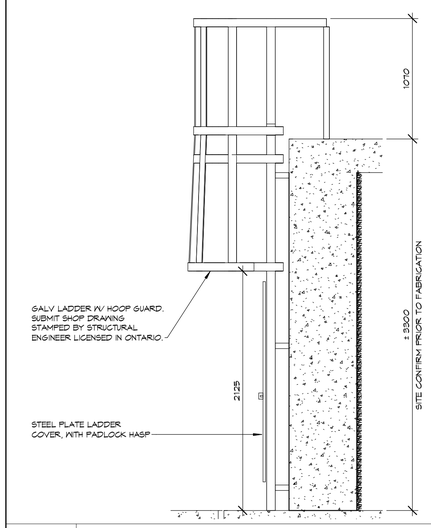
3 TYPICAL B.F. SINK MOUNTING HEIGHT

SCALE: 1 : 10 (0m 0.2m 0.4m 0.6m 0.8m 1m)



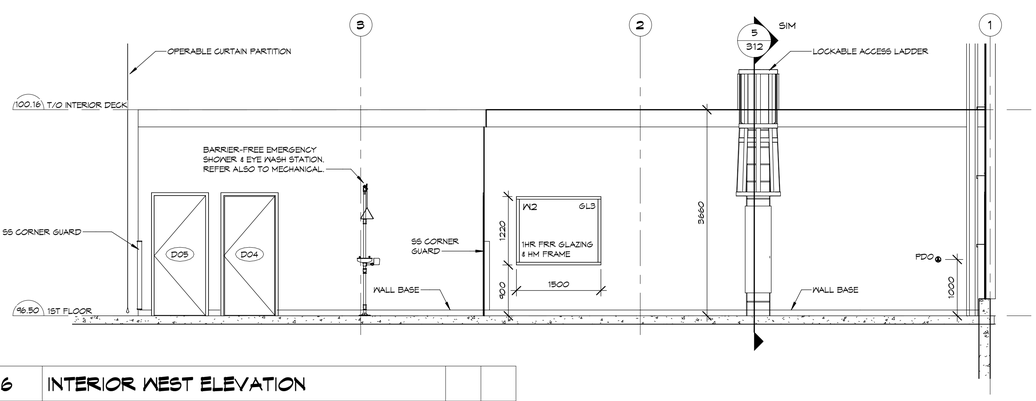
4 TYP. B/F WASHROOM DOOR DETAIL

SCALE: 1 : 25 (0m 0.5m 1m 1.5m 2m 2.5m)



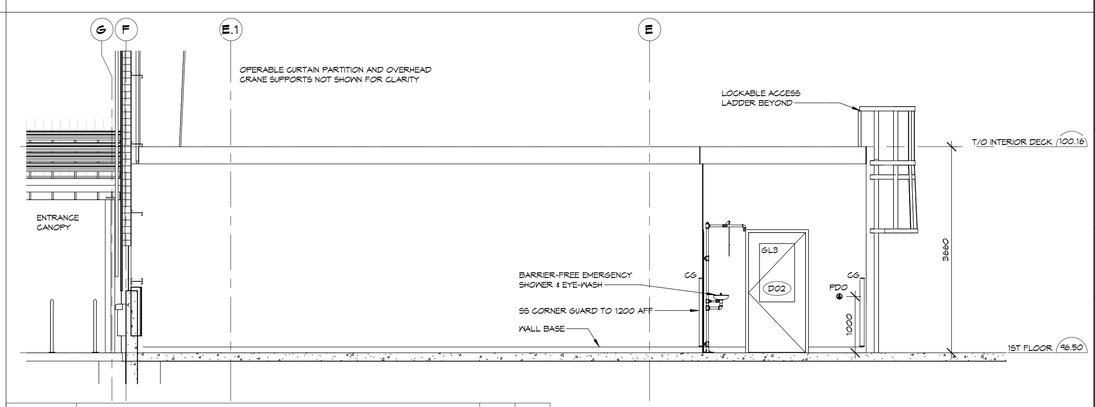
5 MECHANICAL ACCESS LADDER SECTION

SCALE: 1 : 25 (0m 0.5m 1m 1.5m 2m 2.5m)



6 INTERIOR WEST ELEVATION

SCALE: 1 : 50 (0m 1m 2m 3m 4m 5m)



7 INTERIOR NORTH ELEVATION

SCALE: 1 : 50 (0m 1m 2m 3m 4m 5m)

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COLBOURNE & KEMBEL, ARCHITECTS INC.
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PROJECT
CASTLE LABORATORY

TENDER NO: Q-2022-031-EL
262 HARGREAVES WAY, KINGSTON, ON

DRAWING
DETAILS & INTERIOR ELEVATIONS

SCALE
As indicated

PROFESSIONAL SEAL
ONTARIO ASSOCIATION OF ARCHITECTS
Rhonda Horne-McGay
RHONDA LORRAINE HORNE-MCGOAY
LICENCE
6075
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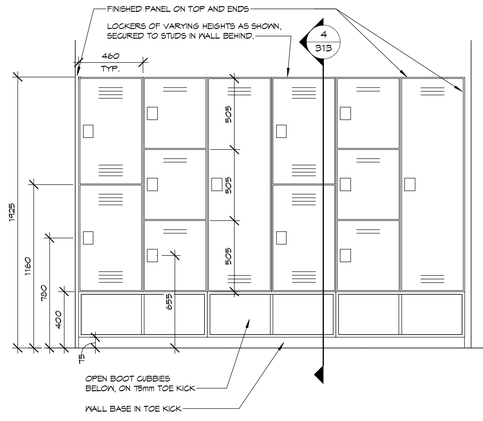
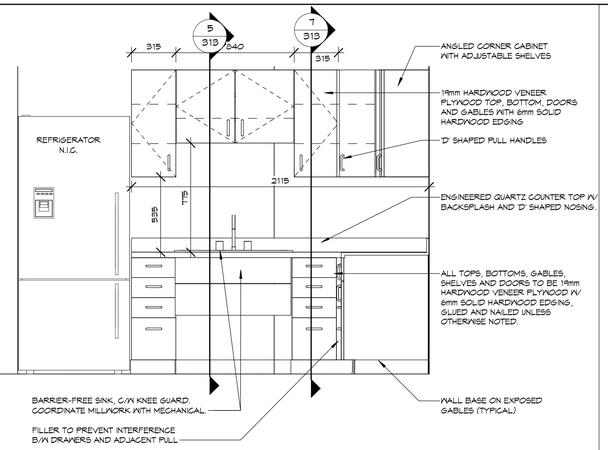
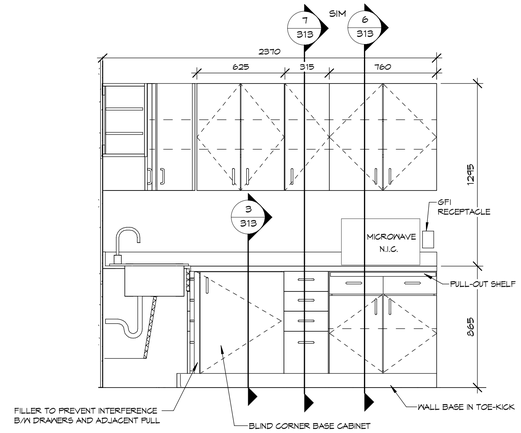
DRAWN	DATE
TJK	DEC 2021
CHECKED: RHM	PRINTED
REVIEWED: RHM	DRAWING No. 312
PROJECT No. 21075	





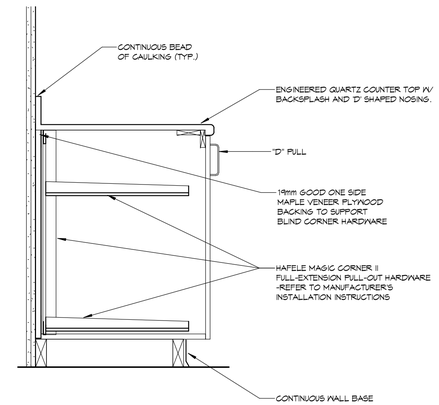
1 LUNCH ROOM WEST ELEV

SCALE: 1 : 20 (0m 0.4m 0.8m 1.2m 1.6m 2m)



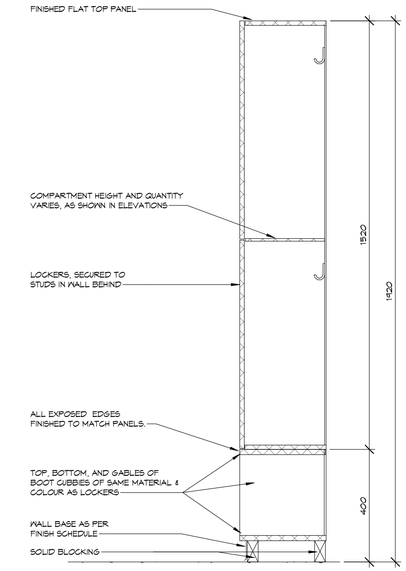
2 LUNCH ROOM NORTH ELEV

SCALE: 1 : 20 (0m 0.4m 0.8m 1.2m 1.6m 2m)



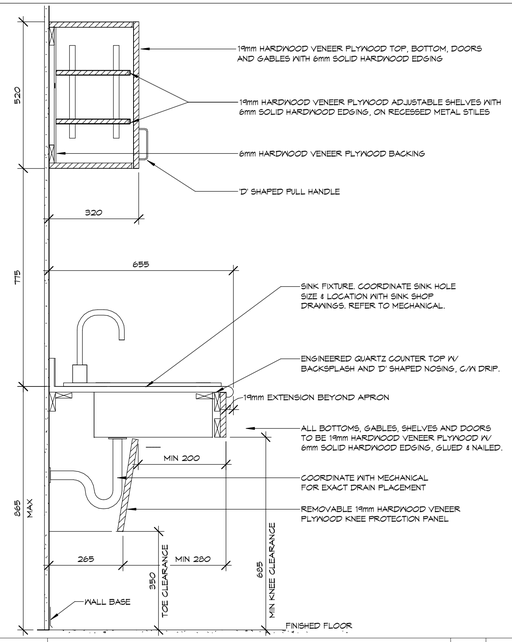
3 BLIND CORNER BASE CABINET

SCALE: 1 : 10 (0m 0.2m 0.4m 0.6m 0.8m 1m)



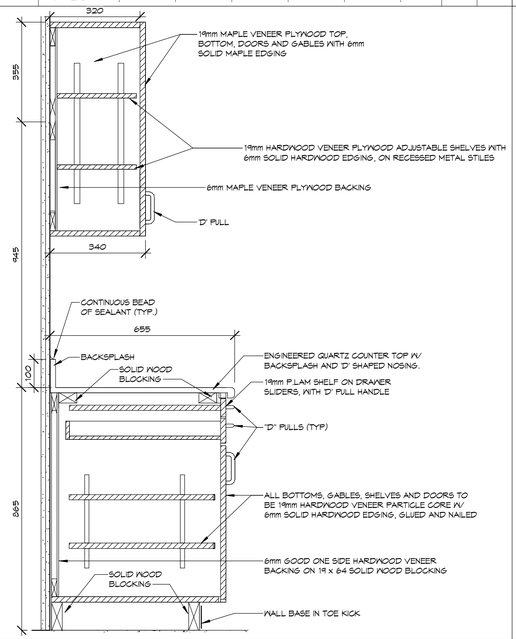
4 LOCKER SECTION

SCALE: 1 : 10 (0m 0.2m 0.4m 0.6m 0.8m 1m)



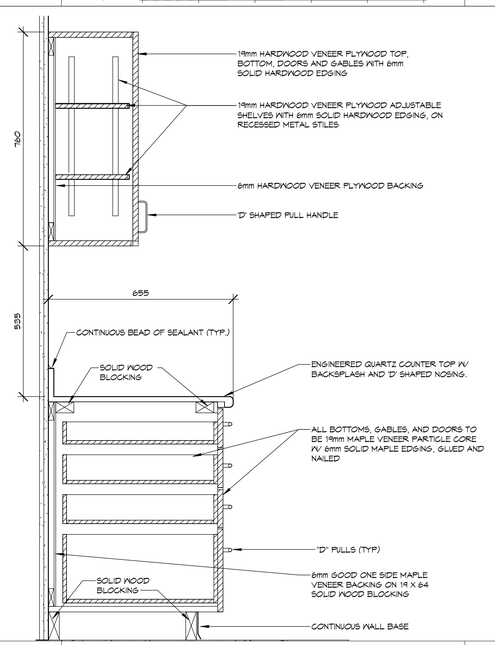
5 MILLWORK SECTION @ SINK

SCALE: 1 : 10 (0m 0.2m 0.4m 0.6m 0.8m 1m)



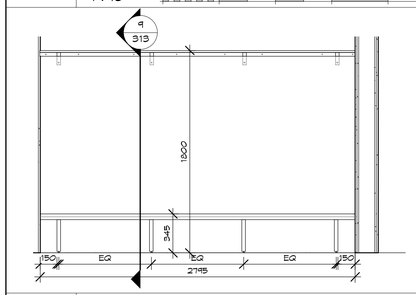
6 MILLWORK SECTION @ PULLOUT SHELF

SCALE: 1 : 10 (0m 0.2m 0.4m 0.6m 0.8m 1m)



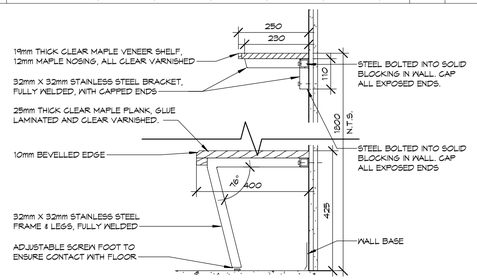
7 MILLWORK SECTION @ DRAWERS

SCALE: 1 : 10 (0m 0.2m 0.4m 0.6m 0.8m 1m)



8 BENCH ELEVATION

SCALE: 1 : 25 (0m 0.5m 1m 1.5m 2m 2.5m)



9 BENCH & SHELF SECTION

SCALE: 1 : 10 (0m 0.2m 0.4m 0.6m 0.8m 1m)

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PROJECT
CASTLE LABORATORY

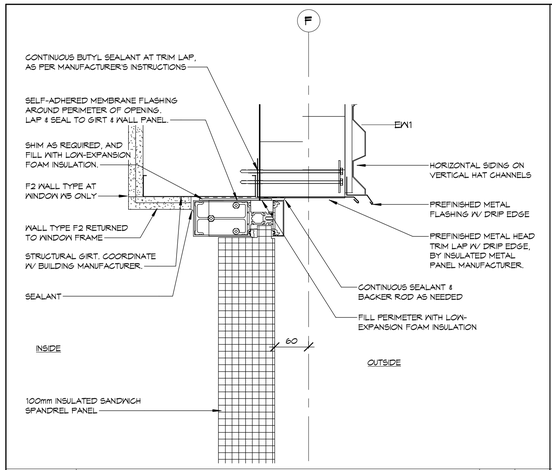
TENDER NO: Q-2022-031-EL
262 HARGREAVES WAY, KINGSTON, ON

DRAWING
MILLWORK ELEVATIONS & DETAILS

SCALE
As indicated

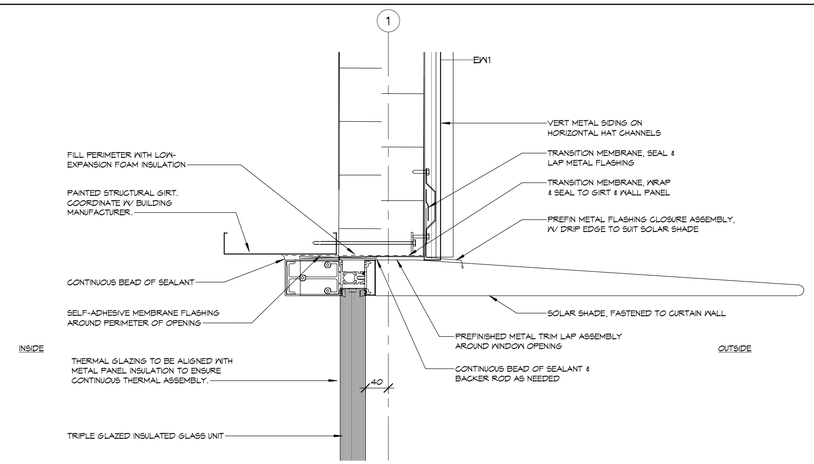
PROFESSIONAL SEAL
ONTARIO ASSOCIATION OF ARCHITECTS
Rhonda Horne-McGay
RHONDA LORRAINE HORNE-MCGOAY
LICENCE
6075
NOT FOR PERMIT OR CONSTRUCTION WITHOUT SEAL AND ISSUED NOTE

DRAWN	DATE
TJK	DEC 2021
CHECKED: RHM	PRINTED
REVIEWED: RHM	DRAWING No.
PROJECT No. 21075	313



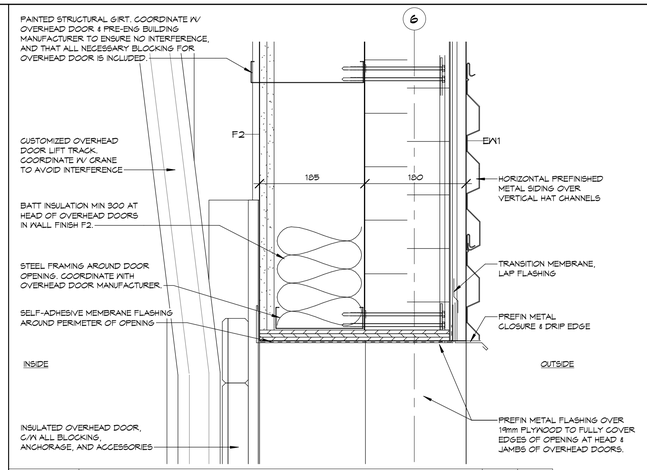
1 W4 & W5 HEAD DETAIL

SCALE: 1 : 5 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)



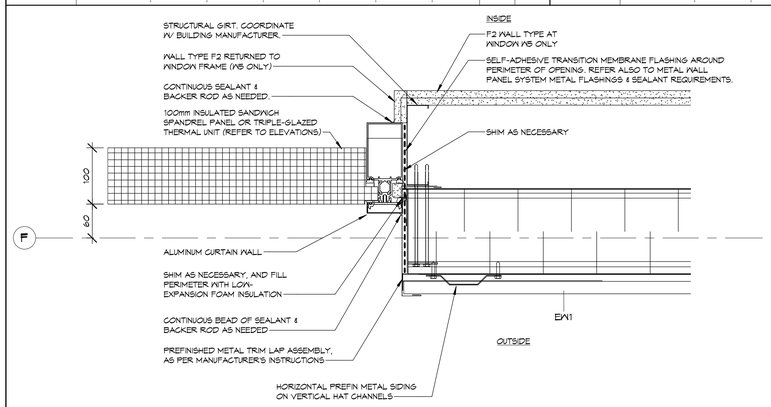
4 W3 HEAD DETAIL

SCALE: 1 : 5 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)



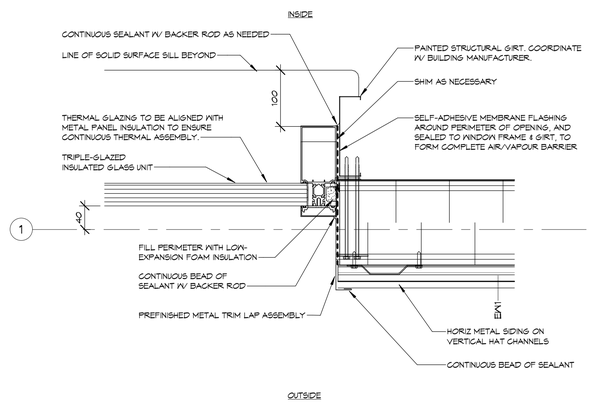
7 O/H DOOR HEAD DETAIL @ NORTH WALL

SCALE: 1 : 5 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)



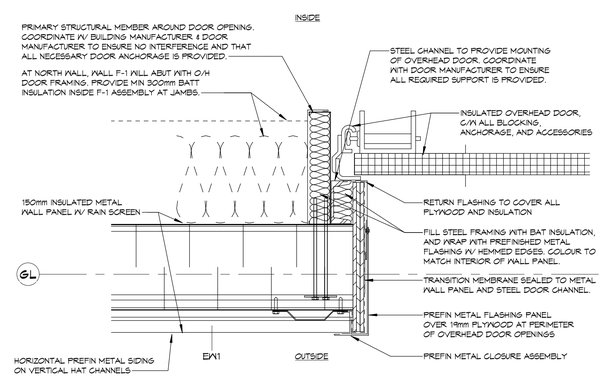
2 W4 & W5 JAMB DETAIL

SCALE: 1 : 5 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)



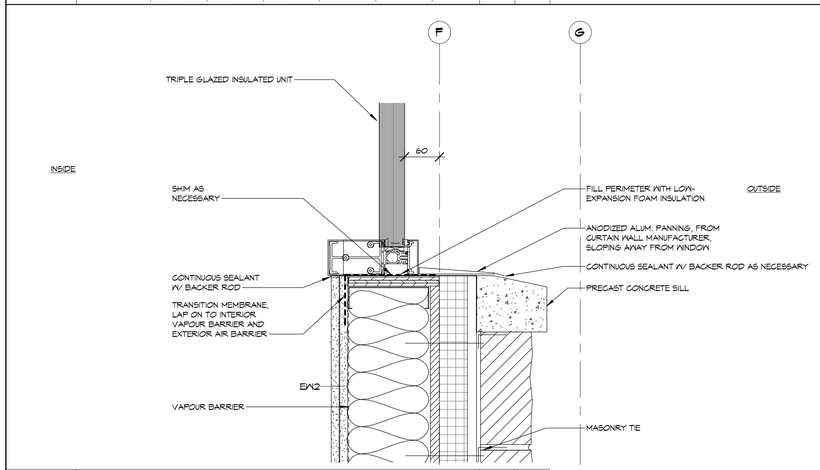
5 W3 JAM DETAIL

SCALE: 1 : 5 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)



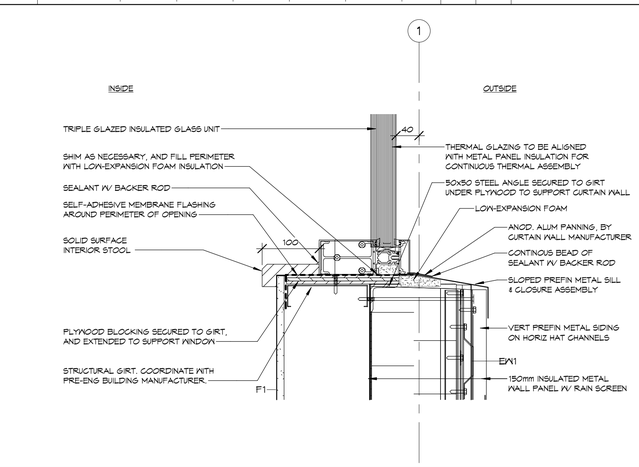
8 OVERHEAD DOOR TYP JAMB DETAIL

SCALE: 1 : 5 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)



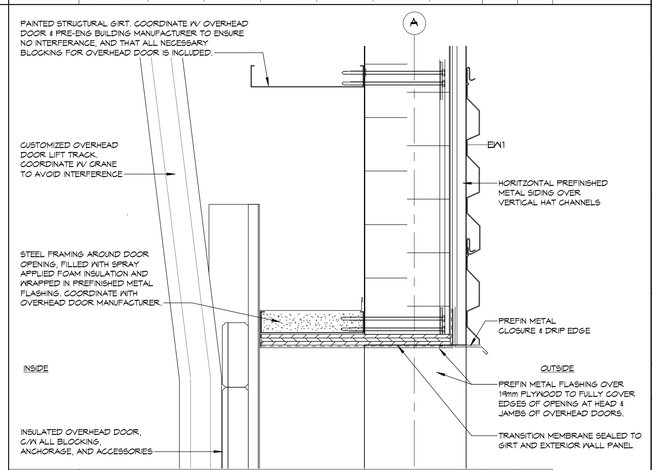
3 W4 & W5 SILL DETAIL

SCALE: 1 : 5 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)



6 W3 SILL DETAIL

SCALE: 1 : 5 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)



9 O/H DOOR HEAD DETAIL @ WEST WALL

SCALE: 1 : 5 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)

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PROJECT
CASTLE LABORATORY

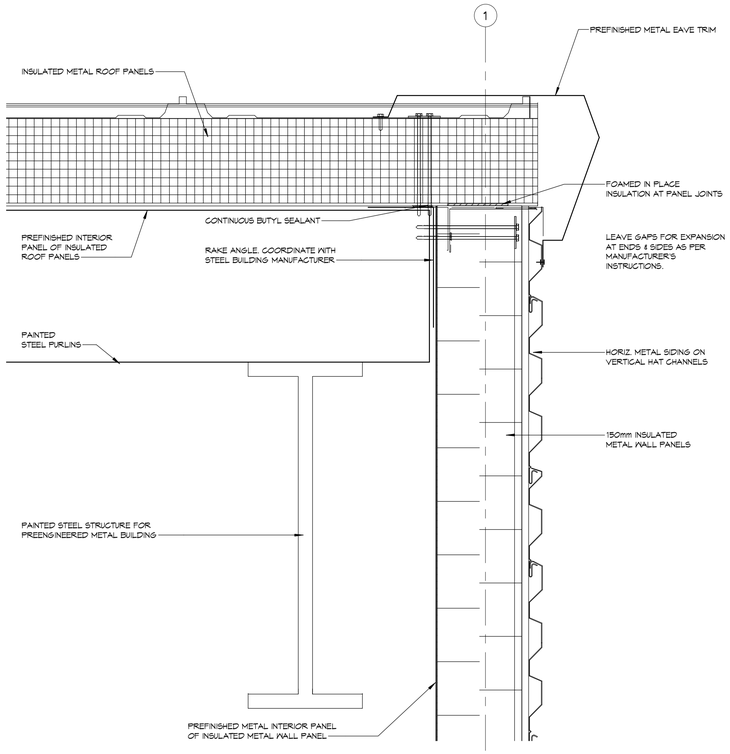
TENDER NO: Q-2022-031-EL
262 HARGREAVES WAY, KINGSTON, ON

DRAWING
WINDOW & CURTAIN WALL SECTION DETAILS

SCALE 1 : 5

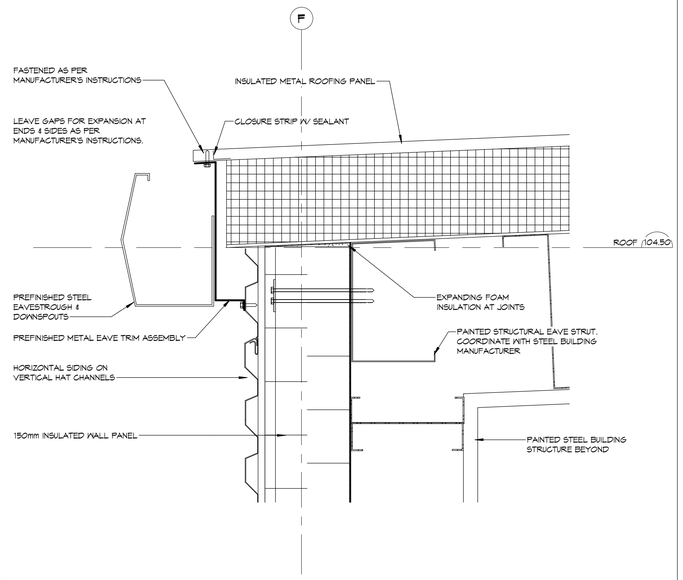
PROFESSIONAL SEAL: ONTARIO ASSOCIATION OF ARCHITECTS — RHONDA LORRAINE HORNE-MCCOY — LICENCE 8076 — NOT FOR PERMIT OR CONSTRUCTION WITHOUT SEAL AND ISSUED NOTE

DRAWN	DATE
TJK	DEC 2021
CHECKED	PRINTED
RHM	
REVIEWED	DRAWING No.
RHM	314
PROJECT No.	
21075	



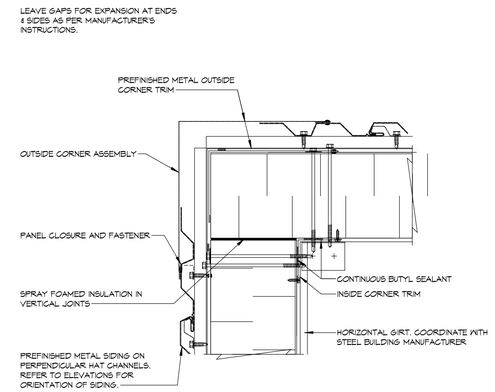
1 ROOF @ GABLE END

SCALE: 1 : 5 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)



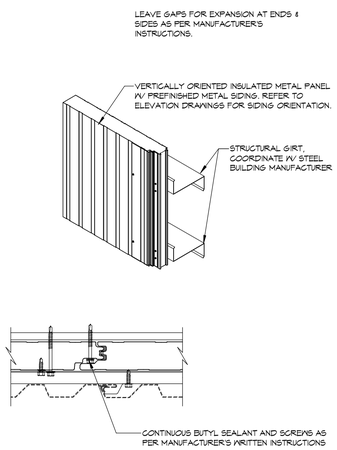
2 ROOF @ EAVESTROUGH

SCALE: 1 : 5 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)



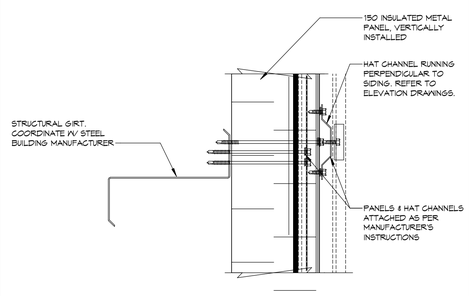
3 OUTSIDE CORNER

SCALE: 1 : 5 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)



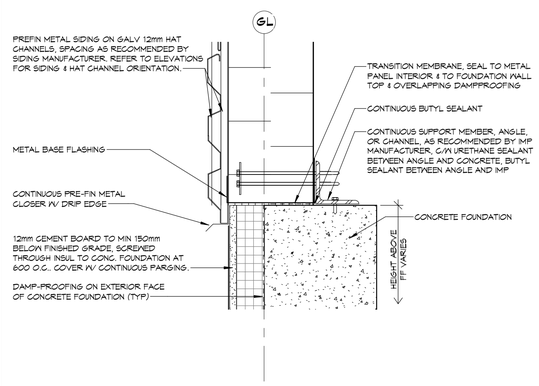
4 ENLARGED PANEL JOINT

REFERENCE: SCALE: N.T.S.



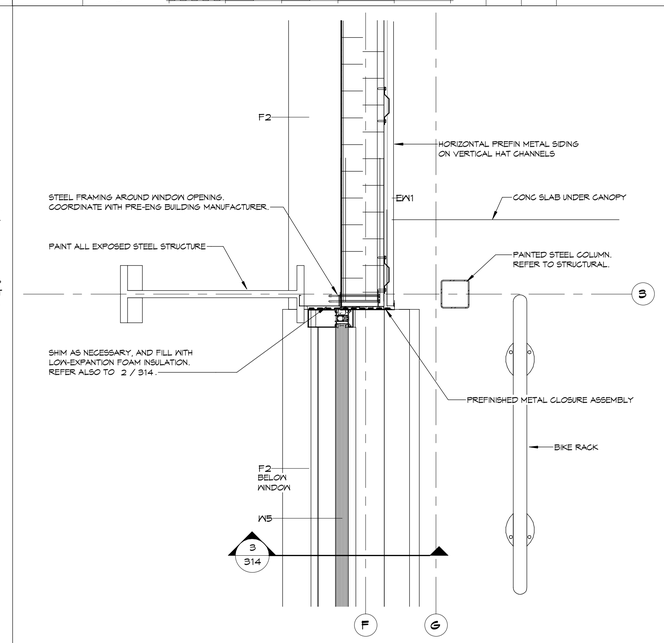
5 INTERMEDIATE SUPPORT

REFERENCE: SCALE: 1 : 5 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)



6 TYPICAL BASE OF WALL DETAIL

SCALE: 1 : 5 (0m 0m 0.1m 0.1m 0.2m 0.2m)



7 NORTH JAMB OF W5 DETAIL

SCALE: 1 : 10 (0m 0.2m 0.4m 0.6m 0.8m 1m)

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PROJECT
CASTLE LABORATORY

TENDER NO: Q-2022-031-EL
262 HARGREAVES WAY, KINGSTON, ON

DRAWING
METAL PANEL DETAILS

SCALE
As indicated

PROFESSIONAL SEAL
ONTARIO ASSOCIATION OF ARCHITECTS
Rhonda Horne - McCoy
RHONDA LORRAINE HORNE-MCCOY
LICENCE
8075
NOT FOR PERMIT OR CONSTRUCTION WITHOUT SEAL AND ISSUED NOTE

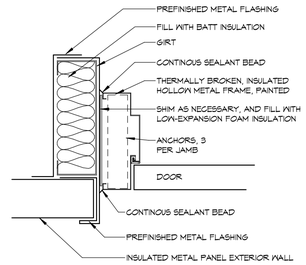
DRAWN	DATE
TJK	DEC 2021
CHECKED	PRINTED
RHM	
REVIEWED	DRAWING No.
RHM	315
PROJECT No.	
21075	

DOOR SCHEDULE

				DOOR			FRAME					HARDWARE										
NO.	SINGLE/PAIR	WIDTH	HEIGHT	TYPE	MAT'L	FINISH	TYPE	MAT'L	FINISH	FRR	GLAZING TYPE	HNG	FUNCTION	PANIC	PSH	PUL	CLSR	HO	STP	THR/SWP	COMMENTS
D01	SINGLE	1014	2318	SEE 6/316	HM	PAINT	SEE 6/316	HM	PAINT	N/A	GL2	Y	PASSAGE	N	Y	Y	Y	N	OS	N	NO LATCH REQUIRED, POWER DOOR OPERATOR KIT
D02	SINGLE	1015	2134	3	HM	PAINT	1	HM	PAINT	3/4 HR	GL3	Y	PASSAGE	N	Y	Y	Y	N	OS	N	POWER DOOR OPERATOR KIT
D03	SINGLE	1015	2134	1	HM	PAINT	1	HM	PAINT	N/A	N/A	Y	STOREROOM	N	Y	Y	Y	N	WS	N	BARRIER-FREE DOOR KIT
D04	SINGLE	915	2134	1	HM	PAINT	1	HM	PAINT	3/4 HR	N/A	Y	PRIVACY	N	N	N	Y	N	WS	N	
D05	SINGLE	915	2134	1	HM	PAINT	1	HM	PAINT	3/4 HR	N/A	Y	STOREROOM	N	N	N	Y	N	OS	N	
D06	SINGLE	1015	2134	1	HM	PAINT	1	HM	PAINT	N/A	N/A	Y	STOREROOM	Y	N	N	N	N	OS	N	
D08	SINGLE	1015	2134	3	HM	PAINT	1	HM	PAINT	N/A	GL2	Y	OFFICE	N	N	N	N	N	OS	N	
D09	SINGLE	1015	2134	1	HM	PAINT	1	HM	PAINT	N/A	N/A	Y	STOREROOM	Y	Y	Y	Y	N	OS	N	
D10	SINGLE	1015	2134	3	HM	PAINT	HM		PAINT	N/A	GL2	Y	PASSAGE	N	Y	Y	Y	N	OS	N	POWER DOOR OPERATOR KIT
OHD1		3500		OHD	STEEL	PREFIN.	OHD	N/A	N/A	N/A	N/A	N/A	LOCKING	--	--	--	--	--	--		WEATHERSTRIPPING
OHD2		3500		OHD	STEEL	PREFIN.	OHD	N/A	N/A	N/A	N/A	N/A	LOCKING	--	--	--	--	--	--		WEATHERSTRIPPING
OHD3		3500		OHD	STEEL	PREFIN.	OHD	N/A	N/A	N/A	N/A	N/A	LOCKING	--	--	--	--	--	--		WEATHERSTRIPPING
OHD4		3500		OHD	STEEL	PREFIN.	OHD	N/A	N/A	N/A	N/A	N/A	LOCKING	--	--	--	--	--	--		WEATHERSTRIPPING
OHD5		3500		OHD	STEEL	PREFIN.	OHD	N/A	N/A	N/A	N/A	N/A	LOCKING	--	--	--	--	--	--		WEATHERSTRIPPING
X01	SINGLE	1015	2150	2	ALUM	ANOD	1	ALUM	ANOD	N/A	GL1	Y	ENTRANCE	N	Y	Y	Y	N	OS	Y	WEATHERSTRIPPING, POWER DOOR OPERATOR KIT.
X02	SINGLE	1015	2150	1	HM	PAINT	1	HM	PAINT	N/A	N/A	Y	STOREROOM	N	N	N	Y	N	OS	Y	WEATHERSTRIPPING, POWER DOOR OPERATOR KIT.
X03	SINGLE	1015	2150	1	HM	PAINT	1	HM	PAINT	N/A	N/A	Y	STOREROOM	N	N	N	Y	N	OS	Y	WEATHERSTRIPPING
X04	SINGLE	1015	2150	1	HM	PAINT	1	HM	PAINT	N/A	N/A	Y	STOREROOM	N	N	N	Y	N	OS	Y	WEATHERSTRIPPING
X05	SINGLE	1015	2150	1	HM	PAINT	1	HM	PAINT	N/A	N/A	Y	STOREROOM	N	N	N	Y	N	OS	Y	WEATHERSTRIPPING
X06	SINGLE	1015	2150	1	HM	PAINT	1	HM	PAINT	N/A	N/A	Y	STOREROOM	Y	N	N	Y	N	OS	Y	

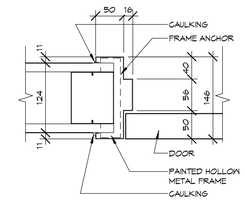
GENERAL DOOR NOTES
1. REFER TO FLOOR PLANS FOR DOOR SWING DIRECTION
2. COORDINATE FRAMES WITH HARDWARE & GLAZING REQUIREMENTS
3. APPLY TRANSLUCENT DECAL, 50mm TALL, FULL WIDTH OF ALL SIDELITES, IN INTERIOR SIDE OF GLASS. REFER ALSO TO ELEVATIONS.
4. ALL OPERABLE DOOR HARDWARE TO BE MOUNTED BETWEEN 920mm AND 1000mm AFF.

WS = WALL STOP
FS = FLOOR STOP
OS = OVERHEAD STOP



1 EXTERIOR DOOR JAMB DETAIL

REFERENCE: SCALE: 1 : 5 (0m 0.1m 0.2m 0.2m 0.3m 0.4m)



2 TYPICAL DOOR FRAME DETAIL

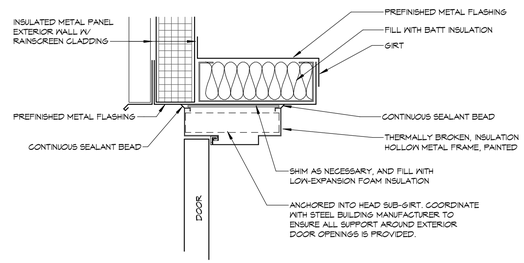
REFERENCE: SCALE: 1 : 5 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)

ROOM FINISH SCHEDULE

ROOM		FLOOR		BASE		WALLS								CEILING			
						NORTH		SOUTH		EAST		WEST					
NO.	ROOM NAME	MAT'L	FINISH	MAT'L	FINISH	MAT'L	FINISH	MAT'L	FINISH	MAT'L	FINISH	MAT'L	FINISH	MAT'L	FINISH	HEIGHT	COMMENTS
101	VEST	CONC	EPOXY	RUBBER	N/A	GWB	PAINT	GWB	PAINT	GWB	PAINT	GWB	PAINT	GWB	PAINT	3050	PAINT INTERIOR OF CONCRETE FOUNDATION WALL
102	WORKROOM	CONC	EPOXY	RUBBER	N/A	GWB	PAINT	GWB	PAINT	GWB	PAINT	GWB	PAINT	ACT	N/A	3051	PAINT INTERIOR OF CONCRETE FOUNDATION WALL
103	LUNCH	CONC	EPOXY	RUBBER	N/A	GWB	PAINT	GWB	PAINT	GWB	PAINT	GWB	PAINT	ACT	N/A	3053	PAINT INTERIOR OF CONCRETE FOUNDATION WALL
104	UNIV W/R	CONC	EPOXY	RUBBER	N/A	GWB	PAINT	GWB	PAINT	GWB	PAINT	GWB	PAINT	GWB	PAINT	2800	
105	W/R	CONC	EPOXY	RUBBER	N/A	GWB	PAINT	GWB	PAINT	GWB	PAINT	GWB	PAINT	GWB	PAINT	2800	
106	JAN	CONC	EPOXY	RUBBER	N/A	GWB	PAINT	GWB	PAINT	GWB	PAINT	GWB	PAINT	GWB	PAINT	2832	
107	CONTROL	CONC	EPOXY	RUBBER	N/A	GWB	PAINT	GWB	PAINT	GWB	PAINT	GWB	PAINT	GWB	PAINT	4000	
108	ELEC.	CONC	SEALER	RUBBER	N/A	GWB	PAINT	PLYWOOD	PAINT	GWB	PAINT	GWB	PAINT	GWB	PAINT	2800	
109	WORKSHOP	CONC	SEALER	RUBBER	N/A	MP	--	MP	--	MP	--	MP	--	OTS	--	8535	PAINT ALL GWB WALL AROUND OFFICE AREA. PAINT ALL GWB ON F1 & F2 WALLS AT NORTH AND EAST SIDES
110	CRANE ZONE	CONC	SEALER	RUBBER	N/A	MP	--	MP	--	MP	--	MP	--	OTS	--	8345	PAINT ALL GWB WALL AROUND OFFICE AREA
111	MECH	CONC	SEALER	RUBBER	N/A	GWB	PAINT	GWB	PAINT	GWB	PAINT	GWB	PAINT	ACT	N/A	3576	
112	IT ROOM	CONC	SEALER	RUBBER	N/A	GWB	PAINT	PLYWOOD	PAINT	GWB	PAINT	PLYWOOD	PAINT	ACT	N/A	2800	

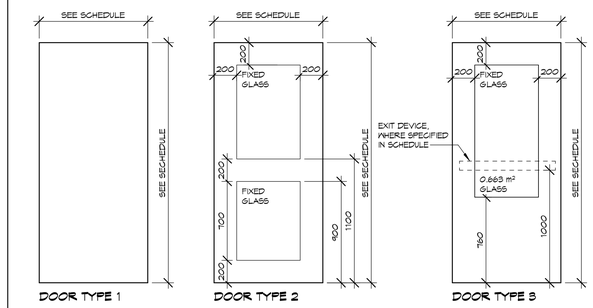
FINISH SCHEDULE NOTES

1. WHERE NEW FINISHES ARE INDICATED, PROVIDE NEW FINISH OVER ENTIRE SURFACE UNLESS NOTED OTHERWISE (E.G. NORTH WALL INDICATES NEW PAINT - PAINT ALL NORTH-FACING WALLS OF ROOM).
2. REFER ALSO TO FLOOR PLANS AND CEILING PLANS FOR ADDITIONAL FINISH WORK THAT MAY NOT BE INDICATED HERE. FINISH WORK INDICATED ON FLOOR PLANS AND CEILING PLANS IS TO BE COMPLETED AS INDICATED AND IS NOT SUPERCEEDED BY THE INFORMATION OR LACK OF INFORMATION INDICATED IN THIS SCHEDULE.
3. WHERE RESINOUS EPOXY FLOORING IS INSTALLED OVER JOINTS IN CONCRETE OR SEPARATION BOARD, APPLY SEALANT TO FILL GAPS PRIOR TO FLOOR FINISH, AS PER FLOOR MANUFACTURER'S INSTRUCTIONS.
4. APPLY 2 LAYERS 12.7mm TYPE X GWB ON CEILING UNDER INTERIOR DECK PRIOR TO INSTALLATION OF PARTITIONS AND OTHER CEILING FINISHES.
5. PROVIDE ROLLER SHADES AT ALL WINDOWS INDICATED BY 'RS' ON FLOOR PLANS.
6. ALL WIRING & PLUMBING TO BE CONCEALED EXCEPT IN CRANE ZONE, WORKSHOP, AND WHERE OTHERWISE NOTED, PATCH & MAKE GOOD ALL FINISHES.



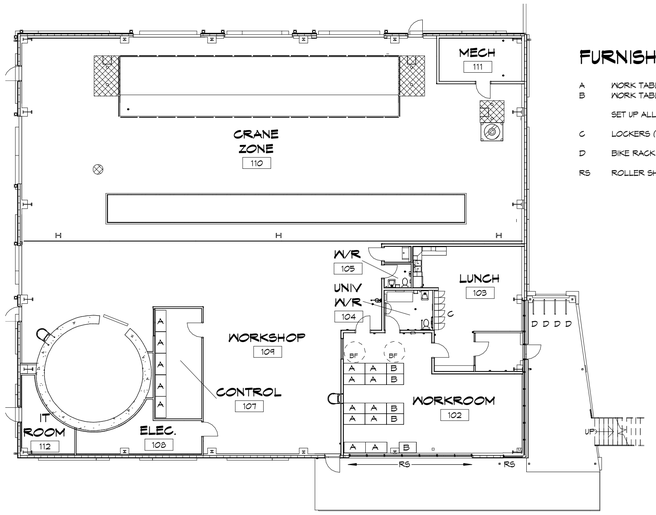
3 EXTERIOR DOOR HEAD DETAIL

SCALE: 1 : 5 (0m 0.1m 0.2m 0.2m 0.3m 0.4m)



4 DOOR TYPES

SCALE: 1 : 25 (0m 0.5m 1m 1.5m 2m 2.5m)

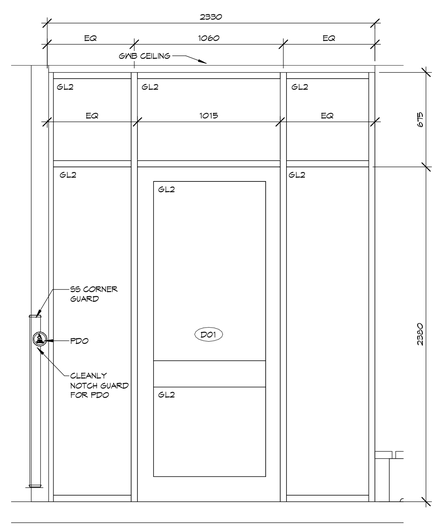


5 FURNISHINGS PLAN

SCALE: 1 : 200 (0m 4m 8m 12m 16m 20m)

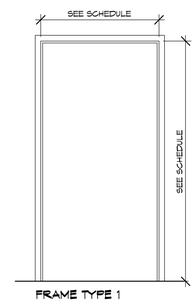
FURNISHING SCHEDULE:

A	WORK TABLE W/ UNDERSHELF	762d (30") x 1525w (60") x 865t (34")
B	WORK TABLE W/ UNDERSHELF	762d (30") x 1220w (48") x 865t (34")
	SET UP ALL TABLES TO 865mm HIGH, EXCEPT AT 2 BF TABLES SET HEIGHT TO 762mm	
C	LOCKERS (VARIOUS SIZED). REFER TO 1 / 313	
D	BIKE RACK	
RS	ROLLER SHADES, MOUNTED TO WINDOW HEAD	



6 VESTIBULE INTERIOR WALL ELEV

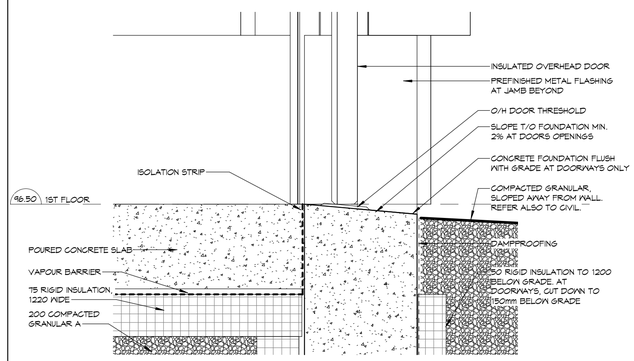
SCALE: 1 : 20 (0m 0.4m 0.8m 1.2m 1.6m 2m)



FRAME TYPE 1

7 DOOR FRAME TYPES

SCALE: 1 : 25 (0m 0.5m 1m 1.5m 2m 2.5m)



8 TYP. O/H DOOR SILL

SCALE: 1 : 5 (0m 0.1m 0.2m 0.3m 0.4m 0.5m)

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DRAWINGS MUST NOT BE SCALED. VERIFY DIMENSIONS ON SITE

No.	BY	REVISIONS/SUBMISSIONS	DATE
1	RHM	ISSUED FOR TENDER, PERMIT, AND CONSTRUCTION	2023.05.11

COLBOURNE & KEMBEL, ARCHITECTS INC.
1340 ARLINGTON PARK PLACE
KINGSTON, ONTARIO K7M 8M8
TEL 613-384-2240 FAX 613-384-1271
info@ckai.ca www.ckai.ca

PROJECT
CASTLE LABORATORY

TENDER NO: Q-2022-031-EL
262 HARGREAVES WAY, KINGSTON, ON

DRAWING
INTERIOR FINISH, DOOR SCHEDULE, FURNISHINGS

SCALE
As indicated

PROFESSIONAL SEAL
ONTARIO ASSOCIATION OF ARCHITECTS
RHONDA LORRAINE HORNE-MCGRAY
LICENCE 8075
NOT FOR PERMIT OR CONSTRUCTION WITHOUT SEAL AND ISSUED NOTE

DRAWN	DATE
TJK	DEC 2021
CHECKED RHM	PRINTED
REVIEWED RHM	DRAWING No.
PROJECT No. 21075	316

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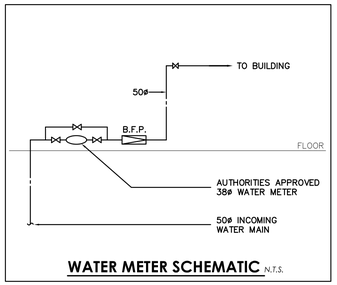
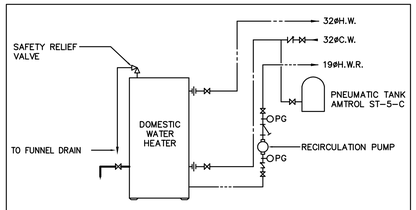
DRAWINGS MUST NOT BE SCALED. VERIFY DIMENSIONS ON SITE



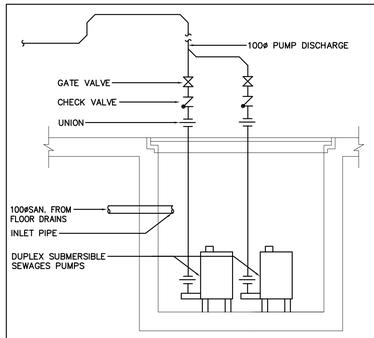
WATER METER SCHEMATIC N.T.S.

PLUMBING & DRAINAGE LEGEND

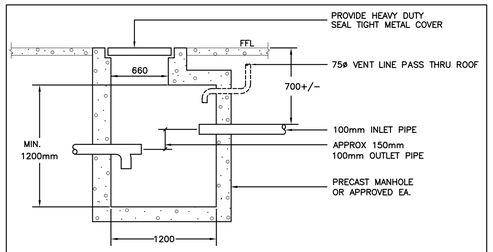
	SANITARY DRAIN (ABOVE GRADE)
	SANITARY DRAIN (BELOW GRADE)
	STORM DRAIN (ABOVE GRADE)
	STORM DRAIN (BELOW GRADE)
	DOMESTIC COLD WATER LINE
	DOMESTIC COLD WATER LINE
CO	CLEANOUT BELOW FINNISHED FLOOR
CO	CLEANOUT ABOVE FINISHED FLOOR
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
	GATE VALVE
	CHECK VALVE
	GLOBE VALVE
	UNION
T.V. & P	TRAP, VENT & PRIME
R.W.L.	RAIN WATER LEADER
F.F.D.	FUNNEL FLOOR DRAIN (T.V. AND P.)
F.D.	FLOOR DRAIN (T.V. AND P.)
B.F.P.	BACKFLOW PREVENTER



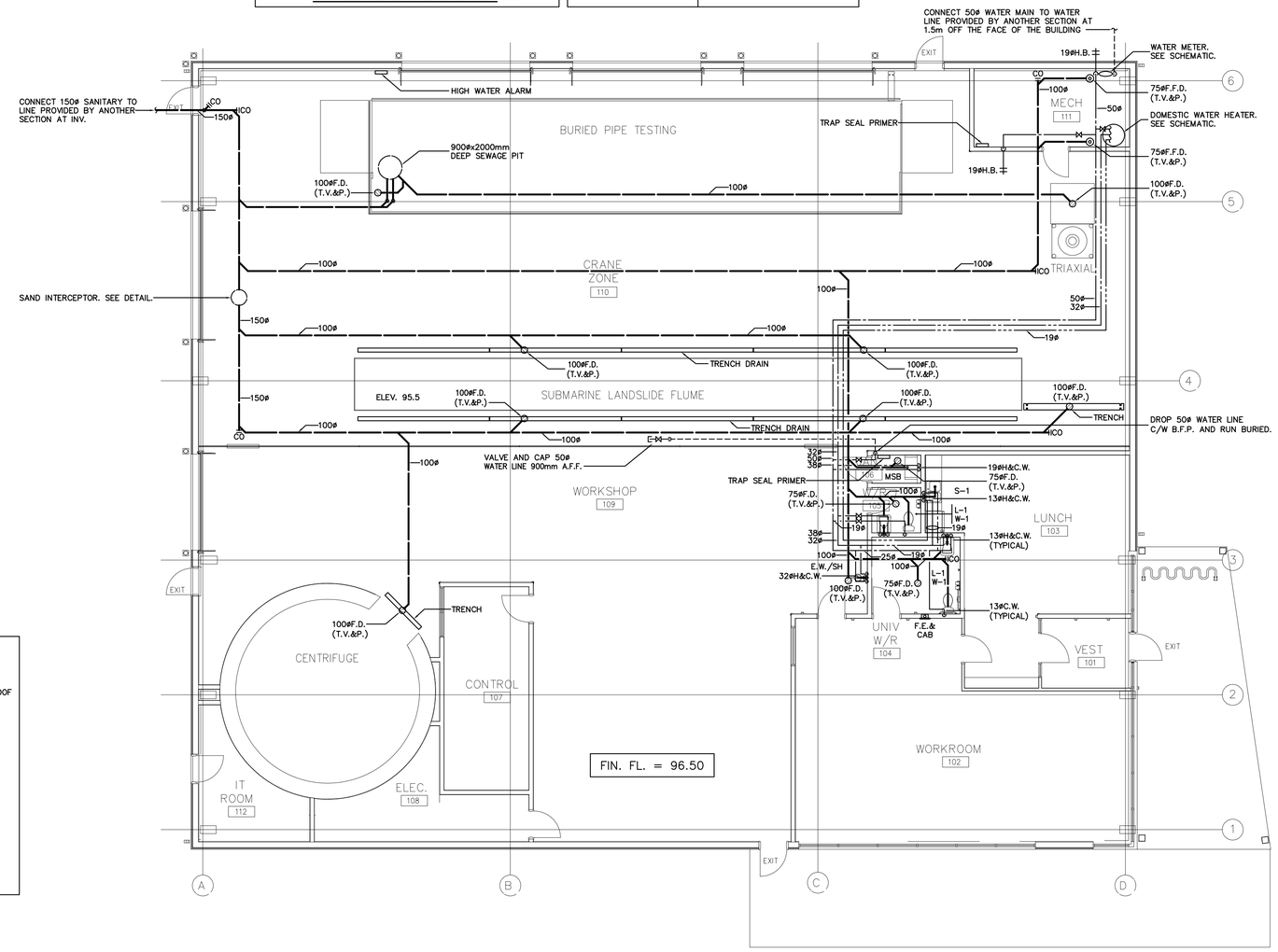
DOMESTIC WATER HEATER DETAIL N.T.S.



DUPLEX SEWAGE AND SUMP PUMPS DETAIL N.T.S.



SAND INTERCEPTOR DETAIL N.T.S.



1 FLOOR PLAN

SCALE: 1 : 100 (0m 2m 4m 6m 8m 10m)

Jain
7405 East Danbro Crescent, 2nd Floor
Mississauga, Ontario, L5N 6P8
Tel: 905 285 9900, Fax: 905 567 5246
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SEAL

D. JAIN
MAY 11 2023
PROVINCE OF ONTARIO

21-265

No.	BY	REVISIONS/SUBMISSIONS	DATE
02.	M.K.		
01.	M.K.	ISSUED FOR PERMIT, TENDER & CONSTRUCTION	MAY 11'23

PROJECT
CASTLE LABORATORY

950 JOHNSON ST

DRAWING
FLOOR PLAN
PLUMBING

SCALE
As indicated

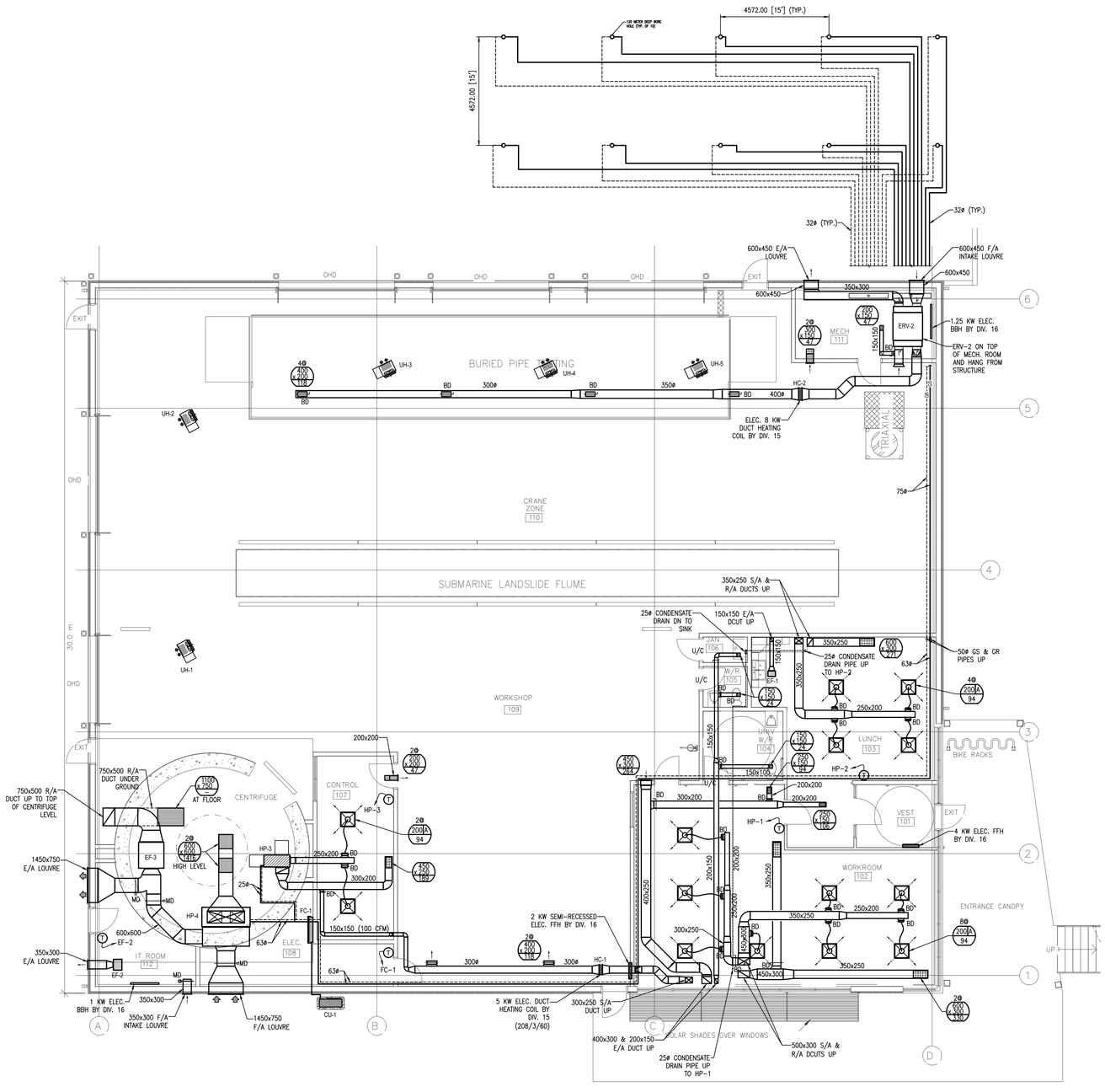
DRAWN C.R.	DATE DEC 16 '21
CHECKED M.K.	PRINTED
REVIEWED C.R.	DRAWING No.
PROJECT No. 21075	400

NOTE:

COORDINATE WITH THE PRE-ENGINEERED BUILDING MANUFACTURER SO THAT ALL MECHANICAL EQUIPMENT AND MATERIALS CAN BE SUPPORTED BY THE STRUCTURAL STEEL

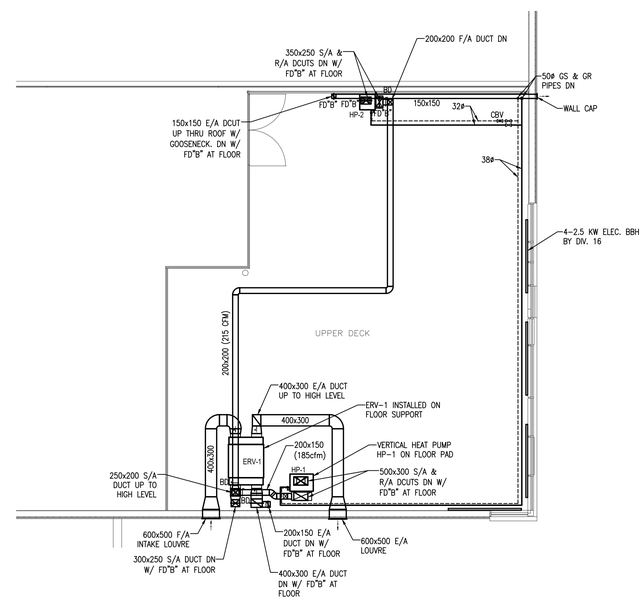
HVAC LEGEND

	SUPPLY DUCT
	RETURN / EXHAUST DUCT
	SQUARE DIFFUSER
A1	600x300 RETURN/EXHAUST AIR GRILLE
A2	600x600 RETURN/EXHAUST AIR GRILLE
250 A 350	NECK SIZE (mm) TYPE OF DIFFUSER AIR AMOUNT (L/S)
300 x200 100	SUPPLY, RETURN, & EXHAUT GRILLE SIZE (mm) AIR AMOUNT (L/S)
B.D.	BALANCING DAMPER
F.D.	FIRE DAMPER
U/C	UNDER CUT DOOR BY ANOTHER TRADE SECTION.
T	THERMOSTAT
H	HUMIDISTAT
GS	GLYCOL SUPPLY
GR	GLYCOL RETURN
FFH	FORCE FLOW HEATER
BBH	BASEBOARD HEATER
MD	MOTORIZED DAMPER
SD	SPLITTER DAMPER
CBV	CIRCUIT BALANCING VALVE



GROUND FLOOR PLAN - HVAC

SCALE: 1:100



MEZZANINE FLOOR PLAN - HVAC

SCALE: 1:100

NORTH

REVISIONS

No.	Date	Description
1	MAY 11 2023	ISSUED FOR TENDER, PERMIT, AND CONSTRUCTION

Jain

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PROJECT

CASTLE LABORATORY

370 HARGREAVES

DRAWING

FLOOR PLANS – HVAC

SCALE

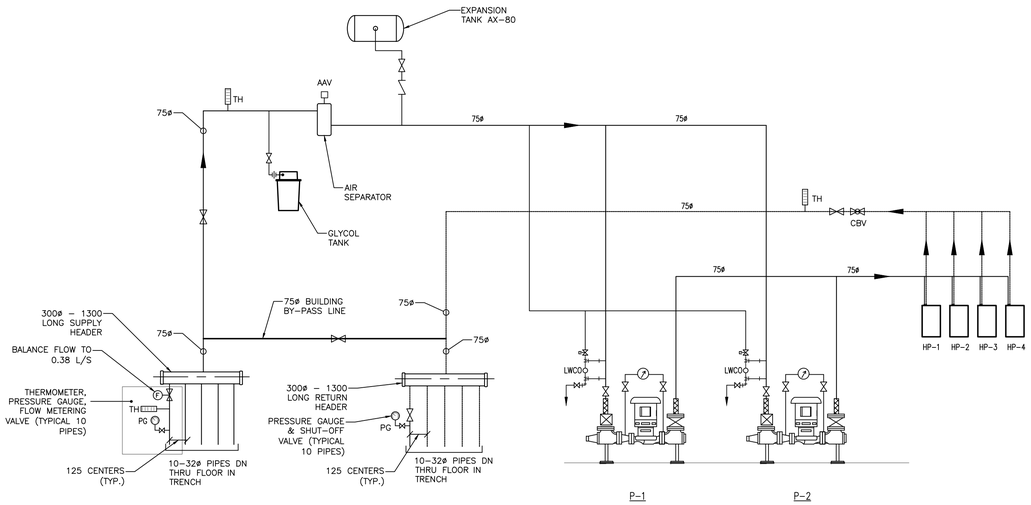
As indicated

PROFESSIONAL SEAL

REGISTERED PROFESSIONAL ENGINEER D. JAIN PROVINCE OF ONTARIO

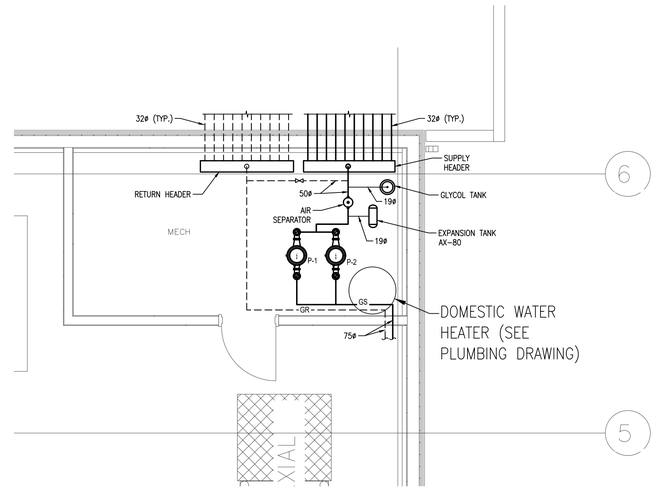
21-265

DRAWN	DATE
J.Y.	DEC 07 2022
CHECKED	PRINTED
E.M.	
REVIEWED	DRAWING No.
E.M.	401
PROJECT No.	
21075	



GROUND SOURCE SYSTEM PIPING SCHEMATIC

SCALE: N.T.S.



MECHANICAL ROOM FLOOR PLAN - HVAC PIPING

SCALE: 1:50

NORTH

REVISIONS

No.	Date	Description
1	MAY 11 2023	ISSUED FOR TENDER, PERMIT, AND CONSTRUCTION

Jain

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MISSISSAUGA, ONTARIO, L5N 6P8
TEL. 905 285 9900, FAX 905 567 5246
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PROJECT
CASTLE LABORATORY

370 HARGREAVES

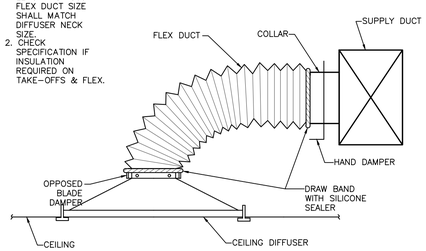
DRAWING
GROUND SOURCE SYSTEM PIPING SCHEMATIC AND MECH. ROOM PIPING LAYOUT

SCALE
As indicated

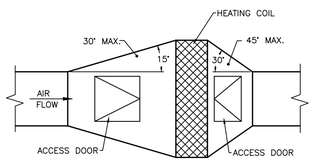
PROFESSIONAL SEAL
REGISTERED PROFESSIONAL ENGINEER
D. JAIN
PROVINCE OF ONTARIO
21-265

DRAWN J.Y.	DATE DEC 07 2022	
CHECKED E.M.	PRINTED	
REVIEWED E.M.	DRAWING No.	
PROJECT No. 21075	402	

NOTE:
1. MAX. FLEX DUCT LENGTH IS 1800mm. FLEX DUCT SIZE SHALL MATCH DIFFUSER NECK SIZE.
2. CHECK SPECIFICATION IF INSULATION REQUIRED ON TAKE-OFFS & FLEX.

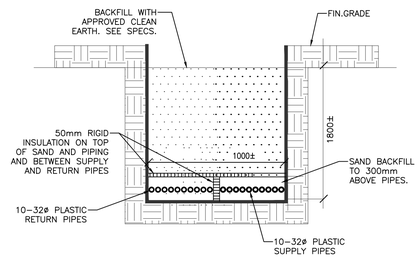


TYPICAL DIFFUSER CONNECTION
N.T.S.

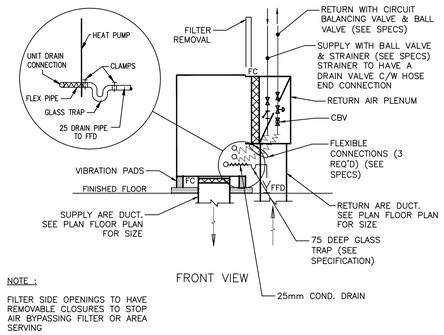


TYPICAL ELECTRICAL DUCT COIL INSTALLATION
N.T.S.

NOTE:
REFER ALSO TO GEOTECHNICAL REPORT FOR MORE INFORMATION

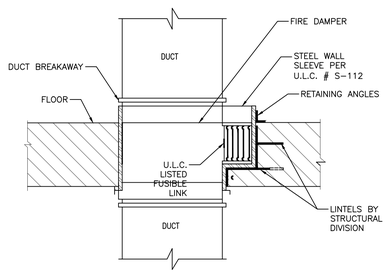


PIPE HEADER TRENCH
N.T.S.

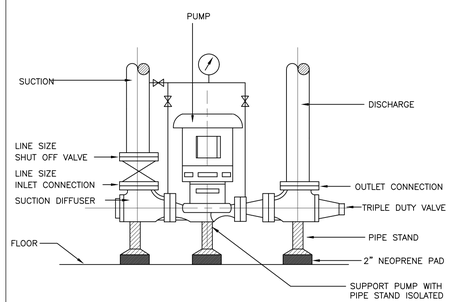


NOTE :
FILTER SIDE OPENINGS TO HAVE REMOVABLE CLOSURES TO STOP AIR BYPASSING FILTER OR AREA SERVING

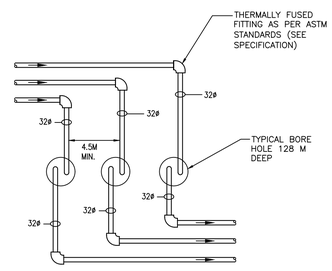
TYPICAL VERTICAL HEAT PUMP DETAIL
N.T.S.



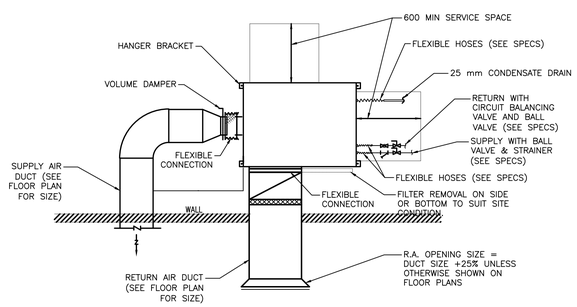
TYPICAL DETAIL OF FIRE DAMPER TYPE "B" AT FLOOR
N.T.S.



TYPICAL PUMP HOOK UP DETAIL
N.T.S.

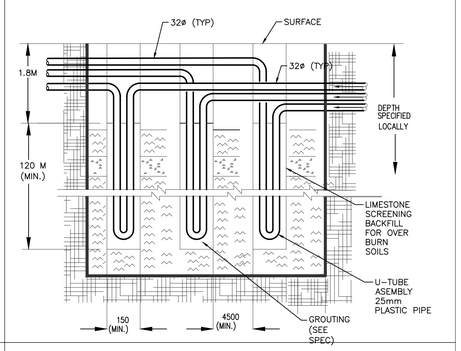


TYPICAL GROUND HEAT EXCHANGER LOOP (10 SETS)
N.T.S.



NOTE:
1. CIRCUIT BALANCING VALVES (CBV'S). SEE SPECS
2. DETAILS SHOW GENERAL ARRANGEMENT ONLY AND MUST BE READ IN CONJUNCTION WITH FLOOR PLANS WHICH SHOW SPECIFIC PIPE CONNECTIONS
3. SUPPLY & RETURN DUCTWORK SOUND LINED, SEE SPECS.

TYPICAL HORIZONTAL HEAT PUMP DETAIL
N.T.S.



VERTICAL U-TUBE HEAT EXCHANGER DETAIL
N.T.S.

NORTH

REVISIONS

No.	Date	Description
1	MAY 11 2023	ISSUED FOR TENDER, PERMIT, AND CONSTRUCTION

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PROJECT
CASTLE LABORATORY

370 HARGREAVES

DRAWING
DETAILS

SCALE
As indicated

PROFESSIONAL SEAL
REGISTERED PROFESSIONAL ENGINEER
D. JAIN
PROVINCE OF ONTARIO
21-265

DRAWN	DATE
J.Y.	DEC 07 2022
CHECKED E.M.	PRINTED
REVIEWED E.M.	DRAWING No.
PROJECT No. 21075	403

WATER SOURCE HEAT PUMP UNIT SCHEDULE

UNIT TAG	AREA SERVED	COOLING CAPACITY (MBH)	HEATING CAPACITY (MBH)	AIR FLOW (CFM)	E.S.P (INWC)	WATER FLOW (GPM)	WATER P.D. (FT)	FRESH AIR (CFM)	ELECTRIC V/PH/HZ	ELECTRIC MCA	ELECTRIC MFS	MAKE	MODEL	UNIT WT (LBS)	REMARK
HP-1	WORKROOM 102	58	46.6	1600	0.6	12	10.2	185	208/1/60	31.7	45	FHP MANUFACTURING	EC048	350	VERTICAL, DOWN DISCHARGE
HP-2	LUNCH ROOM 103	28	23.8	700	0.35	6	12.2	215	208/1/60	13.1	20	FHP MANUFACTURING	EC024	228	VERTICAL, DOWN DISCHARGE
HP-3	CONTROL ROOM 107	12.4	11.5	375	0.3	3	11.1	60	208/1/60	6.0	15	FHP MANUFACTURING	EC012	140	HORIZONTAL, CEILING MOUNTED
HP-4	CENTRIFUGE	195	156	6000	0.5	42	18.9	0-6000	208/3/60	69	90	FHP MANUFACTURING	EC180	1090	VERTICAL, TOP DISCHARGE

NOTE:
SUMMER: EFT=100°F
WINTER: EFT=40°F

ENERGY RECOVERY UNIT SCHEDULE

TAG	AREA SERVED	AIR FLOW RATE (CFM) SUPPLY	AIR FLOW RATE (CFM) EXHAUST	TEMPERATURE RECOVERY EFFICIENCY (%)	E.S.P (INWC)	BLOWER MOTOR (WATTS)	ELECTRICS V/PH/HZ	ELECTRICS AMPS	ELECTRICS STARTING CURRENT	MAKE	MODEL	APRRO. WEIGHT (LBS)	REMARKS
ERV-1	WORKROOM, LUNCH ROOM & WORKSHOP	1000	1000	67	0.43	1040	208/1/60	5.0	10.0	MITSUBISHI	LGH-F1200RX5-E	265	
ERV-2	CRANE ZONE 110	1000	1000	67	0.43	1040	208/1/60	5.0	10.0	MITSUBISHI	LGH-F1200RX5-E	265	

EXHAUST FAN SCHEDULE

UNIT TAG	SERVICE AREA	VOLUME FLOW CFM	E.S.P. INWC	SPEED RPM	MOTOR HP	MOTOR WATTS	POWER SUPPLY V/PH/HZ	MAKE	MODEL	REMARKS
EF-1	LUNCH ROOM 103	100	0.375	1550	–	108	120/1/60	PENN BARRY	ZEPHYR Z6H	
EF-2	IT ROOM 112	400	0.25	1050	–	243	120/1/60	PENN BARRY	ZEPHYR Z10S	
EF-3	CENTRIFUGE	0-6000	1.0	700	4.0	–	208/3/60	PENN BARRY	CABINET FAN ZC18	

NOTE:
1. DIVISION 15 SHALL SUPPLY STARTER AND DIVISION 16 SHALL INSTALL STARTERS AND DIVISION 16 SHALL SUPPLY & INSTALL DISCONNECT SWITCHES.

ELECTRIC DUCT COIL HEATER SCHEDULE

TAG	LOCATION	DUCT SIZE (mm)	HEATING CAPACITY (ELECTRIC) (KW)	VOLT/PH/HZ	REMARK
HC-1	WORK SHOP	300ø	5.0	208/3/60	HANG FROM STRUCTURE
HC-2	CRANE ZONE	400ø	8.0	208/3/60	HANG FROM STRUCTURE

ELECTRICAL UNIT HEATER SCHEDULE

TAG	LOCATION	HEATING CAPACITY (KW)	VOLT/PH/HZ	REMARK
UH-1	WORK SHOP 109	15	575/3/60	HANG FROM STRUCTURE
UH-2	CRANE ZONE 110	15	575/3/60	HANG FROM STRUCTURE
UH-3	CRANE ZONE 110	15	575/3/60	HANG FROM STRUCTURE
UH-4	CRANE ZONE 110	15	575/3/60	HANG FROM STRUCTURE
UH-5	CRANE ZONE 110	15	575/3/60	HANG FROM STRUCTURE

CIRCULATING PUMP SCHEDULE

TAG	SYSTEM SERVED	SIZE	FLOW (GPM)	HEAD (FT)	MOTOR HP	MOTOR R.P.S.	MOTOR V/PH/HZ	DUTY	MAKE & MODEL	REMARKS
P-1	GROUND SOURCE LOOP RECIRC. PUMP	2x2x8	63	51	2	30	208/1/60	RUNNING	ARMSTRONG 4300	
P-2	GROUND SOURCE LOOP RECIRC. PUMP	2x2x8	63	51	2	30	208/1/60	STAND BY	ARMSTRONG 4300	

FAN COIL UNIT SCHEDULE

UNIT TAG	SERVICE & LABEL	MAKE & MODEL	TC CAPACITY (MBH)	AIR FLOW (CFM)	FRESH AIR (CFM)	MOTOR V/PH/HZ	MOTOR KW	MOTOR MCA	MOTOR MOPA	WEIGHT LBS	REMARKS
FC-1	ELECTRICAL ROOM 108	MITSUBISHI PK30FK	30.0	990-780	–	115/1/60	3.06	2.0	15	62	

CONDENSING UNIT SCHEDULE

TAG	SERVED	TONNAGE	TC CAPACITY MBH	COMPRESSOR LRA	COMPRESSOR RLA	FAN FLA	SUPPLY POWER V/PH/HZ	SUPPLY POWER MCA	SUPPLY POWER MOCP	MAKE	MODEL	WEIGHT LBS	REMARKS
CU-1	FC-1	2.5	30	73	14.0	1.3	208/1/60	20	30	MITSUBISHI	PU30EK	208	

MECHANICAL EQUIPMENT STARTER AND ELECTRICAL DATA SCHEDULE

EQUIPMENT & LABEL	STARTER LOCATION	ELECTRICAL DATA KW WATTS AMPS	PHASE	VOLTAGE	STARTER TYPE	FUSED	PILOT LIGHT IN COVER	ON/OFF SEL. SWITCH IN COVER	MAN/AUTO/OP P.B. IN COVER	H/O/A SELECTOR SWITCH IN COVER	STOP PUSH BUTTON IN COVER	TRANSFORMER	ELECTRIC TIME SWITCH	REMOTE P.B. & P.L. STATION	EQUIPT. P.B. S. & P.L. STATION	FIRESTAT & SD	M.C.C. No.	WIRING BY MECHANICAL	THERMISTOR	BMS	SOFT START	REMARKS
HEAT PUMP NO. HP-1 WORKROOM 102	WORKROOM	MCA 31.7	1	208	MAGNETIC		●			●	●											
HEAT PUMP NO. HP-2 LUNCH ROOM 103	LUNCH RM	MCA 13.1	1	208	MAGNETIC		●			●	●											
HEAT PUMP NO. HP-3 CONTROL ROOM 107	CONTR. RM	MCA 6.0	1	208	MAGNETIC		●			●	●											
HEAT PUMP NO. HP-4 CENTRIFUGE	CONTR. RM	MCA 69	3	208	MAGNETIC	●	●			●	●											
ENERGY RECOVERY UNIT NO. ERV-1 MEZZANINE FLOOR	UPPER DECK	AMPS 5.0	1	208	MAGNETIC		●			●	●											
ENERGY RECOVERY UNIT NO. ERV-2 MECHANICAL ROOM	MECH. RM	AMPS 5.0	1	208	MAGNETIC		●			●	●											
EXHAUST FAN NO. EF-1 LUNCH ROOM 103	LUNCH	WATTS 108	1	120	MAGNETIC		●			●												
EXHAUST FAN NO. EF-2 IT ROOM 112	IT ROOM	WATTS 243	1	120	MAGNETIC		●			●												WIRE TO START FROM REVERSE ACTING THERMOSTAT AND INTERLOCK WITH MOTORIZED DAMPER
EXHAUST FAN NO. EF-3 CENTRIFUGE AREA	ELEC. RM 108	HP 4.0	3	208	MAGNETIC	●	●			●	●											
ELEC. DUCT COIL HEATER No. HC-1 WORK SHOP 109		KW 5.0	3	575																		
ELEC. DUCT COIL HEATER No. HC-2 CRANE ZONE 110		KW 8.0	3	575																		
CIRCULATING PUMP NO. P-1 MECH/ELEC. 107	MECH. 107	HP 2	1	208	MAGNETIC		●			●	●											
CIRCULATING PUMP NO. P-2 MECH/ELEC. 107	MECH. 107	HP 2	1	208	MAGNETIC		●			●	●											
UNIT HEATER NO. UH-1 WORK SHOP	WORKSHOP	KW 15	3	575	MAGNETIC																	
UNIT HEATER NO. UH-2 CRANE ZONE	CRANE ZONE	KW 15	3	575	MAGNETIC																	
UNIT HEATER NO. UH-3 CRANE ZONE	CRANE ZONE	KW 15	3	575	MAGNETIC																	
UNIT HEATER NO. UH-4 CRANE ZONE	CRANE ZONE	KW 15	3	575	MAGNETIC																	
UNIT HEATER NO. UH-5 CRANE ZONE	CRANE ZONE	KW 15	3	575	MAGNETIC																	
FAN COIL UNIT NO. FC-1 ELECTRICAL ROOM 108	ELEC. RM 108	MCA 2.0	1	115	MAGNETIC		●			●												
CONDENSING UNIT NO. CU-1 ON GRADE	AT UNIT	MCA 20	1	208	INTEGRAL		●			●	●											ELECTRICAL DIVISION WILL PROVIDE WEATHER PROOF DISCONNECT & WIRE TO UNIT. WIRE TO START FROM REVERSE ACTING THERMOSTAT

STARTER SCHEDULE NOTES:

1. SEE "WIRING & MOTORS" IN MECHANICAL GENERAL REQUIREMENTS FOR FULL DETAILS OF STARTERS, FUSES, OVERLOAD HEATERS, ETC.
2. LABEL ON STARTERS FOR EQUIPMENT, FANS ETC., SHALL BE AS NOTED IN THEIR SCHEDULES. SEE SPECIFICATIONS FOR DETAIL.
3. INTERLOCKS, FREEZE & SAFETY CONTROL WIRING SHALL BE BY MECHANICAL TRADE. SEE SPECIFICATIONS FOR DETAIL.
4. STARTER LOCATION:
   - IN MECHANICAL ROOMS OR SERVICE ROOM STARTERS SHALL BE ON WALLS ADJACENT TO EQUIPMENT;
   - IN FINISHED ROOM STARTERS SHALL BE AT THE LIGHT SWITCH.
5. ROOF EQUIPMENT THAT START FROM REMOTE PUSH BUTTON OR SELECTOR SWITCH SHALL HAVE THEIR STARTERS LOCATED IN THE NEAREST MECHANICAL ROOM TO THE EQUIPMENT.

ABBREVIATION:

S.S. – SELECTOR SWITCH
P.B. – PUSH BUTTON
H/O/A – HAND–OFF–AUTOMATIC
P.L. – PILOT LIGHT
BMS – BUILDING MANAGEMENT SYSTEM

NORTH

REVISIONS

No.	Date	Description
1	MAY 11 2023	ISSUED FOR TENDER, PERMIT, AND CONSTRUCTION

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PROJECT
CASTLE LABORATORY

370 HARGREAVES

DRAWING
SCHEDULES

SCALE
As indicated

PROFESSIONAL SEAL
REGISTERED PROFESSIONAL ENGINEER
D. JAIN
PROVINCE OF ONTARIO
21-265

DRAWN	DATE
J.Y.	DEC 07 2022
CHECKED E.M.	PRINTED
REVIEWED E.M.	DRAWING No.
PROJECT No. 21075	404

LEGEND

- A — FLUORESCENT OR LED LIGHT FIXTURE – LETTER DENOTES TYPE
- D — INCANDESCENT, LED, FLUORESCENT OR HID CEILING/HIGH BAY FIXTURE – LETTER DENOTES TYPE
- INCANDESCENT, LED, FLUORESCENT OR HID CEILING FIXTURE ON NIGHT LIGHT CIRCUIT.
- C — INCANDESCENT, FLUORESCENT, LED OR HID WALL FIXTURE – LETTER DENOTES TYPE
- LIGHT STANDARD
- EMERGENCY LIGHTING TYPE 1 (SINGLE HEAD)& TYPE 2. (DOUBLE HEADS), LED, 24V, 7W PER HEAD. BAGHELL# BTMR-MR16-LED-7W/HEAD-24V OR APPROVED EQUAL.
- EMERGENCY LIGHTING BATTERY UNIT, 24V, 720W (BAGHELL#NOVA-NV-24-720W OR APPROVED EQUAL, UNLESS NOTED OTHERWISE), SUITABLE FOR 120V INPUT VOLTAGE.
- PICTOGRAM TYPE EXIT LIGHT FIXTURE WALL OR CEILING MOUNTED – SHADED AREA DENOTES FACE (120V AC + 24V DC)
- STANDARD 15A 120V 1P DUPLEX RECEPTACLE UNLESS SPECIFIED OTHERWISE.
- STANDARD DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER.
- STANDARD DUPLEX RECEPTACLE WITH SEPARATE NEUTRAL AND GROUND WIRE PER CIRCUIT.
- STANDARD DUPLEX RECEPTACLE 15A/20A (SPLIT FEED).
- STANDARD DUPLEX RECEPTACLE (SPLIT FEED) MOUNTED ABOVE COUNTER.
- G.F.I DUPLEX RECEPTACLE.
- G.F.I DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER.
- 15A QUAD. RECEPTACLE WITH SEPARATE NEUTRAL AND GROUND WIRE PER CIRCUIT.
- 15A QUAD. RECEPTACLE WITH SEPARATE NEUTRAL AND GROUND WIRE PER CIRCUIT MOUNTED ABOVE COUNTER.
- G.F.I QUAD. RECEPTACLE MOUNTED ABOVE COUNTER.
- C — CEILING MOUNTED DUPLEX RECEPTACLE
- T — L5-20RA, 20A RECEPTACLE BLACK IN COLOUR WITH SEPARATE NEUTRAL AND GROUND WIRE PER CIRCUIT FOR FEEDING POWER TO UPS OF I.T. RACK.
- RR — 120V, 15A CEILING MOUNTED EXTENSION CORD REEL C/W DUPLEX RECEPTACLE AND OUTLET BOX (HUBBELL# HBL45123R + HBL52520V) C/W SUPPORTING SYSTEM. CO-ORDINATE ON SITE FOR EXACT LOCATION/ MORE INFORMATION AND PROCEED ACCORDINGLY.
- TWIST LOCK, NEMA L6-20P, 208V, 20A,2P OUTLET FOR UPS
- D — 3-POLE, 250V RECEPTACLE 14-30R FOR DRYER
- C — 3-POLE, 250V RECEPTACLE 14-50R FOR RANGE
- SPECIAL OUTLET AS NOTED
- $EP — EXPLOSION PROOF UP/DOWN/OFF SWITCH FOR OVER HEAD DOOR SUITABLE FOR HAZARDOUS LOCATIONS (CLASS-I, DIV.-I)
- $ — SINGLE POLE LIGHT SWITCH UNLESS NOTED OTHERWISE.
- $K — KEY OPERATED SWITCH
- $3 — THREE WAY LIGHT SWITCH
- $4 — FOUR WAY LIGHT SWITCH
- $ — 1-BUTTON LOW VOLTAGE DLM TYPE LIGHT SWITCH (TYP.) UNLESS NOTED OTHERWISE.
- $D — DIGITAL DIMMER SWITCH
- $4 — 4-BUTTON LOW VOLTAGE DLM TYPE LIGHT SWITCH (TYP.)
- EP $2 — 2-BUTTON LOW VOLTAGE DLM TYPE EXPLOSION PROOF LIGHT SWITCH (TYP.) SUITABLE FOR HAZARDOUS LOCATIONS (CLASS-I, DIV.-I)
- ELECTRIC HEATING UNIT, NO. DENOTES TYPE
- DOOR OPERATOR PUSH BUTTON UNLESS NOTED OTHERWISE
- DO — DOOR OPERATOR
- PANELBOARD
- EF-3 — F S — MOTOR STARTER. LETTER F DENOTES FLUSH MTD, P= PILOT LIGHT, S=SURFACE MTD. EF-3 = EQUIPMENT CONTROLLED BY STARTER
- WP — DISCONNECT SWITCH – WP DENOTES WEATHERPROOF
- WP EP — WEATHERPROOF, EXPLOSION PROOF (SUITABLE FOR HAZARDOUS LOCATIONS, CLASS-I, DIV.-I) DISCONNECT SWITCH – WP DENOTES WEATHERPROOF
- COMBINATION MOTOR STARTER AND DISCONNECT
- MOTOR OUTLET AS NOTED
- MOTOR & DISCONNECT SWITCH TO SUIT
- POWER C/W DISCONNECT SWITCH
- OS1 — WATT STOPPER LMDX-100 OCCUPANCY/VACANCY SENSOR, DUAL TECH WALL CORNER MOUNT/CEILING MOUNT C/W ROOM CONTROLLERS AS REQUIRED. LIGHTING CONTROL TO BE MANUAL-ON, AUTO-OFF.
- OS2 — WATT STOPPER DW-100-120 DUAL TECHNOLOGY WALLSWITCH SENSOR LINE VOLTAGE (AUTO-ON, AUTO-OFF).
- OS3 — WATT STOPPER LMUC-100 OCCUPANCY SENSOR, ULTRA SONIC CEILING MOUNT C/W ROOM CONTROLLERS AS REQUIRED.
- OS4 — WALL MOUNTED DUAL TECHNOLOGY TWO RELAY LINE VOLTAGE OCCUPANCY SENSOR. WATT STOPPER DW-200-120 (MANUAL-ON, AUTO-OFF)
- OS5 — WATT STOPPER LMDC-100 OCCUPANCY/VACANCY SENSOR, DUAL TECH CEILING MOUNT, 360 DEGREES C/W ROOM CONTROLLERS AS REQUIRED. LIGHTING CONTROL TO BE MANUAL-ON, AUTO-OFF.
- OS6 — WATT STOPPER LMDC-100 OCCUPANCY/VACANCY SENSOR, DUAL TECH CEILING MOUNT, 360 DEGREES C/W ROOM CONTROLLERS AS REQUIRED. LIGHTING CONTROL TO BE AUTO-ON, AUTO-OFF.
- DLS — WATT STOPPER LMLS-500 OPEN LOOP DAYLIGHT SENSOR.
- AV — CEILING MOUNTED A/V OUTLET FOR PROJECTOR
- VGA MONITOR OUTLET C/W 21 mmC. TO CEILING MOUNTED AV OUTLET.
- WG — FIRE ALARM MANUAL STATION C/W PLASTIC COVER WITH LOCAL HORN – LETTERS WG DENOTES WIREGUARD
- 2 G — AUTOMATIC FIRE DETECTOR RATE OF RISE 135 DEG. F. UNLESS NOTED OTHERWISE – NUMBER DENOTES ZONE, LETTER G DENOTES GUARD
- 190°F — AUTOMATIC FIRE DETECTOR – FIXED TEMPERATURE AS NOTED
- PHOTO ELECTRIC SMOKE DETECTOR
- ALARM DUCT TYPE SMOKE DETECTOR
- E.O.L. — END-OF-LINE RESISTOR
- S — FIRE ALARM HORN. 'S' DENOTES C/W STROBE LIGHT.
- S — FIRE ALARM STROBE.
- TRANSFORMER
- HP-1 — HEAT PUMP #1 (TYP.)
- EF-1 — EXH. FAN #1 (TYP.)

LEGEND (CONTD.)

- CABLE TV OUTLET C/W 21MM CONDUIT UPTO COMMUNICATION BACKBOARD
- EMERGENCY PUSH BUTTON (CAMDEN 5/8" MUSHROOM, STAINLESS STEEL FACEPLATE, PUSH/PULL, 'PRESS FOR ASSISTANCE' : CM-4505R/12) OF CALL FOR ASSISTANCE SYSTEM (CALL FOR ASSISTANCE SYSTEM SHALL BE CAMDEN# CX-WEC10). THE EMERGENCY PUSH BUTTON SHALL BE MOUNTED ON A SINGLE GANG BOX. REFER FLOOR PLAN DWGS. FOR MORE INFORMATION.
- KP — SECURITY KEY PAD C/W 1-16MM CONDUIT TO SECURITY PANEL.
- SINGLE GANG LED ANNUNCIATOR C/W SOUNDER, 'ASSISTANCE REQUESTED' (CAMDEN: CM-AF5015O) OF CALL FOR ASSISTANCE SYSTEM (CALL FOR ASSISTANCE SYSTEM SHALL BE CAMDEN# CX-WEC10). REFER FLOOR PLAN DWGS. FOR MORE INFORMATION.
- S — SINGLE GANG DOME LIGHT WITH SOUNDER. 'ASSISTANCE REQUIRED' (CAMDEN: CM-AF1405O) OF CALL FOR ASSISTANCE SYSTEM (CALL FOR ASSISTANCE SYSTEM SHALL BE CAMDEN# CX-WEC10). REFER FLOOR PLAN DWGS. FOR MORE INFORMATION.
- D — SINGLE GANG DOME LIGHT WITH SOUNDER TO BE INITIATED BY THE DADO PANIC SYSTEM STRIP, TO BE LOCATED OUTSIDE THE UNIVERSAL WASHROOM (CAMDEN: CM-AF1405O). REFER FLOOR PLAN DWGS. FOR MORE INFORMATION.
- TELEPHONE OUTLET 21mm EMT CONDUIT TO ACCESSIBLE CEILING SPACE (T-BAR CEILING) OF NEAREST ROOM. REFER SPECIFICATIONS FOR COMMUNICATION WIRING.
- TELEPHONE/DATA OUTLET C/W 21mm EMT CONDUIT TO ACCESSIBLE CEILING SPACE (T-BAR CEILING) OF NEAREST ROOM. REFER SPECIFICATIONS FOR COMMUNICATION WIRING.
- X — DATA OUTLET C/W 21mm (27mm IN CASE OF 4 DROPS) EMT CONDUIT TO ACCESSIBLE CEILING SPACE (T-BAR CEILING) OF NEAREST ROOM. 'X' DENOTES NUMBER OF DATA DROPS. SLASH LINE DENOTES OUTLET TO BE MOUNTED ABOVE COUNTER. REFER SPECIFICATIONS FOR COMMUNICATION WIRING.
- WAP — CEILING MOUNTED WIRELESS ACCESS POINT (SUPPLIED BY OTHERS). ELECTRICAL CONTRACTOR SHALL PROVIDE DATA DROP AT THE LOCATION OF 'WAP'.
- ES — DOOR ELECTRIC STRIKE
- CR — CARD READER. REFER SCHEMATIC DIAGRAMS FOR ROUGH-IN REQUIREMENTS
- DC — DOOR CONTACT (SECURITY) C/W 16MM CONDUIT TO SECURITY PANEL.
- SECURITY BUZZER C/W 16MM CONDUIT TO RESPECTIVE SECURITY PANEL OF THE BUILDING, REFER FLOOR PLANS FOR MORE INFORMATION.
- CCTV — 360 DEGREE SECURITY CCTV CAMERA C/W 41MM CONDUIT TO ELECT. ROOM/I.T. ROOM-1006.
- BELL
- PH — PHOTOCELL
- T — THERMOSTAT
- J — WALL MOUNTED J-HOOK IN CEILING
- 50 MM(2") CONDUIT SLEEVE THRU WALL ABOVE CEILING

HWT	DENOTES DOMESTIC HOT WATER TANK
RH	DENOTES RANGE HOOD
RG	DENOTES RANGE
DW	DENOTES DISHWASHER
MW	DENOTES MICROWAVE
MD	DENOTES MOTORIZED DAMPER
PT	DENOTES PIPE HEAT TRACING
WG	DENOTES WIRE GUARD
FMC	DENOTES FIRE ALARM MONITORING CANADA C/W 1-21MM CONDUIT TO FACP & A DEDICATED PHONE OUTLET
FACP	DENOTES FIRE ALARM CONTROL PANEL
DO	DENOTES DOOR OPERATOR
FG	DENOTES FRIDGE
FZR	DENOTES FREEZER
EFC	DENOTES POWER FOR ELECTRONIC FAUCET/PLUMBING FIXTURES
F.A.A.P.	DENOTES RECESSED LED TYPE OF FIRE ALARM ANNUNCIATOR PANEL C/W PASSIVE GRAPHICS
IRH	DENOTES INFRA RED HEATER
ATS	DENOTES AUTOMATIC TRANSFER SWITCH
H.D.	DENOTES HEAT DETECTOR
S.D.	DENOTES SMOKE DETECTOR
P.S.	DENOTES PULL STATION
CUH	DENOTES CABINET UNIT HEATER
UH	DENOTES UNIT HEATER
WSH	DENOTES WASHER
DR	DENOTES DRYER
WP	DENOTES WEATHER PROOF.
VVT	DENOTES VARIABLE VOLUME TEMPERATURE.
HD	DENOTES HAND DRYER
A/V	DENOTES AUDIO/VISUAL SYSTEM
FSA	DENOTES FIRE STATION ALERT
O/H DOOR	DENOTES OVERHEAD DOOR
TRF.	DENOTES TRANSFORMER
HWT	DENOTES HOT WATER TANK
O/H	DENOTES OVERHEAD
HRU	DENOTES HEAT RECOVERY UNIT
DHW	DENOTES DOMESTIC HOT WATER TANK
IRH	DENOTES INFRA RED HEATER
HV-1	DENOTES HEATING VENTILATION UNIT#1 (TYP.)
HC-1	DENOTES DUCT HEATER COIL #1 (TYP.)
HWT	DENOTES HOT WATER TANK

VC	DENOTES LOCAL VOLUME CONTROL OF P.A. SPEAKERS
M&V	DENOTES METERING & VERIFICATION SYSTEM
O/H DOOR	DENOTES OVERHEAD DOOR
CF-1	DENOTES CEILING FAN#1 (TYP.)
TRF.	DENOTES TRANSFORMER
FC-1	DENOTES FAN COIL#1 (TYP.)
1A-1	DENOTES EQUIPMENT FED FROM PANEL '1A' AND BREAKER #1
1A-2.1	DENOTES EQUIPMENT FED FROM PANEL '1A' AND BREAKER #2 AND CONTROLLED BY SWITCH #1
1A-3.R1	DENOTES EQUIPMENT FED FROM PANEL '1A' AND BREAKER #3 AND CONTROLLED VIA RELAY-R1.
1A-5/7.R2(2P)	DENOTES EQUIPMENT FED FROM PANEL '1A' AND 2-POLE BREAKER #5/7 AND CONTROLLED VIA 2-POLE RELAY-R2.

LEGEND (CONTD.)

- 1 / E101 — DETAIL 1 ON DRAWING E101
- M / 7 — REFERS TO ITEM IN MECHANICAL EQUIPMENT SCHEDULE
- 1 — NOTE PERTAINING TO SPECIFIC ITEM OR AREA

NOTES FOR LEGEND:

1. THE WEATHERPROOF RECEPTACLES SHALL BE PROVIDED WITH COVER PLATES SUITABLE FOR WET LOCATIONS WHETHER OR NOT A PLUG IS INSERTED INTO THE RECEPTACLE (IN-USE COVER PLATE) AS PER RULE 26-702(2) OF OESC.
2. 'I' INDICATED BESIDE SYMBOL OF A DUPLEX RECEPTACLE DENOTES THAT THE RECEPTACLE SHALL BE I-SLOT ON 20A CCT.
3. 'C' INDICATED BESIDE SYMBOL OF A DEVICE DENOTES THAT THE DEVICE SHALL BE CEILING MOUNTED.
4. 'TR' INDICATED BESIDE SYMBOL OF A DUPLEX RECEPTACLE DENOTES THAT THE RECEPTACLE SHALL BE TAMPER RESISTANT TYPE OF RECEPTACLE.
5. SLASH LINE SHOWN ON A SYMBOL DENOTES THAT THE DEVICE IS LOCATED ABOVE COUNTER.

HEATER SCHEDULE

TYPE	DESCRIPTION
A	1250W 208V, 1-PH, BASEBOARD HEATER C/W BUILT-IN THERMOSTAT. DIMPLEX CAT. #AF6F512 STELPRO, OUELLETT
B	6000W 347V, 1-PH, SEMI RECESSED FORCED FLOW HEATER C/W BUILT-IN THERMOSTAT. DIMPLEX CAT. #RFB6051 STELPRO, OUELLETT
C	1000W 120V. BASEBOARD HEATER C/W BUILT-IN THERMOSTAT. DIMPLEX CAT. #AF6F410 STELPRO, OUELLETT
D	3000W 208V, 1-PH. SEMI RECESSED FORCED FLOW HEATER C/W BUILT-IN THERMOSTAT. DIMPLEX CAT. # RFB40D31 STELPRO, OUELLETT
INDUSTRIAL UNIT HEATERS UH-1 TO UH-5	15KW 600V, 3-PH. CEILING SUSPENDED/MOUNTED INDUSTRIAL UNIT HEATER C/W BUILT-IN THERMOSTAT. DIMPLEX CAT. # EUL15B83C+MOUNTING ACCESSORIES STELPRO, OUELLETT

LUMINAIRE SCHEDULE

LE1 6" DIA LED DOWN LIGHT, 13.8W, 1272 LUMENS, 3500K, C/W 120V DRIVER.
HEW# 6DR-TL-L15-835-DIM-OW-OF-CS-WET-CC-120V
COOPER, SIGNIFY, ACUITY

LE2 6" DIA LED DOWN LIGHT, 8.7W, 862 LUMENS, 3500K. C/W 120V DRIVER.
HEW# 6DR-TL-L10-835-DIM-OW-OF-CS-WET-CC-120V
COOPER, SIGNIFY, ACUITY

LE3 4' LONG PENDANT MOUNTED LED (SUSPENDED BY METALLIC CONDUITS, 73.1W, 11513 LUMENS, BOTTOM OF THE FIXTURE TO BE 6.5M A.F.F.) INDUSTRIAL LUMINARE 3500K, WIREGUARD, MOUNTING ACCESSORIES FOR MOUNTING AND A 120V DRIVER.
HEW# 80-4-L115-835-5-11HP-WG-8011-MOD-120V
SIGNIFY, COOPER, ACUITY

LE4 2'x4' RECESSED MOUNTED LED (40.0W, 4040 LUMENS) LUMINAIRE SUITABLE FOR T-BAR CEILING, 3500K, AND A 120V DRIVER.
HEW# LT-24-L43-835-AF-120V
SIGNIFY, COOPER, ACUITY

LE5 4' LONG SURFACE MOUNTED LED LIGHT FIXTURE 3500K, 29.5W, 4373 LUMENS, WIREGUARD, 120V DRIVER.
HEW# 7SR-4-L50-835-L43-5-11HP-MOD-120V-WG75
SIGNIFY, COOPER, ACUITY

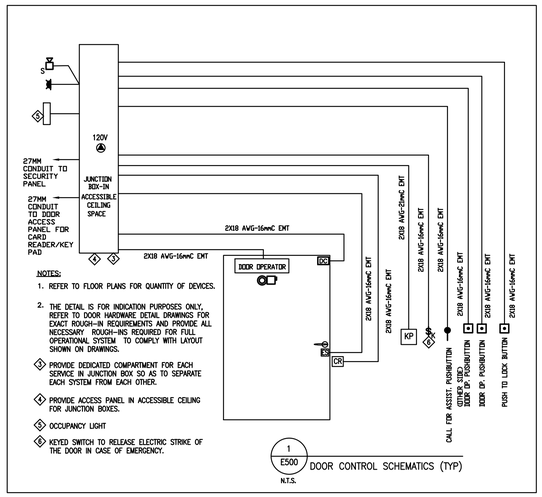
LE6 4' LONG SURFACE MOUNTED (THE LIGHT FIXTURE SHALL ACTUALLY BE MOUNTED AS A RECESSED FIXTURE IN CONCRETE CEILING) LED LIGHT FIXTURE 3500K, 13.6W/FT., 1287 LUMENS/FT., VANDAL & IMPACT RESISTANT, SUITABLE FOR VIBRATION AREAS, 120V DRIVER.
SELUX# SUROL-2825-35-PC-F-04-120V-DIM-FINISH TO ARCHITECT'S SELECTION
SIGNIFY, COOPER, ACUITY, HEW

PT1 LED POSTOP, 17" DIA 38.5" HIGH LUMINAIRE (EXTERNAL PRISMATIC GLASS, 43.5W, 6109 LUMENS) CAST ALUMINUM DIFFUSER FITTER MATERIAL, STAINLESS STEEL HARDWARE, IES TYPE 3 LIGHT DISTRIBUTION, 120V HIGH POWER FACTOR DRIVER, SPECIAL SOCKET, QL LAMP, 10' FLUTED CAST ALUMINUM POLE (TO BE MOUNTED ON A 2.5' CONCRETE BASE), BASE COVER TO BE ONE PIECE CAST ALUMINUM BASE WELDED TO POLE, FOUR ANCHOR BOLTS (0.75" BY 24"), ONE TEMPLATE, BOLT CIRCLE: 11.5", FINISH: ELECTROSTATICALLY APPLIED, 3000K, THERMOSET POLYSTER POWDER COAT FINISH, COLOUR: PF280-GS.
HCI LIGHTING# F112L-HC-4SLED-IV-5-5-W01509240012-120V-3000K

W1 LED WALL PACK (60W, 7645 LUMENS), MOUNTED @ 7.0M, C/W 120V DRIVER, 3000K, FINISH TO ARCHITECT'S SELECTION.
HCI LIGHTING# WP112-S-60W-120V-3000K

NOTES:

1. ALL LAMPS SHALL BE OF SINGLE MANUFACTURER, UNLESS NOTED OTHERWISE.
2. ALL LINEAR, LED & COMPACT FLUORESCENT LAMPS SHALL HAVE COLOR TEMPERATURE AS SPECIFIED.
3. THE MANUFACTURER SPECIFIED AS EQUAL TO ENSURE COMPLIANCE WITH BASE LUMINAIRE SPECIFICATIONS REGARDING LUMENS/WATTAGE/LIGHT LEVELS. ANY DISCREPANCIES ARE TO BE BROUGHT UP DURING TENDER STAGE.
4. REFER TO ARCH. DRAWINGS FOR LOCATIONS, HEIGHTS AND FULL EXTENT OF APPLICATION OF LUMINAIRES.
5. COORDINATE ON SITE WITH ARCHITECT AND CONSULTING ENGINEER FOR MOUNTING HEIGHT OF ALL SURFACE MOUNTED LUMINAIRES PRIOR TO ROUGH IN.
6. IN CASE OF SURFACE MOUNTED LIGHT FIXTURES ON SLOPED CEILINGS, ELECTRICAL CONTRACTOR SHALL PROVIDE ADAPTERS TO SUIT SO AS TO MOUNT THE LIGHT FIXTURE AS STRAGHT/HORIZONTAL. THE JUNCTION BOXES USED SHALL BE MOUNTED AS CONCEALED. REFER ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.



NOTES:

1. REFER TO FLOOR PLANS FOR QUANTITY OF DEVICES.
2. THE DETAIL IS FOR INDICATION PURPOSES ONLY. REFER TO DOOR HARDWARE DETAIL DRAWINGS FOR EXACT ROUGH-IN REQUIREMENTS AND PROVIDE ALL NECESSARY ROUGH-INS REQUIRED FOR FULL OPERATIONAL SYSTEM TO COMPLY WITH LAYOUT SHOWN ON DRAWINGS.
3. PROVIDE DEDICATED COMPARTMENT FOR EACH SERVICE IN JUNCTION BOX SO AS TO SEPARATE EACH SYSTEM FROM EACH OTHER.
4. PROVIDE ACCESS PANEL IN ACCESSIBLE CEILING FOR JUNCTION BOXES.
5. OCCUPANCY LIGHT
6. KEYED SWITCH TO RELEASE ELECTRIC STRIKE OF THE DOOR IN CASE OF EMERGENCY.

1 / E500 — DOOR CONTROL SCHEMATICS (TYP)
N.T.S.

GENERAL NOTES:

1. ELECTRICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL & MECHANICAL DRAWINGS FOR ALL SCOPE OF WORK OF ELECTRICAL CONTRACTOR WHICH ARE RELATED TO OTHER TRADES.
2. PROVIDE EACH ITEM MENTIONED OR INDICATED OF QUALITY AND SUBJECT TO QUALIFICATIONS NOTED; PERFORM ACCORDING TO CONDITIONS STATED EACH OPERATIONS STATED, EACH OPERATION PRESCRIBED; AND PROVIDE THEREFORE ALL LABOR, MATERIAL, EQUIPMENT, INCIDENTALS AND SERVICES REQUIRED TO COMPLETE THE INSTALLATION.
3. EXAMINE THE SITE, EXISTING EQUIPMENT AND THE LOCAL CONDITIONS AFFECTING THE WORK UNDER THIS CONTRACT. NO ALLOWANCE WILL BE MADE SUBSEQUENTLY FOR ANY OBVIOUS CONSIDERATIONS OVERLOOKED.
4. SCHEDULE AND COORDINATE ALL WORK WITH OTHER TRADES.
5. CONTRACTOR SHALL BALANCE CIRCUIT LOADS AS CLOSELY AS POSSIBLE.
6. REFER TO MECHANICAL DRAWINGS AND COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATION OF EQUIPMENT & DEVICES PRIOR TO ROUGH IN.
7. ALL ELECTRICAL INSTALLATIONS SHALL BE RECESSED/CONCEALED INSTALLATIONS WHEREVER POSSIBLE; OTHERWISE PROVIDE WIREMOLD STEEL SURFACE MOUNTED RACEWAY (WIREMOLD-500 SERIES DEDICATED FOR EACH OUTLET) C/W SURFACE MOUNTED OUTLETS. CO-ORDINATE WITH CONSULTANTS PRIOR TO INSTALLATION.
8. LOCATION OF THE OCCUPANCY SENSORS & DAY LIGHT SENSORS FOR LIGHTING CONTROLS HAVE BEEN SHOWN ON LIGHTING DRAWINGS FOR GROUPING PURPOSES ONLY. CO-ORDINATE WITH SYSTEM SUPPLIER FOR EXACT LOCATION OF THE OCCUPANCY SENSORS & DAY LIGHT SENSORS SO AS TO ACHIEVE CORRECT PURPOSE AS INTENDED, OPTIMUM COVERAGE AND TO AVOID MAL FUNCTIONING OF THE OCCUPANCY SENSORS & DAY LIGHT SENSORS.
9. CONTRACTOR SHALL PERFORM VOLTAGE DROP CALCULATIONS FOR ALL BRANCH CIRCUITS (LIGHTING AS WELL AS POWER) AND SHALL MAINTAIN VOLTAGE DROP WITHIN PERMISSIBLE LIMITS AS PER OESC REQUIREMENTS AND PROVIDE PROPER WIRE SIZES ACCORDINGLY PRIOR TO COMMENCING OF ROUGH-IN INSTALLATION. THE VOLTAGE DROP CALCULATIONS SHALL BE BASED ON MAXIMUM CIRCUIT AMPACITY.
10. IN CASE OF NON-ACCESSIBLE CEILING, ALL WIRING UPTO ELECTRICAL DEVICES SHALL BE DONE IN CONDUITS TO SUIT APPLICATION TO FACILITATE MAINTENANCE.
11. ELECTRICAL CONTRACTOR SHALL MAKE SUITABLE ARRANGEMENTS TO MAKE ALL THE ELECTRICAL DEVICES AS ACCESSIBLE TO FACILITATE MAINTENANCE. NO ELECTRICAL DEVICE SHALL BE INSTALLED IN SUCH A WAY THAT IT IS UN-ACCESSIBLE AT ANY STAGE FOR MAINTENANCE. CO-ORDINATE ON SITE AND PROCEED ACCORDINGLY.
12. ROOM CONTROLLERS OF LMRC-200 SERIES FOR LIGHTING CONTROL HAVE CONNECTIONS AT ITS' BACK. ACCORDINGLY, THIS TYPE OF ROOM CONTROLLERS ARE REQUIRED TO BE MOUNTED ON A BACKBOX. THE DEPTH OF THIS BACKBOX IS REQUIRED TO BE 2.5" DEEP. THEREFORE THE DEPTH OF THE RECESSED BACKBOXES (FOR MOUNTING ROOM CONTROLLERS) WHEREVER APPLICABLE SHALL BE SELECTED TO SUIT APPLICATION. THE ROOM CONTROLLERS SHALL BE LOCATED ABOVE RESPECTIVE PANELS OR IN NEAREST ACCESSIBLE CEILING SPACES, THE LOCATIONS OF THE ROOM CONTROLLERS SHALL BE WELL DOCUMENTED/INDICATED.
13. PROVIDE LABELING OF ELECTRICAL POWER OUTLETS AND RECEPTACLES THROUGHOUT THE ENTIRE BUILDING TO PROVIDE IDENTIFICATION OF ELECTRICAL CIRCUITS. THE LABEL SHALL INDICATE CCT.# FED TO THE OUTLET/RECEPTACLE.
14. PROVIDE CONDUITS AND BACK BOXES FOR LIGHTING CONTROL DEVICES TO SUIT APPLICATIONS AND AS PER MANUFACTURER'S RECOMMENDATIONS.
15. ALL LIGHTING CONTROL WIRING IN CASE OF CAT CABLING SYSTEM, SHALL BE PROVIDED IN CONDUITS EXCEPT FOR T-BAR CEILINGS APPLICATIONS WHERE FT6 CABLES (PLENUM RATED) SHALL BE PROVIDED.
16. ALL EMPTY CONDUITS SHALL BE PROVIDED C/W PULL WIRES.
17. ALL THE MI CABLES SHALL BE INSTALLED IN ACCORDANCE WITH THE RESPECTIVE MANUFACTURER RECOMMENDATIONS, OESC AND TO THE SATISFACTION OF THE LOCAL ESA INSPECTOR FOR FULLY OPERATIONAL SYSTEM. PROVIDE ALL NECESSARY MATERIAL & LABOR FOR COMPLETE OPERATIONAL SYSTEM TO SUIT APPLICATIONS.
18. VERIFY ON SITE FOR EXACT LOCATION OF MECHANICAL EQUIPMENT PRIOR TO ROUGH-IN.
19. PROVIDE SINGLE HEAD J-HOOKS OF 2" DIA. (ON EITHER SIDE OF CORRIDOR AND WITHIN EACH ROOM/AREA) SUSPENDED FROM SLAB IN THE CEILING SPACE OF ALL CORRIDORS AND ROOMS UNDER SCOPE OF WORK. PROVIDE J-HOOKS EVERY 2 FEET AND SUSPENDED BELOW ANY PIPING, MECHANICAL DUCTS ETC. NO RUN OF LOOSE CABLE FROM CONDUIT STAB UP SHALL EXCEED 10 FEET TO FIRST J-HOOK. PROVIDE QUANTITY OF J-HOOKS TO SUIT FOR FULL COVERAGE THROUGHOUT FLOOR AREAS OF THE COMPLETE BUILDING.
20. PROVIDE #10 AWG CONDUCTORS FOR LIGHTING CIRCUITS FOR ALL THE LIGHT FIXTURES IN CASE THE CIRCUIT LENGTH EXCEEDS 90' FROM THE RESPECTIVE PANEL UNLESS SPECIFIED OTHERWISE.
21. ELECTRICAL CONTRACTOR SHALL PROVIDE COMPLETE WIRING, CONDUITS, JACKS ETC. FOR COMMUNICATION. REFER SPECIFICATIONS FOR MORE INFORMATION.
22. CUSTOM MADE ELECTRICAL EQUIPMENT, IF ANY, SHALL BE GOT APPROVED FROM THE QUEEN'S FACILITIES.

NOTES:

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No.	BY	REVISIONS/SUBMISSIONS	DATE
1	RH	ISSUED FOR TENDER, PERMIT AND CONSRTRUCTION	MAY.11'23

Jain
7405 East Danbro Crescent, 2nd Floor
Mississauga, Ontario, L5N 6P8
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PROJECT
CASTLE LABORATORY

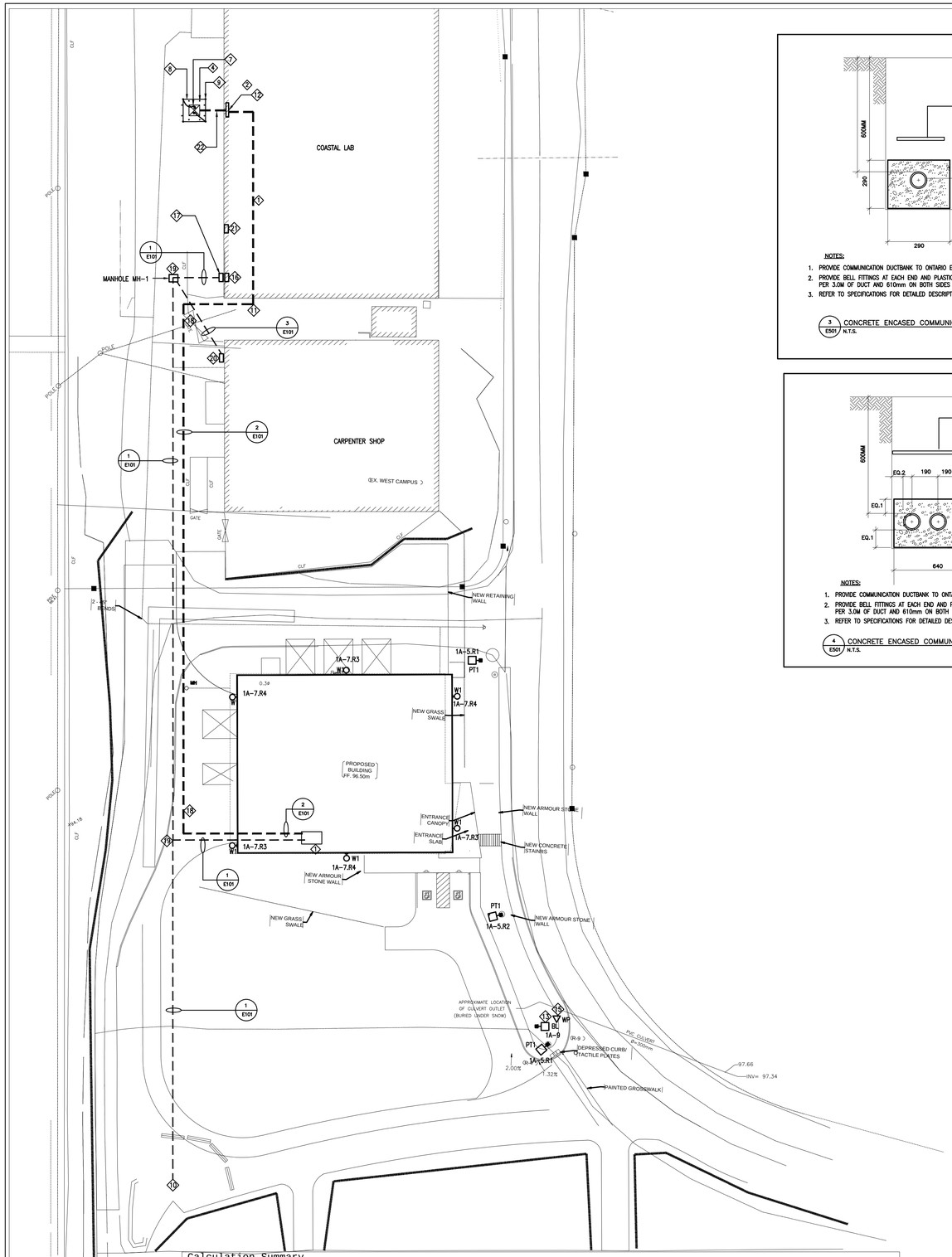
950 JOHNSON ST

DRAWING
LEGEND & DETAILS

SCALE
N.T.S.

PROFESSIONAL SEAL
REGISTERED PROFESSIONAL ENGINEER
D. JAIN
MAY.11'23
PROVINCE OF ONTARIO
21-265

DRAWN	DATE
CV	MAY.11'2023
CHECKED	PRINTED
RH	
REVIEWED	DRAWING No.
RH	E500
PROJECT No.	
21075	



Calculation Summary							
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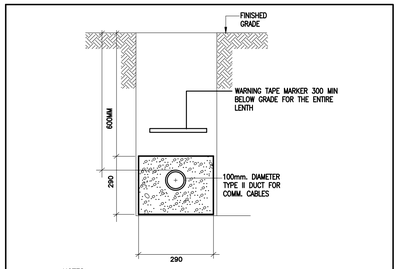
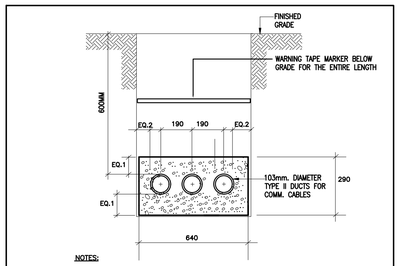


NOTES:

1. PROVIDE COMMUNICATION DUCTBANK TO ONTARIO ELECTRICAL SAFETY CODE.
2. PROVIDE BELL FITTINGS AT EACH END AND PLASTIC OR MASONARY SPACERS PER 3.0M OF DUCT AND 610mm ON BOTH SIDES OF EACH COUPLING.
3. REFER TO SPECIFICATIONS FOR DETAILED DESCRIPTION.

3 / E501 CONCRETE ENCASED COMMUNICATION DUCTBANK DETAIL
N.T.S.



NOTES:

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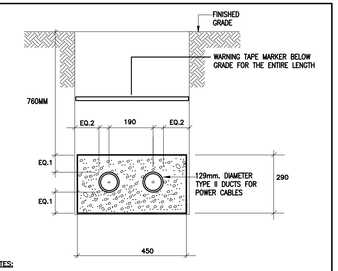
3. REFER TO SPECIFICATIONS FOR DETAILED DESCRIPTION.

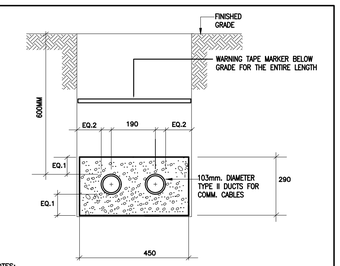
4 / E501 CONCRETE ENCASED COMMUNICATION DUCTBANK DETAIL
N.T.S.



NOTES:

1. POWER DUCTBANK & SECONDARY CABLES BY ELECTRICAL CONTRACTOR.
2. PROVIDE SECONDARY DUCTBANK TO ONTARIO ELECTRICAL SAFETY CODE.
3. PROVIDE BELL FITTINGS AT EACH END AND PLASTIC OR MASONARY SPACERS PER 3.0M OF DUCT AND 610mm ON BOTH SIDES OF EACH COUPLING.
4. REFER TO SPECIFICATIONS FOR DETAILED DESCRIPTION.
5. THE DUCTBANK SHALL BE C/W SECONDARY CABLES. THE SECONDARY CABLES SHALL BE 2 RUNS OF (4)500MCM RWU90 XLPE) COPPER CABLES. REFER DWG. NOTE-41 ON DWG. E505 FOR MORE INFORMATION.

2 / E501 CONCRETE ENCASED SECONDARY DUCTBANK DETAIL
N.T.S.



NOTES:

1. PROVIDE COMMUNICATION DUCTBANK TO ONTARIO ELECTRICAL SAFETY CODE.
2. PROVIDE BELL FITTINGS AT EACH END AND PLASTIC OR MASONARY SPACERS PER 3.0M OF DUCT AND 610mm ON BOTH SIDES OF EACH COUPLING.
3. REFER TO SPECIFICATIONS FOR DETAILED DESCRIPTION.

5 / E501 CONCRETE ENCASED COMMUNICATION DUCTBANK DETAIL
N.T.S.

DRAWING NOTES:

1. PROVIDE 2-125MM EMT CONDUITS IN CEILING SPACE C/W SECONDARY POWER CABLES FOR FEEDING NEW CASTLE LAB BUILDING. THE SECONDARY CABLES SHALL BE 2 RUNS OF (4)500MCM RWU90 XLPE) COPPER CABLES. REFER DWG. NOTE-41 ON DWG. E505 FOR MORE INFORMATION. REFER DWG. NOTE-11 FOR CONTINUATION OF THE POWER CONDUITS.
2. APPROXIMATE LOCATION OF MAIN ELECTRICAL ROOM IN EXISTING COASTAL BUILDING
3. THE WARNING TAPES SHOWN/DESCRIBED ON THIS DRAWING SHALL COMPLY WITH RULE 12-012(11) OF OESC. THE TAPE MUST BE BURIED APPROXIMATELY HALFWAY BETWEEN THE INSTALLATION AND GRADE LEVEL. COVERING THE WIDTH OF THE RACEWAYS OR CABLES FOR THE ENTIRE LENGTH & SHALL BE INSTALLED AS PER BULLETIN 12-2 OF OESC.
4. EXISTING PROTECTIVE BOLLARDS TO REMAIN.
5. ALL EXTERIOR LIGHTING CIRCUITS SHALL BE CARRIED OUT WITH #10 AWG CONDUCTOR.
6. ANY METAL (I.E. METAL FENCES, BOLLARDS, PROTECTIVE BARRIERS, ETC.) LOCATED WITHIN 2.4M OF THE PAD MOUNTED TRANSFORMER SHALL BE BONDED TO STATION GROUND ELECTRODE WITH 2/0 AWG COPPER CONDUCTORS AS PER RULE 36-308 & BULLETIN 36-10 OF LATEST OESC.
7. EXISTING HYDRO TRANSFORMER SHALL BE REPLACED BY HYDRO WITH A NEW TRANSFORMER. EXISTING PRIMARY DUCT BANK SHALL REMAIN. EXISTING FOUNDATION, PAD, GROUNDING, GROUNDING RODS, PROTECTIVE BOLLARDS ETC. SHALL REMAIN. COORDINATE WITH HYDRO AND PROCEED ACCORDINGLY. THE EXISTING SECONDARY DUCT BANK CONSISTING OF 2-103MM CONDUITS SHALL REMAIN AND SHALL BE UTILIZED TO FEED THE NEW SWITCHBOARD HPP-AA VIA 2X(4)600MCM RWU90 XLPE COPPER CABLES+GRD.). REFER SINGLE LINE DIAGRAM FOR MORE INFORMATION. ELECTRICAL CONTRACTOR SHALL PROTECT PRIMARY DUCT BANK & FEEDER WHILE EXECUTING HIS SCOPE OF WORK.
8. EXISTING GROUNDING LOOP SHALL REMAIN. COORDINATE WITH HYDRO & PROCEED ACCORDINGLY.
9. EXISTING GROUNDING RODS SHALL REMAIN. COORDINATE WITH HYDRO & PROCEED ACCORDINGLY.
10. PROVIDE 2-103MM CONDUITS UPTO EXISTING COMMUNICATION MANHOLE AT SOUTHWEST CORNER OF PLAYING FIELD. BACKBONE CABLE (24 STRAND OS2 50 PR, CAT3 COPPER) SHALL BE PROVIDED & INSTALLED BY ELECTRICAL CONTRACTOR BACK TO MCARTHUR AO04 FROM CASTLE BUILDING. ELECTRICAL CONTRACTOR SHALL PROVIDE & INSTAL 12 STRAND OS2 25 PR CAT3 COPPER FROM CASTLE BUILDING TO COASTAL LAB-112 AND CARPENTER SHOP-201. REFER DWG. E502 FOR OVERALL SITE PLAN SHOWING VARIOUS BUILDING.
11. THE 2-125MM EMT CONDUITS (C/W CABLES AS INDICATED UNDER DWG. NOTE-1) DESCRIBED UNDER DWG. NOTE-1 SHALL BE INSTALLED VERTICALLY DOWNWARDS OUTSIDE THE BUILDING AND THEN SHALL BE CONNECTED TO THE UNDERGROUND CONCRETE BASED SECONDARY DUCT BANK DESCRIBED UNDER DETAIL#2.

DRAWING NOTES (CONTD.):

12. EXISTING 600V, 3-PH. 4W, 600A SWITCHBOARD-AA (NAME OF THE EXISTING SWITCHBOARD ASSUMED AS 'SWITCHBOARD-AA FOR IDENTIFICATION PURPOSES). REMOVE THIS EXISTING SWITCHBOARD IN TOTALITY C/W INCOMING FEEDER, COORDINATE WITH HYDRO FOR THE REMOVAL OF HYDRO METERING SYSTEM & PROCEED ACCORDINGLY. THIS EXISTING SWITCHBOARD HAS EXISTING TWO BREAKERS (400A,3P & 200A,3P) WHICH ARE FEEDING EXISTING LOADS. DISCONNECT THESE EXISTING TWO OUTGOING FEEDERS FROM THE EXISTING SWITCHBOARD-AA AND RE-CONNECT TO THE RESPECTIVE 400A,3P & 200A,3P BREAKERS OF NEW SWITCHBOARD HPP-AA (MODIFY/EXTEND EXISTING WIRING/FEEDERS TO SUIT). THE NEW SWITCHBOARD HPP-AA SHALL BE LOCATED AT THE SAME LOCATION AS OF THE EXISTING 600V, 600A SWITCHBOARD-AA. THE EXISTING SECONDARY DUCT BANK CONSISTING OF 2-103MM CONDUITS SHALL BE UTILIZED TO FEED THE NEW SWITCHBOARD HPP-AA VIA 2X500MCM RWU90 XLPE COPPER CABLES+GRD. IN THE EXISTING DUCT BANK. REFER SINGLE LINE DIAGRAM FOR MORE INFORMATION.
13. EMERGENCY CALL BLUE LIGHT FIXTURE-BL (SUPPLIED BY OTHERS, INSTALLED BY ELECTRICAL CONTRACTOR). THE BLUE LIGHT FIXTURE SHALL BE INSTALLED ON A CONCRETE BASE PROVIDED BY OTHERS. PROVIDE 1-27MM CONDUIT (C/W WIRING) FROM THIS LIGHT FIXTURE TO MECHANICAL ROOM-111 FOR ADDITIONAL CONTROLS. COORDINATE WITH SYSTEM SUPPLIER & PROVIDE ALL NECESSARY MATERIAL & LABOR FOR FULLY OPERATIONAL SYSTEM.
14. THE CONCRETE BASE FOR INSTALLATION OF LIGHT STANDARDS & BLUE LIGHT FIXTURE SHALL BE PROVIDED BY OTHERS. LIGHT STANDARDS & BLUE LIGHT FIXTURES TO BE INSTALLED BY ELECTRICAL CONTRACTOR.
15. PROVIDE DATA OUTLET FOR BLUE LIGHT.
16. PROVIDE A WALL MOUNTED JUNCTION BOX-JB2 (24"X24"X8" DEEP) ON INTERIOR WALL AT 1.0M HEIGHT AS MINIMUM. PROVIDE 2-4" RIGID PVC CONDUITS FROM JB1 TO JB2 BY PENETRATING THROUGH THE WALL. COORDINATE ON SITE FOR EXACT LOCATION & MOUNTING HEIGHT OF JUNCTION BOX JB2 PRIOR TO ROUGH-INS.
17. PROVIDE A WALL MOUNTED WEATHERPROOF JUNCTION BOX-JB1 (24"X24"X8" DEEP) ON EXTERIOR WALL AT 1.0 HEIGHT AS MINIMUM. PROVIDE 2-4" RIGID PVC CONDUITS (RUNNING ON EXTERIOR WAL VIA A 300MM RADIUS BEND CONDUIT AT BOTTOM OF THE WALL) FROM END OF COMMUNICATION DUCTBANK TO JUNCTION BOX JB1. COORDINATE ON SITE FOR EXACT LOCATION & MOUNTING HEIGHT OF JUNCTION BOX JB1 PRIOR TO ROUGH-INS.
18. PROVIDE TWO (2) MANHOLES (SIZE TO SUIT APPLICATION) AT THESE LOCATIONS TO SERVE AS PULL PITS ALONG THE UNDERGROUND POWER DUCT BANK RUN.
19. PROVIDE TWO (2) MANHOLES (SIZE TO SUIT APPLICATION) AT THESE LOCATIONS TO SERVE AS PULL PITS ALONG THE UNDERGROUND COMMUNICATION DUCT BANK RUN. PROVIDE ONE MORE ADDITIONAL (3RD) MANHOLE SO THAT FUTURE COMMUNICATIONDUCT BANK CAN ENTER DIRECTLYINTO GROUNDS BUILDING, COORDINATE ON SITE FOR EXACT LOCATION OF THE 3RD MANHOLE PRIOR TO ROUGH-INS.
20. PROVIDE A WALL MOUNTED WEATHERPROOF JUNCTION BOX-JB3 (24"X24"X8" DEEP) ON EXTERIOR WALL OF CARPENTER SHOP BUILDING AT 1.0 HEIGHT AS MINIMUM. PROVIDE 1-4" RIGID PVC CONDUIT (RUNNING ON EXTERIOR WAL VIA A 300MM RADIUS BEND CONDUIT AT BOTTOM OF THE WALL) FROM END OF COMMUNICATION DUCTBANK TO JUNCTION BOX-JB3. COORDINATE ON SITE FOR EXACT LOCATION & MOUNTING HEIGHT OF JUNCTION BOX JB3 PRIOR TO ROUGH-INS.
21. JUNCTION BOX JB4 (TO BE PROVIDED BY QUEEN'S), VERIFY ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-INS. PROVIDE 1-2" EMT CONDUIT FROM JB2 TO JB4.

DRAWING NOTES (CONTD.):

22. EXISTING CONCRETE ENCASED SECONDARY DUCT BANK CONSISTING OF 2-103MM RIGID PVC CONDUITS SHALL REMAIN. PROVIDE 2X(4)600MCM RWU90 XLPE COPPER CABLES)+GRD. THROUGH THESE DUCTS TO FEED THE NEW SWITCHBOARD HPP-AA FROM NEW TRANSFORMER.

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No.	BY	REVISIONS/SUBMISSIONS	DATE
4	RH	ISSUED FOR TENDER, PERMIT AND CONSRTRUCTION	MAY.11'23
3	RH	RE-ISSUED FOR SITE PLAN CONTROL	JAN.27'23
2	RH	RE-ISSUED FOR SITE PLAN APPROVAL	AUG.11'22
1	RH	ISSUED FOR SITE PLAN APPROVAL	MAY.17'22

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PROJECT
CASTLE LABORATORY

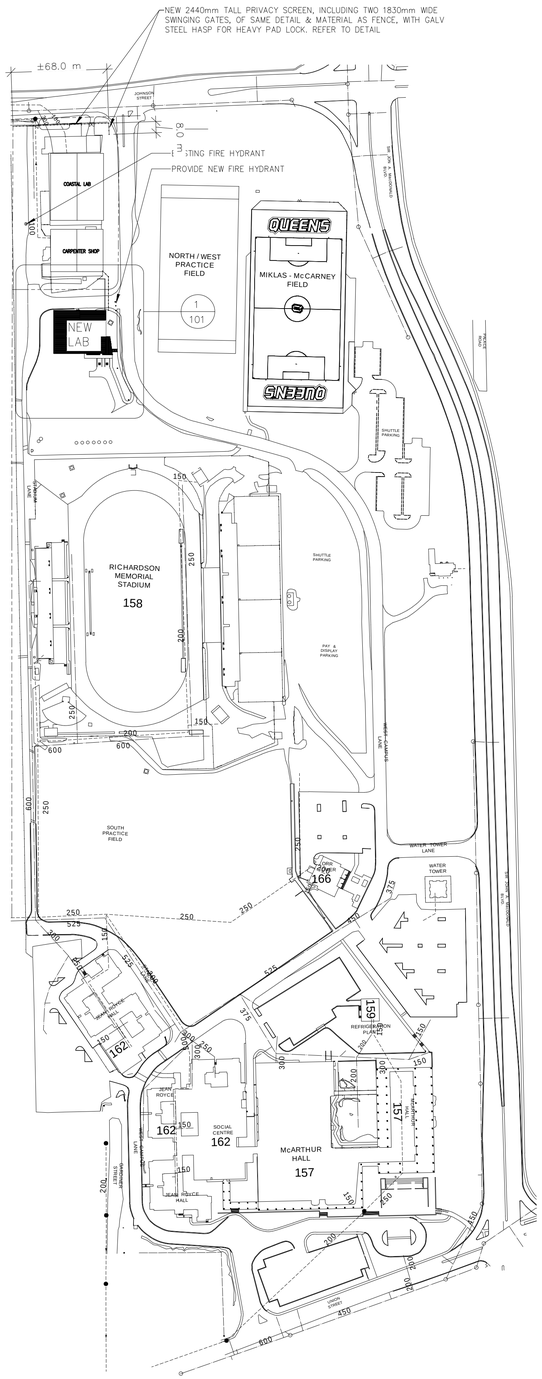
950 JOHNSON ST

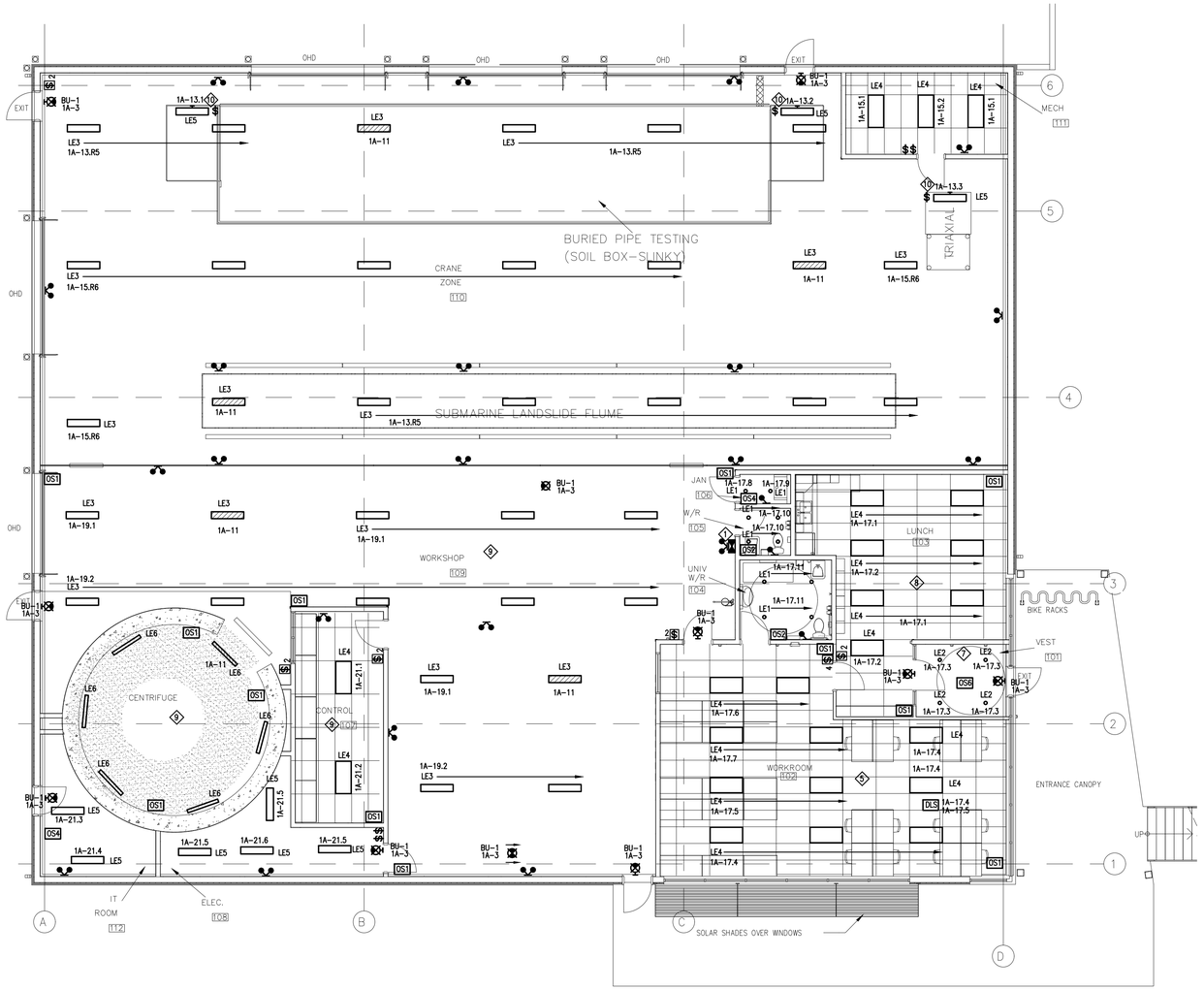
DRAWING
SITE PLAN
-ELECTRICAL

SCALE
1:400

PROFESSIONAL SEAL
D. JAIN
MAY.11'23
21-265

DRAWN	DATE
CV	MAY.11'2023
CHECKED	PRINTED
RH	
REVIEWED	DRAWING No.
RH	E501
PROJECT No.	
21075	


NEW 2440mm TALL PRIVACY SCREEN, INCLUDING TWO 1830mm WIDE SWINGING GATES, OF SAME DETAIL & MATERIAL AS FENCE, WITH GALV STEEL HASP FOR HEAVY PAD LOCK. REFER TO DETAIL
±68.0 m
JOHNSON STREET
EXISTING FIRE HYDRANT
PROVIDE NEW FIRE HYDRANT
CONSTR. LAB
CARPENTER SHOP
NEW LAB
NORTH / WEST PRACTICE FIELD
1
101
QUEENS
MIKLAS - McCARNEY FIELD
QUEENS
SHUTTLE PARKING
RICHARDSON MEMORIAL STADIUM
158
SHUTTLE PARKING
PAY & DISPLAY PARKING
SOUTH PRACTICE FIELD
WATER TOWER LANE
WATER TOWER
166
REFRIGERATION PLANT
651
151
JEAN ROYCE
162
SOCIAL CENTRE
162
JEAN ROYCE HALL
McARTHUR HALL
157
162
CAMPUS DRIVE
CAMPUS DRIVE
CAMPUS DRIVE



DRAWING NOTES:

1. PROVIDE BATTERY UNIT BU-1 AT HIGH LEVEL. PROVIDE CCT.#1A-1 TO THE BATTERY UNIT.
2. ALL THE BATTERY REMOTE HEADS SHOWN ON THIS DRAWING SHALL BE FED FROM BATTERY UNIT BU-1.
3. REFER DETAIL#1 ON DWG. E507 FOR LIGHTING CONTROL OF ROOMS CONTROLLED BY OCCUPANCY SENSOR TYPE-OS2.
4. REFER DETAIL#2 ON DWG. E507 FOR LIGHTING CONTROL OF ROOMS CONTROLLED BY OCCUPANCY SENSOR TYPE-OS4.
5. REFER DETAIL#4 ON DWG. E507 FOR LIGHTING CONTROL OF THIS ROOM.
6. ALL THE EXIT LIGHT FIXTURES SHOWN ON THIS DRAWING SHALL BE FED FROM FOLLOWING CIRCUITS: BU-1, 1A-3.
7. REFER DETAIL#5 ON DWG. E507 FOR LIGHTING CONTROL OF THE VESTIBULE.
8. REFER DETAIL#3 ON DWG. E507 FOR LIGHTING CONTROL OF THIS ROOM.
9. LIGHTING CONTROL OF THIS ROOM/AREA SHALL BE SIMILAR TO THE ONE AS DESCRIBED IN DETAIL#3 ON DWG. E507.M.
10. PROVIDE LIGHT FIXTURE TYPE-LE5 & SWITCH IN THE PIT. COORDINATE ON SITE FOR EXACT LOCATIONS PRIOR TO ROUGH-IN.

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DRAWINGS MUST NOT BE SCALED. VERIFY DIMENSIONS ON SITE

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1	RH	ISSUED FOR TENDER, PERMIT AND CONSRTRUCTION	MAY.11'23

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PROJECT
CASTLE LABORATORY

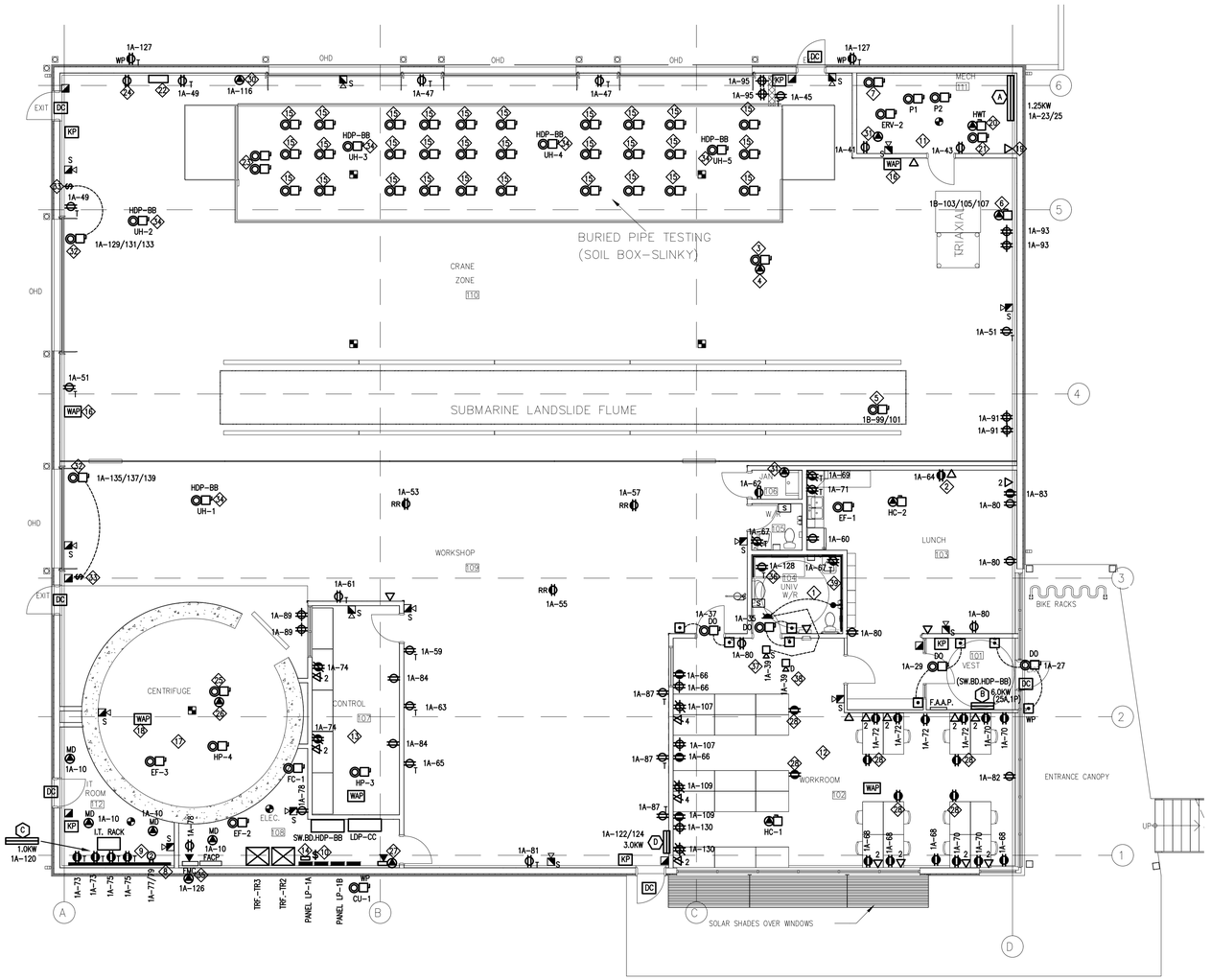
950 JOHNSON ST

DRAWING
LIGHTING LAYOUT
-GROUND FLOOR

SCALE
1:100

PROFESSIONAL SEAL
REGISTERED PROFESSIONAL ENGINEER
D. JAIN
MAY.11'23
PROVINCE OF ONTARIO
21-265

DRAWN	DATE
CV	MAY.11'2023
CHECKED RH	PRINTED
REVIEWED RH	DRAWING No.
PROJECT No. 21075	E503



DRAWING NOTES:

1. PROVIDE CALL FOR ASSISTANCE SYSTEM IN WASHROOM WHICH SHALL BE CAMDEN# CX-WEC10 CONSISTING OF:
   1 NO. MUSHROOM PUSH BUTTON, STAINLESS STEEL, PUSH/PULL, 'PRESS FOR EMERGENCY ASSISTANCE', CAMDEN# CM-450R/12. THE PUSH BUTTON SHALL BE MOUNTED ON A SINGLE GANG BACKBOX.
   1 NO. SINGLE GANG LED ANNUNCIATOR C/W SOUNDER, 'ASSISTANCE REQUESTED', CAMDEN# CM-AF501SO. THE SINGLE GANG LED ANNUNCIATOR C/W SOUNDER SHALL BE MOUNTED INSIDE THE B.F. WASHROOM.
   1 NO. SINGLE GANG DOME LIGHT WITH SOUNDER, 'ASSISTANCE REQUESTED', CAMDEN# CM-AF140SO. TO BE MOUNTED OUTSIDE THE B.F. WASHROOM.
   1 NO. ENGLISH, SOLID WHITE SIGN (152MMX270MM, IN THE EVENT OF AN EMERGENCY, PUSH EMERGENCY BUTTON AND AUDIBLE AND VISUAL SIGNAL WILL ACTIVATE), CAMDEN# CM-SE21A. THIS SIGN SHALL BE MOUNTED ABOVE THE EMERGENCY PUSH BUTTON OF CALL FOR ASSISTANCE SYSTEM.
   1 NO. POWER SUPPLY, 24VAC C/W 40VA STANDARD MOUNT TRANSFORMER AND AC/DC RECTIFIER (CAMDEN# CX-TRK24-50). THE POWER SUPPLY SHALL BE LOCATED IN NEAREST ACCESSIBLE CEILING SPACE.
   REFER LEGEND FOR MORE INFORMATION.
   PROVIDE ALL MATERIAL, LABOR, CONDUITS AND WIRING FOR FULLY OPERATIONAL SYSTEM AS PER LATEST OBC REQUIREMENTS. THE EMERGENCY PUSH BUTTON SHALL BE PLACED NEAR THE TOILET PAPER DISPENSER AND THE WALL SIGNAGE SHALL BE LOCATED NEAR THE EMERGENCY BUTTON.
2. PROVIDE POWER & DATA OUTLET FOR TV. COORDINATE ON SITE FOR EXACT LOCATION & MOUNTING HEIGHT PRIOR TO ROUGH-IN.
3. PROVIDE POWER FOR OVERHEAD CRANE. COORDINATE ON SITE FOR EXACT LOCATION & MOUNTING HEIGHT PRIOR TO ROUGH-IN.
   PROVIDE FUSIBLE DISCONNECT SWITCH (RATING OF THE DISCONNECT SWITCH & FUSES TO BE AS PER RECOMMENDATIONS OF THE SYSTEM SUPPLIER) TO CONTROL POWER TO THE OVERHEAD CRANE. REFER SINGLE LINE DIAGRAM FOR MORE INFORMATION.
4. PROVIDE POWER (CCT.#1A-112) AS CONTROL VOLTAGE FOR THE CRANE, COORDINATE ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-IN.
5. PROVIDE POWER FOR SUBMARINE LANDSLIDE FLUME, COORDINATE ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-IN. PROVIDE FUSIBLE DISCONNECT SWITCH (RATING OF THE DISCONNECT SWITCH & FUSES TO BE AS PER RECOMMENDATION OF THE SYSTEM SUPPLIER) TO CONTROL POWER TO THE SUBMARINE LANDSLIDE FLUME.
6. PROVIDE POWER FOR TRIAXIAL, COORDINATE ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-IN. PROVIDE FUSIBLE DISCONNECT SWITCH (RATING OF THE DISCONNECT SWITCH & FUSES TO BE AS PER RECOMMENDATION OF THE SYSTEM SUPPLIER) TO CONTROL POWER TO THE TRIAXIAL SYSTEM
7. PROVIDE POWER FOR MTS HYDRAULIC PUMP, COORDINATE ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-IN.
8. PROVIDE 19MM THICK, 2.44M HIGH FIRE RESISTANT PLYWOOD BOARD FOR TEL/CABLE/DATA SERVICES
9. PROVIDE #6 AWG GROUNDING CONDUCTOR IN CONDUIT C/W GROUNDING BUS BARS OF SIZE 1/4"X2"X10" FOR EACH SYSTEM (AS REQUIRED BY SYSTEM SUPPLIERS) FOR TELEPHONE, I.T RACK, FACP, SERVER, SECURITY PANEL,CABLE TV , DATA EQUIPMENTS BONDING IN I.T. ROOM. EXACT LOCATION TO BE VERIFIED ON SITE. GROUNDING OF THE EQUIPMENTS IN THE I.T. ROOM SHALL BE CONNECTED TO MAIN GROUNDING BUS BAR OF THE MAIN BUILDING.
10. PROVIDE SWITCH TO CONTROL POWER TO EXTERIOR RECEPTACLES (CCT.#1A-127).
11. PROVIDE 1-27MM CONDUIT FROM ACCESSIBLE CEILING SPACE OF THIS ROOM TO ACCESSIBLE CEILING SPACE OF LUNCH ROOM-103 FOR COMMUNICATION WIRING.
12. PROVIDE 3-41MM CONDUITS FROM ACCESSIBLE CEILING SPACE OF THIS ROOM TO I.T. ROOM-112 FOR COMMUNICATION WIRING.
13. PROVIDE 1-41MM CONDUIT FROM ACCESSIBLE CEILING SPACE OF THIS ROOM TO I.T. ROOM-112 FOR COMMUNICATION WIRING.
14. RELAY PANEL-R1A SHALL BE LOCATED ABOVE PANEL-1A.
15. PROVIDE POWER TO SOIL BOX (SLINKY) MOTOR (A TOTAL OF 30 MOTORS, MOTOR-1 TO MOTOR-30). COORDINATE ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-IN. REFER MECHANICAL EQUIPMENT WIRING SCHEDULE & PANEL SCHEDULES FOR MORE INFORMATION.
16. PROVIDE WIRELESS ACCESS POINT AS WALL MOUNTED.
17. PROVIDE 1-27MM CONDUIT FROM I.T. ROOM TO BASE AS A SPARE CONDUIT FOR FUTURE USE.
18. PROVIDE WIRELESS ACCESS POINT C/W EXTERNAL ANTENNA.
19. PROVIDE DATA OUTLET FOR BLUE LIGHT
20. PROVIDE POWER TO HOT WATER TANK (HWT), COORDINATE ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-IN.
21. PROVIDE POWER TO RE-CIRC. PUMP OF HOT WATER TANK (HWT), COORDINATE ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-IN.
22. CONTROL PANEL OF DUPLEX SEWAGE PUMPS, COORDINATE ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-IN. REFER MECHANICAL EQUIPMENT WIRING SCHEDULE FOR MORE INFORMATION.
23. PROVIDE POWER TO DUPLEX SEWAGE PUMPS, COORDINATE ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-IN. REFER MECHANICAL EQUIPMENT WIRING SCHEDULE FOR MORE INFORMATION.
24. PROVIDE POWER FOR SEWAGE PUMP ALARM (CCT.#1A-38), COORDINATE ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-IN. PROVIDE ALARM IN QUEEN'S EMERGENCY REPORT CENTRE, PROVIDE ALL NECESSARY MATERIAL & LABOR FOR FULLY OPERATIONAL SYSTEM.
25. PROVIDE POWER FOR THE CENTRIFUGE, COORDINATE ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-IN. THE CENTRIFUGE SHALL BE FED FROM SWITCHBOARD-BB THROUGH A TRANSFORMER-T2 (600V/460V), REFER SINGLE LINE DIAGRAM FOR MORE INFORMATION. PROVIDE FUSIBLE DISCONNECT SWITCH (RATING OF THE DISCONNECT SWITCH & FUSES TO BE AS PER RECOMMENDATIONS OF THE SYSTEM SUPPLIER) TO CONTROL POWER TO THE CENTRIFUGE. POWER TO THE CENTRIFUGE SHALL BE PROVIDED THROUGH THE CONTROL PANEL OF THE CENTRIFUGE. COORDINATE WITH THE SYSTEM SUPPLIER FOR LOCATION OF PANEL AND PROVIDE ALL MATERIAL & LABOR FOR FULLY OPERATIONAL SYSTEM.
26. PROVIDE POWER (CCT.#1A-110) AS CONTROL VOLTAGE FOR THE CENTRIFUGE, COORDINATE ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-IN.
27. SECURITY PANEL, PROVIDE POWER (CCT.#1A-114) & TELEPHONE OUTLET FOR THE SECURITY PANEL.
28. THIS IS A PRE-WIRED RECEPTACLE ON THE TABLE. THE TABLE SHALL BE PLUGGED IN A WALL MOUNTED RECEPTACLE TO FEED THIS PRE-WIRED RECEPTACLE.

29. FIRE ALARM SYSTEM OF THIS BUILDING SHALL BE CONNECTED TO THE CAMPUS SECURITY SYSTEM. PROVIDE ALL NECESSARY MATERAL, LABOUR, WIRING & PROGRAMMING FOR FULLY OPERATIONAL SYSTEM.

30. PROVIDE POWER FOR HIGH WATER LEVEL ALARM, COORDINATE ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-IN. PROVIDE ALARM IN QUEEN'S EMERGENCY REPORT CENTRE, PROVIDE ALL NECESSARY MATERIAL & LABOR FOR FULLY OPERATIONAL SYSTEM.
31. PROVIDE POWER (CCT.#1A-118) FOR TRAP SEAL PRIMER, COORDINATE ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-IN.

DRAWING NOTES (CONTD.):

32. PROVIDE POWER FOR OVERHEAD DOOR OPERATOR, COORDINATE ON SITE FOR EXACT LOCATION PRIOR TO ROUGH-IN. PROVIDE FUSIBLE DISCONNECT SWITCH TO CONTROL POWER TO THE OVERHEAD DOOR OPERATOR. 30A,3P BREAKER HAS BEEN USED TO FEED THE DOOR OPERATOR, COORDINATE WITH SHOP DWGS. OF THE O/H DOOR OPERATOR AND PROVIDE POWER/WIRING (1-PH. OR 3-PH.) & FUSES TO SUIT THE O/H DOOR OPERATOR.
33. PROVIDE UP/DOWN/OFF SWITCH FOR O/H DOOR OPERATOR.
34. PROVIDE INDUSTRIAL UNIT HEATER (15KW 600V, 3-PH. CEILING SUSPENDED/MOUNTED INDUSTRIAL UNIT HEATER C/W BUILT-IN THERMOSTAT.
    DIMPLEX CAT. # EUL15B83C+MOUNTING ACCESSORIES
    STELPRO, OUELLETI) AND FEED IT FROM DISTRIBUTION PANEL HDP-BB AS SHOWN IN SINGLE LINE DIAGRAM & MECHANICAL EQUIPMENT WIRING SCHEDULE.
35. FIRE ALARM MONITORING PANEL (FMP). PROVIDE DEDICATED PHONE LINE & POWER (CCT.#1A-126) TO THE FIRE ALARM MONITORING PANEL. PROVIDE 1-21MM CONDUIT FROM THE FIRE ALARM MONITORING PANEL TO FIRE ALARM CONTROL PANEL.
36. PROVIDE POWER FOR POWERED TABLE. COORDINATE ON SITE FOR EXACT LOCATION & MOUNTING HEIGHT PRIOR TO ROUGH-IN.
37. SINGLE GANG DOME LIGHT WITH SOUNDER. 'ASSISTANCE REQUIRED' (CAMDEN: CM-AF140SO) OF CALL FOR ASSISTANCE SYSTEM (CALL FOR ASSISTANCE SYSTEM SHALL BE CAMDEN# CX-WEC10). REFER FLOOR PLAN DWGS. FOR MORE INFORMATION. PROVIDE A RELAY-WR1 (C/W ENCLOSURE & NORMALLY OPEN CONTACTS) IN NEAREST ACCESSIBLE CEILING SPACE. THIS RELAY-WR1 SHALL OPERATE IN PARALLEL WITH THE DOME LIGHT. PROVIDE CONDUIT & WIRING FROM ONE NORMALLY OPEN CONTACT OF THIS RELAY-WR1 UPTO PLYWOOD BACKBOARD LOCATED IN I.T. ROOM-112
38. SINGLE GANG DOME LIGHT WITH SOUNDER TO BE INITIATED BY THE DADO PANIC SYSTEM STRIP, TO BE LOCATED OUTSIDE THE UNIVERSAL WASHROOM (CAMDEN: CM-AF140SO). REFER FLOOR PLAN DWGS. FOR MORE INFORMATION. PROVIDE A RELAY-WR2 (C/W ENCLOSURE & NORMALLY OPEN CONTACTS) IN NEAREST ACCESSIBLE CEILING SPACE. THIS RELAY-WR2 SHALL OPERATE IN PARALLEL WITH THE DOME LIGHT. PROVIDE CONDUIT & WIRING FROM ONE NORMALLY OPEN CONTACT OF THIS RELAY-WR2 UPTO PLYWOOD BACKBOARD LOCATED IN I.T. ROOM-112
39. PROVIDE DADO PANIC STRIP WITH LED ILLUMINATION ALONG THE WALLS OF UNIVERSAL WASH ROOM MOUNTED AT 14" ABOVE FINISHED FLOOR AS SHOWN COMPLETE WITH END CAPS, FLEXIBLE CORNER, REDIMON V4 MONITOR COMPLETE WITH CONTROL TRANSFORMER, 120V/12V DC POWER SUPPLY IN AN ENCLOSURE MOUNTED AT CEILING SPACE. MOUNT REDIMON V3 MONITOR AT 1.6METER ABOVE FINISHED FLOOR AS SHOWN. WIRE AND CONNECT WITH EMERGENCY CALL ASSISTANCE CIRCUIT. PROVIDE CONTROL WIRING FROM N.O. ALARM OUTPUT CONTACT OF REDIMON V4 MONITOR. CO-ORDINATE ON SITE FOR EXACT LOCATION & EXTENT OF APPLICATION OF THE DADO STRIP PRIOR TO ROUGH-IN.

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PROJECT
CASTLE LABORATORY

950 JOHNSON ST

DRAWING
POWER & SYSTEMS LAYOUT
-GROUND FLOOR

SCALE
1:100

PROFESSIONAL SEAL
REGISTERED PROFESSIONAL ENGINEER
D. JAIN
MAY.11'23
PROVINCE OF ONTARIO
21-265

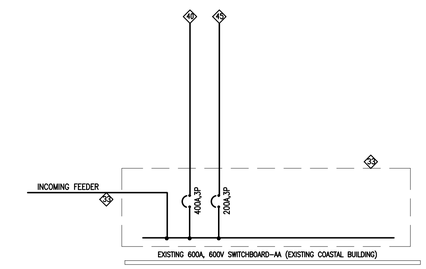
DRAWN	DATE
CV	MAY.11'2023
CHECKED	PRINTED
RH	
REVIEWED	DRAWING No.
RH	E504
PROJECT No.	
21075	

DRAWING NOTES :

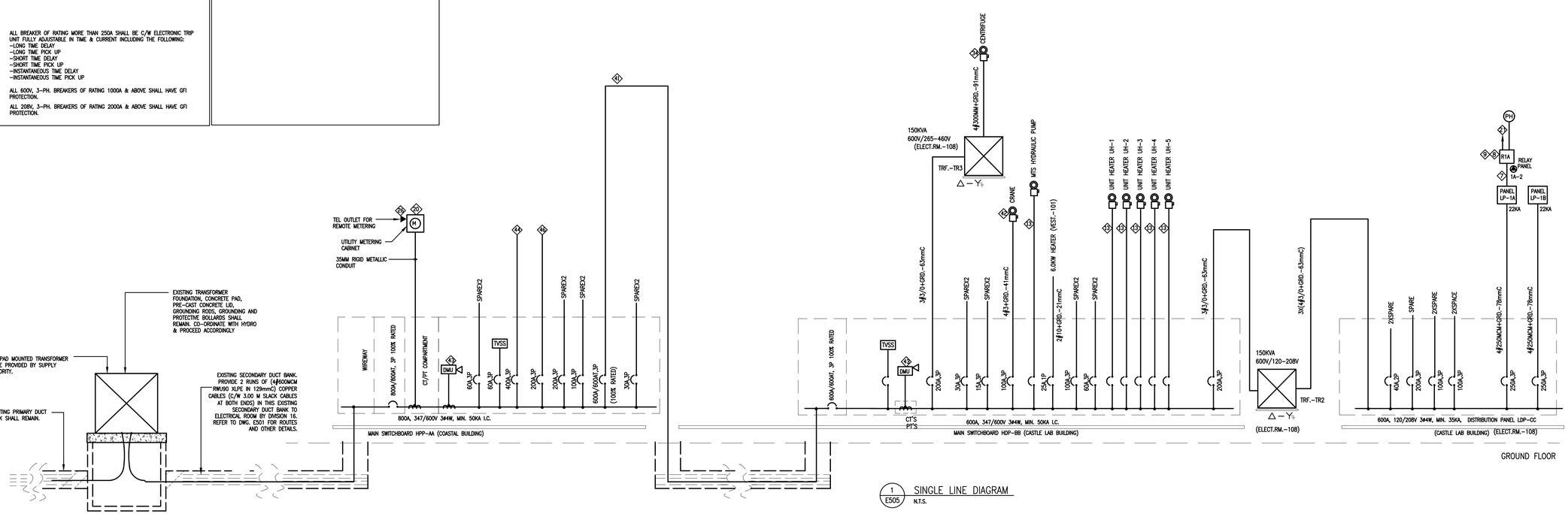
1. ALL THE OVER CURRENT DEVICES SHALL BE MARKED IN A CONSPICUOUS AND LEGIBLE MANNER TO INDICATE THAT THEY MUST ONLY BE REPLACED WITH COMPONENTS OF THE SAME TYPE AND RATING.
2. VERIFY INTERRUPTING CAPACITY OF ALL EQUIPMENT WITH CO-ORDINATION STUDY PRIOR TO MANUFACTURING.
3. REFER TO HYDRO STANDARDS & DETAILS PROVIDED IN THE SPECS. FOR MORE INFORMATION AND COMPLY ACCORDINGLY.
4. ALL SINGLE CONDUCTOR CABLES SHALL BE INSTALLED AS PER RULE 4-008, APPENDIX-B & BULLETIN 12-7 OF OESC..
5. COORDINATE WITH LOCAL HYDRO FOR EXACT SCOPE OF WORK AND REQUIREMENT AND COMPLY ACCORDINGLY. PROVIDE ALL NECESSARY MATERIAL AND LABOR FOR FULLY OPERATIONAL SYSTEM.
6. CO-ORDINATE WITH SYSTEM SUPPLIER FOR EXACT LOCATION OF PHOTOCELLS FOR OPTIMUM USE OF LIGHTING CONTROL.
7. PROVIDE SUITABLE CONDUIT SIZE FOR CIRCUITING WIRES WITH A MAXIMUM OF 40% CONDUIT FILL.
8. PROVIDE LOW VOLTAGE RELAY PANEL FOR EXTERIOR/INTERIOR LIGHTING C/W STEP DOWN TRANSFORMER. RELAY PANELS SHALL BE LOCATED ADJACENT TO RELAVANT LIGHTING PANEL.
9. PROVIDE ALL NECESSARY CONDUIT, WIRING, BACKBOXES ETC. FOR LIGHTING CONTROL FOR FULLY OPERATIONAL SYSTEM.
10. MAIN SWITCHBOARD & DISTRIBUTION PANELS SHALL HAVE 25% SPACE PROVISION AS A MINIMUM.
11. ALL FEEDERS SHALL BE MINIMUM R90XLPE COPPER CABLES.
12. RESERVED.
13. REFER TO MECH. EQUIPMENT WIRING SCHEDULE FOR BREAKER/FEEDER/CONDUIT SIZES.
14. CONTRACTOR SHALL PERFORM VOLTAGE DROP CALCULATIONS FOR ALL BRANCH CIRCUITS AND SHALL MAINTAIN VOLTAGE DROP WITHIN PERMESSIBLE LIMITS (for both lighting as well as power circuits) AS PER OESC REQUIREMENTS AND PROVIDE PROPER WIRE SIZES ACCORDINGLY PRIOR TO COMMENCING OF ROUGH-IN INSTALLATION. THE VOLTAGE DROP CALCULATIONS SHALL BE BASED ON MAXIMUM CIRCUIT AMPACITY.
15. PROVIDE LOCK-ON BREAKERS FOR CIRCUITS FEEDING EXIT LIGHTS, EMERGENCY INVERTER UNITS, FIRE ALARM PANEL, SERVER ROOMS, PA SYSTEM, MECHANICAL CONTROLS.
16. REFER TO FLOOR PLANS FOR TYPE OF DISCONNECT SWITCHES I.E. WEATHER PROOF, NON-FUSED, FUSED ETC.
17. ALL POWER EQUIPMENT/PANELS/RELAY PANELS SHALL BE OF SPRINKLER PROOF DESIGN.
18. AT EACH DISTRIBUTION POINT, CIRCUIT BREAKERS, FUSES AND SWITCHES SHALL BE MARKED, ADJACENT THERETO, IN A CONSPICUOUS MANNER TO INDICATE WHICH INSTALLATION OR PORTION OF INSTALLATION THEY PROTECT OR CONTROL AND THE MAXIMUM RATING OF OVERCURRENT DEVICE THAT IS PERMITTED AS PER RULE 2-100(3) OF OESC.
19. KA RATING OF THE EQUIPMENT SHALL BE AS SHOWN ON THE DWG.
20. PROVIDE METERING CABINET AS PER HYDRO REQUIREMENTS, COORDINATE WITH HYDRO FOR EXACT LOCATION & MORE DETAILS PRIOR TO ROUGH IN AND PROVIDE ALL NECESSARY MATERIAL & LABOUR FOR FULL OPERATIONAL SYSTEM. ALSO PROVIDE 16MM CONDUIT FROM MAIN TELEPHONE PANEL TO THE TOP OF METERING CABINET. LEAVE 2.0M COIL OF DEDICATED TELEPHONE LINE INSIDE THE METERING CABINET.
21. TO LIGHTING/POWER LOADS
22. ALL FEEDER CABLES ARE SIZED BASED ON COPPER CONDUCTOR USE.
23. COORDINATE BREAKER SIZE FOR SPECIAL EQUIPMENT SUCH AS MECHANICAL EQUIPMENT, KITCHEN APPLIANCES, ELEVATOR ETC. BASED ON SELECTED MAKE, MODEL AND ELECTRICAL DATA. BOTH CONTRACTOR AND SUPPLIER/MANUFACTURER SHALL MAKE ALLOWANCE FOR VARIATION IN RATING TO TWO (2) SIZE HIGHER OR LOWER THAN SPECIFIED & RESPECTIVE VARIATION/REVISION OF FEEDER SIZES AT NO EXTRA COST.
24. ELECTRICAL CONTRACTOR SHALL PROVIDE utilities kingston WITH TWO SETS OF SWITCHBOARD DWGS. FOR APPROVAL.
25. ALL VERTICAL RUNS OF ARMOURED OF SHEATHED CABLES SHALL HAVE THE INTERNAL CABLE ASSEMBLY SUPPORTED AT INTERVALS NOT EXCEEDING THOSE SPECIFIED IN TABLE 21 OF OESC OR BY ALTERNATIVE METHODS DESCRIBED IN RULE 12-120(4) OF OESC.
26. PROVIDE DEDICATED TELEPHONE LINE FOR METERING.
27. RESERVED.
28. ALL BREAKER OF RATING MORE THAN 250A SHALL BE C/W ELECTRONIC TRIP UNIT FULLY ADJUSTABLE IN TIME & CURRENT INCLUDING THE FOLLOWING:
    - -LONG TIME DELAY
    - -LONG TIME PICK UP
    - -SHORT TIME DELAY
    - -SHORT TIME PICK UP
    - -INSTANTANEOUS TIME DELAY
    - -INSTANTANEOUS TIME PICK UP
29. ALL 600V, 3-PH. BREAKERS OF RATING 1000A & ABOVE SHALL HAVE GFI PROTECTION.
30. ALL 208V, 3-PH. BREAKERS OF RATING 2000A & ABOVE SHALL HAVE GFI PROTECTION.

DRAWING NOTES (CONTD.) :

31. PROVIDE LUGS AT BOTH ENDS OF ALL FEEDERS TO SUIT TERMINATIONS.
32. ELECTRICAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR LAYOUT OF ELECTRICAL EQUIPMENT IN ELECTRICAL ROOMS SO AS TO ADJUST ALL THE ELECTRICAL EQUIPMENT IN ELECTRICAL ROOMS AS PER DRAWINGS AND TO HAVE CLEARANCES IN FRONT OF ALL ELECTRICAL EQUIPMENT AS PER APPLICABLE CODES (1.0M IN FRONT OF PANELS OF RATINGS LESS THAN 1200A AND 1.5M IN FRONT OF PANELS OF RATINGS 1200A & ABOVE). ALL TRANSFORMERS UPTO RATINGS OF 75KVA SHOULD BE LOCATED AT HIGH LEVEL FOR MAXIMUM UTILIZATION OF THE AVAILABLE SPACES IN ELECTRICAL ROOMS. THEREFORE ELECTRICAL CONTRACTOR SHALL VERIFY DIMENSIONS OF THE ELECTRICAL ROOMS AND THE ELECTRICAL EQUIPMENT/PANELS WITH VARIOUS SUPPLIERS/MANUFACTURERS PRIOR TO ORDERING AND ORDER ELECTRICAL EQUIPMENT/PANELS ACCORDINGLY AND SHALL ORDER CUSTOM MADE EQUIPMENT, IF NEED BE. NO EXTRA ALLOWANCE, WHATSOEVER SHALL BE ADMISSIBLE ON THIS ACCOUNT. HOWEVER, ELECTRICAL CONTRACTOR CAN RE-ADJUST THE LOCATION OF VARIOUS EQUIPMENT IN ELECTRICAL ROOM TO ACHIEVE VARIOUS CLEARANCES REQUIRED. ALL THE CUSTOM MADE EQUIPMENT SHALL BE SUBJECT TO THE APPROVAL OF QUEEN'S FACILITIES.
33. EXISTING 600A, 600V SWITCHBOARD-AA (NAME OF THE SWITCHBOARD ASSUMED AS "SWITCHBOARD-AA" FOR IDENTIFICATION PURPOSES) IN EXISTING COASTAL BUILDING SHALL BE REMOVED C/W INCOMING FEEDER.
34. PROVIDE FUSIBLE DISCONNECT (RATING OF THE DISCONNECT SWITCH AND FUSES TO BE AS RECOMMENDED BY SYSTEM SUPPLIER) TO CONTROL POWER TO THE CENTRIFUGE.
35. WHERE ADJUSTABLE TRIP BREAKERS ARE INSTALLED, PERMANENT LABELS SHALL BE ATTACHED TO THE SWITCHGEAR OR PANEL BOARD TO CLEARLY INDICATE FOR EACH ADJUSTABLE TRIP BREAKER THE MAXIMUM PERMESSIBLE TRIP SETTING FOR THE INSTALLATION (BOTH IN AMPERES AND IN TERMS OF THE SCALE/READ-OUT) (RULE 2-100), AND IF THE AMPERE RATING OF THE BREAKER CAN BE CHANGED WITHOUT REMOVING THE TRIP UNIT, THE MEANS OF ADJUSTMENT SHALL BE FACTORY SEALED OR BEHIND SEALED COVERS.
36. ALL FEEDERS CABLES SHALL BE COPPER XLPE R90 FOR DRY LOCATIONS, COPPER XLPE RW90 FOR DAMP/WET LOCATIONS AND COPPER XLPE RWU90 FOR UNDERGROUND INSTALLATIONS UNLESS NOTED OTHERWISE.
37. ALL SINGLE CONDUCTOR CABLES IN PARALLEL SHALL BE INSTALLED AS PER RULE 12-108 & BULLETIN 12-7 OF OESC..
38. ALL THE TRANSFORMERS SHALL BE WITH COPPER WINDINGS.
39. PROVIDE SHORT CIRCUIT AND COORDINATION STUDY. ALL DISTRIBUTION EQUIPMENT SHALL BE SUPPLIED AND INSTALLED AS PER STUDY RESULTS AND RECOMMENDATION AND TO SUIT HYDRO AND ONTARIO ELECTRICAL SAFETY CODE REQUIREMENTS.
40. EXISTING OUTGOING FEEDER (FED FROM EXISTING 400A,3P BREAKER) FROM SWITCHBOARD-AA SHALL BE DISCONNECTED FROM SWITCHBOARD-AA AND RE-FED FROM NEW SWITCHBOARD HPP-AA. REFER DWG. NOTE-44 FOR MORE INFORMATION. REFER DWG. E501 FOR MORE INFORMATION.
41. 2 RUNS OF (4#500MCM RWU90 XLPE) COPPER SECONDARY CABLES SHALL RUN IN CEILING SPACE (IN 129MM EMT CONDUITS) IN EXISTING BUILDING (REFER DWG. NOTES-1 & 11 ON DWG. E501) AND THEN IN UNDERGROUND CONCRETE BASED DUCT BANK (AS PER DETAIL#2 ON DWG. E501) TO ELECTRICAL ROOM IN CASTLE LAB BUILDING BY DIVISION 16. REFER TO DWG. E501 FOR ROUTES, MORE INFORMATION AND OTHER DETAILS.
42. PROVIDE FUSIBLE DISCONNECT (RATING OF THE DISCONNECT SWITCH AND FUSES TO BE AS RECOMMENDED BY SYSTEM SUPPLIER) TO CONTROL POWER TO THE CRANE.
43. THE DIGITAL METER SHALL BE EATON PXM3000 OR SCHNEIDER PM5560. PROVIDE DATA OUTLET AT THE METER.
44. EXISTING OUTGOING FEEDER (DESCRIBED UNDER DWG. NOTE-40) DISCONNECTED FROM SWITCHBOARD-AA SHALL BE RE-FED FROM 400A,3P BREAKER OF SWITCHBOARD HPP-AA. MODIFY/EXTEND EXISTING FEEDER/WIRING TO SUIT. REFER DWG. E501 FOR MORE INFORMATION.
45. EXISTING OUTGOING FEEDER (FED FROM EXISTING 200A,3P BREAKER) FROM SWITCHBOARD-AA SHALL BE DISCONNECTED FROM SWITCHBOARD-AA AND RE-FED FROM NEW SWITCHBOARD HPP-AA. REFER DWG. NOTE-46 FOR MORE INFORMATION. REFER DWG. E501 FOR MORE INFORMATION.
46. EXISTING OUTGOING FEEDER (DESCRIBED UNDER DWG. NOTE-45) DISCONNECTED FROM SWITCHBOARD-AA SHALL BE RE-FED FROM 200A,3P BREAKER OF SWITCHBOARD HPP-AA. MODIFY/EXTEND EXISTING FEEDER/WIRING TO SUIT. REFER DWG. E501 FOR MORE INFORMATION.



N.T.S. 2 / E505 SINGLE LINE DIAGRAM (DEMOLITION)



1 / E505 SINGLE LINE DIAGRAM N.T.S.

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No.	BY	REVISIONS/SUBMISSIONS	DATE
1	RH	ISSUED FOR TENDER, PERMIT AND CONSRTRUCTION	MAY.11'23

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PROJECT
CASTLE LABORATORY

950 JOHNSON ST

DRAWING
SINGLE LINE DIAGRAM

SCALE
N.T.S.

PROFESSIONAL SEAL
LICENSED PROFESSIONAL ENGINEER
D. JAIN
MAY/11'23
PROVINCE OF ONTARIO
21-265

DRAWN	DATE
CV	MAY.11'2023
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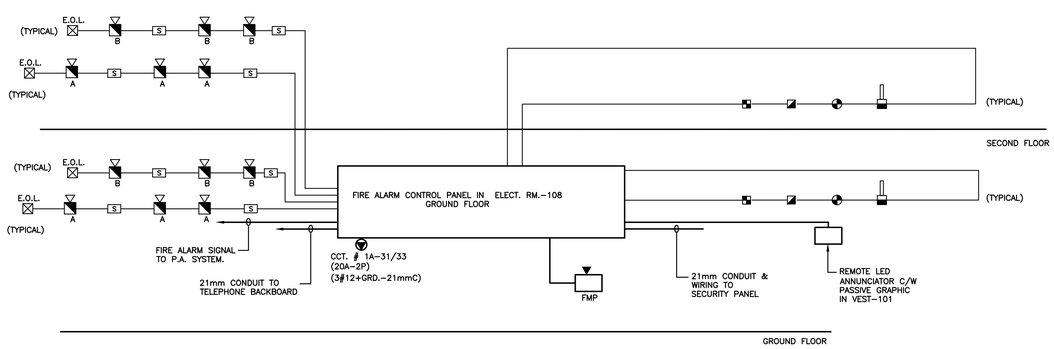
RH	
REVIEWED	DRAWING No.
RH	E505
PROJECT No.	
21075	

FIRE ALARM ZONE SCHEDULE

ZONE NO.	ZONE DESCRIPTION	DEVICES	ALARM	TROUBLE	ZONE NO.	SUPERVISORY ZONE DESCRIPTION	DEVICES	ALARM	TROUBLE
FZ-01	GROUND FLOOR-NORTH (CRANE ZONE)	P.S/H.D./S.D.	✓	✓	SPARE	10 NOS.			✓
FZ-02	GROUND FLOOR-SOUTH	P.S/H.D./S.D.	✓	✓					
SPARE	10 NOS.								

NOTES:–

1. PROVIDE FIRE ALARM GRAPHICS TO BE INSTALLED ADJACENT TO THE LED ANNUNCIATOR IN THE MAIN ENTRANCE.
2. 'FZ'– DENOTES FIRE ALARM ZONE
3. 'SZ'– DENOTES SUPERVISORY ZONE
4. 'CZ'– DENOTES CONTROL ZONE
5. 'S.D'– DENOTES SMOKE DETECTOR
6. 'P.S'– DENOTES PULL STATION
7. 'H.D'– DENOTES HEAT DETECTOR
8. 'D.S'– DENOTES DUCT SMOKE DETECTOR
9. FOR NUMBER AND LOCATION OF DEVICES REFER TO FLOOR PLANS.
10. PROVIDE WIRING IN CONDUIT FOR COMPLETE OPERATIONAL SYSTEM
11. ALL PULL STATIONS SHALL BE C/W PLASTIC COVERS WITH LOCAL HORN.
12. PROVIDE ISOLATORS FOR EVERY ONE TO TWO HOUR RATED FIRE COMPARTMENT.
13. ALL LOOP WIRING FOR INITIATING CIRCUITS SHOULD RUN ON SEPARATE ROUTE INCLUDING RISER.
14. SOUND ALL AUDIBLE SIGNALS AND SHUT DOWN AIR SYSTEM IN CASE OF GENERAL ALARM.
15. PROVIDE AN ALARM AND A SUPERVISORY FIRE ALARM ZONE IN EXISTING FIRE ALARM SYSTEM OF 'QUEEN'S EMERGENCY REPORT CENTRE' SAYING 'FIRE ALARM SYSTEM OPERATED IN CASTLE LAB BUILDING'. PROVIDE ALL NECESSARY MATERIAL & LABOR FOR FULLY OPERATIONAL SYSTEM.



NOTES:

1. FOR QUANTITY AND LOCATION OF DEVICES REFER TO FLOOR PLANS.
2. PROVIDE WIRING IN CONDUITS FOR COMPLETE OPERATIONAL SYSTEM AS PER MANUFACTURER RECOMMENDATION.
3. FIRE ALARM CABLES SHALL RUN IN EMT CONDUITS.

1 / E506 FIRE ALARM RISER SCHEMATIC DIAGRAM
N.T.S.

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PROJECT
CASTLE LABORATORY

950 JOHNSON ST

DRAWING
FIRE ALARM SYSTEM

SCALE
N.T.S.

PROFESSIONAL SEAL
REGISTERED PROFESSIONAL ENGINEER
D. JAIN
MAY.11'23
PROVINCE OF ONTARIO
21–265

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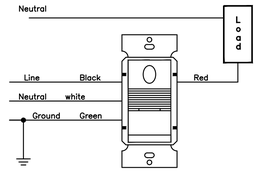
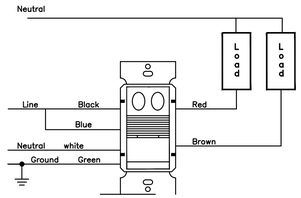
PROJECT No. 21075	E506



N.T.S.

1 / E507 DUAL TECHNOLOGY WALL SWITCH TYPE-OS2
LIGHTING CONTROL-SCHEMATICS

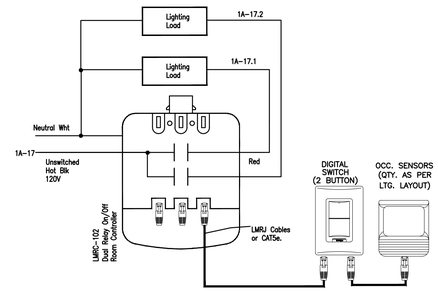


N.T.S.

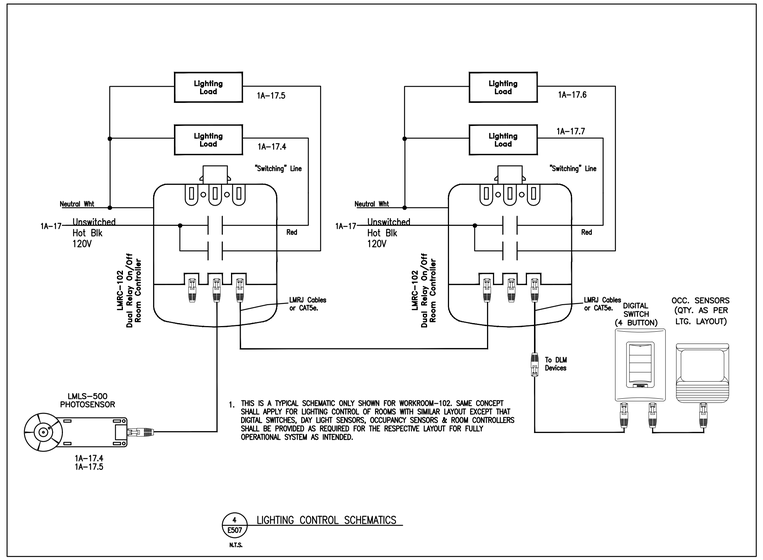
2 / E507 DUAL TECHNOLOGY WALL SWITCH TYPE-OS4
LIGHTING CONTROL-SCHEMATICS

NOTES:

1. THIS IS A TYPICAL SCHEMATIC ONLY SHOWN FOR LIGHTING CONTROL OF LUNCH ROOM-103. SAME CONCEPT SHALL APPLY FOR LIGHTING CONTROL OF ROOMS WITH SIMILAR LAYOUT EXCEPT THAT DIGITAL SWITCHES, OCCUPANCY SENSORS, DAYLIGHT SENSOR & ROOM CONTROLLERS SHALL BE PROVIDED AS REQUIRED FOR THE RESPECTIVE LAYOUT FOR FULLY OPERATIONAL SYSTEM AS INTENDED.

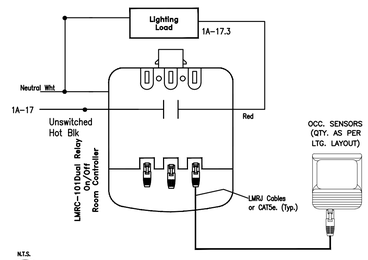


3 / E507 LIGHTING CONTROL SCHEMATICS (TYP.)
N.T.S.



1. THIS IS A TYPICAL SCHEMATIC ONLY SHOWN FOR WORKROOM-102. SAME CONCEPT SHALL APPLY FOR LIGHTING CONTROL OF ROOMS WITH SIMILAR LAYOUT EXCEPT THAT DIGITAL SWITCHES, DAY LIGHT SENSORS, OCCUPANCY SENSORS & ROOM CONTROLLERS SHALL BE PROVIDED AS REQUIRED FOR THE RESPECTIVE LAYOUT FOR FULLY OPERATIONAL SYSTEM AS INTENDED.

4 / E507 LIGHTING CONTROL SCHEMATICS
N.T.S.



N.T.S.

5 / E507 LIGHTING CONTROL SCHEMATICS FOR LIGHTING CONTROL OF A ROOM (TYP.)

DRAWING NOTES:

1. THIS IS A TYPICAL SCHEMATIC SHOWN ONLY FOR VESTIBULE-101. SIMILAR CONCEPT SHALL APPLY FOR LIGHTING CONTROL OF SIMILAR LIGHTING LAYOUTS OF VARIOUS ROOMS/AREAS EXCEPT THAT OCCUPANCY SENSORS/ROOM CONTROLLERS SHALL BE PROVIDED AS REQUIRED AS PER LIGHTING LAYOUTS/LIGHTING CIRCUITS OF RESPECTIVE ROOM /AREA.

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PROJECT
CASTLE LABORATORY

950 JOHNSON ST

DRAWING
FIRE ALARM SYSTEM

SCALE
N.T.S.

PROFESSIONAL SEAL
REGISTERED PROFESSIONAL ENGINEER
D. JAIN
MAY.11'23
PROVINCE OF ONTARIO
21-285

DRAWN	CV
DATE	MAY.11'2023
CHECKED	RH
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REVIEWED	RH
DRAWING No.	E507
PROJECT No.	21075

CLIENT OWNED EQUIPMENT WIRING SCHEDULE

EQUIPMENT & LABEL	STARTER LOCATION	UNIT POWER	UNIT PHASE	UNIT VOLTAGE	STARTER TYPE	BREAKER SIZE	FEEDER SIZE	PANEL AND CCT. NOS.	REMARKS
TRIXIAL SYSTEM	CRANE AREA	AMP. 20	3	208	MAGNETIC	30A,3P	4#10+GRD.-27mmC	1B-103/105/107	PROVIDE FUSIBLE DISCONNECT SWITCH (RATING OF DISCONNECT & FUSES TO BE AS PER RECOMMENDATION OF SUPPLIER) TO CONTROL POWER TO THE TRAXIAL SYSTEM.
SUBMARINE LANDSLIDE FLUME	CRANE AREA	AMP. 30A	1	208	MAGNETIC	40A,2P	3#8+GRD.-27mmC	1B-99/101	PROVIDE FUSIBLE DISCONNECT SWITCH (RATING OF DISCONNECT & FUSES TO BE AS PER RECOMMENDATION OF SUPPLIER) TO CONTROL POWER TO THE UNIT.
MTS HYDRAULIC PUMP	MECH.RM-111	HP 25	3	575	MAGNETIC	60A,3P	3#6+GRD.-35mmC	SW. BD. HDP-BB	
SOIL BOX (SLINKY) MOTOR-20	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-77/79	
SOIL BOX (SLINKY) MOTOR-21	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-81/83	
SOIL BOX (SLINKY) MOTOR-22	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-46/48	
SOIL BOX (SLINKY) MOTOR-23	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-50/52	
SOIL BOX (SLINKY) MOTOR-24	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-54/56	
SOIL BOX (SLINKY) MOTOR-25	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-58/60	
SOIL BOX (SLINKY) MOTOR-26	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-62/64	
SOIL BOX (SLINKY) MOTOR-27	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-66/68	
SOIL BOX (SLINKY) MOTOR-28	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-70/72	
SOIL BOX (SLINKY) MOTOR-29	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-74/76	
SOIL BOX (SLINKY) MOTOR-30	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-78/80	
SOIL BOX (SLINKY) MOTOR-1	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-1/3	
SOIL BOX (SLINKY) MOTOR-2	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-5/7	
SOIL BOX (SLINKY) MOTOR-3	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-9/11	
SOIL BOX (SLINKY) MOTOR-4	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-13/15	
SOIL BOX (SLINKY) MOTOR-5	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-17/19	
SOIL BOX (SLINKY) MOTOR-6	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-21/23	
SOIL BOX (SLINKY) MOTOR-7	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-25/27	
SOIL BOX (SLINKY) MOTOR-8	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-29/31	
SOIL BOX (SLINKY) MOTOR-9	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-33/35	
SOIL BOX (SLINKY) MOTOR-10	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-37/39	
SOIL BOX (SLINKY) MOTOR-11	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-41/43	
SOIL BOX (SLINKY) MOTOR-12	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-45/47	
SOIL BOX (SLINKY) MOTOR-13	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-49/51	
SOIL BOX (SLINKY) MOTOR-14	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-53/55	
SOIL BOX (SLINKY) MOTOR-15	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-57/59	
SOIL BOX (SLINKY) MOTOR-16	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-61/63	
SOIL BOX (SLINKY) MOTOR-17	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-65/67	
SOIL BOX (SLINKY) MOTOR-18	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-69/71	
SOIL BOX (SLINKY) MOTOR-19	MECH.RM-111	HP 1.0	1	208	VFD	20A,2P	2#10+GRD.-21mmC	1B-73/75	

NOTES

1. PROVIDE POWER CONNECTION TO ALL EQUIPEMENTS LISTED IN THE SCHEDULE. REFER TO ELECTRICAL AND MECHANICAL LAYOUTS FOR EXACT LOCATION OF EQUIPMENTS.
2. PROVIDE SEPARATE BREAKER FOR INDIVIDUAL MECHANICAL EQUIPEMENT. SIZE AS INDICATED IN THE SCHEDULE.
3. PROVIDE LOCAL DISCONNECT SWITCH FOR ALL MECHANICAL EQUIPMENTS AS REQUIRED BY OESC.
4. ELECTRICAL CONTRACTOR TO PROVIDE POWER WIRING TO & FROM STARTERS/VFD'S (STARTERS/VFD'S SUPPLIED BY MECH. CONTRACTOR & INSTALLED BY ELECTRICAL CONTRACTOR) TO MECHANICAL EQUIPMENTS.
5. ELECTRICAL CONTRACTOR SHALL REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT AND SHALL COORDINATE FOR MECHANICAL EQUIPMENT LOCATIONS, STARTERS LOCATIONS AND BREAKERS SIZES & WIRES WITH THE MECHANICAL CONTRACTOR & CONSULTANT PRIOR TO ROUGH-IN.
6. LOCATIONS OF THE EQUIPMENT STARTERS SHALL BE NEXT TO THE LIGHT SWITCH IN FINISHED ROOMS AND NEXT TO EQUIPMENT IN THE SERVICE ROOMS UNLESS OTHERWISE NOTED.
7. LOCATIONS OF BOILERS AND HOT WATER HEATERS DISCONNECT SWITCHES SHALL BE NEXT TO THE ENTRANCE DOOR OF THE MECHNICAL ROOM.
8. REFER TO MECHANICAL EQUIPMENT STARTER AND ELECTRICAL DATA SCHEDULES IN MECHANICAL DRAWING FOR ELECTRICAL CONTRACTOR'S SCOPE OF WORK.
9. RESERVED.
10. LOCATION OF ON/OFF SWITCH'S, THERMOSTATS AND SPEED CONTROLLER SWITCH'S SHALL BE VERIFIED ON SITE WITH THE MECHANICAL CONTRACTOR PRIOR TO ROUGH IN.
11. PROVIDE POWER CONNECTION TO ALL REVERSE ACTING THERMOSTATS AND SPEED CONTROLLER SWITCHES AND FEED FROM RESPECTIVE CIRCUITS FEEDING REPECTIVE MECHANICAL EQUIPMENT WHICH SHALL BE CONTROLLED VIA THE REVERSE ACTING THERMOSTATS AND SPEED CONTROLLERS. LOCATIONS OF DEVICES SHALL BE WITHIN THE SAME ARE SERVED BY THE RSPECTIVE MECHANICAL EQUIPMENT. COORDINATE ON SITE FOR FOR DEVICE LOCATIONS WITH ARCHITECT AND CONSULTANT PRIOR TO ROUGH IN.
12. COORDINATE BREAKER SIZE FOR SPECIAL EQUIPMENT SUCH AS MECHANICAL EQUIPMENT, KITCHEN APPLIANCES, ELEVATOR ETC. BASED ON SELECTED MAKE, MODEL AND ELECTRICAL DATA. BOTH CONTRACTOR AND SUPPLIER/MANUFACTURER SHALL MAKE ALLOWANCE FOR VARIATION IN RATING TO TWO (2) SIZE HIGHER OR LOWER THAN SPECIFIED & RESPECTIVE VARIATION/REVISION OF FEEDER SIZES AT NO EXTRA COST.

MECHANICAL EQUIPMENT WIRING SCHEDULE (CONTD.)

EQUIPMENT & LABEL	STARTER LOCATION	UNIT POWER	UNIT PHASE	UNIT VOLTAGE	STARTER TYPE	BREAKER SIZE	FEEDER SIZE	PANEL AND CCT. NOS.	REMARKS
HEAT PUMP NO. HP-1 WORKROOM 102	WORKROOM	MCA 31.7	1	208	INTEGRAL	50A,2P	2#8+GRD.-27mmC	1B-4/6	PROVIDE 60A/45AF-3P FUSIBLE DISCONNECT SWITCH TO CONTROL POWER TO THE UNIT C/W LABEL SAYING MAX FUSES TO BE 45A
HEAT PUMP NO. HP-2 LUNCH ROOM 103	LUNCH RM	MCA 13.1	1	208	MAGNETIC	20A,2P	2#12+GRD.-16mmC	1B-8/10	
HEAT PUMP NO. HP-3 CONTROL ROOM 107	CONTR. RM	MCA 6.0	1	208	MAGNETIC	15A,2P	2#12+GRD.-16mmC	1B-12/14	
HEAT PUMP NO. HP-4 CENTRIFUGE	CONTR. RM	MCA 1	1	208	MAGNETIC	15A,2P	2#12+GRD.-16mmC	1B-16/18	
ENERGY RECOVERY UNIT NO. ERV-1 MEZZANINE FLOOR	MEZZANINE	AMPS 5.3	1	208	MAGNETIC	15A,2P	2#12+GRD.-16mmC	1A-20/22	
ENERGY RECOVERY UNIT NO. ERV-2 MECHANICAL ROOM	MECH. RM	AMPS 5.0	1	208	MAGNETIC	15A,2P	2#12+GRD.-16mmC	1A-24/26	
EXHAUST FAN NO. EF-1 LUNCH ROOM 103	LUNCH	WATTS 108	1	120	MAGNETIC	15A,1P	2#12+GRD.-16mmC	1A-28	
EXHAUST FAN NO. EF-2 ELECTRICAL ROOM 108	ELEC. RM	WATTS 243	1	120	MAGNETIC	15A,1P	2#12+GRD.-16mmC	1A-30	
EXHAUST FAN NO. EF-3 IT ROOM 112	IT ROOM	WATTS 243	1	120	MAGNETIC	15A,1P	2#12+GRD.-16mmC	1A-32	
ELEC. DUCT HEATER COIL HC-1 WORKROOM 102		KW 4.5	3	208	MAGNETIC	20A,3P	3#12+GRD.-21mmC	1B-100/102/104	
CIRCULATING PUMP-P1	MECH. 111	HP 2.0	1	208	MAGNETIC	30A,2P	2#10+GRD.-21mmC	1B-38/40	
CIRCULATING PUMP-P2	MECH. 111	HP 2.0	1	208	MAGNETIC	30A,2P	2#10+GRD.-21mmC	1B-42/44	
UNIT HEATER NO. UH-1 WORK SHOP	WORKSHOP	AMP. 15	1	120	MAGNETIC	15A,1P	2#12+GRD.-16mmC	1A-46	
UNIT HEATER NO. UH-2 CRANE ZONE	CRANE ZONE	KW 30.0	3	600	MAGNETIC	50A,3P	3#8+GRD.-27mmC	1A-48	
UNIT HEATER NO. UH-3 CRANE ZONE	CRANE ZONE	KW 30.0	3	600	MAGNETIC	50A,3P	3#8+GRD.-27mmC	1A-50	
UNIT HEATER NO. UH-4 CRANE ZONE	CRANE ZONE	KW 30.0	3	600	MAGNETIC	50A,3P	3#8+GRD.-27mmC	1A-52	
UNIT HEATER NO. UH-5 CRANE ZONE	CRANE ZONE	KW 30.0	3	600	MAGNETIC	50A,3P	3#8+GRD.-27mmC	1A-54	
CONTROL PANEL OF DUPLEX SEWAGE PUMPS	CRANE ZONE	HP 0.5 0.5	1	208	MAGNETIC	20A,2P	2#10+GRD.-21mmC	1A-12/14	PROVIDE POWER TO THE CONTROL PANEL OF DUPLEX PUMPS. THEN FEED EACH OF THE PUMP FROM CONTROL PANEL VIA DEDICATED FEEDERS OF SIZE 2#12+GRD.-21mmC
HOT WATER TANK (HWT)	MECH.RM-111	KW 1.5	1	120	MANUAL	20A,1P	2#12+GRD.-16mmC	1A-16	PROVIDE LOCKABLE DISCONNECT SWITCH NEAR THE ENTRANCE DOOR OF THE ROOM
RE-CIRC. PUMP FOR HOT WATER TANK (HWT)	MECH.RM-111	HP 1/3	1	120	MANUAL	15A,1P	2#12+GRD.-16mmC	1A-18	
OVERHEAD CRANE	CRANE AREA	AMP. 22.9	3	575	MAGNETIC	100A,3P	4#3+GRD.-41mmC	SW. BD. HDP-BB	PROVIDE FUSIBLE DISCONNECT SWITCH (RATING OF DISCONNECT & FUSES TO BE AS PER RECOMMENDATION OF SUPPLIER) TO CONTROL POWER TO THE CRANE.
ELEC. DUCT HEATER COIL HC-2		KW 4.0	3	208	MAGNETIC	15A,3P	3#12+GRD.-21mmC	1B-106/108/110	
FAN COIL UNIT FC-1	ELECT. RM. -108	MCA 2.0	1	120	MAGNETIC	15A,1P	2#12+GRD.-16mmC	1B-112	
CONDENSING UNIT CU-1	ON UNIT	MCA 20	1	208	INTEGRAL	30A,2P	2#10+GRD.-21mmC	1B-114/116	
UNIT HEATER UH-1	CRANE AREA	KW 15.0	3	600	INTEGRAL	25A,3P	3#10+GRD.-21mmC	SW. BD. HDP-BB	
UNIT HEATER UH-2	CRANE AREA	KW 15.0	3	600	INTEGRAL	25A,3P	3#10+GRD.-21mmC	SW. BD. HDP-BB	
UNIT HEATER UH-3	CRANE AREA	KW 15.0	3	600	INTEGRAL	25A,3P	3#10+GRD.-21mmC	SW. BD. HDP-BB	
UNIT HEATER UH-4	CRANE AREA	KW 15.0	3	600	INTEGRAL	25A,3P	3#10+GRD.-21mmC	SW. BD. HDP-BB	
UNIT HEATER UH-5	CRANE AREA	KW 15.0	3	600	INTEGRAL	25A,3P	3#10+GRD.-21mmC	SW. BD. HDP-BB	

NOTES

1. PROVIDE POWER CONNECTION TO ALL EQUIPEMENTS LISTED IN THE SCHEDULE. REFER TO ELECTRICAL AND MECHANICAL LAYOUTS FOR EXACT LOCATION OF EQUIPMENTS.
2. PROVIDE SEPARATE BREAKER FOR INDIVIDUAL MECHANICAL EQUIPEMENT. SIZE AS INDICATED IN THE SCHEDULE.
3. PROVIDE LOCAL DISCONNECT SWITCH FOR ALL MECHANICAL EQUIPMENTS AS REQUIRED BY OESC.
4. ELECTRICAL CONTRACTOR TO PROVIDE POWER WIRING TO & FROM STARTERS/VFD'S (STARTERS/VFD'S SUPPLIED BY MECH. CONTRACTOR & INSTALLED BY ELECTRICAL CONTRACTOR) TO MECHANICAL EQUIPMENTS.
5. ELECTRICAL CONTRACTOR SHALL REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT AND SHALL COORDINATE FOR MECHANICAL EQUIPMENT LOCATIONS, STARTERS LOCATIONS AND BREAKERS SIZES & WIRES WITH THE MECHANICAL CONTRACTOR & CONSULTANT PRIOR TO ROUGH-IN.
6. LOCATIONS OF THE EQUIPMENT STARTERS SHALL BE NEXT TO THE LIGHT SWITCH IN FINISHED ROOMS AND NEXT TO EQUIPMENT IN THE SERVICE ROOMS UNLESS OTHERWISE NOTED.
7. LOCATIONS OF BOILERS AND HOT WATER HEATERS DISCONNECT SWITCHES SHALL BE NEXT TO THE ENTRANCE DOOR OF THE MECHNICAL ROOM.
8. REFER TO MECHANICAL EQUIPMENT STARTER AND ELECTRICAL DATA SCHEDULES IN MECHANICAL DRAWING FOR ELECTRICAL CONTRACTOR'S SCOPE OF WORK.
9. RESERVED.
10. LOCATION OF ON/OFF SWITCH'S, THERMOSTATS AND SPEED CONTROLLER SWITCH'S SHALL BE VERIFIED ON SITE WITH THE MECHANICAL CONTRACTOR PRIOR TO ROUGH IN.
11. PROVIDE POWER CONNECTION TO ALL REVERSE ACTING THERMOSTATS AND SPEED CONTROLLER SWITCHES AND FEED FROM RESPECTIVE CIRCUITS FEEDING REPECTIVE MECHANICAL EQUIPMENT WHICH SHALL BE CONTROLLED VIA THE REVERSE ACTING THERMOSTATS AND SPEED CONTROLLERS. LOCATIONS OF DEVICES SHALL BE WITHIN THE SAME ARE SERVED BY THE RSPECTIVE MECHANICAL EQUIPMENT. COORDINATE ON SITE FOR FOR DEVICE LOCATIONS WITH ARCHITECT AND CONSULTANT PRIOR TO ROUGH IN.
12. COORDINATE BREAKER SIZE FOR SPECIAL EQUIPMENT SUCH AS MECHANICAL EQUIPMENT, KITCHEN APPLIANCES, ELEVATOR ETC. BASED ON SELECTED MAKE, MODEL AND ELECTRICAL DATA. BOTH CONTRACTOR AND SUPPLIER/MANUFACTURER SHALL MAKE ALLOWANCE FOR VARIATION IN RATING TO TWO (2) SIZE HIGHER OR LOWER THAN SPECIFIED & RESPECTIVE VARIATION/REVISION OF FEEDER SIZES AT NO EXTRA COST.

NOTES:

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No.	BY	REVISIONS/SUBMISSIONS	DATE
1	RH	ISSUED FOR TENDER, PERMIT AND CONSRTRUCTION	MAY.11'23

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7405 East Danbro Crescent, 2nd Floor
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PROJECT
CASTLE LABORATORY

950 JOHNSON ST

DRAWING
SCHEDULES

SCALE
N.T.S.

PROFESSIONAL SEAL
REGISTERED PROFESSIONAL ENGINEER D. JAIN MAY.11'23 PROVINCE OF ONTARIO
21-265

DRAWN	DATE
CV	MAY.11'2023
CHECKED	PRINTED
RH	
REVIEWED	DRAWING No.
RH	E508
PROJECT No.	
21075	

PANEL LP-1A

PANELBOARD SCHEDULE

DESCRIPTION	BRKR SIZE	WATTS PER PHASE A	B	C	CIR NO	BUS ABC	CIR NO	WATTS PER PHASE A	B	C	BRKR SIZE	DESCRIPTION
BATTERY UNIT BU-1	20A	800			1		2	100			15A	RELAY PANEL
EXIT LIGHTS	15A		100		3		4				15A	SPARE
SITE LIGHTING	20A			300	5		6			600	15A	RECEPTACLES
EXTERIOR LIGHTING	20A	300			7		8	600			15A	RECEPTACLES
BLUE LIGHT FIXTURE	20A		300		9		10		100		15A	MOTORIZED DAMPERS
NIGHT LIGHTING	20A			500	11		12			400	20A	CONTROL PANEL OF
LIGHTING	20A	700			13		14	400			2P	DUPLEX SEWAGE PUMPS
LIGHTING	20A		700		15		16		1500		20A	HWT
LIGHTING	20A			1100	17		18			300	15A	RE-CIRC. PUMP FOR HWT
LIGHTING	20A	900			19		20	500			15A 2P	ERV-1
LIGHTING	20A		800		21		22		500			
HEATER	15A 2P			600	23		24			500	15A 2P	ERV-2
		600			25		26	500				
DOOR OPERATOR	15A		400		27		28		100		15A	EXH. FAN EF-1
DOOR OPERATOR	15A			400	29		30			100	15A	EXH. FAN EF-2
FACP (3#12+GRD.-21mmC)	20A 2P	200			31		32	300			15A	EXH. FAN EF-3
			200		33		34				15A	SPARE
DOOR OPERATOR	15A			400	35		36				15A	SPARE
DOOR OPERATOR	15A	400			37		38	100			15A	SEWAGE PUMP ALARM
INDICATION	15A		100		39		40				15A	SPARE
RECEPTACLES	15A			200	41		42				15A	SPARE
RECEPTACLES	15A	200			43		44				20A	SPARE
RECEPTACLES	20A		200		45		46				15A	SPARE
RECEPTACLES	20A			600	47		48				15A	SPARE
RECEPTACLES	20A	600			49		50				15A	SPARE
RECEPTACLES	20A		600		51		52				15A	SPARE
RECEPTACLES	15A			600	53		54				15A	SPARE
RECEPTACLES	15A	600			55		56				15A	SPARE
RECEPTACLES	15A		600		57		58				15A	SPARE
RECEPTACLES	20A			600	59		60			600	15A	FRIDGE
RECEPTACLES	20A	600			61		62	600			15A	RECEPTACLES
RECEPTACLES	20A		600		63		64		600		15A	TV
RECEPTACLES	20A			600	65		66			600	15A	RECEPTACLES
RECEPTACLES	20A	600			67		68	600			15A	RECEPTACLES
RECEPTACLES	20A		600		69		70		600		15A	RECEPTACLES
RECEPTACLES	20A			600	71		72			600	15A	RECEPTACLES

* -DENOTES 'GFI' TYPE OF BREAKER

Ⓑ -DENOTES 'AFCI' TYPE OF BREAKER

SHT. 1 OF 2

SHT. 2 OF 2

PANEL LP-1A(CONTD.)

PANELBOARD SCHEDULE

DESCRIPTION	BRKR SIZE	WATTS PER PHASE A	B	C	CIR NO	BUS ABC	CIR NO	WATTS PER PHASE A	B	C	BRKR SIZE	DESCRIPTION
RECEPTACLES	20A	600			73		74	600			15A	RECEPTACLES
RECEPTACLES	20A		600		75		76		600		15A	RECEPTACLES
UPS	20A 2P			200	77		78			600	15A	RECEPTACLES
		200			79		80	600			15A	RECEPTACLES
RECEPTACLES	20A		600		81		82		600		15A	RECEPTACLES
RECEPTACLES	15A			600	83		84			600	15A	RECEPTACLES
RECEPTACLES	15A	600			85		86				15A	SPARE
RECEPTACLES	20A		600		87		88				15A	SPARE
RECEPTACLES	15A			600	89		90				15A	SPARE
RECEPTACLES	15A	600			91		92				15A	SPARE
RECEPTACLES	15A		600		93		94				15A	SPARE
RECEPTACLES	15A			600	95		96				15A	SPARE
SPARE	20A				97		98				15A	SPARE
SPARE	20A				99		100				15A	SPARE
SPARE	20A				101		102				15A	SPARE
SPARE	15A *				103		104				15A	SPARE
SPARE	15A *				105		106				15A	SPARE
RECEPTACLES	15A			600	107		108				15A	SPARE
RECEPTACLES	15A	600			109		110	100			15A	CONTROL VOLTAGE FOR CENTRIFUGE
SPARE	20A				111		112		100		15A	CONTROL VOLTAGE FOR CRANE
SPARE	20A				113		114			100	15A	SECURITY PANEL
SPARE	20A				115		116	100			15A	HIGH WATER LEVEL ALARM
SPARE	20A				117		118		100		15A *	TRAP SEAL PRIMER
SPARE	20A				119		120			1000	15A	HEATER
SPARE	20A				121		122	1500			20A 2P	HEATER
SPARE	20A				123		124		1500			
SPARE	20A				125		126			100	15A	FIRE ALARM MONITORING PANEL
RECEPTACLES	20A	600			127		128	200			20A	POWERED TABLE
O/H DOOR	30A 3P		100		129		130				15A	RECEPTACLES
				100	131		132					
		100			133		134					
O/H DOOR	30A 3P		100		135		136					
				100	137		138					
		100			139		140					
					141		142					
					143		144					
		-	-	-	TOTALS		-	-	-			
					-		-	-	-			

* -DENOTES 'GFI' TYPE OF BREAKER

- kW CONNECTED LOAD
- A TOTAL AMPS
- LOCATION

FLUSH ☐ SURFACE ☒

☒ LUGS ☐ BREAKER

120/208 VOLTS
400 MAIN
144/2 CCTS/TUBS

Ⓑ -DENOTES 'AFCI' TYPE OF BREAKER

PANEL LP-1B

PANELBOARD SCHEDULE

DESCRIPTION	BRKR SIZE	WATTS PER PHASE A	B	C	CIR NO	BUS ABC	CIR NO	WATTS PER PHASE A	B	C	BRKR SIZE	DESCRIPTION
SOIL BOX (SLINKY) MOTOR-1	20A 2P	400			1		2				15A	SPARE
			400		3		4		2500		50A 2P	HP-1
SOIL BOX (SLINKY) MOTOR-2	20A 2P			400	5		6			2500		
		400			7		8	1100			20A 2P	HP-2
SOIL BOX (SLINKY) MOTOR-3	20A 2P		400		9		10		1100			
				400	11		12			500	15A 2P	HP-3
SOIL BOX (SLINKY) MOTOR-4	20A 2P	400			13		14	500				
			400		15		16		200		15A 2P	HP-4
SOIL BOX (SLINKY) MOTOR-5	20A 2P			400	17		18			200		
		400			19		20				15A	SPARE
SOIL BOX (SLINKY) MOTOR-6	20A 2P		400		21		22				15A	SPARE
				400	23		24				15A	SPARE
SOIL BOX (SLINKY) MOTOR-7	20A 2P	400			25		26				20A	SPARE
			400		27		28				20A	SPARE
SOIL BOX (SLINKY) MOTOR-8	20A 2P			400	29		30				20A	SPARE
		400			31		32				20A	SPARE
SOIL BOX (SLINKY) MOTOR-9	20A 2P		400		33		34				15A 2P	SPARE
				400	35		36					
SOIL BOX (SLINKY) MOTOR-10	20A 2P	400			37		38	800			30A 2P	PUMP-P1
			400		39		40		800			
SOIL BOX (SLINKY) MOTOR-11	20A 2P			400	41		42			800	30A 2P	PUMP-P1
		400			43		44	800				
SOIL BOX (SLINKY) MOTOR-12	20A 2P		400		45		46		400		20A 2P	SOIL BOX (SLINKY) MOTOR-22
				400	47		48			400		
SOIL BOX (SLINKY) MOTOR-13	20A 2P	400			49		50	400			20A 2P	SOIL BOX (SLINKY) MOTOR-23
			400		51		52		400			
SOIL BOX (SLINKY) MOTOR-14	20A 2P			400	53		54			400	20A 2P	SOIL BOX (SLINKY) MOTOR-24
		400			55		56	400				
SOIL BOX (SLINKY) MOTOR-15	20A 2P		400		57		58		400		20A 2P	SOIL BOX (SLINKY) MOTOR-25
				400	59		60			400		

* -DENOTES 'GFI' TYPE OF BREAKER

Ⓑ -DENOTES 'AFCI' TYPE OF BREAKER

SHT. 1 OF 2

SHT. 2 OF 2

PANEL : LP-1B (CONTD.)

DESCRIPTION	BRKR SIZE	WATTS PER PHASE A	B	C	CIR NO	BUS ABC	CIR NO	WATTS PER PHASE A	B	C	BRKR SIZE	DESCRIPTION
SOIL BOX (SLINKY) MOTOR-16	20A 2P	400			61		62	400			20A 2P	SOIL BOX (SLINKY) MOTOR-26
			400		63		64		400			
SOIL BOX (SLINKY) MOTOR-17	20A 2P			400	65		66			400	20A 2P	SOIL BOX (SLINKY) MOTOR-27
		400			67		68	400				
SOIL BOX (SLINKY) MOTOR-18	20A 2P		400		69		70		400		20A 2P	SOIL BOX (SLINKY) MOTOR-28
				400	71		72			400		
SOIL BOX (SLINKY) MOTOR-19	20A 2P	400			73		74	400			20A 2P	SOIL BOX (SLINKY) MOTOR-29
			400		75		76		400			
SOIL BOX (SLINKY) MOTOR-20	20A 2P			400	77		78			400	20A 2P	SOIL BOX (SLINKY) MOTOR-30
		400			79		80	400				
SOIL BOX (SLINKY) MOTOR-21	20A 2P		400		81		82				20A	SPARE
				400	83		84				15A	SPARE
SPARE	20A				85		86				15A	SPARE
SPARE	20A				87		88				15A	SPARE
SPARE	20A				89		90				15A	SPARE
SPARE	20A				91		92				15A	SPARE
SPARE	20A				93		94				15A	SPARE
SPARE	20A				95		96				15A	SPARE
SPARE	20A				97		98				15A	SPARE
SUBMARINE LANDSLIDE FLUME	40A 2P		2000		99		100		1500		20A 3P	DUCT COIL HEATER HC-1
				2000	101		102			1500		
TRIAXIAL SYSTEM	30A 3P	500			103		104	1500				
			500		105		106		1300		15A 3P	DUCT COIL HEATER HC-2
				500	107		108			1300		
SPARE	50A 3P				109		110	1300				
					111		112		200		15A	FAN COIL UNIT FC-1
					113		114			1600	30A 2P	CONDENSING UNIT CU-1
					115		116	1600				
					117		118					
					119		120					
		6100	8100	8100	TOTALS			5000	7700	7100		
					11100		15800	15100				

* -DENOTES 'GFI' TYPE OF BREAKER

42.1kW CONNECTED LOAD
129.8A TOTAL AMPS
ELECT.RM.-108 LOCATION

FLUSH ☐ SURFACE ☒

☒ LUGS ☐ BREAKER

120/208 VOLTS
400 MAIN
120/2 CCTS/TUBS

Ⓑ -DENOTES 'AFCI' TYPE OF BREAKER

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No.	BY	REVISIONS/SUBMISSIONS	DATE
1	RH	ISSUED FOR TENDER, PERMIT AND CONSRTRUCTION	MAY.11'23

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PROJECT
CASTLE LABORATORY

950 JOHNSON ST

DRAWING
SCHEDULES (CONTD.)

SCALE
N.T.S.

PROFESSIONAL SEAL
REGISTERED PROFESSIONAL ENGINEER
D. JAIN
MAY.11'23
PROVINCE OF ONTARIO
21-285

DRAWN	DATE
CV	MAY.11'2023
CHECKED	PRINTED
RH	
REVIEWED	DRAWING No.
RH	E509
PROJECT No.	
21075	

DEMOLITION NOTES

- PRIOR TO BEGINNING WORK, COORDINATE WITH PROJECT MANAGER FOR ACCESS TO SITE AND AREA, TRUCKING ROUTES, ENTRANCE/EXIT FROM SITE.
- EXISTING TREES NOT NOTED TO BE REMOVED ARE TO BE PROTECTED.
- TREES AND SHRUBS NOTED ON DRAWING FOR REMOVAL ARE TO BE REMOVED TO BELOW PROPOSED SUBGRADE AND BACK FILLED WITH COMPACTED NATIVE EARTH
- REMOVE EXISTING ASPHALT MATERIAL AND DISPOSE OF PROPERLY OFF SITE AT AN APPROVED LANDFILL SITE.
- REMOVE EXISTING CONCRETE CURBS AS SHOWN ON PLAN AND DISPOSE OF AT AN APPROVED LANDFILL SITE.
- SAWCUT PAVEMENT, SIDEWALK AND CURBS AT REMOVAL LIMITS.
- CONTRACTOR TO VERIFY LOCATION OF ALL BURIED SERVICES PRIOR TO CONSTRUCTION.
- SURVEY MONUMENTS ARE TO BE PROTECTED AND IF DISTRUBED WILL NEED TO BE RESET BY THE CONTRACTOR AT NO COST TO THE OWNER.

SEDIMENT AND EROSION CONTROL

- IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES FOR EROSION & SEDIMENT CONTROL:
  - GEOTEXTILE CATCHES SHALL BE INSTALLED UNDER THE LIDS OF ALL SITE STRUCTURES AND ADJACENT MUNICIPAL STRUCTURES.
  - LIGHT DUTY SILT FENCE (OPSD 219.110) SHALL BE INSTALLED WERE SHOWN.
  - FIBRE ROLL FLOW CHECK DAM (OPSD 219.191) SHALL BE INSTALLED IF REQUIRED.

ALL SEDIMENT AND EROSION CONTROL MEASURE SHALL BE INSPECTED DAILY AND AFTER EVERY RAIN EVENT BY THE CONTRACTOR. ALL SEDIMENT AND EROSION MEASURES SHALL BE MAINTAINED, REPAIRED OR REPLACED AS REQUIRED UNTIL CONSTRUCTION IS COMPLETE AND GROUND COVER HAS STABILIZED. IMMEDIATELY CONTAIN AND REMOVE ANY SEDIMENTS THAT BREACH SILT BARRIERS. ANY SEDIMENT OR DEBRIS ENTERING SEWERS DURING CONSTRUCTION SHALL BE REMOVED IMMEDIATELY.

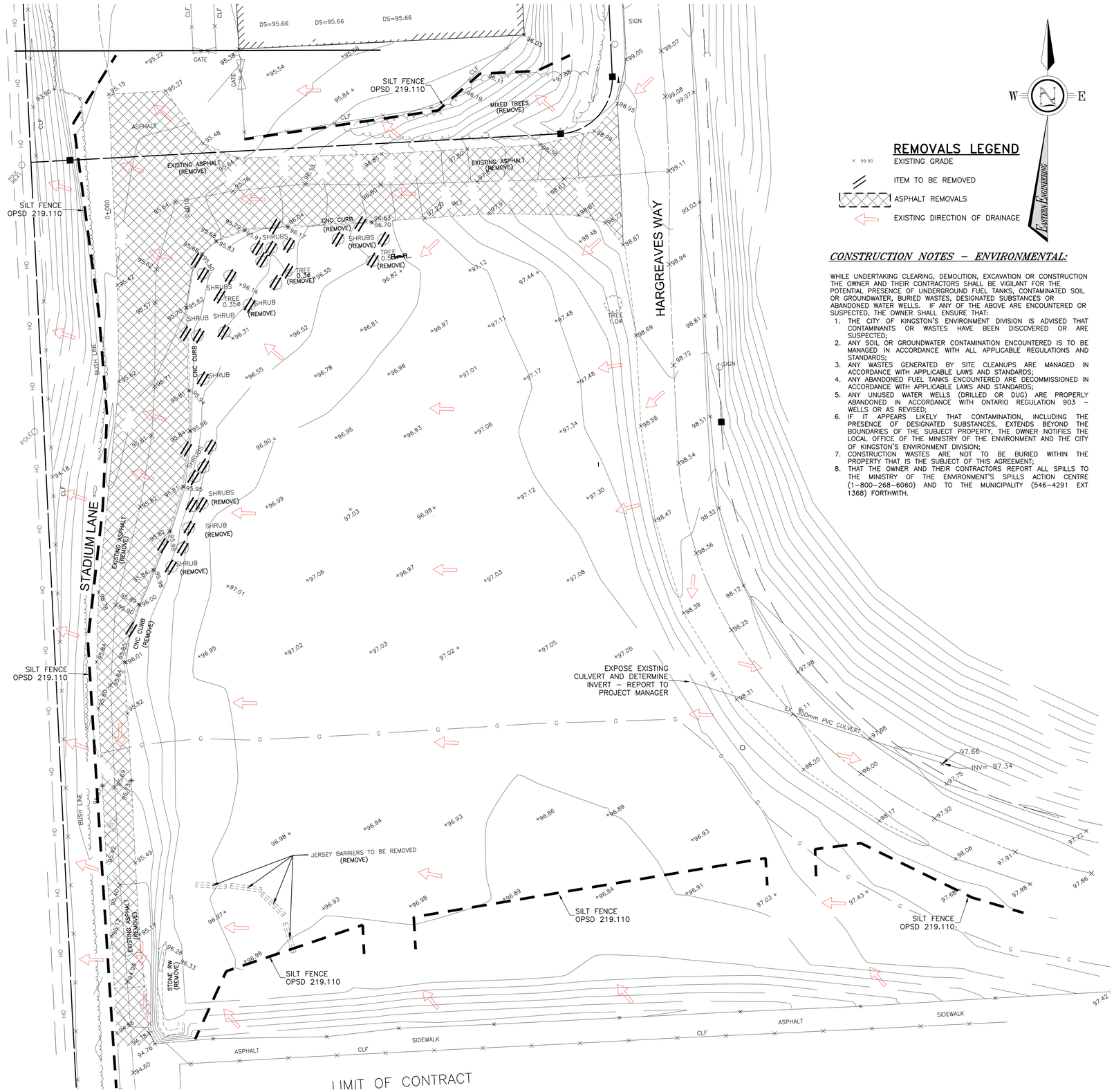
- THE CONTRACTOR SHALL PROTECT ALL TREES NOT DESIGNATED FOR REMOVAL. TREES SHALL BE PROTECTED FROM: CONSTRUCTION EQUIPMENT MOVEMENT, STOCKPILING OF ANY MATERIALS WITHIN DRIPLINES AND FROM UNNECESSARY ENCROACHING WITHIN DRIP LINES. THE CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN TREE PROTECTION BARRIERS AS PER OPSD 220.01 INSPECT, MAINTAIN, REPAIR AND REPLACE AS NECESSARY UNTIL ALL CONSTRUCTION IS COMPLETE.
- CONSTRUCTION TRUCKS SHALL NOT BE CLEANED OR WASHED OFF ON THIS SITE EXCEPT AT AN APPROVED WASH OFF STATION. ANY FUEL SPILLS SHALL BE CONTAINED & CLEANED UP IMMEDIATELY. THE MINISTRY OF THE ENVIRONMENT MUST BE NOTIFIED IMMEDIATELY IF A SPILL OCCURS.
- IN THE EVENT THAT THE EROSION AND SEDIMENT CONTROL ("ESC") MEASURE INDICATED ON THIS PLAN ARE NOT SUFFICIENT, THE CONTRACTOR SHALL PROVIDE ADDITIONAL "ESC" MEASURED TO MINIMIZE THE RELEASE OF SOILS AND SEDIMENT INTO BODIES OF WATER AND SEWERS.
- ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL REMAIN IN PLACE AND MAINTAINED UNTIL CONSTRUCTION IS COMPLETE AND VEGETATION IS REESTABLED. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF SEDIMENT AND EROSION CONTROL MEASURES AND DISPOSAL THERE OF.

EXISTING INFRASTRUCTURE NOTES:

1. ALL EXISTING PLANT OR UNDERGROUND INFRASTRUCTURE SHALL BE PROTECTED.
2. THE LOCATION OF EXISTING UNDERGROUND INFRASTRUCTURE WITHIN THE SITE IS UNKNOWN.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL UNDERGROUND INFRASTRUCTURE WITHIN THE LIMITS OF THIS CONTRACT.
4. WHEN UNDERGROUND INFRASTRUCTURE IS ENCOUNTERED THAT HAS NOT BEEN SHOWN ON THE CONTRACT DRAWINGS THE CONTRACTOR WILL RECORD IT'S LOCATION, NOTIFY THE CONTRACT ADMINISTRATOR AND FURNISH A COPY OF THE LOCATION OF SAID INFRASTRUCTURE.
5. IF ANY UNDERGROUND INFRASTRUCTURE IS FOUND TO BE IN CONFLICT WITH ANY OF THE WORK OF THIS CONTRACT THE CONTRACTOR WILL IMMEDIATELY NOTIFY THE CONTRACT ADMINISTRATOR IN WRITING AND WHERE PRACTICABLE PROCEED WITH OTHER WORK THAT IS NOT AFFECTED BY THE CONFLICT.
6. IT WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PRESERVE AND PROTECT ALL EXISTING INFRASTRUCTURE WITHIN THE CONTRACT LIMITS. ALL DAMAGES TO THE INFRASTRUCTURE RESULTING FROM THE ACTIONS OF THE CONTRACTORS OPERATIONS SHALL BE REPAIRED TO A SAME OR BETTER CONDITION AT NO ADDITIONAL COST TO THE OWNER.
7. IF ANY EXISTING FORCEMAINS ARE LOCATED IN CONSTRUCTION AREA, CONTRACTOR TO LOCATE AND POTENTIALLY RELOCATE TO SATISFACTION OF THE TOWN AND TOWN'S ENGINEERS.

GENERAL NOTES

- ALL WORK ON TOWN PROPERTY TO BE PERFORMED BY A CONTRACTOR APPROVED BY THE TOWN.
- CONTRACTOR TO VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.
- CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS PRIOR TO START OF CONSTRUCTION.



REMOVALS LEGEND

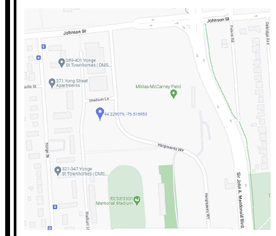
- × 99.90 EXISTING GRADE
- ITEM TO BE REMOVED
- ASPHALT REMOVALS
- EXISTING DIRECTION OF DRAINAGE

EASTERN ENGINEERING

CONSTRUCTION NOTES – ENVIRONMENTAL:

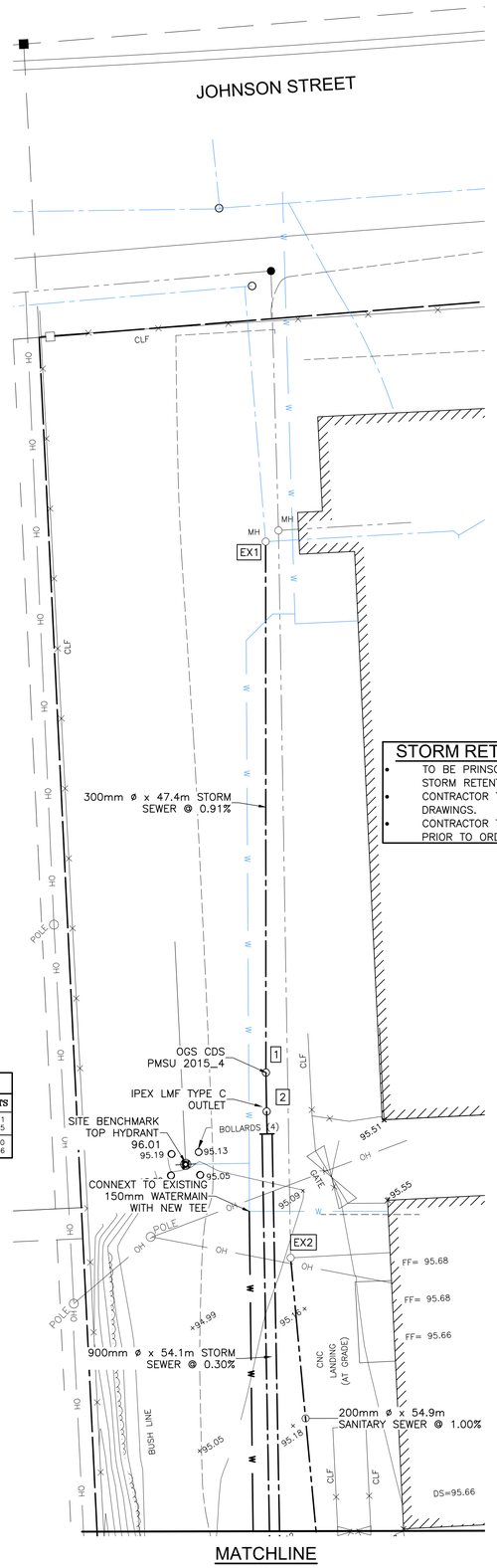
WHILE UNDERTAKING CLEARING, DEMOLITION, EXCAVATION OR CONSTRUCTION THE OWNER AND THEIR CONTRACTORS SHALL BE VIGILANT FOR THE POTENTIAL PRESENCE OF UNDERGROUND FUEL TANKS, CONTAMINATED SOIL OR GROUNDWATER, BURIED WASTES, DESIGNATED SUBSTANCES OR ABANDONED WATER WELLS. IF ANY OF THE ABOVE ARE ENCOUNTERED OR SUSPECTED, THE OWNER SHALL ENSURE THAT:

1. THE CITY OF KINGSTON'S ENVIRONMENT DIVISION IS ADVISED THAT CONTAMINANTS OR WASTES HAVE BEEN DISCOVERED OR ARE SUSPECTED;
2. ANY SOIL OR GROUNDWATER CONTAMINATION ENCOUNTERED IS TO BE MANAGED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS AND STANDARDS;
3. ANY WASTES GENERATED BY SITE CLEANUPS ARE MANAGED IN ACCORDANCE WITH APPLICABLE LAWS AND STANDARDS;
4. ANY ABANDONED FUEL TANKS ENCOUNTERED ARE DECOMMISSIONED IN ACCORDANCE WITH APPLICABLE LAWS AND STANDARDS;
5. ANY UNUSED WATER WELLS (DRILLED OR DUG) ARE PROPERLY ABANDONED IN ACCORDANCE WITH ONTARIO REGULATION 903 – WELLS OR AS REVISED;
6. IF IT APPEARS LIKELY THAT CONTAMINATION, INCLUDING THE PRESENCE OF DESIGNATED SUBSTANCES, EXTENDS BEYOND THE BOUNDARIES OF THE SUBJECT PROPERTY, THE OWNER NOTIFIES THE LOCAL OFFICE OF THE MINISTRY OF THE ENVIRONMENT AND THE CITY OF KINGSTON'S ENVIRONMENT DIVISION;
7. CONSTRUCTION WASTES ARE NOT TO BE BURIED WITHIN THE PROPERTY THAT IS THE SUBJECT OF THIS AGREEMENT;
8. THAT THE OWNER AND THEIR CONTRACTORS REPORT ALL SPILLS TO THE MINISTRY OF THE ENVIRONMENT'S SPILLS ACTION CENTRE (1–800–268–6060) AND TO THE MUNICIPALITY (546–4291 EXT 1368) FORTHWITH.


Johnson St
Union St
Stuart St
Arch St
Alan St
Division St
Frontenac St
Queen's Crescent
Stadium Rd
Arthur St
Lower Union St
Lake St
Ontario St
Princess St
Brock St
Barrie St
Colborne St
Wellington St
Montreal St
Victoria St
Regent St
Clergy St
Earl St
Bagot St
Nelson St
Sir John A. Macdonald Blvd
Alfred St
Bader Lane
Ontario St
Queen St
Bay St
Yonge St
Water St
Lake Ontario
Lake St
Stuart St
Union St
Johnson

LEGEND

- ×92.30 EXISTING TOPO GRADE
- 92.90 / 92.90 PROPOSED GRADE / EXISTING GRADE
- STORM SEWER
- SANTITARY SEWER
- W WATERMAIN
- B BELL UNDERGROUND
- G GAS UNDERGROUND
- C CABLE UNDERGROUND
- E ELECTRICAL UNDEROUND
- OH OVERHEAD UTILITIES
- BH B LS H UTILITY POLE
- AN UTILITY ANCOR
- UTILITY PEDISTAL
- PROPERTY BAR FOUND
- RS ROAD SIGN
- FENCE
- TREELINE
- TREE
- PROPERTY BOUNDARY
- EXISTING BUILDING
- EXISTING BUILDING TO BE REMOVED
- PROPOSED BUILDING
- PROPOSED ARMOUR STONE WALL



STORM RETENTION NOTES

- TO BE PRINSCO SOLID PIPE HDPE STORM RETENTION SYSTEM OR EQUAL.
- CONTRACTOR TO PROVIDE SHOP DRAWINGS.
- CONTRACTOR TO RECEIVE APPROVALS PRIOR TO ORDERING ANY PRODUCT.

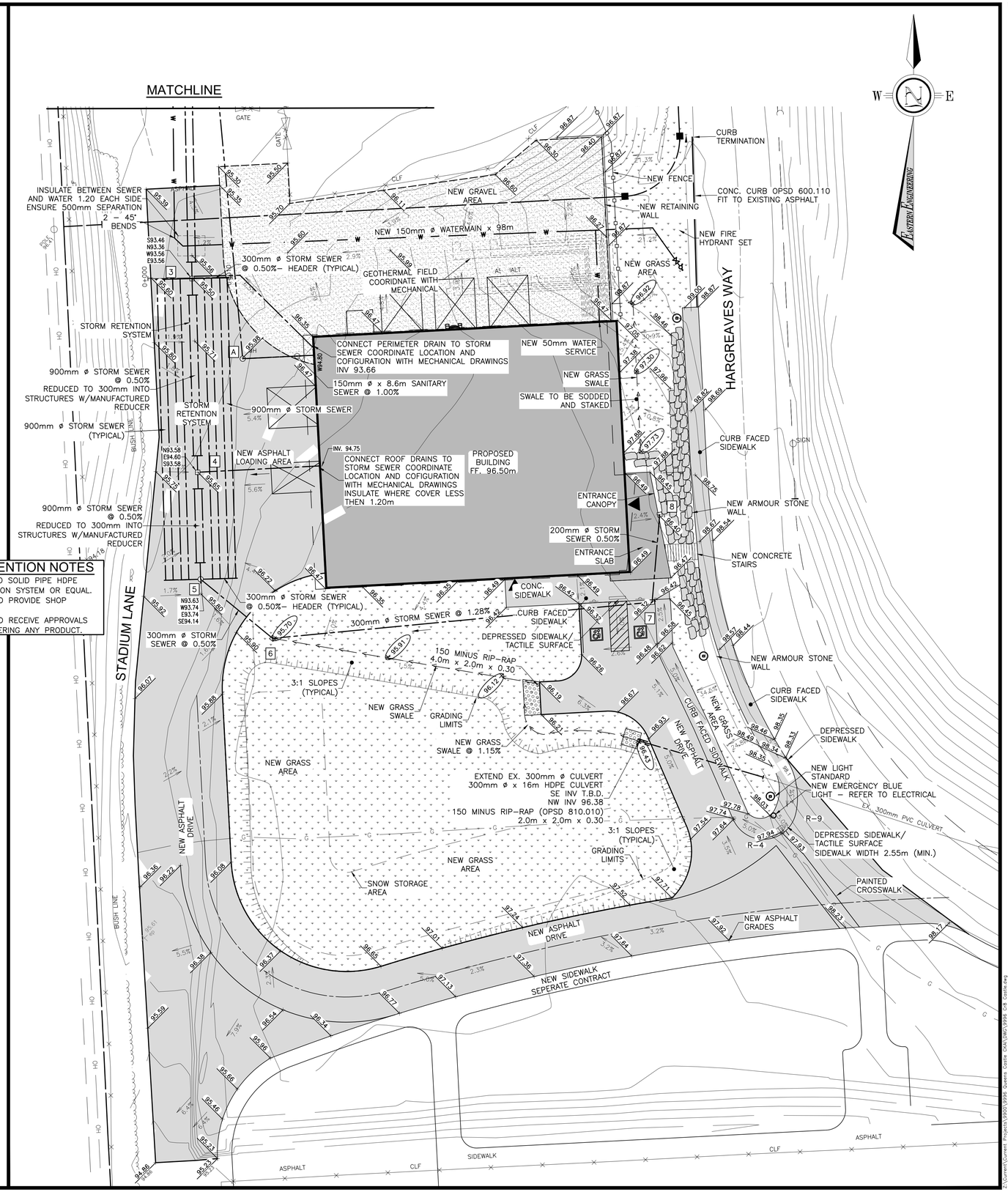
SANITARY STRUCTURE TABLE

No.	OPSD	FRAME	COVER	BENCHED	T/COVER	INVERTS
A	701.010	401.010	TYPE A	YES	96.01	E 94.71 N 94.65
EX2	EX.	EX.	EX.	YES	95.10	S 94.10 N 94.06

STORM STRUCTURE TABLE

No.	OPSD	COVER	T/GRATE	SUMP	INVERTS
EX1	EX.	EX.	93.40	0.000	S 92.82
1	701.010	401.010 'B'	95.10	0.300	S 93.25 N 93.25
2	701.010	401.010 B	95.05	0.000	S 93.29 N 93.29
3	701.010	400.070	95.50	0.300	S 93.46 N 93.36 W 93.56 E 93.56
4	701.010	400.070	95.60	0.000	N 93.58 E 94.60 S 93.58
5	701.010	401.010 B	95.78	0.300	N 93.63 W 93.74 E 93.74 SE 94.14
6	701.010	400.070	95.70	0.000	NW 94.20 E 94.23
7	701.010	400.070	96.32	0.000	W 94.82 N 94.92
8	705.010	400.010	96.41	0.000	S 94.97

IPEX LMF TYPE C FLOW CONTROL DEVICE ON OUTLET FROM STRUCTURE 2



GENERAL NOTES

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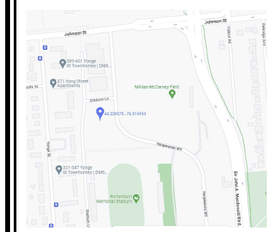

NOTE:
CONTRACTOR TO CONTACT UTILITY COMPANIES TO DETERMINE TYPE, LOCATION, AND CONFIGURATION OF EXISTING PLANT.

BENCHMARK
SITE BENCHMARK
TOP OF HYDRANT, COASTAL LAB
ELEV 96.01m

No.	By	Date	Revisions
0	AJP	5/11/2023	ISSUED FOR TENDER, PERMIT AND CONSTRUCTION

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The contractor must check and verify all dimensions on the job prior to start of construction.

Drawings are not to be scaled.

5/11/2023

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Facsimile: (613) 345-0008
www.EastEng.com

Project Title:

QUEEN'S UNIVERSITY CASTLE LABORATORY KINGSTON, ON

Drawing Title:

PROPOSED GRADING AND DRAINAGE, SERVICING PLAN

Design:	Checked:	Approved:	Project No.:
QMT	CAJ	.	9996
Drawn:	Checked:	Date:	Contract No.:
.	CAJ	5/27/2022	.

Scale: 0 5 10 Horizontal: 250

Drawing No.: **C1**

File No.: 9996 C-8 Castle.dwg

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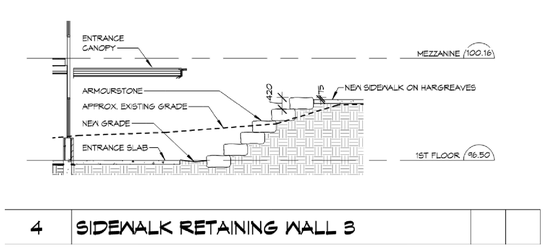
PRINSCO STORMWATER PIPE SPEC
N.T.S.



NOTES:
- RETAINING WALL DETAIL FROM ARCHITECTURAL PLAN. HEIGHT OF EACH STONE IS LESS THAN 600mm AND DOES NOT REQUIRE RAIL BASED ON OBC.
- CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR APPROVAL BY OWNERS AND ENGINEER PRIOR TO ORDERING TO CONFIRM MEETING CITY AND OBC.

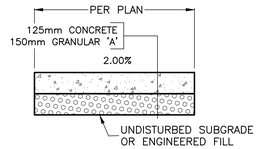
SIDEWALK RETAINING WALL
N.T.S.

OPSS SPECIFICATIONS

THE MUNICIPAL–ORIENTED ONTARIO PROVINCIAL STANDARDS IN AFFECT WHEN THE CALL FOR TENDERS FOR THIS CONTRACT WAS ADVERTISED SHALL APPLY FOR THE DURATION OF THE CONTRACT. ALL REFERENCES WITHIN THIS SPECIFICATION TO AN OPSS SHALL BE DEEMED TO MEAN OPSS.MUNI, UNLESS USE OF A PROVINCIAL–ORIENTED SPECIFICATION IS SPECIFIED IN THESE CONTRACT DOCUMENTS. WHEN THERE IS NOT A CORRESPONDING MUNICIPAL–ORIENTED SPECIFICATION, THE REFERENCES BELOW SHALL BE CONSIDERED TO BE THE OPSS LISTED, UNLESS USE OF A PROVINCIAL–ORIENTED SPECIFICATION IS SPECIFIED IN THESE CONTRACT DOCUMENTS.
THE FOLLOWING ONTARIO PROVINCIAL STANDARD SPECIFICATIONS APPLY TO AND FORM PART OF THIS CONTRACT:

102	MUNI 120	127
128	MUNI 180	201
MUNI 206	MUNI 212	310
MUNI 314	351	MUNI 353
MUNI 355	MUNI 401	MUNI 402
MUNI 403	405	407
408	MUNI 410	MUNI 441
MUNI 442	490	MUNI 501
506	MUNI 510	MUNI 517
MUNI 518	MUNI 539	MUNI 706
802	803	MUNI 804
1001	MUNI 1002	MUNI 1003
MUNI 1004	MUNI 1010	MUNI 1101
MUNI 1102	1150	1301
1302	MUNI 1303	1305
1306	1308	1312
MUNI 1315	MUNI 1820	1841
1850	2501	

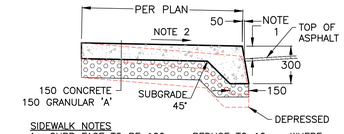
ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS) AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) FORM PART OF THIS CONTRACT.
THE TEXT OF ALL OPSS'S IS CONTAINED IN THE MANUAL "ONTARIO PROVINCIAL STANDARD SPECIFICATIONS."
THE OPSD'S ARE CONTAINED IN THE MANUAL OF ONTARIO PROVINCIAL STANDARD DRAWINGS.



NOTES:
- EXPANSION JOINTS @ 4.50m INTERVALS AND BOTH ENDS OF DEPRESSED SIDEWALK
- DUMMY JOINTS @ REGULAR 1.50m INTERVALS
- WORK TO CONFORM TO O.P.S.S. 351
- 2.00% CROSS SLOPE IN GENERAL DIRECTION OF DRAINAGE.
- CONCRETE TO BE 30MPa, 7.0% ± 1.5% AIR CONTENT, SLUMP 70mm ± 20mm
- GRANULARS TO BE COMPACTED TO 100% STANDARD PROCTOR DENSITY
- SUBGRADE TO BE EITHER UNDISTURBED NATIVE MATERIAL OR APPROVED GRANULARS COMPACTED TO 100% STANDARD PROCTOR DENSITY

CURING
- WHEN AIR TEMP. IS LESS THAN 27°C, TWO LAYERS OF DAMP TERRAFIX 270 SHALL BE CAREFULLY LAID ON THE SURFACE OF THE CONCRETE. STRIPS SHALL BE OVERLAP BY 75mm AND SHALL BE HELD DOWN AS REQUIRED AGAINST DISPLACEMENT. THE TERRAFIX 270R SHALL BE MAINTAINED IN PLACE AND KEPT THROUGHLY WET FOR A MINIMUM OF 24 HOURS.
- WHEN THE AIR TEMPERATURE AT ANY TIME DURING THE DAY WILL EXCEED 27°c, TWO LAYERS OF TERRAFIX 240R WILL BE REQUIRED AS DESCRIBED ABOVE, BUT FOR A FOUR DAY PERIOD.

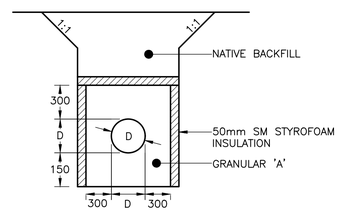
SIDEWALK CONCRETE
N.T.S.



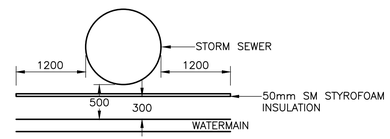
SIDEWALK NOTES
1. CURB FACE TO BE 100mm, REDUCE TO 10mm WHERE SHOWN DEPRESSED ON PLAN.
2. CROSS SLOPE TO BE 2.00%, INCREASE TO 5.00% (MAXIMUM) WHERE SHOWN DEPRESSED ON PLAN.
3. CONCRETE TO BE 30MPa, 7.0% ± 1.5% AIR CONTENT, SLUMP 70mm ± 20mm.
4. GRANULARS TO BE COMPACTED TO 100% STANDARD PROCTOR DENSITY
5. SUBGRADE TO BE EITHER UNDISTURBED NATIVE MATERIAL OR APPROVED GRANULARS COMPACTED TO 100% STANDARD PROCTOR DENSITY
6. CONTRACTION JOINTS TO BE SAWCUT.

CURING
- WHEN AIR TEMP. IS LESS THAN 27°C, TWO LAYERS OF DAMP TERRAFIX 240R SHALL BE CAREFULLY LAID ON THE SURFACE OF THE CONCRETE. STRIPS SHALL BE OVERLAP BY 75mm AND SHALL BE HELD DOWN AS REQUIRED AGAINST DISPLACEMENT. THE TERRAFIX 240R SHALL BE MAINTAINED IN PLACE AND KEPT THROUGHLY WET FOR A MINIMUM OF 24 HOURS.
- WHEN THE AIR TEMPERATURE AT ANY TIME DURING THE DAY WILL EXCEED 27°c, TWO LAYERS OF TERRAFIX 240R WILL BE REQUIRED AS DESCRIBED ABOVE, BUT FOR A FOUR DAY PERIOD.

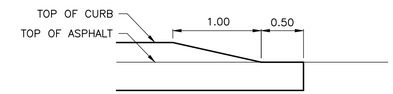
CURB FACED SIDEWALK
N.T.S.



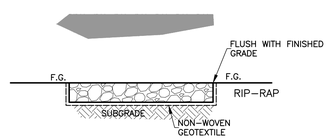
PIPE INSULATION DETAIL
N.T.S.



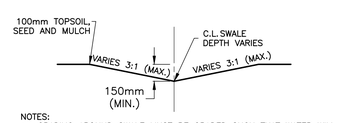
SEWER/WATER CROSSING INSULATION DETAIL
N.T.S.



CURB TERMINATION
N.T.S.

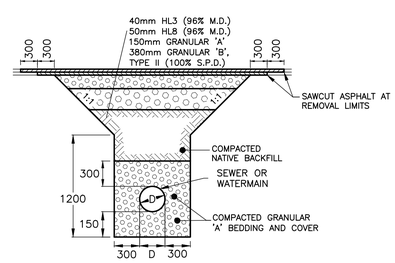


RIP-RAP SECTION
N.T.S.

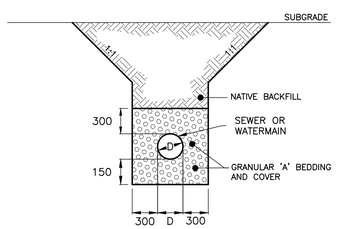


NOTES:
- GRADING AROUND SWALE MUST BE GRADED SUCH THAT WATER WILL FLOW FREELY FROM ADJACENT GROUND TO THE BOTTOM OF SWALE WITH NO PONDING.
- BOTTOM OF SWALE MUST BE GRADED IN THE DIRECTION INDICATED AND TO THE GRADES SHOWN ON DRAWINGS WITH A SMOOTH CONTINUOUS SLOPE WITH MINIMAL PONDING.

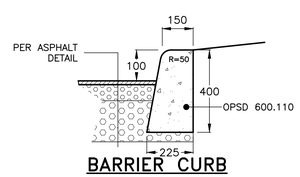
SWALE DETAIL
N.T.S.



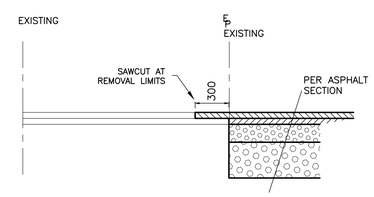
TRENCH REINSTATEMENT OF ASPHALT PARKING
N.T.S.



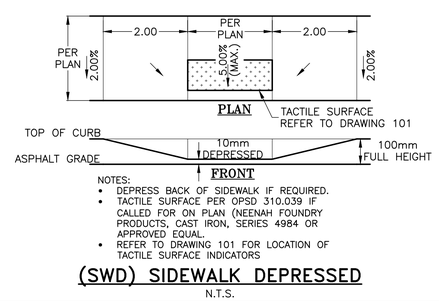
TRENCH DETAIL
N.T.S.



BARRIER CURB
N.T.S.

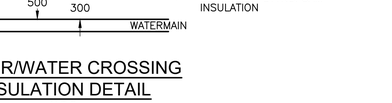


PAVEMENT STEP JOINT AT EXISTING STREETS
N.T.S.

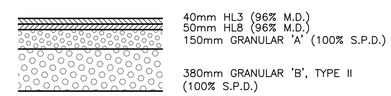


NOTES:
- DEPRESS BACK OF SIDEWALK IF REQUIRED.
- TACTILE SURFACE PER OPSD 310.039 IF CALLED FOR ON PLAN (NEENAH FOUNDRY PRODUCTS, CAST IRON, SERIES 4984 OR APPROVED EQUAL.
- REFER TO DRAWING 101 FOR LOCATION OF TACTILE SURFACE INDICATORS

(SWD) SIDEWALK DEPRESSED
N.T.S.



GRAVEL SECTION
N.T.S.



ASPHALT SECTION
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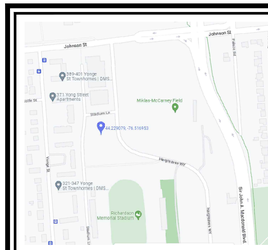

BENCHMARK
SITE BENCHMARK
TOP OF HYDRANT, COASTAL LAB
ELEV 96.01m

No.	By	Date	Revisions
0	AJP	5/11/2023	ISSUED FOR TENDER, PERMIT AND CONSTRUCTION

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Telephone: (613) 345-0400
Facsimile: (613) 345-0008
www.EastEng.com

Project Title:
QUEEN'S UNIVERSITY CASTLE LABORATORY KINGSTON, ON

Drawing Title:
DETAILS

Design:	Checked:	Approved:	Project No.:
QMT	CAJ	.	9996
Drawn:	Checked:	Date:	Contract No.:
.	CAJ	5/27/2022	.

Scale:

Drawing No.: **C2**

File No.: 9996 Cr8 Castle.dwg

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LEGEND

- ×92.30 — EXISTING TOPO GRADE
- 92.90 / 92.90 — PROPOSED GRADE / EXISTING GRADE
- STORM SEWER
- SANTITARY SEWER
- W — WATERMAIN
- B — BELL UNDERGROUND
- G — GAS UNDERGROUND
- C — CABLE UNDERGROUND
- E — ELECTRICAL UNDEROUND
- OH — OVERHEAD UTILITIES
- BH B LS H — UTILITY POLE
- AN — UTILITY ANCOR
- UTILITY PEDISTAL
- PROPERTY BAR FOUND
- RS — ROAD SIGN
- FENCE
- TREELINE
- TREE
- PROPERTY BOUNDARY
- EXISTING BUILDING
- EXISTING BUILDING TO BE REMOVED
- PROPOSED BUILDING
- PROPOSED ARMOUR STONE WALL
- PROPOSED ASPHALT AREA
- PROPOSED GRAVEL AREA
- DRAINAGE ARROW
- PROPOSED GRASS AREA

CASTLE DRAINAGE AREA

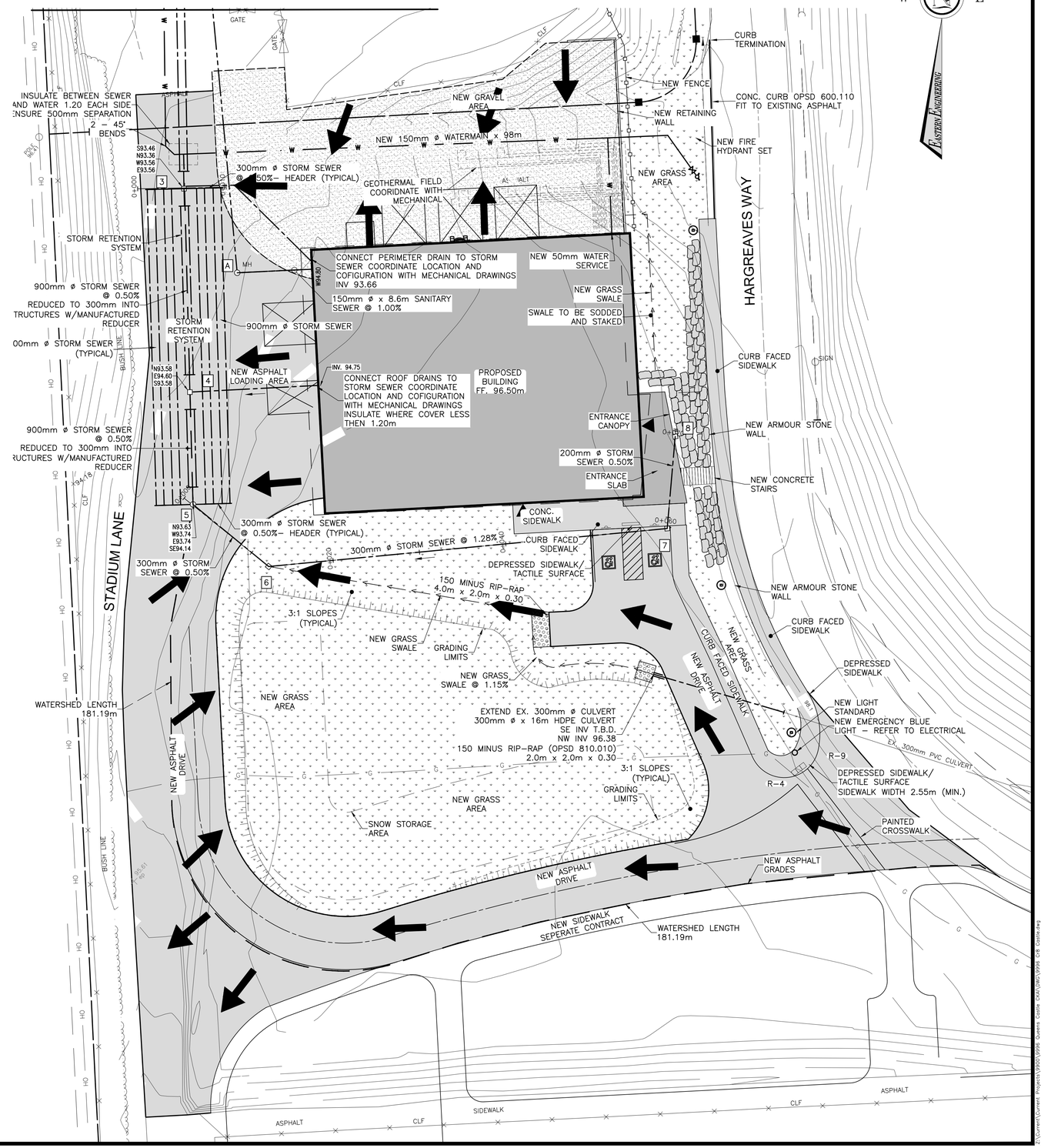
CONTROLLED FLOW
WITH STORAGE TO JOHNSON STREET

AREA = 0.77 ha

PRE RUNOFF C = 0.4
GRASSED AREA = 0.597 ha (0.25)
HARD SURFACE AREA = 0.172 ha (0.9)

POST RUNOFF C = 0.69
GRASSED SURFACE = 0.243 ha (0.25)
GRAVEL SURFACE = 0.089 ha (0.9)
ASPHALT SURFACE = 0.282 ha (0.9)
BUILDING AREA = 0.118 ha (0.9)
CONC SIDEWALK = 0.023 ha (0.9)
STONE WALL = 0.012 ha (0.9)

REQUIRED STORAGE = 116.30 m3
PROVIDED STORAGE = 150 m3



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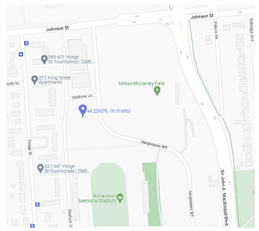
- CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS PRIOR TO START OF CONSTRUCTION.



NOTE:
CONTRACTOR TO CONTACT UTILITY COMPANIES TO DETERMINE TYPE, LOCATION, AND CONFIGURATION OF EXISTING PLANT.

BENCHMARK
SITE BENCHMARK
TOP OF HYDRANT, COASTAL LAB
ELEV 96.01m

No.	By	Date	Revisions
0	AJP	5/11/2023	ISSUED FOR TENDER, PERMIT AND CONSTRUCTION

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The contractor must check and verify all dimensions on the job prior to start of construction.

Drawings are not to be scaled.

5/11/2023

EASTERN ENGINEERING GROUP INC.
CONSULTING ENGINEERS
Apex Building
207 - 100 Strowger Blvd.
Brockville, Ont. K6V 5J9
Telephone: (613) 345-0400
Facsimile: (613) 345-0008
www.EastEng.com

Project Title:

QUEEN'S UNIVERSITY
CASTLE LABORATORY
KINGSTON, ON

Drawing Title:

STORMWATER DRAINAGE PLAN

Design:	Checked:	Approved:	Project No.:
QMT	CAJ	-	9996
Drawn:	Checked:	Date:	Contract No.:
-	CAJ	5/27/2022	-

Scale: 0 5 10 Horizontal: 250

Drawing No.: **C3**

File No.: 9996 Cr8 Castle.dwg

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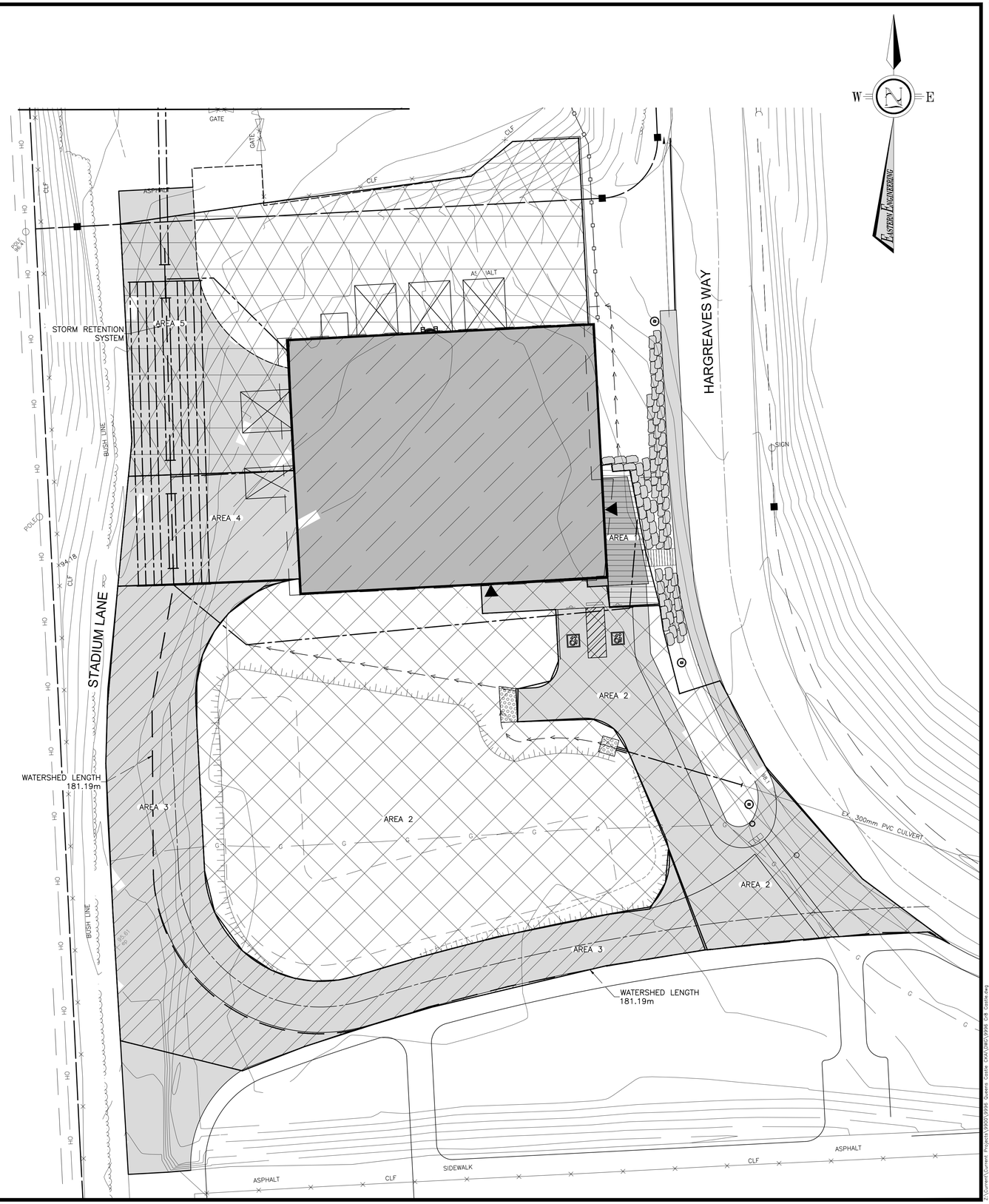
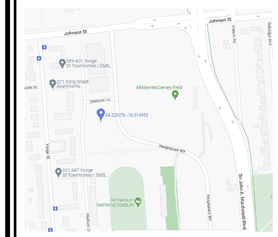
LEGEND

- ×92.30 — EXISTING TOPO GRADE
- 92.90 / 92.90 — PROPOSED GRADE / EXISTING GRADE
- STORM SEWER
- SANTITARY SEWER
- W — WATERMAIN
- B — BELL UNDERGROUND
- G — GAS UNDERGROUND
- C — CABLE UNDERGROUND
- E — ELECTRICAL UNDEROUND
- OH — OVERHEAD UTILITIES
- BH, B, LS, H — UTILITY POLE
- AN — UTILITY ANCOR
- UTILITY PEDISTAL
- PROPERTY BAR FOUND
- RS — ROAD SIGN
- FENCE
- TREELINE
- TREE
- PROPERTY BOUNDARY
- EXISTING BUILDING
- EXISTING BUILDING TO BE REMOVED
- PROPOSED BUILDING
- PROPOSED ARMOUR STONE WALL
- PROPOSED ASPHALT AREA
- PROPOSED GRAVEL AREA
- DRAINAGE ARROW
- PROPOSED GRASS AREA
- AREA 1
- AREA 2
- AREA 3
- AREA 4
- AREA 5



GENERAL NOTES

- ALL WORK ON MUNICIPAL TO BE PERFORMED BY A CONTRACTOR APPROVED BY THE MUNICIPALITY.
- CONTRACTOR TO VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.
- CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS PRIOR TO START OF CONSTRUCTION.



NOTE:
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BENCHMARK
SITE BENCHMARK
TOP OF HYDRANT, COASTAL LAB
ELEV 96.01m

No.	By	Date	Revisions
0	AJP	5/11/2023	ISSUED FOR TENDER, PERMIT AND CONSTRUCTION

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Drawing Title:

STORMWATER DRAINAGE PLAN

Design:	Checked:	Approved:	Project No.:
QMT	CAJ		9996
Drawn:	Checked:	Date:	Contract No.:
.	CAJ	5/27/2022	.

Scale: 0 5 10 — Horizontal: 250

Drawing No.: **C4**

File No.: 9996 C48 Castle.dwg

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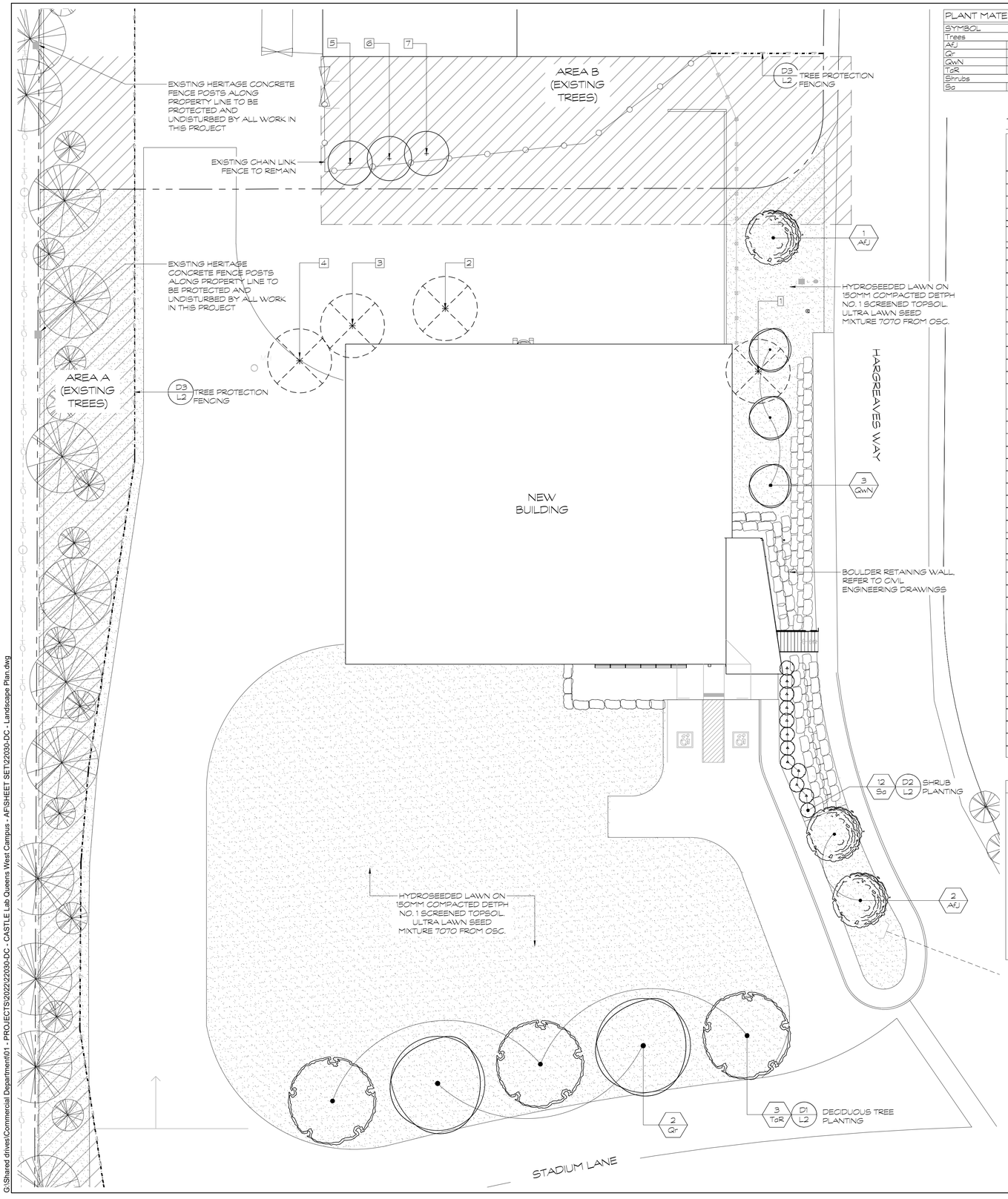


PLANT MATERIAL SCHEDULE

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION	REMARKS
Trees						
AFJ	3	Acer x. freemanii Jeffersred	Autumn Blaze Maple	60mm	WB	
Qr	2	Quercus rubra	Red Oak	60mm	WB	
QwN	6	Quercus x warei Kindred Spirit®	Kindred Spirit Oak	60mm	WB	
TcR	3	Tilia americana Redmond	Redmond Linden	60mm	WB	
Shrubs						
Sa	12	Symphoricarpos albus	Common Snowberry	60cm	3gal	Potted

TREE REPORT

ID #	Botanical Name	Common Name	DBH (cm)	Condition (Good, Moderate, Poor)	Proposed Impact (removal or retained)	Preservation Suitability as per Proposed Site Plan (Good, Moderate, Poor)	Comments (Conditions, TPZ, treatments...)
1	*Acer saccharinum*	Silver Maple	15+40+41+50	Moderate	REMOVE		Multi-stem at base. Moderate union.
2	*Thuja occidentalis*	White Cedar	53	Poor	REMOVE		2 stem at 1.5m. Split union.
3	*Thuja occidentalis*	White Cedar	28	Good	REMOVE		
4	*Malus cv.*	Crabapple	35	Good	REMOVE		
Area A.							
	Acer platanoides	Norway Maple	15	Good	RETAIN		
	Acer platanoides	Norway Maple	15	Moderate	RETAIN		
	Acer platanoides	Norway Maple	30	Good	RETAIN		
	Acer platanoides	Norway Maple	30	Moderate	RETAIN		
	Acer platanoides	Norway Maple	30	Moderate	RETAIN		
	Acer platanoides	Norway Maple	35	Moderate	RETAIN		
	Acer platanoides	Norway Maple	40	Poor	RETAIN		
	Quercus alba	White Oak	15	Good	RETAIN		
	Thuja occidentalis	White Cedar	15	Good	RETAIN		
	Tiflia americana	Basswood	55	Good	RETAIN		
	Ulmus pumila	Siberian Elm	15	Moderate	RETAIN		
	Ulmus pumila	Siberian Elm	15	Moderate	RETAIN		
	Ulmus pumila	Siberian Elm	20	Good	RETAIN		
	Ulmus pumila	Siberian Elm	20	Moderate	RETAIN		
	Ulmus pumila	Siberian Elm	20	Moderate	RETAIN		
	Ulmus pumila	Siberian Elm	20	Moderate	RETAIN		
	Ulmus pumila	Siberian Elm	20	Moderate	RETAIN		
	Ulmus pumila	Siberian Elm	25	Moderate	RETAIN		
	Ulmus pumila	Siberian Elm	30	Moderate	RETAIN		
	Ulmus pumila	Siberian Elm	35	Moderate	RETAIN		
	Ulmus pumila	Siberian Elm	45	Good	RETAIN		
	Ulmus pumila	Siberian Elm	45	Good	RETAIN		
	Ulmus pumila	Siberian Elm	55+35	Moderate	RETAIN		
Area B.							NOTE: ALL TREES ON SOUTH SIDE OF FENCE TO BE REMOVED.
	Acer saccharum	Sugatr Maple	22	Poor	REMOVE		
	Robinia pseudoacacia	Black Locust	15	Good	REMOVE		
	Robinia pseudoacacia	Black Locust	25	Good	REMOVE		
	Ulmus pumila	Siberian Elm	15	Moderate	REMOVE		
	Ulmus pumila	Siberian Elm	15	Moderate	REMOVE		
	Ulmus pumila	Siberian Elm	20	Moderate	REMOVE		
	Ulmus pumila	Siberian Elm	20	Moderate	REMOVE		
	Ulmus pumila	Siberian Elm	20	Moderate	REMOVE		
	Ulmus pumila	Siberian Elm	20	Moderate	REMOVE		
5	*Ulmus pumila*	Siberian Elm	20	Moderate	RETAIN		
	Ulmus pumila	Siberian Elm	25	Moderate	REMOVE		
	Ulmus pumila	Siberian Elm	25	Moderate	REMOVE		
	Ulmus pumila	Siberian Elm	25	Good	REMOVE		
6	*Ulmus pumila*	Siberian Elm	30	Good	RETAIN		
7	*Ulmus pumila*	Siberian Elm	35	Good	RETAIN		
	Ulmus pumila	Siberian Elm	45	Good	REMOVE		

GENERAL NOTES:

1. THE OWNER SHALL COMPLY WITH ALL PROVINCIAL AND FEDERAL STATUTES FOR THE PROTECTION OF WILDLIFE, INCLUDING MIGRATORY BIRDS AND SPECIES AT RISK. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, THE OWNER SHALL ENSURE THAT ANY TREE REMOVAL ON THE OWNER'S LANDS, INCLUDING THE TIMING THEREOF, COMPLIES WITH THE PROVISIONS OF THE MIGRATORY BIRDS CONVENTION ACT, 1994 (SC 1994, C 22) AND THE MIGRATORY BIRDS REGULATIONS, 2022 (SOR/2022-15).
2. PRIOR TO REMOVING ANY TREES ON THE OWNER'S LANDS DURING THE MIGRATORY COMMUNITY SERVICES, PLANNING, BUILDING & LICENSING LOCATED AT 1211 JOHN COUNTER BOULEVARD, KINGSTON 'PHONE 613-546-4291 EXT 3242 ' FAX 613-542-9965 ' CWICKE@CITYOFKINGSTON.CA BIRD SEASON, THE OWNER SHALL PROVIDE THE CITY WITH A COPY OF A BIRD NESTING SURVEY COMPLETED BY AN ECOLOGIST OR BIOLOGIST CONFIRMING THERE ARE NO ACTIVE NESTING SITES WITHIN ANY TREES IDENTIFIED FOR REMOVAL. IF A NESTING SITE IS LOCATED, THE OWNER SHALL ENSURE THAT THE TREE IS NOT REMOVED UNTIL, IN THE OPINION OF THE ECOLOGIST OR BIOLOGIST, THE NESTING SITE HAS BECOME INACTIVE.
3. THE OWNER SHALL ENSURE THAT ALL REQUIRED TREE PROTECTION FENCING AND PRESERVATION AREAS ARE ESTABLISHED TO THE CITY'S SATISFACTION PRIOR TO THE COMMENCEMENT OF ANY WORKS OR SITE ALTERATION/CONSTRUCTION ACTIVITIES. ALL TREE PROTECTION FENCING AND PRESERVATION AREAS SHALL REMAIN INTACT AND UNDISTURBED FOR THE DURATION OF THE PROJECT, UNLESS THE OWNER HAS RECEIVED WRITTEN APPROVAL FROM A PUBLIC WORKS-FORESTRY STAFF. ALL TREE PROTECTION FENCING SHALL HAVE SIGNAGE ATTACHED IDENTIFYING THE AREA AS A TREE PRESERVATION ZONE.

0 1 5 10 25

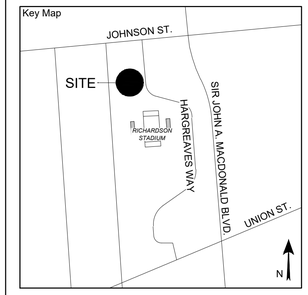
SCALE: 1:200

Seal

North

No.	Issues and Revisions	Date
1.	ISSUED FOR SPC	2022-08-15
2.	ISSUED FOR REVIEW	2023-01-09
3.	ISSUED FOR REVIEW	2023-01-30
4.	ISSUED FOR SPC	2023-02-08
5.	ISSUED FOR SPC	2023-05-03
6.	ISSUED FOR TENDER, PERMIT, & CONSTURCTION	2023-05-15

Key Map



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Base plan information taken from Site Plan provided by: Company Name: COLBOURNE & KEMBEL, ARCHITECTS INC.
Dated: 2022-12-20

Wentworth Landscapes
13392 Loyalist Parkway R.R.1, Picton ON K0K 2T0
613.547.3772

Consultants

WENTWORTH LANDSCAPES

Client
QUEEN'S UNIVERSITY

Project
CASTLE LABORATORY

Project Location
262 HARGREAVES WAY
KINGSTON, ON

Drawing Title
LANDSCAPE PLAN

Scale
1:200

Date 2022-05-18	Plot Date 2023-05-16
Designed By SW	Drawn By AF
Approved By SW	Drawing Number L1
Project Number 22030-DC	

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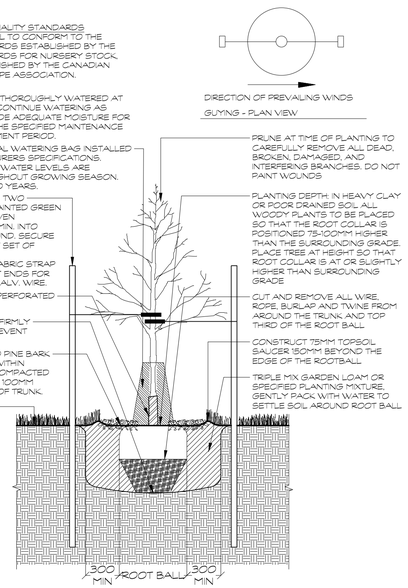
PLANT MATERIAL QUALITY STANDARDS
ALL PLANT MATERIAL TO CONFORM TO THE LEVELS OF STANDARDS ESTABLISHED BY THE CANADIAN STANDARDS FOR NURSERY STOCK, NINTH EDITION, PUBLISHED BY THE CANADIAN NURSERY LANDSCAPE ASSOCIATION.

WATERING
ENSURE TREES ARE THROUGHLY WATERED AT TIME OF PLANTING. CONTINUE WATERING AS REQUIRED TO PROVIDE ADEQUATE MOISTURE FOR THE DURATION OF THE SPECIFIED MAINTENANCE DURING ESTABLISHMENT PERIOD.



D1 DECIDUOUS TREE PLANTING
1:25

NOTES
-SHRUBS AS DETAILED REPRESENTS BOTH CONIFEROUS AND DECIDUOUS SPECIES
-PLACE MULCH TO EVEN HORIZONTAL GRADE
-SHRUBS PLANTED IN GROUPS SHALL BE SET IN CONTINUOUS PLANTING BEDS. REFER TO LANDSCAPE LAYOUT PLANS
-SHRUB BEDS TO BE BACKFILLED WITH TRIPLE MIX GARDEN LOAM PLANTING MIXTURE, OR AS SPECIFIED TO A COMPACTED DEPTH OF 450MM
-FIRMLY COMPACTED BACKFILLED PLANTING MIXTURE TO ELMINATE AIR POCKETS AND PREVENT SETTLEMENT

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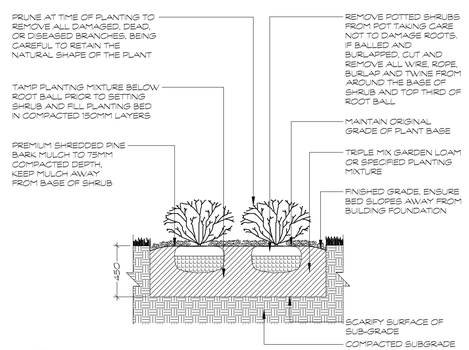
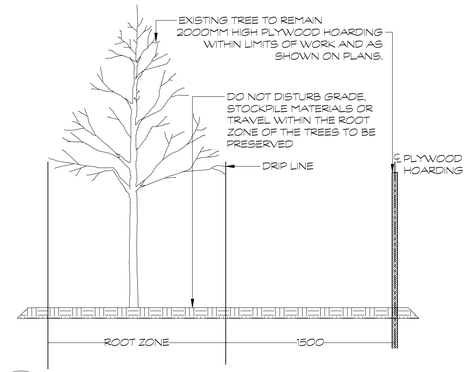


D2 SHRUB PLANTING
1:25

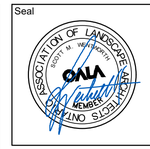
TREE PROTECTION ZONE (TPZ)
NO GRADE CHANGE, STORAGE OF MATERIALS, VEHICLES OR EQUIPMENT IS PERMITTED WITHIN THIS TPZ. THIS TREE PROTECTION BARRIER MUST NOT BE REMOVED WITHOUT THE WRITTEN AUTHORIZATION OF THE OWNER AND OR PROJECT MANAGER.

TREE PROTECTION SIGNAGE
A SIGN THAT IS SIMILAR TO THE ILLUSTRATION TO THE RIGHT MUST BE MOUNTED ON ALL SIDES OF A TREE PROTECTION BARRIER HOARDING. THE SIGN SHOULD BE A MINIMUM OF 400MM X 600MM (15.7X23.6") AND MADE OF WHITE GATOR BOARD OR EQUIVALENT MATERIAL.

NOTES
1. REFER TO TREE PRESERVATION SPECIFICATIONS
2. ALL PROTECTIVE FENCING SHALL BE IN PLACE PRIOR TO ANY SITE ALTERATIONS/CONSTRUCTION ACTIVITY AND TO BE MAINTAINED TO SPECIFICATION THROUGHOUT THE PROJECT UP TO AND INCLUDING THE COMPLETION OF ALL LANDSCAPE TREATMENTS.
3. MAINTAIN PROTECTIVE PLYWOOD HOARDING IN PLACE FOR THE ENTIRE DURATION OF CONSTRUCTION
4. NO PERSON OR CONTRACTOR SHALL ENTER, MOVE OR ADJUST THE TPZ ONCE THE HOARDING HAS BEEN ERECTED. THE TPZ SHALL NOT BE REMOVED UNTIL THE COMPLETION OF THE PROJECT.
5. HAND EXCAVATION MANDATORY WITHIN THE TREE PROTECTION ZONE (1500MM OF ROOT MASS). UNDER IS A CERTIFIED ARBORIST SUPERVISION.
6. CONTRACTOR TO REPLACE SUB-BASE MATERIAL IMMEDIATELY TO COVER ROOT MASS AND WATERING PROGRAM IMPLEMENTED.
7. IF EXCAVATION OCCURS WITHIN THE TREE PROTECTION FENCING THEN AN ISA CERTIFIED ARBORIST SHALL BE PRESENT DURING EXCAVATION TO PERFORM OR SUPERVISE ROOT PRUNING OF TREES IN OR AT THE PERIPHERY OF THE TREE PROTECTION ZONE.



D3 TREE PROTECTION ZONE
1:25

Seal	North
	

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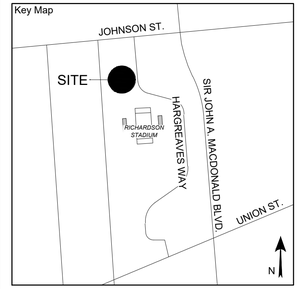
Key Map



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Consultants

WENTWORTH LANDSCAPES

Client QUEEN'S UNIVERSITY	
Project CASTLE LABORATORY	
Project Location 262 HARGREAVES WAY KINGSTON, ON	
Drawing Title LANDSCAPE DETAILS	
Scale AS NOTED	
Date 2022-05-18	Plot Date 2023-05-16
Designed By SW	Drawn By AF
Approved By SW	Drawing Number
Project Number 22030-DC	L2

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