SUPPLEMENTAL INSTRUCTION

CONTRACTOR:

Tal-co Building Innovations
Address:
Suite 2, 1341 Coker Street
Greely, Ontario, K4P 1A1

PROJ.: Boys and Girls Club Prince of Wales
PROJ. No.: 1716
DATE: Feb 05, 2018
S.I. No. S.I. - 011

Supplemental Instructions are issued to the Construction Manager to record a clarification or revision to the previously issued Contract Documentation as reflected by the attached Information Bulletin prepared by the identified Consultant.

The Construction Manager shall review the Supplemental Instruction and the attached Information Bulletin and issue to the effected Trade Contractors identifying the following course of action by the trade contractor:

☐ Proceed with Instruction. Issued for general information, no change to Contract price or schedule. (Site Instruction)

☐ Proceed with Instruction and provide a quotation within 10 days, identifying change to Contract price and schedule (Change Directive)

☐ Do not proceed. Provide quotation identifying change to Contract price and schedule within 10 days. (CCO)

1.1 TITLE
Updated Mechanical and Electrical Drawings Issued for Tender

1.2 DESCRIPTION OF THE WORK
.1 Updated mechanical and electrical drawings for tender

1.3 ATTACHMENTS
B&G POW Mech Phase 2 Rev1 TENDER.pdf
B&G POW Elec E-1 to E-8 TENDER 2018-02-06.pdf

1.4 REASON
Drawings revised to reflect demolition and changes to cost savings measures.

Distribution:

☑ Owner	☐ City Authority	☑ Electrical	☐ Struct.	☐ Landscaping
☑ Contractor	☑ File	☑ Mech.	☐ Civil	☐ Other

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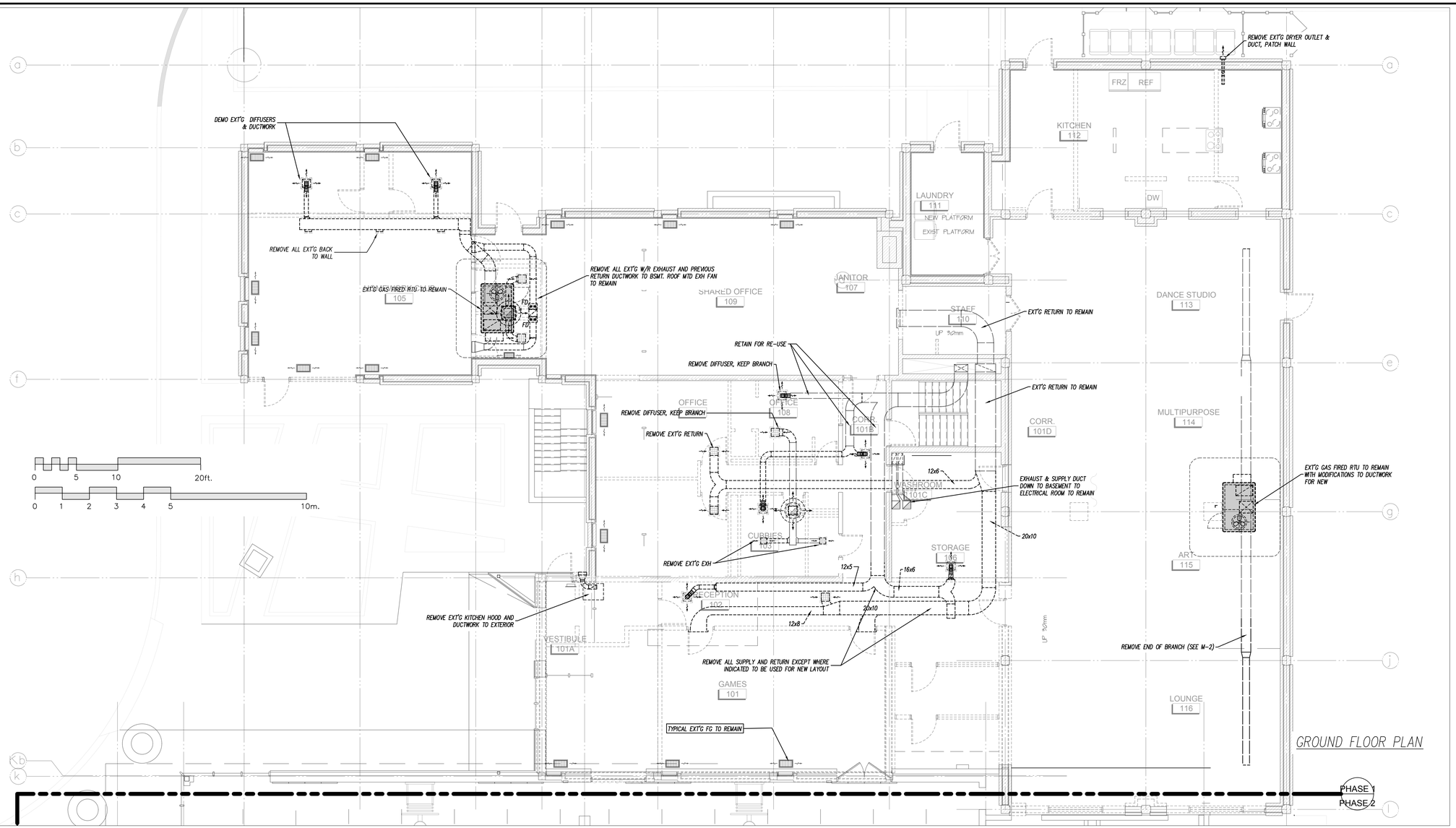

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7-Oct-14

PROJECT
BOYS & GIRLS CLUB RENOVATION
Prince of Wales

DRAWING
Demolition
GROUND FLOOR HVAC

REGISTERED PROFESSIONAL ENGINEER
J. R. BEKOLAY
2-Feb-18
PROVINCE OF ONTARIO

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DRAWN BY	DESIGNED BY
Staff	JRB
JOB NO. 2017-17	CHECKED BY
DRAWING NO. M-1 of 6	

SPECIFICATIONS:

1. *Comply with local Codes and Bylaws, Building Code Act (BCA) and Ontario Building Code (OBC).*

2. *General:*
 .1 *The current Ontario Building Code is to be considered the bare minimum for construction compliance levels and where the Act or the OBC is exceeded by the requirements of this document (drawings and/or specifications), this document shall govern unless revised in writing by the Engineer. Merely "Meeting the Code" will not be accepted as an argument to avoid provision of the mechanical systems as documented and the Contractor shall bear all and any costs associated with making the necessary revisions to the satisfaction of the Engineer..*
 .2 *Comply with the requirements of OBC SB-10 and ASHRAE 90.1 for (prescriptive) energy efficiency compliance (as used in the development of this document).*
 .3 *Bekolay & Associates retain the copyright to all drawings and specifications created for this project and said works (both hard copy and CADD files) are not to be copied or distributed without consent. Costs for assimilation and/or distribution will be established upon written application to Bekolay & Associates for further copies*
 .4 *Obtain all permits, make arrangements for inspections and effect repairs required by Inspectors at no cost to the owner. Provide the consultant a Certificate of Approval from the inspecting authorities at completion of the work.*
 .5 *Examine the site and be aware of site conditions associated with this contract since extras related to site conditions will not be accepted.*
 .6 *Provide miscellaneous steel, cutting and patching or make arrangements with the General Contractor for such work as may be required to complete the contract. Include for marking of duct openings through existing block walls for the General Contractor to cut and reinforce based on details provided by the Structural Engineer. Cut and patch or core pipe sleeve openings as detailed on the drawings. Co-ordinate the work of this trade with the General Contractor for timely completion of each phase of construction. Do not cut structural elements without written authorization from the consultant.*
 .7 *Repair or replace, at no cost to the owner, any defect in workmanship or materials which appear within a period of one year from the date of substantial completion of the work. Pay for all damage resulting from the deficiency which occurs within the warrantee period. Contractor shall not be held liable for anything attributable to acts of the owner or his agents. Co-ordinate the work of this trade with the General Contractor for timely completion of each phase of construction.*

3. *Include Seismic Restraints for all mechanical equipment including piping, ductwork and equipment as required by OBC Part B, article 4.1.8.17 "Elements of Structures, Non-Structural Components and Equipment". Provide suitable pre-engineered systems and include the services of a professional structural engineer (registered in Ontario) to design, sign and seal drawings for all seismic restraints.*

4. *Equivalents and Alternates:*
 .1 *Manufacturer's names listed in these specifications set the standard for the material and energy efficiency requirements to comply with SB-10 but are not intended to exclude other manufactures from bidding with equivalent products.*
 .2 *Products not meeting all design requirements are considered alternates and they will be rejected until the specified item or equivalents meeting the energy efficiency requirements acceptable to the Engineer are provided. However, alternate products meeting the general intent accompanied by a savings allowance (including breakdown of material and labour) may be submitted for consideration provided they do not violate the SB-10 requirements.*

5. *Shop Drawings*
 .1 *Provide "PDF" files or 3 hard copies of shop drawings for review by the Engineer.*
 .2 *Submit product data for all specified equipment or trim including but not limited to grilles, diffusers, plumbing fixtures & trim, sprinkler heads.*

6. *Record Drawings*
 .1 *Record all changes as work progresses and as changes occur on a set of clean prints. This shall include changes to existing mechanical systems, control systems and low voltage control wiring.*
 .2 *Use different colour waterproof ink for each service.*
 .3 *Identify each drawing in lower right hand corner in letters at least 12 mm high as follows: – "RECORD DRAWINGS: THIS DRAWING HAS BEEN REVISED TO SHOW MECHANICAL SYSTEMS AS INSTALLED" (Signature of Contractor) (date).*
 .4 *Make available for reference purposes and inspection at all times.*

7. *Fire stopping*
 .1 *Provide fire stopping of all fire separations including fire dampers, retaining angles, sleeves and caulking*
 .2 *Caulking and Sealing Std: Hilti*

8. *Insulation:*
 .1 *Piping:*
  (a) *Insulate all hot and cold potable water piping as follows:*
  .i *Pre-formed fiberglass in 900mm sections with all service jacket sealed with aluminum tape. Hangers shall be outside of jacket.*
  .ii *Thickness: (to ASHRAE 90.1 table 9-1)*

Pipe Size	Heating & DHW	DCW
NPS 1/2"	5/8"	5/8"
NPS 3/4" to 2"	1-1/2"	1"
NPS 2-1/2"	2"	1"

  (b) *Provide white, preformed PVC jacket for all exposed insulated pipe.*
  (c) *Hangers shall be outside of jacket.*

9. *Identification:*
 .1 *2" outside (or insulated) diameter: Provide all weather vinyl pipe markers and tags with arrows and tape bands to identify all piping (except sprinkler branch piping) including direction (and supply or return where applicable).*
 .2 *1" & smaller: pre-formed, curled vinyl sleeves with coloured letters & background*
 .3 *Comply with ANSI standards for colours and identification requirements. Meet WHMIS tag requirements where applicable.*
 .4 *Marker separation shall be such that any pipe can be readily identified and not exceed 25 feet between markings.*
 .5 *Std: Brady, Top Tape & Label Ltd*

HVAC:

10. *Duct Work:*
 .1 *Tape and seal all new supply air ductwork ductwork and comply with ASHRAE (low pressure standards), SMACNA and ICGIH details and recommended practices. Ductwork shall be handled and installed in accordance with SMACNA's Duct Cleanliness for New Construction Guidelines (Advanced Level).*
 .2 *All Supply, Return and Exhaust ductwork:*
  (a) *Provide radiused elbows (unless turning vanes are provided) and take-offs (r/D=1 min)*
  (b) *Built head fittings; short and zero inside radius elbows (except where turning vanes are used) are entirely unacceptable and shall be replaced at the Contractor's expense.*
  (c) *Install the ductwork free of pulsation and chatter and make any repairs required when system is commissioned. Provide exhaust fan as shown on the drawings. Provide manual balancing dampers on all new branch duct take-offs as required for balancing.*

11. *Flexible Connections:*
 .1 *Frame: galvanized sheet metal frame with fabric clenched by means of double locked seams.*
 .2 *Material: Fire resistant, self extinguishing, neoprene coated glass fabric, temperature rated at minus 40 C to 90 C, density of 1.3 kg/m2.*
 .3 *Length of connection: 100mm with min 75 mm installed clearance between frames.*

12. *Flexible Ducts:*
 .1 *Factory fabricated spiral wound flexible aluminum.*
 .2 *Factory installed 12mm insulation with plastic jacket*
 .3 *Minimum working pressure 2.5 kPa.*
 .4 *Maximum length in a branch run to a diffuser not to exceed 2 meters.*
 .5 *Provide nylon tie wrap around flex at connection to branch duct and and sectional elbow at ceiling diffusers.*

13. *Duct Insulation:*
 .1 *Acoustic Liner:*
  (a) *Increase duct dimensions to provide unobstructed sizes shown*
  (b) *Natural cotton fibre or rigid board glass fibre duct liner acoustic/thermal (R-2) duct liner with air side factory coated with black fire resistant and abrasion resistant liner over 100% of the exposed surface.*
  (c) *Microbial resistant (complying with ASTM G21 and G22) and moisture resistant (ASTM C1104) with a flame spread and smoke development rating not exceeding 25/50 respectively without emitting toxic fumes (complying with UL 181 and NFPA90A)*
  (d) *Thickness: 25mm (1") thick insulation on interior of supply and return ducts within 3m (10 ft) of fans and as indicated.*
  (e) *Std: Titus Enviroloc, Fibreglass Canada "Line Acoustic-R"*
 .2 *Thermal:*
  (a) *38mm thick flexible fiberglass blanket insulation with all service jacket secured to round metal ductwork without bagging or sagging, taped and sealed*
  (b) *Application: all new supply ductwork except downstream of VAV boxes.*
  (c) *Std: Owens Corning Duct Wrap Type 75*
 .3 *Adhesive & Sealer: to requirements of ANSI/NFPA 90A with same flame spread and smoke ratings as insulation.*
 .4 *Fasteners: Weld or adhesive plated pins 2.0mm diameter, length to suit insulation with metal retaining clips, 32mm square.*
 .5 *Joint Tape: Poly-vinyl treated open weave fibreglass membrane 50mm wide.*

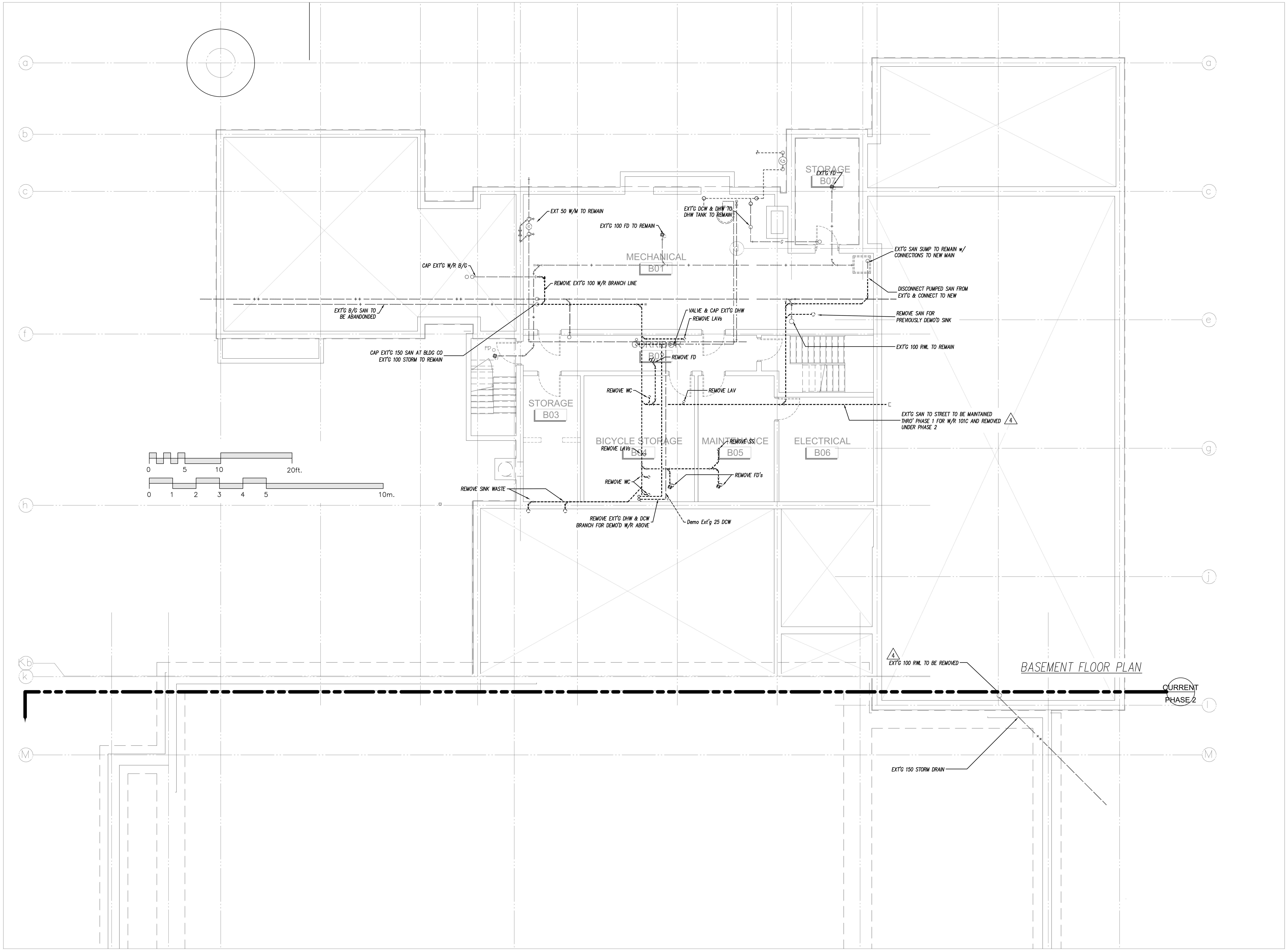
14. *Provide new diffusers as follows:*
 .1 *Type "A"*
  (a) *Four way throw steel diffuser with balancing damper to set in tee bar or drywall ceiling*
  (b) *Std: E.H.Price SCDA*
 .2 *Type "B"*
  (a) *Similar to " A" but panel style for smaller diffusers in grid ceilings*
 .3 *Type "C"*
  (a) *Round metal grille with white powder coat and screw in core flow adjustment.*
  (b) *Std: Fantech Model MGE or Imperial Manufacturing DR*
 .4 *Type "D"*
  (a) *4" aluminum grid suit tee bar ceiling or with border for drywall*
  (b) *E.H.Price CRE*
 .5 *Type "E" Gym Return*
  (a) *14 gauge steel, 20mm blades, zero deflection with white enamel finish designed for gyms*
  (b) *Std: E.H.Price series 95*

15. *Dome Exhaust Fan EF-1*
 .1 *Direct drive, spun aluminum, inverted dome, backward inclined exhaust fan c/w roof curb, backdraft damper, weatherproof disconnect and programmable time clock control*
 .2 *Capacity: 425 L/s @ 125 Pa (900 CFM @ 0.5)*
 .3 *Electrical: 1/6 HP 1140 RPM, 110V/1/60*
 .4 *Std Greenheck G-130*

16. *Washroom transfer Fan TF-1*
 .1 *Inline cabinet exhaust fan interlocked with light switches*
 .2 *Capacity: 330 L/s @ 90 with 375W, 110V motor*
 .3 *Std: Greenheck CSP-260*

17. *RTU#1: Packaged, gas fired rooftop air conditioning units complete with:*
 .1 *One year warranty on entire unit, 5 year compressor warranty and 10 year heat exchanger warranty*
 .2 *Electrical:*
  (a) *Service with CSA approved through the base wiring. Include weatherproof disconnect for wiring by Div. 16.*
  (b) *Voltage: 575, fused at 20 amps*
 .3 *Compressors shall be direct drive, hermetic, scroll type with gear type oil pump, suction gas cooled, overload protection, vibration isolation.*
 .4 *Natural gas connection with line thro' the base from below*
 .5 *Pleated 50mm throwaway filters equal to Farr 30-30.*
 .6 *Accessories:*
  (a) *Programmable thermostat*
  (b) *Economizer*
  (c) *Insulated roof curb*
  (d) *Condensate drain & trap*
  (e) *Concrete infill where indicated*
 .7 *Capacity: ARI nominal 7.5 tons*
 .8 *Std: Lennox or equivalent by Trane, Carrier or York*

18. *Include the services of an Air Balancing Company to verify and adjust the air quantities for the equipment shown. Provide air balancing report.*



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7-Oct-14

PROJECT BOYS & GIRLS CLUB RENOVATION
Prince of Wales

DRAWING BASEMENT
PLUMBING DEMOLITION

REGISTERED PROFESSIONAL ENGINEER
J. R. BEKOLAY
2-Feb-18
PROVINCE OF ONTARIO

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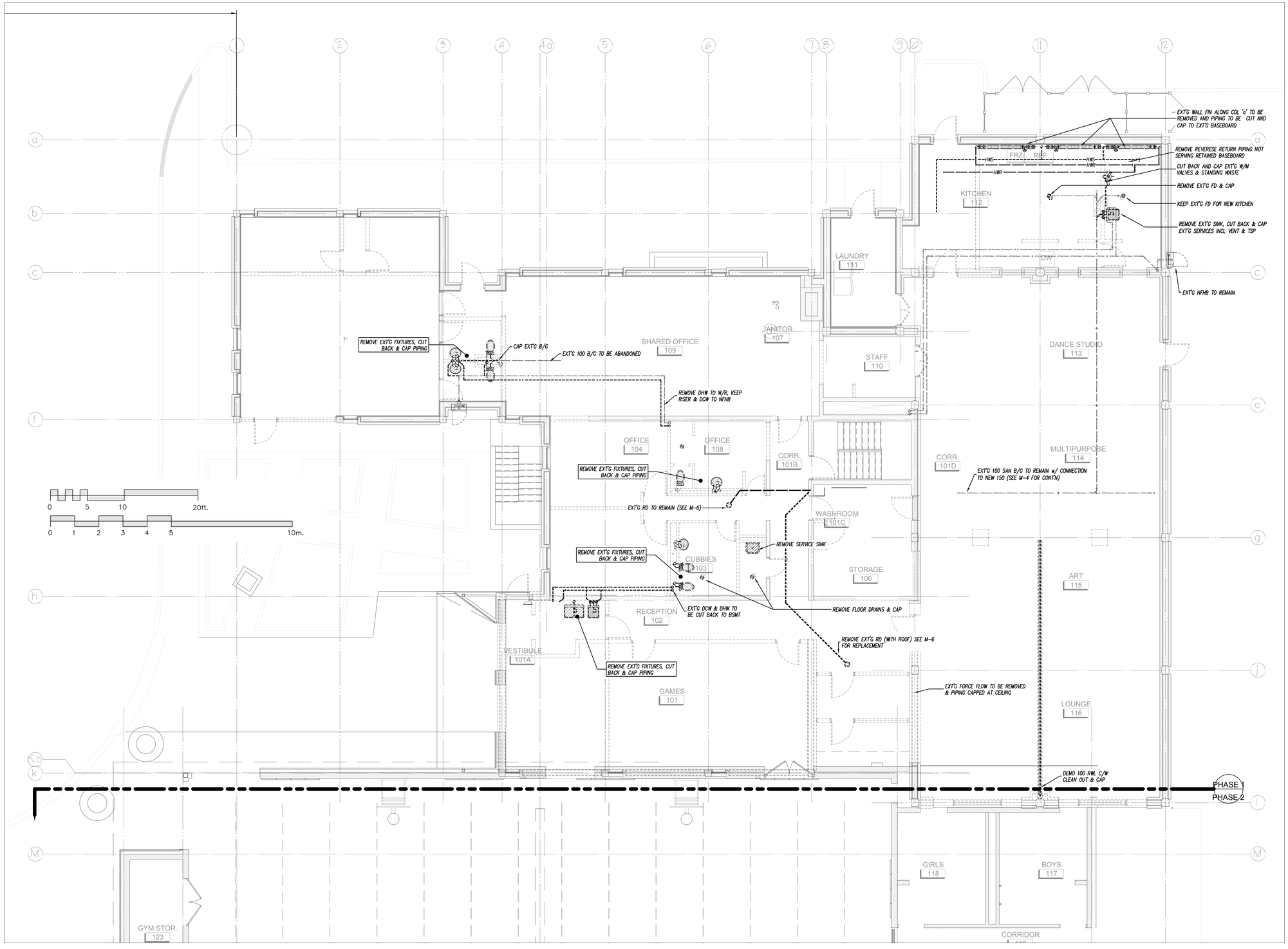

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7-Oct-14

PROJECT
BOYS & GIRLS CLUB RENOVATION
Prince of Wales

DRAWING
GROUND
PLUMBING DEMOLITION

REGISTERED PROFESSIONAL ENGINEER
J. R. BEKOLAY
2-Feb-18
PROVINCE OF ONTARIO

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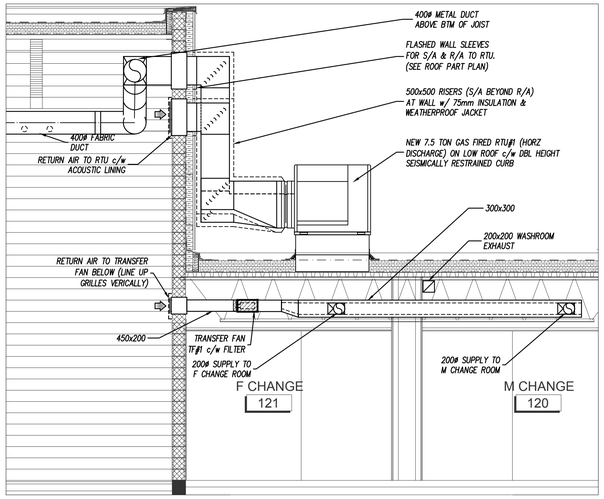

GYM/CHANGE ROOM SECTION

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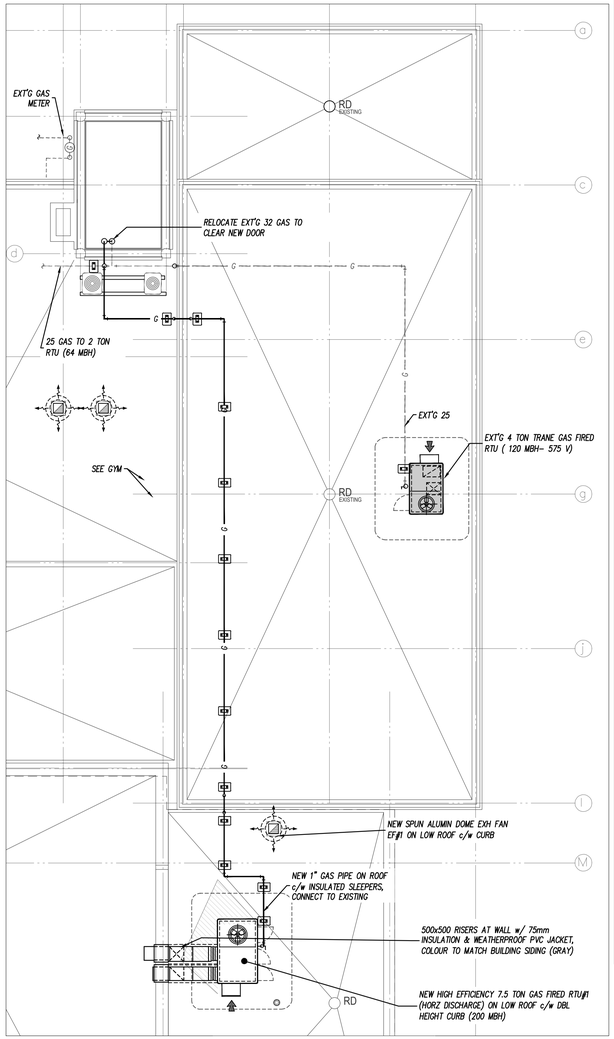

LOW ROOF PART PLAN

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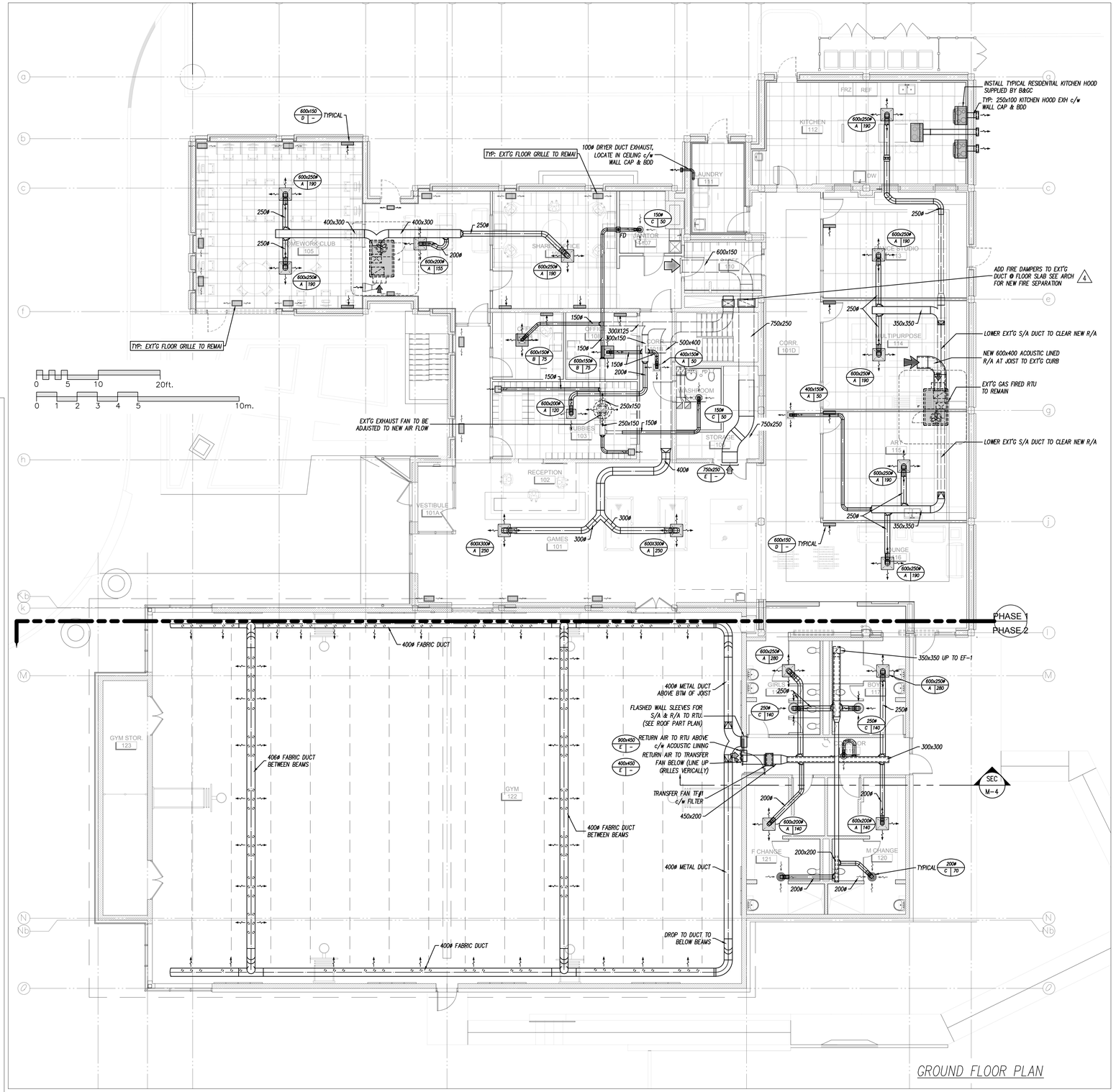

GROUND FLOOR PLAN

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7-Oct-14

PROJECT: BOYS & GIRLS CLUB RENOVATION
Prince of Wales

DRAWING: GROUND FLOOR HVAC & ROOF PART PLAN

REGISTERED PROFESSIONAL ENGINEER
J. R. BEKOLAY
2-Feb-18
PROVINCE OF ONTARIO

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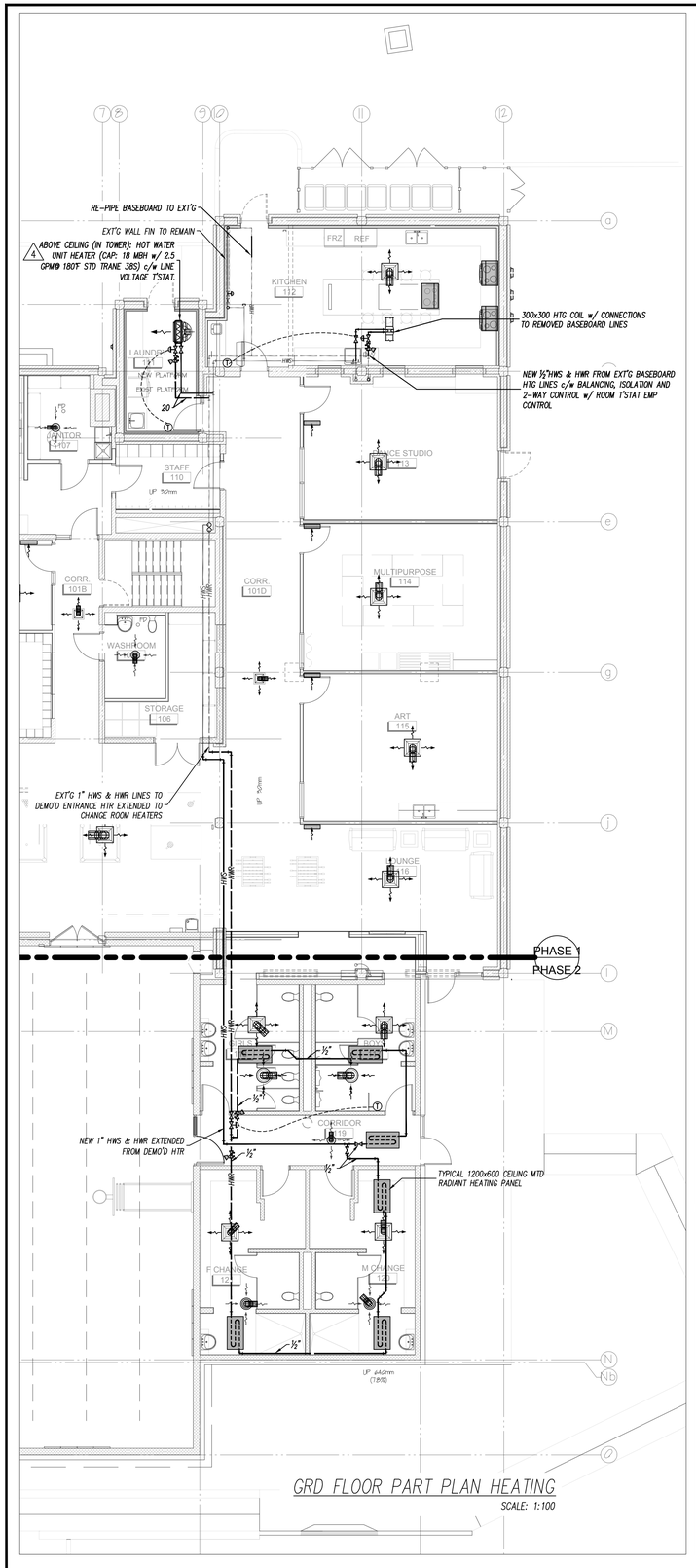

GRD FLOOR PART PLAN HEATING

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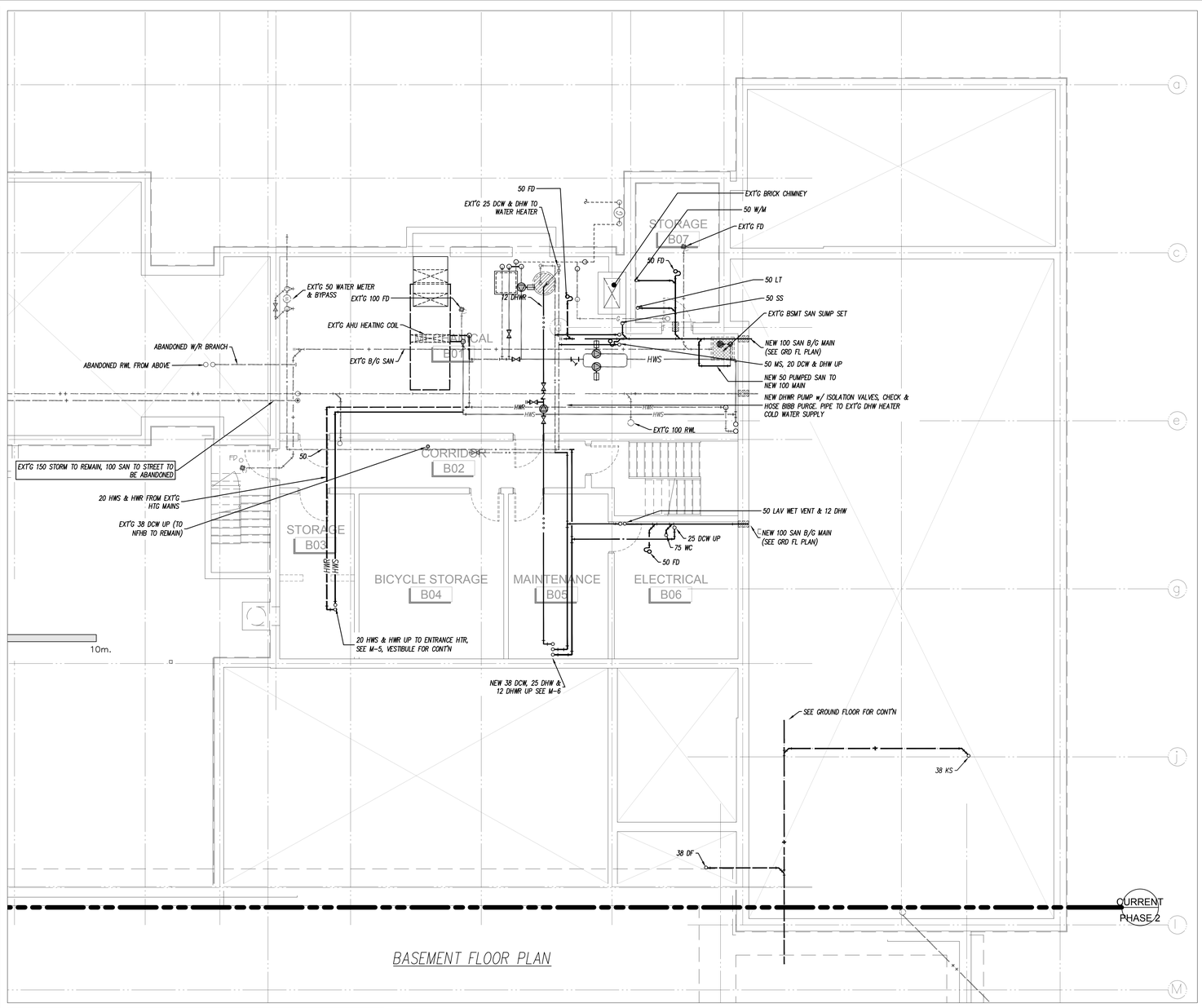
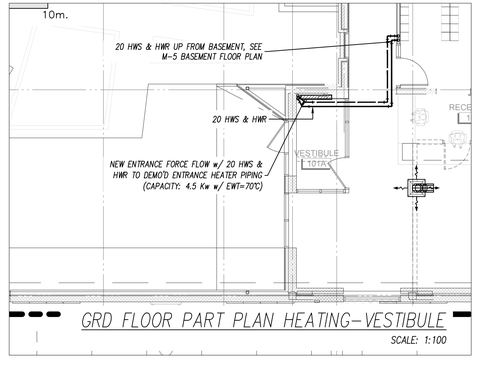


BASEMENT FLOOR PLAN



GRD FLOOR PART PLAN HEATING-VESTIBULE

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SPECIFICATIONS CONT'd:

Plumbing & Piping:

19. *Water Piping:*
 .1 Potable water piping shall be type 'M' copper with 95-5 lead free solder joints and fittings.
 .2 Isolating valves: equal to Crane 1324, 438 (gate) or 9322 (ball).
 .3 Rigidly fasten water supplies to the internal wall structure and secure with wing back elbow. Extend with chrome plated nipple protruding through wall finish and terminate with chrome plated straight or angle ball valve complete with chrome escutcheon. Extend to fixture with braided stainless steel supplies. Copper pipe roughing at this location is not acceptable.

20. *Plumbing Piping*
 .1 Plumbing and vent piping above grade:
  (a) NPS 1-1/2" and smaller DWV copper with solder joints
   NPS 2" and larger shall be cast iron with MJ neoprene couplings
   Or
  (b) System 15-50 PVC DWV solvent weld pipe and fittings with suitable fire stopping. Note regular PVC is not acceptable and shall not be installed.
  (c) Extend vent piping from all plumbing fixtures to vent stacks through roof complete with weatherproof flashing to comply with OBC.
  (d) Provide plumbing and vent connections to all fixtures with chrome plate traps with cleanouts. Brass or plastic not acceptable. Provide trap insulation for barrier free sinks.
  (e) Floor drain trap seal primer: all brass with integral vacuum breaker, NPS 12mm continuous soft copper line drip line connection with to tapping on drain body
 .2 Plumbing and vent piping below grade
  (a) PVC or ABS with solvent weld joints or
  (b) SRD with ringtite joints
  (c) Provide 150mm of compacted sand bedding in the bottom of all trenches. After inspection by the Engineer cover and compact at least 150mm of sand over piping. Granular fill in contact with the piping is not acceptable
 .3 Vent Storm Collar:
  (a) Spun aluminum collar to be set and caulked at pipe for flashed into the roof by GC.
  (b) Std: Platinum Technologies series Vent Stack or Storm Collar

21. *Washing Machine wall box:*
  (a) Single lever, brass shut-off for hot and cold water hose bibb connections
  (b) Plastic wall box with finishing cover, stud support and 38mm brass sanitary drain pan and connection.
  (c) Be advised, hose bibbs in a box will be rejected.
  (d) Std: Symmons "Laundry Mate" or Watts DuoClozure DWB with 2-M2 Shutoff valve

22. *Hangers:*
 .1 Uninsulated Copper Pipe (Any system):
  (a) Split Ring metal support ring with integral rod connection and EPDM corrugated pipe ring.
  (b) Clevis hangers and tape are not acceptable.
  (c) Std: Shall be Caddy Superfix Series 454
  (d) 32mm and smaller
   .i Swivel loop hanger with eletro-zinc plated band with hanger rod nut
   .ii Std: Caddy Series 100
  (e) 38mm and larger
   .i epoxy coated split black iron clevis
   .ii Std: Caddy Series 401, 427 or 420

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7-Oct-14

PROJECT: BOYS & GIRLS CLUB RENOVATION
Prince of Wales

DRAWING: GROUND FLOOR HEATING & BASEMENT PLUMBING

REGISTERED PROFESSIONAL ENGINEER
J. R. BEKOLAY
2-Feb-18
PROVINCE OF ONTARIO

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SPECIFICATIONS CONT'd:

Plumbing & Piping:

23. Plumbing Fixtures:
.1 Lavatories L-1:
(a) Semi-counter vitreous china, universal design, wall-hung sink meeting the requirements for barrier free design c/w insulated trap or knee guard.
.i Std: American Std. Mezzo
(b) Trim: 1.9 L/min chrome plated, battery operated electronic faucet, single faucet, adjustable sensor set point, 90 second max run time and aerator. Provide chrome plated waste strainer, trap with cleanout.
.i Std., Delta Model HDF commercial DEMD 111F Series or Waltec Moen equivalents

.2 SS Sinks
(a) KS-1
.i Double bowl 18-8 stainless steel, 840x560x180mm (33"x224"x7"), ledge back, kitchen sink with overflow partition, 380x430 (15x17) bowls, basket strainers, rim seal, brass trap with cleanout
.ii Std: Kindred, Steel Queen EDL2233

(b) KS-2
.i Single bowl, 400x350x180mm (16"x14"x7") stainless steel, ledge back, kitchen sinks with strainer, trap and single lever kitchen faucet
.ii Std: Kindred, Steel Queen LBS4607

(c) Hand Sink:
.i Single bowl (bar sink) 295x235x152mm (11.625x9.25"x"x6") stainless steel, ledge back, kitchen sinks complete with strainer, trap
.ii Std: Kindred, Steel Queen LBS9106 with Chicago Faucet 2300-8 Trim

(d) Trim: Single lever (barrier free compliant), stainless steel and brass construction chrome finish, pressure balanced replaceable cartridge with integral pull out spray head, high arching spout equal to Delta model 472

.3 Water closets
(a) Seat: white, open front, molded plastic (with slow close cover for handicapped) and stainless steel check hinge and insert post. Centoco 500 (or 820) or equivalent.
(b) 1/2" Chrome plated angle ball valve with chrome nipple & wall escutcheon, braided stainless steel flexible supply.
(c) WC-1:
.i ADA compliant wall hung vitreous china elongated bowl with 4.2. Lpf, with floor carrier
.ii Std: American Std: Afwall "FloWise"
(d) WC-2
.i ADA compliant floor mounted vitreous china elongated bowl with 4.2. Lpf
.ii Std: American Std.
(e) Flush Valve:
.i 4.2 Lpf hard wired A/C powered dual flush with hands free sensor & electronics and manual flush c/w 120 V transformer, wall flange, angle stop w/ BFP, vandal resistant covers, chrome finish
.ii Std: American Std: Selectronic FloWise Exposed

.4 Service Sink:
(a) Crane 6-296 enamelled steel single compartment Laundry Tub
(b) Baked enamel stand
(c) C-5040 rough brass trim and trap

.5 Mop Sink:
(a) Molded stone, 550X450X300mm deep complete with cast brass outlet strainer, stainless steel rim guard, continous on three sides, bolted to the rim.
(b) Std: American Std. AB-7692-0230, Crane 7-525, Fiat TSB-100
(c) Trim:
.i Built-in elevated vacuum breaker, cast brass spout, 400mm long rubber hose, indexed cross handles, escutcheons, union inlets, heavey cast brass spout with pail hook, braced to the wall, integral stop valves
.ii Std: Cambridge Brass 5314333, Crane CH-8560, Emco 390 XXBE, Fiat 830 AA, Chicago Faucet

.6 Floor drains:
(a) General duty, round cast iron body, adjustable head and nickel bronze strainer.
(b) Std: Ancon FD-100 or equal

24. DHW Re-Circulation Pump
.1 Stainless steel body, cartridge type pump with, built in check
.2 Capacity: 5 GPM @ 20ft
.3 Electrical: 120/1/60 w/ 24 hour timer/aquastat combination, and plug in cord.
.4 Std: Taco 009-IFC w/ Timer Aquastat.

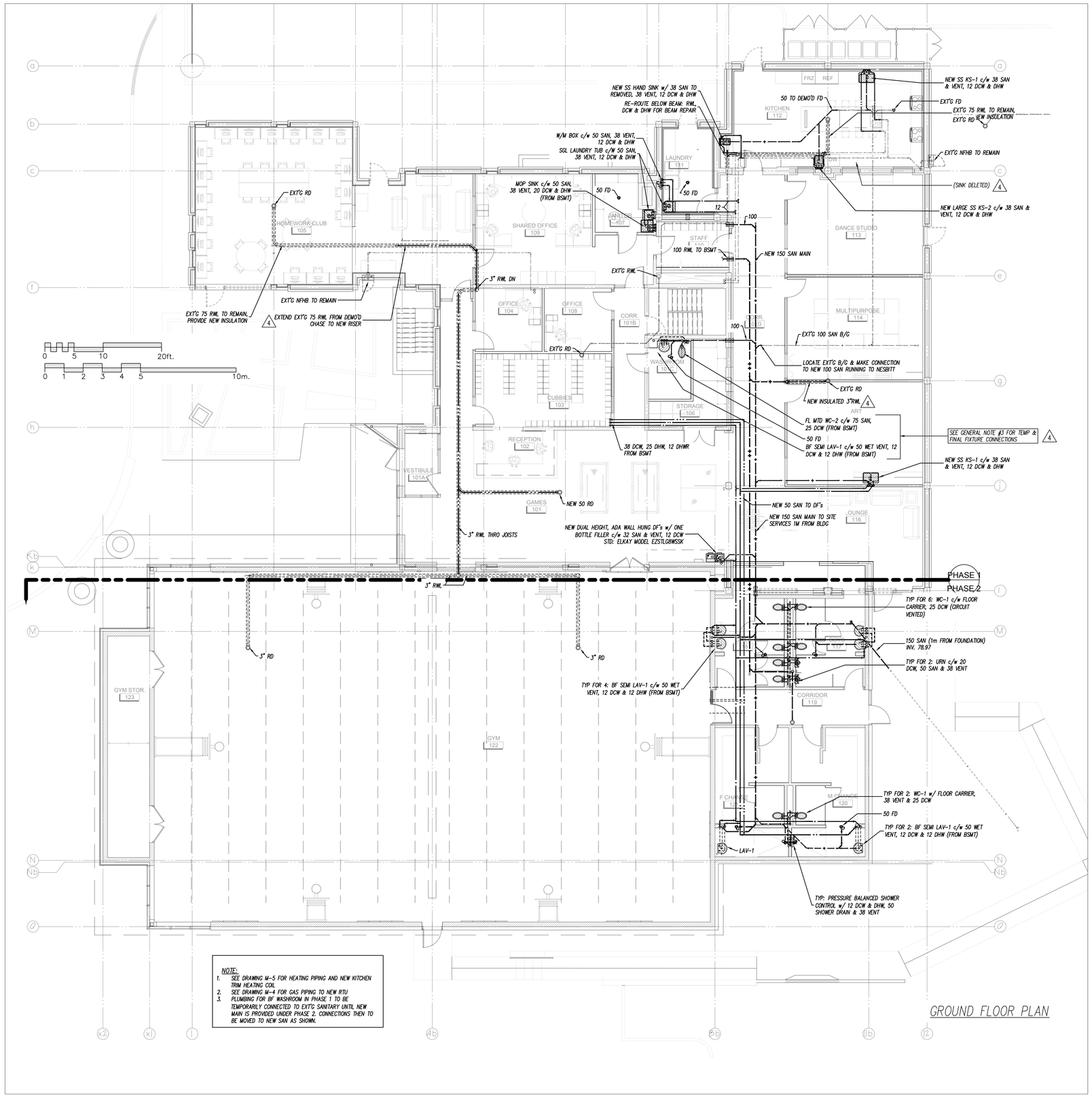
25. Natural Gas Piping
.1 Provide natural gas piping from Enbridge meter to building gas fired equipment.
.2 Conform to Ontario gas Utilization Code B149. (current version)including installation and testing.
.3 Piping:
(a) Schedule 40 black iron
.i complete with lubricated isolating valves and malleable iron fittings for exposed installation and welded fittings for ceiling or concealed installation.
.ii Painting: Clean and epoxy prime paint bare piping followed by two coats of enamel.
.4 Roof pipe supports:
(a) UV resistant injection moulded polypropylene impact copolymer shell and type 3 extruded polystyrene non-marring base pipe supports.
(b) Clear gravel below support and securely fasten pipe with non ferrous hardware.
(c) Std: E-Z Sleeper/Quick Block

26. Heating:
.1 Piping: Sch. 40 black with MI screwed fittings
.2 Coil:
(a) 2 row copper tube, aluminum fin
(b) Cap:, EAT = 75F, LAT= 125 F, APD= 0.15" Wg
20 MBH, EWT=175F, LWT= 155F
.3 Control: low voltage wall mounted t'stat with 2-way control valve

27. Unit Heaters:
4 .1 Direct drive, propellor, horizontal unit heater with copper tube, aluminum fin coils, line voltage thermostats
.2 Capacity: 18 MBH w/ 15TDT, 2.5 GPM EWT 180T, 0.04 Ft WPD
.3 Electrical: totally enclosed motors -1/20 HP, 110V w/ line voltage t'stat
.4 Std: Trand 38S

28. Fire Extinguishers
.1 Recessed, prime coated steel cabinet with 25mm return, glass window in the latched door at each fire exit.
.2 Extinguisher ABC-5
.3 Std: National Fire Equipment Ltd. Model 102

30. Unit Heaters:
.1 Direct drive, propellor, horizontal unit heater with copper tube, aluminum fin coils, line voltage thermostats
.2 Capacity: 20 MBH w/ 16 GPM 50-50 glycol, EWT 140T, 4 Ft Pressure drop
.3 Electrical: totally enclosed motors -1/20 HP, 110V
.4 Std: Trand 60S



NOTE:
1. SEE DRAWING M-5 FOR HEATING PIPING AND NEW KITCHEN TRIM HEATING COIL
2. SEE DRAWING M-4 FOR GAS PIPING TO NEW RTU
3. PLUMBING FOR BF WASHROOM IN PHASE 1 TO BE TEMPORARILY CONNECTED TO EXT'G SANITARY UNTIL NEW MAIN IS PROVIDED UNDER PHASE 2. CONNECTIONS THEN TO BE MOVED TO NEW SAN AS SHOWN.

GROUND FLOOR PLAN

NO.	REVISIONS	DATE
10.		
9.		
8.		
7.		
6.		
5.		
4.	ISSUED FOR TENDER	01-FEB-2018
3.	ISSUED FOR PRICING	22-DEC-2017
2.	ISSUED FOR PHASE II PERMIT	27-OCT-2017
1.	ISSUED FOR PERMIT (CITY PERMIT NUMBER: ??)	2-Feb-18

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7-Oct-14

PROJECT BOYS & GIRLS CLUB RENOVATION
Prince of Wales

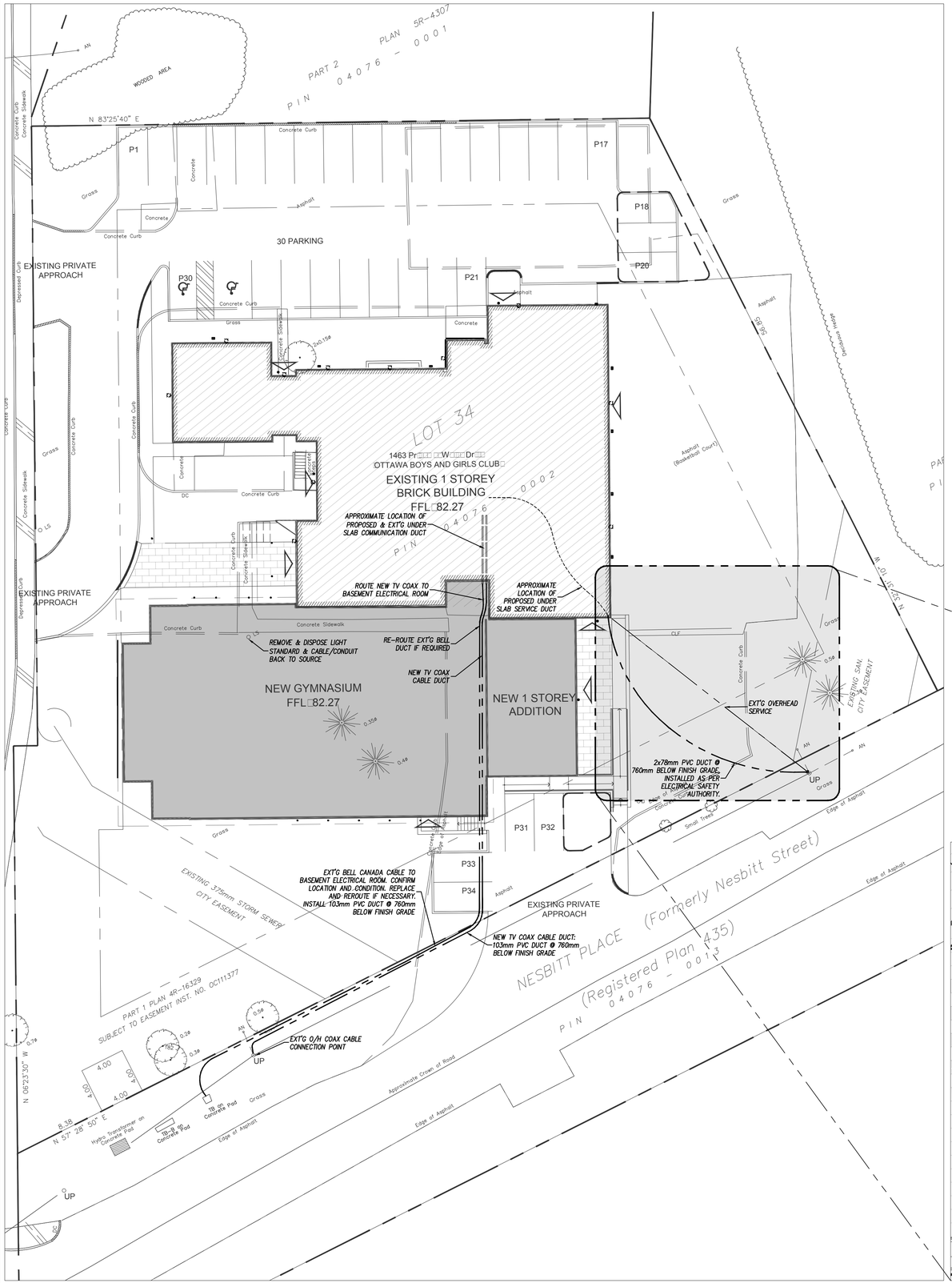
DRAWING GROUND
PLUMBING MODIFICATIONS

REGISTERED PROFESSIONAL ENGINEER
J. R. BEKOLAY
2-Feb-18
PROVINCE OF ONTARIO

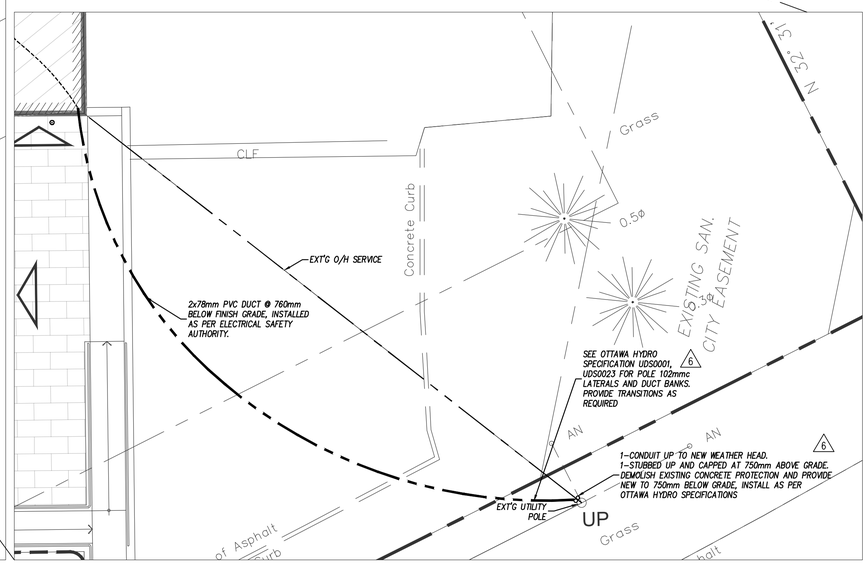
DATE	SCALE
###	1:100
DRAWN BY	DESIGNED BY
Staff	JRB
JOB NO.	CHECKED BY
2017-17	

DRAWING NO.
M-6 of 6

2018-02-02 3:35:39 PM



1 E-1 ELECTRICAL SITE PLAN
1:200



2 E-1 POWER DUCT ROUTE
1:100

Legend

	600x1200 Recessed Fluorescent Troffer		Exit Light – Ceiling Mount Directional Arrows as Indicated
	600x1200 Recessed Fluorescent Troffer – Night Light		Exit Light – Wall Mount Directional Arrows as Indicated
	300x1200 Surface Mounted Fluorescent Wrap Around		Emergency Battery Unit (2 Integral Heads Shown)
	Recessed Downlight		Remote Emergency Light (Dual Head Shown)
	Wall Mounted Fluorescent Strip		Surface Mounted Panelboard
	Cove Mounted Fluorescent Strip		Flush Mounted Panelboard
	600x600 Recessed LED Troffer		Fire Alarm Panel
	600x600 Recessed LED Troffer – Night Light		Fire Alarm Signal Horn – (Shown with Strobe)
	Suspended LED Luminaire		Heat Detector
	Surface mounted LED Downlight		Smoke Detector
	Recessed LED Downlight	F	Fire alarm manual pull station
	Wall Mounted LED		
	Recessed LED Strip	GFI	Ground Fault Interrupted Receptacle or Circuit
	Under Counter LED Strip	R	Relocate/Relocated
	Data Outlet	E	Existing To Remain
	Telephone Outlet	D	To be Removed
	Combination Telephone/Data Outlet	N	New
	Coax TV		Lighting Control
	Duplex Receptacle		Light Switch
30	Special Receptacle Outlet 120V (30 Amp Shown) L=Locking L5-30R		Double-Gang Light Switch
	Duplex Receptacle Mounted Above Counter or at Counter Height		Multi-Gang Light Switch
	Receptacle at High level	OS	Ceiling Mounted Occupancy Sensing Lighting Control Station
	Junction Box	OS	Wall Mounted Occupancy Sensing Lighting Control Station
	Direct Connection	LC	User Lighting Controller device
	Motor Connection	RC	Room Controller Relay device
	Multi-Outlet Assembly	PC	Photocell Controller device
	Automatic Door Opener Push Button	TC	Time Clock Controller device
	Emergency Call Alarm Local Indicating Dome Light		
	Emergency Call Alarm Monitoring Station	D	Curtain Divider Motor Controller
P	Emergency Call Alarm Local Alarm Station	C	Ceiling Fan Controller

** SEE LUMINAIRE SCHEDULES FOR PROJECT SPECIFIC FIXTURES **

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HOBIN ARCHITECTURE

N

NO.	REVISIONS	DATE
10.		
9.		
8.		
7.		
6.	ISSUED FOR TENDER	2018-02-06
5.	ISSUED FOR LIGHTING SUBSIDY	2018-01-25
4.	ISSUED FOR PRICING	2017-12-22
3.	ISSUED FOR BUILDING PERMIT (PHASE 2)	2017-10-26
2.	ISSUED FOR BUILDING PERMIT (PHASE 1)	2017-10-10
1.	ISSUED FOR REVIEW/COORDINATION	2017-10-05

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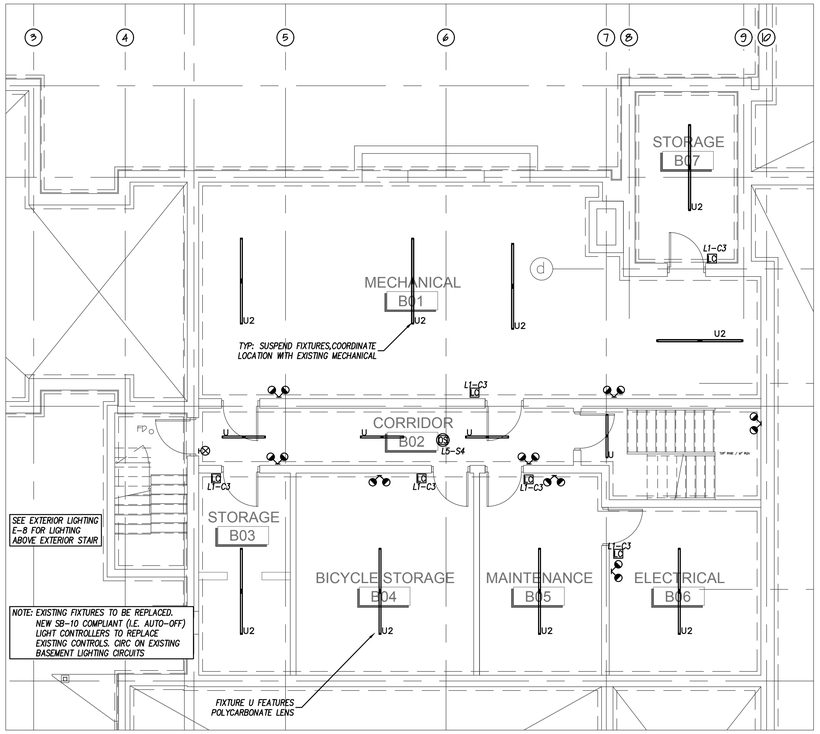
PROJECT
Prince of Wales Clubhouse Boys and Girls Club Renovation

DRAWING
Electrical Site Plan

LICENSED PROFESSIONAL ENGINEER
C. L. WOOD
Feb. 06, 2018
PROVINCE OF ONTARIO

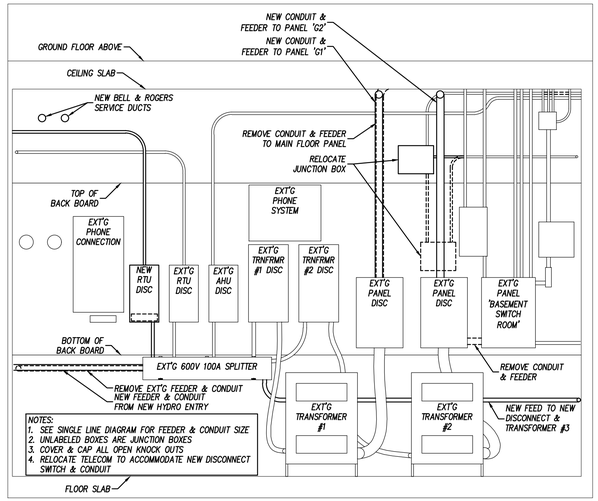
DATE	5-Feb-18
SCALE	AS NOTED
DRAWN BY	MAG
DESIGNED BY	CLW
JOB NO.	2017-17
CHECKED BY	CLW
DRAWING NO.	E-1 of 8



3 E-2 PROPOSED BASEMENT LIGHTING PART PLAN 6

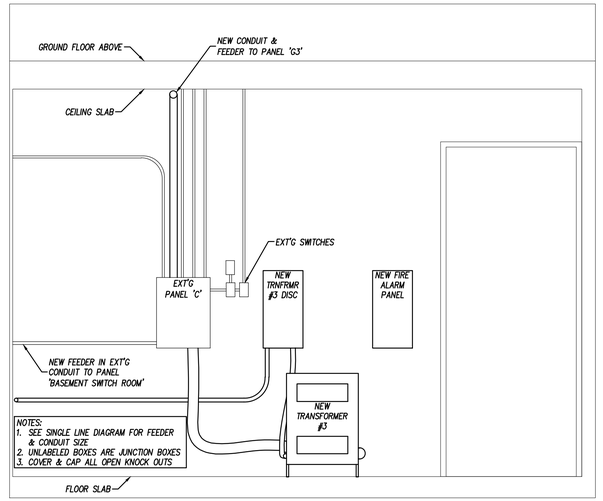
SCALE: 1:75

EMERGENCY LIGHTING UNITS CONNECTED FROM BATTERY UNIT ON GROUND FLOOR



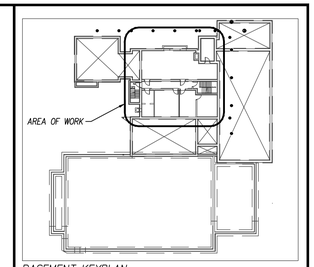
4 E-2 ELECTRICAL ROOM ELEVATION-1

SCALE: 1:20



5 E-2 ELECTRICAL ROOM ELEVATION-2

SCALE: 1:20



BASEMENT KEYPLAN

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HOBIN ARCHITECTURE

N

NO.	REVISIONS	DATE
10.		
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6.	ISSUED FOR TENDER	2018-02-06
5.	ISSUED FOR LIGHTING SUBSIDY	2018-01-25
4.	ISSUED FOR PRICING	2017-12-22
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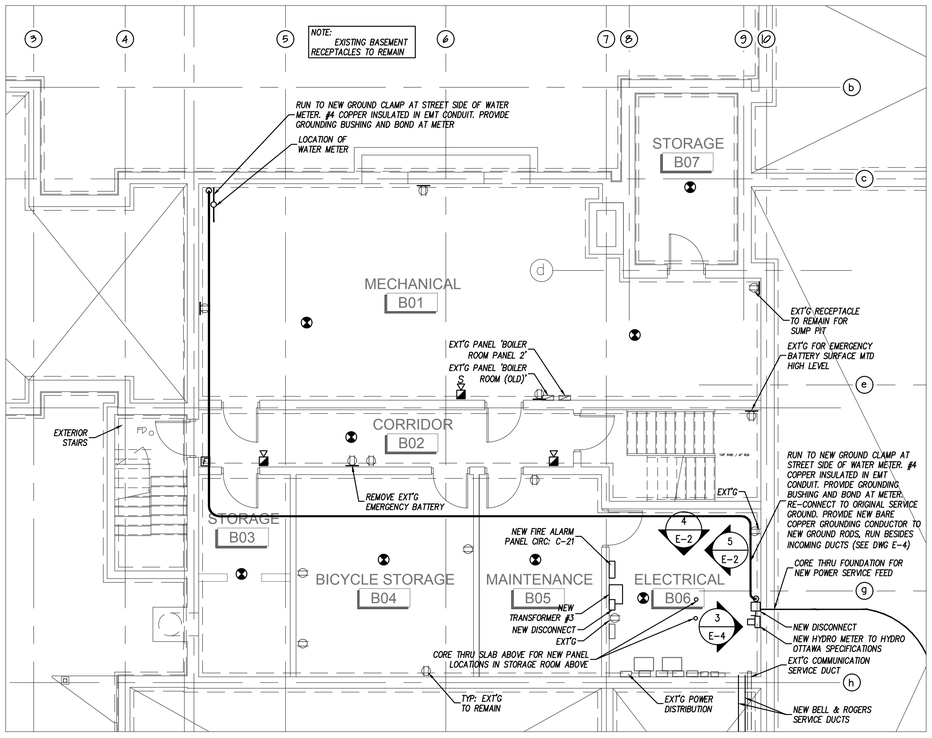
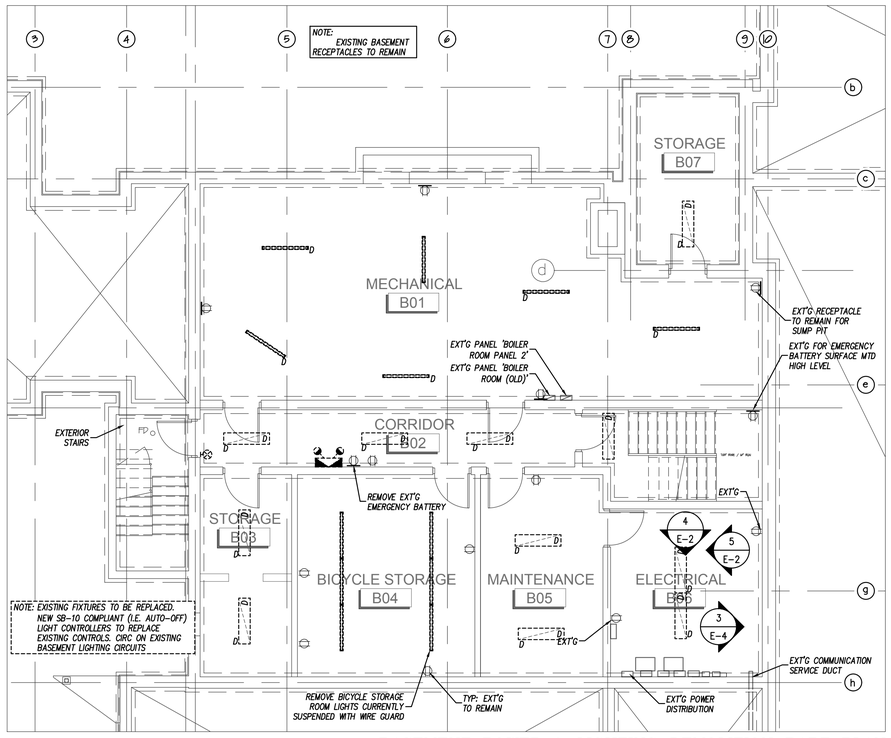
2.	ISSUED FOR BUILDING PERMIT (PHASE 1)	2017-10-10
1.	ISSUED FOR REVIEW/COORDINATION	2017-10-05



2 E-2 PROPOSED BASEMENT POWER & SYSTEMS PART PLAN

SCALE: 1:75



1 E-2 BASEMENT POWER & LIGHTING DEMOLITION PART PLAN

SCALE: 1:75

EXISTING RECEPTACLES SHOWN TO REMAIN

NOTE: BASEMENT RENOVATION WORK COVERED WITH PHASE 1 (RENOVATION).

PLANS PROVIDED WITH PHASE 2 (ADDITION) TO PROVIDE INFORMATION FOR CONNECTION OF NEW ELECTRICAL DEVICES TO EXISTING.

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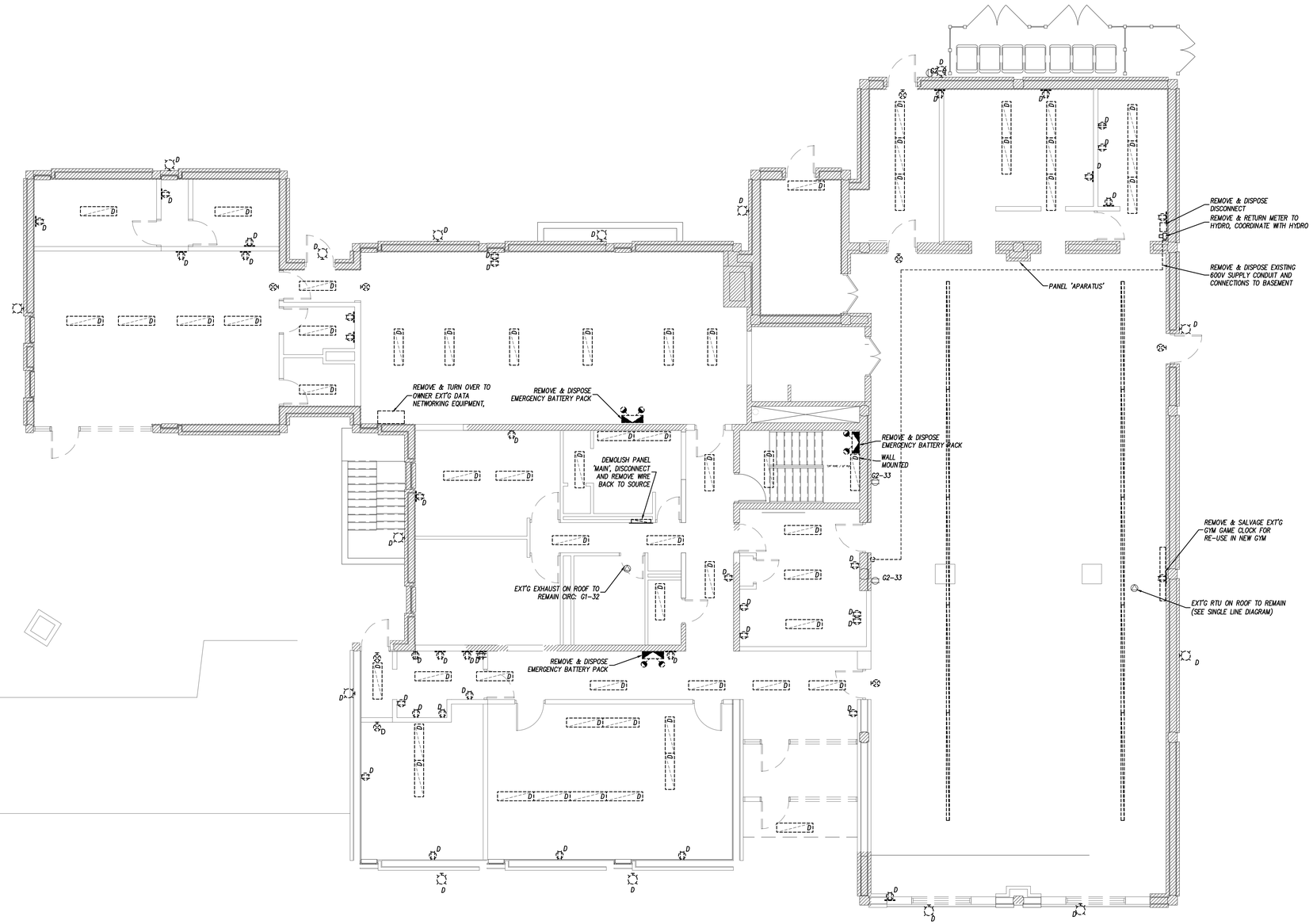
PROJECT: Boys & Girls Club Renovation
Price of Wales Clubhouse

DRAWING: BASEMENT PART PLANS, DEMOLITION & NEW POWER & LIGHTING

LICENSED PROFESSIONAL ENGINEER
C. L. WOOD
Feb. 06, 2018
PROVINCE OF ONTARIO

DATE: 5-Feb-18	SCALE: AS NOTED
DRAWN BY: MAG	DESIGNED BY: CLW
JOB NO.: 2017-017	CHECKED BY: CLW
DRAWING NO.: E-2 of 8	



NOTE: GROUND FLOOR DEMOLITION WORK COVERED WITH PHASE 1 (RENOVATION).

PLANS PROVIDED WITH PHASE 2 (ADDITION) TO PROVIDE INFORMATION FOR DEMOLITION OF DEVICES ON SOUTH WALL (WALLS BEING REMOVED)

1/E-3 GROUND FLOOR POWER & LIGHTING DEMOLITION PLAN

1:75

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HOBIN ARCHITECTURE

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NO.	REVISIONS	DATE
10.		
9.		
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6.	ISSUED FOR TENDER	2018-02-06
5.	ISSUED FOR LIGHTING SUBSIDY	2018-01-25
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3.	ISSUED FOR BUILDING PERMIT (PHASE 2)	2017-10-26
2.	ISSUED FOR BUILDING PERMIT (PHASE 1)	2017-10-10
1.	ISSUED FOR REVIEW/COORDINATION	2017-10-05

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PROJECT: Boys & Girls Club Renovation
Prince of Wales Club House

DRAWING: Ground Floor Power & Lighting Demolition Plan

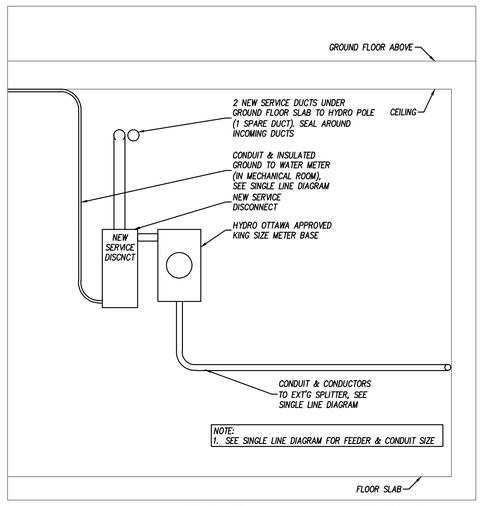
LICENSED PROFESSIONAL ENGINEER
C. L. WOOD
Feb. 06, 2018
PROVINCE OF ONTARIO

DATE	SCALE
5-Feb-18	AS NOTED
DRAWN BY	DESIGNED BY
MAC	CLW
JOB NO.	CHECKED BY
2017-17	CLW

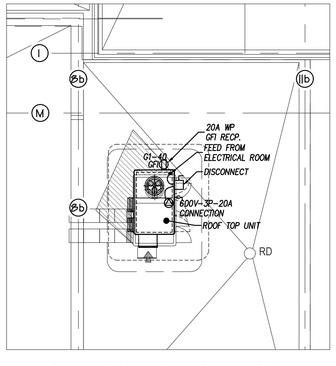
DRAWING NO.

E-3 of 8

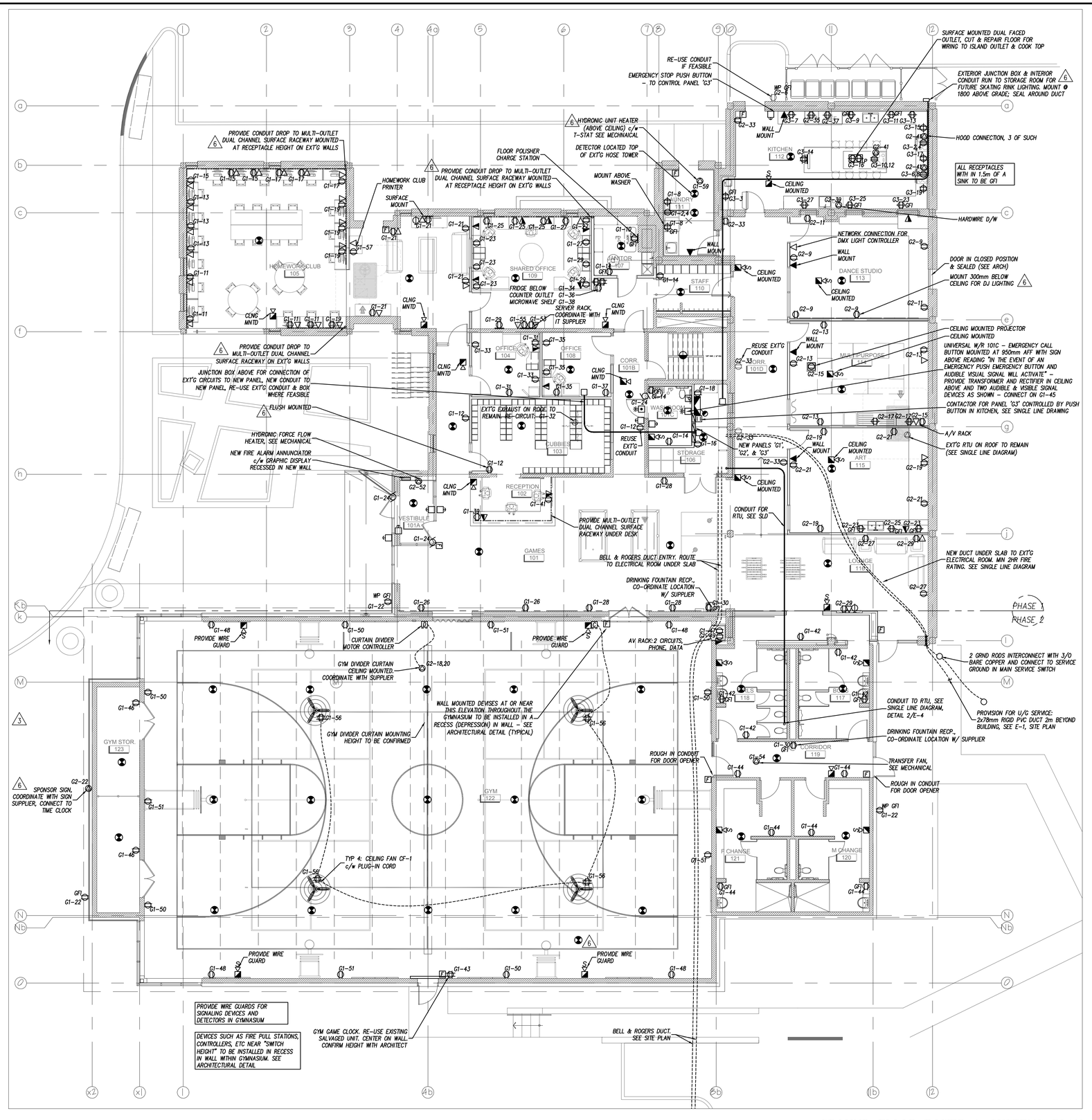
NEW WIRING TO ALL LIGHTING AND POWER IN RENOVATED AREA. REUSE EXISTING CONDUIT WERE FEASIBLE



3 E-4 ELECTRICAL ROOM ELEVATION-3
1:20



2 E-4 GYM RTU OVER CHANGE ROOMS
1:100



1 E-4 GROUND FLOOR POWER & SYSTEMS PLAN
1:100

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HOBIN ARCHITECTURE

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NO.	REVISIONS	DATE
10.		
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6.	ISSUED FOR TENDER	2018-02-06
5.	ISSUED FOR LIGHTING SUBSIDY	2018-01-25
4.	ISSUED FOR PRICING	2017-12-22
3.	ISSUED FOR BILDING PERMIT REVISION	2017-12-20
2.	ISSUED FOR BUILDING PERMIT (PHASE 2)	2017-10-26
1.	ISSUED FOR REVIEW/COORDINATION	2017-10-05

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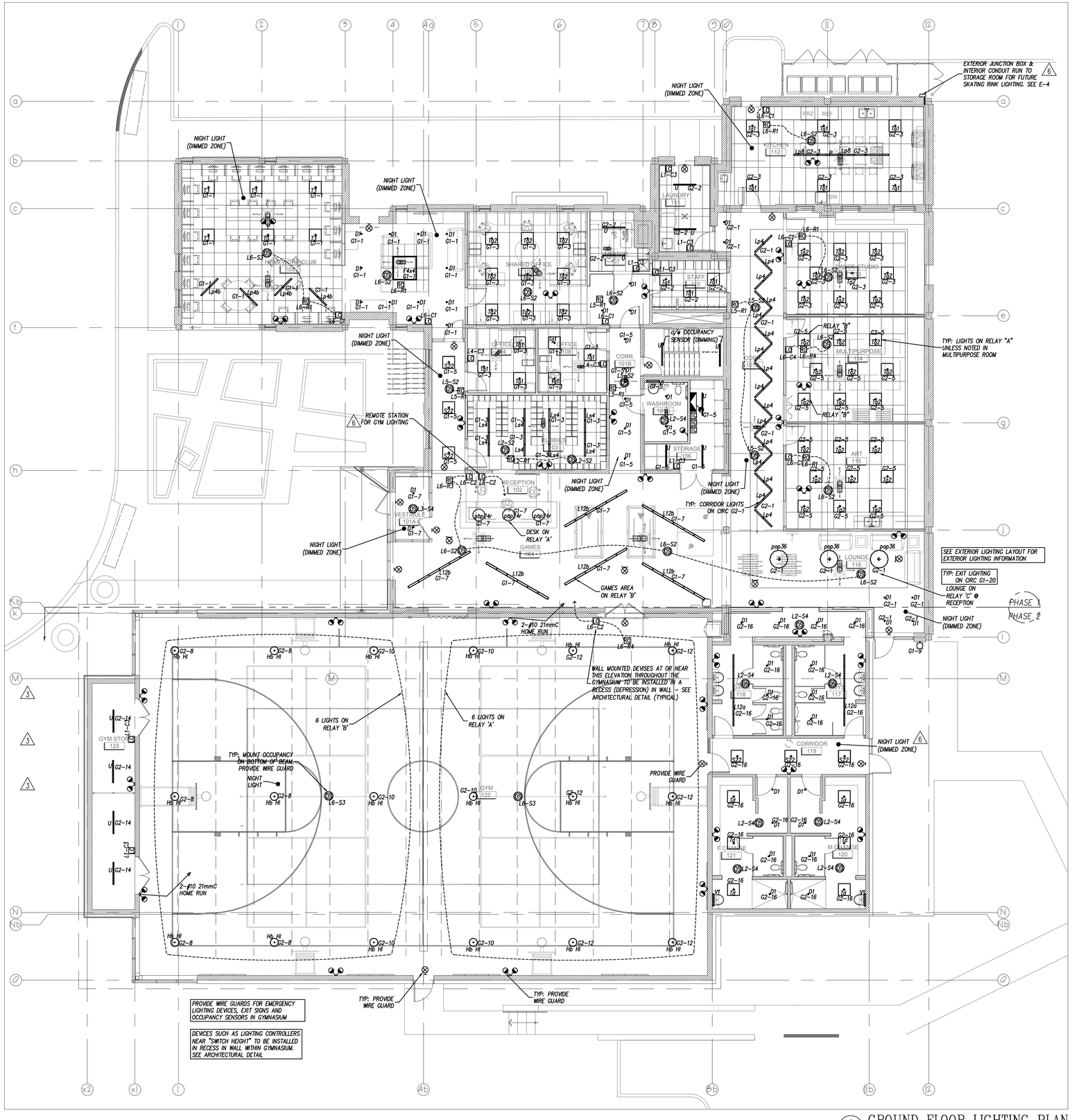
PROJECT: Boys and Girls Club
Prince of Wales Clubhouse

DRAWING: Proposed Ground Floor Power & Systems Plan

LICENSED PROFESSIONAL ENGINEER PROVINCE OF ONTARIO
C. L. WOOD
Feb. 06, 2018

DATE	SCALE
5-Feb-18	AS NOTED
DRAWN BY: MAG	DESIGNED BY: CLW
JOB NO.: 2017-017	CHECKED BY: CLW
DRAWING NO.: E-4 of 8	



NEW WIRING TO ALL LIGHTING AND POWER IN RENOVATED AREA. REUSE EXISTING CONDUIT WERE FEASIBLE

SIZE EMERGENCY LIGHTING CONDUCTORS IN ACCORDANCE WITH ONTARIO ELECTRICAL CODE TABLE D4

PROVIDE WIRE GUARDS FOR EMERGENCY LIGHTING DEVICES, EXIT SIGNS AND OCCUPANCY SENSORS IN GYMNASIUM

DEVICES SUCH AS LIGHTING CONTROLLERS NEAR "SWITCH HEIGHT" TO BE INSTALLED IN RECESS IN WALL WITHIN GYMNASIUM. SEE ARCHITECTURAL DETAIL

1 / E-5 GROUND FLOOR LIGHTING PLAN

1:100

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PROJECT: Boys & Girls Club Renovation
Prince of Wales Clubhouse

DRAWING: Proposed Ground Floor
Lighting Plan

LICENSED PROFESSIONAL ENGINEER
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Feb 06, 2018
PROVINCE OF ONTARIO

DATE	SCALE
5-Feb-18	AS NOTED
DRAWN BY: MAG	DESIGNED BY: CLW
JOB NO.: 2017-009	CHECKED BY: CLW

DRAWING NO.

E-5 of 8

PANEL MAIN FLOOR PANEL

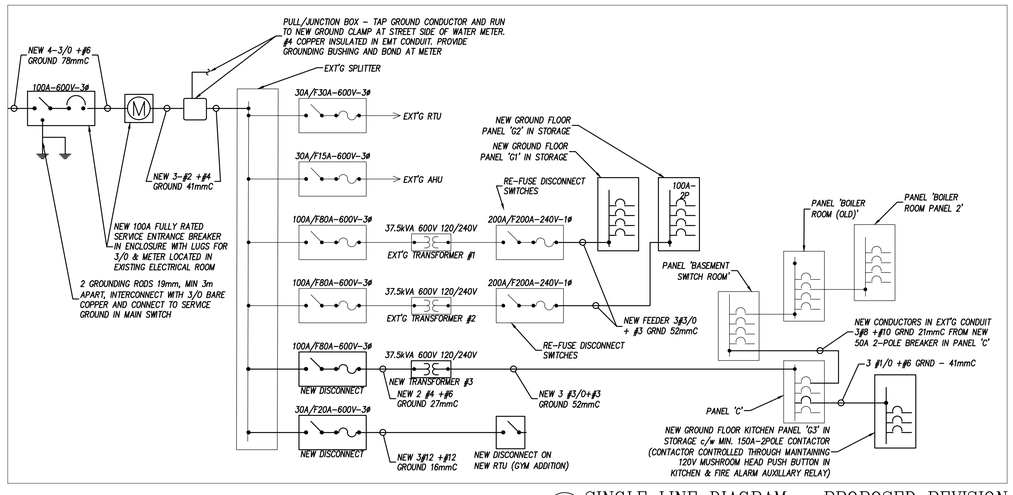
120/240 VOLT, 1 PH, 3 W.
200 AMP. MAINS
SURFACE MOUNTED

REMOVED & DISPOSE PANEL, RE-USE CONDUITS WHERE POSSIBLE

S.N.

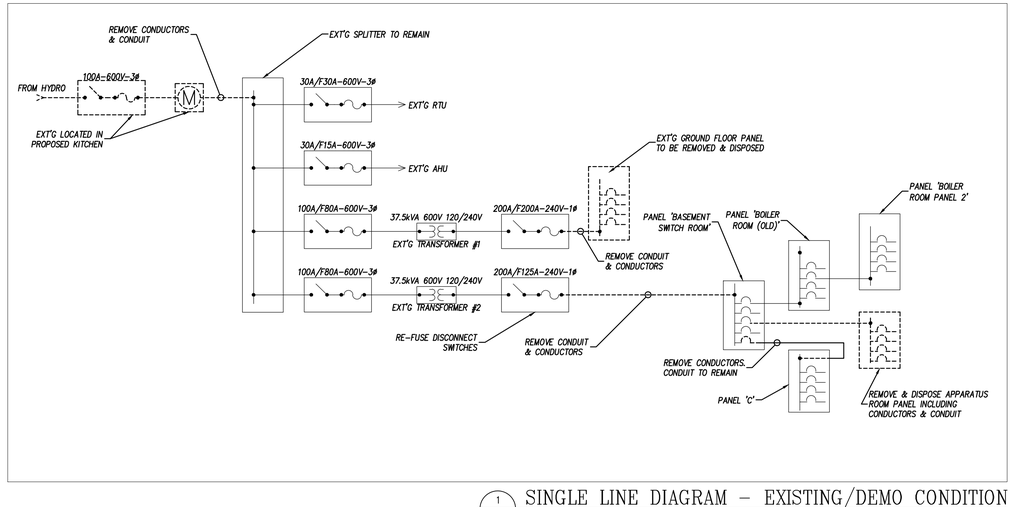
OFFICE PLUGS	15/1	2/15		FORCE FLO UNIT
HOMWWORK PLUGS	15/3	4/15		DORMITORY LIGHTS
SCORE CLOCK	15/5	6/15		DORMITORY LIGHTS
HOSE STORAGE LIGHTS	15/7	8/15		DINING ROOM PLUGS
GIRLS WSH RM MAINT OFFICE	15/9	10/15		DINING ROOM PLUGS
CORRIDOR LIGHTS	15/11	12/15		spre
CORREYS OFFICE	15/13	14/15		DANS OFFICE
TOURIST BUREAU LIGHTS	15/15	16/15		FLOOD LIGHTS ON ROOF
TOURIST BUREAU MISC. LIGHTS	15/17	18/15		WATCH ROOM
TOURIST BUREAU EXHAUST FAN	15/19	20/15		TOMS COMPUTER
KITCHEN LIGHTS	15/21	22/15		CORRIDOR LIGHTS
DINING ROOM LIGHTS	15/23	24		UNIT HEATER
SPARE	15/25	26/15		HWK ROOM NORTH WALL PLUGS
SPECIAL PLUG WATHRM	15/27	28/15		GYM PLUGS
SPARE	15/29	30/15		WOMENS WASHROOM FAN
TOURSIT BUREAU PLUGS	15/31	32/15		MENS WASHROOM FAN
TOURSIT BUREAU PLUGS	15/33	34/15		GYM LIGHTS
KITCHEN PLUG	15/35	36/15		GYM LIGHTS
KITCHEN PLUG	15/37	38/15		APPARTUS RM LIGHTS
PEPSI MACHINE	15/39	40		
WATER COOLER	15/41	42/50		STOVE

NEW WIRING TO ALL LIGHTING AND POWER IN RENOVATED AREA. REUSE EXISTING CONDUIT WERE FEASIBLE



2 E-6 SINGLE LINE DIAGRAM - PROPOSED REVISION

SCALE: N.T.S.



1 E-6 SINGLE LINE DIAGRAM - EXISTING/DEMO CONDITION

SCALE: N.T.S.

PANEL BASEMENT SWITCH ROOM

120/240 VOLT, 1 PH, 3 W.
140 AMP. MAINS
SURFACE MOUNTED

S.N.

CAR PLGS	15/1	2/15		BASEMENT LIGHTS
BELL TEL PLUG	15/3	4/15		BASEMENT LIGHTS
BASEMENT PLUG	15/5	6/15		office plugs
BASEMENT PLUG	15/7	8		
EMERG LIGHT	15/9	10/50		APARATUS RM PANEL
REPLACE BREAKER WITH BLANK FILLERS	11	12/15		DOOR OPERATOR
PANEL C	40/13	14/15		OUTDOOR LIGHTS
OUTDOOR LIGHTS	15/15	16		
OUTDOOR LIGHTS	15/17	18/60		BOILER ROOM PANEL

TO BE REMOVED

REMOVE & DISPOSE CABLE BACK TO PANEL OF DEMOLISHED CIRCUITS. PROVIDE REVISED PANEL SCHEDULE & CIRCUIT LABELS

LOCATED AT REAR OF OLD 'GYM' IN OLD TRUCK GARAGE, REMOVE & DISPOSE PANEL, CONDUIT & CABLES BACK TO SOURCE

PANEL APARATUS RM

120/240 VOLT, 1 PH, 3 W.
70 AMP. MAINS
RECESSED MOUNTED

S.N.

EXIT SIGNS	15/1	2/20		KITCHEN PLUGS
EMG LIGHTS	15/3	4/15		DISHWASHER
BACK ROOM	15/5	6/15		SPARE
ARTS ROOM EXIT SIGN	15/7	8/15		BACK ROOM
SPACE	9	10		SPACE
SPACE	11	12		SPACE

PANEL BOILER ROOM (OLD)

120/240 VOLT, 1 PH, 3 W.
70 AMP. MAINS
SURFACE MOUNTED

EXT'G PANEL TO REMAIN AS CONFIGURED

S.N.

CONTROL TRANSFORMER	15/1	2/15		BOILER RM LIGHTS
EXIT BATTERY LIGHTS	15/3	4/15		FRIDGE PLUG
BOILER RM PLUGS	15/5	6/15		SUMP PUMP
PANEL PLUG	15/7	8/20		UNIT HEATER & EXHAUST FAN
	9	10		
SYSTEM CIRC PUMP	15/11	12/60		PANEL 2

PANEL 2 - BOILER RM

120/240 VOLT, 1 PH, 3 W.
100 AMP. MAINS
SURFACE MOUNTED

EXT'G PANEL TO REMAIN AS CONFIGURED

S.N.

BOILER	15/1	2		SPACE
PUMP 1	20/3	4		SPACE
PUMP 2	20/5	6		SPACE
PUMP 3	20/7	8		SPACE
TEKMARS & CONTROLS	15/9	10		SPACE
SPARE	15/11	12		SPACE
SSPARE	15/13	14		SPACE
SPACE	15	16		SPACE
SPACE	17	18		SPACE
SPACE	19	20		SPACE
SPACE	21	22		SPACE
SPACE	23	24		SPACE

PANEL 'C' EXT'G

120/240 VOLT, 1 PH, 3 W.
225 AMP. MAINS
SURFACE MOUNTED

EXT'G PANEL 'C' TO BE RE-FED FROM NEW 37.5kVA TRANSFORMER

S.N.

	1	2		
CONDENSOR	50/3	4/50		CONDENSOR
A/C UNIT 15A 5A	DBL/5	6		
15A 5B				
15A 7A	DBL/7	8/30		ROOF TOP UNIT
15A 7B				
15A 9A	DBL/9	10		
15A 9B				
	15/11	12/15		AC UNIT
	13	14		
	30/15	16/15		COUNTER RECEPT.
DEDICATED 15-20R COMPUTERS	20/17	18		SPACE
DEDICATED 15-20R COMPUTERS	20/19	20		SPACE
SPACE	21	22		SPACE
SPACE	23	24		SPACE

REMOVE & DISPOSE CABLE BACK TO PANEL OF DEMOLISHED CIRCUITS. PROVIDE REVISED PANEL SCHEDULE & CIRCUIT LABELS

PANEL 'C' REVISED

120/240 VOLT, 1 PH, 3 W.
225 AMP. MAINS
SURFACE MOUNTED

EXT'G PANEL 'C' TO BE RE-FED FROM NEW 37.5kVA TRANSFORMER

S.N.

	1	2		
CONDENSOR	50/3	4/50		CONDENSOR
A/C UNIT 15A 5A	DBL/5	6		
15A 5B				
15A 7A	DBL/7	8/30		ROOF TOP UNIT
15A 7B				
15A 9A	DBL/9	10		
15A 9B				
	15/11	12/15		AC UNIT
	13	14		
	30/15	16/15		COUNTER RECEPT.
DEDICATED 15-20R COMPUTERS	20/17	18		NEW BREAKER
DEDICATED 15-20R COMPUTERS	20/19	20/50		PANEL 'BASEMENT SWITCH ROOM'
FIRE ALARM PANEL	15/21	22		NEW BREAKER
NEW BREAKER SPACE	15/23	24/125		PANEL 'G3'

REMOVE & DISPOSE CABLE BACK TO PANEL OF DEMOLISHED CIRCUITS. PROVIDE REVISED PANEL SCHEDULE & CIRCUIT LABELS

PANEL 'G2'

120/240 VOLT, 1 PH, 3 W.
225 AMP. MAINS
SURFACE MOUNTED

S.N.

LIGHT CORRIDOR/LOUNGE	748w	15/1	1/15		LIGHT LAUNDRY/STAFF
LIGHT KITCHEN/DANCE	428w	15/3	4/15		DOOR OPERATOR
LIGHT ART/MULTI-PURPOSE	576w	15/5	6/20		EXTERIOR RECEPTACLES
LIGHTS ENTRY CANOPY	144w	15/7	8/15	960w	LIGHTS GYM
DANCE STUDIO		15/9	10/15	960w	LIGHTS GYM
DANCE STUDIO		15/11	12/15	960w	LIGHTS GYM
MULTI-PURPOSE		15/13	14/15	240w	LIGHTS GYM STORAGE
MULTI-PURPOSE		15/15	16/15	555w	LIGHTS W/C, CHANGE RM
MULTI-PURPOSE		15/17	18		
ART		15/19	20/15	2HP	GYM DIVIDER MOTOR
ART		15/21	22/15		SPONSOR SIGNAGE
ART		15/23	24/15		SPARE
ART		15/25	26/15		SPARE
LOUNGE		15/27	28/15		SPARE
LOUNGE		15/29	30/15		SPARE
METER PLUG		15/31	32/15		SPARE
CORRIDOR		15/33	34/15		SPARE
KITCHEN FREEZER		15/35	36		SPACE
KITCHEN FRIDGE		15/37	38		SPACE
DISHWASHER		20/39	40		SPACE
KITCHEN EXHUAST		15/41	42		SPACE

PANEL 'G1'

120/240 VOLT, 3 PH, 4 W.
225 AMP. MAINS
SURFACE MOUNTED

S.N.

LIGHT HOMEWORK CLUB	465	15/1	2	
LIGHT OFFICE/CUBBIES	1105	15/3	4/30	LAUNDRY DRYER
LIGHT CORRIDOR/W.C./STORAGE	307	15/5	6/15	WASHER
LIGHT GAMES/RECEPTION	505	15/7	8/15	LAUNDRY COUNTER
LIGHTS GYM EXTERIOR		15/9	10/15	JANITOR FLOOR POLISHER
HOME WORK RECEPTACLE		15/11	12/15	CORRIDOR RECEPTACLE
HOME WORK RECEPTACLE		15/13	14/15	GENERAL RECEPTACLES
HOME WORK RECEPTACLE		15/15	16/15	PANEL RECEPTACLE
HOME WORK RECEPTACLE		15/17	18/15	EMERGENCY BATTERY
HOME WORK RECEPTACLE		15/19	20/15	EXIT SIGNS
HOME WORK RECEPTACLE		15/21	22/15	EXTERIOR RECEPTACLE
SHARED OFFICE RECEPTACLE		15/23	24/15	DOOR OPERATOR
SHARED OFFICE RECEPTACLE		15/25	26/15	GAMES ROOM
SHARED OFFICE RECEPTACLE		15/27	28/15	GAMES ROOM
SHARED OFFICE RECEPTACLE		15/29	30/15	WATER FOUNTAIN
OFFICE RECEPTACLE		15/31	32/15	EXT'G WASHROOM EXAHUST
OFFICE RECEPTACLE		15/33	34/15	STAFF FRIDGE
OFFICE RECEPTACLE		15/35	36/15	STAFF COUNTER
OFFICE RECEPTACLE		15/37	38/15	STAFF MICROWAVE
RECEPTION RECEPTACLE		15/39	40/20	RTU GFI
RECEPTION & TV RECEPTACLE		15/41	42/15	WASHROOM RECEPTICLES
GYM GAME CLOCK		15/43	44/15	CHANGE ROOM RECEPTACLES
W/C CALL SYSTEM		15/45	46/15	GYM STORE ROOM
GYM AUDIO SYSTEM		15/47	48/15	GYM RECEPTICLES
GYM AUDIO SYSTEM		15/49	50/15	GYM RECEPTICLES
GYM RECEPTICLES		15/51	52/15	VESTIBULE HEATER
SERVER RACK		15/53	54/15	TRANSFER FAN
SERVER RACK		15/55	56/15	300 GYMNASIUM CEILING FANS
HOME WORK PRINTER		15/57	58/15	SKATING RINK LIGHT (FUTURE)
TOWER UNIT HEATER		15/59	60	SPACE
SPACE		61	62	SPACE
SPACE		63	64	SPACE
SPACE		65	66	SPACE

NEW GROUND FLOOR KITCHEN PANEL 'G3' IN STORAGE c/w 125A-2POLE CONTACTOR (CONTACTOR CONTROLLED THROUGH MAINTAINING 120V MUSHROOM HEAD PUSH BUTTON IN KITCHEN & FIRE ALARM AUXILIARY RELAY)

PANEL 'G3'

120/240 VOLT, 1 PH, 3 W.
225 AMP. MAINS
SURFACE MOUNTED

S.N.

KITCHEN COUNTER		20/1	2		
KITCHEN COUNTER		20/3	4/40	13.8kW	RANGE 1
KITCHEN COUNTER		20/5	6		
KITCHEN COUNTER		20/7	8/40	13.8kW	RANGE 2
KITCHEN COUNTER		20/9	10		
KITCHEN COUNTER		20/11	12/40	8kW	ISLAND COOK TOP
KITCHEN COUNTER		20/13	14/20		KITCHEN ISLAND
KITCHEN COUNTER		20/15	16/20		KITCHEN ISLAND
KITCHEN COUNTER		20/17	18/20		SPARE
KITCHEN COUNTER		20/19	20/20		SPARE
KITCHEN COUNTER		20/21	22/15		SPARE
KITCHEN COUNTER		20/23	24/15		SPARE
KITCHEN COUNTER		20/25	26		SPACE
KITCHEN COUNTER		20/27	28		SPACE
SPARE		20/29	30		SPACE

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HOBIN ARCHITECTURE

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NO.	REVISIONS	DATE
10.		
9.		
8.		
7.		
6.	ISSUED FOR TENDER	2018-02-06
5.	ISSUED FOR LIGHTING SUBSIDY	2018-01-25
4.	ISSUED FOR PRICING	2017-12-22
3.	ISSUED FOR BUILDING PERMIT (PHASE 2)	2017-10-26
2.	ISSUED FOR BUILDING PERMIT (PHASE 1)	2017-10-10
1.	ISSUED FOR REVIEW/COORDINATION	2017-10-05

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6-Feb-18

PROJECT: Boys & Girls Club Renovation
Prince of Wales Clubhouse

DRAWING: Panel Schedules
Single Line Diagram

LICENSED PROFESSIONAL ENGINEER
C. L. WOOD
Feb. 06, 2018
PROVINCE OF ONTARIO

DATE	5-Feb-18	SCALE	AS NOTED
DRAWN BY	MAG	DESIGNED BY	CLW
JOB NO.	2017-017	CHECKED BY	CLW
DRAWING NO.	E-6 of 8		

Electrical Specifications Boys & Girls Club
General Instructions:

1. Repair and make good all walls, ceilings, etc. cut under this division.
2. Protect existing work and equipment during construction.
3. Test all system components for proper operation and safety.

General Demolition Notes:

1. Removals include but are not limited to: devices, raceways, outlet boxes, branch wiring and all associated conduit and wire. All associated removals such as wiring, boxes, etc. to be removed back to source.
2. Unless otherwise indicated, all equipment and material removed becomes the property of the contractor and shall be removed from site.
3. Maintain, retain, and make good as required all existing branch wiring, feeders, etc. which pass through the renovation and demolition areas.
4. For abandoned outlets provide suitably size stainless steel blank cover plates.

Specification Notes:
1. General
.1 Do complete installation in accordance with the following: Ontario building code, Ontario electrical code, amendments and applicable local regulations c/w inspection certificate.
.2 Prior to tender, confirm site conditions and location of existing services.
.3 Review all construction documents and be familiar with general construction methods. Make provisions in the form of rated enclosures to maintain all fire separations.
.4 Drawings indicate general location, quantity and type of outlets for electrical services only. Do not scale.
.5 Review mechanical shop drawings; confirm voltage, current, and connection requirements prior to wiring installation.
.6 Submit all plans required by the inspection authority for approval. Furnish inspection certificate, prior to final payment, to show installed work conforms with specification and regulations. Pay all fees and permit costs.
.7 Submit shop drawings to the engineer for approval. Provide shop drawings of all equipment and devices. Include details descriptions and instructions fully describing the equipment or system including how it is installed and operates.
.8 Upon completion of work provide markup prints describing as-built conditions and 3 copies of operating and maintenance instruction manuals.
.9 Allow for relocation of outlets up to 3000mm prior to installation at no extra cost..10 All wiring devices to be specification grade.
.11 Install electrical equipment at the following heights unless otherwise indicated or directed otherwise or indicated by design drawings.
(a) Local switches and dimmer switches: 1220mm
(b) General receptacles: 400mm
(c) Receptacles above counter: 175mm above backsplash
(d) Panelboards: 1980mm from the top of panelboard to floor – or as detailed
(e) Telecom and cable TV outlets: 400mm
.12 As required by OBC Division B Article 4.1.18, Elements of Structures, Non-Structural Components and Equipment, include seismic restraints for all electrical equipment and components, installed under this Contract, where not directly and rigidly attached to the structure. Provide suitable pre-engineered systems and where necessary and required by The Authority Having Jurisdiction, retain and pay for the services of a Professional Structural Engineer (registered in Ontario), to design, sign, and seal drawings for Seismic Restraints.
.13 EQUIVALENTS AND ALTERNATES:
.1 Manufacturer's names listed in these specifications set the standard for the material and where applicable energy efficiency requirements to comply with SB-10. They are not intended to exclude other manufactures from bidding with equivalent products.
.2 Products not meeting all design requirements are considered alternates and they will be rejected until the specified item or equivalents meeting the requirements acceptable to the engineer are provided.

2. Wiring Method
.1 Unless otherwise indicated on the drawings, or in this specification, wiring methods shall be:
(a) Conductors in electric metallic tubing where exposed and for home runs to panels; for concealed branch local wiring, multi-conductor armored cable is acceptable.
(b) Final connection to motors or other vibrating equipment with minimum 1000mm liquid tight flexible conduit.
(c) For surface wiring in finished masonry walls 'run' conduit vertically from ceiling accessible junction or pull box to surface outlet or multi outlet wireway.
(d) Conceal all new wiring in new construction except where there is no suspended ceiling.

.2 Provide pull strings in all empty conduit.
.3 Conductor material:
(a) Annealed commercial grade, 98% conductivity, copper.
(b) No.14 to No.10 awg – solid; No.8 and larger – stranded.
(c) 600V RW90, unless otherwise noted.
(d) Smallest conductor size allowed no.12 AWG over 50 Volts.
(e) In finished areas run wiring concealed.
(f) Branch circuits longer than 22.8m (75') upsize conductors to next AWG rating
.4 Run insulated grounding conductor in all conduits with current carrying conductors.

3. Outlet Boxes and Conduit Boxes
.1 For recessed installation Electro-galvanized steel single and multi gang flush device boxes for flush installation minimum 102MM square with extension and plaster rings as required.
.2 102MM square or octagonal outlet boxes for lighting fixture outlets.
.3 Flush outlet boxes for data and telecommications to be 102 mm x 102 mm x 78 mm deep with plaster ring to suit.
.4 For masonry electrogalvanized steel masonry single and multi gang boxes for devices flush mounted in exposed block walls.
.5 Surface mounted installations – For power, data and telecom on existing walls provide cast metal outlet box finished surface applications.

4. Multi-outlet surface wire ways
.1 For surface installation above and below work station counters and desks
.2 System to be dual channel with barrier one channel for installation of telephone and data outlets and one channel for 120 volt power outlets.
.3 System to be wiremold 4000 or equal
.4 Install with power and telecomm/data outlets where indicated.

5. Grounding
.1 Grounding equipment to CSA C22.2 No.41. Copper grounding conductors to CSA C22.1, section 10 (latest edition).
.2 Non-corroding accessories necessary for grounding system, type, size, material as indicated, including but not necessarily limited to: Grounding and bonding bushings; protective type clamps; bolted type conductor connectors; thermite welded type conductor connectors; bonding jumpers and straps; pressure wire connectors.
.3 Install complete permanent, continuous, system and circuit grounding systems.

6. Identification
.1 Identify source, voltage and load on all junction boxes. Use of indelible marker for these where concealed or in unfinished areas is acceptable.
.2 All conductors to be colour coded in accordance with CSA 22.1 – section 4. 036
.3 Provide typed, updated schedules in all panelboards.
.4 Provide lamicoid identification labels on all equipment.

7. Dry Type Transformers
.1 Low voltage, distribution type ANN Single phase with 600V primary– and 120/240V– 3wire secondary
.2 Primary and secondary windings – copper
.3 Standard taps – 2x2– 1/2% above and below normal
.4 Insulation – 150°C rise
.5 10kV BIL
.6 Efficiency – The higher of CSA standard C802.2 and ASHRAE 90.1
.7 Impedance – Minimum Value 2%
.8 Sound level – to CSA standard

8. Panelboards
.1 Breaker type panelboard to CSA C22.2 No. 29 with the following features:
(a) 250V branch panels: bus and breakers rated for 10,000A RMS symmetrical interrupting capacity.
(b) Main breaker, mains, number of circuits, and number and size of branch circuit breakers as indicated.
(c) Tin-plated copper bus with full size neutral.
(d) Equipment ground bus to match neutral bus. Bolted directly to panelboard enclosure.
(e) Mains suitable for bolt-on breakers.
(f) Finish: trim and door – baked grey enamel.
(g) Installation/mounting: flush or surface trim as indicated.
(h) Mount panelboards to 1980mm (6'–6") to top – or as detailed.
(i) Connect loads to circuits as indicated.
(j) Connect neutral conductors to common neutral bus with respective circuit(s) identified.
.2 Standard of acceptance: Eaton, GE, Siemens, Schneider

9. Moulded Case Circuit Breakers
.1 Provide moulded case circuit breakers to CSA 22.2 No. 5.1, with the following features:
(a) Provide automatic moulded case circuit breakers in panelboards as indicated. Breaker sizes and trips as scheduled, or indicated on the one-line diagram.
(b) Use bolt-on moulded case circuit breakers, quick-make, quick-break type for manual and automatic operation with temperature compensation for 40°c (104°f) ambient.
(c) Breakers shall be common trips with single handle for multi-pole application.
(d) In panelboards, moulded case circuit breakers to operate automatically by means of thermal and magnetic tripping devices to provide inverse time current tripping under overload conditions, and instantaneous magnetic tripping for circuit protection.
(e) Magnetic instantaneous trip elements to operate only when the value of current reaches 10 to 12 times the breaker trip setting.
(f) Breaker minimum interrupting capacity (symmetrical RMS values) shall be not less than the following: 240V – 10KA.
(g) Motor control magnetic starters shall be provided with motor circuit interrupter breakers – 250V, 3 pole, 10KA interrupting capacity, magnetic trip only, adjustable (8 settings), with locking pin.
.2 Standard of acceptance: CSA approved for panelboard.

10. Wiring Devices
.1 Manually operated general purpose ac switches to CSA C22.2 No. 111. – Decorator style
.2 Snap switches to CSA C22.2 No. 55–M1986 (R2003).
.3 Receptacles, plugs and similar devices to CSA C22.2 No. 42–99 (R2004).
.4 Coverplates to CSA C22.2 No. 42.1–00 (R2004).
.5 Switches:
(a) 15A, 120V single pole, three-way, four-way specification grade switches as indicated.
(b) Toggle operated, fully rated for tungsten filament and fluorescent lamps, and up to 80% of rated capacity of motor loads.
(c) Switches of one manufacturer throughout project. Equal to Hubbell 1200 series for 120V
(d) Install single throw switches with handle in the 'UP' position when switch is closed.
(e) Install switches in gang type outlet box when more than one switch is required in one location.
.6 For light switching with automatic control features forming part of a lighting control system refer to the lighting control specification
.7 Receptacles:
(a) Duplex receptacles throughout – shall be CSA type 5–15R, 125V, 15A, or 20A with U ground
.8 Coverplates:
(a) Provide coverplates for all wiring devices.
(b) Colour of coverplates to match wiring devices – shall be stainless steel or brushed aluminum – Switchplates to be decorator style to match wall mount occupancy sensors and dimming controls
.9 Wiring devices to be white

11. Lighting Fixtures
.1 Fixture types:
(a) Refer to fixture schedule.
.2 LED lamps shall be 4100°K or as indicated; efficacy (Lumens/Watt) as indicated for the fixture. Drivers (power supplies) to match LED Type. Rated life (50% failure) for LED and driver systems minimum 50,000 Hours.
.3 Ceiling mounted fixtures to be supported from the structure by auxiliary chain hangers.

12. Lighting Control System
.1 Lighting controls for all new lighting to be in accordance with Ontario Building Code SB-10 and the relevant mandatory provisions of ASHRAE 90.1 2013 – Part 9 – Section 9.4
.2 Refer to lighting control legend for system component types and function.
.3 Wall mounted lighting control stations low voltage shall be decorator type. Multiple units shall be ganged together, and installed at the local switch height specified.
.4 In offices and similar spaces requiring 2-level A/B and dimming control, the occupancy sensors shall be low voltage, ceiling mounted, passive infrared, with wall mounted 2-pole with manual control push button and relay for the 2nd (B) level.
.5 Where indicated as required due to obstructions sensors to be dual technology.
.6 Line voltage control systems both single and dual channel shall have minimum 800 Watts load capacity per channel at 120 Volt.
.7 Where indicated provide low voltage DC control systems consisting of a wall mounted station and remote low voltage ceiling or wall mounted occupancy sensor. Each system shall include the necessary junction box mounted power and control devices consisting of a 120V to low voltage DC power supply and auxiliary line and low voltage output relays to achieve the functions and control systems indicated. Provide dimming control capability.
.8 Low voltage control systems shall be single or 2 channel as indicated. Their line voltage control capacity shall be 1600 Watts per channel at 120V.
.9 Low voltage DC systems control wiring shall be carried out utilizing Category 5 Enhanced (Cat5e) FT6 rated wiring with terminal connections suited for the devices.
.10 Install low voltage wiring in EMT conduit drops in walls to ceilings where they are accessible, run open in accessible ceilings, neatly supported and securely fastened. In inaccessible ceilings install control wiring in complete EMT raceway system between all devices. Provide access door to equipment in ceilings where required.
.11 At least 6 weeks prior to scheduled installation prepare and submit complete and detailed shop drawings for all components. Include drawings showing the method of installation for each device. Include detailed wiring diagrams for each type of system to be installed.
.12 Prior to rough in for installation, consult with the manufacturer's qualified technical representative and determine the placement, sensitivity and time out requirements for the devices selected for compliance with these specification in the areas where they are shown.
.13 Arrange and pay for field programming by the manufacturer's technician.
.14 Following completion of the lighting controls installation, retain and pay for the services of the manufacturer's qualified technical representative who shall test and confirm the correct functional performance for each device. The technical representative shall prepare and submit a report confirming that each device meets the control requirement, include copies in the instruction and maintenance manuals.
.15 Devices shall be Lutron or DLM System by WattStopper or equivalent.
.16 Timer Switch
(a) input voltage 120V
(b) Scheduling: 56 ON & OFF set points provide individual programs for each day of the week. Minimum setting is 1 minute.
(c) Block Holiday: 9 holiday blocks can be set for individual days or for duration of any number of days.
(d) Automatic compensation for: Daylight Saving, Leap Year
(e) Manual Override: Until the next regularly scheduled ON or OFF, automatic operation then resumes.
(f) Clock Format: AM/PM or 24 Hour format.
(g) Power Outage Backup: Permanent schedule retention. Supercapacitor provides 7 days of real time backup.
(h) Standards: Listed UL916.
(i) Enhanced Switching: Inrush current limiting technology protects relay contacts for extended life with zero cross type switching Standard of acceptance: Tork DGA100A
.17 Photocell:
.1 Outdoor photocontroller with the following characteristics:
(a) Swivel base to rotate 180° on single axis
(b) Load rating: 1000VA
(c) Operating temp: –40° to 70°C
.2 Standard of acceptance: Sensorswitch SMP

13. Exit lights
.1 Exit signs to OBC 3.4.5.1(2):
(a) consist of a green pictogram and white graphic symbol meeting the visibility specifications referred to in ISO 3864–1, Graphical Symbols – Safety Colours and Safety Signs – Part 1: Design Principles for Safety Signs in Workplaces and Public Areas , and
(b) conform to the dimensions indicated in ISO 7010, Graphical Symbols – Safety Colours and Safety Signs – Safety Signs Used in Workplaces and Public Areas for the following symbols:
(I) E001 emergency exit left,
(II) E002 emergency exit right,
(III) E005 90–degree directional arrow, and
(IV) E006 45–degree directional arrow.
.2 Design features:
(a) Wall, end-to-wall or ceiling mounting as indicated. Field adaptable, universal mount.
(b) Single or double faced as indicated. Faceplate to remain captive for maintenance.
(c) Connections–120V normal; provision for emergency 12 volt DC connection.
(d) Housing to be extruded aluminum– white in colour. Optical diffuser for even illumination.
(e) Solid-state design. Long life, non-protruding, high brightness LED's. Minimum 25 year life. Maximum of 5 watts per unit (double faced). Acrylic barrier to protect LED's.
.3 Standard of acceptance: Beghelli Micra RM series or equal.

14. Emergency Lighting
.1 Provide new battery unit – 24V DC:
(a) Rated 720 watts for 30 minutes; voltage to e consistent with existing remote heads,
(b) Certified in accordance with CSA-141,
(c) Mount on new wall bracket.
.2 Remote lamp heads to be same manufacturer as battery unit, with the following features:
(a) 24V DC operation, MR16 6W LED each unless otherwise indicated – verify existing voltage before ordering.
(b) Plastic/composition body and plate, adjustable mounting, swivel type complete with tungsten composite lamp. Suitable for mounting on surface mounted octagon box.
(c) Equal to: AimLite RMMD

15. Telecom, Data, and CATV
.1 Provide 4" (100mm) square recessed outlet boxes with suitable plaster ring to accommodate owners telecom and data connection devices. Provide conduit in partition to ceiling space. For multiple outlet assemblies – provide 3/4" (21mm). Conduit to be EMT set screw connectors at box. Devices, plates and wiring to be by owner's contractor.

16. Surface Mounted Installations
.1 For installation of power and data outlets on existing walls provide surface mounted EMT conduit to surface mounted outlet box. Leviton Type 42777 series. Provide matching SS coverplate.

17. Underground Systems
.1 Provide underground ducts for power, telecom and communication system
.2 Ducts to be type 'DB' approved for direct burial
.3 Install ducts in sand bedding founded on undisturbed soil.
.4 Provide suitable spacers and fasteners to maintain duct configuration during covering

18. Fire Alarm System Specification:

.1 The fire alarm system shall be a fully electrically supervised, zoned, non coded, single stage Data Communication Link Type. The complete installation shall comply with ULC S524 Standard for Installation of Fire Alarm Systems, and all related reference standards, The Ontario Building Code, and The Ontario Electrical Code including Section 32.
.2 Control Panel
.1 The fire alarm control panel shall be microprocessor based – DCLA with minimum, 4 Class B signal circuits , 4 auxiliary output relays with double throw normally open; normally closed contacts rated to 3 Amp minimum; 120V.
.2 Automatic fire detection smoke type detector zones shall be capable of monitoring self-diagnosing clean me type.
.3 Alarm and signal circuits to be class B. Provide end of line resistors adjacent to the control panel.
.4 The control panel shall include a central station connection output.
.5 The control panel shall connect from a 120V single phase power circuit 15 Amp rated. It shall operate at 24V DC. Backup power to support the system shall be with an approved battery system mounted externally or internal to the panel.
.6 Audible signals (outputs) configurable for steady, temporal code, California code, and march time (selectable by user following installation).
.7 Synchronization capability for signal circuits.
.8 Configurable signal silence, one person walk test.
.9 Subsequent alarm supervisory and trouble operation.
.10 Audible trouble signal.
.11 Control Switches:
(a) Alarm silence
(b) Trouble silence
(c) Reset
(d) Lamp test
(e) Drill
(f) Auxiliary relay by-pass
.12 Indicators – Visual
(a) Power on
(b) Power trouble
(c) Ground trouble
(d) System trouble
(e) Remote annunciator trouble
(f) Signals silenced
.13 Enclosure: 16 gauge steel, surface mounted, finished in manufacturers
.14 Conforms to CAN/ULC S527 Standard Control Units for Fire Alarm Systems
.3 Data Fault Isolators
.1 Provide fault isolators in the data communication link at each zone to ensure a short fault in one alarm zone will not prevent normal operation of the data communication link in all other zones.
.4 Remote Annunciator
.1 The remote annunciator will be recessed.
.2 Enclosure fabricated from 16 gauge steel – finished white
.3 Include visual indication of all zones
.4 Include common controls – system reset signal silence, fire drill, buzzer, buzzer silence, and lamp test.
.5 Passive Graphic Panel
.1 In glazed frame surface mounted adjacent to the remote annunciator
.2 include layouts for each floor with all walls and internal details.
.3 Each devise indicated with the discrete identifier beside each
.4 Signal devices to indicate circuit number.
.6 System Operation
.1 Alarm – Upon actuation of any manual or automatic initiating device the following shall occur:
(a) Evacuation alarm devices operate continuously
(b) Transmit alarm signal to central station
(c) Alarm device and location to be indicated on the control panel and remote annunciator
(d) Activate programmed auxiliary relays for fan shutdowns, door release relays, and other safety shutdown provisions as indicated
(e) Log the event
(f) The signal devices shall continue to operate until silenced
.2 Trouble – Upon occurrence of open or fault on wiring or system device the following shall occur:
(a) Trouble signal will sound at the control panel and remote annunciator
(b) The trouble light will illuminate on the affected zone at the control panel and remote annunciator
(c) Trouble signal will be transmitted to the central station
(d) Log the event
.3 Alarm silence – After the minimum permitted time period operating the alarm silence switch at the control panel will cause:
(a) Alarm signal devices to be silenced
(b) The trouble signals and lights will operate
(c) A subsequent alarm will override and cause the evacuation signal to operate
(d) After the alarm condition has been addressed the reset button can be activated, causing the complete system to reset and the trouble signal will sound until the alarm silence switch is returned to normal.
.4 Trouble silence – Operation of the trouble silence switch will cause:
(a) The audible trouble alarm signal will be silenced at the control panel and remote annunciator
(b) The trouble light will continue to indicate
(c) Upon correction of the trouble the audible signals will again sound until the silencing switch is returned to normal
.7 Manual Alarm Initiating Stations
.1 Non coded, single pole normally open addressable device
.2 Colour: Red
.3 Visible indication of operation
.4 Restoration with proprietary tool or key – identical throughout
.5 Cast aluminum construction
.6 Conform to CAN/ULC S528 Standard – Manual Stations for Fire Alarm Systems Including Accessories
.8 Automatic Heat Activated Fire Detection Alarm Devices
.1 Combination fixed temperature and rate of rise; addressable device
.2 Rate of rise 8°C/Minute, self-resetting
.3 Fixed temperature upper limit 57°
.4 Field testable for rate of rise element by application of heated air appliance
.5 Visible indicator – pop down disc in alarm state
.6 Mounting base; plug connect twist lock install
.7 Conform to CAN/ULC S530 Standard – Heat Activated Fire Detectors for Fire Alarm Systems
.9 Automatic Smoke Activated Fire Detection Alarm Device
.1 Photoelectric addressable type
.2 Visible LED indicator – flashing in operational standby; steady in alarm state
.3 Compatible with panel status monitoring Clean Me feature
.4 Mounting base; plug in twist lock install
.5 Conform to CAN/ULC S529 Standard – Smoke Detectors for Fire Alarm Systems
.10 Duct Mounted Smoke Detector
.1 Detectors installed in ducts of photoelectric addressable type and listed by ULC for duct installation
.2 Detectors with approved duct housing, mounted exterior to duct, with perforated sampling tubes extending across width of duct.
.3 Air velocity rating 0.5 m/s to 20.3 m/s
.4 Activation of duct detectors to cause shutdown of associated air handling unit, annunciation at control panel, and tripping of transmitter and sounding of building alarm
.5 Remote visible indicator lamp that flashes when detector is in normal standby mode and glows continuously when detector is activated
.6 Remote indicator lamp in visible locations on ceiling in room below air handling unit
.7 Permanently label remote indicator with description of associated air handling unit
.8 Detectors with rated contact sets, one for wiring directly into fan shutdown circuit of the air handling unit
.11 Audible Signal Devices
.1 Audible signal devices shall be compact mini-horns – piezoelectric type
.2 Sound output 90dBA minimum at 3.0 meters
.3 Flush mounting on standard outlet box
.4 White finish
.5 Wall mounting
.12 Combination Audible Horn/Strobes
.1 Audible signal – piezoelectric mini-horn
.2 Sound output – 90dBA at 3.0 meters
.3 Visual Signal – flashing light with adjustable settings – set at 110 candelas
.4 Wall mounting to outlet box or pre-wired back plate
.5 White finish
.6 Synchronized at control panel
.13 Remote Auxiliary Relays
.1 Provide auxiliary remote relays to interface between auxiliary output control contacts and the fan control circuits in the air handing systems. Relays shall be dual voltage compartment type 120 Volt coil and 250 Volt contacts – 1 normally open; 1 normally closed. EEMAC #1 enclosure.
.14 Air Handling System Fan Shutdown
.1 Air handling system fan shutdown shall operate directly from the duct mounted smoke detector auxiliary contacts, and/or from auxiliary relays in the fire alarm control panel.
.15 Installation
.1 Install control panel surface mounted in the electrical room where shown. Mounting height – 1650mm (5'6) above finished floor to top. Install wiring in EMT; from top of panel.
.2 Surface mount the remote annunciator in the vestibule where shown. Install conductors between control panel and annunciator in EMT. For final drop from ceiling provide single vertical raceway to recessed electrical box. Terminate raceway steel raintight connector. Provide pullbox and access door in ceiling as required.
.3 Mount passive graphic panel on wall adjacent to remote annunciator.
.4 Mounting height 1650mm (5'–6") above finished floor to top.
.5 Install manual station on recessed back box or outlet box in wall. Cut and repair gypsum board wall for conduit where required. Mounting height to be 1350mm above finished floor to center.
.6 In basement on masonry walls install single surface conduit from pull box above to device.
.7 In finished areas with suspended ceilings install automatic fire detection devices on back box or outlet boxes flush mounted in ceiling. Select outlet box to suit detector base. In areas without ceilings install detector base on the outlet box fastened directly to the structure or exposed concrete ceiling.
.8 Install wall mounted smoke detectors where shown at 100mm below the ceiling measured to the top of the detector
.9 Install duct mounted smoke detectors on the duct face in accordance with manufacturer's recommendation and where accessible for maintenance.
.10 Install combination visual and audible signal devices in the sanctuary at 2559mm (8'–6) above finished floor to top of the device
.11 Install audible signal devices throughout building at 2400mm above finished floor to top or where necessary where restricted by ceiling height install wall mounted signal devices at 150mm below the ceiling measured to the top edge of the device.
.12 Install signalling devices on recessed back box or outlet box in wall. Cut and repair wall for cable connection from ceiling space.
.13 Install duct mounted smoke detectors at air handling unit where shown in accordance with manufacturers recommendations. Prior to placing order co-ordinate with the HVAC contractor to establish and agree upon location for the detector. Confirm air handling unit control circuit has terminals for the shutdown connection. Connect auxiliary output contact into air handling unit fan shutdown circuit.
.16 Wiring Methods
.1 All fire alarm initiating circuit DCLA Type, returning to the control panel in separate conduit.
.2 Alarm and signal circuit wing shall be unshielded cable. Cable assemblies shall consist of FAS Rated 300Volt insulated conductors. Conductors shall be color coded including sized in accordance with manufacturer's recommendations.
.3 Make terminations and bending radii in accordance with the electrical code
.4 Connections between the control panel and annunciator shall be the manufacturers recommended cable assembly installed in EMT
.5 Connection from fire alarm control panel and premises security central station agency panel shall be 5 conductors in EMT exposed in electrical room
.6 24 Volt wiring to the door hold open units shall be 300 Volt insulated multi-conductor cable in conduit as specified for fire alarm wiring. Where exposed in the electrical rooms install vertically in a straight line. Provide 50 Volt-Amp 120 to 24 Volt transformer and connect from single-pole 15A–120V breaker in panel indicated. Connections between the electrical panel, transformer and fire alarm control panel where exposed shall be 600 Volt insulated conductors in electric metallic tubing. Run 24 Volt wiring through contacts of auxiliary relay in control panel. Contacts normally closed; open on alarm.
.7 Fan shutdown wiring shall be 600V insulated conductors in EMT or multi-conductor 600 Volt insulated armored cable. Where exposed final connection at unit to be with liquidtight flex from a junction box in ceiling below the roof
.17 Concealed wiring
.1 Conceal all wiring in finished areas.
.2 Exceptions are service rooms and storage rooms.
.3 Cut slots and opening neatly; repair surfaces to their original condition.
.18 Verification Testing
.1 All verification testing to be performed in accordance with the CAN/ULC-S537 standard by individuals with qualifications recognized by the local authority at the time of testing,
.2 All devices to be tested as per the standard and the results recorded on the verification report forms.
.3 All panel and annunciator tests to be performed as per the standard and the results recorded.
.4 During verification, compliance with the approved project plans shall be confirmed.
.5 Following verification arrange for and demonstrate the proper operation and conformance to the ULC/CAN S524 standard to the municipal building official.
.6 A verification certificate, along with the report, shall be issued only upon compliance with the CAN/ULC S537 standard and the project plans.
.19 Training
.1 After submission of the verification certificate and report, review the system operating and maintenance manual with owner's facility management staff. Demonstrate and instruct the staff in procedures for all operating modes.

20. Door hold open Devices
.1 2 piece armature and plate type 24Volt
.2 With adjustable hinge and arm length to suit door/wall relationship
.3 Wire through 50VA transformer from 120V circuit in panel and auxilary contacts in fire alarm control panel

21. Ceiling Fan (CF-1)
.1 Ceiling fan with 3 aluminum blades with a 56 diameter sweep & protective cover
.2 Capable of 34,500CFM of air movement at a velocity of 650 ft/minute
.3 Maximum of 350 RPM
.4 Plug-in power connection
.5 Permanent lubricated sealed TPI ball bearings
.6 Top & bottom shaft mounted protective cover
.7 Standard of Acceptance: Banvil 160F7 with FG90F top and bottom protective screen

22. Solid state variable speed controller with silver cover plate:
(a) 120 Volt, 5Amp
(b) Standard of Acceptance: Banvil 105F

LIGHT CONTROL METHOD SCHEDULE

TYPE	ROOM FUNCTION	MANUAL		AUTOMATIC		ON LEVEL		ON LEVEL CONTROL		DIMMING REQ.		DAYLIGHT HARVEST
		ON	OFF	ON	OFF	Full	50%	DIMMER	A / B	YES	NO	
L1	STORAGE & SERVICE ROOMS	X	X		X	X					X	
L2	REST ROOMS			X	X	X					X	
L3	VESTIBULE			X	X	X					X	
L4	SMALL ROOM	X	X	X[1]	X		X	X		X		
L5	CORRIDOR AUTO			X	X	X					X	
L6	ASSEMBLY OCCUPANCY (LARGER ROOM)	X	X	X[1]	X		X	X		X	X	

NOTES:
1. AUTO ON AVAILABLE, CLIENT DECISION

OS OCCUPANT SENSOR SCHEDULE

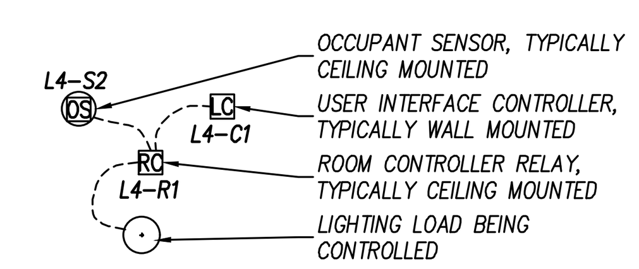
TYPE	DESCRIPTION	COMMENTS
S1	Integrated sensor, Dimmer, & Controller	0–10 Volt Dimming, on/off/Dim control with Occupant Sensor. Programmable: ON level, PIR Sensitivity, power loss mode, dim mode Std of acceptance: Wattstopper DW–311
S2	Ceiling mounted standard range	Low voltage Ceiling mounted Occupancy Sensor. Programmable: sensitivity, time delay Coverage: 360°, 1000 sq ft apx Std of acceptance: Wattstopper LMDC–100
S3	Ceiling mounted Extended range	Low voltage Ceiling mounted Extended Range Occupancy Sensor. Programmable: sensitivity, time delay Coverage: 360°, 3800 sq ft Std of acceptance: Wattstopper LMPC–100
S4	Ceiling mounted standard range 120V	120V Ceiling mounted Occupancy Sensor. Programmable: sensitivity, time delay Coverage: 360°, 1000 sq ft apx Std of acceptance: Wattstopper DT–355

LC USER LIGHT CONTROLLER SCHEDULE

TYPE	DESCRIPTION	COMMENTS
C1	Dimming wall Controller	0–10 Volt Dimming, on/off/Dim control with 7–LED level indicator Std of acceptance: Wattstopper LMDM–101
C2	5–Button scene Controller	5–Button configurable IR control user interface 0–10 volt controller Std of acceptance: Wattstopper LMSW–105
C3	Integrated sensor, Dimmer, & Controller	0–10 Volt Dimming, on/off/Dim control with Occupant Sensor. Programmable: ON level, PIR Sensitivity, power loss mode, dim mode Std of acceptance: Wattstopper DW–311
C4	4–Button scene Controller	4–Button configurable IR control user interface 0–10 volt controller Std of acceptance: Wattstopper LMSW–104

RC ROOM CONTROLLER DEVICE SCHEDULE

TYPE	DESCRIPTION	COMMENTS
R1	Room controller, 0–10V w/ 1 Relay (Output)	Room Controller: On/off/0–10 Volt Dimming controller (interface) with single 120V relay & 0–10 Volt Dimming control out Std of acceptance: Wattstopper LMRC–211
R2	Room controller, 120V w/ 1 Relay (Output)	Room Controller: On/off controller (interface) 120V Single relay output Std of acceptance: Wattstopper LMRC–102
R3	Room controller, 0–10V w/ 3 Relay (Output)	Room Controller: On/off/0–10 Volt Dimming controller (interface) with three 120V relay & 0–10 Volt Dimming control out Std of acceptance: Wattstopper LMRC–213
6 R4	Room controller, 0–10V w/ 2 Relay (Output)	Room Controller: On/off/0–10 Volt Dimming controller (interface) with three 120V relay & 0–10 Volt Dimming control out Std of acceptance: Wattstopper LMRC–212



6 Interior Luminaire Schedule

Symbol	Qty	Label	Manufacturer	Description	Dimming	Watts/Fixture	Total Watts	LLF
	47	D1	CONTRAST	UR4JC–04BRAN–3590L + NWUR4–120D1	0–10V	10	470	0.900
	1	F4x4	LUMENWERX	FOR4PD44–HLO–LED–80–200–35–120–D1–1–5SAC36–W–TBAR	0–10V	32	32	0.900
	18	Hb HI	CREE	KBL–A–UV–H–40K–8–UL–10V + CXBC16 + WG–AP	0–10V	189	1134	0.900
	2	L12a	LUMENWERX	VIA2R–HLO–LED–80–350–35–12FT–120–D1–1–TBAR–W	0–10V	43.5	87	0.900
	6	L12b	LUMENWERX	VIA4PD–HLO–LED–80–500–35–12FT–120–D1–1–53WAC36–W	0–10V	49.5	297	0.900
	16	Lp4a	CREE	LS4–25L–35K–10V	0–10V	23.55	376.8	0.900
	4	Lp4b	CREE	LS4–40L–35K–10V	0–10V	40.95	163.8	0.900
	2	Lp8	CREE	LS8–80L–35K–10V	0–10V	87.21	174.42	0.900
	8	Ls4	CREE	LS4–25L–35K–10V	0–10V	23.55	23.55	0.900
	3	pop24R	LUMENWERX	POROR–24–ULO–FH–LED–80–2500–35–120–D1–1–DTR–W	0–10V	23.69	71.07	0.900
	3	pop36	LUMENWERX	PCROPD–36–ULO–FH–LED–80–5500–35–120–D1–1–5WAC36–W	0–10V	52.13	156.39	0.900
	6	S22	LUMENWERX	POSQS–22–ULO–2H–LED–80–2500–35–120–D1–1–SUR–W	0–10V	22.65	135.9	0.900
	6	Td	FOCAL POINT	FAM2–22–ACR–2500L–35K–1C–UNV–LD1–F–WH	0–10V	18.82	112.92	0.900
	21	Tg1	FOCAL POINT	FAM2–22–ACR–4000L–35K–1C–UNV–LD1–G–WH	0–10V	31.93	670.53	0.900
	36	Tg2	FOCAL POINT	FAM2–22–ACR–3500L–35K–1C–UNV–LD1–G–WH	0–10V	27.56	992.16	0.900
	16	U	VISIONEERING	LCOMN48–LED835K040LUNV–P95	0–10V	36.4	582.4	0.900
	9	U2	VISIONEERING	LCOMN48–LED835K080LUNV–P95	0–10V	72.8	655.2	0.900
	3	V1	TECH LIGHTING	700BCSAGW25S–LED930	ELV	35	105	0.900
					TOTAL LIGHTING WATTS: 6494.94			

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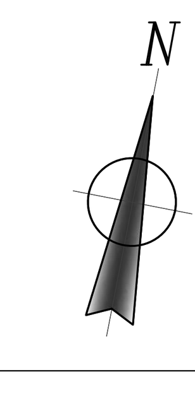

NO.	REVISIONS	DATE
10.		
9.		
8.		
7.		
6.	ISSUED FOR TENDER	2018–02–06
5.	ISSUED FOR LIGHTING SUBSIDY	2018–01–25
4.	ISSUED FOR PRICING	2017–12–22
3.	ISSUED FOR BUILDING PERMIT (PHASE 2)	2017–10–26
2.	ISSUED FOR BUILDING PERMIT (PHASE 1)	2017–10–10
1.	ISSUED FOR REVIEW/COORDINATION	2017–10–05

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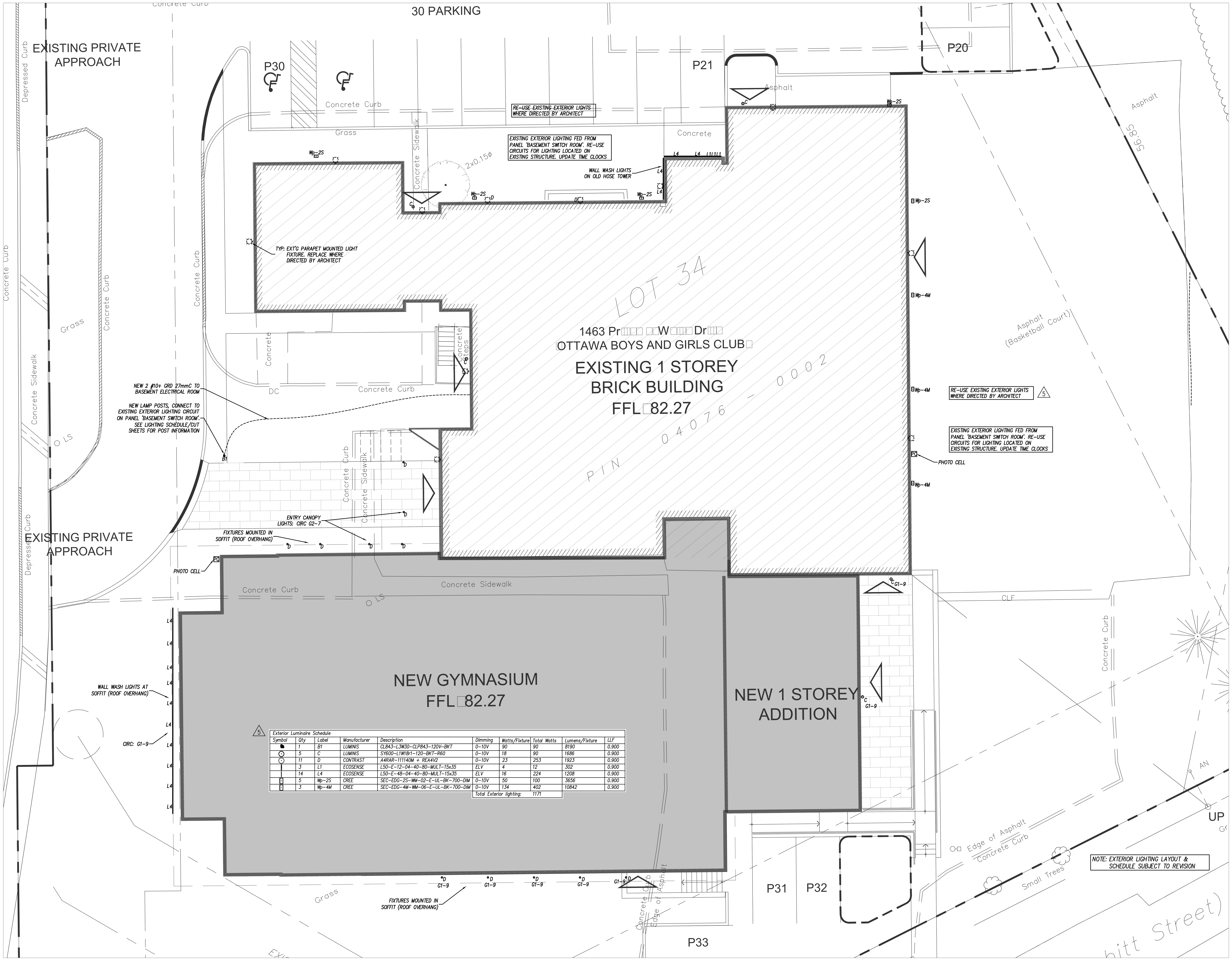
6–Feb–18

PROJECT Boys and Girls Club Renovation Price of Wales Clubhouse

DRAWING Legends, lighting Schedules & Specifications

LICENSED PROFESSIONAL ENGINEER
C. L. WOOD
Feb. 06, 2018
PROVINCE OF ONTARIO

DATE	SCALE
5–Feb–18	AS NOTED
DRAWN BY: MAG	DESIGNED BY: CLW
JOB NO.: 2017–017	CHECKED BY: CLW
DRAWING NO.: E–7 of 8	



30 PARKING
EXISTING PRIVATE APPROACH
P30
P21
P20
Concrete Curb
Grass
Concrete
Asphalt
RE-USE EXISTING EXTERIOR LIGHTS WHERE DIRECTED BY ARCHITECT
EXISTING EXTERIOR LIGHTING FED FROM PANEL 'BASEMENT SWITCH ROOM'. RE-USE CIRCUITS FOR LIGHTING LOCATED ON EXISTING STRUCTURE. UPDATE TIME CLOCKS
WALL WASH LIGHTS ON OLD HOSE TOWER
TYP: EXT'G PARAPET MOUNTED LIGHT FIXTURE. REPLACE WHERE DIRECTED BY ARCHITECT
LOT 34
OTTAWA BOYS AND GIRLS CLUB
EXISTING 1 STOREY BRICK BUILDING
FFL 82.27
PIN 04076 - 0002
Asphalt (Basketball Court)
NEW 2 #10+ GRD 27mmC TO BASEMENT ELECTRICAL ROOM
NEW LAMP POSTS, CONNECT TO EXISTING EXTERIOR LIGHTING CIRCUIT ON PANEL 'BASEMENT SWITCH ROOM'. SEE LIGHTING SCHEDULE/CUT SHEETS FOR POST INFORMATION
PHOTO CELL
ENTRY CANOPY LIGHTS: CIRC G2-7
FIXTURES MOUNTED IN SOFFIT (ROOF OVERHANG)
Concrete Sidewalk
NEW GYMNASIUM
FFL 82.27
NEW 1 STOREY ADDITION
WALL WASH LIGHTS AT SOFFIT (ROOF OVERHANG)
CIRC: G1-9
NOTE: EXTERIOR LIGHTING LAYOUT & SCHEDULE SUBJECT TO REVISION
Edge of Asphalt
Small Trees
P31
P32
P33
UP

Exterior Luminaire Schedule									
Symbol	Qty	Label	Manufacturer	Description	Dimming	Watts/Fixture	Total Watts	Lumens/Fixture	LLF
	1	B1	LUMINIS	CL843-L3W30-CLP843-120V-BKT	0-10V	90	90	8190	0.900
	5	C	LUMINIS	SY600-L1W18r1-120-BKT-R60	0-10V	18	90	1686	0.900
	11	D	CONTRAST	A4RAR-111140M + REA4V2	0-10V	23	253	1923	0.900
	3	L1	ECOSENSE	L50-E-12-04-40-80-MULT-15x35	ELV	4	12	302	0.900
	14	L4	ECOSENSE	L50-E-48-04-40-80-MULT-15x35	ELV	16	224	1208	0.900
	5	Wp-2S	CREE	SEC-EDG-2S-WM-02-E-UL-BK-700-DIM	0-10V	50	100	3656	0.900
	3	Wp-4M	CREE	SEC-EDG-4M-WM-06-E-UL-BK-700-DIM	0-10V	134	402	10842	0.900
					Total Exterior lighting:		1171		

EXTERIOR LIGHTING PLAN
1:100

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NO.	REVISIONS	DATE
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PROJECT
Prince of Wales Clubhouse
Boys and Girls Club Renovation

DRAWING
Electrical Site Plan

LICENSED PROFESSIONAL ENGINEER
C. L. WOOD
Feb. 06, 2018
PROVINCE OF ONTARIO

DATE	SCALE
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DRAWING NO.