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1.	ISSUED FOR PERMIT (CITY PERMIT NUMBER: ??)	10-Oct-17
NO.	REVISIONS	DATE

USE OF THESE DRAWINGS IS RESTRICTED SOLELY TO THE CONSTRUCTION FOR WHICH THEY WERE DEVELOPED. BEKOLAY GAMBLE AND ASSOCIATES LTD. ASSUME NO RESPONSIBILITY FOR ANY SUBSEQUENT USE. DO NOT SCALE THE DRAWINGS BUT RESPECT ANY DIMENSIONS SPECIFICALLY IDENTIFIED IN NOTES OR TEXT. ALL CONTRACTORS MUST VISIT THE SITE AND ARE RESPONSIBLE FOR VERIFYING ANY AND ALL DIMENSIONS THAT RELATE TO THEIR WORK. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE CONSULTANT.

SPECIFICATIONS:

- Comply with local Codes and Bylaws, Building Code Act (BCA) and Ontario Building Code (OBC).
- General:
 - 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.
 - 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).
 - 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.
 - 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.
 - Examine the site and be aware of site conditions associated with this contract since extras related to site conditions will not be accepted.
 - Provide miscellaneous steel, cutting and patching and 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.
 - 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 warranty 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.
- 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.
- Equivalents and Alternates:
 - 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 manufacturers from bidding with equivalent products.
 - 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.
- Shop Drawings
 - Provide "PDF" files or 3 hard copies of shop drawings for review by the Engineer.
 - Submit product data for all specified equipment or trim including but not limited to grilles, diffusers, plumbing fixtures & trim, sprinkler heads.
- Record Drawings
 - 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.
 - Use different colour waterproof ink for each service.
 - 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).
 - Make available for reference purposes and inspection at all times.
- Fire stopping
 - Provide fire stopping of all fire separations including fire dampers, retaining angles, sleeves and caulking
 - Caulking and Sealing Std: Hiti

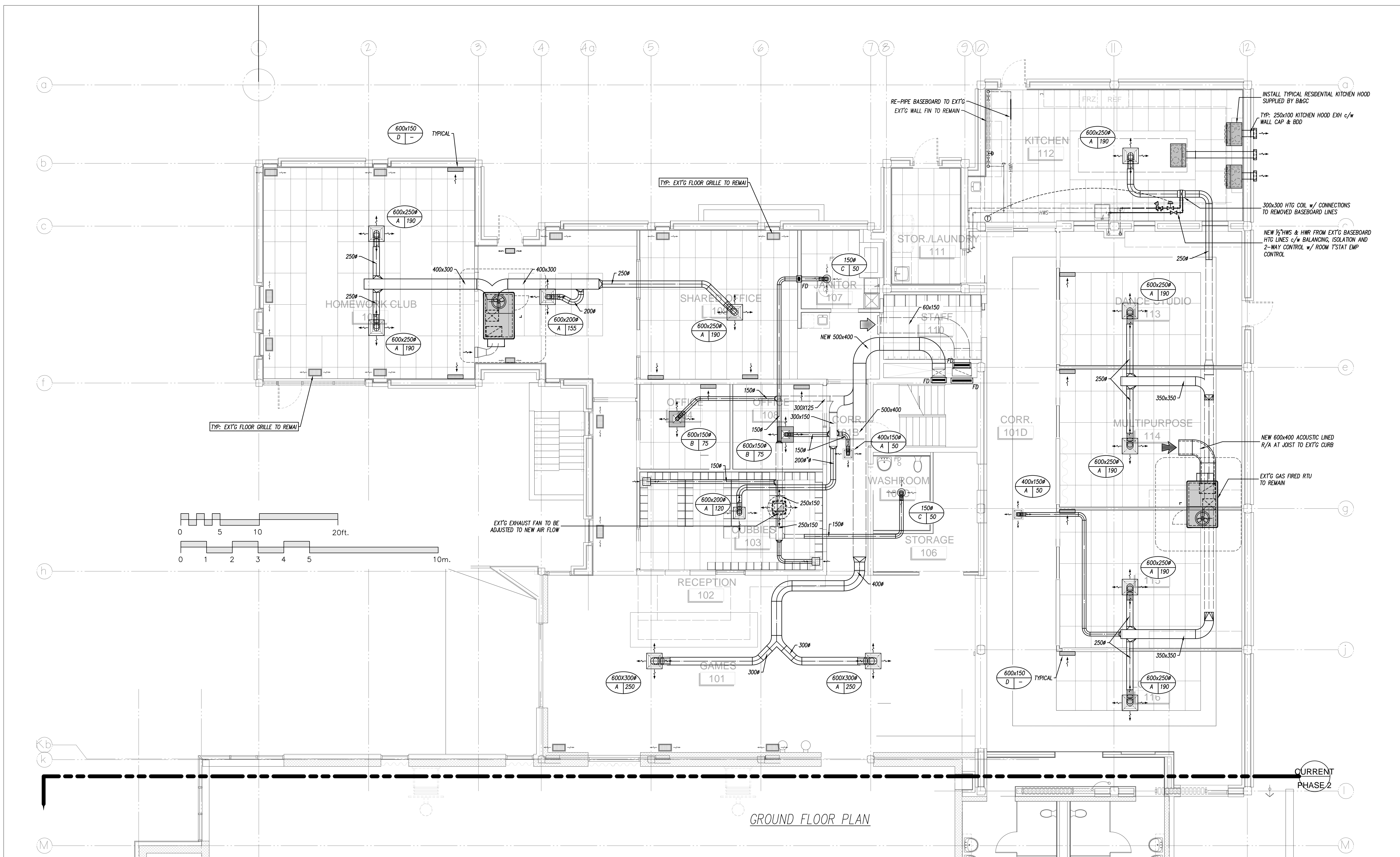
- Insulation:
 - Piping:
 - Insulate all hot and cold potable water piping as follows:
 - Pre-formed fiberglass in 800mm sections with all service jacket sealed with aluminum tape. Hangers shall be outside of jacket.
 - Thickness: (to ASHRAE 90.1 table 9-1)

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"
 - Provide white, preformed PVC jacket for all exposed insulated pipe.
 - Hangers shall be outside of jacket.
- Identification:
 - 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).
 - 1 1/4" & smaller: pre-formed, curled vinyl sleeves with coloured letters & background
 - Comply with ANSI standards for colours and identification requirements. Meet WHMIS tag requirements where applicable.
 - Marker separation shall be such that any pipe can be readily identified and not exceed 25 feet between markings.
 - Std. Brady, Top Tape & Label Ltd



PROJECT: BOYS & GIRLS CLUB RENOVATION
Prince of Wales
DRAWING: Demolition
GROUND FLOOR HVAC

DATE	###	SCALE	1:75
DRAWN BY	Staff	DESIGNED BY	JRB
JOB NO.	2017-17	CHECKED BY	
DRAWING NO.			



GROUND FLOOR PLAN

SPECIFICATIONS CONT'D

- HVAC:**
- Duct Work:
 - Tape and seal all new supply air ductwork ductwork and comply with ASHRAE (low pressure standards), SMACNA and ICQH details and recommended practices. Ductwork shall be handled and installed in accordance with SMACNA's Duct Cleanliness for New Construction Guidelines (Advanced Level).
 - All Supply, Return and Exhaust ductwork:
 - Provide radiused elbows (unless turning vanes are provided) and take-offs ($r/D=1$ min)
 - Bull 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.
 - 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.
 - Flexible Connections:
 - Frame: galvanized sheet metal frame with fabric clamped by means of double locked seams.
 - Material: Fire resistant, self extinguishing, neoprene coated glass fabric, temperature rated at minus 40 C to 90 C, density of 1.3 kg/m².
 - Length of connection: 100mm with min 75 mm installed clearance between frames.
 - Flexible Ducts:
 - Factory fabricated spiral wound flexible aluminum.
 - Factory installed 12mm insulation with plastic jacket
 - Minimum working pressure 2.5 kPa.

- Maximum length in a branch run to a diffuser not to exceed 2 meters.
- Provide nylon tie wrap around flex at connection to branch duct and at sectional elbow at ceiling diffusers.
- Duct Insulation:
 - Acoustic Liner:
 - Increase duct dimensions to provide unobstructed sizes shown
 - 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)
 - Thickness: 25mm (1") thick insulation on interior of supply and return ducts within 3m (10 ft) of fans and as indicated.
 - Std: Titus Envirolok, Fibreglass Canada "Line Acoustic-R"
 - Thermal:
 - 38mm thick flexible fiberglass blanket insulation with all service jacket secured to round metal ductwork without bagging or sagging, taped and sealed.
 - Application: all new supply ductwork except downstream of VAV boxes.
 - Std: Owens Corning Duct Wrap Type 75
 - Adhesive & Sealer: to requirements of ANSI/NFPA 90A with same flame spread and smoke ratings as insulation.
 - Fasteners: Weld or adhesive plated pins 2.0mm diameter, length to suit insulation with metal retaining clips, 32mm square.
 - Joint Tape: Poly-vinyl treated open weave fiberglass membrane 50mm wide.

- Provide new diffusers as follows:
 - Type "A"
 - Four way throw steel diffuser with balancing damper to set in tee bar or drywall ceiling
 - Std: E.H.Price SODA
 - Type "B"
 - Similar to "A" but panel style for smaller diffusers in grid ceilings
 - Type "C"
 - Round metal grille with white powder coat and screw in core flow adjustment.
 - Std: Fantech Model MGE or Imperial Manufacturing DR
 - Type "D"
 - 4" aluminum grid suit tee bar ceiling or with border for drywall
 - E.H.Price CRE
- 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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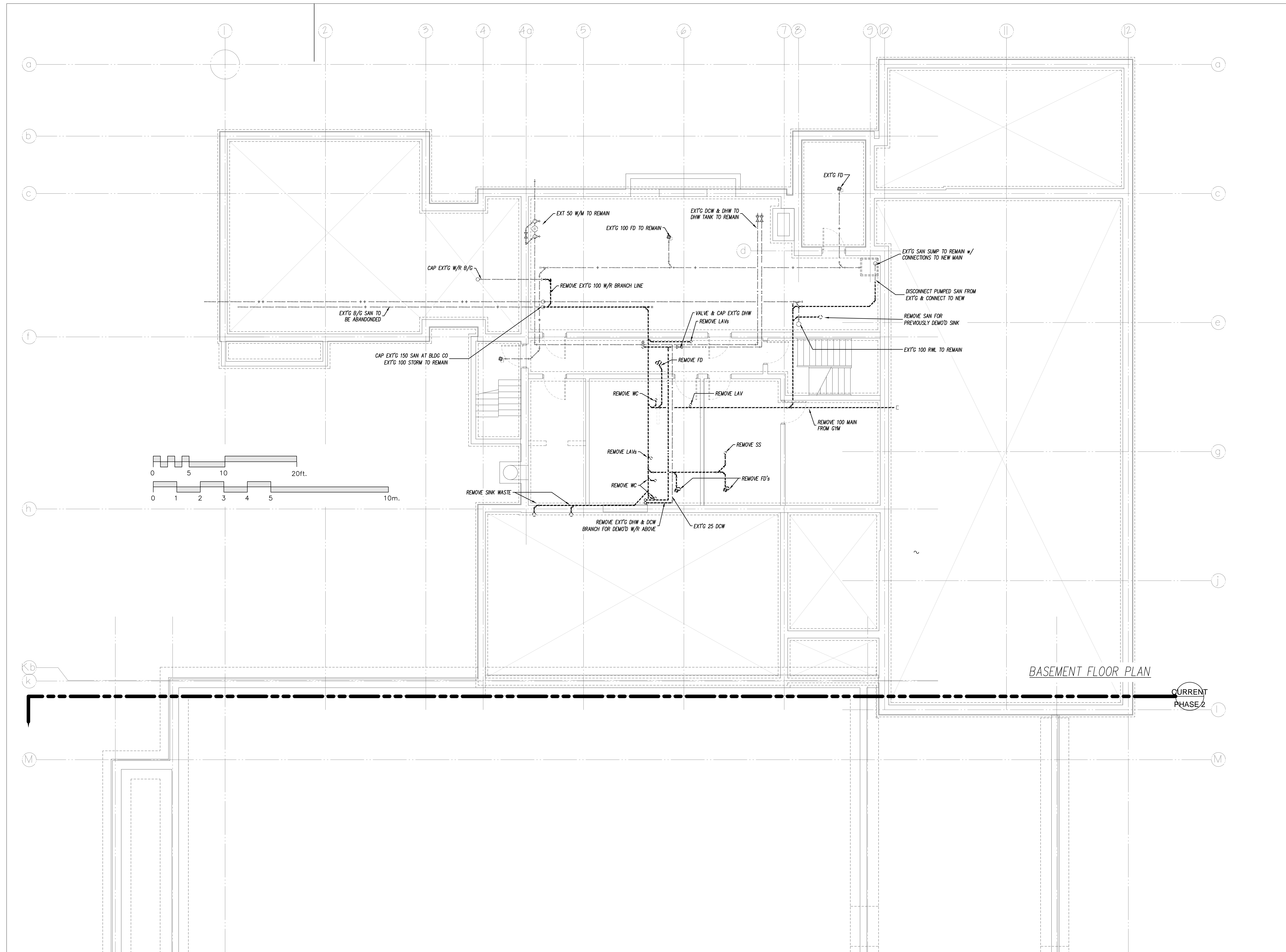
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PROJECT: **BOYS & GIRLS CLUB RENOVATION Prince of Wales**

DRAWING: **GROUND FLOOR HVAC MODIFICATIONS**

DATE: ### SCALE: 1:75
 DRAWN BY: Staff DESIGNED BY: JRB
 JOB NO.: 2017-17 CHECKED BY:
 DRAWING NO.:
 J. R. BEKOLAY
 10-OCT-17
 PROVINCE OF ONTARIO

M-2 of 6



BASEMENT FLOOR PLAN

CURRENT PHASE 2

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7-Oct-14

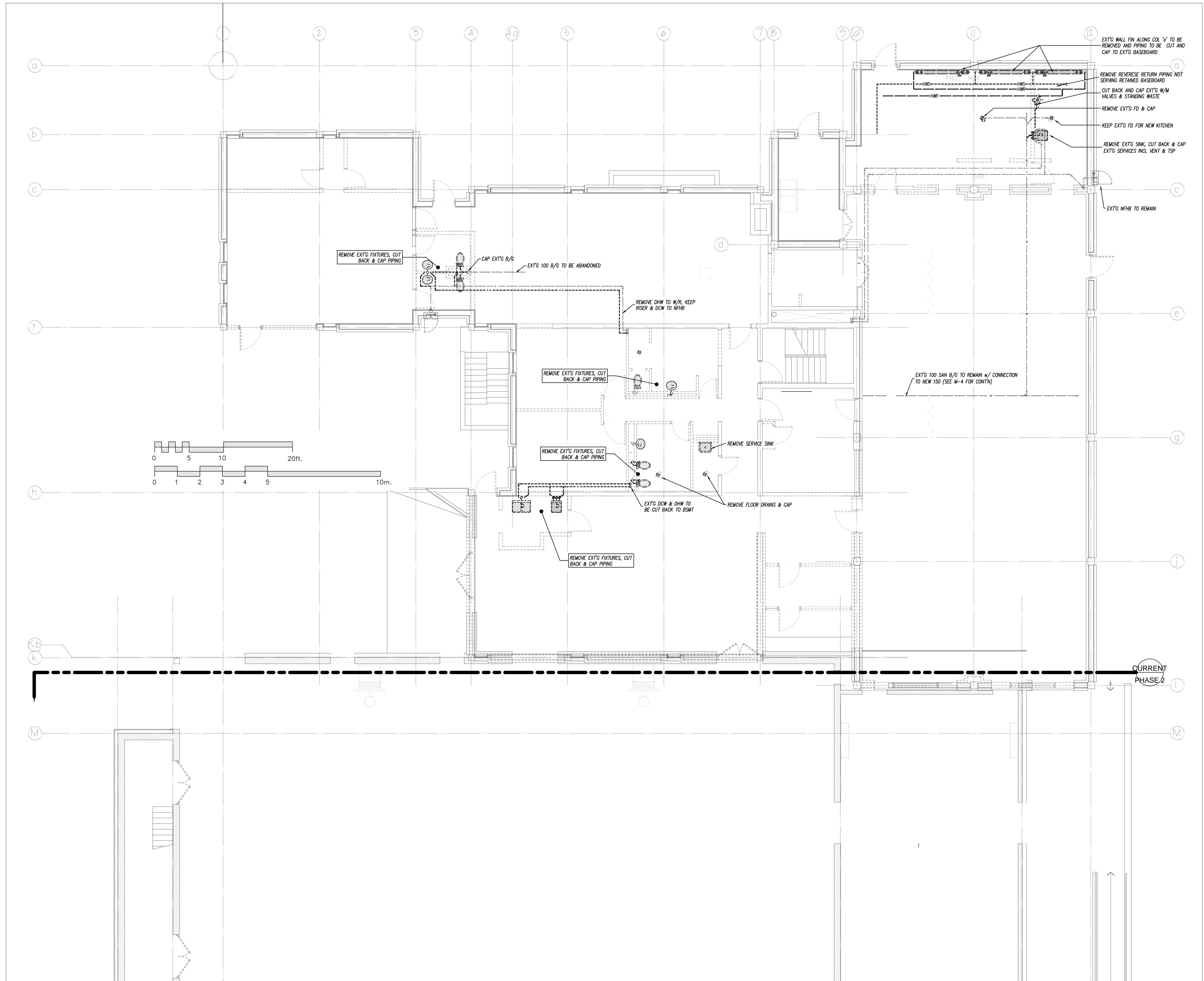
PROJECT: BOYS & GIRLS CLUB RENOVATION
 Prince of Wales

DRAWING: BASEMENT
 PLUMBING DEMOLITION

J. R. BEKOLAY
 PROFESSIONAL ENGINEER
 0-10-17
 PROVINCE OF ONTARIO

DATE	###	SCALE	1:75
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JOB NO.	2017-17	CHECKED BY	
DRAWING NO.			

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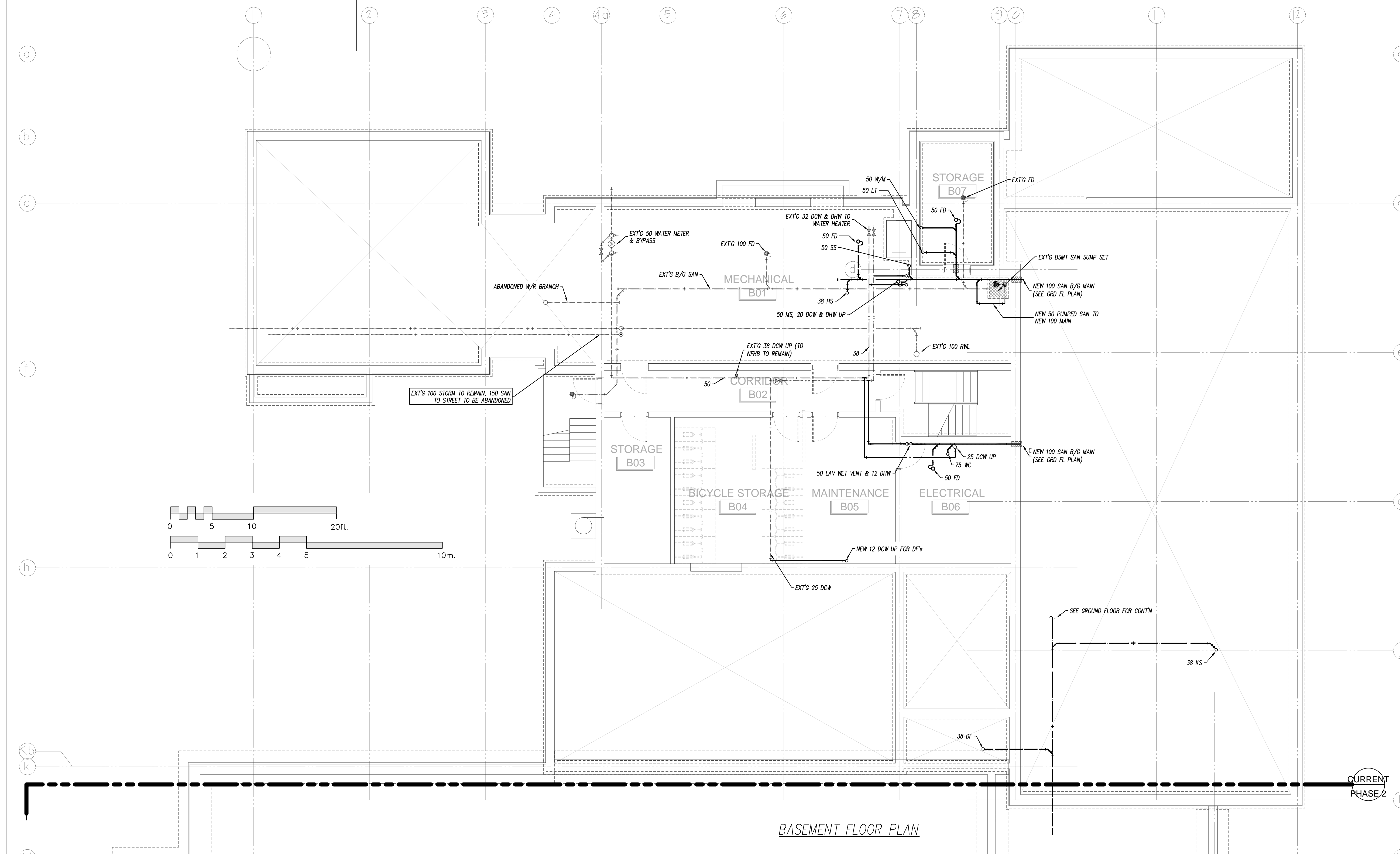
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PROJECT: BOYS & GIRLS CLUB RENOVATION
Prince of Wales
DRAWING: GROUND
PLUMBING DEMOLITION

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BASEMENT FLOOR PLAN

SPECIFICATIONS CONT'D:

Plumbing & Piping:

16. 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.
17. 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
 - (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 1/2" continuous soft copper line drip line connection with tapping on drain body
- .2 Plumbing and vent piping below grade
 - (a) PVC or ABS with solvent weld joints or
 - (b) SRD with ringite 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. 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

18. 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 DuoLazure DWB with 2-M2 Shutoff valve
19. 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
 - .2 32mm and smaller
 - (a) Swivel loop hanger with electro-zinc plated band with hanger rod nut
 - (b) Std: Caddy Series 100
 - (c) 38mm and larger
 - (a) epoxy coated split black iron clevis
 - (b) Std: Caddy Series 401, 427 or 420
20. 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.
 - (b) Std: American Std. Mezzo
 - (c) 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.
 - (a) Std., Delta Model HDF commercial DEMO 111F Series or Waltec Moen equivalents
- .2 SS Sinks
 - (a) KS-1
 - (i) Double bowl 18-8 stainless steel, 840x560x180mm (33"x22"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

- .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 B20) 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. Awaal "FloWise" (a) WC-2
 - (b) ADA compliant floor mounted vitreous china elongated bowl with 4.2 Lpf
 - (ii) Std: American Standard Modera
- (d) 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 Map Sink:
 - (a) Molded stone, 550x450x300mm deep complete with cast brass outlet strainer, stainless steel rim guard, continuous 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, escalations, union inlets, heavy cast brass spout with pull 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
21. 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
22. 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

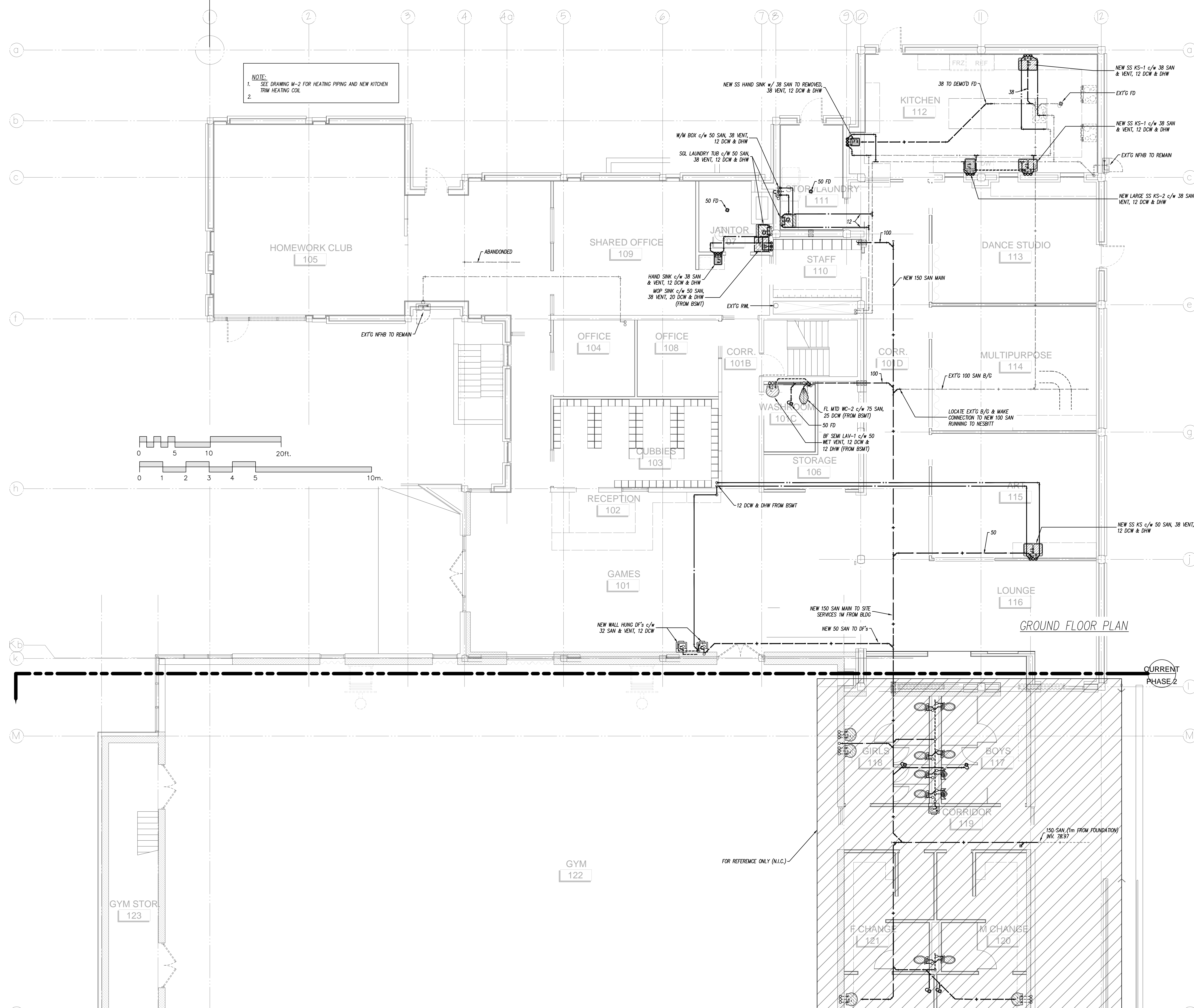
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PROJECT: **BOYS & GIRLS CLUB RENOVATION**
Prince of Wales
DRAWING: **BASEMENT PLUMBING MODIFICATIONS**

DATE	###	SCALE	1:75
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PROJECT: **BOYS & GIRLS CLUB RENOVATION**
 Prince of Wales
 DRAWING: **GROUND PLUMBING MODIFICATIONS**

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