

15100 BASIC REQUIREMENTS

1.0 SCOPE OF WORK

- 1.1 Provide all labour, materials equipment and services to complete the work of the mechanical division as further specified and as shown on the drawings. The work consists of, but is not necessarily limited to, modifying the existing plumbing, heating, cooling and ventilation systems.
- 1.2 Upon completion of the work leave all systems in proper operating order and the premises in a clean and tidy condition to the satisfaction of the Consultant.

2.0 REGULATIONS, CODES AND STANDARDS

- 2.1 The work shall accord strictly with all rules, regulations, by-laws and the requirements and interpretations of all authorities having jurisdiction.
- 2.2 Drawings and specifications should not conflict with the above regulations, but where there are apparent discrepancies the Contractor shall notify the Consultant in writing and obtain clarification before proceeding with the work.
- 2.3 The work of the mechanical division shall conform to the following Codes, Regulations and Standards including, unless referenced otherwise, latest revisions issued up to date of tender submission.
 - 1. The Ontario Building Code, to Ontario Regulation 191/14.
 - 2. NFPA 90A with respect to Air Conditioning and Ventilating Systems.
 - 3. NFPA 90B with respect to Warm Air Heating and Air Conditioning Systems.
 - 4. ASHRAE Guide and Data Books.
 - 5. SMACNA "HVAC Duct Construction Standards"
 - 6. All other codes, standards, regulations referred to in the above documents, adopted by the authorities having jurisdiction and/or applicable to the work of this Division as shown on the contract documents.
 - 7. Ontario Natural Gas Utilization Code CGA/CSA B149.1.

3.0 EXAMINATION OF SITE

- 3.1 The actual location of services shall be verified in the field before work is commenced.

4.0 DRAWINGS, CHANGES AND INSTALLATIONS

- 4.1 The drawings shall be considered to show the general character and scope of the work and not the exact details of the installation. The installation shall be complete with all accessories required for a complete and operative installation. The Consultant reserves the right to make reasonable changes required to accommodate conditions arising during the progress of the work, at no extra cost to the Owner.

5.0 RECORD DRAWINGS

- 5.1 The Contractor shall clearly mark, as the job progresses, all changes and deviations from that shown on contract drawings. On project completion, the Contractor shall forward to the Consultant the set of drawings indicating the as-built conditions.

6.0 SHOP DRAWINGS

- 6.1 Three copies of shop drawings or a pdf copy which indicate clearly the materials and/or equipment actually being supplied, all details of construction, accurate dimensions, capacity, operating characteristics and performance shall be submitted to the Consultant for approval. Each shop drawing shall give the identifying number of the specific pump, fan, etc. for which it was prepared (e.g. Fan F-7).
- 6.2 Prior to submission to the Consultant, the Contractor shall review all shop drawings and approve them, indicating that the drawings have been checked and the described equipment has been co-ordinated.
- 6.3 Installation of any equipment shall not be commenced until after shop drawings have been reviewed by the Consultant.
- 6.4 Bind one complete set of reviewed Shop Drawings in each operating and maintenance instruction manual.

7.0 QUALIFICATION OF TRADESMEN

- 7.1 The Contractor shall maintain at the job site, at all times, qualified personnel and supporting staff, with proven experience in erecting, supervising, testing and adjusting projects of comparable nature and complexity.

8.0 PRODUCT DELIVERY, STORAGE AND HANDLING

- 8.1 Inspect products delivered to the site, and before acceptance ensure that the product is: new, the best of its respective kind, free from defects, is as specified, and is as per reviewed shop drawings, all in accordance with the Contract Documents.
- 8.2 Store materials only in designated areas and protect as necessary to maintain materials in new condition.
- 8.3 Any unpainted steel surface shall be prime coated under this Division.

9.0 WARRANTY

- 9.1 The Contractor shall provide a warranty of one year for all systems and equipment installed under this contract. The Contractor agrees to correct promptly, at his own expense, defects or deficiencies in the Work which appear prior to and during the period of one year from the date of acceptance by the Owner of the Work or portions of the work.

10.0 OPERATION AND MAINTENANCE INSTRUCTIONS

- 10.1 Three (3) copies of complete operating and maintenance instructions for all mechanical equipment and systems, bound in hard covered manuals, shall be supplied.

11.0 INSTRUCTIONS TO OWNER

- 11.1 Instruct the Owner's representative(s) in all respects of the operation and maintenance of systems and equipment. Obtain in writing from the Consultant a list of the Owner's representative(s) qualified to receive instructions.

15200 BASIC MATERIALS AND METHODS

1.0 MATERIALS

- 1.1 Make and quality of materials in the construction of this project shall be subject to the approval of the Consultant.
- 1.2 Materials and equipment supplied by this Division shall be new and free from defects and shall be equivalent in physical characteristics and performance to that specified by the manufacturer's name and catalogue number.

2.0 CUTTING, PATCHING, SLEEVES AND ESCUTCHEONS

- 2.1 The Contractor shall coordinate on site the position of all sleeves and openings required for the work.
- 2.2 Openings shall be made at the expense of the mechanical division, except for louver openings which shall be co-ordinated with the general contractor. Cutting of structural members shall not be permitted without specified written approval by the Consultant.
- 2.3 All drilling for hangers, rod inserts and work of similar nature shall be done under this contract.
- 2.4 It shall be the responsibility of the mechanical division to locate and provide anchor bolts, equipment bases and curbs.

3.0 HANGERS AND EQUIPMENT SUPPORTS

- 3.1 Piping and equipment provided under the mechanical division shall be complete with all necessary supports and hangers required for a safe and workmanlike installation. Auxiliary structural members shall be provided under the mechanical section concerned, where piping, ducts or equipment must be suspended between the joists or beams of the structure.

4.0 ELECTRICAL CHARACTERISTICS

- 4.1 Electric motors for all driven equipment supplied under the mechanical division shall be provided and installed under this Division.
- 4.2 Motors shall have the following electrical characteristics, unless otherwise specified:
For 1/3 HP or larger - 240-1-60 Hz
For 1/4 HP and smaller - 120 volt - 1 ph - 60 Hz

5.0 ACCESS PANELS AND ACCESSIBILITY

- 5.1 All parts of the installation requiring periodic maintenance shall be accessible. Wherever valves, dampers, etc. are concealed by the building construction, access doors or panels shall be furnished by this section and installed under this contract. The mechanical division shall be responsible for their proper location.

6.0 CLEANING

- 6.1 Clean thoroughly all fixtures and equipment from grease, dirt, plaster or any other foreign material. Any dirt, rubbish or grease on walls, floors or fixtures accumulated from the work of the mechanical division shall be removed promptly from the premises by this division.

7.0 NAMEPLATES & SIGNS - none required.

15300 INSULATION AND LININGS

- 1.1 Pipe insulation to be 1" thick rigid fibre glass with factory applied vapour barrier and self seal lap joint equal to Manson Alley K with APT jacket. Use preformed PVC covers for fittings over 1" in size.
- 1.2 Insulation must be dust free, fibre free and resist mold and mildew.
- 1.3 Insulation materials to have a conductivity of .27 BTU-in/hr-ft2 and have a flame -spread index of less than 25 and a smoke developed index of less than 50.

15400 PLUMBING

- 1.1 Reference: Ontario Building Code 2012.
 - 1.2 Submit product data for plumbing fixtures, floor drains, etc.
 - 1.3 Architectural drawings to govern the number and location of fixtures.
 - 1.4 Fixtures to be the product of one manufacturer and of the same type.
 - 1.5 Trim in any one washroom to be the product of one manufacturer.
 - 1.6 Exposed plumbing brass to be chrome plated.
 - 1.7 DCW and DHW above ground piping to be copper tube, hard drawn, type L to ASTM B88M. Bronze or copper fittings, soldering with lead free solder.
 - 1.8 Isolation valves: Ball style, Class 150, screwed or soldered, bronze body, chrome plated brass ball, PTFE teflon adjustable packing, brass gland, PTFE teflon seat, plastic coated steel handle.
 - 1.10 Below Grade Sanitary: ABS to CAN/CSA B181.1 or PVC to CAN/CSA B181.2, solvent welded to ASTM D2235.
 - 1.11 Above Grade Sanitary and Venting: PVC to CAN/CSA B182.2, solvent welded to ASTM D2235 with a flame spread rating of 25 or less. Pipe to be IPEX System 15.
 - 1.12 Pipe insulation to be 1" thick rigid fibre glass with factory applied vapour barrier and self seal lap joint equal to Manson Alley K with APT jacket. Use preformed PVC covers for fittings over 1" in size.
- 2.0 Execution
- 2.1 Install buried pipe on a 6" bed of clean washed sand, shaped to accommodate fittings and to line and grade as indicated. Backfill with a further 6" layer of sand.
 - 2.2 Install clean-outs as indicated and as required by code at base of soil stacks and at the drain of a kitchen sink.
 - 2.3 Sanitary floor drains are to be trap seal primed from the nearest cold potable water supply.
 - 2.4 Assemble piping using Code and ANSI standards. Maintain straight lines along walls for pipe routing.
 - 2.5 Install isolation valves on each plumbing fixture supply line.
 - 2.6 Insulate all plumbing supply lines with fibrous glass split sectional pipe insulation as per 15300.
 - 2.5 Flush out and rinse systems. Clean out aerator screens and strainers. Leak test according to plumbing code before plumbing is closed in or buried. Notify Consultant 48 hours in advance.

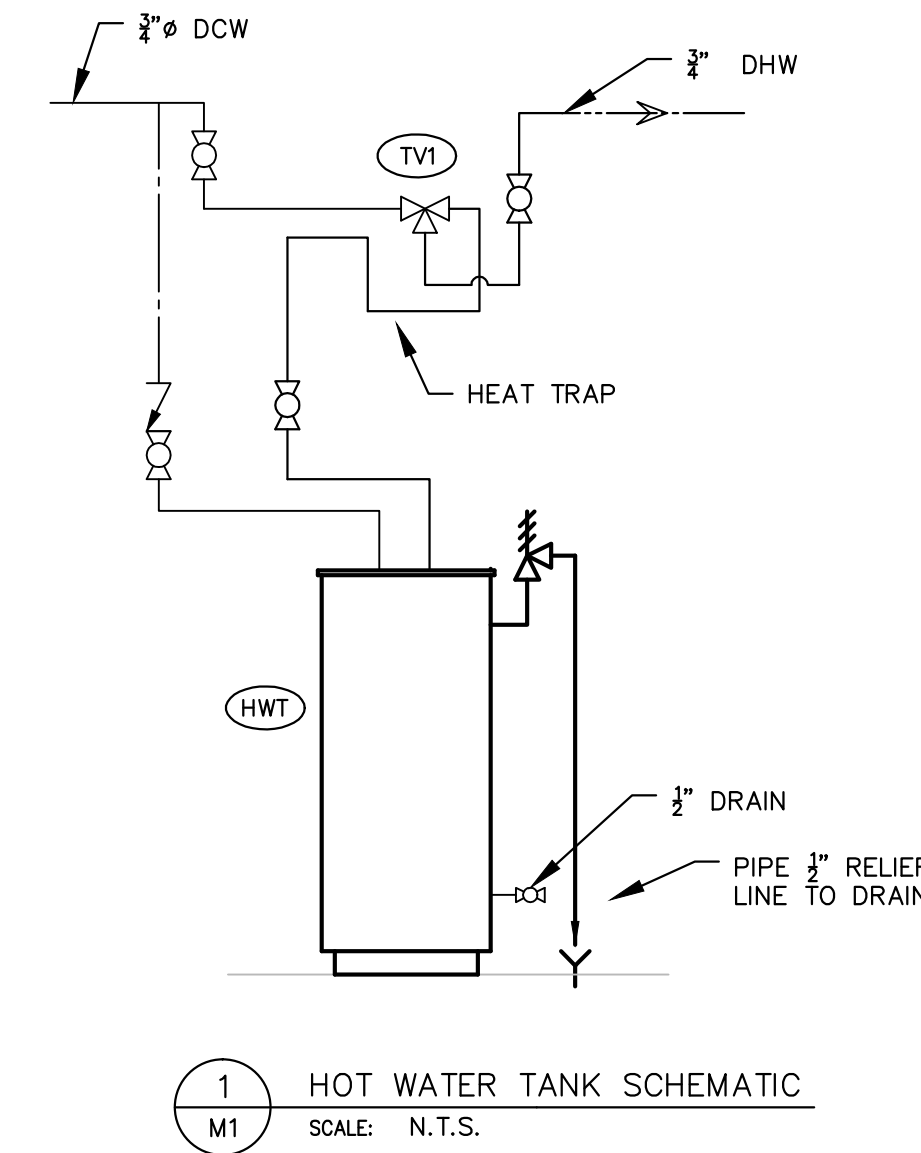
15600 SHEET METAL, DUCTWORK AND SPECIALTIES

- 1.1 Make all ductwork, unless specifically noted otherwise, of galvanized sheet steel to ASTM A525-83, and according to the requirements of SMACNA for a 1" wg pressure class and a seal class of 'C'. Provide reinforcements fabricated from angles, zees, or channels as per SMACNA. Support ducts with hangers and tie-rods. Ductwork will be painted in this contract.
- 1.2 Where ductwork passes through a wall or floor, other than when a fire damper is required, pack around the duct using a fire resistant material to ensure a sound and air-tight joint.
- 1.3 Make changes in direction of horizontal ducts with elbows having an inside radius not less than the width of the duct. Make a change of direction from horizontal to vertical duct with elbows having an inside radius equal to the depth of the duct. Where this is not possible due to the building construction, use turning vanes. These shall be hollow "Duro Vane Roll" manufactured by Duro Dyne or similar turning vanes acceptable to the Consultant.
- 1.4 Provide flexible connections at each air handling unit and fan to duct connection. The frame shall be galvanized sheet metal with fire-resistant neoprene coated glass fabric, clenched by double locked seams. Temperature rating shall be -40oF to 190oF.
- 1.5 Provide duct access panels at all gravity dampers, fire dampers, motorized dampers, coils, fan bearings or similar equipment requiring occasional maintenance or inspections Panels shall be 1" thick, insulated, low leakage, cam lock closure, and equal to Nailor Series 0800. Minimum size to be 12"x12" or 2" less than the duct width squared, unless duct dimensions do not allow. This Contractor shall also supply drywall access doors.
- 1.6 For duct expansions, the angle formed at each side of the duct shall not exceed 20°. For contractions, the angle formed at each side of the duct shall not exceed 30°.
- 1.7 Provide take-off boots and balancing dampers at all branches, and to SMACNA standards.
- 1.8 Grilles and Diffusers: Refer to schedules on drawings for size, colour and supplier.
- 1.9 Insulated flexible ducting is to be used to connect ductwork to ceiling diffusers. The maximum length of flexible ducting is to be 4'-0". Ducting and insulation to meet NFPA requirements for flame spread and smoke developed, 25/ 50.
- 1.10 Fire Dampers, where indicated, (FD) shall be installed at all fire separations, which includes the walls of any mechanical room. Dampers shall have a 165oF fusible link, be Type B, ULC listed and be rated for 1½ hours.

15700 EXHAUST FANS

- 1.1 Ceiling exhaust fans shall be as indicated on schedule.
- 1.2 Fan shall be with true centrifugal wheel, in acoustically insulated metal housing with integral back draft damper.
- 1.3 Fan shall be complete with disconnect and timer switch.
- 1.4 Install where shown on drawings, exhaust duct to be sheet metal. Seal exhaust duct to prevent the escape of vapours.
- 1.5 Div 16 to wire power and switch.

PLUMBING FIXTURE SCHEDULE						
REF.	FIXTURE NAME	HOT	COLD	DRAIN	VENT	REMARKS
C.O.	CLEAN OUT	-	-	-	-	ZURN ZN-1602, ADJUSTABLE HEAD WITH BODY SLEEVE SEAL
S1	KITCHEN SINK	½"	½"	1½"	1½"	31" X 20" X 7" DP. DOUBLE COMPARTMENT, 20 GAUGE LEDGEBACK STAINLESS STEEL SINK, 3 HOLES, EQUAL TO KINDRED STEELQUEEN ODL2031/7. FAUCET TO BE POLISHED CHROME PLATED, 8" CENTRES, SINGLE CHROME LEVER, EQUAL TO MOEN ADLER CAB7539 (NO SIDE SPRAY).
LAV1	LAVATORY (ACCESSIBLE)	½"	½"	1½"	1½"	ADA COMPLIANT LAVATORY: 22" X 21½" LAVATORY REAR OVERFLOW, FIRE CLAY CHINA, WALL HUNG, WITH CUTOUT TEMPLATE AND MOUNTING KIT. 4" CENTRES FOR FAUCET, AMERICAN STANDARD MEZZO 9960-403. FAUCET TO BE ADA COMPLIANT, CHROME PLATED BRASS WITH TRIM PLATE, ADJUSTABLE TEMPERATURE RANGE, TEMPERING FUCTION, LED INDICATOR, STRAINER FILTER, 120/24VAC TRANSFORMER EL-233. FAUCET TO BE SLOAN ETF-80 WITH MIXING VALVE. DRAIN TO BE PVC. PROVIDE ESCUTCHEONS.
LAV2	LAVATORY	½"	½"	1½"	1½"	ADA COMPLIANT LAVATORY: 22" X 21½" LAVATORY REAR OVERFLOW, FIRE CLAY CHINA, WALL HUNG, WITH CUTOUT TEMPLATE AND MOUNTING KIT. 4" CENTRES FOR FAUCET, AMERICAN STANDARD MEZZO 9960-403. FAUCET TO BE ADA COMPLIANT, CHROME PLATED BRASS WITH TRIM PLATE, ADJUSTABLE TEMPERATURE RANGE, TEMPERING FUCTION, LED INDICATOR, STRAINER FILTER, 120/24VAC TRANSFORMER EL-233. FAUCET TO BE SLOAN ETF-80 WITH MIXING VALVE. DRAIN TO BE PVC. PROVIDE ESCUTCHEONS.
WC1	WATER CLOSET (ACCESSIBLE)	-	-	3"	1½"	ADA COMPLIANT, WHITE VITREOUS CHINA, ELONGATED BOWL, FLOOR MOUNTED, INSULATED TANK WATER CLOSET, 6 LPF TOILET, AMERICAN STANDARD CADET PRO RIGHHEIGHT 3517A 101 ELONGATED BOWL AND 4188A 054 LINED TANK. SEAT TO BE WHITE. SOLID PLASTIC IMPACT RESISTANT EQUAL TO BEMIS 1955C.
WC2	WATER CLOSET	-	-	3"	1½"	REGULAR HEIGHT, WHITE VITREOUS CHINA, ELONGATED BOWL, FLOOR MOUNTED, INSULATED TANK WATER CLOSET, 6 LPF TOILET, AMERICAN STANDARD CADET PRO 3517C 101 ELONGATED BOWL & 4188A 054 LINED TANK. SEAT TO BE WHITE. SOLID PLASTIC IMPACT RESISTANT EQUAL TO BEMIS 1955C.
SH1	SHOWER	½"	½"	2"	1½"	ONE PIECE HEAVY DUTY ACRYLIC WITH DIMENSIONS 69"x 36½" x 84"HIGH. UNIT TO COME COMPLETE WITH ACRYLIC DOME TOP, 2" THRESHOLD, BACK SHELF, TEXTURED SLIP RESISTANT FLOOR, AND CENTRE DRAIN. ACCESSORIES TO INCLUDE HDPE FOLDING SHOWER SEAT, GRAB BARS, CURTAIN ROD AND WEIGHTED CURTAIN, CAULKLESS DRAIN. SHOWER TO BE ACCESSIBILITY PROFESSIONALS APT7236BF2. FAUCET TO BE MOEN CHATEAU L2352 SINGLE HANDLE SHOWER, TRIM METAL CONSTRUCTION, WITH CHROME PLATED PLATINUM GLACIER FINISH. POSTEMP PRESSURE BALANCING VALVE WITH ADJUSTABLE TEMPERATURE LIMIT STOP, 1222 CARTRIDGE DESIGN VOLUME CONTROL, SERVICE STOPS, ESCUTCHEON PLATE, SINGLE LEVER CONTROL HANDLE, 9.5 L/MIN, FLOW SHOWER HEAD.
SH2	SHOWER	½"	½"	2"	1½"	ONE PIECE HEAVY DUTY FORMED ACRYLIC WITH DIMENSIONS 38"x 38"x 76 ¼"HIGH. UNIT TO COME COMPLETE WITH CHROME DRAIN, DOOR AND SIDE PANELS. SHOWER TO BE MIROLIN SORRENTO SERIES SC38NA. FAUCET TO BE MOEN CHATEAU L2352 SINGLE HANDLE SHOWER, TRIM METAL CONSTRUCTION, WITH CHROME PLATED PLATINUM GLACIER FINISH. POSTEMP PRESSURE BALANCING VALVE WITH ADJUSTABLE TEMPERATURE LIMIT STOP, 1222 CARTRIDGE DESIGN VOLUME CONTROL, SERVICE STOPS, ESCUTCHEON PLATE, SINGLE LEVER CONTROL HANDLE, 9.5 L/MIN, FLOW SHOWER HEAD.
FD	FLOOR DRAIN	-	-	3"	1½"	DURA-COATED, CAST IRON BODY, CLAMP COLLAR, POLISHED NICKEL BRONZE STRAINER, 3/8" TRAP SEALER PRIMER, EQUAL TO ZURN Z-415-A-P.
HWT	HOT WATER TANK	3/4"	3/4"	-	-	40 IMP GAL ELECTRIC HOT WATER HEATER, 3000 WATTS, 240V POWER, UNIT TO BE SUPPLIED WITH ASME RATED T&P VALVE, GLASS LINED INNER TANK, INSULATED WITH HIGH DENSITY FIBREGLASS INSULATION, AUTOMATIC TEMPERATURE CONTROLLER, DRAIN VALVE, ¾" DIELECTRIC WATER CONNECTIONS, 6 YEAR LIMITED WARRANTY, AND BE LISTED BY CSA. THE UNIT SHALL BE EQUAL TO GIANT 152B,E
TV	THERMOSTATIC MIXING VALVE	3/4"	3/4"	-	-	¾"ADJUSTABLE TEMPERATURE SETTING, CAST BRASS BODY, INTEGRAL CHECK VALVE, MAX 200°F, 150 PSI TO CSA B125, UNION SWEAT CONNECTIONS, EQUAL TO POWERS #LM-491-10-2



NOT FOR CONSTRUCTION

Rev.	Date	Description	By	App.
-	-	-	-	-
0	SEP 16 15	ISSUED FOR PERMIT	AB	-
P1	SEPT. 9/15	FOR 90% REVIEW	AB	-

NOVADYNE
 365 Lansdowne St. E., Tel: (705) 775-5151
 Unit 1, Peterborough, ON
 K9L 2A3

	DWN.	T. ST. JEAN	SEP 2015
	CHK.		
	DSN.	A. BUCHKOWSKI	SEP 2015
	SCALE:		AS NOTED

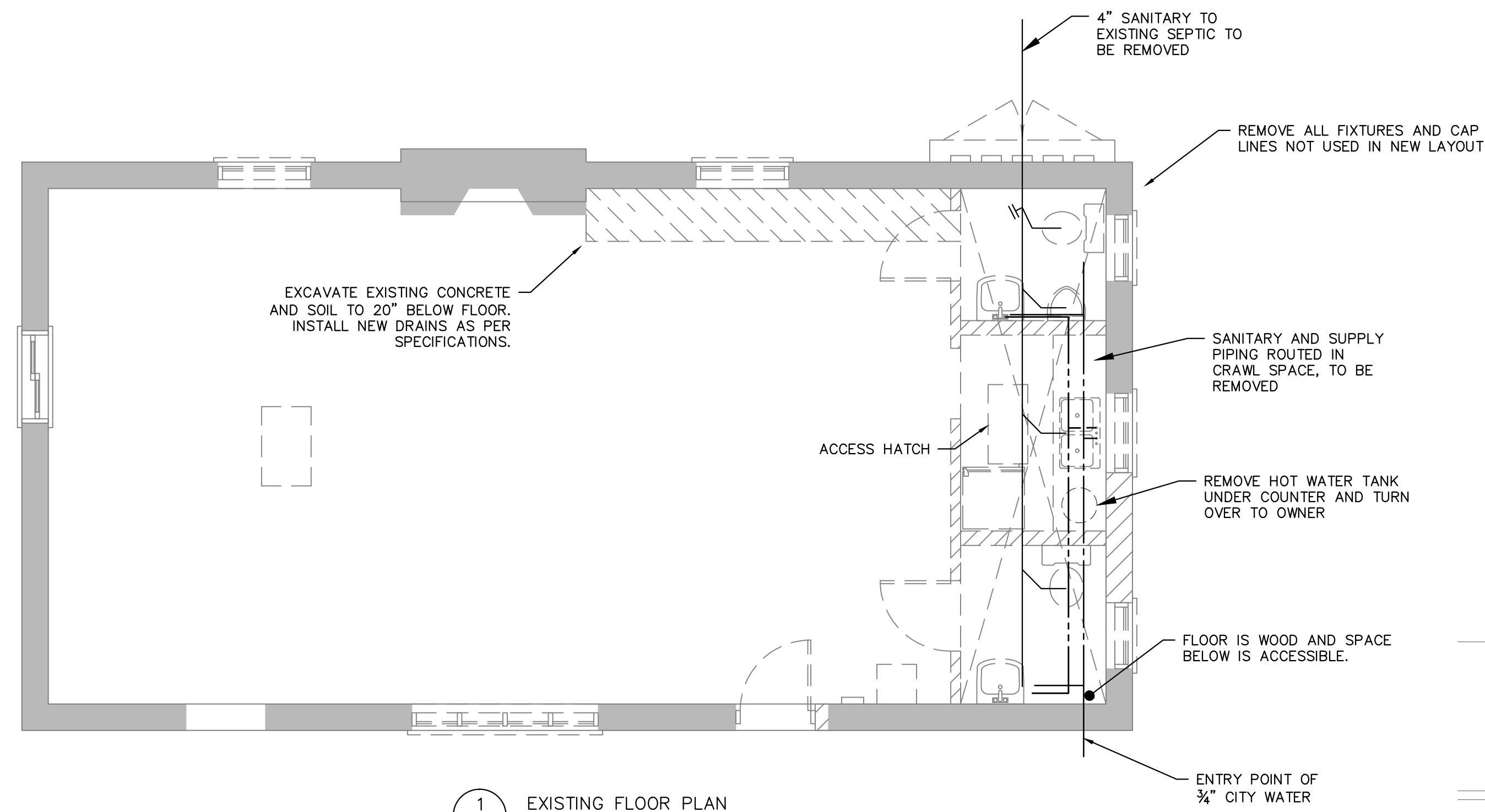
CLIENT
Gregg Gordon Architect

PROJECT
QUAKER PARK TENNIS CLUB
 DRISCOLL TERRACE
 PETERBOROUGH, ONTARIO

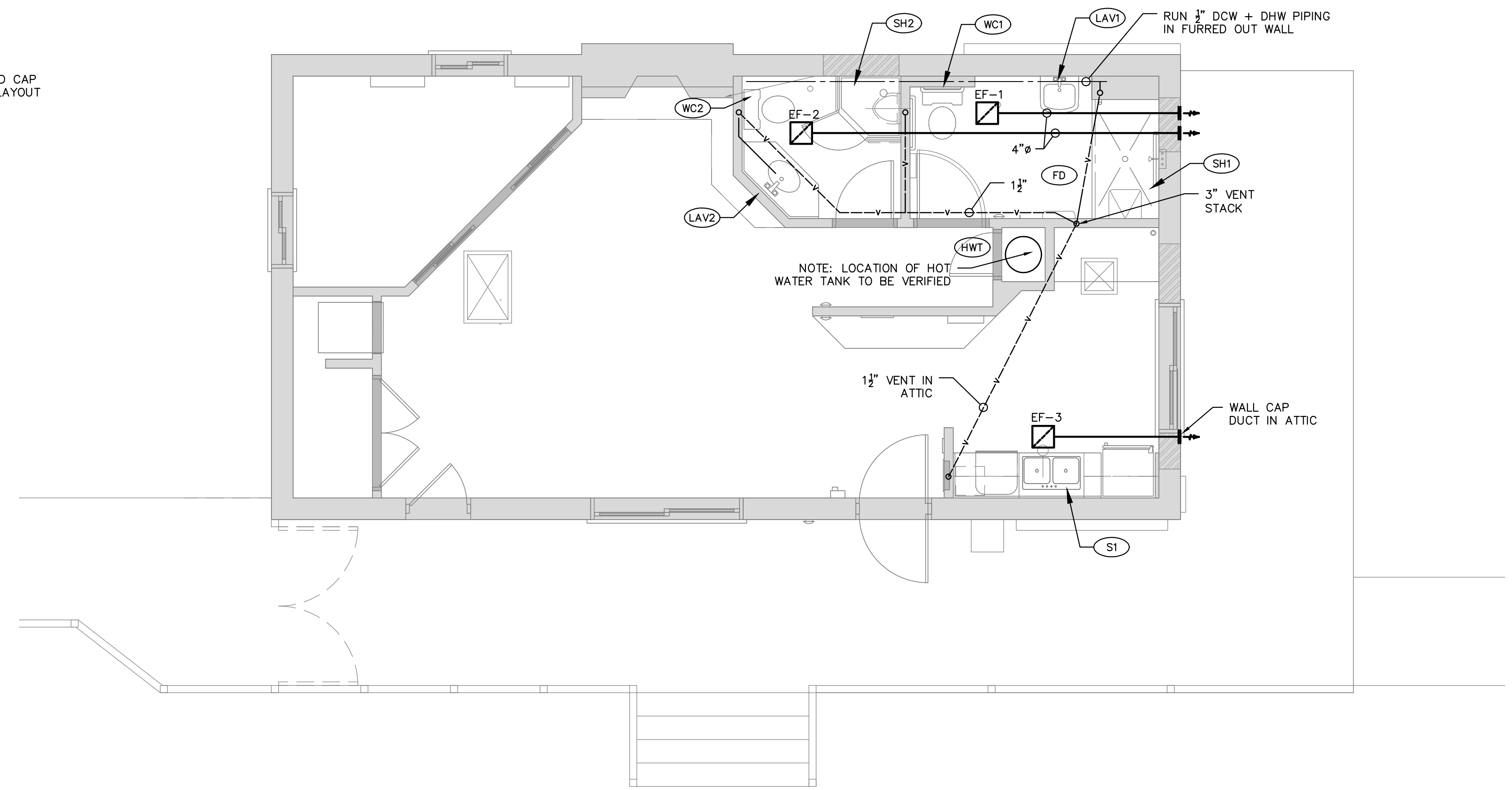
TITLE
SPECIFICATIONS & SCHEDULES

FILE No. 387-M1 DWG. No. **M1** Rev. No. **P1**

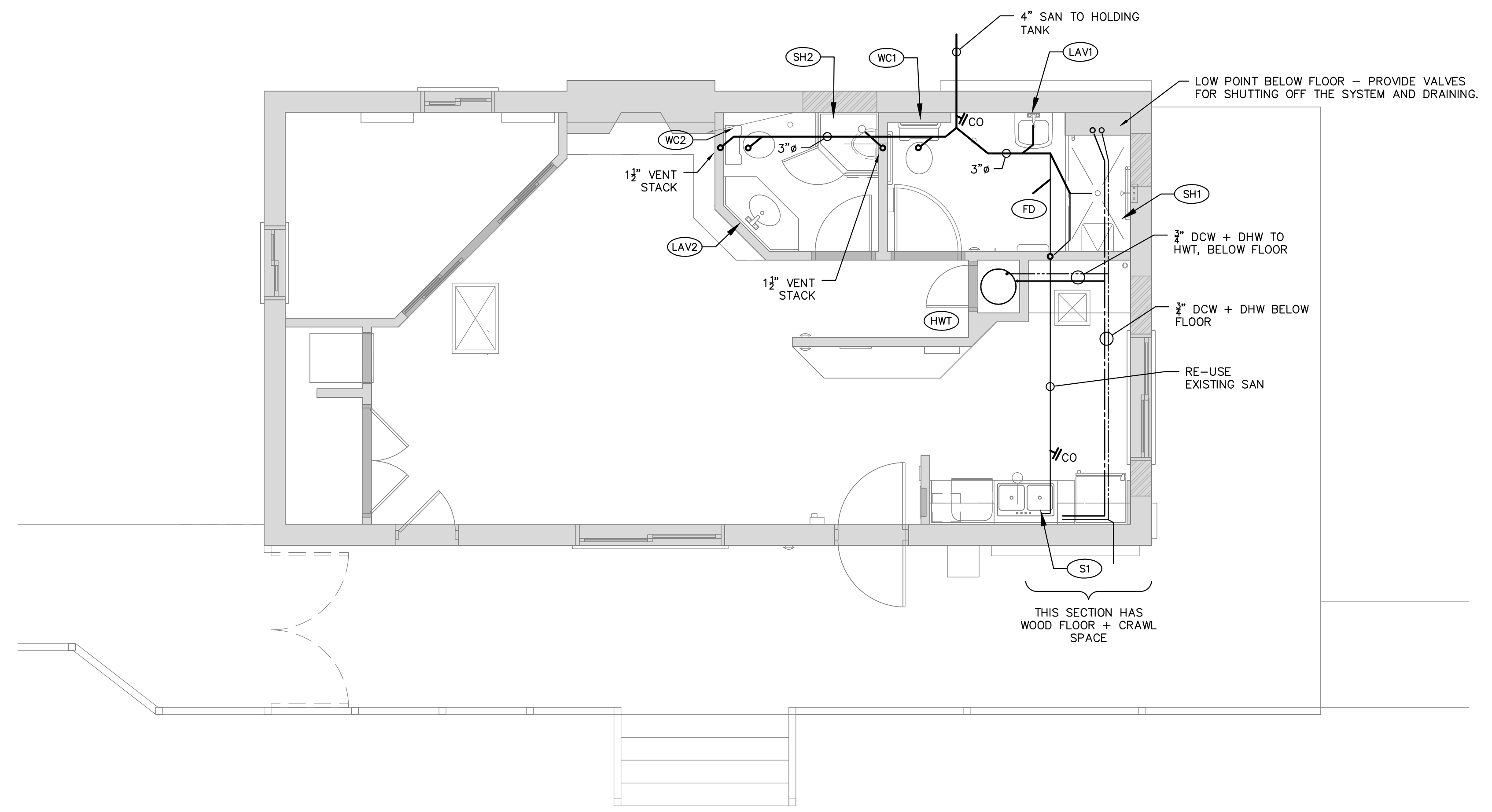
Item	Description	Airflow (cfm)	Static ("wc)	Noise (sones)	Motor		Model	Remarks
					WATTS	volts/ph		
EF-1 EF-2 EF-3	WASHROOM EXHAUST FAN	110	0.125"	1.5	81	120/1	NUTONE QTRN110C	FAN CONTROL BY WALL SWITCH/TIMER.



1 EXISTING FLOOR PLAN
SCALE: 1/4"=1'-0"



2 PLUMBING FLOOR PLAN - ABOVE GRADE
SCALE: 1/4"=1'-0"



3 PLUMBING FLOOR PLAN - BELOW GRADE
SCALE: 1/4"=1'-0"

Rev.	Date	Description	By	App.
-	-	-	-	-
0	SEP 16 15	ISSUED FOR PERMIT	AB	-
P1	SEPT. 9/15	ISSUED FOR REVIEW	AB	-

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MECHANICAL BCIN: 22418

REGISTERED PROFESSIONAL
 A.G. BUCHKOWSKI
 SEP 16 2015
 PROVINCE OF ONTARIO

DWN. T. ST. JEAN SEP 2015
 CHK. SEP 2015
 DSN. A. BUCHKOWSKI SEP 2015
 SCALE: AS NOTED

CLIENT
 Gregg Gordon Architect

PROJECT
QUAKER PARK TENNIS CLUB
 DRISCOLL TERRACE
 PETERBOROUGH, ONTARIO

NOT FOR CONSTRUCTION

TITLE
PLUMBING PLANS

FILE No. 387-M2	DWG. No. M2	Rev. No. 0
CLIENT FILE No.		