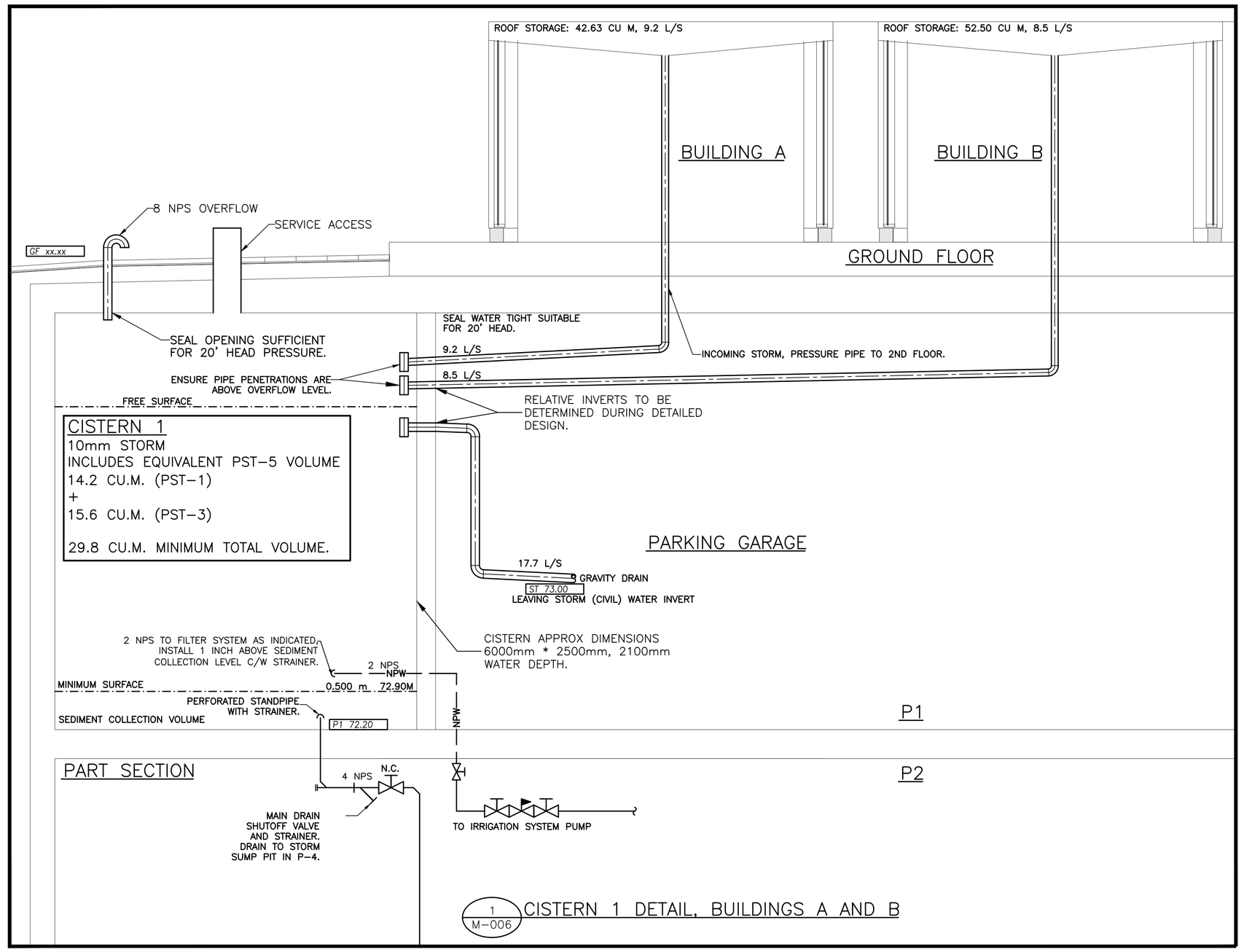

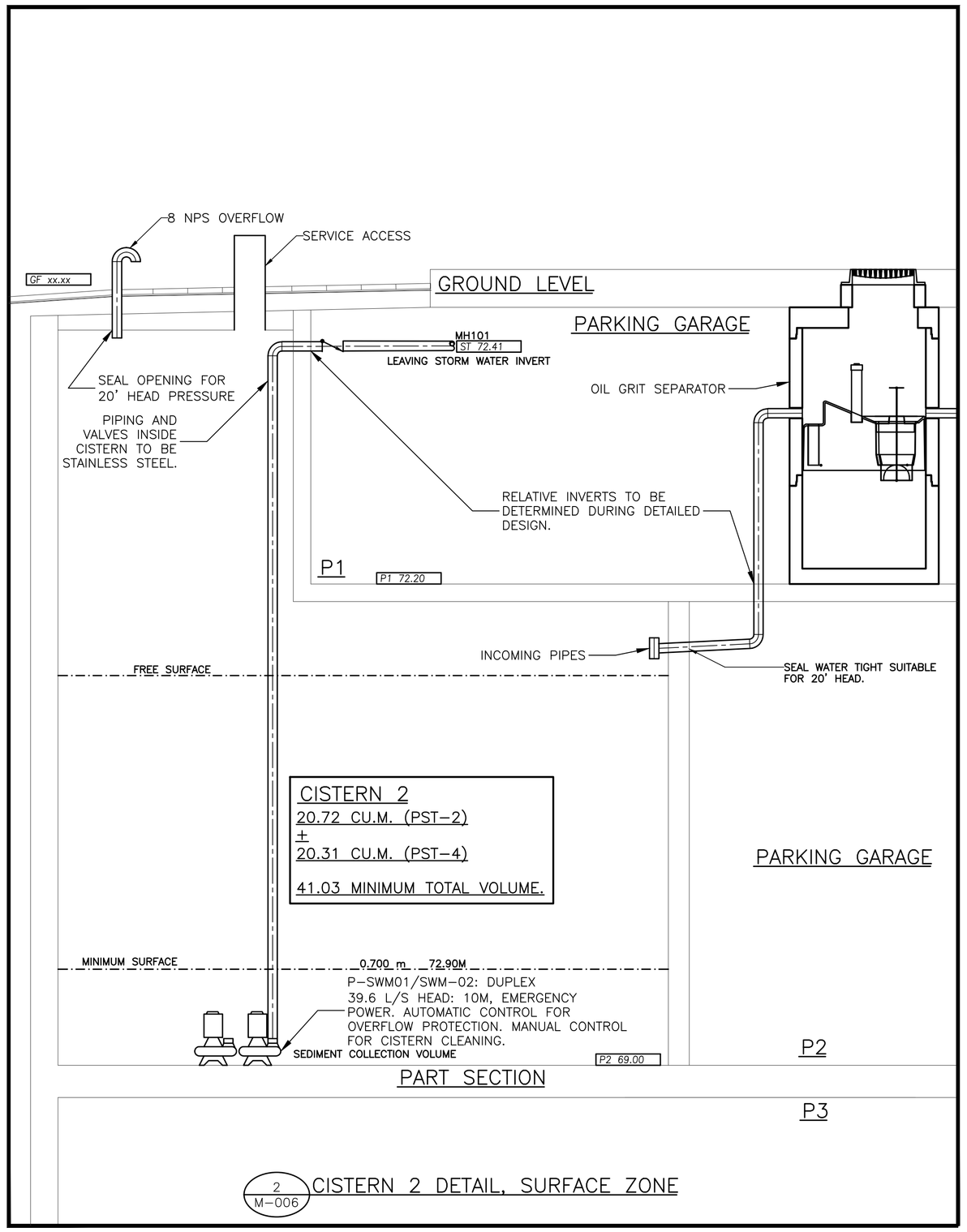

CISTERN AND OIL/GRIT SEPARATOR (OGS) SCHEDULE								
TAG	SWM REPORT FIGURE/TABLE	CATCHMENT		RELEASE RATE	STORAGE	10mm STORAGE	TO LEAVING STORM	TO CISTERN
				L/S	CUBIC METER	CUBIC METER		
CIS-01	A-2/D-12 D-13	PST-1 + PST-2		9.2 : 8.5	42.63 : 52.50	29.8	GRAVITY	N/A
CIS-02	A-2/D-14	PST-4		16.5	41.03	0	PUMPED	N/A
			DRAINAGE AREA		TSS REMOVAL	WATER QUAL CAPTURE	OIL/FUEL SPILL RISK	
OGS	A-2/D-11	DRIVEWAY	0.1124 Ha	39.6	97%	>90%	YES	CIS-02

REFERENCE: SITE SERVICING AND STORM WATER MANAGEMENT REPORT 365 FOREST STREET, OTTAWA, ON AS PREPARED BY EXP

STANDARD PERFORMANCE SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

THIS SECTION SPECIFIES REQUIREMENTS FOR SELECTING, SIZING, AND DESIGNING AN UNDERGROUND OIL GRIT SEPARATOR (OGS) DEVICE FOR STORMWATER QUALITY TREATMENT, WITH THIRD–PARTY TESTING RESULTS AND A STATEMENT OF VERIFICATION IN ACCORDANCE WITH ISO 14034 ENVIRONMENTAL MANAGEMENT – ENVIRONMENTAL TECHNOLOGY VERIFICATION (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 ENVIRONMENTAL MANAGEMENT – ENVIRONMENTAL TECHNOLOGY VERIFICATION (ETV)

CANADIAN ENVIRONMENTAL TECHNOLOGY VERIFICATION (ETV) PROGRAM'S PROCEDURE FOR LABORATORY TESTING OF OIL–GRIT SEPARATORS

1.3 SUBMITTALS

1.3.1 ALL SUBMITTALS, INCLUDING SIZING REPORTS & SHOP DRAWINGS, SHALL BE SUBMITTED UPON REQUEST WITH EACH ORDER TO THE CONTRACTOR THEN FORWARDED TO THE ENGINEER OF RECORD FOR REVIEW AND ACCEPTANCE. SHOP DRAWINGS SHALL DETAIL ALL OGS COMPONENTS, ELEVATIONS, AND SEQUENCE OF CONSTRUCTION.

1.3.2 ALTERNATIVE DEVICES SHALL HAVE FEATURES IDENTICAL TO OR GREATER THAN THE SPECIFIED DEVICE, INCLUDING: TREATMENT CHAMBER DIAMETER, TREATMENT CHAMBER WET VOLUME, SEDIMENT STORAGE VOLUME, AND OIL STORAGE VOLUME.

1.3.3 UNLESS DIRECTED OTHERWISE BY THE ENGINEER OF RECORD, OGS STORMWATER QUALITY TREATMENT PRODUCT SUBSTITUTIONS OR ALTERNATIVES SUBMITTED WITHIN TEN DAYS PRIOR TO PROJECT BID SHALL NOT BE ACCEPTED. ALL ALTERNATIVES OR SUBSTITUTIONS SUBMITTED SHALL BE SIGNED AND SEALED BY A LOCAL REGISTERED PROFESSIONAL ENGINEER, BASED ON THE EXACT SAME CRITERIA DETAILED IN SECTION 3, IN ENTIRETY, SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER OF RECORD.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

THE OGS DEVICE SHALL INCLUDE A SUMP FOR SEDIMENT STORAGE, AND A PROTECTED VOLUME FOR THE CAPTURE AND STORAGE OF PETROLEUM HYDROCARBONS AND BUOYANT GROSS POLLUTANTS. THE MINIMUM SEDIMENT & PETROLEUM HYDROCARBON STORAGE CAPACITY SHALL BE AS FOLLOWS:

2.1.1 4FT (1219MM) DIAMETER OGS UNITS: 1.19M³ SEDIMENT / 265L OIL
6FT (1829MM) DIAMETER OGS UNITS: 3.48M³ SEDIMENT / 609LL OIL
8FT (2438MM) DIAMETER OGS UNITS: 8.78M³ SEDIMENT / 1,071L OIL
10FT (3048MM) DIAMETER OGS UNITS: 17.78M³ SEDIMENT / 1,673L OIL
12FT (3657MM) DIAMETER OGS UNITS: 31.23M³ SEDIMENT / 2,476L OIL

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

THE OGS STORMWATER QUALITY TREATMENT DEVICE SHALL BE VERIFIED IN ACCORDANCE WITH ISO 14034:2016 ENVIRONMENTAL MANAGEMENT – ENVIRONMENTAL TECHNOLOGY VERIFICATION (ETV). THE OGS STORMWATER QUALITY TREATMENT DEVICE SHALL REMOVE OIL, SEDIMENT AND GROSS POLLUTANTS FROM STORMWATER RUNOFF DURING FREQUENT WET WEATHER EVENTS, AND RETAIN THESE POLLUTANTS DURING LESS FREQUENT HIGH FLOW WET WEATHER EVENTS BELOW THE INSERT WITHIN THE OGS FOR LATER REMOVAL DURING MAINTENANCE. THE MANUFACTURER SHALL HAVE AT LEAST TEN (10) YEARS OF LOCAL EXPERIENCE, HISTORY AND SUCCESS IN ENGINEERING DESIGN, MANUFACTURING AND PRODUCTION AND SUPPLY OF OGS STORMWATER QUALITY TREATMENT DEVICE SYSTEMS, ACCEPTABLE TO THE ENGINEER OF RECORD.

3.2 SIZING METHODOLOGY

THE OGS DEVICE SHALL BE ENGINEERED, DESIGNED AND SIZED TO PROVIDE STORMWATER QUALITY TREATMENT BASED ON TREATING A MINIMUM OF 90 PERCENT OF THE AVERAGE ANNUAL RUNOFF VOLUME AND A MINIMUM REMOVAL OF AN ANNUAL AVERAGE 60% OF THE SEDIMENT (TSS) LOAD BASED ON THE PARTICLE SIZE DISTRIBUTION (PSD) SPECIFIED IN THE SIZING REPORT FOR THE SPECIFIED DEVICE. SIZING SHALL BE DETERMINED USING HISTORICAL RAINFALL DATA AND A SEDIMENT REMOVAL PERFORMANCE CURVE DERIVED FROM THE ACTUAL THIRD–PARTY VERIFIED LABORATORY TESTING DATA. THE OGS DEVICE SHALL ALSO HAVE SUFFICIENT ANNUAL SEDIMENT STORAGE CAPACITY AS SPECIFIED AND CALCULATED IN SECTION 2.1.

3.3 CANADIAN ETV OR ISO 14034 ETV VERIFICATION OF SCOUR TESTING

THE OGS DEVICE SHALL HAVE CANADIAN ETV OR ISO 14034 ETV VERIFICATION OF THIRD–PARTY SCOUR TESTING CONDUCTED IN ACCORDANCE WITH THE CANADIAN ETV PROGRAM'S PROCEDURE FOR LABORATORY TESTING OF OIL–GRIT SEPARATORS.

3.3.1 TO BE ACCEPTABLE FOR ON–LINE INSTALLATION, THE OGS DEVICE MUST DEMONSTRATE AN AVERAGE SCOUR TEST EFFLUENT CONCENTRATION LESS THAN 10 MG/L AT EACH SURFACE LOADING RATE TESTED, UP TO AND INCLUDING 2600 L/MIN/M².

3.4 LIGHT LIQUID RE–ENTRAINMENT SIMULATION TESTING

THE OGS DEVICE SHALL HAVE CANADIAN ETV OR ISO 14034 ETV VERIFICATION OF COMPLETED THIRD–PARTY LIGHT LIQUID RE–ENTRAINMENT SIMULATION TESTING IN ACCORDANCE WITH THE CANADIAN ETV PROGRAM'S PROCEDURE FOR LABORATORY TESTING OF OIL–GRIT SEPARATORS, WITH RESULTS REPORTED WITHIN THE CANADIAN ETV OR ISO 14034 ETV VERIFICATION. THIS RE–ENTRAINMENT TESTING IS CONDUCTED WITH THE DEVICE PRE–LOADED WITH LOW DENSITY POLYETHYLENE (LDPE) PLASTIC BEADS AS A SURROGATE FOR LIGHT LIQUIDS SUCH AS OIL AND FUEL. TESTING IS CONDUCTED ON THE SAME OGS UNIT TESTED FOR SEDIMENT REMOVAL TO ASSESS WHETHER LIGHT LIQUIDS CAPTURED AFTER A SPILL ARE EFFECTIVELY RETAINED AT HIGH FLOW RATES.

3.4.1 FOR AN OGS DEVICE TO BE AN ACCEPTABLE STORMWATER TREATMENT DEVICE ON A SITE WHERE VEHICULAR TRAFFIC OCCURS AND THE POTENTIAL FOR AN OIL OR FUEL SPILL EXISTS, THE OGS DEVICE MUST HAVE REPORTED VERIFIED PERFORMANCE RESULTS OF GREATER THAN 99% CUMULATIVE RETENTION OF LDPE PLASTIC BEADS FOR THE FIVE SPECIFIED SURFACE LOADING RATES (RANGING 200 L/MIN/M² TO 2600 L/MIN/M²) IN ACCORDANCE WITH THE LIGHT LIQUID RE–ENTRAINMENT SIMULATION TESTING WITHIN THE CANADIAN ETV PROGRAM'S PROCEDURE FOR LABORATORY TESTING OF OIL–GRIT SEPARATORS. HOWEVER, AN OGS DEVICE SHALL NOT BE ALLOWED IF THE LIGHT LIQUID RE–ENTRAINMENT SIMULATION TESTING WAS PERFORMED WITH SCREENING COMPONENTS WITHIN THE OGS DEVICE THAT ARE EFFECTIVE AT RETAINING THE LDPE PLASTIC BEADS, BUT WOULD NOT BE EXPECTED TO RETAIN LIGHT LIQUIDS SUCH AS OIL AND FUEL.

CISTERN NOTES

1. SEE EXP SERVICES INC. STORMWATER MANAGEMENT REPORT FOR ADDITIONAL SUPPORTING INFORMATION FOR THE SYSTEM. THAT REPORT SHALL FORM PART OF THE SUPPORTING DOCUMENTS FOR THIS CONTRACT. CONTRACTOR SHALL READ THE REPORT PRIOR TO SUBMITTING CONTRACT PRICE.
2. THESE DRAWINGS ARE SCHEMATIC IN NATURE AND SHOW PLUMBING CONNECTIONS ONLY. REFER TO STRUCTURAL AND ARCHITECTURAL DRAWINGS FOR DETAILS OF CONSTRUCTION, INCLUDING METHOD OF MAINTENANCE ACCESS AND OVERFLOW.
3. CISTERN 1 IS INTENDED FOR ROOF DRAINAGE ONLY, PART OF THE STORED WATER FOR IRRIGATION USE.
4. CISTERN 2 IS INTENDED FOR GROUND FLOOR LEVEL OUTDOOR DRAINAGE ONLY, IN CONJUNCTION WITH AN OIL/GRIT SEPARATOR.
5. THIS CONTRACTOR TO PROVIDE PIPING, CONTROLS, CONDUIT, WIRING AND EQUIPMENT FOR THE CISTERNS, CISTERNS TO BE PROVIDED BY GENERAL CONTRACTOR.
6. ALL PIPING SHALL BE PRESSURE PIPING INCLUDING STORM UP TO THE 2ND FLOOR.
7. ALL PIPING TO BE IDENTIFIED AS "NON–POTABLE WATER" IN ADDITION TO ANY IDENTIFICATION REQUIRED IN THE SPECIFICATION.
8. ALL PENETRATIONS OF THE CISTERN SHALL BE MADE PRESSURE AND WATER TIGHT.
9. THIS CONTRACTOR TO MEASURE AREA OF CISTERN AFTER IT IS FORMED AND DETERMINE HEIGHTS OF ALL WATER LEVELS, FLOAT LEVELS AND PIPE PENETRATIONS. SUBMIT FABRICATION SKETCH TO ENGINEER FOR REVIEW PRIOR TO STARTING WORK. ALL PIPE AND CONTROLS OPENINGS TO BE CORED IN THE CISTERN AFTER IT IS FORMED.

23-063

NO.	REVISION	DATE
13	ISSUED FOR SITE PLAN COORDINATION	18 DEC 2023
12	ISSUED FOR SITE PLAN COORDINATION	11 OCT 2023
11	REVISED AND RE–ISSUED FOR SITE PLAN COORDINATION	16 AUG 2023
10	ISSUED FOR SITE PLAN COORDINATION	16 AUG 2023
9	ISSUED FOR CONSULTANT COORDINATION	15 SEP 2022
8	ISSUED FOR SITE PLAN APPROVAL	09 DEC 2021
7	ISSUED FOR CONSULTANT COORDINATION	08 DEC 2021
6	ISSUED FOR SITE PLAN COORDINATION	26 NOV 2021
5	ISSUED FOR SITE PLAN COORDINATION	12 NOV 2021
4	ISSUED FOR COORDINATION (ONLY M–290)	26 MAY 2021
3	ISSUED FOR COORDINATION (ONLY M–005)	23 FEB 2021
2	ISSUED FOR COORDINATION	29 JAN 2021
1	ISSUED FOR DESIGN BRIEF	21 DEC 2020

365 FOREST ST
TOWER A AND B

QM&E
1600 LAPERRIERE AVE., UNIT 200–A, OTTAWA, ONT., K1Z 8P5
TEL. (613) 366–4763 EMAIL: mail@qmengineering.com

LICENSED PROFESSIONAL ENGINEER
G.W.J. CLARK
PROVINCE OF ONTARIO

CURRENT DATE	Mon, 18 Dec 2023, 13 56
SCALE	IND
DRAWN	CWC
DESIGNED	CWC
CHECKED	LVDL
PROJECT	23–063
DRAWING NUMBER	M–006

CISTERN SCHEMATICS AND DETAILS

SHEET SIZE ARCH D 24"x36"