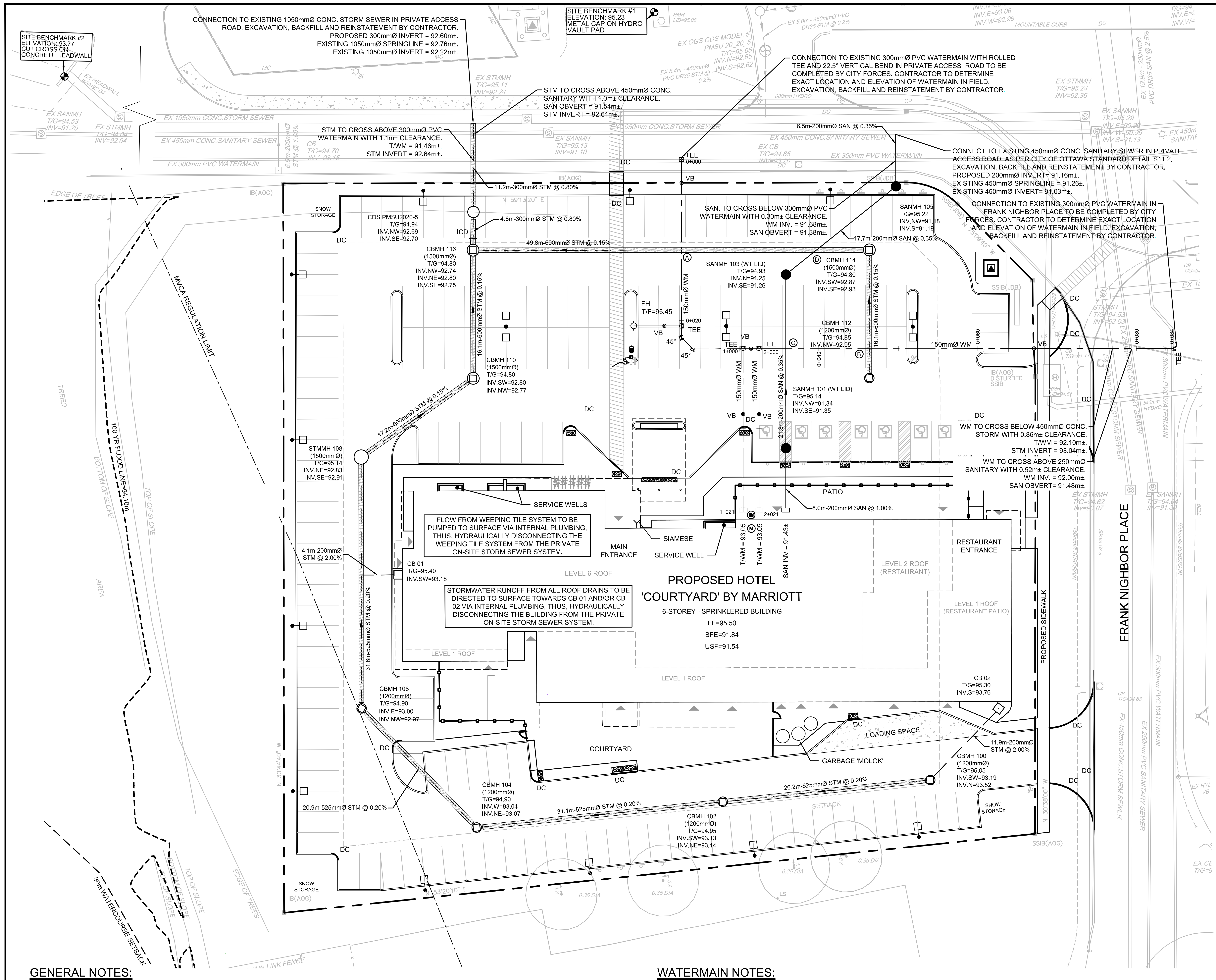
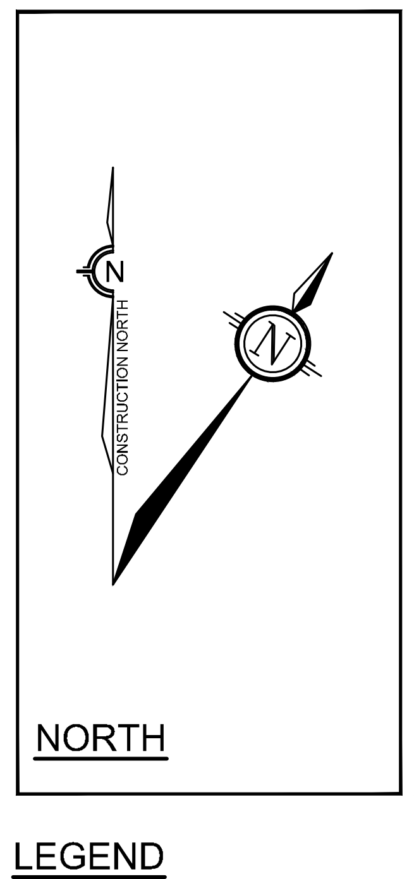
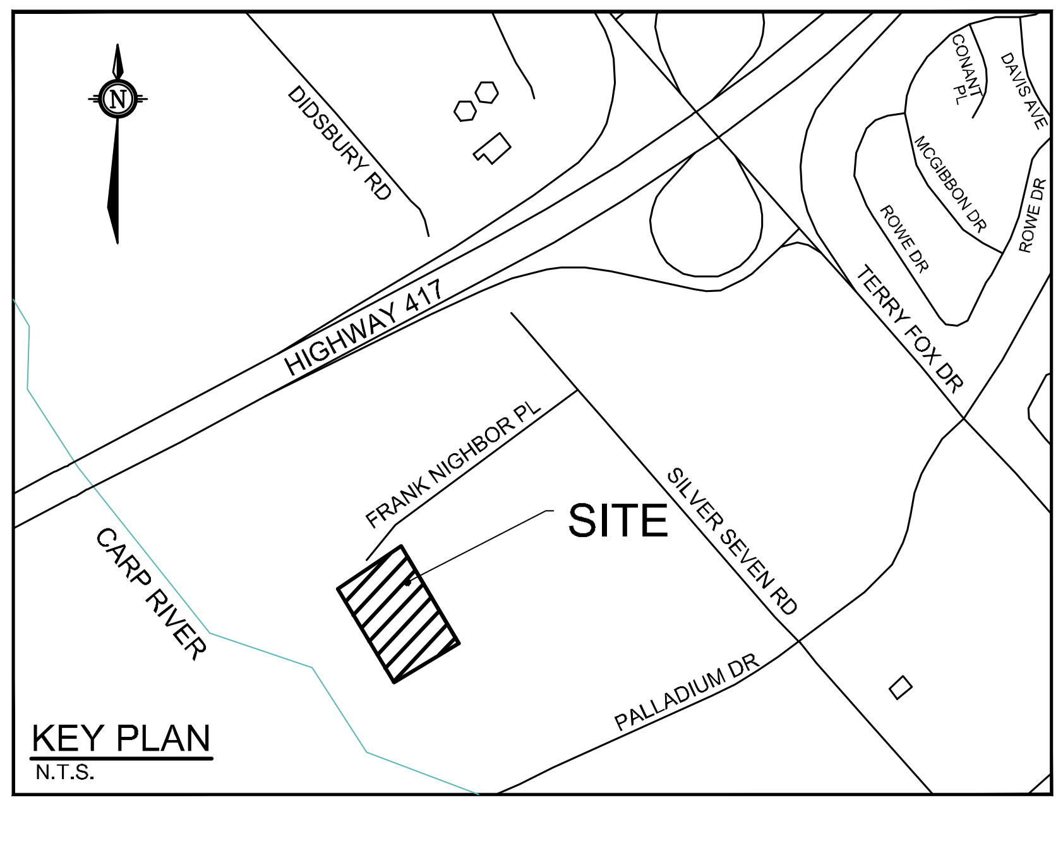






PROPOSED 150mmØ WATERMAIN TABLE

STATION	SURFACE ELEVATION	T/WM ELEVATION	COMMENTS
0+000	95.05	91.70± *	CONNECTION TO EXISTING 300mmØ WM
0+001.5	95.03	92.33	22.5° VERTICAL BEND
0+002.7	95.34	92.33	VALVE BOX AT PROPERTY LINE
0+011.1	95.06	92.23	CROSS BELOW 600mmØ STM (±0.5m CLEARANCE)
0+020.7	95.13	92.33	HYDRANT TEE
0+022.1	95.12	92.34	45° HORIZONTAL BEND
0+024.1	95.10	92.35	45° HORIZONTAL BEND
0+030.5	95.04	92.35	BUILDING SERVICE TEE
0+031.5	95.03	92.35	VALVE BOX
0+032.5	95.02	92.35	BUILDING SERVICE TEE
0+035.9	95.00	92.35	CROSS ABOVE 200mmØ SAN (±0.7m CLEARANCE)
0+046.4	95.02	92.35	CROSS BELOW 600mmØ STM (±0.5m CLEARANCE)
0+067.0	94.86	92.16	VALVE BOX AT PROPERTY LINE
0+076.5	94.50	92.10	CROSS EX. 450mmØ STM
0+079.4	94.55	92.15	CROSS EX. 250mmØ SAN
0+084.4	94.60	92.20± *	CONNECTION TO EXISTING 300mmØ WM

* 300mm x 300mm x 150mm CONNECTION TO EXISTING 300mmØ WATERMAIN BY CITY FORCES. EXACT ELEVATION TO BE FIELD DETERMINED.

PROPOSED 150mmØ WATERMAIN TABLE

STATION	SURFACE ELEVATION	T/WM ELEVATION	COMMENTS
1+000	95.04	92.35	CONNECTION TO PROPOSED 150mmØ WM
1+008.2	95.05	92.65	VALVE BOX
1+020.6	95.45	93.05	CAP AT 1.0m FROM BUILDING FACE

PROPOSED 150mmØ WATERMAIN TABLE

STATION	SURFACE ELEVATION	T/WM ELEVATION	COMMENTS
2+000	95.02	92.35	CONNECTION TO PROPOSED 150mmØ WM
2+008.2	95.05	92.65	VALVE BOX
2+020.6	95.45	93.05	CAP AT 1.0m FROM BUILDING FACE

CRITICAL SEWER PIPE CROSSING TABLE

CROSSING*	LOWER PIPE	HIGHER PIPE	CLEARANCE	SURFACE ELEVATION
Ⓐ	150mmØ T/WM=92.23	600mmØ STM INV=92.84	± 0.5m	95.06 m
Ⓑ	150mmØ T/WM=92.35	600mmØ STM INV=92.95	± 0.5m	94.91 m
Ⓒ	200mmØ SAN OBV=91.50	150mmØ WM INV.=92.20	± 0.7m	95.00 m
Ⓓ	200mmØ SAN OBV=91.43	600mmØ STM INV.=92.86	± 1.33m	94.87 m

* SEE 123002-GP PLAN FOR SEWER CROSSING LOCATIONS ON-SITE

ICD TABLE (AREAS A-1a TO A-1h, R-1 & R-2)

DESIGN EVENT	TYPE OF ICD	DIAMETER OF OUTLET PIPE (mm)	DESIGN FLOW (L/s)	DESIGN HEAD (m)	PONDING ELEV. (m)	VOLUME (m^3)
1:2 YR	TEMPEST MHF VORTEX 106mm	300	29.9	2.06	94.80	79
1:5 YR			28.8	2.15	94.89	147
1:100 YR			24.8	2.36	95.10	336

SITE FLOWS & STORMWATER MANAGEMENT TABLE

DESIGN EVENT	PRE-DEVELOPMENT CONDITIONS		POST-DEVELOPMENT CONDITIONS			
	UNCONTROLLED FLOW (L/s)	ALLOWABLE RELEASE RATE (L/s)	A-0a & A0-b DIRECT RUNOFF (L/s)	A-1a TO A-1h, R-1 & R-2 FLOW (L/s)	TOTAL FLOW (L/s)	REDUCTION IN FLOW (L/s or %)*
1:2 YR	34.7	40.7	5.7	29.9	35.7	-1.0 or -3%
1:5 YR	47.1		7.8	28.8	36.6	10.5 or 22%
1:100 YR	100.9		15.5	24.8	40.3	60.6 or 60%

* REDUCED FLOW COMPARED TO PRE-DEVELOPMENT UNCONTROLLED CONDITIONS

LEGEND

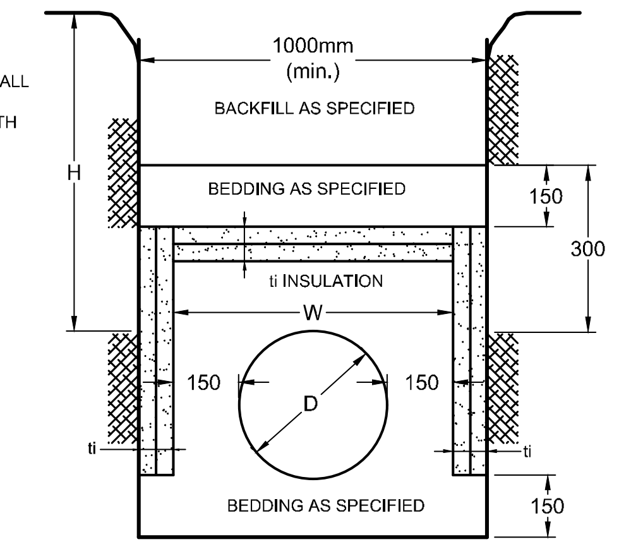
▬ ‒ ‒ ▬	PROPERTY LINE
SAN MH 101 (WT LID) ●	PROPOSED SANITARY MH (c/w WATERTIGHT LID) & SEWER
CBMH 104	PROPOSED CATCHBASIN MANHOLE & SEWER
CB 01 □	PROPOSED CATCHBASIN c/w LEAD
STM MH 108 ○	PROPOSED STORM MANHOLE & SEWER
HYD T/F=95.45 ⊗ VB	PROPOSED HYDRANT AND VALVE
═	PROPOSED BARRIER CURB (15cm CURB HEIGHT)
DC	DEPRESSED BARRIER CURB (0cm/5cm CURB HEIGHT)
150mmØ	PROPOSED WATERMAIN AND DIAMETER
VB ⊗	PROPOSED VALVE AND VALVEBOX
BEND	PROPOSED BEND AND THRUSTBLOCK 11.25°, 22.5°, 45° or TEE
Ⓜ ⓇⓂ	PROPOSED WATER METER AND REMOTE METER
[	PROPOSED CAP
ICD ▌	PROPOSED INLET CONTROL DEVICE
▨	THERMAL INSULATION FOR SHALLOW SEWERS
■	PROPOSED TWSI
─□─□─	PROPOSED PRIVACY FENCE
▲	PROPOSED BUILDING ENTRANCE
	PROPOSED SITE LIGHTING (REFER TO ELEC)
▲	PROPOSED TRANSFORMER
	PROPOSED SIGN
═	*EXISTING CONCRETE CURB*
SANMH ●	*EXISTING SANITARY MANHOLE AND SEWER*
CBMH	*EXISTING CATCHBASIN MANHOLE*
STMMH ○	*EXISTING STORM MANHOLE AND SEWER*
CB □	*EXISTING CATCHBASIN C/W CATCHBASIN LEAD*
EX UP ●	*EXISTING UTILITY POLE C/W GUY WIRES*
300mmØ WM	*EXISTING WATERMAIN*
HYD ⊗	*EXISTING HYDRANT C/W VALVE & LEAD*
LS ☼	*EXISTING LIGHT STANDARD*
── X ──	*EXISTING FENCE*

INSULATION NOTES:

1. THE THICKNESS OF SEWER INSULATION SHALL BE THE EQUIVALENT OF 25mm FOR EVERY 300mm REDUCTION IN THE REQUIRED DEPTH OF COVER LESS THAN 1800mm (SEE TABLE)

ti = THICKNESS OF INSULATION (mm)
h = DEPTH OF COVER
W = D + 300 (1000 min.)
W = WIDTH OF INSULATION (mm)
D = O.D OF PIPE (mm)

COVER (mm)	INSULATION THICKNESS (mm)
1800-1500	50
1500-1200	75
1200-900	100
900-600	125



INSULATION DETAIL FOR SHALLOW SEWERS

NOT TO SCALE

GENERAL NOTES:

1. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
2. DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
3. OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
4. BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR $5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
5. COMPLETE ALL WORKS IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS USING THE CURRENT GUIDELINES, BYLAWS AND STANDARDS INCLUDING MATERIALS OF CONSTRUCTION, DISINFECTION AND ALL RELEVANT REFERENCES TO OPSS, OPSD & AWWA GUIDELINES - ALL CURRENT VERSIONS AND 'AS AMENDED'.
6. RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF THE CITY OF OTTAWA AND ENGINEER.
7. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
8. ALL ELEVATIONS ARE GEODETIC.
9. REFER TO GEOTECHNICAL REPORT (NO. 02211293.000, DATED MAY 10, 2023), PREPARED BY ENGLOBE CORP., FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS, AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
10. REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARD SURFACE AREAS AND DIMENSIONS.
11. REFER TO THE DEVELOPMENT SERVICING STUDY & STORMWATER MANAGEMENT REPORT (R-2023-014) PREPARED BY NOVATECH.
12. SAW CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
13. PROVIDE LINE / PARKING PAINTING AS REQUIRED PER THE ARCHITECTURAL SITE PLAN.

WATERMAIN NOTES:

1. SUPPLY AND CONSTRUCT ALL WATERMAINS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS - ALL CURRENT VERSIONS AND 'AS AMENDED'. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMAINS BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN AND CHLORINATION OF THE WATER SYSTEM SHALL BE PERFORMED BY THE CONTRACTOR IN THE PRESENCE CITY OF OTTAWA FORCES.
2. SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
HYDRANT INSTALLATION	W19	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
THERMAL INSULATION AT OPEN STRUCTURES	W23	CITY OF OTTAWA
VALVE BOX ASSEMBLY	W24	CITY OF OTTAWA
WATERMAIN CROSSING BELOW SEWER	W25	CITY OF OTTAWA
WATERMAIN CROSSING OVER SEWER	W25.2	CITY OF OTTAWA
WATERMAIN	PVC DR 18	

3. WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE, UNLESS OTHERWISE INDICATED.
4. PROVIDE MINIMUM 0.5m CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS, UNLESS OTHERWISE INDICATED.
5. WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED.

BENCHMARK NOTES:

1. ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM (CGVD28:78) AND ARE DERIVED FROM PUBLISHED CONTROL MONUMENT 00119883075 HAVING A PUBLISHED ELEVATION OF 90.612 METRES.
2. IT IS THE RESPONSIBILITY OF THE USER OF THIS INFORMATION TO VERIFY THAT THE SITE BENCHMARK HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION SHOWN ON THIS DRAWING.
3. BENCHMARK WAS PROVIDED ON PLAN OF SURVEY SHOWING TOPOGRAPHIC DETAIL OF PART OF BLOCK 2, REGISTERED PLAN 4M-1012, CITY OF OTTAWA, SURVEYED BY J.D. BARNES LIMITED.

SEWER NOTES:

1. SUPPLY AND CONSTRUCT ALL SEWERS AND APPURTENANCES IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS - ALL CURRENT VERSIONS AND 'AS AMENDED'.
2. SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
CATCHBASIN (600x600mm)	705.010	OPSD
STORM / SANITARY MANHOLE (1200mmØ)	701.010	OPSD
CB, FRAME & COVER	400.020	OPSD
SANITARY MH FRAME & COVER	401.010 - TYPE "A"	OPSD
STORM / CBMH MANHOLE FRAME AND COVER	401.010 - TYPE "B"	OPSD
WATERTIGHT MH FRAME AND COVER	401.030	OPSD
SEWER TRENCH	S6	CITY OF OTTAWA

STORM SEWER — CONC. 65-D (450mmØ or greater), PVC DR 35 (SMALLER THAN 450mmØ)
SANITARY SEWER — PVC DR 35
CATCHBASIN LEAD — PVC DR 35

3. ALL STORM AND SANITARY SERVICE LATERALS SHALL BE EQUIPPED WITH BACKFLOW PREVENTION DEVICES AS PER THE CITY OF OTTAWA STANDARD DETAILS S14 AND S14.1 OR S14.2.
4. INSULATE ALL PIPES (SAN/STM) THAT HAVE LESS THAN 1.8m COVER WITH HI-40 INSULATION PER INSULATION DETAIL FOR SHALLOW SEWERS. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
5. SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.
6. PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.
7. FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE KOR-N-SEAL, PSX: POSITIVE SEAL AND DURASEAL). THE CONCRETE CRADLE FOR THE PIPE CAN BE ELIMINATED.
8. THE OWNER SHALL REQUIRE THAT THE SITE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.07.16, 410.07.16.04 AND 407.07.24. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY SERVICES TO CONFIRM PROPER CONNECTION TO THE SANITARY SEWER MAIN. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS.
9. ALL STORM MANHOLES AND CATCHBASIN MANHOLES ARE TO HAVE 300mm SUMPS UNLESS OTHERWISE INDICATED. ALL CATCHBASINS ARE TO HAVE 600mm SUMPS.
10. ALL CATCHBASINS, MANHOLES AND/OR CATCHBASIN MANHOLES THAT ARE TO HAVE ICD'S INSTALLED WITHIN THEM ARE TO HAVE 600mm SUMPS.
11. ALL WEEPING TILE SYSTEMS ARE TO BE PUMPED TO THE SURFACE AS INDICATED ON THE GENERAL PLAN OF SERVICES DRAWING. REFER TO MECHANICAL PLANS FOR DETAILS.
12. CONTRACTOR TO TELEVISE (CCTV) ALL PROPOSED SEWERS, 200mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.
13. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVICING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T/G ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, T/WM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

OWNER INFORMATION
401 REAL ESTATE TRUST INC.
2225 EAGLE STREET N,
CAMBRIDGE, ONTARIO, N3H 4R7
TED LANCASTER
PHONE: (705) 816-6355
ted.lancaster@401auto.ca

No.	REVISION	DATE	BY
1	ISSUED FOR SITE PLAN CONTROL APPROVAL	MAY 11/23	FST

SCALE
1:300
1:300
0 3 6 9 12

DESIGN ZA
CHECKED FST
DRAWN ZA
CHECKED CV
APPROVED FST

FOR REVIEW ONLY

F.S. THAUVETTE
100041399
MAY 11, 2023

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
40 FRANK NIGHBOR PLACE

DRAWING NAME
GENERAL PLAN OF SERVICES

PROJECT No. 123002
REV REV # 1
DRAWING No. 123002-GP

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