

**LEGEND**

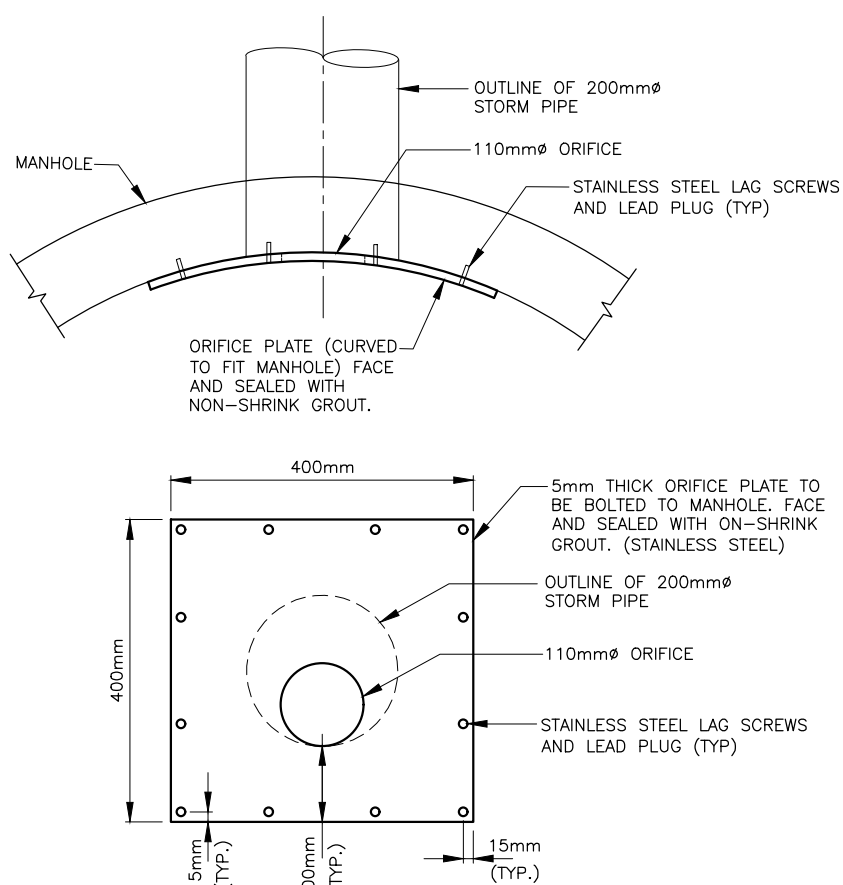
ST	EXISTING STORM SEWER	APP	APPROACH
ST	PROPOSED STORM SEWER W/ FLOW ARROW	APPX	APPROXIMATE
S	EXISTING SANITARY SEWER	AD	AREA DRAIN
S	PROPOSED SANITARY SEWER W/ FLOW ARROW	BOL	BOLLARD
W	EXISTING WATERMAIN	BLDG	BUILDING
W	PROPOSED WATERMAIN	CB	CATCH BASIN
⊙	WATER METER	CONC	CONCRETE
⊙	BACK FLOW PREVENTER	CCRB	CONCRETE CURB
▲	ENTRANCE	CRW	CONCRETE RETAINING WALL
SAN.	SANITARY	DC	DROP CURB
STM.	STORM	DN	DOWN
SWM	STORM WATER MANAGEMENT	EX	EXISTING
		HP	HYDRO POLE
		LA	LANDSCAPING
		MH	MANHOLE
		ORN	ORNAMENTAL FENCE
		PIL	PILLAR
		PROP.	PROPOSED
		TYP.	TYPICAL

**STORM STRUCTURES**

NAME	STANDARD OPSD	T/G	INVERTS				COMMENTS
			North	South	East	West	
FD-3HC	-	89.32	-	87.30	87.25	-	HYDRO FIRST DEFENSE OGS
MH-1	701.010	89.34	87.32	-	-	87.38	
CB-1	705.010	90.29	-	-	88.79	-	

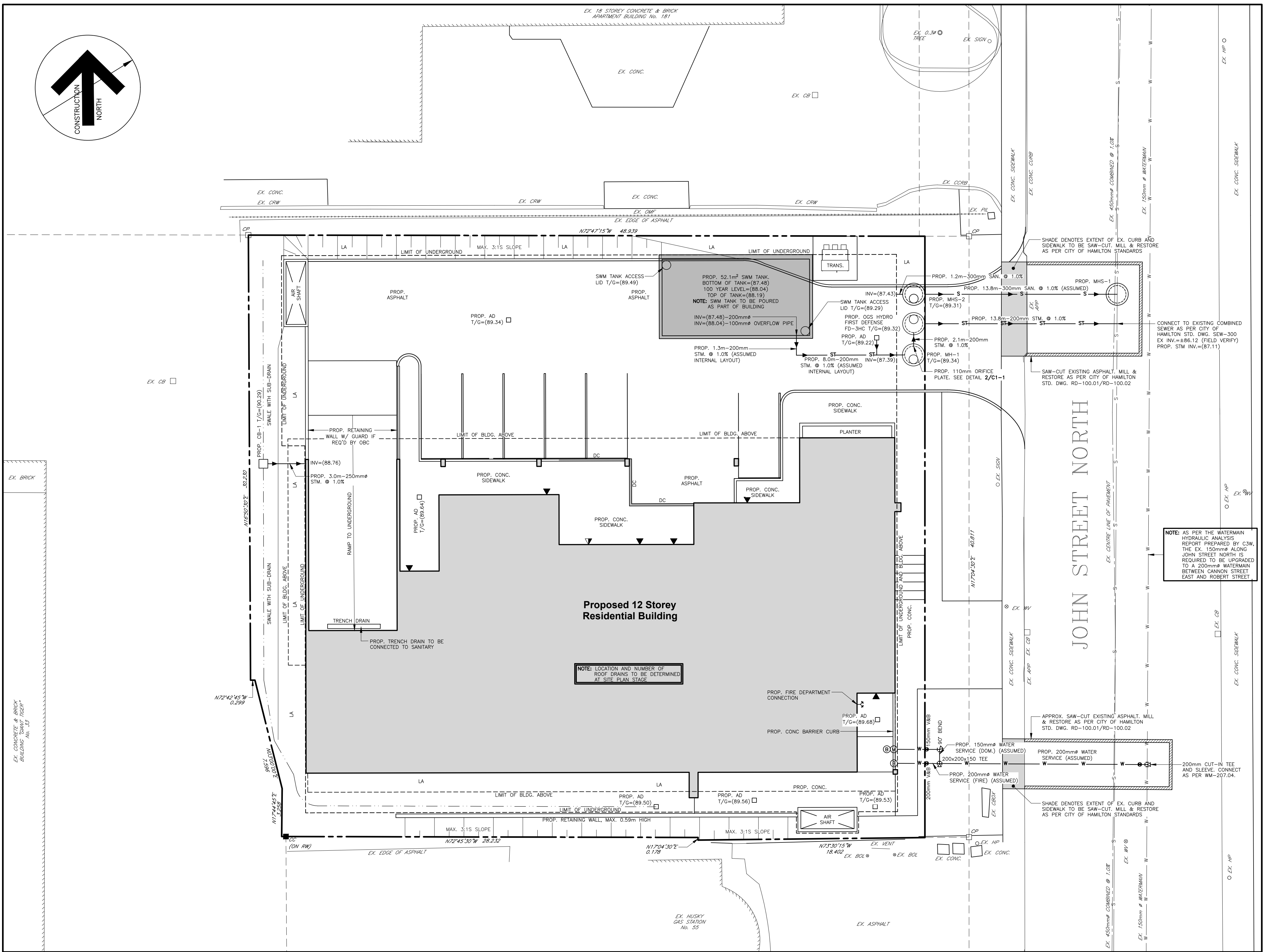
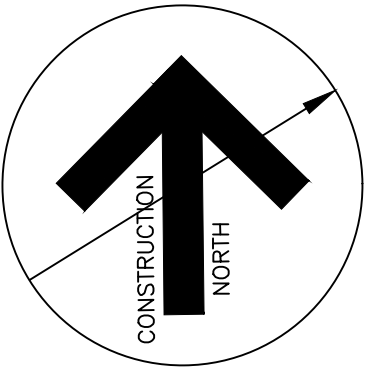
**SANITARY STRUCTURES**

NAME	STANDARD OPSD	T/G	INVERTS				COMMENTS
			North	South	East	West	
MHS-1	701.010	MATCH	±86.14	±86.14	-	87.25	FIELD VERIFY EX. SAN. INVERT
MHS-2	701.010	89.31	-	-	87.39	87.42	



**2 Orifice Plate Detail**

C2-1



**1 Preliminary Servicing Plan**

C2-1

**GENERAL SERVICING NOTES:**

- ALL SERVICES TO BE INSTALLED AS PER CITY OF HAMILTON CONSTRUCTION AND MATERIAL SPECIFICATIONS MANUAL (LATEST EDITION) AND MINISTRY OF THE ENVIRONMENT GUIDELINES (LATEST EDITION).
- MINIMUM HORIZONTAL SEPARATION BETWEEN WATER SERVICES AND SEWERS SHALL BE 2.5m MEASURED FROM THE CLOSEST PIPE EDGE TO CLOSEST PIPE EDGE. VERTICAL SEPARATION BETWEEN WATERMANS AND SEWERS WHICH CROSS MUST BE 0.2m BETWEEN THE OUTSIDE OF THE WATERMAN AND THE OUTSIDE OF THE SEWER, WITH THE LENGTH OF THE WATER PIPE BEING CENTRED AT THE POINT OF CROSSING SUCH THAT JOINTS IN THE WATERMAN WILL BE FOUNTAINED AND AS FAR AS POSSIBLE FROM THE SEWER, CROSSING PERPENDICULAR IF POSSIBLE.
- ALL WATER SERVICES TO BE INSTALLED WITH A MINIMUM OF 1.6m COVER. SEWERS TO BE INSTALLED WITH A MINIMUM COVER OF 2.20m AT THE PROPERTY LINE BELOW THE FINAL ROAD GRADE OR AT SUCH HIGHER ELEVATION ONLY AS MAY BE NECESSARY BY THE LEVEL OF THE MAIN SEWER. ON PRIVATE PROPERTY THE MINIMUM COVER IS TO BE NO LESS THAN 1.2m.
- RESTORATION OF ROAD OVER UTILITY CUTS IN HAMILTON TO BE AS PER STANDARD DRAWINGS RD-100.01 AND RD-100.02, WITH GRANULAR "A" BEDDING.
- APPROVAL OF THIS DRAWING IS FOR MATERIAL ACCEPTABILITY AND COMPLIANCE WITH MUNICIPAL AND PROVISIONAL SPECIFICATIONS AND STANDARDS ONLY. APPROVAL AND INSPECTION BY THE CITY OF THE WORKS DOES NOT CERTIFY THE LINE AND GRADE OF THE WORKS AND IT IS THE OWNER'S RESPONSIBILITY TO HAVE THEIR ENGINEER CERTIFY THIS ACCORDINGLY.
- ALL PROPOSED SERVICE ARE TO PASS BELOW EX. WATERMANS, BY A MIN. OF 250mm, BASED ON THE TOP OF THE EX. WATERMAIN BEING 1.6m BELOW THE CENTERLINE OF ROAD.
- ALL BUILDING SERVICE SIZES ARE TO BE CONFIRMED BY THE MECHANICAL ENGINEER AT BUILDING DESIGN PHASE.

**BEFORE STARTING WORK**

- THE CONTRACTOR SHALL NOTIFY THE CITY OF HAMILTON AND LANHACK CONSULTANTS INC. AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
- THE POSITION OF THE POLE LINES, CONDUITS, WATERMANS, SEWERS, AND OTHER UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.
- PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, ALL BENCHMARKS, ELEVATIONS, DIMENSIONS, AND GRADES MUST BE CHECKED BY THE CONTRACTOR AND ANY DISCREPANCIES REPORTED TO THE ENGINEER.
- ALL EXISTING UNDERGROUND UTILITIES WITHIN THE LIMITS OF CONSTRUCTION SHALL BE LOCATED, MARKED AND PROTECTED. ANY UTILITIES DAMAGED OR DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.
- AT LEAST TWO DIFFERENT BENCHMARKS MUST BE REFERRED TO AT ALL TIMES.

**SANITARY AND STORM SEWERS**

- CONSTRUCTION OF SANITARY & PRIVATE DRAINS SHALL BE IN ACCORDANCE WITH CITY STANDARDS & SPECIFICATIONS (LATEST EDITION) AND MINISTRY OF ENVIRONMENT (MDE) GUIDELINES (LATEST EDITION).
- COVER AND BEDDING MATERIAL FOR CONCRETE PIPE SHALL BE GRANULAR "A" MATERIAL AS PER OPSD 802.030 OR 802.033, CLASS "B" BEDDING.
- COVER AND BEDDING MATERIAL FOR PVC PIPE SHALL BE GRANULAR "A" MATERIAL AS PER OPSD 802.010 OR 802.013.
- PVC PIPE WILL REQUIRE SPECIAL CONSTRUCTION PROCEDURES AS PER CITY SPECIFICATIONS.
- ALL SEWERS TO BE FLUSHED PRIOR TO VIDEO INSPECTION.
- MANHOLE FRAMES AND COVERS SHALL BE AS PER OPSD 401.010 (STORM-OPEN, SANITARY-CLOSED).
- SANITARY SEWER (200mm TO 375mm DIA) SHALL BE PVC PIPE, CSA B182.2, SDR-35.
- STORM SEWER (300mm TO 600mm DIA) SHALL BE PVC PIPE, CSA B182.2, SDR-35.
- STORM SEWER > 600mm DIA. SHALL BE CONCRETE PIPE, CSA A237.2 (AS SPECIFIED).
- PVC (SANITARY AND STORM) SEWERS ARE TO BE TESTED FOR DEFLECTION (MANDREL PASSAGE) AFTER INSTALLATION. SANITARY SEWERS SHALL ALSO BE TESTED FOR LEAKAGE (LOW AIR PRESSURE) PRIOR TO ASSUMPTION BY THE CITY. PIPE DEFLECTION TESTING SHALL BE REPEATED.
- ALTERNATE MATERIALS MAY BE ACCEPTABLE PROVIDED APPROVAL HAS FIRST BEEN OBTAINED FROM THE CITY/ENGINEER.

**CATCH BASINS**

- CATCH BASIN CONNECTIONS TO BE 250mm DIA. PVC PIPE CSA B182.2, SDR-35 UNLESS OTHERWISE NOTED.
- SINGLE/DOUBLE STREET CATCH BASINS AS PER OPSD 705.010/705.020 RESPECTIVELY WITH GOSS TRAPS AS PER SEM-304.
- PRIVATE REAR YARD CATCH BASINS AS PER OPSD 705.010 (NO GOSS TRAPS).
- STREET CB GRATES AS PER OPSD 400.020 (FLAT) AND REAR YARD CB GRATES TO BE BEEHIVE TYPE GRATE AND COVER.

**WATERMANS:**

- CONSTRUCTION OF WATERMANS & PRIVATE SERVICES SHALL BE IN ACCORDANCE WITH CITY STANDARDS & SPECIFICATIONS (LATEST EDITION) AND MINISTRY OF ENVIRONMENT (MDE) GUIDELINES (LATEST EDITION).
- PVC PIPE IN SIZES 100mm THROUGH 300mm SHALL BE CLASS 150 DR18 CONFORMING TO ANWA C900, FOR 450mm, SEE SECTION 7- SPECIAL NOTES.
- TRACER WIRE SHALL BE INSTALLED WITH PVC PIPE IN ACCORDANCE WITH FORM 400. IT SHALL BE 12 GAUGE TWIST, TWISTS OR RHOXIFLEX COATED COPPER AND SHALL BE POSITIONED ALONG THE TOP OF THE PIPE AND FASTENED AT 6 METRE INTERVALS. THE WIRE IS TO BE INSTALLED BETWEEN EACH VALVE AND/OR THE END OF THE NEW PVC WATERMAIN. JOINTS IN THE WIRE BETWEEN VALVES ARE NOT PERMITTED. AT EACH GATE VALVE A LOOP WIRE IS TO BE BROUGHT UP INSIDE THE VALVE BOX TO THE CAP. THE TRACER WIRE SHALL BE BROUGHT TO THE SURFACE AT THE SECONDARY VALVE ON ALL FIRE HYDRANTS. THE TRACER WIRE SHALL ALSO BE CONNECTED TO THE CATHODIC PROTECTION SYSTEM AS REQUIRED.
- MOLDED PVC FITTINGS FOR PIPE SIZES 100mm TO 300mm SHALL CONFORM TO ANWA C900 AND CERTIFIED TO CSA B137.2.
- FABRICATED FITTINGS 250mm AND 300mm SHALL BE MANUFACTURED FROM SEGMENTS OF ANWA C900, CLASS 150 (DR18) PVC PIPE, BONDED TOGETHER AND OVER-WRAPPED WITH FIBREGLASS-REINFORCED POLYESTER TO MEET THE REQUIREMENTS OF CSA B137.3.
- WHERE METAL FITTINGS ARE TO BE USED ON PVC MAINS SUFFICIENT CATHODIC PROTECTION MUST BE PROVIDED AS PER THE FOLLOWING REQUIREMENTS:
  - MINIMUM OF ONE 11KG ZINC ANODE SHALL BE INSTALLED FOR EVERY 1000m OF TRACER WIRE;
  - ONE 11KG ZINC ANODE SHALL BE INSTALLED FOR EACH COPPER WATER SERVICE CONNECTION;
  - ONE 11KG ZINC ANODE SHALL BE INSTALLED ON EVERY VALVE, HYDRANT, BEND, TEE, SLEEVE, REDUCER, PLUG, CAP, JOINT RESTRAINT, COUPLING, ETC., CONNECTED TO THE PVC PIPE.
- BEDDING AND BACKFILL AS PER WM-200.01 AND WM-200.02 GRANULAR "A" MATERIAL FOR MAINS AND SERVICES GREATER THAN 50mm.
- WATERMAIN DEFLECTION FOR PVC PIPE:
  - MAXIMUM ALLOWABLE DEFLECTION OF 1.5 DEGREES PER JOINT UP TO 250mm DIAMETER (160mm PER 6.1m PIPE LENGTH) AND 1.2 DEGREES FOR 300mm DIAMETER (120mm PER 6.1m PIPE LENGTH) SHALL NOT BE EXCEEDED.
  - ALL JOINTS SHALL BE DEFLECTED AN EQUAL AMOUNT.

**ANCHOR BLOCKS**

- FOR 100mm TO 300mm WATERMANS STANDARD CONCRETE ANCHOR BLOCKS AS PER WM-204.01

**FLUSHING, SWABBING AND TESTING**

- ALL NEW WATERMANS ARE TO BE SWABBED IN ACCORDANCE WITH CITY SPECIFICATIONS.
- A REDUCED PRESSURE ZONE BACKFLOW PREVENTER (WATTS SERIES 909 OR APPROVED EQUIVALENT) IS REQUIRED ON THE TEMPORARY SUPPLY LINES USED FOR FILLING AND FLUSHING OR SWABBING OF WATERMANS.
- UPON COMPLETION OF INSTALLATION, THE CONTRACTOR SHALL PERFORM A PRESSURE TEST ON THE WATERMANS AS PER FORM 400. WATERMAIN IS TO BE TESTED PRIOR TO CONNECTION TO EXISTING WATERMANS USING TEMPORARY CAPS OR PLUGS. PIPE CLOSURES, WHERE REQUIRED, ARE TO BE SUPPLIED BY THE CONTRACTOR. THE CONTRACTOR WILL ALSO SUPPLY AND INSTALL ALL ADAPTOR PIECES IN ORDER TO CONNECT TO EXISTING WATERMANS.

**VALVES AND VALVE BOXES**

- ALL VALVE BOXES TO BE SET TO PROPOSED GRADES.
- 100mm TO 300mm GATE VALVE & VALVE BOXES AS PER WM-202.

**ROADWORKS - GENERAL**

- CONSTRUCTION OF ROADWAYS & RELATED WORKS SHALL BE IN ACCORDANCE WITH CITY STANDARDS AND SPECIFICATIONS (LATEST EDITION).
- FOLLOWING THE INSTALLATION OF SEWERS, ALL ROADWAYS SHALL BE ROUGH GRADED TO SUBGRADE FOR THE INSTALLATION OF WATERMANS & UTILITIES.

**COMPACTION REQUIREMENTS**

- ALL BEDDING AND BACKFILL MATERIAL, ROAD SUB-GRADES AND GENERALLY ALL MATERIAL USED FOR LOT GRADING AND FILL SECTIONS, ETC. SHALL BE COMPACTED TO MIN. 95% SPD (UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER). ALL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm LIFTS.
- ALL GRANULAR ROAD BASE MATERIALS SHALL BE COMPACTED TO 95% SPD.
- FOR ALL SEWERS AND WATERMANS IN FILL SECTIONS, THE COMPACTION SHALL BE CERTIFIED BY A GEOTECHNICAL ENGINEER PRIOR TO LAYING OF PIPE.



Contractor must verify all dimensions on the Project Site and report any discrepancies before proceeding with the Work.

This drawing is a part of the Contract Documents and is to be read in conjunction with all other Contract Documents.

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SOURCE - EXISTING BOUNDARY SURVEY AND TOPOGRAPHICAL INFORMATION OBTAINED FROM A.L. McLAREN LTD. DWG NO. 36814, DATED - DEC 23, 2021

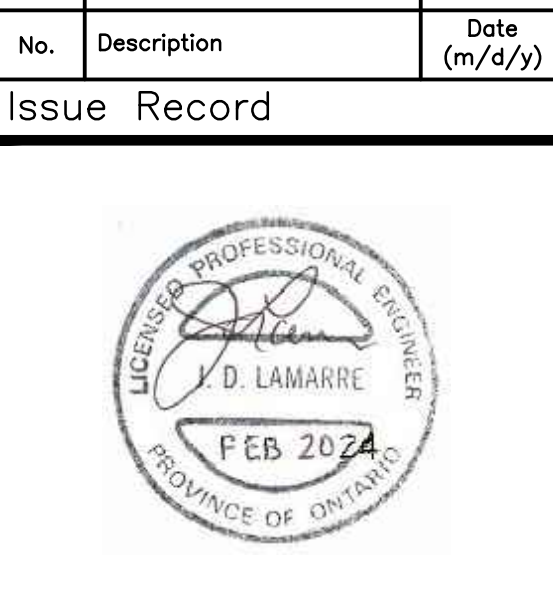
THE POSITION OF THE POLE LINES, CONDUITS, WATERMANS, SEWERS, AND OTHER UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.

**Revision Record**

No.	Description	Date (m/d/y)
B	RE-ISSUED FOR ZBA/OPA	02/14/24
A	ISSUED FOR ZBA/OPA	12/02/22

**Issue Record**

No.	Description	Date (m/d/y)
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**NOT FOR CONSTRUCTION**

**LANHACK** CONSULTANTS INC.  
 Consulting Engineers  
 1709 Upper James Street  
 Hamilton, ON L9B 1K7  
 Tel: (905) 777-1454  
 Fax: (905) 336-8142

**Proposed 12 Storey Residential Building**  
 175 JOHN STREET NORTH  
 HAMILTON, ON

Date: JULY 2022  
 Drawn By: GRW  
 Chkd By: SMP  
 Scale: AS NOTED

**Preliminary Servicing Plan**

Project No.: 22080 Drawing No.: C2-1 Rev.: B  
 Plot Date: 02/13/24  
 48/2022/22080 - 175 John St. N., Phase 2a Sewer/OWM, 22080\_C2-1 - Grading and Servicing Plan.dwg