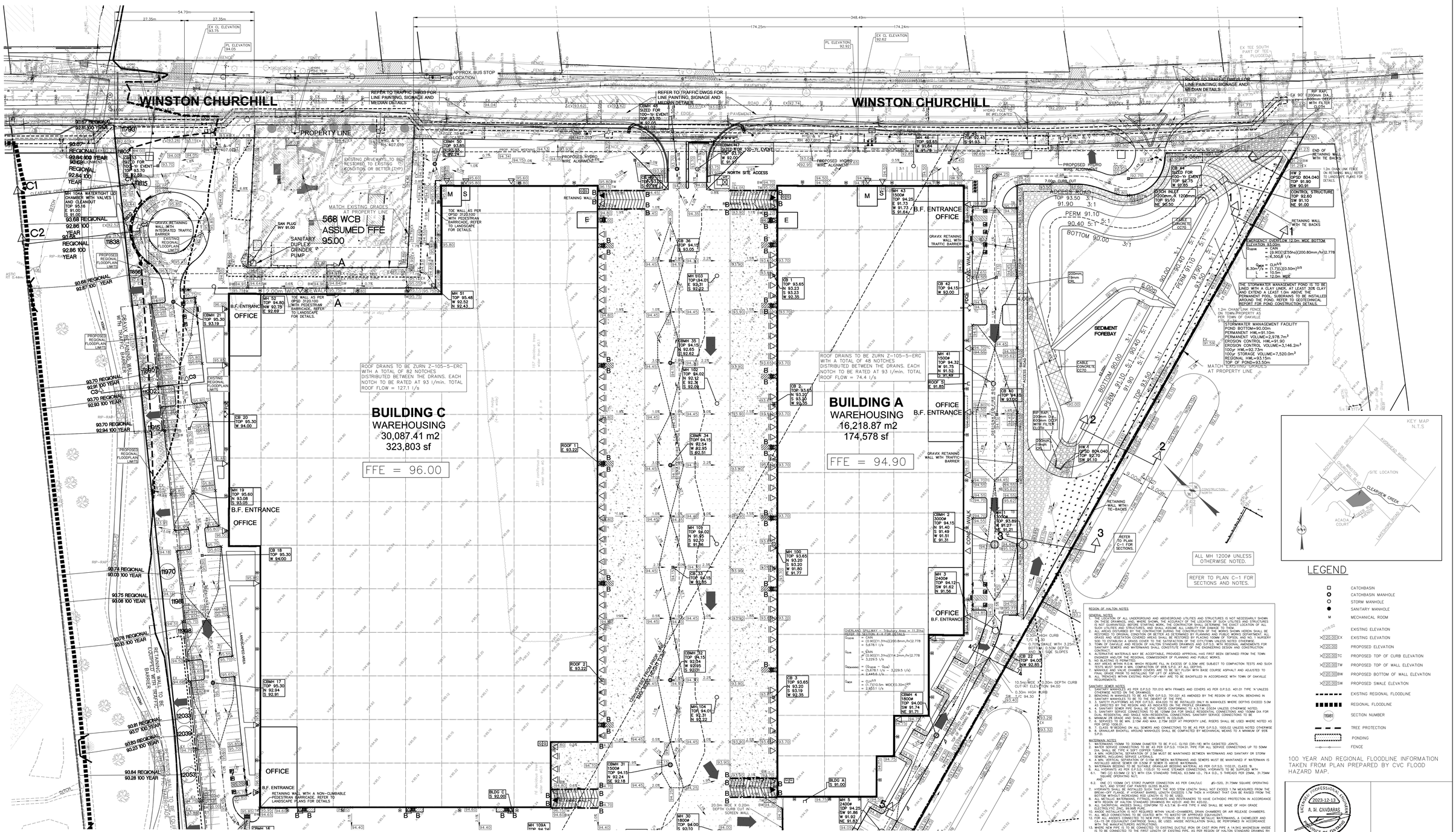

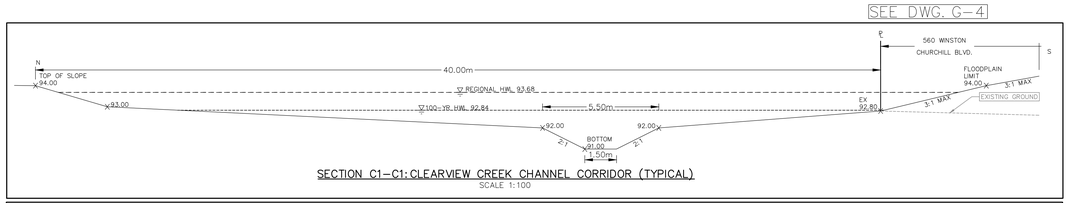

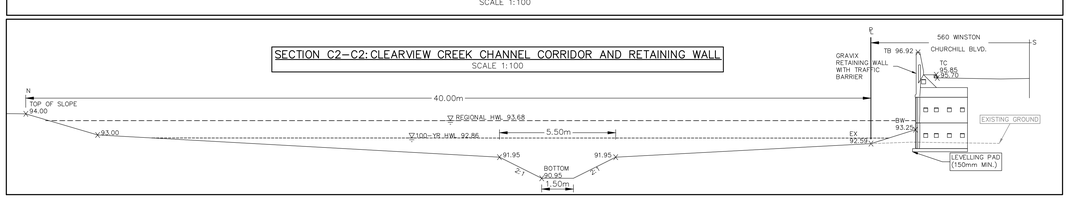

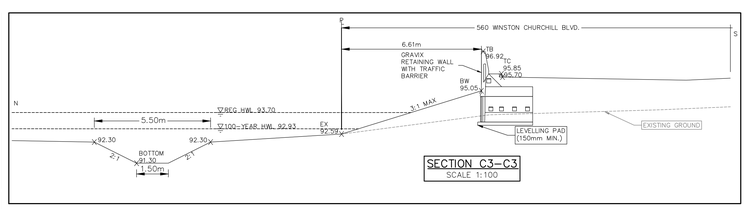

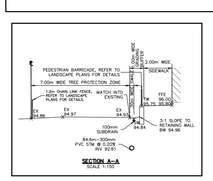

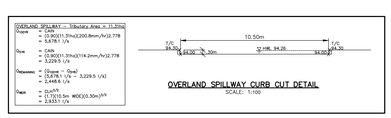

LEGEND

- CATCHBASIN
- CATCHBASIN MANHOLE
- STORM MANHOLE
- SANITARY MANHOLE
- M MECHANICAL ROOM
- 418.02 EXISTING ELEVATION
- ×120.00EX EXISTING ELEVATION
- ×120.00 PROPOSED ELEVATION
- ×120.00TC PROPOSED TOP OF CURB ELEVATION
- ×120.00TW PROPOSED TOP OF WALL ELEVATION
- ×120.00BW PROPOSED BOTTOM OF WALL ELEVATION
- ×120.00SW PROPOSED SWALE ELEVATION
- EXISTING REGIONAL FLOODLINE
- REGIONAL FLOODLINE
- 1981 SECTION NUMBER
- TREE PROTECTION
- PONDING
- FENCE

100 YEAR AND REGIONAL FLOODLINE INFORMATION TAKEN FROM PLAN PREPARED BY CVC FLOOD HAZARD MAP.

REGION OF HALTON NOTES

GENERAL NOTES
1. LOCATIONS AND DEPTHS OF ALL UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THESE DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE LOCATION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES AND STRUCTURES THAT COULD BE AFFECTED BY THE CONTRACTOR'S OPERATIONS.
2. ALL AREAS DISTURBED BY THE CONTRACTOR DURING THE CONSTRUCTION OF THE WORKS SHOWN HEREIN SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER AS DETERMINED BY PLANNING AND PUBLIC WORKS DEPARTMENT. ALL GRASS AND VEGETATION COVERED AREAS SHALL BE RESTORED BY PLACING 100MM OF TOPSOIL AND NO. 1 NURSERY SOD TO ESTABLISH A GRASS COVER TO THE SATISFACTION OF THE CITY/TOWN UNLESS NOTED OTHERWISE.
3. THE PLAN AND PROFILE DRAWINGS SHOWN HEREIN ARE INTENDED TO SATISFY THE REQUIREMENTS FOR SANITARY SEWERS AND WATERMAINS SHALL CONSTITUTE PART OF THE ENGINEERING DESIGN AND CONSTRUCTION CONTRACT.
4. ALTERNATIVE MATERIALS MAY BE ACCEPTABLE, PROVIDED APPROVAL HAS FIRST BEEN OBTAINED FROM THE TOWN ENGINEER AND/OR THE REGIONAL COMMISSIONER OF PLANNING AND PUBLIC WORKS.
5. ALL PIPE LENGTHS ARE ±.
6. ANY AREAS WITHIN R.O.W. WHICH REQUIRE FILL IN EXCESS OF 0.30M ARE SUBJECT TO COMPACTION TESTS AND SUCH TESTS MUST SHOW A MIN. COMPACTION OF 95% S.P.D. AT ALL DEPTHS.
7. ALL DISTURBED PAVEMENT, SIDEWALKS, CURB AND GUTTER TO BE FLUSH WITH EXISTING ASPHALT AND ADJUSTED TO FINAL GRADE PRIOR TO INSTALLING TOP LIFT OF ASPHALT.
8. ALL TRENCHES WITHIN EXISTING RIGHT-OF-WAY ARE TO BE BACKFILLED IN ACCORDANCE WITH TOWN OF OAKVILLE REQUIREMENTS.

SANITARY SEWER NOTES
1. SANITARY MANHOLES AS PER O.P.S.D 701.010 WITH FRAMES AND COVERS AS PER O.P.S.D. 401.01 TYPE 'A' UNLESS OTHERWISE NOTED ON THE DRAWINGS.
2. SANITARY SEWER PIPE TO BE PVC SDR35 PER O.P.S.D. 701.021 AS AMENDED BY THE REGION OF HALTON. BENCHING IN SANITARY MANHOLES TO BE TO THE CROWN OF THE PIPE.
3. SAFETY STEPS AS PER O.P.S.D. 404.020 TO BE INSTALLED ONLY IN MANHOLES WHERE DEPTHS EXCEED 5.0M AS DIRECTED BY THE REGION AND AS INDICATED ON THE PROFILE DRAWINGS.
4. SANITARY SEWER PIPE SHALL BE PVC SDR35 CONFORMING TO A.S.T.M. D3034 UNLESS OTHERWISE NOTED.
5. SANITARY SERVICE CONNECTIONS TO BE AS PER O.P.S.D. 1006.010 AND SANITARY SERVICE CONNECTIONS TO BE AS FOR DUAL RESIDENTIAL AND SINGLE NON-RESIDENTIAL CONNECTIONS. SANITARY SERVICE CONNECTIONS TO BE:
6. MINIMUM 2% GRADE AND SHALL BE NON-WHITE IN COLOUR.
7. SLOPED TO BE MIN. 2.17M AND MAX. 2.75M DEEP AT PROPERTY LINE. RISERS SHALL BE USED WHERE NOTED AS PER O.P.S.D.
8. CLASS 'B' BEDDING ON ALL SEWERS AND CONNECTIONS TO BE AS PER O.P.S.D. 1005.02 UNLESS NOTED OTHERWISE
9. B. GRANULAR BACKFILL AROUND MANHOLES SHALL BE COMPACTED BY MECHANICAL MEANS TO A MINIMUM OF 95% S.P.D.

WATERMAIN NOTES
1. WATERMAINS 150MM TO 300MM DIAMETER TO BE P.V.C. DR150 (DR-18) WITH GASKETED JOINTS.
2. WATER SERVICE CONNECTIONS TO BE AS PER O.P.S.D. 1104.010. PIPE FOR ALL SERVICE CONNECTIONS UP TO 50MM DIA. SHALL BE TYPE K SOFT COPPER TUBING.
3. A MINIMUM HORIZONTAL SEPARATION OF 2.5M MUST BE MAINTAINED BETWEEN WATERMAINS AND SANITARY OR STORM SEWERS, INCLUDING SERVICE LATERALS.
4. A MIN. VERTICAL SEPARATION OF 0.15M BETWEEN WATERMAINS AND SEWERS MUST BE MAINTAINED IF WATERMAIN IS ABOVE SEWER. IF WATERMAIN IS BELOW SEWER, 1.50M SEPARATION IS REQUIRED.
5. WATERMAIN BEDDING TO BE SUITABLE GRANULAR BEDDING MATERIAL AS PER O.P.S.D. 1010.01, CLASS 'B'.
6. ALL HYDRANTS AS PER O.P.S.D. 1105.010 TO HAVE STEAMER CONNECTIONS. HYDRANTS TO BE SUPPLIED WITH:
   6.1. THREE 63.5MM (2 1/2) WITH CSA STANDARD THREAD, 63.5MM I.D., 79.4 O.D., 5 THREADS PER 25MM, 31.75MM SQUARE OPERATING NUT;
   AND
   6.2. ONE (1) 100MM (4") STORZ PUMPER CONNECTION AS PER CAN/ULC -S515-20, 31.75MM SQUARE OPERATING NUT, AND STORZ CAP PAINTED GLOSS BLACK.
7. HYDRANTS SHALL BE INSTALLED SUCH THAT THE ROD STEM LENGTH SHALL NOT EXCEED 1.7M MEASURED FROM THE BREAK-OFF FLANGE. IF HYDRANT BARREL LENGTH EXCEEDS 1.7M THEN A HYDRANT THAT CAN BE RAISED FROM THE BREAK-OFF FLANGE TO GRADE WITHOUT A SPACER SHALL BE USED.
8. ALL METALLIC WATERMAINS, FITTINGS, HYDRANTS AND RESTRAINERS TO HAVE CATHODIC PROTECTION IN ACCORDANCE WITH REGION OF HALTON STANDARD DRAWINGS RH 420.01 AND RH 420.02.
9. ANODES TO BE PROVIDED BY A CERTIFIED FIRM TO A.S.T.M. B-418 TYPE II AND SHALL BE MADE OF HIGH GRADE ELECTROLYTIC ZINC, 99.99% PUR.
10. ANODE INSTALLATION IS NOT REQUIRED WITHIN VALVE-CHAMBERS, DRAIN CHAMBERS OR AIR RELEASE CHAMBERS.
11. ALL WELD CONNECTIONS TO BE COATED WITH ASPHALTIC OR APPROVED EQUIVALENT.
12. FOR ALL ANODES CONNECTED TO NEW PIPE, FITTINGS OR TO EXISTING METALLIC WATERMAINS, A CADWELDER AND CADWELD KIT SHALL BE USED. ANODE INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.
13. WHERE NEW PIPE IS TO BE CONNECTED TO EXISTING DUCTILE IRON OR CAST IRON PIPE A 14.5KG MAGNESIUM ANODE TO BE CONNECTED TO THE FIRST LENGTH OF EXISTING PIPE, AS PER REGION OF HALTON STANDARD DRAWING RH 420.03.
14. ALL VALVES TO OPEN LEFT (COUNTER-CLOCKWISE) AND SHALL HAVE 50MM SQUARE STANDARD AWWA OPERATING NUT.
15. ALL PLUGS, CAPS, TEES, AND BENDS SHALL BE MECHANICALLY RESTRAINED AS PER MANUFACTURERS RECOMMENDATIONS AS MODIFIED BY REGION OF HALTON.
16. RECOMMENDED RESTRAINED LENGTH ARE AS FOLLOWS:

RECOMMENDED RESTRAINED LENGTH OF PVC PIPE INSTALLED IN SAND-SILT:

NOM. PIPE SIZE	90° BEND	45° BEND	22.5° BEND	11.25° BEND	45° VERT. BEND DOWN/UP	VALVE-END DEAD-END
150	3.7m	1.6m	0.8m	0.4m	4.6m/1.6m	11.1m
200	4.8m	2.0m	1.0m	0.5m	2.9m/1.0m	14.4m
300	6.8m	2.5m	1.4m	0.7m	8.6m/2.9m	20.7m

NOM. PIPE SIZE	REDUCING TEE	NOM. PIPE SIZE	STRAIGHT TEE
200x150	6.2m (BRANCH ONLY)	150	8.5m (BRANCH)/2.9m (MAIN)
300x150	3.7m (BRANCH ONLY)	200	12.1m (BRANCH)/5.5m (MAIN)
300x200	8.9m (BRANCH)/1.8m (MAIN)	300	18.9m (BRANCH)/13.3m (MAIN)

17. WHERE WATERMAIN IS PLACED IN FILL OR IN PREVIOUSLY DISTURBED GROUND ALL JOINTS TO BE MECHANICALLY RESTRAINED.
18. MINIMUM DEPTH OF COVER OVER WATERMAIN SHALL BE 1.70M MEASURED FROM THE ROAD CENTRELINE ELEVATION.
19. THE DEPTH OF WATER SERVICES AT PROPERTY LINE SHOULD BE A MINIMUM OF 1.75M AND A MAXIMUM OF 2.0M. THE MINIMUM DEPTH OF COVER OVER WATERMAIN SHALL BE 1.70M. WHERE THIS CANNOT BE ACHIEVED, PROVIDE INSULATION.
20. WATER SERVICES CROSSING THE STORM SEWER TO HAVE MIN. 1.70M OF COVER. WHERE THIS CANNOT BE ACHIEVED, WATER SERVICE IS TO CROSS UNDER STORM SEWER.
21. AIR RELEASE CHAMBERS AND DRAIN CHAMBERS AND VALVE CHAMBERS ARE REQUIRED ON WATERMAINS 300MM AND UNDER. LINE GATE VALVES SHALL HAVE AUGER OR SCREW TYPE VALVE BOXES.
22. ALL WATERMAIN FITTINGS SHALL HAVE MECHANICAL JOINTS.
23. VERTICAL AND HORIZONTAL ALIGNMENT OF WATERMAIN TO BE ACHIEVED BY DEFLECTION OF JOINTS AS PER MANUFACTURER'S SPECIFICATIONS. DEFLECTION IN THE BARREL IS NOT PERMITTED.
24. ALL PVC PIPE SHALL HAVE A TRACING WIRE TO BE INSTALLED ALONG THE WATERMAIN PIPE FOR LOCATING PURPOSES. A SOLID 10 GAUGE (#10) COPPER WIRE IS TO BE INSTALLED ALONG THE PIPE, STRAPPED TO THE PIPE AT 6 METRE INTERVALS. JOINTS IN THE WIRE BETWEEN VALVES ARE NOT PERMITTED.
25. ALL VALVE BOXES TO BE PLACED ON A 300mm x 300mm x 100mm PRECAST CONCRETE PADS. THE TRACING WIRE IS NOT CONTINUOUS FROM VALVE TO VALVE, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, REPLACE OR REPAIR THE WIRE.
26. ALL WATER CUSTOMERS SUPPLIED BY A WATERMAIN TO BE SHUT DOWN SHALL BE NOTIFIED BY THE CONTRACTOR AT LEAST 24 HOURS IN ADVANCE OF THE SHUT DOWN AS PER REGION OF HALTON SPECIFICATIONS. NOTIFICATION SHALL TAKE PLACE UNDER THE ENGINEER'S DIRECTION.
27. ALL WATER SERVICE CONNECTIONS TO BE MADE BY REGION OF HALTON STAFF ONLY.
28. FIRE HYDRANT CAPS SHALL BE COLOUR CODED AS PER NFPA STANDARDS.

THE PAVEMENT STRUCTURE SHALL BE CONSTRUCTED OF THE FOLLOWING MATERIALS, AS STATED IN THE TOWN OF OAKVILLE STANDARD DRAWING 7-2 AND 7-20:

INDUSTRIAL AND COLLECTOR ROADS
40mm SP9.5 POLYES
40mm HL3
80mm HL8
150mm OF GRANULAR 'A' (<1" IRON)
350mm OF GRANULAR 'B' (IRON)

A. GRANULAR 'A' TO MEET OR EXCEED OPSS 1010 AND SHALL BE QUARRIED BEDROCK OR RECYCLED CONCRETE MATERIAL. 30% RAP MAY BE PRESENT IN GRANULAR 'A' MATERIAL. STEEL SLAG NOT PERMITTED IN GRANULAR 'A'.

B. GRANULAR 'B' TYPE II SHALL BE 100% QUARRIED BEDROCK MEETING OR EXCEEDING OPSS 1010. GRANULAR 'B' TYPE I COMPRISED OF 100% RECYCLED CONCRETE MEETING OR EXCEEDING OPSS 1010 MAY BE USED IN LIEU OF GRANULAR 'B' TYPE II. NEITHER FURNACE SLAG NOR NICKEL SLAG IS PERMITTED FOR USE IN GRANULAR 'B' TYPE I OR TYPE I MATERIAL.

C. AN EXTRA 150mm THICKNESS SHALL BE PLACED WITHIN ARTERIAL AND INDUSTRIAL ROAD INTERSECTIONS. THE EXTRA THICKNESS SHALL EXTEND FOR A MINIMUM OF 15m BEYOND THE PROPERTY LINE OF THE INTERSECTING STREET.

OR AS SPECIFIED IN THE GEOTECHNICAL REPORT PREPARED BY A SOILS ENGINEER, WHICHEVER IS GREATER.

LICENSED PROFESSIONAL ENGINEER
2023-12-13
A. M. CANDARAS
PROVINCE OF ONTARIO

No.	Date	By	REVISIONS
13	DEC.13/23	J.M.N.	ISSUED FOR SIXTH SUBMISSION
12	AUG.30/23	J.M.N.	ISSUED FOR FIFTH SUBMISSION
11	JUNE 6/23	J.M.N.	ISSUED FOR COORDINATION
10	JAN.17/22	J.M.N.	ISSUED FOR FOURTH SUBMISSION
9	JUN.09/22	J.M.N.	REVISED GRADING AS PER CVC COMMENTS
8	JUN.02/22	J.M.N.	ISSUED FOR COORDINATION
7	MAR.22/22	J.M.N.	ISSUED FOR CVC REVIEW

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560, 570 AND 580 WINSTON CHURCHILL BLVD.

TOWN OF OAKVILLE
REGION OF HALTON

GRADING PLAN - NORTH

SCALE: 1:500	DATE: MAY 2019	PROJ No.	
DRAWN: A.D.D.	CHK'D: A.M.C.	PLAN No.	G-3
DESIGNED: A.M.C.	SHEET 1 OF 2		