

1. GENERAL

- 1.1 USE BAR SCALE TO CONFIRM ACTUAL PLOT SCALE. EXISTING AND NEW ELEVATIONS AND INVERTS SHOWN ARE GEODETIC AND ARE IN METERS. ALL PIPE DIMENSIONS ARE NOMINAL AND IN MILLIMETERS UNLESS OTHERWISE NOTED.
- 1.2 SITE BOUNDARIES AND EXISTING GRADES AND OTHER FEATURES DERIVED FROM TOPOGRAPHIC SURVEY PREPARED BY J. D. BARNES LIMITED REF NO. 23-10-085-00.
- 1.3 BEARINGS ARE MTM GRID, AND DERIVED FROM GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) BY REAL TIME NETWORK (RTN) OBSERVATIONS. MTM ZONE 9 NAD 83. (CSRS) (2010.0) ELEVATIONS ARE GEODETIC AND ARE REFERRED TO N.C.C. BENCHMARK 001196530217 HAVING A PUBLISHED ELEVATION OF 83.001 METRES (C002028: 78).
- 1.4 REFER TO ARCHITECTURAL AND LANDSCAPE SITE PLANS FOR EXACT LOCATIONS OF BUILDINGS, PAVED AREAS, SIDEWALKS, PLANTERS ETC. LAYOUT SHALL BE COMPLETED BY THE CONTRACTOR AND SHALL BE REVIEWED BY THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION. AT ALL TIMES THE CONTRACTOR IS RESPONSIBLE FOR THE ACCURACY OF THE REFER TO TREE CONSERVATION REPORT FOR TREE PROTECTION REQUIREMENTS.
- 1.5 REFERENCE THE LATEST REVISION AND ALL ADDENDUMS OF THE GEOTECHNICAL INVESTIGATION BY PATERSON GROUP INC. FILE: PG6818-1, DATED OCTOBER 5, 2023. CONSTRUCTION SHALL CONFORM TO THE GEOTECHNICAL INVESTIGATION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER INCLUDING: SUB-GRADE PREPARATION AND CONSTRUCTION OF THE DRAINAGE AREAS TO BE READ IN CONJUNCTION WITH SITE SERVING & STORM WATER MANAGEMENT REPORT NO. 23-087 PREPARED BY D. B. GRAY ENGINEERING INC.
- 1.6 CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT AND CURRENT CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS.
- 1.7 REINSTATE AREAS DISTURBED BY CONSTRUCTION TO PRE-CONSTRUCTION CONDITIONS.
- 1.8 REINSTATE CITY PROPERTIES TO CITY STANDARDS AND TO CITY OF OTTAWA'S SATISFACTION.
- 1.9 REINSTATE CITY PROPERTIES TO CITY STANDARDS AND TO CITY OF OTTAWA'S SATISFACTION.

2. EROSION AND SEDIMENT CONTROL PLAN

- 2.1 THE EROSION AND SEDIMENT CONTROL PLAN IS A "LIVING DOCUMENT" AND SHALL BE REVISED IN THE EVENT THE SPECIFIED CONTROL MEASURES ARE NOT SUFFICIENT. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE PROTECTION OF THE AREA DRAINAGE SYSTEMS IN CATCH BASINS AND MANHOLES AND INSTALLING SILT FENCES ACTIVITIES. THIS INCLUDES LIMITING THE AMOUNT OF EXPOSED SOIL USING SEDIMENT CAPTURE FILTER SOCKS AND OTHER APPROVED DISPOSAL AREAS. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO AND OTHER EFFECTIVE SEDIMENT TRAPS. THE CONTRACTOR SHALL MAINTAIN THE FOLLOWING CONTROL MEASURES AND INSPECT (AFTER EACH RAINFALL) AND MAINTAIN THE CONTROL MEASURES.
- 2.2 PRIOR TO COMMENCEMENT OF CONSTRUCTION AT ALL MUNICIPAL CATCH BASINS ADJACENT TO THE SITE AND AT ANY MANHOLES OR CATCH BASINS THAT WILL RECEIVE DISCHARGE FROM DE-WATERING OPERATIONS AND ALL NEW CATCH BASINS AS THEY ARE INSTALLED: INSTALL SEDIMENT CAPTURE FILTER SOCKS INSERTS (TERRATEX GEOSYNTHETICS INC SILTSACK OR ANY DAMAGED FILTER SOCK INSERTS). DO NOT REMOVE UNTIL CONSTRUCTION IS COMPLETE.
- 2.3 INSTALL A SILT FENCE BARRIER AROUND STOCKPILED SEDIMENT OR SOIL PRIOR TO COMMENCEMENT OF CONSTRUCTION INSTALL A SILT FENCE BARRIER AS SHOWN ON PLANS. INSPECT ALL SILT FENCES AT THE END OF EACH DAY AND AFTER EACH RAINFALL. REMOVE SEDIMENT DEPOSITS WHEN THE LEVEL OF DEPOSITS REACHES ONE THIRD THE HEIGHT OF THE FENCE.
- 2.4 CONTROL AND LIMIT VEHICLE ACCESS TO AND AROUND THE CONSTRUCTION SITE TO MINIMIZE THE DISTURBANCE OF SOIL AND VEGETATION. PRIOR TO COMMENCEMENT OF CONSTRUCTION THE EGRESS POINT AND AT LEAST 9m IN LENGTH. MUD MATS SHALL BE WASHED AS REQUIRED TO PREVENT MATERIAL FROM BEING TRACKED ONTO THE PUBLIC ROAD. DO NOT REMOVE ANY MATERIAL UNTIL CONSTRUCTION IS COMPLETE. IN ADDITION, IF REQUIRED TO PREVENT MATERIAL FROM BEING TRACKED ONTO THE PUBLIC ROAD, WASH VEHICLE TIRES AT THE EGRESS POINT.
- 2.5 ANY MATERIAL DEPOSITED ON A PUBLIC ROAD SHALL BE REMOVED BY SWEEPING AND SHOVELING OR VACUUMING AND DISPOSING SEDIMENT IN A CONTROLLED AREA. DO NOT SWEEP OR CONSTRUCTION IS COMPLETED WHEN THE FOLLOWING CONDITIONS HAVE BEEN MET:
- 2.6 A. ALL STRUCTURES HAVE BEEN BUILT.
- 2.7 B. ALL HARD SURFACES HAVE BEEN CONSTRUCTED.
- 2.8 C. THERE ARE NO AREAS OF EXPOSED EARTH.
- 2.9 D. THERE ARE NO AREAS OF EXPOSED EARTH.
- 2.10 E. ALL STOCKPILED MATERIALS HAVE BEEN REMOVED.
- 2.11 F. ALL EXISTING EROSION AND SEDIMENT CONTROL MEASURES WHEN CONSTRUCTION IS COMPLETE.

3. GRADING & DRAINAGE

- 3.1 NEW GRADES TO MATCH EXISTING AT PROPERTY LINE. NO EXCESS DRAINAGE WILL BE DIRECTED TOWARDS THE ADJACENT PROPERTIES DURING AND AFTER CONSTRUCTION. THERE WILL BE NO ALTERATION TO EXISTING GRADE AND DRAINAGE PATTERNS ON PROPERTY LINE.
- 3.2 ALL EXISTING GRADES AND DRAINAGE PATTERNS SHALL BE MAINTAINED TO CATCH BASINS, SWALES, DITCHES AND OTHER APPROVED DISPOSAL AREAS. GRADING SHALL BE GRADUAL BETWEEN FINISHED SURFACE ELEVATIONS TO PREVENT FLOODING (OTHER THAN FLOODING REQUIRED FOR STORMWATER MANAGEMENT).
- 3.3 WHETHER RESULT OF POOR WORKMANSHIP OR DAMAGE, DEFECTIVE GRADING SHALL BE CORRECTED.
- 3.4 CONCRETE CURBS SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING NO. SC1.1. CONCRETE SIDEWALK SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING NO. SC4. CONCRETE CURBS WITH CONCRETE SIDEWALK SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING NO. SC1.4. MONOLITHIC CONCRETE CURB AND SIDEWALK SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING NO. SC2. DEPRESSSED CONCRETE CURBS FOR PEDESTRIAN TRAFFIC SHALL BE 0mm.
- 3.5 ALL EXISTING GRADES AND DRAINAGE PATTERNS SHALL BE MAINTAINED TO CATCH BASINS, SWALES, DITCHES AND OTHER APPROVED DISPOSAL AREAS. GRADING SHALL BE GRADUAL BETWEEN FINISHED SURFACE ELEVATIONS TO PREVENT FLOODING (OTHER THAN FLOODING REQUIRED FOR STORMWATER MANAGEMENT).
- 3.6 RETAINING WALLS OVER 0.6 m IN HEIGHT MAY REQUIRE A GUARD RAIL (SEE ARCHITECTURAL).

4. SITE SERVICES

- 4.1 EXISTING WATER SERVICE CONNECTIONS TO BE DECOMMISSIONED SHALL BE BLANKED AT CITY WATERMAIN BY CITY FORCES. CONTRACTOR SHALL PROVIDED EXCAVATION, BEDDING AND INSTALL A WATERSTOP CAP AT OPEN ENDS OF ANY EXISTING ABANDONED SEWER OR UNDERGROUND PIPE OR CONDUIT ENCOUNTERED.
- 4.2 CONNECTION TO WATERMAIN BY CITY OF OTTAWA FORCES. CONTRACTOR SHALL PROVIDE EXCAVATION, BACKFILL AND REINSTATEMENT.
- 4.3 WATER METERS SHALL BE INSTALLED AS PER CITY OF OTTAWA DWG. NO. W30.
- 4.4 ALL WATER SERVICE MATERIALS AND CONSTRUCTION METHODS TO CITY OF OTTAWA STANDARDS AND ONTARIO PROVINCIAL STANDARDS SPECIFICATIONS (OPSS & OPSD). WATERMAIN TUBINGS (150 mm & 200 mm) SHALL BE PVC OT18 TO AWWA C-900, CSA B137.3 & CITY OF OTTAWA STANDARDS. WATERMAIN (50 AND WATER SERVICE MATERIALS SHALL BE PEX TUBINGS SDR 9 CTS TO AWWA C-904 & CITY OF OTTAWA STANDARDS. METALLIC WARNING TAPE SHALL BE INSTALLED OVER ALL WATERMANS. AT ALL PVC WATERMANS PROVIDE THRU-ROD PROTECTION & ANODE INSTALLATION AS PER CITY OF OTTAWA DWG. NO. W23.5 & W25-FULL CONNECTIONS, RESTRAINT RODS AND VALVE BOLTS TO BE STAINLESS STEEL.
- 4.5 PROVIDE A MINIMUM 2.4 m COVER OVER WATER SERVICE CONNECTION AND WATERMANS. WHERE THE MINIMUM COVER IS NOT POSSIBLE INSULATE AS PER CITY OF OTTAWA DWG. NO. W22.
- 4.6 WHERE LESS THAN 2.4 m CLEARANCE FROM OPEN STRUCTURE (EG. MANHOLES, CATCH BASINS & WINDOW WELLS) PLACE INSULATION AROUND WATERMAIN AND WATER SERVICE CONNECTIONS AS PER CITY OF OTTAWA DWG. NO. W23.
- 4.7 WATERMAIN INSTALLED PARALLEL TO A SEWER SHALL BE LAID WITH A MINIMUM 2.5m BARREL TO BARREL HORIZONTAL SEPARATION FROM SEWERS AND SEWER MANHOLES.
- 4.8 WATER SERVICE CONNECTIONS SHALL BE CONSTRUCTED OF A SINGLE RUN OF PIPE WITH NO JOINTS OR FITTINGS BETWEEN THE WATERMAIN AND CURB STOP AND BETWEEN THE CURB STOP AND THE INSIDE FACE OF THE BUILDING.
- 4.9 WATERMANS SHALL CROSS ABOVE THE SEWER AS PER CITY OF OTTAWA DRAWING NO. W25.2: PROVIDE A MINIMUM 250mm BARRELL TO BARRELL VERTICAL SEPARATION. IF IT IS NOT POSSIBLE TO BARREL VERTICAL SEPARATION CROSS AND ENSURE THAT THE WATER PIPE IS COVERED BY A MINIMUM 50mm BARREL TO BARREL VERTICAL SEPARATION.
- 4.10 LOCATE FIRE HYDRANT AS PER CITY OF OTTAWA DWG. NO. W18. INSTALL FIRE HYDRANT AS PER CITY OF OTTAWA DWG. NO. W19. LOCATE FIRE HYDRANT A MINIMUM 0.6m FROM EDGE OF SIDEWALK. THE HYDRANT SHALL BE INSTALLED WITH THE BREAKABLE FLANGE 50mm TO 150mm ABOVE FINISHED GRADE. THERE SHALL BE NO VEGETATION OR OTHER OBSTRUCTIONS IN FRONT OF HYDRANT AND WITHIN 1.5m OF FIRE HYDRANT. THE FIRE HYDRANT SHALL BE RED WITH WHITE BANNETS AND CAPS TO CITY STANDARDS. AT THE END OF CONSTRUCTION PREPARE A RECORD DRAWING OF THE FIRE HYDRANT LOCATION AND PROVIDE THE BANNETS AND CAPS AS PER CITY OF OTTAWA AND NTA STANDARDS.
- 4.11 SERVICE CONNECTIONS SHALL BE INSTALLED AS PER CITY OF OTTAWA DRAWING S11.3.
- 4.12 ALL SEWER MATERIALS AND CONSTRUCTION METHODS TO CITY OF OTTAWA STANDARDS AND ONTARIO PROVINCIAL STANDARDS SPECIFICATIONS (OPSS & OPSD). SEWER MATERIAL SHALL BE PVC OR REINFORCED CONCRETE. PVC SEWERS SHALL BE SDR-35 (SDR-28 FOR DIAMETERS 150mm OR LESS) AND SHALL CONFORM TO CSA B182.2 AND SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS.
- 4.13 SEWERS SHALL HAVE A MINIMUM 2.0m OF COVER OR SHALL BE INSULATED NOTIFY ENGINEER AND INSULATE AS PER ENGINEER'S INSTRUCTIONS.
- 4.14 ALL SANITARY BUILDING DRAINS SHALL BE INSTALLED WITH A NORMALLY OPEN FULL-PORT BACKWATER VALVE TO CITY OF OTTAWA STANDARDS AND TO CITY OF OTTAWA DWG. NO. S14.1 AND ALL EXISTING DRAINS SHALL BE INSTALLED WITH A NORMALLY OPEN FULL-PORT BACKWATER VALVE TO CITY OF OTTAWA STANDARDS AND TO CITY OF OTTAWA DWG. NO. S14.1 AND ALL EXISTING DRAINS SHALL BE INSTALLED WITH A NORMALLY OPEN FULL-PORT BACKWATER VALVE TO CITY OF OTTAWA STANDARDS AND TO CITY OF OTTAWA DWG. NO. S14.1.
- 4.15 ALL DRAINS SERVING THE FOUNDATION DRAINS SHALL BE INSTALLED WITH A NORMALLY CLOSED BACKWATER VALVE TO CITY OF OTTAWA STANDARDS AND TO CITY OF OTTAWA DWG. NO. S14.
- 4.16 CONNECT PROPOSED SANITARY SEWER SERVICE CONNECTION TO EXISTING MUNICIPAL SANITARY SEWER AS PER CITY OF OTTAWA DWG NO. S11 (RIGID MAIN SEWER).
- 4.17 CONNECT PROPOSED STORM SEWER SERVICE CONNECTION TO EXISTING MUNICIPAL STORM SEWER AS PER CITY OF OTTAWA DWG NO. S11 (RIGID MAIN SEWER).
- 4.18 PRECAST MANHOLE UNITS: TO OPSS 1351 AND OPSD 701.010 WITH BASE SLAB OR MONOLITHIC BASE. TOP SECTIONS ECCENTRIC CONE OR FLAT LAB TOP TYPE WITH OPENING OFFSET FOR VERTICAL LAUNDER INSTALLATION.
- 4.19 PRECAST MANHOLE UNITS: TO OPSS 1351 AND OPSD 701.010 WITH BASE SLAB OR MONOLITHIC BASE. TOP SECTIONS ECCENTRIC CONE OR FLAT LAB TOP TYPE WITH OPENING OFFSET FOR VERTICAL LAUNDER INSTALLATION.
- 4.20 MANHOLES & CATCH BASINS:
- A. PRECAST MANHOLE UNITS: TO OPSS 1351 AND OPSD 701.010 WITH BASE SLAB OR MONOLITHIC BASE. TOP SECTIONS ECCENTRIC CONE OR FLAT LAB TOP TYPE WITH OPENING OFFSET FOR VERTICAL LAUNDER INSTALLATION.
- B. MANHOLE STEPS: TO OPSS 1405.01.
- C. MANHOLE SURFACES: TO OPSS 1351 AND OPSD 701.010 WITH BASE SLAB OR MONOLITHIC BASE. TOP SECTIONS ECCENTRIC CONE OR FLAT LAB TOP TYPE WITH OPENING OFFSET FOR VERTICAL LAUNDER INSTALLATION.
- D. ALUMINUM SURFACES: TO OPSS 1351 AND OPSD 701.010 WITH BASE SLAB OR MONOLITHIC BASE. TOP SECTIONS ECCENTRIC CONE OR FLAT LAB TOP TYPE WITH OPENING OFFSET FOR VERTICAL LAUNDER INSTALLATION.
- E. PRECAST CATCH BASIN SECTIONS: TO OPSS 1351.
- F. JOINTS: SHALL BE MADE WATERTIGHT USING BUTY BASED, FLEXIBLE WATERSTOP/JOINT SEALANT MATERIAL.
- G. SANITARY SEWERS: BENCH TO PROVIDE A SMOOTH U-SHAPED CHANNEL PER OPSD 701.021. SLOPE INVERT TO ESTABLISH SEWER GRADE.
- H. STORM SEWERS: MANHOLES SHALL HAVE A 300mm SUMP AND CATCH BASINS AND DITCH INLETS SHALL HAVE A 600mm SUMP.
- I. FRAMES, GRATES AND COVERS TO CITY OF OTTAWA DRAWINGS OR OPSD (AS PER CATCH BASIN & MANHOLE SCHEDULE). GRATES AND COVERS TO BEAR EVENLY ON FRAMES.
- J. GRANULAR BEDDING AND BACKFILL: OPSD GRANULAR A. RE-CYCLED GRANULAR MATERIALS ARE NOT PERMITTED.
- K. PRIOR TO INSTALLATION SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.
- L. AS NOTED ON PLANS: AT ALL CATCH BASINS AND CATCH BASIN MANHOLES PROVIDE MINIMUM 3m LONG, 150mm DIAMETER, PERFORATED SUB-DRAINS AT THE SUB-GRADE LEVEL: HDPE C/W FILTER FABRIC SOCK & END PLUG (BOSS 1000 OR APPROVED EQUAL).

5. CONSTRUCTION

- 5.1 PRIOR TO COMMENCING WORK:
- A. OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE AUTHORITIES.
- B. DRAWINGS ARE DERIVED FROM AVAILABLE INFORMATION AND ARE FOR GUIDANCE ONLY AND MUST BE CONFIRMED ON SITE BEFORE COMMENCING ANY WORK. COMPLETENESS AND ACCURACY ARE NOT GUARANTEED. NOTIFY ALL APPLICABLE OWNERS, UTILITY COMPANIES AND AUTHORITIES HAVING JURISDICTION OF PROPOSED WORK AND LOCATE AND CLEARLY IDENTIFY ALL EXISTING INFRASTRUCTURE ON THE SITE AND ADJACENT TO THE SITE. UNDERGROUND LOCATES (INCLUDING BUT NOT LIMITED TO ONTARIO ONE CALL: 811) SHALL BE OBTAINED PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND REPORTING ANY DIFFERENCES TO THE ENGINEER. ANY ISSUES ARISING FROM FAILURE OF CONTRACTOR TO DETERMINE THE SIZE, DEPTH AND LOCATION ALL EXISTING INFRASTRUCTURE WILL BE AT THE CONTRACTOR'S EXPENSE.
- C. EXISTING GRADE ELEVATIONS SHOWN ON DRAWINGS ARE DERIVED FROM AVAILABLE INFORMATION AND ARE FOR GUIDANCE ONLY AND MUST BE CONFIRMED ON SITE BEFORE COMMENCING CONSTRUCTION. COMPLETENESS AND ACCURACY ARE NOT GUARANTEED. REPORT ANY DIFFERENCES TO ENGINEER.
- D. COORDINATE AND SCHEDULE WORK WITH THE OWNER, AUTHORITIES AND OTHER TRADERS.

5.2 SCHEDULE WORK TO PROVIDE THE MINIMUM DISRUPTION TO SERVICES.

- 5.3 INSTALL CONSTRUCTION FENCING AROUND THE AREA OF WORK. DO NOT REMOVE FENCING UNTIL WORK IS COMPLETE.
- 5.4 PROVIDE TRAFFIC CONTROL AND SAFETY MEASURES AS REQUIRED BY THE AUTHORITIES, INCLUDING ANY NECESSARY PERSONNEL AND THE SUPPLY, INSTALLATION, REMOVAL AND REPLACEMENT OF ALL NECESSARY SIGNS AND BARRIERS. IF APPLICABLE, PROVIDE TRAFFIC MANAGEMENT PLAN AS PER CITY OF OTTAWA REQUIREMENTS.
- 5.5 REMOVE OFF ALL OPEN EXCAVATIONS AT THE END OF EACH WORK DAY. FENCES SHALL BE INSTALLED AND MAINTAINED A GOOD AND EFFECTIVE CONDITION.
- 5.6 CUT PAVEMENT AND / OR SIDEWALK NEATLY ALONG LIMITS OF PROPOSED EXCAVATION IN ORDER THAT SURFACE MAY BREAK EVENLY AND CLEANLY.
- 5.7 COORDINATE AND PAY FOR GEOTECHNICAL INSPECTIONS AND COMPARISON TESTS OF SUB-GRADE, PIPE BEDDING AND EACH LAYER OF SURROUND MATERIAL. BACKFILL SUB-BASE, BASE AND EACH LAYER OF SURROUND MATERIAL TO BE UNDISTURBED SOIL, LEVEL, FREE FROM LOOSE, SOFT OR ORGANIC MATTER.
- 5.8 CUT AND FILL AS NECESSARY TO ACHIEVE THE PROPOSED GRADE ELEVATIONS. DISPOSE OF SURPLUS AND UNSUITABLE EXCAVATED MATERIAL OFF SITE. FILL MATERIAL AND THE PLACEMENT AND COMPACTION OF THE FILL MATERIAL AS PER THE GEOTECHNICAL REPORT AND TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT. STOCKPILE GRANULAR AND FILL MATERIALS IN MANNER TO PREVENT SEGREGATION AND PROTECT FROM CONTAMINATION.
- 5.9 EXCAVATION, TRENCHING, ENGINEERED FILL, COMPACTION & BACKFILL SHALL BE AS PER THE GEOTECHNICAL INVESTIGATION.
- 5.10 SHORE AND BRACE EXCAVATIONS, PROTECT SLOPES AND BANKS AND PERFORM ALL WORK IN ACCORDANCE WITH ONTARIO REGULATION 213/91 UNDER THE ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND CURRENT CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS.
- 5.11 KEEP EXCAVATIONS FREE OF WATER WHILE WORK IS IN PROGRESS. PROTECT OPEN EXCAVATIONS AGAINST FLOODING AND DAMAGE DUE TO SURFACE RUN-OFF.
- 5.12 EXCAVATION MUST NOT INTERFERE WITH BEARING CAPACITY OF ADJACENT FOUNDATIONS.
- 5.13 EXCAVATION MUST NOT INTERFERE WITH BEARING CAPACITY OF ADJACENT FOUNDATIONS.
- 5.14 EXCAVATE TO LINES, GRADES, ELEVATIONS AND DIMENSIONS AS INDICATED.
- 5.15 EARTH BOTTOMS OF EXCAVATIONS TO BE UNDISTURBED SOIL, LEVEL, FREE FROM LOOSE, SOFT OR ORGANIC MATTER.
- 5.16 ALL STRUCTURES WITHIN PAVED AREAS SHALL HAVE 4:1 FROST TAPERS FROM FROST LINE TO SUB-GRADE.
- 5.17 CORRECT OVER-EXCAVATION WITH GRANULAR A COMPACTED TO NOT LESS THAN 95% OF CORRECTED MAXIMUM DRY DENSITY.
- 5.18 SUB-GRADE AND AREAS TO BE BACKFILLED TO BE FREE FROM DEBRIS, SNOW, ICE, WATER AND FROZEN GROUND.
- 5.19 DO NOT USE BACKFILL MATERIAL WHICH IS FROZEN OR CONTAINS ICE, SNOW OR DEBRIS.
- 5.20 PIPE BEDDING AND SURROUND MATERIAL SHALL BE OPSD GRANULAR A. RE-CYCLED GRANULAR MATERIALS ARE NOT PERMITTED.
- 5.21 PIPE BEDDING SHALL BE 150mm THICK. SHAPE BED TRUE TO GRADE AND TO PROVIDE CONTINUOUS, UNIFORM BEARING SURFACE FOR PIPE.
- 5.22 PLACE SURROUND MATERIAL AROUND PIPES TO FULL WIDTH OF TRENCH AND TO 300mm ABOVE PIPES.
- 5.23 EXCAVATIONS AND BACKFILLING SHALL BE IN UNIFORM LAYERS NOT EXCEEDING 150mm COMPACTED THICKNESS. PLACE FILL AND BACKFILL MATERIAL IN UNIFORM LAYERS NOT EXCEEDING 150mm COMPACTED THICKNESS.
- 5.24 COMPACT EACH LAYER TO 95% OF CORRECTED DRY DENSITY BEFORE PLACING SUCCEEDING LAYER.
- 5.25 BACKFILL MATERIALS WITHIN 1.8m OF PROPOSED GRADE SHALL MATCH THE MATERIALS EXPOSED ON THE TRENCH WALLS. BACKFILL BELOW 1.8m OF THE PROPOSED CAN CONSIST OF EITHER ACCEPTABLE NATIVE MATERIAL, ROCK, OR IMPORTED GRANULAR MATERIAL CONFORMING TO OPSD GRANULAR B TYPE I OR II. ANY ORGANIC SOILS OR TOPSOIL, IF USED, SHALL BE PLACED AT THE BOTTOM OF THE EXCAVATION. THE ROCK IS USED BACKFILL SHALL BE SHATTERED AND GRADED AND 100mm OR SMALLER DIAMETER. TO PREVENT SEGREGATION OF FINE MATERIAL, INTERLAYS IN THE ROCK FILL, THE UPPER SURFACE OF THE ROCK FILL SHALL BE COVERED WITH 150mm LAYER OF COMPACTED, WELL GRADED CRUSHED STONE PLACED ON GEOTEXTILE FABRIC.

5.11 PIPES:

- 5.12 HANDLE PIPE USING METHODS APPROVED BY MANUFACTURER.
- 5.13 LAY, CUT AND JOIN PIPES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 5.14 USE PIPE JOINT FITTINGS AS RECOMMENDED BY PIPE MANUFACTURER.
- 5.15 LAY PIPES ON PREPARED BED, TRUE TO LINE AND GRADE AND ENSURE BARREL OF EACH PIPE IS IN CONTACT WITH SHAPED BED THROUGHOUT ITS FULL LENGTH, FREE OF SAGS OR HIGH POINTS. MAXIMUM JOINT DEFLECTION RECOMMENDED BY PIPE MANUFACTURER.
- 5.16 WHEN STAPAGE OF WORK OCCURS, BLOCK PIPES TO PREVENT CREEP DURING DOWN TIME. MAKE WATERTIGHT CONNECTIONS TO MANHOLES.
- 5.17 JOINTS SHALL BE STRUCTURALLY SOUND AND WATERTIGHT.
- 5.18 REPAIR OR REPLACE PIPE, PIPE JOINT OR BEDDING FOUND DEFECTIVE.
- 5.19 SEWERS AND SEWER SERVICES:
- 5.20 A. CONSTRUCT SEWER TRENCHES AS PER CITY DWG S6 & S7.
- 5.21 B. RIGID STRUCTURES, INSTALL PIPE JOINTS NOT MORE THAN 1.2M FROM SIDE OF STRUCTURE.
- 5.22 C. MAINTAIN EXISTING SEWAGE FLOWS DURING CONSTRUCTION.
- 5.23 D. PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. SPECIFICALLY, THE LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410. REPAIR AND TEST SEWER LINE AS REQUIRED. REPAIR VISIBLE LEAKS REGARDLESS OF TEST RESULTS.
- 5.24 E. CONDUCT DYE TEST OF SEWER LINES TO CONFIRM THE COMPLETION OF CONSTRUCTION. SECOND INSPECTION IMMEDIATELY PRIOR TO END OF WARRANTY PERIOD. REPAIR AND TEST SEWER LINES TO CONFIRM THE COMPLETION OF CONSTRUCTION. SECOND INSPECTION IMMEDIATELY PRIOR TO END OF WARRANTY PERIOD.
- 5.25 F. CONDUCT DYE TEST OF SANITARY SEWERS AND COORDINATE WITH ENGINEER. DYE TEST SHALL BE WITNESSED BY ENGINEER.
- 5.26 WATERMANS:
- 5.27 A. INSTALL AND TEST TRACER WIRE ON THE WATER SERVICE CONNECTION AS PER 4.3.1.2 OF THE CITY OF OTTAWA WATER DISTRIBUTION DESIGN GUIDELINES AND DRAWING W36.
- 5.28 B. PRESSURE TESTING AS PER AWWA C-602-5 AND CITY OF OTTAWA DESIGN GUIDELINES – WATER DISTRIBUTION SECTION 4.6.13.
- 5.29 C. CHLORINATION AS PER AWWA C-651-05 AND CITY OF OTTAWA DESIGN GUIDELINES – WATER DISTRIBUTION SECTION 4.6.13 & CITY DWG. W46.
- 5.30 MANHOLES & CATCH BASINS:
- 5.31 A. JOINTS: SHALL BE MADE WATERTIGHT.
- 5.32 B. SET PRECAST CONCRETE BASE ON 150mm MINIMUM OF GRANULAR BEDDING COMPACTED TO 100% CORRECTED MAXIMUM DRY DENSITY.
- 5.33 C. MAKE EACH JOINT WATERTIGHT WITH RUBBER RING GASKETS.
- 5.34 D. PLACE GRANULAR BACKFILL MATERIALS IN A UNIFORM LAYERS TO COMPACTED THICKNESS OF 150mm, COMPACT TO 95% CORRECTED MAXIMUM DRY DENSITY.
- 5.35 E. PLACE FRAME AND COVER ON TOP SECTION TO ELEVATION AS INDICATED. IF ADJUSTMENT REQUIRED USE CONCRETE RINGS TO A MAXIMUM OF 300mm.
- 5.36 F. CLEAN UNITS OF DEBRIS, FOREIGN AND SURPLUS MATERIALS. REMOVE FINIS AND SHARP PROJECTIONS. PREVENT DEBRIS FROM ENTERING SYSTEM.
- 5.37 G. PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. SPECIFICALLY, THE LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 407.
- 5.38 H. RECORD DRAWINGS SHALL INCLUDE BUT NOT LIMITED TO: EXISTING AND PROPOSED GRADES, ELEVATIONS, DIMENSIONS, LOCATIONS OF UNDERGROUND SERVICES, UTILITIES AND ADDITIONAL INSTRUCTIONS. UPDATE DAILY AND MAKE AVAILABLE ON-SITE FOR REVIEW THROUGHOUT THE CONSTRUCTION PERIOD. RECORD DRAWINGS SHALL INCLUDE BUT NOT LIMITED TO: EXISTING AND PROPOSED GRADES, ELEVATIONS, DIMENSIONS, LOCATIONS OF UNDERGROUND SERVICES, UTILITIES AND ADDITIONAL INSTRUCTIONS. UPDATE DAILY AND MAKE AVAILABLE ON-SITE FOR REVIEW THROUGHOUT THE CONSTRUCTION PERIOD. RECORD DRAWINGS SHALL INCLUDE BUT NOT LIMITED TO: EXISTING AND PROPOSED GRADES, ELEVATIONS, DIMENSIONS, LOCATIONS OF UNDERGROUND SERVICES, UTILITIES AND ADDITIONAL INSTRUCTIONS. UPDATE DAILY AND MAKE AVAILABLE ON-SITE FOR REVIEW THROUGHOUT THE CONSTRUCTION PERIOD. RECORD DRAWINGS SHALL INCLUDE BUT NOT LIMITED TO: EXISTING AND PROPOSED GRADES, ELEVATIONS, DIMENSIONS, LOCATIONS OF UNDERGROUND SERVICES, UTILITIES AND ADDITIONAL INSTRUCTIONS. 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