# CATCHBASIN & MANHOLE SCHEDULE

| REF | TOP | SIZE | TYPE | INVERT AT INLET | INVERT AT OUTLET | NOTES |
|---|---|---|---|---|---|---|
| **STORM SEWER** | | | | | | |
| CB/MH ST10 | XX.XX | 1200mm | PRE-CAST CONCRETE CATCHBASIN MANHOLE | 67.33(W) | ±67.27(S) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH/ST11 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | 67.44(N) 67.41(NW) 67.39(W) | 67.38(E) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| CB/MH ST12 | XX.XX | 1200mm | PRE-CAST CONCRETE CATCHBASIN MANHOLE | 67.89(N) 67.89(W) | 67.42(SE) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS INLET CONTROL DEVICE AT OUTLET |
| CB/MH ST13 | XX.XX | 1200mm | PRE-CAST CONCRETE CATCHBASIN MANHOLE | 68.04(N) | 68.03(S) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| CB/MH ST14 | XX.XX | 1200mm | PRE-CAST CONCRETE CATCHBASIN MANHOLE | 68.19(N) 68.24(W) | 68.18(S) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH/ST15 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | 67.75(N) 67.80(W) | 67.74(S) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH/ST16 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | – | 67.81 | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| CB/ST17 | XX.XX | 600 x 600mm | PRE-CAST CONCRETE CATCHBASIN | – | 68.26 | TO OPSD 705.010 & CITY OF OTTAWA STANDARDS |
| MH/ST18 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | 67.56(N) | 67.53(E) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| CB/MH ST19 | XX.XX | 1200mm | PRE-CAST CONCRETE CATCHBASIN MANHOLE | 68.04(NW) | 68.01(E) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH/ST20 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | 67.62(N) | 67.59(SE) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| CB/MH ST21 | XX.XX | 1200mm | PRE-CAST CONCRETE CATCHBASIN MANHOLE | 68.10(N) | 68.07(SE) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH/ST22 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | 67.73(N) 67.78(W) | 67.72(S) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| CB/MH ST23 | XX.XX | 1200mm | PRE-CAST CONCRETE CATCHBASIN MANHOLE | 68.20(N) 68.25(E) | 68.19(S) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| CB/MH ST24 | XX.XX | 1200mm | PRE-CAST CONCRETE CATCHBASIN MANHOLE | 67.92(S) 67.87(W) | 67.86(E) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| CB/ST25 | XX.XX | 1200mm | PRE-CAST CONCRETE CATCHBASIN | – | 68.07 | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| CB/MH ST26 | XX.XX | 600 x 600mm | PRE-CAST CONCRETE CATCHBASIN MANHOLE | 67.98(N) | 67.92(E) | TO OPSD 705.010 & CITY OF OTTAWA STANDARDS |
| CB/MH ST27 | XX.XX | 1200mm | PRE-CAST CONCRETE CATCHBASIN MANHOLE | – | 68.03 | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| CB/MH ST28 | XX.XX | 1200mm | PRE-CAST CONCRETE CATCHBASIN MANHOLE | 68.35(NE) 68.30(E) | 68.29(W) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| CB/ST29 | XX.XX | 600 x 600mm | PRE-CAST CONCRETE CATCHBASIN | – | 68.36 | TO OPSD 705.010 & CITY OF OTTAWA STANDARDS |
| CB/MH ST30 | XX.XX | 1200mm | PRE-CAST CONCRETE CATCHBASIN MANHOLE | 68.33(W) | 68.32(E) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| CB/MH ST31 | XX.XX | 1200mm | PRE-CAST CONCRETE CATCHBASIN MANHOLE | 68.41(E) 68.43(W) | 68.37(S) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH/ST32 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | 67.96(E) 67.97(W) | 67.90(S) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| CB/MH ST33 | XX.XX | 1200mm | PRE-CAST CONCRETE CATCHBASIN MANHOLE | 68.52(W) | 68.51(E) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| CB/MH ST34 | XX.XX | 1200mm | PRE-CAST CONCRETE CATCHBASIN MANHOLE | 68.66(N) 68.66(S) | 68.60(E) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH/ST35 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | – | 68.11(E) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| CB/ST36 | XX.XX | 600 x 600mm | PRE-CAST CONCRETE CATCHBASIN | – | 68.75 | TO OPSD 705.010 & CITY OF OTTAWA STANDARDS |
| CB/ST37 | XX.XX | 600 x 600mm | PRE-CAST CONCRETE CATCHBASIN | – | 68.77 | TO OPSD 705.010 & CITY OF OTTAWA STANDARDS |
| CB/ST38 | XX.XX | 600 x 600mm | PRE-CAST CONCRETE CATCHBASIN | – | 68.39 | TO OPSD 705.010 & CITY OF OTTAWA STANDARDS |
| CB/ST39 | XX.XX | 600 x 600mm | PRE-CAST CONCRETE CATCHBASIN | – | 68.83 | TO OPSD 705.010 & CITY OF OTTAWA STANDARDS |
| CB/ST40 | XX.XX | 600 x 600mm | PRE-CAST CONCRETE CATCHBASIN | – | 67.69 | TO OPSD 705.010 & CITY OF OTTAWA STANDARDS |
| CB/ST41 | XX.XX | 600 x 600mm | PRE-CAST CONCRETE CATCHBASIN | – | 68.35 | TO OPSD 705.010 & CITY OF OTTAWA STANDARDS |
| **SANITARY SEWER** | | | | | | |
| MH-SA.1 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | 66.08(E) 66.05(S) | 66.02(NW) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH-SA.2 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | – | 66.36 | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH-SA.3 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | 66.25(E) 66.30(S) | 66.24(W) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH-SA.4 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | 66.45(N) 66.45(S) | 66.39(W) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH-SA.5 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | – | 66.64 | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH-SA.6 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | 66.75(W) | 66.71(N) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH-SA.7 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | 66.63(SE) | 66.60(NW) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH-SA.8 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | 66.57(SE) | 66.54(N) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH-SA.9 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | 66.52(E) 55.47(S) | 66.46(N) | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |
| MH-SA.10 | XX.XX | 1200mm | PRE-CAST CONCRETE MANHOLE | – | 66.60 | TO OPSD 701.010 & CITY OF OTTAWA STANDARDS |

1. GENERAL

1.1 USE BAR SCALE TO CONFIRM ACTUAL PLOT SCALE.
1.2 EXISTING AND NEW ELEVATIONS AND INVERTS SHOWN ARE GEODETIC AND ARE IN METERS.
1.3 EXISTING ELEVATIONS AND LOCATIONS, INVERTS AND SIZES OF EXISTING SERVICES ARE NOT NECESSARILY SHOWN ON PLAN AND THOSE SHOWN ARE DERIVED FROM AVAILABLE INFORMATION AND MUST BE CONFIRMED ON SITE BEFORE COMMENCING CONSTRUCTION. REPORT ANY DIFFERENCES TO ENGINEER. SITE BOUNDRIES DERIVED FROM PLAN 4R-15064 PREPARED BY

1.4 REFER TO ARCHITECTURAL / LANDSCAPE SITE PLANS FOR EXACT LOCATIONS OF BUILDINGS, PAVED AREAS SIDEWALKS ETC.
1.5 REFERENCE THE LATEST REVISION AND ALL ADDENDUMS OF THE GEOTECHNICAL INVESTIGATION BY

1.6 DRAWINGS ARE TO BE READ IN CONJUNCTION WITH SPECIFICATIONS.
1.7 DRAWINGS ARE TO BE READ IN CONJUNCTION WITH STORM WATER MANAGEMENT REPORT No. 11041-SWM PREPARED BY D. B. GRAY ENGINEERING INC. DATED APRIL 12, 2012.
1.8 OWNER'S MAILING ADDRESS:

1.9 REINSTATE ADJACENT PROPERTIES TO PRE-CONSTRUCTION CONDITIONS.
1.10 REINSTATE CITY PROPERTIES TO CITY STANDARDS AND TO CITY OF OTTAWA'S SATISFACTION.
1.11 ALL CITY PROPERTY, DAMAGED AS A RESULT OF THIS WORK, SHALL BE REINSTATED TO THE CITY'S SATISFACTION.
1.12 ALL RELEVANT WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT CITY STANDARDS AND SPECIFICATIONS.
1.13 ONTARIO PROVINCIAL STANDARDS & SPECIFICATIONS WILL APPLY WHERE NO CITY STANDARDS ARE AVAILABLE.

2. EROSION AND SEDIMENT CONTROL

2.1 THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATER COURSE DURING CONSTRUCTION ACTIVITIES. THIS INCLUDES LIMITING THE AMOUNT OF EXPOSED SOIL, USING FILTER CLOTH UNDER THE GRATES OF CATCH BASINS AND MANHOLES AND INSTALLING SILT FENCES AND OTHER EFFECTIVE SEDIMENT TRAPS. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
2.2 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. IMMEDIATELY REPAIR OR REPLACE ANY DAMAGED SECTIONS OF FENCE. DO NOT REMOVE ANY SILT FENCES IN ANY PHASE UNTIL CONSTRUCTION IS COMPLETE. AFTER THE REMOVAL OF A SILT FENCE IMMEDIATELY GRADE, PREPARE SURFACE AND SOD.
2.3 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: PLACE GEOTEXTILE FABRIC BETWEEN THE GRATE AND FRAME. INSPECT AT THE END OF EACH DAY AND AFTER EACH RAINFALL. REMOVE AND DISPOSE OLD GEOTEXTILE FABRIC AND SEDIMENT WHEN SEDIMENT DEPOSITS ARE GREATER THAN 10mm DEEP AND REPLACE WITH NEW GEOTEXTILE FABRIC. IMMEDIATELY REPAIR OR REPLACE ANY DAMAGED FABRIC. DO NOT REMOVE FABRIC UNTIL CONSTRUCTION IS COMPLETE.
2.4 CONSTRUCTION IS CONSIDERED COMPLETE WHEN THE FOLLOWING CONDITIONS HAVE BEEN MET:
a. ALL STRUCTURES HAVE BEEN BUILT.
b. ALL HARD SURFACES HAVE BEEN CONSTRUCTED.
c. ALL PROPOSED GRASSED AREAS ARE EITHER SODDED OR HAVE A FULL COVERAGE OF WELL ESTABLISHED TURF AND HAVE HAD A MINIMUM OF ONE FULL GROWING SEASON (MAY 15TH TO SEPTEMBER 15TH).
d. THERE ARE NO AREAS OF EXPOSED EARTH.
e. ALL STOCKPILED MATERIALS HAVE BEEN REMOVED.
2.5 REMOVE 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 AREAS SHALL BE GRADED TO ENSURE ADEQUATE DRAINAGE AWAY FROM BUILDINGS TO CATCH BASINS, SWALES, DITCHES AND OTHER APPROVED DISPOSAL AREAS. GRADES TO BE GRADUAL BETWEEN FINISHED SPOT ELEVATIONS SHOWN ON DRAWINGS TO PREVENT PONDING (OTHER THAN PONDING REQUIRED FOR STORMWATER MANAGEMENT).
TAPER THE CURB DOWN TO THE BACK OF THE SHOULDER.
3.3 GEOTEXTILE FABRIC: TO OPSS 1860. WOVEN SYNTHETIC FIBRE FABRIC SHALL BE USED IN SILT FENCE BARRIER AND BETWEEN GRATES FRAMES OF CATCH BASINS. NON-WOVEN SYNTHETIC FIBRE FABRIC 1.75mm THICK, 200g/sq.m. SHALL BE USED FOR MATERIAL SEPARATION. GEOTEXTILE (FILTER) FABRIC SHALL BE FREE OF TEARS AND RESISTANT TO DETERIORATION BY ULTRA VIOLET AND HEAT EXPOSURE.

4. SITE SERVICES

4.1 CAP EXISTING WATER SERVICE CONNECTION AT CITY WATERMAIN TO CITY OF OTTAWA STANDARDS. INSTALL A WATERTIGHT CAP AT ENDS OF EXISTING STORM SEWERS TO BE ABANDONED.
4.2 WATER METERS SHALL BE INSTALLED AS PER CITY OF OTTAWA DWG. No. W30. ALL WATER SERVICE MATERIALS AND CONSTRUCTION METHODS TO CITY OF OTTAWA STANDARDS AND SPECIFICATIONS.
4.3 PROVIDE A MINIMUM 2.4 m COVER OVER WATER SERVICE CONNECTIONS AND WATERMAIN. WHERE THE MINIMUM COVER IS NOT POSSIBLE INSULATE AS PER CITY OF OTTAWA DWG. No. W22. WHERE LESS THAN 2.4 m CLEARANCE FROM AN OPEN STRUCTURE (EG. MANHOLES & CATCHBASINS) PLACE INSULATION AROUND WATERMAIN AND WATER SERVICE CONNECTIONS AS PER CITY OF OTTAWA DWG. No. W23.
4.4 PROVIDE A MINIMUM 300mm VERTICAL SEPARATION BETWEEN SEWERS AND WATERMAIN / WATER SERVICE CONNECTIONS.
4.5 PROVIDE THRUST BLOCKS AS PER CITY OF OTTAWA STANDARD W-25.3 AT ALL VALVES, TEES, CAPS, BENDS, REDUCERS AND HYDRANTS.
4.6 CONNECTION TO WATERMAIN BY CITY OF OTTAWA, CONTRACTOR SHALL PROVIDE EXCAVATION, BACKFILL AND REINSTATEMENT.
4.7 WATERMAIN MATERIALS SHALL BE PVC PRESSURE CLASS 150 DR18. WTAER SERVICE CONNECTIONS SHALL BE 19mm COPPER ASTM B88 TYPE "K" SOFT.
4.8 LOCATE FIRE HYDRANT 1.5 TO 2.5m FROM FACE OF CURB AND A MINIMUM 0.6m FROM EDGE OF SIDEWALK.
4.9 CONNECT PROPOSED SANITARY SEWER SERVICE CONNECTION TO EXISTING MUNICIPAL SANITARY SEWER USING A PREFABRICATED SADDLE CONNECTION.
4.10 SEWER MATERIAL SHALL BE PVC 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. PROVIDE A MINIMUM 0.3m HORIZONTAL SEPARATION BETWEEN SEWER CONNECTIONS AND WATER SERVICE CONNECTION. PROVIDE A MINIMUM 1.0m HORIZONTAL SEPARATION BETWEEN SEWERS AND WATERMAIN. SEWERS WITHIN 2.44 m HORIZONTAL DISTANCE OF THE WATERMAIN OR WATER SERVICE PIPE SHALL BE PVC SDR-35 WITH JOINTS CAPABLE OF BEING PRESSURE TESTED TO A MINIMUM 345 kPa (50psi) AND SHALL CONFORM TO CSA B137.3. (IPEX Ring-Tite or EQUAL) AND THE SEWAGE SYSTEM SHALL BE CONSTRUCTED OF PIPING WHICH IS PRESSURE TESTED IN ACCORDANCE WITH OBC 7.2.7 (TESTING OF POTABLE WATER SYSTEMS) AT 345 kPa (50psi).
4.11 MANHOLES & CATCH BASINS:
a. PRECAST MANHOLE UNITS: TO OPSS 1351 WITH BASE SLAB OR MONOLITHIC BASE. TOP SECTIONS ECCENTRIC CONE OR FLAT LAB TOP TYPE WITH OPENING OFFSET FOR VERTICAL LADDER INSTALLATION.
b. MANHOLE STEPS: TO OPSD 405.01
c. ADJUSTING RINGS: TO ASTM C 478M.
ALUMINUM SURFACES IN CONTACT WITH OR CAST INTO CONCRETE SHALL HAVE POLYETHYLENE ANCHOR INSULATING SLEEVES.
d. PRECAST CATCH BASIN SECTIONS: TO OPSS 1351.
e. JOINTS: SHALL BE MADE WATERTIGHT USING BUTYL BASED, FLEXIBLE WATERSTOP/JOINT SEALANT MATERIAL.
f. SANITARY SEWERS: BENCH TO PROVIDE A SMOOTH U-SHAPED CHANNEL TO CITY OF OTTAWA STANDARDS. SLOPE INVERT TO ESTABLISH SEWER GRADE.
g. STORM SEWERS: MANHOLES SHALL HAVE A 300mm SUMP AND CATCH BASINS AND DITCH INLETS SHALL HAVE A 600mm SUMP.
h. FRAMES, GRATES AND COVERS TO OPSS 1850 AND CITY OF OTTAWA STANDARDS. GRATES AND COVERS TO BEAR EVENLY ON FRAMES. PAINTED WITH ONE SHOP COAT OF ASPHALT OR TAR BASE BLACK, ALL JOINTS AND CREVICES SHALL BE THOROUGHLY COATED.
i. GRATINGS (FOR DITCH INLETS): FABRICATED LATTICE OF WELDED QUALITY MILD CARBON STEEL BARS CONFORMING TO OPSS 1850 AND ASTM A569, GRADE 1015, HOT DIPPED GALVANIZED CONFORMING TO CSA G164-M.
j. GRANULAR BEDDING AND BACKFILL: OPSS GRANULAR A.
4.12 THE INLET CONTROL DEVICE (LOCATED IN THE OUTLET PIPE OF CB/MH-12) SHALL BE PLUG STYLE WITH A WITH A ROUND ORIFICE (WITH THE ORIFICE LOCATED AT THE BOTTOM OF THE PLUG)MANUFACTURED BY PEDRO PLASTICS (OR APPROVED EQUAL BY IPEX ) AND SIZED BY THE MANUFACTURER FOR A DISCHARGE RATE OF 67.66 L/S AT 1.63 m HEAD (ESTIMATED DIAMETER OF ORIFICE 158mm).

5. CONSTRUCTION:

5.1 PRIOR TO COMMENCING WORK:
A. OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE AUTHORITIES.
B. SIZE, DEPTH AND LOCATION OF EXISTING UTILITIES AND STRUCTURES AS INDICATED ARE FOR GUIDANCE ONLY. EXISTING UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON PLANS. 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 SERVICES, UTILITIES AND STRUCTURES ON AND ADJACENT TO SITE. CONFIRM LOCATIONS OF BURIED SERVICES AND UTILITIES BY CAREFUL TEST EXCAVATIONS AND REPORT ANY DIFFERENCES TO THE ENGINEER.
C. COORDINATE AND SCHEDULE WORK WITH THE AUTHORITIES AND OTHER TRADES.
5.2 MAINTAIN AND PROTECT FROM DAMAGE, SERVICES, UTILITIES AND STRUCTURES ENCOUNTERED.
5.3 PROTECT EXISTING BUILDINGS, TREES AND OTHER PLANTS, LAWNS, FENCING, SERVICE POLES, WIRES, PAVEMENT, SURVEY BENCH MARKS AND MONUMENTS AND OTHER SURFACE FEATURES FROM DAMAGE WHILE WORK IS IN PROGRESS. DO NOT DISTURB SOIL WITHIN BRANCH SPREAD OF TREES OR SHRUBS THAT ARE TO REMAIN.
5.4 PROVIDE TRAFFIC CONTROL AND SAFETY MEASURES INCLUDING ANY NECESSARY PERSONNEL AND THE SUPPLY, INSTALLATION AND REMOVAL OF ALL NECESSARY SIGNAGE AND BARRIERS.
5.4 REMOVE OBSTRUCTIONS, ICE AND SNOW, FROM SURFACES TO BE EXCAVATED.
5.5 CUT PAVEMENT AND / OR SIDEWALK NEATLY ALONG LIMITS OF PROPOSED EXCAVATION IN ORDER THAT SURFACE MAY BREAK EVENLY AND CLEANLY.
PRIOR TO COMMENCEMENT OF TOPSOIL STRIPPING REMOVE FROM SITE ALL EXPOSED BOULDERS, DEBRIS AND LIVE AND DEAD PLANT MATERIAL (EXCEPT TREES AND OTHER VEGETATION TO REMAIN). STOCKPILE TOPSOIL ON SITE AS DIRECTED BY CONSULTANT. DO NOT MIX TOPSOIL WITH SUBSOIL.
5.6 STOCKPILE GRANULAR AND FILL MATERIALS IN MANNER TO PREVENT SEGREGATION AND PROTECT FROM CONTAMINATION. ANY REQUIRED FILL SHALL BE CLEAN WELL GRADED SAND TO OPSS 1004 UNLESS OTHERWISE DIRECTED BY GEOTECHNICAL ENGINEER.
5.7 EXCAVATION, TRENCHING & BACKFILL:
A. SHORE AND BRACE EXCAVATIONS, PROTECT SLOPES AND BANKS AND PERFORM ALL WORK IN ACCORDANCE WITH OCCUPATIONAL HEALTH AND SAFETY ACT AND OTHER AUTHORITIES HAVING JURISDICTION.
B. KEEP EXCAVATIONS FREE OF WATER WHILE WORK IS IN PROGRESS. PROTECT OPEN EXCAVATIONS AGAINST FLOODING AND DAMAGE DUE TO SURFACE RUN-OFF.5.13
C. EXCAVATION MUST NOT INTERFERE WITH BEARING CAPACITY OF ADJACENT FOUNDATIONS.
D. DO NOT OBSTRUCT FLOW OF SURFACE DRAINAGE OR NATURAL WATERCOURSES.
E. EXCAVATE TO LINES, GRADES, ELEVATIONS AND DIMENSIONS AS INDICATED. DISPOSE OF SURPLUS AND UNSUITABLE EXCAVATED MATERIAL OFF SITE.
F. EARTH BOTTOMS OF EXCAVATIONS TO BE UNDISTURBED SOIL, LEVEL, FREE FROM LOOSE, SOFT OR ORGANIC MATTER.
G. ALL STRUCTURES WITHIN PAVED AREAS SHALL HAVE 4:1 FROST TAPERS FROM FROST LINE TO SUB-GRADE.
H. CORRECT OVER-EXCAVATION WITH GRANULAR A COMPACTED TO NOT LESS THAN 95 % OF CORRECTED MAXIMUM DRY DENSITY.
I. SUB-GRADE AND AREAS TO BE BACKFILLED TO BE FREE FROM DEBRIS, SNOW, ICE, WATER AND FROZEN GROUND.
J. DO NOT USE BACKFILL MATERIAL WHICH IS FROZEN OR CONTAINS ICE, SNOW OR DEBRIS.
K. BEDDING AND SURROUND MATERIAL FOR SEWERS SHALL BE OPSS A. BEDDING AND SURROUND MATERIAL FOR WATERMAIN AND WATER SERVICE CONNECTIONS SHALL BE OPSS A OR OPSS M.
L. DO NOT USE BEDDING, SURROUND OR BACKFILL MATERIAL WHICH IS FROZEN OR CONTAINS ICE, SNOW OR DEBRIS.
M. PIPE BEDDING SHALL BE 150MM THICK. SHAPE BED TRUE TO GRADE AND TO PROVIDE CONTINUOUS, UNIFORM BEARING SURFACE FOR PIPE.
N. PLACE SURROUND MATERIAL AROUND PIPES TO FULL WIDTH OF TRENCH AND TO 300MM ABOVE PIPES.
O. PLACE BEDDING AND SURROUND AND BACKFILL MATERIAL IN UNIFORM LAYERS NOT EXCEEDING 150MM COMPACTED THICKNESS. PLACE FILL AND BACKFILL MATERIAL IN UNIFORM LAYERS NOT EXCEEDING 300MM COMPACTED THICKNESS.
P. COMPACT EACH LAYER TO 95% OF CORRECTED DRY DENSITY BEFORE PLACING SUCCEEDING LAYER.
Q. DO NOT BACKFILL AROUND OR OVER CAST-IN-PLACE CONCRETE WITHIN 24 HOURS AFTER PLACING OF CONCRETE.
5.8 PIPES:
A. HANDLE PIPE USING METHODS APPROVED BY MANUFACTURER.
B. LAY, CUT AND JOIN PIPES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
C. USE ONLY FITTINGS AS RECOMMENDED BY PIPE MANUFACTURER.
D. 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.
E. DO NOT EXCEED MAXIMUM JOINT DEFLECTION RECOMMENDED BY PIPE MANUFACTURER.
F. AT RIGID STRUCTURES, INSTALL PIPE JOINTS NOT MORE THAN 1.2 M FROM SIDE OF STRUCTURE.
G. WHENEVER WORK IS SUSPENDED, INSTALL REMOVABLE WATERTIGHT BULKHEAD AT OPEN END OF LAST PIPE LAID TO PREVENT ENTRY OF FOREIGN MATERIALS.
H. WHEN STOPPAGE OF WORK OCCURS, BLOCK PIPES TO PREVENT CREEP DURING DOWN TIME. MAKE WATERTIGHT CONNECTIONS TO MANHOLES.
I. USE NON-SHRINK GROUT WHEN SUITABLE GASKETS ARE NOT AVAILABLE.
J. JOINTS SHALL BE STRUCTURALLY SOUND AND WATERTIGHT.
K. MAINTAIN EXISTING SEWAGE FLOWS DURING CONSTRUCTION.
REPAIR OR REPLACE PIPE, PIPE JOINT OR BEDDING FOUND DEFECTIVE.
L. PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS, SPECIFICALLY, THE LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.07.01.10 AND 407.07.26 AND IN ACCORDANCE WITH THE PLUMBING CODE.
M. REPAIR AND RETEST SEWER LINE AS REQUIRED.
N. REPAIR VISIBLE LEAKS REGARDLESS OF TEST RESULTS.
O. CONDUCT TWO CCTV INSPECTIONS OF SEWERS. FIRST INSPECTION AFTER COMPLETION OF CONSTRUCTION. SECOND INSPECTION IMMEDIATELY PRIOR TO END OF ONE YEAR TO WARRANTY PERIOD. A PAN AND TILT CAMERA SHALL BE USED. REPAIR SEWER LINE AS REQUIRED.
5.9 MANHOLES & CATCH BASINS:
A. JOINTS: SHALL BE MADE WATERTIGHT.
B. SET PRECAST CONCRETE BASE ON 150 MM MINIMUM OF GRANULAR BEDDING COMPACTED TO 100% CORRECTED MAXIMUM DRY DENSITY.
C. MAKE EACH JOINT WATERTIGHT WITH RUBBER RING GASKETS.
D. PLACE GRANULAR BACKFILL MATERIALS IN A UNIFORM LAYERS TO COMPACTED THICKNESS OF 150MM, COMPACT TO 95% CORRECTED MAXIMUM DRY DENSITY.
E. PLACE FRAME AND COVER ON TOP SECTION TO ELEVATION AS INDICATED. IF ADJUSTMENT REQUIRED USE CONCRETE RINGS TO A MAXIMUM OF 300MM.
F. CLEAN UNITS OF DEBRIS, FOREIGN AND SURPLUS MATERIALS. REMOVE FINS AND SHARP PROJECTIONS. PREVENT DEBRIS FROM ENTERING SYSTEM.
5.10 MAINTAIN RECORD DRAWINGS AND RECORD ACCURATELY DEVIATIONS FROM THE ORIGINAL CONTRACT DOCUMENTS CAUSED BY SITE CONDITIONS AND CHANGES MADE BY CHANGE ORDER OR ADDITIONAL INSTRUCTION. UPDATE DAILY AND MAKE AVAILABLE ON-SITE FOR REVIEW THROUGHOUT THE CONSTRUCTION PERIOD. MARK CHANGES IN RED INK. RECORD DRAWINGS SHALL INCLUDE BUT NOT NECESSARILY LIMITED TO CHANGES OF DIMENSION AND DETAIL; AND HORIZONTAL AND VERTICAL LOCATIONS OF UNDERGROUND UTILITIES AND APPURTENANCES REFERENCED TO A PERMANENT SURFACE STRUCTURE.
5.11 REINSTATE PAVEMENTS AND SIDEWALKS DISTURBED BY EXCAVATION TO THICKNESS, STRUCTURE AND ELEVATION WHICH EXISTED BEFORE EXCAVATION.
5.12 CLEAN AND REINSTATE AREAS AFFECTED BY THE WORK.
5.13 RE-INSTATE LAWNS AND GARDENS TO THE CONDITION AND ELEVATION WHICH EXISTED BEFORE CONSTRUCTION. IN AREAS THAT HAVE BEEN EXCAVATED OR RE-GRADED THE LAWN SHALL BE RE-INSTATED BY ADDING 150MM OF TOPSOIL AND SOD. IN AREAS WHERE THE LAWN HAS BEEN DAMAGED THE LAWN SHALL BE RE-INSTATED BY RE-GRADING, ADDING TOPSOIL, AS NECESSARY, AND SOD.

6. PAVEMENT

6.1 PAVEMENT STRUCTURE:
LIGHT DUTY PAVEMENT:
50mm HL-3 OR SUPERPAVE 12.5 ASPHALTIC CONCRETE
150mm OPSS GRANULAR A
300mm OPSS GRANULAR B TYPE II
HEAVY DUTY PAVEMENT:
40mm HL-3 OR SUPERPAVE 12.5 ASPHALTIC CONCRETE
50mm HL-8 OR SUPERPAVE 19 ASPHALTIC CONCRETE
150mm OPSS GRANULAR A
400mm OPSS GRANULAR B TYPE II
COMPACT GRANULAR BASE AND SUB-BASE MATERIAL TO 100% OF THE MATERIALS STANDARD PROCTOR MAXIMUM DRY DENSITY USING VIBRATORY COMPACTION EQUIPMENT. COMPACT ASPHALTIC CONCRETE TO 97% OF MARSHALL DENSITY.
6.2 SUB-GRADE TO BE FREE FROM DEBRIS, SNOW, ICE, WATER AND FROZEN GROUND.
CONSTRUCT A 3H:1V FROST TAPER IN SUB-GRADE SURFACE AS A TRANSITION BETWEEN DIFFERING PAVEMENT STRUCTURES AND BETWEEN PAVEMENT AND CURBS AND SIDEWALKS. CONSTRUCT GRANULAR BASE AND SUB-BASE TO DEPTH AND GRADE IN AREAS INDICATED.
6.3 ENSURE NO FROZEN MATERIAL IS PLACED. PLACE MATERIAL ONLY ON CLEAN UNFROZEN SURFACE, FREE FROM SNOW OR ICE.
6.4 PLACE MATERIAL TO FULL WIDTH IN UNIFORM LAYERS NOT EXCEEDING 150mm COMPACTED THICKNESS. SHAPE EACH LAYER TO SMOOTH CONTOUR AND COMPACT TO SPECIFIED DENSITY BEFORE SUCCEEDING LAYER IS PLACED.
6.5 COMPACT SUB-BASE MATERIAL TO DENSITY OF NOT LESS THAN 98% CORRECTED MAXIMUM DRY DENSITY. FILL OVER-EXCAVATED SUB-GRADE WITH SUB-BASE MATERIAL, COMPACT TO 98%. COMPACT BASE MATERIAL TO DENSITY NOT LESS THAN 100% CORRECTED MAXIMUM DRY DENSITY.
6.6 APPLY WATER AS NECESSARY DURING COMPACTION TO OBTAIN SPECIFIED DENSITY.
6.7 IN AREAS NOT ACCESSIBLE TO ROLLING EQUIPMENT, COMPACT TO SPECIFIED DENSITY WITH MECHANICAL TAMPERS.
6.8 REPLACE PAVEMENT DISTURBED BY CONSTRUCTION AND REPLACE WITH PAVEMENT STRUCTURE ABOVE.
6.9 WHERE NEW ASPHALT COMES IN CONTACT WITH EXISTING PAVEMENT CUT EXISTING ASPHALT LAYER CLEANLY.
6.10 SHAPE BASE TO SMOOTH CONTOUR AND COMPACT TO NOT LESS THAN 100% CORRECTED MAXIMUM DRY DENSITY BEFORE BEGINNING PAVING OPERATIONS.
6.11 APPLY ASPHALTIC CONCRETE ONLY WHEN BASE OR PREVIOUS COURSE IS DRY AND AIR TEMPERATURE IS ABOVE 5 DEG.C
6.12 ROLL UNTIL ROLLER MARKS ARE ELIMINATED AND COMPACTED TO NOT LESS THAN 95% OF DENSITY. COMPACT WITH HOT TAMPERS IN AREAS INAC