

1. GENERAL

- 1.1 USE BAR SCALE TO CONFIRM ACTUAL PLOT SCALE.
- 1.2 UNLESS OTHERWISE STATED "ENGINEER" REFERS TO D. B. GRAY ENGINEERING INC.
- 1.3 EXISTING AND NEW ELEVATIONS AND INVERTS SHOWN ARE GEODETIC AND ARE IN METERS. ALL PIPE DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
- 1.4 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.
- 1.5 SITE BOUNDARIES AND EXISTING GRADES AND OTHER FEATURES DERIVED FROM TOPOGRAPHIC SURVEY PREPARED BY STANTEC GEOMATICS LTD. FILE: 161600000.
- 1.6 REINSTATE ADJACENT PROPERTIES TO PRE-CONSTRUCTION CONDITIONS.
- 1.7 REINSTATE CITY PROPERTIES TO CITY STANDARDS AND TO CITY OF OTTAWA'S SATISFACTION.
- 1.8 ALL CITY PROPERTY, DAMAGED AS A RESULT OF THIS WORK, SHALL BE REINSTATED TO THE CITY'S SATISFACTION.
- 1.9 ALL RELEVANT WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT CITY STANDARDS AND SPECIFICATIONS.
- 1.10 ONTARIO PROVINCIAL STANDARDS & SPECIFICATIONS WILL APPLY WHERE NO CITY STANDARDS ARE AVAILABLE.
- 1.11 ALL PROPOSED RETAINING WALLS SHALL BE SETBACK A MINIMUM 0.15m FROM PROPERTY LINE. ALL PROPOSED RETAINING WALLS GREATER THAN 1.0m IN HEIGHT SHALL BE DESIGN BY A PROFESSIONAL ENGINEER REGISTERED IN ONTARIO.

2. EROSION AND SEDIMENT CONTROL

- 2.1 THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATER COURSE DURING CONSTRUCTION ACTIVITIES. THIS INCLUDES LIMITING THE AMOUNT OF EXPOSED SOIL, USING SEDIMENT CAPTURE FILTER SOCK INSERTS IN CATCH BASINS AND MANHOLES AND INSTALLING SILT FENCES AND OTHER EFFECTIVE SEDIMENT TRAPS. DO NOT REMOVE EROSION AND SEDIMENT CONTROL MEASURES UNTIL CONSTRUCTION IS COMPLETE.
- 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 SOCK INSERTS (TERRAFIX GEOSYNTHETICS INC SILTSACK OR APPROVED EQUAL). INSPECT AT THE END OF EACH DAY AND AFTER EACH RAINFALL. REMOVE SEDIMENT AS RECOMMENDED BY THE MANUFACTURER. IMMEDIATELY REPAIR OR REPLACE ANY DAMAGED FILTER SOCK INSERTS. DO NOT REMOVE UNTIL CONSTRUCTION IS COMPLETE.
- 2.3 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.
- 2.4 REMOVE EROSION AND SEDIMENT CONTROL MEASURES WHEN CONSTRUCTION IS COMPLETE.

3. GRADING & DRAINAGE

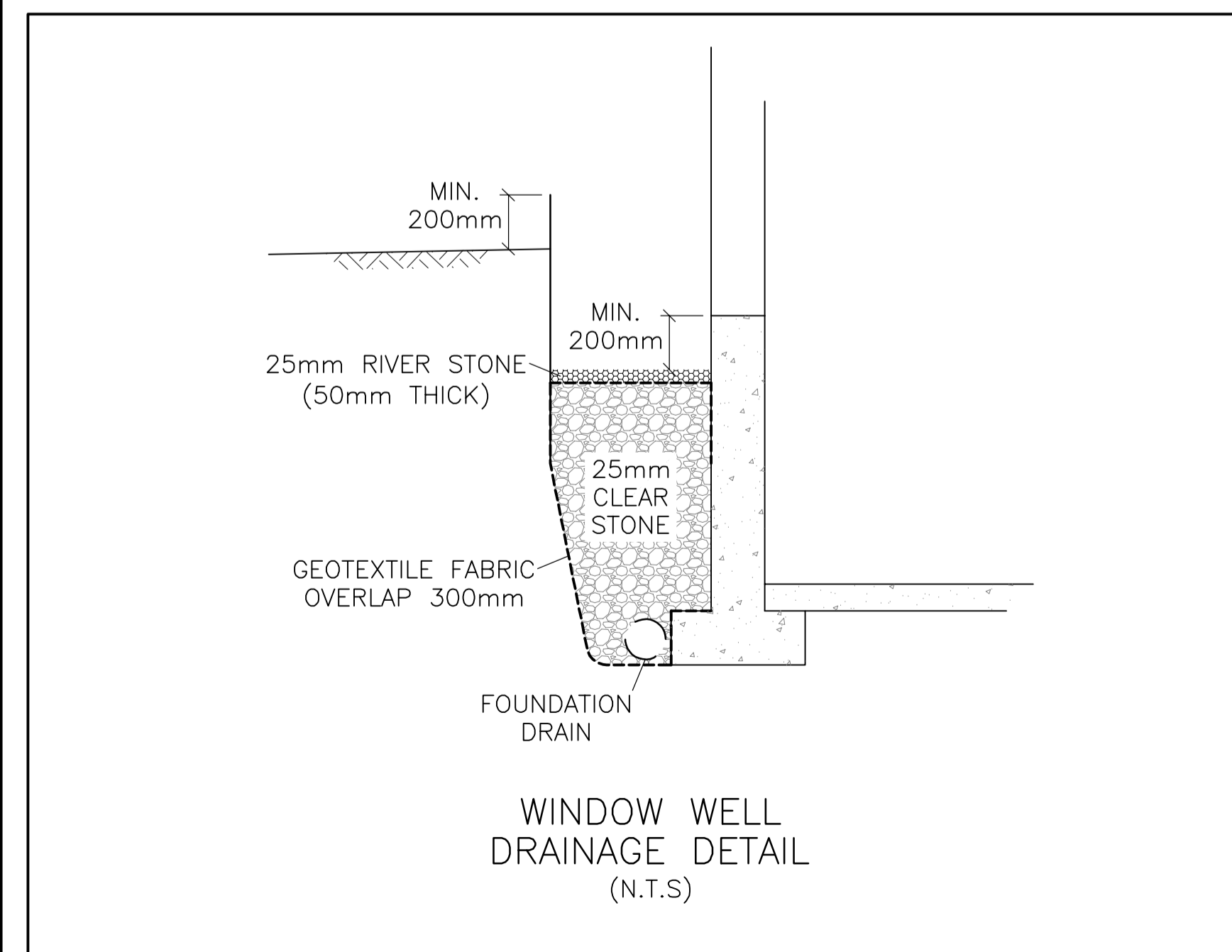
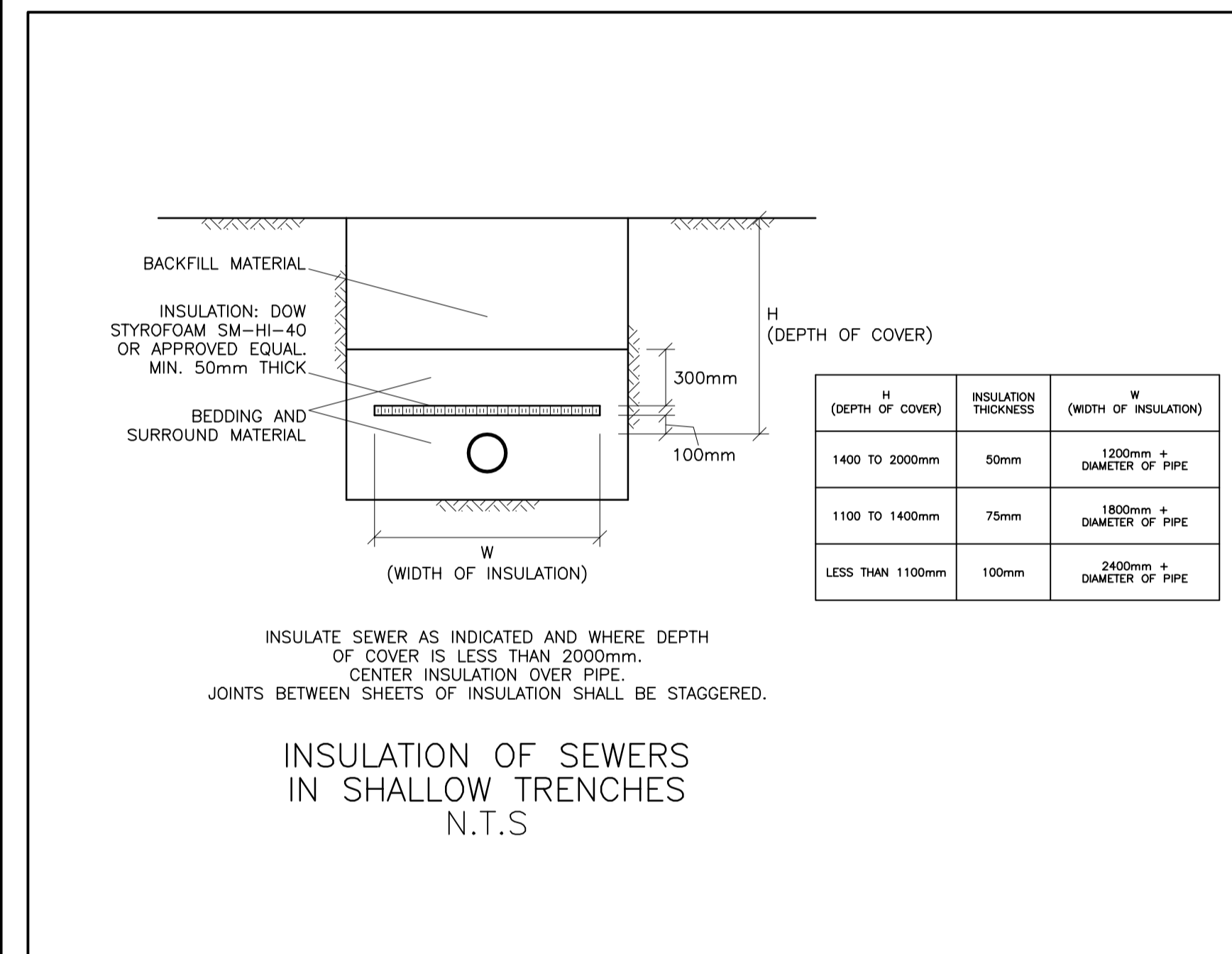
- 3.1 NEW GRADES TO MATCH EXISTING AT PROPERTY LINE. NO EXCESS DRAINAGE WILL BE DIRECTED TOWARDS THE NEIGHBOUR'S PROPERTY DURING AND AFTER CONSTRUCTION. THERE WILL BE NO ALTERATION TO EXISTING GRADE AND DRAINAGE PATTERNS ON PROPERTY LINE.
- 3.2 ALL AREAS SHALL BE GRADED TO ENSURE ADEQUATE DRAINAGE AWAY 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.

4. SITE SERVICES

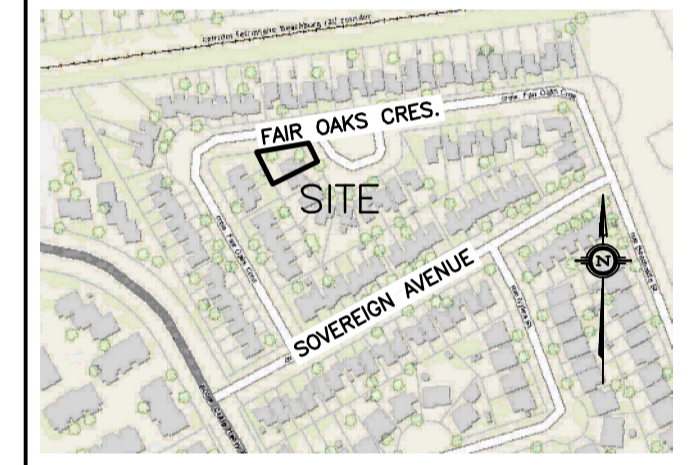
- 4.1 EXISTING WATER SERVICE CONNECTIONS SHALL BE DECOMMISSIONED AND SHALL BE BLANKED AT CITY WATERMAIN BY CITY FORCES. CONTRACTOR SHALL PROVIDED EXCAVATION, BEDDING AND REINSTATEMENT. EXISTING SEWER SERVICE CONNECTIONS SHALL BE DECOMMISSIONED AS PER CITY OF OTTAWA STANDARDS S11.4.
- 4.2 CONNECTION TO WATERMAIN BY CITY OF OTTAWA FORCES, CONTRACTOR SHALL PROVIDE EXCAVATION, BACKFILL AND REINSTATEMENT.
- 4.3 WATER METER 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.
- 4.4 PROVIDE A MINIMUM 2.4 m COVER OVER NEW WATER SERVICE CONNECTION. WHERE THE MINIMUM COVER IS NOT POSSIBLE INSULATE AS PER CITY OF OTTAWA DWG. NO. W22.
- 4.5 WHERE LESS THAN 2.4 M CLEARANCE FROM AN OPEN STRUCTURE (EG. MANHOLES & CATCH BASINS) PLACE INSULATION AROUND WATER SERVICE CONNECTIONS AS PER CITY OF OTTAWA DWG. NO. W23.
- 4.6 PROVIDE A MINIMUM 300mm VERTICAL SEPARATION BETWEEN SEWERS AND WATER SERVICE CONNECTIONS AND BETWEEN WATERMAIN AND SEWER SERVICE CONNECTIONS.
- 4.7 CONNECTION TO WATERMAIN BY CITY OF OTTAWA, CONTRACTOR SHALL PROVIDE EXCAVATION, BACKFILL AND REINSTATEMENT.
- 4.8 WATER SERVICE CONNECTION SHALL BE COPPER ASTM B88 TYPE "K" SOFT AND CITY OF OTTAWA STANDARDS.
- 4.9 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.
- 4.10 CONNECT PROPOSED SANITARY SEWER SERVICE CONNECTION TO EXISTING MUNICIPAL SANITARY SEWER AS PER CITY OF OTTAWA DWG NO. S11.1 (FLEXIBLE MAIN SEWER).
- 4.11 CONNECT PROPOSED STORM SEWER SERVICE CONNECTION TO EXISTING MUNICIPAL STORM SEWER AS PER CITY OF OTTAWA DWG NO. S11 (RIGID MAIN SEWER).
- 4.12 SEWER MATERIAL SHALL BE PVC SDR-28 AND SHALL CONFORM TO CSA B182.2 AND SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS.
- 4.13 SEWER SERVICE LATERAL SHALL HAVE A MINIMUM 2.0m OF COVER OR SHALL BE INSULATED AS PER CITY OF OTTAWA STANDARD DRAWING W22.
- 4.14 BEDDING AND SURROUND MATERIAL FOR SEWERS SHALL BE OPSS GRANULAR A. BEDDING AND SURROUND MATERIAL FOR WATER SERVICE CONNECTIONS SHALL BE OPSS GRANULAR A OR OPSS GRANULAR M. RE-CYCLED GRANULAR MATERIALS ARE NOT PERMITTED.
- 4.15 INSTALL SERVICES IN A SLEEVES WHERE SERVICES PASS UNDER THE PORCH [[RETAINING WALL]].
- 4.16 SERVICES SHALL BE INSTALLED AS PER CITY OF OTTAWA DRAWING S11.3.
- 4.17 THE SANITARY BUILDING DRAIN IN EACH DWELLING UNIT SHALL BE INSTALLED WITH A FULL-PORT BACKWATER VALVE TO CITY OF OTTAWA STANDARDS AND TO CITY OF OTTAWA DWG. NO. S14.1 OR S14.2. THE BACKWATER VALVE SHALL BE INSTALLED SO THAT ALL PLUMBING FIXTURES ABOVE THE EXTERIOR GRADE ELEVATION DRAINS TO THE DOWNSTREAM SIDE OF THE VALVE AND ALL FIXTURES BELOW THE EXTERIOR GRADE ELEVATION DRAINS TO THE UPSTREAM SIDE OF THE VALVE.
- 4.18 THE STORM BUILDING DRAIN IN EACH DWELLING UNIT SHALL BE INSTALLED WITH A BACKWATER VALVE TO CITY OF OTTAWA STANDARDS AND TO CITY OF OTTAWA DWG. NO. S14.
- 4.19 LOCATE ROOF DRAINS OUTLET A MINIMUM 0.30 m ABOVE GRADE, TURN END OF PIPE DOWN ONTO CONCRETE SPLASH PAD. ROOF DRAIN OUTLET PIPE SHALL BE SELF-DRAINING OR OTHERWISE PROTECTED FROM FREEZING.

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 SERVICES, UTILITIES AND STRUCTURES AS INDICATED ON THE DRAWINGS ARE FOR GUIDANCE ONLY. ALL EXISTING SERVICES, UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS. 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. UNDERGROUND LOCATES SHALL BE CONDUCTED PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION. 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.
- 5.5 SHORE AND BRACE EXCAVATIONS, PROTECT SLOPES AND BANKS AND PERFORM ALL WORK IN ACCORDANCE WITH ONTARIO REGULATION 337 UNDER THE ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND OTHER AUTHORITIES HAVING JURISDICTION.
- 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 COMPACTION TESTS OF SUB-GRADE, PIPE BEDDING AND EACH LAYER OF SURROUND MATERIAL, BACKFILL, SUB-BASE, BASE AND ASPHALT TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT AND ENGINEER. SUBMIT GEOTECHNICAL INSPECTIONS AND COMPACTION REPORTS TO ENGINEER FOR REVIEW AND APPROVAL.
- 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 1.2m 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.
  - L. REPAIR OR REPLACE PIPE, PIPE JOINT OR BEDDING FOUND DEFECTIVE.
- 5.9 MAINTAIN RECORD DRAWINGS AND RECORD ACCURATELY DEVIATIONS FROM THE ORIGINAL CONTRACT DOCUMENTS CAUSED BY SITE CONDITIONS AND CHANGES MADE BY CHANGE ORDER OR ADDITIONAL INSTRUCTIONS. RECORD DRAWINGS SHALL INCLUDE BUT NOT NECESSARILY LIMITED TO CHANGES OF DIMENSION AND DETAIL; CHANGES TO GRADE ELEVATIONS; AND HORIZONTAL AND VERTICAL LOCATIONS OF UNDERGROUND SERVICES, UTILITIES AND APPURTENANCES REFERENCED TO A PERMANENT SURFACE STRUCTURE. SUBMIT DRAWINGS TO ENGINEER AT THE END OF CONSTRUCTION. SUBMIT A RECORD DRAWING OF "AS-BUILT" GRADE ELEVATIONS, PREPARED BY AN OLS SURVEYOR, TO THE ENGINEER AT THE END OF CONSTRUCTION.
- 5.10 REINSTATE PAVEMENTS AND SIDEWALKS DISTURBED BY EXCAVATION TO THICKNESS, STRUCTURE AND ELEVATION WHICH EXISTED BEFORE EXCAVATION.
- 5.11 CLEAN AND REINSTATE AREAS AFFECTED BY THE WORK.



KEY PLAN



| No. | DATE     | REVISION            |
|-----|----------|---------------------|
| 1   | JUN 3-22 | ISSUED FOR APPROVAL |

**D. B. GRAY ENGINEERING INC.**  
*Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermain*  
 700 Long Point Circle 613-425-8044  
 Ottawa, Ontario d.gray@dbgrayengineering.com

Project  
**Laaylor Ltd.**  
**3-UNIT ROWHOUSE**  
 EACH WITH A SECONDARY DWELLING UNIT  
**25 FAIR OAKS CRESCENT**  
 OTTAWA, ONTARIO

Drawing Title  
**NOTES & DETAILS**

|  |                                 |                      |
|--|---------------------------------|----------------------|
|  | Engineer's Seal                 | Drawn D.B.G.         |
|  | H. Scale                        | V. Scale             |
|  | Date JUN 3-22                   | Job No. 22053        |
|  | NOT VALID UNLESS SIGNED & DATED | Drawing No. C-4 of 4 |