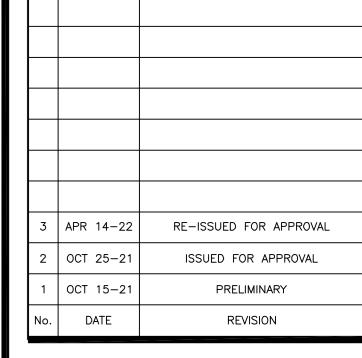


LEGEND CB 🔲 CATCH-BASIN MH (O) STORM MANHOLE CB/MH (C) CATCH-BASIN/MANHOLE MH () SANITARY MANHOLE VC (VALVE CHAMBER CS • CURB STOP & STANDPOST VB 💌 VALVE & VALVE BOX FH -O- FIRE HYDRANT SANITARY SEWER ___Sr___ STORM SEWER WS/WM WATER SERVICE/WATERMAIN SPRINGLINE OF PIPE INVERT OF PIPE WATER METER REMOTE WATER METER FINISHED FLOOR ELEVATION TOP OF FOUNDATION BASEMENT FLOOR ELEVATION UNDERSIDE OF FOOTING

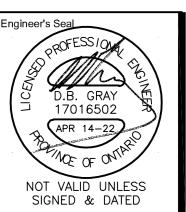
KEY PLAN CLONTARF AVENUE

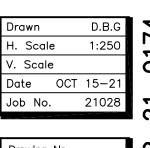


D. B. GRAY ENGINEERING INC 613-425-8044 700 Long Point Circle

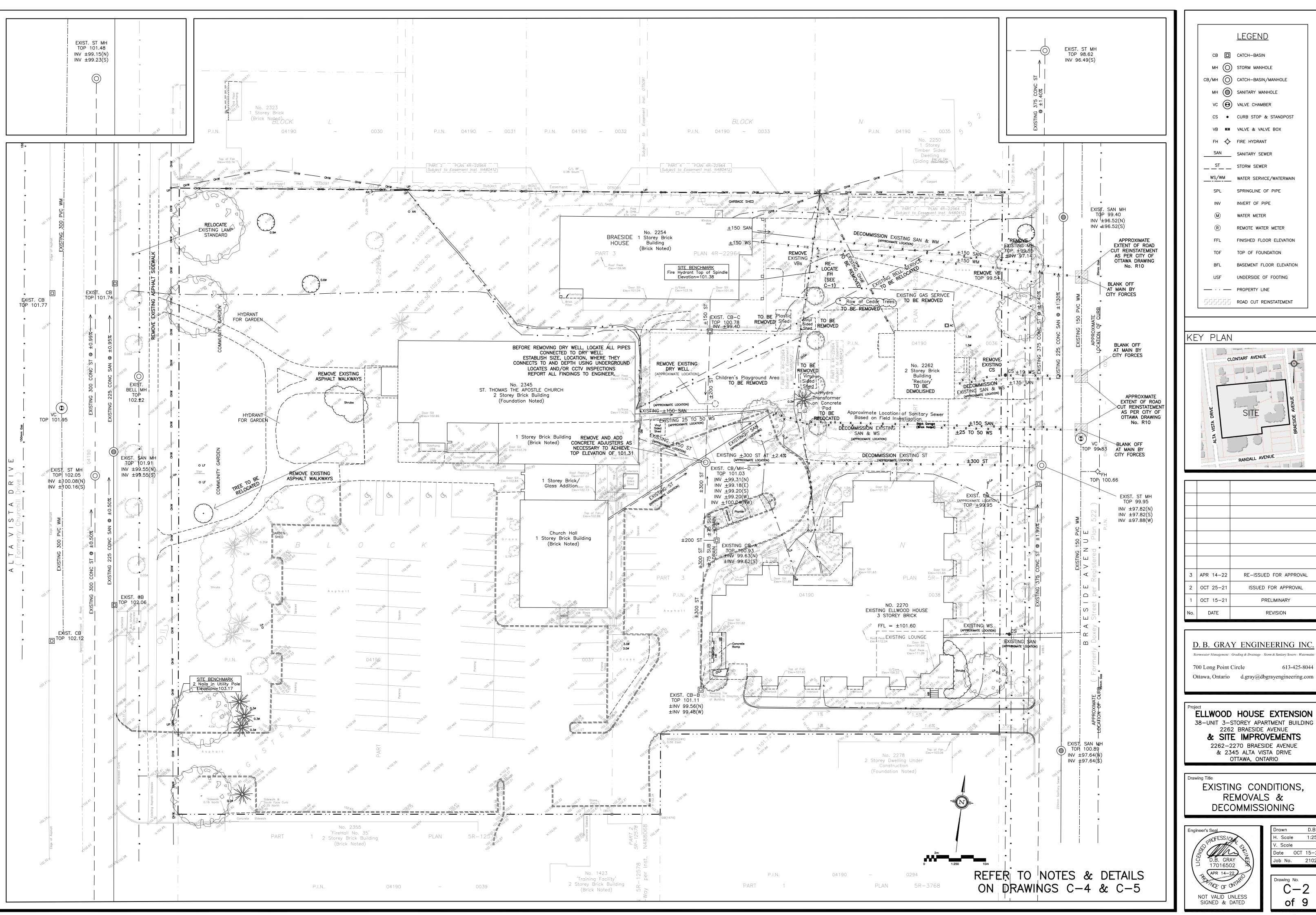
ELLWOOD HOUSE EXTENSION 38-UNIT 3-STOREY APARTMENT BUILDING 2262 BRAESIDE AVENUE & SITE IMPROVEMENTS 2262-2270 BRAESIDE AVENUE & 2345 ALTA VISTA DRIVE OTTAWA, ONTARIO

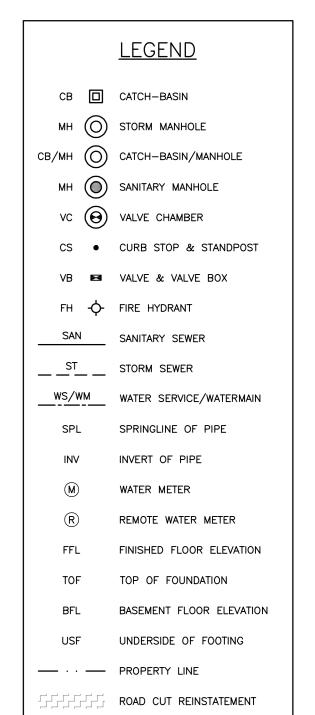
SITE SERVICING PLAN

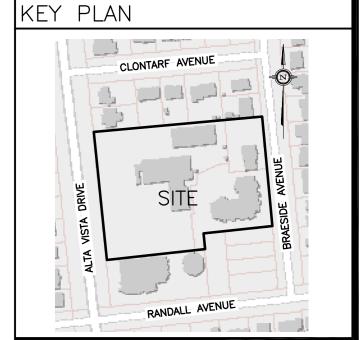




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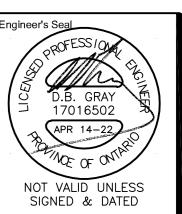


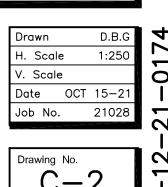
| 3 | APR 14-22 | RE-ISSUED FOR APPROVAL |
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| 2 | OCT 25-21 | ISSUED FOR APPROVAL |
| 1 | OCT 15-21 | PRELIMINARY |
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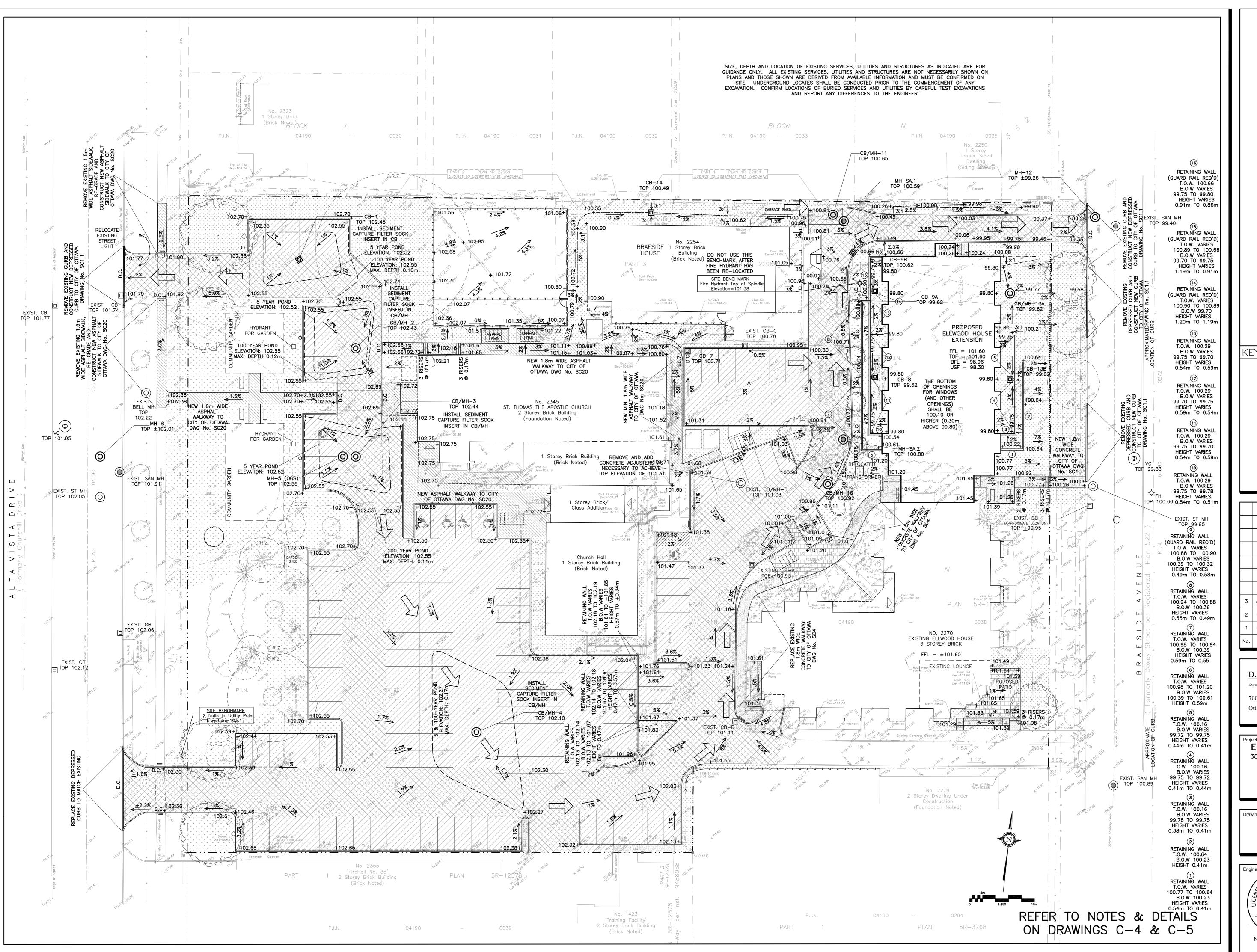
D. B. GRAY ENGINEERING INC 613-425-8044 700 Long Point Circle

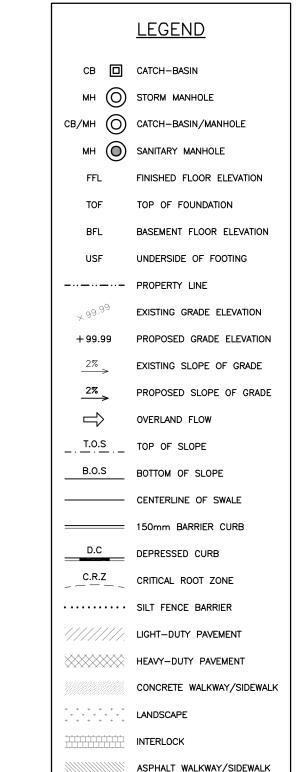
ELLWOOD HOUSE EXTENSION 38-UNIT 3-STOREY APARTMENT BUILDING 2262 BRAESIDE AVENUE & SITE IMPROVEMENTS 2262-2270 BRAESIDE AVENUE & 2345 ALTA VISTA DRIVE OTTAWA, ONTARIO

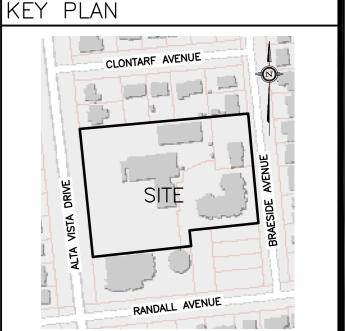
EXISTING CONDITIONS, REMOVALS & DECOMMISSIONING











| 3 | APR 14-22 | RE-ISSUED FOR APPROVAL |
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| 2 | OCT 25-21 | ISSUED FOR APPROVAL |
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D. B. GRAY ENGINEERING INC.

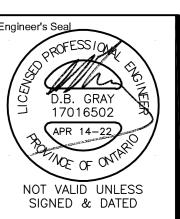
Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermains

700 Long Point Circle 613-425-8044

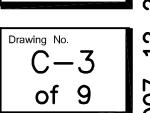
Ottawa, Ontario d.gray@dbgrayengineering.com

ELLWOOD HOUSE EXTENSION
38-UNIT 3-STOREY APARTMENT BUILDING
2262 BRAESIDE AVENUE
& SITE IMPROVEMENTS
2262-2270 BRAESIDE AVENUE
& 2345 ALTA VISTA DRIVE
OTTAWA, ONTARIO

GRADING PLAN AND EROSION & SEDIMENT CONTROL PLAN



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1. <u>GENERAL</u>

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 IN MILLIMETERS UNLESS OTHERWISE NOTED. UNLESS OTHERWISE STATED "ENGINEER" REFERS TO D. B. GRAY ENGINEERING INC. 1.3 EXISTING ELEVATIONS AND LOCATIONS, INVERTS AND SIZES OF EXISTING SERVICES & UTILITIES 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. UNDERGROUND LOCATES (INCLUDING ONTARIO ONE CALL: 1-800-400-2255) SHALL BE CONDUCTED PRIOR TO THE COMMENCEMENT OF 1.4 SITE BOUNDARIES AND EXISTING GRADES AND OTHER FEATURES DERIVED FROM TOPOGRAPHIC SURVEY PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD. JOB No. 554.17. IT IS THE RESPONSIBILITY OF THE USER OF THE SURVEY

PLAN AND THESE DRAWINGS TO VERIFY THAT THE JOB BENCHMARK HAS NOT BEEN ALTERED OR DISTURBED AND THAT

ITS RELATIVE ELEVATION AND DESCRIPTION AGREE WITH THE INFORMATION SHOWN ON SURVEY PLAN AND THESE

1.5 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 / ENGINEER PRIOR TO CONSTRUCTION. AT ALL TIMES THE CONTRACTOR IS RESPONSIBLE FOR THE ACCURACY OF THE LAYOUT INCLUDING LINES AND GRADES. 1.6 REFERENCE THE LATEST REVISION AND ALL ADDENDUMS OF THE GEOTECHNICAL INVESTIGATION BY GHD 11155186

PAVEMENT SUB-GRADE PREPARATION AND CONSTRUCTION OF THE PAVEMENT STRUCTURE AND EXCAVATION AND BACKFILLING, INCLUDING COMPACTION OF MATERIALS, SHALL CONFORM TO THE GEOTECHNICAL INVESTIGATION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH SERVICING BRIEF & STORM WATER MANAGEMENT REPORT No. 21028 PREPARED BY D. B. GRAY ENGINEERING INC REINSTATE ADJACENT PROPERTIES TO PRE-CONSTRUCTION CONDITIONS

A1 / REPORT No 1 / MARCH 16, 2018. SITE PREPARATION INCLUDING BUILDING SUB-GRADE PREPARATION AND

1.9 REINSTATE CITY PROPERTIES TO CITY STANDARDS AND TO CITY OF OTTAWA'S SATISFACTION. 1.10 ALL RELEVANT WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT CITY STANDARDS AND SPECIFICATIONS 1.11 ONTARIO PROVINCIAL STANDARDS & SPECIFICATIONS WILL APPLY WHERE NO CITY STANDARDS ARE AVAILABLE 1.12 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

2. <u>EROSION AND SEDIMENT CONTROL PLAN</u>

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 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. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY. SPECIFICALLY THE CONTRACTOR SHALL INSTALL THE FOLLOWING CONTROL MEASURES AND INSPECT (AFTER EACH RAINFALL), MAINTAIN AND REMOVE THE CONTROL

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 NO 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 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. 2.4 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 HOSE MATERIAL INTO ANY STORMWATER

2.2 PRIOR TO COMMENCEMENT OF CONSTRUCTION AT ALL MUNICIPAL CATCH BASINS ADJACENT TO THE SITE AND AT ANY

2.5 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 2.6 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 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. GRADING SHALL BE GRADUAL BETWEEN FINISHED SPOT ELEVATIONS SHOWN ON DRAWINGS TO PREVENT PONDING (OTHER THAN PONDING REQUIRED FOR STORMWATER MANAGEMENT). 3.3 WHETHER RESULT OF POOR WORKMANSHIP OR DAMAGE: DEFECTIVE GRADING SHALL BE CORRECTED. PROMPTLY MAKE GOOD OTHER CONTRACTOR'S WORK DAMAGED BY SUCH CORRECTIONS.

4.1 EXISTING WATER SERVICE CONNECTIONS TO BE DECOMMISSIONED 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 AND CITY DRAWING S11.4. INSTALL A WATERTIGHT CAP AT ENDS OF EXISTING STORM SEWERS TO BE ABANDONED. CONNECTION TO WATERMAIN BY CITY OF OTTAWA FORCES, CONTRACTOR SHALL PROVIDE EXCAVATION, BACKFILL AND REINSTATEMENT. 4.2 WATER METER SHALL BE INSTALLED AS PER CITY OF OTTAWA DWG. No. W31.

4.3 ALL WATER SERVICE MATERIALS AND CONSTRUCTION METHODS TO CITY OF OTTAWA STANDARDS AND ONTARIO PROVINCIAL STANDARDS SPECIFICATIONS (OPSS & OPSD). WATERMAIN / WATER SERVICE MATERIALS SHALL BE AS INDICATED ON PLAN. PVC PIPE SHALL BE PRESSURE CLASS 150 DR18. COPPER PIPE SHALL BE ASTM B88 TYPE " SOFT. PEX TUBING SHALL BE SDR 9 TO AWWA C-904 TO CITY OF OTTAWA STANDARDS. METALLIC WARNING TAPE SHALL BE INSTALLED OVER ALL WATERMAINS. PROVIDE THRUST BLOCKS AS PER CITY OF OTTAWA DWG. No. W25.3 & W25.4 AT ALL VALVES, TEES, CAPS, BENDS, REDUCERS AND HYDRANTS OR OTHER FITTINGS WHERE CHANGES OCCUR IN PIPE DIAMETER OR DIRECTION. RESTRAINING AS PER AS PER CITY OF OTTAWA DWG. No W25.5 & W25.6.ALL CONNECTIONS, RESTRAINT RODS AND VALVE BOLTS TO BE STAINLESS STEEL. CATHODIC PROTECTION & ANODE INSTALLATION AS PER CITY OF OTTAWA DWG. No W40, W42, W44 & W47.
4.4 PROVIDE A MINIMUM 2.4 m COVER OVER WATER SERVICE CONNECTIONS AND WATERMAINS. 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 WATERMAIN AND WATER SERVICE CONNECTIONS AS PÈR CITY OF OTTAWA DWG. No. W23. 4.6 WATERMAIN INSTALLED PARALLEL TO A SEWER SHALL BE LAID WITH A MINIMUM 2.5m BARREL TO BARREL HORIZONTAL SEPARATION FROM SEWERS.

4.7 WATER SERVICE CONNECTIONS INSTALLED PARALLEL TO A SEWER CONNECTION WITH LESS THAN 2.5 m HORIZONTAL DISTANCE OF A SEWER 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. 4.8 THE WATERMAIN 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 FOR THE WATERMAIN TO CROSS ABOVE A SEWER THE WATERMAIN SHALL CROSS BELOW THE SEWER AS PER CITY OF OTTAWA DRAWING No. W25: PROVIDE A MINIMUM 500m BARREL TO BARREL VERTICAL SEPARATION AND ENSURE THAT THE WATER PIPE IS CENTERED AT THE POINT OF CROSSING SO JOINTS ARE AS FAR AS POSSIBLE FROM THE SEWER. 4.9 WATER SERVICE CONNECTIONS (50mm OR LESS) SHALL CROSS THE SEWER AS PER CITY OF OTTAWA DRAWING No. W38. PROVIDE A MINIMUM 300mm 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 2.0m FROM FACE OF CURB. THE HYDRANT SHALL BE INSTALL 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 BONNETS AND CAPS TO CITY STANDARDS. AT THE END OF CONSTRUCTION PERFORM A FIRE FLOW TEST AND

SUBMIT REPORT TO THE ENGINEER AND COLOUR CODE THE BONNETS AND CAPS AS PER CITY OF OTTAWA AND NFPA

4.11 THE SANITARY BUILDING DRAIN 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 THA ALL PLUMBING FIXTURES ABOVE THE EXTERIOR GRADE ELEVATION DRAINS TO THE DOWNSTREAM SIDE OF THE VALVE AND FIXTURES BELOW THE EXTERIOR GRADE ELEVATION DRAINS TO THE UPSTREAM SIDE OF THE VALVE. 4.12 THE STORM BUILDING DRAIN IN SHALL BE INSTALLED WITH A BACKWATER VALVE TO CITY OF OTTAWA STANDARDS AND TO CITY OF OTTAWA DWG. NO. S14. 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 INSTALL CLEANOUTS ON THE STORM BUILDING DRAIN AND SANITARY BUILDING DRAIN AS CLOSE AS PRACTICAL TO THE WHERE THE SANITARY AND STORM DRAINS LEAVE THE BUILDING. 4.15 CONNECT PROPOSED SANITARY SEWER SERVICE CONNECTION TO EXISTING MUNICIPAL SANITARY SEWER AS PER CITY OF OTTAWA DWG No. S11 (RIGID MAIN SEWER). 4.16 CONNECT PROPOSED STORM SEWER SERVICE CONNECTION TO EXISTING MUNICIPAL STORM SEWER AS PER CITY OF OTTAWA DWG No. S11 (RIGID MAIN SEWER). 4.17 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. 4.18 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 LADDER INSTALLATION. B. MANHOLE STEPS: TO OPSD 405.01

ALUMINUM SURFACES IN CONTACT WITH OR CAST INTO CONCRETE SHALL HAVE POLYETHYLENE ANCHOR INSULATING SLEEVES.

D. PRECAST CATCH BASIN SECTIONS: TO OPSS 1351. . JOINTS: SHALL BE MADE WATERTIGHT USING BUTYL BASED, FLEXIBLE WATERSTOP/JOINT SEALANT MATERIAL. SANITARY SEWERS: BENCH TO PROVIDE A SMOOTH U-SHAPED CHANNEL PER OPSD 701.021. 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 CITY OF OTTAWA DRAWINGS OR OPSD (AS PER CATCH BASIN & MANHOLE SCHEDULE). GRATES AND COVERS TO BEAR EVENLY ON FRAMES. PAINTED WITH ONE SHOP COAT OF ASPHALT OR TAI BASE BLACK, ALL JOINTS AND CREVICES SHALL BE THOROUGHLY COATED. GRANULAR BEDDING AND BACKFILL: OPSS GRANULAR A. RE-CYLCLED GRANULAR MATERIALS ARE NOT PERMITTED. 4.19 THE INLET CONTROL DEVICES (ICDs) LOCATED IN THE OUTLET PIPE OF CATCH BASIN MANHOLE CB/MH-3 & CB/MH-4 SHALL BE A HYDROVEX 75VHV-1 VERTICAL VORTEX FLOW REGULATOR AND AND SIZED BY THE MANUFACTURER FOR A DISCHARGE RATE AS INDICATED ON PLAN. PRIOR TO INSTALLATION SUBMIT SHOP DRAWING TO ENGINEER FOR

CONSTRUCTION:

A. OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE AUTHORITIES

5.2 MAINTAIN AND PROTECT FROM DAMAGE, SERVICES, UTILITIES AND STRUCTURES ENCOUNTERED.

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 THE SITE. UNDERGROUND LOCATES (INCLUDING ONTARIO ONE CALL: 1-800-400-2255) SHALL BE CONDUCTED PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION. CONFIRM LOCATIONS O BURIED SERVICES AND UTILITIES BY CAREFUL TEST EXCAVATIONS AND REPORT ANY DIFFERENCES TO THE ENGINEER. C. EXISTING GRADE ELEVATIONS INDICATED ON THE DRAWINGS ARE FOR GUIDANCE ONLY. COMPLETENESS AND ACCURACY ARE NOT GUARANTEED. CONFIRM EXISTING GRADE ELEVATIONS AND REPORT ANY DIFFERENCES TO THE

COORDINATE AND SCHEDULE WORK WITH THE AUTHORITIES AND OTHER TRADES. SCHEDULE WORK TO PROVIDE THE MINIMUM DISRUPTION TO SERVICES. . INSTALL CONSTRUCTION FENCING AROUND THE AREA OF WORK. DO NOT REMOVE FENCING UNTIL WORK IS 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, NSTALLATION, REMOVAL AND REPLACEMENT OF ALL NECESSARY SIGNAGE AND BARRIERS, AS REQUIRED BY THE AUTHORITIES. IF APPLICABLE, PROVIDE TRAFFIC MANAGEMENT PLAN AS PER CITY OF OTTAWA REQUIREMENTS. 5.5 FENCE OFF ALL OPEN EXCAVATIONS AT THE END OF EACH WORK DAY. FENCES SHALL BE INSTALLED AND MAINTAINED IN A GOOD AND WORKMAN LIKE MANNER.

5.6 REMOVE OBSTRUCTIONS, ICE AND SNOW, FROM SURFACES TO BE EXCAVATED.

5.7 CUT PAVEMENT AND / OR SIDEWALK NEATLY ALONG LIMITS OF PROPOSED EXCAVATION IN ORDER THAT SURFACE MAY BREAK EVENLY AND CLEANLY. 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 5.9 CUT AND FILL AS NECESSARY TO ACHIEVE THE REQUIRED SUB-GRADE ELEVATION. 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 PLACE MATERIAL IN UNIFORM LAYERS NOT EXCEEDING 300mm COMPACTED THICKNESS. PROTECT WORK AREA AGAINST FLOODING AND DAMAGE DUE TO SURFACE RUN-OFF. DEWATER AS REQUIRED TO KEEP WORK AREA FREE OF WATER. DISCHARGE FROM DEWATERING OPERATIONS SHALL BE DIRECTED TO A SEDIMENT CONTROL MEASURE AND/OR A VEGETATED DISCHARGE AREA. ENSURE THAT THE DISCHARGED WATER DOES NOT CAUSE EROSION OR OTHER DAMAGE TO 5.10 EXCAVATION, TRENCHING & BACKFILL:

A. 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 OTHER AUTHORITIES B. EXCAVATE USING A HYDRO-VAC TRUCK AND TRIM ROOTS TO MINIMIZE ROOT DAMAGE WHERE ANY EXCAVATION IS WITHIN THE CRITICAL ROOT ZONE (10 x THE TRUNK DIAMETER) OF ANY TREE TO REMAIN. KEEP EXCAVATIONS FREE OF WATER WHILE WORK IS IN PROGRESS. PROTECT OPEN EXCAVATIONS AGAINST

EXCAVATION MUST NOT INTERFERE WITH BEARING CAPACITY OF ADJACENT FOUNDATIONS. DO NOT OBSTRUCT FLOW OF SURFACE DRAINAGE OR NATURAL WATERCOURSES. EXCAVATE TO LINES, GRADES, FLEVATIONS AND DIMENSIONS AS INDICATED.

K. DO NOT USE BACKFILL MATERIAL WHICH IS FROZEN OR CONTAINS ICE, SNOW OR DEBRIS.

EARTH BOTTOMS OF EXCAVATIONS TO BE UNDISTURBED SOIL, LEVEL, FREE FROM LOOSE, SOFT OR ORGANIC ALL STRUCTURES WITHIN PAVED AREAS SHALL HAVE 4:1 FROST TAPERS FROM FROST LINE TO SUB-GRADE. CORRECT OVER-EXCAVATION WITH GRANULAR A COMPACTED TO NOT LESS THAN 95% OF CORRECTED MAXIMUM DRY DENSITY. J. SUB-GRADE AND AREAS TO BE BACKFILLED TO BE FREE FROM DEBRIS, SNOW, ICE, WATER AND FROZEN

BEDDING AND SURROUND MATERIAL FOR SEWERS SHALL BE OPSS GRANULAR A. BEDDING AND SURROUND MATERIAL FOR WATERMAIN AND WATER SERVICE CONNECTIONS SHALL BE OPSS GRANULAR A OR OPSS GRANULAR M. RE-CYLCLED GRANULAR MATERIALS ARE NOT PERMITTED M. DO NOT USE BEDDING, SURROUND OR BACKFILL MATERIAL WHICH IS FROZEN OR CONTAINS ICE. SNOW OR N. PIPE BEDDING SHALL BE 150mm THICK. SHAPE BED TRUE TO GRADE AND TO PROVIDE CONTINUOUS, UNIFORM BEARING SURFACE FOR PIPE. PLACE SURROUND MATERIAL AROUND PIPES TO FULL WIDTH OF TRENCH AND TO 300mm ABOVE PIPES. PLACE BEDDING AND SURROUND 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.

DO NOT BACKFILL AROUND OR OVER CAST-IN-PLACE CONCRETE WITHIN 24 HOURS AFTER PLACING OF R 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 OPSS GRANULAR B TYPE I OR II. ANY ORGANIC SOILS OF TOPSOIL, IF ENCOUNTERED, SHALL BE REMOVED FROM THE EXCAVATION. IF ROCK IS USED AS BACKFILL IT SHALL BE WELL SHATTERED AND GRADED AND 200mm OR SMALLER IN DIAMETER. TO PREVENT INGRESS OF FINE MATERIAL INTO VOIDS 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: A. HANDLE PIPE USING METHODS APPROVED BY MANUFACTURER.

FLOODING AND DAMAGE DUE TO SURFACE RUN-OFF.

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.

DO NOT EXCEED MAXIMUM JOINT DEFLECTION RECOMMENDED BY PIPE MANUFACTURER. F. WHENEVER WORK IS SUSPENDED, INSTALL REMOVABLE WATERTIGHT BULKHEAD AT OPEN END OF LAST PIPE LAID TO PREVENT ENTRY OF FOREIGN MATERIALS G. WHEN STOPPAGE OF WORK OCCURS, BLOCK PIPES TO PREVENT CREEP DURING DOWN TIME. MAKE WATERTIGHT CONNECTIONS TO MANHOLES.

H. JOINTS SHALL BE STRUCTURALLY SOUND AND WATERTIGHT. I. REPAIR OR REPLACE PIPE, PIPE JOINT OR BEDDING FOUND DEFECTIVE. 5.12 SEWERS AND SEWER SERVICES:

A. CONSTRUCT SEWER TRENCHES AS PER CITY DWG S6 & S7. B. RIGID STRUCTURES, INSTALL PIPE JOINTS NOT MORE THAN 1.2M FROM SIDE OF STRUCTURE.

MAINTAIN EXISTING SEWAGE FLOWS DURING CONSTRUCTION. PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. SPECIFICALLY, THE LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410. REPAIR AND RETEST SEWER LINE AS REQUIRED. REPAIR VISIBLE LEAKS REGARDLESS OF TEST RESULTS. F. CONDUCT TWO CCTV INSPECTIONS OF SEWERS. FIRST INSPECTION AFTER COMPLETION OF CONSTRUCTION. SECOND INSPECTION IMMEDIATELY PRIOR TO END OF WARRANTY PERIOD. A PAN AND TILT CAMERA SHALL BE USED. REPAIR SEWER LINE AS REQUIRED. SUBMIT REPORTS AND DVDS TO ENGINEER. F. CONDUCT DYE TEST OF SANITARY SEWERS AND COORDINATE WITH ENGINEER. DYE TEST SHALL BE WITNESSED BY

A. INSTALL AND TEST TRACER WIRE ON THE WATER SERVICE CONNECTION AS PER 4.3.12 OF THE CITY OF OTTAWA WATER DISTRIBUTION DESIGN GUIDELINES AND DRAWING W36. B. PRESSURE TESTING AS PER AWWA C-605-5 AND CITY OF OTTAWA DESIGN GUIDELINES - WATER DISTRIBUTION C. CHLORINATION AS PER AWWA C-651-05 AND CITY OF OTTAWA DESIGN GUIDELINES - WATER DISTRIBUTION

SECTION 4.6.13 & CITY DWG. W46. 5.14 MANHOLES & CATCH BASINS: A. JOINTS: SHALL BE MADE WATERTIGHT

B. SET PRECAST CONCRETE BASE ON 150mm MINIMUM OF GRANULAR BEDDING COMPACTED TO 100% CORRECTED 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. G. PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. SPECIFICALLY, THE LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 407. 5.15 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. 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; 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 SURVEYOR, TO THE ENGINEER AT THE FND OF CONSTRUCTION. 5.16 CONCRETE CURBS SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING No. SC1.1

7 WHETHER RESULT OF POOR WORKMANSHIP, USE OF DEFECTIVE PRODUCTS OR DAMAGE: DEFECTIVE PORTIONS OF CURBS, SIDEWALK AND ASPHALT SHALL BE CORRECTED OR REMOVED AND REPLACED. PROMPTLY MAKE GOOD OTHER CONTRACTOR'S WORK DAMAGED BY SUCH REMOVALS OR REPLACEMENTS. 5.18 REINSTATE ALL AREAS DISTURBED BY CONSTRUCTION. REINSTATE PAVEMENTS, CURBS AND SIDEWALKS, TO THICKNESS, STRUCTURE AND ELEVATION WHICH EXISTED BEFORE CONSTRUCTION. REINSTATE LANDSCAPED AREAS TO THE CONDITION AND ELEVATION WHICH EXISTED BEFORE CONSTRUCTION. 5.19 CLEAN AND REINSTATE AREAS AFFECTED BY THE WORK.

6. PAVEMENT

6.1 PAVEMENT STRUCTURE LIGHT DUTY PAVEMENT:

50mm HL-3 ASPHALTIC CONCRETE 150mm OPSS GRANULAR A BASE 300mm OPSS GRANULAR B TYPE II SUB-BASE

RE-CYLCLED GRANULAR MATERIALS ARE NOT PERMITTED. HEAVY DUTY PAVEMENT: 40mm HL-3 ASPHALTIC CONCRETE

50mm HL-8 ASPHALTIC CONCRETE 150mm OPSS GRANULAR A BASE

450mm OPSS GRANULAR B TYPE II SUB-BASE RE-CYLCLED GRANULAR MATERIALS ARE NOT PERMITTED. ASPHALTIC CONCRETE SHALL BE PERFORMANCE GRADE PG58-34.

HOT MIX ASPHALT MATERIALS SHALL BE ACCORDING TO OPSS 1150 OR 1151. 6.2 PAVEMENT SUB-GRADE PREPARATION AND CONSTRUCTION OF THE PAVEMENT STRUCTURE SHALL CONFORM TO THE GEOTECHNICAL INVESTIGATION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER. 6.3 ALL EXISTING ASPHALT TO BE REMOVED SHALL BE HAULED TO A FACILITY APPROVED FOR ACCEPTING SUCH MATERIALS. REMOVE ALL MATERIALS TO THE SUB-GRADE LEVEL. REMOVE ORGANIC OR UNSUITABLE MATERIAL FROM SUB-GRADE WHERE ENCOUNTERED TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT. SUB-GRADE TO BE FREE FROM DEBRIS, SNOW, ICE, WATER AND FROZEN GROUND. COMPACT SUB-GRADE TO 95%.
6.4 CONSTRUCT GRANULAR BASE AND SUB-BASE TO DEPTH AND GRADE IN AREAS INDICATED.CONSTRUCT A 5H:1V FROST TAPER IN SUB-GRADE SURFACE AS A TRANSITION BETWEEN DIFFERING PAVEMENT STRUCTURES AND BETWEEN PAVEMENT AND CURBS AND SIDEWALKS. 6.5 ENSURE NO FROZEN MATERIAL IS PLACED. PLACE MATERIAL ONLY ON CLEAN UNFROZEN SURFACE, FREE FROM 6.6 PLACE MATERIAL TO FULL WIDTH IN UNIFORM LAYERS NOT EXCEEDING 300mm COMPACTED THICKNESS. SHAPE EACH LAYER TO SMOOTH CONTOUR AND COMPACT TO SPECIFIED DENSITY BEFORE SUCCEEDING LAYER IS PLACED.
6.7 COMPACT SUB-BASE MATERIAL TO DENSITY OF NOT LESS THAN 98% CORRECTED MAXIMUM DRY DENSITY. FILL

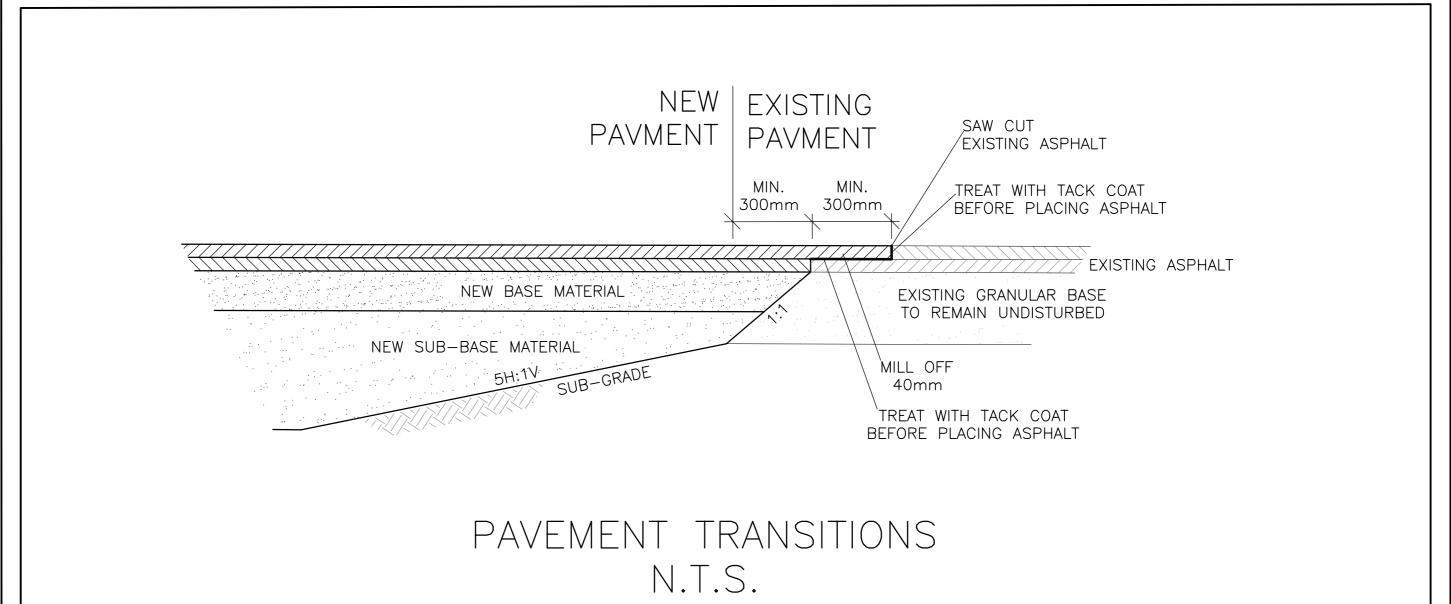
OVER-EXCAVATED SUB-GRADE WITH SUB-BASE MATERIAL, COMPACT TO 98%. COMPACT BASE AND SHOULDER MATERIAL TO DENSITY NOT LESS THAN 100% CORRECTED MAXIMUM DRY DENSITY. 6.8 IN AREAS NOT ACCESSIBLE TO ROLLING EQUIPMENT, COMPACT TO SPECIFIED DENSITY WITH MECHANICAL TAMPERS 6.9 REPLACE PAVEMENT DISTURBED BY CONSTRUCTION AND REPLACE WITH PAVEMENT STRUCTURE ABOVE. 6.10 WHERE NEW ASPHALT COMES IN CONTACT WITH EXISTING PAVEMENT: SAWCUT EXISTING ASPHALT LAYER TO CREATE A CLEAN STRAIGHT EDGE AND CONSTRUCT AS PER DETAIL. TACK COAT SHALL BE APPLIED TO ASPHALT SURFACES AT WHICH JOINTS ARE TO BE MADE INCLUDING EXISTING PAVEMENT SURFACES THAT HAVE BEEN CUT, GROUND OR MILLED. TACK COAT THE SURFACE OF ALL BINDER COURSES AND BUTTING CONCRETE SURFACES. SURFACES TO BE TACK COATED SHALL BE FREE OF STANDING WATER AND CONTAMINATION, SUCH AS MUD, LOOSE AGGREGATE OR DEBRIS AND SHALL BE DRY AND CLEAN WHEN THE TACK COAT IS APPLIED. TACK COAT SHALL BE PLACED SUFFICIENTLY AHEAD OF THE PAVING OPERATION TO ALLOW FOR CURING. PAVING AND CONSTRUCTION EQUIPMENT SHALL NOT BE PERMITTED

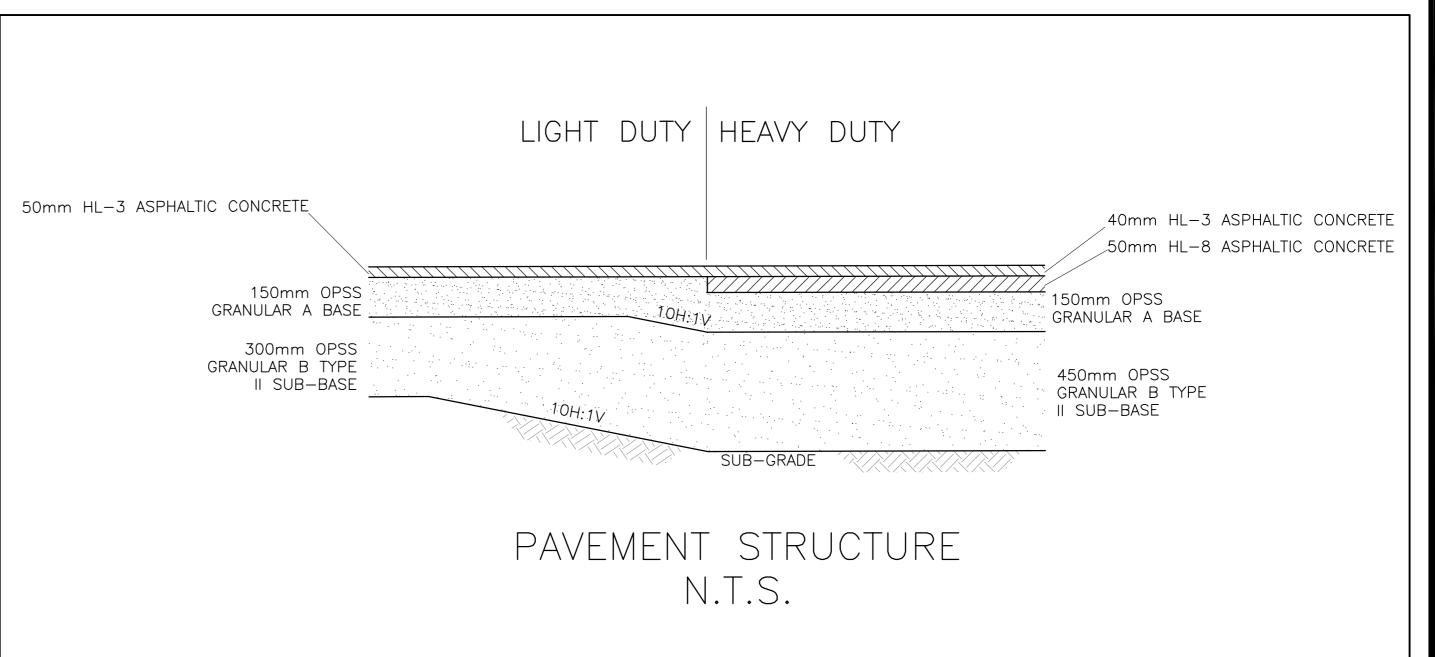
6.11 SHAPE BASE TO SMOOTH CONTOUR AND COMPACT TO NOT LESS THAN 100% CORRECTED MAXIMUM DRY DENSITY BEFORE BEGINNING PAVING OPERATIONS. 6.12 APPLY ASPHALTIC CONCRETE ONLY WHEN BASE OR PREVIOUS COURSE IS DRY AND AIR TEMPERATURE IS ABOVE 5 6.13 ROLL UNTIL ROLLER MARKS ARE ELIMINATED AND COMPACTED TO NOT LESS THAN 95% OF DENSITY. COMPACT WITH HOT TAMPERS IN AREAS INACCESSIBLE TO A ROLLER. BEVEL EDGES ADJACENT TO GRANULAR SURFACES.

ONTO THE TACK COAT UNTIL IT HAS SET. TACK COAT MATERIAL SHALL CONSIST OF SS-1 EMULSIFIED ASPHALT DILUTED

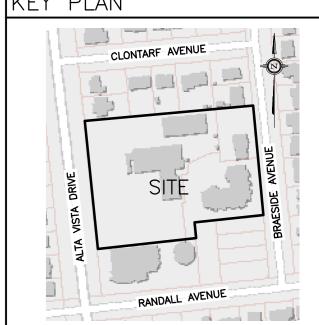
WITH AN EQUAL VOLUME OF WATER. THE UNDILUTED MATERIAL SHALL BE ACCORDING TO OPSS 1103.

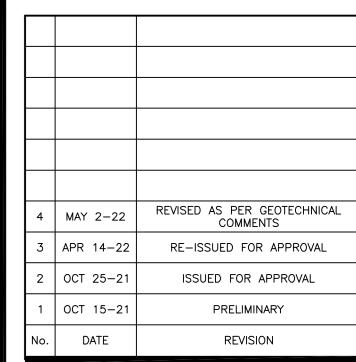
6.14 FINISH SURFACE SMOOTH, TRUE TO GRADE. 6.15 KEEP VEHICULAR TRAFFIC AND OTHER LOADS OFF NEWLY PAVED AREAS UNTIL 24 HOURS AFTER PAVING. 6.16 DIVERT UNUSED AND WASTE ASPHALT TO A FACILITY APPROVED FOR ACCEPTING SUCH MATERIALS.
6.17 APPLY TRAFFIC PAINT AS IDENTIFIED ON PLAN. TRAFFIC PAINT: NON-DARKENING, HOMOGENEOUS, UNIFORM AND SMOOTH, FREE FROM SKIN, DIRT AND OTHER FOREIGN PARTICLES, APPLY TO DRY PAVEMENT SURFACE FREE FROM FROST. ICE, DUŚT, OIL, GREASE AND OTHER FOREIGN MATERIALS. PROTECT PAVEMENT MARKINGS UNTIL DRY.





KEY PLAN





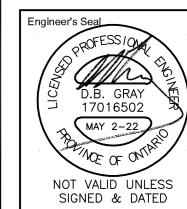
D. B. GRAY ENGINEERING INC. ormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermain.

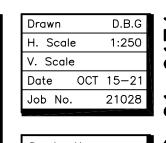
613-425-8044 700 Long Point Circle Ottawa, Ontario d.gray@dbgrayengineering.com

ELLWOOD HOUSE EXTENSION 38-UNIT 3-STOREY APARTMENT BUILDING 2262 BRAESIDE AVENUE & SITE IMPROVEMENTS 2262-2270 BRAESIDE AVENUE & 2345 ALTA VISTA DRIVE OTTAWA, ONTARIO

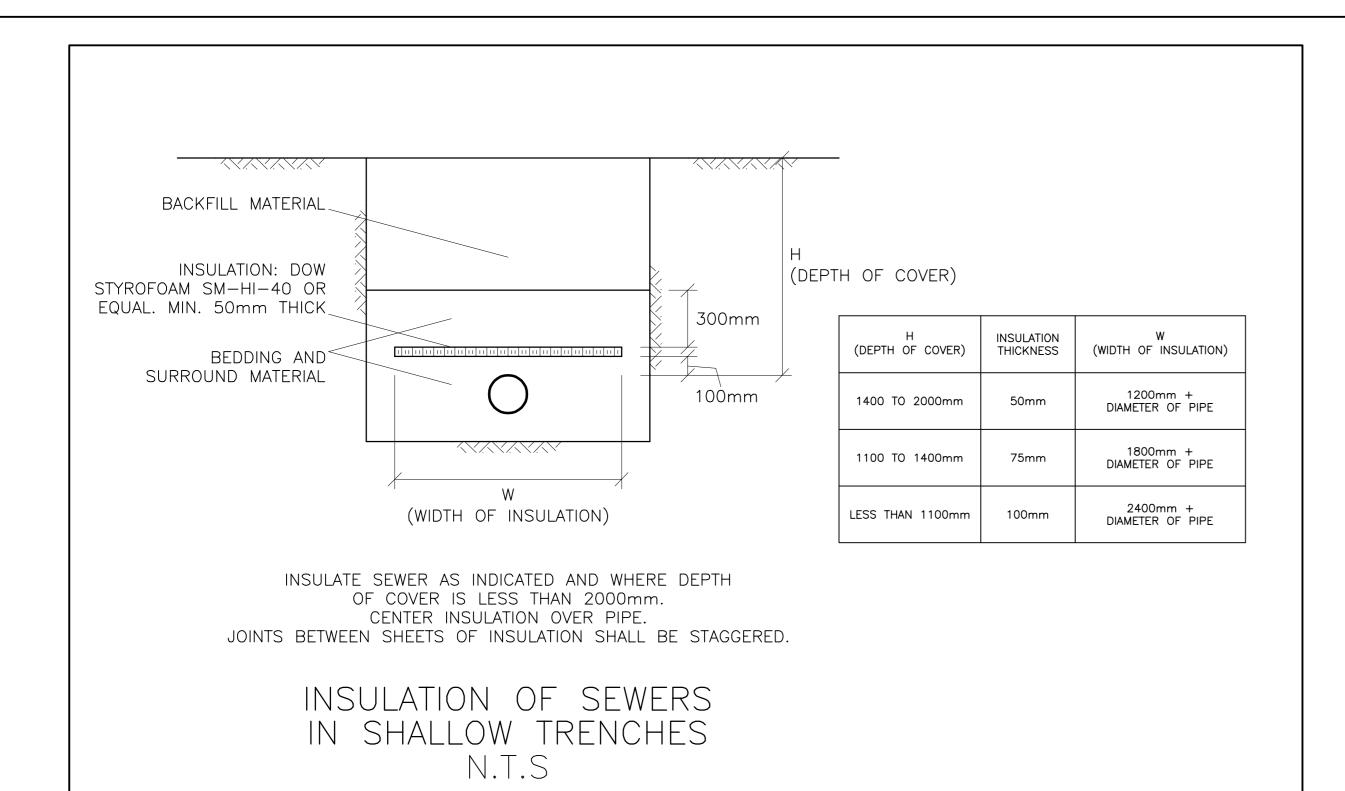
Drawing Title

NOTES & DETAILS





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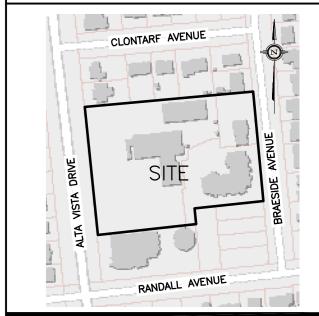


| A+00.0 A+00.5 A+02.0 A+03.0 A+06.2 A+07.2 | DESCRIPTION DESCRIPTION DESCRIPTION 50mm x 150mm TEE CONNECTION IN 150mm MUNICIPAL WATERMAIN TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS 200mm 70 150mm REDUCER TO CITY OF OTTAWA STANDARDS | GRADE ELEVATION ±99.35 ±99.38 ±99.42 ±99.45 ±99.34 ±99.35 | TOP OF PIPE ±97.55 97.55 96.05 96.05 96.05 | DEPTH OF COVER ±1.80 ±1.83 ±3.37 ±3.40 ±3.04 | NOTES NOTES - CROSSING 225 SAN INV ±96.55 ±500mm CLEARANCE (MIN. 500mm REQUIRED) CROSSING 375 ST INV ±97.29 ±1240mm CLEARANCE (MIN. 500mm REQUIRED) BOTTOM OF CURB |
|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A+00.0 A+00.5 A+02.0 A+06.2 A+07.2 A+09.0 A+12.9 | 50mm x 150mm TEE CONNECTION IN 150mm MUNICIPAL WATERMAIN TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS - 150mm 45' VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS | ±99.35 ±99.38 ±99.42 ±99.45 ±99.34 ±99.35 | #97.55 97.55 96.05 96.05 | ±1.80 ±1.83 ±3.37 ±3.40 ±3.04 | - CROSSING 225 SAN INV ±96.55 ±500mm CLEARANCE (MIN. 500mm REQUIRED) CROSSING 375 ST INV ±97.29 ±1240mm CLEARANCE (MIN. 500mm REQUIRED) |
| A+00.0 A+00.5 A+02.0 A+03.0 A+06.2 A+07.2 A+08.1 | IN 150mm MUNICIPAL WATERMAIN TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS - 150mm 45' VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS | ±99.38 ±99.42 ±99.45 ±99.34 ±99.35 | 97.55 96.05 96.05 | ±1.83 ±3.37 ±3.40 ±3.04 | ±500mm CLEARANCE (MIN. 500mm REQUIRED) CROSSING 375 ST INV ±97.29 ±1240mm CLEARANCE (MIN. 500mm REQUIRED) |
| A+00.5 A+02.0 A+03.0 A+06.2 A+07.2 A+08.1 | 150mm 45' VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS - 150mm 45' VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS | ±99.42 ±99.45 ±99.34 ±99.35 | 96.05 96.05 96.05 | ±3.37 ±3.40 ±3.04 | ±500mm CLEARANCE (MIN. 500mm REQUIRED) CROSSING 375 ST INV ±97.29 ±1240mm CLEARANCE (MIN. 500mm REQUIRED) |
| A+03.0 A+06.2 A+07.2 A+08.1 A+09.0 A+12.9 | TO CITY OF OTTAWA STANDARDS - 150mm 45' VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS 200mm TO 150mm REDUCER | ±99.45 ±99.34 ±99.35 | 96.05 96.05 | ±3.40 ±3.04 | ±500mm CLEARANCE (MIN. 500mm REQUIRED) CROSSING 375 ST INV ±97.29 ±1240mm CLEARANCE (MIN. 500mm REQUIRED) |
| A+06.2 A+07.2 A+08.1 A+09.0 A+12.9 | TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS 200mm TO 150mm REDUCER | ±99.34 ±99.35 | 96.05 | ±3.04 | ±500mm CLEARANCE (MIN. 500mm REQUIRED) CROSSING 375 ST INV ±97.29 ±1240mm CLEARANCE (MIN. 500mm REQUIRED) |
| A+07.2 A+08.1 A+09.0 A+12.9 | TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS 200mm TO 150mm REDUCER | ±99.35 | | | ±1240mm CLEARANCE (MIN. 500mm REQUIRED) |
| A+08.1 A+09.0 A+12.9 | TO CITY OF OTTAWA STANDARDS 150mm 45' VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS 200mm TO 150mm REDUCER | | 96.05 | <u>+</u> 3.30 | BOTTOM OF CURB |
| A+09.0 A+12.9 | TO CITY OF OTTAWA STANDARDS 200mm TO 150mm REDUCER | 99.36 | | | |
| A+12.9 | 200mm TO 150mm REDUCER TO CITY OF OTTAWA STANDARDS | | 96.96 | 2.40 | 1 |
| | | 99.39 | 96.96 | 2.43 | 1 |
| \+19.3 | 200mm VALVE & VALVE BOX TO CITY OF OTTAWA STANDARDS | 99.46 | 96.96 | 2.50 | ON PROPERTY LINE |
| | - | 99.72 | 96.96 | 2.76 | CROSSING 250 ST INV 97.48 520mm CLEARANCE (MIN. 500mm REQUIRED) |
| A+27.7 | _ | 100.06 | 97.39 | 2.67 | - |
| A+35.9 | - | 100.28 | 97.81 | 2.47 | 50mm INSULATION AS PER CITY OF OTTAWA DWG W22 50 FROM A+39.2 TO A+49.5 |
| A+42.5 3+00.0) | 200mm x 150mm TEE (TO FIRE HYDRANT) TO CITY OF OTTAWA STANDARDS | 100.48 | 98.15 | 2.33 | _ |
| \+45.0 | _ | 100.60 | 98.28 | 2.32 | CROSSING 200 SAN TOP 97.13 WM U/S 98.17 1040mm CLEARANCE |
| A+46.7 | - | 100.66 | 98.37 | 2.29 | CROSSING 300 ST TOP 97.91 WM U/S 98.17 – 260mm CLEARANCE (MIN. 250mm REQUIRED) |
| A+47.8 | 200mm 45° HORIZONTAL BEND TO CITY OF OTTAWA STANDARDS | 100.78 | 98.38 | 2.40 | - |
| A+48.8 | 200mm TO 150mm REDUCER TO CITY OF OTTAWA STANDARDS | 100.78 | 98.42 | 2.36 | - |
| A+49.5 | _ | 100.93 | 98.44 | 2.49 | CROSSING 150 SAN INV ±98.70 ±380mm CLEARANCE 50mm INSULATION AS PER CITY OF OTTAWA DWG W22 50 FROM A+8.1 TO A+49.5 |
| A+50.5 C+00.0) | TVS CONNECTION TO 150mm WATERMAIN TO CITY OF OTTAWA STANDARDS | | | | _ |

| | WATER SEF | RVICE | PRO | FILE | TABLE |
|--------------------|-----------------------------------------------------------------------------------------|---------|------------------|---------|------------------------------------------------------------------------------------|
| | 150mm PVC | | RIAL: IRE CLA | SS 150 | DR18 |
| B+00.0 (A+42.5) | 200mm x 150mm TEE TO CITY OF OTTAWA STANDARDS | 100.48 | 98.15 | 2.33 | |
| B+01.0 | 150mm VALVE & VALVE BOX TO CITY OF OTTAWA STANDARDS | 100.48 | 98.15 | 2.33 | 50mm INSULATION AS PER CITY (OTTAWA DWG W22 50 FROM B+00.0 TO B+03.7 |
| B+03.7 | _ | 100.51 | 98.15 | 2.36 | |
| B+07.0 | FIRE HYDRANT TO CITY OF OTTAWA STANDARDS | 100.81 | 98.15 | 2.63 | - |
| | 50mm PEX TUBIN | | RIAL: WWA C- | -904 S[| DR 9 (CTS) |
| C+00.0 (A+50.5) | TVS CONNECTION TO 150mm WATERMAIN TO CITY OF OTTAWA STANDARDS | 100.94 | 98.47 | 2.47 | _ |
| C+05.6 | 50mm CURB STOP TO CITY OF OTTAWA STANDARDS | 100.75 | 98.35 | 2.40 | _ |
| C+16.0 | _ | 100.78 | 98.38 | 2.40 | CROSSING 250 ST TOP 97.98 WM U/S 98.33 — 350mm CLEARANCE (MIN. 250mm REQUIRE |
| C+24.5 | _ | 100.88 | 98.48 | 2.40 | _ |
| C+30.5 | 50mm x 25mm REDUCER TO CITY OF OTTAWA STANDARDS (IF REQUIRED) | ±101.27 | 98.87 | 2.40 | CONNECT TO EXISTING WS (SIZE UNKNOWN - 25mm TO 50m |
| | 50mm COPPE | | RIAL: B88 T | YPE "K' | " SOFT |
| E+00.0 | TVS CONNECTION TO 150mm MUNICIPAL WATERMAIN AS PER CITY OF OTTAWA DRAWING No. W33 | ±99.78 | ±97.98 | ±1.80 | - |
| E+03.0 | _ | ±99.88 | 97.41 | 2.47 | CROSSING 225 SAN TOP ±97.16 WM U/S 97.36 - 250mm CLEARANCE |
| E+06.3 | _ | ±99.77 | 97.21 | 2.56 | CROSSING 375 ST INV ±97.71 500mm CLEARANCE |
| E+07.3 | - | ±99.74 | 97.34 | 2.40 | BOTTOM OF CURB |
| E+13.0 | 50mm CURB STOP TO CITY OF OTTAWA STANDARDS | 100.13 | 97.68 | 2.45 | ON PROPERTY LINE |
| E+20.6 | _ | 100.69 | 98.29 | 2.40 | ENTRY INTO BUILDING |

| CB-1 CB/MH-2 | | | TYPE | INVERT AT INLET | INVERT AT OUTLET | NOTES |
|-----------------|--------|----------------|------------------------------------------|-------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | STORM | SEWER | | |
| CB/MH-2 | 102.45 | 600mm x 600mm | PRE-CAST CONCRETE CATCH-BASIN | _ | 100.36 | TO OPSD 705.010 & CITY OF OTTA STANDARDS — FRAME & COVER T CITY OF OTTAWA DRAWING No. S1 |
| | 102.43 | 1200mm | PRE-CAST CONCRETE CATCH-BASIN/MANHOLE | 100.29(NW) | 100.29(S) | TO OPSD 701.010 & CITY OF OTTA STANDARDS – FRAME & COVER T CITY OF OTTAWA DRAWING No. S25 S28.1 OR OPSD 401.010 |
| CB/MH-3 | 102.44 | 1200mm | PRE-CAST CONCRETE CATCH-BASIN/MANHOLE | 100.22(N) | 100.22(W) | TO OPSD 701.010 & CITY OF OTTA STANDARDS — FRAME & COVER T CITY OF OTTAWA DRAWING No. S25 S28.1 OR OPSD 401.010 INSTALL ICD IN OUTLET PIPE |
| CB/MH-4 | 102.10 | 1200mm | PRE-CAST CONCRETE CATCH-BASIN/MANHOLE | - | 100.39 | TO OPSD 701.010 & CITY OF OTTA STANDARDS — FRAME & COVER T CITY OF OTTAWA DRAWING No. S25 S28.1 OR OPSD 401.010 INSTALL ICD IN OUTLET PIPE |
| MH-5 | 102.55 | CDS PMSU2015-4 | PRE-CAST CONCRETE MANHOLE | 100.21(E) 100.23(SE) | 100.20(W) | TO OPSD 701.010 & CITY OF OTTA STANDARDS EXCEPT WITH A DEEP SUN REQUIRED BY CDS INSTALLED WITH A WATERTIGHT COV |
| MH-6 | 102.01 | 1200mm | PRE-CAST CONCRETE MANHOLE | 100.07(E) ±100.03(S) | 100.01(N) | TO OPSD 701.010 & CITY OF OTTA STANDARDS — FRAME & COVER T CITY OF OTTAWA DRAWING No. S25 S24.1 OR OPSD 401.010 |
| CB-7 | 100.71 | 600mm × 600mm | PRE-CAST CONCRETE CATCH-BASIN | - | 97.74 | TO OPSD 705.010 & CITY OF OTTA STANDARDS — FRAME & COVER T CITY OF OTTAWA DRAWING No. S1 |
| CB-8 | 99.62 | 600mm × 600mm | PRE-CAST CONCRETE CATCH-BASIN | _ | 97.68 | TO OPSD 705.010 & CITY OF OTTA STANDARDS — FRAME & COVER T CITY OF OTTAWA DRAWING No. S1 |
| CB-9A | 99.62 | 600mm x 600mm | PRE-CAST CONCRETE CATCH-BASIN | _ | 97.65 | TO OPSD 705.010 & CITY OF OTTA STANDARDS — FRAME & COVER T CITY OF OTTAWA DRAWING No. S1 |
| CB-9B | 100.62 | 600mm x 600mm | PRE-CAST CONCRETE CATCH-BASIN | - | 97.62 | TO OPSD 705.010 & CITY OF OTTA STANDARDS — FRAME & COVER T CITY OF OTTAWA DRAWING No. S1 |
| CB/MH-10 | 100.92 | 1200mm | PRE-CAST CONCRETE CATCH-BASIN/MANHOLE | <u>+</u> 98.84(W) | 97.73(N) | TO OPSD 701.010 & CITY OF OTTA STANDARDS — FRAME & COVER T CITY OF OTTAWA DRAWING No. S25 S28.1 OR OPSD 401.010 INSTALL ICD IN OUTLET PIPE |
| CB/MH-11 | 100.65 | 1200mm | PRE-CAST CONCRETE CATCH-BASIN/MANHOLE | 97.53(S) 98.12(W) | 97.47(E) | TO OPSD 701.010 & CITY OF OTTA STANDARDS — FRAME & COVER T CITY OF OTTAWA DRAWING No. S25 S28.1 OR OPSD 401.010 INSTALL ICD IN OUTLET PIPE |
| MH-12 | 99.26 | 1200mm | PRE-CAST CONCRETE MANHOLE | 97.37(W) <u>+</u> 97.24(S) | <u>+</u> 97.24(N) | TO OPSD 701.010 & CITY OF OTTA STANDARDS — FRAME & COVER T CITY OF OTTAWA DRAWING No. S25 S24.1 OR OPSD 401.010 |
| CB/MH-13A | 99.62 | 1200mm | PRE-CAST CONCRETE CATCH-BASIN/MANHOLE | 97.53(S) | 97.52(N) | TO OPSD 701.010 & CITY OF OTTA STANDARDS — FRAME & COVER T CITY OF OTTAWA DRAWING No. S25 S28.1 OR OPSD 401.010 |
| CB-13B | 99.62 | 600mm x 600mm | PRE-CAST CONCRETE CATCH-BASIN | _ | 97.59 | TO OPSD 705.010 & CITY OF OTTA STANDARDS — FRAME & COVER T CITY OF OTTAWA DRAWING No. S1 |
| CB-14 | 100.49 | 600mm x 600mm | PRE-CAST CONCRETE CATCH-BASIN | _ | 98.24 | TO OPSD 705.010 & CITY OF OTTA STANDARDS — FRAME & COVER T CITY OF OTTAWA DRAWING No. S1 |
| | | | SANITAR` | Y SEWEI | 7 | |
| MH-SA.1 | 100.59 | 1200mm | PRE-CAST CONCRETE MANHOLE | 96.91(S) | 96.85(E) | TO OPSD 701.010 & CITY OF OTTA STANDARDS — FRAME & COVER T CITY OF OTTAWA DRAWING No. S25 S24 OR OPSD 401.010 |

KEY PLAN



| 3 | APR 14-22 | RE-ISSUED FOR APPROVAL |
|-----|-----------|------------------------|
| 2 | OCT 25-21 | ISSUED FOR APPROVAL |
| 1 | OCT 15-21 | PRELIMINARY |
| No. | DATE | REVISION |

D. B. GRAY ENGINEERING INC.

Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermains

700 Long Point Circle 613-425-8044

Ottawa, Ontario d.gray@dbgrayengineering.com

ELLWOOD HOUSE EXTENSION

38-UNIT 3-STOREY APARTMENT BUILDING

2262 BRAESIDE AVENUE

& SITE IMPROVEMENTS

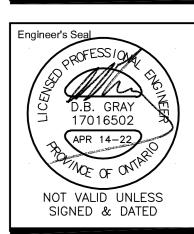
2262-2270 BRAESIDE AVENUE

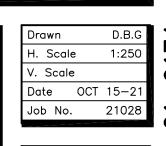
& 2345 ALTA VISTA DRIVE

OTTAWA, ONTARIO

Drawing Title

DETAILS



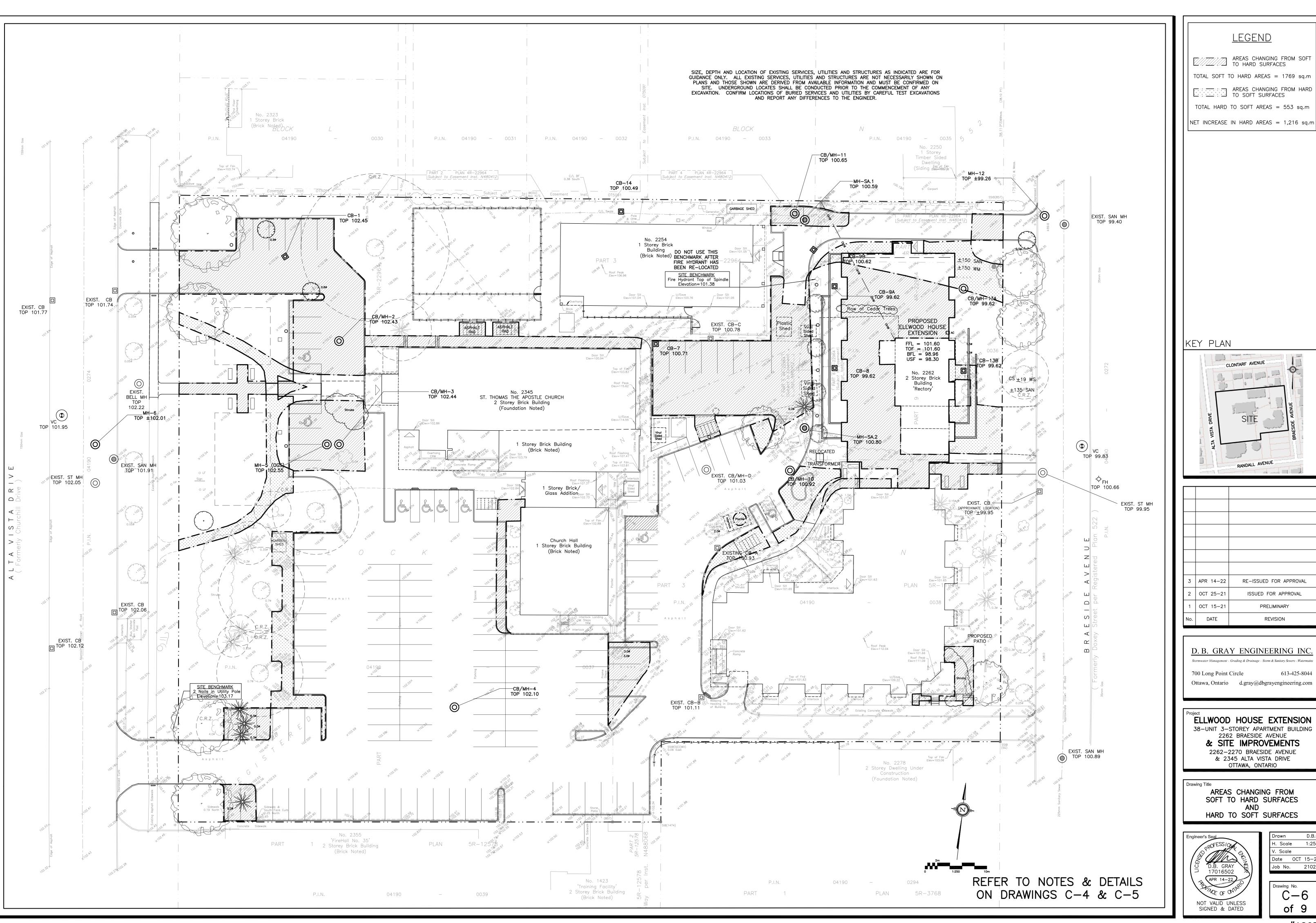


Drawing No.

C-5

of 9

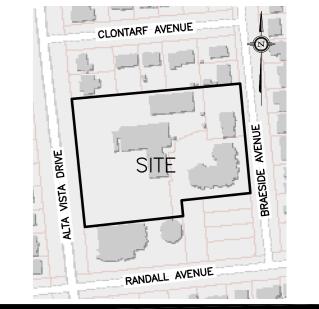
of 9 #18637



LEGEND

AREAS CHANGING FROM SOFT TO HARD SURFACES TOTAL SOFT TO HARD AREAS = 1769 sq.m AREAS CHANGING FROM HARD TO SOFT SURFACES TOTAL HARD TO SOFT AREAS = 553 sq.m

KEY PLAN



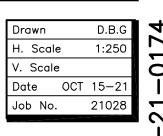
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D. B. GRAY ENGINEERING INC 613-425-8044 700 Long Point Circle

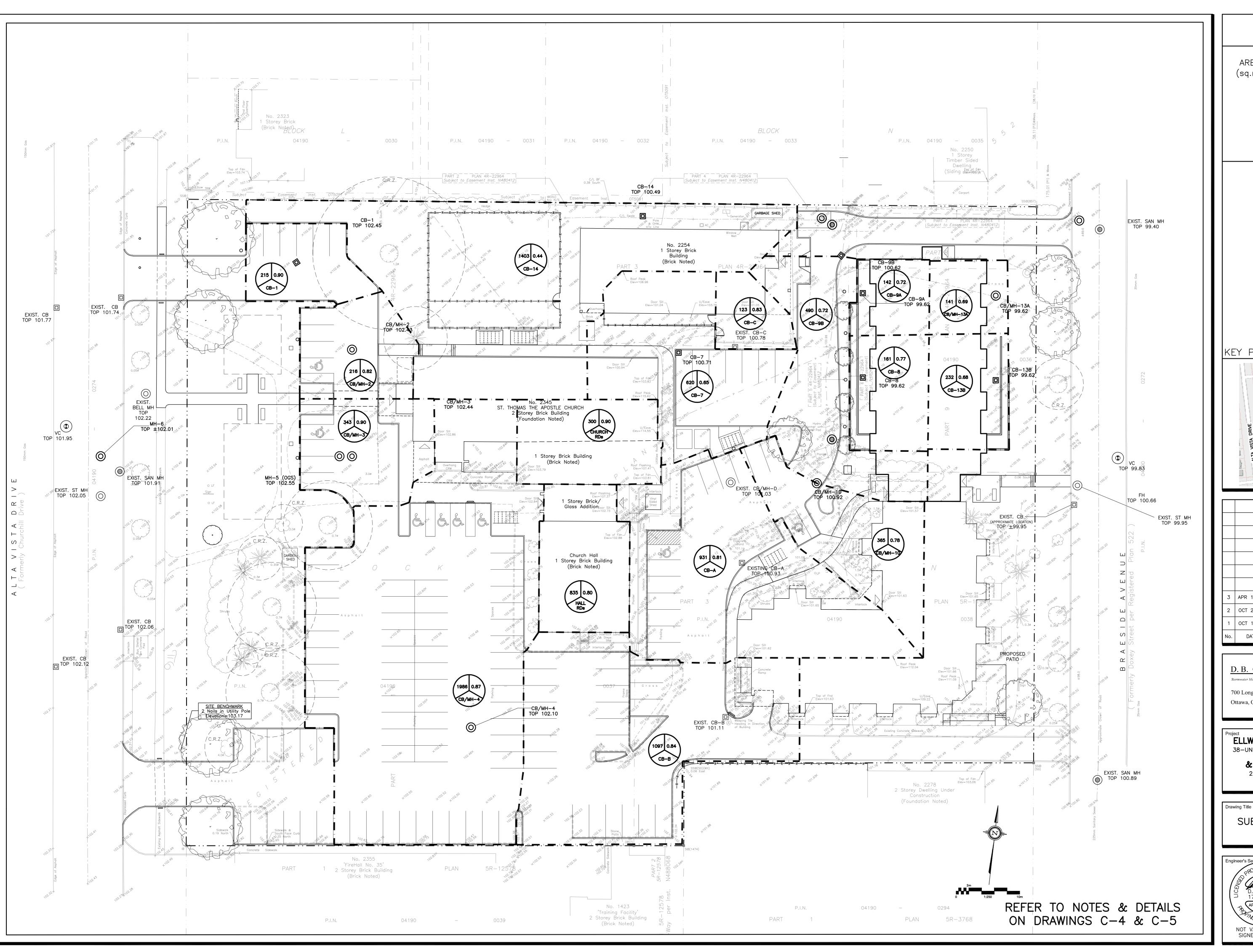
ELLWOOD HOUSE EXTENSION 38-UNIT 3-STOREY APARTMENT BUILDING 2262 BRAESIDE AVENUE & SITE IMPROVEMENTS 2262—2270 BRAESIDE AVENUE & 2345 ALTA VISTA DRIVE OTTAWA, ONTARIO

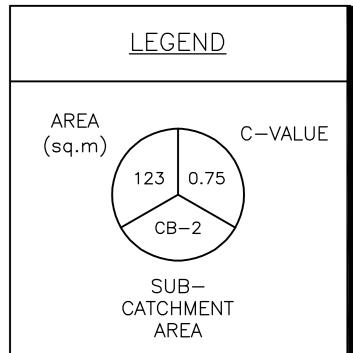
AREAS CHANGING FROM SOFT TO HARD SURFACES AND HARD TO SOFT SURFACES



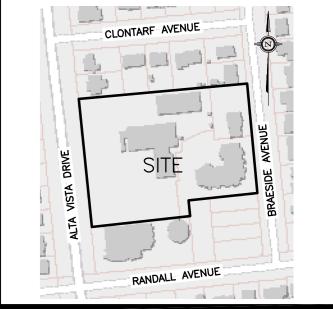


Orawing No.





KEY PLAN

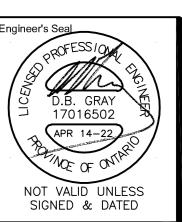


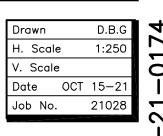
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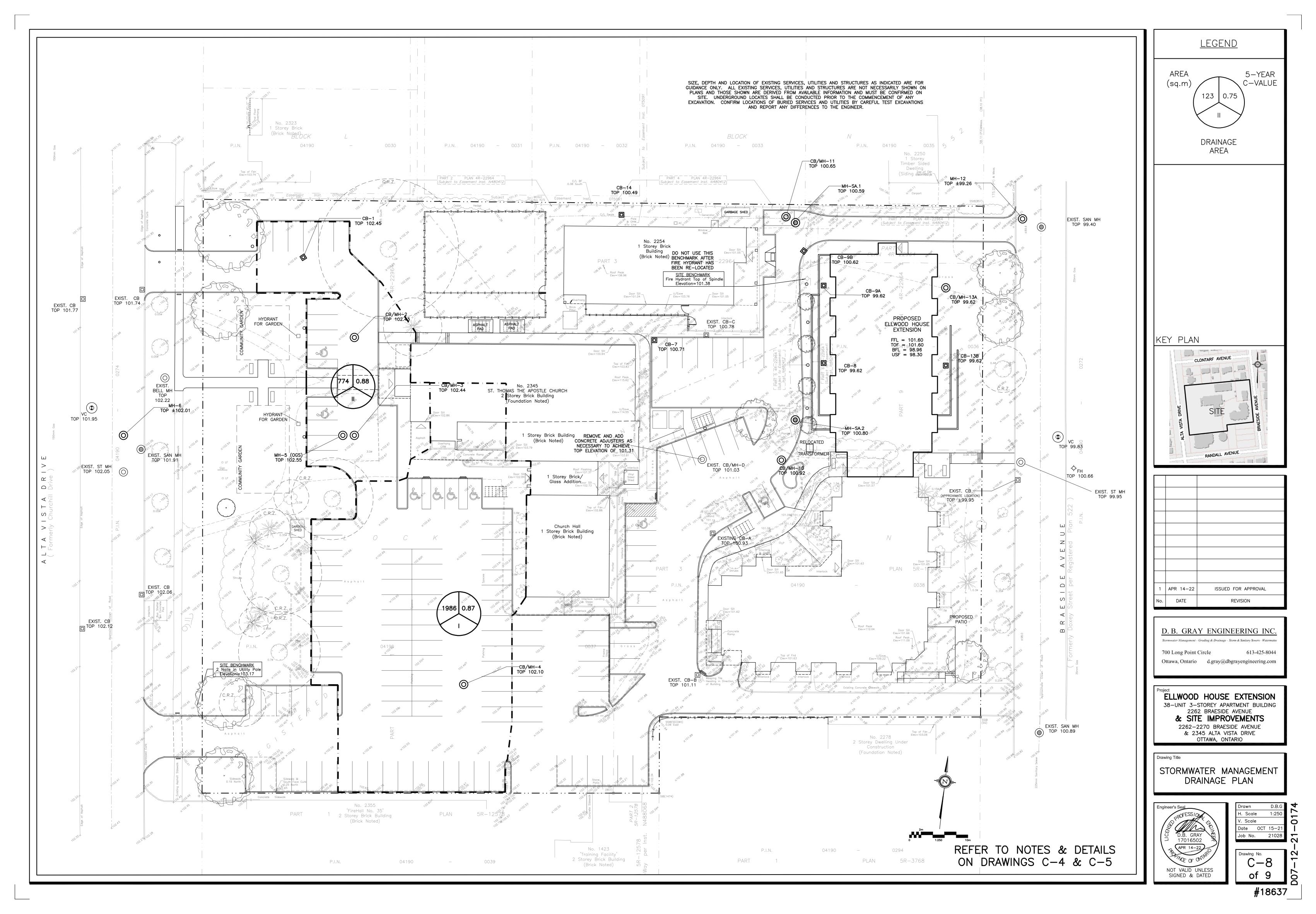
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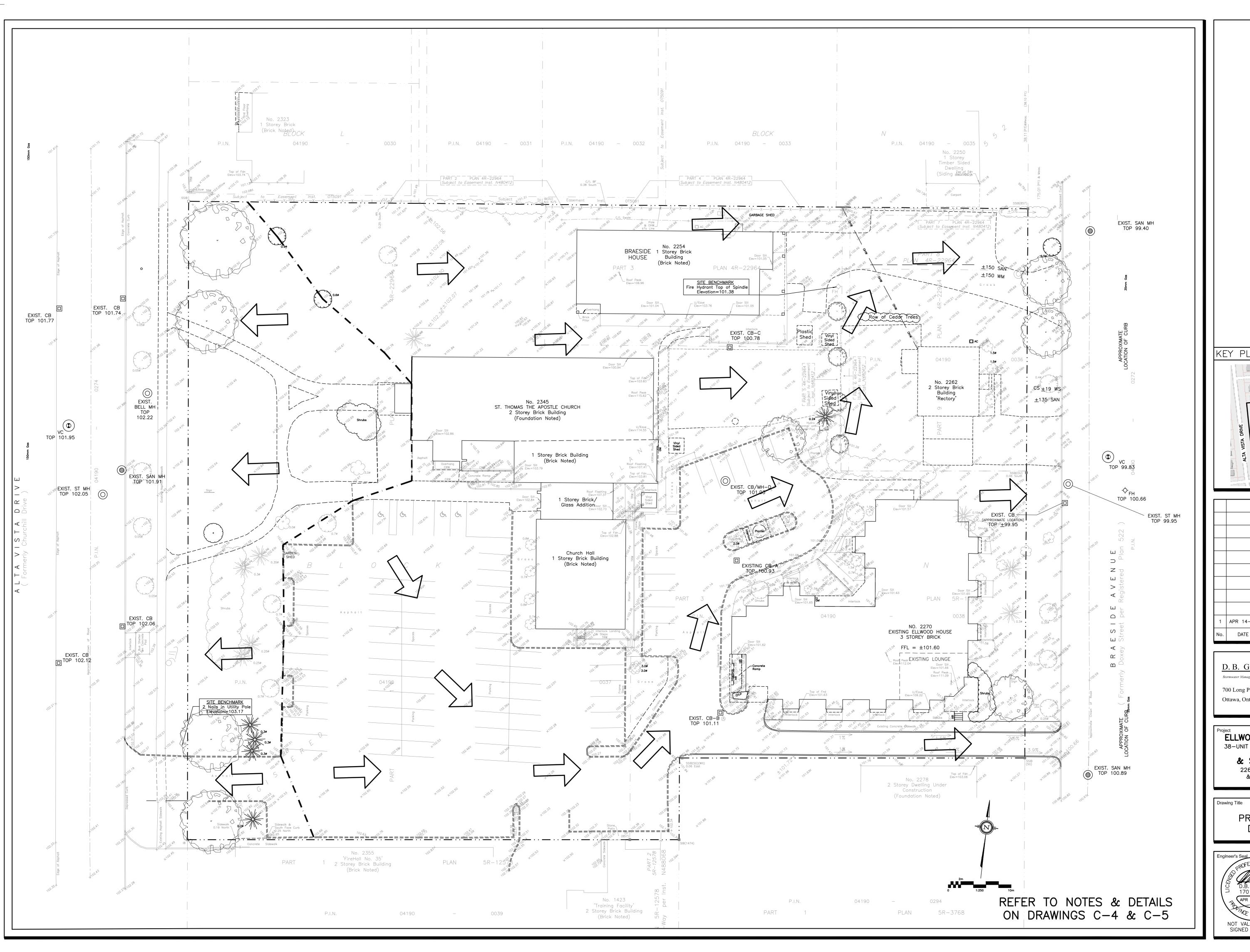
SUB-CATCHMENT AREA DRAINAGE PLAN

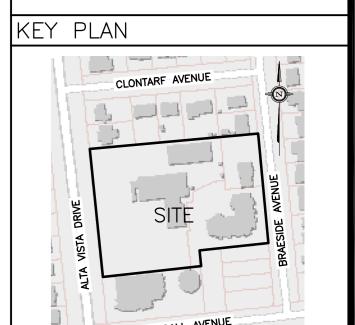




Drawing No.







| 1 | APR 14-22 | ISSUED FOR APPROVAL |
|-----|-----------|---------------------|
| No. | DATE | REVISION |

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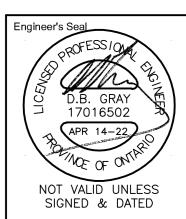
Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermains

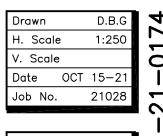
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ELLWOOD HOUSE EXTENSION
38-UNIT 3-STOREY APARTMENT BUILDING
2262 BRAESIDE AVENUE
& SITE IMPROVEMENTS
2262-2270 BRAESIDE AVENUE
& 2345 ALTA VISTA DRIVE
OTTAWA, ONTARIO

PRE-DEVELOPMENT DRAINAGE PLAN





Drawing No.

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