GENERAL NOTES:

- IF CONDITIONS ARE DIFFERENT THAN THOSE STATED IN THESE DRAWINGS AND SPECIFICATIONS, CONTRACTOR MUST CONTACT GROUNDWORK ENGINEERING LIMITED PRIOR TO PROCEEDING.
- WALLS REQUIRING PEDESTRIAN GUARDS ARE TO CONFORM WITH O.B.C. PART 4.1.5.14. AND PART 3.3.1.17.

MATERIALS:

- PRECAST MODULAR BLOCK (PMB) UNIT SHALL BE STONE STRONG UNITS MANUFACTURED UNDER LICENSE FROM STONE STRONG LLC.
- WALL UNITS SHALL CONFORM TO ASTM C1776.
- CONCRETE FOR PRECAST MODULAR BLOCKS SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 30MPa. ENTRAINED AIR SHALL BE BETWEEN 5-7%.
- CONCRETE INFILL FOR SETTING POSTS TO BE 30MPa, 5-8% AIR, 80MM SLUMP.
- GEOTEXTILE FABRIC TO BE CLASS 2 NON WOVEN TYPE WITH A FILTRATION OPENING SIZE OF 50 MICRO METERS AND 3mm THICK CONFORMING TO OPSS 1860. TERRAFIX 360R OR EQUIVALENT.
- DRAINAGE PIPE TO BE HDPE WITH A MINIMUM INTERIOR DIAMETER OF 100mmø PERFORATED WITH FILTER SOCK. DRAINAGE PIPE TO SLOPE AT A MINIMUM OF 0.5% TO LOW POINT AND DRAIN TO OUTLET THROUGH WALL FACE, OUTLETS ARE TO BE LOCATED AS PER DRAWINGS AND HAVE RODENT GRATE INSTALLED ON OPENINGS.
- DRAINAGE AGGREGATE SHALL BE 19mm DIAMETER CLEAN STONE, PLACED IN THE HOLLOW BLOCK SECTIONS AND BETWEEN ADJACENT BLOCKS.
- THE FILL MATERIAL PLACED AND COMPACTED BETWEEN THE BACK OF THE BLOCK AND THE EXCAVATED SOIL FACE IN THE RETAINING WALL SECTIONS, SHALL BE GRANULAR 'B' TYPE II WITH MAXIMUM PERCENT PASSING OF 30% AT 4.75mm SIEVE, 15% AT 1.18MM SIEVE, 10% AT 0.30mm SIEVE AND 5% AT 0.075mm SIEVE. COMPACTION OF MATERIAL BEHIND THE WALL SHALL BE TO 98% SPD AND BE PLACED IN LIFTS WITH A THICKNESS NOT TO EXCEED 200mm.
- LEVELING PAD SHALL CONSIST OF COMPACTED GRANULAR 'A' 300mm THICK EXTENDING IN FRONT OF AND BEHIND PRECAST MODULAR BLOCK 300mm UNLESS OTHERWISE NOTED. LEVELING PAD SHALL BE COMPACTED TO 98% SPD, AND BE A FLAT SURFACE UPON WHICH THE BOTTOM COURSE OF PRECAST MODULAR BLOCKS IS PLACED.
- FINAL INSPECTION AND CERTIFICATION TO BE COMPLETED BY DESIGN ENGINEER AND BE PROVIDED TO OWNER UPON COMPLETION.

CALCULATIONS AND ASSUMPTIONS:

- THESE WALLS HAVE BEEN DESIGNED WITH CONSIDERATION OF SEISMIC LOADINGS PEAK GROUND ACCELERATION OF 0.16 AND A LIVE LOADING OF 5 KPA.
- CALCULATIONS WERE PERFORMED WITH THE ASSUMPTION THAT RETAINED SOILS HAVE BEEN ASSUMED TO HAVE DENSITY OF 2,000 KG/M³. GRANULAR 'B' TYPE II HAS BEEN ASSUMED TO HAVE A DENSITY OF 2240 KG/M³ & A SOIL FRICTION ANGLE OF 36°.
- CALCULATIONS PERFORMED BASED ON AASHTO LRFD ,
- OWNER'S SITE REPRESENTATIVE SHALL VERIFY FOUNDATION SOILS CONDITIONS PRIOR TO PLACING LEVELING PAD. FOUNDATION SOILS TO HAVE THE FOLLOWING PROPERTIES: UNIT WEIGHT = 20KN/m³, FRICTION ANGLE = 26°.

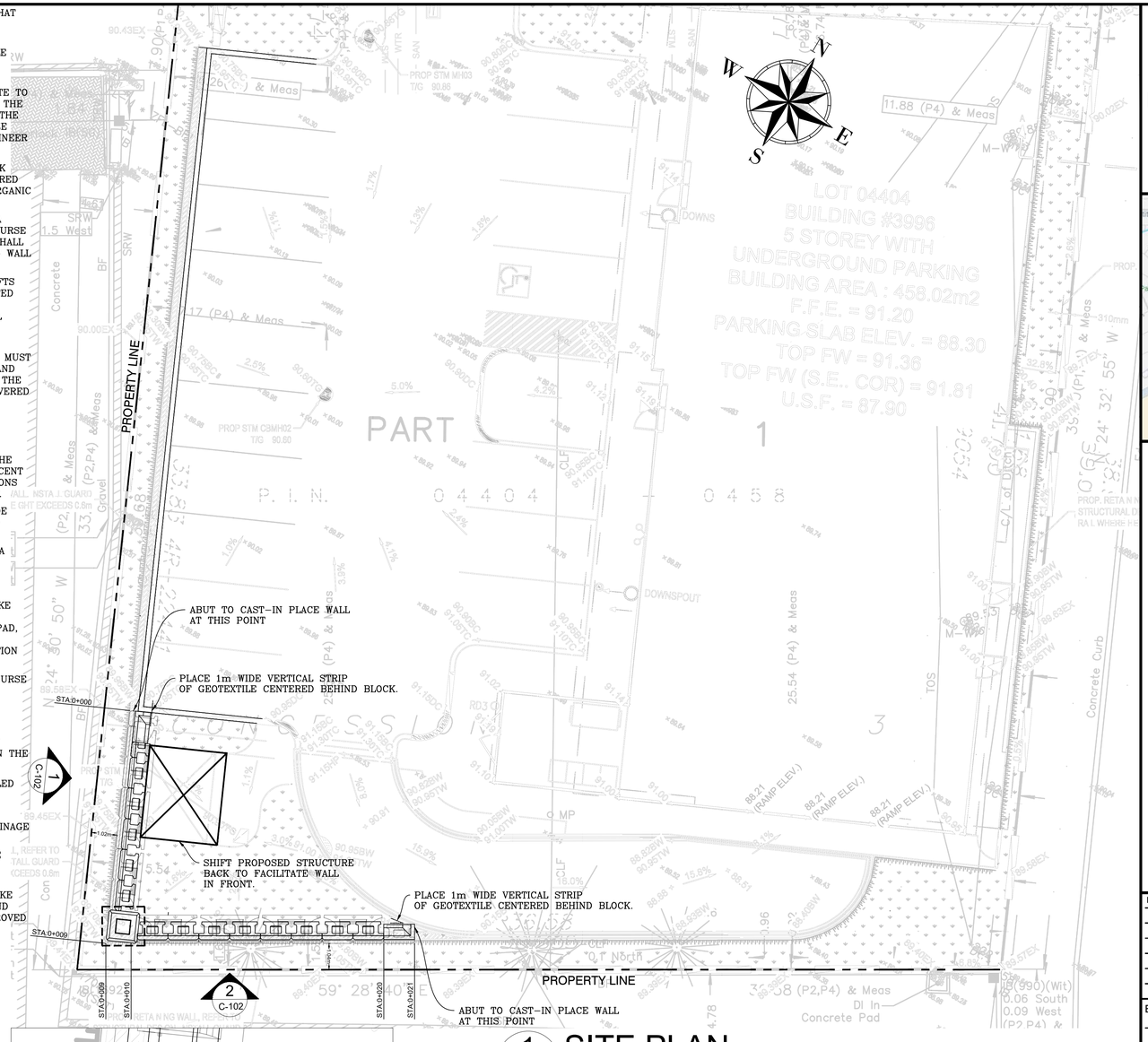
DESIGN ENGINEER LIMITED INSPECTION REQUIREMENTS:

- DESIGN ENGINEER OR THEIR REPRESENTATIVE RESERVES THE RIGHTS TO ACCESS THE SITE FOR INSPECTION PURPOSE UPON NOTIFICATION OF THE GENERAL CONTRACTOR AND RETAINING WALL INSTALLATION CONTRACTOR.
- INSPECTION OF THE SUB SOIL, LEVELING PAD, BEARING PAD AND PLACEMENT OF FIRST ROW OF BLOCKS SHALL BE PERFORMED BY DESIGN ENGINEER OR THEIR REPRESENTATIVE PRIOR TO ANY BACK-FILL PLACEMENT. RETAINING WALL INSTALLATION CONTRACTOR SHALL CO-ORDINATE WITH DESIGN ENGINEER OR THEIR REPRESENTATIVE TO ARRANGE INSPECTION 48HR PRIOR REQUIRED MILESTONE. TESTING AGENCY WILL REVIEW AND PROVIDE INSPECTION THROUGHOUT THE COURSE OF RETAINING WALL CONSTRUCTION.
- DESIGN ENGINEER OR THEIR REPRESENTATIVE WILL NOTIFY THE RETAINING WALL INSTALLATION CONTRACTOR OF ANY DEFICIENCIES IN THE RETAINING WALL CONSTRUCTION AND PROVIDE THE RETAINING WALL INSTALLATION CONTRACTOR A REASONABLE OPPORTUNITY TO CORRECT THE DEFICIENCY.
- INSPECTION BY DESIGN ENGINEER OR THEIR REPRESENTATIVE DOES NOT RELIEVE THE RETAINING WALL INSTALLATION CONTRACTOR OF RESPONSIBILITY TO CONSTRUCT THE PROPOSED RETAINING WALL IN ACCORDANCE WITH THE APPROVED CONSTRUCTION SHOP DRAWINGS AND SPECIFICATIONS.
- FINAL INSPECTION & CERTIFICATION TO BE COMPLETED BY DESIGN ENGINEER AND TO BE PROVIDED TO OWNER UPON COMPLETION.

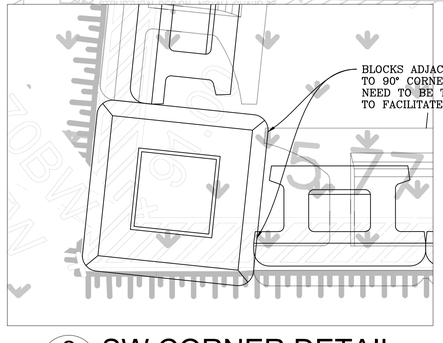
CONSTRUCTION:

- RETAINING WALL INSTALLATION CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UNDERGROUND UTILITIES. ANY NEW UTILITIES PROPOSED FOR INSTALLATION IN THE VICINITY OF THE RETAINING WALL, SHALL BE INSTALLED CONCURRENT WITH RETAINING WALL CONSTRUCTION. THE GENERAL CONTRACTOR SHALL COORDINATE THE WORK OF SUBCONTRACTORS AFFECTED BY THIS REQUIREMENT.
- FINAL INSPECTION AND CERTIFICATION TO BE COMPLETED BY DESIGN ENGINEER OR THEIR REPRESENTATIVE AND TO BE PROVIDED TO OWNER NO MORE THAN 1 WEEK AFTER COMPLETION.

- THE GENERAL CONTRACTOR IS RESPONSIBLE TO ENSURE THAT SAFE EXCAVATIONS AND EMBANKMENTS ARE MAINTAINED THROUGHOUT THE COURSE OF THE PROJECT.
- RETAINING WALL INSTALLATION CONTRACTOR IS RESPONSIBLE FOR STRIPPING ALL VEGETATION, ORGANIC SOILS AND UNSUITABLE FILL SOILS FROM WALL ALIGNMENT AREA.
- RETAINING WALL INSTALLATION CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES REQUIRED FOR CONSTRUCTION OF THE PRECAST MODULAR BLOCK RETAINING WALL AS SHOWN ON THE CONSTRUCTION DRAWINGS. THE CONTRACTOR SHALL MINIMIZE OVER-EXCAVATION UNLESS REQUIRED BY THE DESIGN ENGINEER IF SOILS ARE FOUND TO BE UNSUITABLE (<1925 kg/m²).
- PRIOR TO CONSTRUCTION OF THE PRECAST MODULAR BLOCK RETAINING WALL, THE LEVELING PAD AREA SHALL BE CLEARED AND GRUBBED. ALL TOPSOIL, BRUSH, FROZEN SOIL AND ORGANIC MATERIAL SHALL BE REMOVED.
- THE LEVELING PAD SHALL BE CONSTRUCTED TO PROVIDE A LEVEL, HARD SURFACE ON WHICH TO PLACE THE FIRST COURSE OF PRECAST MODULAR BLOCK UNITS. THE LEVELING PAD SHALL BE PLACED IN THE DIMENSIONS SHOWN ON THE RETAINING WALL DRAWINGS AND EXTEND TO THE LIMITS INDICATED.
- LEVELING PAD SHALL BE PLACED IN UNIFORM MAXIMUM LIFTS OF 150mm. THE GRANULAR MATERIALS SHALL BE COMPACTED BY A MINIMUM OF 3 PASSES OF A VIBRATORY COMPACTOR CAPABLE OF EXERTING 2,000 LB (8.9 KN) OF CENTRIFUGAL FORCE.
- IF WINTER CONSTRUCTION IS CONSIDERED, HEAT MUST BE MAINTAINED WHEN THE BASE IS EXPOSED. THE WALL BASE MUST BE COVERED WITH INSULATION TARPS TO MAINTAIN HEAT AND PROTECT THE BASE FROM POTENTIAL FROST HEAVE. ONCE THE BASE IS BACKFILLED, THE TOP OF THE WALL MUST BE COVERED WITH INSULATION TARPS OVERNIGHT UNTIL THE WALL CONSTRUCTION IS COMPLETED.
- DRAINAGE COMPONENTS, PIPE, GEOTEXTILE AND DRAINAGE AGGREGATE SHALL BE INSTALLED AS SHOWN.
- FIRST COURSE OF BLOCK UNITS SHALL BE PLACED WITH THE FRONT FACE EDGES TIGHTLY ABUTTED TOGETHER ON ADJACENT BLOCKS, ON THE PREPARED LEVELING PAD AT THE LOCATIONS AND ELEVATIONS SHOWN ON THE CONSTRUCTION DRAWINGS.
- WHEN ABUTTING CAST IN PLACE CONCRETE, PLACE 1m WIDE STRIP OF GEOTEXTILE FABRIC VERTICALLY ALONG JOINT TO PREVENT AGGREGATE SPILLAGE.
- WHEN POURING CAST IN PLACE CONCRETE AGAINST WALL, A 13mm THICK FIBER ASPHALT EXPANSION MATERIAL (OR EQUIVALENT) MUST BE PROVIDED TO FULL DEPTH OF CONCRETE BETWEEN THE WALL AND CONCRETE.
- THE RETAINING WALL INSTALLATION CONTRACTOR SHALL TAKE SPECIAL CARE TO ENSURE THAT THE BOTTOM COURSE OF BLOCK UNITS ARE IN FULL CONTACT WITH THE LEVELING PAD, ARE SET LEVEL AND TRUE AND ARE PROPERLY ALIGNED ACCORDING TO THE LOCATIONS SHOWN ON THE CONSTRUCTION DRAWINGS.
- BACKFILL SHALL BE PLACED IN FRONT OF THE BOTTOM COURSE OF BLOCKS PRIOR TO PLACEMENT OF SUBSEQUENT BLOCK COURSES TO A THICKNESS SPECIFIED IN WALL SECTIONS.
- MINIMUM WALL EMBEDMENT TO BE 300mm.
- DRAINAGE AGGREGATE SHALL BE PLACED IN 150mm LIFTS.
- NONWOVEN GEOTEXTILE FABRIC SHALL BE PLACED BETWEEN THE GRANULAR 'B' BACKFILL AND THE RETAINED SOILS.
- SUBSEQUENT COURSES OF BLOCK UNITS SHALL BE INSTALLED WITH A RUNNING BOND (HALF BLOCK HORIZONTAL COURSE-TO-COURSE OFFSET).
- BACKFILL MATERIAL PLACED IMMEDIATELY BEHIND THE DRAINAGE AGGREGATE SHALL BE COMPACTED TO 98% SPMDD.
- COMPACTIVE EFFORT WITHIN 900mm OF THE BACK OF THE PRECAST MODULAR BLOCKS SHALL BE ACCOMPLISHED WITH WALK-BEHIND COMPACTORS.
- THE RETAINING WALL INSTALLATION CONTRACTOR SHALL MAKE ALL REQUIRED ALLOWANCES FOR OBSTRUCTIONS BEHIND AND THROUGH THE WALL FACE IN ACCORDANCE WITH THE APPROVED CONSTRUCTION SHOP DRAWINGS.

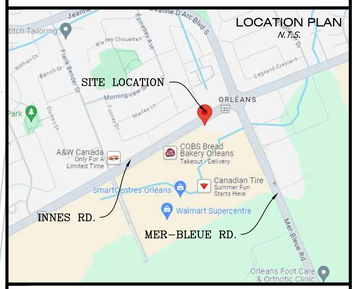


1 SITE PLAN
C-101 SCALE: 1:100



2 SW CORNER DETAIL
C-101 SCALE: 1:20

GROUNDWORK ENGINEERING LIMITED
GEOTECHNICAL • CIVIL • STORMWATER • ONSITE WASTEWATER
UNIT 640 - 654 NORRIS COURT
KINGSTON ONTARIO
OFFICE (613) 634-1789
www.groundengineer.ca



REVISIONS

No.	Description	Date
1.	WALL DESIGN	2024/07/09

BENCHMARK:

No.	DESCRIPTION	ELEVATION
##.	XXX	XXX.XX

LICENSED PROFESSIONAL ENGINEER — M. H. BURGER — PROVINCE OF ONTARIO

Client / Land Owner:
MCON / LOU FRANGIAN

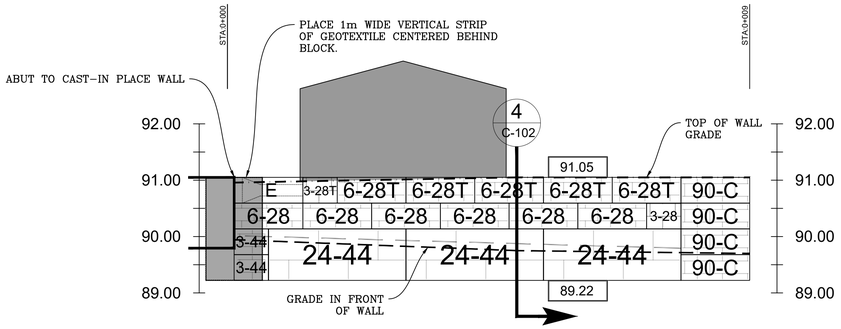
Project:
3996 INNES ROAD
KINGSTON ONTARIO

Drawing Title:
SITE PLAN & NOTES

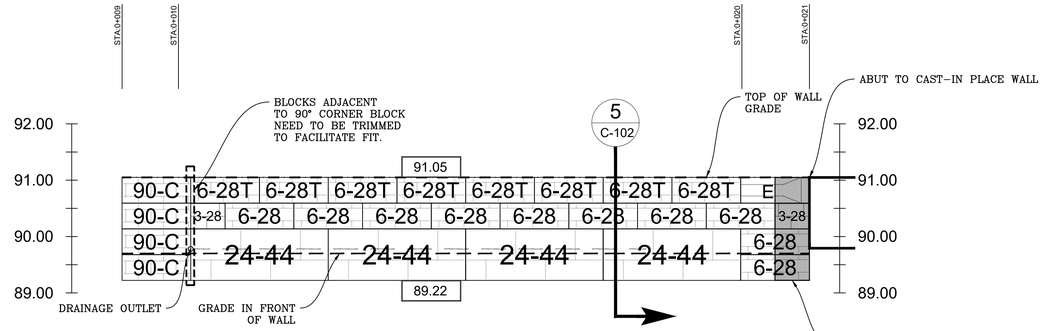
Drawn by: DR
Checked By: MB
Scale: 24"x36" AS NOTED
Date: JULY 9, 2024

Project Number: GW-24004-18
Drawing Number: C-101
SHEET 1 of 2

P:\Projects\24000\24004 - Retaining Walls\24004-18 - 3996 Innes Road\02 - Design\03 - Drawings\01 - Preliminary Design (Pre-Submission)\GW 24004-18 3996 Innes Road (June 21 2024).dwg
7/9/2024 2:08 PM



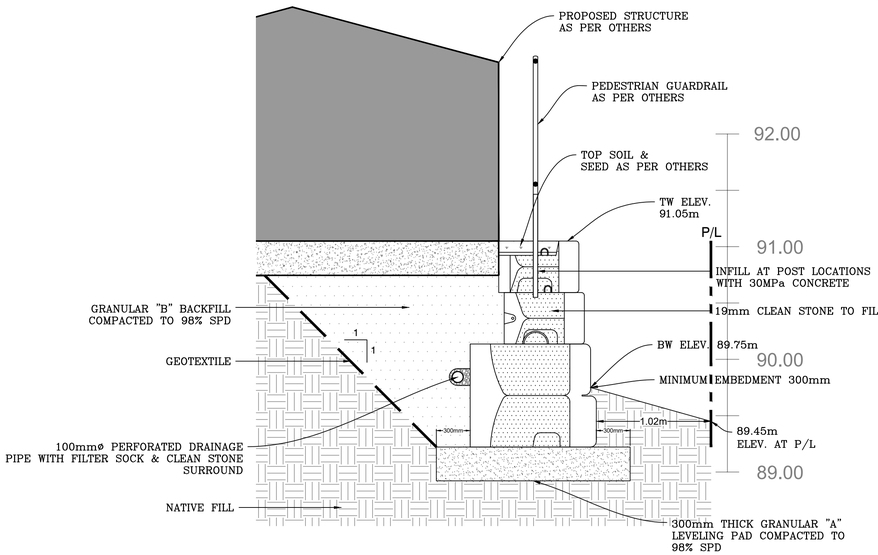
1 C-102 ELEVATION (STA 0+000 - STA 0+009)
SCALE: 1:50



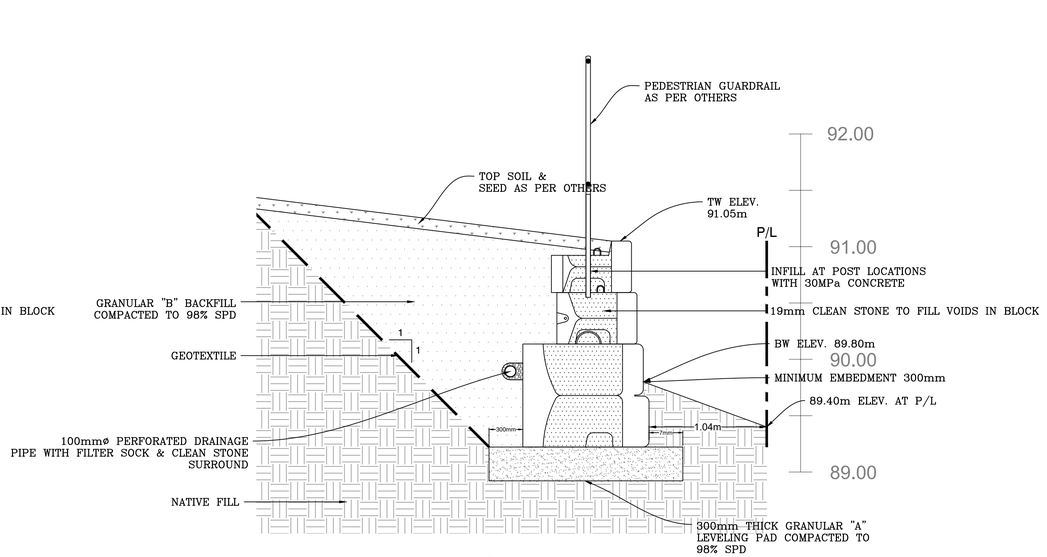
2 C-102 ELEVATION (STA 0+009 - STA 0+021)
SCALE: 1:50

	BLOCK TYPE	QUANTITY		BLOCK TYPE	QUANTITY
E	END UNIT BLOCK	2	6-28	6-28 BLOCK	16
90-C	90° CORNER BLOCK	4	6-28T	6-28T BLOCK	13
3-28	3-28 BLOCK	3	3-44	3-44 BLOCK	2
3-28T	3-28T BLOCK	1	24-44	24-44 BLOCK	7

3 C-102 BLOCK COUNT
SCALE: N.T.S.

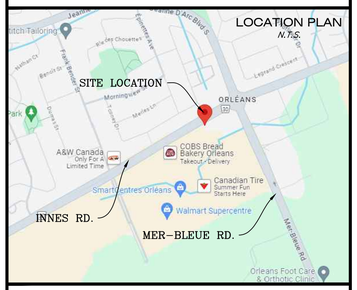


4 C-102 SECTION
SCALE: 1:25



5 C-102 SECTION
SCALE: 1:25

GROUNDWORK ENGINEERING LIMITED
GEOTECHNICAL • CIVIL • STORMWATER • ONSITE WASTEWATER
UNIT 640 - 654 NORRIS COURT
KINGSTON ONTARIO
OFFICE (613) 634-1789
www.groundengineer.ca



REVISIONS

No.	Description	Date
1.	WALL DESIGN	2024/07/09

BENCHMARK:

No.	DESCRIPTION	ELEVATION
##.	XXX	XXX.XX

LICENSED PROFESSIONAL ENGINEER — 9 July 2024 — M. H. BURGER — PROVINCE OF ONTARIO

Client / Land Owner:
MCON / LOU FRANGIAN

Project:
3996 INNES ROAD
KINGSTON ONTARIO

Drawing Title:
ELEVATIONS, BLOCK COUNT & SECTIONS

Drawn by: DR
Checked By: MB
Scale: 24"x36" AS NOTED
Date: JULY 9, 2024

Project Number: GW-24004-18
Drawing Number: C-102
SHEET 2 of 2

P:\Projects\24000\24004 - Retaining Walls\24004-18 - 3996 Innes Road\02 - Design\03 - Drawings\01 - Preliminary Design (Pre-Submission)\GW 24004-18 3996 Innes Road (June 21 2024).dwg 7/9/2024 2:08 PM