











CONCRETE PAD FOR CITY OF OTTAWA STANDARD BIKE RACK

SPECIFICATIONS

A. SEGMENTAL LANDCAPE PLANTER WALL

1.0 GENERAL

.1 SCOPE OF WORK

BASE.

- .1 THE WORK COVERED BY THIS SECTION INCLUDES THE FURNISHING OF ALL LABOUR. MATERIAL EQUIPMENT, INSPECTION AND CONSTRUCTION OF A MODULAR CONCRETE SEGMENTAL RETAINING WALL ("SRW") INCLUDING DRAINAGE SYSTEM AND GEOSYNTHETIC REINFORCEMENT. THE WORK INCLUDED IN THIS SECTION CONSISTS OF, BUT IS NOT LIMITED, TO THE FOLLOWING:
- 1.EXCAVATION AND FOUNDATION SOIL
- PREPARATION. 2.FURNISH AND PLACEMENT OF THE LEVELING
- 3.FURNISH AND PLACEMENT OF THE CONCRETE
- STARTER UNITS.
- 4.FURNISH AND PLACEMENT OF GEOTEXTILE. 5.FURNISH AND PLACEMENT OF SRW UNITS.
- 6.FURNISH AND PLACEMENT OF ROOT BARRIER.
- 7.FURNISH FINAL GRADING.

2.0 REFERENCES

- .1 ALL REFERENCES TO LATEST EDITION OF STANDARDS:
- .1 ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS) .1 OPSS 1010, AGGREGATES - GRANULAR A, B, M, AND SELECT SUBGRADE MATERIALS

.2 AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM):

- .1 ASTM C131, TEST METHOD FOR RESISTANCE TO DEGRADATION OF SMALL SIZE COURSE AGGREGATES BY ABRASION AND IMPACTS IN THE LOS ANGELES MACHINE
- .2 ASTM C 140, SAMPLING AND TESTING CONCRETE MASONRY UNITS
- .3 ASTM C 979, STANDARD SPECIFICATION FOR PIGMENTS FOR INTEGRALLY COLOURED CONCRETE. .4 ASTM C 1372, STANDARD SPECIFICATIONS FOR
- SEGMENTAL RETAINING WALL UNITS .5 ASTM D 698, STANDARD TEST METHOD FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORT (12,000 FT-LBF/FT3 (600 $KN-M/M^3)$).
- .3 NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA): .1 NCMA DESIGN MANUAL FOR SEGMENTAL RETAINING
- WALLS, SECOND EDITION. .2 NCMA TEK 2-4 - SPECIFICATIONS FOR SEGMENTAL
- RETAINING WALL UNITS. .3 NCMA SRWU-2 - DETERMINATION OF SHEAR STRENGTH BETWEEN SEGMENTAL CONCRETE UNITS.

3.0 SUBMITTALS

.1 SEGMENTAL RETAINING WALL:

- .1 SAMPLES FOR VERIFICATION: THREE REPRESENTATIVE FULL-SIZE SAMPLES OF SRW. THICKNESS, COLOR AND FINISH THAT INDICATE THE RANGE OF COLOR VARIATION AND TEXTURE EXPECTED UPON PROJECT COMPLETION.
- .2 ACCEPTED SAMPLES BECOME THE STANDARD OF ACCEPTANCE FOR THE PRODUCT PRODUCED.
- .3 TEST RESULTS FROM AN INDEPENDENT TESTING LABORATORY FOR COMPLIANCE OF CONCRETE PAVERS WITH ASTM C1372.
- .4 MANUFACTURER'S CATALOG PRODUCT DATA, INSTALLATION INSTRUCTIONS, AND MATERIAL SAFETY DATA SHEETS FOR THE SAFE HANDLING OF THE SPECIFIED MATERIALS AND PRODUCTS.

.2 LEVELING BASE:

.1 TEST RESULTS FROM AN INDEPENDENT TESTING LABORATORY FOR SIEVE ANALYSIS PER ASTM C136.

- .3 GEOTEXTILE FABRIC: .1 PROVIDE PRODUCT DATA SHEETS.
- .2 PROVIDE ONE (1) REPRESENTATIVE SAMPLE 150MM X 150MM

4.0 MATERIAL

- .1 SEGMENTAL RETAINING WALL ("SRW"), AND COPING .1 BASIS-OF-DESIGN PRODUCT: SRW MODULAR, SOLID, DRY-CAST CONCRETE BLOCKS BASED ON:
- .1 PERMACON, LAFITT TANDEM WALL (OR APPROVED EQUIVALENT)
- .2 THE SPECIFIED PRODUCT NOTED ESTABLISH THE MINIMUM REQUIREMENTS THAT SUBSTITUTIONS MUST MEET TO BE CONSIDERED ACCEPTABLE.
- .3 REQUESTS FOR ALTERNATIVE PRODUCTS WILL NOT BE CONSIDERED DURING TENDER.

.2 PRODUCT REQUIREMENTS:

- .1 SRW: LAFITT TANDEM WALL
- .2 COLOUR: AMBOISE BEIGE
- .3 FINISH: CHISELED
- .4 PROVIDE SRW MEETING THE REQUIREMENTS SET FORTH IN ASTM C1372.
- .5 PROVIDE SRW MEETING THE PHYSICAL PROPERTIES LISTED BELOW AS TESTED USING ASTM C140:
- .6 DIMENSIONAL TOLERANCE SHALL BE +/- 3 MM (%") 5.0 CONSTRUCTION FOR HEIGHT, WIDTH, AND LENGTH.

.8 THE MAXIMUM MOISTURE ABSORPTION SHALL BE 1.0

- .7 THE MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 35 MPA (5000 PSI).
- KN/M³. .9 PROVIDE SRW UTILIZING AN INTEGRAL SHEAR KEY CONNECTION WITH OFFSET TO CREATE A VERTICAL
- WALL. 10 PROVIDE CONCRETE STARTER UNITS AS PART OF INSTALLATION.

.11 ACCEPT ONLY PIGMENTS IN CONCRETE PAVERS CONFORMING TO ASTM C 979.

1. LEVELING BASE

CONTINUOUS SHRUB BED PLANTING

- 1 LEVELING BASE AGGREGATE TO BE COMPOSED OF INERT, CLEAN, TOUGH AND DURABLE PARTICLES OF NATURAL OR CRUSHED ROCK CAPABLE OF WITHSTANDING THE DELETERIOUS EFFECTS OF EXPOSURE TO WATER, FREEZE—THAW, HANDLING AND SPREADING.
- .2 MATERIAL TO BE CAPABLE OF COMPACTING TO
- MINIMUM REQUIRED DENSITY. .3 AGGREGATE SHALL HAVE A PERCENTAGE OF WEAR, BY THE LOS ANGELES TEST (ASTM C 131), OF NOT
- MORE THAN 50. .4 THE AGGREGATE PARTICLES SHALL BE UNIFORM IN QUALITY, FREE FROM EXCESS OF FLAT AND ELONGATED PARTICLES.
- .5 THE PARTICLES SHALL HAVE A GRADATION FALLING WITHIN THE STANDARD LIMITS FOR GRANULAR A AS OUTLINED IN MTO OPSS 1010.

2. GEOTEXTILE

- .1 PROVIDE GEOTEXTILE MATERIAL CONFORMING TO THE FOLLOWING PERFORMANCE CHARACTERISTICS, MEASURED PER THE TEST METHODS REFERENCED:
- .1 4 OZ., NONWOVEN NEEDLE PUNCHED GEOTEXTILE COMPOSED OF 100% POLYPROPYLENE STAPLE FIBERS THAT ARE INERT TO BIOLOGICAL DEGRADATION AND RESISTS NATURALLY ENCOUNTERED CHEMICALS, ALKALIS, AND ACIDS.
- 2. GRAB TENSILE STRENGTH: ASTM D 4632: 115 LBS.
- 3. GRAB TENSILE ELONGATION: ASTM D 4632: 50%
- 4. TRAPEZOIDAL TEAR: ASTM D4533: 50 LBS. 4. PUNCTURE: ASTM D4833: 65 LBS.
- 5. APPARENT OPENING SIZE: ASTM D 4751: 0.212 MM, 70 U.S. SIEVE
- 6. PERMITTIVITY: ASTM D 4491: 2.0 SEC -1
- 7. FLOW RATE: ASTM D 4491: 140 GAL/MIN/S.F.

3. CONCRETE ADHESIVE

- .1 PROVIDE A CONCRETE ADHESIVE MANUFACTURED BY THE FOLLOWING (OR APPROVED EQUIVALENT):
- 1. LEPAGE: PL 9000 HEAVY DUTY CONSTRUCTION ADHESIVE
- 2. ALLIANCE: GATOR GLUE XP POLYURETHANE CONSTRUCTION ADHESIVE.

.1 EXAMINE AREAS INDICATED TO RECEIVE SRW FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE FOR THE FOLLOWING ITEMS:.

.1 VERIFY THAT SUBGRADE PREPARATION, COMPACTED

DENSITY AND ELEVATIONS CONFORM TO SPECIFIED REQUIREMENTS. .2 VERIFY ALL SITE SERVICES ARE LOCATED OUTSIDE OF

SRW CONSTRUCTION AREA UNLESS OTHERWISE NOTED.

- .3 VERIFY THE SRW STRUCTURE OR EXCAVATION LIMITS ARE WITHIN PROPERTY BOUNDARIES AND DO NOT CROSS INTO ADJACENT PROPERTIES UNLESS APPROVED PRIOR TO CONSTRUCTION.
- .4 VERIFY THE SRW AND ASSOCIATED EXCAVATION REMAINS OUTSIDE OF THE LOADING INFLUENCE OF OTHER ADJACENT STRUCTURES AND ENSURE STABILITY OF EXCAVATIONS AND CONFORMANCE WITH APPLICABLE REGULATIONS.

.2 GEOTECHNICAL INSPECTION

- .1 VERIFY SOIL PARAMETERS AND GROUNDWATER CONDITIONS ARE ACCEPTABLE FOR SRW.
- .2 VERIFY SUBGRADE BEARING CAPACITY MEETS OR EXCEEDS VALUES REQUIRED FOR AREA TO RECEIVE
- .3 IDENTIFY GROUNDWATER CONDITIONS AND/OR OTHER WATER SOURCE PRIOR TO SRW INSTALLATION.
- .4 ENSURE THAT SURFACE WATER RUNOFF AND/OR OTHER SOURCES OF WATER ARE BEING CONTROLLED DURING CONSTRUCTION AND DIRECTED AWAY FROM
- THE SRW TO A FUNCTIONING DRAIN. .3 PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR.
- .4 EXCAVATION .1 THE FOUNDATION SOIL SHALL BE EXCAVATED AS REQUIRED TO THE GRADES AND DIMENSIONS SHOWN
- ON THE CONSTRUCTION DRAWINGS. .5 LEVELING BASE PLACEMENT
- .1 THE MINIMUM THICKNESS OF THE LEVELING BASE SHALL BE 300MM .2 THE LEVELING BASE SHALL EXTEND A MINIMUM OF

150MM FROM THE FRONT, AND 300MM FROM THE

- BACK, OF THE PROPOSED WALL. .3 THE MATERIAL SHALL BE COMPACTED TO >99%
- STANDARD PROCTOR DENSITY. .6 CONCRETE STARTER UNITS
- .1 CONCRETE STARTER UNITS PER AS PER WALL SUPPLIER REQUIREMENTS.

.7 PLACING GEOTEXTILE

- .1 PLACE GEOTEXTILE SO THAT THE LENGTHS ARE SUFFICIENTLY LONG TO BE SET AGAINST THE BACK OF THE FIRST RETAINING WALL UNIT, RUN OVER THE PREPARED FOUNDATION, EXTEND TOWARDS THE BACK OF THE EXCAVATION, AND UP THE EXCAVATION FACE AS SHOWN IN THE CONTRACT DRAWINGS.
- .2 GEOTEXTILE OVERLAPS SHALL BE A MINIMUM OF 300MM.
- .3 START INSTALLATION BY LAYING THE GEOTEXTILE ALONG THE BOTTOM OF THE EXCAVATION, ALLOWING EXTRA MATERIAL TO BE SET AGAINST THE BACK OF THE FIRST RETAINING WALL UNIT WHEN INSTALLED. RUN LENGTHS UP THE BACK OF THE EXPOSED CUT FACE AND STAKE AGAINST THE SLOPE DURING CONSTRUCTION.

.8 INSTALLATION OF SEGMENTAL RETAINING WALL UNITS. B. BICYCLE RACK

- .1 INSTALL UNITS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS FOR THE SPECIFIC CONCRETE WALL UNIT, AND AS SPECIFIED HEREIN.
- .2 THE BOTTOM ROW OF WALL MODULES SHALL BE PLACED ON THE PREPARED STARTER FOOTING AS SHOWN ON THE CONTRACT DRAWINGS. CARE SHALL BE TAKEN TO ENSURE THAT THE WALL MODULES ARE ALIGNED PROPERLY, LEVELED FROM SIDE TO SIDE AND FRONT TO BACK AND ARE IN COMPLETE
- CONTACT WITH THE BASE. .3 THE WALL MODULES ABOVE THE BOTTOM COURSE SHALL BE PLACED SUCH THAT THE TONGUE AND GROVE ARRANGEMENT PROVIDE A VERTICAL WALL
- .4 VENEER AND STRUCTURAL WALL UNITS TO BE PRE-ASSEMBLED PRIOR TO PLACING.
- .5 SUCCESSIVE COURSES SHALL BE PLACED TO CREATE A RUNNING BOND PATTERN.
- .6 THE WALL MODULES SHALL BE SWEPT CLEAN BEFORE PLACING ADDITIONAL LEVELS TO ENSURE THAT NO DIRT, CONCRETE OR OTHER FOREIGN MATERIALS BECOME LODGED BETWEEN SUCCESSIVE LIFTS OF THE WALL MODULES.
- .7 THE CONTRACTOR SHALL CHECK THE LEVEL OF WALL MODULES WITH EACH LIFT TO ENSURE THAT NO GAPS ARE FORMED BETWEEN SUCCESSIVE LIFTS.
- .8 CARE SHALL BE TAKEN TO ENSURE THAT THE WALL ARE NOT BROKEN OR DAMAGED DURING HANDLING AND PLACEMENT.
- .9 FINAL COURSE OF THE STRUCTURAL UNITS SHALL BE SECURED TO THE UNITS BELOW USING CONCRETE ADHESIVE PRIOR TO PLACING COPING.

.9 INSTALLATION OF WALL COPING

- .1 THE COPING UNITS SHALL BE SECURED TO THE TOP OF THE WALL WITH TWO 10MM BEADS OF THE APPROVED FLEXIBLE CONCRETE ADHESIVE POSITIONED 50MM IN FRONT AND BEHIND THE TONGUE OF THE LAST COURSE OF RETAINING WALL UNITS.
- .2 FINISH GRADING BEHIND THE WALL TO DIRECT SURFACE RUN OFF WATER AWAY FROM THE SEGMENTAL RETAINING WALL.

6.0 CONSTRUCTION TOLERANCES

.1 INSTALLATION OF SRW FACIA SHALL BE WITHIN ALL THE FOLLOWING ACCEPTABLE TOLERANCES:

.1 VERTICAL CONTROL: +/- 32MM OVER A 3.0M

- DISTANCE .2 HORIZONTAL CONTROL: STRAIGHT LINES: +/- 32MM OVER 3.0M DISTANCE
- .3 ROTATION OF THE SRW FACE: MAXIMUM 2.0 DEGREES FROM VERTICAL.
- 7.0 MEASUREMENT FOR PAYMENT AND BASIS OF PAYMENT .1 PAYMENT AT THE CONTRACT LUMP SUM PRICE FOR THE TENDER ITEM "SEGMENTAL LANDSCAPE PLANTER WALL" SHALL BE FULL COMPENSATION FOR ALL LABOUR, EQUIPMENT AND MATERIAL REQUIRED FOR SUPPLY AND INSTALLATION OF THE WALL SYSTEM.

- 1.0 ACCEPTABLE MATERIALS: MODEL #BU-4RING AS MODIFIED TO CITY OF OTTAWA SPECIFICATIONS. SURFACE MOUNT AS SUPPLIED BY JOHNSONS ENVIRONMENTAL PRODUCTS INC. TEL: 1-800-653-1222. METAL FRAMEWORK TO BE POWDE COATED WITH "INFINIGUARD" PROFESSIONAL ANTIRUST CORROSION SYSTEM.
 - .2 BIKE-UP STANDARD 4-RING 'RING BACK', AS SUPPLIED BY BIKE-UP BICYCLE PARKING SYSTEMS INC., TEL: 800-661-3506. METAL TO BE POWDER-COATED OR GALVANIZED, FASTENED WITH STAINLESS STEEL ANTI-VANDAL HARDWARE.



03 APR 19/22 RESUBMISSION #1 FOR SPA

02 OCT 13/21SPA SUBMISSION

01 SEP 21/21CONCEPT SITE PLAN APPROVED BY CLIENT

NO. DATE DESCRIPTION



COLIZZA BRUNI architecture

76 CHAMBERLAIN AVE • OTTAWA • ONTARIO • K1S 1V9 T 613.236.2944 • F 613.236.6777 • www.colizzabruni.com

ELLWOOD HOUSE EXTENSION

2262 BRAESIDE AVENUE, OTTAWA, ON

DRAWING TITLE LANDSCAPE

4/25/22



APPROVED

MANAGER, DEVELOPMENT REVIEW SOUTH

PLANNING, INFRASTRUCTURE & ECONOMIC

DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

By Lily Xu at 1:21 pm, Jun 23, 2023 DETAILS SCALE DRAWING NO.

DATE

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