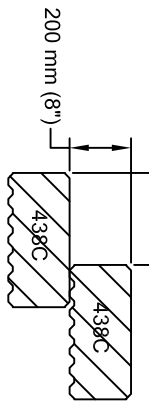
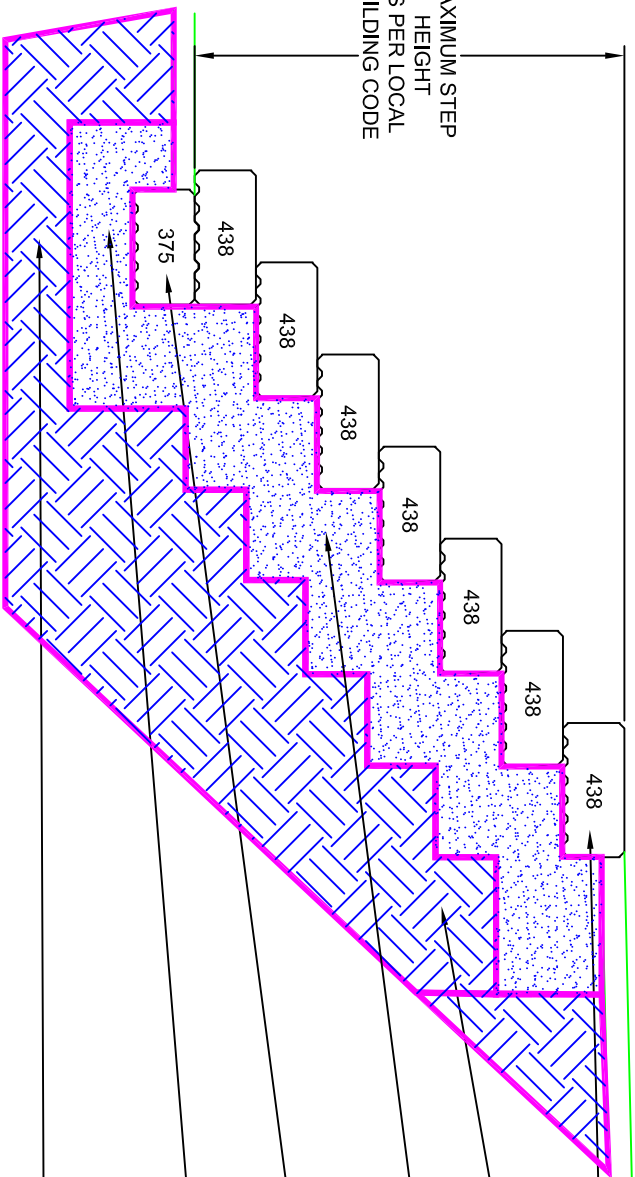


TREAD WIDTH ACCORDING TO LOCAL BUILDING CODE



**STEP DETAIL**

MAXIMUM STEP HEIGHT AS PER LOCAL BUILDING CODE



**CROSS SECTION**

DRAWING:

GRANDE Wall  
STAIR DETAIL

PROJECT:

GRANDE WALL  
STANDARD DETAILS

REV.	DATE	DESCRIPTION	BY
0	JAN 11/08	ISSUED FOR USE	PAS



**NAVASCAPE**  
BY PERMACON

GRANDE® Wall

DESIGN ENGINEER:



DRAWN BY: DPS

DRAWING No.

DATE: NOVEMBER 14, 2007

SCALE: NOT TO SCALE

FILE NAME: GRANDE - Stair Detail.DWG

GRANDE - STAIR DETAIL

GENERAL NOTES:

- EXCAVATE FOR FOOTING TO MINIMUM DEPTH OF 400 mm (16in), OR UNTIL COMPETENT SOIL IS REACHED OR FILL WITH COMPACTED STRUCTURAL FILL (BY OTHERS). THE FOUNDING SOIL MUST BE INSPECTED BY THE GEOTECHNICAL ENGINEER TO CONFIRM ADEQUATE BEARING CAPACITY AND SLOPE STABILITY. WHERE REQUIRED BY GEOTECHNICAL ENGINEER, PLACE ENGINEERED FILL COMPRISING OF APPROVED GRANULAR MATERIAL PLACED IN 250 mm (10") LIFTS AND COMPACTED TO 98% S.P.M.D.D. BACKFILLING AND COMPACTION TO BE CARRIED OUT UNDER GEOTECHNICAL SUPERVISION. PERMACON IS NOT RESPONSIBLE FOR RETAINING GEOTECHNICAL ENGINEER TO OVERSEE CONSTRUCTION OF RETAINING WALL STEPS.
- EXCAVATION TO ALLOW FOR THE THICKNESS OF THE WALL PLUS A SUFFICIENT DISTANCE TO ALLOW FOR COMPACTED GRANULAR BACKFILL BEHIND THE WALL. EXCAVATE ON A SUITABLE BACK ANGLE DEEP ENOUGH TO REACH ORIGINAL COMPETENT SOIL.
- PLACE 200 mm (8") OF 0-19 mm (0-3/4") WELL GRADED CRUSHED ANGULAR GRANULAR MATERIAL WITHIN FOOTING EXCAVATION AND COMPACT TO 98% STANDARD PROCTOR MAXIMUM DRY DENSITY. BASE MATERIAL TO HAVE LESS THAN 8% PASSING THE No. 200 SIEVE.
- LEVEL THE FIRST COURSE AND PLACE TOP FLUSH WITH THE DESIRED FINISHED GRADE IN FRONT OF THE WALL.
- WALL APPEARANCE TO BE SPLIT FACE AND COLOR TO BE DETERMINED BY OWNER.
- BACKFILL THE WALL WITH 0-19 mm (0-3/4") WELL GRADED CRUSHED ANGULAR GRANULAR MATERIAL EVERY COURSE. BACKFILL MUST BE COMPACTED TO 95% S.P.M.D.D. BACKFILL MATERIAL TO HAVE LESS THAN 8% PASSING NO. 200 SIEVE. LEVEL AND COMPACT MATERIAL SUCH THAT NEXT STEP WILL PROVIDE POSITIVE DRAINAGE IN THE DIRECTION DOWN THE STEPS.
- ALL CONSTRUCTION OPERATIONS INCLUDING BLOCK PLACEMENT, BACKFILLING AND COMPACTION TO BE COMPLETED UNDER GEOTECHNICAL SUPERVISION.
- POOR SOIL CONDITIONS AND EXCESSIVE MOISTURE MAY REQUIRE ALTERNATE DRAINAGE REQUIREMENTS AND DESIGN MODIFICATIONS.
- TO ACHIEVE STAIR SETBACK, STEP BACK EVERY COURSE WITH DESIRED TREAD WIDTH ACCORDING TO LOCAL BUILDING CODE REQUIREMENTS.
- THE TOP MUST BE LANDSCAPED TO PROMOTE SURFACE RUNOFF OVER THE TOP OF THE STEPS. NO UNUSUAL SURCHARGE LOADING SHOULD BE ADJACENT TO THE TOP OF THE STEPS.
- APPROPRIATE RESTRAINT MUST BE PROVIDED TO ENSURE PEDESTRIANS CANNOT ACCESS THE TOP OF THE WALL, OTHERWISE AN ENGINEERED HANDRAIL SYSTEM WILL BE REQUIRED ON THE TOP OF THE WALL. PROVISION OF A HANDRAIL ON TOP OF THE WALL MAY REQUIRE DESIGN MODIFICATIONS.
- ALL PRODUCT NAMES AND STYLIZED REPRESENTATIONS ARE TRADEMARKS OF PERMACON, OR APPROVED FOR USE BY PERMACON COMPANIES.
- ALL PRODUCTS ILLUSTRATED ARE SUBJECT TO PATENTS AS FOLLOWS:  
GRANDE - CANADA 1.307.675  
- USA 4,860,505
- THE APPLICABILITY OF THESE RETAINING WALL SECTIONS MUST BE REVIEWED ON A SITE SPECIFIC BASIS BY A QUALIFIED PROFESSIONAL ENGINEER.

SOIL PARAMETERS USED IN DESIGNS:

$\phi = 35$  DEGREES  
 $\gamma = 22$  kN/m<sup>3</sup> (140 pcf)