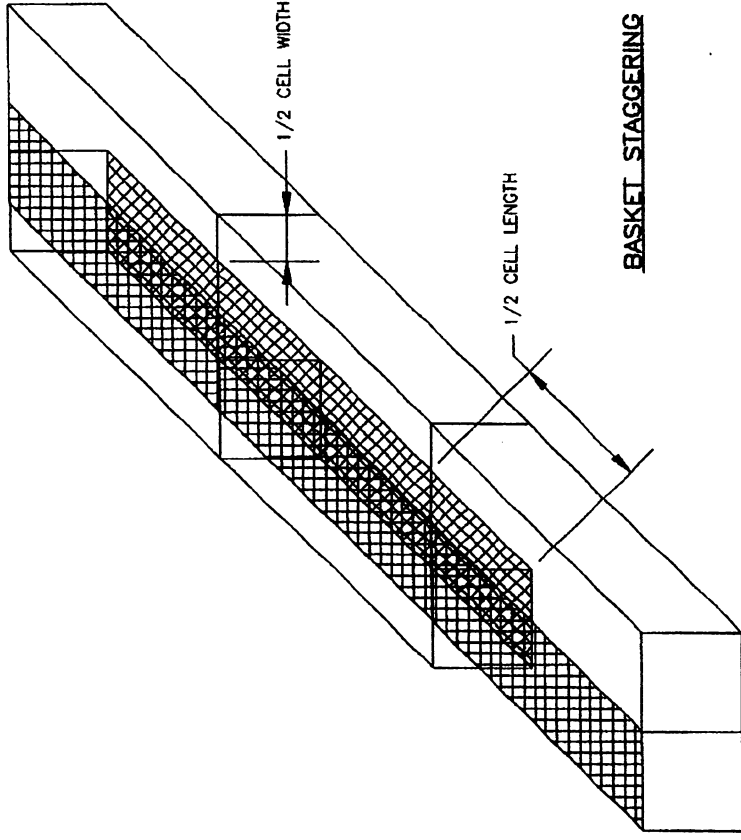
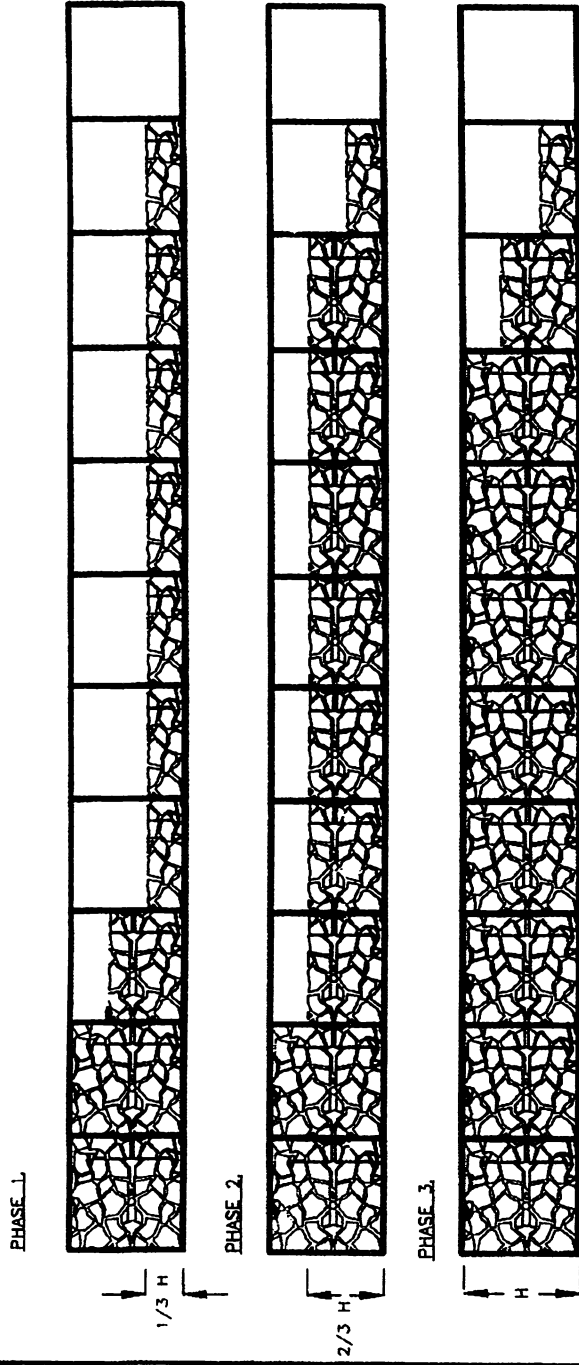


### FILLING PROCEDURES



### ASSEMBLY:

1. THE TOP CORNER OF THE END PANELS AND CENTER DIAPHRAGMS HAVE AN EXTENDED SELVEDGE WIRE EXTENDING APPROX. 4 INCHES (102 mm) OUT FROM THE CORNER EDGE. RAISE THE END PANELS AND THE DIAPHRAGMS TO VERTICAL POSITION AND WRAP THE SELVEDGE WIRE AROUND THE EDGE WIRE OF THE TOP AND BACK PANELS.
2. THE PROCEDURE FOR USING LACING WIRE CONSIST OF CUTTING A SUFFICIENT LENGTH OF WIRE, AND FIRST LOOPING AND/OR TWISTING THE LACING WIRE TO THE WIRE MESH. PROCEED TO LACE WITH ALTERNATING DOUBLE AND SINGLE LOOPS THROUGH EVERY MESH OPENING APPROXIMATELY EVERY 6 INCHES (152 mm) PULLING EACH LOOP TIGHT AND FINALLY SECURING THE END OF THE LACING WIRE TO THE WIRE MESH BY LOOPING AND/OR TWISTING.
3. INTERNAL CONNECTING WIRE STIFFENERS SHALL BE ATTACHED AT 1/3 AND 2/3 OF THE HEIGHT OF 3 FEET (914 mm) GABION UNITS AS THE CELL IS BEING FILLED. IN 1.5 FEET (457 mm) HIGH UNITS STIFFENERS MAY BE FIXED AT THE HALF HEIGHT LEVEL.
4. CLOSE THE BASKETS AFTER ROCK FILLING BY FOLDING THE LID DOWN, PULLING THE EDGES OF THE PANELS TO BE CONNECTED WHERE NECESSARY USING APPROPRIATE TOOL. THE LIDS SHALL BE TIGHTLY LACED ALONG ALL EDGES. ENDS AND DIAPHRAGMS IN THE SAME MANNER AS DESCRIBED FOR ASSEMBLY. ADJACENT LIDS MAY BE SECURELY ATTACHED SIMULTANEOUSLY. ALL END WIRES SHALL THEN BE TURNED IN.

### ROCK SIZE SPECIFICATION:

1. ROCKS FOR GABIONS MAY BE PRODUCED BY ANY SUITABLE QUARRYING METHOD, AND BY THE USE OF ANY DEVICE THAT YIELDS THE REQUIRED SIZES WITHIN THE GRADATION LIMITS SPECIFIED.
2. ROCKS SHALL BE HARD, ANGULAR TO ROUND, DURABLE AND OF SUCH QUALITY THAT THEY SHALL NOT DISINTEGRATE ON EXPOSURE TO WATER OR WEATHERING DURING THE LIFE OF THE STRUCTURE.
3. GABION BASKETS 12 INCHES (305 mm) OR GREATER IN THE VERTICAL DIMENSION SHALL BE FILLED WITH ROCKS GRADED FROM LARGE TO SMALL WITH 100% PASSING AN 8-INCH SIEVE AND 100% RETAINED ON A 4-INCH SIEVE. ROCKS SHALL HAVE A MAXIMUM DIMENSION OF 12 INCHES (305 mm) AND A MINIMUM OF 3 INCHES (76 mm).
4. GABION MATTRESSES SHALL BE FILLED WITH ROCKS GRADED FROM LARGE TO SMALL WITH 100% PASSING A 5-INCH SIEVE AND 100% RETAINED ON A 3-INCH SIEVE. ROCKS SHALL HAVE A MAXIMUM DIMENSION OF 7 INCHES (178 mm) AND A MINIMUM OF 2 (51 mm).
5. THE ROCK SHALL HAVE A PERCENT OF WEAR NOT MORE THAN 45 WHEN TESTED BY AASHTO T 96.
6. CARE SHALL BE TAKEN WHEN PLACING THE STONE TO ASSURE THAT THE PVC COATING OF GABIONS WILL NOT BE DAMAGED. ROCKS SHOULD NOT BE MACHINE PLACED FROM HEIGHTS GREATER THAN 2 FEET (610 mm) ABOVE BASKET.
7. GABION PLACEMENT SHALL BE FRONT TO FRONT AND BACK TO BACK, SO THAT PAIRS OF FACING LIDS CAN BE WIRED DOWN IN ONE PROCESS.
8. TO ALLOW FOR SETTLEMENT, LEVEL OFF THE ROCK FILL 1 INCH (25 mm) TO 1.5 INCHES (38 mm) ABOVE THE TOP OF THE MESH.

TABLE 4A ROCK SIZE SPECIFICATION

UNIT HEIGHT	MINIMUM SIZE	MAXIMUM SIZE
6 in (152 mm) - 9 in (229 mm) IN MATTRESS	3 INCHES (76 mm)	5 INCHES (127 mm)
12 in (305 mm) - 36 in (914 mm) IN GABION	4 INCHES (102 mm)	8 INCHES (204 mm)

### INSTALLATION AND FILLING:

1. GABIONS SHALL BE SET TO THE LINE AND GRADE SPECIFIED IN THE CONSTRUCTION DRAWINGS.
2. GABIONS SHALL BE CONNECTED TOGETHER AND ALIGNED BEFORE FILLING THE BASKETS WITH ROCKS. ALL CONNECTIONS (PANEL TO PANEL AND BASKET TO BASKET) SHALL BE ALREADY CARRIED OUT AS DESCRIBED IN THE ASSEMBLY OPERATIONS.
3. DURING THE FILLING OPERATION SOME MANUAL STONE PLACEMENT IS REQUIRED TO MINIMIZE VOIDS AND GIVE THE EXPOSED FACES OF VERTICAL STRUCTURES A NEAT, FLAT, AND COMPACT APPEARANCE. THE CELLS SHALL BE FILLED IN STAGES SO THAT LOCAL DEFORMATION MAY BE AVOIDED. AT NO TIME SHALL ANY CELL BE FILLED TO A DEPTH EXCEEDING 1 FOOT (305 mm) HIGHER THAN THE ADJOINING CELL (SEE FIGURE ABOVE).

### NOTES:

- STAGGER THE VERTICAL JOINTS BETWEEN THE BASKETS (AND MATTRESSES) OF ADJACENT ROWS AND LAYERS BY ONE HALF CELL LENGTH.
- GABION BASKETS AND MATTRESSES MAY BE SUPPLIED AS ASSEMBLED, UN-ASSEMBLED OR ROLL STOCK.
- BULGES OR DEPRESSIONS OF THE GABION BASKET OR MATTRESSES SHALL NOT EXCEED 2 INCHES (51 mm) WHEN MEASURED WITH A 3-FOOT (914 mm) STRAIGHT EDGE. DEVIATIONS SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

EFFECTIVE DATE: JULY 2000

COMMONWEALTH OF PUERTO RICO  
DEPARTMENT OF TRANSPORTATION  
AND PUBLIC WORKS  
HIGHWAY AND TRANSPORTATION AUTHORITY

RECOMMENDED BY:

*Jose E. H. R.*  
DESIGN AREA DIRECTOR  
DATE: May 17, 2000

APPROVED:

*[Signature]*  
EXECUTIVE DIRECTOR  
DATE: May 17, 2000

## GABIONS TWISTED WIRE GABION INSTALLATION PROCEDURES

DATE	REVISION	BY

STD. DWG. 7 OF 20  
GABI