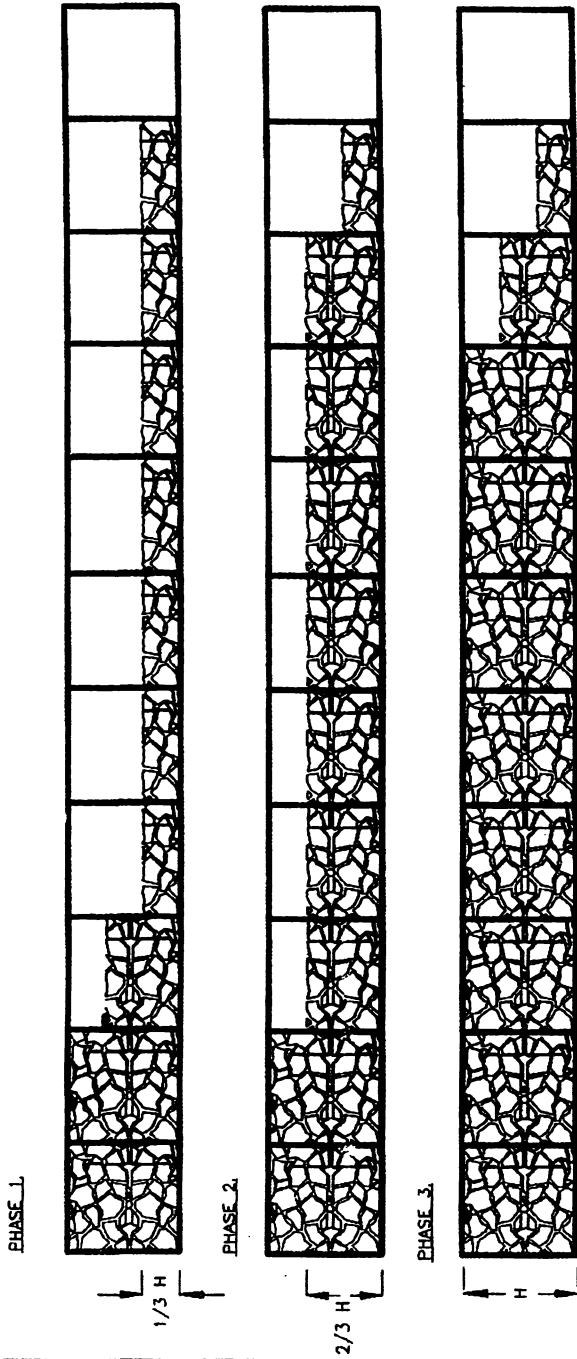


**FILLING PROCEDURES**

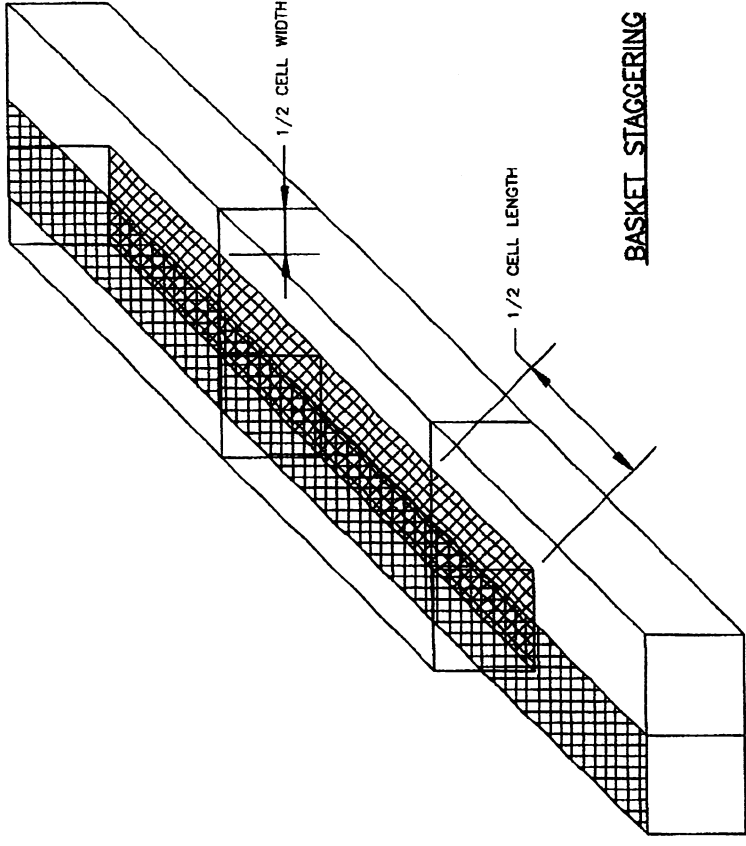


**ASSEMBLY:**

1. GABION BASKETS AND MATTRESSES SHALL BE LAY FLAT ON A HARD SURFACE. ROTATE THE GABION AND MATTRESSE PANELS INTO POSITION AND JOIN THE EDGES WITH SPIRAL FASTENERS FOR ASSEMBLY. CRIMP THE ENDS OF THE SPIRAL FASTENERS TO SECURE THEM IN PLACE.
2. SPIRALS SHALL BE USED IN ALL EDGES OF THE GABIONS TO ASSEMBLE THE GABION BASKET AND MATTRESS AND TO JOIN GABION TO GABIONS. THEREFORE, WHEN TWO GABIONS ARE PLACED SIDE BY SIDE COMMON PANELS SHALL BE CONNECTED USING A SINGLE SPIRAL. PLACE THE EMPTY GABION OR MATTRESS ON THE FOUNDATION AND INTERCONNECT THE ADJACENT UNITS ALONG THE BOTTOM, TOP AND VERTICAL EDGES USING SPIRAL FASTENERS. BOTTOM AND SIDE PANNELS SHALL BE JOINED USING SPIRAL FASTENERS.
3. INTERCONNECT EACH LAYER OF GABIONS AND MATTRESSES TO THE UNDERLYING LAYER ALONG THE FRONT BACK AND SIDES.
4. ALIGN THE TOP OF THE DIAPHRAGM CORRECTLY AND SECURE IT WITH THE REST OF THE GABION USING SPIRAL FASTENERS.

**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 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).
4. PREFORMED HOOKED STIFFENERS SHALL BE USED EVERY 12 INCHES (305 mm) LEVEL FOR THE 3 FEET (914 mm) OR HIGHER GABIONS. STIFFENERS SHALL BE PLACED ACROSS THE CORNERS (AT 12 INCH (305 mm) FROM THE CORNER) PROVIDING A DIAGONAL BRACING.
5. WHEN GABION MATTRESS ARE SPECIFIED FOR A STEEP SLOPE, GALVANIZED PIPE SHALL BE USED FOR STAKING AT 6 FEET (1829 mm) CENTERS OR AS NECESSARY. GALVANIZED PIPE SHALL BE DRIVEN THROUGH THE MATTRESS BOTTOM MESH AT THE TOP CORNERS.
6. ROCK FILLING SHALL BEGIN AT THE BOTTOM MATTRESS IF ON A SLOPE. FILLING SHALL BE DONE UNIT BY UNIT, BUT SEVERAL UNITS SHALL BE READY FOR FILLING AT ANY ONE TIME.



**TABLE 4 ROCK SIZE SPECIFICATION**

UNIT HEIGHT	MINIMUM SIZE	MAXIMUM SIZE
6 in (152 mm) - 9 in (229 mm) MATTRESS	3 INCHES (76 mm)	6 INCHES (152 mm)
GABION 12 INCH (305 mm) OR HIGHER	4 INCHES (102 mm)	8 INCHES (204 mm)

**NOTES:**

1. STAGGER THE VERTICAL JOINTS BETWEEN THE BASKETS (AND MATTRESSES) OF ADJACENT ROWS AND LAYERS BY ONE HALF CELL LENGTH.
2. PVC COATED SPIRAL BINDERS SHALL BE USED EXCLUSIVELY TO ASSEMBLE, CLOSE AND INTERCONNECT GABION BASKETS AND MATTRESSES.
3. GABION BASKETS AND MATTRESSES MAY BE SUPPLIED AS ASSEMBLED, UN-ASSEMBLED OR ROLL STOCK.
4. BULGES OR DEPRESSIONS OF THE GABION BASKET OR MATTRES SHALL NOT EXCEED 2 INCHES (51 mm) WHEN MEASURED WITH A 3 FEET (914 mm) STRAIGHT EDGE. DEVIATIONS SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

**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 AND MATTRESSES 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 LESS THAN 12 INCHES (305 mm) IN THE VERTICAL DIMENSION SHALL BE FILLED WITH ROCKS GRADED FROM LARGE TO SMALL WITH 100% PASSING A 6-INCH SIEVE AND 100% RETAINED ON A 3-INCH SIEVE. ROCKS SHALL HAVE A MAXIMUM DIMENSION OF 7 INCHES (179 mm) AND A MINIMUM OF 2 INCHES (51 mm).
5. THE ROCK SHALL HAVE A PERCENT OF WEAR NOT MORE THAN 45 WHEN TESTED BY AASHTO T 96.

EFFECTIVE DATE: JULY 2000

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

**GABIONS**  
**WELDED WIRE GABION**  
**INSTALLATION**  
**PROCEDURES**

RECOMMENDED BY:  
*[Signature]*  
 DESIGN AREA DIRECTOR  
 DATE: May 11, 00

APPROVED BY:  
*[Signature]*  
 EXECUTIVE DIRECTOR  
 DATE: 5/11/00

DATE	REVISION	BY

STD. DWG. 3 OF 20  
 GABI