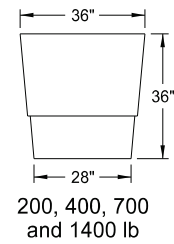
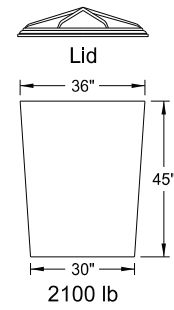
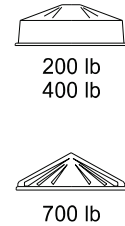


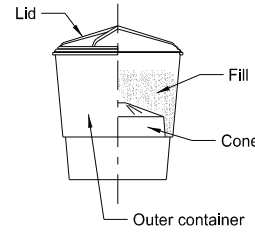
ATTENUATION DEVICE



Outer Containers

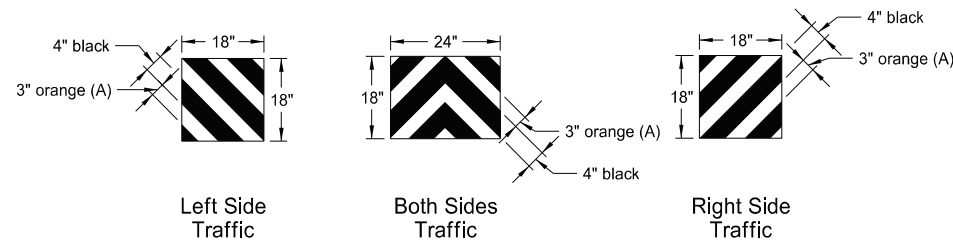


Cones



Typical Assembly

Typical Module Construction Detail

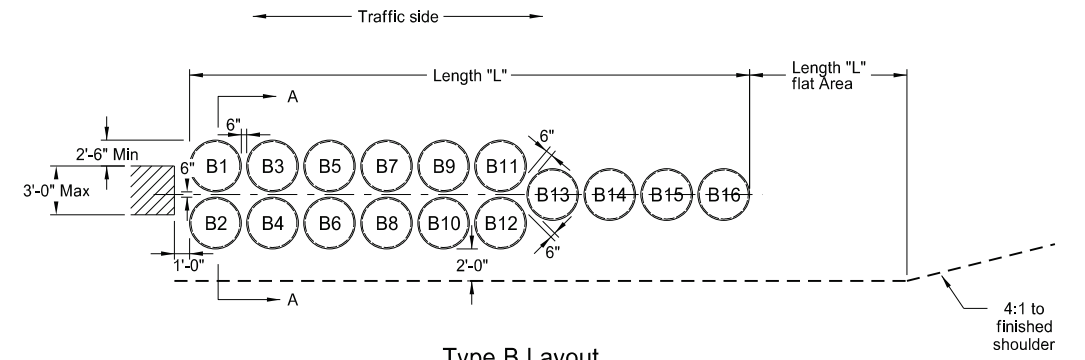


Reflective Sheet Detail

Note:
Apply Type IV reflective sheeting (as specified in the NDDOT Standard Specifications) directly to the outer container of the last attenuation device facing traffic, following the details above.
Or apply the sheet to a metallic sheet and attach it to the container with approved fasteners.

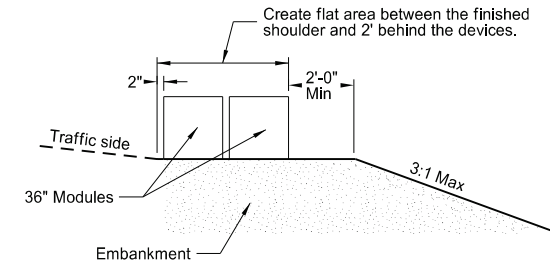
(A) Use 3" orange sheeting for temporary installations, and 3" yellow sheeting for permanent installations.

	Fill Chart				
	Module Weights (LBS)				
Distance from top edge	8 1/2"	5"	4"	3"	0"



Type B Layout

Note:
Angle attenuation devices 10 degrees towards traffic when placed at piers offset from roadway.



Section A-A (Type B Layout)

Type B Attenuation Device												
Module Number	Dash Number											
	75	70	65	60	55	50	45	40	35	30	25	
Module Weights (LBS)												
B1	2100											
B2	2100											
B3	2100	2100	2100	2100	2100	2100	2100	2100	2100			
B4	2100	2100	2100	2100	2100	2100	2100	2100	2100			
B5	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	
B6	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	
B7	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	
B8	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	
B9	700	700	700	700	700	700	700	700	700	700	700	
B10	700	700	700	700	700	700	700	700	700	700	700	
B11	700	700	700	700	700	700	700	700	700	700	700	
B12	700	700	700	700	700	700	700	700	700	700	700	
B13	700	700	700	700	700	700	700	700	700	700	700	
B14	400	400	400	400	400	400	400	400	400	400	400	
B15	400	400	400	400	400	400	400	400	400	400	400	
B16	200	200	200	200	200	200	200	200	200	200	200	
Length (L)	34.2'	30.7'	30.7'	30.7'	30.7'	30.7'	30.7'	30.7'	30.7'	27.2'	27.2'	
Module Weights (LBS)	Replacement Module											
	2100	1	1	1	1	1	1	1	1	1	1	1
	1400	1	1	1	1	1	1	1	1	1	1	1
	700	2	2	2	2	2	2	2	2	2	2	2
	400	1	1	1	1	1	1	1	1	1	1	1
200	2	2	2	1	1	1	1	1	1	1	1	

Notes:

- Materials
 - A) Use modules manufactured from frangible polyethylene material which shatters upon impact.
 - B) Fill modules with class 43 aggregate meeting NDDOT Standard Specifications aggregate requirements. Use fill with a unit weight of at least 100 pounds per cubic foot. Use fill with a moisture content of 2% or less when left over winter.
- Modules
 - Provide modules in two sizes containing volumes of either 2, 4, 7, 14, or 21 cubic feet minimum.
 - A) Provide three components for 2, 4, or 7 cubic foot module containers:
 - 1) A 14 C.F., yellow outer container.
 - 2) A black lid securely locking over the top lip of the container.
 - 3) A variable cone-shaped supporting insert capable of supporting 200, 400, or 700 pounds of sand mass to allow for three sizes of modules. Place cone inserts inside the 14 cubic foot container.
 - B) Provide two components for the 14 cubic foot module container:
 - 1) A 14 C.F., yellow outer container.
 - 2) A black lid securely locking over the top lip of the container.
 - C) Provide two components for the 21 cubic foot module container:
 - 1) A 36" height X 36" width yellow outer container.
 - 2) A black lid which locks securely over the top of the container.
- For temporary installations use Energite or Fitch attenuation barrels manufactured by Energy Absorption Systems of Chicago, IL, TrafFix barrels manufactured by TrafFix Devices, Inc. of San Clemente, CA, or approved equal modules. As an option, place attenuation devices on 3 1/2" maximum thickness pallets to facilitate maintenance.
- For permanent installations use Barrel Attenuation Device consisting of one-piece outer sand container modules with separate detachable lid. Energite attenuation barrels manufactured by Energy Absorption Systems of Chicago, IL, TrafFix barrels manufactured by TrafFix Devices, Inc. of San Clemente, CA, or approved equal meet these requirements.
- The Typical Module Construction Detail and Type B Layout are based on the Energite Crash Cushion manufactured by Energy Absorption. Provide any required layouts and details from other sand filled attenuation module manufacturers which differ from those shown here.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-25-12	
REVISIONS	
DATE	CHANGE
7-18-14	Revised sheeting in reflective sheet detail
9-27-17	Update to active voice
10-03-19	New Design Engr PE Stamp
8-01-24	Electronic Stamp/Signature



08/01/24