

Section 2.2.5.2 – Abutments - Add new Item 5 as follows:

5. *Integral Abutments*

Integral abutment design shall conform to the most current provisions of the 4th Edition of the NJDOT Bridges and Structures Design Manual, Section 15, and the associated NJDOT Standard Drawing Plates 2.9-1 through 2.9-5, except as supplemented/modified by the following:

- a. *The joints between abutment stems and independent wingwalls shall always be oriented longitudinally, parallel to the bridge center line. The independent concrete wingwall joint details shown in Exhibit 2-200, Detail 2 shall be used in lieu of the details shown on the NJDOT Standard Drawing Plates.*
- b. *The minimum penetration of the abutment stem into the embankment shall be 2'-0".*
- c. *Loose or compressible fill shall be used behind and beneath any wingwall not independent from the abutment stem.*
- d. *Provisions shall be made for expansion at the end of relief slabs by installation of sleeper slabs and joints, regardless of the bridge length.*
- e. *Span arrangement and intermediate pier bearing selection (where applicable) shall be such that approximately equal movements and applied forces take place at both abutments.*
- f. *Single span bridges shall have a span length not exceeding 180 feet.*
- g. *The minimum reveal between the bottom of the superstructure and the top of the embankment shall be 1'-6".*
- h. *All reinforcement bar sizes unspecified on the NJDOT Standard Drawing Plates shall be designed to resist the appropriate applied stresses.*
- i. *If Mechanically Stabilized Earth (MSE) wall systems are utilized at integral abutment locations, the following provisions shall apply:*
 - i. *The minimum clear distance between the back of the wall facing and the edge of the abutment stem foundation piles or pile casings shall be 1'-6".*
 - ii. *Soil reinforcing straps shall be designed considering the additional loads transmitted from the piles to the reinforced soil backfill.*
- j. *Rigid utility conduits, such as gas, water and sewer shall not pass through integral abutments. The anticipated longitudinal movement of the superstructure and the resultant rotational and translational movement of the substructure make provision for these movements in rigid conduits difficult. Conduits of this type shall be located off integral abutments. Flexible utility conduits for electrical, telephone and cable TV that are properly sleeved through integral abutments are acceptable.*
- k. *It is urged however to avoid locating flexible utility conduits through integral abutments and under relief and sleeper slabs whenever possible. Flexible utility conduits that are located under relief and sleeper slabs shall also be properly sleeved in this area to avoid any future disturbance to the relief and sleeper slabs.*
- l. *Manholes, utility valve covers and drainage inlets shall be located beyond the limits of relief and sleeper slabs.*
- m. *Semi-integral abutments are allowed on a project by project basis subject to the approval of the Chief Engineer.*