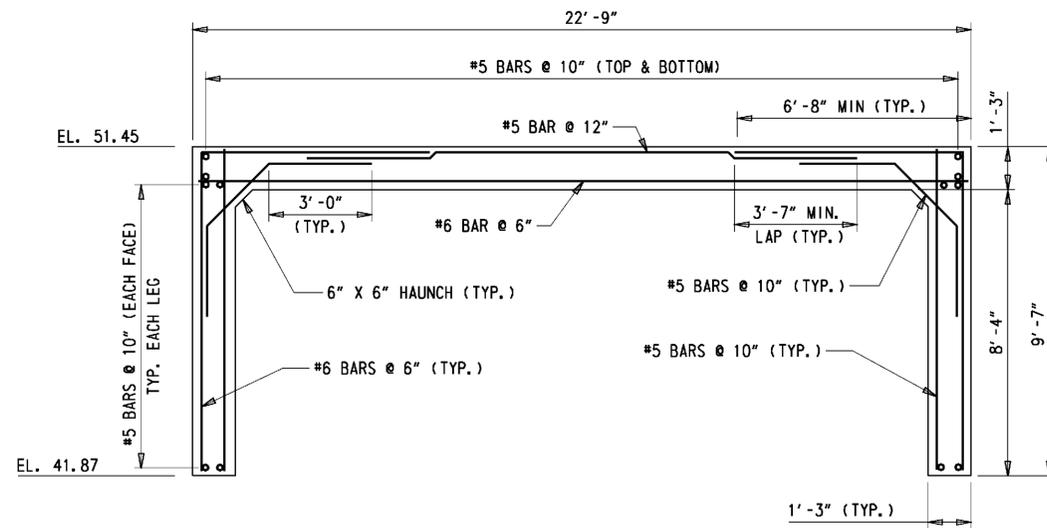


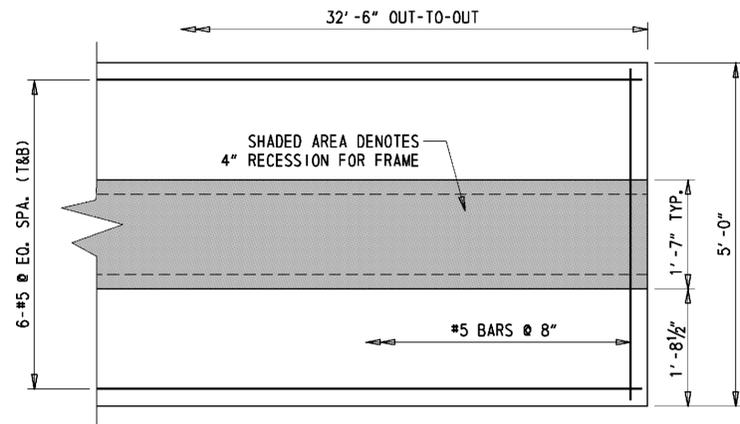
**PRECAST FOOTER SECTION**

3/4" = 1'-0"



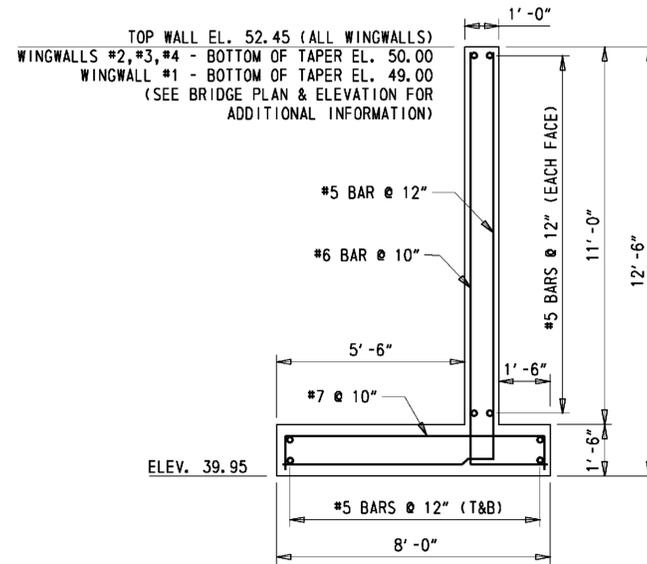
**PRECAST RIGID FRAME SECTION**

3/8" = 1'-0"



**PRECAST FOOTER PLAN**

3/4" = 1'-0"

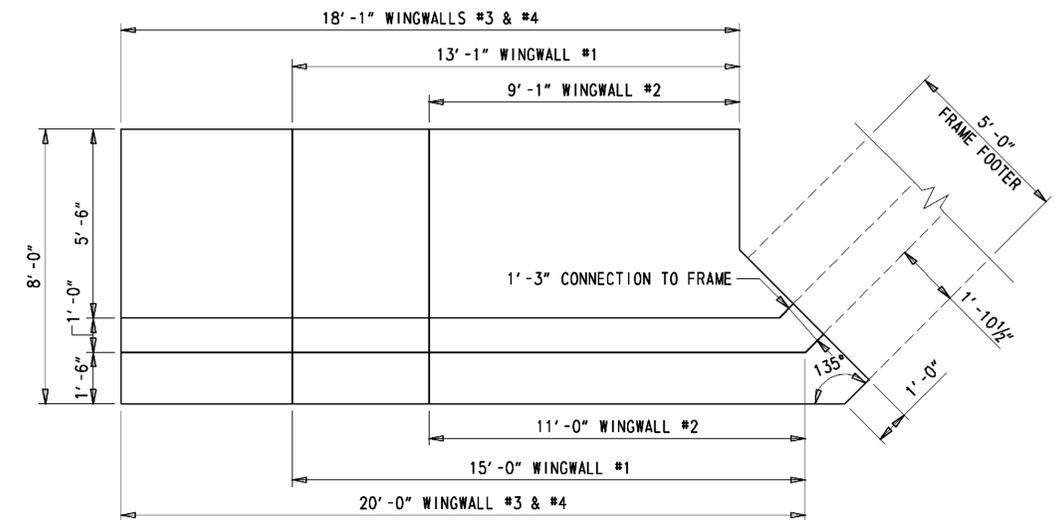


**PRECAST WINGWALL SECTION**

3/8" = 1'-0"

**PRECAST ELEMENT NOTES**

1. DESIGN PLANS / WORKING DRAWINGS  
INFORMATION PERTAINING TO THE PRECAST REINFORCED CONCRETE RIGID FRAME AND WINGWALL SECTIONS IS INTENDED TO SERVE AS AN INDICATION OF THE TYPE OF CONSTRUCTION ACCEPTABLE FOR USE. THE CONTRACTOR WILL BE REQUIRED TO PREPARE AND SUBMIT FOR APPROVAL A COMPLETE SET OF DETAILED SHOP DRAWINGS FOR THE PRECAST CONCRETE UNITS THEY PROPOSE TO FURNISH. THE SHOP DRAWINGS SHALL INCLUDE:
  - A. AN OVERALL PLAN SHOWING ALL UNITS TOGETHER AND DETAILS OF EACH TYPE OF UNIT.
  - B. A PLAN VIEW OF REINFORCEMENT FOR ANY IRREGULAR SHAPED (SKEWED, CURVED, ETC.) SECTIONS.
  - C. REINFORCING BAR LIST
  - D. BILL OF MATERIALS INCLUDING ALL ACCESSORIES
  - E. METHOD AND SEQUENCE OF POST-TENSIONING
2. PRECAST ELEMENTS, ACCESSORIES AND INSTALLATION  
PAYMENT FOR ITEM 602739 - PRECAST RIGID FRAME AND ITEM 602738 - PRECAST CONCRETE RETAINING WALL SHALL INCLUDE:
  - A. ALL PRECAST ELEMENTS FOR THE RESPECTIVE ITEM (RIGID FRAME, FOOTERS UNDER ITEM 602739 AND WINGWALLS UNDER ITEM 602738).
  - B. ALL ASSOCIATED REINFORCEMENT
  - C. ALL ACCESSORIES (INCLUDING, BUT NOT LIMITED TO, WEEP HOLES, CONCRETE FINISH, POST-TENSIONING TENDONS, CONNECTION PLATES, GROUT, JOINT WRAP, THREADED INSERTS) MENTIONED IN THE FOLLOWING NOTES UNLESS NOTED OTHERWISE.
  - D. DELIVERY AND INSTALLATION OF ALL PRECAST ELEMENTS AND ALL ACCESSORIES.
3. MISCELLANEOUS CONCRETE NOTES
  - A. ALL EXPOSED SURFACES SHALL BE PROTECTED WITH A WATER MISCIBLE, PENETRATING SILANE SEALER.
  - B. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" - UNLESS OTHERWISE NOTED.
4. RIGID FRAME POST-TENSIONING  
THE PRECAST RIGID FRAME SECTIONS SHALL BE POST-TENSIONED TOGETHER WITH A MINIMUM OF FOUR POST-TENSIONING TENDONS. THE CULVERT SHALL BE POST-TENSIONED SUCH THAT THE NEOPRENE GASKETS ARE COMPRESSED ALL AROUND AND THERE IS A 1/2" MAXIMUM GAP BETWEEN SECTIONS. MAXIMUM POST-TENSIONING FORCE SHALL BE 28,900 LBS. POST-TENSIONING DETAILS (PLACEMENT, SEQUENCE OF TENSIONING, etc.) SHALL BE SHOWN IN THE SUBMITTED SHOP DRAWINGS. ALL POCKETS FOR POST-TENSIONING DUCTS SHALL BE FILLED WITH NON-SHRINK GROUT.
5. WINGWALL POST TENSIONING
  - A. THE PRECAST WINGWALL SECTIONS SHALL BE POST TENSIONED TOGETHER AND POSITIVELY CONNECTED TO THE RIGID FRAME WITH A MINIMUM OF TWO TENDONS. POST-TENSIONING SHALL BE AS PER NOTE 4.
  - B. AT LOCATIONS WHERE POST TENSIONING OF THE WINGWALLS IS NOT FEASIBLE, A BOLTED CONNECTION MAY BE USED. BOLTED CONNECTION DETAILS SHALL BE SHOWN IN THE SUBMITTED SHOP DRAWINGS.
6. BOLTED CONNECTIONS  
THE BOLTED CONNECTION MUST CONSIST OF A MINIMUM OF TWO 3'-0" WIDE x 2'-0" TALL x 1/4" THICK PLATES PER JOINT WITH AT LEAST FOUR 3/4" BOLTS PER PLATE. ANGLED PLATES SHALL HAVE 8 BOLTS. SLOTTED HOLES IN THE PLATE SHALL NOT BE PERMITTED. HOLES FOR ANCHOR BOLTS MAY BE FIELD DRILLED.
7. JOINTS BETWEEN PRECAST SECTIONS
  - A. NEOPRENE GASKETS SHALL BE PROVIDED AT THE JOINTS BETWEEN ALL PRECAST UNITS IN ORDER TO MAKE THE JOINTS WATERTIGHT. AFTER INSTALLATION, THE GASKETS SHALL BE COMPRESSED SUCH THAT GAPS ARE NOT VISIBLE.
  - B. ALL JOINTS BETWEEN PRECAST FRAME SECTIONS SHALL HAVE A SHEAR KEY ALL AROUND.
  - C. ALL WINGWALL TO WINGWALL, AND WINGWALL TO RIGID FRAME JOINTS SHALL HAVE A SHEAR KEY.
  - D. THE LOCATIONS OF THE JOINTS IN THE PRECAST SECTIONS SHALL BE DETERMINED BY THE PRECASTER AND SUBMITTED IN THE SHOP DRAWINGS FOR APPROVAL.
  - E. THE REINFORCEMENT SHALL HAVE 2" COVER AT THE END OF EACH SECTION AND MEET OR EXCEED THE MINIMUM AREA OF STEEL PER FOOT NOTED ON THE PLANS.
  - F. ALL JOINT EXTERIORS SHALL BE COVERED WITH A MINIMUM 9" WIDE WRAP CENTERED ON THE JOINT AS PER THE SPECIAL PROVISION FOR ITS RESPECTIVE ITEM.



**WINGWALL PLAN**

3/8" = 1'-0"

NOTE: CONTRACTOR HAS THE OPTION TO DIVIDE WINGWALLS INTO SMALLER POST-TENSIONED SECTIONS.