

SR 600 (US92)

Precast Prestressed Concrete

Pavement

Sam Fallaha, PE
Structures Research Center
Florida Department of Transportation

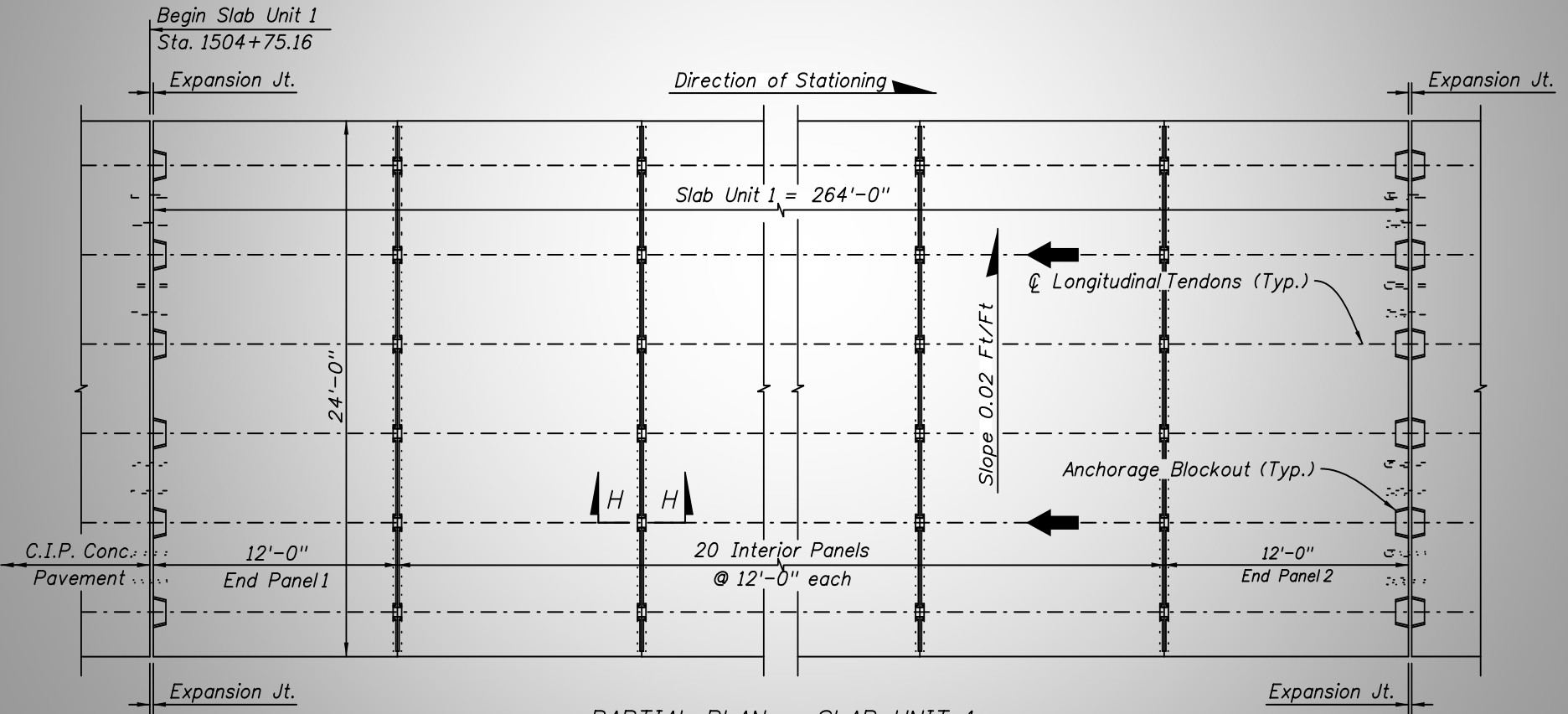
Outline

- Introduction
- Layout
- Panel Design
- Details
- Construction Sequence
- Conclusions

Introduction

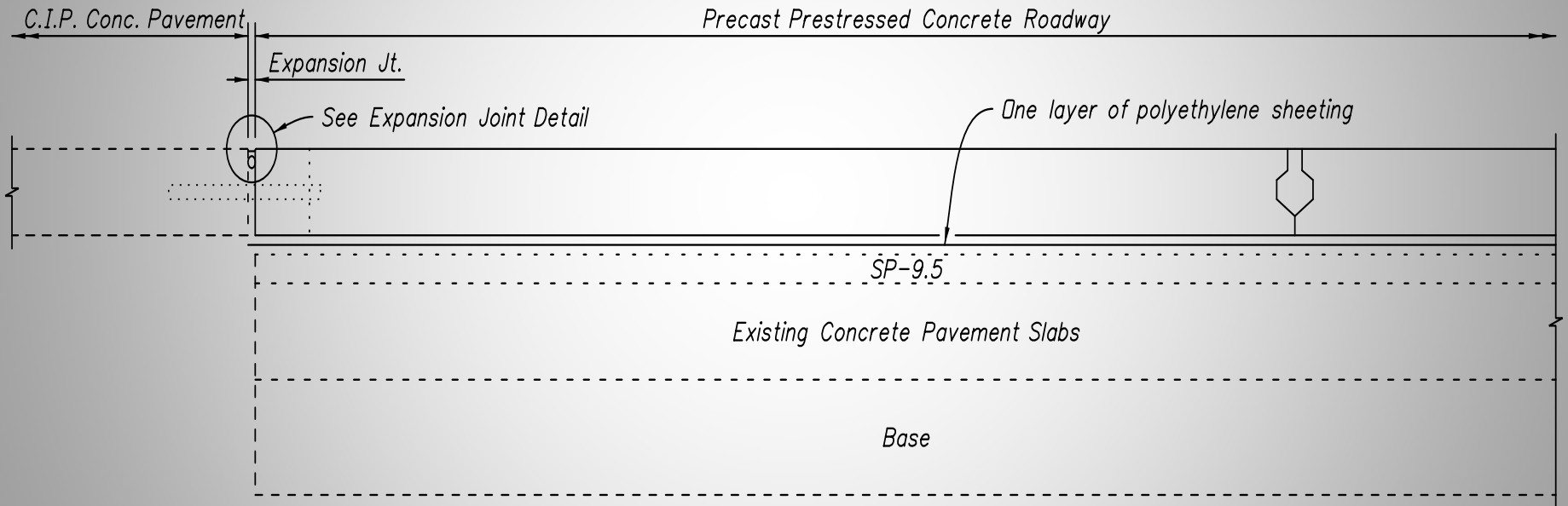
- The System: the transversely prestressed slabs are post-tensioned longitudinally into units.
- Design Loading:
 - 2.8 million-20 kip ESAL, 30 Years Design Life
 - Concrete Tensile Strength 700 psi
 - Concrete Modulus of Elasticity 3800 ksi
 - Minimum 28 day Concrete Compressive Strength 5.5 ksi
 - Concrete cover 2 ¼ in.

Layout



PARTIAL PLAN - SLAB UNIT 1
(Bolsters not shown)

Layout



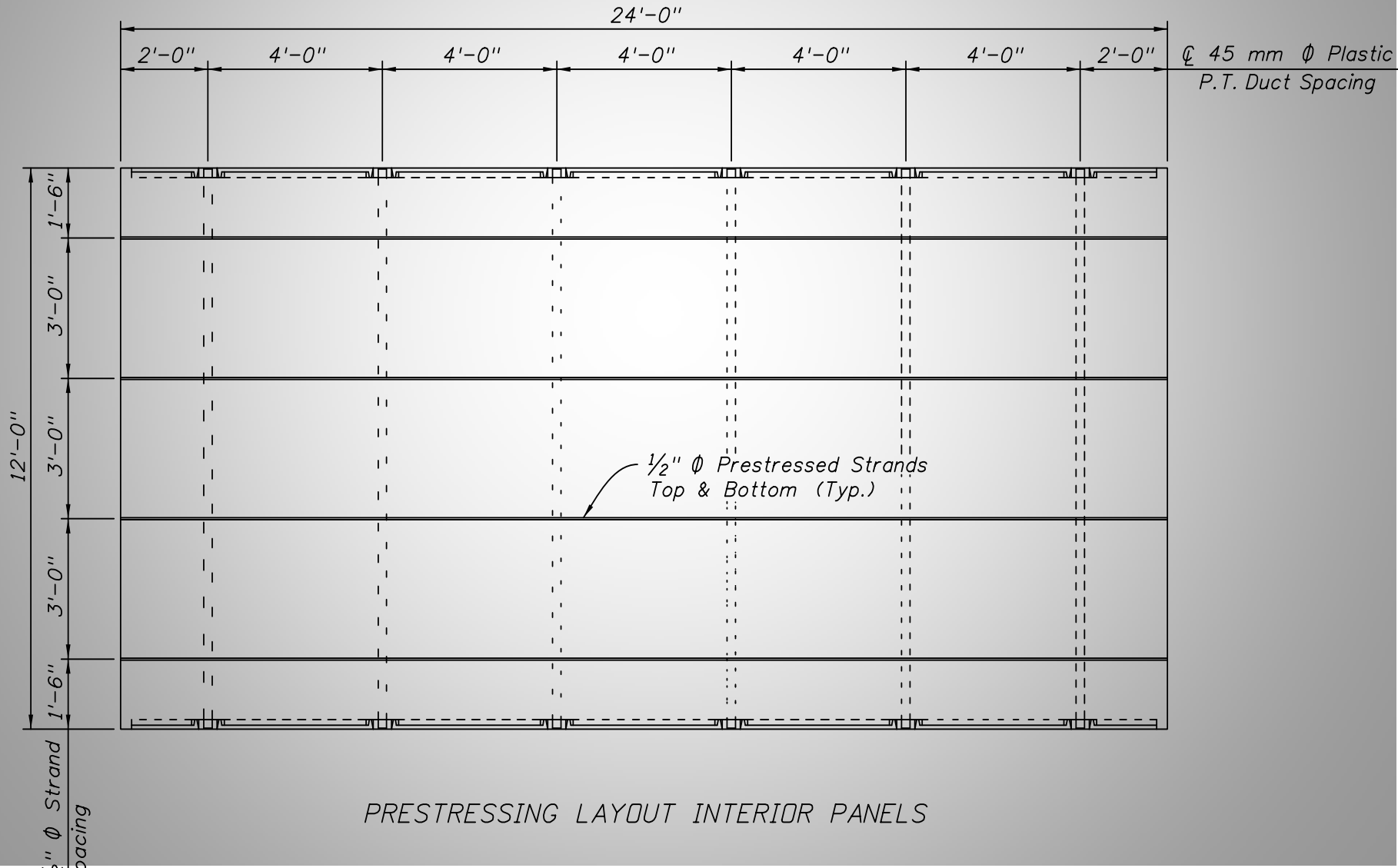
TYPICAL LONGITUDINAL SECTION



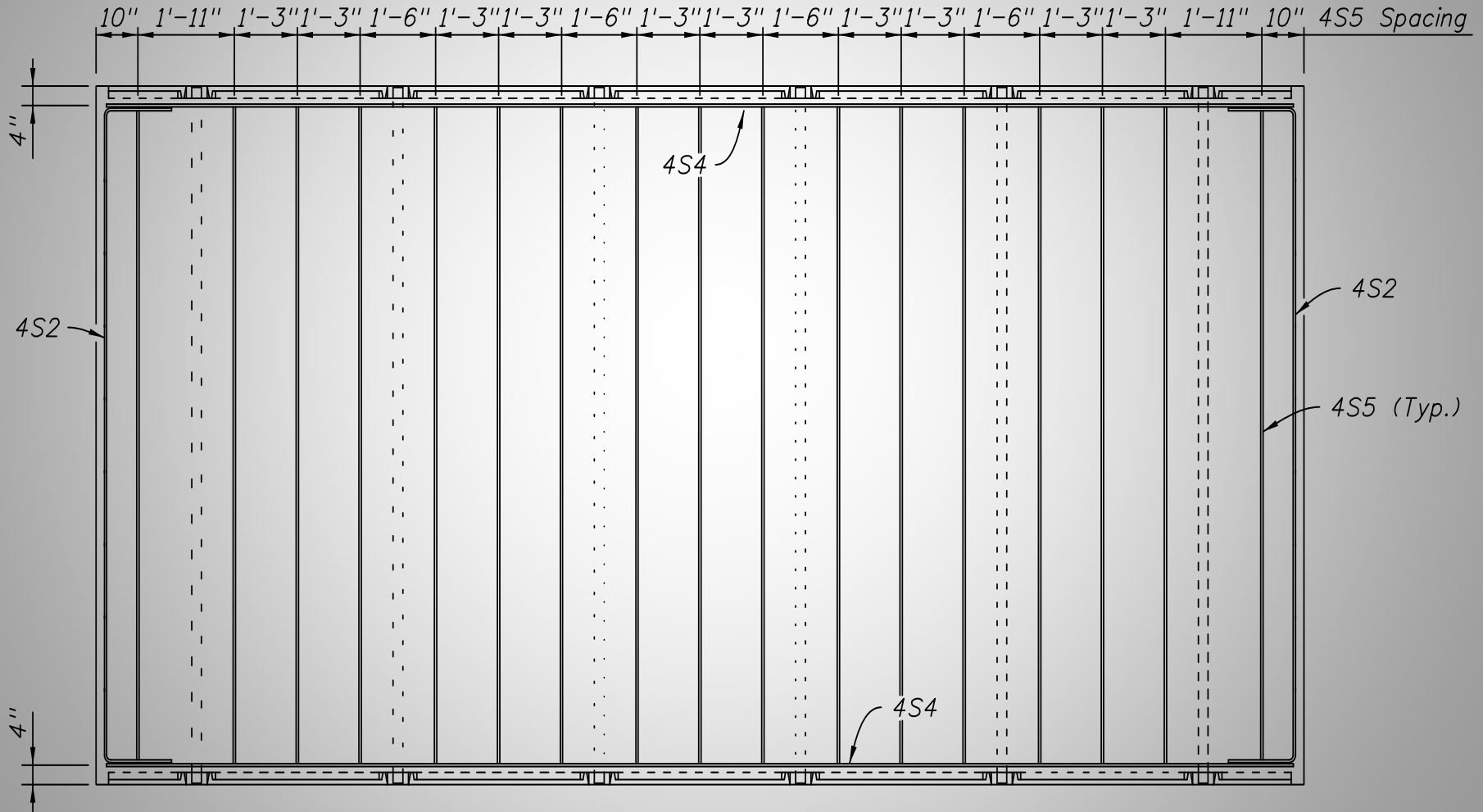
Design

- Panel reinforcement designed for lifting.
- Net transverse prestress: 184 psi
- Net Longitudinal PT stress: 200 psi
- Tolerance

Panel Design

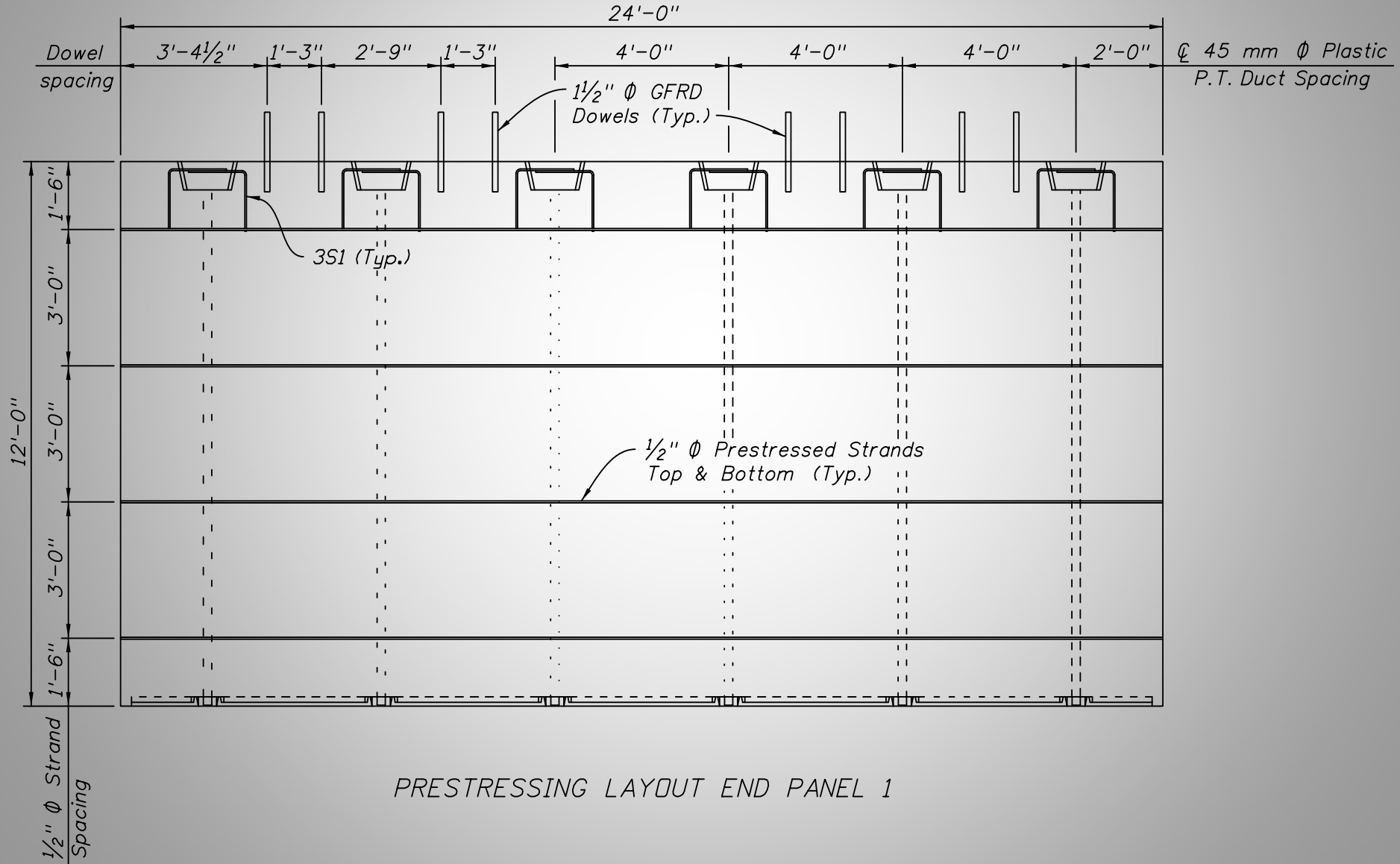


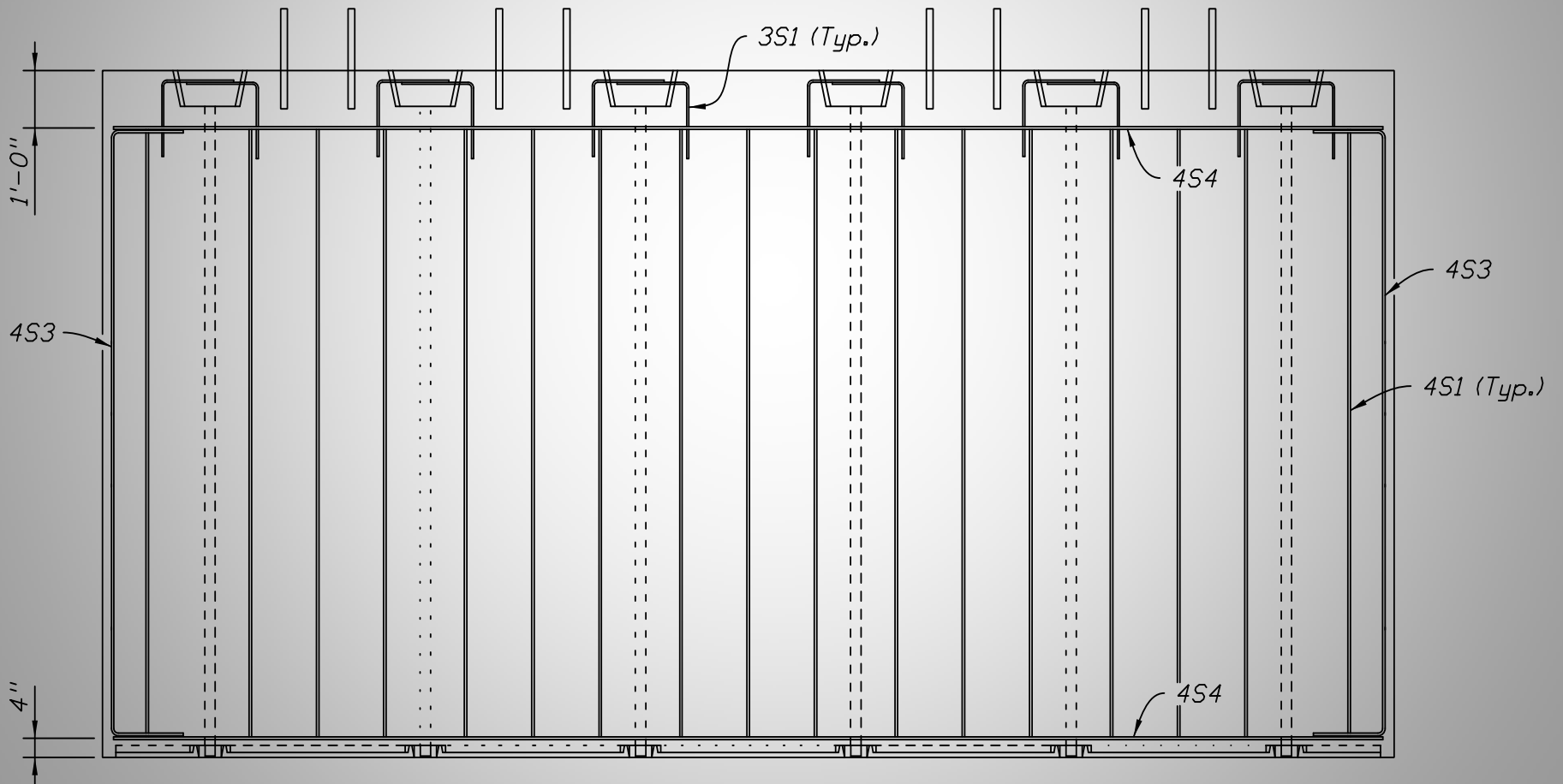
Panel Design



REINFORCING LAYOUT INTERIOR PANELS

Panel Design

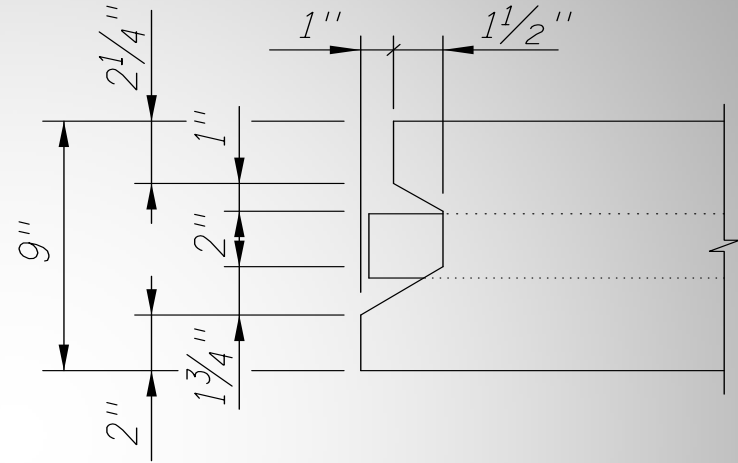




REINFORCING LAYOUT END PANEL 1



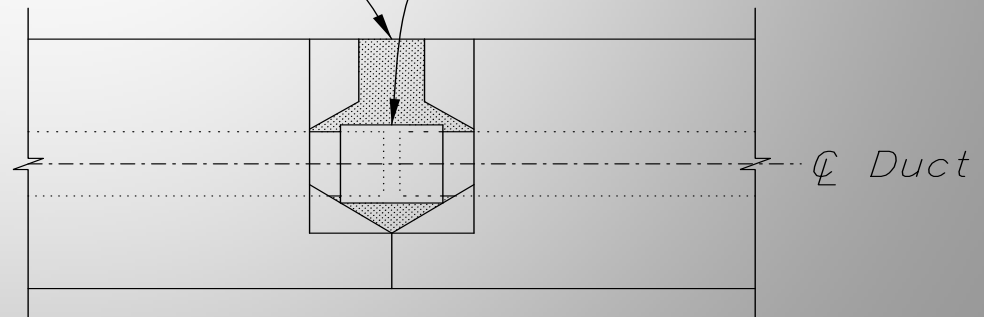
Details



KEYWAY DETAIL

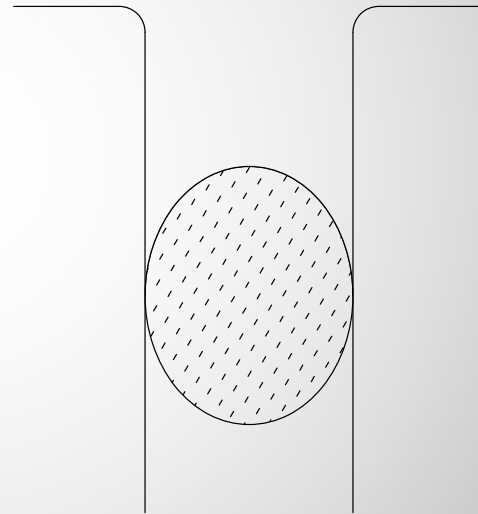
Keyway with non-shrink grout

Heat Shrink Wrap

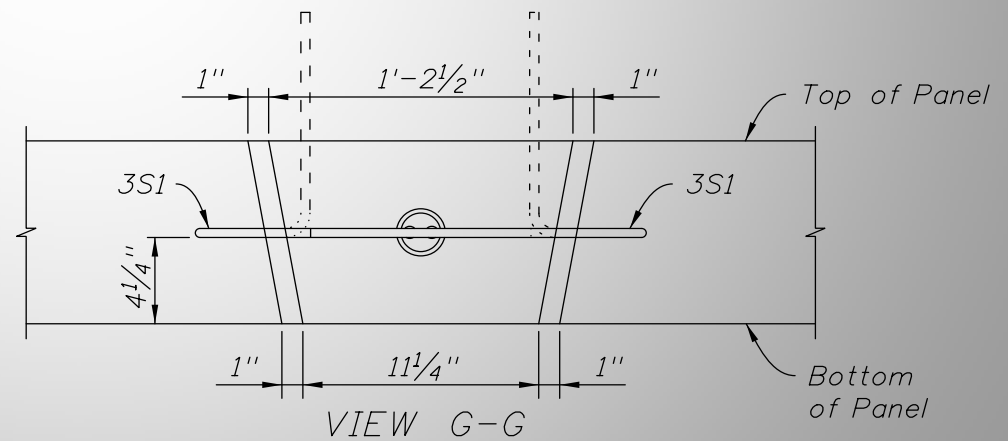
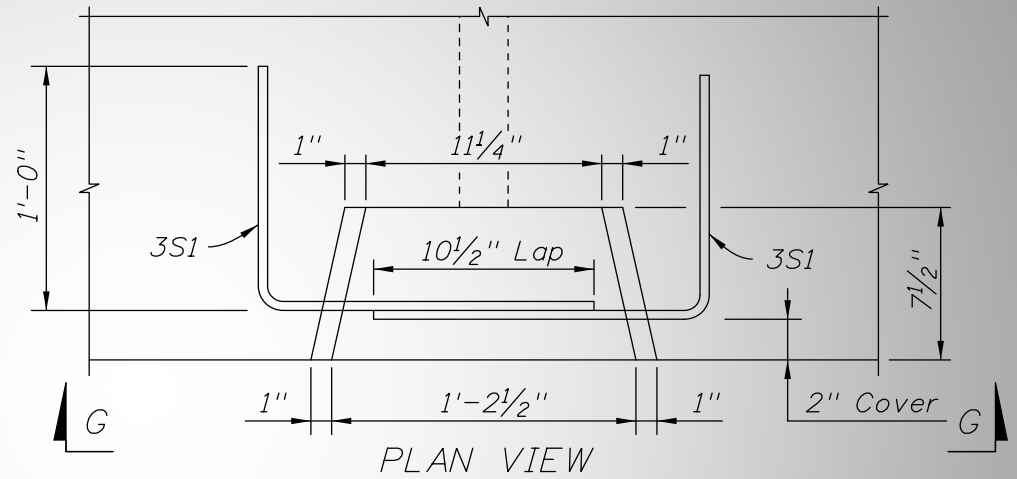


KEYWAY JOINT

Details

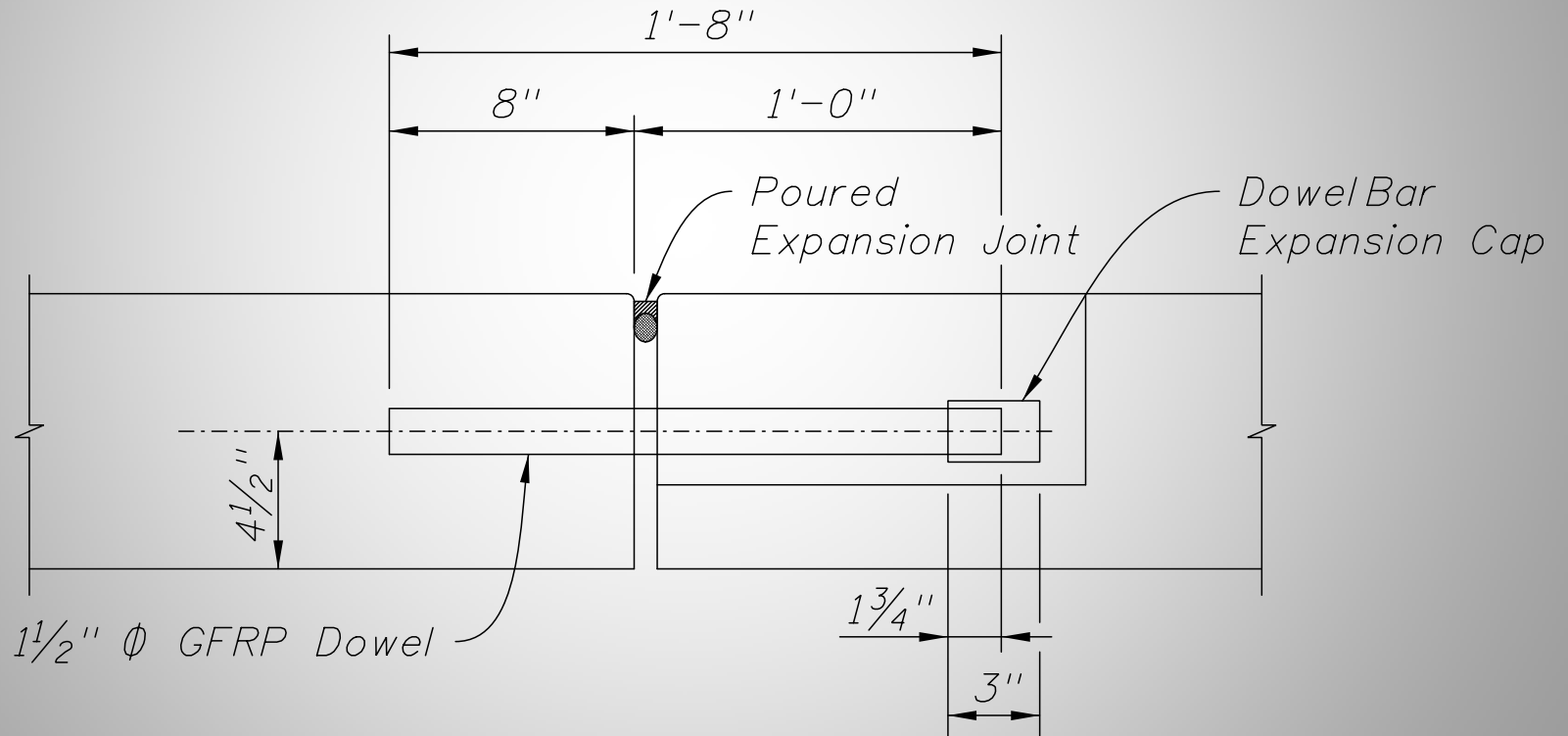


Details



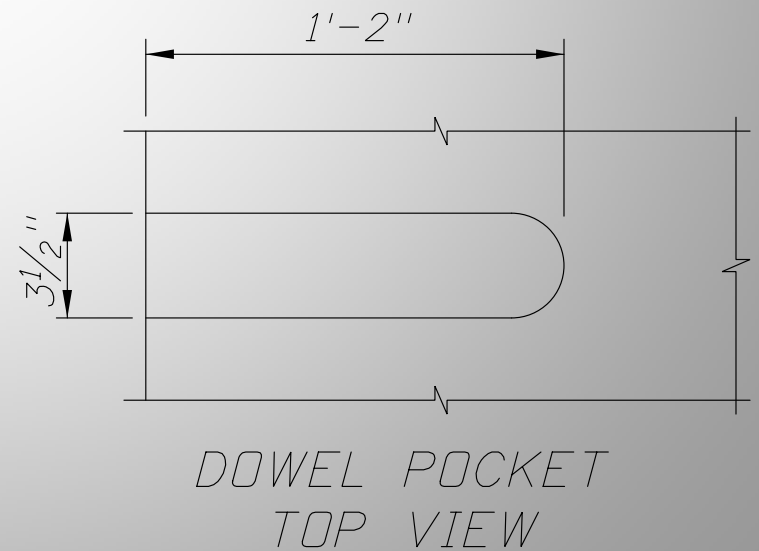
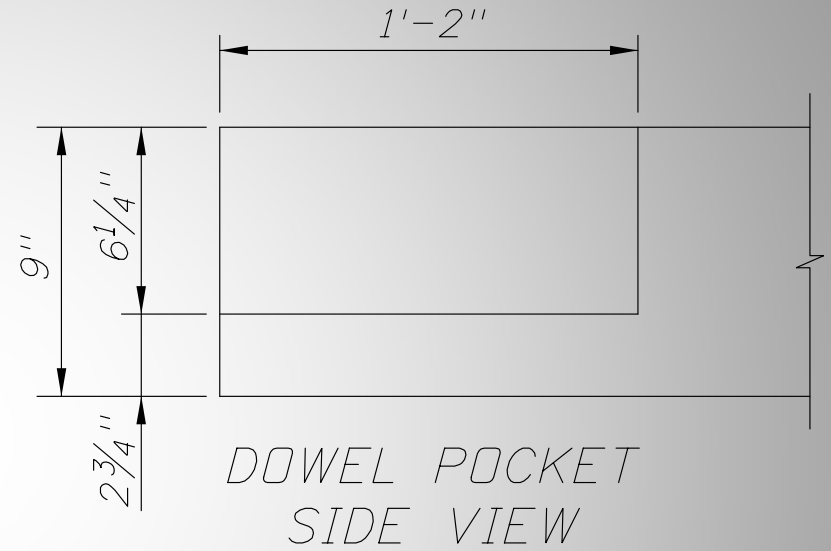
ANCHORAGE BLOCK-OUT DETAILS

Details



DOWEL EMBEDMENT DETAIL

Details



Construction Sequence

- Prepare base and lay down polyethylene.
- Place Panels (end-interior-end).
- Splice PT ducts using Heat Shrink Wrap.
- Grout keyways using non-shrink grout.
- Thread longitudinal PT strands and stress.
- Place FRGD.
- Grout Dowels and PT anchorages.
- Plane and groove.

Conclusions

- Under-slab grouting is not needed.