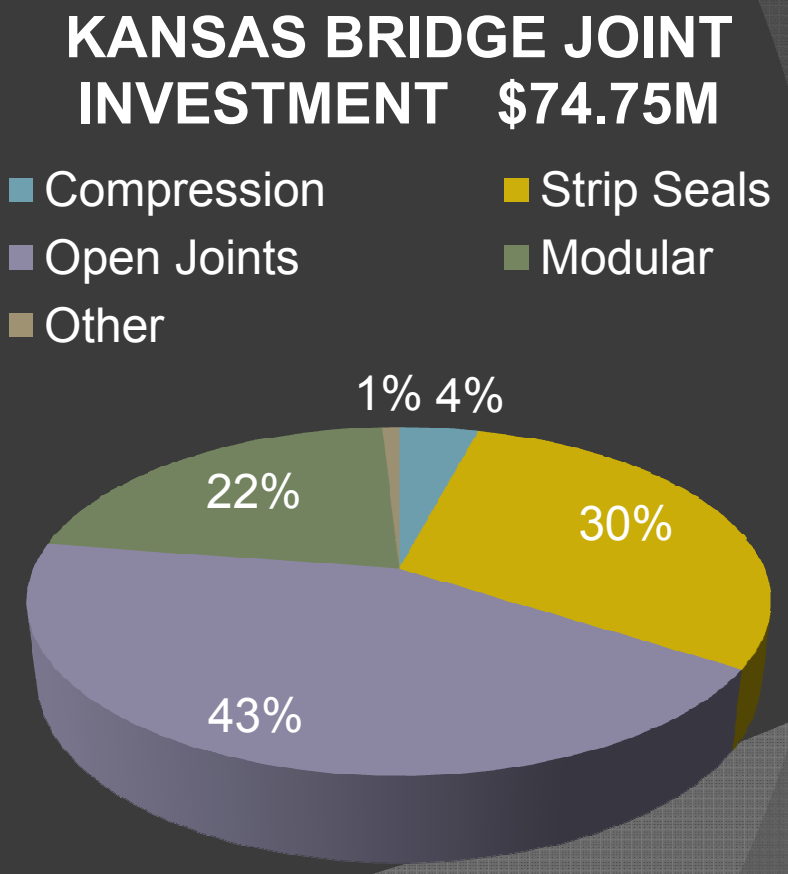
ELASTOMERIC CONCRETE JOINTS DURABILITY IN KANSAS

MIDWEST BRIDGE PRESERVATION PARTNERSHIP

OCTOBER 12, 2010

KANSAS INVESTMENT

- Compression Seals
  - 12,300 LF
  - Replace @ $250/LF
- Strip Seals
  - 37,300 LF
  - Replace @ $600/LF
- Open Joints
  - 16,200 LF
  - Replace @ $2000/LF
- Modular Joints
  - 6500 LF
  - Replace @ $2500/LF
- Other Joints
  - 2150 LF
  - Variable Replacement Cost



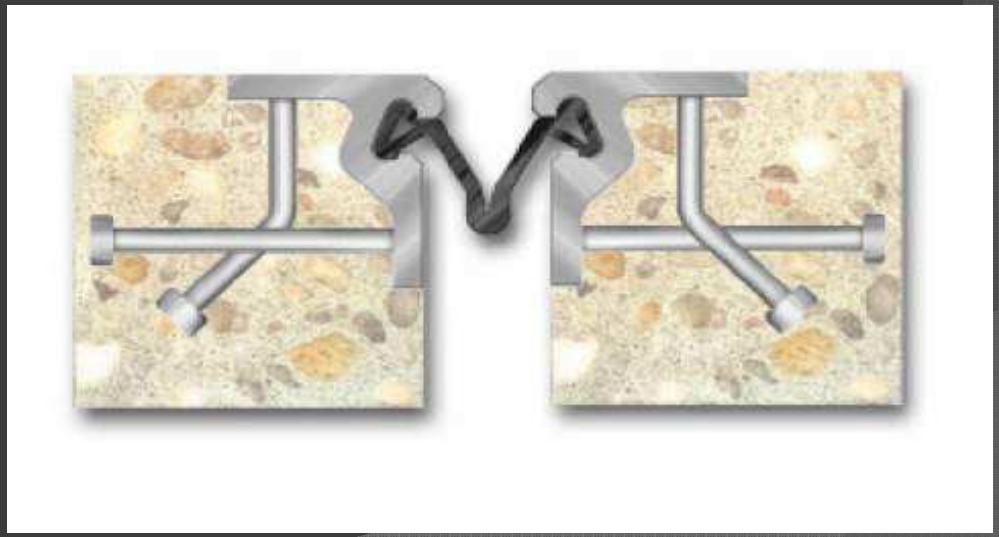
GOOD BRIDGE JOINTS:

1) Allow relative thermal movement of bridge decks
2) Provide a “seal” for the gaps in the deck so water and salt can not get to substructure
3) Have long maintenance free lives
4) Or are easy to routinely maintain

PREFERRED JOINT SYSTEMS

TOTAL RANGE OF MOVEMENT	PREFERRED JOINT
< 2”	Jointless (Integral), Compression Seals (Jeene Joints or Polytite)
2”-4”	Jointless (Semi-Integral), Compression Seals (Jenne Joints), Strip Seals
4”-6”	Finger Joints, Transflex Joint System
>6”	Finger Joints, Modular Joints

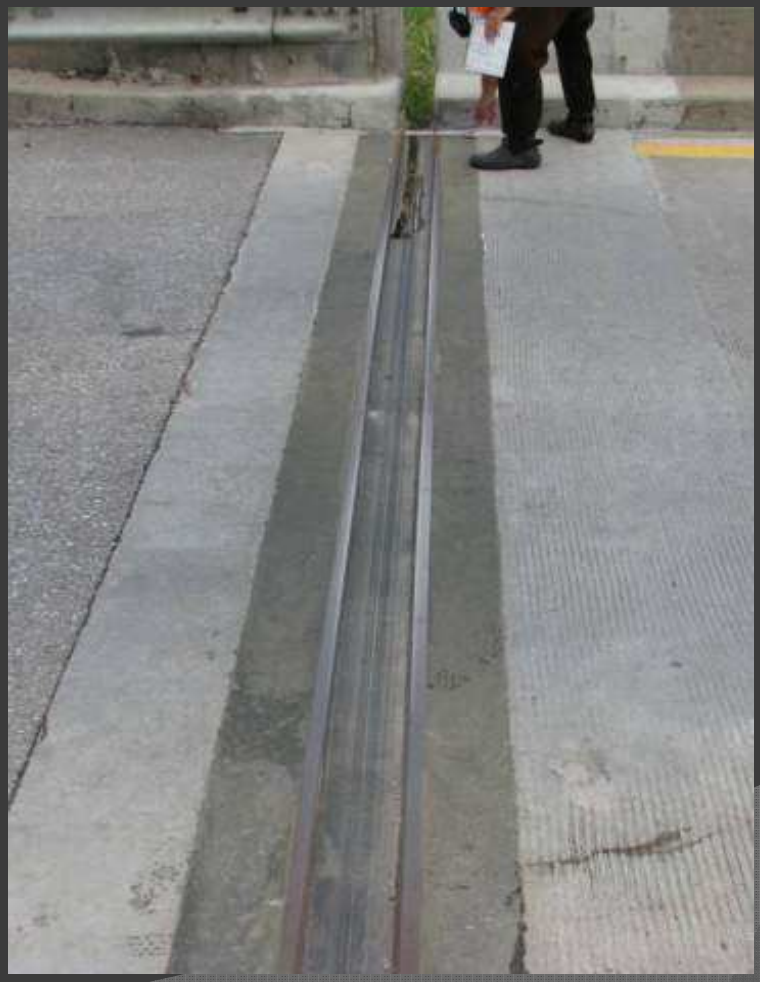
STRIP SEALS



STRIP SEALS

- Common Failures
  - Elastomeric Concrete
  - Sinusoidal Bar
  - Steel Anchorage
  - Gland (Rip or Pullout)
  - Joint Closed

FAILED STRIP SEALS



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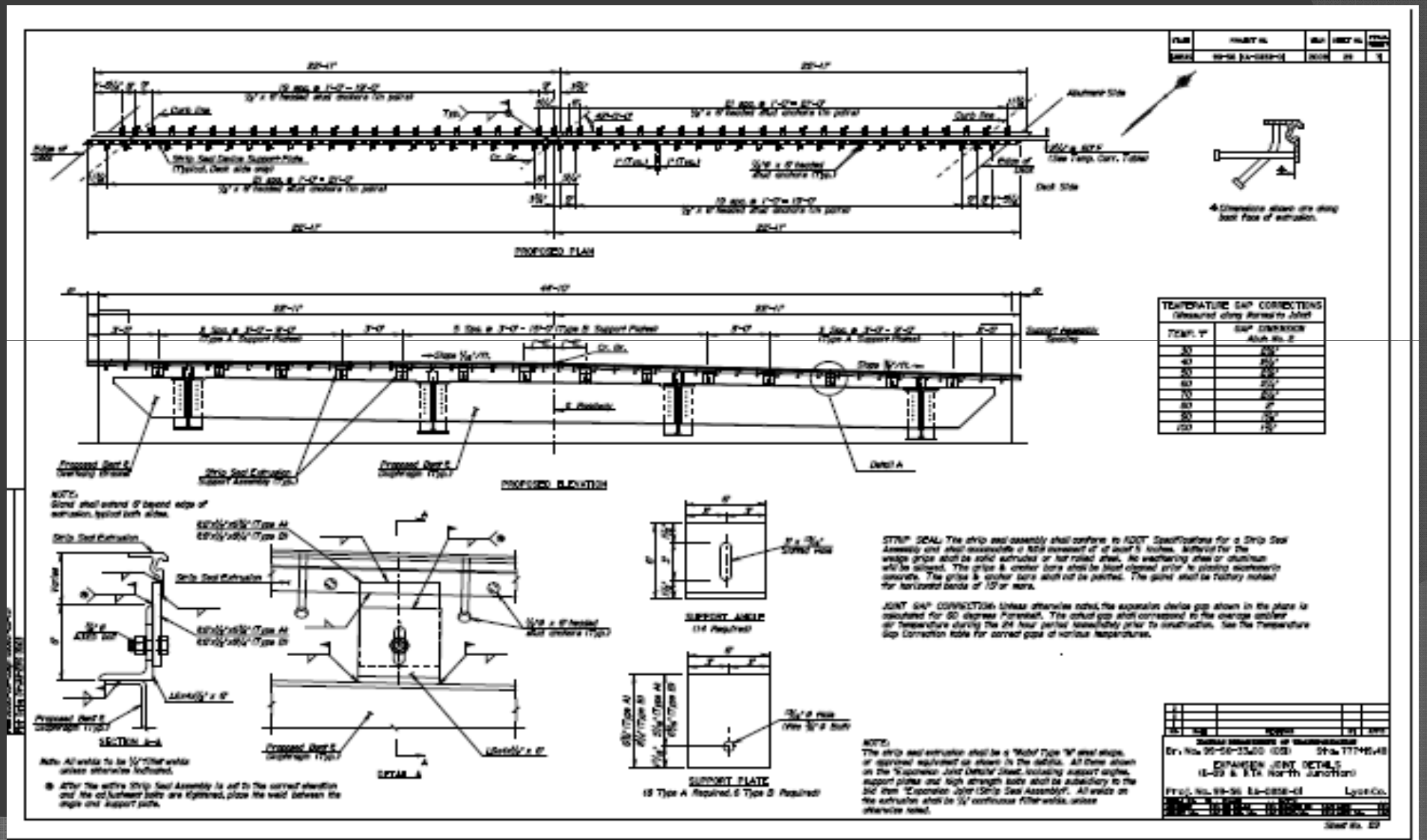
STRIP SEALS

- Common Failures
  - Elastomeric Concrete
  - Sinusoidal Bar
  - Steel Anchorage
  - Gland (Rip or Pullout)
  - Joint Closed
- Solutions
  - Different Materials
  - Different Anchorage Systems
  - Proper Joint Sizing and Other Considerations

❖ Every failure is different and needs to be investigated thoroughly before repairs are done. Make sure you're not just fixing a symptom of the bigger problem!

❖ More to come: John Jones is developing a hybrid Sliding Plate / Strip Seal Joint.

STRIP SEALS - NEW DETAILS



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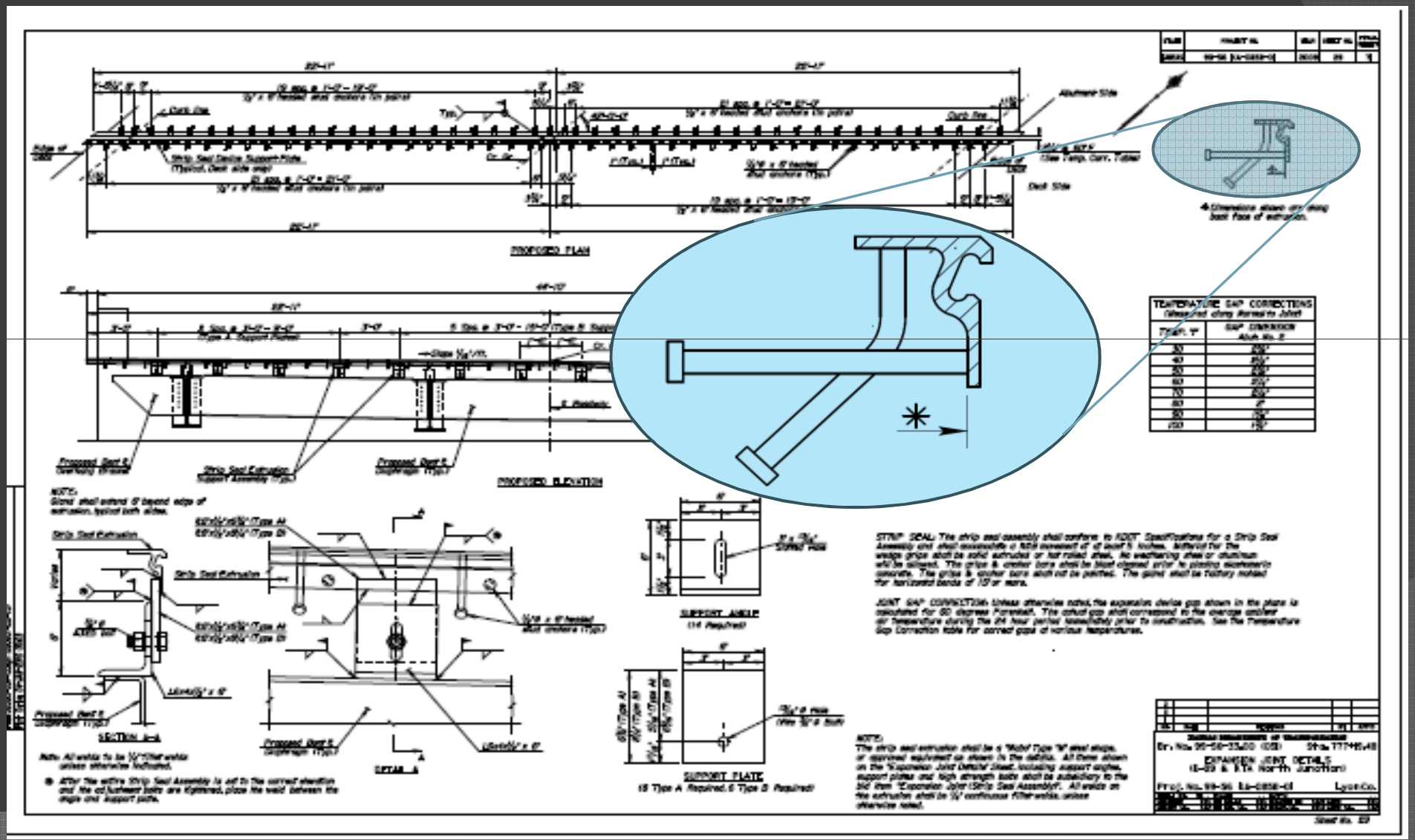

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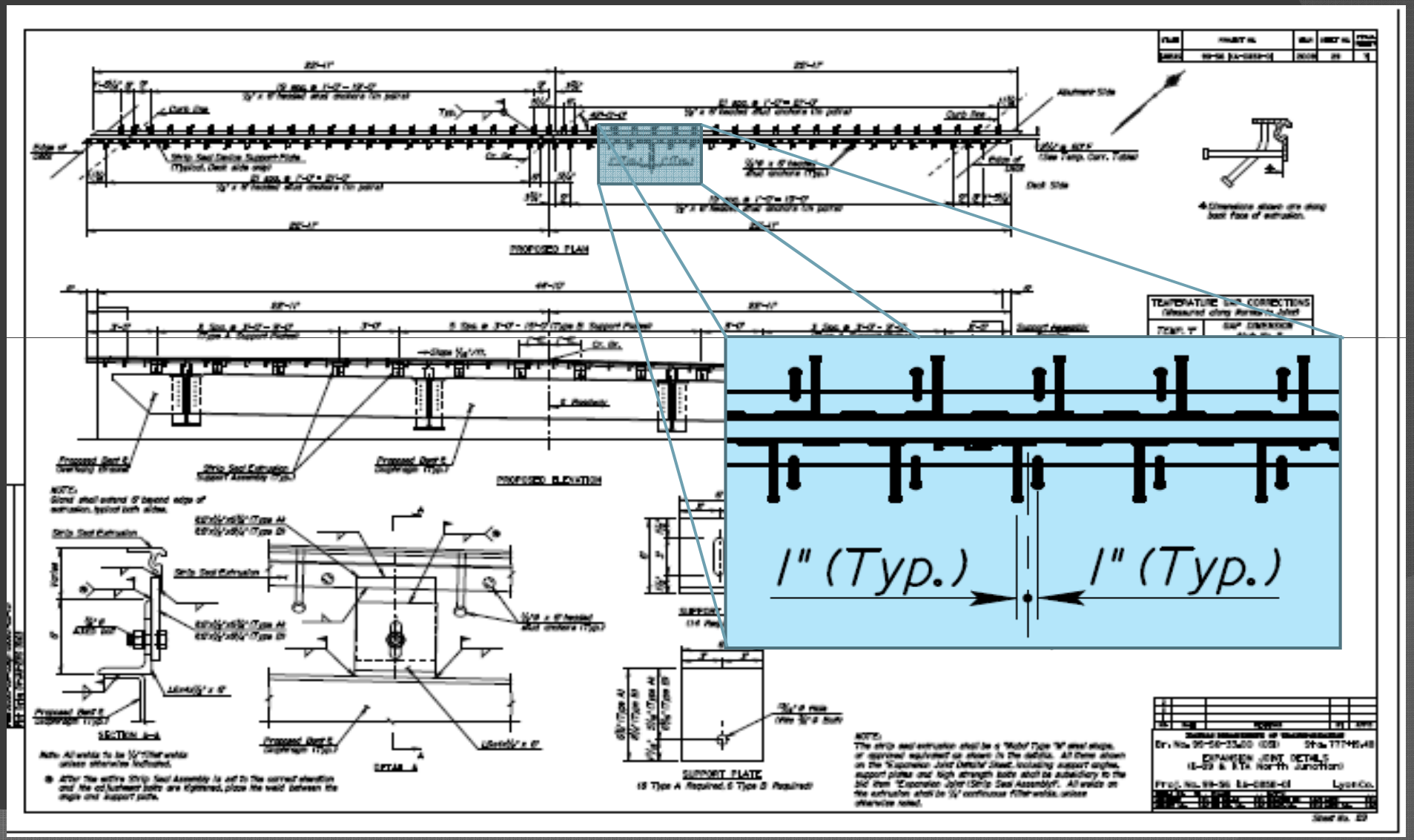

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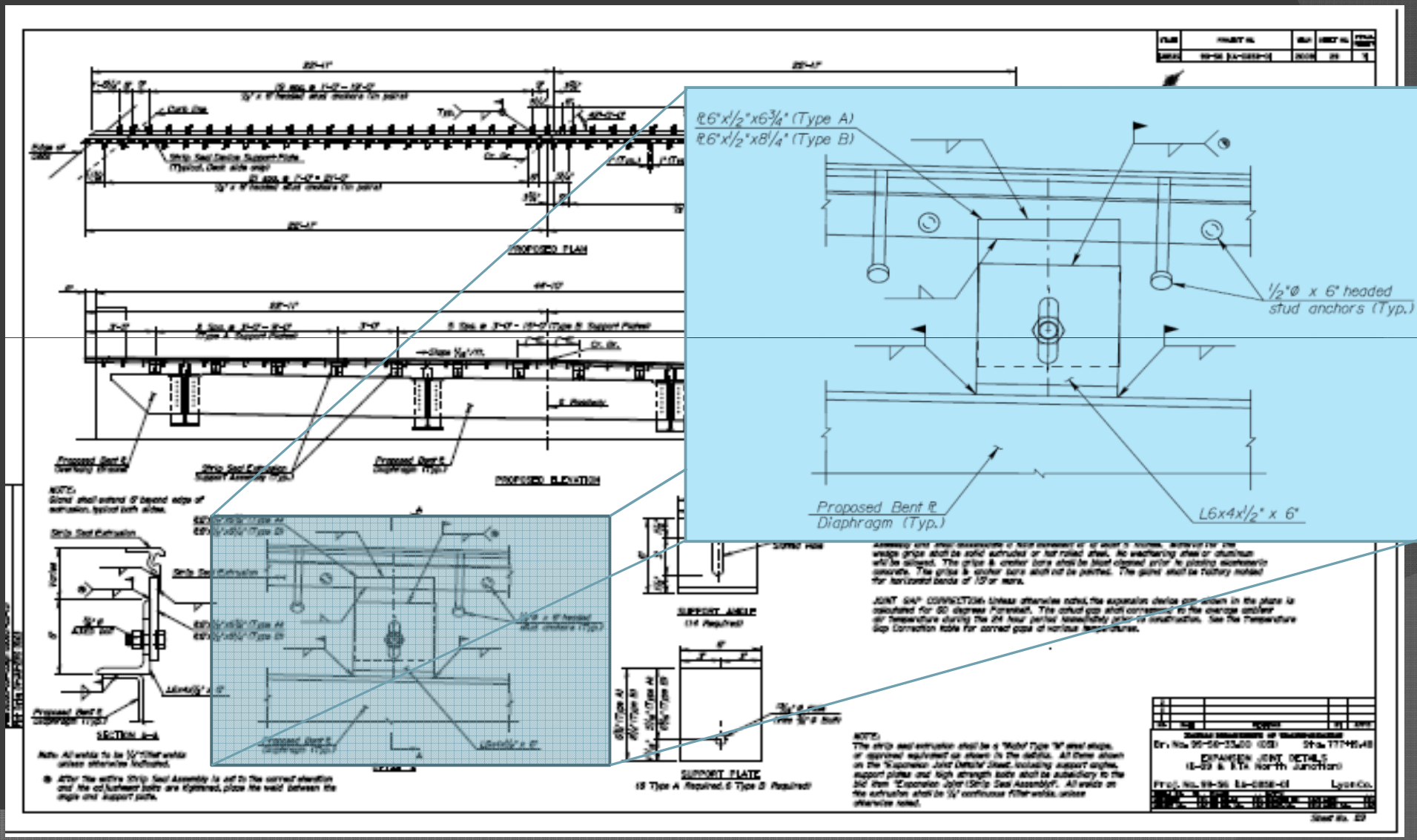

STRIP SEALS - NEW DETAILS

CONCLUSIONS

- Many Factors to consider when selecting bridge joints
- Attention to details!
- New standards for strip seals
- When possible—go jointless

QUESTIONS?