Project Background

- Value engineer the Macleod Trail and 194 Avenue bridge design made by ISL Engineering.
- Develop an alternative solution using steel girders as opposed to concrete girders.
- Existing 4-way traffic light intersection is unable to efficiently circulate traffic volumes with fast-growing neighbouring communities.

Deck Design

Figure 4: Deck Reinforcement at Positive Moment Regions
Figure 5: Deck Reinforcement at Negative Moment Regions

Girder Design

Figure 6: Girders at Positive Moment Regions (Midspan)
Figure 7: Girders at Negative Moment Regions (Piers)

Bridge Detailed Drawings

- Figure 2: Google Maps Intersection Plan View
- Figure 3: Google Maps Intersection Elevation View
- Figure 4: Deck Reinforcement at Positive Moment Regions
- Figure 5: Deck Reinforcement at Negative Moment Regions
- Figure 6: Girders at Positive Moment Regions (Midspan)
- Figure 7: Girders at Negative Moment Regions (Piers)
- Figure 8: Bracing and Stiffener Details
- Figure 9: Splice Details

Final Design Advantages

- Reduction in the number of bridges required from two to one.
- Increased accessibility and mobility.
- Elimination of the proposed service road by the Priddis Slough.
- Lower Bridge costs.

Analysis

Figure 10: FEM Moment Analysis - ULS 1
Figure 11: Deflection Analysis - ULS 1

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