

TASK ORDER NO. H.002550.5 / 2000010596

**PEER REVIEW
MACARTHUR DRIVE INTERCHANGE COMPLETION**

SUMMARY OF FINDINGS

Huval & Associates has been contracted by the DOTD to review the MacArthur Drive Interchange Completion Final Plans and perform quantity calculations in order to verify the quantities shown on the plans. During the quantity checks, the HUVAL staff has made the following observations:

Substructure Plans - Ramps 7 and 8

As a whole the quantities for the substructure plans were fairly close to that of HUVAL with relatively minor discrepancies to what HUVAL calculated. Specific items include:

- Plans do not deduct concrete quantities in bent caps for pile embedment
- Ramp 8, Pier 11 shows a pier cap width of 5'-6" on Sheet 722 and 8'-0" on Sheet 724. It is supposed to be 5'-6", but Plans show quantities for 8'-0".
- Column ties with 135 degree hooks on each end will be difficult to construct in the field. Should be modified
- Radii of curves for top of flared columns do not give a consistent column width of 8'-0" at the top.

Superstructure Plans - Ramps 7

As a whole the superstructure plans have confusing callouts and detailing issues that will need to be clarified during construction. Plan and Profiles need to show dimensions relative to gutter lines and baseline on deck. It is difficult to determine where the existing deck is being removed and to determine the widths of widened sections. Specific major discrepancies include:

Steel Girders:

- Fascia plates are too thin
- 36 ksi steel quantity seems to be about 58% low
- Stiffeners and Cross Bracing shown on the Plan views do not match that shown on the girder elevations
- More details needed to define girder end design.

Slab Spans:

- Quantities seem to be slightly off (3% - 5%)

Concrete Girder Span Deck Quantities:

- Quantities for Spans 9-11 and 12-14 are about 300% lower than they should be. Looks like the plan quantities only account for a single span instead of 3 spans in the unit.
- Rebar quantities are about 15% - 20% low for many individual spans
- Concrete Quantities are consistently about 5% low for the individual spans

Precast Panels:

- Several stay-in-place precast panels are less than 3' long. This is less than minimum acceptable lengths. Additional Details for this situation are needed.

Superstructure Plans - Ramp 8

As a whole the superstructure plans have confusing callouts and detailing issues that will need to be clarified during construction. Plan and Profiles need to show dimensions relative to gutter lines and baseline on deck. It is difficult to determine where the existing deck is being removed and to determine the widths of widened sections.

Also, pay items are not specified for many details and items shown on the plans. Specific inconsistent items include:

Steel Girders:

- Fascia plates are too thin
- 36 ksi steel quantity seems to be about 500% low
- 50 ksi steel quantity seems to be about 350% low
- More details needed to define girder end design.

Concrete Girder Span Deck Quantities:

- Rebar Quantities for Spans 6 & 7 were added improperly (should be @ 18,000 lbs and not 12,000 lbs)
- Transverse Rebar Quantities for Spans 8 - 11 accounted for widening of only one side (@ 5,000 lbs per span)
- Rebar Quantities slightly off throughout plans (i.e. long bars lengths used to calculate total quantity in lieu of average bar lengths)
- Concrete quantities are low for the individual spans
- Stay-in-Place Precast Panels quantities seem to be 16% low.
- Concrete Barrier Rail quantities seem to be low

These basic comments summarize HUVAL's findings while reviewing the quantities of the Final Plans that were provided by the DOTD. These comments do not reflect every portion of the plans that were found to be inconsistent or insufficient, but only that which was reviewed under the allotted timeframe given by the DOTD.