

2-2.19 Summary of Quantities

Introduction

Quantity summaries shall be included in the project plans to aid in determining the location and quantities for bid items which are located throughout the plans. The intent of having a quantity summarized is to have one location in the plans which shows the total project quantity for an item and that total corresponds to the quantity shown in the Engineer's Estimate.

General

A quantity table for a specific bid item should include detailed information on the location of the work to be performed. Do not simply repeat the item by item listing shown in the Engineer's Estimate as the summary of quantities.

Quantity summaries shall be in tabular format. To aid in determining the location of bid items on the plans, entries within the table shall be referenced to an alignment line and station where construction is identified by stationing. Where construction is identified by post miles, entries within the table shall be identified by post miles. Summary headings and column headings for the items summarized shall match the description for the bid item shown in the Engineer's Estimate.

Use the same amount of decimal places on the plan and the quantity summaries (same degree of accuracy). Commas are not used for thousands, if all entries in the item column have four or fewer digits left of the decimal point. Commas are used for thousands, if any individual entry in the item column has five or more digits left of the decimal point. In

numbers of five digits or more, use a comma after every third digit left of the decimal point.

Items of work shown on the summary of quantities sheets which are not a separate bid item (payment included in other items of work), shall be indicated with the symbol "(N)" in the column heading for such items and by adding the following note to the sheet:

(N) - Not a separate bid item.

If items included in the summary of quantities are eligible for final pay or specialty item designation, the items are to be designated only on the Engineer's Estimate using:

- (F) - final pay item only
- (S) - specialty item only
- (S-F) - specialty and final pay item

Do not use final pay or specialty item designation on the plans.

Any item quantity can go on the project summary of quantities sheets unless there is an individual summary sheet already for that type of work (drainage, signing, pavement delineation) within the project plans. If other sheets of the project plan set include quantity tables, those quantity tables are not to be duplicated on the project summary of quantities sheets. The subtotals of common bid items of the road portion of a project are to be summarized on the project summary of quantities sheets (see "Cross Referencing Quantity Totals" within this section).

The project summary of quantities sheets typically list items of work shown on the

project layout sheets and construction detail sheets.

Quantities must be calculated and summarized for items of work such as:

- Roadway earthwork
- Pavement structures
- Miscellaneous concrete construction
- Place hot mix asphalt (miscellaneous areas)
- Dikes
- Railings
- Barriers
- Fences
- Walls

Roadway Earthwork

Roadway earthwork quantities are normally shown on full profile sheets or the profile portion of plan (layout) sheets. Embankment quantities should never be shown as a negative number. One of the reasons for listing roadway excavation and embankment quantities is to help bidders and the contractor determine haul distances and understand the scope of the earthwork.

If earthwork quantities are not shown on the profiles, they shall be summarized on the project summary of quantities sheet. These quantities should be listed by each alignment line using the begin and end stations where earthwork is performed.

Regardless of where the roadway earthwork quantities are shown, the total amount of roadway excavation and embankment for the project shall be shown on the project summary of quantities sheets.

Embankment is not a separate bid item. Embankment quantities shown in the project summary of quantities sheets shall be identified as a "Not a separate bid item" as described within this section for non bid items.

Pavement Structures

Pavement structure (structural section) elements (hot mix asphalt, pavement reinforcing fabric, concrete pavement, bases and subbases), as applicable to the project, shall be summarized on the project summary of quantities sheets. These quantities shall be listed by each alignment line using the begin and end stations where pavement structure work is performed. Identify the elements of the pavement structure using the same item name as in the Engineer's Estimate, example: "Class 2 Aggregate Base."

Minor Concrete (Miscellaneous Construction)

The table for "Minor Concrete (Miscellaneous Construction)" should include, as applicable to the project:

- Curbs
- Valley gutters
- Curb ramps
- Driveways
- Gutter depressions
- Sidewalks

Identify the types of curb used (example: "A2-8 Curb") and cases of curb ramp used (example: "Case A Curb Ramp").

Place Hot Mix Asphalt (Miscellaneous Areas)

The table for "Place Hot Mix Asphalt (Miscellaneous Areas)" should include those areas of paving which cannot be placed with a hot mix asphalt spreader. Examples of those areas which fall within this bid item are:

- Hot mix asphalt overside drains
- Hot mix asphalt aprons
- Hot mix asphalt walkways
- Pipe down drain flares
- Island paving

In most projects, "Place Hot Mix Asphalt (Miscellaneous Areas)" is paid for by the square yard to place and by the ton for the quantity of hot mix asphalt used.

Hot Mix Asphalt Dikes

In the table for "Place Hot Mix Asphalt Dike," identify the types of dike to be placed. In most projects, hot mix asphalt dike is paid for by the linear foot to place and by the ton for the quantity of hot mix asphalt used.

Railings and Barriers

Railings and barriers are typically paid for by the linear foot. Terminal system end treatments, end anchor assemblies and the various types of transition railing used for metal beam guard railing and thrie beam barriers are measured and paid for separately, by the unit.

Retaining Walls and Sound Walls

Where the construction of more than one retaining wall or sound wall is shown on the road portion of the project plans, a cumulative quantity summary identifying quantities for the same wall types shall be included on the project summary of quantities sheets. If only one type of retaining wall or sound wall is to be constructed on the project, then the wall quantities for that wall are only to be included with the respective retaining wall or sound wall plans.

If the walls included in the project have been designed by both the district and the Office of Structure Design, care should be exercised in combining these wall quantities for the Engineer's Estimate to make sure the bid items for the work are compatible.

Cross Referencing Quantity Subtotals

The same type of work (with the same bid item) may at times appear on more than one quantity table within the road portion of the project. These items are to be shown as subtotals on those quantity tables but totaled together and shown on the summary of quantities sheets as "Grand Total" or "Total". The tables in the various sections of the plans which list the common bid items, are to include an asterisk in each column heading of those common bid items and a note on that plan sheet which reads: "*SEE SUMMARY OF QUANTITIES SHEETS FOR PROJECT TOTALS"

Where the tables on the summary of quantities sheets summarize quantity subtotals from other plan sections of the road portion of the project, describe their origin. Example: if the table for "Place Hot Mix Asphalt (Miscellaneous Area)" includes a quantity subtotal from the drainage summary, then add a note in the location or description column of the table that reads: "Subtotal From Drainage Quantities."

If the same type of work with the same bid items are shown on the road portion and the structure portion of the project plans, include the following information:

- Add an asterisk in each column heading of the quantity tables on the project summary of quantities sheets which have bid items common to both road work and structure work
- Include a note on the summary of quantities sheets below the quantity table that reads:
 "*SEE STRUCTURE PLANS FOR
 ADDITIONAL QUANTITIES"