**Revise Section 625 of the Standard Specifications as follows:**

**Revise 625.04, Contractor Surveying, under the 4th paragraph, add “Permanent Water Quality As-Constructed Survey” as follows:**

**(4th paragraph)** The Contractor shall check all Department established Primary horizontal and vertical control points per the CDOT Survey Manual Chapter 6 and verify and document in the survey records their horizontal accuracy tolerance per the CDOT Survey Manual Chapter 5, and their vertical accuracy tolerance per the CDOT Survey Manual Chapter 6, for a CDOT Class A, Primary Survey before using them for construction surveying control.

**Permanent Water Quality As-Constructed Survey.** The Contractor shall complete an as-constructed survey of each Permanent Water Quality (PWQ) control measure (CM). Surveys are conducted on all PWQ CM for two reasons:

* 1. To provide initial location information for CDOT PWQ CM inventory, and
  2. To provide necessary data for completion of the Pond Information Certification (PIC) for PWQ CM designed using the Water Quality Capture Volume (WQCV) Standard (Extended Detention Basin (EDB), Retention Pond, etc.)

The Contractor shall submit the as-constructed survey to the Project Engineer before payment for and final acceptance of any items required to construct the PWQ features. The electronic as-constructed survey shall conform to the requirements of Section 625, use Terrain Modeling Survey System (TMOSS) codes, and shall include the following information:

1. The Contractor's Professional Land Surveyor’s (PLS) digital terrain model with the electronically sealed field-collected information report.
2. The PWQ survey shall include all horizontal and vertical reference points for all PWQ features as determined by the Contractor’s surveyor.
3. The contours shall be shown at 1-foot intervals with major contours labeled at 5-foot increments.
4. The bottom of the EDB elevations along the toe of embankment slope and top and bottom of trickle channel elevations, to verify positive drainage throughout the basin with labels of features, elevation, and the WQCV elevation as shown on the plans.
5. The top of wall or dam elevation on the survey to verify freeboard (distance between high- water mark and top of wall or dam elevation) along the EDB, and the top width of the embankment along the perimeter of the EDB.
6. A detail of each forebay located at the outfall of each incoming storm drain into the EDB, including plan dimensions with tops of walls, tops of slabs, pipe invert elevations, and pipe diameters.
7. The basin location related to property lines (measured distances), right-of-way lines, buildings, roads, access paths, and other easements.
8. The details of the outlet control structure, including labels of features and elevations, and notes indicating if the features are the same as the design plan, or the reason they are different in the as-constructed survey.
9. The details, including labels and elevations of all grates, racks, screens, and any other materials intended to prevent clogging of the outlet structure orifices by debris of any kind. Label all features and elevations on the as-constructed deliverable CADD 3D model and Survey report.
10. The access and maintenance easements per the ROW plans around the EDB, including the maximum slope of the access easement.
11. The submitted CADD 3D model shall include the following:
    1. All control marks set per item 2, and other Project Controls as shown on the sealed Project Control diagram; ensure that contour lines are continuous, closed, unbroken polylines.
    2. Grade spot elevations and break lines used to create the contours.
    3. Elevations for all applicable items listed in 2-10 above.
    4. Correct contours.
    5. Initial /EDB volume calculation report sealed by the PLS of the data collection.
    6. Geocoordinate system that conforms to project datum.
    7. Survey information shall be compatible with the latest 3D digital modeling software.

Submit the as-constructed survey, including field survey data, survey report, and electronic model files as a complete package to the Engineer. Allow 10 days for CDOT review of the field survey data.

If the field survey data, survey report or electronic model files indicate the control measure was incorrectly constructed, the Contractor shall perform necessary corrective work to the PWQ CM to ensure compliance with design, at no cost to the project, as directed by the Engineer. Payment will not be made for any PWQ items until corrections have been made and another survey has been completed, compared, and accepted.

The Contractor shall clean all Permanent Water Quality Control Measures before the PWQ Survey, final walkthrough and final acceptance.

Payment for the as-constructed survey of EDBs and associated items, including creating the electronic 3D CADD model and report, shall be included in Item 625 Construction Surveying.