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7.7 PERMANENT HIGHWAY SIGNING**7.7.1 GENERAL**

The Work consists of the removal and reinstallation or disposal of existing signs and the installation of new signs, and includes traffic control signing, guide signing and facility signing for the normal use of the roadway. Signing for construction, repair or emergency situations is specified in Specification 7.1, Temporary Construction Signing.

7.7.2 MATERIALS

The Contractor shall supply all materials required for the installation of permanent signs including frames for cluster signs, concrete bases, steel breakaway posts, wooden posts and all bolts and required mounting hardware, in accordance with Specification 5.18, Supply of Permanent Highway Signs, Posts and Bases.

When the Work necessitates the removal, salvage and reinstallation of signs, only materials from the existing installations shall be used. Contractor stockpiles of used material from other sources will not be considered acceptable.

7.7.3 CONSTRUCTION**7.7.3.1 Removal of Existing Signs**

Existing signs which must be removed in the prosecution of the Work shall be carefully salvaged and reinstalled. New wooden posts shall be used if the existing posts cannot be salvaged. Critical signs necessary for the protection of traffic such as railroad crossing signs or stop signs shall be maintained.

Existing signs designated for removal and disposal shall become the property of the Contractor.

7.7.3.2 Removal of Concrete Bases and Breakaway Posts

The Contractor shall remove the sign and breakaway posts from the existing concrete base and salvage for reinstallation or dispose of as directed by the Consultant.

When required, the existing base shall be removed, salvaged, and moved to the new installation site.

Where a base cannot be totally removed, the tops of the base shall be removed to below ground level and the excavation backfilled to the adjacent ground level. This will be considered incidental to the Work and will not be paid for separately.

7.7.3.3 General Installation and Layout

The Consultant will provide plan layout information in the form of a base line for the installation of the permanent signs. The Contractor shall establish the height and elevation of the sign and install it in accordance with the plans or as directed by the Consultant.

It is the Contractor's responsibility to have all sign locations checked for utilities prior to digging holes for posts. Any adjustments to the locations of signs will be subject to the approval of the Consultant.

The soil at the bottom of holes shall be thoroughly compacted to provide a firm bearing. Posts shall be set vertically and backfilled with material free of organics. All backfill shall be placed in thin layers and thoroughly compacted for the full depth. Cementitious materials shall not be used as backfill.

The disturbed area around installations shall be restored to the original contours.

The signs shall be fixed securely to the post(s) in accordance with the plans.

7.7.3.4 Installation of Concrete Bases

Concrete bases shall be installed as shown on drawings TEB 1.82 and TEB 1.83. The Contractor shall excavate holes to a minimum of 300 mm larger than the base and the base shall be installed in the centre of the excavation. The backfill around the base shall be placed in thin layers and shall be thoroughly compacted for the full depth.

7.7.3.5 Installation of Breakaway Steel Posts

All installations shall conform to drawing TEB 1.82. The installed post shall be within 1.5 degrees of vertical.

When salvaged materials are used, the sign and breakaway steel posts shall be reassembled and installed on the base at the new site. When new posts are required, the size of steel I-Beam post will be as shown on the drawing or specified by the Consultant or in the case of a replacement, it will be the same size as the post being replaced.

The Contractor shall saw cut the flange and web; and cut, drill, weld and shim the flanges for the base joint as required to ensure an unstressed installation.

Damage to galvanized surfaces shall be repaired by treating the damaged areas with zinc rich paint.

7.7.3.6 Installation of Wooden Posts

Posts shall be installed in accordance with drawing TEB 1.70 and shall be within 1.5 degree of vertical.

When a post is removed and replacement is not requested, the Contractor shall backfill the hole in thin compacted lifts.

7.7.3.7 Installation of Cluster Frames

The new frames shall be installed perpendicular to and facing the approaching traffic lane and shall be securely fastened to the post in accordance with drawing TEB 1.69.

7.7.3.8 Installation of Signs

Signs shall be mounted in accordance with drawings TEB 1.69, TEB 1.71, TEB 1.72, TEB 1.75, TEB 1.82 and TEB 1.95.

The installed sign shall be clean and not bent or twisted. The reflectorized surface shall be free of scratches and marks and must be securely fastened to the post or frame.

Signs on utility posts shall be mounted by a procedure approved by the utility owner.

7.7.4 ACCEPTANCE OF WORK AND WARRANTY

Prior to the final acceptance of the Work, all damage or deficiencies from any cause in signs and posts installed under this Contract shall be rectified by the Contractor at his expense.

In addition to the warranty requirements specified in Specification 1.2 General, the Contractor shall, during the warranty period, straighten and recompact or reinstall as required, all posts which are more than 50 mm from vertical in a 2 m length of post.

7.7.5 MEASUREMENT AND PAYMENT7.7.5.1 **General**

All unit prices shall include traffic accommodation and temporary, construction signing; and all labour, materials, equipment, tools and incidentals necessary to complete the Work.

Because the condition of subsurface materials designed for salvage and reuse is unknown, this Contract may contain contingency bid items for units of work which may not be required. The Contractor shall have no claim against the Department for the deletion of any bid items during construction.

7.7.5.2 **Removal of Existing Signs**

Measurement will be made of the number of sign installations removed.

Payment will be made at the applicable unit price bid per sign for "Removal and Reinstallation or Disposal of Existing Signs - One Post", or "Removal and Reinstallation or Disposal of Existing Signs - Two Posts". Payment will be full compensation for removing, salvaging and reinstalling the wooden posts and signs, or removing and disposing of the existing wooden posts and signs.

If the Consultant determines that the removed post is not suitable for reinstallation and the existing sign is reinstalled, payment will be made for "Removal and Reinstallation or Disposal of Existing Signs" plus "Supply and Install - Wooden Post" for the applicable cross section of post installed.

7.7.5.3 **Breakaway Steel Posts**

Measurement will be made of the number of steel posts removed and disposed of, and the number of steel posts removed, salvaged and reinstalled.

Measurement will be in metres of new post installed.

Payment for supplying and installing new post will be made at the applicable unit price bid per metre for:

"Supply and Install Breakaway Steel Posts - W150 x 14"

"Supply and Install Breakaway Steel Posts - W200 x 15"

"Supply and Install Breakaway Steel Posts - W150 x 22"

"Supply and Install Breakaway Steel Posts - W200 x 27"

This payment will be full compensation for supplying and installing the applicable post.

Payment for removal and reinstallation of existing breakaway posts will be made at the unit price bid per steel post for "Remove and Reinstall Breakaway Steel Posts". This payment will be full compensation for removing and salvaging the steel post and sign; hauling salvaged material to the new site; and reassembling

and installing the steel post and sign.

Payment for removal and disposal of existing breakaway posts will be made at the unit price bid per steel post for "Remove and Dispose - Breakaway Steel Posts". This payment will be full compensation for removing and disposing of the steel post and sign.

7.7.5.4 Concrete Bases

Measurement will be made separately of the number of bases supplied and installed; bases removed, salvaged and reinstalled; and bases removed and disposed of.

Payment for removing, salvaging and installing existing bases will be made at the unit price bid per concrete base for "Concrete Base - Remove and Reinstall". This payment will be full compensation for removing and salvaging of the existing base, moving the salvaged concrete base to the new site and installing the salvaged concrete base.

Payment for removing and disposing of concrete bases will be made at the unit price bid per base for "Concrete Base - Remove and Dispose". This payment will be full compensation for removing and disposing of the base; and placing and compacting backfill material in the hole.

Payment for supplying and installing new concrete bases will be made at the unit price bid per base for "Concrete Base - Supply and Install". This payment will be full compensation for supplying the base to the installation location, excavating, installing the new concrete base and backfilling and compacting around the base.

7.7.5.5 Wooden Posts

Measurement will be made of the number of posts of a particular cross-section supplied and installed.

Payment will be made at the unit price bid per post for "Supply and Install - 100 mm x 100 mm" or "Supply and Install Post - 100 mm x 150 mm" or "Supply and Install Post - 150 mm x 200 mm", regardless of the length of the post. This payment will be full compensation for supplying and installing and maintaining the post.

7.7.5.6 Cluster Frames

Measurement will be made of the number of cluster frames supplied and installed.

Payment will be made at the unit price bid per frame for "Cluster Frames - Supply and Install". This payment will be full compensation for the supply and installation of the new cluster frames.

7.7.5.7 Signs

Measurement will be made of the number of signs within a particular size range, based on surface area.

Payment will be made at the applicable unit price bid per sign for "Install Sign - less than 1 m²" or "Install Sign - 1 m² to 3 m²" or "Install Sign - over 3 m²". Separate payment will be made for each sign on a single post. This payment will be full compensation for installing and maintaining the signs.