

Section 14002 Steel Plates Used in Connection with Roadway Utility Trench Excavations

Index

14002-1	Scope	2
14002-2	General	2
2.1	Description	2
14002-3	Specific Requirements	2
3.1	Steel Plate Requirements	2
14002-4	Materials	4
14002-5	Construction	4
5.1	Installation of Steel Plate	4
5.2	Remediation of Steel Plate Trench	5
14002-6	Signage	5
14002-7	Seasonal Requirements	5

Tables and Equations

Figure 1: Installation Detail.....	4
------------------------------------	---

14002-1 **Scope**

The section describes the requirements for the placement and removal of steel plates over open excavations within the public right-of-way.

14002-2 **General**

This specification specifies the design and submission requirements for steel plate installations over trenches.

2.1 **Description**

For trenches and installations with spans greater than 1.20 m, a structural design shall be prepared by a professional engineer. Design of plate thickness shall be according to the maximum allowable span of the steel plate over the trench in the roadway, and the maximum dead and live loads that steel plate can undertake from the roadway. Indicate the required minimum plate overlap in the design report.

14002-3 **Specific Requirements****3.1** **Steel Plate Requirements**

Steel plates must meet the loading requirements for all truck loading included in Traffic Bylaw No.7200 without any lateral movements.

Steel plates shall be fabricated to meet or exceed CSA G40.21 38W/260W steel requirements.

When two or more of plates are in place the plates shall be welded together at each corner to reduce or eliminate vertical movement. Alternative methods to accomplish this, such as metal connectors, will be considered for approval on case-by-case basis.

Steel plates shall be installed to resist bending, vibrations, and loud rattling under traffic loads and shall be anchored securely to prevent movement. If these conditions are not met, the Contractor shall be required to backfill and pave the excavation daily or use alternative methods which are designed to secure the plates with minimum noise and vibration.

All steel plates within the right-of-way, whether used in or out of the traveled way, shall be without deformation. The plate surface must not deviate more than 6.35 mm when measured with a 3.0 m straight edge along the length of the plate. Non-paved surfaces (i.e., gravel lanes and streets) should follow similar requirements to paved surfaces.

In the event of improper installation of the steel plates that presents a nuisance or a public safety problem, the Contractor shall respond to all excavation restoration requests by the City immediately upon notification. Non-responses will result in the required restoration work being done by the City, with all expenses to be paid by the Contractor.

Steel plates must extend a minimum of 300 mm beyond the edges of the excavation and be countersunk so that the surface of the plates is flush with the adjacent pavement. If the ground condition becomes unstable, the Contractor must extend more than 300 mm beyond the edges of the excavation or take measures to stabilize the ground prior to plate installation. Higher vehicular speeds might also require longer overlap.

Before steel plates are installed, the excavation shall be adequately shored to support the bridging and traffic loads.

Where deformations in the existing pavement do not allow the plate surface to match the adjacent pavement, temporary paving with a cold asphalt mix should be used to feather the edges of the plate to form a wedged taper to cover the edges of the steel plate.

Wedges or other non-asphaltic devices shall be used for leveling as required to eliminate rocking of the plates. Compacted temporary asphalt shall be used to fill all gaps between the plates and existing pavement surfaces.

Steel road plates shall have a welded-open diamond mesh for traction and painted traffic yellow for high visibility. Steel road plates shall have a minimum thickness of 13 mm when used on sidewalks and minimum thickness of steel plates used on roadways will vary depending upon roadway classification, the Engineer shall specify the suitable plate thickness.

Other equivalent road plates with a skid resistant surface in a highly visible colour may be used with the approval of the Contract Administrator.

14002-4 **Materials**

Where road plates are used to facilitate vehicle crossings, the Contractor must have a satisfactory supply of road plates at the job site before commencing work.

14002-5 **Construction**

5.1 **Installation of Steel Plate**

The steel plate installation shall be recessed by milling into the existing asphalt to set flush with the surface of the existing asphalt. The pavement shall be cut and cold planed to a depth equal to the thickness of the plate and to a width and length equal to the dimensions of the plate. Full depth cutting of the asphalt section of excavation is not permitted. Wedges or other non-asphaltic devices shall be used for leveling as required to eliminate rocking of the plates. Compacted temporary asphalt (cold mix) shall be used to fill the gap between the edge of the plate and the adjacent existing asphalt pavement.

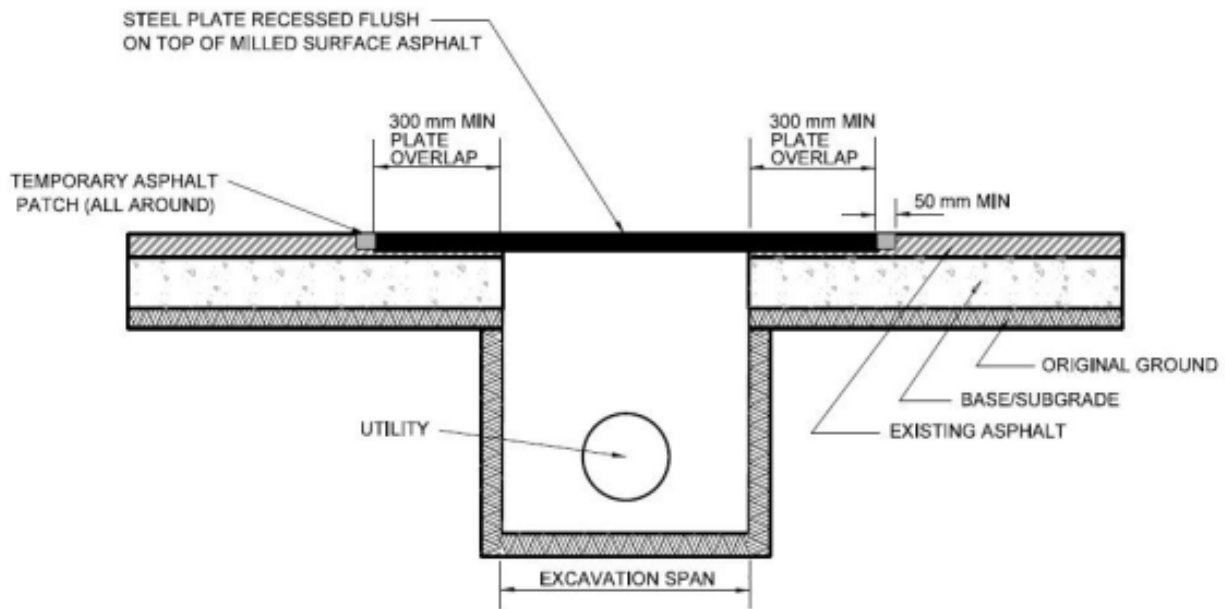


Figure 1: Installation Detail

5.2 Remediation of Steel Plate Trench

Upon completion of the work, steel plates shall be removed, and the trench restoration must be completed in accordance with Section 14001.

14002-6 Signage

Traffic control requirements should follow 6.1 of Section 01030.

In addition to any traffic control devices required by the City of Saskatoon's Transportation Department, warning signs advising motorists that they should expect to encounter steel plates, shall be placed approximately 30 m in advance of the steel plate location.

14002-7 Seasonal Requirements

Where possible, limit the use of plates during winter, given the possibility of ploughing operations.

End of Specification 14002