

**CONSTRUCTION SPECIFICATION FOR
MAINTENANCE OF TRAFFIC**

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City of Toronto Manuals

Pedestrian and the Workplace Guidelines

(Current Edition)

Canadian Government Specifications Board

CGSB 1-GP-181 M Coating: Zinc Rich, Organic, Ready Mix

(Current Edition)

TS 1.00.03 DEFINITIONS

For the purposes of this specification the following definitions apply:

Crushed Aggregate: means pieces of aggregate having at least one well-defined face resulting from fracture. Particles with smooth faces and rounded edges, or with only small chips removed, are not considered crushed.

HL, Hot Mix, Mixture, Mix: means hot mix, hot laid asphaltic concrete.

HL Types: mean the hot mixes specified in Table 1 of TS 310.

TS 1.00.04 SUBMISSIONS AND DESIGN REQUIREMENTS

TS 1.00.04.01 Hot Mix Asphalt

All submission and design requirements for hot mix asphalt shall be as specified in TS 310, except that trial batches will not be required.

TS 1.00.05 MATERIALS

TS 1.00.05.01 HL-3 Fine Asphalt

All HL-3 FINE asphalt shall meet the requirements of TS 310.

TS 1.00.05.02 HL-8 Asphalt

All HL-8 asphalt shall meet the requirements of TS 310.

TS 1.00.05.03 Crushed Aggregate

All crushed aggregate shall be Granular 'A' and shall meet the requirements of TS 1010.

TS 1.00.05.04 Site Fence

All site fence shall consist of steel 'T' posts, top wire and plastic fencing.

Steel 'T' posts shall be 50 x 50 x 2400mm metal stakes primed with one brush coat of black zinc rich paint to CGSB 1-GP-181 M.

The fencing shall be constructed of heavy duty, high visibility, orange plastic and shall be a minimum of 1.2m high.

The top wire shall be stranded wire with a minimum diameter of 4.1mm or 8 gauge.

TS 1.00.05.05 Crowd Control Barrier

The crowd control barrier shall be in accordance with T-216.02-12 and shall be as supplied by Mark-All Services Incorporated for their Type 'B' Crowd Control Barrier (551 Piercey Road, Bolton, Ontario, L7E 5B5, 905-951-2700) or approved equivalent.

The crowd control barrier shall be painted yellow and have a solid piece of reflective tape placed along the top rail. The reflective tape shall be a minimum 600mm in length and shall be centred on the top rail.

TS 1.00.05.06 Temporary Barrier

All temporary barriers shall be of the type listed below or as directed by the Commissioner.

1. Precast concrete barrier, with an I-Lock connection, meeting the requirements of OPSS 1352.
2. Triton barrier as manufactured by Energy Absorption Systems Inc. (One East Wacker Drive, Chicago, Illinois, 60601 (312) 467-6750). The local supplier of Triton barrier is Lecol Co. Ltd. (689 Warden Avenue, Units 15 & 16, Scarborough, Ontario, M1L 4R6 (416) 694-4420) or approved equivalent.

TS 1.00.07 CONSTRUCTION

TS 1.00.07.01 General

All temporary construction and maintenance shall be to the satisfaction of the Commissioner. The Commissioner will give written notification of any deficiencies, and the Contractor shall initiate repairs within 24 hours.

The Commissioner reserves the right to contract with others to complete any repairs that have not been initiated within 24 hours of written notification. All costs for such repairs will be deducted from monies owing under the contract.

All concrete, asphalt and contaminated aggregate, used for maintenance items, shall be excavated and disposed of, off the site. All material deemed reusable, by the Commissioner, shall be graded into and compacted to form part of the roadway subbase or other temporary works. No additional payment will be made for the rehandling of this material.

TS 1.00.07.02 Site Meetings

Regular site meetings will be held every week or every two weeks, as required by the Commissioner, to discuss traffic management and progress of work. Attendance will be required by at least one representative from the Contractor.

The Contractor shall be responsible for the following:

- Coordinating and organizing attendance of subcontractors responsible for any work to be discussed as part of the agenda.
- Informing the Commissioner, in advance of the meeting, of all items to be added to the agenda.
- Ensuring that the Contractor representatives in attendance have the required authority to commit the Contractor to actions agreed upon.

TS 1.00.07.03 Temporary Traffic Lanes

At least two paved lanes of a minimum width of 3.05m each shall be kept open to traffic at all times. Where additional width is available, it should be used to provide wider curb lanes. Any portions of such lanes which, in the opinion of the Commissioner, are required outside the edge of the existing pavement shall consist of 75mm of HL-8 hot mix asphalt over a 225mm thickness of graded crushed aggregate compacted to meet the requirements of TS 501.

Prior to the placing of the stone and asphalt layers, selected excavated material from either roadway or sewer excavations shall be used to fill ditches or other low areas and shall be compacted to 100% of the Standard Proctor Maximum Dry Density.

TS 1.00.07.04 Side Streets

The Contractor shall maintain two-way traffic on side streets wherever possible. If necessary and subject to the approval of the Commissioner, traffic on side streets may be reduced to one lane for a limited period of time. If the side street is to be reduced to one lane, there must be a qualified Traffic Control Person or a Pay Duty Officer (PDO) present from the time of lane reduction until the side street is open to two-way traffic. The requirements for a PDO are as described in TS 1.00.07.11.02 of this specification.

TS 1.00.07.05 Private Driveways

The Contractor shall maintain access to driveways wherever possible. Driveways greater than 6.0 metres in width shall have access maintained at all times. Construction shall be scheduled to allow temporary access to either half of the driveway. Such temporary access shall consist of a pad of well compacted, crushed aggregate placed to a minimum thickness of 150mm and a minimum width of 3 m.

TS 1.00.07.06 Temporary Sidewalks

All pedestrian walkways shall conform to the manual “Pedestrian and the Workplace Guidelines.”

The Contractor shall provide and maintain safe and convenient facilities for pedestrian traffic through the areas under construction. These facilities shall provide for a dry, hard, even surface at all times. Such temporary sidewalks shall consist of a pad of well compacted, crushed aggregate placed to a minimum thickness of 100mm. A minimum vertical clearance of 2.5m shall be provided.

Wheelchair access shall be maintained at all times.

All pedestrian traffic shall be separated from the construction area by means of a temporary site fence or pedestrian control barrier. If the erection of temporary site fence or pedestrian control barrier is not feasible, the Contractor shall seek approval from the Commissioner to use traffic control barrels.

The Contractor shall provide sufficient signs to direct pedestrians around all sidewalk detours.

TS 1.00.07.07 Bicycle Facilities

The Contractor shall provide and maintain safe and convenient facilities for bicycle traffic areas under construction. Where a bicycle lane or path exists within the work area, temporary facilities shall be provided. Such temporary bicycle facilities shall consist of a pad of well compacted, crushed aggregate placed to minimum thickness of 100mm and a minimum width of 1.5m for one way traffic and a minimum width of 2.5m for two way traffic. A minimum vertical clearance of 2.5m shall be provided.

Cyclists shall be directed to use traffic lanes, follow a detour or use pedestrian facilities after dismounting. All information with regard to the cyclists shall be supplied and maintained by the Contractor.

TS 1.00.07.08 Site Fence

The Contractor shall supply and maintain a continuous site fence to separate the travelled portion of the road or pedestrian area from the area under construction.

Fence posts shall be spaced at a maximum of 3m apart. Sleeves shall be placed in the concrete base on the first half of the pavement to be constructed, so that the posts are clear of the excavation for the second half. The site fence shall be removed following the completion of the road base and the sleeves shall be filled with concrete of the same type as used for the construction of the concrete road base. The construction area shall then be isolated from the public sections by the use of approved delineators, as specified in the latest edition of the MTO Manual "Traffic Control Manual for Roadway Work Operations.”

The Contractor may, subject to the approval of the Commissioner, substitute approved delineators as specified in the latest edition of the MTO Manual "Traffic Control Manual for Roadway Work Operations," for the site fence.

The top wire shall be threaded through the top portion of the fence, every 3 or fewer holes and drawn taut by machine. The top wire shall not be tightened by hand. The top wire shall be securely fastened to each post using standard tie wire. Every 100mm or at every corner or break in the fence, the top wire shall be fastened to the bottom of the next post, to provide stability.

TS 1.00.07.09 Crowd Control Barriers

Crowd control barriers shall be placed between the construction areas and the pedestrian traffic. The triangular base shall be facing the construction area to minimize any obstructions to the pedestrian traffic.

Adjacent sections shall be connected at all times and pulled taut to form a continuous unbroken chain. Sections at the ends of each chain shall be secured to a section of site fence or a solid structure, such as a pole or sign. Crowd control barriers shall prevent pedestrian traffic from gaining access to the construction area.

Construction areas shall be completely isolated from pedestrian traffic, at all times.

For contracts with multiple staging, the Contractor may be required to relocate the barrier sections from one stage to the next. The relocation of crowd control barrier between stages shall be payable under the appropriate item. The Contractor may also be required to relocate sections of the crowd control barrier on a daily basis to facilitate construction access or to temporarily increase the work area. All costs associated with relocating crowd control barriers for any reason, except for staging requirements, shall be borne by the Contractor.

TS 1.00.07.10 Temporary Barrier

Temporary barriers shall be placed between the construction areas and the vehicular traffic, as detailed on the contract drawings or as directed by the Commissioner. Triton barriers require a "clear zone", as specified by the manufacturer, between the construction area and the vehicular traffic.

Preparation of the base, if necessary, shall meet the requirements of OPSS 553, except that the slope of the foundation for the Triton Barrier shall not exceed 5% when measured perpendicular to the barrier.

Supplying, placing, relocation and removal of the temporary concrete barriers shall meet the requirements of OPSS 553.

End treatments for temporary concrete barrier shall be as specified in the contract or as directed by the Commissioner.

The supply, placing, relocation and removal of the Triton barrier shall be according to the manufacturer's "Triton Barrier Application Manual."

TS 1.00.07.11 Traffic Control Persons, Signs, Barricades, Etc.

TS 1.00.07.11.01 General

The Contractor shall provide, place in service, maintain and remove all of the traffic control devices required by the MTO Manual entitled "Traffic Control Manual for Roadway Work Operations." The Contractor shall ensure that sufficient devices are always easily at hand to satisfy all of the requirements. No claims will be considered for lost work due to the unavailability of any signs.

In addition, the Contractor shall provide, place in service and maintain and remove special construction signs, where appropriate, to advise of rough surface, raised maintenance covers, timber decking, steel plates, narrow lanes and detours (for motor vehicles, bicycles, and pedestrians), on all approaches to and within the areas under construction.

The maintenance of all signs, barricades, etc. is a continuous, 24 hour a day obligation. The Contractor must provide a contact that will be available at all hours, throughout the duration of the project.

For failure to adequately protect all phases of his operation without delay, and to the satisfaction of the Commissioner, the Contractor will in the first instance be warned, in writing, about such failure. For subsequent failure by the Contractor to comply, remedial measures will be adopted by the Toronto Transportation Department, with the deduction from the final payment to the Contractor of all costs incurred by the Transportation Department to perform and carry out this work, including overhead and office costs.

TS 1.00.07.11.02 Paid Duty Officer (PDO)

The Construction Officer of the Toronto Police, Traffic Services Division will determine the need for any paid duty officers. Disputes between the Construction Officer and the Contractor over the need for paid duty officers shall be resolved by those parties prior to commencement of work at the location of dispute. No claims for delay, resulting from these matters, will be considered by the Commissioner.

The need for Paid Duty Officers will generally follow guidelines established between the Toronto Transportation Department and the Toronto Police Services (Traffic Services Division), but will be determined on a case-by-case basis. Paid duty officers may be required:

- During grinding and paving operations within 30 metres of a signalized intersection.
- In signalized intersections when the left turn has been eliminated and/or turning movements cannot be made in a safe manner. They may also be required when pedestrian movements cannot be made safely.

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- Whenever there is a need to direct or stop two (2) lanes of traffic flowing in the same direction, or opposite directions.
 - At some signalized intersections, two (2) or more paid duty officers may be needed, depending upon the size, location and nature of the work.

TS 1.00.07.11.03 Mass Transit

The Contractor shall coordinate all staging with any transit commission (TTC, GO, etc.), school or tour group, that may have a bus stop or travel, within the construction limits. Special attention shall be given to loading and unloading areas for disabled persons and school buses.

The Contractor shall provide access to all existing bus stops. The relocation and reinstatement of the bus stops shall be performed by the Contractor, under the direction of the transit authority or the Commissioner.

All costs associated with relocating and providing temporary bus stops shall be borne by the Contractor, except for any temporary ramps or accesses which will be paid for under the appropriate items.

There will be no additional payment for any delays caused by the Contractor having to stage his work around the transit commissions.

TS 1.00.07.12 Maintenance of Temporary Work

Until the final course of asphalt and the permanent pavement markings have been placed, the travelled portion of the road shall be considered as temporary traffic lanes.

Temporary traffic lanes shall be maintained so that there are no irregularities exceeding 35mm. All cross walks shall be ramped using temporary HL-3 FINE asphalt to provide smooth transitions between the base asphalt and the top surface of the cross walk. Utility frames and covers, valve boxes, etc. shall be covered over with a steel plate or maintained flush with the surface of the asphalt. After final adjustment to finish grade, the appurtenances shall be ramped as described above. Prior to the placement of the final course of hot mix asphalt, the ramps must be removed without disturbing the base to allow the final course asphalt to be placed to its full depth.

The cost of any necessary patching of temporary traffic lanes or regrading of temporary access to driveways and side streets or regrading of temporary sidewalks or bicycle facilities shall be paid for at the unit prices in the Contract for stone and asphalt under the general heading "Maintenance of Traffic." If no such items exists, no separate payment will be made and all costs associated with this temporary work shall be factored into other related pay items.

Should the Contractor fail to correct any unsatisfactory condition upon notification from the Commissioner to do so, the Commissioner may proceed to maintain the project and deduct the entire cost of such maintenance from moneys due to the Contractor.

TS 1.00.08 QUALITY ASSURANCE

The Commissioner will make inspections, as required, and the Contractor will be notified of any deficiency in writing. Repairs shall be carried out in conformance with TS 1.00.07 of this specification.

TS 1.00.09 MEASUREMENT FOR PAYMENT

**TS 1.00.09.01 Crushed Aggregate Type 'A' for Maintenance of Traffic
HL-3 FINE Asphalt for Maintenance of Traffic
HL-8 Asphalt for Maintenance of Traffic**

Measurement for the above item(s) shall be by mass in Mg.

TS 1.00.09.02 Site Fence

Measurement for the above item shall be made in metres, of the maximum length of site fence required to be in place at any one time during the life of the contract.

TS 1.00.09.03 Relocate Site Fence

Measurement for the above item shall be made in metres for the length of site fence relocated.

TS 1.00.09.04 Crowd Control Barrier

Measurement for the above item shall be per metre for the maximum number of barrier sections required to be in place at any one time during the life of the contract.

TS 1.00.09.05 Relocate Crowd Control Barrier

Measurement for the above item shall be per metre of barrier section relocated.

**TS 1.00.09.06 Temporary Precast Concrete Barrier
Temporary Triton Barrier**

Measurement for the above item(s) shall be made in metres, of the maximum length of barrier required to be in place at any one time during the life of the contract.

**TS 1.00.09.07 Relocate Temporary Precast Concrete Barrier
Relocate Temporary Triton Barrier**

Measurement for the above item shall be made in metres for the length of barrier relocated.

TS 1.00.09.08 Traffic Control Persons, Signs, Barricades, Etc.

Measurement for the above item shall be by lump sum.

TS 1.00.10 BASIS OF PAYMENT

TS 1.00.10.01 General

The following items may or may not appear in the contract. If these items do not appear in the contract then the cost of temporary work required under this specification should be factored into other pay items by the Contractor.

No separate payment shall be made for the provision of temporary drainage works. Payment for this work shall be deemed to be included in the unit prices bid for the other items.

No additional payment will be made for any rehandling required to incorporate any reusable material into the final or temporary works.

No additional payment will be made for the replacement of any item that has become damaged as a result of the Contractor's actions or by any other means.

**TS 1.00.10.02 Crushed Aggregate Type 'A' for Maintenance of Traffic - Item
HL-3 FINE for Maintenance of Traffic – Item
HL-8 for Maintenance of Traffic – Item**

Payment at the contract price for the above item(s) shall be full compensation for all labour, equipment, materials and incidentals to do the work. Payment shall include, but not be limited to, the supply, placing and compacting of granulars and hot mix to construct detour roads and ramps, the removal, placing and compacting of all reusable materials and any excavation required to place the detour granulars and asphalt.

The removal of all temporary asphalt and contaminated aggregate, by whatever means, shall be paid for under the item 'General Excavation'.

TS 1.00.10.03 Site Fence - Item

Payment at the contract price for the above item shall be full compensation for all labour, equipment, materials and incidentals to do the work. Payment shall include, but not be limited to, the supply, erection, maintenance and removal of all site fence and the reparations to the concrete road base, if required.

TS 1.00.10.04 Relocate Site Fence - Item

Payment at the contract price for the above item shall be full compensation for all labour, equipment, materials and incidentals to do the work. Payment shall include, but not be limited to, the relocation of all site fence.

TS 1.00.10.05 Crowd Control Barrier - Item

Payment at the contract price for the above item shall be full compensation for all labour, equipment, materials and incidentals to do the work. Payment shall include, but not be limited to, the supply, erection, maintenance, and removal of all crowd control barriers.

TS 1.00.10.06 Relocate Crowd Control Barrier - Item

Payment at the contract price for the above item shall be full compensation for all labour, equipment, materials and incidentals to do the work. Payment shall include, but not be limited to, the relocation of all crowd control barriers.

**TS 1.00.10.07 Temporary Precast Concrete Barrier – Item
Temporary Triton Barrier – Item**

Payment at the contract price for the above item shall be full compensation for all labour, equipment, materials and incidentals to do the work. Payment shall include, but not be limited to, the supplying, placing, maintenance, relocation and removal of all temporary concrete barriers, including tapered end treatments. All other end treatments will be paid for under the appropriate item(s).

**TS 1.00.10.08 Relocate Temporary Precast Concrete Barrier – Item
Relocate Temporary Triton Barrier – Item**

Payment at the contract price for the above item shall be full compensation for all labour, equipment, materials and incidentals to do the work. Payment shall include, but not be limited to, the relocation of all temporary concrete barriers, including tapered end treatments. All other end treatments will be paid for under the appropriate item(s).

TS 1.00.10.09 Traffic Control Persons, Signs, Barricades, Etc. - Item

Payment at the contract price for the above item shall be full compensation for all labour, equipment, materials and incidentals to do the work. Payment shall include, but not be limited to, the supply, placing, maintenance and removal of all Items required according to the MTO Manual entitled "Traffic Control Manual for Roadway Work Operations," the relocation of bus stops, the production of detailed staging drawings and all costs associated with the supply of paid duty officers. Payment will be evenly distributed over the duration of the contract.