

**THE REGIONAL MUNICIPALITY  
OF PEEL  
STANDARD SPECIFICATIONS  
FOR  
RESTORATION**

**The Regional Municipality of Peel  
Standard Specifications for Restoration**

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## **R.1 GENERAL**

The Public Works Department (PW) Design, Specifications & Procedures Manual shall form a part of these contract documents.

The following Ontario Provincial Standard Specifications shall also form a part of the contract documents:

- OPSS 304 Tar and Chip Surface Treatment
- OPSS 309 Cold Mix Asphalt
- OPSS 310 Hot Mix Asphalt
- OPSS 314 Granular Subbase
- OPSS 351 Concrete Sidewalk
- OPSS 353 Concrete Curb and Gutter
- OPSS 540 Highway Fence
- OPSS 541 Chain Link Fence
- OPSS 552 Guide Rail
- OPSS 570 Topsoil
- OPSS 571 Sodding
- OPSS 572 Seeding and Mulching
- OPSS 1010 Aggregates

## **R.2 SCOPE**

This specification covers the requirements for restoration of the site following road construction, resurfacing, bridge/culvert rehabilitation, and the installation of sanitary sewers, forcemains, watermains, service connections and their associated appurtenances.

## **R.3 MATERIALS**

All material shall be selected in accordance with the Ontario Provincial Standard Specifications unless otherwise specified on the Contract Drawings or in the Special Provisions or as directed by the Engineer.

## **R.4 CONSTRUCTION**

### **R.4.1 General**

All areas disturbed by construction shall be restored to the condition equal or better than existing prior to the commencement of construction and shall be restored as specified herein.

The Contractor shall provide good vehicular and pedestrian access at all times to all properties with existing access. Where there is no alternative but to shut off access temporarily to a property, the Contractor shall first notify the persons affected, and shall work so as to keep the period of inconvenience to a minimum. Notwithstanding, any closure of access must be approved by the Project Manager or designate in writing prior to closing.

The Contractor shall perform clean-up to within 10 metres of the excavated area by the end of each work day for water and sanitary sewer construction. If clean-up is not performed the Project Manager or designate will arrange for clean-up and any cost associated with this work will be deducted from the contractors progress payment.

Cold patching to be placed immediately as a temporary surface. Permanent pavement repairs using hot-mix asphalt shall be made within 14 days. All Regional roads having heavy traffic volumes must be repaired immediately with hot-mix asphalt. Between November 15th and May 15th all cuts must be filled immediately with hot mix. Under no circumstances shall a cut be left with a granular surface.

A primary objective during execution of the works will be to minimize inconvenience to the abutting residents and the travelling public. Accordingly, restoration shall be completed on a street by street or area by area basis not more than four (4) weeks following installation of services. Restoration means complete restoration of asphalt and sod or roadways, driveways and boulevards as well as any other areas damaged during construction.

If the Contractor fails to properly restore an area, the Project Manager or designate will issue a written order describing the required restoration works and completion date. Failure to comply by the Contractor will result in the Project Manager or designate ordering the works by a third

party and such additional costs, over and above the contract item, will be deducted from the Contractor's next progress payment certificate.

#### **R.4.2 Grading**

Grading shall be performed to the levels, grades and contours, as specified on contract drawings, allowing for the placement of surface materials. Backfilling, grading and compaction shall be carried out to within 30 m of the excavated area on a daily basis or a stop work order will be issued until this work is completed.

The final grade shall be a smooth uniform surface within 30 mm of the required elevation. Surface irregularities shall be corrected by removing or adding and compacting material.

Where construction is performed on existing roads, temporary restoration to carry traffic and pedestrians shall be provided as soon as possible. In asphalt roads and driveways cold mix asphalt shall be placed as directed by the Project Manager or designate.

#### **R.4.3 Roads and Driveways**

##### **R.4.3.1 Treated Roads**

Trenches in surface treated roads shall be initially reinstated with granular material compacted to 100% Standard Proctor Density to restore existing elevation.

Final restoration of trenches and damaged portions of the tar and chip road will be with granular 'A' and asphalt as specified and shown on Contract Drawings.

##### **R.4.3.2 Gravel Road, Shoulder and Driveway**

For trenches in a gravel road, shoulder or driveway the top 300 mm shall be reinstated with Granular 'A' compacted in 150 mm layers to 100 percent Standard Proctor Density.

The surface of trenches and any disturbed sections shall be reinstated to match existing or as directed by the Project Manager or designate.

#### **R.4.3.3 Joint Tape and Asphalt Paved Roads and Driveways**

Trenches in asphalt paved roads and driveways shall be initially reinstated with granular material compacted to 100 percent Standard Proctor Density to match the existing elevation.

The road shall be washed from edge to edge of pavement with power sweeper and water immediately prior to final reinstatement.

Final reinstatement of all trenches shall be as per the detail specified on the contract drawings unless otherwise directed by the Project Manager or designate.

In the event the trench runs through the road's crown restore the pavement to match the existing pavement cross section.

A Joint Sealing Product, when specified, shall provide a tough, flexible, waterproof seal between new asphalt and existing asphalt, concrete or steel.

Secondly, the Joint Sealing Product should be unaffected by extremes in temperature. Once the joint has been sealed with a Joint sealing Strip or Tape, water, road salt and other pollutants are kept from penetrating.

The sealing strip or tape should be made from a Polymer Modified Bitumen Compound. Densoband and TBond HMA Joint tape meet this requirement.

**On Regional roads**, the limit of the pavement construction joints must be sealed with Densoband, TBond HMA Joint Tape or approved equivalent as per the manufacturer's specifications as directed by Region staff.

#### **R.4.3.4 Pavement Marking**

##### Regional Roads and Intersection works

For Regional Road and/or intersection works, the Tenderer shall be responsible for all pavement markings as described with all pavement markings applied by one of the vendors currently recognized by the Region of Peel as having the necessary

qualifications to work within the Region's right of way, refer to the Regional Roads and Traffic section of the PW Design, Specifications & Procedures Manual for additional information.

Watermain and Wastewater works

For Water and Wastewater works, where pavement marking would be minimal, the following shall be applicable:

1. The Tenderer is advised that the Region of Peel has retained a Contractor for pavement marking operations on Regional Road projects. The Contractor will not carry the pavement marking operation in the tender price, but will be required to:
  - a) notify the Region's site inspector seventy two (72) hours in advance of any required pavement marking application (temporary or permanent) or grinding operation of existing markings;
  - b) be responsible for ensuring the road surface scheduled for pavement marking applications, is clean to the satisfaction of pavement marking inspector;
  - c) be responsible for all temporary control signs and delineators requiring removal and/or relocation to facilitate pavement marking application operations.
2. In reference to (a), the Region will not consider and accept any claims arising out of inability to undertake any pavement marking applications due to inclement weather.
3. No additional payment will be paid to the Contractor for all works required to assist the Region's pavement marking contractor and to prepare the road surface.

**R.4.3.5 Concrete Driveway**

For trenches crossing a concrete driveway remove all concrete between the curb or road edge and the first expansion joint beyond the trench cut or as directed by the Engineer.

Provide a minimum of 150 mm Granular 'A' material compacted to 100 percent Standard Proctor Density and match the existing base depth and grade.

Construct the new section to match the existing driveway width, depth, grade and alignment ensuring that a minimum depth of 130 mm of concrete is provided.

Provide 30 MPa 5.7% air entrained concrete to meet OPSS 1301 specifications.

Spray all finished concrete surfaces with a curing compound in accordance with the manufacturer's instructions and protect all surfaces from temperature extremes until the concrete is cured.

#### **R.4.3.6 Paving Stone Driveway**

For trenches crossing paving stone driveways the existing blocks shall be removed and stock piled for reinstatement.

The trench shall initially be reinstated with 150 mm Granular `A' material compacted to 100% Standard Proctor Density.

Final reinstatement shall include the removal of Granular `A' to the depth of existing bedding; placement and compaction of bedding material to match existing and replacement of paving stone.

#### **R.4.3.7 Concrete Curb and Gutter Systems**

Concrete curb, gutter, and curb and gutter shall be replaced to conform to the dimensions of the existing curb, gutter and curb and gutter, as per OPSS 353

Damaged sections of curb, gutter, and curb and gutter shall be removed to the nearest joint.

A minimum depth of 100 mm of Granular `A' shall be placed as a base for the curb, gutter, and curb and gutter.

### **R.4.4 Sidewalk**

#### **R.4.4.1 Asphalt Sidewalk**

The asphalt sidewalk should be saw cut full depth, 300 mm each side of the trench and perpendicular to edges of walk. The asphalt is to be removed and disposed off site. Provide a minimum of 150 mm compacted thickness of Granular `A' base over disturbed area.



Place HL3 asphalt to match the existing walk, with a minimum of 50 mm of finished asphalt thickness. Roll, compact surfaces to match the existing walk, grade and alignment. The texture and finish shall match the existing asphalt walk.

#### **R.4.4.2 Concrete Sidewalk**

Concrete sidewalk shall be replaced to conform to the dimensions of the existing sidewalk.

The entire section of any damaged section of sidewalk shall be removed. A minimum depth of 150 mm of Granular 'A' shall be placed as a base for the sidewalk.

Concrete sidewalk shall be constructed to meet the specification of the applicable municipality and to a minimum thickness of 130 mm.

#### **R.4.5 Topsoil**

Topsoil shall be placed after fine grading operations have been completed and immediately prior to seeding or sodding operations.

##### **R.4.5.1 Top Soil Qualities**

Top soil will be defined as fertile, friable, sandy loam with a maximum of 52% sand, 50% silt and 27% clay. The soil shall be free of stones over 25 mm in diameter, debris, organic or other deleterious contaminants and fragments larger than 75mm in size, plants or their roots, sticks, noxious weeds, soil sterilants or other material detrimental to plant growth. Top soil shall have an acidity range of 6-7.5, contain not less than 5% organic material and shall have a salt conductivity of less than 2 millisiemens/cm. Proof of soil composition, supplied by an accredited OMAFRA (Ontario Ministry of Agriculture, Food and Rural Affairs) commercial lab, shall be provided to the Project Manager.

##### **R.4.5.2 Imported Topsoil**

When imported topsoil is to be used, the bidding contractor will have proof of soil testing and suitability for the proposed work as outlined in this document will be provided to the Region of Peel before commencing work.

### **R.4.5.3 Preservation of Topsoil**

Topsoil shall be defined as the existing "A" horizon containing organic material. The use of onsite native topsoil is encouraged, providing it meets requirements and/or can be modified to meet the requirements outlined in this document. All areas designated for construction or hardscaping shall be stripped of topsoil and organic matter. Topsoil will be stripped to full depth and care shall be taken not to mix it with the subsoil.

### **R.4.6 Seeding and Seeding**

The Contractor will be reimbursed for resodding all areas damaged as a result of the Contractor's normal operations. However, the Contractor shall ensure that his operations result in minimal damage to the sod. Any sod damaged, in the opinion of the Engineer shall be repaired by the Contractor at his cost.

The Contractor shall engage a sodding sub-contractor whose primary business is landscaping. Alternatively, the Contractor may undertake the works with his own forces provided he has demonstrated expertise in quality landscaping workmanship. All sodding shall meet or exceed the requirements of these standard specifications in addition to OPSS 571 and OPSS 572. Permits are required for any water taking from hydrants or bulk water stations. The Contractor shall obtain written authorization from the Engineer to proceed with sodding after completion of topsoil, but prior to placing of sod.

Sodding restoration shall be on a street by street or area by area basis as approved by the Engineer. Resodding shall take place not later than four (4) weeks following completion of services. Prior to sodding, the Engineer shall mark out the areas to be resodded and shall advise the Contractor which, if any, are deemed to be his responsibility.

#### **R.4.6.1 Site Preparation**

Once final site grading is complete, topsoil shall be placed and spread over prepared sub-grade and shall be allowed to compact or be compacted by light rolling. Seeding and sodding operations should take place immediately after the application of the topsoil to prevent soil loss. Topsoil requirements are as follows:

- On steep slopes 3: 1 or greater an application of topsoil no greater than 100mm shall be applied to prevent slumping of growing medium.
- A minimum of 100mm of topsoil shall be placed before seeding with hydro seeding or terra seeding. Seeding by hand is unacceptable except in the restoration of small cuts in the blvd maximum 1 m2.
- A minimum of 150mm of topsoil shall be placed before sodding operations.

#### **R.4.6.2 Seed Specifications**

Grass seed shall meet the requirements of the Seed Act for: Canada Certified No. 1, Canada Common No. 1, and Canada Common No. 2. Seed mixtures shall be suited to the climate, soil conditions and type, orientation, sun exposure, terrain, establishment and maintenance conditions under which they are to be grown.

Seed shall have a minimum germination rate of 85% and minimum purity of 97%, except where otherwise required by the specification of the seed mixture. A mixture of turf-type Kentucky Bluegrass, turf-type Fine Fescue, turf type Chewing's Fescue, turf type Perennial Ryegrass seed shall be used provided the percentage of Kentucky Bluegrass seed is no more that 50% by composition.

In addition, seed may include Colonial Bentgrass, turf-type Tall Fescue, Weeping Alkaligrass (*Puccinellia distans*), Canada Blue Grass.

Seeding shall be carried out when seasonal conditions are likely to ensure successful germination and a continued growth of all species of seed in the grass mix establishment. All seeding shall be done during calm weather and on soil that is free of frost, snow and standing water.

Seeding can be performed during the periods of mid-April to Early June, mid July to end of September or as a dormant seeding. The period from mid August to mid September is preferred as soil moisture and temperature conditions are optimum for germination.

#### **R.4.6.3 Wildflower Mixes**

When restoration occurs in naturalized areas by the Project Manager, care should be taken to apply a mix of grass and wildflower varieties native to the area. Grasses should comprise no more than 30% of the mixture.

#### **R.4.6.4 Turfgrass Sod**

The supplier shall provide, upon request by the Region of Peel, a label or statement certifying the quality grade, location of sod source and species of grass in the sod. Sod shall be of mixed species, composed of Kentucky Bluegrass and Fine Fescue.

Sod shall be a minimum age of 12 months, with root development that will support its own weight without tearing, when suspended vertically by holding up the upper two corners. Sod shall have strong fibrous root system, free of stones, burned or bare spots.

Turfgrass sod shall be reasonably free from thatch. Up to 10 mm of thatch (uncompressed) is acceptable.

#### **R.4.6.5 Handling, Storage and Installation of Sod**

Sod shall be protected during transportation (i.e. tarpaulin) for load security and reduction of wind exposure to prevent drying out and shall arrive at the site in a fresh and healthy condition. Sod delivered to the job site shall be stored in such a manner to minimize drying out or overheating of product.

Sod shall be installed within 24 hours after delivery to the site, and within 36 hours after harvesting. The height of the grass in the sod at the time of harvesting shall be between 40 mm and 60 mm.

Sod shall be laid in smooth and even rows, closely knit, tight together in such a manner with no open joints visible, joints staggered a minimum of 25 cm, and no pieces are stretched or overlapped. Sod shall be laid at right angles to slopes or the flow of water. On slope areas, sodding shall be started at the bottom of the slope. On slopes steeper than 2:1 every row shall be pegged with wooden lath pegs, of sufficient length to ensure satisfactory anchorage of the sod, at intervals of not more than 0.5 metres. Pegs shall be driven flush with sod. Protection of sodded areas against erosion shall be employed.

Sod shall be laid flush with adjoining grass areas, paving and the top surface of curbs.

The sodded area shall be rolled, tamped, or planked providing sufficient pressure, to ensure a close contact between sod and soil. Heavy rolling to correct irregularities in grade shall not be permitted.

The sod area shall be watered immediately with sufficient amounts to saturate.

#### **R. 4.7 Mechanical Seeding (HYDROSEEDING)**

Acceptable methods for mechanically applying seed are Hydraulic Seeding and Terra Seeding™ using a pneumatic blower. Seeding rates shall be determined on a site by site basis and guaranteed by the contractor to produce an 85% germination rate. The mulch shall be evenly dispersed with no bare spots evident.

The materials forming the hydraulic mulch shall consist of a mixture of fiber, seed, fertilizer and water mixed and applied in the specified proportion. The mulch shall be dyed for the ease of monitoring application.

Fiber should be green coloured fibrous, wood cellulose mulch not containing any growth or germination inhibitors and shall be manufactured so that it will form a uniformly suspended homogeneous slurry when added to the fertilizer, seed and water in a tank and agitated.

The seeding operations shall not begin until final grading and topsoil have been applied and site preparation is approved by the Region. The contractor will maintain the site and control erosion until the seeding operation is complete.

Materials are to be applied at the specified proportion and depth of cover as specified by the manufacturer.

#### **R.4.8 Restoration of Trees, Shrubs and Bushes**

Supply and replace all trees, shrubs or bushes accidentally or willfully removed.

Trees shall be of equal quality nursery stock of a minimum calliper of 50 mm.

Shrubs or bushes shall be of equal quality of the same age and size.

#### R.4.8.1 Transporting Trees, Shrubs and Bushes to Site

Trees, shrubs and bushes should be protected during delivery to prevent damage to branches, root ball or desiccation of leaves.

Adequate protection and spacing shall be placed between trees so that trunks are not scarred and branches are not broken.

Plants should be transported in enclosed trucks or covered with a tarpaulin. For large material transported in open trucks, the trees shall be wrapped to prevent damage and windburn.

Movement of container grown, ball and burlap (B&B) and wire-basketed (WB) plants should be restricted to closed van or well-covered trucks with mesh tarpaulin or similar material to protect the leaves or needles from windburn or desiccation.

#### R.4.8.2 Site Preparation

Depth of top soil for planting shall conform to the following the guideline:

Application	Over Prepared Sub-grade, retaining the "A" horizon	Over rapidly draining soil	Over poorly draining soil
Small Shrubs	300 mm	450 mm	225 mm
Large Shrubs	450 mm	600 mm	450 mm
Trees	600 mm	600 mm	600-900 mm

The transition of the tree planting area to shallower growing medium shall have a shallow angle.

Excavation of the sub-grade below the root balls of trees shall be only as necessary to permit the bottom of the rootball to sit on undisturbed material or compacted fill such that the top of the rootball remains at the proper finished grade. Disturbed sub-grade or fill below the rootball shall be compacted to prevent settlement of the tree after planting. Excess excavated material shall be removed from the site.

Planting pits or areas excavated in fine soils or by mechanical means shall have all bottoms and sides scarified to ensure that they do not have glazed surfaces. Where the growing medium in a planting pit

or area is different in texture, structure or organic content from the surrounding soil, the sides and bottom shall be scarified and the two materials thoroughly mixed to avoid an abrupt interface. Growing medium shall be free from interfaces or textural differences that could impede root development.

#### **R.4.8.3 Installation**

Plants shall be planted so that after settlement the level of the adjacent growing medium surface matches the level of the original growing medium surface in the nursery. The soil mark on the stem or container soil level is an indication of this, and it shall be maintained on the finished level, allowing for settling of the growing medium after planting. The total depth of the root ball shall be planted in growing medium.

If no other factors come into play, the plant should be oriented in the same direction that it was grown in the nursery. Face the lowest branch away from the greatest traffic (pedestrian and vehicular); and position the plant for best viewing.

Growing medium shall be placed preferably by hand in layers around the roots or ball. Each layer shall be carefully tamped so as to avoid injuring the roots or ball, or disturbing the position of the plant. The hole should be backfilled and gently tamped so that no air pockets are left around the ball.

When growing medium is up to about two-thirds of the rootball height, all ties shall be cut and the top one- third of burlap on B&B, plants shall be cut off or folded back carefully, so as not to disturb the rootball integrity. No burlap shall show above grade.

Growing medium should be moist in tree pits or beds at this stage. After the water has been absorbed, the backfilling shall be completed and tamped lightly. Any settling shall be brought up to the intended grade with growing medium.

All imperishable containers and tying materials shall be removed. Perishable containers such as fibre tubs should be removed where possible.

All string, rope, burlap and other restricting elements shall be cut and removed out to the perimeter of the rootball. Top lacing shall not be left in place at the time of planting.

A 100 mm raised saucer should be constructed over the rootball to enhance water infiltration into the rootball.

All planting hole depths should only be dug deep enough to accommodate the root system or root mass at the desired depth relative to the surrounding grade. Plant tree with the root collar at the same level as the surrounding ground.

The planting hole width should be at least 30 cm wider than the perimeter of the rootball or root system.

No separate payment will be made and the cost for meeting the provisions of this clause shall be included in the unit prices for the watermain, sewer, service connection and permanent restoration.

#### **R.4.8.4 Watering and Mulching**

Upon the completion of tree plantings trees shall be watered deeply and a layer of mulch shall be placed around the tree. The mulch shall be shredded bark, free from weeds and any deleterious materials that would impede growth. The mulch shall be layered 100mm thick. Mulch shall not be placed in direct contact with the tree trunk.

#### **R.4.8.5 Fertilizers**

Fertilizers shall be spread uniformly over the plant base with a suitable mechanical spreader. If soil testing is not performed to determine fertilization requirements a starter fertilizer similar to 16-25-12 may be used.

#### **R.4.8.6 Maintenance Periods**

Maintenance for landscaped areas shall begin immediately after installation and shall continue until the date set for acceptance by the Region. Maintenance shall include all measures necessary to establish and maintain grass, wildflowers, trees, shrubs and all other plantings in a vigorous growing condition. Grass and sod shall be vigorous with few bare patches and free of noxious weeds.

#### **R.4.9 Signs and Mail Boxes**

All signs and mail boxes along the line of excavation shall be carefully removed, and reinstalled by the Contractor at his cost.



If signs, mail boxes and/or posts are damaged due to construction, the Contractor shall replace them with similar materials at the Contractor's own cost.

#### **R.4.10 Fences and Guide Rails**

The Contractor shall give property owners at least 72 hours' notice in advance of dismantling fences.

Fences and guide rails shall be dismantled at the location as shown on Contract Drawings. All broken, bent and damaged components shall be removed from the site and replaced with new components. All reusable components shall be stored and protected.

Fences and guide rails shall be restored with the same type of fence or guide rail that existed prior to construction, or as specified on the contract drawings, or as directed by the Engineer.

For new wooden steel beam guide posts a reflectorized strip shall be supplied and installed as follows:

1. Steel beam guide posts shall contain a reflectorized strip on 0.5 mm aluminium, type 3M-H18 silver or approved equal, fastened to the wooden post with four 50 mm aluminium nails.
2. Reflector spacing shall start at the second post from the traffic approach end, and on curves, every third post; on tangent, every fifth post.
3. Reflectorized strip size to be 570 mm X 100 mm.
4. Reflectorized strips shall conform to MUTCD.
5. This standard to be read in conjunction with OPSD-902.03.

#### **R.4.11 Ditches and Culverts**

Where necessary for construction, the Contractor may temporarily fill the ditch to operate the trenching machine or to pile excavated material. However, the Contractor will be responsible for any damage due to flooding from blocking the ditch. Immediately after backfilling is completed, the Contractor shall carefully clean out the

ditch and culverts and restore the ditch to a condition equal to or better than existing prior to construction.

The manner of remaking the ditch shall be approved by the Project Manager or designate and a Gradall or similar machine should be used. The finished ditch must conform to the existing ditch both in grade and cross-section. Where the existing ditch has been sodded or has finished surface or grass, the Contractor shall resod any portion of the ditch disturbed by his construction to the satisfaction of the Project Manager or designate. Seeding will be acceptable in open field only as directed by the Project Manager or designate.

For all seeded ditches, the inverts and slopes 300 mm from the bottom shall be sodded.

Driveway sideslopes shall be topdressed with a minimum 50 millimetres of topsoil, sodded and graded to a maximum 3:1 ratio from the access driveway platform to the ends of the culvert invert.

Culverts replaced by the Contractor on Region roads shall be new, riveted, galvanized steel, with the wall thickness meeting or exceeding the manufacturer's specification for the design loading condition (minimum 16 gauge/1.6 mm). Materials also approved for use shall be as per the Region's Material Specifications and Standard Drawings. Bedding and backfill requirements shall meet current OPS specifications. Minimum C.S.P. diameter shall not be less than 375 mm for entrances and 600 mm for roadway cross culverts, where permitted.

#### **R.4.12 Headwalls**

All headwalls excavated or damaged in the line of the trench shall be replaced or repaired to match the condition in which they were found. No extra payment will be allowed for this work.

### **R.5 REINSTATEMENT REQUIREMENTS FOR ROAD CUT PERMITS**

Where trenches are undertaken under a permit from a road authority, the reinstatements specified by the road authority shall govern.