



Ontario Provincial Standards Unit
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REVISION INFORMATION SHEET

ONTARIO PROVINCIAL STANDARDS FOR ROADS AND PUBLIC WORKS

VOLUME 3 MUNICIPAL AND PROVINCIAL COMMON DRAWINGS FOR ROADS, BARRIERS, DRAINAGE, SANITARY SEWERS, WATERMAINS, AND STRUCTURES

MANUAL REVISION #72

November 2017

UPDATING ONTARIO PROVINCIAL STANDARDS FOR YOUR USE

Each roads and public works owner (Owner) is responsible for determining implementation dates and directions for use of Ontario Provincial Standards; therefore, manual holders are cautioned about immediately discarding superseded and cancelled standards.

ACCESSING AND OBTAINING ONTARIO PROVINCIAL STANDARDS

The Ontario Provincial Standards for Roads and Public Works (OPS) manuals and the latest published updates for each of the eight OPS manuals are available as follows:

- Available electronically on the OPS/MTO website. Online access to the current, updated, and archived standards; indexes; OPS User Notes; and publication Revision Information Sheets are available free of charge at the site.
(<http://www.rags.mto.gov.on.ca/techpubs/ops.nsf/OPSHomepage>)
- The eight OPS manuals of standards are also available for free as well in a single PDF format on the website.

A link to the Ontario Provincial Standards on the MTO Library website is available on the OPS website (www.ops.on.ca). Also on this site under News and Activities are notices for updates and changes in OPS.

Questions should be directed by email to Ontario.Prov.Standards@ontario.ca

WAITING TO HEAR FROM YOU

If you have a suggestion to revise a standard or you have a standard that works in your ministry, municipality, or area, send it to the Head, OPS Administration, for review and possible inclusion into the Ontario Provincial Standards.

THIS MANUAL IS REVISED AS FOLLOWS:

Index Pages Volume 3

Please remove the entire index and replace with the attached revised index.

Standard Drawings Volume 3

Superseded/Cancelled (Remove)		Revised/New (Insert)		Remarks
OPSD	Revision	OPSD	Revision	
		202.037	0	"ROADWAY WIDENING FOR STEEL BEAM TERMINAL ON INSIDE OF CURVE" This is a NEW drawing.
		202.038	0	"ROADWAY WIDENING FOR STEEL BEAM TERMINAL ON OUTSIDE OF CURVE" This is a NEW drawing.
203.010	3	203.010	4	"EMBANKMENTS OVER SWAMP NEW CONSTRUCTION" See Summary of Revisions.
203.020	3	203.020	4	"EMBANKMENTS OVER SWAMP EXISTING SLOPE EXCAVATED" See Summary of Revisions.
203.030	3	203.030	4	"EMBANKMENTS OVER SWAMP EXISTING SLOPES MAINTAINED" See Summary of Revisions.
203.040	3	203.040	4	"EMBANKMENTS OVER SWAMP AT CULVERTS ≤ 1500mm" See Summary of Revisions.
216.010	1	216.010	2	"BOULEVARD TREATMENTS, URBAN SECTION" See Summary of Revisions.
216.020	1	216.020	2	"HOT MIX, CONCRETE AND COMPOSITE PAVEMENT ON GRANULAR BASE, URBAN SECTION" Standard Reaffirmed.

Superseded/Cancelled (Remove)		Revised/New (Insert)		Remarks
OPSD	Revision	OPSD	Revision	
216.021	2	216.021	3	“SUBDRAIN PIPE CONNECTION AND OUTLET URBAN SECTION” Standard Reaffirmed.
222.060	0	222.060	1	“POOLS IN STREAMBEDS” See Summary of Revisions
		222.100	0	“LOCAL VEGETATION BLOCKS” This is a NEW drawing.
403.010	2	403.010	3	“GALVANIZED STEEL HONEYCOMB GRATING FOR DITCH INLETS” See Summary of Revisions.
403.011	0	403.011	1	“RAISED BAR GRATE FOR DITCH INLET 600 x 600mm” See Summary of Revisions.
551.010	1	551.010	2	“CONCRETE AND COMPOSITE PAVEMENT, JOINT SPACING” Standard Reaffirmed.
551.020	1	551.020	2	“CONCRETE AND COMPOSITE PAVEMENT, JOINT LAYOUT AT CONVERGING OR DIVERGING LANES” Standard Reaffirmed.
551.030	2	551.030	3	“CONCRETE AND COMPOSITE PAVEMENT, SKEWED JOINT LAYOUT, AT INTERSECTIONS” Standard Reaffirmed.
551.031	2	551.031	3	“CONCRETE AND COMPOSITE PAVEMENT, RIGHT ANGLE JOINT LAYOUT, AT INTERSECTIONS” Standard Reaffirmed.
551.032	2	551.032	3	“CONCRETE AND COMPOSITE PAVEMENT, UTILITY ISOLATION” Standard Reaffirmed.
552.010	1	552.010	2	“CONCRETE PAVEMENT, JOINT DETAILS” Standard Reaffirmed.

Superseded/Cancelled (Remove)		Revised/New (Insert)		Remarks
OPSD	Revision	OPSD	Revision	
552.020	1	552.020	2	“COMPOSITE PAVEMENT, JOINT DETAILS” Standard Reaffirmed.
552.050	2	552.050	3	“LOAD TRANSFER DEVICE FOR SKEWED CONTRACTION JOINT, CONCRETE OR COMPOSITE PAVEMENT” Standard Reaffirmed.
552.051	2	552.051	3	“LOAD TRANSFER DEVICE FOR RIGHT ANGLE CONTRACTION JOINT, CONCRETE OR COMPOSITE PAVEMENT” Standard Reaffirmed.
552.060	2	552.060	3	“LOAD TRANSFER DEVICE FOR SKEWED EXPANSION JOINT, CONCRETE OR COMPOSITE PAVEMENT” Standard Reaffirmed.
552.061	2	552.061	3	“LOAD TRANSFER DEVICE FOR RIGHT ANGLE EXPANSION JOINT, CONCRETE OR COMPOSITE PAVEMENT” Standard Reaffirmed.
553.010	1	553.010	2	“CONCRETE PAVEMENT, IN GORE AREAS” Standard Reaffirmed.
553.020	1	553.020	2	“COMPOSITE PAVEMENT, IN GORE AREAS” Standard Reaffirmed.
554.010	1	554.010	2	“CONCRETE PAVEMENT SHOULDER TERMINAL” See Summary of Revisions.
554.020	1	554.020	2	“COMPOSITE PAVEMENT SHOULDER TERMINAL” See Summary of Revisions.
555.010	1	555.010	2	“CONCRETE PAVEMENT - APPROACH TREATMENT TO HOT MIX AND COMPOSITE PAVEMENTS AND STRUCTURE APPROACHES” See Summary of Revisions.

Superseded/Cancelled (Remove)		Revised/New (Insert)		Remarks
OPSD	Revision	OPSD	Revision	
555.020	1	555.020	2	“COMPOSITE PAVEMENT - APPROACH TREATMENT TO HOT MIX AND COMPOSITE PAVEMENTS AND STRUCTURE APPROACHES” See Summary of Revisions.
560.025	0	560.025	1	“CONCRETE PAVEMENT AND CONCRETE BASE CROSS-STITCHING LONGITUDINAL CRACKS” Standard Reaffirmed.
800.010	2	800.010	3	“CONCRETE PIPE CULVERT AND SEWER EXTENSIONS USING CORRUGATED STEEL PIPE - TEMPORARY CONDITIONS” Standard Reaffirmed.
800.011	2	800.011	3	“CONCRETE RIGID FRAME BOX AND OPEN CULVERT EXTENSIONS USING CORRUGATED STEEL PIPE - TEMPORARY CONDITIONS” Standard Reaffirmed.
801.010	2	801.010	3	“CUT END FINISH CIRCULAR PIPE AND PIPE-ARCH CORRUGATED STEEL PIPE” Standard Reaffirmed.
801.020	1	801.020	2	“END SECTION DETAILS CORRUGATED STEEL PIPE” Standard Reaffirmed.
801.030	2	801.030	3	“BEVEL DETAILS CIRCULAR AND PIPE-ARCH STRUCTURAL PLATE CORRUGATED STEEL PIPE” Standard Reaffirmed.
801.040	2	801.040	3	“CULVERT AND SEWER SAFETY SLOPE END TREATMENT NOTES AND TABLES” Standard Reaffirmed.
801.041	2	801.041	3	“CULVERT AND SEWER SAFETY SLOPE END TREATMENT ASSEMBLY DETAILS” Standard Reaffirmed.

Superseded/Cancelled (Remove)		Revised/New (Insert)		Remarks
OPSD	Revision	OPSD	Revision	
801.042	2	801.042	3	“CULVERT AND SEWER SAFETY SLOPE END TREATMENT CONNECTION DETAILS” Standard Reaffirmed.
801.043	2	801.043	3	“CULVERT AND SEWER SAFETY SLOPE END TREATMENT INSTALLATION DETAILS” Standard Reaffirmed.
804.030	1	804.030	2	“CONCRETE HEADWALL FOR PIPE LESS THAN 900mm DIAMETER” See Summary of Revisions.
804.040	0	804.040	1	“CONCRETE HEADWALL FOR SEWER OR CULVERT PIPE OUTLET” See Summary of Revisions.
812.010	0	812.010	1	“CUT OFF WALL FOR STRUCTURAL PLATE PIPE ARCH AND CIRCULAR CSP” See Summary of Revisions.
		922.150	0	“ENERGY ATTENUATOR, END TREATMENT, STEEL BEAM TERMINAL, MASH SLOTTED RAIL TERMINAL SYSTEM, INSTALLATION” This is a NEW Drawing.
922.330	3			“ENERGY ATTENUATOR, END TREATMENT, CRASH-CUSHION ATTENUATING TERMINAL (CAT-350) SYSTEM ASSEMBLY” This Drawing is Cancelled. Crash-Cushion Attenuating Terminal System cancelled as per MTO HSB DCSO Memo #2016-16, as there are better options.
923.480	0	923.480	1	“ENERGY ATTENUATOR, CRASH CUSHION, SMART SYSTEM, INSTALLATION – TEMPORARY, UNIDIRECTIONAL” Note C, system configuration test level AASHTO MASH added.

Superseded/Cancelled (Remove)		Revised/New (Insert)		Remarks
OPSD	Revision	OPSD	Revision	
923.481	0	923.481	1	“ENERGY ATTENUATOR, CRASH CUSHION, SMART SYSTEM, INSTALLATION – TEMPORARY, BIDIRECTIONAL” Note C, system configuration test level AASHTO MASH added.
923.482	0	923.482	1	“ENERGY ATTENUATOR, CRASH CUSHION, SMART SYSTEM, INSTALLATION – PERMANENT, UNIDIRECTIONAL” Note C, system configuration test level AASHTO MASH added.
923.483	0	923.483	1	“ENERGY ATTENUATOR, CRASH CUSHION, SMART SYSTEM, INSTALLATION – PERMANENT, BIDIRECTIONAL” Note C, system configuration test level AASHTO MASH added.
924.141	0	924.141	1	“ENERGY ATTENUATOR, CRASH CUSHION, SLED SYSTEM, INSTALLATION – TEMPORARY CONCRETE BARRIER” Note C, system configuration test level AASHTO MASH added.
980.101	2	980.101	3	“PEDESTRIAN BARRICADE, INSTALLATION” See Summary of Revisions.
982.101	1	982.101	2	“SPLASH GUARD, PEDESTRIAN, INSTALLATION” See Summary of Revisions.
984.201	0	984.201	1	“ENERGY ATTENUATOR, END TREATMENT, DELINEATION, INSTALLATION – APPROACH END” See Summary of Revisions.
984.202	0	984.202	1	“ENERGY ATTENUATOR, END TREATMENT, DELINEATION, INSTALLATION – LEAVING END” See Summary of Revisions.
984.203	0	984.203	1	“ENERGY ATTENUATOR, CRASH CUSHION, DELINEATION, INSTALLATION – TEMPORARY” Standard Reaffirmed.

Superseded/Cancelled (Remove)		Revised/New (Insert)		Remarks
OPSD	Revision	OPSD	Revision	
984.204	0	984.204	1	“ENERGY ATTENUATOR, CRASH CUSHION, DELINEATION, INSTALLATION – PERMANENT” Standard Reaffirmed.
3001.100	1	3001.100	2	“FOUNDATION PILES STEEL TUBE PILE DRIVING SHOE” See Summary of Revisions.
3329.100	1	3329.100	2	“DECK, REINFORCEMENT SUPPORTS FOR REINFORCING STEEL FOR SLAB DEPTHS 300mm OR LESS” Standard Reaffirmed.
3329.101	1	3329.101	2	“DECK, REINFORCEMENT SUPPORTS FOR REINFORCING STEEL FOR SLAB DEPTHS GREATER THAN 300mm” See Summary of Revisions.
3339.100	1	3391.100	2	“DECK, VOIDS, ACCESS HATCH FOR CONCRETE BRIDGES, ASSEMBLY” Standard Reaffirmed.

SUMMARY OF REVISIONS TO OPSD 203.010

EMBANKMENTS OVER SWAMP NEW CONSTRUCTION

- Label removed, "Area to be backfilled with swamp material"
- Label "Depth as specified" changed to "Elevation as specified"
- Replaced "Area to be backfilled with swamp material" with "Excavate and backfill as specified"
- Legend, removed "excavate and back fill with swamp material"
- Notes, removed existing note A, C and D.

SUMMARY OF REVISIONS TO OPSD 203.020

EMBANKMENTS OVER SWAMP EXISTING SLOPE EXCAVATED TO 1H:1V

- Labels removed, "Area to be backfilled with swamp material"
- Labels "Depth as specified" changed to "Elevation as specified"
- Labels "1H:1V" changed to "Slope as specified"
- Replaced all areas where "Area to be backfilled with swamp material" with "Excavate and backfill as specified"
- Slopes as specified commencing at existing edge of granular are continuous to the Elevation as specified.
- Legend, removed "excavate and back fill with swamp material"
- Notes, removed existing note A.

SUMMARY OF REVISIONS TO OPSD 203.030

EMBANKMENTS OVER SWAMP EXISTING SLOPES MAINTAINED

- Labels removed, "Area to be backfilled with swamp material"
- Labels "Depth as specified" changed to "Elevation as specified"
- Replaced all areas where "Area to be backfilled with swamp material" with "Excavate and backfill as specified"
- Existing slope after striping are continuous to the Elevation as specified.
- Legend, removed "excavate and back fill with swamp material"
- Notes, removed existing note A.

SUMMARY OF REVISIONS TO OPSD 203.040

EMBANKMENTS OVER SWAMP AT CULVERTS $\leq 1500\text{mm}$

- Label removed, "Area to be backfilled with swamp material"
- Labels "Depth as specified" changed to "Elevation as specified"
- Replaced "Area to be backfilled with swamp material" with "Excavate and backfill as specified"
- Section A-A – Pipe, Addition of label "As specified"
- Addition of Section A-A – Box
- Legend, removed "Excavate and back fill with swamp material"
- Legend, label "Nominal pipe diameter" changed to "Outside diameter or width"
- Notes, Note 1 "pipe" changed to "culverts" and "diameter" changed to "D"
- Notes, removed existing note A
- Title, removed "pipe"

SUMMARY OF REVISIONS TO OPSD 216.010

BOULEVARD TREATMENTS, URBAN SECTION

- CUT AND FILL SECTION WITH MOUNTABLE CURB Detail, Added curb with sidewalk

SUMMARY OF REVISIONS TO OPSD 222.060

POOLS IN STREAMBEDS

- Plan Watercourse Reach Pool, removed rocks from waterbody bank.
- Plan Watercourse Reach Pool, addition of rocks for continuous riffle from each waterbody bank.
- Plan Culvert Outlet Pool, removed rocks in and outside culvert
- Plan Culvert Outlet Pool, removed "Notch" and "300mm min" label.
- Plan Culvert Outlet Pool, "2-4D" label changed to "3D or as specified".
- Plan Culvert Outlet Pool, "2-3D" label changed to "2D or as specified".
- Plan Culvert Outlet Pool, addition of "Flow" label.
- Plan Culvert Outlet Pool, addition of "as specified" to "Stabilize pool edges" label.
- Longitudinal View for Culvert Outlet Pool, removed rocks inside culvert.
- Longitudinal View for Culvert Outlet Pool, removed "Depth of flow 200mm min".
- Longitudinal View for Culvert Outlet Pool, addition of "as specified" to "Culvert outlet invert elevation for fish passage" label.
- Longitudinal View for Culvert Outlet Pool, addition of "as specified" to "Culvert inlet invert elevation for fish passage" label.
- Longitudinal View for Culvert Outlet Pool, "1.0 m min" label changed to "as specified".

SUMMARY OF REVISIONS TO OPSD 403.010

GALVANIZED STEEL HONEYCOMB GRATING FOR DITCH INLETS

- FASTENER detail, Reference to Note 1 added.
- NOTES, Note 1 added.

SUMMARY OF REVISIONS TO OPSD 403.011

RAISED BAR GRATE FOR DITCH INLET 600 x 600mm

- FASTENER detail, Reference to Note 1 added.
- NOTES, Note 1 added.

SUMMARY OF REVISIONS TO OPSD 554.010

CONCRETE PAVEMENT SHOULDER TERMINAL

- PLAN DETAIL: Updated "1.2" to "1.2m".

SUMMARY OF REVISIONS TO OPSD 554.020

COMPOSITE PAVEMENT SHOULDER TERMINAL

- PLAN DETAIL: Updated "1.2" to "1.2m".

SUMMARY OF REVISIONS TO OPSD 555.010

CONCRETE PAVEMENT - APPROACH TREATMENT TO HOT MIX AND COMPOSITE PAVEMENTS AND STRUCTURE APPROACHES

- NOTE B: Reworded to "For Type C details of approach slab see structural drawing(s)."

SUMMARY OF REVISIONS TO OPSD 555.020

COMPOSITE PAVEMENT - APPROACH TREATMENT TO HOT MIX AND COMPOSITE PAVEMENTS AND STRUCTURE APPROACHES

- NOTE B: Reworded to "For Type C details of approach slab see structural drawing(s)."

SUMMARY OF REVISIONS TO OPSD 804.030

CONCRETE HEADWALL FOR PIPE LESS THAN 900mm DIAMETER

- Front Elevation, Removal of "equal spacing each side of pipe front face only" from label "15M @ 300mm max"
- Front Elevation, Addition of reinforcing bars on center above and below pipe
- Section A-A, Label "20mm chamfer Typ" changed to "20 x 20mm chamfer Typ"
- Section A-A, Reinforcing bars moved to back face of the headwall
- Notes, Note D 75mm changed to 70mm

SUMMARY OF REVISIONS TO OPSD 804.040

CONCRETE HEADWALL FOR SEWER OR CULVERT PIPE OUTLET

- Removal of chute blocks from Plan View, Section A-A and Side View
- Section A-A Addition of reinforcing bar in front section
- Section A-A Addition label "Fill with soil"
- Notes, Note 1 removed

SUMMARY OF REVISIONS TO OPSD 812.010

CUT OFF WALL FOR STRUCTURAL PLATE PIPE ARCH AND CIRCULAR CSP

- Elevation Pipe Arch, Table labels have been update to A1 to A4.
- Elevation Pipe Arch, additional bolts shown.
- Elevation Circular CSP, Table labels have been update to C1 to C4.
- Elevation Circular CSP, additional bolts shown.
- Bolt Detail Side View, addition of “galvanized” and removal of “OC” from bolt label.
- Notes, addition of Note E “All bars shall be 15M”.
- Notes, existing Note E changed to Note F.

SUMMARY OF REVISIONS TO OPSD 980.101

PEDESTRIAN BARRICADE, INSTALLATION

- Elevation view, railings revised from 40mm ID standard steel pipe to 48mm OD steel pipe, and posts revised from 40mm ID extra strong steel pipe to 48mm OD steel pipe.
- Plan of Base Plate view, Hilti reference updated.
- Note B, galvanizing requirement revised from CSA G164 to ASTM A 123.
- Note F, pipe requirement revised from ASTM A 53 to ASTM A 500, Grade C.

SUMMARY OF REVISIONS TO OPSD 982.101

SPLASH GUARD, PEDESTRIAN, INSTALLATION

- Section A-A view, Hilti reference updated.
- Note A, steel pipe requirement revised from ASTM A 53 to ASTM A 500, Grade C.
- Note C, galvanizing requirement revised from CSA G164 to ASTM A 123.

SUMMARY OF REVISIONS TO OPSD 984.201

ENERGY ATTENUATOR, END TREATMENT, DELINEATION, INSTALLATION – APPROACH END

- Energy attenuators redrawn as hatch areas.
- Eccentric Loader Terminal replaced with Steel Beam Terminal.

SUMMARY OF REVISIONS TO OPSD 984.202

ENERGY ATTENUATOR, END TREATMENT, DELINEATION, INSTALLATION – LEAVING END

- Energy attenuators redrawn as hatch areas.
- Eccentric Loader Terminal replaced with Steel Beam Terminal.

SUMMARY OF REVISIONS TO OPSD 3001.100

FOUNDATION PILES STEEL TUBE PILE DRIVING SHOE

- Type I, Label Varies has been changed to D.
- Type I, Label 25 has been changed to X.
- Type I, Label 10 weld size has been changed to 10*.
- Type I and Type II, addition of label “Pile tube size as per contract documents”.
- Type II, Label Varies has been changed to D.
- Type II, Label 12mm plate has been changed to Ymm plate.
- Type II, Labels 10 weld size has been changed to 10*.
- Addition of “(*) or tube wall thickness whichever is smaller.”
- Addition of Table, Pipe Diameter to Plate Thickness
- Bottom View, Labels 12 has been changed to Y.
- Bottom View, Labels 10 weld size has been changed to 10*.
- Notes, addition of the option of 350W to note C.

SUMMARY OF REVISIONS TO OPSD 3329.101

DECK, REINFORCEMENT SUPPORTS FOR REINFORCING STEEL FOR SLAB DEPTHS GREATER THAN 300mm

- Section A-A, removal of support bar on right side of Centre Line.
- Section A-A, removal of dimension label Varies.
- Deck with Rectangular Voids, label “Continuous bar support to be aligned under stirrup leg as shown” addition of option of plural; support(s).
- Notes, Note A addition of “when it is to be continued” to the end of the sentence.