

ATTACHMENT 'C'
AMENDMENT RECORD OF ALL CHANGES INCLUDED IN THE
MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS EDITION No. 11

CITY OF NANAIMO
MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS
AMENDMENT RECORD

Manual Revision # 11

Revision Date: November 2016

The November 2016 Edition of the Manual of Engineering Standards and Specifications (MoESS) was re-printed in its entirety due to formatting, consistency and technical changes.

The footer has been revised to represent this revision 'November 2016 Edition'. This represents the most current edition of the manual.

In addition to the footer, the manual text continues to include the revision date in (*BOLD ITALICS*) at the end of the paragraph affected by the technical amendment. This represents the technical amendments that are incorporated into the MoESS for this revision year.

The standard drawings all include a footer that reads;

Engineering Standards and Specifications
 November 2016 Edition

Each Manual holder is responsible for determining implementation dates of the Manual of Engineering Standards and Specifications revisions. Therefore, manual holders are cautioned about immediately discarding superseded and cancelled standards.

The Manual of Engineering Standards and Specifications is revised as follows:

Superseded / Added / Cancelled / Removed	Page Revised / New Insert / New Dwg No.	Section No. / Dwg No. Affected	Remarks
Title Page	Title Page	Title Page	Updated to November 2016.
Superseded	All	Contents and Introduction	Section 7.0 title changed from Storm Sewer System to Stormwater Management. Appendix additions were added to the table of contents. Update to the identifier footer.
Superseded	All	1.00	Entire section, including written specifications and standard drawings, is superseded in MoESS due to a complete sectional review and update to Section 1.0. The revision included re-structuring the section to contain the following sub-sections, Design Drawing Standards, Other General Requirements, Record Drawing Standards, CAD Standards and Standard Drawings. The sectional review removed all unnecessary requirements within for design drawing, record drawing, and CAD standards for submissions and data provided to the City of Nanaimo.
-	1-3	1.01	General Requirements: Revised to clarify the requirements for design drawings, what shall be included on the drawings and what drawings are required.
-	1-4	1.02	Site Plan and Key Plan: Revised to add Clause 1.02.5 that identifies what notes are required.
-	1-5	1.03	Plan and Profile Drawings - General: Revised to add required scales, removed the requirement for reference data and an elevation benchmark. Revised Clause 1.03.9 to include the requirements for the plan and profile drawing layout.
-	1-6	1.04	Roads: Revised Clause 1.04.4 and 10.4.9, removed Clause 1.04.16 and 1.04.18.

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-	1-7	1.05	Storm and Sanitary Sewers: Revised to clarify the requirements and remove duplication of requirements for stormwater and sanitary sewer mains.
-	1-8	1.06	Waterworks: Revised Clause 1.06.1 to clarify all new construction stationing shall be from the road centerline and all rehabilitation stationing shall be from the pipe alignment centerline. Revised Clause 1.06.3 to remove 'or pavement' and removed Clause 1.06.9.
-	1-9	1.07	Ornamental Street Lighting Traffic Control Signals, Hydro, Phone, Gas and Cablevision Fibre Optics (Commercial and Private): Revised Clause 1.07.2 to require use of co-ordinates as per Section 1.42 and add referenced section title to Clause 1.07.4.
-	1-9	1.08	Signage and Pavement Markings: Revised Clause 1.08.1 to include the MOTI Manual of Standard Traffic Signs and pavement Markings as an additional conforming document.
-	1-10	1.09	Detail Sheet: Revised to remove all requirements pertaining to cross sections and added to Section 1.10.
Removed	-	1.10	Land Acquisition: Removed from manual.
Added	1-10	1.10	Cross Sections: Added cross section specifications from Section 1.09.
Removed	-	1.12	Design Submissions for City of Nanaimo Capital Projects: Removed from manual.
Added	1-11	1.12	Stormwater Management: Added references for the information required for stormwater management drawings.
Removed	-	1.13	As-Built Submissions: Removed from Design Drawing Standards sub-section and moved to Section 1.21 Record Drawing Submission.
-	1-11	1.13	Certification of Works: Revised and added to Design Drawing Standards sub-section from Other Design Requirements Section 1.15.
-	1-12	1.15	Not Used: Removed Certification of Works and added to Section 1.13.
-	1-12	1.16	Survey Control Monuments: Revised requirements for survey control monuments to be done by City forces as development growth requires to maintain data management stability for the city assets and infrastructure.
Removed	-	1.17	GIS Requirements: Removed and added specifications to sub-section Record Drawing Standards Section 1.20 and 1.21.
Removed	-	1.20	Computer Aided Drafting Standards: Removed and revised to be Section 1.40 in sub-section CAD Standards.
Added	1-13	1.20	Record Drawing Standards - General Requirements: Added new section for general requirements for record drawing standards.
Removed	-	1.21	Template Drawings: Removed and revised to be Section 1.41 in sub-section CAD Standards.
Added	1-15	1.21	Record Drawing Standards - Record Drawing Submission: Added new section for requirements for record drawing submissions.
Removed	-	1.22	Co-ordinate System: Removed and revised to be Section 1.42 in sub-section CAD Standards.
-	1-16	1.22	Record Drawing Standards - Digital Submission of Record Drawings: Added new section for requirements that will be mandated for digital submissions of record drawings in the future for awareness.
Removed	-	1.23	Layer Naming Conventions: Removed and revised to be Section 1.43 in sub-section CAD Standards.
Removed	-	1.24	Drawing Organization: Removed from manual.
Removed	-	1.25	Base Plan Preparation: Removed from manual.
Removed	-	1.26	Standard Symbols and Abbreviations: Removed and revised to be Section 1.44 in sub-section CAD Standards.
Removed	-	1.27	Not Used: Removed from manual.
Removed	-	1.28	Plotting Conventions: Removed from manual.
Removed	-	1.29	Sample Drawings: Removed from manual.
Removed	-	1.30	Survey Standards: Removed from manual.
Removed	-	1.31	Standard Files Provided to Consultants: Removed from manual.
Removed	-	1.32	Drawing Submission Checklist: Removed from manual.

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Added	1-18	1.40	Computer Aided Drafting Standards Overview: Moved from Section 1.20 and revised to clarify the requirements needed currently and Clause 1.40.6 highlights that Civil3D files are encouraged and at some point in the future the City may require all submissions to be Civil3D files.
Added	1-18	1.41	Template Drawings: Moved from Section 1.21 and revised to clarify the template to be used and the location.
Added	1-19	1.42	Co-ordinate System: Moved from Section 1.22 and revised to clarify current best practices.
Added	1-19	1.43	Layer Naming Conventions: Moved from Section 1.23 and revised to clarify current requirements and the standard drawings that shall be referenced.
Added	1-20	1.44	Standard Symbols and Abbreviations: Moved from Section 1.26 and revised to clarify requirements and the standard drawings that shall be referenced.
Removed	G-1	G-1	Standard Layer Names - Sht 1: Removed from the manual and replaced by the Standard Drawing G-1, G-1A and G-1B as part of the Section 1.0 comprehensive sectional review.
Removed	G-2	G-2	Standard Symbols and Abbreviations – Sht 1: Removed from the manual and replaced by the Standard Drawing G-4 to G-4I as part of the Section 1.0 comprehensive sectional review.
Removed	G-2A	G-2A	Standard Symbols and Abbreviations – Sht 2: Removed from the manual and replaced by the Standard Drawing G-2 as part of the Section 1.0 comprehensive sectional review.
Removed	G-3	G-3	Standard Materials and Hatch Patterns: Removed from the manual and replaced by the Standard Drawing G-3 as part of the Section 1.0 comprehensive sectional review.
Removed	G-4	G-4	Standard Drawing Symbols Library: Removed from the manual and replaced by the Standard Drawing G-4 to G-4I as part of the Section 1.0 comprehensive sectional review.
Removed	G-5A	G-5A	Sample Drawing – Proposed Road Reconstruction: Removed from the manual as part of the Section 1.0 comprehensive sectional review.
Removed	G-5B	G-5B	Sample Drawing – Proposed Sanitary Sewer: Removed from the manual as part of the Section 1.0 comprehensive sectional review.
Removed	G-5C	G-5C	Sample Drawing – Proposed Storm Drain: Removed from the manual as part of the Section 1.0 comprehensive sectional review.
Removed	G-5D	G-5D	Sample Drawing – Proposed Watermain: Removed from the manual as part of the Section 1.0 comprehensive sectional review.
Removed	G-5E	G-5E	Sample Drawing – Proposed Works Cover Sheet: Removed from the manual as part of the Section 1.0 comprehensive sectional review.
Removed	G-5F	G-5F	Sample Drawing – Proposed Lining & Geometric, Pavement Markings & Signage: Removed from the manual as part of the Section 1.0 comprehensive sectional review.
Removed	G-6	G-6	Sample Drawing – Land Acquisition Sketch: Removed from the manual as part of the Section 1.0 comprehensive sectional review.
Removed	G-7	G-7	Street Light Attribute Table and Traffic Sign Table: Removed from the manual and replaced by the Standard Drawing G-7 as part of the Section 1.0 comprehensive sectional review.
Removed	G-8	G-8	Survey Code Descriptions and Description Key Set – Sht 1: Removed from the manual and replaced by the Standard Drawing G-8 to G-8B as part of the Section 1.0 comprehensive sectional review.
Removed	G-8A	G-8A	Survey Code Descriptions and Description Key Set – Sht 2: Removed from the manual and replaced by the Standard Drawing G-8 to G-8B as part of the Section 1.0 comprehensive sectional review.
Removed	G-9	G-9	Survey Monument Type 1: Removed from the manual as part of the Section 1.0 comprehensive sectional review.
Removed	G-10	G-10	Survey Monument Box Casting Detail Type 1: Removed from the manual as part of the Section 1.0 comprehensive sectional review.
Removed	G-11	G-11	Survey Monument Type 2 – Flush Mounted: Removed from the manual as part of the Section 1.0 comprehensive sectional review.
Removed	G-12	G-12	Drafting Submission Checklist – Sht 1: Removed from the manual as part of the Section 1.0 comprehensive sectional review.
Removed	G-12A	G-12A	Drafting Submission Checklist – Sht 2: Removed from the manual as part of the Section 1.0 comprehensive sectional review.

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Removed	G-12B	G-12B	Drafting Submission Checklist – Sht 3: Removed from the manual as part of the Section 1.0 comprehensive sectional review.
Added	G-1	-	Standard Layer Names - Sheet 1 of 3: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-1A	-	Standard Layer Names - Sheet 2 of 3: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-1B	-	Standard Layer Names - Sheet 3 of 3: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-2	-	Standard Abbreviations: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-3	-	Standard Materials and Hatch Patterns: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-4	-	Standard Symbols - Sheet 1 of 10: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-4A	-	Standard Symbols - Sheet 2 of 10: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-4B	-	Standard Symbols - Sheet 3 of 10: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-4C	-	Standard Symbols - Sheet 4 of 10: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-4D	-	Standard Symbols - Sheet 5 of 10: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-4E	-	Standard Symbols - Sheet 6 of 10: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-4F	-	Standard Symbols - Sheet 7 of 10: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-4G	-	Standard Symbols - Sheet 8 of 10: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-4H	-	Standard Symbols - Sheet 9 of 10: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-4I	-	Standard Symbols - Sheet 10 of 10: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-7	-	Street Light Table and Traffic Sign Table: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-8	-	Survey Code Descriptions and Description Key Sheet 1 of 3: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-8A	-	Survey Code Descriptions and Description Key Sheet 2 of 3: Added to Section 1.0 as part of the comprehensive sectional review.
Added	G-8B	-	Survey Code Descriptions and Description Key Sheet 3 of 3: Added to Section 1.0 as part of the comprehensive sectional review.
Superseded	All	2.00	Entire section is superseded in MoESS due to updating and formatting of the information and the update of the identifier footer.
-	2-10	2.02	Article 17. Owner's Termination of the Contractor's Rights: Added clause (g) and (h) to document.
-	2-22	2.05	Article 40. Force Account Work: Revised clause 2.05. Article 40.2 to add Rental to the title of the blue book referenced.
-	2-28	2.05	Article 52 Insurance: Revised clause 2.05 Article 52.1 to increase the written notice from 15 days to 30 days and added that contractor shall ensure all subcontractors comply. Also Clause 2.05 Article 52.2, 52.3, were revised, 52.4 was removed and 52.5 was re-numbered to 52.4, 52.6 was re-numbered to 52.5.
Superseded	All	3.00	Entire section is superseded in MoESS due to updating and formatting of the information and the update of the identifier footer.
-	3-3	3.01	Revised 3.01.2 abbreviations, added and removed association titles.
-	3-8	3.01A	Reference: Revised list to include ASTM updates.
-	3-13	3.01B	Supplementary Documents: Revised links and added to list.
Added	3-14	3.01C	City Bylaws: Added list of relevant supplement bylaws and links to the documents.
-	3-17	3.10	WorkSafeBC: Revised section to conform with latest regulations and refer to WorkSafeBC requirements.
-	3-19	3.23	Protection, Adjustment, and Salvage of Structures: Revised to include latest regulations for asbestos cement pipe.
-	3-24	3.54	Merchantable Timber: Revised reference to direct to current Ministry office.
Superseded	All	4.00	Entire section, including written specifications and standard drawings, are superseded in MoESS due to updating and formatting of the requirements and the update of the identifier footer.
-	4-5	4.07	Trench Excavation: Revised installation requirements for manholes for clarity.

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-	4-11	4.18	Trench Dams: Revised clause 4.18.1 for clarity to include 10% in the requirement. Added clause 4.18.5 for the requirement of a geotechnical engineer's report for watermains and forcemains with slopes of 30% or greater. Revised clause 4.18.4 table to reflect requirement.
-	4-14	4.24	Controlled Density Fill: Revised to reference updated specifications.
-	4-17	4.28	Pavement Restoration: Added clause 4.28.6 to explain use of RAP for permanent pavement patches.
-	T-4	T-4	Pavement Restoration - Type 1 (Asphalt Thickness < 75mm): Added Alternative 2, the bevelled cut detail.
-	T-6	T-6	Pipe Protection With Concrete: Revised rebar from 12M to 15M.
-	T-7	T-7	Typical Location of Service Connections to Residential Vacant Lots: Revised to include record drawing labelling.
Superseded	All	5.00	Entire section, including written specifications and standard drawings, are superseded in MoESS due to updating and formatting of the requirements and the update of the identifier footer. The entire Section 5.0, Design Criteria, Specifications, Installation and Standard Drawings were part of a sectional review to revise the section to current best practices for engineering design and construction with the most current standards and specifications for the industry.
-	5-4	5.01A	Water Demand: Revised Clause 5.01A.1(c) to add requirements for fire protection and clarify fire flow design so all fire hydrants are installed on a looped water system. Moved Table W-1 from the back of the section to be within Section 5.01A.
-	5-6	Table W-1	Design Fire Flow by Land Use Zone: Revised by changing '@' to '*' within the first column for clarity. Moved the table within 5.01A from the back of the section.
-	5-7	5.02	Water Pressure: Revised for clarity 'based on design low reservoir level.'
-	5-7	5.02A	Velocity: Revised maximum peak flow from 1.5m/s to 2.0m/s. Added for clarity 'plus the maximum day rate shall not exceed' to Clause 5.02A.2. Clause 5.02A.3 and 5.02A.4 were removed from the manual.
-	5-8	5.05	Water Distribution Piping: Revised Clause 5.05.1(d) to require pipe corrosion reports for prevention of corrosion of DI, copper, grey iron or steel pipe for design of a watermain with these materials. Added Clause 5.05.1(f) to require City Engineer approval for watermain design 350mm or greater in diameter.
-	5-8	5.06	Service Connections: Revised to include polyethylene service tubing to be used for service connections rather than copper. There are two options copper or polyethylene tubing. Added clarity to the gate valve requirement in Clause 5.06.3. Added Clause 5.06.6 and 5.06.7 to have domestic and fire service lines separate and include the use of the Water Meter Sizing Calculation Sheet in Appendix H4 in the design submission.
-	5-9	5.07	Hydrants: Revised to include reference to standard drawing W-5. Revised the requirement for two gate valves at a hydrant assembly complete with required location for clarity of the criteria. Revised the maximum spacing of hydrants to be 90m from 100m. Revised design location of hydrants to not be closer than 1.0m from property line from 0.6m.
-	5-10	5.08	Valves: Revised Clause 5.08.1 for clarity of the maximum distance between valves and the location of valves. Revised Clause 5.08.3 to clarify resilient seat gate valves shall be used up to and including 300mm diameter.
-	5-10	5.09	Thrust Blocks and Joint Restraints: revised title for 'Fittings' and revised the criteria for thrust blocks and joint restraints and when and how the components are used.
-	5-11	5.10	Watermain Location, Depth and Grade: Revised the requirements for clarity, sections are referenced rather than duplicating requirements.
-	5-11	5.10A	Utilities in Private Lands: Revised the offset to be 1.5m from 2.0m
-	5-13	5.12	Not Used: Removed Booster Pump Stations from the manual.

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-	5-13	5.13	Meter Chambers: Revised to add Clause 5.13.2 for the requirements for large strata developments, city owner watermains and small strata developments. Clause 5.13.7 was revised for clarity that the bypass shall be the same diameter as the service. Clause 5.13.7 was revised to introduce the Cross Connection Control program and the requirement of premise isolation for all new developments.
-	5-15	5.14	Air Valves: Title revised to remove 'and Fittings'. Clause 5.14.2 and 5.14.3 were added to provide criteria for a minimum size of 25mm and for 300mm diameter or larger mains the Design Engineer shall determine the size, type and details. Clause 5.14.5 was added to provide cross-connection control when the apparatus is located in a flooded or contaminated chamber.
-	5-14	5.15	Flushouts: Revised Clause 5.15.1 to add 'whether permanent or temporary'. Added Clause 5.15.2 and 5.15.5 to provide clarity and further design criteria.
-	5-15	5.16	Floor Drain Assembly Chamber Design: Revised Clause 5.16.5 (a) and (c) for floor drain assemblies design.
-	5-16	5.22	Water Main Pipe: Revised Clause 5.22.1 for clarity. For Ductile Iron pipe, specifications were added for polyethylene encasement. For Steel pipe four specifications added (3 AWWA and 1 ASTM). For PVC pipe specification requirements were revised according to the pipe size. and pipe shall be ULC Listed and be CIP size equivalent. Added specification for push-on integrally thickened bell and spigot type pipe. For HDPE pipe specifications were revised for the pipe and fittings.
-	5-21	5.26	Water Main Valve Markers: Revised specification for valve tag markers to be installed in a nearby reasonable location.
-	5-22	5.27	Hydrants: Revised to add Clause 5.27.1(i) for hydrant flow test on all new hydrants at the discretion of the City Engineer. Revised Clause 5.27.2(c) to add that all tie rods, nuts and washers shall be coated with corrosion protection.
-	5-23	5.30	Water Service Connections: Revised to remove design criteria and installation requirements within the specification section. Added specifications for polyethylene tubing and tracer wire. Revised to remove plastic meter service boxes and the reference to the removed service box standard drawings. Clause 5.30.6 was revised for pipe saddles specifications are up to current best practice requirements. Revised meter requirements for all fire line services to be UL listed and FM approved.
-	5-26	5.31	Pressure Reducing Stations: Revised to add requirement for all pressure reducing valves on fire line services to be UL listed and FM approved.
-	5-26	5.32	Flange Adapters and Joint Restraints: Revised for clarity the ASTM standards to add the 'F'.
-	5-27	5.33	Floor Drain Assemblies: Revised Clause 5.33.6(a) and (b) for clarity.
-	5-28	5.35	Not Used: Booster Pump Stations removed from manual.
-	5-29	5.41	Pipe Alignment: Revised to only include installation requirements, other requirements were moved to design criteria or specifications.
-	5-30	5.46	Deflection: Revised for clarity to conform to manufacturers specifications.
-	5-31	5.50	Valves: Revised to removed Clause 5.50.2 and re-number clauses.
-	5-31	5.52	Hydrants: Revised Clause 5.52.2(h) for clarity of installation requirements.
-	5-32	5.56	Water Service Connection Installation: Revised water connection installation to extend the trench to 3.0m from 1.0m in rock. Added installation requirement for service box installation in driveways to have a concrete apron installed in addition to 25mm minus crush gravel base structure. Added installation requirements for polyethylene tubing when using squeezers to prevent damage.
-	5-36	5.59	Not Used: Booster Pump Stations removed from manual.
-	5-36	5.61	Pressure and Leakage Testing: Revised and added requirements for clarification and to meet current best practices for the industry.
-	5-37	5.62	Flushing, Chlorination and Bacterial Sampling: Revised and added requirements for clarification and to meet current best practices for the industry.

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-	5-37	5.63	Notification to Engineer - System Tests and Final Connection: Revised to include installation requirements to include final connection notifications. Requirements were added for clarification and to meet current best practices for the industry.
-	W-1	W-1	Water Service Connection Detail (19mm to 50mm): Revised to include polyethylene tubing water services and requirements for clarification and to meet current best practices for the industry.
-	W-2A	W-2A	Above Ground Flushout Detail c/w Thrust Block and Optional Restrained Method: Revised drawing to add 'or approved equal' to the brass nipple.
-	W-2B	W-2B	Below Ground Flushout Detail c/w Thrust Block and Optional Restrained Method: Revised drawing to add 'or approved equal' to the brass nipple.
-	W-4	W-4	Air Release Valve Assembly and Chamber for 150mm - 300mm Main: Revised to include anchor ring blow-off and clarification of details and cross sections.
-	W-5	W-5	Hydrant Connection: Revised standard drawing dimensions to provide a range of 150mm-200mm rather than 100mm for the height of the hydrant bottom to finished grade.
-	W-7	W-7	Hydrant Access Ditch Crossing Detail: Revised to add dimensions for the crossing for clarity.
-	W-8	W-8	Thrust Block Details: Revised Tee with Valve detail to add a spool c/w cap to tie back to valve.
-	W-9	W-9	Valve Boxes in Unpaved Areas: Revised to removed hood for detail.
Removed	-	W-10	Standard Plastic Meter Box for Untraveled Areas (For 19dia. and 25dia. Meters Special Applications Only): Removed from manual.
Removed	-	W-10A	Standard Concrete Service Box Type 37 (For 19mm and 25mm meters): Removed from manual.
Removed	-	W-10B	Standard Concrete Meter Box - Type 66 (For 38mm to 50mm): Removed from manual.
-	W-11	W-11	Meter Chamber Precast Vault: Revised to add slope of 1% to floor and note 8 and reference to Section 5.16.
-	W-11A	W-11A	Meter Chamber Precast Circular Manhole: Revised to remove the ladder rung, add reference to section 5.16 and add note 5.
Removed	-	W-11B	Precast Vault Meter Chamber (Manhole Access): Removed from manual.
-	W-12	W-12	Water Meter Touch Read Bracket: Revised drawing with accurate dimensions.
-	W-13	W-13	Fire/Domestic Water Meter Piping Layout (100 - 250 Dia.): Revised to add 'touch read' to the service box and install thrust block the full width of the meter chamber.
-	W-14	W-14	Domestic Water Meters Piping Layout (100 - 250 Dia.): Revised to show thrust block the full width of the meter chamber.
-	W-14A	W-14A	Domestic Water Meters Piping Layout (38 - 50 Dia.): Revised to remove reference to water meter service box drawings.
-	W-15	W-15	Detector Check Fire Line Service Piping Layout (100 - 250 Dia.): Revised to show thrust block the full width of the meter chamber.
-	W-16	W-16	Gate Valve and Valve Nut Extensions: Revised to add 10M rebar tie-downs when valve is flanged to restrained tee.
Removed	-	W-17	Fire/Domestic Water Meter Piping Layout (38mm -100mm): Removed from manual.
-	W-18	W-18	Goose Neck for Pressure Reducing Station Drain: Revised to show transition coupling and schedule 40 galvanized steel pipe for the goose neck.
-	W-19	W-19	Manhole Cover and Frame: Revised drawing to represent current standards and dimensions.
-	W-20	W-20	Utility Chamber - Manhole Frame, Ring and Cover: Revised drawing to represent current standards and dimensions.
-	W-21	W-21	Watertight Manhole Frame and Cover: Revised drawing to represent current standards and dimensions.
Superseded	All	6.00	Entire section, including written specifications and standard drawings, are superseded in MoESS due to updating and formatting of the requirements and the update of the identifier footer.
-	6-3	6.01A	Sewage Flows: Revised to add clarity that 'P' is in thousands in Clause 6.01A.4.
-	6-5	6.03	Hydraulics: Revised for clarity of m/s.

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-	6-5	6.04	Piping Utilities in Private Lands: Revised 1.5 m to 2.0m to reflect actual requirement. Added Clause 6.04.4(b), moved from Installation into Design Criteria.
-	6-6	6.04A	Manholes: Added sentence to Clause 6.04A.3 and 'where possible' to Clause 6.04A.4 for clarity of design use. Also Clause 6.04A.9 for Manhole Platforms was removed entirely.
-	6-8	6.05	Pumping Stations: Revised to keep only clause 6.05.1 and 6.05.2 adding an additional sentence to Clause 6.05.2 "The extent of the works and technical specifications shall be determined on a site specific basis at the discretion of the City Engineer."
-	6-12	6.22A	Force Mains: Revised to add Clause 6.22A.3(e) from 6.22.6(e) pipe shall be white in colour.
-	6-15	6.29	Manhole Platforms: Removed, renamed '-Not Used-'.
-	6-15	6.32	Temporary Cleanout Frames and Covers: Revised Clause 6.32.2 for clarity.
-	6-16	6.37	Pumping Stations: Removed all installation specifications and added Clause 6.37.1 'The specifications shall be determined on a site specific basis at the discretion of the City Engineer.'
-	6-20	6.49	Cast-In-Place Manhole Concrete Bases: Revised to include cast-in-place in the title and include clause 6.49.7 to 6.49.10 to include manhole channelling.
-	6-21	6.49A	Precast Manhole Bases: revised 40mm to 38mm for the drainrock requirement.
-	6-21	6.50	Manhole Channelling: Removed section and information added to 6.49. Renamed '-Not-Used-'.
-	6-22	6.53	Frames and Covers: Revised Clause 6.53.1 for clarity on the requirement to install grade rings to a min of 50mm thick and a max of 100mm thick.
-	6-23	6.58	Manhole Platforms: Removed, renamed '-Not Used-'.
-	6-23	6.58A	Pumping Stations: Revised to remove all installation requirements and adding to Clause 6.58A.1 '...the installation requirements shall be determined on a site specific basis at the discretion of the City Engineer.'
-	6-23	6.59	Service Connection Installation: Removed design criteria for Clause 6.59.2(a) requirements were added to Design Criteria section. Revised Clause 6.59.3(i) to reference actual metric dimensions and revised 6.59.4(a) to refer to revised Standard Drawing.
-	S-2	S-2	Sanitary Manhole: Drawing was completely re-drawn to reflect current best practices and requirements.
-	S-3	S-3	Sanitary Drop Manhole: Drawing was completely re-drawn. Revised to remove concrete encasement to be replaced with drain rock.
Removed	S-4	S-4	Sanitary Manhole Platform Detail: Drawing removed.
-	S-5	S-5	General Sanitary Service Connection Detail Riser and Non-Riser Types: Drawing was completely re-drawn to reflect current best practices and requirements.
Removed	S-6	S-6	Sanitary Riser Service Connection: Drawing removed, requirements added to S-5.
-	S-7	S-7	Commercial Areas Sanitary Service Connection Detail Riser and Non Riser Types: Drawing was completely re-drawn to reflect current best practices and requirements.
-	S-8	S-8	Sanitary Service Box and Inspection Assembly Installation: Drawing was completely re-drawn to reflect current best practices and requirements. Revised included the installation requirements for a box within a concrete driveway.
-	S-8A	S-8A	Sanitary Service Box and Inspection Assembly Installation in Paved Lanes and Roadways: Drawing re-drawn to include requirements from S-21 and show cover flush with finished grade.
-	S-9	S-9	Sanitary Manhole Frame and Cover: Drawing completely re-drawn to reflect current best practices and requirements.
-	S-10	S-10	Utility Chamber Sanitary Manhole Frame, Ring and Cover: Drawing completely re-drawn to reflect current best practices and requirements.
-	S-15	S-15	Watertight Sanitary Manhole Frame and Cover: Drawing completely re-drawn to reflect current best practices and requirements.

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Superseded / Added / Cancelled / Removed	Page Revised / New Insert / New Dwg No.	Section No. / Dwg No. Affected	Remarks
Removed	S-16	S-16	Sewage Pump Station "Pig Loader" Schematic: Drawing removed.
Removed	S-17	S-17	Sewage Pump Station "Pig Loader" Detail: Drawing removed.
Removed	S-18	S-18	Standard Plastic Sanitary Service Box For Untraveled Areas (Special Applications Only): Drawing removed. Plastic service boxes shall no longer be used for sanitary service boxes.
Removed	S-19	S-19	Standard Concrete Sanitary Service Box (For Twin Service): Drawing removed. Information added to S-8 and written specifications.
Removed	S-20	S-20	Standard Concrete Sanitary Service Box (For Single Service): Drawing removed. Information added to S-8 and written specifications.
Removed	S-21	S-21	MR Type Steel Sanitary Service Box: Drawing removed. Information added to S-8A.
Superseded	All	7.00	Entire section, including written specifications and standard drawings, are superseded in MoESS due to updating and formatting of the requirements and the update of the identifier footer. Revision includes a name change to from 'Storm Sewer System' to 'Stormwater Management' as well as a complete re-write of the first sub-section Design Criteria to incorporate current engineering practices for retention and detention, to preserve and improve water quality and volumes when pertaining to stormwater runoff and the drainage watercourses to protect aquatic habitats and reduce soil erosion from storms.
Removed	-	7.01	Scope: Removed from the manual, Section 7.0 was revised within a comprehensive sectional review.
Added	7-4	7.01	Introduction: Added section as part of the full sectional review to incorporate stormwater management and environmental considerations for climate change.
Removed	-	7.02	Land Use: Removed from the manual, Section 7.0 was revised within a comprehensive sectional review.
Added	7-7	7.02	Summary of Stormwater and Environmental Protection Design Criteria: Added section as part of the full sectional review to incorporate stormwater management and environmental considerations for climate change.
Removed	-	7.03	Hydrology: Removed from the manual, Section 7.0 was revised within a comprehensive sectional review.
Added	7-7	7.03	Stormwater Runoff: Added section as part of the full sectional review to incorporate stormwater management and environmental considerations for climate change.
Removed	-	7.04	Major System Routing: Removed from manual and replaced with 7.05 Major System.
Added	7-12	7.04	Minor System: Added section as part of the full sectional review to incorporate stormwater management and environmental considerations for climate change.
Removed	-	7.05	Minor System Routing: Removed from manual and replaced with 7.04 Minor System.
Added	7-12	7.05	Major System: Added section as part of the full sectional review to incorporate stormwater management and environmental considerations for climate change.
Removed	-	7.06	Pipe Design Details: Removed from manual and replaced with 7.06 Pipe Design Details.
Added	7-14	7.06	Pipe Design Details: Added section as part of the full sectional review to incorporate stormwater management and environmental considerations for climate change.
Removed	-	7.07	Streets, Curbs and Gutters: Removed from the manual, Section 7.0 was revised within a comprehensive sectional review.
Added	7-19	7.07	Culverts: Added section as part of the full sectional review to incorporate stormwater management and environmental considerations for climate change.
Removed	-	7.08	Open Channels: Removed from the manual, Section 7.0 was revised within a comprehensive sectional review.
Added	7-19	7.08	Ditches (within road right-of-way): Added section as part of the full sectional review to incorporate stormwater management and environmental considerations for climate change.
Removed	-	7.09	Erosion Control: Removed from the manual, Section 7.0 was revised within a comprehensive sectional review.
Added	7-20	7.09	Swales (within road right-of-way): Added section as part of the full sectional review to incorporate stormwater management and environmental considerations for climate change.

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Superseded / Added / Cancelled / Removed	Page Revised / New Insert / New Dwg No.	Section No. / Dwg No. Affected	Remarks
Removed	-	7.10	Storage Facilities: Removed from the manual, Section 7.0 was revised within a comprehensive sectional review.
Added	7-20	7.10	Open Channels (within private property and easements): Added section as part of the full sectional review to incorporate stormwater management and environmental considerations for climate change.
Removed	-	7.11	Storage Pond Outlet Structures: Removed from the manual, Section 7.0 was revised within a comprehensive sectional review.
Added	7-20	7.11	Inlet and Outlet Structures: Added section as part of the full sectional review to incorporate stormwater management and environmental considerations for climate change.
Removed	-	7.12	Storm Drainage System Reports: Removed from the manual, Section 7.0 was revised within a comprehensive sectional review.
Added	7-21	7.12	Storage Facilities: Added section as part of the full sectional review to incorporate stormwater management and environmental considerations for climate change.
Added	7-24	7.13	Rainwater Best Management Practices: Added section as part of the full sectional review to incorporate stormwater management and environmental considerations for climate change.
Added	7-28	7.14	Water Quality: Added section as part of the full sectional review to incorporate stormwater management and environmental considerations for climate change.
Added	7-30	7.15	Climate Change: Added section as part of the full sectional review to incorporate stormwater management and environmental considerations for climate change.
-	7-36	7.25F	Not Used: Removed Manhole Platforms from the manual.
-	7-36	7.28	Temporary Cleanout Frames and Covers: Revised Clause 7.28.2 for clarity.
-	7-37	7.31B	Catch Basin Castings: Revised 7.31B.1 for clarity and added reference to the standard drawings that are applicable.
-	7-37	7.32	Inlet and Outlet Structures: Revised specifications for precast to be used unless otherwise approved by City Engineer and added specifications for trash racks.
-	7-37	7.33	Energy Dissipater Outlet Structures: Revised Clause 7.33.1, removed 7.33.2, revised and renamed and 7.33.3 to 7.33.2.
-	7-37	7.35A	Culverts: Revised to remove corrugated steel pipe specifications for culverts. CSP is not longer used for culverts. Revised specification for ribbed PVC pipe used for driveway culverts.
-	7-39	7.37	Manhole and Temporary Cleanout Lid Markers: Revised to reference new standard drawing.
-	7-43	7.49	Cast-In-Place Manhole Concrete Bases: Revised to include cast-in-place in the title and include clause 7.49.7 to 7.49.10 to include manhole channelling.
-	7-44	7.50	Not Used: Removed Manhole Channelling and add to Section 7.49.
-	7-44	7.52	Precast Manhole Bases: revised 40mm to 38mm for the drainrock requirement.
-	7-45	7.54	Frames and Covers: Revised Clause 7.54.1 for clarity on the requirement to install grade rings to a min of 50mm thick and a max of 100mm thick.
-	7-46	7.56	Drop Manhole Structures: Revised to refer to new standard drawing.
-	7-46	7.59	Not Used: Removed Manhole Platforms from the manual.
-	7-46	7.60	Precast Catch Basin Barrels and Leads: Revised to rename the section from 'Catch basin' and added Clause 7.60.8.
-	7-47	7.61	Service Connection Installation: Revised Clause 7.61.3(i) to reference actual metric dimensions and revised 6.59.4(a) to refer to revised Standard Drawing.
-	7-49	7.63	Video Inspecting Mains: Revised Clause 7.63.3(a) to increase the 4.7GB DVD MPEG2 video data disk to a 4.7GB DVD MPEG4 video data disk.
-	7-50	7.65	Culvert Installation: Revised to remove corrugated steel pipe from culvert installations.
-	7-51	7.67	Perforated Drains: Revised to refer to the new name, Section 7.0 - Stormwater Management.

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Superseded / Added / Cancelled / Removed	Page Revised / New Insert / New Dwg No.	Section No. / Dwg No. Affected	Remarks
-	7-52	7.68	Inlet and Outlet Structures: Added installation clause that all inlet and outlet structures shall be in accordance with Standard Drawings
Removed	ST-1	ST-1	Curb-Type Catch basin for Formed Curbs Type 1 and Type 2: Removed from the manual and replaced by the Stormwater Management Standard Drawing SW-1 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-1A	ST-1A	Curb-Type Catch basin for Formed Curbs Type 1 and Type 2: (600mm x 600mm): Removed from the manual and replaced by the Stormwater Management Standard Drawing SW-2 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-1B	ST-1B	Curb Type Catch basin for formed Curbs Type 3: Removed from the manual and replaced by the Stormwater Management Standard Drawing SW-3 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-2	ST-2	Boulevard Drainage Catch basin Type 4 (for 250 mm Dia & 300 mm Dia Pipe): Removed from the manual and replaced by the Stormwater Management Drawing SW-4 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-2A	ST-2A	Lawn Basin Type 5 (for 150mm Pipe): Removed from the manual as part of the Section 7.0 comprehensive sectional review.
Removed	ST-2B	ST-2B	Lawn Basin Type 5A (300mm dia. Barrel): Removed from the manual and replaced by the Stormwater Management Drawing SW-5 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-3	ST-3	Cast-in-Place Concrete Headwalls for Pipe Inlets - Type 1 (300 - 1200 Dia): Removed from the manual as part of the Section 7.0 comprehensive sectional review.
Removed	ST-3A	ST-3A	Cast-in-Place Concrete Headwalls for Pipe Outlets - Type 1 (300 - 1200 Dia): Removed from the manual and replaced by the Stormwater Management Standard Drawing SW-10 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-4	ST-4	Precast Concrete Headwall for Pipe Inlets and Outlets - Type 2 (300 - 1200 Dia): Removed from the manual and replaced by the Stormwater Management Standard Drawing SW-10 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-4A	ST-4A	Precast Concrete Headwalls for Pipe Inlets - Type 3 (300 - 450 Dia): Removed from the manual and replaced by the Stormwater Management Standard Drawing SW-10 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-4B	ST-4B	Concrete Inlet Structure - Type 4: Removed from the manual as part of the Section 7.0 comprehensive sectional review.
Removed	ST-5	ST-5	Sandbag Headwall for Culvert Inlets and Outlets - Type 3: Removed from the manual and replaced by the Stormwater Management Standard Drawing SW-11 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-6	ST-6	Energy Dissipater (Impact Stilling Basin): Removed from the manual as part of the Section 7.0 comprehensive sectional review.
Removed	ST-6B	ST-6B	Concrete Energy Dissipater Structure: Removed from the manual as part of the Section 7.0 comprehensive sectional review.
Removed	ST-7	ST-7	Rainfall Curves: Removed from the manual and replaced by the Stormwater Management Standard Drawing SW-25 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-8	ST-8	Time of Concentration Table: Removed from the manual and replaced by the Stormwater Management Drawing SW-26 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-9	ST-9	Catch basin Frame and Grate for Type 1 Catch basin: Removed from the manual and replaced by the Stormwater Management Drawing SW-6 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-10	ST-10	Catch basin Frame and Grate for Type 2 Catch basin: Removed from the manual as part of the Section 7.0 comprehensive sectional review.
Removed	ST-11	ST-11	Catch basin Frame and Grate for Boulevard Drainage Catch basin - Type 4 & 5: Removed from the manual and replaced by the Stormwater Management Drawing SW-8 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-12	ST-12	Adjustable Catch basin Frame and Hood for Non-Mountable Curbs - Type 3: Removed from the manual and replaced by the Stormwater Management Drawing SW-7 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-13	ST-13	Guardrail: Removed from the manual and replaced by the Stormwater Management Drawing SW-12 as part of the Section 7.0 comprehensive sectional review.

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Superseded / Added / Cancelled / Removed	Page Revised / New Insert / New Dwg No.	Section No. / Dwg No. Affected	Remarks
Removed	ST-14	ST-14	Storm Manhole Benching Details: Removed from the manual and replaced by the Stormwater Management Drawing SW-15 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-15	ST-15	Typical Storm Manhole Details for Mains to 375 mm - Standard Precast Type: Removed from the manual and replaced by the Stormwater Management Drawing SW-13 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-16	ST-16	Typical Drop - Storm Manhole Details - Standard Precast Type for Sewers 375 mm or less and over 1.35 m in Depth: Removed from the manual and replaced by the Stormwater Management drawing SW-14 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-17	ST-17	Storm Manhole Platform Detail: Removed from the manual as part of the Section 7.0 comprehensive sectional review.
Removed	ST-18	ST-18	Storm Standard Service Connection: Removed from the manual and replaced by the Stormwater Management drawing SW-21 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-19	ST-19	Storm Riser Service Connection: Removed from the manual and replaced by the Stormwater Management drawing SW-21 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-20	ST-20	Commercial Areas - Storm Service Connection Detail - Riser and Non-Riser Types: Removed from the manual and replaced by the Stormwater Management drawing SW-22 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-21	ST-21	Detail of Storm Service Box Inspection Assembly Installation in Untraveled Areas: Removed from the manual and replaced by the Stormwater Management drawing SW-23 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-21A	ST-21A	Detail of Storm Service Box and Inspection Assembly Installation in Paved Lanes and High Traffic Areas: Removed from the manual and replaced by the Stormwater Management drawing SW-24 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-22	ST-22	Heavy Duty Storm Manhole Cover and Frame: Removed from the manual and replaced by the Stormwater Management drawing SW-16 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-23	ST-23	Utility Chamber - Storm Manhole Frame, Ring and Cover: Removed from the manual and replaced by the Stormwater Management drawing SW-17 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-24	ST-24	Temporary Storm Cleanout Structure: Removed from the manual and replaced by the Stormwater Management drawing SW-19 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-26	ST-26	Storm Manhole and Cleanout Lid Marker: Removed from the manual and replaced by the Stormwater Management drawing SW-20 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-27	ST-27	Watertight Storm Manhole Frame and Cover: Removed from the manual and replaced by the Stormwater Management drawing SW-18 as part of the Section 7.0 comprehensive sectional review.
Removed	ST-28	ST-28	Standard Plastic Storm Service Box for Untraveled Areas (Special Applications Only): Removed from the manual as part of the Section 7.0 comprehensive sectional review.
Removed	ST-29	ST-29	Standard Concrete Storm Service Box (for Twin Service): Removed from the manual as part of the Section 7.0 comprehensive sectional review.
Removed	ST-30	ST-30	Standard Concrete Storm Service Box (for Single Service): Removed from the manual as part of the Section 7.0 comprehensive sectional review.
Removed	ST-31	ST-31	MR Type Steel Storm Service Box: Removed from the manual and replaced by the Stormwater Management Drawing SW-24 as part of the Section 7.0 comprehensive sectional review.
Added	SW-1	-	Standard Catch Basin: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-2	-	Shallow Catch Basin: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-3	-	Curb Inlet Catch Basin: Added to Section 7.0 as part of the comprehensive sectional review.

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Superseded / Added / Cancelled / Removed	Page Revised / New Insert / New Dwg No.	Section No. / Dwg No. Affected	Remarks
Added	SW-4	-	Boulevard Catch Basin: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-5	-	Small Lawn Basin on Private Property: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-7	-	Catch Basin Frame and Grate: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-8	-	Boulevard Catch Basin Frame and Grate: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-10	-	Precast Concrete Headwall: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-11	-	Sandbag Headwall for Culvert Inlets and Outlets: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-12	-	Guard Rail: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-13	-	Storm Manhole: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-14	-	Storm Drop Manhole: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-15	-	Storm Manhole Benching Details: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-16	-	Storm Manhole Cover and Frame: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-17	-	Utility Chamber Storm Manhole Frame, Ring and Cover: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-18	-	Watertight Storm Manhole Frame and Cover: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-19	-	Temporary Storm Cleanout Structure: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-20	-	Storm Manhole and Temporary Cleanout Marker: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-21	-	General Storm Service Connection Detail Riser and Non Riser Types: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-22	-	Commercial Areas Storm Service Connection Detail Riser and Non Riser Types: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-23	-	Storm Service Box and Inspection Assembly Installation: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-24	-	Storm Service Box and Inspection Assembly Installation in Paved Lanes and Roadways: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-25	-	Rainfall Curves: Added to Section 7.0 as part of the comprehensive sectional review.
Added	SW-26	-	Time of Concentration Table: Added to Section 7.0 as part of the comprehensive sectional review.
Superseded	All	8.00	Entire section, including written specifications and standard drawings, are superseded in MoESS due to updating and formatting of the requirements and the update of the identifier footer.
-	8-4	8.01	Right-Of-Way and Pavement Widths: Revised to clarify the width of the sidewalk.
-	8-5	8.04	Driveway and Lane Crossing: Revised Clause 8.04.2 to include standard drawing numbers for clarity.
-	8-6	8.06	Sidewalk and Walkway Crossfall Grade: Revised to reference design criteria for clarity.
-	8-6	8.08	Curb, Sidewalk and Walkway Crossfall Grade - Minimum Base and Sub-base: Revised to added details for the design criteria for clarity.
-	8-7	8.12	Stairways: Revised to add reference to new wooden stairway standard.
-	8-8	8.13	Sidewalk Handrail: Revised to show the requirements in ratio for clarity.
-	8-11	8.36	Asphalt: Revised to remove Clause 8.36.2 and reference to a specification that has been withdrawn.
-	8-15	8.47	Transition Sidewalk and Walkway: Revised title to include 'walkway' and Clause 8.47.1 for clarity.
-	CS-1	CS-1	Non-Mountable Monolithic Curb & Gutter Construction: Revised to add reference to Design Criteria and notes.
-	CS-2	CS-2	Non-Mountable Curb Construction: Removed the Drop Curb Cross Section Detail.
-	CS-3	CS-3	Standard Curb for Traffic Islands and Medians: Revised to have two alternatives a rebar curb or a keyed in curb.
-	CS-4A	CS-4A	Interim Road Standard Curb Types: Revised notes for clarity.
-	CS-5	CS-5	Typical Sidewalk and Driveway Crossing Type 1: Revised drawing for clarity.

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Superseded / Added / Cancelled / Removed	Page Revised / New Insert / New Dwg No.	Section No. / Dwg No. Affected	Remarks
-	CS-5A	CS-5A	Typical Sidewalk and Driveway Crossing Type 2: Revised drawing for clarity and location of tool marks on letdown.
-	CS-5B	CS-5B	Typical Sidewalk and Driveway Crossing Type 3: Revised drawing for clarity and location of tool marks on letdown.
-	CS-7A	CS-7A	Pedestrian Sidewalk Ramp For Non-Mountable Curb Single: Revised for clarity.
-	CS-7B	CS-7B	Pedestrian Sidewalk Ramp For Non-Mountable Curb Double: Revised for clarity.
-	CS-8	CS-8	Island Pedestrian Crosswalk Ramp: Revised for clarity.
-	CS-10	CS-10	Walkway in 3.0 m Right-of-Way: Revised drawing to represent accurate curbing.
-	CS-10C	CS-10C	Parkway Connector Walkway replaced Walkway in 6.0m Right-of-Way drawing. Revised drawing to represent accurate curbing.
-	CS-14	CS-14	Removable Barrier Post: Revised to add notes for clarity.
-	CS-15	CS-15	Fire Lane Telescoping Bollard: Revised to add notes for clarity.
-	CS-16	CS-16	Concrete Stairway and Landing: Revised to current construction practices and reference notes added for clarity.
-	CS-16A	CS-16A	Concrete Stairway: Revised to current construction practices and reference notes added for clarity.
Added	CS-17	-	Wooden Stairway and Landing: Added new standard drawing.
Added	CS-17A	-	Handrail For Wooden Stairway: Added new standard drawing.
-	CS-18	CS-18	Sidewalk Handrail: Revised reference to external specifications.
-	CS-21	CS-21	Bus Stop Configuration for Paved Shoulder: Revised drawing for clarity
Superseded	All	9.00	Entire section, including written specifications and standard drawings, are superseded in MoESS due to updating and formatting of the requirements and the update of the identifier footer.
-	9-4	9.01	Scope: Revised for clarity to note deviations from the manual require approval from the City Engineer.
-	9-4	9.02	Minimum Width of Right-Of-Way: Revised to suit changes to Std Dwg R9-XS1.
-	9-10	9.15	Street Markings: Replaced Clause 9.15.1 and revised Clause 9.15.2 for clarity on scope and resources.
-	9-10	9.17	Roundabouts and Traffic Circles: Added section to manual.
-	9-11	9.20	Scope: Revised to refer to the MOTI Recognized Product List when the APL does not have a listing.
-	9-11	9.21	Testing: Revised Clause 9.21.3(c) external reference from ASTM D2922 to D6938.
-	9-13	9.30	Road Base Gravel Course: Revised table gradation limit of 50-100 to 50-85 for 9.5mm sieve.
-	9-14	9.31	Reclaimed Asphalt Product: Revised and added parameters for the specifications for clarity of use and required measured volume.
-	9-15	9.34	Street Name Signs: Revised the size of street signs and letter size.
-	9-15	9.35	Traffic Signs: Revised Clause 9.35.2(b) from engineering grade to diamond grade sheeting and added maximum dimension.
-	9-15	9.37	Street Name and Traffic Sign Posts: Revised external reference from ASTM A446 to A653.
-	9-22	9.60	Boulevard Grading: Revised to suit Section 14.0 requirements from 75mm to 100mm.
-	R9-XS1	R9-XS1	Half Road Section: Revised pavement and road dedication widths.
-	R10-XS1	R10-XS1	Alternative Sidewalk Location with Boulevard: Revised back of sidewalk to property line width to be a minimum 0.75m.
-	R11-DW1	R11-DW1	Access Fronting Roads without Concrete Curbs – Type 1: Revised to add neighbourhood collector classification for use.
-	R11-DW2	R11-DW2	Access Fronting Roads with Concrete Curbs – Type 1: Revised to add neighbourhood collector classification for use and revised the cross section for clarity.
-	R11-DW3	R11-DW3	Access Fronting Roads without Concrete Curbs – Type 2: Revised to remove the 2% grade.
-	R11-DW4	R11-DW4	Access Fronting Roads with Concrete Curbs – Type 2: Revised to add to Note 2 and revised the cross section for clarity.
-	R-S1	R-S1	Perforated Steel Base for Signs: Revised to add 900mm dimension for length of perforated steel anchor.
-	R-S6	R-S6	Standard Traffic Sign Installation Details: Revised to have additional 50mm height when stop sign is installed. Drawing revised to show rivets rather than bolts.

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The Manual of Engineering Standards and Specifications is revised as follows:

Superseded / Added / Cancelled / Removed	Page Revised / New Insert / New Dwg No.	Section No. / Dwg No. Affected	Remarks
Superseded	All	10.00	Entire section, including written specifications and standard drawings, are superseded in MoESS due to updating and formatting of the requirements and the update of the identifier footer.
-	10-5	10.01	Roadway Lighting: Revised the specification abbreviations and the road classifications.
-	10-13	10.20	Scope: Revised Clause 10.20.1 to refer to the MOTI Recognized Product List when the APL does not have a listing.
-	10-14	10.23	Junction Boxes: Revised referenced manual title, MOTI Electrical and Traffic Engineering Manual.
-	10-14	10.24	Concrete Bases: Revised referenced manual title, MOTI Electrical and Traffic Engineering Manual.
-	10-15	10.25	Poles and Related Equipment: Revised referenced manual title, MOTI Electrical and Traffic Engineering Manual.
-	10-15	10.26	Conductors: Clarification of referenced specifications.
-	10-15	10.28	Traffic and Pedestrian Signal Heads and Lamps: Revised referenced manual title, MOTI Electrical and Traffic Engineering Manual.
-	10-16	10.29	Signal Head and Sign Mounting Hardware: Revised referenced manual title, MOTI Electrical and Traffic Engineering Manual.
-	10-16	10.32	Audible Signals: Revised referenced manual title, MOTI Electrical and Traffic Engineering Manual.
-	10-18	10.41	Post Mounted Flasher Luminaries: Revised referenced manual title, MOTI Electrical and Traffic Engineering Manual.
-	10-18	10.42	Photocell and Receptacle: Revised referenced manual title, MOTI Electrical and Traffic Engineering Manual.
-	10-19	10.43	HID Lamps: Revised referenced manual title, MOTI Electrical and Traffic Engineering Manual.
-	10-21	10.60	Contractor Qualifications: Revised title of the government act.
-	10-21	10.62	Code and Regulations: Revised the title of the government branch.
-	10-21	10.63	Certificate of Inspection: Revised the title of the Provincial Electrical Inspector to be the Safety Officer of the BC Safety Authority.
-	E-1.4	E-1.4	Type C & C1 Trapezoidal Shape Concrete Bases: Revised to provide a range of 50-100mm rather than 50mm.
-	E-1.4A	E-1.4A	Type C & Type C1 Trapezoidal Shape Concrete Bases with Irrigation: Revised to provide a range of 50-100mm rather than 50mm.
-	E-1.6	E-1.6	Type E2 Trapezoidal Shape Concrete Base: Revised to provide a range of 50-100mm rather than 50mm.
-	E-1.8	E-1.8	Type F2 & L2 Trapezoidal Shape Concrete Bases: Revised to provide a range of 50-100mm rather than 50mm.
-	E-1.10	E-1.10	Anchor Bolt Cage for Type S Poles: Revised title to S poles. Housekeeping from Edition No.10.
-	E-1.13	E-1.13	Pole Base Installation Details: Revised to provide a range of 50-100mm rather than 50mm.
-	E-5.7	E-5.7	Signal Pole (Type S Shaft) Installation Details: Revised to reference proper drawing, E-5.12.
-	E-5.20	E-5.20	Minimum Clearances to Overhead Power lines: Revised to change minimum clearance from 300mm to 1000mm.
-	E-8.1	E-8.1	Pedestrian Pushbutton with Integral Sign: Revised drawing to represent the equipment.
-	E-15.1	E-15.1	Overhead Street Name Sign Installation Details (on Signal Pole Arms): Revised title.
Superseded	All	11.00	Entire section, including written specifications and standard drawings, are superseded in MoESS due to updating and formatting of the requirements and the update of the identifier footer.
-	11-2	11.21	Codes and Standards: Revised abbreviations for AASHTO
-	11-3	11.25	Forms: Revised referenced specifications from CSA.
-	11-3	11.27	Cement: Revised referenced specifications from CSA.
-	11-4	11.31	Concrete: Revised referenced specifications from CSA.
Superseded	All	12.00	Entire section, including written specifications and standard drawings, are superseded in MoESS due to updating and formatting of the requirements and the update of the identifier footer.
-	12-2	12.23	Aggregate: Revised to add column for Superpave into Clause 12.23.2. and 12.23.10. Also Recycled Asphalt Pavement (RAP) added as 12.23.3. Clause 12.23.4 revised table amounts for maximum permissible tolerance. Clause 12.23.6 revised to describe deleterious material rather than shale content only. Clause 12.23.9 added the micro-deval abrasion test.
-	12-4	12.24	Asphalt Cement: Revised Clause 12.24.1 and removed Clause 12.24.2.

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-	12-5	12.25	Asphaltic Concrete Mix Design Criteria: Revised specifications for marshall mixes including new references specifications and table values. Revised to add clauses for superpave mixes and reclaimed asphalt products.
-	12-7	12.27	Tack Coat: Revised to reference new specifications.
-	12-8	12.44	Testing: Revised to add specification ASTM C117 to Clause 12.44.3(a). Removed ASTM D1559 from Clause 12.44.3(b). Revised Clause 12.44.3(c)(i) with ASTM D2726.
-	12-11	12.48	Compaction: Revised to remove Clause 12.48.1(b) and (c). Removed the wording 'shall be performed by pneumatic tire roller' from clause 12.48.4.
Superseded	All	13.00	Entire section, including written specifications and standard drawings, are superseded in MoESS due to updating and formatting of the requirements and the update of the identifier footer.
-	13-6	13.21	Concrete Pavers: Revised referenced specifications from ASTM and CSA.
-	BP-2	BP-2	Base Paving Details Flexible, Semi-Rigid & Rigid Base: revised Semi-Rigid Base Detail removed asphalt and replaced with road base for clarity.
Superseded	All	14.00	Entire section, including written specifications and standard drawings, are superseded in MoESS due to updating and formatting of the requirements and the update of the identifier footer.
-	14-5	14.01	Scope: Revised for clarity and incorporation of the criterion within the Urban Forest Management Strategy.
-	14-7	14.04	Minimum Landscape Area Dimensions and Maximum Grades: Updated the design criteria to meet current standards for exposed aggregate concrete finishing.
-	14-7	14.05	Plant Material Selection: Revised tree tables with species from the Urban Forest Management Strategy.
-	14-10	14.06	Street Tree Size, Spacing and Location: Revised the 300mm distance to 1.4m measurement above the root ball for the 5cm caliper measurement requirement. Revised Clause 14.06.2 table heading to be Single Family Residential.
-	14-11	14.08	General Irrigation Requirements: Revised Clause 14.08.2 table to reflect the street categories from the Transportation Master Plan. Revised Clause 14.08.4 requirement increased to 2 visible bubblers and reference to a new standard drawing I-10.
-	14-24	14.28	Grass and Wildflower Seed Mixtures: Revised to update the lists for noxious and invasive species in accordance with the Invasive Plant Management Strategy.
-	14-27	14.30	Planting Accessories: Added to Clause 14.30.1(d) 'Tree grates shall be square or round in shape.'
-	14-28	14.34	Standards: Revised to added '...as requested by the City Engineer'.
-	14-29	14.35	Acceptable Products: Revised and sentence was removed from Clause 14.35.1.
-	14-31	14.49	Valve Boxes: Revised to add requirements for plastic irrigation boxes.
-	14-32	14.50	Backflow Prevention Device: Revised to add reference to the Approved Product List.
-	14-32	14.51	24 Volt Control Wiring: Removed reference to the Approved Product List.
-	14-34	14.58	Excavation: Clause 14.58.8 revised Tree Planting Area depth from 600mm to 1000mm within the table.
-	14-36	14.59	Tree Planting: Revised Clause 14.59.5 to remove the upper third of the wire basket after placement in planting pit. Added 'if required' to Clause 14.59.14.
-	14-45	14.79	Valves and Control Wiring: Revised to remove the reference to the Approved Product List.
-	14-46	14.82	Hydrostatic Tests: Revised for clarity the material used for installing the sprinklers.
-	P-2	P-2	Tree Planting in Grass Boulevard or Median: Revised drawing title to include 'or Median' and added 300mm depth label to the irrigation trench and removal of only 1/3 of the burlap container as per the installation specifications.
-	P-4	P-3	Shrub Planting in Median: Revised to add the 5% grade to the median.

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-	I-1	I-1	Irrigation Backflow Preventer & Point of Connection: Revised to clarify the service box location, sizing of double check backflow preventer according to the water service, no.10 material type to be copper or polyethylene.
-	I-4	I-4	Shrub Riser Spray Head: Revised the notes within the standard drawing.
-	I-5	I-5	Popup Spray Head Turf Rotary Head: Revised the notes within the standard drawing.
Added	I-10	-	Quick Coupler Valve Detail: Added new drawing to manual.
Added	I-11	-	Electric Valve Detail: Added new drawing to manual.
Superseded	All	Appendices	All Appendices are superseded in MoESS due the revision of the identifier footer.
-	Appendix D	Appendix D	Minimum Required Statutory Right-of-Way and Temporary Working Easement Widths For Underground Services Through Private Property: Revised to add new (d) for clarity that the R.O.W. width shall be consistent throughout the length of the R.O.W.
-	Appendix E	Appendix E	Substantial Completion Statistics Record Utilities & Works for Development Forms: Revised to remove attributes that are no longer required for inventory.
Added	Appendix F1	-	Service Sheet For A Single Family Residential Lot: Added for clarity, for single family residential lots.
-	Appendix F2	Appendix F1	Service Sheet For All Lots Excluding Single Family Residential Lots: Revised to be used for all lots except single family residential.
-	Appendix F3	Appendix F2	Building Development Water Meter Information Sheet: Revised form for clarity of the required information.
-	Appendix G1	Appendix G1	Certification of Design: Revised form to include location for Engineer's stamp.
-	Appendix G2	Appendix G2	Certification of Installed Works: Revised form to include location for Engineer's stamp.
-	Appendix G3	Appendix G3	Certification of Street light Installation: Revised form to include location for Engineer's stamp.
-	Appendix G4	Appendix G4	Certification of Landscaping Installation: Revised form to include location for Engineer's stamp.
-	Appendix H1	Appendix H1	Sanitary Sewer Flow Analysis - Calculation Sheet: Revised form to include location for Engineer's stamp.
-	Appendix H2	Appendix H2	Stormwater Management Flow Analysis - Calculation Sheet: Revised title for Storm Sewer to Stormwater Management.
Added	Appendix H4	-	Water Meter Sizing Calculation Sheet: Added form for the requirements within Section 5.0.
Added	Appendix H5	-	Sample - Water Meter Sizing Calculation Sheet: Added sample of how to use the water meter sizing calculation sheet.
-	Appendix I	Appendix I	City of Nanaimo's Field Handbook of General Signs: Appendix was revised to represent current signage.
Removed	Appendix K	-	City of Nanaimo's GIS Attribute Tables: Appendix was removed from manual information superseded by revisions to Section 1.0.