

Attachment A

MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS EDITION No.13 SUMMARY OF SUBSTANTIAL CHANGES

Revised **Section 1.0 – General Drafting Requirements** to begin digitally accepting pipe infrastructure data into the City Geographical Information System Mapping (GIS). Changes include requiring the use of pipe networks and object data tables within the Civil 3D software with the Computer Aided Design (CAD) template supporting a standardized collection of information. To support this change, data will be imported for watermain, storm sewer and sanitary sewer infrastructure. Going forward, this process will support the digital import of other municipal assets such as points (road signs), alignments (bike lanes) or surfaces (sidewalks).

Revised **Section 3.0 – General Requirements** to incorporate the Tree Management Plan practices into the MoESS. These general practices are equivalent to what the Development Services department is currently requiring from the development community.

Supports the **Urban Forestry Management Strategy**.

Revised **Section 4.0 – Excavation, Trenching and Backfill** to reflect current specifications, installation practices and industry standards. This revision consolidates the aggregate and granular material specifications from Section 4.0 with Section 9.0 to create a new Aggregates and Granular Material section. New additions include testing requirements for aggregates and the classification of acceptable trench backfill material and where it can be used. To align with the new Section 9.0, “Import Granular Fill” was replaced with “Approved Granular Material”. The minimum trench restoration requirements based on Road Classifications were modified and increased. For example, 50mm asphalt has changed to be a minimum of 75mm asphalt for local road classifications. Finally, the temporary granular material patching may only be done on local, low volume roads at the discretion of the City Engineer.

Supports the **City’s Asset Management Plan**.

Revised **Section 5.0 – Water Distribution System** to incorporate specifications that comply with the City of Nanaimo’s Cross Connection Control Bylaw No.7249; developed in accordance with Island Health’s Interim Permit for Water Supply System. The sectional review added a new sub-section in Section 5.0 Cross Connection Control and supports changes to Section 14.0 irrigation standards and specifications. Also, added consistency with current best practice and conformance with CSA B64.

Revised **Section 6.0 Sanitary Sewer System** to incorporate current design and construction best practices and standards. Revised Sub-Section 6.01A.4 to update sanitary sewer modeling requirements from a service population of 1,000 to a service population of 100. Added a new section with design criteria for Low Pressure Sewers as well as related drawings. Revised the requirements on horizontal and vertical curves for deflected sewers where bending of the pipe will not be permitted. Added the requirement for video inspection within one month prior to the end of the maintenance period.

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Revised **Section 7.0 Stormwater Management** to update the Intensity-Duration-Frequency (IDF) curves that take into consideration Climate Change. Provided clarification on reporting in Sub-Section 7.01.6(b) and clarification on Peak Flow and Runoff Volume Control in Design Criteria Section. The requirements for horizontal and vertical curves for deflected sewers in Sub-Section 7.06.6, where bending of the pipe is not permitted, were updated. Sub-Section 7.63.2 was revised to require additional video inspection within one month before the end of a maintenance period.

Support the City's **Asset Management Plan**.

Revised **Section 8.0 – Transportation** a complete revision and reorganization of the transportation sections was conducted. Sections 8.0 – Curbs, Sidewalks and Walkways and 9.0 – Streets, Traffic Signs and Markings from MoESS Edition No. 12 were combined to create one cohesive Section 8.0 – Transportation. This re-structuring added the ability for transportation infrastructure to have cohesive design criteria, specifications, installation and standard drawings that support the City of Nanaimo's Complete Streets Guideline. Revised road classifications and roadway cross sections incorporated all modes of transportation. Revisions and additions were made to standards and specifications needed to design and build a more livable city that accommodates all ages and abilities.

Supports the **City's Transportation Master Plan**.

Revised **Section 9.0 - Aggregates and Granular Material** to reflect current specification, installation practices and material industry standards. This revision includes the removal of the aggregate and granular material specifications from Section 4.0 and consolidates it within Section 9.0 to create the new Aggregates and Granular Material section. The section title and formatting now have a similar layout to the Master Municipal Construction Documents (MMCD) to provide one aggregate and granular material section within the MoESS. The road base and sub base gradation are similar to the MMCD specifications. Removed the requirement of being on the City's APL, and added that the material be qualified for each specific job to provide consistent aggregate quality and properties. Removed "Import Granular Fill" and replaced with "Approved Granular Material". Revised the approved granular material specification and added additional aggregate property testing to provide a consistent material inventory. Revised the two different definitions of RAP to clarify and include RAM, Recycled Aggregate Material to assist in distinguishing the two different materials.

Supports the **City's Asset Management Plan**.

Revised **Section 10.0 Roadway, Lighting and Traffic Signals** to incorporate the requirements for lighting with the City's complete street guidelines and the transportation-related design criteria and road cross-sections. Revised lighting levels for each road classification and the cross-sectional elements.

Revised **Section 11.0 Cast In Place Concrete Works** to reflect current specification and installation practices and industry standards. Revised and updated references to existing codes and standards (CSA, CCIL, ACI, ANSI, etc.). Moved concrete related standards and specifications within Section 8.0 to Section 11.0. Revised references within Sections 4.0, 5.0, 6.0, 7.0, 8.0 and 10.0 regarding Section 11.0. Added Sub-Section 11.23 – Submittals, for concrete mix design submittals.

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Revised **Section 13 - Surface Treatments** to incorporate the use of alternate hardscaping surface treatments within a streetscape or park to add visual and artistic elements to the public realm through colours, patterns and textures.

Supports the **City's Asset Management Plan** and the **Complete Streets Guideline**.

Revised **Section 14.0 – Landscape** to incorporate the landscape best practices of Development Services and the irrigation best practices described in the City of Nanaimo's Cross Connection Control Program. Revised to include specifications for structural soil composite.

Supports the **City's Urban Forestry Management Strategy**.