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SECTION 3 – GENERAL REQUIREMENTS
STANDARD SPECIFICATIONS

3.01 TEMPORARY CONSTRUCTION FACILITIES

.1 Access Road:

(a) Temporary roads shall be constructed as required for access to the working areas. Access to temporary roads from public roads shall require prior written approval from the City of Nanaimo. Adequate drainage facilities in the form of ditches, culverts, or other conduits shall be installed as found necessary to maintain these roads. In the construction of access roads, existing drainage facilities, natural or otherwise, shall not be disturbed to the detriment of properties outside the working area and such facilities shall, unless otherwise provided elsewhere in the specifications, be restored to their original condition as far as is practical to do so on completion of the work.

.2 Sanitary Facilities:

(a) Clean, sanitary latrine accommodations shall be provided by the Contractor, and shall be located and maintained such that they are not offensive to any property owner or member of the public. The use of these facilities by persons engaged in the work shall be strictly enforced.

(b) These facilities shall be removed by the Contractor at the conclusion of the work or when instructed to do so by the Owner.

3.02 OPERATING MANUALS

.1 For installations which include mechanical and electrical equipment or machinery having wearing parts and requiring periodical repair and adjustment, all special tools, wrenches and accessories required for removing work parts, making adjustments and carrying out maintenance shall be supplied. All gauges, indicators and lubricating devices necessary for the proper operation of the equipment shall be furnished.

.2 With each piece of equipment, 4 sets of operating manuals and as-constructed shop drawings shall be supplied. The manuals should give the manufacturer's recommended maintenance schedules with the grades of lubricants required and instructions as to how the equipment may be take apart for periodic inspection and replacement.

3.03 EXPLOSIVES

.1 The General method of storage, handling, use and character of all explosives shall be subject to the Accident Prevention Regulations covering explosives, pursuant to the *Occupational Health and Safety Regulation Part 21: Blasting Operations and Explosives Act and Regulation* of British Columbia and must conform to local police requirements.

.2 Explosives shall be kept only in registered premises, which have been licensed under the *Explosives Act* (Canada).

3.04 SITE MAINTENANCE AND CLEANUP

.1 The working areas shall be maintained in an orderly manner and shall not be encumbered with equipment, materials or debris.

.2 Cleanup shall be a continuing process from the start of the work to final acceptance of the project. The Contractor shall at all time, and without further order, keep property on which work is in progress free from accumulations of waste materials or rubbish caused by employees or by the work. Accumulations of waste materials which might constitute a fire hazard will not be permitted. Spillage from the Contractor's hauling vehicles on travelled public or private roads shall be promptly cleaned up. On completion of construction, the Contractor shall remove all temporary structures, rubbish and waste materials resulting for his operations.

3.05 TIMING OF INSTALLATION

.1 The Contractor shall schedule the work in a manner such that disruption of normal traffic and inconvenience to residents in the working area is kept to a minimum. Testing of pipe and cleanup of the site shall be completed no later than 30 days following commencement of construction on any street block.

.2 Departure from scheduling as specified above will be permitted only with the written consent of the Owner to a request made by the Contractor.

3.06 WORK WITHIN ROAD RIGHTS-OF-WAY

.1 All work within road rights-of-way shall be in strict conformance with, but shall not be limited to, the following requirements:

(a) Surface runoff is to be prevented from seeping into trenches.
(b) Excavation across entrances, whether private or commercial, shall be backfilled and thoroughly compacted, within two hours unless otherwise approved in writing by the tenant or property owner.
(c) Open cut excavation shall not be left open overnight or on weekends unless there are workmen on duty and there is authorization by letter from the City of Nanaimo.
(d) Adequate signs, barriers, flares, etc., to ensure the safety of the public and traffic are to be provided at all times. Lights and flares are to be in good working order at all times and are to be checked daily. Lights that are not operational shall be removed from the worksite.
(e) Existing drainage courses and culverts are to be preserved and maintained as required.
(f) If the City of Nanaimo, at any time, deems it necessary, a workman from the Operations Division, City of Nanaimo, will be stationed at the work site to ensure that no damage is done to existing services.

SECTION 3 – GENERAL REQUIREMENTS
EXISTING STRUCTURES AND UTILITY WORKS

3.20 LOCATION OF STRUCTURES

.1 Prior to commencing any excavation the Contractor shall be responsible for exposing existing surface and underground structures that may affect the work or may be damaged during construction.

.2 Drawings or descriptions, verbal or otherwise, of existing structures or their location that are given to the Contractor are intended only as an aid to the location of these structures. Measurements and location of the existing underground structures shown on the drawings are no guaranteed to be accurate, and must be verified by the Contractor prior to proceeding with construction.

3.21 PROTECTION, ADJUSTMENT AND SALVAGE OF STRUCTURES

.1 Unless authorization from the Engineer is received for their removal, underground and surface structures encountered during construction shall be protected from damage. In the event of damage resulting from the construction operation, they shall be repaired or replaced at the Contractor's sole expense to a condition which is at least the equivalent of that which existed prior to construction.

3.22 EMERGENCY SITUATIONS

.1 In emergency situations resulting from the construction operation, where life or property are endangered, the Contractor shall immediately take whatever action is required to elimination the danger and shall also notify the appropriate authorities of the situation.

.2 In the specific case of a water or sewer break, the contractor shall immediately notify the Public Works Department at 250-758-5222.

.3 During periods when the Contractor's personnel are not on the job (after hours and weekends) at least one of the three Contractor's representatives in Nanaimo shall be available by phone contact. The names, addresses and phone numbers of the three Contractor's representatives shall be filed with the Engineer prior to commencement of construction and this list shall be updated by the Contractor as is necessary.

3.23 ACCESS MAINTAINED

.1 Existing hydrants, valve or manhole covers, valve boxes, curb stop boxes, fire or police call boxes, and all other utility controls, warning systems, and appurtenances thereof shall not be obstructed or made inaccessible at any time by the construction work. Bridges, walks, or other temporary facilities shall be provided as may be necessary to ensure that these controls or warning systems are free for use in their normal manner at all times during construction.

3.24 CURTAILMENT OF UTILITY SERVICE

.1 Where existing utilities such as water, sanitary sewer, storm sewer, electricity, telephone, and gas are serving the public, work shall be planned and executed such that there is no curtailment of service provided by these utilities without prior receipt of approval of the authorities responsible for provision and maintenance of these utilities. The Contractor shall obtain the above approvals from the recognized authorities controlling these utilities. If approval for such disruption of utility service is not granted, the Contractor may be able to establish temporary facilities to provide continuous utility service during the course of construction. Such temporary facilities shall only be implemented after receiving the approval of the utility authority and all costs relating to the establishment of temporary services shall be borne by the Contractor.

.2 If the Contractor, after receiving approval of the responsible authorities, is to temporarily close off an existing utility, he shall, unless otherwise authorized by the Engineer, notify individual users of the utility at least forty-eight (48) hours prior to the time of shut-off. The notification shall be in the form of a hand delivered letter with the contractors contact information.

3.25 SUPPORT OF STRUCTURES

.1 Existing structures other than pipes shall be protected against damage from settlement by means of support or compaction of backfill as required. Support shall remain in place following backfill of excavations.

.2 Backfill which is placed under or adjacent to existing structures which have been undermined during excavation shall be compacted in a manner which will prevent damage of the structure from settlement. Such backfill shall be of approved granular material suitable for compaction.

.3 For support of existing piping, other than asbestos cement or cast iron piping, refer to Standard Drawing T-11 in Section 4.0 –Excavation, Trenching and Backfill.

.4 Where excavations for works cross underneath existing asbestos cement or cast iron piping the existing pipe shall be replace by the Contractor with PVC pipe approved by the Engineer or supported with a concrete grade beam refer to Standard Drawing No. T-11, Section 4.0 –Excavation, Trenching and Backfill as determined by the Engineer.

3.26 DRAINAGE FACILITIES

.1 Existing culverts, enclosed drains, flumes and ditches, and other drainage structures affected by the work but left in place, shall be kept clear of excavated material at all times during construction. When it is necessary to temporarily remove an existing drainage structure, the Contractor shall provide suitable temporary ditches or other approved means of handling the drainage during construction.

.2 Culverts and drain pipes shall be replace on line and grade at the time of trench backfilling, in accordance with City of Nanaimo Standards and Specifications.

.3 No chlorinated water shall be discharged into storm drainage facilities without prior approval from the City Engineer.

.4 Prior to, and during construction, the Contractor shall take full responsibility for controlling erosion and sediment transfer by utilizing the guidelines contained in the handbook entitled, “Land Development Guidelines for the Protection of Aquatic Habitat”, by the Department of Fisheries and Oceans and Ministry of Environment, to prevent discharge of sediment into City stormwater management systems and environmentally sensitive areas. It is incumbent for the contractor to acquire and be familiar with these guidelines.

3.27 TREE PROTECTION

.1 Tree protection fencing is to be installed around all areas where trees are to be retained, as per the Tree Protection Area Plan. Refer to Standard Drawing No. TP-1.

.2 Excavation is not to occur within the Tree Protection Area without direction and supervision from a qualified project arborist. After excavation outside of the Tree Protection Area has occurred, all exposed roots over 2.5 cm in dia. must be cleanly cut.

.3 The operation of equipment, placing of fill, debris or any other construction related materials within the Tree Protection Area is prohibited.

SECTION 3 – GENERAL REQUIREMENTS
CONTROL OF PUBLIC TRAFFIC

3.60 CONTROL OF PUBLIC TRAFFIC – GENERAL

.1 The following general principles shall be maintained when performing construction or maintenance work upon Municipal Rights-of-Way and thereby affecting use of Municipal facilities.

(a) All control of public traffic will be carried out in accordance with the BC Traffic Control Manual for Work on Roadways, current edition and as amended.
(b) All control of public traffic will be carried out in accordance with WorkSafeBC regulations.
(c) Make adequate provision to accommodate normal traffic along streets and highways immediately adjacent to or crossing the Works so as to cause minimum of inconvenience to the general public whilst maintaining the required level of safety.
(d) Emergency vehicles utilizing warning devices (sirens, horns, lights) shall be given immediate access through the site at all times.
(e) Regional District of Nanaimo Transit and other forms of public transit shall be given priority over regular vehicles, such that they are not unnecessarily delayed. Co-ordination with transit authorities is the responsibility of the Contractor.
(f) Regardless of the condition/width of existing facilities, accommodation is to be made for all forms of travel, including, but not limited to, pedestrians, cyclists, wheelchairs and mobility scooters, and users who are visually impaired.
(g) Provide and maintain reasonable road access and egress to properties fronting along, or in the vicinity of, the work.
(h) The length of the worksite shall be directly proportional to the amount of work that a contractor reasonably expects to complete in any one shift.
(i) Unless otherwise accepted by the City, all regular forms of traffic shall be reinstated to as near normal as possible when work is not in progress.

.2 Contractors shall prepare Traffic Management Plan(s) encompassing all activities on the Municipal rights-of-way.

(a) Traffic Management Plans shall be submitted to the City for review.
(b) Traffic Management Plans will be reviewed within ten (10) working days and either accepted or returned with a request for re-submission.
(c) Re-submissions will be reviewed within ten (10) working days from the date of resubmission.
(d) No works shall occur before the Traffic Management Plan has been accepted by the City.
(e) Acceptance of the Traffic Management Plan, by the City, does not imply any responsibility or liability for the completeness or correctness of the Traffic Control Plan.
(f) The City, as part of the Traffic Management Plan, may require traffic disruptions to be limited to specific hours.

.3 The minimum level of Traffic Management Plan required for any works within the Municipal right-of-way (local roads, lane ways, path ways, parks and other Municipal facilities) shall include, but not limited to, the following:

(a) Name of the Contractor; Traffic Control Personnel/Subcontractor; Contractor's Traffic Manager.
(b) Provide 24 hour emergency contract information.
(c) Note the location(s) of worksite identification signs. These signs shall have the name and phone number of the contractor and identify the project.
(d) Note the location of safety equipment, muster station(s) and any other site facilities.
(e) Note locations of equipment/materials laydown/storage areas are for both working and non-working hours.
(f) Identify the figures used from the ***BC Traffic Control Manual for Work on Roadways.***
(g) Identify the expected truck movements to/from and through the site.
(h) Identify how the following road users will be accommodated:

(i) Pedestrians
(ii) Visually Impaired
(iii) Persons with Mobility Issues
(iv) Cyclists
(v) Transit
(vi) Heavy Trucks
(vii) Vehicles

.4 For all major roads and any local roads which have special requirements identified by the City (adjacent school zones, Municipal facilities), the following items are required in addition to the above:

(a) Be prepared by a Professional Engineer, and in accordance with the BC Traffic Control Manual for work on Roadways, current edition and as amended.
(b) Be prepared using editable computer program, relatively to scale, and submitted in digital PDF 11x17 format.
(c) Include an accurate road configuration with road names, north arrow marker, speed limit and proposed extents of the relevant work item.
(d) Indicate placement marker and distance of signs; sign images and sign number; delineators, cones, barricades, etc; position of dedicated TCP's; and any traffic control equipment including Flashing Arrow Boards (FAB) and High Level Warning Devices (HLWD); symbols should match those within Chapter 3 and 4 of the BC Traffic Control Manual for Work on Roadways.
(e) Identify lanes to be obstructed, along with taper lengths and widths of lanes.
(f) Identify impacts to driveways, bus stops, parking, pedestrian and cyclist traffic. Include measures to facilitate and maintain access.
(g) Identify any road closures or detours.

.5 It is expected that the site superintendent designate in charge of traffic control, will have the plan and/or copies of the relevant traffic control figures onsite available for review, at all times, that work is occurring within the right-of-way. It is understood that traffic control operations may require adjustment to site specific conditions; however, significant changes should be submitted to the City for acceptance.

.6 The City reserves the right to issue a Shut Down Notice for works within the City right-of-way at any time if:

(a) The Contractor's traffic set-up on site, differs significantly from the accepted Traffic Management Plan.
(b) A copy of the accepted Transportation Master Plan and/or figures cannot be supplied.
(c) Emergency services or Regional District of Nanaimo Transit needed cannot be accommodated.

Work within the right-of-way is not to resume until a subsequent Traffic Management Plan has been submitted and accepted.

.7 Road Closures and Detours:

(a) Road closures and detours require approval of the City Engineer and may not be granted.
(b) A road closure must accommodate emergency traffic at all times unless otherwise approved by the City Engineer.
(c) At a minimum, local traffic must reinstated at the end of every shift for Road Closures.
(d) Where practical, detours shall avoid diverting traffic from a major or collector road to a local road.
(e) Where detours are to be installed, directional signage shall be installed for length of the detour in both directions.
(f) Where detours or road closures are permitted, the Contractor will notify emergency services (fire, police and ambulance), as well as the Regional District of Nanaimo Transit, if the closure is on a bus route.
(g) Where detours are to be in place for longer than five days, the Contractor is to submit a pre-construction photo survey prior to implement the detour. At the end of construction, the contractor is to complete a final inspection of the detour route and rectify any damage at the contractors cost, in the opinion of the City Inspector, that was not evident prior to the detour implementation.
(h) Where road closures/detours affect private residences, the contractor shall provide five (5) days notice to all properties affected by the closure and all properties for the length of any detours. Letters are not to be issued prior to approval of the closure/detour.

SECTION 3 – GENERAL REQUIREMENTS
GEOTECHNICAL ASSESSMENT AND REPORTING *(REVISED JULY 2022)*

3.70 GEOTECHNICAL ASSESSMENT AND REPORTING

.1 The design process for new roads and underground utilities shall be supported by geotechnical engineering assessment and input. The scope of geotechnical assessment and engineering input shall be commensurate with the nature of the project, the complexity of ground conditions, and project specific performance requirements identified by the City or lead professional. The assessment and reporting shall confirm to the most recent version of the City's Guidelines for Geotechnical Reports. In the absence of project specific design criteria provided by the City, the geotechnical assessment shall consider a functional design life under normal loading conditions of 100 years for new or upgraded underground utilities or road base, and 20 years for pavement design.

.2 Standard reporting expectations for projects involving new roads and underground utilities include an assessment of geohazards; the characterization of soil and groundwater conditions pertinent to the project; subgrade conditions relative to the City's standard pavement sections and pipe bedding requirements, and trench backfill including the re-use potential of native backfill. Where appropriate, reporting shall include construction recommendations related to site preparation, excavation, temporary trench stability, requirements for shoring, dewatering, and erosion and siltation control.

.3 Seismic considerations and performance shall be consistent with the latest version of the City's Seismic Design Guidelines for Water, Sewer Utilities, and Roads.

.4 The City expects geotechnical engineering, analysis, design and field reviews to conform with standard industry practice, including pertinent Professional Practice Guidelines and Advisories issued by the Engineers and Geoscientists of BC."