# INTENT

# This section covers excavation and backfilling of trenches for the installation of underground utilities, culverts and subdrains.

# RELATED WORK SPECIFIED ELSEWHERE

# Section 02510 – Roads, Sidewalks and Appurtenances

Section 02530 – Landscaping

# WORK BY CITY FORCES

The City may enlist the services of a tree pruning arborist to prune trees in advance of construction. Schedule this requirement in advance with the Contract Administrator. Cost will be borne by the City for this service.

# PRODUCTS

# Bedding - Compactable granular material with no stones larger than 25 mm

# Crushed Stone – 100% passing a 25 mm sieve, 100% retained on a No. 4 sieve

# Granular Materials – Granular A and B, OPSS 1010

# Hot-Mix Asphalt – OPSS 1150

# Wire Mesh Reinforcing – M.W.13.3 x M.W.13.3, wire; 152 mm x 152 mm openings

# Concrete – OPSS 1350

# EXECUTION

# EXCAVATION AND BACKFILL

# OPSS 401

# When existing soils, undisturbed by the Contractor, are considered, by the Contract Administrator to be unstable, the Contract Administrator may order the unsuitable material to be excavated and backfilled with crushed stone.

# EXCAVATION MAY BE STOPPED

# The Contract Administrator may stop the excavation and any portion of the work and require the Contractor to complete the pipe laying and backfilling up to such point as he may direct, before excavation proceeds further. The Contractor shall not be entitled to receive any allowance or compensation, other than an extension of the time of completion for as many days as the Contract Administrator may determine.

# If work is stopped on the whole, or any part of a trench, and the trench is left open for any unreasonable length of time in advance of the construction of the sewer, the Contractor shall, when directed by the Contract Administrator, refill such trench or part thereof, and temporarily repave over the same, at his own cost and expense, and shall not again open such trench, or part thereof, until he is ready to proceed with the construction of the sewer. If the Contractor refuses to completely refill such trench and temporarily repave over same within 48 hours after the receipt of Notice in writing to do so, the Contract Administrator may refill and temporarily repave such trench, and the cost and expense thereof shall be charged to the Contractor.

# MATERIAL TO BE EXCAVATED

# Excavation shall include top soil, organic silt, peat, muskeg, clay, shale, hardpan, and all vegetation, debris, junk, brick, gravel, concrete, asphalt pavement, loose or disintegrated rock, stone or boulders 1 cubic metre or less in volume and other material encountered within the excavated limits.

# Clear and grub the surface wherever necessary. Remove all excess material of whatever nature or kind. Separate the excavated material so that no broken pavement, curbs, sidewalk, boulders or other objectionable material is present in the material to be as backfill.

# DISPOSAL OF EXCAVATED MATERIAL

# Excess materials shall be managed following OPSS 180, and Section 01561 – Environmental Specification.

# Where possible, do not place excavated material on the traveled portion of streets, access to lots, lawns, walks, driveways, etc. Cast material to one side of the trench only, unless otherwise directed.

# The Contract Administrator shall be the sole judge as to the amount of excavated material, which can be stockpiled alongside the trench, and may order any or all of the excavated material removed and stockpiled.

# DEWATERING

# Comply with OPSS 517.

# Provide sufficient pumping equipment. Do not allow water to run through the newly laid pipe.

# The City is not responsible for additional costs incurred by the Contractor due to leakage from existing services or utilities.

# MAINTAINING FLOW IN DRAINS

# Provide for and maintain the flow, where required, of all sewers, drains, ditches and gutters, house or inlet connections, and all watercourses. Do not allow the contents of any sewer, drain, house or inlet connection or watercourse to flow into the trench or the sewers to be constructed under this Contract, except where permission is given by the Contract Administrator. Remove all offensive matter from proximity of the work, using such precaution in so doing as may be directed by the Contract Administrator.

# RELOCATION OR REBUILDING OF UTILITIES

# Should any utility be so situated or in such condition as in the opinion of the Contract Administrator, to require its removal, realignment or reconstruction, strip, uncover, support or sustain the structure requiring removal. The work or removal, realignment or change shall be done without cost to the Contractor. There shall be no compensation for delays incurred due to the removal, realignment or change of any utility.

# The Contractor shall uncover and expose other utilities in advance of the proposed new work that may require relocation.

# LOWER EXISTING WATERMAINS

# Provide all necessary fittings, tie rods, thrust blocks and cathodic protection. Provide 48 hours’ notice prior to proceeding with the work.

# RE-LAY EXISTING SANITARY SEWER AND WATER SERVICES

# Where the installation of the new sewer is in conflict with existing water and sewer service connections, re-lay the service connection as directed by the Contract Administrator.

# BEDDING

# Bedding types are shown on the drawings.

# The type of bedding for concrete pipe shall be Class C. The method of bedding for all other pipes shall be Class B.

# EXISTING ROADS, ROAD SHOULDERS AND BOULEVARDS

# Comply with OPSS 402.

# Where pipes are laid beneath existing paved roads, break out the pavement so that the cut edges are vertical and straight. Any irregularities will be saw cut or milled, if required, as directed by the Contract Administrator. Wheel cutting will be permitted on base course asphalt. If, a uniform edge is not obtained, re-cut asphalt prior to final paving. Take care during excavation of trenches not to undermine the portions of the existing pavement left in place.

#

# MAINTENANCE OF TRENCHES

# Maintain all trenches for a period of **two (2) years** from the date of completion. Any shrinkage or settlement during this period will be made good by the Contractor at its own expense.

# ROCK EXCAVATION

# Comply with OPSS 403 and OPSS 206.

# Hydraulic impact methods are preferred for small quantities.

# Where blasting methods are used carry out pre-blast surveys and arrange for seismic recordings of all blasts.

# Excavate rock trenches 3 meters beyond the end of main line sewers or structures where directed and all lateral sewer pipes. Backfill with select excavated material.

# Extend insurance coverage for damage to existing wells for a period of 24 months after total completion of the Contract.

# EXCAVATION AND BACKFILL FOR STRUCTURES

# OPSS 402

# GRANULAR BASE COURSES

# OPSS 314

# HOT-MIX, HOT-LAID ASPHALT

# OPSS 310

# RESTORATION

# Comply with OPSS 492.

# Restore disturbed areas to a condition equal to or better than the original construction, but no less than the following:

# Grassed Areas – 75 mm topsoil and sod. Seed and mulch where specifically permitted

Gravelled Areas – 150 mm Granular A

# Asphalt Areas – 75 mm Granular A, 50 mm HL3 OR HL4, coal tar epoxy seal if existing driveway is sealed

# Asphalt Roads – Comply with City of Thunder Bay Standard R-108

# Concrete Driveways – 75 mm Granular B, 100 mm concrete with wire mesh reinforcing

* 1. BOULEVARD TREE ROOT PROTECTION

Where designated in the work plan, provide specialized tree root protection measures and excavation methods to preserve existing boulevard trees when replacing/relaying existing sewer and water services.

Work to include, but not limited to, small excavation equipment, protective trench shoring measures, root cutting and non-evasive directional bore, pulling, jacking or sleeving of new service connection piping within the tree protection root zone.

Follow concepts identified in City of Thunder Bay standard drawing M-104-4.2.

# BASIS OF PAYMENT / MEASUREMENT FOR PAYMENT

# OPSS 401, except that no payment shall be made to haul surplus material from other excavation operations within the Contract, when native material is unsuitable for backfill.

# IMPORTED GRANULAR MATERIAL

# Additional payment shall be made, at the unit price bid, for imported granular material when authorized by the Contract Administrator.

# RESTORATION

# No additional payment shall be made for restoration except where specifically noted in the Contract documents.

# RE-LAY EXISTING SEWER SERVICES

# Where existing service connections must be re-laid to eliminate conflicts in grade with the work, measurement for payment for the re-laying of service connections shall be taken from the end limits of the new pipe as installed and may include areas between the trench and existing sewer pipe.

# The unit price bid for this item shall include the costs to install and maintain temporary service works and all work to cut into and to re-lay the service to eliminate the conflict in grade with the proposed work.

No additional payment will be made for existing water connections that have to be raised

or lowered to suit sewer construction.

# CRUSHED STONE

# The unit price bid for this item shall include supplying, placing and compacting of crushed stone in the trench, together with the cost of additional excavation and disposal of excess material.

# If tendered per cubic metre, measurement for payment will be to the neat calculated area of the widths and depths and lengths instructed to be placed.

# If tendered per tonne, measurement for payment will be based on scaled weigh tickets per load, less any calculated or estimated tonnage for waste or spillage. The waste amount (if any) shall be as determined by the Contract Administrator.

* 1. BOULEVARD TREE ROOT PROTECTION

Where, existing service connections must be re-laid or replaced to preserve existing boulevard trees and root zone protection, measurement for payment will be for each tree that special protection and excavation installation methods are necessary.

No additional payment will be made for sewer and water excavation beyond the root zone or if only stump removal is necessary.