APPENDIX ‘B’

WORKING IN CLOSE PROXIMITY TO THE BRANCH 1 AQUEDUCT

APPENDIX 'B' – WORKING IN CLOSE PROXIMITY TO THE BRANCH 1 AQUEDUCT

- The Branch 1 Aqueduct is a critical component of the City's water supply system. This Aqueduct delivers approximately fifty percent (50%) of the City's daily water usage.
- The Branch 1 Aqueduct is comprised of precast reinforced concrete pipe, vintage 1918, with a robust barrel and crimped copper waterstops at the pipe joints that are known to occasionally fail and have limited capacity for vibration and heavy loading.
- It should be noted that along this stretch of the Aqueduct, the original trench shoring (vertical planks) from the Aqueduct installation might still be in place. This shoring should NOT be pushed down or pulled up as this could cause the Aqueduct and/or its associated underdrain pipe to shift. A shift of the Aqueduct pipe could cause the copper waterstop at the joint to fail resulting in a leak. The shoring, however, can be removed by carefully excavating on each side of it and cutting it off with an appropriate saw.
- Work around the Branch 1 Aqueduct shall be well planned and executed to ensure that the Aqueduct is not subjected to construction related loads, including excessive vibrations and concentrated or asymmetrical lateral loads during backfill placement.
- The following notes shall be applicable to the construction activities related to the concrete pavement reconstruction along Alexander Avenue:
  - The construction works shall be undertaken in accordance with the conditions and technical requirements set out herein.
  - The Contractor shall submit a construction method statement to the Contract Administrator to review and approve prior to the commencement of construction.
  - A pre-construction meeting shall be held with representatives of the Water and Waste Department prior to the commencement of construction.

- Contractors carrying out pavement construction or working in close proximity to the Branch 1 Aqueduct shall meet the following conditions and technical requirements:

1. Pre-work, Planning and General Execution
   a. No work shall commence at the site until the construction method statement has been approved, a pre-construction meeting has been held and the

Branch 1 Aqueduct location has been clearly delineated in the field including centerline alignment, outside limits of the pipe and top elevation of the pipe.

b. The Contractor shall ensure that all work crew members understand and observe the requirements of this specification. Prior to commencement of onsite work, the Contractor shall jointly conduct an orientation meeting with the Contract Administrator and with all superintendents, foremen and heavy equipment operators to make all workers on site fully cognizant of the limitations of altered loading on the Branch 1 Aqueduct, the ramifications of inadvertent damage to the Branch 1 Aqueduct and the constraints associated with work in close proximity to the Branch 1 Aqueduct.
c. For construction work activities either longitudinally or transverse to the alignment of the Branch 1 Aqueduct, work only with the equipment and in the manner stipulated in the approved construction method statement and the requirements noted herein. Reduce equipment speeds to levels that minimize impact loadings.
d. Subgrade, subbase and base course construction shall be kept in a rut free condition at all times. Construction equipment is prohibited from crossing the Branch 1 Aqueduct if the grade is insufficient to support the equipment without rutting.
e. Granular material, construction material, soil or other material shall not be stockpiled on the Branch 1 Aqueduct or within 5 metres of the Branch 1 Aqueduct centerline.
f. Stage construction such that the Branch 1 Aqueduct is not subjected to significant asymmetrical loading at any time.
g. Where work is in proximity to the Branch 1 Aqueduct, utilize construction practices and procedures that do not impart excessive vibration loads on the Branch 1 Aqueduct or that would cause settlement of the subgrade below the Branch 1 Aqueduct.

2. Demolition and Excavation
   a. Concrete demolition and removal within 3 metres horizontally of the Branch 1 Aqueduct shall be completed by sawcutting and removal, or use of hand held jackhammers. Use of machine mounted concrete breakers above the Branch 1 Aqueduct shall not be permitted.

b. Where there is less than 2.5 metres of cover over the Branch 1 Aqueduct, offset the excavator or excavation equipment from the Branch 1 Aqueduct, a minimum of 2.5 metres from Branch 1 Aqueduct centerline, to carry out excavation.
c. Where there is less than 1.6 metres of earth cover over the Branch 1 Aqueduct and further excavation is required either adjacent to or over the Branch 1 Aqueduct, utilize only smooth edged excavation buckets, soft excavation or hand excavation techniques.
d. Excavated materials intended for reuse shall not be dumped directly on the Branch 1 Aqueduct, but shall be carefully bladed into place.

3. Subgrade Construction
   a. Subgrade compaction shall be limited to static compaction methods.
   b. Stage work activities to minimize the time period that unprotected subgrade is exposed to the environment and protect the subgrade against the impacts of adverse weather is subbase/base course construction activities are not sequential with excavation.

4. Subbase and Base Course Construction
   a. Subbase or base course materials shall not be dumped directly on top of the Branch 1 Aqueduct but shall be carefully bladed into place.
   b. Subbase compaction shall be either carried out by static methods without vibration or with smaller equipment such as hand held plate packers or smaller roller equipment.