

1. GENERAL

1.1 RELATED WORK

- .1 Section 32 16 13 – Concrete Walks, Curbs and Gutters.
- .2 Section 33 14 13 – Watermains.
- .3 Section 33 31 11 – Sewer Mains.
- .4 Section 32 01 16 – Pavement Milling and Removals.

1.2 MEASUREMENT AND PAYMENT

- .1 Concrete Curb and Curb and Gutter Removal
 - .1 The quantity of concrete curb and curb and gutter removal, for which payment will be made, shall be measured in linear metres removed, measured along the face of curb. No differentiation will be made between the various types and sizes of curb and curb and gutter structures. They shall be paid for at the unit price per linear metre, as specified in the Bid Forms.
 - .2 The unit price shall include labour, equipment, materials, supervision, tools, saw cutting, excavating, loading, hauling and disposal, including disposal fees, and restoration and clean-up work, and other incidentals required for the satisfactory completion of the Work.
- .2 Concrete Swale Gutter Removal
 - .1 The quantity of concrete swale gutter removal, for which payment will be made, will be measured in linear metres along the centreline of the swale. No differentiation will be made between various types and widths of swale structures. They shall be paid for at the unit price per linear metre, as specified in the Bid Forms.
 - .2 The unit price shall include labour, equipment, materials, supervision, tools, saw cutting, excavating, loading, hauling and disposal, including disposal fees, and restoration and clean-up work, and other incidentals required for the satisfactory completion of the Work.
- .3 Concrete Sidewalk Removal
 - .1 The quantity of concrete sidewalk removal, for which payment will be made, will be measured in square metres or lineal metres, whichever is called for in the Bid Forms, regardless of thickness.
 - .2 The unit price shall include labour, equipment, materials, supervision, tools, saw cutting, excavating, loading, hauling and disposal, including disposal fees, and restoration and clean-up work, and other incidentals required for the satisfactory completion of the Work.
- .4 Concrete Structure Removal
 - .1 The quantity of concrete structure removal, including driveways, crossings, curb ramps, and other structures considered as slabs or flatworks, regardless of thickness, will be measured in square metres. They shall be paid for at the unit price per square metre, as specified in the Bid Forms.
 - .2 The unit price shall include labour, equipment, materials, supervision, tools, saw cutting, excavating, loading, hauling and disposal, including disposal fees, and

restoration and clean-up work, and other incidentals required for the satisfactory completion of the Work.

.5 Water Valve Adjustments

- .1 The number of water valve adjustments for which payment will be made will be the actual number of water valve boxes adjusted in accordance with these Specifications. They shall be paid for at the unit price per adjustment, as specified in the Bid Forms.
- .2 The unit price for water valve adjustments shall include the supply of all material, labour and supervision, equipment, tools, and incidentals required to locate the water valve box, to lower or raise the top of the water valve box, to backfill the final excavation below design sub-grade elevation with compacted, crushed gravel, to backfill the portion of the final excavation between design finished sub-grade elevation and design finished granular base course elevation with hot mix asphaltic concrete, and to undertake general cleanup and disposal of surplus materials.

.6 Manhole Adjustments

- .1 The number of manhole adjustments for which payment will be made will be the actual number of manholes adjusted in accordance with these Specifications. They will be paid for at the unit price per adjustment.
- .2 The unit price bid for manhole adjustments shall include the supply of all material, labour and supervision, equipment, tools and incidentals required to locate the manhole to lower or raise the top of the manhole, to seal the frame and cover to the concrete cone, barrel, or adjustment ring, to backfill the final excavation below design sub-grade elevation with compacted, crushed gravel, to backfill the portion of the final excavation between design finished sub-grade elevation and design finished granular base course excavation with hot mix asphaltic concrete, and to undertake general cleanup and disposal of surplus materials.
- .3 If the adjustment of a manhole to design finished elevation requires the removal of a conical top section or a portion of a precast manhole body section, then payment for adjusting the manhole will be made on a force account basis.

.7 Catch Basin Adjustments

- .1 The number of catch basin adjustments for which payment will be made will be the actual number of catch basins adjusted in accordance with these Specifications. They shall be paid for at the unit price per adjustment.
- .2 The unit price for catch basin adjustments shall include the supply of all material, labour and supervision, equipment, tools and incidentals required to raise or lower the top of the catch basin, to horizontally shift the catch basin frame and cover and adjustment collars and bricks, and to undertake general cleanup and disposal of surplus materials.
- .3 If the adjustment of a catch basin requires the removal of a portion of the precast catch basin body or shifting of the precast catch basin body, then payments for adjusting the catch basin will be made on a force account basis.

.8 Manhole Removals

- .1 Manhole removals will be measured in vertical metres of manhole removed measured from the top of the frame and cover to the lowest invert, or sump, if any.
- .2 The unit price for manhole removals shall include the supply of all equipment, labour, supervision, materials, excavation, loading and hauling necessary to remove

the manhole, including removal of the frame, cover, barrel, base and all other tasks considered incidental to satisfactorily complete the removal.

.9 Catch Basin Removals

- .1 Catch Basin removals will be measured in units removed.
- .2 The unit price for catch basin removals shall include the supply of all equipment, labour, supervision, materials, excavation, loading and hauling necessary to remove the catch basin, including removal of the frame, cover, barrel, base and all other tasks considered incidental to satisfactorily complete the removal.

.10 Hydrant Removals

- .1 Hydrant removals will be measured in units removed.
- .2 The unit price for hydrant removals shall include the supply of all equipment, labour, supervision, materials, excavation, loading and hauling necessary to remove the hydrant, valve, piping, fittings, couplers thrust blocks and all other tasks considered incidental to satisfactorily complete the removal.
- .3 In the event the hydrant is to be removed, without the removal of the watermain, the unit price shall include the supply and installation of all necessary plugs and caps, bedding, thrust blocking and bracing, as well as the supply of all equipment, labour, supervision, materials, excavation, loading and hauling necessary to remove the hydrant, valve, piping, fittings, couplers thrust blocks and all other tasks considered incidental to satisfactorily complete the removal of the hydrant and the capping of the existing tee.
- .4 The Contractor shall return all removed hydrants, valves, and other associated appurtenances to the Operations Center located at 6623 – 52 Street.

2. PRODUCTS

2.1 VALVE BOX EXTENSIONS

- .1 Valve box extensions shall be 150mm cast iron and are to be completely coated with an asphaltic type varnish to prevent corrosion.

2.2 MANHOLE GRADE RINGS AND BLOCKS

- .1 Precast grade rings and blocks for manhole grade adjustment shall conform to ASTM C478 and C139 respectively.

2.3 MORTAR

- .1 Mortar shall be ASTM Type HS, sulphate resistant.

3. EXECUTION

3.1 CONCRETE REMOVAL

- .1 Saw cut where directed by the Engineer, or where indicated in the drawings, before breaking the limits of removal on existing concrete to a depth necessary to produce a straight clean vertical edge through the full depth of the existing concrete. The Engineer will require re-sawing if such an edge is not maintained straight, clean, and vertical until new concrete is placed against it.

- .2 Break up the concrete curb, curb and gutter, gutter, walk, and other slabs so that no piece, including reinforcing bars, if any, shall have a dimension greater than 750 mm.
- .3 Excavate, remove, and haul broken up materials to the landfill site or to a disposal site approved by the Engineer.

3.2 WATER VALVE ADJUSTMENTS

- .1 Prior to commencing excavation operations, the Contractor shall locate all water valve boxes and lower them to an elevation which will not interfere with the sub-grade preparation operation. The water valve boxes shall remain at this elevation until such time as the Contractor has completed construction of the granular base course. The Contractor shall then raise the water valve boxes before placing any asphaltic concrete, to an elevation of 5mm to 10mm below the design finished pavement surface elevations as shown on the Drawings or as directed by the Engineer.
- .2 Adjustments to the water valve boxes shall be made using the types of materials and workmanship used in constructing the original structures.
- .3 When raising the water valve boxes, all loose material shall be removed from the excavation. The excavation resulting from raising the water valve boxes shall be backfilled with a well graded, 25mm minus crushed gravel, placed and thoroughly compacted in layers not exceeding 100mm in thickness, up to the design sub-grade elevation. The portion of the excavation between the design finished sub-grade elevation and design finished granular base course elevation shall be backfilled with hot mix asphaltic concrete, in maximum lift thicknesses of 75mm, compacted to a minimum of 97% Marshall Density. Each lift shall be thoroughly compacted and allowed to cool and set up before the next lift is placed.

3.3 MANHOLE ADJUSTMENTS

- .1 Prior to commencing excavation operations, the Contractor shall locate all manhole frames and covers and lower them to an elevation which will not interfere with the sub-grade preparation operation. The manhole frames and covers shall remain at this elevation until such time as the Contractor has completed construction of the granular base course, at which time all frames and covers shall be raised to the elevation required within the Drawings or Specifications, before placing any asphaltic concrete. Non-floating manhole frames shall be adjusted to an elevation of 10mm to 15mm below the design finished pavement surface elevations as shown on the Drawings or as directed by the Engineer. Floating manhole frames shall be adjusted as per the manufacturer's recommendations. The manhole frames and covers shall be set to conform to the established cross slopes and grades of the pavement surface.
- .2 Adjustments to the manholes shall be made using the types of materials and workmanship used in constructing the original structures, unless otherwise directed by the Engineer.
- .3 When raising the manholes, all loose material shall be removed from the excavation. The excavation resulting from raising the manholes shall be backfilled with a well graded, 25mm minus crushed gravel, placed and thoroughly compacted in layers not

exceeding 100mm in thickness, up to the design sub-grade elevation. The portion of the excavation between the design finished sub-grade elevation and design finished granular base course elevation shall be backfilled with hot mix asphaltic concrete, in maximum lift thicknesses of 75mm, compacted to a minimum of 97% Marshall Density. Each lift shall be thoroughly compacted and allowed to cool and set up before the next lift is placed.

- .4 Non-floating manhole frames shall be attached to the concrete cone, barrel, or adjustment ring by a flexible mastic sealant approved by the Engineer. The sealant shall be placed around the entire circumference of the cone, barrel, or adjustment ring, ensuring a good seal.

3.4 CATCH BASIN ADJUSTMENTS

- .1 All catch basins which are not at the correct elevations shall be raised or lowered to between 10mm to 30mm below design gutter elevations. Catch basin frames and covers and adjustment collars and bricks shall be shifted horizontally, as required, so that the side inlets of the catch basin frames and covers match the face of the curbs. Adjustments to the catch basins shall be made using the types of materials and workmanship used in constructing the original structures, unless otherwise directed by the Engineer. The adjustment collars and bricks shall be mortared to provide a watertight seal.
- .2 Place mass concrete around exterior of adjustment collars and bricks. Ensure that a watertight seal and a structurally sound top are formed.

END OF SECTION