

06010 Concrete Sidewalk, Curb and Gutter Construction**Index**

06010-1	General Description of Work	3
06010-2	Construction with Extruding Equipment	3
2.1	Concrete Extruding Equipment	3
2.2	Continuity of Work	3
2.3	Retempering Concrete	4
2.4	Tolerances and Enforcement	4
06010-3	Openings and Alterations	5
06010-4	Method of Removing Sidewalk and Curb	6
06010-5	Forms	7
06010-6	Levelling Course	8
06010-7	Placing of Concrete	8
06010-8	Screeds and Templates	9
06010-9	Epoxy – Coated Steel Dowels	10
06010-10	Expansion Joints	10
06010-11	Control Joints	11
06010-12	Returns	11
06010-13	Rolled Curb and Gutter at Corners	11
06010-14	Sidewalk, Curb and Gutter Crossing Cross-Sections	12
06010-15	Finish of Sidewalk, Curb, and Gutter	12
06010-16	Lane and Driveway Crossing	13

06010-17	Private Driveways and Sidewalks	13
06010-18	Reconstruction of Private Sidewalks, Steps and Driveways	13
06010-19	Sidewalk Construction Adjacent to Buildings	13
06010-20	Method of Construction Centre Medians at Turning Bays	13
06010-21	Sidewalk Ramps	14
06010-22	Borrow Areas, Coal Chutes and Existing Openings	14
06010-23	Curing Compounds	14
06010-24	Protection	15
06010-25	Concreting in Sub-Normal Conditions	15
06010-26	Construction Record Imprints	16
06010-27	20 MPa Lean Concrete	16
06010-28	Construction and Modifications to Catch Basins	17
06010-29	Adjusting Curb Boxes	17
06010-30	Salvage Material	17
06010-31	Backfill	17
06010-32	Boulevard	18
06010-33	Progress of Work	19
06010-34	Completion of Work	19
06010-35	Measurement	19
06010-36	Payment	20

06010-1 General Description of Work

The Contractor shall provide all labour, plant, equipment and material together with all proper and required facilities for the construction in an expeditious manner of sidewalks, curbs and other related work all in accordance with the Contract Documents and detail drawings.

06010-2 Construction with Extruding Equipment**2.1 Concrete Extruding Equipment**

Slip-form concrete extruding machines may be used for placing concrete provided they meet the following:

1. The machine is one of the well-known models with a proven performance record.
2. The use of the machine has received approval of the Engineer prior to commencement of any work.
3. The machine is to be operated by an experienced operator.
4. Vibrators on the equipment shall be adequate to produce a dense mass with a smooth surface free of honeycombing.
5. The equipment shall include automatic grade and line control
6. Should the machine be of a type where the trimmer and extruder are one unit, it is essential that no deleterious material from the trimmer affect the quality of the concrete.
7. All moulds used in producing the required extruded sections must be in metric dimensions, having a longitudinal deep cut tool mounted in the proper location at a depth of 50mm and width 10mm.
8. Any deviation from the specifications shall be approved by the City Engineer in writing.

2.2 Continuity of Work

Whenever possible, the forming and placing of concrete by conventional methods that may be required to complete corners, catch basins, driveways, crossings and other work, shall be carried out before the concrete's initial set time in conjunction with the extruding machine.

When this procedure is not followed, the completion shall be done within 5 days after the adjacent extruded section is completed.

Workmanship for both the slip-form and conventional method shall be equal quality.

2.3 Retempering Concrete

Concrete arriving on the job site shall not be retempered if test values are within specification at the time of delivery.

1. The addition of water to the mix when the truck arrives on the job shall be permitted provided the following conditions are met:
2. Upon arrival at the job site, the slump is less than that required in the specifications.
3. The water shall be injected into the mixer under such pressure and directions that uniformity of mix will result.
4. The slump after re-tempering shall not exceed the specified limit.
5. Mixing time after the water has been added shall not be less than 3 minutes at mixing speed.
6. The on-site additions of air entrainment agent or admixtures shall be permitted as indicated in Section 06005-15.

Retempering concrete shall not be permitted without approval of a COS representative and a testing consultant on site.

2.4 Tolerances and Enforcement

2.4.1 Straight Edge

All exposed concrete surfaces shall be checked by the Contractor with a 3m straight edge and any water pockets or deviations in line or grade exceeding 6mm shall be corrected immediately.

2.4.2 Elevation

Differences in elevation at any given point from that given on the survey stakes shall not exceed ± 10 mm and the maximum variation from the given elevation between two consecutive stakes shall not be greater than 10 mm.

2.4.3 Alignment

Deviations in alignment at any given point from that given on the survey stakes shall not exceed 25mm in a 30m section.

2.4.4 Crossfall

The crossfall shall not vary more than 5mm per metre of walk width from that specified or shown on the drawings.

2.4.5 Dimensions

Thicknesses and widths of extruded structures shall meet the dimensions shown on the drawings.

Sidewalk or curb not meeting the above criteria shall be replaced. If in the opinion of the Engineer it is not practical to remove and replace the concrete then a reduced payment may be substituted. This payment will be at a percentage of the bid price as detailed in the "Payment" section.

06010-3 Openings and Alterations

When the Engineer or Owner of a utility requires to make alterations to underground services, poles, hydrants, valves, curb boxes, catch basins and other structures, the Contractor shall leave openings in the sidewalk or curb to facilitate these alterations. The length of such openings shall be determined by the Engineer but generally 3 m shall be left open. Such openings shall be initially backfilled with gravel to make the sidewalk safe for public use. In the event that the Contractor fails to leave such openings as required, the Contractor shall, at his own expense, be responsible for making these openings. After alterations have been completed, the Contractor will close the opening with the proper structure.

For catch basins, the Contractor shall be responsible for leaving openings as determined by the Engineer. These openings shall be well framed and shall be 3m in length. It is essential that all openings to be left for catch basins are to be in line with the existing catch basin lead or as directed by the Engineer. All openings left for catch basins shall be filled by the Contractor within a period of 5 days.

Where additional concrete is to be placed at a later date, such as at the end of a block, curb returns or openings, 10M reinforcing steel dowels, 250mm long shall be installed. Two dowels are to be installed along the curb and one every 300mm on centre along the sidewalk. Supplying and installing the dowels shall be the Contractor's responsibility.

The Contractor shall accommodate cross drains in the sidewalk or curb. Material required for cross drains will be supplied by the City. When required, the City will hire a plumber to make proper roof drain connections.

06010-4 Method of Removing Sidewalk and Curb

Unless a clean, straight break already exists along a joint, the ends of the concrete to be removed shall be cut with a concrete saw. The cut shall be of sufficient depth to permit removal without damage to the remaining structure.

During the removal of existing sidewalk, the Contractor shall carefully remove the concrete around existing utilities, services, structures, sign posts, parking meter posts, private sidewalks, driveways, buildings and building entrances. Any damage incurred shall be repaired at the Contractor's expense to the satisfaction of the Engineer.

In removing sidewalk or curb, the Contractor shall only use equipment that will not damage the existing finished roadway surface.

When monolithic curb and gutter is removed, and replaced with vertical curb, the Contractor will be responsible for roadway damage beyond the gutter width. In other areas, the maximum permissible road surface removed shall not be more than 200mm from the face of the construction. For pavement removal, the Contractor shall use a pavement cutter and have a neat vertical cut. Cuts of greater width shall be repaired at the Contractor's expense.

Sidewalk, curb and pavement removed shall be hauled to the disposal site within 24 hours after removal. No payment will be made for overhaul.

Where the existing curb and asphalt walk is to be reconstructed, the Contractor will be paid for curb removal only. Asphalt walk will be considered as common excavation.

Where existing curb is to be reconstructed only and the asphalt walk is to remain, the Contractor shall be permitted to remove a maximum of 300mm of asphalt walk. The

Contractor shall be responsible to cut the asphalt walk and compact the curb backfill. Work of this nature shall be included in the unit price for curb construction.

Where pavement is required to be removed before construction proceeds and when approved for removal by the Engineer, the Contractor shall carefully cut and remove asphalt within the bounds set by the Engineer and haul it to an area designated for this type of material. Should an excess amount be removed outside the boundary set for removal, it will be replaced by the City crews and all charges shall be paid by the Contractor.

06010-5 Forms

For sidewalk reconstruction, if the buildings have a sidewalk ledge or have reinforcing rods protruding from the foundation of the buildings into the old sidewalk, the new sidewalk shall be constructed in one section from the building wall to the curb face.

The Contractor shall be responsible to ensure that there is positive slope on the sidewalk from the building towards the roadway. The normal slope is 30mm per metre. Any slope less than 20mm per metre shall be approved by the Engineer before the concrete is placed.

The forms used for each type of construction shall be the same as the dimensions on the drawings. The forms shall be of metal or 40mm properly-seasoned lumber. They shall be free from warps or other defects and shall have smooth, clean surface adjacent to the concrete. The forms shall be thoroughly cleaned and oiled before any concrete is deposited within them.

The forms shall be well staked, braced and held rigidly to the established line and grade to enable the use of mechanical concrete vibrators and vibrator screeds when placing concrete for curb and sidewalk construction.

Any forms which have lost their shape or dimensions or where surfaces have become dented or rough shall not be used. The Engineer may at any time condemn the forms he considers unsatisfactory to secure the proper quality of work. Inferior workmanship, as a result of poor forming shall be replaced at the cost of the Contractor.

06010-6 Levelling Course

The levelling course shall consist of base aggregate meeting the requirements of Division 2, Section 02060-2.2. For fills of less than 30mm, a smaller sized well-graded aggregate may be substituted after the Engineer has approved the sieve analysis of the material.

The levelling course shall be supplied by the Contractor and compacted to not less than 98% of the Standard Proctor Density for the material. The levelling course shall be used on all hand work.

06010-7 Placing of Concrete

Placing of concrete will be permitted when the compacted levelling course meets the following requirements:

1. The levelling course is within ± 6 mm from the design elevation.
2. The minimum concrete depth shall be 115mm for separate sidewalk, and sidewalk with combined curb and gutter; 125mm for sidewalk with rolled curb and gutter; 180mm for crossings.

No concrete shall be placed before the Engineer has inspected the subgrade or levelling course and approved the same, and the inspection shall take place immediately prior to the placing of the concrete.

The work shall be performed in a manner which results in a curb, sidewalk, combined curb and sidewalk or rolled curb and sidewalk constructed to specified line and grade, uniform in appearance and structurally sound. When checked with a 3m straight edge, the finished surface shall not deviate more than 6mm and the alignment shall not vary more than 6 mm. The rolled curb, gutter and sidewalk finished profile when checked with a template, shall not deviate more than 6mm.

The minimum compressive strength of the concrete shall be 32.0MPa at 28 days. Placing of concrete shall be a continuous operation until the section, panel or scheduled pour is completed. The rate of delivery of the mixed concrete shall be such that the interval between placing successive batches shall not exceed 30 minutes, unless the last load completed the work to a proper construction joint. A maximum time limit of 120 minutes from the time of initial mixing to complete discharge shall be observed.

The material on which concrete is to be laid must be moistened with potable water immediately preceding concrete extruding.

The point of delivery of concrete shall be as close to the work as possible and in no case more than 1m from the point of final deposit in the horizontal and vertical direction. Re-handling of concrete will not be permitted.

Concrete shall be deposited in a manner to prevent segregation of the aggregate. Special care shall be taken in placing concrete to prevent voids, pockets, rough areas and honeycombing. The concrete shall be tamped by using mechanical concrete vibrators or vibrator screed in such a manner as to work the coarse aggregate away from the forms and exposed surfaces. Vibrators or vibrator screeds used in placing concrete shall have a minimum of 5,000 cycles per minute. The vibrator screed shall be used in accordance with the manufacturer's recommendations. Special care shall be taken to prevent over-vibration of the concrete to eliminate concrete bleeding. In combined curb and sidewalk, or curb, the curb and sidewalk crossings portion shall be vibrated by a concrete vibrator.

In rolled curb and sidewalk construction, a steel vibrating screed having the required cross-section shall be used. The rolled curb mold shall be of sufficient longitudinal length to vibrate and compact the plastic concrete to a proper cross-section.

Excess Concrete - All waste concrete including that which is pushed out from the ends of the mould at the front or back of the sidewalk and curb during construction must be removed from the site.

Transit mixers shall not be washed out on any improved roadway.

06010-8 Screeds and Templates

The Contractor shall make and use any templates or screeds that may be required by the Engineer to control construction procedures and methods.

Screeds shall be of rigid construction and equipped with suitable handles. Templates may be of ply board or metal construction. Adjustable screeds and templates will not be permitted. Damaged, bent or worn templates and screeds shall be replaced. An adequate number of replacement screeds and templates shall be maintained.

All screeds and templates shall be checked and approved by the Engineer.

After the forms are set to grade, the correct screed shall be used to check the subgrade elevation to ensure the proper thickness of sand or granular levelling course and concrete. When the subgrade preparation is approved, the Contractor will be permitted to place and compact the levelling which will give the required sidewalk thickness. Thereafter, the back of the sidewalk form shall be checked for final grade and alignment. The sidewalk cross-fall and face of curb slope shall be checked with a level every 8 m.

After the forms are adjusted to final grade alignment, the final elevation of the levelling course shall be checked with a screed.

06010-9 Epoxy – Coated Steel Dowels

Where required by the Engineer, sidewalks must be reinforced in accordance with the drawing provided.

Reinforcing must be 10M epoxy-coated deformed bars of the length shown on the drawings.

This will include drilling a hole of suitable size in existing concrete to accept installation of a minimum of 100mm of dowel.

Bar reinforcing must meet A.S.T.M. A184 and A.S.T.M. A304 intermediate grade new billet deformed steel.

06010-10 Expansion Joints

Expansion joints will not be used in the construction of sidewalks, curbs and gutters unless specified by the Engineer.

Where expansion joints are requested, the Contractor will supply the material and install the expansion joints. Supply and installation will be included in the unit price of the sidewalk or curb.

The expansion joint shall extend completely through the slab and shall be perpendicular and at right angles to the general direction of the sidewalks and curb.

The expansion joint shall be placed 3mm below the sidewalk level. The edges shall be rounded off to a 6mm radius or as approved by the Engineer.

Where utility poles, hydrants or other services require openings left in the sidewalk, the open space shall be formed and left open with the pour of the sidewalk. After the sidewalk has set, the forms will be removed from the opening, expansion material placed on all four sides, the opening filled with concrete and broom finished by the Contractor. This work is to be included in the unit price for sidewalks and curb.

06010-11 Control Joints

Control joints should be provided at regular intervals to form a weak plane, so that cracks are formed at the joints and not in undesired places.

Control joints should be provided at intervals about 1.5 m transversely along the length of the sidewalk.

The control joint is a saw cut or trowel cut about one quarter the depth of the slab that provides a weak plane in the slab where cracking can occur without marring the appearance of the sidewalk on the upper surface.

06010-12 Returns

In general, a standard 8m radius curb return will be used where practical and possible, but the Engineer may change the radius to meet field requirements.

The end of the curb return shall be constructed to grade and form a smooth curve. The length of return constructed shall be determined by the Engineer.

Curb returns shall be poured simultaneously with the separate curb and gutter or combined sidewalk and curb and gutter. Payment will not be made for any work where curb returns are not completed.

06010-13 Rolled Curb and Gutter at Corners

Rolled curb and gutter at corners may be machine poured, providing that an acceptable corner can be extruded. Should the corners require to be hand formed and poured, payment will be made at unit tender prices for the rolled curb and gutter.

06010-14 Sidewalk, Curb and Gutter Crossing Cross-Sections

The Contractor shall construct the standard sidewalk, curb and gutter crossings and the rolled curb and gutter sidewalk to dimensions and slopes as indicated on the appropriate plans.

06010-15 Finish of Sidewalk, Curb, and Gutter

The sidewalk surface shall be levelled with a concrete vibrator screed. Special care shall be taken to prevent over-vibration of the concrete and in no case shall an excess amount of water be brought to the surface.

After the concrete has sufficiently set to permit further finishing without concrete bleeding, the surface shall be brought to a true surface with a wood float. The surface shall be marked as shown on drawings using approved tools. After marking, the surface shall be trowelled smooth with a steel trowel and a uniform brush finish applied with a soft-bristled push broom to the satisfaction of the Engineer.

After the initial concrete set, the curb form shall be removed and the exposed surface of the curb shall be worked to a true surface, trowelled smooth and then given a uniform brush finish to a depth of 200mm from the top of the curb.

The sidewalk to be constructed shall have a contraction joint every 1.5m. In commercial or industrial areas where the sidewalk is over 3m wide, the sidewalk shall be divided into square blocks of approximately 1.5m. Where other features make a different type of division desirable, the sidewalk divisions shall be laid out as directed by the Engineer. Each separate block shall be marked on all edges with an approved marking tool that will round off the edges to a radius of 6mm. The edges of the walk and all dividing lines shall be rigidly straight. Warped lines and ragged edges will not be permitted.

In combined sidewalk, curb and gutter or curb and gutter construction, the top face of curb shall be rounded off to a radius of 2 mm. In separate curb and gutter, the top back of curb shall be rounded off to a radius of 6 mm. For separate curb and gutter, contraction joints shall be constructed every 1.5m. All sidewalk and curb markings and contraction joints shall be no less than 25mm deep, no more than 10mm in width and have a 6mm radius finish. Longitudinal contraction joints shall be no less than 35mm deep, 10mm wide with a 6mm radius finish. When the joint or marking is finished, it shall have a dense, tight concrete finish.

Any substandard construction or finish shall be corrected before the initial concrete set.

Patching thereafter will not be permitted and repairs shall be made by the Contractor by replacing all damaged work to the extent requested by the Engineer.

06010-16 Lane and Driveway Crossing

Sidewalk crossing shall have a concrete slab 180mm thick and the crossing wing shall have concrete thickness increasing from 125mm to 180mm or as indicated on plans. Single family dwellings shall have a concrete slab 125mm thick. The crossings and curb returns shall be constructed and marked as shown on the attached sidewalk plans. The crossings shall be constructed by the Contractor for the locations and width as shown on the plans or staked in the field.

06010-17 Private Driveways and Sidewalks

During sidewalk or curb construction, the Contractor shall be responsible for any damage to private sidewalks and driveways. When modifications are required to private driveways and sidewalks, the Contractor shall carry out the required work at applicable tender prices.

06010-18 Reconstruction of Private Sidewalks, Steps and Driveways

Under this Contract, any work associated with making modifications or repairs to private concrete sidewalks, curb and driveways shall be carried out at applicable contract prices, within a period of 5 days.

Payment for construction of steps will be on Force Account basis.

06010-19 Sidewalk Construction Adjacent to Buildings

Where sidewalk is being constructed adjacent to buildings, the sidewalk shall be poured as one piece from the curb to the building.

06010-20 Method of Construction Centre Medians at Turning Bays

Along centre median roadways, where the median has a total width of less than 2m, the slab shall be poured monolithically with the curb and gutter, or rebar shall be placed every 500mm at back of curb to hold slab from settling.

06010-21 Sidewalk Ramps

Sidewalk ramps shall be constructed as shown on the plans or as staked in the field.

The Contractor must pour the ramps at the time of the sidewalk construction.

06010-22 Borrow Areas, Coal Chutes and Existing Openings

Any additional work involved over normal sidewalk reconstruction regarding coal chutes and various other openings that require to be reconstructed, modified or backfilled shall be carried out under unit bid prices where applicable or on "Force Account" basis. Under most circumstances, the work of this nature will be carried out at the expense of the Property Owner or the Property Owner may carry out the required alterations.

Complete reconstruction of borrow areas (area that forms part of the building's basement and extends under the sidewalk) will not be part of the Contract. Work of this nature will be negotiated by the Engineer with the Property Owner to have the area reconstructed.

However, if the borrow area is structurally sound and the top is poured in two separate lifts, the Contractor will be responsible to reconstruct the sidewalk. If the top lift is less than 100mm, the Contractor shall apply an epoxy adhesive as recommended by the manufacturer on the old concrete. A special fine mix concrete shall be used when requested by the Engineer. Work of this description shall be carried out by the Contractor under unit bid prices.

06010-23 Curing Compounds

Curing compound will be supplied by the Contractor and will be in accordance with the City of Saskatoon Specifications for Curing Compound.

The curing compound shall be applied at the rate of 0.166 litres per square metre or 1 litre per 6 square metres unless otherwise recommended by the manufacturer. The curing compound shall be applied immediately after the surface has been finished and broomed. The compound shall be applied with a pressure sprayer distributor so that the concrete surface is completely coated and sealed in one application.

The Contractor will be responsible to provide a means of checking application rate of curing compound used on any specific site at the request of the Engineer or his representative.

06010-24 Protection

Concrete walk shall be allowed to set a minimum of 24 hours before pedestrian traffic is permitted. Commercial and industrial lane crossings shall be barricaded for 7 days from vehicle traffic and 5 days for residential crossings. Any work damaged within the time period specified shall be replaced at the Contractor's expense.

06010-25 Concreting in Sub-Normal Conditions

During cold weather concrete shall not be placed when the ground temperature is less than 2°C. Freshly placed concrete shall be adequately covered and protected or heated to maintain a minimum air temperature of 5°C for 36 hours under the concrete cover. Covering is to be maintained for 72 hours. The cost of all heating and protection shall be borne by the Contractor.

Concrete that does not meet the minimum temperature requirements shall be replaced at the Contractor's expense. All concrete pouring shall be terminated on or before October 31st, unless written permission is received from the Engineer.

During hot weather, with low relative humidity and gusting winds, the Engineer shall have the right to terminate the concrete pour to prevent plastic shrinkage cracking of the sidewalk. A moisture loss of 0.5 litres/square metre/hour shall be considered such grounds as to terminate the pour (determined from the Portland Cement Association rate of moisture loss graph). If the Contractor continues to pour concrete after the said termination he shall be held responsible for any cracking which appears within a 2 year warranty period and replacement of the sidewalk shall be at his cost.

Before a concrete set-retarder is used, the Contractor shall submit a letter certifying that the set-retarder meets the A.S.T.M. standards and shall be used in accordance with the manufacturer's recommendation.

The Contractor shall limit the amount of sidewalk or curb poured during hot weather to enable the work to be finished to the satisfaction of the Engineer. Protective cover material shall be maintained and used as required to prevent the concrete from setting

too quickly. The Engineer may terminate the concrete pour at any time during hot weather if the concrete sets up too quickly. Surface wetting will not be permitted during finishing.

Whenever deemed necessary by the Contractor and approved by the Engineer, the Contractor may detour traffic from a street when dust caused by local traffic has become injurious to the sidewalk finish. No concrete shall be poured when the wind blows dust on the fresh concrete and any poured previously shall be covered. The Contractor shall maintain on the job sufficient canvas, plastic or other suitable covering to protect the concrete from rain, dust or other adverse weather conditions.

06010-26 Construction Record Imprints

Each block or portion of block of sidewalk constructed shall be marked at each end with a suitable tool showing legibly the name of the Contractor and year of construction.

Curb box locations are to be marked at right angles along the back of sidewalk. Imprint is to be 200mm from the back of sidewalk and have initials C.C. (curb connection).

06010-27 20 MPa Lean Concrete

During sidewalk or curb reconstruction along paved streets, the Contractor shall provide concrete backfill in the pavement area removed along the gutter. The existing pavement edge shall be cut straight and be free from dirt or broken edges. Refer to City of Saskatoon Standard Drawing 102-0002-049 available on the City's web site.

The base shall consist of a minimum of 150mm of well compacted gravel base. The concrete thickness shall be 115mm. The concrete backfill shall be vibrated mechanically and placed 1 day after the curb pour. In residential streets, the concrete gutter shall be barricaded for 3 days, and barricade for 5 days along heavy traffic routes.

The concrete backfill used shall have a minimum strength of 20.0MPa in 28 days and shall meet all other requirements as specified in this specification. Higher MPa concrete is permitted; however, no water can be added to the concrete.

06010-28 Construction and Modifications to Catch Basins

Catch basin construction and modifications to existing catch basins shall be completed within 7 days after completion of the sidewalk or curb.

To facilitate catch basin construction after the curb or sidewalk has been poured, a 3 metre length shall be left open.

To prevent vertical or horizontal displacement of the curb or sidewalk, 10M epoxy-coated reinforcing bars, 250mm long shall be installed, two along the curb and one every 300mm on center along the sidewalk. Supplying and installing of the reinforcing bars shall be included in the cost of catch basins construction. The catch basin frame shall be sloped to match gutters.

06010-29 Adjusting Curb Boxes

Should the curb box fall within 0.5m from the back of the sidewalk, or within the sidewalk and require to be adjusted in elevation to facilitate the extruder, the Contractor will be paid the tender unit price.

The adjustment of the curb box shall be performed by a qualified person and under supervision of an inspector. The curb box shall be adjusted to 150mm below back of the walk.

A record for payment purposes, specifying the location and number adjusted shall be submitted by the Contractor the following day.

06010-30 Salvage Material

All salvaged material being a result of work done under this Contract shall be returned to the designated disposal site.

06010-31 Backfill

When excavation or grade preparation is done by the sidewalk contractor, the Contractor shall arrange to supply backfill material at his cost, from surplus excavation material encountered in the work. If backfill is brought in by the City, the Contractor shall be responsible for cleaning up any excess backfill supplied to him.

All backfill for sidewalk, combined sidewalk or curb and gutter must be at a slope of 3%. Any slope greater than 3% must be approved by the Engineer. The backfill must start from the top of the walk or curb and meet the existing ground elevations within the street right-of-way (unless otherwise directed by the Engineer).

The backfill must be compacted to a density of not less than 98% of Standard Proctor Density. Material used for backfill must be a soil substantially free from any granular material.

Backfill for lane crossings or private driveways must be at a slope of 1:10 or flatter. A slope greater than 1:10 must be approved by the Engineer. Backfill for lane crossings shall be base gravel or material approved by the Engineer. The curb on reconstruction shall be backfilled with base gravel to adequately ensure safe parallel parking adjacent to the curb and to provide positive drainage.

Backfill operations must be completed not later than 5 days, but not before 1 day after the completion of the curb or sidewalk. If backfilling is not carried out within 5 days, the Engineer may hire equipment and labour to carry out the required work at the expense of the Contractor.

Any curb that has moved within a period of one year after construction due to poor compaction or not enough backfill material placed, shall be replaced by the Contractor at his expense. Re-alignment of the curb by a jacking procedure will not be permitted unless approved by the Engineer.

06010-32 Boulevard

Improvements shall be carried out in accordance with Boulevard Construction (Specification 13055).

When construction is carried out adjacent to an improved boulevard, a maximum of 150mm will be permitted to be removed beyond the curb or sidewalk. Boulevard removed beyond this limit shall be restored at the Contractor's expense. Topsoil will be used for backfill.

06010-33 Progress of Work

The Contractor shall carry out the work in accordance with an approved program as outlined by the Engineer. Whenever the progress of construction is unsatisfactory, the Contractor shall increase the working force when requested by the Engineer.

06010-34 Completion of Work

Sidewalk, curb and gutter, catch basins, backfilling and clean-up will be considered as one unit. Should the Contractor be required to construct new catch basins or modify the existing catch basins, this work shall be completed within 5 days after the completion of the sidewalk or curb. Similarly, the backfilling shall be completed within 5 days. If the work including clean-up is not completed within the specified time, payment for the entire block of sidewalk or curb, boulevard and catch basin construction will be withheld from the monthly progress estimate.

06010-35 Measurement

1. Combined sidewalk, curb and gutter, and combined sidewalk and curb will be measured on the center line of the structure in lineal metres.
2. Separate curb and gutter, and separate curb will be measured along the face of the curb in lineal metres.
3. Concrete walkway 1500mm wide will be measured in lineal metres which shall include topsoil backfill 115mm deep and 1500mm wide.
4. Variable width concrete sidewalk, median slab and sidewalk crossing will be measured in square metres. Crossing areas are based on the length of the crossing (excluding the two wings) and the overall width including any combined curb and gutter.
5. Mountable median tip will be measured by each complete unit of median slab, curb and gutter extending from the end of the tip to 2m beyond the radius point (R.P.).
6. Sidewalk ramp measurement will be by the number of complete units.
7. Concrete removal will be measured and calculated as per bid items.
8. 10 M epoxy-coated dowels will be measured by the number of dowels installed.
9. Asphalt cutting will be measured in lineal metres of single lines cut.
10. Asphalt removal will be measured in square metres for asphalt designated by the Engineer to be removed and wasted separately from excavation of waste material.

11. Extra gravel fill supplied will be measured in cubic metres based on tickets provided by the Contractor.
12. Extra base gravel placed and compacted will be measured in cubic metres.
13. Concrete backfill will be measured in cubic metres.
14. Saw cutting concrete (minimum depth of 50 mm) will be measured in lineal metres.
15. Curb box adjustments will be measured by the number of units.
16. Under-strength concrete will be measured in the units for the structure containing concrete, with a compressive strength less than the specified 28 day strength.

06010-36 Payment

1. Payment for combined sidewalk curb and gutter, and for combined sidewalk and curb will be made at the contract unit price per lineal metre. The unit price will be full compensation for final trimming, forming, supply and placing of levelling course, supply and placing of concrete, vibrating, jointing, finishing, supply and application of curing compound placing and compacting backfill, and all other related work including clean up.
2. Payment for separate curb and gutter and for separate curb will be made at the contract unit price per lineal metre. The unit price will be full compensation for final trimming, forming, supply and placing of levelling course, supply and placing of concrete, vibrating, jointing, finishing, supply and application of curing compounds placing and compacting backfill, and all other related work including clean up.
3. Payment for concrete walkway 1500mm wide will be made at the contract unit price per lineal metre. The unit price will be full compensation for final trimming, forming, supply and placing of levelling course, supply and placing of concrete, vibrating, jointing, finishing, supply and application of curing compound, hauling and placing of topsoil backfill, clean up and related incidental work.
4. Payment for 115mm thick concrete sidewalk of variable width, 100mm concrete median slab and 180mm sidewalk crossing, will be made at the contract unit price per square metre. The unit price will be full compensation for final trimming, forming, supply and placing of levelling course, supply and placing of concrete, vibrating, jointing, finishing, supply and application of curing compounds, backfilling and all related work including clean up.
5. Payment for mountable median tip with gutter, will be made at the contract unit price for each complete tip. The unit price will be full compensation for final

- trimming, forming, supply and placing of levelling course, supply and placing of concrete, vibrating, jointing, finishing, supply and application of curing compounds, and all other related work.
6. Payment for sidewalk ramp will be made at the contract unit price for each complete ramp.
 7. Payment for concrete removal will be made at the contract unit price per lineal metre or square metre as per bid item. The unit price will be full compensation for the removal, disposal, any charges associated with the disposal, clean up and any related work.
 8. Payment for dowels will be made at the contract unit price per each. The unit price will be full compensation for each dowel supplied and installed.
 9. Payment for asphalt cutting will be made at the contract unit price per lineal metre. The unit price will be full compensation for all labour and equipment required for cutting asphalt concrete full depth to permit clean removal.
 10. Payment for asphalt removal will be made at the contract unit price per square metre. The unit price will be full compensation for the removal, disposal, any charges associated with the disposal, clean up and any related work. If asphalt is not cut before removal or has not been designated by the Engineer to be wasted separately it will be considered as part of common excavation.
 11. Payment for extra base gravel fill supplied only, will be made at the contract unit price per cubic metre. The unit price will be full compensation for supply, hauling, and dumping.
 12. Payment for extra base gravel placed and compacted to 98% Standard Proctor will be made at the contract unit price per cubic metre. The unit price will be full compensation for any work involved in placing and compacting the base, and clean up.
 13. Payment for 20MPa lean concrete will be made at the contract unit price per cubic metre. The unit price will be full compensation for supply, placing, vibrating, finishing and all other related work including clean up.
 14. Payment for saw cutting concrete 50mm deep will be made at the contract unit price per lineal metre. The unit price will be full compensation for all equipment, material and labour.
 15. Payment for adjusting curb boxes will be made at the contract unit price for each unit adjusted. The unit price will be full compensation for the labour and equipment needed to do the work.

16. Payment for curb on pavement will be made at the contract unit price per lineal metre. The unit price will be full compensation for all equipment, material and labour including the patching of stake holes from forms and string lines.
17. Reduction of payment for under-strength concrete shall be calculated and applied in the manner as outlined in Section 06005-16.
18. When the average 28 day compressive strength of the two test cylinders for any test equals or exceeds the specified strength, the complete work will be paid for at the contract unit prices.
19. Reduction of payment for not meeting specified dimensions or tolerances shall be calculated and applied in the following manner:
 - a. Where tolerances specified in Sections 06010-2.4 or 06010-8 are exceeded and the Engineer decides that replacement is not practical, payment will be made at 50% of the bid price for the entire quantity which would otherwise require replacement.
 - b. Where thicknesses and widths of structures are constructed less than, but within 10% of the specified dimensions, payment will be made at 50% of the bid price for the entire quantity which would otherwise require replacement. Structures on which dimensions are more than 10% below those specified shall be removed and replaced at the Contractor's cost.

End of Specification 06010