

Division IV
Section 4100
Measurement and
Payment



**DIVISION IV
CONSTRUCTION AND MATERIAL SPECIFICATIONS**

SECTION 4100 MEASUREMENT AND PAYMENT

4100	<u>SCOPE</u>	2
4101	Clearing and Grubbing	2
4102	Excavation	2
4103	Compaction	2
4104	Fly Ash or Lime Treated Soil Stabilization	2
4105	Aggregate Base or Surface Course	2
4106	Sanitary Sewer Pipe	2
4107	Connect to Existing Sanitary Sewer	3
4108	Sanitary Sewer Fittings	3
4109	Lateral Line	3
4110	Lateral Connections	3
4111	Standard Manholes	3
4112	Drop Manholes	3
4113	Extra Manhole Depth	3
4114	Existing Manhole, Junction Box	3
4115	Water Main	4
4116	Valves and Fittings	4
4117	Fire Hydrants	4
4118	Connect to Existing Water Main	4
4119	Water Main Plugs	4
4120	Storm Sewer Pipe	4
4121	Reinforced Concrete Box	4
4122	Inlets and Junction Box	4
4123	Concrete Ditch Liner	4
4124	Rip-Rap	4
4125	Concrete Street, Alley and valley Gutter Pavement	5
4126	Monolithic Curb	6
4127	Asphalt Pavement	6
4128	Combined Curb and Gutter	6
4129	Concrete Sidewalk	6
4130	Retaining Wall	6
4131	Handrail	6
4132	Seeding	7
4133	Sodding	7
4134	Traffic Control	7
4135	Removal of Existing Sidewalk	7
4136	Removal of Existing Pavement of all Kinds	7
4137	Removal of Existing Curb and Gutter	7
4138	Removal of Retaining Wall	7
4139	Removal of Existing Pipe Lines, Culverts and Boxes	7

SECTION 4100 MEASUREMENT AND PAYMENT

4100 SCOPE

Payment for work performed by the Contractor under these specifications shall be made at the contract unit price for each of the units as listed in the contract and measured as hereinafter specified. Such payment shall compensate the Contractor for all costs in connection with furnishing all labor, equipment and materials necessary to complete the items in accordance with the drawings and specifications. All incidental work which may or may not have been specified or shown on the drawings, but which is essential to the completion of the project, including items such as backfill, sawing edges, clean up and disposal of unused or surplus material, shall be accomplished by the Contractor, in a workmanlike manner, without additional cost to the City.

The quantities listed in the proposal are not guaranteed quantities and are listed only for the convenience of comparing bids. Payment will be made for the actual quantities constructed or installed, be they more or less than the listed quantities, unless the item is bid as plan quantity. Said quantities shall be measured and paid for as follows:

4101 Clearing and Grubbing

Payment for work performed in the operation of clearing and grubbing as shown on the plans shall be made on basis of lump sum.

4102 Excavation

Earth excavation shall be paid for by the cubic yard, measured in cut and computed from cross sections taken before the work is begun. There shall be no separate measurement or payment made for excavation of rock.

4103 Compaction

Earth compaction shall be paid for by the cubic yard, measured in fill and computed from cross sections taken before the work is begun.

4104 Fly Ash or Lime Treated Soil Stabilization

Fly ash and lime treated soil stabilization will be paid for by the square yard of subgrade stabilized. Payment shall be according to plan quantity.

4105 Aggregate Base or Surface Course

Granular material that is used as either a base or surface course shall be paid for by the ton. Payment shall be based on load tickets provided by the Contractor.

4106 Sanitary Sewer Pipe

Sanitary sewer pipe shall be paid for by the linear foot measured in place. Sewer pipe will be measured for payment through all line manholes, and to the center of manholes on the end of sewers. In cases where a line is stubbed out for future expansion the pipe shall be measured from

the center of the last manhole to the end of pipe actually in place. Unit price shall include all connections to new manholes or structures.

4107 Connect to Existing Sanitary Sewer

Connection of new sanitary sewer mains to existing manholes or mains shall be paid per each connection.

4108 Sanitary Sewer Fittings

Fittings shall be paid per each fitting actually installed.

4109 Lateral Line

Laterals will be paid for by the linear foot as determined by plan quantity, unless substantial differences result from changes approved by the City Engineer and made in the field. In the latter case, measurement shall be made from the centerline of the sewer main to the 2'x 4" board marking the end of each lateral.

4110 Lateral Connections

Tees and wyes used to connect laterals to a new or existing main shall be paid per each actually installed. Lateral connections to manholes shall also be paid per each connection to new or existing manholes as actually constructed.

4111 Standard Manholes

Manholes shall be paid per each manhole actually constructed to a maximum depth of 6 feet. Measurement of depth shall be made from the invert grade at the center of the manhole to the top of the ring and cover.

4112 Drop Manholes

Drop manholes shall be paid per each manhole actually constructed to a maximum depth of six (6) feet. Additional depth shall be paid as Extra Depth Manhole. Payment shall include the construction of one or more outside drops regardless of depth.

4113 Extra Manhole Depth

Extra manhole depth shall be paid for by the vertical foot of extra depth in excess of the standard six (6) feet. Measurement shall be made from the invert grade at the center of the manhole to the top of the ring and cover,

4114 Regarding Existing Manhole, Junction Box or Valve Box

Regrading of existing manholes, junction boxes, or valves boxes shall be paid per each regraded to fit the finished pavement or ground profile.

4115 Water Main

Water mains shall be paid for by the linear foot as determined by plan quantity, unless substantial differences result from changes approved by the City Engineer and made in the field. In the latter case, measurement will be made horizontally along the centerline of pipe from the point of connection straight through all valves and fittings to the end connection.

4116 Valves and Fittings

Valves and fittings (including reaction and thrust blocks) shall be paid per each actually installed.

4117 Fire Hydrants

Fire Hydrants shall be paid per each hydrant actually installed.

4118 Connect to Existing Water Main

Connection of new water mains to existing mains shall be paid per each connection.

4119 Water Main Plugs

Water main plugs (including friction blocks) shall be paid per each plug actually installed.

4120 Storm Sewer Pipe

Concrete pipe and corrugated metal pipe shall be paid for by the linear foot as measured along the centerline of all pipe in place. Measurements shall be to the inside edge of structures, excluding end sections. End sections and other special sections, such as precast bends or transition sections, shall be paid per each.

4121 Reinforced Concrete Box

Reinforced concrete boxes shall be paid for by the linear foot as measured in place along the centerline of the box. Measurement shall be from the outside face of the headwall to the outside face of the headwall, and shall include aprons, wingwalls and other similar appurtenances.

4122 Inlets and Junction Box

Inlets and junction boxes shall be paid per each.

4123 Concrete Ditch Liner

Concrete ditch liners shall be paid for by the square yard as measured in place.

4124 Rip-Rap

Rip-Rap shall be paid for by the ton, in place. Measurement shall be from load tickets provided by the Contractor.

4125 Concrete Street, Alley and Valley Gutter Pavment

Concrete street, alley pavement and valley gutter shall be paid for by the square yard of pavement actually constructed. Pavement shall be measured from outside edge to outside edge in place.

Sections 25.1 and 25.2 shall be used to determine the amount deducted from the contract price when concrete is deficient in thickness or strength. If the concrete is deficient in both thickness and strength, payment will be made at the lower percentage shown on either table, under the Portion of Contract Price Allowed. However, if the combined total deduction (Portion of Contract Price Allowed subtracted from 100) for deficiencies in thickness and strength exceeds forty percent (40%), the Contractor shall remove and replace the concrete as directed by the City Engineer. Such removal and replacement shall be at the Contractor's expense.

4125.1 Price Adjustment for Thickness Deficiency

Where the average thickness of pavement is deficient by more than 4.2% of the design thickness, but not more than 10.4%, payment shall be made at an adjusted price as specified in the following table:

Thickness Deficiency (%)	Deficiency for 6" Concrete (inches)	Portion of Contract Price Allowed
0.0% to 4.2%	6" to 5 3/4"	100%
4.3 % to 6.3 %	5 3/4" to 5 5/8"	80%
6.4 % to 8.3 %	5 5/8" to 5 1/2"	70%
8.4% to 10.4%	5 1/2" to 5 3/8"	60%

When the thickness of pavement is deficient by more than 10.4% of the design thickness, and in the judgment of the City Engineer, should not be removed and replaced, there shall be no payment for the areas retained. The thickness shall be determined by coring and testing the actual in-place pavement. Core samples shall be taken as described in Section 1.4.4 of STREETS AND PARKING LOTS.

4125.2: Price Adjustment for Strength Deficiency

When the Strength requirements are deficient the following adjustment shall be made.

Strength Deficiency	Portion of Contract Price Allowed
0% to 5%	100%
5.1 % to 10%	85%
10.1 % to 15%	70%
15.1 % to 20%	60%

When the strength of pavement is deficient by more than 20 % and in the judgment of the City Engineer, the area of such deficiency should not be removed and replaced, there shall be no payment for the areas retained. The strengths shall be determined by coring and testing the actual in-place pavement. Core samples shall be taken as described in Section 1.4.4 of STREETS AND PARKING LOTS.

4126 Monolithic Curb

Monolithic curb shall be paid for by the linear foot of monolithic curb actually constructed as measured in place along the face of the curb.

4127 Asphalt Pavement

Asphalt street pavement shall be paid for by the square yard of pavement actually constructed. Pavement shall be measured from edge to edge in-place and payment therefore shall include all materials necessary, except curb and gutter and valley gutter sections.

4127.1: Price Adjustment for Thickness Deficiency

Where the average thickness of asphalt pavement is deficient in thickness by more than 2.9%, but not more than 11.8%, payment will be made at an adjusted price as specified in the following table:

Thickness Deficiency (%)	Deficiency for 8 1/2" Asphalt (inches)	Portion of Contract Price Allowed
0.0% to 2.9%	8 1/2 " to 8 1/4 "	100%
3.0% to 5.9%	8 1/4 " to 8"	80%
6.0% to 8.8%	8 " to 7 3/4 "	70%
8.9% to 11.8%	7 3/4 " to 7 1/2 "	60%

When the thickness of pavement is deficient by more than 11.8% of the design thickness, and in the judgement of the City Engineer, should not be removed and replaced, there shall be no payment for the areas retained. The thickness shall be determined by coring and testing the actual in-place pavement. Core samples shall be taken as described in Section 1.4.4 of STREETS AND PARKING LOTS.

4128 Combined Curb and Gutter

Combined curb and gutter shall be paid for by the linear foot of combined curb and gutter actually constructed as measured in place along the face of the curb and shall include all materials in place.

4129 Concrete Sidewalk

Concrete sidewalk shall be paid for by the square foot measured in place.

4130 Retaining Wall

Retaining walls shall be paid for by the linear foot as measured in place.

4131 Handrail

Handrail shall be paid for by the linear foot as measured in place.

4132 Seeding

Seeding shall be paid for by the acre as measured in place.

4133 Sodding

Sodding shall be paid for by the square yard as measured in place.

4134 Traffic Control

Traffic control and signing shall be paid for as lump sum.

4135 Removal of Existing Sidewalk

Removal of existing sidewalk shall be paid for by the square foot of sidewalk actually removed as measured in place prior to removal.

4136 Removal of Existing Pavement of all Kinds

Removal of all pavement shall be paid for by the square yard of pavement actually removed as measured in place prior to removal.

4137 Removal of Existing Curb and Gutter

Removal of existing curb and gutter shall be paid for by the linear foot of existing curb and gutter actually removed as measured along the face of the curb in place, prior to removal.

4138 Removal of Retaining Wall

Removal of retaining wall shall be paid for by the linear foot of retaining wall actually removed as measured in place prior to removal.

4139 Removal of Existing Pipe Lines, Culverts and Boxes

Removal of existing pipe lines and culverts shall be paid for by the linear foot as measured in place prior to removal. Measurement shall be along the centerline of the pipe line, culvert or box, and shall be from the outside face of the headwall to the outside face of the headwall. Manholes, end sections, wingwalls, aprons or other related appurtenances shall be subsidiary to the removal.