

**CITY OF FARGO SPECIFICATIONS  
ASPHALT LEVELING COURSE**

**PART 1  
DESCRIPTION OF WORK**

The work to be done under these Specifications and the accompanying plans consist of furnishing all labor, material, accessories, and plant necessary to complete the improvement of certain streets, avenues or alleys in the City of Fargo.

This item includes the leveling of low spots in existing pavement to produce a uniform section and smooth riding surface. This item also includes cleaning, drying and preparing the existing surface, applying the tack coat and the laydown of the bituminous material, rolling, adjusting manholes and valve boxes to grade, and all other work as may be necessary to properly complete the asphalt leveling course work in accordance with these Specifications and the accompanying plans.

Generally, all work shall be done in accordance with Section 2400 for asphalt pavement, except as amended in this section.

**PART 2**  
**MATERIALS**

2.1. MATERIAL

All material requirements of Section #2400 shall apply with the exception of the aggregate gradations. The gradations shall conform to the following gradations:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1/2"	100%
3/8"	85-100%
#4	50-80%
#10	35-65%
#30	25-45%
#100	5-20%
#200	3-10%
Maximum Shale and Soft Rock	4%
Maximum Clay	5%
Maximum Loss (L. A. Abrasion Test)	40%

2.2. EQUIPMENT

All equipment shall conform to the requirements of Section #2400.

**PART 3**  
**CONSTRUCTION**

The construction requirements shall generally conform to the requirements of Section 2400.

3.1. PREPARATION OF EXISTING PAVEMENT SURFACE

All loose, pocketed, caked, or other deleterious material shall be removed from the existing pavement. Flushing or sweeping with hand or power brooms will be acceptable methods of cleaning the pavement.

3.2. TACK COAT

Prior to the paving of the bituminous mix a tack coat shall be applied to the existing surface. The surface shall be clean and dry, and the application rate of the tack oil shall be 0.10 gallons per square yard unless otherwise directed by the engineer. The minimum application temperature shall comply with the latest recommendations of the Asphalt Institute.

3.3. BITUMINOUS MAT

The mat course shall be constructed only when the base surface is dry, when the air temperature is 50° F and rising, and when the weather is dry and favorable.

The material shall be spread by an approved paving machine as soon as possible after arriving at the site and before the mixture cools to an unworkable consistency. The minimum laydown temperature is 275° F.

All depressions or dips in the existing pavement shall be filled by the use of a motor grader or hand methods and well compacted before the asphalt overlay is applied with the bituminous paver. On certain streets where the centerline has settled, it may be necessary to install a thin lift down the centerline of the section with the paver straddling that centerline.

Hand methods may be used in inaccessible areas. When the mixture is spread by hand, loads shall not be dumped any faster than can be properly distributed. The raking shall be skillfully and carefully done in such a manner that after the first passage of the roller, a minimum of back patching will be required.

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After application of the asphalt overlay, the contractor shall rake the entire longitudinal joint along the gutter to insure that no ridge or hump is allowed to remain. Care shall be taken to insure that the castings and gate valve boxes are well marked so that they can easily be raised to grade.

Longitudinal and transverse joints shall be well bonded and sealed. If necessary to obtain this result, the joints shall be cut back to the full depth of the previously laid course, painted with hot asphalt, and heated. All contact surfaces of manholes, gutters, headers, etc. shall be painted with a thin uniform coating of tack oil prior to placing the asphalt mixture against them. Immediately after the bituminous mixture has been spread, struck off, and surface irregularities corrected, it shall be thoroughly compacted by rolling. Compaction shall meet the requirements of Section #2400.

### 3.4. CASTINGS AND GATE VALVES TO GRADE (revised January, 2002)

Prior to the overlay, the contractor shall locate and mark all manholes and valve boxes that will be affected by the paving operation.

#### A. CASTINGS TO GRADE

This item includes all labor, materials and equipment necessary to adjust the various castings to the proper line and grade. Changes in grade shall be made as follows:

With concrete adjusting rings-

Adjustments shall be made with two (2) inch thick precast adjusting rings whenever possible. For fine adjustments of less than two inches, steel shims shall be used to temporarily support the casting. In any case, the castings shall be laid in a full bed of mortar. The rings and cone section shall be cleaned to assure a flat seating surface and the rings installed in alignment with no noticeable offsets.

With polyethylene adjusting rings-

Adjustments shall be made with polyethylene adjustment rings. The cone shall be cleaned and the rings dry stacked to determine the best ring height and slope ring combination to obtain the proper height and slope match. Once this is determined, the rings shall be marked with a vertical line for future reference and disassembled. A ¼ inch bead of butyl caulk shall be applied to the cone surface and the first ring placed on the cone section. Another bead of butyl caulk shall be placed on the bottom of the next

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ring as close as possible to the male lip and this ring installed interlocking with the first and aligning the vertical line. This procedure is repeated for each adjustment ring, including caulking the joint between the slope ring and the casting.

The contractor shall bring the castings to grade after the overlay has been completed. It is the contractor's responsibility to mark and record the locations of the castings by an approved method. In any event, the contractor shall dig the casting out of the existing pavement and raise the entire casting from underneath. In no case will the use of metal adapter rings be allowed without the engineer's permission.

The casting shall be encased in a concrete collar as shown in Detail 2500.5.1. Care shall be taken to adjust the casting to the proper grade so the final riding surface is smooth and free of bumps and it conforms to the alignment and grade of the adjoining pavement. Any castings not satisfying these requirements shall be redone to the satisfaction of the engineer. Castings should be set flush to the pavement surface.

Sanitary sewer manholes with adjustable castings shall be replaced with a standard manhole casting with a sealed lid. Adjustable castings being utilized on storm manholes shall have the threaded adjusting pegs lowered to the minimum setting and the casting adjusted in the same manner as a standard casting. All casting adjustments shall include grouting the rings. If manhole seals are found in the sanitary manholes, the contractor shall use care in the removal of the seals. These seals will then be reinstalled on the same manholes from which they were removed.

The casting to grade item also includes cleaning all construction debris or dirt from the manhole or inlet bottom and installing a wiped mortar finish around the inside circumference of the precast concrete adjusting rings.

This bid item shall include adjusting castings with up to 4 adjusting rings. Additional rings shall be paid under the casting to grade (over depth) bid item.

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### B. GATE VALVES TO GRADE

This item shall include all labor, material, and equipment necessary to raise or lower water gate boxes to the final grade. Care shall be taken to adjust the valve box to the proper grade so the final riding surface is smooth and free of bumps and that it conforms to the grade of the adjoining pavement. Any valve boxes not satisfying these requirements shall be redone to the satisfaction of the engineer. Valve boxes should be flush with the finished pavement surface.

The gate valves shall be brought to grade in accordance with the drawing shown in Detail 2500.5.1. The contractor shall dig around the valve box a sufficient distance so that it can be screwed up to the desired final grade. If no adjustment in this manner is possible, an approved riser shall be installed below the top section of the gate box at no charge to the City.

The gate box to grade item also includes cleaning all construction debris or dirt from the box, insuring that the box is straight and undamaged, and insuring that the valve is operable.

### 3.5. CASTING TO GRADE – (OVER DEPTH) (revised January, 2002)

The bid item for casting to grade (over depth) shall include all costs associated with adjusting manholes to grade when there are 5 or more adjusting rings. The bid item shall cover increments of up to an additional 4 rings.

### 3.6. OPENING TO TRAFFIC

Under the most favorable conditions for paving, the pavement shall be closed to traffic for at least 6 hours, and in warm weather for an additional time to be determined by the engineer. The contractor shall erect and maintain suitable barricades and lights to protect the pavement from traffic. Any part of the pavement damaged from traffic or other causes occurring prior to the acceptance of the pavement shall be repaired by the contractor at his own cost and to the satisfaction of the engineer.

3.7. TRAFFIC MAINTENANCE

All streets, roads, highways, and other public thoroughfares which are closed to traffic, under the authority of a proper permit, shall be protected by means of effective barricades on which shall be placed acceptable warning signs. Traffic control devices shall comply with the "Manual of Uniform Traffic Control Devices" as set forth by the U. S. Department of Transportation and Federal Highway Administration.

All barricades and obstructions shall be illuminated by means of amber lights or reflectorized sheeting for nighttime hours. The police, fire, and ambulance service shall be immediately notified upon closing street, avenues, highways or other public thoroughfares.

The contractor shall plank all street and alley crossings and all locations of removed sidewalk for the convenience and safety of the pedestrian traffic.

3.8. LOCATION OF EXISTING UTILITIES

Existing manholes, gate valves, and stop boxes have been shown to direct the contractor's attention to their existence. The contractor is cautioned that not all utilities have been shown and their location is not guaranteed. The contractor is responsible for determining the exact location of existing utilities that affect the installation of the paving.

3.9. TESTING

The contractor shall submit a mix design prior to the start of his first project for the year. Asphalt content shall be determined from this mix design for optimum performance. A separate mix design will be required for each separate class of aggregate used in the pavement section, (i.e.- a separate mix design shall be submitted for the mix using ND class 27 aggregate, and another mix design for the mix using ND class 29 aggregate). Nuclear density tests shall be taken to verify densities.

The engineer may, at his discretion, require the contractor to submit representative samples of the materials he proposes to use prior to the delivery of the materials to the site of the work, and may, during the progress of the work, take samples and make tests to assure that the work is being performed in accordance with these Specifications. The contractor shall cooperate in the making of such tests to the extent of allowing free access to the work, for the selection of samples.

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Samples shall be obtained and tested in accordance with the latest ASTM methods of tests.

**PART 4**  
**GUARANTEE, MEASUREMENT & PAYMENT**

4.1. GUARANTEE

The guarantee shall cover the contract as to workmanship and material for a period of one (1) year from the date of final acceptance and payment.

4.2. MEASUREMENT AND PAYMENT

Payment for asphalt leveling and castings and gate valves to grade shall be full compensation for all labor, material, equipment and miscellaneous items necessary for constructing these items in place.

*4.2.1. DETERMINATION OF AMOUNT OF ASPHALT CEMENT USED*

When the asphalt cement is specified as a separate bid item, the asphalt cement shall be measured by the gallon at the standard temperature of 60° F. Corrections will be made for variations in temperature using the coefficient of expansion per degree of 0.00035.

Temperature measurements will be made at the point of delivery to the project. Quantities of asphalt cement in the mix will be determined by amounts added at the plant and checked by asphalt extraction's taken by an independent testing laboratory.

*4.2.2. DETERMINATION OF COMBINED AGGREGATE*

When the asphalt aggregate is specified as a separate bid item the total weight for the bituminous mix shall be determined by the wet ton of material in trucks on an approved platform scale. The total weight of asphalt cement, as determined in part 4.2.1, shall be deducted from the total weight of the mix to determine the dry weight of the combined aggregate in tons.

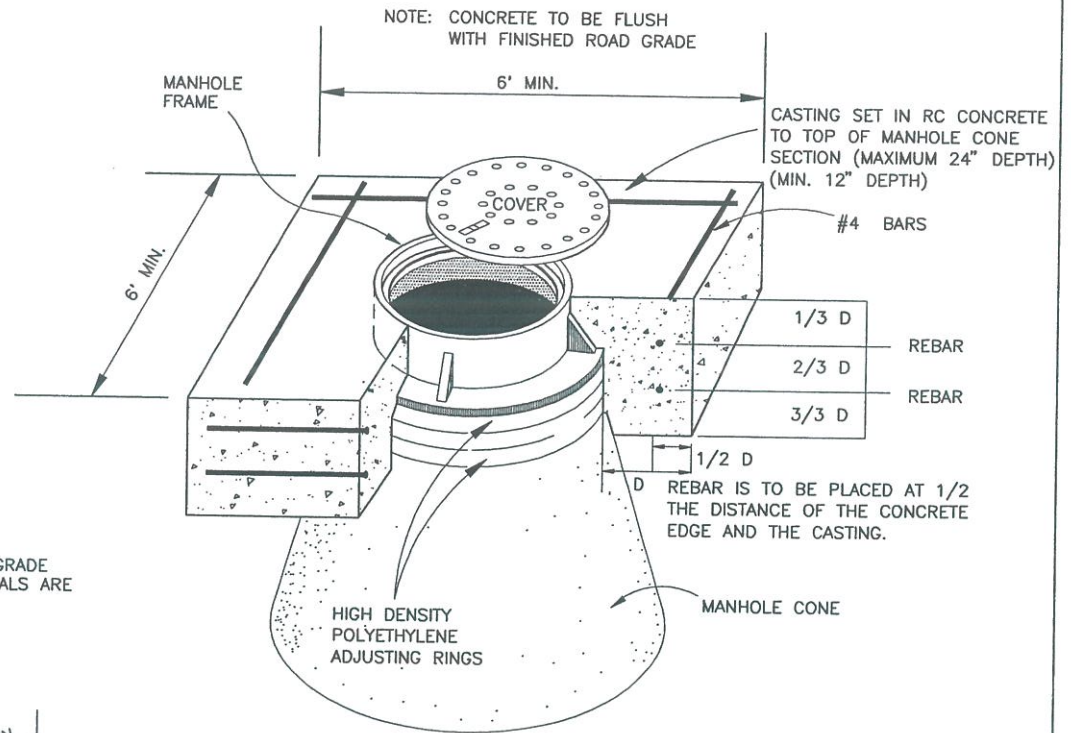
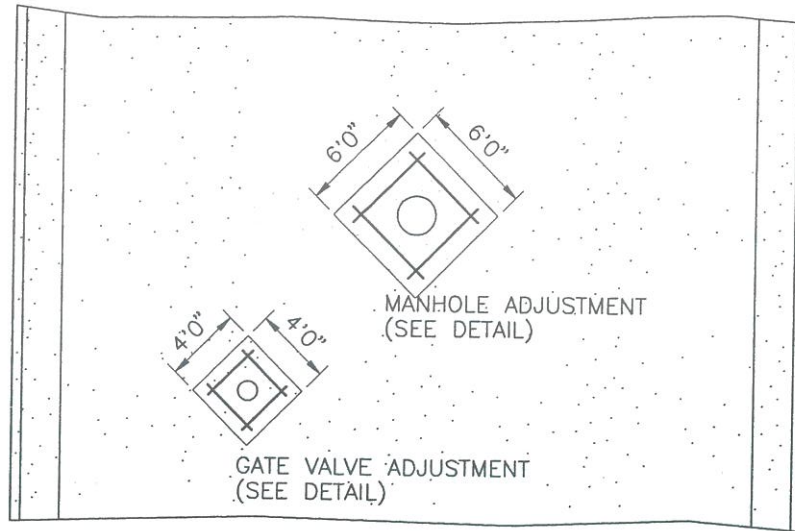
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4.2.3. *METHOD OF PAYMENT (revised January, 2002)*

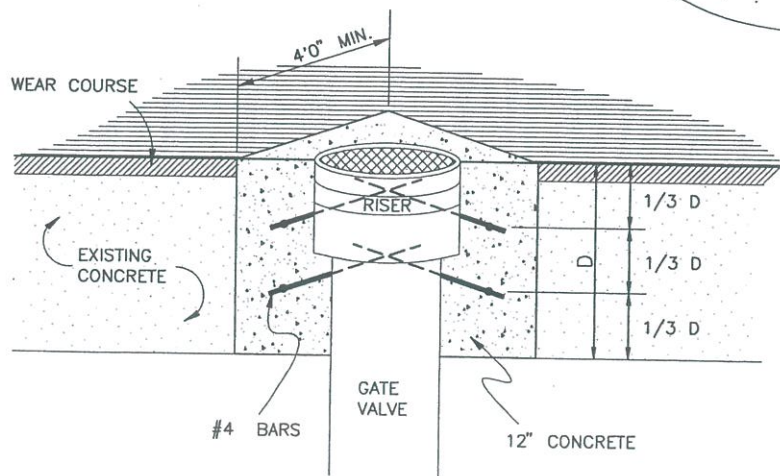
- A. COMBINED AGGREGATE  
Paid for at the contract unit price per ton.
  
- B ASPHALT CEMENT  
Paid for at the contract unit bid price per gallon.
  
- C. ASPHALT OVERLAY (INCLUDES 5.5-6% OIL)  
If the asphalt overlay is bid as containing the asphalt cement, the payment will be made on the wet ton unit bid price, and there will be no adjustment for the aggregate or asphalt cement.
  
- D. CASTINGS TO GRADE  
Castings to grade shall be paid for at the unit price bid per each. The cost shall include all necessary labor, material, and equipment necessary to adjust these facilities. The bid item includes a depth up to 4 rings of adjustment.
  
- E. GATE VALVE BOXES TO GRADE  
Gate valve boxes to grade shall be paid for at the unit price bid per each. The cost shall include all necessary labor, material, and equipment necessary to adjust these facilities.
  
- F. TACK COAT  
Tack coat shall be an incidental item, with the cost charged to other items.
  
- G. CASTING TO GRADE (OVER-DEPTH)  
The cost shall be per each and shall include all necessary labor, materials and equipment necessary to adjust these facilities. Item will be based on 4 ring incremental adjustments when there are 5 or more adjusting rings on a manhole.

4.2.4. *OTHER COSTS*

All other costs necessary to properly complete the asphalt leveling shall not be bid items; the costs shall be charged to other items. Exceptions to this rule will be made only when a unit bid price is included in the contract proposal for a particular item.



NOTE:  
WHEN THIS TYPE OF CASTING TO GRADE IS USED, WATERTIGHT MANHOLE SEALS ARE NOT REQUIRED.



GV TO GRADE

*MH CASTING TO GRADE*

FOR ASPHALT STREET REHABILITATION AND FINAL WEAR COURSE PROJECTS

SECTION NO.	2500	DRAWING NO.	5.1
REV.D.	March, 2007		
<b>CASTING &amp; GATE VALVE TO GRADE DETAIL</b>			
CITY OF FARGO ENGINEERING DEPARTMENT			
APPROVED	DATE		