

# **DIVISION IV**

## **ASPHALT CONCRETE SURFACE COURSE**

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This division is written so that ordinarily the type of construction described is complete, but, where applicable, other divisions are considered a part of this specification.

**SECTION 22 - SCOPE OF WORK**

The work covered by this division of the specifications consists of furnishing all labor, plant, equipment, appliances, and materials and performing all operations necessary to construct and complete the prime coat and asphaltic concrete pavement and appurtenances in strict accordance with the specifications and applicable drawings and subject to the terms and conditions of the contract.

**SECTION 23 - SPECIFICATIONS**

23.01 State Specifications. The most current State of Nebraska Standard Specifications for Highway Construction along with any drawings or additional addenda shall apply to any and all asphaltic concrete materials and construction methods.

23.02 Smoothness. Except as specified in NDOR 502, acceptance requirements for smoothness shall be as specified in Section 3.17 "ACCEPTANCE REQUIREMENTS" of the Asphalt Institute's latest edition of "MODEL CONSTRUCTION SPECIFICATIONS FOR ASPHALT CONCRETE AND OTHER PLANT-MIX TYPES."

**SECTION 24 - CONSTRUCTION METHODS**

24.01 Compaction Requirements. The top six (6) inches of the final subgrade shall be scarified and rolled with a sheep's foot roller, with water added, if necessary, to obtain compaction to a density of not less than 95% of maximum dry density at optimum moisture content as determined by AASHTO Method T-99. A minimum of one successful density test per block will be required before the placement of any asphaltic concrete surfacing.

Final preparation of the subgrade shall include minor compaction and scarifying up to a depth of two (2) inches, furnishing and applying water, removing loose material, and minor shaping and smoothing of the surface.

Direct payment will not be made for earthwork, subgrade preparation, final preparation, and maintenance of the subgrade. This work shall be subsidiary to asphaltic concrete surface course.

24.02 Asphaltic Cement. Asphaltic cement shall be paid for separately by the gallon. Total pay gallons will be based on actual AC content when the actual AC content is within 0.2% points of the AC content specified by the Engineer. If the actual AC content is more than 0.2% points below that specified by the Engineer, an additional 0.1% point will be deducted from the payment for each 0.1% point below the 0.2% point variance allowed. No payment will be made for asphaltic cement beyond 0.2% points above the specification. The Engineer may reject areas where the AC content is more than 0.5% points above or below specifications based on individual extractions. Areas where the AC content is more than 1% point above or below specifications based on individual extractions must be rejected. Following are examples to illustrate:

| AC Content | Specified<br>Extraction | Payment<br>Based On |
|------------|-------------------------|---------------------|
| 5.0%       | 5.2%                    | 5.2%                |
| 5.0%       | 4.8%                    | 4.8%                |
| 5.0%       | 5.5%                    | 5.2%                |
| 5.0%       | 4.5%                    | 4.2%                |
| 5.0%       | 5.6%                    | May be rejected     |
| 5.0%       | 4.4%                    | May be rejected     |
| 5.0%       | 6.1%                    | Will be rejected    |
| 5.0%       | 3.9%                    | Will be rejected    |

Where more than one extraction is taken, an average will be computed for payment. In computing the average, AC contents more than 0.2% above the specified content will be changed to the specified content plus 0.2% points. Following is an example based on a specified AC content of 5.0%.

| Actual<br>Extractions | Use for Payment<br>Computations |
|-----------------------|---------------------------------|
| 5.1%                  | 5.1%                            |
| 4.8%                  | 4.8%                            |
| 4.5%                  | 4.5%                            |
| 6.0%                  | 5.2% (if accepted by Engineer)  |
| Avg = 5.1%            | Avg = 4.9%                      |

Payment would be made based on the 4.9% average.

24.03 Prime Coat. The prime coat shall conform to the most current State of Nebraska, Standard Specifications for Highway Construction.

24.04 Tack Coat. The tack coat shall conform to the most current State of Nebraska, Department of Roads, Standard Specifications for Highway Construction.

24.05 Armor Coat. The armor coat shall conform to the most current State of Nebraska, Department of Roads, Standard Specifications for Highway Construction.

24.06 Bituminous Base Course and Surface Course for Asphaltic Concrete Pavements. The bituminous base course and/or surface course for asphaltic concrete pavements shall conform to the most current State of Nebraska, Department of Roads, Standard Specifications for Highway Construction.

24.07 Seal Coat. The seal coat shall conform to the most current State of Nebraska, Department of Roads, Specifications for Highway Construction.

24.08 Heater-Planing. The work covered by this section consists of furnishing all plant, labor, and equipment and performing all operations in connection with the heating and planing of existing pavements to true up existing surfaces within the limits and in accordance with the methods, procedures, type, and area as outlined and described in this section and the applicable drawings, and to the depth designated by the Engineer.

The amount of work indicated in the bid form may be increased or decreased by whatever amount is deemed advisable by the Engineer. For any such increase or decrease in work there shall be no consequent change from the unit prices as bid in this contract.

A. Equipment - The planing machine shall be designed and built for the heater planing of heavy traffic type asphaltic concrete pavements and shall be self-propelled. The heating and cutting width of the machine shall be the same and shall not be less than three and one-half (3-1/2) feet. The total weight shall not be less than 17,000 pounds of which seventy percent (70%) plus or minus ten percent (10%) shall be on the rear wheels. The machine shall be capable of traveling at a speed as low as forty (40) feet per minute and be able to cut against all curbs, catch basins, inlets, and other similar obstructions within the paved area. The machine shall have, in combination, a means for heating and cutting the surface and blading the displaced material into one or two windrows in one continuous operation. The overall width or spread of the rear wheels of the machine shall not be greater than the lateral width of the cutting edges and the effective wheelbase of the machine shall not be less than eighteen (18) feet. The make and design of the machine shall be one that has operated successfully on a considerable mileage of work comparable with that proposed to be done under this contract.

B. Public Convenience and Safety - The Contractor shall plan the work so that there will be the least possible interruption to the usual flow of traffic and shall conform to the specific requirements. The Contractor shall be governed by the current regulations of the City. The Contractor shall use all proper precautions to protect persons from injury. Proper guards shall be placed in the vicinity of the work and a sufficient number of colored warning lights placed to protect the public from damage and injury. The Contractor shall be held responsible for all such damage and injuries.

C. Protection of Utilities - Contractors shall use care not to disturb, break, or otherwise damage any visible existing manhole covers, gate valves, etc. in the planing operation. Covers, valves, etc. visible prior to the Contractor's operation shall be replaced by Contractor at Contractor's expense. The adjustment of manholes to the finished grade produced by the heater planer operation is not to be included as work to be done under this item.

D. Construction Methods - Areas to be planed shall be definitely marked out in advance of the work by the Engineer. They shall be rectilinear in shape except where existing facilities do not permit. Payment for completed work shall be made only on the basis of areas as marked out by the Engineer in advance of the work.

Planing operations shall accomplish the cutting of the bituminous surface of the pavement, not to exceed one-half (1/2) inch depth per pass, to a smooth surface without gouging, shoving, or tearing the pavement. The Contractor shall make as many trips with the machine as are necessary to cut to the depth indicated in the plans, specifications, Special Provisions, or as directed by the Engineer and to bring the surface to a tolerance of one-fourth

(1/4) inch when checked with a ten (10) foot straightedge. The Contractor is not to remove more surface than required or directed. Should the bituminous material not permit planing to this tolerance, the condition of the pavement must be called to the attention of the Engineer whose decision will be final.

Immediately after completion of the planing operation, the Contractor shall roll the planed areas with a smooth wheel roller weighing not more than ten (10) tons. Not less than three (3) passes of the roller will be required over the entire area planed.

The Contractor shall remove all pavement cuttings, debris, etc. which resulted from the performance of the work on the street.

E. Coordination with Other Contractors - Some of the projects, which will be properly identified on the plans or in the Special Provisions, are to be overlaid with an asphaltic material after the surface has been heater-planed. The application of the asphaltic material will be accomplished under a separate contract; therefore, close coordination shall be maintained to assure that the surface is heater-planed in advance of the asphaltic material application. The heater-planing contractor shall cooperate with the resurfacing contractor to assure orderly progression of the work to be accomplished.

F. Inspection and Acceptance - Planing operations will be under the direct supervision of the Engineer or Engineer's authorized representative on the work, and the depth and extent to which the planing will be carried out shall be decided by the Engineer as the work progresses. The Engineer shall have authority to reject any work, materials, and parts thereof which do not, in the Engineer's opinion, conform to the plans, specifications, and contract.

G. Measurement and Payment - Heater-planing shall be measured for payment in square yards of pavement actually heated and planed and accepted by the Engineer and shall be paid for at the contract unit price per square yard for the item "Heater-Planing." This price shall be full compensation for furnishing all equipment, plant, tools, labor, flagmen, operators, fuel, hauling, rolling, disposing of planed material, and incidentals necessary to complete the work.

24.09 Surface and Base Reconditioning. This work shall consist of filling cracks, removing and replacing undesirable areas, and patching holes and depressions in existing pavements and bases preparatory to subsequent surfacing or surface treatment.

A. Methods - Except as otherwise provided in this section, all materials used for this work shall conform to the material requirements of these specifications.

B. Crack Filling - On surfaces to be seal coated or armor coated the surface cracks one-fourth (1/4) inch or larger shall be hand raked for a depth of not less than one-half (1/2) inch and then blown clean with compressed air.

Cleaned out cracks shall be filled with MC-800 or Emulsified Asphalt RS-1, and cover coat aggregate poured or broomed into the crack in sufficient quantity to fill the crack.

All cracks one-half (1/2) inch or larger in width in the existing base shall be opened in a wedge shape with air hammers, cleaned with compressed air, painted with Emulsified Asphalt RS-1, and then filled with Asphaltic Concrete Wedge material and thoroughly compacted so as to be even with the adjacent surface.

C. Surface and Base Removal - Surfaces and bases as shown in the plans or as designated by the Engineer shall be removed in accordance with the applicable requirements of the section of these specifications entitled Pavement Removal.

In general, the surfaces requiring removal shall consist of the following types:

1. Asphalt or other surfaces considered unsuitable for use as a base.
2. Asphalt patches containing an excess of bitumen.
3. Loose, excessively cracked or disintegrated asphalt areas.
4. Brick and cobblestone surfaces excessively off grade.
5. Brick, cobblestone, and asphalt surfaces requiring removal to provide for a butt joint.

Except as otherwise shown in the plans or directed by the Engineer, removal of concrete pavements and bases will generally be limited to those areas evidencing disintegration and/or sinking or humping.

Crushed rock bases, when shown in the plans or directed by the Engineer, shall be reworked in accordance with the requirements of the Special Provisions.

D. Surface and Base Repair - Concrete base repair shall be constructed in accordance with the applicable requirements of State of Nebraska specifications which shall be construed to include the following:

1. Repaving areas of concrete bases or pavements previously removed.
2. Resurfacing areas from which brick or cobblestone surface was previously removed, to the level of the existing surface or to such grade as the Engineer may direct.
3. Filling of holes and depressions in the existing base or pavement as the Engineer may direct.
4. Any other work of similar nature or properly inferable from the plans or Special Provisions or directed by the Engineer.

When the contract provides for the placing of asphaltic concrete wedge, base, binder, or surface courses, this material shall be used for patching all holes and depressions in accordance with the requirements of State of Nebraska specifications, except as otherwise provided in this article.

When the contract does not provide for the placing of asphaltic concrete wedge, base, binder, or surface courses, the material used for patching asphalt surfaces shall be one of the following:

1. Asphaltic Surface Course, Type I
2. Material obtained from asphalt plant operated by the City.

This mixture shall be placed in all holes and depressions previously tack coated in accordance with the requirements of the section of these specifications entitled Tack Coat as directed by the Engineer, leveled to the required thickness, and compacted by tamping, ironing, or rolling as may be required to obtain the required density and stability.

E. Measurement and Payment -

1. Crack Filling - Cracks filled under the conditions related in Section 24.09-B shall be measured for payment by length in lineal feet in five (5) chords and shall be paid for at the contract unit price per lineal foot for the item "Crack Filling." This price shall be considered full compensation for all materials, labor, equipment, tools, and incidentals necessary to complete the work required for this item.
2. Removals - Removal of pavements, surfaces, and bases shall be measured and paid for in accordance with the applicable requirements of the section of these specifications entitled Pavement Removal.
3. Reworking Rock Base - Reworking crushed rock base shall be measured and paid for in accordance with the requirements of the Special Provisions.
4. Concrete Base Repair - Concrete used for base repair as related in Item D of this article shall be measured and paid for in accordance with the requirements of the Special Provisions.
5. Asphaltic Concrete Wedge, Binder, or Surface Material - Asphaltic concrete wedge, binder, or surface material used in patching and leveling as provided in Item D of this article shall not be measured separately for payment but shall be included in the quantity for which the contract provides that payment shall be made.
6. Asphalt Patching - Asphaltic mixtures used for patching under the conditions related in Item D of this article shall be measured for payment by weight in tons and shall be paid for at the contract unit price per ton for the item "Asphalt Patching." This price shall be considered full compensation for furnishing and applying all materials including tack coat; for all tamping, ironing, and rolling; and for all labor, tools, equipment, and incidentals necessary to complete the work required for this item.

24.10 Emulsified Asphalt Slurry Coat. The work covered by these specifications consists of furnishing all plant, labor, equipment, and materials and performing all operations in connection with the application of a following described slurry seal coat



upon the so designated surface, complete in strict accordance with these specifications, applicable plans, the Special Provisions, and as directed by the Engineer.

A. Description - The slurry seal coat shall consist of a mixture of emulsified asphalt, mineral aggregate and water, properly proportioned, mixed, and spread on the surface as specified herein and as directed by the Engineer.

B. Materials -

1. Aggregates - Aggregate shall consist of natural or manufactured sand, slag, crusher fines, or other materials approved by the Engineer, blended with mineral filler, if necessary to meet the gradation requirements. Portland Cement, limestone dust, fly ash, or hydrated lime may be used as a filler, provided the blended gradation is within the requirements. The aggregate shall be clean and free of deleterious substances and shall have a plasticity index of not more than five (5) when tested in accordance with ASTM D424. Smooth-textured sand, whose water absorption is less than 1.25% when tested by ASTM C128, shall not exceed 50% of the total combined aggregate. The aggregate, when tested for soundness with Sodium Sulfate in accordance with ASTM C88, shall show a loss of not more than ten (10) percent.

The gradation of the combined aggregate, when tested by ASTM C136, shall meet the following requirements:

| Sieve Size | Percent Passing |          |         |
|------------|-----------------|----------|---------|
|            | Type 1          | Type 2   | Type 3  |
| 3/8"       |                 | 100      | 100     |
| #4         | 100             | 80 - 100 | 70 - 90 |
| #8         | 80 - 100        | 65 - 85  | 45 - 70 |
| #16        | 60 - 85         | 45 - 70  | 35 - 50 |
| #30        | 45 - 70         | 30 - 50  | 20 - 35 |
| #50        | 30 - 50         | 20 - 35  | 12 - 25 |
| #100       | 15 - 30         | 12 - 25  | 10 - 20 |
| #200       | 10 - 20         | 10 - 20  | 8 - 15  |

2. Water - Water shall be potable and free from harmful soluble salts and in accordance with Grand Island City water quality.
3. Emulsified Asphalt - The emulsified asphalt shall meet the requirements of ASTM D977 (anionic) or ASTM D2397 (cationic). The type and grade, including the penetration of the residual asphalt, will be as listed in the bid or as designated by the Engineer.

C. Slurry Mixture -

1. Mixture Proportions - The mixture shall contain from 14% to 22% asphalt emulsion for Type 1, 10% to 16% for Type 2, and 8% to 14% for Type 3, based on the weight of dry aggregate.

Only the amount of water will be used that is necessary to produce a fluid, creamy texture which will flow smoothly. The actual proportions to be used shall be determined by the Engineer.

2. Mixture Requirements - A free flowing creamy consistency, obtained by varying the quantity of water only, is required for proper application of the mix. The quantity of emulsified asphalt required shall not be altered unless directed by the Engineer. The Contractor shall make trial batches at his expense to determine the final blend of mineral aggregate, mineral filler, and asphaltic binder to be used for most adequate results and approval of the Engineer. Mixture shall be of such consistency as to flow in a wave of approximately two (2) feet ahead of strike-off squeegee.
3. Wearability - The mixture, when tested by the Standard Wet Track Abrasion Test, shall show a loss of not more than 1.5 pounds/square yard (75 gm./square foot).

D. Equipment -

1. Mixing Machine - The slurry seal coat mixing machine shall be a continuous flow mixing unit and be capable to accurately deliver and proportion aggregate, asphalt emulsion, and water to an approved mixer tank and discharge the thoroughly mixed product on a continuous basis from a minimum of two (2) minutes to a maximum of four (4) minutes mixing time.

The mixer shall be washed clean with water immediately after discharging the slurry. Any mixer which becomes clogged or caked with hardened material will be rejected by the Engineer until properly cleaned.

2. Spreader Box - The spreader box may incorporate numerous features but shall consist of at least a rectangular frame of traffic lane width with a squeegee across the box about three-fourths of the way back from the front. The squeegee shall be fastened to the bottom of the cross member which shall be sectional and adjustable for thickness of application and adjustable to the crown of the pavement in segments not over three (3) feet long. The squeegee shall be neoprene rubber belting one (1) inch thick and six (6) to eight (8) inches wide across the width of the box, bolted to the adjustable frame with at least four (4) inches of free face to provide sufficient flexibility in order to maintain contact with the pavement surface in depressions and compress sufficiently to pass over high spots. The front and sides of the spreader box shall be lined on the inside with heavy rubber belting secured by bolts and a heavy metal strip. The belting material shall be slotted at the holes so it can be raised or lowered to make contact with the pavement surface to prevent the slurry from escaping

from the bottom of the sides and front members. The spreader also shall be equipped with a guide wheel mounted on the side to force the box to follow the tow truck in a straight line. The spreader box shall also contain longitudinal or diagonal baffles to distribute the slurry the full length of the squeegee.

3. Miscellaneous Equipment - Long-handled, rubber-faced squeegees shall be constructed and have flexibility to permit uniform spreading of the slurry mixture. Power sweepers, air compressors, sprinkler trucks, distributor, weighing and measuring equipment shall be provided to accurately weigh and measure the ingredients of the mix. Where traffic is not sufficient to properly knead the mix into the cracks, a pneumatic tire roller shall be required to obtain the desired results.
- E. Preparation of Surface - The existing surface shall be thoroughly cleaned of all loose material, dirt, oil drippings, and other matter which may adversely affect proper bond of the slurry seal. Depressions and bumps shall be brought to proper grade and distressed areas shall be patched or otherwise repaired, as directed by the Engineer. When deemed necessary by the Engineer, the surfacing of the existing pavement and all crack faces shall be sprayed with diluted asphalt emulsion at a rate of 0.05 to 0.1 gallons per square yard and all surfaces shall be in a uniformly damp condition.
- F. Application and Spreading Slurry Mixture -
1. Application Rates - The slurry mixture shall be applied at the rate of seven (7) to thirteen (13) pounds/square yard for Type 2 and seventeen (17) to twenty-three (23) pounds/square yard for Type 3. The type to be used will be as listed in the bid or as designated by the Engineer.
  2. Spreading Requirements - The slurry mixture shall be chuted into the moving spreader box at a rate so that there is sufficient slurry in the box to cover the full width of the squeegee blade at all times. In restricted areas when hand spreading is necessary, the mixture shall be poured in a small windrow along one edge of the surface to be covered. The mix shall then be spread by means of a squeegee so as to permit the operator to drag it over the surface along the windrow with the edge of the squeegee at an angle to the direction of travel. Weighted sacks or burlap shall trail behind the spreader box to smooth joints between lanes. When hand spread, the surface shall be given this drag treatment if ridges are developed.
- G. Curing - The slurry seal coat shall be allowed to cure until firm and to a condition that no pick up of the mix will occur before permitting access to traffic or as directed by the Engineer.

- H. Weather Conditions - The slurry mixture shall not be applied if either the pavement surface or the local ambient temperature is 55 degrees Fahrenheit or below and falling, but may be applied when both the pavement and air temperature is 45 degrees Fahrenheit or above and rising. The mixture shall not be applied if high relative humidity prolongs the curing beyond a reasonable time, as determined by the Engineer.
- I. Basis of Payment - The emulsified asphalt slurry coat will be measured by the square yard and paid for at the contract unit price per square yard for the item "Slurry Coat." This price shall be considered full compensation for furnishing, mixing, hauling, and placing all materials, including all labor, equipment, tools, barricades, and other incidentals necessary to complete the work in full compliance with these specifications and in a workmanlike manner.

24.11 Asphalt Carpet Coat. This mixture is designed for the filling of small holes and depressions and for the provision of a wearing surface on asphaltic concrete pavements. The work shall consist of furnishing all plant, labor, equipment, placing of material, and performing all operations in connection with the application of asphalt carpet coat on existing asphaltic concrete pavement and in strict accordance with applicable sections of State of Nebraska specifications.

A. Composition of Mixture - This mineral aggregate shall conform to State of Nebraska specifications, within the following recommended limits:

| <u>Material</u>              | <u>Percent of<br/>Mineral Aggregate</u> | <u>Percent of<br/>Total Mix</u> |
|------------------------------|---|---------------------------------|
| Limestone Screenings         | 40 - 45                                 |                                 |
| Crushed Gravel               | 40 - 45                                 |                                 |
| Fine Sand                    | 10 - 20                                 |                                 |
| Asphalt Cement (80-100 pen.) |   | 6 - 6.8                         |

B. Properties and Tests - The mixtures shall have test properties conforming to State of Nebraska specifications.

C. Basis of Payment - The asphalt carpet coat shall be measured by weight in tons actually constructed and accepted by the Engineer and shall be paid for at the contract unit price per ton for the item "Asphalt Carpet Coat." The asphaltic mixture shall be weighed, after mixing, on scales accepted by the Engineer. The contract unit price shall be full compensation for furnishing all materials, including necessary tack coat and asphaltic cement. All equipment, scales, cleaning, sweeping, handling, mixing, placing, shaping, compacting, rolling, finishing, and incidentals necessary to complete the work required by these specifications.

24.12 Asphaltic Concrete Surface Course and Base Course. The asphaltic concrete surface course and base course shall conform to the most current State of Nebraska, Department of Roads, Standard Specifications for Highway Construction.

24.13 Pavement Removal. This work shall consist of the removal of existing pavement, surface courses, cushion courses, if any, driveways, sidewalks, curb or combination curb and gutter, and concrete headers. The work shall also include disposal of the resultant materials as provided in these specifications.

A. Removal and Disposal -

1. Breaking Concrete - The Contractor shall exercise due care in breaking concrete to be removed and shall be responsible for any damage caused by such breaking and removal.
2. Removal Limits - In removing existing pavement, sidewalks, driveways, and similar items where a portion of such item is to be left in place, the removal shall be extended to the limits shown on the plans or to an existing joint as directed by the Engineer. In the event the Engineer does not consider it practical to extend the limit of removal to an existing joint, the line of removal shall be scored with a concrete saw to a depth of at least two (2) inches prior to breaking out the concrete. Connecting edges shall be cut and chipped to true vertical faces.
3. Backfilling - All trenches, holes, and pits resulting from the removal of any of the items listed herein shall be backfilled if and as required with suitable material in accordance with the requirements of sections in these specifications in Division VI entitled Backfilling and Backfilling Under Pavement.
4. Disposal - Except as otherwise provided or noted on the plans, all materials obtained in the removal of items listed herein shall become the property of the Contractor and shall be disposed of by him in any manner acceptable to the Engineer.

B. Classification -

1. Remove Existing Pavement - This item shall consist of the removal and disposal of plain or reinforced concrete, brick, stone, block, or asphalt surfaced pavements and shall include base, surface, and cushion courses, if any, regardless of the material or materials encountered.
2. Remove Surface Course - This item shall consist of removing and disposing of asphaltic surfacing from concrete or crushed rock bases or from previously resurfaced brick or cobblestone surfaces, except asphaltic surfacing as defined in the following paragraph and the removal of brick or cobblestone surfacing, including cushion courses, if any.
4. Remove Asphalt Mat - This item shall consist of the removal and disposal of roadway surfacing of any one or any combination of the following:

- a. Gravel, crushed rock, cinder, or earth surfaced roadways which have acquired an asphaltic character through repeated dust palliative treatments with bituminous materials.
- b. Armor coated gravel or rock bases.
- c. Asphalt pavements of a temporary nature which may be similar to plant mix, hot or cold laid, or road mix asphaltic surfacing applied to previously existing gravel or rock surfacings.

The work involved herein shall be considered incidental to grading as set forth in the Standard Specifications, unless there is a contract unit price for this work.

4. Remove Driveway - This item shall consist of the removal and disposal of plain or reinforced concrete, brick, stone, block, or asphalt paved driveways. Removal of crushed rock, gravel, rubble, or cinder surfaced driveways will be considered incidental and will not be paid for separately.
5. Remove Curb - This item shall consist of the removal and disposal of stone or concrete separate curb or combination curb and gutter. Combination curb and gutter is defined as any integral concrete curb and gutter section whose combined total width is less than three (3) feet and which was not constructed integrally with an adjoining base or pavement. If the combined total width is three (3) feet or more, it shall be classified as pavement with integral curb. Integral curb will not be measured separately for payment but shall be included in the number of square yards of pavement or driveway, whichever is applicable, and no additional compensation shall be allowed except as provided in the following paragraph.
6. Remove Integral Curb - This item shall consist of removing and disposing of integral curb when it is desired to widen or provide new connections to an existing pavement or driveway with integral curb. It shall also include scoring the pavement or driveway to a depth of two (2) inches with a concrete saw parallel to and not less than one (1) foot nor more than three (3) feet from the back of curb as shown on the plans or directed by the Engineer. Connecting edges shall be cut and chipped to true vertical faces.
7. Remove Concrete Headers - This item shall consist of removing and disposing of concrete headers previously placed at the open ends of existing pavement.

C. Measurement and Payment -

1. General - When the contract does not include a separate item and unit price for removing any of the removal items listed herein, the Contractor will be paid for such items on the basis of the Engineer's Estimate of unit prices. Otherwise, such item or items shall be measured and paid for as follows:

- a. Removal of Surface Course - Will be measured for payment in square yards of material of whatever thickness actually removed and disposed of and shall be paid for at the contract unit price per square yard for the item "Remove Surface Course, Small Areas" or for the item "Remove Surface Course, Large Areas." Small areas shall consist of individual areas of sixty (60) square yards or less or areas having a lateral dimension of six (6) feet or less. Large areas shall consist of all individual areas which do not conform to the definition of small areas.
  - b. Removal of Existing Pavement - Will be measured in square yards of pavement or base actually removed of whatever thickness encountered and shall be paid for at the contract unit price for the item "Remove Existing Pavement, Small Areas" or for the item "Remove Existing Pavement, Large Areas." Small areas shall consist of individual areas of sixty (60) square yards or less or areas having a lateral dimension of six (6) feet or less. Large areas shall consist of all individual areas which do not conform to the definition of small areas.
  - c. Removal of Driveways - Shall be measured in square yards of driveway actually removed of whatever thickness encountered and shall be paid for at the contract unit price for the item "Remove Driveway."
  - d. Removal of Sidewalks - Shall be measured in square feet of sidewalk actually removed of whatever thickness encountered and shall be paid for at the contract unit price per square foot for the item "Remove Sidewalks."
  - e. Removal of Curbs, Integral Curbs, and Concrete Headers - Shall be measured for payment by length in lineal feet and shall be paid for at the contract unit price per lineal foot for the item "Remove Curb", for the item "Remove Integral Curb", or for the item "Remove Concrete Headers."
2. Compensation Requirement - Payment for the work at the contract unit price in each instance shall be full compensation for removing and disposing of the surplus material; the necessary excavation and backfilling; sawing, cutting, and chipping concrete as required; and for all labor, equipment, tools, materials, and incidentals which may be necessary to complete the work.

24.14 Miscellaneous Removals. This work shall include the removing of existing concrete or masonry steps and retaining walls, culverts, inlet or sewer pipe, manholes, other concrete and masonry structures, and other items of removal called for on the plans or bid forms and the salvaging and disposing of the resulting materials, together with the necessary excavation and backfilling.

A. Removal -

1. Concrete Structure - Concrete or masonry retaining walls and steps and other concrete and masonry structures shall be entirely removed to a depth of at least six (6) inches below subgrade, surface of cuts and slopes, or existing ground surface, whichever is the lower, and to the horizontal limits shown on the plans or as directed by the Engineer. When a portion of an existing retaining wall is to be left in place, the discontinued end of such wall shall be refaced in a manner which will match the original construction as nearly as possible and which, in the opinion of the Engineer, will present a neat and workmanlike appearance.
2. Culverts and Sewer Pipe - Driveway and roadway culverts and inlet and sewer pipe shall be completely removed at each location indicated in the plans or as directed by the Engineer and shall include all sizes up to and including 24 inch diameter regardless of the material or materials of which they are made. For any culvert or sewer pipe over 24 inches in diameter, the size will be indicated in the bid for that particular item of removal.
3. Manholes and Inlets - In removing manholes or inlets, any sewer pipes connecting to them shall be preserved or rebuilt as required when the plans call for extensions to these pipes. When the existing pipe connections are to be abandoned, they shall be plugged with concrete or by any other device satisfactory to the Engineer. Manholes and inlets need not be completely removed, providing they are broken down to at least six (6) inches below subgrade, surface of cuts and slopes or existing ground surface, whichever is the lower. The remainder of the manhole or inlet structure shall then be cleaned of all rubble and debris and backfilled with suitable earth as provided in City Code Section 32.32.

- B. Disposal - All materials resulting from the removal of the items listed herein or indicated in the bid to be removed shall be hauled from the project site and disposed of by the Contractor in a manner satisfactory to the Engineer, except that items deemed salvable by the Engineer shall remain the property of the City, such as culverts in good condition or inlet and manhole castings, and shall be stored on the project site for subsequent removal by the City.

C. Measurement and Payment -

1. Concrete Structures - Removal of concrete and masonry retaining walls and other concrete and masonry structures shall be measured by the cubic yard actually removed and disposed of and shall be paid for at the contract unit price per cubic yard for the item "Remove Concrete and Masonry."



2. Culvert and Sewer Pipe - Removal of culverts and inlet and sewer pipes shall be measured by length in lineal feet actually removed and disposed of and shall be paid for at the contract unit price per lineal foot for the item "Remove Culvert" or for the item "Remove Sewer Pipe" whichever is applicable. For any culvert or pipe over 24 inch diameter, the size of the removal item will be indicated in the bid for that particular item to be removed.
  3. Manholes and Inlets - Removal of manholes and inlets shall be measured by the number of units actually removed and shall be paid for at the contract unit price per each for the item "Abandon Inlet" or for the item "Abandon Manhole" whichever is applicable.
  4. Other items - All other items of removal called for on the plans and in the bid forms will be measured in units as indicated thereon and shall be paid for at the contract price for such items.
  5. Compensation Requirement - In each instance, measurement shall include the total quantity actually removed and accepted by the Engineer and the contract unit price shall be full compensation for removing; disposing of surplus material; all necessary excavation and backfilling; sawing, cutting, and chipping edges; refacing retaining walls; and for all labor, equipment, tools, materials, and all other incidentals necessary to complete the work as shown in the plans and specifications.
- D. Remove and Replace Mail Boxes and Posts - This item shall consist of removing and resetting mail boxes and posts in the locations directed by the Engineer. Any elements of the mail boxes or posts damaged by the Contractor shall be repaired or replaced as directed by the Engineer at the Contractor's expense.
1. Furnishing Posts - When a mail box post is unsuitable for reuse, not due to the Contractor's negligence, the Contractor will furnish and install new posts satisfactory to the Engineer and payment will be made as per contract documents.
  2. Measurement and Payment - Removal and resetting of mail boxes and posts shall be measured as single units actually removed and replaced and shall be paid for at the contract unit price per each for item "Remove and Replace Mail Boxes." This price shall be full compensation for removing and resetting and for all labor, equipment, tools, and incidentals necessary to complete the work required for this item. Single unit shall mean a single post, regardless of the number of mail boxes on that particular post.

24.15 Special Provisions. See Special Provisions for asphaltic construction.