

ITEM 21

RIGID & FLEXIBLE PAVEMENT

1.0 DESCRIPTION. The Contractor shall furnish all materials for and shall properly construct new or properly restore all pavements, all curbs and gutters, all sidewalks and driveways as specified, shown or directed. The construction and completion of work covered by this item shall be accomplished immediately after the completion of specified and acceptable backfill operations in the work area. The plans indicate the type and location of base and surface courses to be placed, however, this may be changed by order of the Engineer, to any of the types of pavement included in this item and paid for at the price stipulated in the proposal for the particular type of material placed. Driveways restored will be included for payment under the item for the type of material used in the restoration.

2.0 SUBMITTALS. The Contractor shall submit the following in accordance with the conditions of this Contract.

- A. Reference Standards.** In case of conflict, the District's specifications and detail drawings shall take precedence. All materials and construction shall be in accordance with: (latest editions)
1. American Society for Testing and Materials (ASTM).
 2. Ohio Department of Transportation (ODOT) Construction and Material Specifications (CMS) most current edition.
 3. Applicable American Concrete Institute (ACI) requirements (for concrete serviceability).
- B. Shop Drawings.** Shop drawings shall be furnished by the contractor for approval by the Engineer.
1. Shop drawings shall be complete in details and indicate all aggregate, concrete, asphalt, cements, mixture additives for both asphalt and concrete and any additional items as specified herein.
 2. These drawings shall show complete design, installation, and construction information in such detail as to enable the Engineer to determine the adequacy of the proposed units for the intended purpose. Material details, sizes and supporting installation and design calculations, if appropriate, shall be included.
 3. The drawings shall include a schedule, which will list the materials, dimensions, and the location where they are to be used.
 4. The Contractor shall provide one (1) electronic copy of materials, equipment, equipment lists and spare parts data submittals in accordance with the provisions of the "General Conditions" and "Supplemental General Conditions" of this Contract.
 5. Shop drawings shall include but not be limited to all materials as listed below.

- a. Shop drawings shall be submitted for review and indicate all principal dimensions, general construction and materials as specified herein.
 - i. Show relationship of all components, connections, and support items.
 - ii. Be complete in all details and include identified parts lists.
 - iii. Manufacturer's catalog or general web-site information are not acceptable.
- 6. After examination of such drawings by the Engineer and the return thereof, the Contractor shall make such correction to the drawings as have been indicated & shall furnish the Engineer with electronic corrections.

C. Calculations.

- 1. Supporting calculations and design details shall be provided upon request.

D. Certifications.

- 1. This section is not applicable.

3.0 MATERIALS. All materials and construction methods used in the work performed under this item shall conform to the State of Ohio Department of Transportation (ODOT) manual of Construction and Material Specifications (CMS) standards most current at the time of bid, hereinafter referred to as "ODOT CMS Specifications", unless otherwise excepted herein. Thickness of pavement layers provided are the minimum requirements. Roadway jurisdiction authorities including ODOT or the County Engineer may require thicker pavement design compositions and will govern.

A. Asphalt Concrete Trench Repair. The Contractor shall furnish all materials and labor to construct an asphalt trench repair as follows.

- 1. After preparation of the subgrade, including compaction of ODOT Item 304 limestone, the faces of existing work such as curbs, castings, manholes, existing pavements, and all base courses, shall be painted, primed or sealed with bituminous material in accordance with Sec. 401.14 of the ODOT Specifications.
- 2. An asphalt base four (4) inches thick in two (2), two (2) inch layers in accordance with ODOT Specification Item 301 Asphalt Concrete Base PG64-22. This layer of asphalt shall extend one foot beyond each edge of the trench.
- 3. The Contractor shall furnish all materials and labor to install a one and one-half (1-1/2) inch thick layer of asphalt concrete as specified under Item 441 Asphalt Concrete Surface Course Type 1 PG64-22 of the ODOT Specifications. The layer of asphalt concrete shall be installed the full width of the trench.
- 4. The unit price stipulated shall also include application of a bituminous tack coat in accordance with ODOT, Construction and Material Specifications, latest edition, Item 407. The rate of application shall be 0.075 gallons per square yard.

B. Asphalt Concrete Resurfacing. The Contractor shall furnish all materials, labor, and equipment to grind and pave the full width of existing roadways where shown on the drawings and while maintaining existing roadway elevations (unless an overlay is

specified). This specification and its associated detail apply to areas outside of trench restoration.

1. The entire existing pavement width shall be ground down 1½" according to ODOT Item 254 Pavement Planing for the full width overlay to maintain existing roadway elevations. (Not applicable for an overlay.)
2. After preparation of the subgrade, the faces of existing work such as curbs, castings, manholes, existing pavement, and all base courses, shall be painted, primed or sealed with bituminous material in accordance with ODOT Item 401.14.
3. The Contractor shall furnish all materials and labor to install a one and one-half (1½) inch thick layer of asphalt concrete as specified under ODOT Item 441 Asphalt Concrete Surface Course Type 1 PG 64-22 of the ODOT Specifications. The layer of asphalt concrete shall be installed the full width of the existing pavement or as specified.
4. The unit price stipulated shall also include application of a bituminous tack coat in accordance with State of Ohio Department of Transportation, Construction and Material Specifications, latest edition, Item 407. The rate of application shall be 0.075 gallons per square yard.
5. Materials for use in shoulders shall meet the requirements of ODOT Specifications, Item 617, Reconditioning Shoulders and shall be included in the unit price bid.

C. Asphalt Concrete Pavement at Lift Stations. Within and adjacent to fenced in/immediate access areas to county lift stations the following pavement conditions are required. The Contractor shall ensure positive drainage when final surface course is installed.

1. Subgrade compaction shall be performed per ODOT Item 304.05 and graded per the project plans.
2. 12" of ODOT Item 304 limestone shall be compacted in two layers.
3. The Contractor shall furnish all materials and labor to install two, 1½ inch thick layers (totaling 3") of intermediate asphalt concrete as specified under ODOT Item 441 Asphalt Concrete Intermediate Course Type 2 PG 64-22 of the ODOT Specifications.
4. The Contractor shall furnish all materials and labor to install two, 1½ inch thick layers (totaling 3") of asphalt concrete as specified under ODOT Item 441 Asphalt Concrete Surface Course Type 1 PG 64-22 of the ODOT Specifications.
5. Prime and tack coat in accordance with the drawings and ODOT Specifications shall be applied.

D. Concrete Curb and Gutter. On new pavement work shall be of the shape and dimensions shown on the project drawings and constructed in accordance with ODOT CMS Item 609. All curb and gutter replacements shall be formed and finished to match the existing adjoining curbs and gutters as nearly as possible.

- E. Gravel Driveway Replacement.** The Contractor shall furnish all materials and labor to construct a six (6) inch thick compacted gravel driveway or roadway.
1. The aggregate placed under Item 21E shall be in accordance with ODOT Specifications, Item 304.
- F. Asphalt, Concrete, Brick or Flagstone Driveway Replacement.** The contractor shall replace all brick, flagstone, asphalt or concrete driveways.
1. Concrete replacement for driveways shall be reinforced to match the existing concrete driveway reinforcement and shall be six (6) inches thick.
 2. Existing concrete driveways that are not reinforced shall be replaced with fiberglass reinforced, six (6) inch thick concrete.
 3. Concrete driveways shall be constructed in accordance with ODOT Specifications, Item 452. Pads that are damaged shall be taken out in their entirety to include approaches to match existing spacing, finish and color as directed by the Engineer.
 4. Brick, flagstone or asphalt shall be placed over a six (6) inch compacted aggregate base in accordance with ODOT Specifications, Item 304.
 5. Asphalt Driveways shall be placed in two layers as follows:
 - a. First layer shall be a one and one-half (1-1/2) inch thick ODOT Item 441 Asphalt Concrete Intermediate Course Type 2, PG64-28 followed by;
 - b. Second layer shall be a one (1") inch thick ODOT Item 441 Asphalt Concrete Surface Course Type 1 PG64-22.
 - c. The final one (1) inch thickness of Item 441 surface course asphalt pavement shall be constructed at the same time that the adjacent street is paved. Patching asphalt approaches is prohibited.
- G. Sidewalks.** All sidewalks shall be constructed in accordance with the typical section shown on the drawings or most current county standard detail provided to the contractor. The width shall be the same as the portion removed, as shown on the drawings or as directed by the Engineer. The subgrade shall be thoroughly compacted before placing the walks.
1. Concrete for the concrete sidewalks shall be finished to match the existing adjoining walks or shall have a wood float finish. The surface shall be flagged at five (5) feet interval construction joints, with the edges of all slabs rounded to a radius of one-half (1/2) inch. Thickness shall match existing or 4", whichever is greater. The concrete mix design and reinforcement schedule shall be submitted to the Engineer for review.
 2. A three-quarter (3/4) inch preformed molded asphalt expansion joint filler shall be placed the full width of the sidewalk every forty (40) feet.
 3. Crushed Stone Sidewalks. Sidewalks shall be made of crushed limestone, size 467, and shall be rolled with a hand roller weighing not less than 250 pounds until thoroughly compacted.
 - a. Crushed stone sidewalks shall be four (4) inches in thickness after rolling and shall be of the width shown on the drawings, or as ordered by the Engineer.

H. Temporary Bituminous or Asphalt Concrete Trench Topping. The Contractor shall furnish, place and maintain a temporary trench topping of cold mix or hot mix bituminous materials, conforming to ODOT Specifications Items 448 and 615, wherever ordered by the Engineer.

1. It is intended that this temporary topping will be used only in heavily traveled paved streets.
2. Wherever ordered, the Contractor shall roll or tamp in place a two (2) inch minimum course of mix over trenches.
3. The gravel or stone topping shall be removed for a depth of two (2) inches prior to the placing of temporary bituminous or asphalt concrete material.
4. The temporary paving shall be flush with the adjacent paving and shall be maintained as directed until replaced with the permanent pavement. Temporary asphalt may also be ordered by the Engineer to assist in transition and/or securing any steel road plates, should no other reasonable means be available to secure open excavations after working hours.

I. Portland Cement Concrete Pavement. The Contractor shall place a reinforced Portland cement concrete pavement at the depth and location specified per plan.

1. All pavement shall be in accordance with ODOT CMS Standards, Item 451. Reinforcing steel shall be as shown on the drawings.
2. A one (1") inch preformed molded asphalt expansion joint filler shall be placed the full width of any concrete base or pavement replacement wherever expansion joints occur in the adjacent existing pavement.
3. High Early-Strength Air Entraining Portland Cement ASTM C150, Type 111A, shall be used in such intersections or streets requiring quick opening to traffic, wherever directed by the Engineer. Extra payment for the use of such cement shall be as mutually agreed upon before its use.

J. Project Specific Asphalt Concrete Pavement Replacement. The Contractor shall install special pavement per the details in the project plans.

4.0 EXECUTION. All work shall comply with the following requirements.

A. Restoring Pavements. After thorough compaction of the trench or subgrade, as specified under Item 1, the surface to be repaved shall be bladed and rolled to the proper elevation and crown as required or directed.

1. Subgrade shall be compact, uniform, and free from excessive moisture as directed in Item 1.
2. All places, which, in the opinion of the Engineer, cannot be properly rolled, shall be tamped with mechanical hand tampers weighing not less than eighty (80) pounds per square foot of tamping surface.
3. Wherever existing pavements are to be patched, the cut lines of the patches shall be straight lines, in general parallel or perpendicular to the line of traffic (unless the

entire patch crosses the line of traffic at an angle.) The edges of the existing pavement shall be cut vertically before making the patches.

B. New Pavements. The subgrade for all new pavements shall be bladed and rolled to the proper elevation and crown.

1. Before any pavement is constructed, the subgrade must be properly prepared as directed in SCMSD Item 1 Earth Excavation & Backfill.

C. Portland Cement Concrete Pavement. Under Item 21A above, the Contractor shall place a reinforced Portland cement concrete pavement at the depth indicated in the proposal. Reinforcing steel shall be as shown on the drawings. The pavement shall be in accordance with Item 451 of the "ODOT Specifications."

1. A one (1") inch preformed molded asphalt expansion joint filler shall be placed the full width of any concrete base or pavement replacement wherever expansion joints occur in the adjacent existing pavement.
2. High Early-Strength Air Entraining Portland Cement ASTM C150, Type 111A, shall be used in such intersections or streets requiring quick opening to traffic, wherever directed by the Engineer. Extra payment for the use of such cement shall be as mutually agreed upon before its use.

D. Striping. Wherever pavement replaces that which was striped/marked, the Contractor shall repair the stripes with suitable paint of matching color, application, and in accordance with ODOT CMS Item 641, Pavement Marking. The cost of this striping shall be included with that of the Item of which it is a part.

E. Disturbed Mailboxes.

1. If mailboxes are disturbed during construction, they shall be replaced at a location conforming to the United States Postal Service specifications, as shown on all detail contract drawings and recommendations regardless of the original configuration.
2. Generally, mailboxes should be installed at a height of 41 to 45 inches from the road surface to the bottom of the mailbox or point of mail entry. Mailboxes shall be set back 6 to 8 inches from the front face of the curb or road edge to the mailbox door. A 12" diameter, 30" deep concrete footing shall be set around the support/post.

5.0 ELECTRICAL. This section is not applicable.

6.0 QUALITY ASSURANCE.

A. Testing.

1. Proof rolling in accordance with ODOT CMS may be required if deemed necessary by the Engineer.

B. Observation.

1. SCMSD designated representative will visually observe the work performed.
2. The representative will notify the Engineer of any discrepancies with the contract documents in the course of the work. The progress observations do not waive any rights or remedies, nor divest the Contractor of any responsibility for contract compliance or liability for damage.

C. Warranty.

1. The Contractor shall guarantee all materials and workmanship for a period of one year from acceptance.
2. All repairs shall be made within one week of notification of said defect(s) including but not limited to settlement and joint failures.

7.0 MEASUREMENT.

A. Square Yard Items. The number of square yards of pavement, driveway or sidewalk to be measured for payment be the actual number of square yards of new or replaced pavements, sidewalk or driveways placed in the location shown, or as directed, except that the width for payment shall not exceed the payment limits as shown on the drawings for the size and type of pipe laid; measurement for payment will not be made as called for in the ODOT Specifications.

B. Lineal Feet Items. The number of lineal feet of curb and gutter to be measured for payment under Item 21F shall be the actual length of new or replaced curb and gutter installed in accordance with these Specifications, except that no curb and gutter replaced beyond the pavement replacement limits shown on the drawings will be measured for payment.

8.0 PAYMENT. The unit price per square yard stipulated in the proposal for each type of pavement replacement shall include excavation, the preparation of the subgrade courses, the pavement and the required curing, planing, sealing, grading and rolling, and the furnishing of all labor, materials, tools and appliances necessary to complete the work as specified, shown or directed. The unit price stipulated per lineal foot for curb and gutter under Item 21F shall include all excavation, preparation of the subgrade, concrete, formwork, asphalt preformed molded asphalt expansion joint filler finishing and curing, and the furnishing of all labor, materials, tools and appliances necessary to complete the work as specified, shown or directed.

The unit price per square yard stipulated for concrete sidewalks under Item 21G shall include all excavation, preparation of the subgrade, concrete, formwork, preformed molded asphalt expansion joint filler, finishing and curing, and the furnishing of all labor, materials, tools and appliances necessary to complete the work as specified, shown or directed.

<u>Item</u>	<u>Unit</u>	<u>Description</u>
Item 21A	SY	Asphalt Concrete Trench Repair
Item 21B	SY	Asphalt Concrete Resurfacing
Item 21C	SY	Asphalt Concrete at Lift Stations
Item 21D	LF	Curb and Gutter
Item 21E	SY	Gravel Driveway Replacement
Item 21F	SY	Concrete Driveway Replacement
Item 21G	SY	Asphalt Driveway Replacement
Item 21H	SY	Sidewalk
Item 21I	SY	Project Specific, Per Plan

END OF SECTION