

SAND, GRAVEL, CRUSHED STONE, BEDDING, AND GRADED AGGREGATES

NOTE: THIS SPECIFICATION AND ANY ACCOMPANYING SPECIFICATION OR BID CAN BE APPEALED.

YOUR APPEAL MUST BE SUBMITTED IN WRITING TO THE CITY PURCHASING DIRECTOR FOR ALL BIDS NO LATER THAN FIVE (5) WORKING DAYS PRIOR TO BID OPENING.

YOUR APPEAL MUST NOT ONLY IDENTIFY THE PROVISION, TERM OR CONDITION THAT IS CAUSING PROBLEMS, BUT ALSO YOUR PROPOSED ALTERNATE POSITION, TERM OR CONDITION AND BE SUPPORTED BY TECHNICAL DATA, TEST RESULTS AND OTHER INFORMATION.

CONTACT THE APPROPRIATE PURCHASING AGENT OR THE PROCUREMENT SPECIALIST FOR APPEAL FILING INSTRUCTIONS.

APPEALS RECEIVED LATER THAN FIVE (5) WORKING DAYS PRIOR TO BID OPENING OR WITHOUT SUFFICIENT DETAILS **WILL NOT BE CONSIDERED.**

NOTICE

AN APPEAL FEE (CHECK OR MONEY ORDER) THAT IS 1% OF THE ESTIMATED DOLLAR AMOUNT OF THIS CONTRACT IS REQUIRED WITH A BID SPECIFICATION APPEAL. THIS FEE IS A PREREQUISITE FOR PURSUING THE APPEAL AND MUST ACCOMPANY THE APPEAL. THE APPEAL FEE WILL BE RETURNED IF THE APPEAL IS UPHELD.

CAUTION: A BID THAT DOES NOT FULLY COMPLY WITH ALL OF THE PROVISIONS, TERMS, AND CONDITIONS OF THIS OR ANY ACCOMPANYING SPECIFICATION AND BID, MAY BE DETERMINED AS A COUNTEROFFER AND MAY RESULT IN THE BID BEING REJECTED FOR NON-RESPONSIVENESS.

- I. **GENERAL:** It is the intent of this specification to describe the minimum requirements for sand, gravel, crushed stone, bedding, and graded aggregates to be purchased by the City of Milwaukee.
- II. **AWARD AUTHORITY:**
 - A. The City Purchasing Director will be the sole judge of the quality, construction and suitability of the equipment, materials and/or services offered in its determination of the successful bidder for all bids.

III. REQUIRED SERVICES:

A. Order Placement: Vendor shall have a facility capable of receiving orders by direct local telephone from 6:30 A.M. until 5:00 P.M. on working days. The phone number to be called for order placement shall be stated on the invitation to bid.

B. Delivery: Vendors shall be capable of delivering the following:

1. A minimum of five (5) loads of material between the hours of 6:00 A.M. and 1:00 P.M. for orders placed by 3:00 P.M. of the previous work day. Any remaining loads of material shall be delivered by the close of business (*) on a given work day.
2. A minimum of four (4) loads of material by the close of business (*) on a given work day for orders placed between the hours of 8:00 A.M. and 11:00 A.M. Any remaining loads of material shall be delivered during the morning hours of the next work day at the times specified by the ordering department.
3. NOTE: Orders placed after 12:00 Noon by Infrastructure Sections, or after 1:00 P.M. by the Water Department shall be delivered no later than the next working day in accordance with "III, B, 1" above unless they are emergency orders.

(*) The close of business for the various user departments is as follows:

Infrastructure Field Headquarters - 2:30 PM
Traffic Engineering & Electrical Services - 2:30 PM

Deliveries accepted after the close of business (*) are at the discretion of the user department. Vendors are required to call the user department prior to leaving the pit, plant or stockpile with the material to confirm access to the designated delivery site/field yard will be available.

C. Emergencies: In cases of emergency, vendor is expected to make deliveries as early as possible on the same day on which the order is placed. Only orders placed under III, B, 2 and 3 above and deliveries made on non-regular work days shall be subject to the emergency delivery charge stated in the bid, if such a charge is quoted, and said charge shall apply to only those loads delivered by the close of business (*) on a regular work day or on a non-regular work day.

- D. Orders: Orders may be of two kinds: (1) orders for a definite quantity or material to be delivered to a certain point at or before a stated time; (2) blanket orders for an approximate total quantity to be delivered over a period of time to one or more locations as required. In the case of blanket orders, the vendor will receive notice by telephone from the foreman in the field of the quantity required from day to day.
- E. Performance Exceptions: Nothing contained herein shall be construed to prevent or restrain a vendor from claiming an extension of time or release or cancellation of the whole or any severable part of this agreement due to strikes, labor troubles, floods, fires, accident contingencies of transportation arising out of or connected with any of the above causes, or government orders occasioned by the same, or others of like or similar character when without question beyond the control of the vendor.
Whenever any such claim is made, it shall be in the form of a notarized affidavit, giving in detail all the essential circumstances on which the claim is made. The DOA- Purchasing Division shall be the sole judge of the merit of the claim and shall make and find an order in writing, rejecting or allowing the claim in whole or in part.
- F. WEIGHING OF MATERIALS:
1. Basis: Measurement and payment for sand, gravel, crushed stone and graded aggregate shall be by the ton (2,000 pounds).
 2. Delivery Ticket: All shipments shall be accompanied by a suitably numbered delivery ticket(s) for identification. Tickets shall show the name of the vendor; date; requisition or order number; point of delivery; kind of materials; gross, tare, net weights of each load and time of delivery; location of the scale on which the shipment was weighed and the signature of the weighman.
 3. Scales: All loads of material shall be weighed on scales that have been inspected and approved by the local sealer of weights and measure, or an approved testing service.
 4. Weighman: "Weighman" in the above paragraph is understood to mean a bonded weighmaster operating a city scale, or in case the vendor has his own scale, a responsible employee who is regularly designated to perform all weighings on such scale.
 5. Verification: In case of doubt regarding the accuracy of the quantity indicated on the delivery ticket, the City reserves the right to check such quantity by weighing on the nearest bonded City scale or by any other reliable method. The maximum tolerance for error in the indicated quantity of any load shall be one and one-half (1-1/2) percent of the net weight of such load.

G. APPROVAL OF SOURCE:

1. Rejection: The DOA-BOD-Procurement Services Section reserves the right to reject bids which offer material from any plant or source if the character of the material in such plant or source, or the mode of operation is such as to make improbable the furnishing of reasonably uniform acceptable material.
2. Designation: Bidders shall state the source of the material that they propose to furnish, showing the name and location of the pit or plant that is to produce it. In case the material has been produced and is in storage, the location of the stockpile shall be stated. **Bids that fail to state the proposed source clearly will not be considered.** For the items covering materials to be called for at vendor's plant by City truck, the stockpile shall be within the City limits.
3. Stability: Bids will be considered only from established firms, who are recognized as either producers or dealers in aggregates of the types described herein.

H. TESTING AND ACCEPTANCES OF MATERIALS:

1. Definition: A.S.T.M. Designations refer to the latest Standard of the American Society for Testing and Materials in effect at the time of bid opening. Unless otherwise specified, all laboratory tests shall be performed in accordance with applicable A.S.T.M. methods.
2. Determination of Compliance: Before contracts are awarded, the DOA-BOD-Procurement Services Section will determine whether the material offered by the bidder complies with this specification. **No samples are requested with bids.** The decision regarding compliance with the specification will be made from the results of tests performed by a City designated Testing Laboratory on samples taken by City or laboratory representatives from stocks of materials specifically designated for these bids, or on the basis of records of tests from previous seasons. Bidders shall have a stock of materials ready for sampling at the time of bidding or shall have on file satisfactory results of tests made by the City designated Testing Laboratory.
3. Non-Compliance of Samples: If the material which the bidder offers in his bid fails to comply with the specification, he will not be permitted to substitute other sources of material to apply on the same bid.
4. Acceptance: All shipments of material are subject to inspection at time of delivery, and final acceptance will be based upon the results of tests and samples taken at the point of delivery. The right is reserved to waive any gradation requirement on the basis of tests made for a specific job. Approval of the source and award of contracts on the basis of preliminary

tests, as described in paragraph 2, shall in no way release the vendor from responsibility to deliver material complying in full with this specification.

5. Signature on Delivery Ticket: Signing of delivery tickets for materials by City personnel shall be construed merely as acknowledgement of the delivery of said material and shall not constitute acceptance of such material. If a delivery ticket is not signed at time of delivery, the ticket shall be forwarded within 24 hours to the ordering agency or payment may be withheld.
6. Removal of Rejected Material: Materials delivered to a job and found not meeting the specification requirements shall be removed by the vendor within three days at his own expense. Should the vendor fail to remove such defective material in the prescribed time, the removal of material will be made by City personnel and equipment, and the cost of such operation shall be charged to the vendor.
7. Necessary Purchases after Rejections: If, at any time after the award of the contract for any item, the material as delivered fails to comply fully with the specification, the DOA- Purchasing Division may, at its discretion, terminate such deliveries, and shall have the right to purchase the necessary material from some acceptable source, and shall charge the original vendor the difference between this contract price and the cost of such substitute material.
8. Approval of Alternate Source: If the vendor finds it impossible to complete the contract with deliveries of acceptable material from the originally specified source, the vendor shall notify the DOA- Purchasing Division in writing of the reasons and circumstances of such failure, and Purchasing may at its discretion permit the vendor to complete the contract with deliveries of material from a new source. Such substitute material shall meet the specification in all details. No substitutions of material from other than the originally specified source shall be permitted except under express permission from the DOA- Purchasing Division .

I. LABORATORY SIEVES AND COMMERCIAL SCREENS:

1. Sieves: The graduations shown in this specification indicate the results which acceptable materials shall give under laboratory tests, and the stated sieve sizes in no way attempt to designate the sizes or types of commercial screens which the producer must use in his plant to obtain the proper results. Sieve analyses shall be made in accordance with A.S.T.M. Designation C 136 with standard laboratory sieves having square openings.

2. Variations: It is further to be understood that the material desired in each case is to be of such gradation of sizes as to approximate the average of the limits shown, and that such limits are stated merely to allow a reasonable tolerance for unavoidable variations in commercial operations. Producers should, therefore, adjust their operations to meet the average of size limits and should control the operations to prevent undue variations.
3. Precaution Against Mixing: All necessary precautions shall be taken to prevent contamination or mixing of these materials in storage, re-handling and delivery.

J. MOISTURE LIMITS: The DOA- Purchasing Division reserves the right to reject shipments containing excessive amounts of moisture, or to deduct from the indicated tonnage for payment if the moisture exceeds these values: In sand and graded aggregate items, a limit of five (5) percent by weight. In gravel and crushed stone items, a limit of three (3) percent by weight.

K. INVOICES: Each using department shall be invoiced separately. Invoices shall itemize each delivery ticket, the quantity delivered, and be accompanied by a copy of each delivery ticket. Failure to comply may result in a delay in payment to the vendor.

IV. SAND:

A. GENERAL REQUIREMENTS:

1. Definition: This section specifies the general and detailed requirements for concrete sand and mason sand.
2. General Characteristics: Material for these items shall be composed of clean, hard, tough, durable grains of approved inert materials from natural deposits.
3. Deleterious Substances: The following limits apply to concrete sand items:

Material finer than No. 200 sieve.....Not over 3-1/2% by wt.
Shale.....Not over 1% by wt.
Coal.....Not over 1/2% by wt.
Clay lumps and friable particles.....Not over 1-1/2% by wt.
4. General Test Requirements: Concrete sand shall comply with the requirements of A.S.T.M. Designation C33 except as modified by this specification. Mason sand shall comply with the requirements of A.S.T.M. Designation C144 except as modified by this specification.

B. GRADING REQUIREMENTS:

Item 1.	Passing 3/8 inch sieve.....100%
<u>Concrete Sand</u>	Passing No. 4 sieve.....95% to 100%
	Passing No. 16 sieve....45% to 80%
	Passing No. 50 sieve....10% to 30%
	Passing No. 100 sieve....2% to 10%
Item 2.	
<u>Mason Sand</u>	Passing No. 8 sieve.....100%
	Passing No. 50 sieve.....15% to 35%
	Passing No. 100 sieve.....2% to 10%

V. PEA GRAVEL:

A. GENERAL REQUIREMENTS:

1. Definition: This section specifies the general and detailed requirements for pea gravel.
2. General Characteristics: All gravel shall consist of particles from natural gravel deposits and shall be composed of clean, hard, tough, durable pebbles, free from adherent coatings, soft, flat, or elongated particles, and organic or other deleterious matter.
3. Deleterious Substances: The following limits apply to all gravel items:

Chert.....	Not over 4% by weight
Coal.....	Not over 1/2% by weight
Clay Lumps & Friable Particles.....	Not over 1/2% by weight
Soft Fragments.....	Not over 1% by weight
Any combination of above.....	Not over 4% by weight
Flat, Elongated or laminated pcs*.....	Not over 10% by weight
Material finer than No. 200 sieve...	Not over 1% by weight

*Flat and elongated particles are those having a length more than 5 times the average thickness.
4. General Test Requirements: The gravel shall meet the following requirements for abrasion loss when tested for resistance to abrasion in the Deval machine, A.S.T.M. Designation D289.

<u>Material</u>	<u>Max. Loss in Abrasion Test</u> <u>% by Weight</u>
Gravel, (100% uncrushed)	12
Gravel, (100% crushed)	22
Gravel, (___ % crushed)	Proportionate

The gravel shall meet the requirements of A.S.T.M. Designation C33 except as modified by this specification.

B. GRADING REQUIREMENTS:

Item 3.	Passing 3/8 inch sieve.....95% to 100%
<u>Pea Gravel</u>	Passing No. 4 sieve.....25% to 50%
	Passing No. 8 sieve.....0% to 5%

VI. CRUSHED STONE:

A. GENERAL REQUIREMENTS:

1. Definition: This section specifies the general requirements for crushed stone for concrete, macadam stone, stone chips and stone screenings, agricultural limestone, mineral filler, and the detailed requirements for each of these items:
2. General Characteristics: All crushed stone shall consist of the product obtained from crushing sound limestone or dolomite ledge rock, and shall be free from shale, clay, loam and other adherent coatings. Materials that fracture to flat or elongated pieces are not acceptable.
3. Deleterious Substances in Crushed Stone for Concrete: The limits on deleterious substances are the same as specified in Paragraph 3, Section V - A under the heading "Pea Gravel", excepting that for crushed stone for concrete, the maximum permissible limit of material finer than the No. 200 sieve shall be 1.5% when such material consists essentially of crusher dust.
4. General Test Requirements: The crushed stone shall have not more than 6% loss in weight when tested for resistance to abrasion (A.S.T.M. Designation D2) in the Deval Machine. The crushed stone shall meet the soundness requirements of A.S.T.M. Designation C33.

B. GRADING REQUIREMENTS FOR CRUSHED STONE ITEMS:

Item 4.	
No. 3	Passing 3 inch sieve.....100%
(ASTM C33-	Passing 2-1/2 inch sieve.....90% to 100%
Size No. 2)	Passing 2 inch sieve.....35% to 70%
<u>CONCRETE</u>	Passing 1-1/2 inch sieve.....0% to 15%
<u>STONE</u>	Passing 3/4 inch sieve.....0% to 5%

Item 5. No. 2 (ASTM C33 Size No. 4) <u>CONCRETE STONE</u>	Passing 2 inch sieve.....100% Passing 1-1/2 inch sieve.....90% to 100% Passing 1 inch sieve.....20% to 55% Passing 3/4 inch sieve.....0% to 15% Passing 3/8 inch sieve.....0% to 5%
Item 6. No. 1 (ASTM C33- Size No. 67) <u>CONCRETE STONE</u>	Passing 1 inch sieve.....100% Passing 3/4 inch sieve.....90% to 100% Passing 3/8 inch sieve.....20% to 55% Passing No. 4 sieve.....0% to 10% Passing No. 8 sieve.....0% to 5%
Item 7. 2-1/2" <u>MACADAM STONE</u>	Passing 3 inch sieve.....100% Passing 2-1/2 inch sieve.....95% to 100% Passing 1-1/2 inch sieve..... 0% to 15% Passing 1 inch sieve..... 0% to 5%
Item 8. 1-1/2" <u>MACADAM STONE</u>	Passing 2 inch sieve.....100% Passing 1-1/2 inch sieve.....90% to 100% Passing 1 inch sieve.....0% to 15% Passing 3/4 inch sieve.....0% to 5%
Item 9. 1/2" <u>STONE CHIPS</u>	Passing 3/4 inch sieve.....100% Passing 1/2 inch sieve.....90% to 100% Passing No. 4 sieve.....0% to 10% Passing No. 8 sieve.....0% to 5%
Item 10. 3/8" <u>STONE CHIPS</u>	Passing 1/2 inch sieve.....100% Passing 3/8 inch sieve.....90% to 100% Passing No. 8 sieve.....0% to 15% Passing No. 30 sieve.....0% to 3%
Item 11. 1/4" <u>WASHED STONE</u>	Passing 3/8 inch sieve.....100% Passing 1/4 inch sieve.....90% to 100% Passing No. 8 sieve.....10% to 30% Passing No. 30 sieve.....0% to 3% Triple Washed
Item 12. <u>STONE SCREENINGS</u>	Passing 1/2 inch sieve.....100% Passing No. 4 sieve.....75% to 100% Passing No. 100 sieve.....10% to 25%
Item 13. 3/8" GRADED <u>LIMESTONE SCREENINGS</u>	Passing 1/2 inch sieve.....100% Passing 3/8 inch sieve.....90% to 100% Passing No. 4 sieve.....55% to 85% Passing No. 30 sieve.....15% to 35% Passing No. 200 sieve.....8% to 20%

Item 14.	Passing 3/8 inch sieve.....100%
<u>GRADED STONE</u>	Passing No. 4 sieve.....95% to 100%
<u>SCREENINGS</u>	Passing No. 8 sieve.....75% to 100%
(State of WI	Passing No. 16 sieve.....50% to 95%
Gradation #5)	Passing No. 30 sieve.....35% to 85%
	Passing No. 50 sieve.....20% to 70%
	Passing No. 100 sieve.....10% to 20%
	Passing No. 200 sieve..... 5% to 20%

Item 15.	Passing No. 8 sieve.....80% (Min.)
<u>AGRICULTURAL</u>	Passing No. 60 sieve.....25% (Min.)
<u>LIMESTONE</u>	

Item 16.	Passing 2 inch sieve.....100%
Dense Graded	Passing 1-1/2 inch sieve.....95% to 100%
<u>Recycled Concrete</u>	Passing 3/4 inch sieve.....70% to 93%
	Passing 3/8 inch sieve.....40% to 80%
	Passing No. 4 sieve.....25% to 63%
	Passing No. 10 sieve.....16% to 48%
	Passing No. 40 sieve.....8% to 28%
	Passing No. 200 sieve.....2% to 12%

LIMESTONE

C. CRUSHED STONE FOR CONCRETE:

Under this item, the vendor shall furnish the required quantity of Items 4, 5 and 6 above in separate sizes conforming to the basic grading requirements stated in any combination of these sizes, as designated in each individual order.

If separate sizes are ordered, the vendor shall take proper precautions to keep each size separate by delivering in separate trucks or in separate tight compartments.

If a combination of sizes is ordered, the vendor shall combine the basic sizes in the proportions that are designated for such delivery and shall mix the material by placing it in the truck in layers or by spouting through an intermediate hopper.

VII. GRADED AGGREGATES (BASE COURSES & ROAD SURFACES):

A. GENERAL REQUIREMENTS FOR GRADED AGGREGATES:

1. Definition: This section specifies the general requirements for Graded Crushed Gravel and Graded Crushed Stone.

2. General Characteristics: Graded aggregates shall consist of gravel, crushed gravel or crushed stone composed of hard, sound, durable particles with sand, stone dust, or other finely divided mineral material. Gravel or crushed gravel shall consist of particles from natural glacial gravel deposits. Crushed stone shall consist of the product obtained from crushing sound limestone or dolomite ledge rock. They shall be free from clay lumps, organic or other undesirable matter. If filler in addition to that naturally present is necessary for meeting the gradation requirements or for satisfactory binding, it shall be uniformly blended with the aggregate at the screening plant. At least 50% of the particles held on the No. 4 sieve shall have at least one fractured surface.

3. Physical Properties:

(a) The course aggregate shall meet the following requirements for abrasion loss when tested for resistance to abrasion in the Deval machine. The abrasion test for gravels shall be made in accordance with A.S.T.M. Designation D289, and for stone in accordance with A.S.T.M. Designation D2.

<u>Material</u>	<u>Max. Loss % by Weight</u>
Gravel, 100 per cent uncrushed	12
Gravel, 100 per cent crushed	22
Gravel, per cent crushed	Proportionate
Crushed Stone	6

(b) The course aggregate shall meet the soundness requirements of A.S.T.M. Designation C33.

4. Plasticity Index and Liquid Limit: The fraction passing the No. 40 sieve shall have a plasticity index from zero to 6 and a liquid limit of not more than 25. These tests shall be made in accordance with A.S.T.M. Designations D423 and D424.

5. General Test Requirements: Graded aggregates shall comply with A.S.T.M. Designation D1241, except as modified by these specifications.

B. GRADING REQUIREMENTS:

Item 16	Passing 1 inch sieve.....100%
3/4" GRADED	Passing 3/4 inch sieve.....85% to 100%
<u>CRUSHED GRAVEL</u>	Passing 3/8 inch sieve.....50% to 80%
	Passing No. 4 sieve.....35% to 60%
	Passing No. 10 sieve.....25% to 50%
	Passing No. 40 sieve.....15% to 30%
	Passing No. 200 sieve.....5% to 15%

The fraction passing the No. 200 sieve shall be less than one-half the fraction passing the No. 40 sieve.

Item 17.	Passing 1 inch sieve.....100%
3/4" GRADED	Passing 3/4 inch sieve.....85% to 100%
<u>CRUSHED STONE</u>	Passing 3/8 inch sieve.....50% to 80%
	Passing No. 4 sieve.....35% to 65%
	Passing No. 40 sieve.....15% to 30%
	Passing No. 200 sieve.....5% to 15%

Item 18.	Passing 2 inch sieve.....100%
1-1/2" GRADED	Passing 1-1/2 inch sieve.....85% to 100%
<u>CRUSHED STONE</u>	Passing 1 inch sieve.....65% to 90%
	Passing 3/4 inch sieve.....50% to 80%
	Passing No. 4 sieve.....30% to 60%
	Passing No. 10 sieve.....20% to 50%
	Passing No. 40 sieve.....10% to 30%
	Passing No. 200 sieve.....5% to 15%

The fraction passing the No. 200 sieve in crushed stone in Items 18 and 19 shall be less than 0.7 of the fraction passing the No. 40 sieve.

VIII. BEDDING:

A. GENERAL REQUIREMENTS FOR BEDDING:

1. Definition: Bedding shall consist of material produced from crushing hard, tough, durable sound limestone or dolomite ledge rock. Deleterious substances shall not exceed the following:

<u>Deleterious Substances or Particles</u>	<u>Maximum Percentage by Weight</u>
Chert	4%
Coal	0.5%
Clay lumps and friable particles	1.5%
Soft Fragments	1%
Any combination of the above	4%
Flat, elongated or laminated pieces	10%
Material finer than No. 200 Sieve	1%

IX. 3/8 INCH CRUSHED, WASHED LIMESTONE CHIPS:

<u>Sieve Sizes</u>	<u>Percentage Passing by Weight</u>
1/2 inch	100
3/8 inch	90 to 100
No. 8	0 to 15
No. 30	0 to 3