



## 5153P – Provision of Engineering Quality Control Program Testing

### 1. Introduction

- 1.1 The City of Richmond (the “City”) invites responses to this Request for Proposal (“RFP”) from Certified Materials Testing Agencies capable of performing field and laboratory testing of construction materials on an as and when required, ‘fee for service’ basis in connection with the City’s Engineering Quality Control program.
- 1.2 The objective of this RFP is to provide the City with qualified Proponents capable of carrying out the work herein defined. The subsequent Proponent Submissions will form the basis for evaluation, potential interview and selection.

### 2. Definitions

- 2.1 Throughout this RFP the following definitions apply:
- a) “City’s Designated Representatives” means the City’s employees or representatives who are authorized in writing to deal with the Consultant on behalf of the City in connection with the goods, materials, equipment and services or to make decisions in connection with the Contract;
  - b) “City” means the municipal corporation, generally known as the City of Richmond in British Columbia, Canada;
  - c) “Closing Time” means the closing date, time, and place as set out in subsection 4.1 of this RFP;
  - d) “Contractor” means the individual, partnership, corporation or combination thereof, including joint venturers, who or which is awarded a Contract who enters into a written Contract with the City to perform and to oversee the Work.
  - e) “Contract Documents” means the purchase order, the Consultant’s Proposal, the RFP and such other documents as applicable, including the City’s purchase order all amendments or addenda agreed between the parties;

- f) “Contract” or “Agreement” means the agreement formed between the City and the Consultant as resulting from this RFP, executed by the City and the Consultant and evidenced
- g) “G.S.T.” means the Goods and Services tax administered under the Excise Tax Act (Canada) and any successor tax or levy therefore in force from time-to-time;
- h) “Lead Proponent” is the Proponent whose Proposal, as determined through the evaluation criteria described in this RFP, provides the best overall value in meeting the requirements of the RFP, and with whom a Contract will be considered;
- i) “Project” means the scope of Work and Requirements described in this RFP;
- j) “Proponent” means an individual partnership, corporation or combination thereof, including joint venturers or a company that submits, or intends to submit, a Proposal in response to this RFP;
- k) “Proposal” or “Submission” means a proposal submitted by a Proponent in response to this RFP;
- l) “Requirements” means all of the specifications, requirements and services set out in the RFP that describes the general requirements that the goods, materials, equipment and services must meet and the Successful Proponent must provide;
- m) “Response” means the same as “Proposal” or “Submission”;
- n) “RFP” or “Request for Proposals” means this request for proposals, inclusive of all appendices and any addenda that may be issued by the City;
- o) “Services” means the same as “Work”;
- p) “Successful Proponent” means the same as “Consultant” and;
- q) “Work” or “Works” means the provision of all labour, services, materials, equipment, and any other necessary items and actions for the Successful Proponent to complete and perform its obligations in accordance with the Requirements and terms and conditions of the Contract.

### **3. Key Dates**

- 3.1 In order to assist Proponents, following are the key target dates and Events with respect to this RFP process. Such dates are not guaranteed and may change based upon circumstances.

1. RFP issued	March 20 <sup>th</sup> , 2014
2. Inquiries received up to	April 2 <sup>nd</sup> , 2014
3. Closing Date for submission of Proposals	April 10 <sup>th</sup> , 2014
4. Evaluation and Award (if any)	April 2014

#### 4. Submission Details

- 4.1 3 (three) hard copies, and 1 (one) additional electronic copy (on a CD ROM or memory stick) of Proposals marked “**5153P – Provision of Engineering Control Program Testing**” and addressed to the Purchasing Section, will be received at the Information Counter, Main Floor, Richmond City Hall, 6911 No. 3 Road, Richmond BC V6Y 2C1, 3:00pm local time April 10th, 2014.
- 4.2 Submissions received after this time may, at the City’s discretion, be returned to the sender unopened.
- 4.3 Hard copy and electronic copy submissions should be identical to each other and in the same file format (i.e. Excel, word).
- 4.4 Proposals should be submitted in a sealed envelope or package, marked with the Proponent’s name and the RFP title and number.
- 4.5 Amendments to a Proposal may be submitted if delivered in writing prior to the Closing Time in a sealed envelope or package, marked with the Proponent’s name and the RFP title and number.
- 4.6 Proposals already delivered to the City may be withdrawn by written notice only, provided such notice is received at the Purchasing Services office prior to the Closing Time.
- 4.7 Any and all costs associated with the preparation and submission of the Proposal, including any costs incurred by the Proponent after the Closing Time, will be borne solely by the Proponent.
- 4.8 By submitting a Proposal, the Proponent acknowledges and agrees that the City will not be responsible for any costs, expenses, losses, damages (including damages for loss of anticipated profit) or liabilities incurred by the Proponent as a result of or arising out of submitting a Proposal for the proposed Contract, or due to the City’s acceptance or non-acceptance of their Proposal or any breach by the City of the bid contract between the City and each of the Proponents or arising out of any contract award not made in accordance with the express or implied terms of the Proposal documents.

## 5. Enquiries and Addenda

- 5.1 Clarification of terms and conditions of the RFP document and RFP process and all other inquiries shall be directed to:

Procurement/Contractual  
Julia Turick, Buyer II  
[purchasing@richmond.ca](mailto:purchasing@richmond.ca)  
City of Richmond

Project/Technical  
Wasim Memon, Supervisor – Engineering  
[wmemon@richmond.ca](mailto:wmemon@richmond.ca)  
City of Richmond

- 5.2 The City, its agents and employees shall not be responsible for any information given by way of oral or verbal communication.
- 5.3 The City will only respond to questions that are submitted in writing. Any questions that are received and answered by City Staff that affect the RFP process, any interpretation of, additions to, deletions from, or any other corrections to the RFP document, may be issued as written addenda by the City. It is the sole responsibility of potential Proponents to check the following websites to ensure that all available information has been received prior to submitting a Proposal:
- a) City: <http://www.richmond.ca/busdev/tenders.htm>
  - b) BC Bid: <http://www.bcbid.gov.bc.ca/open.dll/welcome?language=En>
- 5.4 The decision to issue or not issue an addendum is entirely at the sole discretion of the City.
- 5.5 The deadline for inquiries for this RFP is 5:00 p.m., local time on April 2<sup>nd</sup>, 2014. The City reserves the right not to respond to inquiries received after this deadline.
- 5.6 Each addendum will be incorporated into and become part of the RFP document. No amendment of any kind to the RFP is effective unless it is contained in a written addendum issued by the City's Purchasing Section.

## 6. Project Background

- 6.1 The City has implemented a Quality Control program (effective January 1<sup>st</sup>, 2012) to establish the minimum testing requirements of construction materials for both development and capital construction.

- 6.2 Additional testing may be required to verify the results or supplement the minimum testing. Quality control testing for City Forces projects will also be required to ensure a quality product is delivered.

## **7. Project Scope**

- 7.1 This project will consist of both field and laboratory testing services being provided by the proponent on a ‘fee for service’ basis.
- 7.2 Testing standards will be defined by the contract documents or the Contract Administrator.
- 7.3 The agreement will be for 2 (two) years with the option to renew an additional 3 (three) 1 (one) year terms to a maximum of 5 years upon mutual agreement between the Contractor and the City.

## **8. Contractor Qualifications**

- 8.1 The Successful Contractor will:
- a) Be capable and qualified to complete all field and laboratory testing outlined in the City’s Quality Control Program;
  - b) Be Canadian Standards Association (CSA) and/or Canadian Council of Independent Laboratories (CCIL) certified and provide technicians who are qualified to complete the particular test procedures (minimum one-year field experience).

## **9. Contractor Duties**

- 9.1 The Successful Contractor will:
- a) Provide same-day testing services on an as and when required basis. Test results must be provided to the Contract Administrator and City Inspector within one day of their availability.
  - b) Be required to provide professional materials engineering services and expertise on an as and when required basis.
- 9.2 Table 1 outlines the minimum required tests for the City’s Quality Assurance Program. The quantities indicated in Table 1 are only estimates and provided for the purpose of Proposal evaluation only.
- 9.3 The City makes no guarantees as to the quantity of testing that will be required. As such, the City may modify the required quantities or cancel the Quality Assurance program at any time without penalty to the City.

9.4 The quantities described within this document may be reduced or changed depending on the available funding and/or actual need. No adjustments to the proposed unit rates will be considered if this change or reduction takes place.

**Table 1 – Minimum Required Tests for City Quality Assurance Program**

<b>Material</b>	<b>Test</b>	<b>Quantities</b>
Soils – Laboratory	Modified Proctor Density (ASTM D1557)	50
	Sieve Analysis (ASTM C136 and C117)	50
Soils – Field Testing	Moisture Content	120
	Compaction Testing (ASTM D6938)	120
Asphalt Pavement Testing	Marshall Test	100
	Gyratory Test (Superpave)	50
	Compaction Testing	120
	Cores (optional)	50
	Core density (optional)	10
Concrete Testing	Compressive Strength (3 cylinders per instance)	100
	Slump	100
	Air Content	100
	Temperature	100
	Additional Cylinder* – field cure	10
	Additional Cylinder* – lab cure	10

\*additional cylinders to be taken in conjunction with compressive strength cylinders

**10. City Provided Items**

10.1 The City’s Quality Control program is included with this RFP in Appendix A.

**11. Submission Format**

11.1 Responses submitted should be no more than 20 (twenty) pages in length, and include the following information with their Submissions, and in the order that follows:

- a) A corporate profile of their firm outlining its history, philosophy and target market.
- b) A detailed listing of the Proponent’s experience with materials testing and laboratory capabilities and certifications and experience with similar projects.
- c) A description of the Proponent’s understanding of the project objectives/outcomes and vision, and how these will be achieved.
- d) Team Composition – a complete listing of the Proponent’s key personnel who will be assigned to this project. This will include their relevant experience, qualifications for this project, roles and responsibilities, leadership, etc., in addition to their availability for this project.

- e) A rate sheet for available for same-day testing services including an hourly rate for professional materials engineering services for the initial 2 (two) year term, plus 3 (three) additional 1 (one) year terms.
- f) Copies of most recent CSA and/or CCIL certifications.
- g) Sample test results for a sieve analysis; modified proctor density and related field density test; concrete field testing (strength, slump, temperature, air content).
- h) A minimum of 3 (three) client references from projects of a similar size and scope.
- i) Confirmation of Required Insurance (See Section 9.1 of [http://www.richmond.ca/\\_shared/assets/General\\_Conditions\\_for\\_Consulting\\_Services\\_Provided\\_to\\_the\\_City28608.pdf](http://www.richmond.ca/_shared/assets/General_Conditions_for_Consulting_Services_Provided_to_the_City28608.pdf)).
- j) Confirmation of valid and current *WorkSafe BC* Letter of Clearance and City of Richmond business license.

## 12. Evaluation of Proposals

- 12.1 All Proposals will be evaluated for their compliance and suitability with respect to the requirements of the City by a committee composed of City staff or designates, which may include 3<sup>rd</sup> party consultants.
- 12.2 The City will review the Proposals submitted to determine whether, in the City's opinion, Proponents have demonstrated the required experience and qualifications to fulfill the obligations of the services identified in this RFP.
- 12.3 The City, in its sole discretion, may conduct any inquiries, clarifications or investigations on any or all of the Proposals, without having any duty or obligation to do so for all, including but not limited to contacting references, to verify the statements, documents, and information submitted in connection with the Proposal and may seek clarification from the Proponent's clients regarding any financial and experience issues.
- 12.4 Proposals will be evaluated on the basis of the overall best value to City based on quality, service, price and any other criteria set out herein including:
  - a) Understanding of project objectives/outcomes and vision;
  - b) Project Methodology;
  - c) Team Composition – Experience and Qualifications of those staff to be assigned to the project including sub-consultants;
  - d) Project Deliverables/Schedule;
  - e) Company Resources;

- f) Value for Money; and,
  - g) References.
- 12.5 Preference may be given to Submissions offering innovative methodology, those that require the least impact to City resources, and environmentally beneficial goods or services.
- 12.6 Proponents may be interviewed by the City. Each Proponent should be prepared to demonstrate or otherwise substantiate any areas of the Response, its own qualifications for services required, and any other area of interest relative to its Response.
- 12.7 Reference checks may also be conducted by the City.
- 12.8 Prior to Contract award, the Proponent may be required to demonstrate financial stability. As such, the Proponent may be required to provide annual financial reports or a set of financial statements prepared by an accountant and covering the last 2 (two) fiscal years.
- 12.9 Preference may be given to Proposals offering innovative concepts, those that require least impact to the City resources, and environmentally beneficial products or services.
- 12.10 The City may, prior to Contract award, negotiate changes to the scope of the Work, the materials, the Requirements or any conditions with any one or more of the Proponents without having any duty or obligation to advise any other Proponents or to allow them to vary their prices as a result of changes to the scope of Work, the materials, the Specifications, or any conditions, and the City shall have no liability to any other Proponent as a result of such negotiations or modifications.

### **13. RFP Process**

- 13.1 This RFP is not an agreement to purchase goods or services. The City is not obligated to select a Proponent or to proceed to negotiations for a Contract, or to award any Contract. As such, the City reserves the right to unilaterally take the following actions, and shall not be liable for any such actions:
- a) accept a Proposal that deviates from the Requirements, Specifications or the conditions specified in this Proposal;
  - b) accept a Proposal which is not the lowest cost Proposal;
  - c) accept all or any part of a Proposal;
  - d) amend the scope and description of the products and services to be procured as described in this RFP, and the qualifications that may be required to meet those requirements;



- e) assess the ability of the Proponent to perform the Contract and reject any Proposal where, in the City's sole estimation, the personnel and/or resources of the Proponent are deemed insufficient;
- f) cancel the RFP process and recommence in respect of the same RFP with the same or an amended set of documents, information and requirements;
- g) cancel the RFP process at any time and reject all submissions;
- h) not accept any Proposal in response to this RFP;
- i) reject a Proposal even if it is the only Proposal received by the City;
- j) reject any and all Proposals, including without limitation the lowest priced Proposal, even if the lowest priced Proposal conforms in all aspects with the RFP;
- k) reject or accept any or all Proposals at any time prior to execution of a Contract;
- l) reject Proposals which are incomplete, conditional or obscure or erasures or alterations of any kind, or
- m) split the Requirements between one or more Proponents.

13.2 The Proponent acknowledges and agrees that any RFP is in no way whatsoever an offer to enter into an agreement and submission of a Request of Proposal by any Proponent does not in any way whatsoever create a binding agreement. The Proponent acknowledges that the City has no contractual obligations whatsoever arising out of the RFP process.

## 14. Negotiations

- 14.1 The award of the contract may be subject to negotiations with the Lead Proponent. Such negotiations include, but are not limited to, the following:
- a) changes or work refinements in the service requirements or scope of work proposed by the Lead Proponent;
  - b) price – if directly related to a change or refinement in the proposed scope of work proposed by the Lead Proponent;
  - c) specific contract details as deemed reasonable for negotiation by the City; and,
  - d) structure of the Consultant team and participants.
- 14.2 If a written contract cannot be negotiated within 30 (thirty) days of notification to the Lead Proponent, the City may, at its discretion at any time thereafter, terminate negotiations with the Lead Proponent and either enters into negotiations with the next qualified Proponent or cancel the RFP process and not enter into a contract with any Proponent.

**15. Working Agreement**

- 15.1 The Successful Proponent will enter into a contract for services with the City based upon the information contained in this RFP and the Successful Proponent's Submission and any negotiated modifications thereto.

**16. Award of Contract**

- 16.1 Award of a Contract is contingent on funds being approved and the contract award being made by the appropriate City authority.
- 16.2 No Contract will be formed, with any Proponent, until the Contract terms have been successfully negotiated between both parties (the City and the Successful Proponent). The City is not obligated to any Proponent in any manner until a purchase order is issued and an agreement has been signed by an authorized person to sign on behalf of the City.
- 16.3 The Successful Proponent will enter into a contract for services with the City based upon the information contained in this request for proposal and the Successful Proponent's submission and any modifications thereto.
- 16.4 The Successful Proponent will enter into a slightly modified MMCD Consultants Agreement. MMCD documents may be purchased at:

**Master Municipal Construction Documents Association**

c/o Support Services Unlimited  
102-211 Columbia Street  
Vancouver, B.C. V6A 2R5  
Phone: 604-681-0295  
Fax: 604-681-4545

- 16.5 Where the head office of the Successful Proponent is located within the City and/or where the Successful Proponent is required to perform the Service at a site located within the City, the Successful Proponent should have a valid City business license prior to Contract execution.
- 16.6 The City is not under any obligation to award a Contract and may elect to terminate this RFP at anytime.

**17. Publication of the Results of this RFP**

- 17.1 The City will publish the name of the successful Proponent on the websites listed in section 5.3. No other notices will be issued by the City. Proponents shall visit these websites to obtain the results of this RFP.

## **18. General Terms of this RFP**

- 18.1 All Proposals shall remain open for a minimum of 90 (ninety) days after the Closing Time, whether or not another Proposal has been accepted.
- 18.2 The City reserves the right to cancel this RFP for any reason without any liability to any Proponent or to waive irregularities at its own discretion.
- 18.3 Except as expressly and specifically permitted in these instructions, no Proponent shall have any claim for any compensation of any kind whatsoever, as a result of participating in the RFP, and by submitting a proposal each proponent shall be deemed to have agreed that it has no claim.
- 18.4 Proponents are advised that the City will not necessarily accept any Proposal and the City reserves the right to reject any or all Proposals at any time without further explanation or to accept any Proposal considered advantageous to the City.
- 18.5 A Proposal which contains an error, omission, or misstatement, which contains qualifying conditions, which does not fully address all the requirements of this RFP, or which otherwise fails to conform to the requirements in this RFP, including the Proposal format and content requirements, may be rejected in whole or in part by the City at its sole discretion.
- 18.6 Notwithstanding the foregoing or any other provision of this RFP, the City may in its sole discretion elect to retain for consideration Proposals which deviate either materially from the Proposal Format and Content Requirements set out in hereto or which otherwise fail to conform to any other requirement of this RFP.
- 18.7 The City may waive any non-compliance with the RFP, specifications, or any conditions of anything required by the RFP and may, at its sole discretion, elect to retain for consideration Proposals which are non-conforming, which do not contain the content or form required by the RFP or because they have not complied with the process for submission set out herein.
- 18.8 The City may choose, at its sole discretion, to proceed with all of the components of the Work, none of the components or selected components of the Work.
- 18.9 All Proposals will remain confidential, subject to the *Freedom of Information and Protection of Privacy Act* of British Columbia.

## **19. Ownership of Proposals**

- 19.1 All Proposals submitted, other than any Proposal withdrawn prior to the opening of Proposals or any late Proposals, become the property of City and will not be returned to Proponents.

## **20. Conflict of Interest**

- 20.1 Proponents shall disclose any potential conflicts of interest and existing business relationships they may have with the City, its elected or appointed officials or employees. The City may rely on such disclosure. The City may reject a Proposal from any Proponent that the City judges would be in a conflict of interest if the Proponent is awarded a Contract. Failure to disclose, or provide false or insufficient disclosure of the nature and extent of any relationship the Proponent may have with any employee, officer or director of the City shall be grounds for immediate termination of any Contract with the City, in the City's sole discretion, without further liability of notice.
- 20.2 By submitting a Proposal, the Proponent warrants that neither it nor any of its officers or directors, or any employee with authority to bind the Proponent, has any financial or personal relationship or affiliation with any elected official or employee of the City or their immediate families which might in any way be seen by the City to create a conflict.

## **21. Confidentiality**

- 21.1 Information about the City obtained by Proponents must not be disclosed unless prior written authorization is obtained from the City.
- 21.2 The Consultant agrees that this obligation of confidentiality will survive the termination of the Contract between the Consultant and the City.

## **22. No Lobbying**

- 22.1 From the date on which this RFP is issued until the RFP process is terminated, Proponents (including any directors, employees, officers, agents, consultants, or representatives) should not communicate with the City, directly or indirectly, about the RFP or the Project except via the designated Contact Person in Section 5.1.

## **23. Information Disclaimer**

- 23.1 The City, including its Designated Representatives and its directors, officers, employees, agents, Consultants and advisors are not liable or responsible for any verbal or written information, or any advice, or any errors or omissions, which may be contained in this RFP or otherwise provided to any Proponent pursuant to this RFP.
- 23.2 The Proponent shall conduct its own independent investigations and interpretations and shall not rely on the City with respect to information, advice, or documentation provided by the City. The information contained in this RFP is provisional and will be superseded by other agreement documents.

- 23.3 The City makes no representation, warranty, or undertaking of with respect to this RFP and the City, its Designated Representatives and its directors, officers, employees, agents, Consultants and advisors, shall not be liable or responsible for the accuracy or completeness of the information in this RFP or any other written or oral information made available to any interested person or its advisors, and any liability however arising, is expressly disclaimed by the City.
- 23.4 While the City has made considerable efforts to ensure an accurate representation of information in this RFP, the information contained in this RFP is supplied solely as a guideline for the Proponent and is not necessarily comprehensive or exhaustive. Nothing in this RFP is intended to relieve the Proponent from forming its own opinions and conclusions in respect of the matters addressed in the RFP.

#### **24. Freedom of Information and Protection of Privacy Act (BC)**

- 24.1 Proponents should note that the City is subject to the Freedom of Information and Protection of Privacy Act (*British Columbia*), which imposes significant obligations on the City's Consultants to protect all personal information acquired from the City in the course of providing any service to the City.

## **APPENDIX A**

### **CITY OF RICHMOND QUALITY CONTROL PROGRAM**

#### **Construction Materials Testing - Revision 1**

**CITY OF RICHMOND QUALITY CONTROL PROGRAM**  
**Construction Materials Testing - Revision 1**

Effective January 01, 2014

This document forms and becomes part of the City's Supplementary Specifications and Detail Drawings (April 2011).

**1. Purpose**

This document specifies **minimum material testing requirements** and frequencies for concrete, aggregates, asphalt and topsoil used for municipal infrastructure construction in Richmond. All testing herein shall be provided by the contractor at the contractor's cost, as required to meet:

- The requirements contained in this document;
- Any additional tests or inspection requirements for compliance to geotechnical reports and recommendations;
- Other tests, inspection requirements or recommendations by the engineer of record;
- Any testing or inspection requirements specified in the contract documents and design drawings.

**2. Testing and Inspections**

Additional testing may be requested as permitted by MMCD General Condition 3.4. Testing and Inspections and the payment thereof shall be in accordance with MMCD General Condition 4.12 - Tests and Inspections. Correction of deficient work shall be completed as per MMCD General Condition 4.13 - Rejected Work.

At the City's sole discretion, the Quality Control Requirements may be reduced on a project specific basis subject to the contractor's performance.

'Small construction' will not be required to meet the minimum testing requirements specified by the Quality Control Program. Such construction may be tested by an independent agency at the City's cost through the Quality Assurance Program. Contractors will permit such testing to occur and must provide reasonable assistance to the City to complete this testing. MMCD General Conditions 4.12 - Tests and Inspections and 4.13 - Rejected Works will apply to such projects.

For large or unique projects the City may require the Contractor to prepare, implement and maintain a project specific quality control program. This program must be approved by the City prior to construction.

**3. Certification**

All testing shall be completed by a Canadian Standards Association (CSA) and/or Canadian Council of Independent Laboratories (CCIL) certified laboratory. Technicians must be certified to carry out the particular testing procedure.

**4. Material Testing Minimum Standards**

**4.1. EARTHWORKS**

**4.1.1. Excavation, Trenching and Backfilling**

A sieve analysis and a modified proctor density test for each type of material being delivered from each source or supplier shall be submitted a minimum of one (1) week prior to delivery of material to the site. The testing shall have been performed by an independent testing agency and shall have been completed not more than three (3) months prior to the date of delivery. If the material source or supplier changes during construction, the above requirements shall apply.

During placement of aggregates and granular materials in trench applications, the testing shall be carried out as described in Table 1.

**Table 1 – Testing of Granular Materials and Placement for Trench Applications**

Sieve Analysis of Aggregates (ASTM C-117 and C-136)	One (1) test per 2000TNN (1000m <sup>3</sup> ) produced and delivered and each change in source or supplier
Modified Proctor Density	One (1) test per 2000TNN (1000m <sup>3</sup> ) produced and delivered and each change in source or supplier
Field Density - Nuclear Method	One (1) test per 20 linear metres per lift (or thickness as specified by a geotechnical engineer); Minimum one (1) test per trench.*

Moisture Content - Nuclear Method	Same as Field Density Test.
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**\*Notes:**

1. Total project trench length less than 5m is considered '**Small Construction**'.
2. The Contract Administrator or Inspector may request additional sieve analysis and modified proctor tests during construction to verify material specification conformance.
3. During construction only, sieve and proctor samples shall be taken at the time of material delivery; therefore, the requirement to provide test results one (1) week prior to delivery shall not be in effect.

4.2. Roads and Site Improvements

4.2.1. Aggregates and Granular Materials

A sieve analysis and a modified proctor density test for each type of material being delivered from each source or supplier shall be submitted a minimum of one (1) week prior to delivery of material to the site. The testing shall have been performed by an independent testing agency and shall have been completed not more than three (3) months prior to the date of delivery. If the material source or supplier changes during construction, the above requirements shall apply.

The Contract Administrator or Inspector may request the results of an aggregate soundness test to confirm the quality of material being supplied.

During placement of aggregates and granular materials, the testing of subgrade, subbase and base materials for roads, sidewalks and pathways, and curb and gutter shall be carried out as described in Table 2.

**Table 2 – Aggregates and Granular Materials for Roads and Site Improvements**

Sieve Analysis of Aggregates (ASTM C-117 and C-136)	One (1) test per 2000TNN (1000m <sup>3</sup> ) produced and delivered and each change in source or supplier
Modified Proctor Density	One (1) test per 2000TNN (1000m <sup>3</sup> ) produced and delivered and each change in source or supplier
Field Density - Nuclear Method	<p>Subgrade:                      One (1) test per 20m per lane per 500mm depth;                      Locations of tests to be staggered across the width of the lane;                      Minimum one (1) test per site.<sup>†</sup></p> <p>Subbase and Base:                      One (1) test per 20m per lane per lift;                      Locations of tests to be staggered across the width of the lane;                      Minimum one (1) test per lift.</p> <p>Sidewalk, pathways and curb and gutter:                      One (1) test per 40 linear metres and one test at each driveway;                      Locations of tests to be chosen at random across the width                      Minimum one (1) test per location.<sup>†</sup></p>
Moisture Content - Nuclear Method	Same as field density test.

**\*Notes:**

1. The Contract Administrator or Inspector may request additional sieve and modified proctor tests during construction to verify material specification conformance.
2. Road segments less than 20m in length are considered '**Small Construction**'.
3. Sidewalk segments less than 10m in length are considered '**Small Construction**'.
4. Curb segments less than 15m in length are considered '**Small Construction**'.
5. During construction only, sieve and proctor samples shall be taken at the time of material delivery; therefore, the requirement to provide test results one (1) week prior to delivery shall be not be in effect.

4.2.2. Paving

Hot-Mix Asphalt Concrete Paving



One (1) week prior to delivery on site, results from one (1) set of tests to demonstrate that the materials and mix design(s) meet the MMCD specifications for Hot-Mix Asphalt Concrete Paving (Section 32 12 16) shall be submitted for each blend/each mix type/each asphalt cement type to be used. This testing shall include but is not limited to: aggregate testing, asphalt cement testing, Marshall Mix design tests and trial mix tests.

During placement of Hot-Mix Asphalt Concrete Paving, the testing of materials shall be carried out as described in Table 3.

**Table 3 - Testing of Hot-Mix Asphalt Concrete Materials and Placement**

Density of Hot-Mix Asphalt Concrete – Nuclear Method	For each day of operation, one (1) test every 20m stationing per lane per lift; minimum one (1) test per lift, minimum two (2) locations per test <sup>‡</sup>
Full Marshall Test	One (1) set of tests per 500TNN; Minimum one (1) set of tests per lot per day <sup>‡</sup>

**Superpave Hot Mix Asphalt Paving**

One (1) week prior to delivery on site, results from one (1) set of tests to demonstrate that the materials and mix designs(s) meet the MMCD specifications for Superpave Hot Mix Asphalt Paving (section 32 12 17) shall be submitted for each unique mix to be used. This testing shall include but is not limited to: aggregate testing, performance-graded binder testing, mineral filler testing, Superpave mix design and trial mix testing.

During Production, Delivery and Placement the testing shall be carried out as described in Table 4.

**Table 4 – Testing of Superpave Hot Mix Asphalt Paving**

Density of Bituminous Concrete – Nuclear Method	For each day of operation, one (1) test every 20m stationing per lane per lift; minimum one (1) test per lift, minimum two (2) locations per test <sup>‡</sup>
Materials testing to meet MMCD specifications and Superpave Mix Design SP2	One (1) set of tests per 500TNN; Minimum one (1) set of tests per lot per day <sup>‡</sup>

<sup>‡</sup> **Note:** 'Small Construction' paving projects are as follows.

- Local Road – less than 1 lane width and less than 20m long or less than 20 tonnes.
- Collector Road – less than 1 lane width and less than 20m long or less than 40 tonnes.
- Arterial Road – less than 1 lane width and less than 20m long or less than 25 tonnes.

Coring

Coring may be requested by the Inspector or Contract Administrator to verify the properties of the placed asphalt mix.

For street paving operations, core locations will be selected for each pass of the paving machine by the Inspector or the CA as follows:

- Across the width, core locations will be selected randomly.
- Along the length, core locations will have a randomly selected starting station with subsequent cores spaced at approximately 50m intervals.

For all other operations:

- A minimum of one core for every 250m<sup>2</sup> of asphalt mix placed.

**4.3. CONCRETE**

**4.3.1. Concrete Reinforcement**

Mill certificates including heat numbers and CSA conformance shall be provided for each delivery to the site

**4.3.2. Cast-in-Place Concrete**

Aggregate soundness test results, admixture(s) and chemical mixture(s) and Portland cement certification may be requested by the CA or Inspector.

Compressive Strength, Air Content, Slump and Temperature shall be tested starting with the first load of concrete delivered and continue as follows:

- Sidewalks and pathways
  - One (1) set of tests per 225m<sup>2</sup> placed; minimum one (1) test per day.
  - Sidewalk construction less than 15m<sup>2</sup> is consider '**Small Construction**'.
  
- Curb and gutter
  - One (1) set of tests per 150 linear metres placed; minimum one (1) test per day.
  - Placement of less than 15 linear meters of curbing is considered '**Small Construction**'.

Batching slips from the plant shall be provided for each load at the time of delivery.

#### 4.3.3. Pre-Cast Concrete

The Inspector or CA may require the contractor to provide quality control documentation or physical testing of pre-cast concrete products.

#### 4.4. Topsoil and Finish Grading

Topsoil and finish grading testing shall be conducted as described in Section 32 91 21 of the City's Supplementary Specifications and Detail Drawings (April 2011).