

# State of Nebraska - INVITATION TO BID

## ONE TIME PURCHASE

**Return to:**  
 State Purchasing Bureau  
 1526 K Street, Suite 130  
 Lincoln, Nebraska 68508

Telephone: 402-471-6500  
 Fax: 402-471-2089

<b>Date</b>	2/15/19	<b>Page</b>	1 of 1
<b>Solicitation Number</b>	6027 OF		
<b>Opening Date and Time</b>	03/21/19	2:00 PM	
<b>Buyer</b>	BUFFY MEYER (AS)		

**DESTINATION OF GOODS**  
 DEPARTMENT OF TRANSPORTATION  
 5001 S 14TH ST  
 PO BOX 94759  
 LINCOLN NE 68509-4759

Per Nebraska's Transparency in Government Procurement Act, DAS is required to collect statistical information regarding the number of contracts awarded to Nebraska contractors. This information is for statistical purposes only and will not be considered for contract award purposes.

\_\_\_\_ NEBRASKA CONTRACTOR AFFIDAVIT: Bidder hereby attests that bidder is a Nebraska Contractor. "Nebraska Contractor" shall mean any bidder who has maintained a bona fide place of business and at least one employee within this state for at least the six (6) months immediately preceding the posting date of this ITB.

\_\_\_\_ I hereby certify that I am a Resident disabled veteran or business located in a designated enterprise zone in accordance with Neb. Rev. Stat. §73-107 and wish to have preference, if applicable, considered in the award of this contract.

One Time Purchase to supply and deliver HIGH SPEED ROAD PROFILER to the State of Nebraska as per the attached specifications.

A response to this Solicitation is subject to, but not limited to, the Standard Terms and Conditions. PLEASE READ CAREFULLY!

This form is part of the specification package and must be signed and returned, along with all documents, by the opening date and time specified.

No facsimile or email solicitation responses will be accepted on bids \$25,000 and over.

(vc 2/14/19)

### INVITATION

Line	Description	Quantity	Unit of Measure	Unit Price	Extended Price
1	HIGH SPEED ROAD PROFILER	1.0000	EA	<u>\$53,150.<sup>00</sup></u>	<u>\$53,150.<sup>00</sup></u>

### BIDDER MUST COMPLETE THE FOLLOWING

DISCOUNT PAYMENT TERMS: 0 % 30 DAYS

By signing this Invitation to Bid form, the bidder guarantees compliance with the provisions stated in this Invitation to Bid, agrees to the terms and conditions unless otherwise agreed to (see Section III) and certifies that bidder maintains a drug free work place environment. Vendor will furnish the items requested within 30 days after receipt of order. Failure to enter Delivery Date may cause quotation to be REJECTED.

**Sign Here** Dennis P. Scott  
 (Authorized Signature MANDATORY - MUST BE SIGNED IN INK)

Enter Contact Information Below

**VENDOR#** \_\_\_\_\_  
**VENDOR:** Surface Systems & Instruments, Inc.  
**Address:** 307 Plymate  
Manhattan, KS 66502

**Contact** Dennis P. Scott  
**Telephone** 415.383.0570  
**Facsimile** 415.358.4340  
**Email** dscott@smoothroad.com

**II. TERMS AND CONDITIONS**

**Bidders should complete Section II through VI. as part of their bid.** Bidder is expected to read the Terms and Conditions and must initial either accept, reject, or reject and provide alternative language for each clause. The Bidder should also provide an explanation of why the Bidder rejected the clause or rejected the clause and provided alternate language using 'Track Changes'. Upon request an electronic copy of the bid with 'Track Changes' must be submitted in an editable Word format. By signing the ITB Bidder is agreeing to be legally bound by all the accepted terms and conditions, and any proposed alternative terms and conditions submitted with the bid. The State reserves the right to negotiate rejected or proposed alternative language. If the State and Bidder fail to agree on the final Terms and Conditions, the State reserves the right to reject the bid. The State is soliciting bids in response to the ITB. The State reserves the right to reject bids that attempt to substitute the Bidder's commercial contracts and/or documents for this ITB.

The Bidder should submit with their bid any license, user agreement, service level agreement, or similar documents that the Bidder wants incorporated in the Contract. Upon notice of Intent to Award, the Bidder must submit a copy of these documents in an editable Word format. The State will not consider incorporation of any document not submitted with the Bidder's bid. These documents shall be subject to negotiation and will be incorporated as addendums if agreed to by the Parties.

If a conflict or ambiguity arises after the addendums have been negotiated and agreed to, the addendums shall be interpreted as follows:

1. If only one (1) Party's document has a particular clause then that clause shall control;
2. If both Party's documents have a similar clause, but the clauses do not conflict, the clauses shall be read together;
3. If both Party's documents have a similar clause, but the clauses conflict, the State's clause shall control.

**A. GENERAL**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
DS			

The contract resulting from this ITB shall incorporate the following documents:

1. Invitation to Bid and Addenda;
2. Amendments to the ITB;
3. Questions and Answers;
4. Contractor's bid (ITB);
5. Award;
6. The executed Contract and any Addenda; and,
7. Amendments to the Contract

These documents constitute the entirety of the contract.

Unless otherwise specifically stated in a future contract amendment, in case of any conflict between the incorporated documents, the documents shall govern in the following order of preference with number one (1) receiving preference over all other documents and with each lower numbered document having preference over any higher numbered document: 1) Amendment to the executed Contract with the most recent dated amendment having the highest priority, 2) executed Contract and any attached Addenda, 3) Amendments to ITB and any Questions and Answers, 4) the original ITB document and any Addenda, and 5) the Contractor's submitted Bid.

Any ambiguity or conflict in the contract discovered after its execution, not otherwise addressed herein, shall be resolved in accordance with the rules of contract interpretation as established in the State.

**B. NOTIFICATION**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
DS			

Contractor and State shall identify the contract manager who shall serve as the point of contact for the executed contract.

Communications regarding the executed contract shall be in writing and shall be deemed to have been given if delivered personally or mailed, by U.S. Mail, postage prepaid, return receipt requested, to the parties at their respective addresses, or at such other addresses as may be specified in writing by either of the parties. All notices, requests, or communications shall be deemed effective upon personal delivery or five (5) calendar days following deposit in the mail.

Either party may change its address for notification purposes by giving notice of the change, and setting forth the new address and an effective date.

**C. NOTICE (POC)**

The State reserves the right to appoint a Buyer's Representative to manage [or assist the Buyer in managing] the contract on behalf of the State. The Buyer's Representative will be appointed in writing, and the appointment document will specify the extent of the Buyer's Representative authority and responsibilities. If a Buyer's Representative is appointed, the Contractor will be provided a copy of the appointment document, and is expected to cooperate accordingly with the Buyer's Representative. The Buyer's Representative has no authority to bind the State to a contract, amendment, addendum, or other change or addition to the contract.

**D. GOVERNING LAW**

Notwithstanding any other provision of this contract, or any amendment or addendum(s) entered into contemporaneously or at a later time, the parties understand and agree that, (1) the State of Nebraska is a sovereign state and its authority to contract is therefore subject to limitation by the State's Constitution, statutes, common law, and regulation; (2) this contract will be interpreted and enforced under the laws of the State of Nebraska; (3) any action to enforce the provisions of this agreement must be brought in the State of Nebraska per state law; (4) the person signing this contract on behalf of the State of Nebraska does not have the authority to waive the State's sovereign immunity, statutes, common law, or regulations; (5) the indemnity, limitation of liability, remedy, and other similar provisions of the final contract, if any, are entered into subject to the State's Constitution, statutes, common law, regulations, and sovereign immunity; and, (6) all terms and conditions of the final contract, including but not limited to the clauses concerning third-party use, licenses, warranties, limitations of liability, governing law and venue, usage verification, indemnity, liability, remedy or other similar provisions of the final contract are entered into specifically subject to the State's Constitution, statutes, common law, regulations, and sovereign immunity.

The Parties must comply with all applicable local, state and federal laws, ordinances, rules, orders, and regulations.

**E. CHANGE ORDERS OR SUBSTITUTIONS**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
DPS			

The State and the Contractor, upon the written agreement, may make changes to the contract within the general scope of the ITB. Changes may involve specifications, the quantity of work, or such other items as the State may find necessary or desirable. Corrections of any deliverable, service, or work required pursuant to the contract shall not be deemed a change. The Contractor may not claim forfeiture of the contract by reasons of such changes.

The State or Contractor may prepare a written description of the work required due to the change and the Contractor shall prepare an itemized cost sheet for the change. Changes in work and the amount of compensation to be paid to the Contractor shall be determined in accordance with applicable unit prices if any, a pro-rated value, or through negotiations. The State shall not incur a price increase for changes that should have been included in the Contractor's bid, were foreseeable, or result from difficulties with or failure of the Contractor's bid or performance.

No change shall be implemented by the Contractor until approved by the State, and the Contract is amended to reflect the change and associated costs, if any. If there is a dispute regarding the cost, but both parties agree that immediate implementation is necessary, the change may be implemented, and cost negotiations may continue with both Parties retaining all remedies under the contract and law.

Vendor will not substitute any item that has been awarded without prior written approval of SPB.

**F. BREACH**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
DPS			

Either Party may terminate the contract, in whole or in part, if the other Party breaches its duty to perform its obligations under the contract in a timely and proper manner. Termination requires written notice of default and a thirty (30) calendar day (or longer at the non-breaching Party's discretion considering the gravity and nature of the default) cure period. Said notice shall be delivered by Certified Mail, Return Receipt Requested, or in person with proof of delivery. Allowing time to cure a failure or breach of contract does not waive the right to immediately terminate the contract for the same or different contract breach which may occur at a different time.

In case of breach by the Contractor, the State may, without unreasonable delay, make a good faith effort to make a reasonable purchase or contract to purchased goods in substitution of those due from the contractor. The State may recover from the Contractor as damages the difference between the costs of covering the breach. Notwithstanding any clause to the contrary, the State may also recover the contract price together with any incidental or consequential damages defined in UCC Section 2-715, but less expenses saved in consequence of Contractor's breach.

The State's failure to make payment shall not be a breach, and the Contractor shall retain all available statutory remedies. (See Indemnity - Self-Insurance and Payment)

**G. NON-WAIVER OF BREACH**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
DPS			

The acceptance of late performance with or without objection or reservation by a Party shall not waive any rights of the Party nor constitute a waiver of the requirement of timely performance of any obligations remaining to be performed.

**H. SEVERABILITY**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
DPS			

If any term or condition of the contract is declared by a court of competent jurisdiction to be illegal or in conflict with any law, the validity of the remaining terms and conditions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the contract did not contain the provision held to be invalid or illegal.

**I. INDEMNIFICATION**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
DPS			

**1. GENERAL**

The Contractor agrees to defend, indemnify, and hold harmless the State and its employees, volunteers, agents, and its elected and appointed officials ("the indemnified parties") from and against any and all claims, liens, demands, damages, liability, actions, causes of action, losses, judgments, costs, and expenses of every nature, including investigation costs and expenses, settlement costs, and attorney fees and expenses ("the claims"), sustained or asserted against the State for personal injury, death, or property loss or damage, arising out of, resulting from, or attributable to the willful misconduct, negligence, error, or omission of the Contractor, its employees, Subcontractors, consultants, representatives, and agents, resulting from this contract, except to the extent such Contractor liability is attenuated by any action of the State which directly and proximately contributed to the claims.

**2. INTELLECTUAL PROPERTY**

The Contractor agrees it will, at its sole cost and expense, defend, indemnify, and hold harmless the indemnified parties from and against any and all claims, to the extent such claims arise out of, result from, or are attributable to, the actual or alleged infringement or misappropriation of any patent, copyright, trade secret, trademark, or confidential information of any third party by the Contractor or its employees, Subcontractors, consultants, representatives, and agents; provided, however, the State gives the Contractor prompt notice in writing of the claim. The Contractor may not settle any infringement claim that will affect the State's use of the Licensed Software without the State's prior written consent, which consent may be withheld for any reason.

If a judgment or settlement is obtained or reasonably anticipated against the State's use of any intellectual property for which the Contractor has indemnified the State, the Contractor shall, at the Contractor's sole cost and expense, promptly modify the item or items which were determined to be infringing, acquire a license or licenses on the State's behalf to provide the necessary rights to the State to eliminate the infringement, or provide the State with a non-infringing substitute that provides the State the same functionality. At the State's election, the actual or anticipated judgment may be treated as a breach of warranty by the Contractor, and the State may receive the remedies provided under this ITB.

**3. PERSONNEL**

The Contractor shall, at its expense, indemnify and hold harmless the indemnified parties from and against any claim with respect to withholding taxes, worker's compensation, employee benefits, or any other claim, demand, liability, damage, or loss of any nature relating to any of the personnel, including subcontractor's and their employees, provided by the Contractor.

**4. SELF-INSURANCE (Statutory)**

The State is self-insured for any loss and purchases excess insurance coverage pursuant to Neb. Rev. Stat. § 81-8,239.01 (Reissue 2008). If there is a presumed loss under the provisions of this agreement, Contractor may file a claim with the Office of Risk Management pursuant to Neb. Rev. Stat. §81-8,829 through 81-8,306 for review by the State Claims Board. The State retains all rights and immunities under the State Miscellaneous (Section 81-8,294), Tort (Section 81-8,209), and Contract Claim Acts (Section 81-8,302), as outlined in Neb. Rev. Stat. § 81-8,209 et seq. and under any other provisions of law and accepts liability under this agreement to the extent provided by law.

**J. ATTORNEY'S FEES**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
OPS			

In the event of any litigation, appeal, or other legal action to enforce any provision of the contract, the Parties agree to pay all expenses of such action, as permitted by law and if order by the court, including attorney's fees and costs, if the other party prevails.

**K. ASSIGNMENT, SALE, OR MERGER**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
<i>DPS</i>			

Either party may assign the contract upon mutual written agreement of the other party. Such agreement shall not be unreasonably withheld.

The Contractor retains the right to enter into a sale, merger, acquisition, internal reorganization, or similar transaction involving Contractor's business. Contractor agrees to cooperate with the State in executing amendments to the contract to allow for the transaction. If a third party or entity is involved in the transaction, the Contractor will remain responsible for performance of the contract until such time as the person or entity involved in the transaction agrees in writing to be contractually bound by this contract and perform all obligations of the contract.

**L. CONTRACTING WITH OTHER POLITICAL SUB-DIVISIONS OF THE STATE OR ANOTHER STATE**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
<i>DPS</i>			

The Contractor may, but shall not be required to, allow agencies, as defined in Neb. Rev. Stat. §81-145, to use this contract. The terms and conditions, including price, of the contract may not be amended. The State shall not be contractually obligated or liable for any contract entered into pursuant to this clause.

The Contractor may, but shall not be required to, allow other states, agencies or divisions of other states, or political subdivisions of other states to use this contract. The terms and conditions, including price, of this contract shall apply to any such contract, but may be amended upon mutual consent of the Parties. The State of Nebraska shall not be contractually or otherwise obligated or liable under any contract entered into pursuant to this clause. The State shall be notified if a contract is executed based upon this contract.

**M. FORCE MAJEURE**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
<i>DPS</i>			

Neither party shall be liable for any costs or damages, or for default resulting from its inability to perform any of its obligations under the contract due to a natural or manmade event outside the control and not the fault of the affected party ("Force Majeure Event"). The Party so affected shall immediately make a written request for relief to the other party, and shall have the burden of proof to justify the request. The other Party may granted the relief requested; relief may not be unreasonably withheld. Labor disputes with the impacted party's own employees will not be considered a Force Majeure Event.

**N. CONFIDENTIALITY**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
<i>APS</i>			

All materials and information provided by the Parties or acquired by a Party on behalf of the other Party shall be regarded as confidential information. All materials and information provided or acquired shall be handled in accordance with federal and state law, and ethical standards. Should said confidentiality be breached by a Party, the Party shall notify the other Party immediately of said breach and take immediate corrective action.

It is incumbent upon the Parties to inform their officers and employees of the penalties for improper disclosure imposed by the Privacy Act of 1974, 5 U.S.C. 552a. Specifically, 5 U.S.C. 552a (i)(1), which is made applicable by 5 U.S.C. 552a (m)(1), provides that any officer or employee, who by virtue of his/her employment or official position has possession of or access to agency records which contain individually identifiable information, the disclosure of which is prohibited by the Privacy Act or regulations established thereunder, and who knowing that disclosure of the specific material is prohibited, willfully discloses the material in any manner to any person or agency not entitled to receive it, shall be guilty of a misdemeanor and fined not more than \$5,000.

**O. EARLY TERMINATION**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
<i>APS</i>			

The contract may be terminated as follows:

1. The State and the Contractor, by mutual written agreement, may terminate the contract at any time.
2. The State, at its sole discretion, may terminate the contract for any reason upon thirty (30) calendar day's written notice to the Contractor. Such termination shall not relieve the Contractor of warranty or other service obligations incurred under the terms of the contract. In the event of termination the Contractor shall be entitled to payment, determined on a pro rata basis, for products or services satisfactorily performed or provided.
3. The State may terminate the contract immediately for the following reasons:
  - a) if directed to do so by statute;
  - b) Contractor has made an assignment for the benefit of creditors, has admitted in writing its inability to pay debts as they mature, or has ceased operating in the normal course of business;
  - c) a trustee or receiver of the Contractor or of any substantial part of the Contractor's assets has been appointed by a court;
  - d) fraud, misappropriation, embezzlement, malfeasance, misfeasance, or illegal conduct pertaining to performance under the contract by its Contractor, its employees, officers, directors, or shareholders;
  - e) an involuntary proceeding has been commenced by any party against the Contractor under any one of the chapters of Title 11 of the United States Code and (i) the proceeding has been pending for at least sixty (60) calendar days; or (ii) the Contractor has consented, either expressly or by operation of law, to the entry of an order for relief; or (iii) the Contractor has been decreed or adjudged a debtor;
  - f) a voluntary petition has been filed by the Contractor under any of the chapters of Title 11 of the United States Code;
  - g) Contractor intentionally discloses confidential information;
  - h) Contractor has or announces it will discontinue support of the deliverable; and,
  - i) In the event funding is no longer available.

**P. CONTRACT CLOSEOUT**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
OPS			

Upon termination of the contract for any reason the Contractor shall within thirty (30) days, unless stated otherwise herein:

1. Transfer all completed or partially completed deliverables to the State;
2. Transfer ownership and title to all completed or partially completed deliverables to the State;
3. Return to the State all information and data, unless the Contractor is permitted to keep the information or data by contract or rule of law. Contractor may retain one copy of any information or data as required to comply with applicable work product documentation standards or as are automatically retained in the course of Contractor's routine back up procedures;
4. Cooperate with any successor contractor, person or entity in the assumption of any or all of the obligations of this contract;
5. Cooperate with any successor contractor, person or entity with the transfer of information or data related to this contract;
6. Return or vacate any state owned real or personal property;

Nothing in this Section should be construed to require the Contractor to surrender intellectual property, real or person property, or information or data owned by the Contractor for which the State has no legal claim.



**III. CONTRACTOR DUTIES**

**A. INDEPENDENT CONTRACTOR / OBLIGATIONS**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
OPS			

It is agreed that the Contractor is an independent contractor and that nothing contained herein is intended or should be construed as creating or establishing a relationship of employment, agency, or a partnership.

The Contractor is solely responsible for fulfilling the contract. The Contractor or the Contractor's representative shall be the sole point of contact regarding all contractual matters.

The Contractor shall secure, at its own expense, all personnel required to perform the services under the contract. The personnel the Contractor uses to fulfill the contract shall have no contractual or other legal relationship with the State; they shall not be considered employees of the State and shall not be entitled to any compensation, rights or benefits from the State, including but not limited to, tenure rights, medical and hospital care, sick and vacation leave, severance pay, or retirement benefits.

By-name personnel commitments made in the Contractor's bid shall not be changed without the prior written approval of the State. Replacement of these personnel, if approved by the State, shall be with personnel of equal or greater ability and qualifications.

The Contractor warrants that all persons assigned to the project shall be employees of the Contractor or a Subcontractor, and shall be fully qualified to perform the work required herein. Personnel employed by the Contractor or a subcontractor to fulfill the terms of the contract shall remain under the sole direction and control of the Contractor or the subcontractor respectively.

With respect to its employees, the Contractor agrees to be solely responsible for the following:

1. Any and all pay, benefits, and employment taxes and/or other payroll withholding;
2. Any and all vehicles used by the Contractor's employees, including all insurance required by state law;
3. Damages incurred by Contractor's employees within the scope of their duties under the contract;
4. Maintaining Workers' Compensation and health insurance that complies with state and federal law and submitting any reports on such insurance to the extent required by governing law;
5. Determining the hours to be worked and the duties to be performed by the Contractor's employees; and,
6. All claims on behalf of any person arising out of employment or alleged employment (including without limit claims of discrimination alleged against the Contractor, its officers, agents, or subcontractors or subcontractor's employees).

If the Contractor intends to utilize any subcontractor, the Subcontractor's level of effort, tasks, and time allocation must be clearly defined in the Contractor's bid. The Contractor shall agree that it will not utilize any Subcontractors not specifically included in its bid in the performance of the contract without the prior written authorization of the State.

The State reserves the right to require the Contractor to reassign or remove from the project any Contractor or Subcontractor employee.

Contractor shall insure that the terms and conditions contained in any contract with a sub-contractor does not conflict with the terms and conditions of this contract.

The Contractor shall include a similar provision, for the protection of the State, in the contract with any Subcontractor engaged to perform work on this contract.

**B. EMPLOYEE WORK ELIGIBILITY STATUS**

The Contractor is required and hereby agrees to use a federal immigration verification system to determine the work eligibility status of employees physically performing work within the State. A federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal

program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of an employee.

If the Contractor is an individual or sole proprietorship, the following applies:

1. The Contractor must complete the United States Citizenship Attestation Form, available on the DAS website at <http://das.nebraska.gov/materiel/purchasing.html>

The completed United States Attestation Form should be submitted with the ITB response.

2. If the Contractor indicates on such attestation form that he or she is a qualified alien, the Contractor agrees to provide the U.S. Citizenship and Immigration Services documentation required to verify the Contractor's lawful presence in the United States using the Systematic Alien Verification for Entitlements (SAVE) Program.
3. The Contractor understands and agrees that lawful presence in the United States is required and the Contractor may be disqualified or the contract terminated if such lawful presence cannot be verified as required by Neb. Rev. Stat. § 4-108.

**C. COMPLIANCE WITH CIVIL RIGHTS LAWS AND EQUAL OPPORTUNITY EMPLOYMENT / NONDISCRIMINATION (Statutory)**

The Contractor shall comply with all applicable local, state, and federal statutes and regulations regarding civil rights laws and equal opportunity employment. The Nebraska Fair Employment Practice Act prohibits Contractors of the State, and their Subcontractors, from discriminating against any employee or applicant for employment, with respect to hire, tenure, terms, conditions, compensation, or privileges of employment because of race, color, religion, sex, disability, marital status, or national origin (Neb. Rev. Stat. §48-1101 through 48-1125). The Contractor guarantees compliance with the Nebraska Fair Employment Practice Act, and breach of this provision shall be regarded as a material breach of contract. The Contractor shall insert a similar provision in all Subcontracts for goods or services to be covered by any contract resulting from this ITB.

**D. COOPERATION WITH OTHER CONTRACTORS**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
DAS			

Contractor may be required to work with or in close proximity to other contractors or individuals that may be working on the same or different projects. The Contractor shall agree to cooperate with such other contractors or individuals, and shall not commit or permit any act which may interfere with the performance of work by any other contractor or individual. Contractor is not required to compromise Contractor's intellectual property or proprietary information unless expressly required to do so by this contract.

**E. PERMITS, REGULATIONS, LAWS**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
DAS			

The contract price shall include the cost of all royalties, licenses, permits, and approvals, whether arising from patents, trademarks, copyrights or otherwise, that are in any way involved in the contract. The Contractor shall obtain and pay for all royalties, licenses, and permits, and approvals necessary for the performance of the contract. The Contractor must guarantee that it has the full legal right to the materials, supplies, equipment, software, and other items used to execute this contract.

**F. OWNERSHIP OF INFORMATION AND DATA / DELIVERABLES**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
OPS			

The State shall have the unlimited right to publish, duplicate, use, and disclose all information and data developed or obtained by the Contractor on behalf of the State pursuant to this contract.

The State shall own and hold exclusive title to any deliverable developed as a result of this contract. Contractor shall have no ownership interest or title, and shall not patent, license, or copyright, duplicate, transfer, sell, or exchange, the design, specifications, concept, or deliverable.

**G. NOTICE OF POTENTIAL CONTRACTOR BREACH**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
OPS			

If Contractor breaches the contract or anticipates breaching the contract the Contractor shall immediately give written notice to the State. The notice shall explain the breach or potential breach, and may include a request for a waiver of the breach if so desired. The State may, at its discretion, temporarily or permanently waive the breach. By granting a temporary waiver, the State does not forfeit any rights or remedies to which the State is entitled by law or equity, or pursuant to the provisions of the contract. Failure to give immediate notice, however, may be grounds for denial of any request for a waiver of a breach.

**H. ANTITRUST**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
OPS			

The Contractor hereby assigns to the State any and all claims for overcharges as to goods and/or services provided in connection with this contract resulting from antitrust violations which arise under antitrust laws of the United States and the antitrust laws of the State.

**I. CONFLICT OF INTEREST**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
OPS			

By submitting a bid, Contractor certifies that there does not now exist a relationship between the Contractor and any person or entity which is or gives the appearance of a conflict of interest related to this ITB or project.

The Contractor certifies that it shall not take any action or acquire any interest, either directly or indirectly, which will conflict in any manner or degree with the delivery of its goods hereunder or which creates an actual or an appearance of conflict of interest.

The Contractor certifies that it will not employ any individual known by Contractor to have a conflict of interest.

The Parties shall not knowingly, for a period of two years after execution of the contract, recruit or employ any employee or agent of the other Party who has worked on the ITB or project, or who had any influence on decisions affecting the ITB or project.

**J. STATE PROPERTY**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
DPI			

The Contractor shall be responsible for the proper care and custody of any State-owned property which is furnished for the Contractor's use during the performance of the contract. The Contractor shall reimburse the State for any loss or damage of such property; normal wear and tear is expected.

**K. SITE RULES AND REGULATIONS**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
DPI			

The Contractor shall use its best efforts to ensure that its employees, agents, and Subcontractors comply with site rules and regulations while on State premises. If the Contractor must perform on-site work outside of the daily operational hours set forth by the State, it must make arrangements with the State to ensure access to the facility and the equipment has been arranged. No additional payment will be made by the State on the basis of lack of access, unless the State fails to provide access as agreed to in writing between the State and the Contractor.

**L. ADVERTISING**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
DPI			

The Contractor agrees not to refer to the contract award in advertising in such a manner as to state or imply that the company or its goods are endorsed or preferred by the State. Any publicity releases pertaining to the project shall not be issued without prior written approval from the State.

**M. NEBRASKA TECHNOLOGY ACCESS STANDARDS (Statutory)**

Contractor shall review the Nebraska Technology Access Standards, found at <http://nitc.nebraska.gov/standards/2-201.html> and ensure that products and/or goods provided under the contract are in compliance or will comply with the applicable standards to the greatest degree possible. In the event such standards change during the Contractor's performance, the State may create an amendment to the contract to request the contract comply with the changed standard at a cost mutually acceptable to the parties.

**N. DISASTER RECOVERY/BACK UP PLAN**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
DPS			

The Contractor shall have a disaster recovery and back-up plan, of which a copy should be provided upon request to the State, which includes, but is not limited to equipment, personnel, facilities, and transportation, in order to continue delivery of goods as specified under the specifications in the contract in the event of a disaster.

**O. DRUG POLICY**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
DPS			

Contractor certifies it maintains a drug free work place environment to ensure worker safety and workplace integrity. Contractor agrees to provide a copy of its drug free workplace policy at any time upon request by the State.

**IV. PAYMENT**

**A. PROHIBITION AGAINST ADVANCE PAYMENT**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
PPS			

Payments shall not be made until contractual deliverable(s) are received and accepted by the State.

**B. TAXES**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
PPS			

The State is not required to pay taxes and assumes no such liability as a result of this solicitation. The Contractor may request a copy of the Nebraska Department of Revenue, Nebraska Resale or Exempt Sale Certificate for Sales Tax Exemption, Form 13 for their records. Any property tax payable on the Contractor's equipment which may be installed in a state-owned facility is the responsibility of the Contractor.

**C. INVOICES**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
PPS			

Invoices for payments must be submitted by the Contractor to the agency requesting the services with sufficient detail to support payment NDOT 5001 S 14<sup>th</sup> St, Lincoln, NE 68509 The terms and conditions included in the Contractor's invoice shall be deemed to be solely for the convenience of the parties. No terms or conditions of any such invoice shall be binding upon the State, and no action by the State, including without limitation the payment of any such invoice in whole or in part, shall be construed as binding or estopping the State with respect to any such term or condition, unless the invoice term or condition has been previously agreed to by the State as an amendment to the contract.

**D. INSPECTION AND APPROVAL**

Accept (Initial)	Reject (Initial)	Reject & Provide Alternative within ITB Response (Initial)	NOTES/COMMENTS:
PPS			

Final inspection and approval of all work required under the contract shall be performed by the designated State officials.

The State and/or its authorized representatives shall have the right to enter any premises where the Contractor or Subcontractor duties under the contract are being performed, and to inspect, monitor or otherwise evaluate the work

being performed. All inspections and evaluations shall be at reasonable times and in a manner that will not unreasonably delay work.

If a simple inspection of the goods would reveal nonconformity, notice of nonconformity should be provided to the vendor as soon as reasonably practical, but not to exceed thirty (30) days from receipt of goods. This includes visual inspection of product to ensure packaging is not damaged, dented or compromised.

**E. PAYMENT (Statutory)**

State will render payment to Contractor when the terms and conditions of the contract and specifications have been satisfactorily completed on the part of the Contractor as solely determined by the State. (Neb. Rev. Stat. Section 73-506(1)). The State may require the Contractor to accept payment by electronic means such as ACH deposit. In no event shall the State be responsible or liable to pay for any services provided by the Contractor prior to the Effective Date of the contract, and the Contractor hereby waives any claim or cause of action for any such services.

**F. LATE PAYMENT (Statutory)**

The Contractor may charge the responsible agency interest for late payment in compliance with the State of Nebraska Prompt Payment Act (See Neb. Rev. Stat. §§ 81-2401 through 81-2408).

**G. SUBJECT TO FUNDING / FUNDING OUT CLAUSE FOR LOSS OF APPROPRIATIONS (Statutory)**

The State's obligation to pay amounts due on the Contract for a fiscal years following the current fiscal year is contingent upon legislative appropriation of funds. Should said funds not be appropriated, the State may terminate the contract with respect to those payments for the fiscal year(s) for which such funds are not appropriated. The State will give the Contractor written notice thirty (30) calendar days prior to the effective date of termination. All obligations of the State to make payments after the termination date will cease. The Contractor shall be entitled to receive just and equitable compensation for any authorized work which has been satisfactorily completed as of the termination date. In no event shall the Contractor be paid for a loss of anticipated profit.

**H. RIGHT TO AUDIT (Statutory)**

The State shall have the right to audit the Contractor's performance of this contract upon a thirty (30) day written notice. Contractor shall utilize generally accepted accounting principles, and shall maintain the accounting records, and other records and information relevant to the contract (Information) to enable the State to audit the contract. (Neb. Rev. Stat. §84-304 et seq.) The State may audit and the Contractor shall maintain the information during the term of the contract and for a period of five (5) years after the completion of this contract or until all issues or litigation are resolved, whichever is later. The Contractor shall make the Information available to the State at Contractor's place of business or a location acceptable to both Parties during normal business hours. If this is not practical or the Contractor so elects, the Contractor may provide electronic or paper copies of the Information. The State reserves the right to examine, make copies of, and take notes on any Information relevant to this contract, regardless of the form or the Information, how it is stored, or who possesses the Information. In no circumstances will contractor be required to create or maintain documents not kept in the ordinary course of contractor's business operations, nor will contractor be required to disclose any information, including but not limited to product cost data, which is confidential or proprietary to contractor.

The Parties shall pay their own costs of the audit unless the audit finds a previously undisclosed overpayment by the State. If a previously undisclosed overpayment exceeds three percent (3%) of the total contract billings, or if fraud, material misrepresentations, or non-performance is discovered on the part of the Contractor, the Contractor shall reimburse the State for the total costs of the audit. Overpayments and audit costs owed to the State shall be paid within ninety (90) days of written notice of the claim. The Contractor agrees to correct any material weaknesses or condition found as a result of the audit.

## **V. SCOPE OF WORK**

The Bidder should provide the following information in response to this ITB.

### **A. SCOPE**

It is the intent of this bid invitation to issue a purchase order for the item(s) requested.

All items bid shall be of the latest manufacture in production as of the date of the ITB and be of proven performance and under standard design complete as regularly advertised and marketed. All necessary materials for satisfactory performance of the supplies shall be incorporated into the High Speed Road Profiler whether or not they may be specifically mentioned below.

Complete specifications, manufacturer's current descriptive literature and/or advertising data sheets with cuts or photographs must be included with the bid for the IDENTICAL items proposed. Any information necessary to show compliance with these specifications not given on the manufacturer's descriptive literature and/or advertising data sheets must be supplied in writing on or attached to the bid document. If manufacturer's information necessary to show compliance with these specifications is not attached to the bid document, the Bidder may be required to submit requested information within three (3) business days of a written request. Failure to submit requested descriptive literature or advertising data sheets may be grounds to reject the bid.

### **B. AMENDMENT**

This Contract may be amended in writing, within scope, upon the agreement of both parties.

### **C. CHANGE ORDER**

This Purchase Order may be amended in writing, within scope, upon the agreement of both parties.

### **D. REVISIONS**

In the event any product is discontinued or replaced upon mutual consent prior to delivery of the goods, the State reserves the right to amend this purchase order to include the alternate product.



**VI. INVITATION TO BID - TECHNICAL SPECIFICATIONS**

**A. BIDDER INSTRUCTIONS**

Bidder must respond to each of the following statements. Specifications listed are minimum conditions that must be met in order for a Bidder to qualify for the award.

"YES" response means the Bidder guarantees they can meet this condition.

"NO" response means the Bidder cannot meet this condition and will not be considered.

"NO & PROVIDE ALTERNATIVE" responses should be used only with a narrative response in the NOTES/COMMENTS section explaining in detail any deviation from the Bidder's ability to meet the condition, and an explanation of how this would be determined to be an acceptable alternative to meeting the condition. Alternatives must be detailed in such a way that allows such deviations to be fully evaluated. The State shall determine at its sole discretion whether or not the Bidder's alternative is an acceptable alternative.

**B. NON-COMPLIANCE STATEMENT**

YES	NO	NO & PROVIDE ALTERNATIVE	
DPJ			1. Read these specifications carefully. Any and all exceptions to these specifications must be written on or attached to quotation request. Any noncompliance may void your quotation. Non-compliance to any single specification can void your quotation.
DPJ			2. It is the responsibility of Bidders to obtain information and clarifications as provided below. The State is not responsible for any erroneous or incomplete understandings or wrongful interpretations of this ITB by any Bidder.
DPJ			3. No interpretation related to the meaning of bid specifications or other pre-bid documents will be made orally to any Bidder by the State. Any ITB interpretation must be put in writing and faxed by the Bidder to: the State Purchasing Bureau, Fax (402) 471-2089 or e-mailed to <a href="mailto:as.materielpurchasing@nebraska.gov">AS Materiel Purchasing as.materielpurchasing@nebraska.gov</a> by the last day to submit written questions that is specified in the Schedule of Events. (Inquiries received after the last day to submit written questions may not be addressed).
<b>NOTES/COMMENTS:</b>			

**C. TECHNICAL SPECIFICATIONS: GENERAL**

YES	NO	NO & PROVIDE ALTERNATIVE	
			1. <b>High Speed Road Profiler shall include the following:</b>
✓			a) Meet Class I requirements of ASTM E-950
✓			b) Comply with AASHTO R56 and R57
✓			c) System to mount to front or rear of standard vehicle using standard 2" receiver hitch.
✓			d) One person operation capable of collecting measurements at speeds between 8 and 70 mph.

✓			e) 1 inch sampling interval at all collection speeds.
✓			f) Accelerometer with 0.0001g accuracy.
✓			g) Profile wave length range of .5 to 6,400 feet.
✓			h) Operating ambient temperature range of: 32 to 110 degrees F.
✓			i) Laser lateral position adjustable from 59" to 75".
✓			j) Vehicle laser mounting hardware to be height adjustable.
✓			k) Dual laser system capable of collecting profile data in both wheel tracks simultaneously.
✓			l) Laser sensors must be shock mounted to reduce vibration.
✓			m) Laser-Type Height Sensor LMI 5kHz Gocator Laser sensor.
✓			n) Horizontal distance measured with GPS-DMI with accuracy better than 0.1%.
✓			o) GPS/DMI System with distance accuracy of 0.05% or better
✓			p) GPS Reference System for collecting static GPS reference points.
✓			q) GPS Tracer for locating areas of localized roughness.
✓			2. High speed profilers should maintain bounce test results of less than 10in/mi for a period of two (2) years without field calibrations. Field calibrations of the system will not be allowed.

**NOTES/COMMENTS:** *Periodic accelerometer calibration and laser height verification procedures recommended as a best practice, but not required. AASHTO specifications mandate calibration/verification procedures.*

**D. TECHNICAL SPECIFICATION: COMPUTER HARDWARE**

YES	NO	NO & PROVIDE ALTERNATIVE	
			<b>1. Computer Hardware for the High Speed Profiler shall include the following:</b>
✓			a) GPS-DMI distance measurement and reference system with 20Hz GPS receiver.
✓			b) Panasonic Tough book Laptop Computer with Windows 10 operating system.
✓			c) Minimum 13" color touch screen display.
✓			d) Wired Ethernet connection from laptop to data acquisition computer.
✓			e) Standard 20 Hz GPS receiver to allow user to reference profile data to GPS location.

✓			f)	Auto start/stop sensor for automatic triggering of, start, stop event and ignored sections.
✓			g)	Standard Ethernet connection from data acquisition computer to laser sensors and auto start.
✓			h)	Electronic components to be housed in water resistant and dust tight enclosures.
✓			i)	Field replacement of any components should not require re-calibration of the system.
✓			j)	High speed profiler to utilize a GPS-DMI system in lieu of a wheel mounted encoder. The GPS-DMI must use a calibrated vehicle speed sensor as a secondary input during low GPS coverage areas.
<b>NOTES/COMMENTS:</b>				

**E. TECHNICAL SPECIFICATION: COMPUTER SOFTWARE**

YES	NO	NO & PROVIDE ALTERNATIVE	
			<b>1. Computer software for the High Speed Profiler shall include the following:</b>
✓			a) Windows based data collection and profile analysis software.
		✓	b) Support for Google Earth, Google Maps and Microsoft MapPoint.
✓			c) Data format to be compatible with Proval analysis software.
✓			d) Multiple Profile Indexes (PI), international roughness index (IRI), half-car roughness index (HRI), ride quality index (RQI), and ride number (RN).
✓			e) Display profile and continuous IRI in real time while data is being collected.
✓			f) Multiple outputs for IRI based roughness based on user specified thresholds; Rolling Straightedge and bump detection.
✓			g) Profile viewer with GPS tracer feature to identify location of areas of localized roughness.
✓			h) Variable high and low pass filters.
✓			i) Export file data conversion to specified formats: profile elevation points, ASCII, .erd format, Google Earth .kml, ProVal .ppf, csv, excel, generated report tables.
✓			<b>2. Contractor's bid shall be inclusive and include all systems, equipment, hardware and software.</b>
✓			<b>3. Contractors bid to include maintenance of all Contractor software products at the most current version available at no cost to NDOT for a minimum of 10 years.</b>
	✓		<b>4. Cloud service is not required, but should the Contractor offer to support data to run any State application in the cloud, a completed</b>

✓			f)	Auto start/stop sensor for automatic triggering of, start, stop event and ignored sections.
✓			g)	Standard Ethernet connection from data acquisition computer to laser sensors and auto start.
✓			h)	Electronic components to be housed in water resistant and dust tight enclosures.
✓			i)	Field replacement of any components should not require re-calibration of the system.
✓			j)	High speed profiler to utilize a GPS-DMI system in lieu of a wheel mounted encoder. The GPS-DMI must use a calibrated vehicle speed sensor as a secondary input during low GPS coverage areas.
<b>NOTES/COMMENTS:</b> <i>Google Earth and Google Maps are integrated and supported. Microsoft has discontinued MapPoint, and the program is no longer supported by Microsoft. So MapPoint is not supplied.</i>				

**E. TECHNICAL SPECIFICATION: COMPUTER SOFTWARE**

YES	NO	NO & PROVIDE ALTERNATIVE	
			<b>1. Computer software for the High Speed Profiler shall include the following:</b>
✓			a) Windows based data collection and profile analysis software.
✓			b) Support for Google Earth, Google Maps and Microsoft MapPoint.
✓			c) Data format to be compatible with Proval analysis software.
✓			d) Multiple Profile Indexes (PI), international roughness index (IRI), half-car roughness index (HRI), ride quality index (RQI), and ride number (RN).
✓			e) Display profile and continuous IRI in real time while data is being collected.
✓			f) Multiple outputs for IRI based roughness based on user specified thresholds; Rolling Straightedge and bump detection.
✓			g) Profile viewer with GPS tracer feature to identify location of areas of localized roughness.
✓			h) Variable high and low pass filters.
✓			i) Export file data conversion to specified formats: profile elevation points, ASCII, .erd format, Google Earth .kml, ProVal .ppf, csv, excel, generated report tables.
✓			<b>2. Contractor's bid shall be inclusive and include all systems, equipment, hardware and software.</b>
✓			<b>3. Contractors bid to include maintenance of all Contractor software products at the most current version available at no cost to NDOT for a minimum of 10 years.</b>
	✓		<b>4. Cloud service is not required, but should the Contractor offer to support data to run any State application in the cloud, a completed</b>

			<p><b>Attachment A</b> must be submitted with the bid. Prior approval must be received from the OCIO before the movement of data into a non-State Cloud solution. There shall be no additional cost to the State associated to move between the cloud and the State's network. Please refer to the NITC Technical Standards and Guidelines 8-607: <a href="http://nitc.nebraska.gov/standards/8-607.pdf">http://nitc.nebraska.gov/standards/8-607.pdf</a></p>
<p><b>NOTES/COMMENTS:</b> <i>Cloud solution currently not available.</i></p>			

**F. TECHNICAL SPECIFICATION: INSTALLATION & TRAINING**

YES	NO	NO & PROVIDE ALTERNATIVE	
✓			1. The Contractor shall deliver and install all components, equipment, hardware and software.
✓			2. All installed components and software must be operational and approved operational by the NDOT
✓			3. The Contractor shall supply a minimum of four hours training at 5001 South 14 <sup>th</sup> Street, Lincoln, Nebraska by a factory trained representative in the operation and maintenance of unit. Fleet Management will contact successful bidder on the scheduling of this training.
<p><b>NOTES/COMMENTS:</b></p>			

**G. TECHNICAL SPECIFICATION: MISCELLANEOUS**

YES	NO	NO & PROVIDE ALTERNATIVE	
✓			1. The bidders will submit with their proposal a list of any special tools they will furnish with each machine.
✓			2. Dealer's decals, stickers or other signs shall not be affixed to units; manufacturer's nameplates, stampings and other similar signs are acceptable.
<p><b>NOTES/COMMENTS:</b></p>			

**H. TECHNICAL SPECIFICATION: MANUALS**

YES	NO	NO & PROVIDE ALTERNATIVE	
✓			1. Paper and/or electronic operators manual must accompany each unit delivered.

✓			2. All manual(s) must be furnished prior to payment and delivered to Fleet Management. Failure to deliver all manuals that are ordered may result in delay of payment of purchase order total until all manuals are delivered.
<b>NOTES/COMMENTS:</b>			

**I. TECHNICAL SPECIFICATION: WARRANTY**

YES	NO	NO & PROVIDE ALTERNATIVE	
✓			1. Manufacturer's usual warranty shall apply, and shall be in effect for at least one year from the date the equipment was placed in service.
✓			2. Vendor shall be responsible for all repairs to include parts and labor during the 12 month usual warranty period.
✓			3. One copy of the manufacturer's warranty shall be furnished with the quotation.
<b>NOTES/COMMENTS:</b>			

**J. TECHNICAL SPECIFICATION: SPECIFICATION FORM**

YES	NO	NO & PROVIDE ALTERNATIVE	
✓			1. Successful bidder must complete specification form for each unit delivered and form must accompany each unit when delivered.
✓			2. Forms will be supplied by the Department of Transportation to successful bidder after purchase order is awarded.
<b>NOTES/COMMENTS:</b>			

**K. DELIVERY ARO**

YES	NO	NO & PROVIDE ALTERNATIVE	
✓			1. Delivery desired within 90 days after receipt of order(s).
<b>NOTES/COMMENTS:</b> <i>SSI can deliver within 30 days after receipt of order.</i>			

**L. DELIVER LOCATIONS/INSTRUCTIONS (BIDDER IS CERTIFYING THAT THEY CAN MEET THE DELIVER LOCATIONS/INSTRUCTIONS)**

YES	NO	NO & PROVIDE ALTERNATIVE	
✓			1. NDOT 5001 S 14 <sup>th</sup> Street Lincoln, NE 68512
NOTES/COMMENTS:			

**M. PACKAGING**

YES	NO	NO & PROVIDE ALTERNATIVE	
✓			1. Cartons are to be clearly marked with size, weight, color, quantity, and the purchase order number. Cartons must be of suitable size and of sufficient strength to protect the contents during shipping, handling and storage.
NOTES/COMMENTS:			

**N. ORDERS**

YES	NO	NO & PROVIDE ALTERNATIVE	
✓			1. Orders will be placed either by, phone, fax, e-mail or Internet (if available and not to the exclusion of the other methods). All orders must reference a purchase order number and the purchase order number must be referenced on the packing slip, and invoice. Invoices are to be sent to the "Invoice to" address on the purchase order.
NOTES/COMMENTS:			

**O. QUALITY**

YES	NO	NO & PROVIDE ALTERNATIVE	
✓			1. Product quality must meet specifications and be consistent for the term of the contract. A guarantee of satisfactory performance by the supplier and meeting delivery dates are considered to be an integral part of the purchase contract resulting from this bid invitation. All materials must be of first quality, under standard production by the manufacturer and be of standard design, complete as regularly advertised and marketed and be of proven performance. Products are to be fully guaranteed and may be returned for full credit or replacement (at the State's option) for any reason during the initial warranty period with no additional charges for shipping or restocking.

NOTES/COMMENTS:

**P. PRICES**

YES	NO	NO & PROVIDE ALTERNATIVE	
<input checked="" type="checkbox"/>	<input type="checkbox"/>		1. Price quoted shall be unit price and shall be firm from date of an award and are to be net; including transportation and delivery charges fully prepaid by the Bidder F.O.B. Destination as specified. No additional charges will be allowed for packing, handling, fuel surcharge, or partial delivery costs.
<input checked="" type="checkbox"/>	<input type="checkbox"/>		2. The overall bid shall be inclusive of all the systems, hardware, software, components, equipment, installation and services including GPS. GPS service to be a minimum of ten (10) years.

NOTES/COMMENTS:

**Q. GRAY MARKET PRODUCTS PROHIBITION**

YES	NO	NO & PROVIDE ALTERNATIVE	
<input checked="" type="checkbox"/>	<input type="checkbox"/>		1. The State will not accept Gray Market Products for this solicitation. Gray Market is defined as the trade of a commodity through distribution channels which, while legal, are unofficial, unauthorized, or unintended by the original manufacturer. Gray Market items are not designed to be sold in a particular market and cannot be supported by the authorized importer because of various reasons.

NOTES/COMMENTS:

**R. AUTHORIZED DEALER & WARRANTY**

YES	NO	NO & PROVIDE ALTERNATIVE	
<input checked="" type="checkbox"/>	<input type="checkbox"/>		1. To the extent required by the manufacturer, the Bidder shall be an authorized dealer. Bidder may be required to substantiate that he/she is an authorized dealer. Proof, if required, must be submitted to the SPB within three (3) days of the request and prior to the award of any contract. The terms of the original manufacturer's standard warranty shall apply to all equipment acquired from this solicitation for the entire warranty period.

NOTES/COMMENTS:



**S. WARRANTY**

YES	NO	NO & PROVIDE ALTERNATIVE	
✓			1. Contractor must warrant the average life expectancy supplies hereunder to be not less than that stated in the manufacturer's price list and agree to replace, without cost, all supplies failing to meet this requirement, except where the reduced life is due to conditions beyond the control of the Contractor. Defective parts or those damaged in shipment must be replaced by the Contractor at no charge to the State. The manufacturer's standard warranty shall apply and be in effect for at least one (1) year from the date the equipment was placed in service.
<b>NOTES/COMMENTS:</b>			

**T. SUBSTITUTIONS**

YES	NO	NO & PROVIDE ALTERNATIVE	
✓			1. Vendor will not substitute any item that has been awarded without prior written approval of SPB.
<b>NOTES/COMMENTS:</b>			

**U. SECRETARY OF STATE REGISTRATION REQUIREMENTS**

\*\*\*CHOOSE "YES" TO BEST ANSWER ONLY, CHOOSE "NO" FOR REMAINING LINES\*\*\*

YES	NO	<b>*Prior to contract award and/or upon request of SPB, potential award recipient(s) will be asked to certify compliance with Nebraska Secretary of State Registration by providing a true and exact copy of current (dated within 90 days) valid Certificate of Good Standing or Letter of Good Standing.</b>
	✓	<p>1. Bidder is a SOLE PROPRIETORSHIP (in which case, no Letter of Good Standing/Certificate of Good Standing is required)</p> <p>If the Bidder is an Individual or Sole Proprietorship, the following applies:</p> <p style="padding-left: 40px;">a) The Bidder must complete the United States Citizenship Attestation Form, available on the Department of Administrative Services website at <a href="http://das.nebraska.gov/materiel/purchasing.html">http://das.nebraska.gov/materiel/purchasing.html</a></p> <p>The completed United States Attestation Form should be submitted with the Invitation to Bid response.</p> <p style="padding-left: 40px;">b) If the Bidder indicates on such attestation form that he or she is a qualified alien, the Contractor agrees to provide the U.S. Citizenship and Immigration Services documentation required to verify the Contractor's lawful presence in the United States using the Systematic Alien Verification for Entitlements (SAVE) Program.</p> <p style="padding-left: 40px;">c) The Bidder understands and agrees that lawful presence in the United States is required and the Contractor may be disqualified or the contract terminated if such lawful presence cannot be verified as required by Neb. Rev. Stat. § 4-108.</p>
	✓	2. Bidder is a GENERAL PARTNERSHIP (in which case, no Letter of Good Standing/Certificate of Good Standing is required).
	✓	3. Bidder is a FOREIGN or DOMESTIC CORPORATION or BUSINESS and a copy of current Letter of Good Standing/Certificate of Good Standing from the Nebraska Secretary of State is provided within bid submission documents.
✓		4. Bidder is a FOREIGN or DOMESTIC CORPORATION or BUSINESS and a copy of current Letter of Good Standing/Certificate of Good Standing from the Nebraska Secretary of State will be provided in a timely manner upon request prior to award.

**Form A**  
**Bidder Contact Sheet**  
**Invitation To Bid Number 6027 OF**

Form A should be completed and submitted with each response to this ITB. This is intended to provide the State with information on the Bidder's name and address, and the specific person(s) who are responsible for preparation of the Bidder's response.

Preparation of ITB Contact Information	
Bidder Name:	Surface Systems & Instruments, Inc.
Bidder Address:	P.O. Box 790 Larkspur, CA 94977
Contact Person & Title:	Dennis P. Scott, President
E-mail Address:	dscott@smoothroad.com
Telephone Number (Office):	415.383.0570
Telephone Number (Cellular):	415.235.9035
Fax Number:	415.358.4340

Each Bidder shall also designate a specific contact person who will be responsible for responding to the State if any clarifications of the Bidder's response should become necessary.

Communication with the State Contact Information	
Bidder Name:	Surface Systems & Instruments, Inc.
Bidder Address:	307 Plymate Manhattan, KS 66502
Contact Person & Title:	Regent Umscheid
E-mail Address:	bumscheid@smoothroad.com
Telephone Number (Office):	785.539.6305
Telephone Number (Cellular):	503.975.7888
Fax Number:	785.539.6210



**SURFACE SYSTEMS & INSTRUMENTS, INC.**

**Custom Test Equipment • Mobile Technology Solutions**

**California**

1845 Industrial Drive  
Auburn, California 95603  
Telephone: (415) 383-0570  
Facsimile: (415) 358-4340

**Kansas**

307 Plymate  
Manhattan, Kansas 66502  
Telephone: (785) 539-6305  
Facsimile: (785) 539-6210

[smoothroad.com](http://smoothroad.com)

**PROPOSAL IN RESPONSE TO NEBRASKA DEPARTMENT OF TRANSPORTATION  
SOLICITATION 6027 OF (HIGH SPEED ROAD PROFILER)**

**1. INTRODUCTION.**

Surface Systems & Instruments, Inc. ("SSI") submits this Proposal in support of its response to the Nebraska Department of Transportation Solicitation Number 6027 OF (acquisition of a High Speed Road Profiler). SSI is a manufacturer of road surface test equipment with facilities in Manhattan, Kansas and Auburn, California. SSI's model CS9300 high speed profiling system is proposed as the equipment to be supplied pursuant to Solicitation 6027 OF. Or NDOT can choose the CS9100 mid-mount configuration for the same bid price. SSI submits the details below, in addition to the CS9100/CS9300 data sheet and technical specifications included with SSI's bid response.

SSI is a manufacturer of custom test equipment, including high speed and lightweight inertial surface profiling systems, walking profilers, computerized profilographs, and other specialty material test equipment. Among SSI's most recognizable products are the CS8500 profilograph, used worldwide for many years, the CS8800 walking profiler, and the CS8700/CS9300/CS9100 models of inertial profiling systems. SSI has produced test equipment since 1995, and SSI's engineering team has successfully designed a full line of surface profile test equipment devices that are in common usage by transportation agencies, professional engineers, and construction contractors throughout the U.S. and worldwide. SSI's surface profiling systems have passed every equipment certification test that they have been subjected to, including the stringent requirements of the AASHTO R056 standard and Texas Department of Transportation Test 1001-S. Examples of SSI certification results for a dual laser high speed inertial profiling system are included with SSI's bid documents. Further information on SSI's products is available online at [www.smoothroad.com](http://www.smoothroad.com).

**2. BACKGROUND ON SSI'S CS9100/CS9300 HIGH-SPEED INERTIAL PROFILING SYSTEMS.**

SSI has attached product literature and technical specifications for the proposed CS9300 high speed road profiler. The CS9300 complies with current ASTM E950, AASHTO (M328, R056/R057) and DOT standards and specifications. Below are pictures of the SSI CS9300 system in front and rear-mounted configurations. Also pictured is the CS9100 mid-mount configuration.



▲ CS9300 System (front mounted) ▲

▲ CS9300 System (rear mounted) ▲

▲ CS9100 Mid- Mount System ▲

*Figure 1: SSI CS9300 and CS9100 High Speed Inertial Profiling Systems*

SSI's high-speed profiling systems are Class I profiling devices under ASTM Standard E950. The CS9100/CS9300 inertial profilers routinely pass AASHTO R056 or State DOT certification tests. The SSI system collects data at true 1" (25 mm) sampling intervals and can operate between 5 and 70 mph (8-112 kph). The sampling interval is configurable to collect data at specified sampling intervals (with a one-inch default). The SSI system complies with ASTM (E950 and E1489), AASHTO (M328, R054, R056-057) and DOT specifications and test methods. SSI's systems have "continuous collection" capability that allows the profiling vehicle to come to a complete stop at traffic signals without losing position or compromising the accuracy of the previously collected surface data. The ability of SSI profiling systems to operate at lower speeds and to preserve data collected when the profiling vehicle stops allows for efficient data collection with fewer gaps in the surface profile data as compared with other brands of inertial profilers.

SSI's systems generate all commonly used roughness indices (including IRI, MRI, HRI, RN and PRI/PI). SSI's CS9100/CS9300 profiling systems support real-time displays of profile traces and ride index values. Raw data and reports can be created in the field, or easily transferred to other users with SSI's Profiler 3 software. IRI results are generated instantaneously, and the averaged MRI calculated, for both left, right wheel tracks, as shown in Figure 2 below:

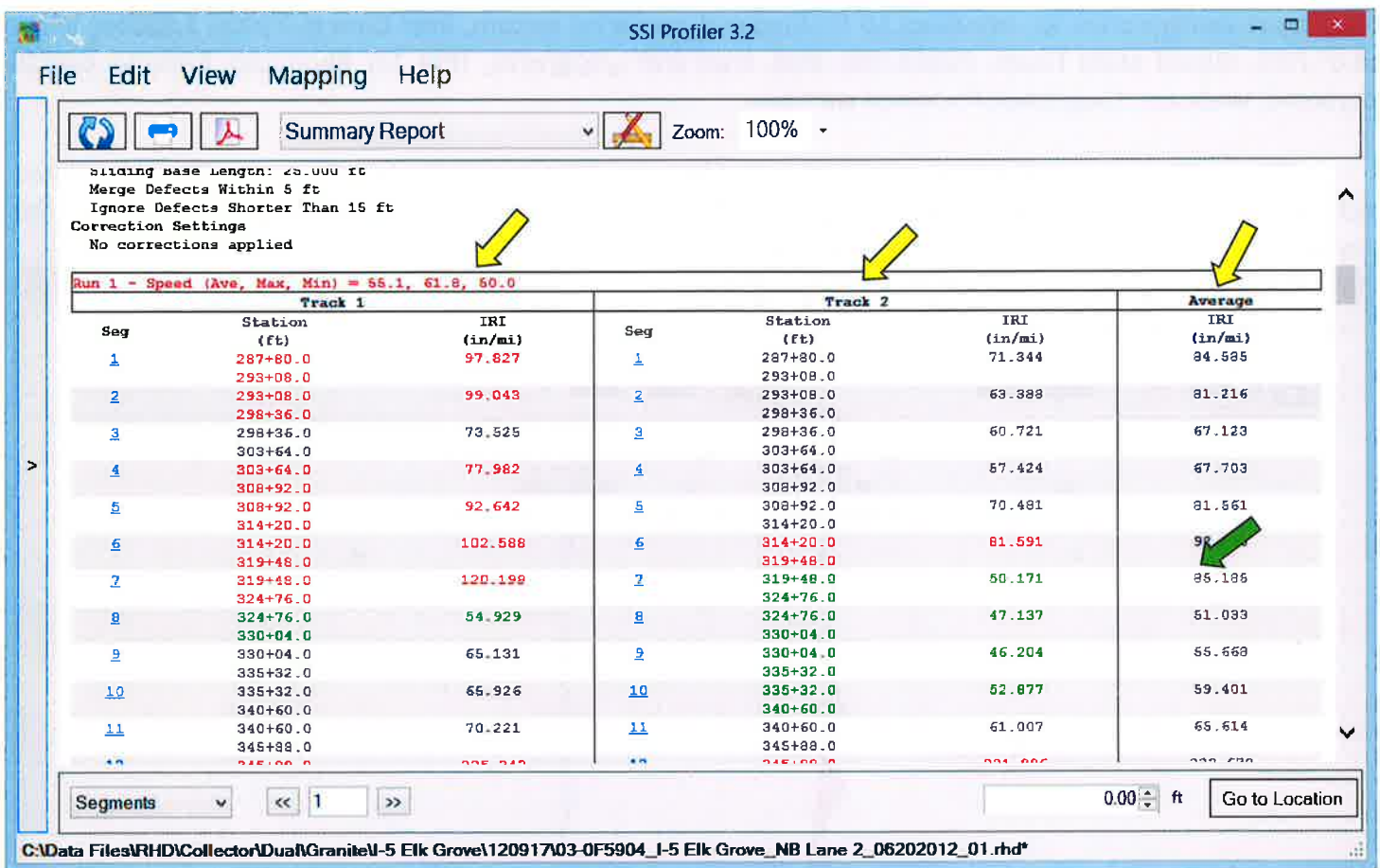


Figure 2—Sample View of Dual Track IRI/MRI Report

The hardware supplied for mounting the CS9100/CS9300 core components onto the host vehicle is portable, modular and robust. The profiling system modules (lasers and accelerometers) are installed on custom hardware to allow fast and easy adjustment of the sensors into the correct configuration required by specification as to the road surface wheel tracks to be tested. The laser/accelerometer modules can be quickly removed and stored in the supplied rugged case off the vehicle when not in use. The profiling system electronics are installed into a water and dust resistant metal enclosure.

In accordance with NDOT’s requirements, profile distance measurement will be supported through use of a GPS-DMI. Optionally, distance measurement can be through use of a wheel encoder, which will also be supplied. The software is configurable for use of the GPS-DMI or wheel encoder for distance measurement.

The core components of the profiling system are “plug and play”—meaning that the component is easily installed in the field by plugging into the profiling system electronics. After any replacement component is installed in the field, the system is immediately ready for testing. The modular design supports field installation of addition sensors, such as ROW camera, cross-slope instrumentation, texture, and rut depth measurement.

The high speed profiling system will be supplied with a simple set of tools needed to attach or remove core components (hex and ratcheting wrenches). Also supplied is a hardware kit for verifying the ongoing accuracy of the laser height readings; this consist of 2 base plates and 6 step blocks. This hardware conforms to the AASHTO R057 recommended procedures for calibrating and checking the equipment.

SSI inertial profiling systems are operated from the cab of the host vehicle through a pedestal mounted computer. The computer is mounted on a docking station that can be accessed by the driver or passenger. Powered is supplied by the vehicle’s 12V power supply. A Panasonic Toughbook rugged computer with touch screen controls is supplied. The Toughbook computer will comply with NDOT’s specifications. A typical

Toughbook configuration is: Windows 10 Professional operating system, Intel Core i5-7300U 2.60GHz, vPro, 14.0" FHD, Gloved Multi Touch, 256GB SSD, 8GB, Intel WiFi a/b/g/n/ac, TPM 2.0, Bluetooth, Emissive Backlit Keyboard, Webcam, Toughbook Preferred warranty.

The profile data can also be viewed by detailed images of the longitudinal profile traces. The trace detail includes detection of areas of localized roughness (including “must-grind”-bumps and dips) according to the configurable settings entered by the user. See Figure 3 below.

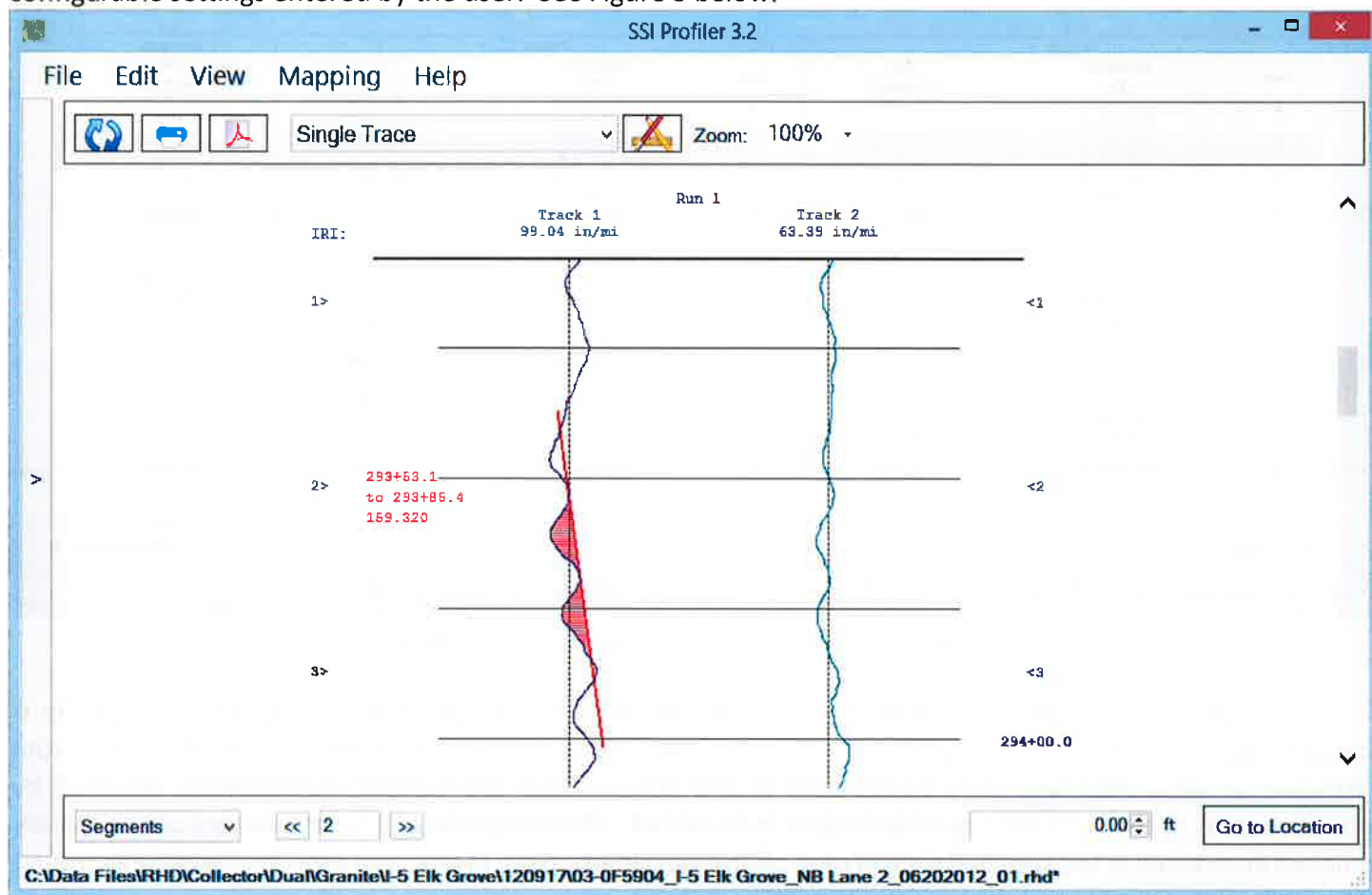


Figure 3—Sample View of 3 Profile Trace Profile Data

SSI’s Profiler 3 data analysis software has evolved since 1995 based on the experience of a user group of hundreds of DOT, contractor, engineering and academic personnel. As such, the SSI profiling system software program is robust, stable, and feature rich. The collection and analysis software is developed for optimized functionality in a Windows 10 Professional operating system environment. As a result, all raw profile data, summary reports, and field logs can be transferred to electronically immediately after the data is collected. The SSI Profiler 3 data analysis program—for use in the field or office--allows extensive on-screen data analysis, viewing and real time navigation capabilities. Users can infinitely re-write raw data files after changing any parameters or settings. For example, operators can specify numerous changes to filtering and other data reduction parameters, such as choosing between English or metric units, various profile indexes (e.g. IRI, MRI, HRI, RN, PRI), filter lengths and types, English or metric units, variable segment length (e.g. 25 feet, 528 feet, 100 meters, etc.), inserting blanking bands or localized roughness (“must-grind or dip”) templates. Localized roughness can be reported by traditional templates (e.g. .4” in 25 feet or simulated straightedge) or IRI based areas of localized roughness (e.g. identify areas exceeding an user entered IRI threshold using a configurable moving average filter; for example, areas exceeding 175 in/mile using a 25 ft. moving average filter).

SSI’s inertial profiling systems include software routines to output the raw profile data into numerous formats for use in other external software programs, such as ERD/PPF (ASTM E2560) for ProVal, PDF, Excel, CSV,

elevation profile). Figure 4 below shows an example of Excel format date from the CS9300 Portable High-Speed Inertial Profiler. The data from the CS9100/CS9300 systems is fully compatible with FHWA's ProVal software.

FHWA CLHD FOREST HIGHWAY- California										
FH 165 Elk Creek-Potter Valley										
SUMMARY										
FH ROUTE #	STATE/LOCAL ROUTE	START MP	END MP	IRI LEFT	IRI RIGHT	IRI AVERAGE	SPEED AVERAGE	GPS READING		
165	CR 301	0	17.1	250.3	268.8	259.6	28.4	3909.7460 N 12254.7406 W		
DETAILS										
FH ROUTE #	STATE/LOCAL ROUTE	START MP	END MP	IRI LEFT	IRI RIGHT	IRI AVERAGE	SPEED AVERAGE	GPS READING		SEGMENT NOTES
165	CR 301	0	0.1	137.4	130.8	134.1	23.8	3909.7460 N 12254.7406 W		
165	CR 301	0.1	0.2	128.9	113.9	121.4	30.6	3909.8298 N 12254.7431 W		
165	CR 301	0.2	0.3	114.6	88.8	101.7	33.1	3909.9197 N 12254.7483 W		
165	CR 301	0.3	0.4	120.4	111	115.7	34.4	3910.0078 N 12254.7268 W		
165	CR 301	0.4	0.5	80.5	76.3	78.4	33.3	3910.0888 N 12254.7049 W		
165	CR 301	0.5	0.6	110.8	89.5	100.1	34.5	3910.1783 N 12254.7020 W		
165	CR 301	0.6	0.7	124.7	101.5	113.1	24.8	3910.2625 N 12254.7002 W		
165	CR 301	0.7	0.8	100.4	82.2	91.3	32.4	3910.3055 N 12254.6400 W		
165	CR 301	0.8	0.9	101.0	98.3	99.6	25.4	3910.3024 N 12254.5308 W		
165	CR 301	0.9	0.922	131.1	191.5	161.3	10.8	3910.2794 N 12254.4153 W		Track 1 @ 0048+60.8 Stop Sign
165	CR 301	0.922	1.022	188.9	189.1	189	21.7	3910.2794 N 12254.3894 W		
165	CR 301	1.022	1.122	180.8	150	165.4	31.3	3910.3434 N 12254.3163 W		
165	CR 301	1.122	1.222	222.3	204.8	213.5	32.9	3910.4051 N 12254.2391 W		
165	CR 301	1.222	1.322	207.8	194.1	201	34.5	3910.4699 N 12254.1660 W		Track 1 @ 0069+64.1 Bridge
165	CR 301	1.322	1.422	201.0	193	197	32.8	3910.5632 N 12254.1655 W		
165	CR 301	1.422	1.522	192.6	198.3	195.4	34.5	3910.6512 N 12254.1653 W		
165	CR 301	1.522	1.622	143.4	167.5	155.5	37	3910.7266 N 12254.1645 W		

Figure 4—Example Excel Data Export of Profile Data with IRI Results, Speed Notes and Operator Notes

### 3. LIST OF SPARE PARTS LIST AND STATEMENT OF AVAILABILITY.

In SSI's Manhattan, Kansas and Auburn California and shop facilities, a large inventory of spare parts is maintained for the CS9100/CS9300 inertial profiler systems. Figure 5 below contains a list of the most common spare parts. These items are available for delivery to NDOT within 1-3 business days.

Line	Part Number	Description
1.	CS9300DC	Distance cable (with electric eye sensor) for CS9300.
2.	CS9300DES	Distance encoder sensor for CS9300.
3.	CS9300COM	Data communications cable for CS9300.
4.	CS9300PSC	Power supply cable (with electric eye sensor) for CS9300.
5.	CS9300DMIC	Wheel collets for attaching CS9300 distance measurement interface to different host vehicles.
6.	CS9300PRH	Pole receiver attachment for use of distance measurement interface on different host vehicles.
7.	CS9300ACC	Accelerometer sensor for inertial profiling system (calibrated/tested) for CS9300).
8.	CS9300LS	Laser sensor inertial profiling system (calibrated/tested for CS9300)
9.	CS9300OC	Operator interface computer for CS9300 inertial profiling system
10.	CS9300GB	Data collection computer for CS9300. (Field replaceable portable module).

Figure 5: CS9100/CS9300 Profiling System Spare Parts List



#### **4. WARRANTY AND SERVICE.**

The proposed CS9300 system will be supplied with an industry standard twelve-month warranty against defects in workmanship or materials, effective from the date the CS9300 system is placed into service. The language of SSI's warranty is below:

*WARRANTY. THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR PURPOSE OR OTHER WARRANTY OF QUALITY, WHETHER EXPRESS OR IMPLIED, WHICH WARRANTIES ARE HEREBY EXPRESSLY DISCLAIMED. UNDER NO CIRCUMSTANCES SHALL THE LIABILITY OF SSI EXCEED THE AMOUNTS PAID BY THE CUSTOMER TO SSI UNDER PURCHASE, DEVICE RENTAL, OR SERVICE TRANSACTION (AND RELATED INVOICES) PERFORMED BY SSI PURSUANT TO THESE TERMS AND CONDITIONS.*

*(a) For equipment or devices purchased by Customer, SSI warrants only that the SSI manufactured components sold pursuant to a contract arising hereunder will be free of defects in materials and workmanship for a period of one year from the date of delivery to the Customer. Third-party manufactured components of the goods or integrated system sold under the parties' agreement are covered by, and are the responsibility of the manufacturer of such components, not SSI. SSI will replace free of charge, but not including transportation costs, installation or any other service charges, components or assemblies that are manufactured by SSI which SSI's inspection and evaluation determines to be defective, providing they are returned to SSI's facility during the effective period of the warranty. The warranty extends only to those devices that have been properly used and maintained by the end user. SSI's warranty is automatically revoked if a part or assembly has been misused or physically modified in any manner whatsoever by the customer or an agency without SSI's written permission.*

*(b) For equipment rented by Customer from SSI, or services performed by SSI for Customer, SSI warrants only that information or data generated by SSI's service, or the SSI device rented by the Customer conform to SSI's specifications for the device or applicable transportation agency specifications specifically applicable to the device used, and for those purposes only. SSI provides no warranty against equipment malfunctions or misuse of an SSI device. SSI provides no warranty for use of data generated by an SSI device or SSI Software Products for use in applications beyond the scope of transportation agency or SSI specifications specifically applicable to the device at issue.*

Technical support assistance will be readily available from SSI's shop facilities in Kansas and California. NDOT will have numerous cell phone support contacts from SSI.

The CS9300 profiling system requires little maintenance. Mount hardware should be inspected periodically for loose set-screws or and firmly tightened hardware. The hardware should be kept in a clean condition. The lenses of the lasers should be cleaned periodically. Cables should be periodically inspected for wear and adequate strain relief. The software should be updated at least annually. Software version updates are available: (i) by internet automatic updating; simply open the SSI software on a web connected computer and follow the prompts to install updates, or (ii) by downloading new software from SSI's customer support website: <https://www.smoothroad.com/support>. SSI recommends installing the Microsoft Windows operating system updates on the operator interface computer at least every 2 months.

#### **5. INSTALLATION & TRAINING.**

Following delivery of the CS9300 road surface profilometer equipment, SSI will send a factory trained technician to install the system onto NDOT's designated host vehicle. The SSI technician will then calibrate and verify the functionality of the installed CS9300 system. The technician will perform comprehensive operator

training on-site at NDOT facilities. Advance copies of the CS9300 User's Manual, technical documents, and the SSI Profiler data analysis software (with sample data files) will be supplied. The installation and training typically consume 1-2 days. A written test can be administered, and training certificates provided to the successful trainees.

**6. CONCLUSION.**

SSI proposes the CS9300 Portable High-Speed Inertial Profiling System to NDOT as a most capable solution that meets and exceeds the requirements set forth in NDOT Solicitation 6027 OF. SSI appreciates NDOT's consideration.

**SURFACE SYSTEMS & INSTRUMENTS, INC.**



By \_\_\_\_\_  
Dennis P. Scott, President



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# Inertial Profiler



▲ CS9300 Inertial Profiler ▲

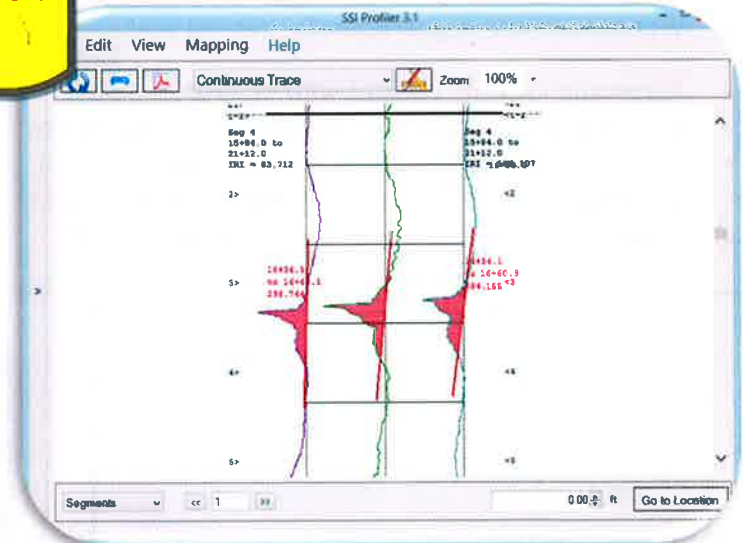


▲ CS9100 Mid-Mount Inertial Profiler ▲

GPS-DMI Option



▲ GPS Tracking Thru Profile Data in SSI Profiler 3, Google Earth/Maps ▲



▲ IRI and Localized Roughness Displayed by Individual Track ▲

## Precise Surface Profile Measurement at Highway Speeds

## DOT Compliant QA/QC Testing on All Pavement Types

Meets ASTM/AASHTO Standards Easy Collection & Analysis Software Productive & Reliable (=Quick ROI)

## Profiling System Specifications

- Collect data up to 70 mph (112 kph)
- Meets **E950**, **M328, R054, R056-057**
- Meets or exceeds all Class I requirements of **ASTM E950**.
- 1 inch sampling interval at all collection speeds.
- Features LMI Technologies' new 5 kHz Gocator **wide beam lasers** for asphalt and concrete pavements.
- ±5g rated Accelerometers with 0.0001g accuracy.
- Proven ability to replicate wavelengths of ~0.25 feet (7.62mm) in excess of 760 feet (231.6 meters).
- All sensors and electronics removable for reuse on SSI CS8700 lightweight profiling system.

## Compliance and Equipment

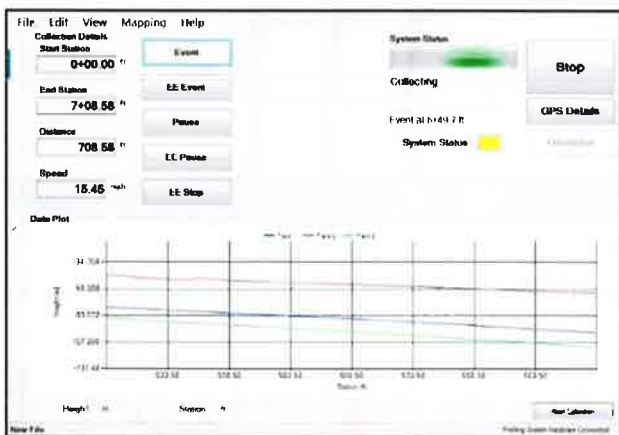
- Complies with all commonly used agency specifications.
- Equipped with industrial grade sensors and connectors.
- Core electronics manufactured in an ISO 9001 facility.
- **TOUGHBOOK** rugged computer on all systems.
- Custom docking station mount for comfort and access.
- All systems run off of a 12 volt power supply

## Operation, Training & Support

- One person operation. All in cab operation.
- Speed range: 1 inch sampling for all speeds (5-65 mph)
- Operating ambient temperature range: 32° to 110° F
- Moisture: profiling system components impervious to moisture (but quality of data degrades on wet pavement).
- Worldwide multi-lingual operator training available.
- Automatic software updates with SSI Profiler 3
- In field replacement of portable, modular components.
- **Warranty** and rapid response **customer support** on all profiling system hardware and software components.
- **Options:** GPS-DMI, survey GPS with CAD output, HD camera, rut measurement, printer and more.

## Best-In-Class Profiling System Software

- Windows 7/10 Professional software programs.
- Easy calibration instructions for bounce test, laser verification, accelerometer and distance calibrations.
- On screen visual aids and fast reporting of profile results.
- Support for Google Earth, Google Maps and Microsoft MapPoint
- Navigate to locations within profile data using real time **GPS Tracker** and navigational/mapping capabilities.
- User selectable parameters for English and Metric units.
- Real time data display of profile trace.
- Electric Eye data triggers on each side of system function at 30+ feet (10+ meters).
- User programmable keyboard shortcuts
- SSI "Continuous Collection" software suspends collection below 5 mph and resumes when speed exceeds 5 mph.
- Pause areas integrated into collection. View paused areas separately or exclude.
- Multiple Profile Indexes: **IRI** (International Roughness Index, Mean IRI (**MRI**), Half Car Ride Index (HRI), Profile Ride Index (**PRI**, ASTM E1274), Ride Number (RN).
- Multiple outputs for **Areas of Localized Roughness:** IRI based roughness with configurable thresholds; Rolling Straightedge, Profilograph must-grind bumps, Texas 1001-S localized roughness, Boeing Bump reporting.
- Raw data is rewritable: **change parameters at any time.**
- User defined filtering values for high and low pass filters.
- Patented multiple trace reporting capability.
- Export data into **PROVAL** (PPF, ERD), PDF, Excel, CSV, PRO, CAD, Survey, and Text
- Data is encrypted for security.



▲ Computer Instructed Calibration and Data Collection Routines ▲

▲ Gocator Wide Footprint Laser ▲

▲ In-Cab Touchscreen Computer ▲

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## SSI HIGH SPEED PROFILING SYSTEMS—TECHNICAL SPECIFICATIONS



▲ **CS9300** Portable Front Mount System ▲



▲ **CS9100** Mid-Mount System ▲



▲ **CS9400** Simple Profiler ▲

- **Measurement Principle:** Inertial profiling system (with laser and accelerometer-established inertial reference and high-resolution optical encoder sensor or optional GPS based distance measurement).
- **Device Rating:** Meets or exceeds Class I requirements of ASTM Standard E950 ("Standard Test Method for Measuring the Longitudinal Profile of Traveled Surfaces with an Accelerometer Established Inertial Profiling Reference"). Complies with DOT and other industry standards, including AASHTO M328, R054, R056 and R057.
- **Data Sampling Interval:** Variable sampling interval with default set to 25 mm (1.0 inch). One-inch (25 mm) sampling interval valid for all collection speeds. User configurable sampling interval to >1.0 inch (e.g. 6 inches).
- **Distance Measurement:** Optical encoder-based distance measurement system with longitudinal distance accurate to 0.1% or greater. Optional GPS based distance measurement.
- **Height Measurement:** Vertical measurements acquired with one or multiple non-contact laser range finder sensors unaffected by pavement texture, color, reflectivity or ambient lighting. Wide footprint lasers recommended to eliminate impact of grooves, tining and coarse texture. Wide beam lasers sample at 5KHz with 260 points across 4" (100mm). Single point lasers sampling at 32-64KHz. Laser vertical measurement accuracy: 0.00005 inches typical with 0.0005" resolution. Aerospace grade accelerometer sensors (rated for up to +/- 10g; resolution accuracy: 0.0001g).
- **Laser Classification & Safety Admonition:** The laser sensors on SSI inertial profiling systems utilize light sources that are semiconductor lasers emitting visible light. The lasers have a 3B/IIIb classification under the standards relating to laser products specified in IEC 60825-1<sup>1</sup> and U.S. FDA CFR Title 21 Part 1040<sup>2</sup> and Laser Notice No. 50, dated July 26, 2001.<sup>3</sup> Class 3B/IIIb components are **UNSAFE** for eye exposure. Usually only ocular protection would be required. Diffuse reflections are safe if viewed for less than 10 seconds. **WARNING:** DO NOT look directly into the laser beam. It is recommended that laser safety goggles (for Class 3B/IIIb lasers) be worn by the operator or others in close proximity of the profiling system hardware when the lasers are operational.
- **Profile Features and Preservation:** Proven ability to measure and preserve fine surface features more accurately than any competing system. Profile wavelength preservation with SSI inertial profiling system

<sup>1</sup> International Standard IEC 60825-1 (2001-08) Consolidated edition, Safety of laser products – Part 1: Equipment classification, requirements and user's guide.

<sup>2</sup> Technical Report TR 60825-10, safety of laser products – Part 10. Application guidelines and explanatory notes to IEC 60825-1.

<sup>3</sup> Laser Notice No. 50, FDA and CDRH <http://www.fda.gov/cdrh/rad-health.html>

# SSI INERTIAL PROFILING SYSTEM SPECIFICATIONS

from ~0.25 feet (76.2 mm) to ~6500 feet (1981.2 meters). With optional survey subsystem added to SSI profiling system, long wavelengths can be preserved to a theoretically infinite length. Optional control point data merge capability for survey and machine control applications.

- Repeatability & Accuracy: Guaranteed to meet or exceed industry standards, specifications and certification protocols (including AASHTO M328, R056, and Texas 1001-S).
- Specification Compliance: Complies with all commonly used agency specifications and test methods for use of inertial profiling systems for ride quality testing applications.

## Profiling System Electronics and Computer Hardware:

- Profiling System Core Electronics Module: Custom profiling system core electronics module fabricated in ISO 9001 compliant facility. Single module connects to all profiling system sensors with dedicated micro-processors for each sensor. Profiling system core electronics is portable, modular, and sized for express shipment worldwide for prompt in-field replacement.
- Profiling System Sensors: Industrial / aerospace grade sensors. System supplied with durable shielded cables with Amphenol connectors.
- Operator Interface Computer: Mil-Spec tested Panasonic Toughbook 19/31 ruggedized notebook computer (typical CF-31 configuration: Intel i3/i5 processor, Microsoft Windows XP Professional or Windows 7 operating system, minimum 2GB RAM (expandable to 4-8 GB); minimum 160-320GB hard drive, optional DVD multi-drive, Gigabit Ethernet LAN, wireless 802.11 a/b/g/n, 13.3" SVGA display with outdoor readable touch screen; under 8 lbs; lithium-ion internal battery. Additional options and accessories available for Toughbook computer.
- In-Vehicle Workstation: Pedestal mount system and docking station for operator interface computer and power supply. Alternate suitcase enclosure supplied with internal power supply can communications cabling for connection between profiling system instrumentation and operator interface computer.

## Profiling System Mount Attachment:

- Mount Hardware: Professionally engineered mount hardware for attachment of inertial profiling system components onto front or rear of industry standard vehicles. Portable systems attach to standard 2 inch (5.08cm) square receiver tube and operate from host vehicle's 12V power supply.
- Flexible DMI Hardware: Hardware supplied for attachment of high-resolution distance measurement interface to rear wheel of host vehicle. Dedicated lug-extendors or optional collets supplied. Optional GPS based distance measurement.
- Sensor Adjustment: Dove-tail hardware supplied for horizontal and vertical adjustment of laser / accelerometer sensor modules.
- Adaptor Hardware: Custom hardware design and fabrication available for profiling system attachment according to customer defined requirements or specifications (front, rear, or mid-vehicle mount).

## Profiling System Software:

- SSI Profiler Software Suite: SSI internally developed software routines for profiling system calibration, data collection, data analysis and reporting. On-screen instructions for system calibration and data collection. Feature rich data analysis software. Current versions built on over 23 years of continuous development.
- Profiling Programs Fully Compatible with Microsoft Windows: All software fully integrated with Microsoft Windows 7/10 Professional operating system).
- Multiple Calibration / Diagnostic Routines: Menu driven calibration routines for distance, proprietary accelerometer static calibration (in-field), bounce test (data file saved), laser height verification (0.25"/0.5"/1.00"/2.00"), rut-depth (if equipped) and cross-slope (if equipped). Internal diagnostics provide real-time monitoring of profiling system health.

# SSI INERTIAL PROFILING SYSTEM SPECIFICATIONS

- User-Selectable Parameters: English or Metric units for both data acquisition and reporting; new file parameters become default (no recurring new file setup). Industry standard and user definable parameters to facilitate identification, authentication and sharing of profile data.
- Real Time Display: Real time display of vehicle position and surface profile trace during data collection.
- Multiple Data Collection Triggers: 3 data collection triggers: (i) SSI Reverse Direction Trigger (proprietary procedure that collects exact stations without pre-marking test sections and post-testing cone removal), (ii) Electric Eye, and (iii) On-the-Fly.
- Event Marking: Entry of location notes by (i) push button or electric eye, with text editing by operator after safe finish of data collection, or (ii) user configurable hot keys (assigning unique event types to particular keyboard buttons).
- Urban Area Data Collection: SSI “Continuous Collection” software suspends collection system when speed traffic signals and resumes collection upon system exceeding 5 mph forward speed.
- Pause Function with Data Retained: Pause data collection manually or with electric eye. Data from paused sections retained for reporting separately or combined with non-paused areas.
- Multiple Profile Indexes: Profile data reported in multiple indexes Profile Ride Index (PRI), International Roughness Index (IRI)(by segment or continuous), Mean IRI (MRI), Half Car Ride Index (HRI), Ride Quality Index (RQI), and Ride Number (RN).
- Localized Roughness: Multiple outputs of localized roughness supported. Rolling straightedge, profilograph must grind bump/dip template, Texas 1001-S localized roughness, IRI areas of localized roughness reported according to user specified IRI thresholds. Dimensions of localized roughness calculated by length of defect and peak amplitude.
- Re-Writeable Data with Variable Data Analysis Parameters: Raw profile data infinitely rewritable for outputting reports and profile traces under user adjustable parameters.
- Configurable Filtering: Raw inertial profile data can be analyzed with configurable low pass, high pass or band pass filters (Butterworth, moving average or custom filters).
- Multiple Trace Reporting: Patented multiple profile trace data acquisition and reporting capability. Single sensor systems report dual tracks (separately collected in either direction).
- Data Conversion Sub-Routines Supplied: Export routines for conversion of profile data to industry specified formats (ERD, PPF, PRO, ASCII, CSV, Excel, Text, raw profile/ProScan, GIS and customized per request).
- One Touch PDF Images: Create universally readable PDF images of profile traces and reports directly within SSI Profiler program.
- Multiple Software Licenses: Data analysis software licenses provided for profiling system and desktop computer usage.
- Data Encryption: Encrypted raw data files for data integrity security, raw data by repeat analysis under adjusted parameters.

## Operational & Physical Attributes:

- One Person Operation: “All-in-Cab” data collection, analysis and reporting system (profiling system data collection and analysis functions can be performed by one person without leaving the cab of the vehicle).
- Speed Range: Forward speed: Minimum: 5 mph (8 kph); Maximum: 74 mph (119 kph) for Class I data (true 1” / 25 mm sampling interval).
- Temperature: Operating ambient temperature range: 25° to 110° F (-3.9°-51.6°C); non-laser component operating temperature range: 0° to 140° F (18-60°C). Storage temperature range: -25° to 160° F (-32-71°C).
- Humidity: Operating humidity should not exceed 90 percent (noncondensing); non-operating humidity range shall not exceed 100 percent (noncondensing).
- Moisture: Profiling system components impervious to moisture. Quality of measured profile degrades with excessive moisture (active rainfall, standing water or ponding on surface).
- Dimensions: CS9300 Portable System: 60” L x 8” W x 24” H (152 cm L x 20.3 cm W x 61 cm H).
- Weight: CS9300 System: 75 lbs (34 kg) • CS9100/CS9400 System: 35 lbs (16 kg).

# SSI INERTIAL PROFILING SYSTEM SPECIFICATIONS

- Electrical Ratings:
  - Input: 5-14 volts DC.
  - Operating: ~3 amps.

## Support:

- Operator Training: Worldwide multi-lingual on-site operator training available.
- Real Time Diagnostics: Profiling system health monitored by real-time diagnostics to verify integrity of main profiling system electronics, all sensors, and data communication interface. Visual and audible feedback.
- Software Updates: Self-executing program updates overwrite prior versions. Supplied by internet download.
- In-Field Component Replacement: All collection system components portable, modular for in-field replacement.
- Warranty: Extended (eighteen month) warranty on all profiling system components and accessories. SSI warranty exceeds normal industry coverage.
- Customer Support Representatives: Customer assistance available worldwide by telephonic, e-mail and on-site assistance (24x7 support available as requested or needed).

## Options & Accessories:

- GPS & Advanced GPS Toolkit: Embedded GPS options with accuracies from 2 meters to ~1-2 centimeters. Coordinates from GPS receivers correlated with profiling system station (chainage) data, Google Earth/Maps and dynamic profile trace navigation. Support for real-time GPS based editing of station locations/equations, paused sections, and event marking.
- Specialty Lasers: Wide beam lasers available for improved testing on tyned concrete, grooved or coarse textured pavements.
- No Lasers: CS9450 Simple Roughness Meter available with axle mounted accelerometer-based profile measurement; ideal for IRI/RMS assessment on unpaved roads, trails or surfaces with extreme roughness.
- Mobile Surveying: Add instrumentation to create mobile 2D/3D survey functionality. Available with RTK post-processed GPS and control point merger with inertial profile and cross-slope data for high resolution topography mapping. Three track or full lane width profile configurations supported for merger with cross-slope and corrected GPS/control data. Survey and CAD data outputs supported (e.g. PNEZD, LAS. PLLHD. GPGGA, etc.) for use in third party surface design and machine control applications.
- Rut Depth Measurement: Available configurations: (i) 3 point (South Dakota method), (ii) 5 point (AASHTO PP 38 compliant), or (iii) full lane width transverse profile (AASHTO PP69-10 & 70-10).
- Texture: Pavement texture measurement and reporting option (ASTM E1845 mean profile depth or 3D).
- Camera: Dashboard mounted digital camera for roadside images merged with profile data at user specified intervals. Image viewer available with reporting of adjacent ride, rut and GPS details.
- Humidity/Temperature: Instrumentation available for recording relative humidity and temperature (ambient and pavement surface) during profile measurements.
- Multi-System Integration: Support for profiling system integration with other sub-systems (imaging, asset inventory, surface distress, rut depth measurement, GPS/GIS, etc.) available. UDP or other compatible system interface support provided for integration of profiling system with other data collection and reporting systems.
- Printer: Optional on-board thermal or mobile printers (roll or sheet feed).

## Patented Technology:

SSI profiling systems include technology within the scope of patents granted by (or filed with) the U.S. Patent and Trademark Office. Contact SSI for further patent or other technical information.



# Certificate of Completion

## Surface Systems and Instruments, Inc.

This is to certify that the person named above has successfully completed the

### Manufacturer's Certification for Inertial Profilers

By NCAT at Auburn University

February 8, 2017

Profiler	SSI - CS 9500			
	Rough DGA	Medium-Smooth DGA	Smooth DGA	OGFC (≤5%)
Repeatability (≥92%)	99%	98%	97%	
Accuracy (≥90%)	97%	95%	95%	1%



at AUBURN UNIVERSITY

Jason Nelson, Training Coordinator  
National Center for Asphalt Technology



DEPARTMENT OF TRANSPORTATION