

IX. EVALUATION AND SELECTION

A. Introduction

The procurement process is a multi-step process to determine the most responsible and responsive proposal that offers the “best value” business solution to Caltrans. A “best value” evaluation does not emphasize low cost at the exclusion of other factors. It is a balanced assessment consisting of cost and perceived risk matched to the business needs.

This section discusses the process Caltrans will follow in evaluating proposals submitted by Bidders in response to the RFP and the criteria to be used in evaluating proposals. The selection process includes review of the Draft Proposals, with confidential discussions where Caltrans provides feedback to each Bidder, followed by a scored evaluation of Final Proposals.

This procurement is being conducted under the guidance of a Procurement Official from the Department of General Services (DGS) (refer to RFP Section I). Caltrans has established an Evaluation Team comprised of individuals selected from Caltrans staff from different regions and different disciplines. The RDS Evaluation Team is considered one group, and the opinion of that group is by consensus. Review of Bidder Draft Proposals and evaluation and scoring of Final Proposal Submissions will be by consensus of the entire Evaluation Team.

The DGS official serves as the point of contact for the Bidder for questions and clarification. Caltrans may engage additional qualified individuals or subject matter experts (SME’s) during the evaluation process to assist the team in gaining a better understanding of technical, or program issues. SME’s do not have voting privileges or responsibility for the evaluation process, but they may serve in an advisory capacity.

Bidders are required to thoroughly review all RFP requirements to ensure that the proposal and the proposed approaches and plans are fully compliant with RFP requirements. If the Evaluation Team finds that a Final Proposal has a material deviation, that proposal will be considered non-responsive and will not be considered for further evaluation.

Complete proposals must be delivered by the dates and times specified in Section I, Key Action Dates. The Procurement Official will verify that all responses are submitted under an appropriate cover, sealed and properly identified.

Proposals will remain sealed until the designated time for opening.

B. Review of Draft Proposals

Draft Proposals submitted by the date and time designated in the RFP Section I, will be opened and reviewed for compliance with the requirements of the RFP.

1. Draft Proposal Review

The Draft Proposal must contain the complete Bidder proposed solution, **without costs**. The main purpose of the Draft Proposal is to provide Caltrans with a complete proposal (except for cost figures) to identify areas in the Bidder's proposal that, if not corrected, are unclear or could cause the Bidder's Final Proposal to be rejected. The Draft Proposal format and submission must follow the guidelines presented in Section VIII.

Draft Proposals will be reviewed by the Evaluation Team for compliance with the complete set of RFP requirements along with any explanations provided by the Bidder to add substance or provide background on how requirements will be met. The Evaluation Team will conduct the reviews to:

- Verify completeness of Reference Questionnaires; and
- Identify Conditional Statements – “Qualifiers” or conditions (conditional proposals) are not acceptable; and
- Document Deficiencies – Identify and document areas in which a proposal appears to be non-responsive, unclear, incomplete, defective, or require additional clarification.

After Draft Proposals have been reviewed, individual Confidential Discussions will be scheduled with each Bidder to discuss items that need clarification and to disclose defects found by the Evaluation Team. Prior to Confidential Discussions with the Bidder, the State will prepare a Confidential Discussion Agenda itemizing the identified defects.

The review of Draft Proposals is not an opportunity to make major changes to the bid, but only to correct those errors that could cause the Final Proposal to be deemed non-responsive. **THE STATE MAKES NO WARRANTY THAT ALL SUCH ERRORS WILL BE IDENTIFIED DURING THE REVIEW OF THE DRAFT PROPOSAL OR THAT SUCH ERRORS REMAINING IN THE FINAL PROPOSAL WILL NOT CAUSE THE PROPOSAL TO BE REJECTED.**

2. Confidential Discussions

The Evaluation Team will meet with each Bidder to discuss the Bidder's Draft Proposal. These Confidential Discussions will allow the Bidder to request clarification or ask questions specific to its proposed solution, thus protecting the confidential nature of each unique solution. Caltrans will discuss its concerns and ask for clarification if a response to a requirement is not clear or

well defined, or if the proposed solution contains deficiencies. Bidders are strongly encouraged to bring their proposed project team and discuss the Evaluation Team comments at this time.

The Confidential Discussions are intended to minimize the risk that a Bidder's Final Proposal will be deemed defective; however, such discussions will not preclude rejection of the Bidder's Final Proposal if such defects are later found. The State does not warrant that all defects will be detected during the Draft Proposal Review.

C. Evaluation and Scoring of Final Proposals – Overview

Final Proposals will be logged as received by the Procurement Official listed in RFP Section I; and verified to ensure that all responses are submitted under an appropriate cover, sealed, and properly identified.

Failure to meet each mandatory requirement may cause the Bidder's proposal to be deemed non-responsive.

The evaluation of Final Proposals will consist of the following steps.

1. Preliminary Review and Validation (Pass/Fail)

All proposals received as specified in Section I, will be acknowledged as having been received at that time. Volume III - Cost Data shall remain sealed and in the possession of the Procurement Official until the evaluations of all requirements have been completed for all Bidders. The Final Proposals will be checked for the proper identification and required information, as specified in Section VIII. The results of this review will be documented using the Preliminary Review Sheet, Exhibit IX-1. **Unsealed proposals may be rejected.**

Cost proposals will only be opened for compliant Bidders receiving 70% or more of the available non-cost points. On the date of the public cost opening, the State will post a summary of the non-cost points awarded to each Bidder. This summary will be provided to all Bidders and the public in attendance at the cost opening as well as persons who request the summary.

- **Validation Against Requirements**

The State will check each proposal in detail to determine its compliance to the RFP requirements. If a proposal fails to meet an RFP requirement, the State will determine if the deviation is material as defined in Section II. A material deviation will be cause for rejection of the proposal. If a deviation is deemed to be non-material; evaluation will continue.

The proposals will be reviewed by the Evaluation Team to determine completeness of required documentation and compliance with Disabled

Veterans Business Enterprise (DVBE), Small Business, TACPA, LAMBRA, and EZA requirements, as described in Section V.

2. Administrative Requirements (Pass/Fail)

The RDS Evaluation Team will review the Bidder's response to determine if all administrative requirements have been met. All Administrative Requirements are Pass/Fail. See Appendix C, Form V-H: Administrative Requirements Response Matrix, for a complete list.

NOTE: The Reference requirement consists of two components, Pass/Fail and scored. The scored portion is included in the Business and Technical Requirements (Technical Requirements) and contributes to the total non-cost points.

3. Maximum Available Non-Cost Points = 6594

The Evaluation Team will review and evaluate the Bidder's responses to the various Business and Technical Requirements (Technical Requirements) described in detail in Subsection D, in this Section. The maximum available non-cost points are 6594. For each category, points will be awarded based on the Bidder's response and the evaluation criteria within this section.

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4. Bid Opening and Cost Assessment

There will be a public cost opening for all responsive/responsible Bidders' proposals that meet all the mandatory requirements and achieve at least 70% of the available non-cost points (4516). Bidders that do not meet this minimum score will not have their Cost Proposals opened.

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After cost opening, all bids will be validated to verify that they are complete and free of mathematical errors. If necessary, errors and inconsistencies will be resolved in accordance with Section II.

5. Determination of Winning Proposal

The total score (requirements and cost) will be calculated for each proposal. All necessary adjustments for preference and/or incentive points will be calculated and applied before determining the final score for each proposal. The Contract award, if any, will be made to the proposal with the highest final score.

D. Technical Requirements – Evaluation Process and Determination of Score (Maximum Score = 6594)

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A maximum score of 6594 is possible for the technical requirements portion of the proposal. Details and scoring examples for the various components of the Technical Requirements follow:

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1. Draft Project Management Plan

(Maximum Score = 320)

Each Bidder must include a Draft Project Management Plan as part of their proposal. The Draft Project Management Plan will be assessed and scored based on the criteria and points shown in Tables IX-1 and IX-2. A maximum of 320 points are available for the Draft Project Management Plan.

Table IX-1: Project Management Plan Scoring Criteria

Criteria	Percentage of Available Points
The narrative response is compliant with the requirement, describes the specific approach which has been tailored for this project, and demonstrates to the Evaluation Team that the Bidder has a comprehensive and detailed understanding of the project scope.	100%
The narrative response is compliant with the requirements for this project, and demonstrates to the Evaluation Team that the Bidder has a fundamental understanding of the project scope.	50%
The narrative response only partially addresses or fails to address the requirements of the project, and demonstrates to the Evaluation Team that the Bidder has little or no understanding of the project scope.	0%

The Evaluation Team shall document their findings to show how the percentage of Points Earned was applied for each requirement. The Evaluation Team documentation will be included as a comment in the Evaluation and Selection Report.

Table IX-2: Project Management Plan Components and Scoring

Requirement Number	Requirement	Percentage of Points Earned	Available Points	Points Earned
Project Schedule (70 points total)				
P1	Project schedule reflects expected timeframes		10	
P2	Includes full list of project tasks		10	
P3	Includes start/end dates with durations		10	
P4	Includes milestones (as appropriate)		10	
P5	Dependencies are accurate		10	
P6	Includes resource assignments		10	
P7	Schedule management plan includes schedule monitoring and update procedures		10	
Proposed project organization, including roles and responsibilities (50 points total)				
P8	Project organization chart is included		20	
P9	Roles and responsibilities are well defined		20	
P10	Project organization chart conforms to resource assignment in project schedule		10	
Risk/issue management plan (50 points total)				
P11	Issue resolution procedures are well defined		10	
P12	Includes list of planned risk and issue resolution activities, including responsibilities		10	
P13	Includes risk/issue identification and tracking process		10	

Table IX-2: Project Management Plan Components and Scoring (continued)

Requirement Number	Requirement	Percentage of Points Earned	Available Points	Points Earned
P14	Risk mitigation procedures are defined		10	
P15	Issue escalation procedures are defined		10	
Communication Plan (50 points total)				
P16	Communications are well defined		20	
P17	Includes list of planned communication activities, including responsibilities and audience		30	
Change Management Plan (50 points total)				
P18	Change management procedures are well defined		20	
P19	Includes list of planned change management activities, including responsibilities		30	
Quality Plan (50 points total)				
P20	Requirements tracking procedures are defined		20	
P21	Documents conformance to Caltrans hardware/software standards. Refer to Section IV.E		20	
P22	Documents understanding of Caltrans security standards. Refer to Section IV.C		10	

Project Management Plan Components and Scoring Sample (i.e. Project Schedule):

Table IX-3 contains a sample of how the Project Management components will be scored.

Table IX-3: Project Management Plan Components and Scoring Sample

Requirement Number	Requirement	Percentage of Points Earned	Available Points	Points Earned
Project Schedule (70 points total)				
P1	Project schedule reflects expected timeframes	50%	10	5
P2	Includes full list of project tasks	0%	10	0
P3	Includes start/end dates with durations	50%	10	5
P4	Includes milestones (as appropriate)	100%	10	10
P5	Dependencies are accurate	100%	10	10
P6	Includes resource assignments	0%	10	0
P7	Schedule management plan includes schedule monitoring and update procedures	100%	10	10

In this example, the Bidder has the total score of 40 points (5+0+5+10+10+0+10=40) for the Project Schedule portion of the plan.

2. System Administration Requirements

(Maximum Score = 660)

The System Administration Requirements are broken into eight parts, each with a set of mandatory and desirable requirements. The mandatory System Administration Requirements are pass/fail. A complete list of requirements is located in Appendix D, Form VI-2.

The desirable System Administration Requirements are scored. Table IX-4 provides the available points for each desirable requirement. For each desirable requirement met, the available points for that requirement will be awarded. The Requirement Numbers listed in this table match the desirable requirements listed in Appendix D.

Table IX-4: System Administration - Desirable Requirements

Requirement Number	Requirement	Meets Requirement (YES/NO)	Available Points	Earned Points
Part 1. Hardware Requirements				
S2	The minimum amount of RAM (published by vendor) required to run the software is less than or equal to 512 megabytes.		20	
S3	The minimum amount of RAM (published by vendor) required to run the software is less than or equal to 1 gigabyte.		20	
S4	The recommended amount of Hard Disk space (published by vendor) needed to install the software is less than 1 gigabyte.		4	
S5	The minimum CPU (published by vendor) required to run the software is less than or equal to a Pentium 4 2.0GHz processor.		4	
Part 2. Software Requirements				
S10	The software is compatible/supported with Microsoft Windows XP Professional, Vista, and the latest Microsoft operating system available.		20	
S11	The software is compatible/supported with import/export to Microsoft Office Professional 2000.		4	
S12	The software is compatible/supported with import/export to Microsoft Office Professional 2003.		20	

Table IX-4: System Administration - Desirable Requirements(Continued)

Requirement Number	Requirement	Meets Requirement (YES/NO)	Available Points	Earned Points
S13	The software is compatible/supported with PDF export.		4	
S14	The software is compatible/supported with Internet Explorer 6.0 export.		4	
S15	The software is compatible/supported with Internet Explorer 7.0 export.		4	
S16	The software supports multiple users on the same computer, each with customizable settings, on Windows XP Professional.		20	
S17	The software supports multiple users on the same computer, each with customizable settings, on Windows Vista Business.		20	
Part 3. Installation				
S20	The installer is available as a Microsoft Installer (MSI) format.		20	
S21	The installer is installable from a network server by mapped drive and by UNC.		20	
S22	The installer is capable of installing silently (no prompts).		20	
S23	Multiple versions of the software can be installed, co-exist, and function on the same computer.		20	
S24	Components can be installed/added without full re-install.		20	

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Table IX-4: System Administration - Desirable Requirements(Continued)

Requirement Number	Requirement	Meets Requirement (YES/NO)	Available Points	Earned Points
Part 4. Configuration				
S26	The configuration settings can be packaged into a single file.		20	
S27	The configuration settings can be text file configurable.		20	
S28	The configuration function has built-in error checking.		20	
S29	Multiple users can configure custom settings.		20	
S30	Multiple users can configure custom settings without using Windows Profiles.		20	
Part 5. Usage Rights				
S32	Usage is fully open. (i.e. Program can be installed and used without the use of the original CD/DVD, a unique key, etc.)		20	
S33	Usage is controlled via a pool at the local area network server.		20	
S34	Usage can be granted for use without network operation.		20	
Part 6. Uninstalls				
S36	Patches/Updates can be discretely uninstalled.		20	
S37	Uninstall uses standard Windows uninstall.		20	
S38	Components can be uninstalled without uninstalling entire software.		20	
S39	Uninstall is capable of silent uninstall (no prompts).		20	

Table IX-4: System Administration - Desirable Requirements(Continued)

Requirement Number	Requirement	Meets Requirement (YES/NO)	Available Points	Earned Points
Part 7. Patches/Updates				
S41	Patches/Updates are modular and do not require complete re-install of product.		20	
S42	Patches are configurable (i.e. allows user-defined settings such as installation path, reboot options, etc.)		4	
S43	Patches are capable of silent install (no prompts).		20	
S44	Patches can be managed centrally.		20	
S45	Patches can be performed on-demand by ordinary user.		4	
S46	Summary of installed patches can be given on demand.		20	
S47	Patches auto-detect pre-requisites.		20	
S48	Reports can be gathered for machines that do not have certain patches.		20	
S49	Users can be notified of new patches.		20	
S50	Users can be notified of missing patches.		20	

Table IX-4: System Administration - Desirable Requirements(Continued)

Requirement Number	Requirement	Meets Requirement (YES/NO)	Available Points	Earned Points
Part 8. User Security				
Desirable:				
S52	Users can secure their projects within the software to keep other users from modifying their projects.		4	
S53	If the software has integrated security, Administrators have ability to access the projects of users that have secured their projects using the software's integrated security.		4	

A scoring sample for the Desirable System Administration Requirements is provided in Table IX-5.

Scoring Sample (i.e. Part 7: Patches/Updates)

Table IX-5: Desirable System Administration Requirements Scoring Sample

Requirement Number	Requirement	Meets Requirement (YES/NO)	Available Points	Earned Points
Part 7. Patches/Updates				
S41	Patches/Updates are modular and do not require complete re-install of product.	YES	20	20
S42	Patches are configurable (i.e. allows user-defined settings such as installation path, reboot options, etc.)	YES	4	4
S43	Patches are capable of silent install (no prompts).	YES	20	20
S44	Patches can be managed centrally.	NO	20	<u>0</u>
S45	Patches can be performed on-demand by ordinary user.	NO	4	<u>0</u>
S46	Summary of installed patches can be given on demand.	YES	20	20
S47	Patches auto-detect pre-requisites.	NO	20	<u>0</u>
S48	Reports can be gathered for machines that do not have certain patches.	YES	20	20
S49	Users can be notified of new patches.	YES	20	20
S50	Users can be notified of missing patches.	NO	20	<u>0</u>

In this example, the Bidder earned 104 points (20+4+20+0+0+20+0+20+20+0=104) for this part of the System Administration Desirable requirements. Four requirements were not met S44, S45, S47 and S50; therefore, no points were awarded for those desirable requirements.

3. Mandatory Functional Requirements

All Mandatory Functional Requirements are Pass/Fail. See Appendix D, Form VI-3, for a complete list.

4. Desirable Functional Requirements

(Maximum Score = 1664)

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For each desirable requirement met, the available points for that requirement will be awarded. See Table IX-6 for the available points for each Desirable Functional Requirement.

Table IX-6: Desirable Functional Requirements

Requirement Number	Desirable Functional Requirements	Meets Requirement (YES/NO)	Available Points	Earned Points
GENERAL SPECIFICATIONS				
GENERAL SPECIFICATIONS: General				
D1	The software should provide design and drafting features in MicroStation.		20	
D2	The software is capable of running in MicroStation and in other drafting software.		20	
D3	If the software doesn't work within MicroStation, the software should use multiple tables during translation process (e.g. symbol, color, layer/level, line style tables, etc.)		16	
GENERAL SPECIFICATIONS: Documentation				
D4	The solution includes online tutorials and online training.		16	
GENERAL SPECIFICATIONS: File Structure/Management				
D5	The software provides user tools to manage files (not computer managed only).		16	

Table IX-6: Desirable Functional Requirements (Continued)

Requirement Number	Desirable Functional Requirements	Meets Requirement (YES/NO)	Available Points	Earned Points
D6	The software generates a project history/log file.		12	
D7	The software allows multiple users to access the same project files simultaneously, with security features to prevent users from overwriting changes made by others.		20	
GENERAL SPECIFICATIONS: User Interface				
D8	The software provides a consistent look of menus, dialog boxes, messages, and functions (i.e. same fonts, colors, and formatting.)		20	
D9	The software provides menu-driven commands with characteristics as follows:			
	a. Has three or less submenus in a stream for all menu-driven commands;		16	
	b. Provides a grouping of commands based on transportation design process (e.g. Pull Down Menu has groups for Horizontal Alignments, Vertical Alignments, Superelevation, etc. and all commands needed to design and display that item are under that menu); and/or		20	
	c. Has user-defined toolbars and menus transferable between users/projects.		16	
D10	The software provides the ability to repeat the last command without invoking the menu structure.		16	
D11	The software displays object attributes with cursor.		16	
D12	The software provides the ability to recall the data entry from the last use of that command.		12	

Table IX-6: Desirable Functional Requirements (Continued)

Requirement Number	Desirable Functional Requirements	Meets Requirement (YES/NO)	Available Points	Earned Points
D13	The software provides at least two "Undo" actions for design commands. (e.g. Undo modified and deleted data by selection set or working session.)		20	
DTM SURFACES				
DTM SURFACES: General Specifications				
D14	The software provides a dynamic interface with the DTM engine.		12	
D15	The software is capable of working with large data sets (e.g. laser-scanned data with a large number of points).		16	
D16	The software is able to lock DTM from manipulation/modification.		16	
D17	The software creates DTM extents for GIS purposes.		16	
DTM SURFACES: Input				
D18	The software develops and generates surfaces from a LandXML file format.		16	
DTM SURFACES: Contours				
D19	The software dynamically links contour modifications to DTM surface.		16	
DTM SURFACES: Cross Sections				
D20	The software automatically updates cross sections based on changes to the DTM.		16	
D21	Cross sections identify void areas.		16	
D22	The software extracts cross section sketches directly from 3D digital contour maps without the use of a surface (TIN) model.		12	
D23	The software resolves crossing sections (e.g. at curb returns and bridge cones).		16	

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Table IX-6: Desirable Functional Requirements (Continued)

Requirement Number	Desirable Functional Requirements	Meets Requirement (YES/NO)	Available Points	Earned Points
DTM SURFACES: Modifications				
D24	The software provides dynamic interactive manipulation of multiple surfaces.		16	
D25	The software allows user-defined boundaries and void areas.		16	
D26	The software provides for point filtering (i.e. thinning).		16	
D27	The software is able to process a portion of the DTM in user-defined areas.		16	
DTM SURFACES: Reports/Output				
D28	The software provides DTM export in LandXML format.		16	
D29	The software is compatible with Machine Guided Grading.		16	
COGO				
COGO: Spirals				
D30	Requirement deleted.			
COGO: Manipulation/Modifications				
D31	The software provides dynamic modification capabilities for single or complex geometry elements (e.g. modifying a circular curve in a horizontal alignment would also affect tangents to that curve), with an option to let user save changes as a new element rather than automatically updating the existing element.		16	
COGO: Traverse				
D32	The software graphically previews traverse before it is stored.		16	

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Table IX-6: Desirable Functional Requirements (Continued)

Requirement Number	Desirable Functional Requirements	Meets Requirement (YES/NO)	Available Points	Earned Points
COGO: User-Defined Annotations				
D33	The software provides user-definable tabular element annotation including tables for areas with descriptions and dynamically updates tables when geometry changes.		16	
D34	The software provides radial or tangent bearing annotation at a given point on a curve.		16	
COGO: Reports/Output				
D35	The software provides a report with the ability to list or display user-defined elements, for example: <ul style="list-style-type: none"> • Duplicate points; and • Points not in a string. 		16	
D36	The software provides command listing that can be used to edit and re-run a series of commands.		16	
HORIZONTAL ALIGNMENT				
HORIZONTAL ALIGNMENT: Construct Horizontal Alignment				
D37	Horizontal Alignment reports are capable of providing point descriptors.		20	
VERTICAL ALIGNMENT				
VERTICAL ALIGNMENT: Construct Vertical Alignment				
D38	The software is capable of displaying vertical curves superimposed over Horizontal Alignment curves (visualization tool for improved HA and VA design continuity).		16	
D39	The software is capable of constructing a vertical alignment by a best-fit method.		16	

Table IX-6: Desirable Functional Requirements (Continued)

Requirement Number	Desirable Functional Requirements	Meets Requirement (YES/NO)	Available Points	Earned Points
VERTICAL ALIGNMENT: User-Defined Vertical Alignment Annotations				
D40	The software provides and displays profiles with automatic annotation including K-value.		16	
VERTICAL ALIGNMENT: Modify Vertical Alignment				
D41	When any interactive modification is made, all affected features and elements of the alignment, including stationing, are automatically updated and saved in the design file/model with on/off switch.		20	
VERTICAL ALIGNMENT: Reports/Output				
D42	Vertical alignment reports and output provide:			
	a. Slope differences;		16	
	b. Passing sight distance; and/or		20	
	c. Decision sight distance.		20	
D43	The software computes minimum vertical distance between any two vertical alignments or line strings at overlapping points.		16	
SUPERELEVATION				
SUPERELEVATION: General				
D44	The software provides Superelevation transition curves.		16	
D45	The software imports Excel spreadsheets with Superelevation data.		12	
SUPERELEVATION: Modifications				
D46	The software allows user to copy, edit, delete, insert, move, and revise previously defined Superelevations.		16	

Table IX-6: Desirable Functional Requirements (Continued)

Requirement Number	Desirable Functional Requirements	Meets Requirement (YES/NO)	Available Points	Earned Points
D47	The software is able to graphically modify previously defined Superelevations.		16	
D48	When any modification to Superelevation is made, the affected elements of the design (e.g. cross sections or design model) are automatically updated; including automatic Superelevation plot update with on/off switch.		16	
SUPERELEVATION: Superelevation Plots				
D49	The software provides user-defined Superelevation diagram annotation including:			
	a. Superelevation runoff lengths		16	
	b. Point of intersection for coincidental rates		16	
D50	The software provides Horizontal Alignment Curve annotation (e.g. BC, EC, etc.) on Reference Line.		16	
ROADWAY DESIGN: General				
D51	The software provides a configurable design specification checker (including horizontal and vertical alignments as well as Superelevation.)		20	
ROADWAY DEFINITION				
ROADWAY DEFINITION: General Cross Section Requirements				
D52	The software displays longitudinal features in cross-section view including: <ul style="list-style-type: none"> • Edge drains; and • Utilities (gas lines, pipes, etc.) 		16	

Table IX-6: Desirable Functional Requirements (Continued)

Requirement Number	Desirable Functional Requirements	Meets Requirement (YES/NO)	Available Points	Earned Points
ROADWAY DEFINITION: Defining Roadway Segments				
D53	The software allows a minimum of 10,000 segments, strings of segments, and strings.		16	
D54	The software allows the user to graphically review design sections and strings in cross section window and planimetric window before storing to database.		16	
ROADWAY DEFINITION: Slope Selection/Ditch Design				
D55	The software allows a minimum of 100 slope segments/strings per: <ul style="list-style-type: none"> • Station; • Range of stations; or • Section of roadway. 		16	
D56	The software allows slope input by both ratio and percents.		20	
ROADWAY DEFINITION: Earthwork Quantity Parameters				
D57	The software generates mass-haul diagrams, including the option of forced balance.		16	
ROADWAY DEFINITION: Roadway Cross Section Output (Quantities, Plots, and Reports)				
D58	The software provides a station and offset report of grinding areas and intersection with Original Ground (OG) surface.		16	
ROADWAY DEFINITION: Cross Section Plots				
D59	The software is able to plot partial cross sections.		16	

Table IX-6: Desirable Functional Requirements (Continued)

Requirement Number	Desirable Functional Requirements	Meets Requirement (YES/NO)	Available Points	Earned Points
SITE MODELING/DESIGN				
SITE MODELING/DESIGN: General				
D60	The software allows data input graphically and/or interactively in a dynamic environment.		20	
VISUALIZATION TOOLS				
D61	The software provides 3D animation capabilities (e.g. drive-thru).		16	
D62	The software is able to manipulate and edit in a 3D view.		16	
D63	The software provides photo-realistic rendering capabilities, including the modeling of manmade features (e.g. buildings, vehicles, utility objects, etc.) and natural features (e.g. trees, shrubs, pedestrians, etc.).		16	
D64	The software provides line of sight measurements, distance and bearings between any two defined locations.		16	
D65	The software produces 3D views that are color coded by elevation or slope intensity and allows the user to modify shading settings.		16	
D66	<u>Within the design software, the software is able to view the geometry of the GIS data (from SHP, SDO, ArcSED, Oracle) as a background and GIS data can be thematically represented within the design application based on GIS attributes.</u>		16	
AUTOMATED PLAN/MAP PRODUCTION				
D67	The software has the ability to automate the composition and placement of plan view labels onto plans.		16	

Deleted: The software is able to view GIS data as a background.

Table IX-6: Desirable Functional Requirements (Continued)

Requirement Number	Desirable Functional Requirements	Meets Requirement (YES/NO)	Available Points	Earned Points
MISCELLANEOUS CRITERIA				
D68	The software has user-defined save options (e.g. auto-save every 5 minutes vs. only when user activates a save command.)		16	
D69	The software provides quantity takeoff and cost estimating capabilities.		16	
D70	The software provides a scientific calculator (able to do RPN, convert from DMS to Radians, etc.).		12	
D71	The software is able to link multiple images to any object.		12	
D72	The software allows multiple input methods (e.g. quadrants, azimuths, bearings, mathematical operations, deflection, etc.)		20	
FUNCTIONAL/SPECIALIST UNIT CAPABILITIES				
FUNCTIONAL/SPECIALIST UNIT CAPABILITIES: Hydraulics/Hydrology				
D73	The software can create annotated drainage profiles with the following parameters:			
	a. Pipe type;		16	
	b. Pipe size;		16	
	c. Inlet type;		16	
	d. Flowline elevations, including entrance and exit invert elevations;		16	
	e. Grades;		16	
	f. Normal and critical depth lines where applicable;		16	
	g. User-defined text size, font style and justification;		16	
	h. Original ground/finish grade;		16	
	i. Hydraulic Grade Line (HGL) and Energy Grade Line (EGL) for storm drains; and/or		16	
j. Station and offsets.		16		

Table IX-6: Desirable Functional Requirements (Continued)

Requirement Number	Desirable Functional Requirements	Meets Requirement (YES/NO)	Available Points	Earned Points
FUNCTIONAL/SPECIALIST UNIT CAPABILITIES: Landscape Design				
D74	The software is able to provide user-defined plant labeling.		12	
D75	The software provides automatic take-offs for quantities.		12	
D76	The software provides a customizable item database.		12	
D77	The software provides piping analysis (pressure loss, sizing, etc.).		12	
D78	The software is able to display plant growth with 3D rendering capabilities applying time and plant species parameters.		12	
FUNCTIONAL/SPECIALIST UNIT CAPABILITIES: Right of Way Engineering				
D79	The software generates user-defined metes and bounds/legal descriptions from complex horizontal alignments including alignments with spirals and curves (chord or arc definition).		16	
D80	The software provides user-defined tables for parcel area management.		16	
D81	The software is able to access a parcel database through a user-defined index (e.g. Oracle, Access, SQL).		16	
FUNCTIONAL/SPECIALIST UNIT CAPABILITIES: Bridges				
D82	The software is able to report superstructure and substructure concrete, structural excavation, and structural backfill pay item quantities.		16	
D83	The software is able to create and export a 3D model of bridge superstructure and substructure to a 3D MicroStation file.		16	

Table IX-6: Desirable Functional Requirements (Continued)

Requirement Number	Desirable Functional Requirements	Meets Requirement (YES/NO)	Available Points	Earned Points
FUNCTIONAL/SPECIALIST UNIT CAPABILITIES: Surveys (General)				
D84	The software provides the ability to restrict modifications to specific files (e.g., DTM, survey, design, etc.) to specified users.		16	
D85	The software allows the user to assign different Epoch dates to the coordinate systems.		16	
FUNCTIONAL/SPECIALIST UNIT CAPABILITIES: Surveys (Data Reduction)				
D86	The software has the ability to do least squares network adjustment of survey data from mixed collection methods (GPS, conventional, etc.)		16	
FUNCTIONAL/SPECIALIST UNIT CAPABILITIES: Surveys (Data Validation and Editing)				
D87	The software is able to combine terrain breaklines by user-definable criteria (e.g. same terrain features that fall within a user-defined horizontal and vertical tolerance in order to remove spaces or gaps between lines).		20	
D88	The software is able to identify all points that fall next to other points within a user-defined horizontal and vertical tolerance.		16	
D89	The software is able to accurately divide large DTM surfaces along existing triangulation lines.		16	

Table IX-6: Desirable Functional Requirements (Continued)

Requirement Number	Desirable Functional Requirements	Meets Requirement (YES/NO)	Available Points	Earned Points
GEOGRAPHIC INFORMATION SYSTEMS				
D90	The software is able to directly link, <u>or is able to facilitate through another module,</u> to one of the following GIS databases: <ul style="list-style-type: none"> • ArcSDE <u>(in ArcGIS 9.3.1);</u> • <u>File Geodatabases (in ArcGIS 9.3.1);</u> or • <u>Oracle Spatial (Version 9.2.0.6)</u> for 2D and 3D data; including: <ul style="list-style-type: none"> • Lines and curves (e.g. Alignments, right of way lines); • Polygons (e.g. parcels, ESA's, soil types); and • Points (e.g. cells). 		20	
D91	<u>Requirement deleted.</u>			

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Deleted: Spatial Data Option (SDO)

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Deleted: The software is able to facilitate through another module, to one of the following GIS databases:¶ ArcSDE;¶ Geodatabases; or¶ Spatial Data Option (SDO)¶ for 2D and 3D data; including, :¶ Lines and curves (e.g. Alignments, right of way lines);¶ Polygons (e.g. parcels, ESA's, soil types); and¶ Points (e.g. cells).

A scoring sample for the Desirable Functional Requirements is provided in Table IX-7.

Table IX-7: Desirable Functional Requirements Scoring Sample

Requirement Number	Desirable Functional Requirements	Meets Requirement (YES/NO)	Available Points	Earned Points
D5	The software provides user tools to manage files (not computer managed only).	YES	16	16
D6	The software generates a project history/log file.	NO	12	0
D7	The software allows multiple users to access the same project files simultaneously, with security features to prevent users from overwriting changes made by others.	YES	20	20

In the sample above, the proposed software will provide two of the desired requirements. The Bidder receives the available points for those

requirements, in this example, a total of 36 points (16+0+20=36) are awarded. No points are given for the requirement that is not met. Points will be totaled and used to determine the Bidder's score for this category.

5. References

(Maximum Score =1,760)

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Table IX-8 illustrates the number of points available for each reference question.

References will be scored as follows:

- The total points for each reference will be summed for a grand total.
- The grand total will be divided by 6 (the number of references) to determine the final reference score.

The Evaluation Team may contact references for clarification of submitted Bidder's Reference Questionnaires. Responses will be recorded and follow-up questions may be asked to confirm or clarify the response. If after three attempts, the Evaluation Team is unable to confirm a response; the reference question may receive zero points.

Any unanswered questions will be valued as zero.

See Table IX-9 for reference scoring sample.

Deleted: The Customer Reference Questionnaire – Appendix C, Form V-A, will be scored

Deleted: in two parts. Part 1, consists of Questions 1 thru 6, and determines the weight factor for each reference. ¶
Part 2

Deleted: by the total score from Question 1 thru 18. Afterwards, all six references' total will be added and then divide by six to produce the final score for references..

Deleted: summarizes the points from Questions 7 thru 21. The weight factor is then applied to determine the total score. **If the weight factor equals zero, no points will be given for that reference.**

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Deleted: A "point values for questions 1 thru 18" form is provided in Table IX-8.

Deleted: Part 1: Reference Weight Factors¶
The reference weight factor will be calculated to accurately reflect the bidder's ability to satisfy the requirements in this RFP for each reference. References similar to Caltrans will be given a greater weight. The reference weight factor is determined using Questions 1-6 and by the following steps:¶
Step 1: Determine the scores for each reference. See Table IX-8.¶
Step 2: For each reference, determine the subtotal of points. ¶
Step 3: Sum up the total points for all references.¶
Step 4: Determine each reference weight factor by dividing the subtotal of points of each reference by the total points for all references.¶
Refer to Table IX-9 for Steps 2-4.¶
See Table IX-12 for example.¶

Table IX-8: Point values for Questions 1 thru 18

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Bidder's name:

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REFERENCE'S HISTORY WITH (SOFTWARE)					
Questions	Less than six months	Six months-3 years	3-4 years	4-5 years	5+ years
	(0 points)	(10 points)	(20 points)	(30 points)	(40 points)
1. How long has your company been using (SOFTWARE)?					
CURRENT USE					
	0	1-25	26-100	101-999	1000+
	(0 points)	(15 point)	(30 points)	(45 points)	(60 points)
2. Approximately how many surveyors use (SOFTWARE)?					
3. Approximately how many engineers use (SOFTWARE)?					
SOFTWARE					
	Poor	Below Average	Average	Above Average	Excellent
	(0 points)	(33 points)	(66 points)	(99 points)	(132 points)
4. Functionality (ability to do complex designs)					
5. Ease of use/user friendliness					
6. Ability to meet your requirements					
7. Value for the money spent					
8. Compatibility with other design software					
9. Overall satisfaction					
VENDOR					
	Poor	Below Average	Average	Above Average	Excellent
	(0 points)	(15 points)	(30 points)	(45 points)	(60 points)
10. Technical support					
11. Availability of resources/support					
12. Quality of support					
13. Overall satisfaction					
TRAINING					
	Poor	Below Average	Average	Above Average	Excellent
	(0 points)	(30 points)	(60 points)	(90 points)	(120 points)
14. Quality of training materials					
15. Availability of trainers					
16. Quality of trainers					
17. Overall satisfaction with training					
IMPLEMENTATION					
	Poor	Below Average	Average	Above Average	Excellent
	(0 points)	(22 points)	(44 points)	(66 points)	(88 points)
18. How would you rate the vendor's involvement?					

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Table IX-9: Reference Scoring Sample

Bidder's Name:								
Software:								
Row	Questions	Max	Ref. 1	Ref. 2	Ref. 3	Ref. 4	Ref. 5	Ref. 6
REFERENCE'S HISTORY WITH (SOFTWARE) - 40 points								
1	1. How long has your company been using the software?	40	40	40	30	30	20	20
CURRENT USE - 120 points								
2	2. Approximately how many surveyors use the software?	60	45	45	30	45	15	15
3	3. Approximately how many engineers use the software?	60	60	60	15	60	30	15
4	Subtotal (Questions 2-3)		105	105	45	105	45	30
SOFTWARE - 792 points								
5	4. Functionality (ability to do complex designs)	132	132	132	132	132	132	132
6	5. Ease of use/user friendliness	132	132	132	99	99	132	132
7	6. Ability to meet your requirements	132	132	132	132	132	132	132
8	7. Value for the money spent	132	132	132	99	99	132	132
9	8. Compatibility with other design software	132	99	132	99	66	132	132
10	9. Overall satisfaction	132	132	132	132	132	132	132
11	Subtotal (Questions 4-9)		759	792	693	660	792	792
VENDOR - 240 points								
12	10. Technical support	60	60	60	60	60	60	60
13	11. Availability of resources/support	60	60	60	45	60	60	60
14	12. Quality of support	60	60	60	60	45	60	60
15	13. Overall satisfaction	60	60	60	60	60	60	60
16	Subtotal (Questions 10-13)		240	240	225	225	240	240
TRAINING - 480 points								
17	14. Quality of training materials	120	120	120	120	90	120	120
18	15. Availability of trainers	120	120	120	90	120	120	120
19	16. Quality of trainers	120	120	120	120	90	120	120
20	17. Overall satisfaction with training	120	120	120	120	90	120	120
21	Subtotal (Questions 14-17)		480	480	450	390	480	480
IMPLEMENTATION - 88 points								
22	21. How would you rate the vendor's involvement?	88	88	88	66	44	88	88
Score Calculations								
23	Total Score (Sum of Row 4, 11, 16, 21 and 22)		1712	1745	1509	1454	1665	1640
24	Final Score (Sum of Reference 1-6 from Row 23 divided by six)		1621					

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 Deleted: Determining Reference Score¶
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 Deleted: total
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6. Other Technical Requirements (Pass/Fail)

The Evaluation Team will review the Bidder's response in Appendix D, Form VI-5: Other Technical Requirements Response Form, to determine if the requirements have been met.

7. Demonstration of Software

(Maximum Score = 2,190)

a. Introduction

The Demonstration of Software will be performed in accordance with instructions provided in Section X.

b. Evaluation Process

The Evaluation Team will evaluate and award points for each of the demonstrated requirements based on the tasks and evaluation factors in Table IX-11. Scoring for each task will be based on the Criteria for Award of Points as defined in Table IX-10. The current software, CAiCE, was used as the benchmark.

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Some of the demonstration tasks award points if the Bidder can perform all of the features in a single step. "In a single step" means that the process would be completed within a single pass without having to repeat the process a number of times.

Some of the Evaluation Factors in Table IX-11 use the term "interface". The following will apply when the term "interface" is used:

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- An interface can be a method that allows the user to interact outside of the application:
 - An external program, e.g. VURBAN, a hydraulics program, or
 - An interconnection between programs, e.g. a DLL used in one application that runs another application.
- An interface can be a method that runs within the application:
 - A dialog box,
 - A key-in command, or
 - A VBA macro.

- A new instance of an interface can be any of the following:
 - Interaction with a new dialog box,
 - Interaction with a nested dialog box,
 - A key-in command,
 - The use of a VBA macro,
 - The modification of a file provided in the project data, e.g. creating a comma delimited file from a traverse report, or
 - A mechanism, e.g. a toolbar or menu drop down, that performs a function.
- The following will not be considered new instances of an interface:
 - A mechanism, e.g. a toolbar or menu drop-down, that initiates a routine or opens a dialog box,
 - File management commands, e.g. creating, saving, opening or closing folders and/or files,
 - Interaction with a file provided in the project data, e.g. copying and pasting coordinates from the file to a dialog box,
 - Confirmation prompts,
 - The use of tabs or other selection tools within a dialog box, or
 - The use of a dialog box that is opened more than once within the same task.

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Table IX-10 Criteria for Award of Points

Points	Criteria
30 points	Demonstrated software exceeds current standards and any of the following comments apply: <ul style="list-style-type: none"> • Performance was quicker than anticipated (if applicable); or • Demonstration exhibited efficient workflow; or • Software task replaces multiple menu items with a single interface; or • <u>Software was able to demonstrate all features in a single step; or</u> • Software task exhibited a workflow or functionality superior to the current software.
15 points	Demonstrated software meets current standards, but any of the following comments apply: <ul style="list-style-type: none"> • Performance was as anticipated (if applicable); or • Software task exhibited a workflow or functionality equal to the current software.
0 point	Demonstrated software does not meet current standards or any of the following comments apply: <ul style="list-style-type: none"> • Performance was slower than desired (if applicable); or • Software task exhibited a workflow or functionality more difficult than the current software; or • Procedural workarounds were required to fully accomplish the requirement; or • Allotted time for Demonstration expired; or • Could not demonstrate.

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Table IX-11 identifies the tasks for demonstrating the software, the factors to be considered in the evaluation, and the points available. Some of the requirements have more than one set of evaluation factors that will be scored, these are identified in the "Demonstration #" column as "Evaluation Factor 1", "Evaluation Factor 2", etc. In addition, some of the mandatory requirements relating to the demonstration tasks are listed for information only.

At the end of the allotted time period, any tasks not demonstrated by the Bidder will be given a point value of zero.

The points awarded for each factor will be summed to obtain the total points earned for the Demonstration of Software.

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
Project Setup and Directory Structure			
DM1	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Launch the software and demonstrate its interaction with MicroStation.</p> <p>Mandatory requirements M3 and M4.</p>	30 points max	
DM 1: Evaluation Factor 1	The software runs within MicroStation.	30	
	- OR - The software does not run within MicroStation but does provide an interface to MicroStation.	15	
	- OR - The software runs in another drafting software and does not provide an interface to MicroStation.	0	
While creating a project:			
DM2	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Demonstrate the level of control that a user has on how the project data structure is created.</p> <p>Mandatory requirement S51.</p>	30 points max	
DM2: Evaluation Factor 1	The project data is stored in user-defined locations.	30	
	- OR - The project data is automatically stored in multiple files within a user-specified directory.	15	
	- OR - The user has no control over project data structure.	0	

**Table IX-11 Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM3	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>During the project setup, demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Set the working units: U.S. Survey Foot 2. Set the horizontal datum: CCS 83, Zone 5 3. Set the vertical datum: NGVD 29 4. Set the stationing format: ##+00.00 5. Set the elevation report accuracy: #0.00 6. Set the coordinate report accuracy: #0.000 7. Set the distance report accuracy: #0.000 8. Specify which users can modify the survey data and which users can modify the design data 9. Save and access the settings with another project <p>Mandatory requirements M6 and M7.</p>	30 points max	
DM3: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Seven or eight of the features were demonstrated.	15	
	- OR - Six or less of the features were demonstrated.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
Photogrammetric and Field Data Import and DTM Development			
<p>DM4 (Timed Demonstration)</p>	<p>(Two (2) evaluation factors will be scored for this requirement)</p> <p>Import and display the photogrammetric data from a 3D DGN file using the following parameters and information:</p> <ul style="list-style-type: none"> • Photogrammetric data: <i>PhotoData.dgn</i> <p>Photogrammetric data attributes:</p> <ul style="list-style-type: none"> • CURB breaklines: Level = 2 Line style = ph-Curb • ETW breaklines: Level = 2 Line style = ph-ETW • STRIPE breaklines: Level = 2 Line style = ph-LnStrp • WATER breaklines: Level = 6 • CONT breaklines: Level = 7 • SPOT points: Level = 8 • BREAK breaklines: Level = 11 <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Assign the codes noted above to the points and breaklines 2. Import the data without modifying the DGN file 3. Save the import set up for subsequent use <p>Mandatory requirements M13, M23, M24, and M157.</p>	<p>60 points max</p>	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM4: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Two of the features were demonstrated.	15	
	- OR - One or none of the features were demonstrated.	0	
DM4: Evaluation Factor 2 (TIMED)	It took less than 10 minutes to set up and assign unique codes and import the data.	30	
	- OR - It took between 10 & 20 minutes to set up and assign unique codes and import the data.	15	
	- OR - It took greater than 20 minutes to set up and assign unique codes and import the data.	0	
Photogrammetric and Field Data Import and DTM Development			
DM5	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Import the field survey points and breaklines using the following parameters and information:</p> <ul style="list-style-type: none"> • Comma delimited ASCII file: <i>SurveyData.txt</i> • The format of the file is: Point Name, Eastings, Northings, Elevation, Topo Code, Line Code • Line Code format: <ul style="list-style-type: none"> ○ The beginning of a breakline is coded with a B ○ The end of a breakline is coded with an E ○ All other points in a breakline are coded with a C ○ Individual point shots do not have a line code <p>Mandatory requirements M23, M24, M233, M240, and M241.</p>	30 points max	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM5: Evaluation Factor 1	The software has a user interface that guides the user through dialog steps to determine the file format and then imports the survey data as points and breaklines.	30	
	- OR - The software has an interactive interface where the user defines the file format and then imports the survey data as points and breaklines.	15	
	- OR - The software could not import the comma-delimited file without manipulation and/or not all of the survey data points and breaklines were imported.	0	
DM6	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Identify the field survey points with elevations outside the elevation range of 2699 to 2906.</p> <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. An interface is used that lists the points 2. An interface is used that sorts the list by elevation 3. Dynamically navigate to the points <p>Mandatory requirements M205 and M246.</p>	30 points max	
DM6: Evaluation Factor 1	All of the features were demonstrated	30	
	- OR - One or two of the features were demonstrated.	15	
	- OR - None of the features were demonstrated.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM7	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>While resolving the conflict in point order in the field survey breakline coded SW, demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Use one interface 2. Graphically manipulate the breakline 3. Dynamically update the display <p>Mandatory requirement M239.</p>	30 points max	
DM7: Evaluation Factor 1	<p>All of the features were demonstrated.</p> <hr/> <p>- OR -</p> <p>Two of the features were demonstrated.</p> <hr/> <p>- OR -</p> <p>One or none of the features were demonstrated.</p>	<p>30</p> <hr/> <p>15</p> <hr/> <p>0</p>	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM8	<p>(Two (2) evaluation factors will be scored for this requirement)</p> <p>For Evaluation Factor 1, demonstrate how to display and resolve crossing breaklines using the following parameters and information:</p> <ul style="list-style-type: none"> • Vertical difference at the crossing: > 0.01' <p>For Evaluation Factor 2, demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. An interface is used that lists and sorts the crossings 2. Interactively track to the crossings one at a time 3. Trim one of the breaklines at a crossing 4. Insert a gap in one of the breaklines at a crossing 5. Insert a common point in both breaklines as a batch process at three user selected crossings <p>Mandatory requirement M247.</p>	60 points max	
DM8: Evaluation Factor 1	Only the crossing breaklines within the user specified parameters are displayed.	30	
	- OR - Only crossing breaklines are displayed but not within the user specified parameters.	15	
	- OR - All of the breaklines are displayed	0	
DM8: Evaluation Factor 2	All of the features were demonstrated.	30	
	- OR - Four of the features were demonstrated.	15	
	- OR - Three or less of the features were demonstrated.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM9	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>While creating a single DTM of the field survey data and the photogrammetric data, demonstrate how the software can use an automated method of excluding the survey data with the following codes from triangulation (e.g. a selection set of codes or filters):</p> <ul style="list-style-type: none"> • CLF • CULT • CULV • DI • MBGR • SDRN <p>Mandatory requirements M23 and M24.</p>	30 points max	
DM9: Evaluation Factor 1	An attribute or code can be assigned to the survey data that specifies if the elements will be triangulated. No filters are needed.	30	
	- OR - A selection set of codes and filter is used to create a selection set of elements that will be triangulated.	15	
	- OR - Survey data can not be excluded using an automated method.	0	
DM10	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>While creating a DTM of the field survey data and the photogrammetric data, demonstrate how to remove the photogrammetric data lying within the limits of the field data.</p> <p>Mandatory requirement M18.</p>	30 points max	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM10: Evaluation Factor 1	The underlying photogrammetric data is removed while the DTM is created.	30	
	- OR - The underlying photogrammetric data is removed before the DTM is created.	15	
	- OR - The software can not remove photogrammetric data within the limits of the field data.	0	
DM11 (Timed Demonstration)	(Two (2) evaluation factors will be scored for this requirement) Triangulate and view the DTM of the field survey data and the photogrammetric data using the least number of interfaces. Mandatory requirements M17 and M211.	60 points max	
DM11: Evaluation Factor 1	A single interface is used.	30	
	- OR - Two to three interfaces are used.	15	
	- OR - Four or more interfaces are used.	0	
DM11: Evaluation Factor 2 (TIMED)	It took less than two minutes to triangulate and view the DTM.	30	
	- OR - It took between two and four minutes to triangulate and view the DTM.	15	
	- OR - It took greater than four minutes to triangulate and view the DTM.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM12	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Demonstrate the software’s ability to create and display a freehand cross section/profile of the DTM using as many of the following methods as possible:</p> <ol style="list-style-type: none"> 1. Along a CADD element 2. Along a multiple vector digitized location 3. Along a single vector digitized location <p>Mandatory requirement M29.</p>	30 points max	
DM12: Evaluation Factor 1	All of the methods were demonstrated.	30	
	- OR - Two of the methods were demonstrated.	15	
	- OR - One or none of the methods were demonstrated.	0	
DM13	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>While resolving exterior erroneous triangles, demonstrate as many of the following features possible:</p> <ol style="list-style-type: none"> 1. Erroneous triangles can be manually resolved 2. A shape can be used to identify the erroneous triangles to be resolved 3. Erroneous triangles can be automatically resolved whenever the DTM is triangulated <p>Mandatory requirements M17, M22, and M35.</p>	30 points max	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

Deleted: 4

Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM13: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Two of the features were demonstrated	15	
	- OR - One or none of the features were demonstrated.	0	
DM14	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>While preparing the survey and photogrammetric data for delivery to Design, demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. The design process only requires the original ground DTM 2. The original ground DTM can be delivered separately from the survey and photogrammetric data 3. The original ground DTM is contained in a single file <p>Mandatory requirement M41.</p>	30 points max	
DM14: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Two of the features were demonstrated	15	
	- OR - One or none of the features were demonstrated.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
Coordinate Geometry Import and Development			
Geometry for the "A1" (A Line), "WFR1"(WFR Line), "CD1" (CD1 Line), "D3" (D3 Line), and "SNW42" (Retaining Wall 124) alignments			
DM15	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Import alignments and profiles from the XML file as provided using the following parameters and information:</p> <ul style="list-style-type: none"> • Geometry: A1-WFR-CD1-D3-SNW42.XML • Use one interface <p>Mandatory requirement M44.</p>	30 points max	
DM15: Evaluation Factor 1	A single interface is used that does not require modifications to the XML file as provided.	30	
	- OR - A single interface is used after modifications to the XML file are performed.	15	
	- OR - More than one interface is used to achieve the task.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM16	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Develop the superelevation of the "WFR1" line using the following parameters and information:</p> <ul style="list-style-type: none"> • Station Range: 00+00 – 64+68.74 • Based on the standard Superelevation tables <i>Demo_Super.tbl</i> and <i>Demo_Design_Speed.tbl</i> <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Automatically calculates a superelevation definition based on the above tables 2. Allows modifications 3. Resolves overlap errors automatically 4. Capable of copying and pasting elements from one graphical diagram to another <p>Mandatory requirement M130.</p>	30 points max	
DM16: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Three of the features were demonstrated.	15	
	- OR - Two or less of the features were demonstrated.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

Deleted: 4

Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
Geometry for the "D1" line			
DM17	<p>(Two (2) evaluation factors will be scored for this requirement)</p> <p>Create an alignment for the "D1" line using the following parameters and information:</p> <ul style="list-style-type: none"> • Traverse data: <i>D1-HA.txt</i> • For purposes of demonstrating the integrity checker there is an intentional error in the bearing between STA 142+36.02 and STA 153+60.37. The correct bearing is N 58°08'56.9" E. <p>For Evaluation Factor 1, demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Use an interface that guides the user through dialog steps to import the .txt file and store an alignment 2. Use one interface to manually enter the alignment data 3. Use an automated method of checking the alignment integrity <p>For Evaluation Factor 2, demonstrate whether the alignment integrity checker can automatically correct an integrity issue.</p> <p>Mandatory requirements M93 and M99.</p>	60 points max	
DM17: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Two of the features were demonstrated.	15	
	- OR - One or none of the features were demonstrated.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

Deleted: 4

Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM17: Evaluation Factor 2	The alignment integrity checker has the option of automatically correcting the alignment integrity within a user defined tolerance.	30	
	- OR - The alignment integrity checker identifies issues but does not have the option of automatically correcting the alignment integrity within a user defined tolerance.	15	
	- OR - The software does not provide an alignment integrity checker.	0	
DM18	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Create a profile for the “D1” line using the following parameters and information:</p> <ul style="list-style-type: none"> • Profile data: <i>D1-VA.txt</i> <p>Demonstrate as many of the following features as possible:</p> <ul style="list-style-type: none"> • Use an interface that guides the user through dialog steps to import the .txt file and store a profile • Use one interface to manually enter the profile data <p>Mandatory requirement M109.</p>	30 points max	
DM18: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - One of the features was demonstrated.	15	
	- OR - None of the features were demonstrated.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM19	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Develop and display the superelevation of the “D1” line using the following parameters and information:</p> <ul style="list-style-type: none"> • Station Range: 142+36.02 – 165+89.65 • Superelevation diagram: <i>DEMO_SUPER_D1.pdf</i> • Layouts: <i>DEMO_L03.pdf</i>, <i>DEMO_L05.pdf</i> and <i>DEMO_L08.pdf</i> <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Key-in entry 2. Import from XML or Excel spreadsheet 3. Allows modifications after it is stored 4. Is capable of copying and pasting elements from one graphical diagram to another <p>Mandatory requirements M131 and M132.</p>	30 points max	
DM19: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Three of the features were demonstrated.	15	
	- OR - Two or less of the features were demonstrated.	0	
Geometry for the "D2" line			
DM20	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Calculate the alignment for the “D2” line using the least number of interfaces.</p> <ul style="list-style-type: none"> • Layouts: <i>DEMO_L05.PDF</i> and <i>DEMO_L08.PDF</i> <p>Mandatory requirement M42.</p>	30 points max	

**Table IX-11 Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM20: Evaluation Factor 1	Four or less interfaces are used.	30	
	- OR - Five to seven interfaces are used.	15	
	- OR - Eight or more interfaces are used.	0	
DM21	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Create a profile of the “D2” line using the following information:</p> <ul style="list-style-type: none"> Profile data: <i>D2-VA.txt</i> <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> Use an interface that guides the user through dialog steps to import the .txt file and store a profile Use one interface to manually enter the profile data The ability to solve for unknowns <p>Mandatory requirements M109 and M115.</p>	30 points max	
DM21: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Two of the features were demonstrated.	15	
	- OR - One or none of the features were demonstrated.	0	
DM22	<p>(No evaluation factors will be scored for this requirement)</p> <p>Develop the superelevation using the following parameters and information:</p> <ul style="list-style-type: none"> Station Range: 152+22.49 – 165+45.64 Superelevation diagram: <i>DEMO_SUPER_D2.pdf</i> <p>Mandatory requirements M131, M132, and M133.</p>	This item is not being scored but will be used for demonstration of DM34.	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
Geometry for the "S.W. On-ramp"			
DM23	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Develop a best-fit horizontal alignment for the "S.W. ON-RAMP" using the following parameters and information:</p> <ul style="list-style-type: none"> • Comma-delimited ASCII file: <i>BestFitPoints.txt</i> • Format of the file: Point Number, Northings, Eastings, Description • Existing alignment data: <i>BestFitSketch.pdf</i> <p>While using a best-fit utility, demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Ability to fix as-built radii 2. Ability to apply weighted factors to different topographic elements 3. Ability to automatically identify horizontal curves and tangent elements <p>Mandatory requirements M57 and M93.</p>	30 points max	
DM23: Evaluation Factor 1	All of the features were demonstrated..	30	
	- OR - One or two of the features were demonstrated.	15	
	- OR - None of the features were demonstrated.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
Roadway Design			
Mainline rehabilitation and widening of the "A1" line			
DM24	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Perform roadway rehabilitation on the "A1" line using the following parameters and information:</p> <ul style="list-style-type: none"> • Station Range: 123+22.32 – 129+50 • Typical cross sections: <i>DEMO_XSECT_01.pdf</i> • Layouts: <i>DEMO_L01.pdf</i>, <i>DEMO_L02.pdf</i>, and <i>DEMO_L03.pdf</i> • Cross Slope Correction: +/- 2% <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Read the existing terrain profile and perform user-defined profile smoothing 2. Overlay the existing pavement with a cross-slope correction 3. Perform auto-leveling while overlaying the existing pavement <p>Mandatory requirements M173, M175, M176, M177, and M180.</p>	30 points max	
DM24: Evaluation Factor 1	All of the features were demonstrated <u>in a single step.</u>	30	Deleted: <#>Perform all of the features in a single step¶
	- OR - All of the features were demonstrated <u>but not in a single step.</u>	15	Deleted: .
	- OR - Two or less features were demonstrated.	0	Deleted: Three

**Table IX-11 Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM25	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Perform roadway rehabilitation on the “A1” line using the following parameters and information:</p> <ul style="list-style-type: none"> • Station Range: 146+37 – 159+50 • Typical cross sections: <i>DEMO_XSECT_02.pdf</i> and <i>DEMO_XSECT_03.pdf</i> • Layouts: <i>DEMO_L03.pdf</i>, <i>DEMO_L04.pdf</i>, <i>DEMO_L05.pdf</i>, and <i>DEMO_L08.pdf</i> <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Read the existing terrain profile and perform user-defined profile smoothing 2. Overlay the existing pavement to match the existing cross-slope <p>Mandatory requirements M173, M175, M176, M177, and M180.</p>	30 points max	
DM25: Evaluation Factor 1	All of the features were demonstrated <u>in a single step.</u>	30	
	- OR - <u>All of the features were demonstrated but not in a single step.</u>	15	
	- OR - One or none of the features were demonstrated.	0	

Deleted: <#>Perform all of the features in a single step¶

Deleted: Two of the features were demonstrated.

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM26	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Perform roadway rehabilitation and widening on the "A1" line using the following parameters and information:</p> <ul style="list-style-type: none"> Station Range: 130+00 – 136+25.65 Overlay pavement from centerline to 47.33' Rt with 0.3' AC Widen to retaining wall (RW 124) lay out line 'SNW42' from 47.33' Rt of centerline with 0.8' AC, 0.6' Lean Concrete Base pavement section <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> Read the existing terrain profile and perform user-defined profile smoothing Overlay the existing pavement with a cross-slope correction Perform auto-leveling while overlaying the existing pavement Widen the pavement to match the cross-slope of the overlaid lanes <p>Mandatory requirements M173-M182</p>	30 points max	
DM26: Evaluation Factor 1	All of the features were demonstrated <u>in a single step</u> .	30	
	- OR - <u>All of the features were demonstrated but not in a single step</u> .	15	
	- OR - Three or less features were demonstrated.	0	

Deleted: <#>Perform all of the features in a single step¶

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Deleted: Four of the features were demonstrated.

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM27	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Widen the pavement on the “A1” line while matching the cross-slope of the existing adjacent lane using the following parameters and information:</p> <ul style="list-style-type: none"> • Station Range: 160+00 – 165+00 • 12’ Lane at 47.33’ Lt of centerline • 0.8’ Hot Mix Asphalt, 0.6’ Lean Concrete Base pavement section <p>Mandatory requirements M174, M178, and M179.</p>	30 points max	
DM27: Evaluation Factor 1	The software analyzes the entire surface of the existing adjacent lane and determines the cross-slope.	30	
	- OR - The software analyzes user defined sample points of the existing adjacent lane and determines the cross-slope.	15	
	- OR - The software is unable to determine the cross-slope of the existing adjacent lane.	0	

**Table IX-1~~1~~ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM28	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Insert a median barrier on the “A1” line using the following parameters and information:</p> <ul style="list-style-type: none"> Station Range: 123+22.32 – 136+25.65 <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> Use a library of median barriers Insert a shape to represent the barrier Apply a 0.3’ asphalt structural section underneath the barrier The centerline controls the location of the barrier <p>Mandatory requirements M152 and M183.</p>	30 points max	
DM28: Evaluation Factor 1	All of the features were demonstrated <u>in a single step</u> .	30	
	- OR - <u>All of the features were demonstrated but not in a single step</u> .	15	
	- OR - Three or less of the features were demonstrated.	0	

Deleted: <#>Perform all of the features in a single step¶

Deleted: Four of the features were demonstrated.

Table IX-1¹ Demonstration of Software - Tasks, Evaluation Factors and Point Values (Continued)

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM29	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>While designing the "A1" line, insert a Type 1 retaining wall using the following parameters and information:</p> <ul style="list-style-type: none"> • Station Range: 130+00 – 136+25.65 • Typical cross sections: <i>DEMO_XSECT_01.pdf</i> • Layouts: <i>DEMO_L01.pdf</i>, <i>DEMO_L02.pdf</i>, and <i>DEMO_L03.pdf</i> • Retaining wall layout line: "SNW42" • Standard Plan sheet: <i>Typ_1_retn_Wall.pdf</i> <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Use a library of walls 2. Insert a shape to represent the wall 3. Automatically recognizes cut/fill situations 4. Automatically adjust the height of the wall to daylight 5. The retaining wall layout line controls the location of the wall <p>Mandatory requirements M152, M155, and M183.</p>	30 points max	
DM29: Evaluation Factor 1	<p><u>All of the features</u> were demonstrated <u>in a single step</u>.</p> <p>- OR - Three or four of the features were demonstrated.</p> <p>- OR - Two or less of the features were demonstrated.</p>	30 15 0	

Deleted: <#>Perform all of the features in a single step¶

Deleted: Five or more of the features

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
Ramp design of the "D1" line			
DM30	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Design the "D1" line roadbed using the following parameters and information:</p> <ul style="list-style-type: none"> • Station Range: 150+00 – 165+00 • Roadbed: from ES to ES • Typical cross sections: <i>DEMO_XSECT_04.pdf</i> • Layouts: <i>DEMO_L03.pdf</i>, <i>DEMO_L05.pdf</i>, and <i>DEMO_L08.pdf</i> • Highway design manual: <i>BayTaper.pdf</i> <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Use the "D1" horizontal alignment, profile, and superelevation 2. Constrain to control strings 3. Layout tapers with user defined parameters 4. Use a library of roadway structural sections 5. Modify the design elements to demonstrate how they are dynamically linked to the roadway surface (i.e. when any elements are changed the design is updated automatically) <p>Mandatory requirements M153, M156, M159, M160, and M161.</p>	30 points max	
DM30: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Three or four of the features were demonstrated.	15	
	- OR - Two or less of the features were demonstrated.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM31	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Design the "D1" line side slopes and benching using the following parameters and information:</p> <ul style="list-style-type: none"> • Station Range: 150+00 – 165+00 • Typical cross sections: <i>DEMO_XSECT_04.pdf</i> • Layouts: <i>DEMO_L05.pdf</i>, and <i>DEMO_L08.pdf</i> <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Use the "D1" horizontal alignment, profile, and superelevation 2. Use a library of side slopes and benching 3. Define side slopes and benching with user-defined parameters 4. Define catch points with user-defined parameters to adjust for varying site conditions 5. Graphically manipulate the design <p>Mandatory requirements M162, M163, M164, and M165.</p>	30 points max	
DM31: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Three or four of the features were demonstrated.	15	
	- OR - Two or less of the features were demonstrated.	0	

**Table IX-1~~1~~ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM32	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>While designing the "D1" line, insert a Type 1 retaining wall using the following parameters and information:</p> <ul style="list-style-type: none"> • Station Range: 160+40 – 162+00 • Typical cross sections: <i>DEMO_XSECT_04.pdf</i> • No backfill is required behind the retaining wall. • Standard Plan sheet: <i>Typ_1_retn_Wall.pdf</i> <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Use a library of walls 2. Insert a shape to represent the wall 3. Automatically recognizes cut/fill situations 4. Automatically adjust the height of the wall to daylight 5. The retaining wall layout line controls the location of the wall <p>Mandatory requirement M183.</p>	30 points max	
DM32: Evaluation Factor 1	<p><u>All of the features</u> were demonstrated <u>in a single step</u>.</p>	30	Deleted: <#>Perform all of the features in a single step¶
	<p>- OR - Three or four of the features were demonstrated.</p>	15	
	<p>- OR - Two or less of the features were demonstrated.</p>	0	Deleted: Five or more of the features

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

Deleted: 4

Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM33	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>While designing the "D1" line, construct a drainage swale/"v" ditch using the following parameters and information:</p> <ul style="list-style-type: none"> • Station Range: 158+20 – 159+60 • Typical cross sections: <i>DEMO_XSECT_04.pdf</i> • Layouts: <i>DEMO_L03.pdf</i>, <i>DEMO_L05.pdf</i>, and <i>DEMO_L08.pdf</i> <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Use a library of swales and "v" ditches 2. Define the swales and "v" ditches with user-defined parameters 3. Graphically manipulate the design <p>Mandatory requirement M162.</p>	30 points max	
DM33: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Two of the features were demonstrated.	15	
	- OR - One or none of the features were demonstrated.	0	

**Table IX-11 Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

Deleted: 4

Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
Ramp design of the "D2" line			
DM34	<p>(Two (2) evaluation factors will be scored for this requirement)</p> <p>Design the "D2" line roadway including lanes, shoulders, side slopes and concrete barrier using the following parameters and information:</p> <ul style="list-style-type: none"> • Station Range: 152+22.49 - 165+45.64 • Typical cross sections: <i>DEMO_XSECT_04.pdf</i> • Layouts: <i>DEMO_L05.pdf</i> and <i>DEMO_L08.pdf</i> • Standard Plan sheet: <i>Typ60_barrier.pdf</i> <p>For Evaluation Factor 1, demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Use the "D2" horizontal alignment, profile, and superelevation 2. Use a library of roadway structural sections 3. Modify the design elements to demonstrate how they are dynamically linked to the roadway surface (i.e. when any elements are changed the design is updated automatically) <p>For Evaluation Factor 2, demonstrate the ability to concurrently display the design in the following views:</p> <ol style="list-style-type: none"> 1. 3D 2. Plan 3. Cross section 4. Superelevation and profile <p>Mandatory requirements M149, M152, and M183.</p>	60 points max	

**Table IX-11 Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

Deleted: 4

Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM34: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Two of the features were demonstrated.	15	
	- OR - One or none of the features were demonstrated.	0	
DM34: Evaluation Factor 2	All of the views were displayed.	30	
	- OR - Three of the views were displayed.	15	
	- OR - Two or less of the views were displayed.	0	
Basin design			
DM35	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Design a basin using the following parameters and information:</p> <ul style="list-style-type: none"> Perimeter, elevations, and slope variables: <i>Basin.dgn</i> <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> Use multiple values for side slopes Perform smooth transitions between side slopes Graphically manipulate the side slopes <p>Mandatory requirements M162, M164, and M167.</p>	30 points max	
DM35: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Two of the features were demonstrated.	15	
	- OR - One or none of the features were demonstrated.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
Contour Grading			
DM36	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Create and display contours across the surface of the “D1” line. Apply the following parameters using the least number of interfaces:</p> <ul style="list-style-type: none"> • Regular contours: <ul style="list-style-type: none"> ○ even 2-ft elevations ○ line weight = 1 ○ no labels • Index contours: <ul style="list-style-type: none"> ○ even 10-ft elevations ○ line weight = 3 ○ label with the elevation value <p>Mandatory requirements M27 and M28.</p>	30 points max	
DM36: Evaluation Factor 1	Two or less interfaces are used.	30	
	- OR - Three to four interfaces are used.	15	
	- OR - Five or more interfaces are used.	0	
DM37	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Create contours across the basin design from DM35. Graphically modify the location or elevation of any point in the basin and view the new contours.</p> <p>Mandatory requirement M27.</p>	30 points max	

**Table IX-11 Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

Deleted: 4

Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM37: Evaluation Factor 1	Contours respond instantly to changes.	30	
	- OR - Contours must be recalculated and/or redrawn.	15	
	- OR - Contours cannot be created without reloading information into the basin design.	0	
Earthwork Quantities			
DM38	<p>(Two (2) evaluation factors will be scored for this requirement)</p> <p>Create a report showing the volume of embankment and excavation between the new and existing surfaces of the "D1" line. Apply the following features and parameters using the least number of interfaces:</p> <ul style="list-style-type: none"> • Use the average end area method • Station Range: 150+00 – 165+00 <p>The report should include as many of the following items as possible:</p> <ol style="list-style-type: none"> 1. Area name 2. Area quantity 3. Incremental volume 4. Cumulative volume 5. Mass haul diagram <p>Mandatory requirements M184, M188, and M207.</p>	60 points max	
DM38: Evaluation Factor 1	All of the items were reported.	30	
	- OR - Four of the items were reported.	15	
	- OR - Three or less of the items were reported.	0	

**Table IX-11 Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM38: Evaluation Factor 2	A single interface is used.	30	
	- OR - Two to three interfaces are used.	15	
	- OR - Four or more interfaces are used.	0	
DM39	<p>(Two (2) evaluation factors will be scored for this requirement)</p> <p>Create a report showing the volume of proposed pavement structural section materials of the "A1" line. Apply the following features and parameters using the least number of interfaces:</p> <ul style="list-style-type: none"> • Use the average end area method • Station Range: 123+22.32 -165+00 <p>The report should include as many of the following items as possible:</p> <ol style="list-style-type: none"> 1. Pavement layer name 2. Pavement layer quantity 3. Incremental volume 4. Cumulative volume 5. Units of measure <p>Mandatory requirements M188, M189, M190, and M191.</p>	60 points max	
DM39: Evaluation Factor 1	All of the items were reported.	30	
	- OR - Four of the items were reported.	15	
	- OR - Three or less of the items were reported.	0	
DM39: Evaluation Factor 2	One interface is used.	30	
	- OR - Two to three interfaces are used.	15	
	- OR - Four or more interfaces are used.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM40	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Generate a report showing the volume of embankment and excavation between the new and existing surfaces of the "D2" line. Apply the following feature using the least number of interfaces:</p> <ul style="list-style-type: none"> • Use the prismatic method <p>Mandatory requirement M188.</p>	30 points max	
DM40: Evaluation Factor 1	Three or less interfaces are used.	30	
	- OR - Four to five interfaces are used.	15	
	- OR - Six or more interfaces are used.	0	
Drainage Analysis and Development			
(NOTE: Hydraulics demonstrations can be performed anywhere that the DTM includes existing and/or roadway finished grade surfaces.)			
DTM Surface - Hydraulics Tools & Hydrology			
DM41	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Create and display flow-paths that indicate directions and magnitude of the slopes at a user-defined point on the DTM.</p> <p>Mandatory requirement M221.</p>	30 points max	
DM41: Evaluation Factor 1	Software can display the flow-paths and indicate the slope magnitude from a user-defined point on the DTM.	30	
	- OR - Software can display the flow-paths from a user-defined point on the DTM, but cannot indicate the magnitude of the slope along the flow-path.	15	
	- OR - Flow-paths cannot be displayed from a user-defined point on the DTM.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM42	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Create and display slope arrows that indicate directions and magnitude of the slopes within a user-defined area on the DTM.</p> <p>Mandatory requirement M221.</p>	30 points max	
DM42: Evaluation Factor 1	Software can display the slope arrows on the DTM that indicate the magnitude of the slopes within a user-defined area on the DTM.	30	
	- OR - Software can display the slope arrows on the DTM that indicate the magnitude of the slopes within a user-defined area on the DTM but the user-defined area is limited to a window size.	15	
	- OR - Software can display slope arrows that indicate directions and magnitudes of the slopes, but not within a user-defined area on the DTM.	0	
DM43	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Create and display high points and low points within a user-defined area on the DTM.</p> <p>Mandatory requirement M221.</p>	30 points max	
DM43: Evaluation Factor 1	Software can display the high points and low points within a user-defined area on the DTM.	30	
	- OR - Software can display the high points and low points within a user-defined area on the DTM but the user-defined area is limited to a window size.	15	
	- OR - Software can display the high points and low points but not within a user-defined area on the DTM.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM44	<p>(No evaluation factor will be scored for this requirement)</p> <p>Delineate a single on-site watershed boundary based on slope arrows and high/low points.</p> <p>Mandatory requirement M217.</p>	<p>This item is not being scored but will be used for demonstration of DM45.</p>	
DM45	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Calculate the volume flow-rate (“flow”) in the area delineated in DM44 using the following parameters and information:</p> <ul style="list-style-type: none"> • Intensity Duration Frequency Curve table: <i>IDF_TABLE.xls</i> • Duration: 10 minutes • Intensity: based on 10-year frequency • C factor: 0.95 <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Determine the area 2. Use the Rational Method for the volume flow-rate 3. Create and graphically display an intelligent IDF curve <p>Mandatory requirement M217.</p>	<p>30 points max</p>	
DM45: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Two of the features were demonstrated.	15	
	- OR - One or none of the features were demonstrated.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
Storm Drains (FHWA HEC-22 Methodology)			
DM46	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Determine the placement of a single roadway sag drainage inlet based on slope arrows and high/low points using the least number of interfaces.</p> <p>Mandatory requirements M220 and M221.</p>	30 points max	
DM46: Evaluation Factor 1	A single interface is used.	30	
	- OR - Two or three interfaces are used.	15	
	- OR - Four or more interfaces are used.	0	
DM47	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Perform inlet-spread analysis to determine two on-grade inlet locations using the least number of interfaces. Report the following calculations:</p> <ol style="list-style-type: none"> 1. Tributary "flow" at each on-grade and sag inlet 2. Shoulder/gutter flow-depths 3. Inlet interception and bypass 4. Spread Width <p>Mandatory requirement M220.</p>	30 points max	
DM47: Evaluation Factor 1	Two or less interfaces are used.	30	
	- OR - Three or four interfaces are used.	15	
	- OR - Five or more interfaces are used.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM48	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>In plan view, display and layout the on-grade and sag drainage inlets, storm drain mainline pipes, and outfall pipes from DM47 using the least number of interfaces. (Ignore lateral pipes for demonstration)</p> <p>Mandatory requirement M220.</p>	30 points max	
DM48: Evaluation Factor 1	Two or less interfaces are used.	30	
	- OR - Three or four interfaces are used.	15	
	- OR - Five or more interfaces are used.	0	
DM49	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Utilizing information from DM48, demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Determine storm drain mainline and outfall pipe slopes 2. Generate a profile of storm drain system 3. Graphically display the storm drain mainline and outfall pipe slopes and the profile of the storm drain system 4. Dynamically update the graphic display <p>Mandatory requirement M216.</p>	30 points max	
DM49: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Two or three of the features were demonstrated.	15	
	- OR - One or none of the features were demonstrated.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM50	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Utilizing information from DM49, determine storm drain pipe sizes, calculate, and display the major/minor head losses using the least number of interfaces.</p> <p>Mandatory requirement M216.</p>	30 points max	
DM50: Evaluation Factor 1	Two or less interfaces are used.	30	
	- OR - Three or four interfaces are used.	15	
	- OR - Five or more interfaces are used.	0	
DM51	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Utilizing information from DM50, generate and display hydraulic grade line (HGL) and energy grade line (EGL) using the least number of interfaces.</p> <p>Mandatory requirement M219.</p>	30 points max	
DM51: Evaluation Factor 1	A single interface is used.	30	
	- OR - Two interfaces are used.	15	
	- OR - Three or more interfaces are used.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
Right of Way			
DM52	(One (1) evaluation factor will be scored for this requirement) Create the R/W & parcel boundaries from the original, unedited 2D DGN file, <i>RW_Parcel.dgn</i> , using the following parameters and information: <ul style="list-style-type: none"> R/W Level Name: 32 New RW L Parcel Level Name: 38 Minor Land L Mandatory requirement M71.	30 points max	
	DM52: Evaluation Factor 1		
DM53	(One (1) evaluation factor will be scored for this requirement) Import points, POB1 and POE1, as provided, from a comma delimited ASCII file using the following parameters and information: <ul style="list-style-type: none"> Comma-delimited ASCII file: <i>Easement-Points.txt</i> Format of the file: Point Name, Northings, Eastings Mandatory requirement M43.	30 points max	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM53: Evaluation Factor 1	Software has a user interface that guides the user through dialog steps to determine the file format and then imports the points.	30	
	- OR - Software has a user interactive interface where the user defines the file format and then imports the points.	15	
	- OR - Software could not import the comma-delimited file without manipulation and/or not all points were imported.	0	
DM54	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Input and adjust a metes and bounds description using the following parameters and information:</p> <ul style="list-style-type: none"> • Metes and bounds description: <i>MetesBounds.doc</i> • Beginning point: POB1 from DM53 • Closing point: POE1 from DM53 • There is an intentional error in the first course of the description which will be corrected in DM56 <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Perform a compass rule adjustment 2. Convert the description from meters to U.S. Survey Feet 3. Apply a grid factor of 0.99991234 4. Dynamically display the courses as they are entered 5. Perform all of the features within the same interface <p>Mandatory requirements M71, M73, M74, M75, M76, M77, M78, M83, and M84.</p>	<p>30 points max</p>	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM54: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Four of the features were demonstrated.	15	
	- OR - Three or less of the features were demonstrated.	0	
DM55	(One (1) evaluation factor will be scored for this requirement) Annotate and display the resulting geometry from DM54 in a DGN file. Mandatory requirements M3, M4, M78, M80, M81, M82, M83, M84, M103 and M104.	30 points max	
DM55: Evaluation Factor 1	The annotated geometry is dynamically displayed and saved directly to a DGN file within MicroStation.	30	
	- OR - The annotated geometry is displayed and saved to a DGN file through an interface with MicroStation.	15	
	- OR - The annotated geometry can not be displayed and/or saved to a DGN file.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM56	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Re-enter and adjust the geometry from DM54 using the following parameters and information:</p> <ul style="list-style-type: none"> • Change the first course of the description from 71.293 m to 74.341 m <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Perform a grant boundary line adjustment 2. Modify the course from the previously entered geometry 3. Dynamically display the geometry as the course is re-entered 4. Perform all of the features within the same interface <p>Mandatory requirements M71, M73, M74, M75, M76, and M78.</p>	30 points max	
DM56: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Three of the features were demonstrated.	15	
	- OR - Two or less of the features were demonstrated.	0	
DM57	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Re-annotate the resulting geometry from DM56 and update and display the DGN file created in DM55.</p> <p>Mandatory requirements M3, M4, M78, M80, M81, M82, M83, M84, M103, and M104.</p>	30 points max	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM57: Evaluation Factor 1	The re-annotated geometry is dynamically updated and displayed in the original DGN file directly within MicroStation.	30	
	- OR - The re-annotated geometry is updated and displayed in the original DGN file through an interface with MicroStation.	15	
	- OR - The re-annotated geometry can not be updated and displayed in the original DGN file.	0	
DM58	(One (1) evaluation factor will be scored for this requirement) Subdivide the parcels with the R/W, from DM52. Mandatory requirement M65.	30 points max	
DM58: Evaluation Factor 1	The parcels were subdivided in a batch process.	30	
	- OR - The parcels were subdivided one at a time.	15	
	- OR - The parcels can not be subdivided.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
	Plans Production		
DM59	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Create a base map of the "D1" line and save to a DGN file. Display the DGN file and identify the following features on the base map:</p> <ol style="list-style-type: none"> 1. Ramp alignment with annotated stationing 2. Design edge of traveled ways 3. Design edge of shoulders 4. Design contours 5. Design cut/fill lines 6. Annotation of cut/fill lines to delineate when it switches between cut and fill (e.g. label with "C" for cut and "F" for fill) <p>Mandatory requirements M3, M4, M27, M103, and M104.</p>	30 points max	
DM59: Evaluation Factor 1	All of the features were displayed.	30	
	- OR - Three to five of the features were displayed.	15	
	- OR - Two or less of the features were displayed.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM60	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Using the base map created in DM59, create layout sheets using the following parameters and information:</p> <ul style="list-style-type: none"> • Scale: 1" = 50' <p>Demonstrate as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Reference the base map DGN file 2. Create a separate DGN file delineating the sheet boundaries and match lines 3. Create a separate DGN file for each layout sheet 4. Automatically orientate the layout sheets with the view rotated, aligning the bottom of the sheet to a horizontal view while keeping the base map coordinate correct <p>Mandatory requirement M214.</p>	30 points max	
DM60: Evaluation Factor 1	All of the features were demonstrated.	30	
	- OR - Three of the features were demonstrated.	15	
	- OR - Two or less of the features were demonstrated.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM61	<p>(Two (2) evaluation factors will be scored for this requirement)</p> <p>Create a profile sheet of the “D1” line and save to a DGN file using the least amount of interfaces. Display the DGN file and identify as many of the following features on the profile sheet as possible:</p> <ol style="list-style-type: none"> 1. Horizontal Scale: 1"=50' 2. Vertical Scale: 1"=5' 3. Design profile 4. Original ground profile 5. Station and elevation of vertical points of intersections (VPI) 6. Station and elevation of the beginning (BVC) and end (EVC) of vertical curves 7. Length of vertical curve at VPI 8. Grade of tangent sections in percent 9. Match lines of adjoining sheets 10. Earthwork quantities <p>Mandatory requirements M122, M123, and M214.</p>	60 points max	
DM61: Evaluation Factor 1	<p>Nine or more of the features were displayed.</p> <p>- OR -</p> <p>Six to eight of the features were displayed.</p> <p>- OR -</p> <p>Fewer than six of the features were displayed.</p>	<p>30</p> <p>15</p> <p>0</p>	
DM61: Evaluation Factor 2	<p>A single interface is used.</p> <p>- OR -</p> <p>Two or three interfaces are used.</p> <p>- OR -</p> <p>Four or more interfaces are used.</p>	<p>30</p> <p>15</p> <p>0</p>	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM62	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Display a superelevation diagram of the “D1” line including as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Edge of traveled ways 2. Edge of shoulders 3. Stations at the transition points 4. Stations at the beginning (BC) and end (EC) of horizontal curves 5. Axis of rotation 6. Superelevation rates 7. Depict the superelevation above the profile <p>Mandatory requirements M137-M142.</p>	30 points max	
DM62: Evaluation Factor 1	All of the features were displayed.	30	
	- OR - Six of the features were displayed.	15	
	- OR - Five or less of the features were displayed.	0	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
Prepare Files for Construction Stakeout			
DM63	<p>(Two (2) evaluation factors will be scored for this requirement)</p> <p>Create cross section plots of the “D1” line and save to a DGN file using the least amount of interfaces. Display the DGN file and identify as many of the following features on the cross section sheets as possible: Each sheet border shall include:</p> <ol style="list-style-type: none"> 1. Horizontal and vertical scale 2. Horizontal and vertical gridlines with corresponding elevations and offset values 3. Sheet number 4. Total number of sheets 5. Units or dimensions of measurements 6. Time and/or date of plot 7. Alignment name <p>Each cross-section on the sheet shall include:</p> <ol style="list-style-type: none"> 8. Station 9. Original ground 10. Finished grade and sub-grade layers 11. Finished grade offsets and elevations at cross-section pivot points such as design edge of travel ways, edge of shoulders, hinge points and catch points 12. Point descriptors at cross-section pivot points such as ETW, ES, HP and CP 13. The slopes between cross-section pivot points 14. Earthwork area <p>Mandatory requirements M30, M31, M196, and M197.</p>	60 points max	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM63: Evaluation Factor 1	A single interface is used.	30	
	- OR - Two interfaces are used.	15	
	- OR - Three or more interfaces are used.	0	
DM63: Evaluation Factor 2	13 or more of the features were displayed.	30	
	- OR - 12 of the features were displayed.	15	
	- OR - 11 or less of the features were displayed.	0	
DM64	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Create slope stake notes for the “D1” line including as many of the following features as possible:</p> <p>The page header shall include:</p> <ol style="list-style-type: none"> 1. Alignment name 2. Project information 3. Date and time of report 4. Page number <p>Each station shall include:</p> <ol style="list-style-type: none"> 5. Station label 6. Catch point 7. Right of way 8. A diagram of the section 9. Earthwork area <p>Each offset shall include:</p> <ol style="list-style-type: none"> 10. Offset and elevation 11. Offset name 12. Cross slope 13. Cut and fill to adjacent offset, towards CL <p>Mandatory requirements M32 and M195.</p>	30 points max	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM64: Evaluation Factor 1	All of the features were included.	30	
	- OR - 12 of the features were included.	15	
	- OR - 11 or less of the features were included.	0	
DM65	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Create a Trimble Survey Controller DC file of the roadway definitions for the "D1" and "D2" lines including as many of the following features as possible:</p> <ol style="list-style-type: none"> 1. Horizontal alignments, profiles, and cross sections 2. The cross sections contain a single contiguous finish surface without modification 3. All data is written to a single DC file simultaneously 4. Append the "A1" alignment directly to the original DC file <p>Mandatory requirements M252 and M253.</p>	30 points max	
DM65: Evaluation Factor 1	All of the features are included in the file.	30	
	- OR - Three of the features are included in the file.	15	
	- OR - Two or less of the features are included in the file.	0	
DM66 (Timed Demonstration)	<p>(One (1) evaluation factor will be scored for this requirement)</p> <p>Export the existing ground DTM to a LandXML file format.</p> <p>Mandatory requirements M37 and M253.</p>	30 points max	

**Table IX-1¹ Demonstration of Software -
Tasks, Evaluation Factors and Point Values (Continued)**

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Demonstration #	Tasks and Evaluation Factors	Maximum & Individual Point Values	Earned Points
DM66: Evaluation Factor 1 (TIMED)	It took less than two minutes to export the data.	30	
	- OR - It took between two minutes and four minutes to export the data.	15	
	- OR - It took greater than four minutes to export the data.	0	

8. Final Technical Scoring Example

Step 1. Responsive Bids

There are a total of ~~6594~~ non-cost points available. Bidders must achieve at least 70% (~~4616~~) of the total possible non-cost points in order to advance to the cost opening.

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Table IX-12: Final Technical Score Example

Bidder	A	B	C	D
Project Management Requirements (320 maximum)	220	280	300	100
System Administration Requirements (660 maximum)	584	212	572	44
Desirable Functional Requirements (1664 maximum)	1356	1400	1136	776
Reference (1760 maximum)	1392	1277	1551	179
Demonstration (2190 maximum)	1395	1935	2090	2025
Total:	4947	5104	5649	3124
Is the total score greater than 4616 ?	YES	YES	YES	NO

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In this example, Bidder D failed to achieve at least 70% of the maximum points possible. The costs for this Bidder will not be opened. The Total Bidder Score for Technical Requirements will be calculated for Bidders A, B, and C as described in Step 2.

Step 2. Calculation of Total Bidder Score for Technical Requirements:

Each Bidder's score is divided by the highest score to determine their percentage of the maximum points possible:

- Bidder A - $(4947)/(5649)=0.876$ or 87.6%
- Bidder B - $(5104)/(5649)=0.904$ or 90.4%
- Bidder C - $(5649)/(5649)=1.000$ or 100%

Once the percentage of the maximum points has been determined, it is multiplied by the total maximum points possible (6594), to determine each Bidder's final score for Technical Requirements.

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- Bidder A - $6594 \times 0.876 = 5776$
- Bidder B - $6594 \times 0.904 = 5961$
- Bidder C - $6594 \times 1.000 = 6594$

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Table IX-13: Total Bidder Score for Technical Requirements Example

Bidder	A	B	C
Technical Score	<u>5776</u>	<u>5961</u>	<u>6594</u>

E. Cost Points

(Maximum Score 2826 points)

Sealed Cost Proposals will not be opened until the Evaluation Team has completed the previous steps in the evaluation process. If a Bidder's proposal has been determined to be non-responsive during any of the steps, or the Bidder has failed to achieve at least 70% of the maximum non-cost points, the Cost Proposal will remain unopened. The maximum number of cost points are 2826.

All participating Bidders will be notified of the date and time of the Public Cost Opening.

Determining cost points is a two-step process:

Step 1: The Evaluation Team will validate all cost tables for accuracy (math errors) and to ensure all items identified in the Bidder's Proposal (i.e., deliverables) have been included in the Cost Tables.

Step 2: Calculation of Bidder Cost Score:

There are a total of 2826 cost points possible.

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Bidder Final Proposal Costs:

- Bidder A - \$1,100,000
- Bidder B - \$3,000,000
- Bidder C - \$1,740,000

The lowest final proposal costs of all Bidders is divided by each Bidder's final proposal cost to determine their percentage of the maximum points possible.

- Bidder A - $(1,100,000)/(1,100,000)=1.000$ or 100%
- Bidder B - $(1,100,000)/(3,000,000)=0.367$ or 36.7%
- Bidder C - $(1,100,000)/(1,740,000)=0.632$ or 63.2%

Once the percentage of the maximum points has been determined, it is multiplied by the total maximum points possible (2766), to determine each Bidder's final score for Cost.

- Bidder A - Cost Point= $2826 \times 1.000 = 2826$
- Bidder B - Cost Point= $2826 \times 0.367 = 1037$
- Bidder C - Cost Point= $2826 \times 0.632 = 1786$

Bidder	A	B	C
Cost Score	2826	1037	1786

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F. Determination of Winning Proposal

1. Summarization of Final Proposal Points

All Bidders' points awarded for each area of the Evaluation are tallied to determine the total points awarded for each. Table IX-14 illustrates the maximum possible in each evaluation area.

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Table IX-14 – Maximum Possible Points for Each Evaluation Area

Evaluation Area	Maximum Possible Points
Business and Technical Requirements:	
Draft Project Management Plan	320
System Administration Requirements	660
Desirable Functional Requirements	1,664
References	1,760
Demonstration of Software	2,190
Subtotal:	6,594
Cost:	2,826
TOTAL POSSIBLE POINTS:	9,420

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2. Determination of the DVBE Incentive

The maximum incentive for this procurement is 5% of the points available, and is based on the amount of DVBE participation obtained, according to Table IX-15. For this RFP, the total points available are 9420.

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Table IX-15 - DVBE Participation Incentive

DVBE Participation of:	DVBE Incentive	DVBE Incentive Points
5% or more = 5%	5%	471 points
4% to 4.99% inclusive = 4%	4%	377 points
3% to 3.99% inclusive = 3%	3%	283 points
2% to 2.99% inclusive = 2%	2%	188 points
1% to 1.99% inclusive = 1%	1%	94 points
Less than 1%	0%	0 points

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Table IX-15 – DVBE Participation Incentive illustrates the incentive points available based on the Bidder’s confirmed percent of DVBE participation.

3. Determination of Small Business Preference

The Small Business Preference will be applied after the scores for cost have been calculated. The 5% preference is calculated on the total number of points awarded to the highest scoring non-small business that is responsible and responsive to the proposal requirements.

Table IX-16, Scoring Example with DVBE Incentive and Small Business Preferences Applied, illustrates how DVBE incentives and Small Business Preferences would be applied.

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Table IX-16 Scoring Example with DVBE Incentive and Small Business Preferences Applied				
	Bidder	A	B	C
1	Technical Requirement Points	6140	5427	6594
2	DVBE participation (% claimed)	5%	3%	GFE (0%)
3	DVBE points awarded	471	283	0
4	Subtotal of Non-Cost Points (Row 1 + Row 3)	6611	5710	6594
5	Cost Points	2450	2826	2038
6	Total Points with DVBE applied (Row 4+Row 5)	9061	8536	8632
7	Bidder Firm is a Small Business?	No	No	Yes
8	Proposal Meets Small Business Requirements?	No	Yes	Yes
9	Non-Technical points (none for this Procurement)	0	0	0
10	The Bidder's Cost bid that has the total Combined Highest Cost and Technical Points with DVBE applied	X		
11	Small Business Preference - Highest points from Row 6 that is not a small business, times 5%		(9061 x .05)= 453	(9061 x .05)= 453
12	Total Points with Small Business Preference Applied (Row 6 + Row 11)	9061	8989	9085
13	Subtraction of Preference Points from Non-Small Businesses		-453	
14	Final Points with DVBE Incentive and Small Business Preference Applied	9061	8536	9085

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In the example, Bidder A has the most points before preferences are applied and is claiming 5% DVBE participation. Bidder B is a non-small business that is using California-certified small businesses to perform work that amounts to 25% of the value of the contract. Bidder B is also claiming 3% DVBE participation. Bidder C is a California-certified small business.

In this scenario, Bidder A receives 471 DVBE incentive points which are added to the technical and cost points to yield the highest point total before preferences are applied. Bidder B receives 283 DVBE incentive points. Bidder C receives the 5% small business preference.

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After points were awarded for small business participation, Bidder C has the highest overall point total and would be recommended to receive the award.

4. Winning Proposal Summary

The Evaluation Team will determine which responsive/responsible Bidder proposal has the highest total score after all points and preferences have been calculated.

5. Contract Award

The contract award, if any, will be to the responsive/responsible Bidder having the highest total score.

EXHIBIT IX-1 – PRELIMINARY REVIEW FORM

Bidder Name: _____

The response package includes the following:	YES	NO
Volume I – Response to Requirements Received 1 master + 10 copies of Volume I		
Volume II – Completed Contracts Received 1 master + 1 copy of Volume II		
Volume III – Cost Data <i>(to be evaluated after cost opening)</i> Received 1 master + 10 copies of Volume III		
Volume IV – Literature Received 1 master + 10 copies of Volume IV		
Received (2) CD versions of Volume I, and III <i>(Vol. III validated at cost opening)</i>		
Received (2) CD versions of Volume IV (OPTIONAL)		
Received by time and date specified in RFP		
One complete set of all volumes containing original signatures marked "Master Copy"		
VOLUME I – RESPONSE TO REQUIREMENTS		
Section 1: Cover Letter and Executive Summary		
Proposal Cover Letter must be signed by authorized individual and indicate that the signer is authorized to bind the firm contractually, and identifies the signer's title.		
Statement that the proposal is firm's binding offer good for 180 calendar days from scheduled date for contract award.		
Statement indicating that the Bidder has available staff with the appropriate skills to complete performance under the contract for all services and provide all deliverables as described in this RFP.		
Statement accepting full Prime Contractor responsibility for coordinating, controlling, and delivering all aspects of the contract and any subcontractors on their team.		
Executive Summary		

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EXHIBIT IX-1 – PRELIMINARY REVIEW FORM (Continued)

The response package includes the following:	YES	NO
Section 2: Administrative Requirements Response (Section V)		
Documentation of Productive Use requirements are met (Requirement A4)		
Form V-A – Customer Project References (Requirement A5)		
Form V-B – Proof of Workers Compensation and Employers Liability (Requirement A6.a)		
Letter of Bondability with all cost figures redacted (Requirement A7)		
Form V-C – Bidder Information and Background (Requirement A8)		
Form V-D – Key Personnel Qualifications Certification and Resumes (Requirement A9)		
Form I-C – Confidentiality Statement (Requirement A10)		
Form V-E – DVBE Participation Requirements (Requirement A13)		
TACPA Preference Claimed (Requirement A14a)?		
EZA Preference Claimed (Requirement A14b)?		
LAMBRA Preference Claimed (Requirement A14c)?		
Form V-F – Small Business Certification (Requirement A15)		
California Certificate of Good Standing for Prime Bidder and key subcontractors (Requirement A16)		

The response package includes the following:	YES	NO
Form V-G: Subcontractor Requirements and Bidder Declaration Forms (Requirement A17)		
Signed Payee Data Record STD.204 (Requirement A18)		
Form V-H – Administrative Requirements Response Matrix (Requirements A6b, A11, A12, and A19)		
Section 3: Technical Requirements Response		
<ul style="list-style-type: none"> • Project Management Requirements 		
<ul style="list-style-type: none"> • System Administration Requirements 		
<ul style="list-style-type: none"> • Mandatory Functional Requirements 		
<ul style="list-style-type: none"> • Desirable Functional Requirements 		
<ul style="list-style-type: none"> • Other Technical Requirements 		
VOLUME II – COMPLETED CONTRACT		
This volume must contain a completed contract with all Attachments. Submission of a contract with Caltrans unapproved modifications may cause the Final Proposal to be deemed non-responsive.		
VOLUME III – COST DATA		
Cost Proposal is submitted in a separate and sealed envelope.		

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<i>The response package includes the following:</i>	YES	NO
VOLUME IV - LITERATURE		
<p>This volume will contain all technical and other reference literature necessary to support the responses to the requirements of this RFP (i.e., product “glossy” brochures, equipment technical specification brochures, technical or user manuals that may be advertised in response to the requirements, and other advertising materials). Literature must be tabbed, page numbered, indexed, and properly annotated so Caltrans can readily verify compliance with the stated requirements. <u>Any references to cost figures in the literature must be replaced with “XXXX”.</u></p>		
<p>Comments:</p>		

Procurement Official _____

Date _____

GENERAL INFO					
Questions	0	1-25	26-100	101-999	1000+
	(0 points)	(1 point)	(2 points)	(3 points)	(4 points)
1. Number of land surveyors that do drafting and design related work					
2. Number of engineers that do roadway design related work					
3. Number of MicroStation licenses					

Bidder's Name:

Software:

Row	Questions	Reference 1	Reference 2	Reference 3	Reference 4	Reference 5	Reference 6	Total
1	1. Number of land surveyors that do drafting and design related work							
2	2. Number of engineers that do roadway design related work							
3	3. Number of MicroStation licenses							
4	4. How long has your company been using the software?							
5	5. Approximately how many surveyors use the software?							
6	6. Approximately how many engineers use the software?							
7	Subtotal (Row 1-6)							
8	Grand Total (Sum of Row 7)							
9	Weight Factor (Row 7/Row 8)							

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The total points from the 18 questions for all six		
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references will be summarized and divided		
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a weight factor determined in Part 1, and totaled		
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The reference questions are categorized as follows:

- Software (questions 7 through 12);
- Vendor (questions 13 through 16);
- Training (questions 17 through 20); and
- Implementation Assistance (question 21)

The reference score will be calculated using Questions 7 thru 21 as follows:

- Step 1: Determine the scores for each reference. See Table IX-10.
- Step 2: Calculate the sum of points for each reference.
- Step 3: Multiply the reference weight factor to the sum of points for each reference.
- Step 4: Calculate the sum of total points from each reference. This is the total reference score

Refer to Table IX-11 for Steps 2-4.

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Table IX-9 is a blank form for reference scoring. See Table IX-10

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for reference scoring example.

Table IX-10 Reference Scoring

SOFTWARE					
Questions	Poor	Below Average	Average	Above Average	Excellent
	(0 points)	(33 points)	(66 points)	(99 points)	(132 points)
7. Functionality (ability to do complex designs)					
8. Ease of use/user friendliness					
9. Ability to meet your requirements					
10. Value for the money spent					
11. Compatibility with other design software					
12. Overall satisfaction					
VENDOR					
	Poor	Below Average	Average	Above Average	Excellent
	(0 points)	(15 points)	(30 points)	(45 points)	(60 points)
13. Technical support					
14. Availability of resources/support					
15. Quality of support					
16. Overall satisfaction					
TRAINING					
	Poor	Below Average	Average	Above Average	Excellent
	(0 points)	(30 points)	(60 points)	(90 points)	(120 points)
17. Quality of training materials					
18. Availability of trainers					
19. Quality of trainers					
20. Overall satisfaction with training					
IMPLEMENTATION					

	Poor	Below Average	Average	Above Average	Excellent
	(0 points)	(22 points)	(44 points)	(66 points)	(88 points)
21. How would you rate the vendor's involvement?					

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Table IX-9

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: Determination of Reference Score

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Bidder Name:

Software:

Row	Questions	Reference 1	Reference 2	Reference 3	Reference 4	Reference 5	Reference 6	Total
9	Weight Factor From Table IX-9							
SOFTWARE - 792 points								
10	7. Functionality (ability to do complex designs)							
11	8. Ease of use/user friendliness							
12	9. Ability to meet your requirements							
13	10. Value for the money spent							
14	11. Compatibility with other design software							
15	12. Overall satisfaction							
16	Subtotal (Rows 10-15)							
17	Subtotal (Row 16) x Weight Factor (Row 9)							
VENDOR - 240 points								
18	13. Technical support							
19	14. Availability of resources/support							
20	15. Quality of support							
21	16. Overall satisfaction							
22	Subtotal (Rows 18-21)							
23	Subtotal (Row 22) x Weight Factor (Row 9)							
TRAINING - 480 points								
24	17. Quality of training materials							
25	18. Availability of trainers							
26	19. Quality of trainers							
27	20. Overall satisfaction with							

	training												
28	Subtotal (Rows 24-27)												
29	Subtotal (Row 28) x Weight Factor (Row 9)												
IMPLEMENTATION - 88 points													
30	21. How would you rate the vendor's involvement?												
31	Implementation Score (Row 30) x Weight Factor (Row 9)												
32	Total Score per reference (Sum of Rows 17, 23, 29, 31)												

Total Reference Score (Sum of Row 32): _____

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Bidder's Name:									
Software:									
Row	Questions	Max	Ref. 1	Ref. 2	Ref. 3	Ref. 4	Ref. 5	Ref. 6	
REFERENCE'S HISTORY WITH (SOFTWARE) - 40 points									
1	How long has your company been using the software?	40							
CURRENT USE - 120 points									
2	Approximately how many surveyors use the software?	60							
3	3. Approximately how many engineers use the software?	60							
4	Subtotal (Questions 2-3)								
SOFTWARE - 792 points									
5	4. Functionality (ability to do complex designs)	132							
6	5. Ease of use/user friendliness	132							
7	6. Ability to meet your requirements	132							
8	7. Value for the money spent	132							
9	8. Compatibility with other design software	132							
10	9. Overall satisfaction	132							
11	Subtotal (Questions 4-9)								
VENDOR - 240 points									
12	10. Technical support	60							
13	11. Availability of resources/support	60							
14	12. Quality of support	60							
15	13. Overall satisfaction	60							
16	Subtotal (Questions 10-13)								
TRAINING - 480 points									
17	14. Quality of training materials	120							
18	15. Availability of trainers	120							
19	16. Quality of trainers	120							
20	17. Overall satisfaction with training	120							
21	Subtotal (Questions 14-17)								
IMPLEMENTATION - 88 points									

22	18.How would you rate the vendor's involvement?	88						
Score Calculations								
23	Total Score(Sum of Row 4, 11, 16, 21 and 22)							
24	Final Score (Sum of Reference 1-6 from Row 23 divided by six)							

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for a sample reference score calculation.

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Bidder Name:

Software:

Row	Questions	Reference 1	Reference 2	Reference 3	Reference 4	Reference 5	Reference 6	Total
1	1. Number of land surveyors that do drafting and design related work	1	2	3	4	3	2	
2	2. Number of engineers that do roadway design related work	3	2	3	2	3	4	
3	3. Number of MicroStation licenses	3	2	2	4	3	4	
4	4. How long has your company been using the software?	3	2	2	4	3	4	
5	5. Approximately how many surveyors use the software?	1	2	3	4	3	2	
6	6. Approximately how many engineers use the software?	3	2	2	2	3	4	
7	Subtotal (Rows 1-6)	14	12	15	20	18	20	
8	Grand Total (Sum of Row 7)							99
9	Weight Factor (Row 7/Row 8)	14.1%	12.1%	15.2%	20.2%	18.2%	20.2%	

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SOFTWARE - 792 points								
10	7. Functionality (ability to do complex designs)	66	132	132	132	132	132	
11	8. Ease of use/user friendliness	132	132	132	132	99	132	
12	9. Ability to meet your requirements	66	132	99	33	132	132	
13	10. Value for the money spent	132	132	132	132	33	132	
14	11. Compatibility with other design software	66	132	33	132	0	132	
15	12. Overall satisfaction	132	132	132	132	132	132	
16	Subtotal (Rows 10-15)	594	792	660	693	528	792	
17	(Software Subtotal) x (Weight Factor)	84	96	100	140	96	160	676
VENDOR - 240 points								
18	13. Technical support	60	60	40	60	60	40	
19	14. Availability of resources/support	40	60	40	60	40	60	
20	15. Quality of support	60	60	40	20	60	60	
21	16. Overall satisfaction	60	60	20	60	60	60	
22	Subtotal (Rows 18-21)	220	240	140	200	220	220	

23	(Vendor Subtotal) x (Weight Factor)		31		29		21		40		40		44	205
TRAINING - 480 points														
24	17. Quality of training materials	0		120		120		120		0		120		
25	18. Availability of trainers	0		120		120		60		0		120		
26	19. Quality of trainers	0		30		60		120		0		90		
27	20. Overall satisfaction with training	0		120		120		120		0		120		
28	Subtotal (Rows 24-27)	0		390		420		420		0		450		
29	(Training Subtotal) x (Weight Factor)		0		47		64		85		0		90	286
IMPLEMENTATION - 88 points														
30	21. How would you rate the vendor's involvement?	88		44		22		66		88		66		
31	(Implementation Score)x(Weight Factor)		12		5		3		13		16		13	62
32	Total Score per reference (Sum of all four categories)		127		177		188		278		152		307	

Total Reference Score (Sum of Row 32): 1229