ADOPTED REGULATION OF

THE STATE BOARD OF PROFESSIONAL

ENGINEERS AND LAND SURVEYORS

LCB File No. R005-97

Effective November 14, 1997

EXPLANATION – Matter in *italics* is new; matter in brackets **[ ]** is material to be omitted.

AUTHORITY: §§ 2 and 3, NRS 329.160; §§ 5-24, NRS 625.140 and 625.250.

Section 1. Chapter 329 of NAC is hereby amended by adding thereto the provisions set forth as sections 2 and 3 of this regulation.

Sec. 2. *Before a corner record is presented for filing pursuant to NRS 329.150, a professional land surveyor shall reconstruct or rehabilitate the monument of the corner and the accessories to the corner in the manner prescribed in NRS 329.180.*

Sec. 3. *1. A corner record presented for filing pursuant to NRS 329.140 or 329.150 must be legibly drawn in waterproof ink on paper or another material of a permanent nature suitable for recordation. The paper or other material upon which the corner record is drawn must be 8 1/2 by 14 inches with a margin of 1 inch completely around the paper or other material. A square must be left in the lower right-hand corner of each sheet of the corner record for the county recorder's use. The square must be of sufficient size to accommodate the information normally included in a corner record by the county recorder of the county in which the corner record will be filed. The top of the first sheet of the corner record must have the words "Corner Record" inscribed directly below the margin at the top of the record.*

2. The corner record must include a certificate of the professional land surveyor in responsible charge of the work. The certificate must be in the following form:

SURVEYOR'S CERTIFICATE

I, ... (name of professional land surveyor), a Professional Land Surveyor registered in the State of Nevada, certify that:

1. This corner record represents the establishment or restoration of a corner or accessory to a corner conducted under my direct supervision.

2. The monument or accessories perpetuated lie within ....(section, township, range, meridian, county and city, if incorporated), and the establishment or restoration was completed on ....(date).

3. This corner record has been filed pursuant to NRS 329.140 or NRS 329.150 and complies with the provisions of section 3 of this regulation and any local ordinances in effect on the date that the establishment or restoration was completed.

4. The monument or witness monument and accessories found are of the character shown, occupy the positions indicated, and are of sufficient durability.

(Validated seal of the professional land surveyor);

(Name and license number of the professional land surveyor printed below the seal).

3. The corner record must include:

(a) A north arrow and scale.

(b) The number of each sheet and the total number of sheets included in the record.

(c) A drawing that includes:

(1) The monuments or witness monuments and accessories found, including their locations;

(2) Complete citations to maps, plats, documents and other matters of record or facts of pertinence which confirm the perpetuation of the corner; and

(3) The lineal measurements between each witness monument and the perpetuated corner.

(d) A memorandum of oaths, if any.

4. If the corner perpetuated in a corner record is a corner of the Public Land Survey System, it must be identified as a corner of the Public Land Survey System pursuant to the provisions of the Manual of Surveying Instructions published by the Bureau of Land Management of the Department of the Interior, which is hereby adopted by reference. A copy of the manual may be obtained from the United States Government Printing Office, Washington D.C. 20402, at a cost of $31.

5. If the Nevada coordinate system, as defined in chapter 327 of NRS, is used to reestablish or perpetuate a corner, the source of the control used must be stated.

6. As used in this section, "responsible charge of work" has the meaning ascribed to it in NRS 625.080.

Sec. 4. Chapter 625 of NAC is hereby amended by adding thereto the provisions set forth as sections 5 to 16, inclusive, of this regulation.

Sec. 5. *As used in NAC 625.650 to 625.740, inclusive, and sections 5 to 16, inclusive, of this regulation, "positional certainty" means a measurement of the relative accuracy of positions with respect to the location of a controlling monument.*

Sec. 6. *For the purposes of NAC 625.650 to 625.740, inclusive, and sections 5 to 16, inclusive, of this regulation, the positional certainty of a point or monument or of the horizontal or vertical component of a survey must be based upon a confidence level of not less than 95 percent.*

Sec. 7. *When conducting a land boundary, topographic, control or geodetic survey, a professional land surveyor shall ensure that the horizontal and vertical positions of the monuments established by the surveyor comply with the requirements for positional certainty set forth in section 8 of this regulation.*

Sec. 8. *1. The requirements for positional certainty for the horizontal component of land boundary, topographic, control and geodetic surveys are as follows:*

Type of Survey	*Positional Certainty*	
	Meters	*U.S. Survey Feet*
Land Boundary Surveys		
High Urban	*±0.02 m*	*±0.05 ft*
Low Urban	*±0.04 m*	*±0.15 ft*
High Rural	*±0.1 m*	*±0.3 ft*
Low Rural	*±0.15 m*	*±0.5 ft*
Control and Geodetic Surveys		
Precise Measurement Studies	*±0.001 m to ±0.01 m*	*±0.002 ft to ±0.03 ft*
State Network	*±0.02 m*	*±0.05 ft*
County Network	*±0.04 m*	*±0.15 ft*
Local Network	*±0.06 m*	*±0.2 ft*
Photogrammetric Control	*±0.06 m to ±1 m*	*±0.2 ft to ±3 ft*
Topographic Surveys		
Engineering Design Surveys	*±0.01 m to ±0.1 m*	*±0.03 ft to ±0.3 ft*
Planning Study Surveys	*±0.02 m to ±0.05 m*	*±0.05 ft to ±0.15 ft*
Utilities Mapping	*±0.15 m*	*±0.5 ft*
Feature Mapping	*±0.3 m*	*±1 ft*
Resource Mapping	*±0.5 m to ±100 m*	*±1.5 ft to ±330 ft*

2. The requirements for positional certainty for the vertical component of land boundary, control, geodetic and topographic surveys are as follows:

Type of Survey	*Positional Certainty*	
	Meters	*U.S. Survey Feet*
Land Boundary Surveys	*±0.05 m*	*±0.15 ft*
Control and Geodetic Surveys Other Than Photogrammetric Control Surveys	*±0.005m to ±0.03 m*	*±0.02 ft to ±0.1 ft*
Photogrammetric Control Surveys	*±0.03 m to ±0.5 m*	*±0.1 ft to ±1.5 ft*
Topographic Surveys	*National Map Accuracy Standards*	

3. For the purposes of this section, the National Map Accuracy Standards, as they exist on the effective date of this regulation, are hereby adopted by reference. A copy of the National Map Accuracy Standards may be obtained from the United States Geological Survey, Department of the Interior, 12201 Sunrise Valley Drive, Reston, VA 20192, at no cost.

Sec. 9. *1. When contributing information to a geographic information system, a professional land surveyor must include for use as meta-data a statement describing the positional certainty of each type of information contributed to the system by the professional land surveyor.*

2. When advising the developers of a geographic information system, a professional land surveyor must make recommendations concerning the appropriate methods for:

(a) Conducting a survey for the development of the system; and

(b) Compiling data for the contribution of additional information to the system after it is developed.

3. A professional land surveyor shall comply with the provisions of NAC 625.650 to 625.740, inclusive, and sections 5 to 16, inclusive, of this regulation when conducting surveys to collect information that will be included in a geographic information system.

4. As used in this section:

(a) "Geographic information system" means a collection of computer hardware, software and data that is used for the collection, management, manipulation, analysis and display of information that includes a positional component.

(b) "Meta-data" means data that describes information used to describe an object.

Sec. 10. *Before beginning a construction survey, a professional land surveyor shall obtain from the owner's representative a complete set of the contract drawings and specifications approved by the appropriate federal, state and local agencies and any special instructions for the proposed fixed works.*

Sec. 11. *When conducting a construction survey, a professional land surveyor shall establish the final location of points within positional certainties which ensure that the proposed fixed works may be properly constructed.*

Sec. 12. *1. A professional land surveyor who is conducting a construction survey shall ensure that:*

(a) The location of the control that delineates the horizontal location of the proposed fixed works; and

(b) The locations of the benchmark for the project and the vertical location of the proposed fixed works,

are identical to the locations of those points as shown on the engineering plans for the project.

2. If the professional land surveyor discovers any material differences between the location of the control on the construction survey and the location of the control on the engineering plans for the project, he shall notify the owner's representative of those differences.

3. If the dimensions or details of the engineering plans are not sufficient to establish the location of the proposed fixed works, the professional land surveyor shall notify the owner's representative and the engineer or architect of record and request that the necessary additional information be provided.

Sec. 13. *A professional land surveyor who conducts a construction survey shall place the stakes or other materials used to mark the location of the proposed fixed works within the following positional certainties:*

Proposed Fixed Works	*Horizontal Positional Certainty*		*Vertical Positional Certainty*	
	Meters	*Feet*	*Meters*	*Feet*
Rough Grades	*±0.03 m*	*±1 ft*	*±0.06 m*	*±0.2 ft*
Subgrades	*±0.15 m*	*±0.5 ft*	*±0.015 m*	*±0.05 ft*
Finish Grades	*±0.15 m*	*±0.5 ft*	*±0.015 m*	*±0.05 ft*
Buildings	*±0.015 m*	*±0.05 ft*	*±0.01 m*	*±0.03 ft*
Sewer Facilities	*±0.1 m*	*±0.3 ft*	*±0.015 m*	*±0.05 ft*
Waterlines	*±0.1 m*	*±0.3 ft*	*±0.03 m*	*±0.1 ft*
Water Facilities Other Than Waterlines	*±0.03 m*	*±0.1 ft*	*±0.015 m*	*±0.05 ft*
Street Lights and Devices for the Control of Traffic	*±0.06 m*	*±0.2 ft*	*±0.03 m*	*±0.1 ft*
Curbs and Gutters	*±0.03 m*	*±0.1 ft*	*±0.015 m*	*±0.05 ft*

Sec. 14. *A professional land surveyor who conducts a construction survey shall provide to the owner's representative sketches, cut sheets or other field notes to describe the survey conducted.*

Sec. 15. *If a professional land surveyor other than the surveyor responsible for the initial location of the proposed fixed works conducts a verification survey, the professional land surveyor shall share with the surveyor responsible for the initial location of the proposed fixed works notes and other data related to the verification survey. Each surveyor shall provide to the*

other surveyor the results of the survey conducted by him and cooperate to resolve any discrepancies between the two surveys.

Sec. 16. *1. Lineal measurements on a survey may be expressed in feet or meters. Measurements of area may be expressed in acres, square feet, hectares or square meters. If any measurement is reported in metric units, the professional land surveyor shall include on the survey the information necessary to convert the measurement to its nonmetric equivalent.*

2. As used in this section, the words "foot" and "meter" have the meanings ascribed to them in NRS 327.030.

Sec. 17. NAC 625.650 is hereby amended to read as follows:

625.650 When **[**creating, establishing, retracing or resurveying land boundaries within the**]** *engaging in the practice of land surveying in this* state, a professional land surveyor shall apply all applicable statutes and regulations in addition to the minimum standards of practice for **[**land boundary surveys**]** *professional land surveyors* established in NAC 625.660 to **[**625.750, inclusive.**]** *625.740, inclusive, and sections 5 to 16, inclusive, of this regulation.*

Sec. 18. NAC 625.660 is hereby amended to read as follows:

625.660 Responsibility for adherence to the minimum standards of practice for **[**land boundary surveys**]** *engaging in the practice of land surveying* rests with the professional land surveyor in responsible charge of the work. Failure on the part of any Nevada professional land surveyor to comply with these minimum standards may be considered by the board as evidence of gross negligence, professional incompetence or misconduct in the practice of land surveying.

Sec. 19. NAC 625.670 is hereby amended to read as follows:

625.670 In conducting a land boundary survey, a professional land surveyor shall:

1. Search pertinent **[**record**]** documents , including , *but not limited to,* maps, deeds, title reports , **[**or**]** title opinions **[**. If the property being surveyed is described as an aliquot part**]** , *and the records* of the U.S. Public Land Survey System . **[**, or a fraction thereof, the relevant plats, field notes and special instructions of the Federal Government must be consulted.**]**

2. Thoroughly examine the information and data acquired.

3. Diligently search for and identify monuments and other physical evidence which could affect the location of the boundaries of the property being surveyed. **[**A reasonable attempt must be made to recover known controlling physical monuments or references thereto. The positions of controlling monuments which have been obliterated must be recovered or reestablished, if possible, using the best available evidence. Physical evidence of apparent use, possible rights by others in the property being surveyed, lines of possession and occupation must be located, described and the professional land surveyor shall determine the age of that use when possible.**]**

4. Conduct field measurements necessary to relate adequately the position of all apparent **[**physical**]** evidence pertinent to the boundaries of the property being surveyed. **[**All findings resulting from field investigation must be accurately and completely recorded and retained permanently.**]**

5. Make computations to verify the correctness of field data acquired and confirm that results of measurements are within acceptable limits of tolerance. Computations must be made to determine the relative positions of all found evidence.

Sec. 20. NAC 625.690 is hereby amended to read as follows:

625.690 *1.* The professional land surveyor shall make a final analysis and reach a conclusion as to the **[**best**]** *most probable* location of corner positions **[**,**]** *and* boundary lines . **[**and set monuments.**]**

2. A professional land surveyor shall set monuments pursuant to the provisions of NRS 625.380 and all applicable local ordinances.

Sec. 21. NAC 625.710 is hereby amended to read as follows:

625.710 *1.* All monuments, whether set or found, must be thoroughly described and specifically identified as set or found, whenever shown on maps or referred to in documents prepared by a professional land surveyor. Descriptions of monuments must be sufficient in detail to facilitate readily future recovery and to enable positive identification, including map references.

2. If the Nevada coordinate system, as defined in chapter 327 of NRS, is used to describe a monument:

(a) The control used as the coordinate basis must be shown on any maps on which the monument is shown or documents in which reference is made to the monument; and

(b) The source of the control data used must be described.

Sec. 22. NAC 625.720 is hereby amended to read as follows:

625.720 *1.* A professional land surveyor shall prepare a scaled drawing of the survey for presentation to the client. *The drawing must comply with the provisions of NRS 625.330, 625.340 and 625.350.*

2. In cases where a certification is required by statute or local ordinance, the professional land surveyor shall certify only those matters personally known to be **[**absolutely**]** true. *The certificate must be in the following form:*

SURVEYOR'S CERTIFICATE

I, ... (name of professional land surveyor), a Professional Land Surveyor registered in the State of Nevada, certify that:

1. This plat represents the results of a survey conducted under my supervision at the instance of ..... (owner, trustee, etc.).

2. The land surveyed lies within ..... (section, township, range, meridian, county and city, if incorporated), and the survey was completed on ..... (date).

3. This plat complies with applicable statutes of this state and any local ordinances in effect on the date that the survey was completed, and the survey was conducted in accordance with Chapter 625 of the Nevada Administrative Code.

4. The monuments depicted on the plat are of the character shown, occupy the positions indicated, and are of sufficient durability.

5. (Any other information that the professional land surveyor personally knows to be true concerning the land surveyed.)

(Validated seal of the professional land surveyor);

(Name and license number of the professional land surveyor printed below the seal).

Sec. 23. NAC 625.740 is hereby amended to read as follows:

625.740 *1.* Boundary surveys have been divided into *the following* four classifications **[**as follows:

1. Class A. Urban surveys**]** *:*

(a) High Urban. Surveys of land lying within or adjoining a city or town **[**. This would also include the**]** , *including* surveys of commercial and industrial properties, condominiums, townhouses, apartments and other multiunit developments, regardless of geographic location.

[2. Class B. Suburban surveys**]**

(b) Low Urban. Surveys of land *lying* outside *high* urban areas **[**. This land is**]** *and* used almost exclusively for single family residential use or residential subdivisions.

[3. Class C. Rural surveys**]**

(c) High Rural. Surveys of land such as farms and other undeveloped land *lying* outside the **[**suburban**]** *low urban* areas which may have potential for future development.

[4. Class D. Mountain and marshland surveys**]**

(d) Low Rural. Surveys of land **[**which normally lies**]** *normally lying* in remote areas with difficult *or barren* terrain and which usually **[**has**]** *have* limited potential for development.

2. A professional land surveyor shall use the classifications described in subsection 1 and the requirements for positional certainty for those classifications prescribed in section 8 of this regulation to establish the locations of monuments in a boundary survey.

Sec. 24. NAC 625.750 is hereby repealed.

TEXT OF REPEALED SECTION

625.750 Requirements for closures, equipment specifications and methods. The following minimum requirements for closures, equipment specifications, and methods have been adopted by the American Congress on Surveying and Mapping and are required for all boundary surveys in the State of Nevada.

(1)

Survey Class	Direct Reading of Instrument	Instrument Reading Estimated	Number of Observations Per Station	Spread from Mean of D &R Not To Exceed	Angle Closure Where N=No. of Stations Not To Exceed	Linear Closure	Distance Measurement	Minimum Length of Measurements
	(2)	(3)	(4)	(5)		(6)	(7)	(8), (9), (10)
A	20”<1’>[10”]	5”<0.1’>N.A.	2 D&R	5”<0.1’>[5”]	10” N	1:15,000	EDM or double-tape with steel tape	(8) 81 m, (9) 153 m, (10) 20 m
B	20”<1’>[10”]	10”<0.1’>N.A.	2 D&R	10”<0.2’>[10”]	15” N	1:10,000	EDM or steel tape	(8) 54 m (9) 102 m (10) 14 m
C	(20”)<1’>[20”]	N.A.	1 D&R	(20”)<0.3’>[20”]	20” N	1:7,500	EDM or steel tape	(8) 40 m (9) 76 m

								(10) 10m
D	(1’)<1’>[1’]	N.A.	1 D&R	(30”)<0.5’>[30 ”]	30” N	1:5,000	EDM or steel tape	(8) 27 m (9) 51 m (10) 7 m

Note (1) All requirements of each class must be satisfied in order to qualify for that particular class of survey. The use of a more precise instrument does not change the other requirements, such as number of angles turned, etc.

Note (2) Instrument must have a direct reading of at least the amount specified (not an estimated reading), i.e.:

10" = Micrometer reading theodolite, <1'>=Scale reading theodolite, [10"]=Electronic reading theodolite

(20") = Micrometer reading theodolite, or a vernier reading transit.

Note (3) Instrument must have the capability of allowing an estimated reading below the direct reading to the specified reading.

Note (4) D&R means the Direct and Reverse positions of the instrument telescope, i.e., Class A requires that two angles in the direct and two angles in the reverse position be measured and meaned.

Note (5) Any angle measured that exceeds the specified amount from the mean must be rejected and the set of angles re- measured. Note (6) Ratio of closure after angles are balanced and closure calculated.

Note (7) All distance measurements must be made with a properly calibrated EDM or steel tape, applying atmospheric, temperature, sag, tension, slope, scale factor, and sea level corrections as necessary.

Note (8) EDM having an error of 5 mm, independent of distance measured (manufacturer's specifications).

Note (9) EDM having an error of 10 mm, independent of distance measured (manufacturer's specifications).

Note (10) Calibrated steel tape.