



STATE OF NEVADA
Department of Administration
Division of Human Resource Management

CLASS SPECIFICATION

<u>TITLE</u>	<u>GRADE</u>	<u>EEO-4</u>	<u>CODE</u>
GEODESIST IV	39	B	6.105
GEODESIST III	36	B	6.108
GEODESIST II	33	B	6.109
GEODESIST I	30	B	6.115

SERIES CONCEPT

Geodesists perform specialized professional and technical work involving the determination of geodetic control by calculating the exact horizontal and vertical position of points on the earth's surface. This data is utilized in preliminary engineering design work, aerial surveying, general planimetric mapping and for other land surveying purposes.

Compute horizontal coordinates of control networks utilizing standard geodetic survey techniques such as triangulation, trilateration and traversing; compute vertical coordinates for control networks using the theory and practice of direct leveling on various projects to establish elevation, height and grade representing the features of the earth's surface; compare horizontal and vertical networks to established survey standards; make adjustments to the control networks, document, verify values and compare to established horizontal control.

Assess existing control and acquire additional survey control for engineering projects; analyze existing control and raw survey data to ensure desired project specifications and land survey standards are met; verify newly collected survey data for mathematical correctness; request additional survey data when field collection errors occur or engineering surveying specifications are not maintained.

Compute coordinates on the various geographic grid systems, do conversions between the systems and correlate existing surveys to match the required geodetic or rectangular cartesian coordinate systems; convert data between various national datum and further to a ground elevation dependent grid; compute, retrace and adjust existing surveys such as highway alignments, property boundaries, utilities, old control surveys and other miscellaneous surveys to match the ground elevation dependent grid, geodetic grids, and property boundaries as desired to ensure accuracy and continuity of data used on engineering, surveying and construction works.

Maintain geodetic data and related information and enter into computer database including coordinates, their descriptions, and quality assurance numbers; distribute compiled geodetic data upon request to various State and local agencies, sections within the department and the general public.

Create a survey control plan sheet for inclusion into contract plans and further verify contract plans for completeness of survey information by reviewing and checking contract alignments and basis of surveys.

Provide training and interpretation in the use of geodetic data, methods and procedures for observing and checking control for geodetic and State plane coordinates to ensure standards are maintained; review existing standards, controls and equipment utilized by the department and recommend changes, improvements or modifications.

Perform related duties as assigned.

GEODESIST IV	39	B	6.105
GEODESIST III	36	B	6.108
GEODESIST II	33	B	6.109
GEODESIST I	30	B	6.115

Page 2 of 4

CLASS CONCEPTS

Geodesist IV: Under general direction, performs the full range of duties in the series concept and, in addition, supervises the geodetic survey section and develops standards for the collection, analysis and dissemination of geodetic data. Additionally, the incumbent creates and manages survey data archive workflows; creates job estimates and maintains estimate database; creates and maintains the SharePoint intranet; generates error analysis for NDOT pipe inventory; and adjusts a statewide network of land survey control monuments.

Geodesist III: Under general direction, incumbents perform the full range of duties in the series concept and perform specialized geodetic work in the determination of geodetic control by calculating horizontal and vertical positions of points on the earth's surface. This is the journey level in the series.

Geodesist II: Under general supervision, incumbents continue to receive training and gain experience in performing duties described in the series concept. Work is reviewed on a regular basis. This is the second training level in the series, and progression to the journey level may occur upon meeting minimum qualifications and with the recommendation of the appointing authority.

Geodesist I: Under close supervision, incumbents receive training in the performance of all or part of the duties outlined in the series concept. This is the entry level in the series, and progression to the next level may occur upon meeting minimum qualifications and with the recommendation of the appointing authority.

MINIMUM QUALIFICATIONS

GEODESIST IV

EDUCATION AND EXPERIENCE: Licensure as a Professional Land Surveyor in the State of Nevada and experience supervising personnel; **OR** a Bachelor's degree from an accredited college or university in math, physics, civil engineering, land surveying or closely related field and three years of progressively responsible experience involving the determination of geodetic control for civil engineering, surveying, or photogrammetric work, which also included supervision of staff; **OR** one year of experience as a Geodesist III in Nevada State service; **OR** and equivalent combination of education and experience.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at the time of application):

Detailed knowledge of: survey principles used to determine the positions of points on the earth's surface; solid geometry, calculus and statistics used in determining geodetic coordinates. **Working knowledge of:** supervisory principles and practices; State and local classification and acquisition standards applicable to geodetic, construction, and land surveying projects; computer systems and design programs for use in geodetic work. **Skill in:** calculating positions of monuments, determining location of boundaries and preparing documents for supervisory review and recordation. **Ability to:** write technical computer programs for use in geodetic computations and in data analysis; establish policies, procedures and standards for the collection and dissemination of geodetic data; *and all the knowledge, skills and abilities required at the lower levels.*

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):

Working knowledge of: functions of the different divisions of the department to obtain needed information and/or where to direct questions; federal, State and local offices to coordinate and research geodetic data. **Ability to:** supervise and direct subordinate staff; resolve problems diplomatically with other agencies, departments, private businesses and the general public.

GEODESIST III

EDUCATION AND EXPERIENCE: Bachelor's degree from an accredited college or university in math, physics, civil engineering, land surveying or closely related field and two years of progressively responsible experience involving the determination of geodetic control for civil engineering, surveying or

GEODESIST IV	39	B	6.105
GEODESIST III	36	B	6.108
GEODESIST II	33	B	6.109
GEODESIST I	30	B	6.115

Page 3 of 4

MINIMUM QUALIFICATIONS (cont'd)

GEODESIST III (cont'd)

EDUCATION AND EXPERIENCE: (cont'd)

photogrammetric work; **OR** one year of experience as a Geodesist II in Nevada State service; **OR** an equivalent combination of education and experience.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at time of application):

Working knowledge of: survey principles used to determine the positions of points on the earth's surface; and classification and acquisition standards applicable to geodetic, construction, and land surveying projects; U.S. rectangular survey system and Bureau of Land Management's restoration of lost and obliterated corners and subdivisions of sections; agency policies and software used in geodetic control. **Ability to:** prepare and present technical oral and written reports; update existing technical manuals for publication; provide information and explain policies to individuals and groups; ensure compliance with procedures and standards for the collection and dissemination of geodetic data; independently analyze, evaluate, process and compute geodetic survey data; calculate positions of monuments determining location of boundaries and preparing documents for supervisory review and recordation; create survey control plan sheets with minimal direction; and work independently and follow through on assignments with minimal direction; *and all knowledge, skills and abilities required at the lower levels.*

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):
(*These are identical to the Entry Level Knowledge, Skills, and Abilities for Geodesist IV.*)

GEODESIST II

EDUCATION AND EXPERIENCE: Bachelor's degree from an accredited college or university in math, physics, civil engineering, land surveying or closely related field and one year of progressively responsible experience involving civil engineering, surveying or photogrammetric work; **OR** one year of experience as a Geodesist I in Nevada State service; **OR** an equivalent combination of education and experience.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at time of application):

Working knowledge of: algebra, trigonometry, geometry, calculus and statistics used in determining geodetic coordinates; the functions of the different divisions of the department to obtain needed information and/or where to direct questions; and federal, State and local offices to coordinate and research geodetic data; national and international standards for geodetic control. **General knowledge of:** Nevada Revised Statutes Chapters 329 and 625; and Nevada Administrative Code Chapter 625; classification and acquisition standards applicable to geodetic, construction, and land surveying projects; U.S. rectangular survey system and Bureau of Land Management's restoration of lost and obliterated corners and subdivisions of sections; photogrammetric techniques; computer software and design programs for use in geodetic work **Ability to:** adapt to changes in workload and adjust priorities quickly as circumstances dictate; read and interpret a variety of technical manuals, including geodetic triangulation; make proper adjustments to coordinates based on geodetic control data; establish and maintain cooperative working relationships with co-workers and the public; communicate effectively to obtain information, describe situations and explain data; use field instruments for testing, inspection and surveying purposes; and read and interpret maps and construction plans; and all knowledge, skills and abilities required at the lower level.

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):
(*These are identical to the Entry Level Knowledge, Skills, and Abilities for Geodesist III.*)

GEODESIST I

EDUCATION AND EXPERIENCE: Bachelor's degree from an accredited college or university in math, physics, civil engineering, land surveying or closely related field; **OR** graduation from high school or

GEODESIST IV	39	B	6.105
GEODESIST III	36	B	6.108
GEODESIST II	33	B	6.109
GEODESIST I	30	B	6.115

Page 4 of 4

MINIMUM QUALIFICATIONS (cont'd)

GEODESIST I (cont'd)

EDUCATION AND EXPERIENCE: (cont'd)

equivalent education and three years of experience performing work that involved determination of geodetic control, performing preliminary engineering design work, aerial surveying, general planimetric mapping or land surveying; **OR** an equivalent combination of education and experience.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at time of application):

Working knowledge of: algebra, trigonometry and geometry; land surveying techniques; and engineering surveying methods and sources of information. **General knowledge of:** drafting methods and conventional symbols; international and national standards for geodetic control; photogrammetric techniques; calculus and statistics; and principles and practices of public relations. **Ability to:** accurately copy, post or transcribe data; operate a scientific calculator, personal computer and associated ancillary equipment.

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):

(These are identical to the Entry Level Knowledge, Skills, and Abilities for Geodesist II.)

This class specification is used for classification, recruitment and examination purposes. It is not to be considered a substitute for work performance standards for positions assigned to this class.

	<u>6.105</u>	<u>6.108</u>	<u>6.109</u>	<u>6.115</u>
ESTABLISHED:	12/3/13R 07/09/14UC	1/1/69	12/1/61	7/1/93P 8/31/92PC
REVISED:			1/1/69	
REVISED:		7/1/93P 8/31/92PC	7/1/93P 8/31/92PC	
REVISED:		6/27/03PC	6/27/03PC	6/27/03PC
REVISED:		07/09/14UC	07/09/14UC	07/09/14UC