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LAND BOUNDARY SURVEYOR SERIES

Series Definition:

This series includes all positions which supervise and primarily conduct triangulation and traverse surveys to locate and establish land boundaries and easements, prepare maps and metes and bounds descriptions of lands involved in airport, harbor and highway projects or other lands of State government interest, conduct triangulation surveys to establish accurate horizontal controls and leveling surveys to establish vertical controls and perform other survey related work for land owned, controlled or in the possession of the State for the purpose of using, selling, leasing, exchanging or improving such lands.

Construction surveys, involving the transfer of horizontal and vertical control dimensions from construction plans and specifications to the ground, may also be performed by positions in this series as a secondary work assignment or on an incidental basis. Positions that are primarily concerned with construction surveys are allocable to the Land Surveyor series.

Positions at lower levels in this series may be primarily concerned with the actual conduct of field surveys (i.e., serving as "instrumentman" or "chief of party"). However, they are distinguished from other surveyors by their location in the program concerned with the determination of land boundaries and easements and the preparation of maps and descriptions of metes and bounds and by the assignment of progressively difficult research on land boundary matters.

Positions in this series require a substantive knowledge of State land laws, Land Court procedures and decisions and the land tenure history of the State of Hawaii; and the ability to supervise and deal effectively with others, do research on land boundary matters and prepare related records, maps and reports. The work also requires knowledge of surveying principles and techniques, mathematics through trigonometry; and the use, care and adjustment of survey instruments and equipment, including the transit, level, theodolite and electronic measuring devices.

This is an amendment to the specification for the
LAND BOUNDARY SURVEYOR series, approved on December 23, 1987.

DATE APPROVED: 4/13/94

/s/ Ann K. Kon
SHARON Y. MIYASHIRO
Director of Personnel Services

LAND BOUNDARY SURVEYOR I

7.750

Duties Summary:

Performs routine professional land surveying work in field surveying, office computations and land boundary research; gathers information pertaining to boundary surveys from maps, deeds, land titles, metes and bounds descriptions or other sources; plots field notes and land boundary data, traces final land maps and prepares simple metes and bounds descriptions; operates the transit, theodolite, level or electronic measuring devices during field work; may serve as chief of party on routine surveys; and performs other related duties as assigned.

Distinguishing Characteristics:

The land boundary surveyor at this level assists a higher level land boundary surveyor in office computations and land boundary research and typically serves as an instrumentman on field surveys. A higher level position indicates working area, type of survey, degree of accuracy required and type of notes required. The supervisor may spot check work in progress and is usually available to advise on any problems not previously encountered. The work is guided by established procedures which the incumbent adapts as necessary to conditions found in the field. On first or second order triangulation and leveling assignments, where a high degree of accuracy is required, the incumbent is under close supervision, receiving frequent instructions, particularly concerning deviations from normal procedures and completed work is reviewed in detail for adequacy and accuracy. At this level, the land boundary surveyor is expected to be skilled in the use of the usual survey instruments and to instruct and assist with the supervision of other party members in land survey methods and the use and care of survey instruments. Person-to-person contacts are both within the organization and with consultant or contractor personnel and property owners to give and receive factual information.

Examples of Duties:

As instrumentman on a field survey party, operates the transit, theodolite, level and/or other survey instruments on boundary, classification, detail location and contour surveys of government lands or preliminary and right-of-way surveys; obtains angles and azimuths of traverses and takes elevations for profiles and cross sections; records field survey notes and makes supplementary sketches; may serve as chief of party on routine surveys such as simple boundary, classification, detail location and contour surveys; assists with supervision and training of subordinate engineering aids assigned to the survey party; reduces and plots field notes, plots profiles and cross sections; adjusts and computes simple triangulations and traverses and geodetic positions for survey stations; computes angles, distances, closure of traverses, elements of horizontal and vertical curves, grades and earthwork quantities; checks metes and bounds descriptions with maps; prepares simple metes and bounds descriptions; compiles maps, deeds, plans and other data pertinent to the survey project; plots field notes and land boundary data and traces final land maps; and maintains survey instruments and adjusts transit and level as needed.

Knowledge and Abilities Required:

Knowledge of: Land survey principles, techniques, practices and terminology; mathematics through trigonometry, as applied to surveying, including traverses, curves, computations of areas and the use of trigonometric and curve data tables; the proper use and methods of adjusting common survey instruments such as the theodolite, engineering transit and level; proper use of common drafting and computing tools and equipment.

Ability to: Understand and follow written and oral instructions; operate the theodolite, transit, level and other survey instruments; do simple research on land boundary matters; do lettering and drafting as required for survey work; reduce field notes; prepare sketches, maps and reports; and instruct and supervise a small field survey party as assigned.

LAND BOUNDARY SURVEYOR II

7.571

Duties Summary:

Performs limited professional land surveying work in field surveying, office computations and land boundary research; serves as chief of field survey party on noncontroversial boundary surveys; performs and supervises the performance of related

office computations, plotting of field survey notes and land boundaries, preparation of maps, simple metes and bounds descriptions and reports; serves as instrumentman under the supervision of a higher level surveyor when performing complex/controversial boundary or Land Court surveys; and performs other related duties as assigned.

Distinguishing Characteristics:

Positions at this level gain progressive experience in making boundary determinations; serve as chief of party for noncontroversial boundary surveys and may lead survey crew members on other surveys performed in accordance with well established procedures and practices.

The supervisor specifies areas to be surveyed, discusses any problems anticipated, suggests the most appropriate source to obtain information regarding boundary determinations, provides instructions concerning methods to follow and deviations which should be made from standard procedures, furnishes advice as needed (e.g., controlling boundary criteria in case of conflicting boundary data), and reviews completed work for adequacy and apparent accuracy.

This level requires use of judgment and resourcefulness in evaluating ground conditions encountered and adjusting plans accordingly and in supervising and assuming responsibility for other party members in what are sometimes remote and isolated areas, making decisions involving work priority, safety considerations, disciplinary actions, etc. Guidelines include manuals of surveying principles, methods and techniques, departmental policies and procedures and federal government issuances. Contacts with others are significant at this level and include contacts with other employees within the organization to exchange factual information, with consultant personnel and with property owners and others to gain entrance to lands and secure their cooperation in conducting surveys.

Examples of Duties:

Supervises a field survey party on routine boundary, classification, detail location and contour surveys of government or other lands for government subdivision, remnants, easements, leases, rights-of-way, sales and other public purposes; makes work assignments, sets the pace for the crew, maintains discipline and ensures that prescribed survey procedures are followed; makes decisions involving work priority and safety considerations; instructs subordinate personnel in the proper use, adjustment and care of surveying instruments and other tools and equipment; supervises the reduction and plotting of field

notes, computation of angles, distances, areas, curves, traverses, grades, closures and the preparation of plans, maps, sketches, reports and records relating to surveys; writes metes and bounds descriptions and checks completed descriptions against calculations for mathematical correctness; compiles maps from official records or assists in the preparation of specific maps showing land titles and boundaries for rights-of-way, leases, subdivisions of lots, easements or other parcels of land; operates the most precise survey instruments to the required tolerances as instrumentman on a survey party performing critical or complex Land Court or boundary surveys.

Knowledge and Abilities Required:

In addition to knowledge and abilities required at the next lower level, this level requires:

A thorough knowledge of survey practices, methods and techniques and of departmental policies and procedures; and a basic understanding of Hawaii land laws, Land Court rules, decisions, and procedures, and of Hawaii's land tenure history.

The ability to operate precise survey instruments and work to close tolerances; and supervise and deal effectively with others.

LAND BOUNDARY SURVEYOR III

7.572

Duties Summary:

Performs and supervises the performance of moderately difficult land survey work; serves as chief of party for major and complex control, Land Court and boundary surveys; performs special studies and research on land boundary and ownership matters; writes metes and bounds descriptions; may serve as first assistant to the head of a major land survey unit with technical and supervisory responsibility over lower level survey personnel; and performs other related duties as assigned.

Distinguishing Characteristics:

Land boundary surveyors at this level typically work under the general supervision of a registered (licensed) land boundary surveyor, who gives assignments in general terms and may advise on complex boundary determination problems. In research and reporting functions, considerable knowledge, judgment and resourcefulness are required in reviewing and evaluating historic documents and identifying physical features which may relate to

boundary determinations. The records resulting from surveys and research supervised by positions at this level often serve as the basis for court actions. Personal work contacts and standard guides are similar to those at the previous level, but the Land Boundary Surveyor III exercises more independence and judgment in evaluating the nature of problems encountered and determining the need for deviation from standard procedures.

Examples of Duties:

Serves as assistant to the head of a major land survey unit or project, and/or as chief of party on difficult and complex control, Land Court and boundary surveys, where a high order of accuracy is required; supervises the work of lower level land surveyors and engineering aids, making work assignments, giving advice and instructions as needed and reviewing the work of subordinates for adequacy and accuracy; assists with the training of lower-level personnel in survey methods and in the operation and care of survey instruments and equipment; supervises and performs computations necessary to complete surveys, including adjusting angles in triangulation work, calculating net schemes, areas, coordinates and curves, transposing magnetic surveys to true azimuth surveys, adjusting survey closures and compiling maps and descriptions from survey notes and other data; and performs research and prepares reports on land title and boundary determinations for use by the Court in cases of land litigation.

Knowledge and Abilities Required:

In addition to the knowledge and abilities required at the lower levels, this level requires:

Knowledge of: Hawaii land laws, Land Court rules, decisions, and procedures; Hawaii's land tenure history; techniques and practices involved in tracing boundaries and titles of old Hawaiian grants and Land Commission Awards made by magnetic surveys; the use, care, adjustment and limitations of the most precise and complex survey instruments; and supervisory principles and techniques.

Ability to: Supervise and deal effectively with others, do research on land boundary matters and prepare related reports, maps and records.

LAND BOUNDARY SURVEYOR IV

7.573

Duties Summary:

Has technical and supervisory responsibility for a major survey project or function or for several minor projects; personally performs the most difficult and complex field and office survey work; and performs other related duties as assigned.

Distinguishing Characteristics:

An incumbent of this class is under the general direction of a land surveyor of higher level and is responsible for a major land title, boundary and Land Court Application survey project or several minor land boundary survey projects. Assignments are usually given with a statement of objectives, limits of the assignment, and nature of results expected. The incumbent determines the methods, criteria and time, and personnel required to accomplish the assignment and usually carries the work through to completion with little guidance from his supervisor, except in cases of critical or complex problems or questions of policy. Completed work is reviewed for overall technical adequacy and conformance with the objectives of the assignment, with technical correctness of standard calculations, analyses, methods and techniques usually accepted by the supervisor. Guidelines include all those indicated at the previous levels; however, since complicating factors often occur in assignments at this level, an incumbent must apply experience judgment in modifying, adapting or deviating from standard guidelines to meet unusual conditions or problems. Personal contacts are significant at this level, and include contacts with other governmental agencies, consultants, contractors, private surveyors and public groups to explain and interpret applicable laws, regulations and procedures; in the course of such contacts, incumbent often makes commitments for the organization on matters covered by regulations and precedents.

A position in this class usually functions as a first-line supervisor over a group of survey personnel of lower level, which may include one or more survey crews, either on a permanent basis or as assigned for particular projects.

Examples of Duties:

Supervises a group of lower level boundary surveyors, engineering aids and draftsmen, engaged in a variety of land survey activities; reviews project or work assignment, determines priority, time and personnel required to accomplish the

assignment and may make cost estimates; discusses procedures, methods, background data, deadlines and anticipated problems with subordinates (either directly or through the chief of a survey party, depending on the nature of the assignment), spot checks the work while in progress, provides advice and assistance as needed and reviews finished work for technical adequacy and accuracy. On critical or complex survey projects where a high order of accuracy is required, a more complete and detailed review is made and incumbent may work directly with the survey crew in the accomplishment of such assignments. Makes recommendations regarding such management matters as personnel actions, leave, discipline, employee evaluation and training and changes in equipment, methods and organizational structure. Supervises office computations, reduction and plotting of field notes, preparation of metes and bounds descriptions, maps, charts and technical reports. Personally performs the more complex calculations such as those required in adjustment of triangulation nets and geodetic and inverse positions of new and old triangulation stations. Performs research in State records, archives and other sources to obtain information relating to land boundary and ownership disputes and may be required to appear in court as an expert witness during land litigations.

Knowledge and Abilities Required:

In addition to the knowledge and abilities indicated at the lower levels, this level requires:

A thorough knowledge of standard guides, precedents, methods and techniques in land surveying and a good working knowledge of established methods and procedures used in related areas; a thorough knowledge of regulations, policies and procedures of the agency, including a knowledge of Hawaii land laws, Land Court rules, decisions, and procedures and of Hawaii's land tenure history; thorough knowledge of other sources of land boundary information, such as that supplied by the federal government, private industry, educational institutions and information available in libraries and archives; and knowledge of the principles and techniques of supervision.

The ability to function independently, under only general supervision, in performing normal work assignments; modify and adapt standard guides, precedents, methods and techniques; develop effective coordination with and secure cooperation of others; and perform research on land matters and prepare complete and comprehensive technical reports.

LAND BOUNDARY SURVEYOR V

7.574

Duties Summary:

Serves as head of a major organizational segment (e.g., branch, section or large unit) of a statewide land survey program involving technical and administrative responsibility for more than one major survey project or function operating simultaneously; and performs other related duties as assigned.

Distinguishing Characteristics:

This level is characterized by the performance of work which requires the application of intensive and diversified knowledge of land survey principles and practices in a broad area of assignment, as well as administrative and supervisory responsibility. Assignments are received in terms of general objectives and relative priority and the incumbent works with considerable independence in carrying assignments through to completion. Projects typically contain unusual problems requiring adaptation or modification of standard procedures, techniques, methods, guides and/or precedents. Completed work is reviewed for adequacy in terms of broad objectives and for conformance to policy. Technical decisions and recommendations are rarely changed by the superior except for reasons of policy, public relations or budgetary considerations. Controversial policy questions, as well as unusual or critical problems, are discussed with the supervisor. The same guidelines used by land surveyors at lower levels are also available at this level; however, a position at this level requires the use of initiative, originality and judgment in the interpretation, application and adaptation of standard guides to varying situations and in devising alternative solutions to unusual problems.

A land boundary surveyor at this level normally has more frequent and wider contacts than those at the preceding level in coordinating the activities of his section with those of other organizational segments, administrative, professional and technical personnel and in dealing with other government agencies, consultants, contractors, private surveyors, legal authorities and the general public. Such duties may constitute a substantial portion of the work of a position at this level.

Examples of Duties:

Initially reviews projects received, plans method of approach and makes work assignments to employees supervised for most effective use of abilities and time; solves surveying problems referred for help, advising on appropriate methods and

techniques to be used and applicability of precedents; ensures coordination of the work supervised with related projects both within and outside the organization; reviews completed work submitted by subordinates for technical adequacy, accuracy of computations and conformance with policies and regulations; recommends priority and duration of assigned work; prepares budget estimates for major and long-range projects; performs personnel management functions such as selecting employees and evaluating performance, taking disciplinary action as required and training new employees in the methods and techniques to be followed in accomplishing assignments; initiates special investigations and research on land matters and prepares reports and correspondence. Assists in developing new procedures and methods and investigates the feasibility of new equipment such as electronic distance measuring instruments and makes recommendations on their adoption. May serve as expert witness in court proceedings involving land disputes.

Knowledge and Abilities Required:

In addition to the knowledge and abilities required at lower levels, this level requires:

A thorough and extensive knowledge of standard guides, precedents, methods and techniques in land surveying familiarity with related areas of professional engineering and of other organizational units as they relate to the area of assignment.

The ability to plan and organize large scale assignments containing many problems and variables; develop new lines of approach and new or improved techniques and to solve problems where critical gaps occur in data or precedents. The ability to supervise and direct the work of others; to relate the work of his program to overall departmental objectives and to deal tactfully and effectively with the public and other officials.

LAND BOUNDARY SURVEYOR VI

7.575

Duties Summary:

Directs a major land survey program or activity such as a large survey section or branch having broad and extensive responsibility for survey activities of a department or program area; and performs other related duties as assigned.

Distinguishing Characteristics:

This class involves responsibility for a variety of complex land survey programs or projects. A land boundary surveyor at this level works under very general administrative direction; assignments are typically received in terms of broad, general objectives and the incumbent is responsible for determining methods, procedures and assignment of personnel to accomplish the work most effectively. The supervisor is consulted on unusual or controversial situations and on administrative and budgetary matters. Completed work is reviewed for adequacy in terms of broad objectives and for conformance with policy, but is seldom subject to technical review.

A high order of judgment and originality is required at this level in planning, directing, advising on and coordinating the land surveying activities of the subordinate group and in skillfully applying a versatile knowledge of surveying principles and techniques, as well as a general knowledge of related professional engineering areas, in developing new methods and approaches for overcoming problems which cannot be solved by conventional methods and in planning broad and long-range programs.

A land boundary surveyor at this level carries out the more difficult person-to-person relationships for the work group supervised, including contacts with key officials in various echelons of the State government and with other jurisdictions, private industry and the public.

Examples of Duties:

Supervisory responsibilities at this level include planning, directing, advising on and reviewing the work of subordinate land survey personnel through subordinate supervisors; formulating procedures and work priorities and making broad work assignments; developing new criteria, techniques or approaches to guide subordinates in overcoming problems which cannot be solved by application of conventional techniques or procedures; analyzing and reviewing work of subordinates in terms of technical results and for conformance with departmental policies and regulations and with legal requirements; coordinating activities of his section with other sections or departments, other government agencies, private surveyors, consultants, contractors and the public; prepares project cost reports and performs other administrative work; and serves as expert witness.

Knowledge and Abilities Required:

In addition to the knowledge and abilities required at the lower levels, this level requires:

A well grounded and versatile background of knowledge in all aspects of land surveying; a general knowledge of the operating procedures and records maintained by other local and federal government agencies and offices, the courts and private sources concerned with land survey or with land title and boundary problems and functions; a comprehensive knowledge of pertinent laws, policies, regulations and procedures; a familiarity with the various branches of professional engineering as they affect and relate to surveying functions; extensive knowledge of the latest technological advances in land surveying and knowledge of administrative and supervisory principles and techniques.

The ability to function as a specialist and provide expert technical information and advice concerning land survey, boundary and title matters; interpret, organize, execute and coordinate assignments which are typically unique and complex and to apply and adapt broad technical knowledge to the independent solution of unprecedented problems having a direct impact on extensive and important programs; represent the organization in high level conferences and meetings and serve as an authority in land surveying matters; and function as the supervisor of an organizational segment and plan, implement and review the work of others, provide technical assistance in overcoming problems which cannot be solved by application of conventional methods and evaluate the significance and applicability of technical results obtained.