

APPENDIX A

Q KSA MATRICES FOR:
ACCOUNTING, CIVIL ENGINEERING, GEOLOGY,
LAND SURVEYING, LANDSCAPE ARCHITECTURE, REAL ESTATE

Job Title & Qualifications (Q)/KSA Matrix

(Accountant-related Positions in Finance)

Description of Procedures for Creating the Matrix

1. Position descriptions were thoroughly reviewed. The education and licensing requirements were selected from the “Job Requirements” or “Minimum Class Qualifications” (Q) section; the Knowledge (K), Skill (S) and Ability (A) requirements were selected from the “Responsibility” or “Difficulty of Work” or “Major Work Characteristics” section of the position description.
2. Those considered the most important or major requirements are listed first in the above-referenced sections. The requirements that pertain specifically to the Technical Training Plan were selected and assigned a simple code number (e.g., 1, 2, 3, etc.). Often, the requirements were shortened from the original to fit the matrix (e.g., “Ability to comprehend & interpret variety of civil engineering principles, techniques, procedures, criteria, plans & specifications & related data,” was translated to “comprehend & interpret Civil Engineering principles”).
3. As each position description was reviewed, similarities between and duplication of the Q, K, S, A requirements were observed, allowing assignment of the same code number, until a fairly exhaustive list was compiled.
4. Each position description was, again, reviewed using the compiled list of Q, K, S, A requirements and each was coded for that position and transferred to the matrix.
5. The coded Q, K, S, A requirements are listed separately.

Job Title & Qualifications (Q)/KSA Matrix

(Accountant-related Positions in Finance)

KEY

Requirements/Minimum Class Qualifications (Q)

- 1 high school diploma or GED
- 2 undergraduate degree in finance, business or accounting

Knowledge (K)

- 1 theories, principles and practices of public accounting and budgeting
- 2 finance, accounting, budgeting and cost control principles
- 3 applicable federal and state laws, policies, procedures

Skill (S)

- 1 use financial and accounting system software

Ability (A)

- 1 develop accounting procedures
- 2 assist in budget preparations
- 3 prepare and interpret financial statements and reports
- 4 analyze financial data and prepare financial reports, statements and projections

Job Title & Qualifications (Q)/KSA Matrix

(Accountant-related Positions in Finance)
May 4, 2011

JOB TITLE (WORKING TITLE)	Q	K	S	A
Finance				
Accountant 1 (Finance Manager)	2	2, 3	1	1, 2, 3
Accountant 6		1, 3	1	1, 2, 3

NOTE: **Boldface headings** are the names used to identify groups of revised job descriptions e-mailed by INDOT on April 1, 2011. The Q notation, 1, was removed from the revised Accountant 6 because the high school diploma or GED requirement was not in the job description e-mailed by INDOT March 17 and, again, on April 25, 2011.

Job Title & Qualifications (Q)/KSA Matrix

(Civil Engineering-related Positions)

Description of Procedures for Creating the Matrix

1. Position descriptions were thoroughly reviewed. The education and licensing requirements were selected from the “Job Requirements” or “Minimum Class Qualifications” (Q) section; the Knowledge (K), Skill (S) and Ability (A) requirements were selected from the “Responsibility” or “Difficulty of Work” or “Major Work Characteristics” section of the position description.
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Job Title & Qualifications (Q)/KSA Matrix

(Civil Engineering-related Positions)

KEY

Requirements/Minimum Class Qualifications (Q)

- 1 high school diploma or GED
- 2 complete Highway Technician modules 1, 2, 3 or other
- 3 complete INDOT Certified Technician Training
- 4 training in the functional area (e.g., NHI course)
- 5 certification by professional association or licensing agency in the functional area
- 6 post-secondary education in a related area
- 7 associate's degree (including "Applied" degree)
- 8 bachelor's degree in related area
- 9 bachelor of science in Civil Engineering
- 10 undergraduate degree in Civil Engineering
- 11 licensed as a Registered Professional Engineer

Knowledge (K)

- 1 federal, state, local guidelines, laws, regulations, procedures and Standards in functional area
- 2 basic, specialized or considerable in aspects of the functional area
- 3 INDOT & FWHA Standards & Specifications (also AASHTO & ASTM)
- 4 principles, practices, techniques, etc., associated with the functional area
- 5 Civil Engineering
- 6 data collection & analysis specific to the functional area
- 7 Civil Engineering technology

Skill (S)

- 1 computer use
- 2 drafting
- 3 surveying
- 4 CADD
- 5 operate and maintain testing equipment
- 6 standard diagnostic test equipment
- 7 operate specialized equipment

Ability (A)

- 1 interpret, analyze & evaluate diagrams, drawings, plans, manuals, directives, etc.
- 2 apply INDOT, AASHTO, etc., Standards & Specifications
- 3 comprehend & interpret Civil Engineering principles
- 4 understand & interpret technical documents, manuals, etc.
- 5 plan & develop engineering projects

Job Title & Qualifications (Q)/KSA Matrix

- 6 collect, assimilate & analyze data & prepare reports and directives
- 7 track & control construction processes
- 8 understand Civil Engineering technology
- 9 identify problems and determine accuracy and relevance of information
- 10 apply procedures and guidelines

Job Title & Qualifications (Q)/KSA Matrix

(Civil Engineering-related Positions)
July 20, 2011

JOB TITLE (WORKING TITLE)	Q	K	S	A
Bridge Inspection Manager	9, 11	1, 2	2	
BB Exec (District Construction Director)	11	2, 4		5, 7
BB Exec (Highway Maintenance Director)	8	2		
CE 3 (Project Engineer)	9, 11	1, 2, 3		1, 6
Environmental Scientist 3	8	1, 2		
HE 1 (Office Engineer)	9, 11	2, 3, 4, 5	1, 2, 4	4, 6
HE 1 (Sr. Pavement Design Engineer)	9, 11	2, 4	1	1, 4
HE 2 (Design Engineer)	9, 11	5	1, 2, 4	1, 3, 5
HE 2 (Pavement Design Engineer)	9, 11	1, 2, 3	1, 5	1, 6
HE 2 (Roadway Engineer)	9, 11	5	1, 2, 4	1, 3
HE 2 (Traffic Systems Sr. Field Engineer)	9, 11	2, 4	1, 7	1
HE 3 (Asst Bridge Inspection Engineer)	11	1, 2	1	1
HE 3 (Construction Mgmt. Section)	9	1, 2, 3, 4	1	1, 2, 4
HE 3 (Design Engineer)	9, 11	5	1, 2, 4	1, 3, 5
HE 3 (Environmental Scoping Engineer)	9, 11	2, 5		1, 3
HE 3 (Materials Engineer)	9, 11	2, 3	5	2, 4
HE 3 (Pavement Design Engineer)	9, 11	5	1, 2, 4	1, 3
HE 3 (Traffic Investigation Engineer)	9, 11	3, 5	1, 2, 4	1, 3
HE 3 (Traffic Systems Field Engineer)	9, 11	2, 4	1, 7	1, 4, 6
HE 3 (Utilities & Railroad Engineer)	9, 11	1, 2		1, 3
HES 3 (Design Manager)	9, 11	3, 5	1, 2, 4	1, 3, 4, 5
HES 4 (Area Engineer)	9, 11	2, 3, 4	1, 2, 4	3, 4, 6, 9

Job Title & Qualifications (Q)/KSA Matrix

HES 4 (Design Supervisor)	10, 11	3, 5	1, 2, 4	1, 3, 4, 5
HES 4 (District Testing Engineer)	9, 11	3, 5		3, 9
HES 4 (Environmental Scoping Manager)	9, 11	3, 5	1, 2, 4	3, 5, 9
HES 4 (Maintenance & Operations Supervisor)	10, 11	3, 5	1, 2, 4	1, 3, 5, 9
HES 4 (Systems Assessment Manager)	10, 11	3, 5	1, 2, 4	3, 9
Program Director (RE & R/W Manager)	1, 11	1, 2		6
ETS 3 (Project Supervisor)	2, 7	4	1, 3	1
ETS 4	5, 7		6	1
Electronics Technician 2	5, 7		1, 6	1
EA 1 (Design Technician)	7	7	4	
EA 4 (CADD Technician)	7	7	1, 2, 4	1,8
EA 4 (Bridge Standards Engineering Assistant)		2	1, 2, 4	1, 4
Sr. Environmental Manager* (Sr. Ecology & Permitting Specialist)		1, 2, 4		6, 9
Environmental Manager 2 (Ecology & Permitting Specialist)	1, 2, 4			6, 9
Program Coordinator 3 (Contracts Administrator)	1, 6	4	1	
Project Manager Broad Band (Project Manager)	7	2	1	3
BB Exec (Sub-District Operations Manager)		2, 4		
ETS 3 (Pre-Stress, Concrete, Beam Supervisor)	1	2, 3	1	9
ETS 3 (Production Lab Supervisor)	1	2, 3	1	9
EA 4 (Permit Inspector)	1	2		4
EA 4 (Utilities & Railroad Technician)	1	1, 2, 7	1, 2, 4	1, 4, 6
Field Investigator 3	1		4	9
HTS 3 (Traffic)	1	2, 3, 4		
HT 1 (Construction)	1, 2	1, 2		

Job Title & Qualifications (Q)/KSA Matrix

HT 1 (Crew Leader)	1	2		10
HT 1 (Crew Leader—Traffic)	1	4		10
HT 1 (Testing Technician)	1		5	2
HT 2 (Bridge Maintenance Coordinator)	1	4		10
HT 2 (Construction)	1	2	1	1, 10
HT 2 (Herbicide Coordinator)	1, 5	2	7	10
HT 3	1	2		10
Maintenance Supervisor 1	1	2		
Maintenance Supervisor 2 (Traffic Maintenance Supervisor)	1	2		

NOTE: Blank spaces denote where no Q KSA information was included in the position description provided by INDOT Employee Development.

Job Title & Qualifications (Q)/KSA Matrix

(Geologist-related Positions in Technical Services)

Description of Procedures for Creating the Matrix

1. Position descriptions were thoroughly reviewed. The education and licensing requirements were selected from the “Job Requirements” or “Minimum Class Qualifications” (Q) section; the Knowledge (K), Skill (S) and Ability (A) requirements were selected from the “Responsibility” or “Difficulty of Work” or “Major Work Characteristics” section of the position description.
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Job Title & Qualifications (Q)/KSA Matrix

(Geologist-related Positions in Technical Services)

KEY

Requirements/Minimum Class Qualifications (Q)

- 1 bachelor's degree in geology
- 2 Licensed Professional Geologist

Knowledge (K)

- 1 Indiana geology
- 2 AASHTO, ASTM, IN test methods and INDOT specifications
- 3 survey and mapping techniques

Skill (S)

- 1 operate geologic field instruments and photographic equipment

Ability (A)

- 1 apply state specifications, programs, guidelines, regulations
- 2 read, interpret contract documents, specifications
- 3 read, interpret, write geologic descriptions and reports

Job Title & Qualifications (Q)/KSA Matrix

(Geologist-related Positions in Technical Services)
July 21, 2011

JOB TITLE (WORKING TITLE)	Q	K	S	A
Geologist 2 (Testing)	1, 2	1, 2, 3	1	1, 2, 3

Job Title & Qualifications (Q)/KSA Matrix

(Land Surveying-related Positions in Planning and Production-Survey and Real Estate)

Description of Procedures for Creating the Matrix

1. Position descriptions were thoroughly reviewed. The education and licensing requirements were selected from the “Job Requirements” or “Minimum Class Qualifications” (Q) section; the Knowledge (K), Skill (S) and Ability (A) requirements were selected from the “Responsibility” or “Difficulty of Work” or “Major Work Characteristics” section of the position description.
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Job Title & Qualifications (Q)/KSA Matrix

(Land Surveying-related Positions in Planning and Production-Survey and Real Estate)

KEY

Requirements/Minimum Class Qualifications (Q)

- 1 high school diploma or GED
- 2 Associate degree in survey technology
- 3 certified as IN Surveyor-in Training
- 4 bachelor of science in Land Surveying
- 5 bachelor's degree in related field
- 6 Registered Land Surveyor
- 7 completion of college course in Real Estate or Real Estate license

Knowledge (K)

- 1 surveying
- 2 professional surveying
- 3 engineering principles and practices
- 4 laws pertaining to surveying
- 5 surveying principles, techniques, theories and practices

Skill (S)

- 1 operation and maintenance of survey instruments
- 2 operation of survey measuring devices
- 3 operation of survey equipment
- 4 use and maintenance of survey equipment

Ability (A)

- 1 prepare and analyze technical survey data
- 2 understand system of procedures
- 3 apply principles to solve practical problems
- 4 read, analyze, interpret and apply technical procedures and standards

Job Title & Qualifications (Q)/KSA Matrix

(Land Surveying-related Positions in Planning and Production-Survey and Real Estate)
July 11, 2011

JOB TITLE (WORKING TITLE)	Q	K	S	A
BB Executive (Surveying Manager)	5, 6	2	4	1, 4
Surveyor 3 (Survey)	2, 6	1	3	4
Surveyor in Training	3, 4	2	1	1
Survey Operations Supervisor	6	2	4	1
Survey Operations Manager	6	2	4	1
Surveyor 3 (Real Estate)	2	2, 3, 4	3	3
Surveyor 4 (Surveyor)	2, 7	3, 4, 5	3	4
Surveyor 4 (Survey)	1, 2	1	2	1, 2
Survey Tech (R/W & RE Services)	2	1	3	3
Surveyor 5 (Survey)	1	1	2	1, 2
Surveyor 3 (LPA Coordinator)	1, 7	4		1, 4
Survey Tech (Office of Survey Operations)	1	1	2	2

NOTE: Blank spaces denote where no Q KSA information was included in the position description provided by INDOT Employee Development.

Job Title & Qualifications (Q)/KSA Matrix

(Landscape Architect-related Positions in Production)

Description of Procedures for Creating the Matrix

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Job Title & Qualifications (Q)/KSA Matrix

(Landscape Architect-related Positions in Production)

KEY

Requirements/Minimum Class Qualifications (Q)

- 1 high school diploma or GED
- 2 Associate of Applied Science degree in related field
- 3 certified pesticide applicator
- 4 pesticide Category 5 and 6 license

Knowledge (K)

- 1 forestry, horticulture, landscaping, etc.
- 2 herbicides and effect on plant life
- 3 landscape equipment and its operation
- 4 surveying principles and practices applicable to landscaping

Skill (S)

Ability (A)

- 1 read, write, interpret and evaluate landscape design plans and specifications
- 2 analyze landscaping needs

Job Title & Qualifications (Q)/KSA Matrix

(Landscape Architect-related Positions in Production)

July 21, 2011

JOB TITLE (WORKING TITLE)	Q	K	S	A
Landscape Architect 4	1, 2, 3, 4	1, 2, 3, 4	1	1, 2

(Real Estate-related Positions in Planning and Production-Real Estate)

Description of Procedures for Creating the Matrix

1. Position descriptions were thoroughly reviewed. The education and licensing requirements were selected from the “Job Requirements” or “Minimum Class Qualifications” (Q) section; the Knowledge (K), Skill (S) and Ability (A) requirements were selected from the “Responsibility” or “Difficulty of Work” or “Major Work Characteristics” section of the position description.
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(Real Estate-related Positions in Planning and Production-Real Estate)

KEY

Requirements/Minimum Qualifications (Q)

- 1 high school diploma or GED
- 2 Indiana Real Estate Broker's license
- 3 Registered Professional Engineer

Knowledge (K)

- 1 real estate or property management
- 2 local, state, federal requirements relative to real estate acquisition

Skill (S)

- 1 building & equipment maintenance & repair

Ability (A)

- 1 prepare deeds, leases, mortgages, contracts
- 2 prepare accurate and concise reports & documents
- 3 read technical documents

(Real Estate-related Positions in Planning and Production-Real Estate)
 April 12, 2011

JOB TITLE (WORKING TITLE)	Q	K	S	A
Planning & Production—Real Estate				
Program Coordinator in Real Estate (District)	2 or 3	1, 2		1

NOTE: Boldface headings are the names used to identify groups of revised job descriptions e-mailed by INDOT on April 1, 2011.

