CS-214
Rev 11/2013

| 1. **Position Code** |
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**State of Michigan**
**Civil Service Commission**
Capitol Commons Center, P.O. Box 30002
Lansing, MI 48909

# POSITION DESCRIPTION

This position description serves as the official classification document of record for this position. Please complete this form as accurately as you can as the position description is used to determine the proper classification of the position.

| 2. **Employee's Name (Last, First, M.I.)** | 8. **Department/Agency** |
|---|---|
| | Department of Environment, Great Lakes, and Energy |
| **3. Employee Identification Number** | **9. Bureau (Institution, Board, or Commission)** |
| | |
| **4. Civil Service Position Code Description** | **10. Division** |
| Environmental Engineer-E 9-P11 | Water Resources Division |
| **5. Working Title (What the agency calls the position)** | **11. Section** |
| Environmental Engineer | Field Operations Support Section |
| **6. Name and Position Code Description of Direct Supervisor** | **12. Unit** |
| Mario Fusco, Engineer Manager Licensed 14 | Hydrologic Studies and Floodplain Management Unit |
| **7. Name and Position Code Description of Second Level Supervisor** | **13. Work Location (City and Address)/Hours of Work** |
| Amy Lounds, State Administrative Manager 15 | 525 West Allegan Street, Lansing, MI 48933/<br>8:00 a.m.-5:00 p.m., Monday-Friday |

**14. General Summary of Function/Purpose of Position**

Perform watershed modeling in the estimation of low flows and flood frequency discharges on a statewide basis for consultants and state, local, and federal agencies. The flood frequencies discharge determinations are in support of the Floodplain Regulatory Authority in Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). The low flow estimations are used to minimize the impacts of discharge waste to the waters of the state, and in support of EGLE's Water Use Program.

Review preliminary and final plat submittals and perform engineering hydraulic analysis for the determination of the 100-year floodplain elevations and establish floodplain limits within proposed subdivisions and recommend approval, denial, or modification of projects under Sections 116 and 117 of the Land Division Act, 1967 PA 288, as amended (Act 288); and process applications for permits for proposed subdivision projects within the 100-year floodplain submitted under Part 31 of the NREPA.

Perform other duties of the Hydrologic Studies and Floodplain Management (HSFMU) on an as needed basis, including hydraulic modeling, database update and maintenance, and field data collection.

**15. Please describe the assigned duties, percent of time spent performing each duty, and what is done to complete each duty. List the duties from most important to least important. The total percentage of all duties performed must equal 100 percent.**

Duty 1

**General Summary of Duty 1 % of Time 40**

Analyze hydrologic and hydraulic data to determine flood frequency discharges. Assist in the login and tracking of all incoming flood discharge requests to make sure they are completed and responded to within a given timeframe.

**Individual tasks related to the duty.**

- Estimate the flood frequency discharges on a statewide basis for consultants and federal, state, and local agencies. Work may require consultation with outside agencies and consultants.
- Determine and use the appropriate methodology to estimate flood discharges. Methodologies include statistical evaluation of gage records, regression analysis, SCS curve number procedure, extension of gage record by correlation with another gage, unit hydrograph techniques, and TR-55 and HEC-HMS models.
- Assist in the development of HEC-HMS (hydrologic) watershed models and on the evaluation of available in-house data and collect necessary field data to be used to estimate model parameters and calibrate models with known data when appropriate.
- Use GIS software to determine some of the input parameters used in the various methodologies.
- Examine stream gage records after flood events to determine the need to update statistical analysis of the data.
- Assist with the login of flood discharge requests and track requests to make sure that they have been responded to within 30 days. Organize requests and coordinate with staff who process flood discharge requests to be sure that all requests are processed in a timely manner.

Duty 2

**General Summary of Duty 2 % of Time 30**

Collect data, maintain database, and analyze hydrologic data to determine low flow estimates.

**Individual tasks related to the duty.**

- Collect, analyze, and interpret hydrologic data and provide low flow estimates for review by lead worker for use by the WRD and other divisions, departments, agencies, engineering consultants, and municipalities.
- Acquire stream flow data from the flow network of the United States Geological Survey (USGS) to be used in low flow calculations.
- Assist with the coordination of the stream flow data collection for the state with the USGS.
- Assist in maintaining and updating the tracking system and database for the low flows, including data, estimates, and the Miscellaneous Measurements Database.
- Maintain the Peak Flow Database and Flood Flow Database and make sure that all features and possible GIS interactions are maintained.

These tasks require a working knowledge of Statistical Hydrologic Analyses models, such as the United States Army Corps of Engineers' (USACE) FFA computer programs and statistical functions in Microsoft Excel, as well as computing programming in Visual Basic in the Microsoft Access and Excel environments.

Duty 3

**General Summary of Duty 3 % of Time 15**

Review preliminary and final plat submittals and perform engineering hydraulic analysis for the determination of the 100-year floodplain elevations and establish floodplain limits within proposed subdivisions and recommend approval, denial, or modification of projects under Sections 116 and 117 of Act 288; and process applications for permits for proposed subdivision projects within the 100-year floodplain submitted under Part 31 of the NREPA.

**Individual tasks related to the duty.**

- Utilize hydraulic and hydrologic engineering methods and procedures to establish floodplain elevations and analyze the floodplain elevation impacts for both lake and riverine systems involving subdivision projects.
- Review plat submittals in order to recommend approval, denial, or modification of projects, and prepare letters of approval or denial.
- Review hydraulic reports submitted by professional engineers establishing floodplain elevations or evaluating the impact of proposed alterations on floodplain elevations for subdivision projects.
- Gather pertinent data and determine if the necessary information has been received that is needed to perform engineering computations.
- Conduct site investigations as needed to aid in preliminary and final review. Site data gathered includes hydraulic parameters, highwater evidence, and channel/floodplain characteristics.
- Make recommendations for approval, denial, or modification of projects.
- Determine statutory authority.
- Research available flood hazard data.
- Request additional information as needed to complete a review.
- Compare final plat submittal with preliminary plat approval and makes recommendation to the Department of Licensing and Regulatory Affairs for its approval or denial
- Review and recommend decisions for the issuance of Part 31 permits for subdivision projects.
- Provide floodplain information to be used in the amended subdivision plat process.

Duty 4

**General Summary of Duty 4 % of Time 10**

Plan, direct, and carry out stream flow measurements in the waters of the state and keep up to date with accepted methods in the use and care of the stream flow measuring equipment. Schedule and participate in field trips to collect hydrologic and hydraulic data needed for a specific analysis.

**Individual tasks related to the duty.**

- Make stream flow measurements, as needed or requested, to aid in the computation of low flow estimates.
- Make stream flow measurements that are coordinated with the WRD for the National Pollutant Discharge Elimination System permitting cycle and biological studies.
- Make stream flow measurements as required for EGLE's Water Use Program.
- Assist in the collection of high water marks, as needed, during floods.
- Assist in the collection of drought and zero flows depending on the climatologically conditions of the year.
- Collect survey data including stream cross sections and bridge/culvert data for input into the HEC-RAS model.

These tasks require a working knowledge of stream flow instrumentation and standard methodologies developed by the USGS; and requires a valid State of Michigan driver's license in case the use of a State of Michigan vehicle is needed for travel.

Duty 5

**General Summary of Duty 5 % of Time 5**

Conduct violation investigations and perform inspections to determine subdivision project compliance for permits issued under Part 31.

**Individual tasks related to the duty.**

- Perform floodplain site investigations to evaluate and assess compliance under Part 31.
- Recommend appropriate enforcement action on confirmed violations.
- Coordinate with other governmental agencies including the Department of Attorney General and local prosecutors.

**16. Describe the types of decisions you make independently in your position and tell who and/or what is affected by those decisions. Use additional sheets, if necessary.**

Initially all decisions will require the review of supervisor or designee. As incumbent gains experience in the position, the authority to make independent decisions will be delegated as appropriate. Incumbent will make the following recommendations to supervisor or designee:

- Estimate Flood Flow and Low Flow determinations.
- Approvals, no authority determinations, and denials under Act 288; and permit issuance, denials, modifications, and compliance under Part 31 of the NREPA.

These decisions impact the definition of low flows and flood flows and, as such, can affect the health, safety, and welfare of property owners and the general public and affect communities and government agencies.

**17. Describe the types of decisions that require your supervisor's review.**

- Initially all decisions will require the review of supervisor or designee. As incumbent gains experience in the position, the authority to make independent decisions will be delegated as appropriate.
- Supervisor or designee will be consulted when decisions are likely to set precedents for future work or affect division policy or involve multiagency concerns.
- Prioritizing work assignments.

**18. What kind of physical effort do you use in your position? What environmental conditions are you physically exposed to in your position? Indicate the amount of time and intensity of each activity and condition. Refer to instructions on page 2.**

The majority of the work involves sitting at a desk performing computations, reviewing plans, or computer modeling. Some field work is required to collect survey information and stream flow data in potentially difficult terrain and in a variety of weather conditions. Situations may involve being in close proximity to swiftly moving flood water. Approximately 15% of the work is field work; the remainder of the work is performed in the office.

**19. List the names and classification titles of classified employees whom you immediately supervise or oversee on a full-time, on-going basis. (If more than 10, list only classification titles and the number of employees in each classification.)**

| NAME | CLASS TITLE | NAME | CLASS TITLE |
|---|---|---|---|
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**20. My responsibility for the above-listed employees includes the following (check as many as apply):**

**___Complete and sign service ratings.**
**___Provide formal written counseling.**
**___Approve leave requests.**
**___Approve time and attendance.**
**___Orally reprimand.**
**___Assign work.**
**___Approve work.**
**___Review work.**
**___Provide guidance on work methods.**
**___Train employees in the work.**

**21. Do you agree with the responses for Item 1 through 20? If not, which items do you disagree with and why?**

Yes.

**22. What are the essential functions of this position?**

- Assist with the login and tracking of flood frequency discharges and low flow discharges requests.
- Perform hydrologic analyses for the determination of flood frequency discharges in support of the unit's mission.
- Perform hydrologic analyses for the determination of low flow discharges in support of the unit's mission.
- Conduct and review hydraulic evaluations related to proposed subdivisions.
- Perform flow measurements in the waters of the state in support of the unit's mission.
- Review plat submittals for the determination of the 100-year floodplain elevations and establish floodplain limits.
- Recommend approval, denial, or modification of projects under Act 288.
- Process applications for permits for proposed subdivision projects.

**23. Indicate specifically how the position's duties and responsibilities have changed since the position was last reviewed.**

**24. What is the function of the work area and how does this position fit into that function?**

The HSFMU is responsible for the analysis and interpretation of land use and stream flow characteristics involving groundwater, low flows, flood flows, and watershed management as they apply to pollution control, floodplain management, and water related design work. Information is provided to private consultants, department staff, and other governmental agencies. The unit reviews major projects for their impact on the hydrologic system. This position provides flood discharge information that is needed by various stakeholders in the design of their water-related projects. The flood discharges are required as set out in the State's Floodplain Regulatory Authority in Part 31 of the NREPA. This position also provides low flow estimates that are used to minimize the impact of discharge into waters of the state. In addition, this position is also involved in the review and analysis of data to determine the appropriate floodplain for proposed subdivisions under Sections 116 and 117 of Act 288 and administration of the floodplain provisions in Part 31 of the NREPA as it relates to subdivision projects.

**25. What are the minimum education and experience qualifications needed to perform the essential functions of this position.**

**EDUCATION:**

Possession of a bachelor's degree in engineering.

**EXPERIENCE:**

**Environmental Engineer 9**
No specific type or amount is required.
**Environmental Engineer 10**
One year of professional environmental engineering experience in the protection and improvement of land and water resources, occupational health, or air quality equivalent to an Environmental Engineer 9.
**Environmental Engineer P11**
Two years of professional environmental engineering experience in the protection and improvement of land and water resources, occupational health, or air quality equivalent to an Environmental Engineer, including one year equivalent to an Environmental Engineer 10.

**KNOWLEDGE, SKILLS, AND ABILITIES:**

Ability to make independent engineering decisions and communicate effectively at a professional level with other engineers and the general public. Ability to coordinate, organize, and prioritize work assignments. Considerable knowledge and practical experience with computer applications including various hydraulic and hydrologic modeling techniques. An advanced degree with an emphasis in hydrology and hydraulics is desirable.

**CERTIFICATES, LICENSES, REGISTRATIONS:**

Valid Michigan driver's license is preferred.

***NOTE: Civil Service approval of this position does not constitute agreement with or acceptance of the desirable qualifications for this position.***

***I certify that the information presented in this position description provides a complete and accurate depiction of the duties and responsibilities assigned to this position.***

**Supervisor's Signature** **Date**

## TO BE FILLED OUT BY APPOINTING AUTHORITY

**Indicate any exceptions or additions to the statements of the employee(s) or supervisor.**

***I certify that the entries on these pages are accurate and complete.***

**Appointing Authority's Signature** **Date**

## TO BE FILLED OUT BY EMPLOYEE

***I certify that the information presented in this position description provides a complete and accurate depiction of the duties and responsibilities assigned to this position.***

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|---|---|
| **Employee's Signature** | **Date** |

**NOTE: Make a copy of this form for your records.**