PEA Job Description

1. Position Identification

<table>
<thead>
<tr>
<th>Position Number</th>
<th>992228, 991774</th>
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<tbody>
<tr>
<td>Position Title</td>
<td>GIS Specialist</td>
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<tr>
<td>Department</td>
<td>ONC</td>
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<tr>
<td>Reports to</td>
<td>Data Stewardship Manager</td>
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<tr>
<td>Number of Direct/Indirect Reports</td>
<td>Direct 0 Indirect 0</td>
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<tr>
<td>Classification Level</td>
<td>Computing &amp; System Services SG10</td>
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<tr>
<td>Last Updated</td>
<td>N/A</td>
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2. Position Summary

Ocean Networks Canada (ONC) enables transformative ocean research and technology development through an innovative cabled infrastructure that supplies continuous power and Internet connectivity to a broad suite of subsea instrumentation in coastal and deep-ocean environments. ONC supports a new generation of coastal and deep ocean research through the management of cabled ocean observatories consisting of the NEPTUNE Canada and VENUS systems off the coast of British Columbia, as well as various mini-observatory installations (e.g. Cambridge Bay), on behalf of the University of Victoria. More details can be obtained on the ONC web site at www.oceannetworks.ca.

The GIS Specialist is responsible for the provision of geospatial services for ONC including mapping, route planning, bathymetric data collection and processing, geospatial data products, as well as for the maintenance of geospatial data in an organized ArcSDE interfaced database. The GIS specialist interfaces with internal teams (e.g., executive, science, engineering) developing plans or seeking an end-product, and with external contractors (e.g., ROV navigators, graphic designers), scientists or institutions that require ONC geospatial information.

3. Key Responsibilities and Expectations

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<th>Key Responsibilities of time</th>
<th>Expectations:</th>
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| GIS related data management (30%) | • Ensures bathymetric and geospatial data are properly processed and archived  
• Organizes and maintains ESRI geodatabases for primary infrastructure (e.g., nodes, cables, junction boxes), secondary infrastructure (scientific instruments), bathymetric data sets, and miscellaneous items (e.g., ferry routes, exclusion zones)  
• Proposes and executes an overall GIS plan for ONC based on feedback from scientific community  
• Ensures adherence to and maintains documentation about adopted geospatial standards and conventions |
### GIS-related data products (30%)
- Monitors geospatial data management trends and recommends new tools and practices
- Documents navigational systems used on mobile platforms like ships and ROVs
- Maintains access points to restricted bathymetric data and provides non-disclosure agreements with external private and governmental agencies where appropriate

### Operations support (25%)
- Maintains a core set of observatory maps used on ONC website as a key communications aid for public relations and external users
- Consults with internal and external users which requires gathering requirements, assessing and effectively communicating possible solutions, and ensures satisfaction with the end result.
- Produces maps for engineering plans including cable lay plans for new and replacement cables
- Provides navigation data for offshore maintenance cruises
- Produces data products for the scientific community, such as local area and overview maps, fly-throughs, gridded bathymetric data,
- Creates GIS configuration files for various GIS software
- Produces maps for posters, iBooks and presentations in both 2D and 3D
- Supports equipment placement decision making through advice based on bathymetric data

### Infrastructure documentation (10%)
- Assists in preparations for observatory maintenance activities (e.g., navigation file preparation, mapping, and coordination with ROV navigator)
- Organizes, collects and processes bathymetric surveys on-board observatory maintenance cruises or on land
- Performs on-board duties during maintenance cruises (normally 2-6 weeks at sea per year)
  - Primary duties: operating sonars, assisting ROV navigator (providing directions and locations of equipment, etc.)
  - Secondary duties: water sampling, assisting engineering team on-deck, logging ROV operations
- Assists with curation of cruise data (metadata, data conversions, and archival)

### Miscellaneous (5%)
- Produces workflows, training and documentation for GIS processes to guide own work and train others
- Builds and maintains online digital mapping tools
- Completes peer-reviews
4. **Classification Factors:**

**Problem-Solving:**
The position requires significant problem-solving abilities in a highly technical environment. The position is unique in the organization, which limits the ability to consult with colleagues for expertise. The position requires frequent innovation to apply currently available programs to business needs, and to develop solutions that have not been used before (i.e., laying telecommunications cable in atypical environments). The position must also determine specialized methods to process bathymetric data collected on an ROV.

**Responsibility for Financial & Material resources:**
The GIS Specialist will have no direct financial responsibility, but will advise on purchase of software and equipment (e.g., post-processing software, purchasing services to have sonars surveyed, etc.). Decisions regarding the positioning and deployment of ONC equipment are based on the plans and maps developed by the position; therefore, there is an indirect impact on the maintenance and protection of ONC’s material resources as a result of the work produced.

**Responsibility for Human Resources:**
The GIS Specialist is also responsible for training others in ONC (engineering, communications, data products teams) on how to use GIS tools and software. Third party contractors involved in GIS activities (e.g., on-board cruises) also receive training and instructions, as needed.

**Impact of Decisions and Actions:**
The GIS Specialist has overall responsibility for maintaining the GIS components of the ONC database. Since subsets of this data are proprietary, the position is responsible for ensuring that data distribution adheres to agreements with external organizations (e.g., University of Washington, Canadian government). Certain decisions are made independently, and the impact of the decisions made by the GIS Specialist range from moderate to high. For example, the GIS Specialist files notices about undersea infrastructure and equipment, which is a legal requirement; failure to do so may result in legal action against the University of Victoria if an incident occurs. The GIS Specialist also determines routes for cable-lay plans and provides recommendations to the marine operations team for cables worth $100k-$2M each. Consultation is required when significant deviation from original operations plans is expected. Furthermore, the GIS Specialist defines survey routes to collect bathymetric data, which cost a significant amount in ship time.
Independence:
The GIS Specialist works under the general supervision of the Data Stewardship and Operations Support Team Lead. The degree of independence is moderately high. The position is required to develop processes for cable-lay plans, and archiving of GIS data. These tasks are guided by established practices and procedures to the extent possible. Although the GIS Specialist works within a team environment, their skills and knowledge is unique. Therefore, he or she is relied upon to provide advice and effectively communicate rationale for certain strategic decisions like placement of primary and secondary infrastructure, applicability of a given geospatial standard or technology, and bathymetric survey routes. While at sea, the degree of independence is greater as expert judgement must be applied to issues as they arise.

5. Summary of qualifications:
The position requires a Bachelor’s degree in Earth or Ocean Sciences or related field such as remote sensing or Engineering, formalized training in multibeam sonar data collection, and at least 3 years’ related experience, including use of ESRI ArcGIS software and the Fledermaus Professional Suite, interpreting and processing bathymetric and scalar data, at sea aboard research vessels and writing technical reports.

A scientific or research background sufficient to understand the technical aspects of Ocean Networks Canada’s observatory is essential. Excellent interpersonal skills, problem-solving capabilities, and an ability to work under time pressure conditions are highly desired. In addition, the following knowledge and experience are required:

- Ability to program in Matlab, Python, and/or other data processing languages
- Familiarity with classifying and interpreting seafloor geology
- Fluent in the use of SQL-based database access tools

Equivalent combinations of education, training, and/or experience may be considered.

The following skills or knowledge areas would be an asset:

- Filing NOTMARs and NOTSHIPs and their requirements
- CARIS HIPS and SIPS
- Multibeam acquisition software such as Imagenex Octans or SIS
- 3D modeling software such as Google Sketchup or Solidworks
- Coordinate conversion software such as Corpscon
- Cable lay planning
- ESRI Nautical Solution extensions
- Integration of geospatial web-services

Date of Submission: _________________________________
Signature of Responsible Manager: _____________________