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AB T2E 4C3
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VGeo Experience Summary

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Welcome Message

Hi, I'm Vera Green, COE of VGeo.

For over 25 years, I've specialized in helping small organizations **unlock the power of GIS**. My mission is to provide tailored GIS products and services designed specifically for your distinct business needs.

My passion for breaking down barriers to geospatial data access and utilization is reflected in how everyone at VGeo works with clients and the products we deliver. **VGeo is here to empower you** and your entire team regardless of your level of expertise.

The VGeo team has **over 50 years of combined GIS expertise!** Whether you need a single map or a comprehensive GIS strategy, our expertise is your competitive advantage. We take pride in delivering user-friendly, customized solutions that provide tangible support to your business.

The VGeo Approach

Plan	Estimate	Build
Specifications	**Budget**	**Product**
Exactly what you need	**Accurate Estimate**	**The Perfect Solution**
A collaborative discovery process which leads to a detailed and accurate project description	A detailed quote which describes exactly what you need and you know exactly how much it will cost	The map is created precisely to your specifications

Team Experience Summary

Team Member	Highest Level of Education	Years of Experience	Position
Vera Green	Masters Degree in GIS from Penn State University	Over 25 years	CEO
Kier Lindsay	B.S. Computing Science, Minor in Philosophy from Simon Fraser University	Over 10 years	CTO & Lead Developer
Darlene Laurenco	Subject Specific Courses in AutoCad, ESRI and Visual Design	Over 10 years	GIS Lead / Project Manager
Taylor Hayhurst	Bachelor of Arts (BA) in Geography, Minor in Geomatics fromWilfrid Laurier	2 years	GIS Technician
Sherry Chen	Master of Science (MSc) in Landscape Ecology from McMaster University	6 years	GIS Analyst
Sebastian Amezquita	Bachelor of Science in Geology from Saint Mary's University	4 years	GIS Technician

Company Information

- Name: **Vera Green**
- Company: **2062832 ALBERTA LTD.** Operating under the registered trade name of **VGeo**
- Phone: **402-836-8324**
- Email: **vera@vgeo.ca**
- Physical address: **415 7 St NE, Calgary, AB, T2E4C3**
- Mailing address : **6016 Dalcastle Crescent NW, Calgary, AB, T3A 1S4**

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Vera Green - CEO

Vera Green is a GIS professional with over 25 years of experience. She has worked for many years as an independent contractor across several industries, including environmental monitoring, oil & gas, forestry, and emergency management. More recently, Vera founded VGeo which is a full service GIS consulting firm.

Vera also co-founded ENDpoint Ventures with Kier Lindsay in 2023. Based on their past working relationship ENDpoint Ventures focuses on cloud first Geospatial application development including the use of AI in GIS. Vera has a strong interest in advancing the field of GIS and business through AI.

Education:

Vera holds a **Masters Degree in GIS** from Penn State University and a **Bachelors of Science in Geography** from UNBC.

Workshops and Masters Level Courses

- GIS Database Development
- GIS Programming and Customization
- Geodesign
- Geospatial System Analysis and Design
- GIS Application Development
- Geospatial Technology Project Management
- Cloud and Server GIS

Awards:

Premier's Award for Excellence (Team Project) 2011

Recent Work Experience

- Director (GIS & Development) VGeo - 2017 - Current
- Scrum Team Lead at Certn - 2022 - 2023
- Development Team Lead at The Lorrnel Group - 2018 - 2021
- GIS Specialist at Cenovus Energy - 2016 – 2018
- GIS Specialist at Connect Engineering - 2016 – 2019
- GIS Analyst/GIS Lead Analyst at Universal Pegasus International - 2014 – 2016
- Geomatics Analyst at Government of the Northwest Territories - 2008 - 2013

Technical Skills Summary

GIS Software

Vera is proficient with a wide variety if GIS tools including the full suite of ESRI tools as well as may alternatives such as Q-GIS. Vera also has advanced skills with relations databases and other software systems in support of GIS applications including PostgreSQL, PostGIS, GDAL, and GeoServer.

Programming

Vera is a skilled programmer with the ability to utilize: SQL, Python, HTML5, CSS, Bash/Shell and JavaScript among others. She is comfortable in both a windows and linux environment and often utilizes command based tools and systems for her work.

Database Administration

Vera has may years of experience managing GIS data in relational databases including creation of complex views and automated routines. Her key strength is in complex schema development and data architecture design.

She is also experienced with database administration functions such as routine maintenance, backups, debugging and installation of PostGreSQL database servers.

Statistics

Vera has past experience with statistical tools including Tableau, SpotFire, and PowerBI.

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Kier Lindsay

CTO & Lead Developer

Over 10 years of performance and security focused geospatial development experience

Meet Kier, our Full Stack Developer with a robust career marked by a specialized focus on geospatial development and a commitment to creating cloud-first, performance-oriented web mapping products. His expertise extends beyond the creation of visually rich and highly functional web interfaces; **Kier is deeply invested in the architecture and optimization of back-end systems** that ensure efficient operations. Kier has advanced skills in elastic computing, leveraging this technology to ensure that **applications are scalable and resilient under varying loads.**

Kier is well-versed in advanced topics in security and privacy. He understands the critical importance of protecting data and systems in today's digital landscape and integrates robust security measures into every layer of development. His holistic development approach prioritizes both immediate and future scalability and security needs.

His expertise also extends to the strategic use of Artificial Intelligence (AI). Kier has a background in computer vision and machine learning and is exploring how AI can be applied to the world of GIS and web mapping.

Kier's commitment to excellence, combined with his broad and deep skill set, makes him a valuable asset to any team. Skilled in web maps, AI, and security, he excels in full-stack development, navigating the digital age's challenges with ease.

Education:

Kier holds a **B.S. Computing Science, Minor in Philosophy** from Simon Fraser University, specializing in software development, advanced algorithms, artificial intelligence, and value theory (Graduated Fall 2021).

Recent Work Experience

- CTO/ Full Stack Web Developer 2019 - Current
- Co-Founder ENDpoint Ventures 2022 – Current
- Vivint Canada Inc Manager Lead Tech/Installation Technician 2016 - 2021

Technical Skills Summary

Programming: C/C++, JavaScript, CSS, HTML, SQL, Python, Java, PHP, x86 Assembly.

Development Tools: VCS (Git/Github/Gitlab), Google Cloud Platform, Digital Ocean, Debuggers, Webstorm, Grunt, npm, Node.js, OpenCV, TensorFlow.

Web Development: Full Stack web development, including front-end and back-end development, using modern frameworks and tools.

Geospatial Development: Expertise in building web mapping applications, integrating spatial databases, and leveraging cloud platforms for geospatial solutions.

Machine Learning: Experience with machine learning frameworks and traditional visual recognition techniques for geospatial data analysis.

Security: Strong focus on implementing security and privacy measures in web applications, ensuring data protection and system integrity.

Problem-Solving: Excellent problem-solving and troubleshooting skills, with a proactive approach to identifying and addressing technical challenges.

Team Collaboration: Effective team player with experience in collaborative programming, project planning, and customer engagement.

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Darlene C. Lourenco

GIS Lead / Project Manager

Darlene Lourenco brings a **wealth of leadership experience** to VGeo, having successfully managed and led numerous GIS teams and projects.

With over a decade of expertise in geospatial analysis and project management, Darlene excels in overseeing teams, coordinating complex deliverables, and ensuring the highest standards of data quality. Her complementary skills in CAD further strengthen the team's ability to deliver integrated geospatial solutions.

Education:

Darlene completed a Visual Design Program and numerous ESRI courses. She has gained **extensive hands-on experience** through her long and successful career. As a lifelong learner, she brings a wealth of **practical, real-world knowledge** to the team.

Recent Work Experience

- GIS Lead / Project Manager, UniversalPegasus International
- Pipeline Designer, Three Streams Engineering / AMEC Foster Wheeler
- Drafting Lead, WorleyParsons/DPH Focus / IPPCL,

Technical Skills Summary

Strong leadership skills in managing projects, client communications, timelines and deliverables. Darlene excels at coordinating cross-functional teams.

Exceptional at **organizing complex deliverables** and ensure high standards for GIS data and map deliverables.

Skilled in **AutoCAD Map 3D, Civil 3D**, and **AutoCAD R14**, with a strong focus on creating design deliverables such as alignment sheets, profiles and site plans.Taylor Hayhurst

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Taylor Hayhurst

GIS Technician

Taylor brings her passion for **cartography and data management** skills to every project. She excels in creating visually appealing maps, ensuring all data is meticulously cataloged. Her genuine passion for community, creativity and technology is exemplified by her **exploration of AI technology** for image generation and writing both professionally and to support her creative hobbies.

Taylor has contributed significantly to community projects and academic environments through volunteering, demonstrating her **commitment to making a positive impact** both professionally and personally.

Education:

Taylor holds a **Bachelor of Arts (BA) in Geography, Minor in Geomatics** from Wilfrid Laurier University where she has earned a series of awards and scholarships including the Arthur Beckman Geography Scholarship , Elizabeth Tschirhart Award Recipient, Faculty of Science Dean's Honour Roll and the Muncaster Family Award.

Recent Work Experience

- Physical Geography Instructional Assistant, Wilfrid Laurier University
- Cold Regions Research Assistant, Wilfrid Laurier University
- Field Assistant, Sand Dune Monitoring, Wilfrid Laurier University
- Team Leader, Emerson Climate/Copeland

Technical Skills Summary

GIS and Cartography: Proficient with GIS software, data management, and map creation.
Data Management: Extensive experience managing data in various roles, ensuring accuracy and completeness.
Field Research: Experience in environmental monitoring and data collection in remote locations.

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Sherry Chen

GIS Analyst

Sherry Chen is a skilled GIS Analyst with 6 years of experience. She has a robust background in landscape ecology and environmental sciences. Sherry's work has spanned several impactful projects, from topographic mapping of coastal wetlands to analyzing land-use and land cover data for regional conservation efforts.

Sherry has demonstrated her ability to innovate and optimize GIS processes, winning accolades such as first place in Esri Canada's annual app challenge.

Education:

Sherry holds a Master of Science (MSc) in Landscape Ecology and a Bachelor of Science (BSc) in Biology and Environmental Sciences, with a minor in GIS and Chemistry from McMaster University.

Recent Work Experience:

- Chow-Fraser Ecology Lab, GIS Analyst
- McMaster University, Teaching Assistant
- Esri Canada Centre of Excellence (ECCE), Associate
- Fisheries and Oceans Canada, GIS Technician
- Stewards of Cootes Watershed, GIS Technician

Technical Skills Summary

GIS Software & Analyses: Proficient with ESRI software, Web Mapping, QGIS and supporting technologies. Experienced in Raster based geospatial analyses.

Programming: Skilled in Python, Arcade, SQL, R, JavaScript, and HTML.

Other Software: Proficient in AutoCAD, JMP, Google Earth, and Microsoft Office.

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Sebastian Amezquita

GIS Technician

Sebastian Amezquita is an accomplished GIS Technician with a solid background in geology and geographic information systems. His 4 years in the GIS field has provided him with extensive experience in processing and analyzing geospatial data, developing interactive maps, and automating GIS tasks using Python. Sebastian's bilingual proficiency in Spanish and English, combined with his technical expertise, makes him a versatile professional capable of managing diverse GIS projects.

Education:

Sebastian holds a Bachelor of Science in Geology from Saint Mary's University and an Advanced Diploma in Geographic Information Systems from Nova Scotia Community College (COGS).

Recent Work Experience:

- Transport Canada - GIS Technician
- In-line Pigging Solutions - GIS Technician

Technical Skills Summary

Languages: Spanish (Native/Fluent), English (Fluent).

Programming Languages: Python, SQL (Postgres), JavaScript, HTML/CSS.

GIS Software: rcGIS Pro, ArcMap, ArcGIS Online, Survey123, Collector, ArcGIS Insights, QGIS, MapInfo Professional, TransCAD, PCI Geomatica.

Databases: PostgreSQL/PostGIS, Oracle (SQL*Plus, PL/SQL), SQL Server, Oracle with UNIX

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Project Summary

Throughout their careers Vera and Kier have worked on dozens of projects for a variety of clients. Over the last six years, they have jointly developed two Geospatial cloud first SaaS applications and Kier has also developed several supporting systems and API's. Here we highlight some of our more significant past projects.

Due to existing contracts including NDA's and the sensitive nature of the clients and projects, the name of the client and full details cannot be disclosed in this proposal.

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The Pad Location and Cost Evaluation (PLACE) Model

The Pad Location and Cost Evaluation (PLACE) Model, created by Vera Green, showcases advanced spatial analytics and use of fuzzy logic for optimizing site selection. It processes over 20 spatial data layers into cost metrics, using an ESRI custom application developed with Python. The model enhances strategic planning through workflow optimization and surface planning automation. Created in 2021, the PLACE model has stood out for its intricate integration of various GIS data layers into a cohesive analytical framework.

This model's core lies in its innovative use of a moving area method, which involves a "box" that systematically scans a predefined area of interest. As it moves, the box assesses each segment of the area, assigning weighted scores based on a comprehensive set of spatial factors. This approach allows for an in-depth and dynamic evaluation of different locations, ultimately assigning a final suitability score by weighing multiple interconnected indicators against each other.

Such detailed spatial data analysis is facilitated through several analytical methods, including routing, proximity analysis, density, frequency, and location analysis, generating secondary and tertiary GIS datasets from primary inputs.

The PLACE model is a testament to Vera's deep understanding of Geospatil data and analytical techniques as well as her ability to work with a multidisciplinary group of stakeholders.

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PLANmap & FREEmap

Kier and Vera have developed two Geospatial SaaS applications as a team. The original platform PLANmap (AKA: ENDpoint Enterprise Maps) is a fully featured asset management system which includes functionality such as custom searches, user based annotation, printing to PDF and most significantly direct to database editing of tabular data.

PLANmap is also used as a spatial data library and supports not only vector data but also high resolution rasters, LiDAR and 3D point clouds. It is integrated with a 3D viewer for point cloud data and also includes a raster management system. Users can view, compare and download large data from PLANmap.

The system is designed to function on the concept of modules (projects) and groups (administrative groups). Access to this secure application is managed at both these levels giving users fine grained access controls.

The system architecture is cloud-first and designed on an open source stack of technologies. It is 100 times faster at serving large data than competitor platforms due to it's architecture and design. This performance is a testament to Kier's skill in system architecture design and Vera's skill in GIS data management.

The second generation of the system referred to as FREEmap focuses on small vector datasets and was designed to be 90% cheeper to run and license than PLANmap. Built solely by Kier, this system has an impressive architecture which is extremely light weight. The system can be automatically deployed in minutes.

FREEmap utilizes other API's built by Kier such as his WordX link shortening API.

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Parcel Mapping Strategic Planning & Enhancement

VGeo played a key role in assisting a municipality client to establish their parcel mapping program and planning department GIS system. We were selected for this project due to our extensive GIS experience and advanced data management and system integration skills. The **community wishes to explore the use of AI within their program** as well as integrate the resulting data into downstream tools such as **e-permitting**. VGeo assisted the community in setting up their GIS infrastructure and designing their data management system. The project was structured around pivotal phases:

Identification of Data Sources: The initial phase involves the meticulous collection and consolidation of existing GIS data relevant to municipal mapping needs, incorporating data from various governmental levels and identifying additional resources not currently in GIS format, highlighting VGeo's data acquisition skills.

Future Needs Assessment: In collaboration with municipal staff, VGeo will define future GIS data requirements to support systems like addressing and e-permitting, as well as other municipal objectives. This ensures the data catalog is precisely aligned with forthcoming GIS analysis and system integrations.

Gap Analysis & Data Creation Plan: An in-depth analysis will identify data gaps, leading to a strategic data creation plan that employs advanced tools, such as AI, scripting, and GIS interpolation, to optimize efficiency.

Construction of the Data Catalog: Focused on sustainable success, this phase involves establishing the data catalog with best practices in data management, including standardized naming conventions, SOPs for data acquisition and maintenance, and rigorous metadata standards.

GIS Software and Training: This project will be completed in ArcPro. VGeo will provide tailored training sessions that will equip client staff with the knowledge to implement the data creation plan effectively, leveraging the full benefits of their ESRI subscription.

This initiative showcases VGeo's expertise in GIS, emphasizing their ability to deliver a project that not only addresses current needs but also prepares for future advancements in GIS technology and applications. The project underscores VGeo's skills in spatial data analysis, project management, and GIS software, promising a significant uplift in municipal mapping infrastructure.

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Values At Risk Management System

The Values at Risk (VAR) Management Program exemplifies the use of GIS for environmental and risk management, specifically tailored for the forested areas of the Northwest Territories (NWT). Developed over two years, this system empowers operational teams with the capability to monitor and track VARs—key land features vulnerable to fire damage—through a web-enabled GIS interface. The system was built using Python, PHP, SQL, Mapserver, and PostGIS technologies. It incorporates traditional GIS data with other information sources such as video and anecdotal information, showcasing the fusion of geospatial and non-geospatial data sources to create a nuanced risk assessment tool.

Key to its development was the engagement of a diverse stakeholder group, including government entities, local communities, first nations, and emergency services, ensuring the system's comprehensiveness and inclusivity. This approach was vital in incorporating both anecdotal and community-sourced information into the GIS framework, enhancing the depth and applicability of the system.

The VAR Management System also included an automated system for creating field maps at two resolutions: 1:50,000 and 1:250,000 for the entire forested area of the NWT (~614,000 Km^2 , about the size of all of the Ukraine). This sub-system is a testament to Vera's ability to automate GIS processes.

The level of automation and data integration used for this system provides a rich, real-time overview of fire risks, contributing significantly to environmental risk management. Its technical framework and collaborative approach offer a replicable model for leveraging mixed data types within GIS analyses, providing critical insights for mitigating fire risks in extensive and complex landscapes.

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Proximity and Landscape Metrics Analysis

This GIS based ecological research study created a multidimensional understanding of how various landscape features affect ecological processes and species interactions.

GIS based statistical analysis was used to analyze **proximity metrics, landscape variability**, and **woodland edge dynamics** pertaining to bee habitat data collected within a 1.4 million hectare area (~ the size of Jamaica), in southern Ontario. 247 special points of interest (POI) were evaluated for concentric **radii** (buffer) distances of 250, 500, 1000, 2500, 5000 m from each POI resulting in a total of 1235 radii. Other key datasets used for the analyses were a **high resolution (0.5 m) DEM** (250GB in size) and woodland area polygons. PostGIS was used to aggregate woodland edge data within radii (over 80,000 complex features). GDAL was used to generate secondary data layers and calculate 11 separate **landscape parameter summary statistics**. Results were represented for each radii in csv and geojson format for further analysis in R.

The study not only highlights the individual significance of proximity, topography, and edge effects but also underscores their **interconnected impact on the ecological dynamics** of the area.

This project highlights the team's ability to integrate diverse GIS techniques and data to deliver actionable insights and support clients through advanced applications of GIS both to raster and vector data.

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Demographic Segmentation - Census Based GeoStatistics

VGeo has completed multiple projects utilizing US and Canada based census data to deliver geo-statistics for a wide range of industries, including real estate, sales departments, and municipal governments.

Working with Census data is complex and process intensive. VGeo utilizes their in-house instance of PostgreSQL: The World's Most Advanced Open Source Relational Database to manage Census data. **We collect raw data directly from government sources, not preconfigured third party data to ensure data authenticity and accuracy**.

Sales territory delineation - we created sales territories for all of Canada based on population dynamics. By analyzing population density, age distribution, and income levels across different regions, we developed custom sales territories tailored to the client's sales objectives. This strategic approach improved sales efficiency and increased market share by targeting areas with the highest potential.

Complete Communities Assessment (Urban Planning) - we created over 20 Census based maps to visualize and quantify population characteristics at the community level in support of urban planning. These maps support planning activities such as zoning, resource allocation, and public service planning.

Neighbourhood Based Demographic Segmentation - we summarize demographic variables such as age, education levels, housing types, and employment status to identify differences between neighborhoods. This enabled the client to make data-driven decisions on site selection, marketing campaigns, and community engagement.

VGeo's ability to effectively map and analyze census data makes us a valuable partner for any organization looking to leverage demographic insights.