**Table of Content**

**Layout:**

**Figures and Tables:**

**2. Abstract (250 words)**

* This section will summarize our case study on Skarpnäck, our objectives, the methods we used, the key findings, and our main conclusions.

**3. Keywords (3-5) (10 words)**

**4. Highlights (3-5 Highlights, 50 characters each) (10 words)**

* Example: "Nature-based solutions enhance biodiversity."
* Example: "Green infrastructure mitigates flooding risks."

**5. Introduction (1800 words)**

* **Background:**
  + Start with a general overview of the subject matter, e.g. the multifaceted challenges confronting urban and metropolitan areas, and the pivotal role of NBS in addressing these challenges.
  + Skarpnäck is a southern suburb of Stockholm, built in the 1980s. It is characterized by residential buildings with diverse roof angles, balcony placements, and window proportions. The population is approximately 40,000.
* **Significance of Study:**
  + Addressing issues like the urban heat island effect, biodiversity loss, flooding risks, and social cohesion is crucial for Skarpnäck.
* **Objective:**
  + Our aim is to develop and implement nature-based solutions focused on societal benefits to enhance urban sustainability and the quality of life in Skarpnäck.
    - RQ1) What are the principal issues currently facing the district?
    - RQ2) What would be an optimal/desirable future for the district?
    - RQ3) How might this future be achieved, and what are the potential impacts?
* **Planned Developments (Stockholm Masterplan):**
  + **Urban Development Areas:**
    - Certain areas are designated for transformation into mixed-use spaces with homes, businesses, services, streets, parks, culture, and sports facilities. Developing green assets and ensuring functions such as schools and preschools are crucial.
  + **Additional Development:**
    - Other areas are set to gain new homes, services, businesses, streets, parks, culture, and sports facilities, based on existing features, assets, and needs.
  + **Focus Areas:**
    - Certain areas will receive concentrated investment and planning resources.
  + **Strategic Connections:**
    - Enhancing connections by developing the cityscape with buildings, green corridors, activity areas, destinations, and transformed streets is planned.
  + **Ecological Corridors and Proposed Nature Reserves:**
    - Improvements to regional ecological infrastructure and recreational assets are planned to enrich the immediate environment.
* **Living Urban Canvas:**
  + The concept of Living Urban Canvas integrates these planned developments to create a cohesive, vibrant, and sustainable urban environment.

**6. Methods (1750 words)**

* **Study Area:**
  + Skarpnäck's geography, urban structure, and demographics are described.
* **Data Collection:**
  + **Secondary Data Sources:** Existing GIS data, satellite imagery, city planning documents, and biotope data were utilized to gather relevant information.
  + **Literature Review:** Academic articles, government reports, and other scholarly sources on urban planning, environmental sustainability, and nature-based solutions were reviewed.
* **Analytical Framework:**
  + **DPSIR Framework:** The Driver-Pressure-State-Impact-Response model was used to analyse environmental challenges and develop solutions.
  + **Scenario Analysis:** Future scenarios for Skarpnäck were developed based on different urban planning and environmental strategies.
* **Nature for Society Framework:**
  + Utilitarian values guiding our project include enhancing green and blue infrastructure, providing ecosystem services like clean air, protecting coastal and riparian zones, increasing access to urban green spaces, and promoting good mental and physical health through managed landscapes and recreational activities. We also emphasize environmental education, equitable distribution of benefits, and promoting a circular economy.
* **Living Urban Canvas Implementation:**
  + The planned developments were incorporated into our Living Urban Canvas concept, ensuring that the design aligns with the masterplan's goals and objectives.

**7. Results (2100 words)**

* For each of the four ecosystem services (urban heat island effect, biodiversity loss, flooding risks, social cohesion, and quality of life), we first explain the service, and then we present solutions to rectify the issues.
* **Urban Heat Island Effect:**
  + **Explanation:** Urban areas often experience higher temperatures than their rural surroundings due to human activities. This is particularly evident in Skarpnäck.
  + **Solutions:** Green roofs, increased tree canopies, and the use of lighter-colored materials are implemented to mitigate this effect. Incorporating urban green structures (Class 200) like parks and green roofs.
* **Biodiversity Loss:**
  + **Explanation:** Urbanization and pollution have led to significant biodiversity loss in Skarpnäck.
  + **Solutions:** Habitat restoration, pollution control measures, and community conservation efforts are undertaken to address this issue. Enhancing urban green structures (Class 200) and creating green corridors to connect fragmented habitats.
* **Flooding Risks:**
  + **Explanation:** Skarpnäck is prone to flooding due to its geography and urban development.
  + **Solutions:** Upgrading drainage systems, implementing flood barriers, and developing community preparedness programs are necessary to mitigate flooding risks. Using constructed wetlands and bioswales (Class 700) for stormwater management.
* **Social Cohesion and Quality of Life:**
  + **Explanation:** The social and cultural dynamics in Skarpnäck have been affected by rapid urbanization.
  + **Solutions:** Community programs, inclusive urban planning initiatives, and ensuring equal access to services are essential to enhance social cohesion and quality of life. Developing multi-functional community spaces and green corridors to connect neighborhoods.

**8. Discussion (2000 words)**

* **Interpretation of Results:**
  + We discuss the implications of our findings for Skarpnäck's urban planning and environmental sustainability. For instance, how our proposed solutions can alleviate the urban heat island effect and enhance social cohesion.
* **Comparison with Existing Literature:**
  + We compare our results with similar studies, discussing how our findings align with or differ from existing research on urban sustainability and nature-based solutions.
* **Significance:**
  + We highlight the broader significance of our proposed solutions for urban planning and policy-making, not only in Skarpnäck but also in similar urban areas globally.
* **Limitations:**
  + We discuss any limitations of our study, such as reliance on secondary data sources, potential biases in the data, and the challenges of implementing proposed solutions in practice.

**9. Conclusion (1100 words)**

* **Summary:**
  + We summarize the main findings of our study and their implications for Skarpnäck. Our work underscores the critical role of nature-based solutions in urban planning.
* **Recommendations:**
  + We provide specific recommendations for urban planning practices, emphasizing the importance of integrating nature-based solutions and ensuring community involvement in planning processes.
* **Final Remarks:**
  + We offer concluding thoughts on the study's impact and importance for sustainable urban development. Our vision for Skarpnäck is one where nature and society coexist harmoniously, leading to a resilient and vibrant urban environment.

**10. References**

* **Citations:**
  + We will list all the references cited in the report using Harvard referencing style.