Some candidates title their statement, although this is not required.

Continuing an Expedition

Hook: the statement begins with a personal narrative about how the candidate's interest in the field came up. The candidate states research interests and career goals from the beginning.

Since I was young, I have always expressed a propensity for exploration. Be it by the stream behind my house, through books on ancient history, or the geopolitical space portrayed by the globe on my dresser, I always found something to explore and contemplate. While many of these interests have waned over the years, the intellectual curiosity that they fostered has only strengthened. Throughout the past four years of undergraduate studies, I have had the pleasure of exploring the field of civil engineering. While I have greatly enjoyed my explorations thus far, I have not yet finished my journey. Given my intellectual curiosity and my passion for geotechnical engineering, continuing my studies, ultimately towards the goal of a PhD, at MIT, is the most sensible route in my academic journey.

Previous Experience + Match: the paragraphs summarize the candidate's academic experience as undergraduate student and future research interests are directly linked. The paragraphs highlight the strengths and skills the candidate developed in the previous years. Moreover, it gives concrete examples of research projects and internship positions, stating what the candidate learned and how these could be useful for the future work in the program.

While structures, and more specifically those found above ground, have been the main focus of my undergraduate study, my interest in geotechnical engineering has slowly grown from the seeds planted in the summer of my sophomore year, as a field engineering intern at The City Airport. During my time on site, I was captivated by the sheer magnitude and intricacies of the pile driving process, pile cap construction, and the details specified within the foundation plans. Through the two geotechnical engineering courses that I was enrolled in as a junior, I have gained an understanding of how soils are affected by stresses, how water flows through them, the engineering properties of soils, and how to properly test and determine each of them. In addition, through the technical reports that I have completed in my Soils Mechanics Laboratory class, as well as in my Fluid Mechanics Laboratory class, and my Civil Engineering Materials class, I have acquired the skills necessary to critique experimental results, compile data, and efficiently write in a technical manner. These skills, which I have honed over the past few years, make me an excellent candidate for graduate level research at MIT.

Beyond my technical writing skills, my analytical skills and engineering sense have improved greatly over the past four years. Through many of my junior and senior year engineering courses, I have grown to understand the importance of, and reasoning behind various analysis techniques. For example, through gaining an understanding of the theory and meaning behind the analysis techniques taught in my Structures II course, I have been able to much better understand the significance of settlement in structures, the effects of loading on indeterminate structures, and the importance of understanding these effects. Like many engineering students, I possess mathematical prowess, but the firm conceptual grasp that I have the capacity to acquire differentiates me from other candidates.

This semester, I am currently enrolled in Introduction to Geotechnical Applications, in which I have learned about induced stresses to greater detail, shallow foundations, bearing capacity of soils, as well as deep foundation analysis and design. In addition, working with one of my professors, Dr. M. L., I contributed to research pertaining to earth pressure balance tunnel boring machines, and their effects in soft soils. Our research, which is a continuation of Dr. M. L.'s previous work, focuses on utilizing tunnel boring machine operational parameters and tunnel properties to predict the maximum surface settlement expected. Thus far, I have interpreted and extracted data from scholarly publications, which we have utilized to further train a prediction algorithm. In addition, I have also performed local and global sensitivity analyses on the prediction equations that were output by the algorithm. Currently, a portion of our research has been submitted to and will appear as a paper in the World Tunnel Congress, which will take place in Dubai in April of 2018. Through the research that I have conducted thus far, I have gained a much greater understanding of the academic research process, which despite its occasional frustrations, has proven to be a source of enjoyment that I plan to continue in the years to come.

Research interest: these paragraphs clearly indicate what topic the candidate is interested in, and what faculty members the candidate would like to work with. Concrete examples of projects in the program are mentioned. The candidate states how the research interest matches with the faculty expertise.

As for my graduate studies, I hope to continue to build off the engineering knowledge base that I have thus far acquired. I desire to further explore the geotechnical engineering field, through continued study, research, and contemplation of more cutting-edge niches within the field.

Beyond the next two years, I plan to find a research topic, specifically relating to tunneling, deep excavations, or deep foundations, that is both relevant and personally compelling enough to focus on for a few years more, with the goal of completing a doctoral thesis. In my quite arduous graduate school search, I believe that MIT will provide me the greatest likelihood of discovering a research topic that is both viable and aligned with my interests. More specifically, the research conducted by both Dr. C. D. and Dr. W. H. have piqued my interest. Dr. C. D.'s previous research in tunneling, specifically pertaining to its analysis, design, and risk analysis, along with Dr. W. H.'s research into tunneling performance, and laterally loaded piles in soft clay are all appealing to me and very relevant.

Career goals, Leadership and Diversity: to end the statement, the candidate states long-term career goals. The candidate shows interest in getting involved with the community and taking leadership roles.

Beyond my studies, in my career, I plan to make a lasting impact on others through the work I conduct. Whether my career ultimately resides fully in academia or partially in industry, I desire to contribute significantly to the projects I will ultimately work on. Be it a semester of teaching at university or the construction of a new airport, I desire to be a positive, knowledgeable, and compelling leader. I wish to position myself such that I will be able to most effectively utilize my talents and passions to bring about a positive change to the world.