

Education

- Ph.D. in Geotechnical Engineering, March 2010, Saitama University, Japan
- M.Sc. in Geotechnical Engineering, Dec 2004, Tribhuvan University, Nepal
- Bachelor's Degree in Civil Engineering, Sep 2001, Tribhuvan University, Nepal

Certifications

- Fundamental of Engineering (FE) passed on 09/2016
- Engineer in Training (EIT), Texas starting 08/2017
- Professional Engineer (Texas), License no 133431
Starting February 2019

Honors and Awards:

1. Shri R.N. Prasad Biennial Award – 2017 for the paper published in Indian Geotechnical Journal Vol. 45, Issue 2.
2. AIMIL Biennial Award – 2012 for the paper published in Indian Geotechnical Journal Vol. 41, Issue 3.
3. Best paper award by Japanese Society of Civil Engineering, 2008 for the paper presented at JSCE international summer symposium.

Experiences

1. Geo-explorers, Inc., Royersford, PA

12/19/2016 - To date

Position: Project Geotechnical Engineer

I am working as a Geotechnical Engineer in this firm. I have performed analysis and design of shallow and deep foundations of several bridges and culverts. I have analyzed and designed several retaining structures, slope stability cases and other civil/geotechnical engineering works. Following is the list of some of the projects where I have used my knowledge and skills extensively:

1. SR 2030 and SR 8024 over Interstate 80, Monroe County, PA

I designed foundation for two bridges: spread footing on soil, design of friction piles, driveability analysis (using GRLWEAP software), settlement analysis of spread footing and group pile. I performed foundation design for eight MSE retaining walls, global stability analyses (using GSTABL software). I analyzed global stability of embankment and performed settlement analysis. I prepared subsurface profiles and structure boring tracings, and prepared foundation reports.

During construction of these bridges, I observed settlement using settlement monitoring plates. I analyzed settlement monitoring data and recommended when to stop settlement monitoring based on observed settlement pattern and special provision of the report.

For SR 2030 bridge pier, I inspected pile driving and provided recommendations based on pile driving analyzer and CAPWAP results. I provided guidance/acceptance criteria for piles. I checked pile capacities using empirical methods. I reviewed pile driving records and PDA report.

2. SR 0029 over Norfolk Southern Railroad, Lehigh County, PA

I performed rigorous alternatives analysis for spread footing and pile supported foundation options. I designed vertical friction piles, performed driveability analysis, lateral analysis of pile, settlement analysis of group pile. I performed downdrag analysis using neutral plane method as recommended in FHWA manual. I performed foundation design for four MSE wingwalls. I analyzed back-to-back MSE walls and performed global stability analyses. I prepared subsurface profiles and structure boring tracings, and prepared foundation reports. I supervised pile driving and provided guidance/acceptance criteria for piles based on driving log, PDA results and CAPWAP results.

3. SR 0029 over Indian Creek, Lehigh County, PA

I inspected pile driving of the integral abutment bridge. I provided guidance/acceptance criteria for piles. I analyzed piles for lateral capacities and the depth of fixity (using Lpile software). I analyzed integral abutment using spreadsheet developed by Penndot.

4. SR 0063-MG1 (Sumneytown Pike Bridges) over East Branch of Perkiomen Creek, Ridge Valley Creek and Unami Creek, Montgomery County, PA (3 bridges)

I prepared typed boring logs, subsurface profiles, and structure boring tracings. I designed foundation for bridges and wing walls- spread footing on rock, spread footing on soil. I calculated RQD, RMR, bearing capacity of rock mass, modulus of elasticity of rock mass. I performed 1H:1V steepened slope stability analysis, recommended slope stabilization method (grouted riprap) and prepared foundation reports.

5. SR 3010 over Pohopoco Creek, Monroe County, PA

I prepared typed boring logs and subsurface profiles. I designed foundation for bridges and wing walls- spread footing on layered soil (sand over clay). I calculated consolidation settlement. I performed abutments and wingwalls slope stability analysis (using Slide software). I prepared special provision for settlement monitoring of abutments and prepared foundation report.

6. New Brunswick Station Eastbound High-Level Platform Extension, City of New Brunswick, Middlesex County, NJ

I designed platform extension foundation (drilled shaft). I proposed some ground improvement methods to increase the shear strength properties of soil. I analyzed retaining wall. I designed foundation for stair tower.

I have reviewed several geotechnical engineering reports (Subsurface exploration planning submission, Boring contract, Structural foundation recommendation – Bridges – spread footing on soil, spread footing on rock, pile foundation, drilled shafts; MSE walls; Retaining walls; Sound barrier walls; Slope stability analyses– riprap slope stability, embankment slope stability, geosynthetics reinforced slopes, rock slope stability) prepared by other consultants working for Pennsylvania Department of Transportation (Penndot).

2. Digicon Engineering Consult, Lalitpur, Nepal

11/1/2015 – 10/30/2016

Position: Geotechnical Engineer/ Hazard Specialist

I worked as a Geotechnical Engineer/ Hazard Specialist. The task details are as follows:

I performed structural damage assessment of school buildings of 14 districts of Nepal affected by Gorkha earthquake 2015. There were approximately 5700 school buildings and I performed and verified structural damage assessment of approximately 60 school buildings. During structural damage assessment, I checked the current structural situation of the buildings. This included structural integrity and damage assessment of the buildings. I checked and verified cracks pattern in walls, beams, columns, slabs any recorded the extent of structural damage. I analyzed the structural data and categorized buildings as – complete failure/collapsed, no damage/safe, minor damage requiring minor retrofit and major damage requiring significant retrofit or even demolition. I analyzed hazard level (wind, landslide, flood, liquefaction) of school buildings and prepared hazard report. I provided training to engineers on performing wind, landslide, flood and liquefaction hazard analysis and data reporting.

I analyzed field and lab test results of two multistory building projects. Based on field and lab test, I calculated bearing capacity of mat and pile foundations. I checked liquefaction analysis. I recommended countermeasures for liquefaction problem in one of the buildings. Both buildings were located in Kathmandu, Nepal.

3. Beam Consultant Pvt Ltd, Lalitpur, Nepal

8/1/2012 – 10/31/2015

Position: Geotechnical Engineer/ Team leader

I worked as a Geotechnical Engineer/ Team leader. The details of some of the representative projects are as follows:

1. Geotechnical Investigation of Slope for Road Slope Disaster Management, Kathmandu Trishuli Road, Okharpauwa, Nuwakot, Bagmati, Nepal (2015)

I performed preliminary geological analysis of the site. I visited the site and collected hydrogeological and geotechnical data. I analyzed test boring logs, soil strength parameters. I reviewed electrical resistivity test. Based on test boring logs, electrical resistivity test and soil tests, I estimated soil and rock parameters. I analyzed slope using Finite Element software. I calculated factor of safety of slope using Strength reduction method.

I recommended slope instability mitigation methods. I recommended and analyzed retaining walls, drainage structures and bio-engineering (vegetation) techniques. I prepared slope stability analysis and mitigation report.

2. Foundation Recommendation Report for bridge over Budhi khola, Biratnagar, Morang, Nepal (2014)

I performed preliminary geological analysis, visited the site and proposed number of test borings, depth and locations. I inspected field boring and recommended soil samples for lab test. I estimated soil parameters based on SPT N value, soil lab test and available references. I performed alternatives analysis for spread footing and bored pile (drilled caisson) and recommended preferred foundation type. I calculated vertical and lateral load carrying capacity of bored pile for different pile lengths and diameters. I performed liquefaction analysis based on SPT N value. I prepared foundation recommendation report.

3. Road Improvement Project (Phase II), Detailed Survey, Engineering Design & Construction supervision of Bardaghat–Paldanda–Triveni Road; Lumbini Buddhist Circuit Road; Sahid marga road and Sanfebagar-Martadi Road (Barjugad-Martadi Section), Nepal (April 2013 - Nov 2015)

I visited the site as a team member and collected preliminary geological and geotechnical information of approximately 200 km of road section. I recommended quarry sites that could be used for roadway construction. I analyzed strength tests of soil/aggregates for its use as subgrade, subbase or base materials. I supervised field dynamic cone penetration test (DCPT) and analyzed DCPT results for CBR estimation of road subgrade. I reviewed unsoaked and soaked CBR test results of soil samples. Based on lab test CBR and DCPT estimated CBR, I recommended CBR value for flexible pavement design.

I collected geotechnical and geological data at locations where slope instability was suspected. I performed soil and rock slope stability analyses and proposed slope mitigation methods. I recommended and analyzed retaining walls, drainage structures and bio-engineering (vegetation) techniques.

4. National Taiwan University, Taipei, Taiwan

8/24/2010 – 7/27/2012

Position: Postdoc researcher

I analyzed 43 engineered slope failure cases (embankments and natural slopes) worldwide. The slope failure cases were taken from published references that include case histories from different countries. I estimated the soil parameters based on available lab test results. I calculated modulus of elasticity using empirical correlations. I analyzed those slopes using strength reduction method using Finite element modeling in ABAQUS software. I calculated factor of safety for all those slopes.

I used probabilistic method (called random finite element method) to incorporate the effect of spatial variability of soil properties (represented by horizontal and vertical scales of fluctuation). I estimated vertical scale of fluctuation of undrained shear strength of all slope failure cases from available deterministic data at different depths and assumed horizontal scale of fluctuation. I used Fourier Series Method to generate spatially averaged random field. I performed Monte Carlo simulation to calculate the mean and standard deviation of factor of safety. Based on mean and standard deviation of factor of safety for varying scales of fluctuation, I computed probability of failure for varying scales of fluctuation. I correlated the probability of failure with scale of fluctuation. I used extensive mathematical and numerical modeling (using MATLAB and ABAQUS softwares).

Publications:

Please visit google scholar site for publications:

<https://scholar.google.com/citations?user=q05SjeoAAAAJ&hl=en>

Personal details

Gender: Male
Date of Birth: 28 April 1978
Nationality: Nepal (Permanent resident of the USA)
Work Authorization: Authorized to work in the USA