BAB V

KESIMPULAN DAN SARAN

A. Kesimpulan

Berdasarkan hasil analisis dan pembahasan yang telah diuraikan, maka dapat diambil beberapa kesimpulan, diantaranya :

1. Karakteristik material tanah lunak yang digunakan dalam studi eksperimental ini merupakan jenis tanah lempung plastistitas tinggi (CH). Desain trial mix material buatan tanah lunak stabilisasi semen dapat diimplementasikan sebagai lapisan sub-base pada perkerasan lentur jalan raya dan fungsional sebagai filler kolom granular buatan, prosentase penggunaan bahan stabilisasi semen PC tipe I sebesar 12,5% dan rasio air semen w/c = 1,9 mampu meningkatkan nilai CBR *(unsoaked)* material granular buatan > 20%
2. Subgrade modulus elemen kolom berbagai bentuk granular E=158 hingga 267 kg/cm^2 dengan angka poisson ν = 0,29 hingga 0,33, granular bentuk prisma segienam menunjukkan performa kapasitas dan parameter desain yang lebih tinggi..
3. Model perkuatan sistem pondasi tanah lunak dengan kolom granular buatan terkekang geogrid adalah secara singnikan memperbaiki kapasitas dukung sistem pondasi tanah lunak dengan rasio peningkatan 28,5 hingga 33., kolom granular buatan dapat dipersiapkan dengan energi pemadatan standar 25 kali pukulan.
4. rmasi vertikal dan potensi *heaving* pada permukaan sistem pondasi tanah k dengan perkuatan kolom granular buatan terjadi paling kecil pada granular

prisma segienam dengan konsistensi kapasitas dukung yang lebih besar, efek interlocking interaction antar granular terjadi secara baik. *Heaving* pada sistem pondasi tanah lunak secara signifikan terjadi pada radial distance 25 cm dari pusat kolom granular buatan, pembebanan 50 kN memiliki potensi heaving sebesar 5,3 mm (prisma segienam) dan 10,7 mm (prisma segitiga).

B. Saran-saran

Penelitian ini merupakan kajian awal dalam penggunaan materil sintetis sebagai pengganti material alami didaerah yang tidak tersedia material tersebut, sehingga perlu ada kajian beberapa saran dan masukan, diantaranya :

1. Penelitian lebih lanjut dapat dikembangkan untuk fungsi struktur *hybrid* kolom granular sebagai vertikal drain.
2. Perlu adanya pengujian yang dilakukan di lapangan, untuk membandingkan hasil uji yang dilakukan dengan skala laboratorium.
3. Variasi kedalaman dan dimensi kolom pada perkuatan tanah lunak, dapat juga dilakukan, untuk mengetahui dimensi dan kedalaman optimum yang dapat menghasilkan kapasitas elemen kolom yang terbesar.
4. Untuk *filler* kolom, perlu diuji juga pembebanan pada kolom dengan isian kerikil yang bervariasi dalam satu kolom. Untuk menentukan kombinasi variasi bentuk kerikil pada satu kolom yang dapat menghasilkan kapasitas dukung yang paling maksimal.
5. Perlu juga dilakukan pengujian dengan menggunakan *pile-cap* pada kolom granular buatan kelompok, dengan variasi jarak dan tata letak kolom, untuk mendapatkan perkuatan tanah yang paling maksimal.

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