吴兴征老师指导的2018级土木工程毕业设计列表（2022年）

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2	Solar photovoltaic panel support frame and adjoining pile foundation design	20181603168	Xuecheng Peng	F1802
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No	毕设论文题目	学号	姓名	备注
1	高层建筑物的上部结构设计与基础沉降分析	20181603205	赵奥	F1801

为了满足商居一体化功能，高层建筑多采用框架–剪力墙结构形式，其结构空间布置更灵活，且具有较大的空间区域。这种结构形式具有框架结构和剪力墙结构的联合优点，有效的提高了结构的整体稳定性。同时，为提高基础极限承载力，减小不均匀沉降等，此建筑采用桩筏基础。

对于上部框架–剪力墙结构，结构计算采用横向框架进行分析，具体内容包括：构件布置与初选构件截面尺寸、构件计算简图与刚度参数确定、水平地震作用下效应分析、竖向荷载作用下结构的内力计算和荷载效应组合。

对于下部桩筏基础设计，具体内容包括：桩筏类型的选取、单桩承载力计算、群桩承载力计算、筏板的抗冲切验算、基础的沉降计算、软弱下卧层计算和变刚度调平比选。

基于手算、R 语言编程、PKPM 电算完成整个设计的计算、分析与比较。

关键词：高层建筑；框架-剪力墙；桩筏基础；R 语言；沉降

In order to meet the integration of commercial and residential functions, high-rise buildings mostly adopt the form of frame-shear wall structure, and their architectural space layout is more flexible and has a larger space area. This structural form has the combined advantages of frame structure and shear wall structure, and effectively improves the overall stability of the structure. At the same time, in order to meet the requirements of high foundation bearing capacity, small and uniform settlement, etc., this building adopts pile-raft foundation.

For the upper frame shear wall structure, the structural calculation is carried out using the transverse frame. The specific contents include: component layout and primary selection of section size; floor structure design; component calculation diagram and stiffness parameter calculation; load determination and structural displacement check; structural internal force analysis under horizontal and vertical loads; load effect and internal force combination.

For the lower pile-raft foundation design, the specific contents include: selection of pile-raft type; single pile bearing capacity calculation; pile group bearing capacity calculation; Level the selection.

Based on the design scheme of hand calculation, R language programming, and PKPM computer integration, the calculation, analysis and comparison of the entire design are completed.

	Keywords: High-rise building; frame-shear wall; pile-raft foundation; R language; settlement

No	毕设论文题目	学号	姓名	备注
2	太阳能光伏面板支撑框架及毗连桩基础设计	20181603168	彭学成	F1802

本文主要研究京津冀地区太阳能面板支撑框架和框架毗连预制桩基础的设计结构形式。探讨固定倾角下，单桩和排桩的两种设计情况，对排桩的一个结构单元单桩进行计算分析，得出单桩设计参数，最后给出排桩设计方案。太阳能光伏面板支撑框架采用槽钢结构形式，设计的结构形式能够充分发挥槽钢材料的受力特性。在风荷载作用下，进行预制桩的水平内力分析，保证预制桩的水平承载力满足要求；在面板框架的竖向荷载作用下，进行数值模拟保证单桩和排桩的沉降量较小，上部面板支撑框架不因桩基础的沉降不均而发生较大的变形。

关键词：太阳能光伏面板；支撑框架；混凝土预制桩；桩基内力

This thesis mainly studies the design structure of the solar panel support frame and the frame adjoining prefabricated pile foundation in the Beijing-Tianjin-Hebei region. Discuss the two design situations of single pile and row pile under fixed inclination angle, calculate and analyze the single pile of a structural unit of row pile, obtain the design parameters of single pile, and finally give the design scheme of row pile. The support frame of the solar photovoltaic panel adopts the channel steel structure, and the designed structure can give full play to the stress characteristics of the channel steel material. Under the action of wind load, carry out the analysis of the horizontal internal force of the prefabricated piles to ensure that the horizontal bearing capacity of the prefabricated piles meets the requirements; under the action of the vertical load of the panel frame, carry out numerical simulation to ensure that the settlement of single piles and row piles is small, and the upper the panel support frame does not undergo large deformation due to the uneven settlement of the pile foundation.

Key Words: Solar photovoltaic panels; supporting frame; precast concrete piles; internal force of pile foundation

No	毕设论文题目	学号	姓名	备注
3	海上风电基础设计与选型	20181603012	李亚骄	F1803

随着碳达峰与碳中和目标的提出，能源问题的解决备受关注。海上风电

	建设的成本决定了海上风电开发的可行性，而海上风电场的总投资中基础部分占比 15 至 25%。由于市场上 80%以上的风电基础均为单桩基础，且单桩基础结构简单、技术成熟等特点，本文拟对单桩基础进行设计。 本文以线性波浪理论为基础，运用莫里森公式对波浪荷载进行计算，联合考虑水流力以及风荷载，进行荷载组合，并确定设计荷载。根据桩基础变形、与内力计算结果对桩身强度、刚度、稳定性进行验算。 **关键词**：海上风电基础；单桩基础；m 法；线性波浪理论 With the goal of carbon peaking and carbon neutrality, the seeking for cleaner energy to replace fossil energy has become a hot topic in society. The cost of offshore wind power construction determines the feasibility of offshore wind power development, and the basic part of the total investment in offshore wind farms accounts for 15-25%. Since more than 80% of the wind power foundations on the market are monopile foundations, and the monopile foundations are simple in structure and mature in technology, this thesis intends to design the monopile foundations. Based on the linear wave theory, this thesis uses the Morrison formula to calculate the wave load, combined with the water flow force and the wind load, the load combination is carried out, and the design load is determined. The strength, stiffness and stability of the pile body are checked and calculated according to the deformation of the pile foundation and the calculation results of the internal force. **Key words**: offshore wind power foundation; monopile foundation; ‘m’ method; single pile foundation

No	毕设论文题目	学号	姓名	备注
4	市政污水处理管线与毗连基础设计	20181603037	李晓伟	F1804
	市政污水处理管线主要是指城市中的排放污水涵管，处理管线根据实际情况不同，既包括复杂的综合管廊又包括相对简单的涵管。毗连基础是承载市政污水处理管线的部分，根据管线的等级不同，基础也有砂土基础、混凝土基础等。这里是根据海淀区解放军总医院东院内的地质条件和地理环境，设计涵管及涵管的混凝土基础。此次设计参照了《室外排水设计标准》（GB50014-2021）计算了污水排放量，并根据此数据设计出涵管尺寸，并进行了验算。 参照国家建设部发布的《混凝土排水管道基础及接口》（04S516）对管线的基础进行设计，并计算了受力情况。最后还估算了工程量与工程造价，			

	对球墨铸铁管与混凝土涵管做了可行性对比分析。 **关键词**：市政污水处理管线；管线基础；涵管配筋验算 The municipal sewage treatment pipeline mainly refers to the discharge sewage culvert in the city. The treatment pipeline includes both complex integrated pipe gallery and relatively simple culvert according to the actual situation. The adjacent foundation is the part that carries the municipal sewage treatment pipeline. According to the grade of the pipeline, the foundation also has sand foundation, concrete foundation, etc. Here, according to the geological conditions and geographical environment in Haidian District, the circular culvert and the concrete foundation of the circular culvert are designed. The design refers to the "Outdoor Drainage Design Standard" (GB50014-2021) to calculate the sewage discharge, and based on this data, the size of the culvert is designed and checked. According to the "Concrete Drainage Pipe Foundation and Interface" pipeline is designed, and the stress is calculated. Finally, the project quantity and project cost are estimated. **Key words：** municipal sewage treatment pipeline; pipeline foundation; check calculation of culvert pipe reinforcement

No	毕设论文题目	学号	姓名	备注
5	桥梁桩基础设计及方案比选	20181603025	聂景超	F1805
	众多基础中的桩基础一般由基桩和承台两部分构成，其在高层建筑和桥梁工程中应用广泛。本项目结合房山区长周路改建工程周支铁路桥梁拟建工程进行桩基础设计，根据当地的地质勘察报告采用了钻孔灌注摩擦桩这一基桩形式，本项目所选用的钻孔灌注桩具有较高的安全性及较强的稳定性。本文在设计过程中根据各种勘察报告和规范选择了桩端的持力层、选定了基桩的型号，并且本文也对承台的埋置深度和其尺寸进行了设计计算，后续也验算了一些其他数据，如“承台的稳定性、柱冲切、抗剪验算”等。最后对钻孔灌注桩进行了造价分析展现了钻孔灌注摩擦桩在本设计中的优点。 **关键词**：桩基础；钻孔灌注摩擦桩；承台验算；配筋 Pile foundations in many foundations are generally composed of foundation piles and caps, which are widely used in high-rise buildings and bridge engineering. In this thesis, the pile foundation is designed in combination with the proposed construction of the Zhouzhi Railway Bridge in the Changzhou Road Reconstruction Project in Fangshan District. According to the local geological			

	survey report and the experience of the development of the pile foundation so far, the drilling friction pile is adopted as the foundation pile. The bored piles selected in this thesis have high safety and strong stability. In the design process, the bearing layer of the pile end and the type of the foundation pile are selected according to various survey reports and specifications, and the embedded depth and size of the bearing platform are also designed and calculated in this thesis, and the subsequent verification is also carried out. Some other data, such as "the stability of the cap, column punching, shearing check" and so on. Finally, the cost analysis of bored cast-in-place piles shows the advantages of bored cast-in-place friction piles in this design. **Key words**: pile foundation; bored cast-in-place friction pile; check calculation of bearing platform; reinforcement

No	毕设论文题目	学号	姓名	备注
6	桩筏基础的设计方案比选与经济分析	20181603036	李航	F1806
	桩筏基础作为一种新型复合基础，在高层建筑上部结构荷载较大，且地基为软土等地基情况较差的情况下，被广泛应用。桩筏基础在软土地基中，主要用以满足地基土的承载力要求或者解决沉降要求的不足。但是传统的桩筏基础有很多参数可以变动，上部荷载的差异与桩筏基础本身的参数变化导致了沉降的差异，容易导致建筑物侧翻或沉降过大等问题，因此考虑对桩筏基础进行参数变动分析。桩筏基础参数变动分析是基于共同作用原理和变形控制设计理论，通过调整桩筏基础的不同参数，使建筑沉降减至最小，由此降低筏板内力，充分发挥地基土的承载力，从而达到减少布桩、降低筏板的材料消耗、提高桩筏基础的技术经济指标。计划首先考虑改变桩长，其次考虑改变筏板厚度，并与原民用桩筏基础的沉降进行对比，得到最有效的调平因素，进行经济分析，以便优选方案 **关键词**：桩筏基础；桩基设计；筏板设计；参数变动；经济分析 As a new type of composite foundation,pile raft foundation is widely used in high-rise buildings when the superstructure load is large and the foundation is soft soil. As a common composite foundation treatment method in soft soil foundation, pile raft foundation is mainly used to meet the bearing capacity requirements of foundation soil or solve the deficiency of settlement requirements. However, the traditional pile raft foundation is mostly uniformly distributed piles, and the difference of upper local load leads to the difference of settlement，which is easy to cause the building to roll over or excessive local			

	settlement. Therefore, the variable stiffness analysis of pile raft foundation is considered. Variable stiffness pile raft foundation is based on the principle of interaction and deformation control design theory. By optimizing the stiffness distribution of pile raft, the differential settlement is minimized, so as to reduce the internal force of raft and the secondary stress of superstructure, and give full play to the bearing capacity of foundation soil, so as to achieve the purpose of reducing pile layout, reducing raft material consumption and improving the technical and economic indicators of pile raft foundation .Firstly, the variable pile stiffness (changing pile length) is considered, and then the variable raft stiffness (changing raft thickness) is considered. Compared with the settlement of pile raft foundation with standard equal stiffness, the most effective leveling factor is obtained, and the economic analysis is carried out. **Keywords**：Raft pile design；Pile foundation design；Raft design；Parameter change；Economic analysis

No	毕设论文题目	学号	姓名	备注
7	预应力高强混凝土管桩设计与造价分析	20181603024	刘鑫垚	F1807
	预应力混凝土管桩因为其自身的优点，越来越广泛的适用于工程建设中。本设计对沧州市某酒店项目的桩基础进行设计，该酒店拟建高度地上25 层，结构形式为框剪结构，拟建场地距城市繁华区较近，综合考虑到单桩承载力大小，施工工艺、成桩质量保证以及环境保护等因素，选用静压法高强度预应力管桩基础。设计内容包括，根据岩土工程勘察报告选定桩型，确定持力层，选定承台埋深，验算单桩承载力特征值，设计承台配筋，并对承台进行一系列验算。设计完成后对该工程的工程量以及造价进行估算。最后对沉桩机型号选用提出方案，并对沉桩过程可能出现的问题提出一些建议。 **关键词**：预应力混凝土管桩；承台验算；承台配筋；造价；沉桩设计 Because of its own advantages, prestressed concrete pipe piles are more and more widely used in engineering construction. In this design, the pile foundation of a hotel project in Cangzhou is designed. The hotel is proposed to be built with a height of 25 stories and a frame-shear structure. The proposed site is relatively close to the downtown area of the city. Considering the bearing capacity of the single pile and the construction technology, pile quality assurance and environmental protection and other factors, the use of static pressure method			

high-strength prestressed pipe pile foundation. The design content includes selecting the pile type according to the geotechnical investigation report, determining the bearing layer, determining the buried depth of the cap, checking and calculating the characteristic value of the bearing capacity of the single pile, designing the reinforcement for the cap, and performing a series of checking calculations for the cap. After the design is completed, the engineering quantity and cost of the project are estimated. Finally, a scheme is put forward for the model selection of the pile driving machine, and some suggestions for possible problems in the pile driving process are put forward.

Key words： PHC pipe pile; Platform check; Reinforcing platform; cost; Piling Design

No	毕设论文题目	学号	姓名	备注
8	防洪堤的稳定分析与设计	20181603181	纪德鑫	F1808

我国大部分农业，工业都处在平原上，平原上的河流特别曲折，或者由于淤积河床较浅，遇到洪水，水位上涨，容易淹没两岸土地、村庄、城市时，这时就会在河流两岸建设防洪堤。防洪堤可分为江、湖堤、库区堤、滞洪区围堤等，这些堤坝是沿江河、湖泊、库区、蓄滞洪区的沿岸或周围建设的，它具有导流与拦蓄洪水的作用，进而减少洪水泛滥、降低洪灾损失。

本文介绍了防洪堤的几种常见的失效模式与稳定计算方法。针对堤顶失效模式通过计算波浪爬高、风壅高度来确定堤顶高程；在边坡分析中主要介绍基于极限平衡原理的瑞典条分法和简化毕肖普法，并结合实际工程案例进行了防洪堤边坡稳定安全系数的计算；对于渗透变形，介绍流土和管涌两种形式，并通过渗流计算得到坡降值；验算抗滑稳定性，计算安全系数。

关键词：漫顶；边坡失稳分析；渗流计算；抗滑稳定验算

Most of China's agriculture and industry are located on the plain. The rivers on the plain are particularly tortuous, or when the river bed is shallow due to siltation and the water level rises, it is easy to submerge the land, villages and cities on both sides of the river. At this time, flood embankments will be built on both sides of the river. Flood levees can be divided into river, lake, reservoir area and flood detention area. These levees are built along or around rivers, lakes, reservoir areas and flood storage and detention areas. They can guide and retain floods, so as to reduce flood flooding and flood loss.

This thesis introduces several common failure modes and stability calculation methods of flood control embankment. According to the failure mode

	of embankment top, the elevation of embankment top is determined by calculating wave run-up and wind blocking height; In the slope analysis, the Swedish slice method and simplified Bishop method based on the principle of limit equilibrium are mainly introduced, and the stability safety factor of flood control embankment slope is calculated combined with practical engineering cases; For seepage deformation, two forms of flowing soil and piping are introduced, and the slope value is obtained through seepage calculation; Check the anti sliding stability and calculate safety factor. **Key Words：** Overtopping; Slope instability analysis; Seepage calculation; Flood

No	毕设论文题目	学号	姓名	备注
9	黄骅港防波堤设计与方案比选	20181603145	王一达	F1809

在防波堤的设计中，国内外都有非常多的案例供我们参考，防波堤的设计经验已将十分充足，有一套非常成熟的规范计算体系，只要满足安全性的要求的情况下，要做到施工更加简便、造价更低、外观更加新颖、功能更加全面。

本文参考国内各种斜坡堤和观潮堤的设计，对斜坡式防波堤和直立式防波堤等防波堤形式的优缺点进行分析，介绍了几种较为常用的越浪量计算方法，以及边坡分析中介绍了瑞典条分法和毕肖普法，采用 Rocscience Slide 软件对边坡稳定安全系数进行计算。

关键词：斜坡式防波堤；边坡稳定性；平均越浪量

In the design of breakwater, there are many cases at home and abroad for our reference. The design experience of breakwater will be very sufficient. There is a very mature standard calculation system. As long as the safety requirements are met, it can be said to be a more mature design if the construction is simpler, the cost is lower, the appearance is more novel and the function is more powerful.

Referring to the design of various domestic slope breakwaters and tide watching breakwaters, this thesis analyzes the advantages and disadvantages of slope breakwaters and vertical breakwaters, introduces several commonly used wave overtopping calculation methods, introduces Swedish slice method and Bishop method in slope analysis, and uses rocscience slide software to calculate the safety factor of a slope.

key words: Spillway breakwater; Average Overtopping; slope stability

No	毕设论文题目	学号	姓名	备注
10	新型基桩检测方案设计与比较分析	20181603144	王灏杰	F1810

本工程位于通州交通枢纽，建有 3 层地下空间整体埋深为 32m，采用桩筏基础。

结合本工程地层性质、周围环境等诸多因素，通州交通枢纽工程拟通过自平衡法、静载试验堆载法和锚桩法来对试验桩进行检测，通过对三种方法进行实际操作并绘制图表，最后通过三种图表来确定桩基检测的最佳方法并计算工程造价来完成最终比较。

设计的主要内容包括桩基检测方法的比较和选择、测试桩的承载力计算、工程造价的计算和比较等内容。

关键词：桩基检测；自平衡法；静载试验法；锚桩法；工程造价

The project is located in Tongzhou transportation hub, with 3 floors of underground space, the overall buried depth is 32m, and the pile raft foundation is adopted.

Combined with the stratum properties of the project, the surrounding environment and many other factors, TongZhou transportation hub project plans to detect the test pile through self balancing method, static load test surcharge method and anchor pile method. Through the actual operation of the three methods and drawing charts, finally through the three charts to determine the best method of pile foundation detection and calculate the project cost to complete the final comparison.

The main contents of the design include the comparison and selection of pile foundation detection methods, the calculation of bearing capacity of test piles, the calculation and comparison of project cost and so on.

Key words：pile foundation detection; Self balance method; Static load test method; Anchor pile method; engineering cost