A GEF Project

Environment Management Plan for the Project of Ningbo University Science Service Building

Ningbo Municipal Research & Design Institute of Environmental Protection

July 2012

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Preface

The Environment Management Plan for the Project of Ningbo University Science Service Building (a project funded by GEF) is formulated on the basis of the "Environment Impact Statement of the Project of Ningbo University Science Service Building and in reference to the requirements of the World Bank. The Environment Management Plan specifies the environment protection measures to be taken to reduce the environment impact in the construction period and the operation period of the project and it also specifies the operative principles and the working framework for the environment management and environment supervision in the construction period and the operation period of the said project. The main contents are:

1, Background and Goals of the Environment Management Plan (EMP);

2, Potential Environment Impact and Measures to Reduce the Impact;

3, Implementing Agency;

4, Environment Supervisory Plan;

5, Personnel Training;

6, Information Exchange, Collect and Report;

7, Channels for Public Participation and Complaint

8, General Measures for Environment Management

1 Background and Goals of the Environment Management Plan (EMP)

1.1 Background of the EMP

Ningbo University is a comprehensive local university set up when China practiced the policy to reform and open to the outside world and it is under the joint administration of the State Educational Commission, Zhejiang Province and Ningbo Municipality. Opened in 1986, Ningbo University owns it founding to the initial donation by Sir Pao Yue-gang, lane honorary chairman of Globe Navigation Group, Hong Kong. Ningbo University Science Service Building aims to improve the working conditions for the science and technology services of Ningbo University and to be a windows of the university for services for the society. With intensive application of green architectural technologies and active green technologies, the Building is planned to be a 3-star green building that takes energy saving and environment protection as its aim in all the processes of planning, designing and operation. The building is expected to be a model of positive environment efficiency.

The Environment Management Plan is formulated on the basis of the engineering and environment features of the project and in accordance with the following laws: Environmental Protection Law of the People's Republic of China, Interim Provision on Punishment of Violation of Laws and Disciplines of Environment Protection, Regulations on the Administration of Construction Project Environmental Protection, Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution, Law of the People's Republic of China on the Prevention and Control of Water Pollution, Law of the People's Republic of China on Prevention of Environmental Pollution Caused by Solid Waste, Law of the People's Republic of China on the Prevention and Control of Environmental Noise Pollution, the OP4.01 and the General EHS Guidelines of the World Bank, and other related rules and policies. The aim of the EMP is to protect environment in economic development. The general guideline is to concentrate on the source and end treatment to ensure effective control of discharged pollutants. Giving prominence to the main features and the main environment problems of the project, and following consistently the requirements of “clean production”, “conformity to discharge standards” and “general volume control”, the EMP specifies detailed supervisory,

management and control measures for the environment impact during the construction period and the operation period for the purpose of minimizing the environment impact. The EMP also takes as its aim that all the measures specified should be technically reliable and economically rational.

In line with the features of environment pollution of the said project, the EMP highlights the supervisory, management and reduction measures for the impact to the atmospheric environment, the surface water environment and for the impact caused by noise and solid waste.

1.1.1 Geographic Location of the Project

The project is located in the main campus of Ningbo University at 818 Fenghua Road, Ningbo. The lot involved is the planned land for Ningbo University, irrelevant to land expropriation. The project is approved by Ningbo Municipal Planning Bureau (See Appendix 2, File No. 01008). The project is a new building in the campus of Ningbo University, irrelevant to land expropriation and removal and settling. The project borders the little woods on the east, the Ningbo University Foundation Hall and Lin Xingqin Hall on the southeast, the lawn, the interior river and the School of Medicine on the south, and the river on the east opposite to Shuangqiao Village, and Fenghua Road on the north. See Diagram 1.1-1 for the location and environment of the project.

Diagram 1.1-1 Location and Environment of the Project

The environmentally sensitive area is Shuangqiao Village, about 25 meters to the project.

1.1.2 The Contents of the Project

This project is a new building, to be used as the practice base for students and offices for science and technology services of the university.

The details of the project. 1) The building area totals 12,601m^2 to be in service of the Designing Institute, the Supervisory Company, the Foundation Center and for other uses. 2) Application of green architectural technologies. Ventilation technologies should be applied in using wind guide walls, alleys, inner court and windows. In sun shading technology, fixed aluminium-alloy blind curtains will be applied. Greening technologies should be used in the roof garden and the green walls. Natural lighting technology should be applied for the underground parking lot. Light guiding technology will be used in the inner court and light following device. 3) Application of active green technologies. Heat insulation exterior windows will be used for energy saving. Roof rainwater recycling technology will be used. Solar energy exhaust hood will be used for solar water heating. Light guide technology will be used in the underground parking lot. Geothermal technology will be used in pubic space and large space. Hierarchical VRV spacing will be used in offices. Solar energy landscape lights will be used. The internal decoration will be integrated in the construction for material saving and environment control. Energy monitoring system will be used for the operational management.

See Table 1.1-1 for main economic and technical targets.

Table 1.1-1 Main Economic and Technical Targets

Number	Classification			Unit	Quantity
1	Construction Area			m^2	14600
2	Built-up Area			m^2	12601
3	Including	Above Ground Built-up Area		m^2	10721
4		Including	Designing Institute	m^2	3947
5			Foundation Center	m^2	2994
6			Supervisory Company	m^2	1646
7			Rooms for Teaching	m^2	1876
8			Overhead Bicycle Garage (Building Bulk not Counted)	m^2	258
9		Semi-underground Built-up Area (Building Bulk not Counted)		m^2	1880
10	Number of Cars for Parking			/car	108

Number	Classification		Unit	Quantity
11	Including	Above-ground Parking	/car	54
12		Semi-underground Parking	/car	54
13	Non-motor Vehicles		/vehicle	180

3, General Layout and Functional Layout

See Diagram 2 for General Layout. The project includes the building of offices, meeting rooms and rooms for equipment, with the built-up area totaling 12,601m^2. See Table 1.1-2 for Functional Layout for All Floors.

Table 1.1-2 Functional Layout for All Floors

Property	Floor	Function
New Building	Semi-underground	Bicycle Garage, Motor Garage, Pump Room, Fire Pool
	Floor 1	Rooms for Teaching, Institute of Special Equipment, Recreational Room, Lecture Hall and Cafeteria
	Floor 2	Office of Designing Institute, Lu Hai Workshop, Meeting Room, Reading Room
	Floor 3	Supervisory Office, Public Planning Office, Meeting Room
	Floor 4	Office of Foundation Center, Survey Office, Designing Office
	Floor 5	Offices, Equipment Room, Testing Room, Meeting Room

1.1.3 Factors for Environment Impact and Related Standards

Calculated by the features of waste discharge and environment features, the factors for environment impact are listed in Table 1.1-3. The environmental quality standards are listed in 1.1-4. The waste discharge standards are listed in Table 1.1-5.

Table 1.1-3 Factors for Environment Impact

Number	Period	Classification	Primary Pollution Source	Primary Environment Impact Factors
1	Construction Period	Ambient Air	Dust	TSP
2		Surface Water	Construction and Domestic Sewage	SS, COD_{Cr}
3		Noise	Construction Machinery Noise	Leq（dBA）
4		Solid Waste	Construction Waste	/
5	Post Construction Period	Ambient Air	Motor Vehicle Exhaust and Gas from Waste	CO, NO_2, HC, VOC, Stink

Number	Period	Classification	Primary Pollution Source	Primary Environment Impact Factors
			Collecting Posts	
6		Surface Water	Domestic Water from Teachers and Students,	COD_{Cr}, BOD_5, Ammonia Nitrogen,
7		Noise	Noise from Equipment Operation and Laboratories	Leq（dBA）

Table 1.1-4 Environmental Quality Standards

Number	Classification	Standards	Standard Class
1	Ambient Air	National Ambient Air Quality Standard (GB3095-2012)	Class II
2	Surface Water	National Surface Water Quality Standard (GB3898-2002)	Category IV
3	Pollution Receiving Area	Criteria of Seawater Quality (GB3097-1997)	Category III
4	Noise	Technical Report of the Application of the Standard of Environmental Noise of Urban Area of Ningbo	Category 1

Table 1.1-5 Waste Discharge Standards

Number	Classification		Standards	Standard Class
1	Waste Gas		Integrated Emission Standard of Air Pollutants (GB16297-1996)	Class II of Emission Limits of New Air Pollutants
2	Sewage	Short Term	Integrated Emission Standard of Sewage (GB8978-1996)	Class II
3		Long Term	Discharge Standard of Pollutants from Municipal Wastewater Treatment Plant (GB18918-2002)	Class I, B
4	Noise		Emission Standard for Industrial Enterprises Noise at Boundary (GB12348-2008)	Category 1 and 4a

1.2 Objectives and Guidelines of the Project

1.2.1 Objectives

For the inevitable environment impact to be caused by the project, the EMP takes as its objectives to make operable countermeasures that are technologically feasible and economically rational for the construction and operation periods so as to reduce the negative social and environmental impact {0and to solve or address the long-standing environment problems through the countermeasures.

1.2.2 Action Guidelines and Requirements

Under the joint instruction of the officials of the World Bank, international experts, the environment assessor and Jiangbei District Environment Bureau, the general objectives of the project in the construction and operation periods are set as follows: to maintain the sustainable social economic and environment development of Jiangbei District, to retain or enhance the environment quality of Jiangbei District, to reduce and minimize or compensate the negative impact to the neighborhood community and environment.

Actions:

1, To make and implement the environment management plan and the environment supervisory plan;

2, to make and implement pollution control strategies to reduce the environment impact.

Requirements:

1, To examine the monitoring results of the factors specified in the Environment Supervisory Plan;

2, To implement, according to required procedures, all the countermeasures specified in the environment assessment.

2 Potential Environment Impact and Measures to Reduce the Impact

2.1 Environment Impact in the Construction Period and Measures to Reduce the Impact

2.1.1 Ambient Air

Analysis of the Impact

The major impact to ambient air in the construction period is dust. Usually, the impact of fugitive dust by natural wind is within 100m, which is likely to increase in windy weather. Fugitive dust is also produced by spoil earth, sand, slag, or lime that is not properly covered or spilled in loading or transportation. The impact of fugitive dust of this type is generally around 100m or hundreds of meters in gales. It will considerably pollute the ambient air.

Suggested Measures

1) Management should be strengthened to ensure careful loading and uploading in transportation of building materials;

2) Trucks carrying lime, sand, cement and slag should covered with top fabric;

3) Temporary sites for earth, stone and sand should be sprayed regularly or when necessary to put fugitive dust under control. Commercial ready-mixed concrete should be used;

4) Fence construction should be practiced by 100%. Net enclosure should be used to reduce the impact of fugitive dust to the environment;

5) Entrances and the surrounding area of the construction site should be cleaned by specially appointed people. Effective measures should taken to prevent trucks from polluting the roads by spilled earth in an area 300m from the entrances of the construction site.

6) Temporary sites for earth and sand should be sprayed regularly to put fugitive dust under control. Slag should be removed as soon as possible.

2.1.2 Construction Noise

Analysis of the Impact

Construction noise is produced by various power machines when working leveling and clearing the site, driving pikes or transporting building materials.

The construction noise caused by the project will produce unavoidable impact to the environment, as far as 150m in the day and 844m at night.

Countermeasures

1) Countermeasures to Reduce Construction Machinery Noise

In noise management of the construction site, the Emission Standards on Environmental Noise within the Boundary of a Construction Site (GB125 23-01, in effect on July 1, 12) should be strictly implemented. To reduce the impact of the construction noise, construction management should be strengthened to adjust or reduce the operating time of high-noise construction machines. Night construction time should be strictly controlled. Spontaneous operation of high-noise machinery should be avoided. The noise pollution in the construction period should be minimized.

The constructor should strengthen management to strictly control the operating time of high-noise machinery. High-noise operation should be made in the day. At night time (after 22:00) and particularly at the construction site close to the sensitive area, noise polluting construction operation should be avoided as much as possible.

2) Noise Control of Transport Vehicles

Limited speed should be imposed on those transport vehicles that enter the school and pass the noise sensitive areas, especially at night. No horn blowing for these vehicles.

2.1.3 Construction Waste Water

Analysis of the Impact

The storage of ballast and the civil construction will cause soil erosion and the increase of concentration of suspended matters in the pollutants receiving water body. The construction will also emit domestic sewage.

Countermeasures

The excess water on the construction site should be sedimented and the supernatant should be discharged. Construction personnel are forbidden to discharge domestic water at will. It is suggested that temporary toilet facilities and a temporary septic tank should be built to reduce the impact of the waste water to the surface water.

2.1.4 Solid Waste Disposal

Analysis of the Impact

In the course of the construction, refuse (e.g. waste earth, steel bars and slag and domestic garbage) will be emitted.

Countermeasures

Construction garbage should be timely disposed by the local authorized department. The domestic wastes emitted by the construction personnel should be entrusted to the sanitary department for collection and disposal.

2.1.5 Construction Safety

The project is located in the campus of Ningbo University a place with lots of teachers and students. Therefore construction safety is particularly important. The construction enterprises should tighten construction management and ensure the personnel and traffic safety in the campus. Safety problems are mainly caused by (1) the vehicles transporting materials and garbage in the campus and 2) The construction is likely to imperil the teachers and students in the neighborhood. The major countermeasures are: 1) transporting vehicles should be appropriately covered to prevent the loaded materials from falling out and they should not work during schooltime. 2) Protection measures should be taken to ensure the safety of the teachers and students. 3) Periodic maintenance of vehicles should be made. Production safety education should be made, and traffic control measures should be taken.

2.2 Environment Impact in Post Construction Period and Measures to Reduce the Impact

2.2.1 Ambient Air

Analysis of the Impact

The waste gases emitted during the post construction period are mainly motor vehicle exhaust and gas from waste collecting posts. Automobiles will emit exhaust. The garbage collecting posts are movable garbage cans. Usually, human beings are not very sensitive to smells from a garbage can about 10 meters away.

Countermeasures

The construction enterprise should fulfill its duty for the management and maintenance of the vehicles. Natural ventilation should be adopted for the semi-underground garage. Vehicles should meet the standards on emission of exhaust. The garbage collecting posts should be rationally located, and regularly disinfected {and garbage should be removed in time.

2.2.2 Waste Water

Analysis of the Impact

The implement of the project will not change the total of teachers and students and

therefore it will not increase the emission of sewage. Accordingly, the emission of domestic sewage is not calculated for this project. Main polluting substances are COD_{Cr}, BOD_5, and ammonia nitrogen.

Countermeasures

Short term countermeasures. The domestic sewage should be treated with the underground domestic sewage treatment facility and meet the Class II standard specified in Integrated Emission Standard of Sewage (GB8978-1996) before discharged into the Yongjiang River through the public sewage pipeline in the North Higher Education of Ningbo. Long term countermeasures. The domestic sewage discharged into the sewage pipeline of Ningbo Beiqu Sewage Treatment Plant for pre-treatment to meet the Class III standard in Integrated Emission Standard of Sewage (GB8978-1996). And then it should be treated by Ningbo North Sewage Treatment Plant to meet the Class IB in Discharge Standard of Pollutants from Municipal Wastewater Treatment Plant (GB18918-2002) before emission.

2.2.3 Solid Waste

Analysis of the Impact

The solid wastes produced in the post construction period are domestic garbage and ordinary laboratory solid wastes, and after proper treatment, they have little impact to the surrounding environment.

Countermeasures

The domestic waste and waste earth should be timely collected and removed by authorized sanitary company. The properly treated solid wastes will have no impact to environment.

2.2.4 Noise

Analysis of the Impact

The noise of the project is mainly from ventilators, power transformation equipment, air conditioners, exhaust fans, vehicles, pedestrians and noise from vehicles from Fenghua Road in the neighborhood. The noise is around 53-100dBA. With the implement of the noise reduction measures, the impact of the noise by the project to the environment is small in scale. The project itself is a good noise barrier for the part of the campus in the south.

Countermeasures

To reduce the noise impact to the environment, high-efficiency and low-noise equipment of exhaust fans, power transformers and air conditioners should be used in the project. Mufflers should be installed for the outdoor high-noise ventilators and air conditioners. All the ventilators in walls should be equipped with buffering basses or shock absorbers. Shock absorbing hangers for pipes and hose joints for the inlet and outlet pipes should be installed to stop vibration transmission. "No Horns" signs should be installed at main entrances of the project to reduce the noise impact by trucks. The traffic noise from Fenghua Road is likely to cause some impact to the building. Sound proof windows are suggested. The sound proof window can reduce noise by about 30dBA, and can effectively improve the working condition.

2.3 Cost Estimate on Environment Protection

The cost on environment protection of this project is mainly on the treatment of waste gas, sewage, solid waste and noise. The cost on environment protection is estimated to be 160,000 yuan, covering 0.4% of the total investment of the project. See Table 2.3-1 for details.

Table 2.3-1 Cost Estimate on Environment Protection

Number	Cost on	Equipment	Cost
1	Noise Control	Mufflers, Buffering Basses or Shock Absorbers, Shock Absorbing Hangers, Hose Joints	10
2	Solid Waste Treatment	Movable Garbage Cans,	1
		The domestic waste and waste earth should be timely collected and removed by authorized sanitary company.	2
3	Domestic Sewage	Domestic Sewage Treatment Facilities	5
	Total		18

3. Enforcement Organization

3.1 Organization Setup for Environment Management

Due to the fact that there exist fairly large differences between environment management for the construction period and that for the operation period, and that one is temporary and the other is long-term, an independent environment management organization should be set up, whose responsibilities are different in different periods. The organization for the construction period shall be revoked when the construction comes to the end, and then the organization for the operation period starts to operate. There could be some overlapping between the two for some time, depending on the specific circumstances of the work.

3.1.1 Environment Management Organization for the Construction Period

1. Setup of Environment Management Organization for the Construction Period

The construction period is planned to be 24 months. See Figure 3.1-1 for the Environment Management Organization.

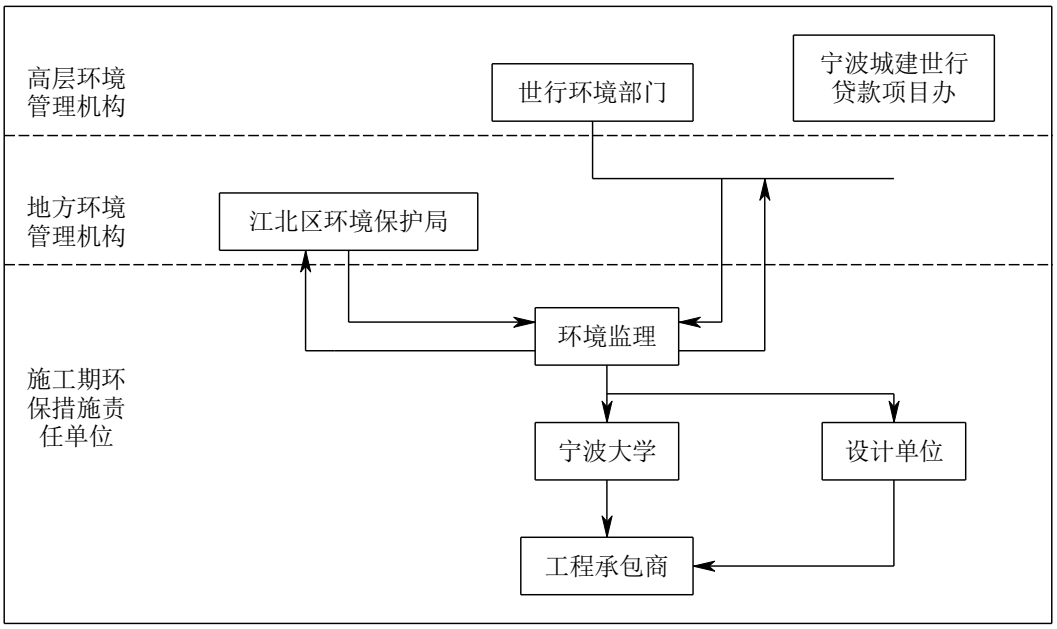

Figure0-1 Environment Management Organization for the Construction Period

高层环境管理机构：Upper-level Environment Management Agency

世行环境部门：WB Environment Department

宁波城建世行贷款项目办 Ningbo Urban Construction WB Loan Project Office

地方环境管理机构 Local Environment Management Agency

江北区环境保护局 Jiangbei Environment Protection Bureau

环境监理 Environmental Supervision

施工期环保措施责任单位 EP Measures Responsible Organization during Construction Period

宁波大学 Ningbo University

设计单位 Designer

工程承包商 Engineering Contractor

2. Environment Management Organization for the Operation Period

See Figure 3.1-2 for the Environment Management Organization for the Operation Period

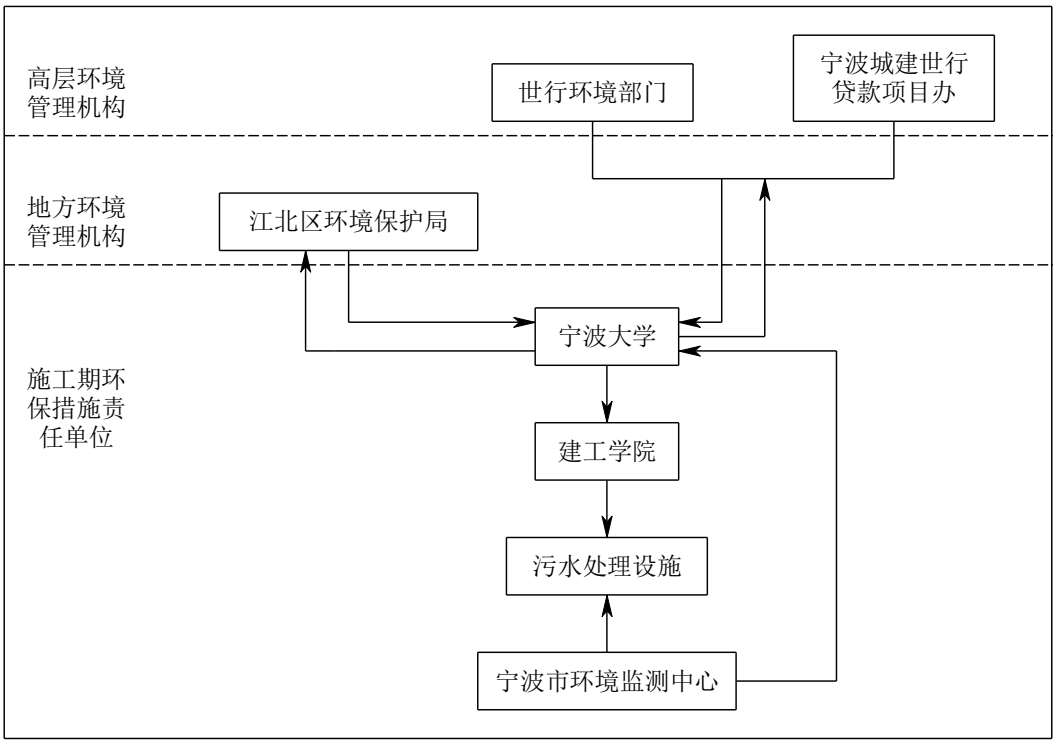

Figure 3.1-2: Environment Management Organization for the Operation Period

高层环境管理机构：

Upper-level Environment Management Agency

世行环境部门：

WB Environment Department

宁波城建世行贷款项目办

Ningbo Urban Construction WB Loan Project Office

地方环境管理机构

Local Environment Management Agency

江北区环境保护局

Jiangbei Environment Protection Bureau

建工学院

NBU Faculty of Architecture, Civil Engineering and Environment

施工期环保措施责任单位

EP Measures Responsible Organization during Construction Period

宁波大学

Ningbo University

污水处理设施：

Sewage Treatment Facility

宁波市环境监测中心：

Ningbo Environment Monitoring Center

3.1.2 Responsibilities of Environment Management Organization

Due to the fact that there exist fairly large differences between environment management for the construction period and that for the operation period, and that one is temporary and the other is long-term, an independent environment management organization should be set up, whose responsibilities are different in different periods. The organization for the construction period shall be revoked when the construction comes to the end, and then the organization for the operation period starts to operate. There could be some overlapping between the two for some time, depending on the specific circumstances of the work.

In light of the characteristics of this project, the carrying out of the EP measures is not only subject to the supervision of the local environmental protection bureau, but to that of related World Bank Departments. During the construction period, environment supervision personnel should be arranged to help the constructor with the on-site supervision, while during the operation period and the closure period, an environment protection team should be set up to supervise the project. The responsibilities of respective EP organizations are specified as follows:

1)World Bank Environmental Protection Department

In accordance with the World Bank’s requirements on environmental protection,

the World Bank EP Department shall be responsible for the overall process of supervision and putting forward requirements on the project environment.

2)Jiangbei Environmental Protection Bureau

In accordance with the domestic laws and regulations on environmental protection, the Jiangbei Environmental Protection Bureau shall be responsible for the overall process of supervision of the project and putting forward requirements on the project environment. Meanwhile, it shall be responsible for the acceptance check of the project.

3)Ningbo Urban Construction WB Loan Project Office

The Office will help the World Bank EP Department conduct the environmental supervision and regulation.

4)Environmental Supervision

The Office will help the constructor (Ningbo University) supervise the implementation of the EP measures on the construction site and propose some remedial measures if some environmental problems arise during the construction.

It will make the detailed management plan in accordance with the construction plan of the project, check the plan on monthly basis and revise it if necessary.

The team leader should report the environment management examination results on a monthly basis to the project leader and put forward the targeted solutions to the latent environmental problems.

5)Ningbo University

To ensure the implementation of the environment management measures of related environment management departments and the World Bank environmental management department and to coordinate the daily environment regulation and supervision by related departments, a specialized EP organization with full-time personnel should be arranged. Their responsibilities are as follows.

To assist in carrying out the EP laws, regulations and standards; to organize to make the whole-site EP plan and annual plans and have it carried out; to be responsible for the environment management, EP knowledge publicity and promotion of new technology; to check the functioning of EP facilities at regular intervals and address the problems that may arise in a timely manner; to get a full picture of the sewage disposal of the construction site; to put on file those pollution sources and conduct EP statistics work; to make EP monitoring plans and organize

and coordinate the monitoring task in accordance with requirements from authorities; be responsible for the daily environment management work and exercise the administrative power on the environmental monitoring station. The responsibilities are specified as follows:

1) to assist the university leaders to carry out EP laws, regulations and standards;

1) to assist the university leaders to carry out EP laws, regulations and standards;

2) to organize to make the EP plans and annual plans for the whole university and organize to implement them;

3) to be responsible for the environment management, EP knowledge publicity and promotion of new technology;

4) to check the functioning of EP facilities at regular intervals and address the problems that may arise in a timely manner;

5) to put on file those pollution sources and conduct EP statistics work; to make EP monitoring plans and organize and coordinate the monitoring task;

6) to make EP monitoring plans and organize and coordinate the monitoring task in accordance with requirements from authorities;

7) to make the management system and the operation specifications for environment monitoring and supervise the implementation of them.

8) and to see the mitigation **measures in the Environment Management Plan (EMP) to be listed in the bid documents (Technical Specifications) and the construction contract and make clear the responsibilities and ensure the effective implementation.**

6) Contractor

The construction contractor must fulfill the following obligations:

1) Onsite EP management. While doing a good job in treatment of sewage, waste gases, noise, solid wastes and soil conservation, the constructor should have its own EP personnel to be responsible for the environment management. Noise meters should be set to test the sensitive spots around so that the acoustic environment can be kept within the acoustic standards.

2) Management of the living area and the working hygiene of the workers.

3) During the construction period, safety measures should be taken to ensure the construction safety, such as setting reminder signs on the construction site, enclosing the construction site and establishing communication channels with the

public. The safety management costs will be around 50,000 yuan.

4) Social management

3.2 Environment Monitoring Organizations and their Responsibilities

Ningbo University and environmental supervision engineers shall be responsible for the supervision of the construction site and the constructor can entrust the Ningbo Municipal Environmental Monitoring Center and other agencies to conduct the environmental monitoring in accordance with the monitoring plans for the construction period and the operation period.

The main responsibilities shall be: to earnestly implement the relevant national environmental regulations and norms, establish and improve various rules and regulations, and complete the monitoring task; to be responsible for the monitoring of the sewage treatment of the wastewater station; to establish archives of monitoring and analysis of statistical data and file environmental reports; to complete the environmental monitoring work assigned by the EP departments; to strengthen the maintenance and calibration of the environmental monitoring equipment, to ensure that monitoring works properly and to participate in the environmental quality evaluation of the University.

Monitoring staff should hold certificates and be responsible for the variety of environmental monitoring data provided. They should be familiar with the monitoring process, keep improving their quality and accept assessments from the superiors.

4. Environmental Monitoring Program

4.1 Environmental monitoring purposes

Environmental monitoring is an important part and technical support of/for the environmental protection and is a necessary means of environmental management. Environmental monitoring is aimed at:

1) Checking the protection of the bare construction surface during the construction period and the dust pollution, waste water and other environmental issues, so as to deal with them in a timely manner;

2) checking and following up the implementation of various EP measures and the effect after the operation of the project begins so as to know full well the changing of the environmental quality;

3) understanding the functioning of the environmental engineering facilities of the project to ensure the normal operation of the facilities;

4) understanding the implementation of the environment quality related to the project;

5) and providing technical support to improve the environmental quality in the neighboring areas of the project.

4.2 Monitoring agencies

It is proposed that the environmental monitoring during the construction period and the operation period shall be borne by the Ningbo Municipal Environmental Monitoring Center. The Center is a nationally certified environmental quality monitoring agency, well-equipped and boasting strong technical force. It can well fulfill the environmental monitoring task of the project.

4.3 Monitoring plan

The monitoring plan is made to keep abreast of the impact and adverse effects on the environment during the construction period and the operation period and take responsive measures if there are any and meanwhile to verify the effect of the EP measures taken. As the project is a new building project which is not located in a sensitive area, as long as the constructor does a good job in construction management and implementing safeguarding measures to ensure the personal safety

of teachers and students, there is no necessity to monitor during the construction period. In light of the characteristics of this project, the following contents are ascertained to be monitored during the operation period. See Figure 4.3-1 (The monitoring of various indicators shall be conducted according to national monitoring standards).

Figure: 0-1 Monitoring plan

Monitoring Period	Content	Mon. Item	Monitoring Point	Monitoring Frequency
Operation Period	Waste Water	Sewage volume, $COD_{Cr,}$ ammonia nitrogen	water outlet port of the Sewage Treatment Station	1/Q
		COD_{Cr}, pH	gulley inlet	1/Q
	Noise	L_{Aeq}	Boundary	1/Q
	Comprehensive Check	Check and maintain the sanitation and greening within the boundary on the regular basis		

5. Personnel Training

5.1 Training of new full-time and part-time EP personnel during the construction period

The constructor will entrust qualified agencies to train the full-time and part-time EP personnel for the project. Those to receive the training include the personnel in charge of engineering technology and full time executives of construction and supervision organizations.

The training content will include the following:

1)The environment management plan for the World Bank Aiding Ningbo University Science Service Building Project;

2) Regulations, documents and related requirements of the national, provincial and municipal authorities regarding environmental protection and soil and water conservation;

3) The EP measures proposed in the project design and EP requirements for the construction period;

4) The EP guidelines for the construction period of the project.

The instructors for the training can be from the environment protection bureau, the experts from the design institute, and experts from the environment evaluation organization and the monitoring agency.

5.2 Training of new full-time and part-time EP personnel during the construction period

The EP department will be responsible for the organization of training of the full-time and part-time personnel newly added in the operation period. EP experts from universities, research institutes and operation management agencies can be invited to be the instructors. Short-term training classes can be also organized. See Figure 5.2-1.

Figure 5.2-1 EP personnel training program

Project	Phase	Category	Personnel	No. of People	Time Period
NBU	Construction	Project Office	Env.	1	After the

Science Service Building Project	Period		Management Personnel		contractor is ascertained and before the construction begins
		NBU EP Personnel	Env. Management Personnel	1	
		Supervision engineers	Constructor Contractor, Constructor	2	
	Operation Period	Project Supervision Dept.	Full-time environmental management personnel	1	After the construction is completed and before the operation begins
		Project Operation Dept.	Proprietor	1	
	Total			6	

6. Information Exchange, Collection and Report

6.1 Information exchange

With regard to environment management, the proprietor, the supervision agency and the contractor should conduct necessary information exchange and meanwhile organize to release the information to the outside (relevant parties, general public, etc.). The internal information exchange can be conducted through various means, such as meetings and bulletins. Each month, there should a formal meeting on that and all information exchange should be put on records. The GEF grant project-NBU Science Service Building Project should have an EMP information exchange once or twice a year and the information exchange with the supporters should be kept in memo and filed. The information exchange meeting should be organized by the project party, attended by other supporting organizations.

6.2 Logging

For the sake of efficient functioning of the environment management system the organization must set up a complete system of record to file the following: laws, rules and regulations; licenses; environment factors and relevant environment impacts, training, examination, verification and maintenance activities; monitoring data; inconformities; the effectiveness of remedial and preventive measures; information of relevant parties; examination and appraisal. In addition, it is necessary to exercise control on the above-mentioned records, including labeling, collecting, cataloging, filing, storage, management, maintenance, retrieval, storage life and disposal.

6.3 Reporting

During the process of project implementation, the environmental monitoring agency shall keep a record of the project progress, the implementation of the environment management plan (EMP) and the results of environment quality monitoring and report them to relevant departments in a timely manner. The report will mainly include the minutes on EMP implementation kept by the monitoring agency and the contractor and the timely reporting to the project office. The Project Management Office- prepared project progress reports (monthly, quarterly, annual

report, etc.) must include contents about the EMP progress, such as the EMP implementation and the effects; the annual EMP implementation report must be completed and submitted to the World Bank within the specified time limit.

The EMP implementation report shall mainly include the following elements:

1. the implementation of the training program;
2. the project statusing;
3. the presence or absence of complaints from the public. If there is any, the complaints, solutions and public satisfaction should be recorded.
4. the EMP implementation plan for the next year.

7. Public Participation and Complaint Channels

7.1 Public participation

Public participation shall be actualized through holding symposiums and giving questionnaires.

7.1.1 Public participation via symposium

7.1.1.1 AN OVERVIEW

Name of the meeting: Ningbo University Science Service Building Project Public Participation Symposium

Time: 9:50-10:30, July 11, 2012

Venue: Meeting room, Floor 2, NBU Architecture and Engineering Building

Participants: teachers and students of the NBU Faculty of Architecture, Civil Engineering and Environment (the Faculty), personnel of NBU supervision company, personnel with the NBU design institute, personnel of NBU Foundation Treatment Center and the Ningbo Environmental Science Institute. See Figure 7.1-1 for the scene photo. Please find the sign-in form in the attachment.

Figure: 7.1-1 Public Participation Symposium

7.1.1.2 AGENDA OF THE SYMPOSIUM

1) Proprietor: briefing on the properties under the Faculty, introducing NBU Design Institute, the Supervision Company and the Foundation Treatment Center.

2) Proprietor: introducing the source of the project, an overview of the project, major functions of the building after its completion, and applications of green energy-saving technology;

3) EIA Company: introducing the environmental impacts of the project during the construction and operation stages and the environmental measures taken;

4) Teachers and students: airing their views on the space after the Foundation Treatment Center moves out and on the development of the Faculty and the agencies affiliated to the Faculty.

7.1.1.3 TEACHERS' AND STUDENTS' COMMENTS AND SUGGESTIONS

The comments and suggestions of faculty members and students are summarized as follows:

1) The construction of this project is significant to the development of the university and the teaching, and it can play a very good exemplary role;

2) Doing well the job of preventing dust and noise pollution to minimize the impacts on the teaching activities of the University and the Faculty.

3) The project design should integrate the concepts of green energy and the building should be completed and put to use as soon as possible.

7.1.2 Public Participation Questionnaire Survey

7.1.2.1 INVESTIGATION CONTENT

The purpose of the public survey is to introduce to the public the overview of Ningbo University Science Services Building, the environmental protection measures to be taken, the impacts on the surrounding environment and to understand the comments and suggestions of the project construction from the public. The questions of the survey forms are closely related to the public concern of the project. The respondents can just use the tick "√" to respond, which saves time and is easy to do statistical analysis.

There are two kinds of EIA public participation survey forms: one for faculty members and the other targeted students. The survey was conducted on July 11, 2012 and the contents are shown in Table 7.1-1 and Table 7.1-2.

Table 7.1-1: NBU Sci-Tech Building Project Public Participation and Staff Consultation

Name		Affiliated Dept	
About the Project 1) The new building will have a construction area of 12,601m2, to house the design institute, the supervision company, the foundation treatment center and the offices for research; 2) Green building technology applications: for ventilation, wind guide wall, alley, inner chamber and windows are used; for shading, fixed aluminum louvers curtain wall will be used; for greening, a roof garden and a green wall will be constructed; the underground garage (daylighting patio) will use natural light; for light guide technology green inner courtyard and spotlight device will be used; 3) Wide use of green technology: for energy saving, external wall insulation window (device) will be adopted; roof rainwater will be recycled and used; for use of solar energy hot water, solar exhaust hood will be installed; Light pipe lighting will be used in underground garages (air defense area), which will be blocked during wartime; Ground source heat pump will be placed in the large public space; the office space will be stratified VRV space, equipped with solar landscape lights; interior decoration and construction will be integrated, economical materials will be used and environmental control exercised; energy monitoring will be included in the operation management.			
Questionnaire			
No.	Questions	Options	
1	How do you find the development of the Faculty?	□Very Good □Good □Ordinary	
2	How do you find the development of the subordinate agencies of the Faculty, such as the Design Institute, the Supervision Company and the Foundation Treatment Center?	□Very Good □Good □Ordinary	
3	What do you think of the cultivation of the competence and hands-on ability of the students of the affiliated agencies?	□Very beneficial □beneficial □ no influence	
4	What do you think of the move-in of the affiliated agencies into the sci-tech building? Is it beneficial to their development?	□Very beneficial □beneficial □ no influence	
5	What do you think of the role of the development of the affiliated agencies in cultivating students' competence and hands-on ability?	□ Very beneficial □beneficial □ no influence	

What suggestions and requirements do you have for the new Science Service Building?
What comments and suggestions do you have for the development of the affiliated agencies of the Faculty?

Table 7.1-2 NBU Sci-tech Building Project Public Participation and Student Consultation

Name		Major		Grade	
About the Project: 1) The new building will have a construction area of 12,601m2, to house the design institute, the supervision company, the foundation treatment center and the offices for research; 2) Green building technology applications: for ventilation, wind guide wall, alley, inner chamber and windows are used; for shading, fixed aluminum louvers curtain wall will be used; for greening, a roof garden and a green wall will be constructed; the underground garage (daylighting patio) will use natural light; for light guide technology green inner courtyard and spotlight device will be used; 3)Active use of green technology: for energy saving, external wall insulation window (device) will be adopted; roof rainwater will be recycled and used; for use of solar energy hot water, solar exhaust hood will be installed; Light pipe lighting will be used in underground garages (air defense area), which will be blocked during wartime; Ground source heat pump will be placed in the large public space; the office space will be stratified VRV space, equipped with solar landscape lights; interior decoration and construction will be integrated, economical materials will be used and environmental control exercised; energy monitoring will be included in the operation management.					
Questionnaire					
No.	Questions	Options			
1	How do you find the development of the Faculty?	□Very Good	□Good	□Ordinary	
2	How do you find the development of the subordinate agencies of the Faculty, such as the Design Institute, the Supervision Company and the Foundation Treatment Center?	□Very Good	□Good	□Ordinary	
3	What do you think of the cultivation of the competence and hands-on ability of the students of the affiliated agencies?	□Very beneficial	□Beneficial	□No influence	
4	What do you think of the move-in of the affiliated agencies into the sci-tech building? Is it beneficial to their development?	□Very beneficial	□beneficial	□No influence	
5	What do you think of the role of the development of the affiliated agencies in cultivating students' competence and hands-on ability?	□Very beneficial	□beneficial	□No influence	

What suggestions and requirements do you have for the new Science Service Building?
What comments and suggestions do you have for the development of the affiliated agencies of the Faculty?

7.1.2.2 RESPONDENTS

The respondents were mainly staff members and students of the Faculty. See Table survey Table 7.1-3 and Table 7.1-5 for the information of the respondents and see Table 7.1-4 and Table 7.1-6 for the results of the survey.

7.1.2.3 RESULTS OF THE SURVEY

1. Results of the survey on faculty members.

Figure 7.1-3 Basic information of faculty members.

No.	Name	Major	Tel	Email Address
1	Jiang Jianlin	Engineering Management	13958207405	jiangjianlin@qq.com
2	Xu Wei	Capital Construction	87600493	xuweiI@nbu.edu.cn
3	Xu Jin	Architecture	13506841145	xujin@nbu.edu.cn
4	Wang Kan	Environmental Engineering	13780069698	wangkan@nbu.edu.cn
5	Zhang Lijian	Environmental Engineering	13355922500	Zljck1124@163.com
6	Li Hui	Civil Engineering	13867877810	lihui@nbu.edu.cn
7	Qian Baoyuan	Capital Construction	13805878183	QianBaoyuan@nbu.edu.cn
8	Zhou Chen	Teaching Management	13867876250	zhouchen@nbu.edu.cn
9	Ning Guorong	Teaching Management	15867460110	ningguorong@nbu.edu.cn
10	Wei Chunmei	Teaching Management	15958273423	weichunmei@nbu.edu.cn

Figure 7.1-4 Results of the survey on faculty members.

No.	Questions	Options	Number of respondents	Percentage of the total respondents
1	How do you find the development of the Faculty?	Quite good	4	40
		Good	6	60
		Ordinary	0	0
2	How do you find the development of the subordinate agencies of the Faculty, such as the Design Institute, the Supervision Company and the	Quite good	7	70
		Good	3	30
		Ordinary	0	0

No.	Questions	Options	Number of respondents	Percentage of the total respondents
	Foundation Treatment Center?			
3	What do you think of the cultivation of the competence and hands-on ability of the students of the affiliated agencies?	Quite beneficial	9	90
		Beneficial	1	10
		No influence	0	0
4	What do you think of the move-in of the affiliated agencies into the sci-tech building? Is it beneficial to their development?	Beneficial	10	100
		No influence	0	0
		Not beneficial	0	0
5	What do you think of the role of the development of the affiliated agencies in cultivating students' competence and hands-on ability?	Beneficial	10	100
		No influence	0	0
		Not beneficial	0	0

1）40% of faculty members believe the development of the Faculty is quite good, while 60% believe the development of our faculty is good.

2）70% of faculty members believe the development of affiliated agencies is quite good, while 30% believe their development is good.

3）90% of faculty members believe the affiliated agencies are quite beneficial to teachings, experiments and students' ability, while 10% believe they are beneficial.

4）100% of the faculty members believe it is good for the affiliated agencies to move into the Sci-Tech Building.

5）100% of the faculty members believe the development of the affiliated agencies is beneficial to teachings, experimental and hands-on abilities of the students.

2. Results of the survey on students.

Figure 7.1-5 Basic information of students

No.	Name	Major	Telephone Number	Email Address
1	Jin Xiaofeng	Environmental Engineering	15067450264	470822689@qq.com
2	He Bin	Environmental Engineering	13958218437	381085385@qq.com

No.	Name	Major	Telephone Number	Email Address
3	Zhang Hao	Environmental Engineering	15257861814	372746261@qq.com
4	Yang Lixiang	Environmental Engineering	1526785236	791217735@qq.com
5	Fang Hang	Environmental Engineering	15267853008	455214258@qq.com
6	Tu Chengchuan	Environmental Engineering	13958215194	Tcc19911211@163.com
7	Xu Zhong	Environmental Engineering	15257491536	871665584@qq.com
8	Wang Chunlan	Environmental Engineering	15267853008	1173003828@qq.com
9	Li Ying	Environmental Engineering	15267852546	Liying5665@qq.com

Figure 7.1-6 Results of the survey on students.

No.	Questions	Options	Number of respondents	Percentage of the total respondents
1	How do you find the development of the Faculty?	Quite good	6	67
		Good	3	33
		Ordinary	0	0
2	How do you find the development of the subordinate agencies of the Faculty, such as the Design Institute, the Supervision Company and the Foundation Treatment Center?	Quite good	5	56
		Good	4	44
		Ordinary	0	0
3	What do you think of the cultivation of the competence and hands-on ability of the students of the affiliated agencies?	Quite beneficial	6	67
		Beneficial	3	33
		No influence	0	0
4	What do you think of the move-in of the affiliated agencies into the sci-tech building? Is it beneficial to their development?	Beneficial	7	78
		No influence	2	22
		Not beneficial	0	0
5	What do you think of the role of the development of the affiliated agencies in cultivating students' competence and hands-on ability?	Beneficial	9	100

1）67% of students believe the development of our faculty is “quite good”, while 33% believe the development of our faculty is “good”.

2）56% of students believe the development of affiliated agencies is “quite good”, while 44% respond “good”.

3）67% of students believe the affiliated agencies are “quite beneficial” to teachings, experiments and students’ ability, while 33% respond “beneficial”.

4）78% of students believe it is “good” for the affiliated agencies to move into the Sci-Tech Building, while 22% of students responded “ no influence”.

5）100% of the students believe the development of the affiliated agencies is “beneficial” to teachings, experiments and students’ ability.

7.1.2.4 SUGGESTIONS OF FACULTY MEMBERS AND STUDENTS ON THE NEW SCI-TECH BUILDING

1) Intensify environmental protection and control environmental pollution.

2) Don’t interrupt teaching activities and do the safety precautions well.

3) Demonstrate the advanced technology in the design and construction of the new building.

4) Use the energy-efficient technology and promote the frontier engineering and management technology. Teachers and students will be encouraged to participate in the project.

7.1.3 Response to Suggestions

The suggestions of teachers and students on the new Science Service Building should be taken into consideration in the environment assessment document and project design:

1) Environment assessment document: during the construction period, do the dust and noise prevention work well and set a special path for construction; do the construction management well and ensure the safety of the traffic, teachers and students; make a rational construction period and complete it as soon as possible; while during the operating period, do well the waste water, waste gas and solid wastes prevention work and ensure emission standard of the “three wastes”.

2) Project design: the project designer should further improve the functional layout through making best use of the space in designing and using energy-efficient

technology and materials in construction.

7.1.4 Public Notice

The revised EMP public notice is on Ningbo municipal engineering office website，required details are as follows:

Time: October 31, 2012 to November 14, 2012.

Place: the website of Ningbo municipal engineering office,(http://www.nbqqb.com/NewsShow.aspx?NodeCode=0003&Id=1126).

The photos show in figure 7.1-2.

None opinions or suggestions from related departments and persons has been received during the publicity.


具体内容见以下附件
uploadfile/File/%E5%AE%81%E6%B3%A2%E5%A4%A7%E5%AD%A6%E7%A7%91%E6%8A%80%E6%9C%8D%E5%8A%A1%E5%A4%A7%E6%A5%BC%E9%A1%B9%E7%9B%AE%E7%8E%AF%E5%A2%83%E7%AE%A1%E7%90%86%E8%AE%A1%E5%88%921020.doc

宁波城建世行贷款项目领导小组办公室
二o一二年十月三十日

Figure: 7.1-2 Public notice on Ningbo municipal engineering office website

7.2 Complaint Channels

To safeguard the legitimate rights of the affected, we will establish a convenient, transparent, fair and efficient mechanism for complaint handling. Considering this project is uncomplicated, the complaint channel is simple: a bulletin board can be set at the construction site which has the information of the construction company and the contact information of the proprietor.

8. Commonly-used environmental management measures

The mitigation measures in the *Environmental Management Plan (EMP)* should be included in the bid document (technical specifications) and construction contract to specify the responsibility and ensure its effective implementation. See Figure 8.1-1 for the mitigation measures.

Figure 8.1-1 Measures in the Environmental Management Plan

Pollutants		Treatment measures
Construction Period	Waste gas	Reinforce construction management, ensure civilized construction and carefully transport construction materials; cover the trucks loaded with lime, sand and stones; spray water to the stock ground; use ready-mixed concrete; surround the construction site and use mesh to enclose the building to prevent the dust from flying everywhere; cleaners should be posted to clean the entry and the exit, and the walls of the site. Effective measures should be taken to keep the working vehicles clean, to prevent the wheel from being dirty and prevent spray of dirt on the roads. Keep the area 300 meters within the entrance and exit free of silt; cover the trucks carrying sand, stone, cement and sandy soil; spray water to the provisional stock ground and remove the muck as early as possible.
	Waste water	Discharge the water in construction site after sedimentation; appropriately discharge the domestic sewage and build such provisional health facilities as

		anaerobic to prevent the surface water from contaminating.
	Solid wastes	It is suggested that construction wastes be disposed timely and that such dangerous solid wastes as waste paint buckets, waste paint packaging materials be collected and disposed by qualified departments and that the human wastes be disposed by environment and health departments.
	Noise	1) Reinforce construction management, adjust or shorten the working hours of rumbling construction machineries, control the night working time and avoid the collective their working at the same time. 2) The construction company should reinforce management, and strictly control the working time of noisy machineries, for example, the noisy machineries should work in the daytime but not at night (after 22:00). 3) The speed limit and no honking should be conducted when trucks enter into the university or other must-be-quiet places.
	Operating safety	1) Cover the trucks to prevent construction materials from falling off and avoid the rush hours. 2) Take protective measures to ensure the personal safety of teachers and students. 3) Make periodic truck maintenance and take safe traffic control measures.
Operation Period	Waste gas	Reinforce the vehicle management and maintenance, ensure the vehicle emission standards; strengthen mechanical ventilation and set up mechanical ventilation system in the new organic and inorganic labs; reasonably arrange the refuses collection stations, do regular disinfection and remove them timely.
	Waste water	Discharge the recent domestic sewage into the Yongjiang River through the waste pipe in the High Education Park after it is disposed by buried sewage treatment system and reaches the secondary standard of the "Integrated Wastewater Discharge Standard" (GB8978-1996); discharge the forward domestic sewage after a centralized sewage treatment in the Ningbo Municipal Sewage Co., Ltd.
	Solid wastes	Remove the domestic refuses and waste analyzed soil timely.
	Noise	Use the efficient and low noise exhaust blower, transformer and switch equipment and ventilator to lower the noise; equip deafener or muffler if necessary on the discharge pipes of the outdoor ventilators; Install absorbers on the ventilators in the lab or buildings and

		install piping hangers in the pipeline; use soft adapters in the exit and entrance part of the pipe in case of vibration transmission; set a “No Honking” sign board at the main entrances to ease the influence of vehicle noises.

Annexes

宁波大学科技服务大楼项目公众参与座谈会签到单

时间：2012.07.11

地点：宁波大学建工学院会议室

序号	教师/学生	姓名	专业	电话	邮箱
1	教师	蒋建林	工程管理	13958207405	jiangjianlin@QQ.com
2	教职工	徐伟	基建	87600493	xuwei1@nbu.edu.cn
3	教师	[illegible]	[illegible]	13506841145	xujin@nbu.edu.cn
4	教师	王侃	环境工程	13780069698	wangkan@nbu.edu.cn
5	教师	[illegible]	设计院	13385922500	zljck1126@163.com
6	学生	金晓烽	环境工程	15067450264	470822689@qq.com
7	学生	贺彬	环境工程	13458218437	381035385@qq.com
8	学生	[illegible]	环境工程	[illegible]	372746061@qq.com
9	学生	[illegible]	环境工程	15267852367	791217735@qq.com
10	学生	[illegible]	环境工程	15267852380	453214258@qq.com
11	学生	王春兰	环境工程	15267853008	1173003828@qq.com
12	学生	[illegible]	环境工程	13958215194	tcc19911211@163.com
13	学生	[illegible]	环境工程	15257491536	871665584@qq.com
14	学生	李迎	环境工程	15267852546	liying5665@qq.com
15	教师	李辉	土木工程	13867877810	lihui@nbu.edu.cn
16	〃	[illegible]	[illegible]	13805878183	QianBaoyuan@nbu.edu.cn
17	教师	周晨	[illegible]	13867876250	zhouchen@nbu.edu.cn
18	教师	宁国荣	教学管理	15867460210	ningguorong@nbu.edu.cn
19	教师	[illegible]	[illegible]	[illegible]	weichunmei@nbu.edu.cn

宁波大学科技服务大楼工程

公众参与教职工意见征询表

姓名	周琳	所属部门	建工学院

项目工程内容：

1）新建建筑面积为 12601m^2，主要布置设计院、监理公司、地基处理中心及科研用房等；2）绿色建筑技术应用：通风技术方面采用导风墙、冷巷、内庭、开窗方式；遮阳技术采用固定式铝合金百叶幕墙；绿化技术采用屋顶花园、绿化墙；地下车库、（采光天井）采用自然采光；导光技术采用绿化内庭院、采用追光器；3）主动式绿色技术运用：节能方面为外墙保温窗（设备）；雨水回收方面为屋面雨水回收利用；太阳能热水利用方面为太阳能排气风帽；光导管方面为地下室车库（人防区）采光，战时封堵；地源热泵方面为公共空间，大空间采用；办公空间采用分层 VRV 空间，太阳能景观灯；内装修与建筑施工一体化，节材、并环境控制；能源监测设置纳入运营管理。

调查内容		
序号	调查项	选择项
1	您认为学院的发展	□好 ☑良好 □一般
2	您认为学院下属产业（宁大设计院，监理公司及地基处理中心）发展状况	☑好 □良好 □一般
3	您认为学院下属产业对学院的教学实验及学生能力的培养	☑非常有利 □有利 □无影响
4	您认为学院下属产业搬至科技服务大楼是否有利于其发展	☑有利 □无影响 □不利
5	您认为学院下属产业的发展壮大对今后学院的教学实验及学生能力的培养	☑有利 □无影响 □不利

您对新建科技服务大楼有何建议和要求？

作为一个展示学院乃至宁波市先进建筑技术的窗口，建成精品建筑。

您对学院及下属产业的建设和发展有何意见及建议？

希望学院与各专业的关系更加紧密，能邀请一些教师兼职，也为学生提供更多实习实践机会。专业与专业之间师也能在实践教学中给予学生指导。

宁波大学科技服务大楼工程

公众参与学生意见征询表

姓名	徐	专业	环境工程	年级	二

项目工程内容：

1）新建建筑面积为 12601m^2，主要布置设计院、监理公司、地基处理中心及科研用房等；2）绿色建筑技术应用：通风技术方面采用导风墙、冷巷、内庭、开窗方式；遮阳技术采用固定式铝合金百叶幕墙；绿化技术采用屋顶花园、绿化墙；地下车库、（采光天井）采用自然采光；导光技术采用绿化内庭院、采用追光器；3）主动式绿色技术运用：节能方面为外墙保温窗（设备）；雨水回收方面为屋面雨水回收利用；太阳能热水利用方面为太阳能排气风帽；光导管方面为地下室车库（人防区）采光，战时封堵；地源热泵方面为公共空间，大空间采用；办公空间采用分层 VRV 空间，太阳能景观灯；内装修与建筑施工一体化，节材、并环境控制；能源监测设置纳入运营管理。

调查内容

序号	调查项	选择项
1	您认为学院的发展	☑好 ☐良好 ☐一般
2	您认为学院下属产业（宁大设计院，监理公司及地基处理中心）发展状况	☑好 ☐良好 ☐一般
3	您认为学院下属产业对学院的教学实验及学生能力的培养	☑非常有利 ☐有利 ☐无影响
4	您认为学院下属产业搬至科技服务大楼是否有利于其发展	☑有利 ☐无影响 ☐不利
5	您认为学院下属产业的发展壮大对今后学院的教学实验及学生能力的培养	☑有利 ☐无影响 ☐不利

您对新建科技服务大楼有何建议和要求？

新建科技服务大楼的各项功能应当齐全，特别是一些废气废物和污水的处理，必须做的好，以免对环境造成破坏。

您对学院及下属产业的建设和发展有何意见及建议？

我希望学院的发展能够越来越好，