Environmental Monitoring Report

Project Number: 48023-003
Feburary 2023

Period: January 2022 to December 2022

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

Environmental Monitoring Report (No. 6)

Prepared by the Ningxia Hui Autonomous Region Project Management Office for the Asian Development Bank

Asian Development Bank

Environmental Monitoring Report

Project Number: 48023-003

February 2023

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 6th EMR covering January 2022-December 2022)

Prepared by the Ningxia Hui Autonomous Region Government for the Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
AQG	–	air quality guideline
ARI	–	annual recurrence interval
BOD_5	–	5-day biochemical oxygen demand
C&D	–	construction and demolition
CO	–	carbon monoxide
COD	–	chemical oxygen demand
CTB	–	county transport bureau
DO	–	dissolved oxygen
DOT	–	Department of Transport
EA	–	executing agency
EEM	–	external environmental monitor
EHS	–	environment, health and safety
EIA	–	environmental impact assessment
EIR	–	environmental impact report
EIRF	–	environmental impact registration form
EIT	–	environmental impact table
EMP	–	environmental management plan
EMR	–	environmental monitoring report
EMS	–	Environmental Monitoring Station
EPB	–	Environmental Protection Bureau
EPD	–	Environmental Protection Department
EPL	–	Environmental Protection Law
ESE	–	environmental supervision engineer
FYP	–	five year plan
GDCF	–	gender and development cooperation fund
GDP	–	gross domestic product
GHG	–	greenhouse gas
GRM	–	grievance redress mechanism
IA	–	implementing agency
IEE	–	initial environmental examination
I_{Mn}	–	permanganate index
IPCC	–	Intergovernmental Panel on Climate Change
L_{Aeq}	–	equivalent continuous A-weighted sound pressure level
LAS	–	linear alkylbenzene sulfonate
LDI	–	local design institute
MEP	–	Ministry of Environmental Protection
N	–	Nitrogen
NHAR	–	Ningxia Hui Autonomous Region
NHARG		Ningxia Hui Autonomous Region government
NH_3-N	–	ammonia nitrogen
NO_2	–	nitrogen dioxide
P	–	Phosphorus
PAH	–	poly-aromatic hydrocarbon
PAM	–	polyacryl amide
PAM	–	project administration manual
PAO	–	Poverty Alleviation Office

PCR	–	project completion report
pH	–	a measure of acidity and alkalinity
$PM_{2.5}$	–	particulate matter with diameter ≤ 2.5ìg
PM_{10}	–	particulate matter with diameter ≤ 10ìg
PMC	–	project management consultant
PME	–	powered mechanical equipment
PMO	–	project management office
PO_4^{2-}	–	Phosphate
PPE	–	personal protective equipment
PPTA	–	project preparation technical assistance
PRC	–	People's Republic of China
RCP	–	representative concentration pathway
RP	–	resettlement plan
SEA	–	strategic environmental assessment
SO_2	–	sulfur dioxide
SPS	–	safeguard policy statement
SS	–	suspended solid
TA	–	technical assistance
TP	–	total phosphorus
TPH	–	total petroleum hydrocarbon
TSP	–	total suspended particulate
VOC	–	volatile organic compounds
WBG	–	World Bank Group
WHO	–	World Health Organization
WWTP	–	wastewater treatment plant

WEIGHTS AND MEASURES

$^{o}/_{oo}$	–	part per thousand
ºC	–	degree centigrade
cm	–	Centimeter
dB(A)	–	A-weighted sound pressure level (decibel)
g	–	Gram
g/kg	–	gram per kilogram
h	–	Hour
ha	–	Hectare
kg	–	Kilogram
kg/m^3	–	kilogram per cubic meter
km	–	Kilometer
km/h	–	kilometer per hour
L	–	Liter
L/100 km	–	liter per 100 kilometer
m	–	Meter
m^2	–	square meter
m^3	–	cubic meter
m/s	–	meter per second
mg	–	Milligram
mg/L	–	milligram per liter
mg/m^3	–	milligram per cubic meter

mm	–	Millimeter
mm/y	–	millimeter per year
no./L	–	number of individuals per liter
pcu	–	passenger car unit
pcu/d	–	passenger car unit per day
t	–	metric ton
t/a	–	metric ton per annum
µ	–	micron or micrometer
µg	–	Microgram
µg/m^3	–	microgram per cubic meter

NOTE

In the report, "$" refers to US dollars.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

BASIC PROJECT INFORMATION

ADB Loan No.	ADB Loan No.3444-PRC
Project Title	Ningxia Liupanshan Poverty Reduction Rural Road Development Project
Borrower	The People's Republic of China
Executing Agency	Ningxia Hui Autonomous Region Government
Implementing Agency	the county transport bureaus (CTB) of Yuanzhou, Xiji, Longde, Jingyuan, Pengyang, Tongxin and Haiyuan
Total Estimated Cost	265.54 million dollars
ADB Loan	100 million dollars
Counterpart Financing	165.54 million dollars
Loan Approval Date	October 21,2016
Loan Agreement Signed Date	April 10,2017
ADB Loan Effectiveness Date	July 14,2017
Project Complete Date	June 30,2022
Original Loan Closing Date	June 30,2022
Deferred Loan Closing Date	June 30,2023
Exchange Rate	6.596
Date of Latest ADB Loan Review Mission	November 2022
Type of This Report	Annual Environmental Monitoring Report
Period Covered by This Report	January 2022-December 2022

I. INTRODUCTION

A. The Report

1 This report is the sixth Environmental Monitoring Report of Ningxia Liupanshan Poverty Reduction Rural Road Development Project, covering the period from January 2022 to December 2022. This report is prepared by Ningxia Hui Autonomous Region government with support from the external environmental monitor (EEM) based on site observation and information collected from the Executing Agency (EA), Implementation Agencies (IAs), environmental supervisors as well as local environmental monitoring stations. This report was reviewed by the EA, prior to submission to ADB.

2 This environmental monitoring report is prepared in accordance with the project environmental management plan and environmental monitoring framework.

B. Project Description

3 The concentrated area of Liupanshan was once the main battlefield of the country's poverty alleviation. Including 7 counties and districts of Ningxia Hui Autonomous Region, the total population is 1.96 million, accounting for about 30% of the total population of Ningxia. The mountainous terrain characteristics and poor traffic environment in Liupan Mountain area have become one of the important reasons for limiting the economic development of this area. About 77% of the population in Liupan Mountain area works in agriculture. The poor traffic conditions prevented local people from getting social services and non-agricultural employment opportunities.

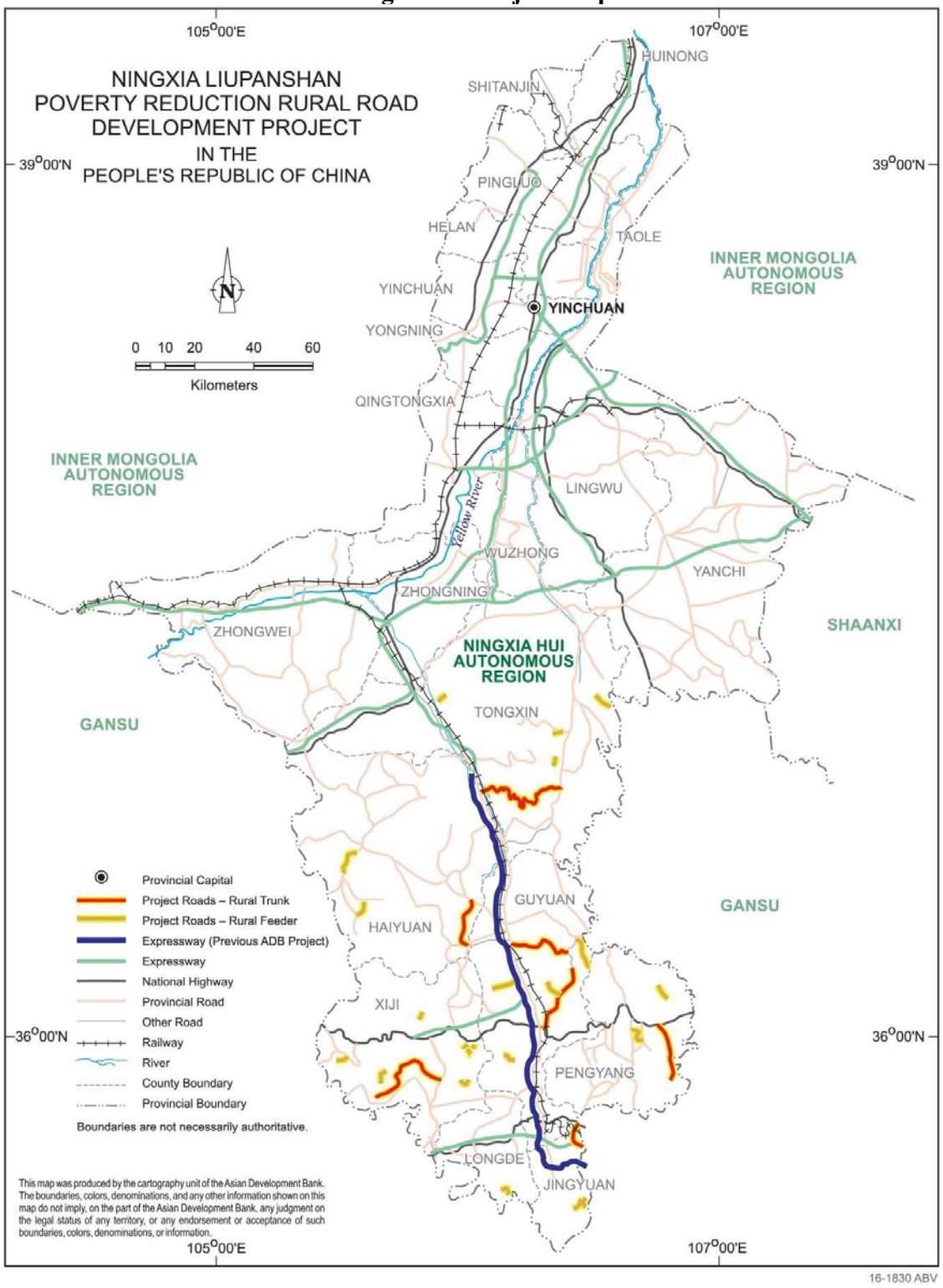
4 The project is located in the Liupanshan area in southern NHAR. Liupanshan is a mountain range with altitude up to 3,000 meters (m) in western PRC, extending over 200 kilometers (km) across Shaanxi Province, Gansu Province, and NHAR. The Liupanshan area in southern NHAR covers seven project counties (Yuanzhou, Xiji, Jingyuan, Longde, Pengyang, Tongxin, and Haiyuan)1, with altitudes ranging from 409 m to 1,694 m. These county road network master plans emphasize the importance of rural road development in rural economic development, and focus on providing transportation infrastructure in rural areas. As of today, the region has been completely out of poverty, and the construction of rural roads has played a key role.

5 The original closing date of the project is June 30, 2022. On April 28, 2022, the Asian Development Bank approved the extension of the project loan in EA's request, and the closing date of the project extension is June 30, 2023.

C. Project Impact, Outcomes, and Outputs

6 The proposed intervention will be aligned with the government’s stated impact of reduced poverty and increased quality of life in the Liupanshan area. The outcome will be improved rural transport network in the Liupanshan area. The outputs will be (i) priority rural roads improved including approximately 266.7km of seven rural trunk roads and 168.3km of 21 rural feeder oads,

Figure 1 : Project Map



(ii) rural road safety and sustainability enhanced, and (iii) impact evaluation is conducted and project implementation capacity improved. All are existing roads. Improvements will involve rehabilitation of the existing alignments without widening, rehabilitation and widening of existing alignments to accommodate traffic increase, and construction of new road sections to improve road gradients and turning radii for safety reasons.

D. Institutional Arrangements and Responsibilities for EMP Implementation

7 **Executing agency**. The **NHARG** is the executing agency (EA) responsible for overall implementation and compliance with loan assurances and the EMP.

8 **Project management office.** The EA has established the **project management office (PMO),** who shall be responsible, on behalf of the EA, for the day-to-day management of the project. The PMO shall have the overall responsibility to supervise the implementation of environment mitigation and monitoring measures, coordinate the project GRM and report to ADB. PMO shall (i) appoint at least one environmental specialist on its staff to coordinate and manage EMP implementation, (ii) engage the project management consultant (PMC) services, and (iii) supervise the procurement process. The PMO environmental specialist shall (i) supervise contractors and their compliance with the EMP; (ii) conduct regular site inspections; (iii) act as local entry point for the project GRM; (iv) submit environmental monitoring data provided by the IAs to the PMO for verification. PMO shall prepare quarterly project progress reports and annual environment monitoring reports (EMR) and submit them to ADB.

9 **Implementing agency.** Implementing Agencies (IAs) for the project are the county transport bureaus (CTB) of Yuanzhou, Xiji, Longde, Jingyuan, Pengyang, Tongxin and Haiyuan, responsible for implementing the rural trunk roads and rural feeder roads within their respective administrative areas. They implement project components, administer and monitor contractors and suppliers, and be responsible for construction supervision and quality control. As of December 2022, all other projects have been completed except Jiangtai Road through Xitan to Pingfeng Road in Xiji County. According to the provisions of the EMP, the implementation agency had well completed the bidding work, supervision and entrustment during the construction period. Specifically include:(i) contract the local Environmental Monitoring Station (EMS) to conduct environmental monitoring during the construction stage, and (ii) contract an external Environmental Supervision Engineer (ESE) to conduct independent compliance audit and verification of EMP implementation during the construction stage of the project. Each IA is recommended to nominate an environmental focal point on its staff to (i) supervise contractors and their compliance with the EMP, (ii) conduct regular site inspections, and (iii) submit environmental quality monitoring data provided by the EMS to the PMO and local Environmental Protection Bureau (EPB).

10 Construction contractors are responsible for implementing the mitigation measures during construction under the supervision of the IAs (through the ESE) and PMO. In their bids, each contractor has responded to the environmental management and monitoring requirements in the environmental management plan. Each contractor has appointed a staff member to be responsible for the environment, health and safety during the construction.

11 External environmental monitor (EEM). An EEM shall be recruited to support the project. Terms of reference for the EEM are provided in the PAM. The EEM will:

(i) assess the project's environmental readiness prior to implementation based on the readiness indicators defined in Table EMP-3 in the EMP;
(ii) support PMO in updating the EMP including environmental monitoring plan as necessary to revise or incorporate additional environmental mitigation and monitoring measures, budget, institutional arrangements, etc., that may be required based on the detailed design; submit to ADB for approval and disclosure; ensure compliance with the PRC's environmental laws and regulations, ADB's Safeguard Policy Statement (2009) and Public Communications Policy (2011);
(iii) if required, update the IEE and EMP reports for changes in the project during detailed design or project implementation (for example if there is a minor or major scope change) that would result in adverse environmental impacts not within the scope of the approved IEE/EMP;
(iv) assist PMO to establish a GRM;
(v) conduct EMP compliance audit, undertake site visits as required, identify any environment-related implementation issues, and propose and oversee implementation of necessary corrective actions;
(vi) assist PMO to prepare quarterly project progress reports and annual EMRs for submission to ADB;
(vii) provide training to PMO, IAs and contractors on environmental laws, regulations and policies, SPS 2009, EMP implementation, and GRM in accordance with the training plan defined in the EMP (Table EMP-7); and
(viii) assist PMO and IAs in conducting consultation meetings with relevant stakeholders as required, informing them of imminent construction works, updating them on the latest project development activities, GRM.

12 Environmental supervision engineer (ESE) . Each IA shall contract an independent ESE to verify environmental performance during construction and whether the implementation of EMP items complies with the plan. The ESE shall review EMP implementation and monitoring activities and results, assess EMP implementation performance, visit the project sites and consult potentially affected people, discuss assessment with the PMO and the respective IA; and suggest corrective actions. The ESE shall assist the external environmental supervisor to prepare the annual environmental monitoring report.

II. PROJECT PROGRESS

A. Progress on Institutional Set up and Actions taken by Agency

13 Table 1 shows the summary of institutional set up for EMP implementation and actions taken by institutions.

Table 1. Summary of Institutional Set up for EMP Implementation and Actions taken by Agency

Agency and its Roles and Responsibilities for EMP Implementation	Actions taken by Agency
EA - NHARG Responsible for overall implementation and compliance with loan assurances and the EMP.	• Has been responsible for overall implementation and compliance with loan assurance and the EMP.
Project Management Office (PMO) Shall be responsible, on behalf of the EA, for the day-to-day management of the project. The PMO shall have the overall responsibility to supervise the implementation of environment mitigation and monitoring measures, coordinate the project GRM and report to ADB. • Shall appoint at least one **environmental specialist** on its staff to coordinate and manage EMP implementation. The PMO environmental specialist shall (i) supervise contractors and their compliance with the EMP; (ii) conduct regular site inspections; (iii) act as local entry point for the project GRM; (iv) submit environmental monitoring data provided by the IAs to the PMO for verification. PMO shall prepare quarterly project progress reports and annual environment monitoring reports (EMR) and submit them to ADB. • Shall engage the **project management consultant** (PMC) services • Shall supervise the procurement process.	• Environmental specialist, Wu yurong was engaged in December 2017. Environmental monitoring reports were submitted in January 2018, February 2019，January 2020，January 2021 and March 2022 respectively. Affected by the epidemic in 2022, the external environmental experts carried out a site inspection in September, mainly carrying out public participation investigation on some completed sections and checking whether the contractors have implemented environmental protection measures. This report is the environmental monitoring report of 2022. There are three phases of environmental status monitoring in this year: April, June and December 2022. • PMC，HJI Group Corporation and Beijing Hamoni Engineering Consulting Company Ltd. was engaged in August 2018. They have submitted quarterly project progress reports on time every quarter.
Implementation Agency (IA) The IA is the county transport bureaus (CTB) of	• Contracted Chinese Academy of Transportation Science as the EEM.

Agency and its Roles and Responsibilities for EMP Implementation	Actions taken by Agency
Yuanzhou, Xiji, Longde, Jingyuan, Pengyang, Tongxin and Haiyuan, responsible for implementing the rural trunk roads and rural feeder roads within their respective administrative areas. They shall implement project components, administer and monitor contractors and suppliers, and be responsible for construction supervision and quality control. The CTBs shall also be the operation and maintenance (O&M) units for the project roads in their respective counties. • To ensure that the contractors comply with the EMP provisions, the IAs with the help and technical support of a Tendering Agent and the **External Environmental Monitor (EEM)** under the PMC services. • Each IA shall contract the **local Environmental Monitoring Station (EMS)** to conduct environmental monitoring during the construction stage • Each IA shall contract an **external Environmental Supervision Engineer (ESE)** to conduct independent compliance audit and verification of EMP implementation during the construction stage of the project. • Each IA is recommended to nominate an **environmental focal point** on its staff.	• Contracted the local Environmental Monitoring Station (EMS),which is NingXia ZhongKe JingKe Test Tech.,Co.,Ltd. They carried out quarterly environmental monitoring on the main line. Affected by the epidemic, there was no construction in the third quarter. This year, three quarters of monitoring was carried out in April, June and December 2022. • Contracted the Environmental supervion engineer (ESE) as a part of CSC. • Yuanzhou, Xii, Longde, Jingyuan, Pengyang, Tongxin, Haiyuan IAs have designated one person in charge of environment, health and safety..

14 Table 2 shows the detailed contact information of relevant environmental health and safety staff at various agencies involved in the Project and GRM focal persons.

Table 2. Contact Information of EHS staff/focal points at Various Agencies Involved in the Project

Institution	Name of Company	Position	Name of EHS staff	Contact Information (phone number/email)
PMO			Mr. Yongming Yang	+86 13639506456 yym13777@163.com
EEM	Chinese Academy of Transportation Science	Environmental Engineer	Ms. Yurong Wu	+86 13683683432 10258572@qq.com

PMC		HJI Group Corporation and Beijing Hamoni Engineering Consulting Company Ltd.	HJI Group Corporation and Beijing Hamoni Engineering Consulting Company Ltd.	Mr. Qing Chen	18940102907 qchen@hjigroup.com
IA	CTB Yuanzhou		*EHS*	Mr. Wuming Wang	+8615809591421 yzqjtxzjsj@163.com
	CTB Xiji		*EHS*	Mr. Xuxiong Wei Ms. Xiaoyan Shang	+8613995143987 +8615226242200 1287763390@qq.com
	CTB Longde		*EHS*	Mr.ZhangJun	+8618995446299 18995446299@163.com
	CTB Jingyuan		*EHS*	Mr. Xiaoping Wu	+8613995345808 290986914@qq.com
	CTB Pengyang		*EHS*	Mr. ZhangHua	+8613995449215 876319903@qq.com
	CTB Tongxin		*EHS*	Mr.YanhuaMian	+8613895284678 txjt8022391@163.com
	CTB Haiyuan		*EHS*	Mr.Fenglong Hei	+8618809609405 249315165@qq.com
ESE		Independent Consultant	Environmental Engineer	Ms. Yurong Wu	+86 18209775544 604102088 @qq.com
Contractors	Zhengqi–Jiucai–Sikouzi Road	Ningxia road and Bridge Engineering Co., Ltd	*EHS*	Mr. Xuezhi Yin	+86 17795458527
		Ganzhou Boda highway Co., Ltd	*EHS*	Mr. Ning Ma	+86 17795529949
	Wangtuan–Yuwang Road	Mengguoxin Industry Co., Ltd	*EHS*	Mr. Shaojia Wang	+86 18169071991
		Shaanxi Yijin Construction Co., Ltd	*EHS*	Mr. Shaojia Wang	+86 13995448509
		Ningxia Xuyuan Construction Engineering Co., Ltd	*EHS*	Ms. Xifeng Fan	+86 18309516576
		Zhongdiyingang Construction Group Co., Ltd	*EHS*	Mr. Xiaojiang Zhang	+86 15296975644
	Guanting-Guyuan Road	Xinjiang Communications Construction Group Co., Ltd	*EHS*	Mr. Yong Hong	+86 15709633222

		Shaanxi Huaxinyuan Construction Engineering Co., Ltd	*EHS*	Mr. Hui Wang	+86 15191844528
	Wanzhang-Sanying Road	Ningxia Dongfang Baosheng Construction Co., Ltd	*EHS*	Mr.Xingsheng Feng	+86 15595245888
		Panzhihua Panyu Road and Bridge Co., Ltd	*EHS*	Mr.Shenghu Wang	+86 13239592988
	Jiangtai–Xitan–Pingfeng Road	Anhui Changda pavement Facilities Engineering Co., Ltd	*EHS*	Mr.Shiwen Xia	+86 15212799259
		Ningxia Communications Construction Co., Ltd	*EHS*	Mr.Changyi Zhou	+86 13409576828
		Guyuan Kaida Highway Engineering Co., Ltd	*EHS*	Mr.Jianzhou Wang	+86 15909579800
		Dongsheng Road and Bridge Engineering Construction Group Co., Ltd	*EHS*	Mr. Xiang Liu	+86 18695187878
	Mengyuan Chunshucha–Chengyang Yangping Road	Shantou road and Bridge Engineering Corporation	*EHS*	Mr.Wenzhe Zheng	+86 15255518293
		Touluqiao Engineering Corporation of Shantou Anhui Changda road and Bridge Engineering Group Co., Ltd	*EHS*	Mr.Fangqing Dong	+86 18153633391
	Shatang (Huanghua County)–Gaodian Road	Ningxia Lujie Engineering Co., Ltd	*EHS*	Mr. Yu	+86 18195199090

B. Implementation of Loan Covenants

15 The loan covenants of the project stipulate the following agreements on environmental safeguards. Table 3 provides the compliance status of environment related project covenants during this reporting period.

Table 3. Environment Related Project Agreements and Compliance Status

Environment Related Project Agreements	Compliance Status
<u>Environment</u> GNHAR shall ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project and all Project facilities comply with (a) all applicable laws and regulations of the Borrower	Complied during this reporting period.

relating to environment, health and safety; '(b) the Environmental Safeguards; and (c) all measures and requirements set forth in the IEE, the EMP, and any corrective or preventative actions (i) set forth in a Safeguards Monitoring Report; or (ii) which are subsequently agreed between ADB and GNHAR.	
Spoil and Waste Manaqement GNHAR shall, and shall cause the IAs, to ensure that (a) focal points for EMP implementation are provided within their offices; (b) Works are not commenced until the relevant authority of the Borrower has designated and approved the required sites for disposing off the spoil and waste generated by the Project; (c) all excavated spoil and construction waste generated during construction under the Project shall be temporarily stored or permanently disposed of at designated sites only; and (d) these designated sites are at least 300 meters away from any water body.	Complied during this reporting period.
Environmental Consideration for Yunwushan Nature Reserve (YNR) GNHAR shall cause Yuanzhou County Transport Bureau to ensure that (a) YNR Management Bureau is consulted during detailed design and implementation phases for Guating-Guyuan Road and Wanzhang-Sanying Road under the Project; (b) no Works, having direct impact on YNR, are undertaken or financed under the Project; (c) appropriate species are used in landscaping for roads close to YNR that are consistent with grassland species found at YNR; and (d) invasive and exotic species are avoided in landscaping for roads close to YNR.	The project financed by ADB does not pass through Yunwushan nature reserve, and the section near Yunwushan Nature Reserve has no adverse impact on the reserve.
Noise Mitigation Measures GNHAR shall, and shall cause the IAs, to ensure that (a) measures described in the IEE and EMP for traffic noise mitigation are implemented; and. (b) future noise monitoring is carried out by the operations and maintenance units of the concerned counties.	The noise sensitive points (Guanting Town, Chengershan Village, Qianhong Village, Mujiagou Mosque, Qianhong Mosque) along the sections of Guanting Town - Yuanzhou District of Guyuan City, Wangtuan Town of Tongxin County - Yuwang Town that need sound insulation windows (Guanting Town, Chengershan Village, Qianhong Village, Qianhong Mosque, Qianhong Mosque) are not suitable for installing double-layer sound insulation windows in the existing housing structure, and the existing noise is up to

	standard. Noise reduction measures will be considered according to the monitoring results during the operation period.
Human and Financial Resources to Implement Safeguards Requirements GNHAR shall, and shall cause the IAs, to make available necessary budgetary and human resources to fully implement the EMP, the RPs and the EMDP.	Complied during this reporting period.
Safequards - Related Provisions in Biddinq Documents and Works Contracts GNHAR shall ensure that all bidding documents and contracts for Works contain provisions that require contractors to: (a) comply with the measures relevant to the contractor set forth in the IEE, the EMP, the RPs and the EMDP (to the extent they concern impacts on the respective affected people under the Environmental Safeguards, the Involuntary Resettlement Safeguards and the Indigenous Peoples Safeguards during construction), and any corrective or preventative actions set forth in (i) a Safeguards Monitoring Report; or (ii) subsequently agreed between ADB and GNHAR; (b) make available a budget for all such environmental and social measures; (c) provide GNHAR with a written notice of any unanticipated environmental, resettlement or indigenous peoples risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP, the RPs and the EMDP; (d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and (e) reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.	Complied during this reporting period.
Safequards Monitorinq and Reporting GNHAR shall do the following: (a) Submit Safeguards Monitoring Reports to ADB • in respect of implementation of and compliance with Environmental Safeguards and the EMP, annually during construction and the implementation of the Project and the EMP, and thereafter annually during operation, until the issuance of ADB's Project completion report unless a longer period is agreed in the EMP; and • in respect of implementation of and compliance with Involuntary Resettlement Safeguards and Indigenous Peoples Safeguards and	Five environmental monitoring reports have been submitted in January 2018，February 2019，January 2020, January 2021 and March 2022 respectively. The internal monitoring unit conducted three phases of on-site environmental monitoring in April, June and July December 2022.

of the RPs and EMDP, semi-annually during the implementation of the Project, the RPs and the EMDP -until the issuance of ADB's Project completion report unless a longer period is agreed in the EMDP and/or RPs and disclose relevant information from such reports to the respective affected people under the Environmental Safeguards, the Involuntary Resettlement Safeguards and the Indigenous Peoples Safeguards promptly upon submission; (b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP, the RPs and the EMDP, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and (c) report any actual or potential breach of compliance with the measures and requirements set forth in the EMP, the RPs or the EMDP promptly after becoming aware of the breach.	
Safeguards – Prohibited List of Investments GNHAR shall ensure that no proceeds of the Loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of SPS.	Complied during this reporting period.
Applicability of SPS to the Entire Project GNHAR shall, and shall cause the IAs, to ensure that the part of the Project financed by the Borrower is implemented in accordance with relevant provisions of SPS.	Complied during this reporting period.
Labor Standards. Health and Safety GNHAR shall, and shall cause the IAs, to ensure that the core labor standards and the Borrower's applicable laws and regulations are complied with during Project implementation. GNHAR shall ensure to include specific provisions in the bidding documents and contracts financed by ADB under the Project requiring that the contractors, among other things: (a) comply with the Borrower's applicable labor law and regulations and incorporate applicable workplace occupational safety norms; (b) do not use child labor; (c) do not discriminate workers in respect of employment and occupation; (d) do not use forced' labor; (e) allow freedom of association and effectively recognize the right to collective bargaining; and (f) disseminate, or engage appropriate service providers to disseminate, information on the risks of sexually transmitted diseases, including HIV/AIDS, to the employees of contractors engaged under the Project and to members of the local communities surrounding the Project area, particularly women.	Complied during this reporting period

GNHAR shall strictly monitor compliance with the requirements set forth in paragraph 15 above and provide ADB with regular reports.	
Grievance Redress Mechanism GNHAR shall, and shall cause the IAs, to ensure that a joint safeguards grievance redress mechanism acceptable to ADB is established in accordance with the provisions of the IEE, the EMP, the RPs, and the EMDP at the Project management office and the Transport Bureaus of the Project Counties, within the timeframes specified in the relevant IEE, EMP, RPs, and EMDP, to consider safeguards complaints. GNHAR shall further ensure that the grievance redress processes and procedures are made available to all affected people and their grievances are resolved in a timely mariner and recorded for monitoring purposes.	Complied during this reporting period.

C. Implementation Progress of Environmental Contract Clauses

16 As agreed in the Project EMP, the following contract clauses for safeguarding the environment and safety during construction shall be incorporated into all tender documents for civil work packages for improving the rural trunk roads and feeder roads (Output 1). Table 4 shows the agreed specific clauses to be included in the contracts and summaries the status during this reporting period.

Table 4. Implementation Status of Environmental Contract Clauses

Proposed Environmental Contract Clauses	Implementation Status
1. <u>Siting of construction facilities</u>: 1.1 Locations of asphalt/concrete mixing stations shall be at least 300 m downwind of the nearest air quality and noise protection target. 1.2 Locations of borrow areas shall be at least 300m from residential areas. 1.3 Borrow areas and spoil disposal sites with long, steep slopes, susceptible to erosion shall be avoided and shall include small level cut-off drains to break up and redirect runoff. 1.4 Access and haul roads shall be constructed at sufficient distances from residential areas, in particular, local schools, health clinics and hospitals.	The mixing stations and quarry are located 300 meters away from the residential area, and the construction access road is far enough from the residential area.
2. <u>Construction time</u>: 2.1 There shall be no night time (between 22:00 and 06:00 hours) construction on new road sections and new bridges. 2.2 If night time construction on existing road sections is needed, construction activities shall stay at least 500 m from the nearest	No construction at night.

household. Night time construction within 500 m from the nearest household shall be prohibited.	
3. <u>Protection of air quality</u> 3.1 Watering of unpaved areas, haul roads and exposed dust-prone stockpiles shall be undertaken at least two times each day. 3.2 Water shall be sprayed to the working face to suppress dust during the removal of existing pavement and during backfilling. 3.3 Frequently travelled haul roads and construction sites and construction staging area exits shall be paved with gravel or asphalt. 3.4 Vehicle speed in unpaved areas including unpaved haul roads shall be limited to ≤8 km/h. Speed limit signs shall be posted in these areas. 3.5 Wheel washing equipment shall be installed or wheel washing shall be conducted manually at each exit of the works area and asphalt/concrete mixing station to prevent trucks from carrying muddy or dusty substance onto public roads. 3.6 Dust prone materials shall be stored in areas with shelters on four sides and on top. If such materials have to be stored in open area, strong tarpaulin shall be used to cover the materials. 3.7 Vehicles with an open load-carrying case, which transport potentially dust-producing materials, shall have proper fitting sides and tail boards. Dust-prone materials shall not be loaded to a level higher than the side and tail boards, and shall always be covered with s strong tarpaulin. 3.8 Unauthorized burning of construction and demolition waste material and refuse is prohibited and shall be subject to penalties and withholding of payment. 3.9 Asphalt, hot mix and batching plants shall be equipped with fabric filters and/or wet scrubbers to reduce the level of dust emissions. 3.10 Personal protective equipment such as goggles, gloves and respirators shall be provided to construction workers doing asphalt concrete and cement concrete road paving to minimize skin exposure to and inhalation of fumes and dust.	Dust suppression measures such as watering and covering have been taken during the construction, but according to the on-site investigation and monitoring, the construction dust is still the main pollution source
4. <u>Protection of the acoustic environment</u> 4.1 Machinery shall be maintained and repaired regularly and properly to keep them in good working condition and to minimize noise. 4.2 Low noise machinery or equipment with sound insulation shall	During construction, the impact of construction noise is reduced by strengthening management and

be deployed when working within 100 m from villages or townships. 4.3 Temporary hoardings or hoardings shall be erected around the equipment to shield the noise from equipment when there are residences, schools, health clinics or mosques within 80 m from the noise source. 4.4 Suitable hearing protection (such as ear muffs) shall be provided to construction workers. 4.5 The use of horns is forbidden unless absolutely necessary. The use of whistles shall be minimized.	maintaining equipment. No environmental complaints caused by construction noise occurred during the construction period.
5. <u>Protection of water quality</u> 5.1 Portable toilets and small package wastewater treatment plants shall be provided on construction sites and construction camps for the workers. If there are nearby public sewers, interim storage tanks and pipelines shall be installed to convey wastewater to public sewers. Runoff from construction sites and construction camps shall be collected and treated with drainage provisions. 5.2 Sedimentation tanks shall be installed and operated on construction sites, asphalt /concrete mixing stations and pre-casting yards to treat process water (e.g. concrete batching for bridge construction) and muddy runoff with high concentrations of suspended solids. If necessary, flocculants such as polyacryl amide (PAM) shall be used to facilitate sedimentation. 5.3 Mitigation measures such as placement of sandbags or berms shall be deployed around foundation and shoreline works during construction of river crossing road bridge foundations to contain muddy water runoff. Slurry from bored piling in the river bed shall be pumped to sedimentation pond on shore for settling. 5.4 Machinery for bridge construction shall be repaired and washed at designated locations at least 100 m from the water body. No machine repair and washing on bridge construction site shall be allowed. 5.5 Storage and fueling facilities for fuels, oil, and other hazardous materials shall be located within secured areas on impermeable surfaces at least 300 m away from water bodies, and provided with bunds and cleanup kits. If refueling in the field is required, it shall be done from road-licensed fuel trucks away from water	The project crosses few water bodies and mainly seasonal rivers. The environmental monitoring results during the construction period show that there is no water pollution during the construction period of the project.

courses or other environmentally sensitive areas. 5.6 Material stockpiles shall be protected against wind and runoff waters which might transport them to surface waters. There shall be no storage of materials and equipment in or close to water bodies. Temporary storage of materials and equipment on river banks, if necessary, shall be short-term and protected to prevent run-off polluting river water. 5.7 Any chemical spills into water bodies shall be cleaned up according to PRC norms and codes within 24 hours of the occurrence, with contaminated soils and water treated according to PRC norms and codes. Records must be handed over without delay to the Project Management Office and local Environmental Protection Bureau.	
6. <u>Protection of biological resources and wildlife</u> 6.1 Construction workers are prohibited from capturing any wildlife during construction. 6.2 Existing trees and grassland shall be protected during construction. Trees and shrubs shall only be removed as the last resort if they impinge directly on the permanent works or necessary temporary works. 6.3 Where a tree has to be removed or an area of grassland disturbed, trees shall be replanted and the area revegetated after construction. Tree planting shall use local species with local provenance. Planting of exotic of invasive species shall be prohibited. 6.4 No construction staging area, borrow area, spoil disposal site and haul road shall be established within a local, provincial and national protected area.	There is no damage to wild animals and plants during the construction period of the project.
7. <u>Solid waste management, earth works and soil erosion</u> 7.1 Reuse of earth cut materials and construction and demolition waste shall be maximized on the project, including the reuse of old asphalt or concrete road pavement for subgrade materials. 7.2 All soil erosion prevention measures listed in the domestic Environmental Impact Reports shall be included in the design of spoil disposal sites 7.3 Spent borrow areas and spoil disposal sites shall be rehabilitated and vegetated within one month after closure to prevent soil erosion and dust generation. 7.4 All refuse and construction and demolition waste generated on construction sites and construction staging areas shall be stored in	The recyclable building materials are recycled. The borrow and spoil areas and other large temporary projects are restored while being used. After use, the borrow and spoil ground is leveled.

designated areas and regularly removed from these locations for disposal or reuse.	
8. Construction site sanitation 8.1 Contractor shall provide adequate and functional systems for sanitary conditions, toilet facilities, waste management, labor dormitories and cooking facilities. 8.2 The site shall be effectively cleaned and disinfected. During site formation, the site shall be sprayed with phenolated water for disinfection. Toilets and refuse bins shall be disinfected and timely removal of solid waste shall be ensured. 8.3 Rodents on site shall be exterminated at least once every 3 months. Mosquitoes and flies shall be exterminated at least twice each year. 8.4 Public toilets shall be provided in accordance with the requirements of labor management and sanitation departments in the living areas on construction site, and designated staff responsible for cleaning and disinfection shall be appointed. 8.5 Work camp wastewater shall be discharged into the municipal sewer system or treated on-site using portable systems or septic tanks.	The construction camp is equipped with toilets and canteens, which are disinfected and cleaned regularly. The sewage septic tank in the camp is cleaned and transported regularly after treatment.
9. Occupational safety 9.1 At least one environment, health and safety (EHS) officer shall be appointed to manage occupational health and safety risks on construction sites. 9.2 Personal protective equipment (PPE) (safety hats and shoes and high visibility vests) shall be provided to all construction workers, with strict enforcement on all workers wearing PPE. 9.3 Ear defenders for hearing protection shall be provided to workers operating and working near noisy power mechanical equipment. 9.4 Safety goggles and respiratory masks shall be provided to workers doing asphalt road paving and tunnel blasting.	An environmental officer has been appointed for each bid section to be responsible for the environmental, health and safety issues of the bid section. Labor protection equipment is provided for construction personnel during the construction period
10. Food safety 10.1 Food hygiene in canteens on site shall be inspected and supervised regularly. Canteen workers must have valid health permits. 10.2 If food poisoning is discovered, effective control measures shall be implemented immediately to prevent it from spreading.	A good sanitary environment was ensured during construction.
11. Disease prevention and health services 11.1 All construction workers shall undergo a physical examination before start working on site. If infectious disease is found, the	Good disease prevention conditions were ensured during construction.

patient must be isolated for treatment to prevent the disease from spreading. Physical examination shall be conducted on 20% of the workers every year from the second year onwards. 11.2 Health clinic shall be established at location where workers are concentrated, which shall be equipped with common medical supplies and medication for simple treatment and emergency treatment for accidents. 11.3 Induction and training by local health departments on prevention and management of communicable diseases shall be provided.	
12. <u>Prevention and control of new coronavirus pneumonia</u> 12.1 Returning personnel. The health status of the returned employees should be mastered in advance. The returned employees should apply in advance and provide their physical condition and behavior track for nearly 14 days. After being approved by the leaders, they should be isolated for 7 days. Employees with fever, sore throat, cough and other symptoms, employees from high-risk areas, or employees who may have been exposed to confirmed cases shall provide nucleic acid negative certificate. 12.2 Daily management. The returning personnel shall provide health code and their physical condition and behavior track in recent 14 days, and the full-time personnel shall detect and register their body temperature, and immediately report and take corresponding prevention and control measures in case of abnormal conditions; detect and supervise the wearing of masks and hand washing disinfection; external personnel (drivers of raw and auxiliary materials, etc.) shall not get off the train in the whole process of wearing masks, and carry out disinfection process; personnel in contact with external personnel They all wore masks and disposable gloves. 12.3 Strengthen publicity and education. Through wechat, e-mail notification or online training, the staff were educated on epidemic prevention and control, and publicity materials such as health and epidemic prevention posters and wall charts were posted in the office area, factory area and living area. 12.4 Wear masks. After entering the project area or construction site, employees can wear qualified masks and replace them on time; disposable medical masks can be worn in dormitory, canteen, bathhouse, ground duty room, office, rest room and other areas. 12.5 Implement closed management. Strictly implement the closed management for the construction projects, assign special personnel to be responsible for the registration of entering and leaving the site and temperature detection, and set up 24-hour post on duty. 12.6 Reduce personnel aggregation. Control the flow of personnel in different operation teams on the construction site to reduce personnel aggregation.	No large-scale infection of COVID-19 virus was found during project construction.

13. Social conflict prevention 13.1 The following shall be prioritized: (i) employ local people for works, (ii) ensure equal opportunities for women and men, (iii) pay equal wages for work of equal value, and pay women's wages directly to them; and (iv) not employ child or forced labor.	Except for professional workers, almost all other temporary workers are employed local people, and men and women are equal, without labor disputes.
14. Community health and safety 14.1 A traffic control and operation plan shall be prepared together with the local traffic police prior to any construction. The plan shall include provisions for diverting or scheduling construction traffic to avoid morning and afternoon peak traffic hours, regulating traffic at road crossings with an emphasis on ensuring public safety through clear signs, controls and planning in advance. 14.2 Residents and businesses shall be informed in advance of the road improvement activities, given the dates and duration of expected disruption and made aware of the project grievance redress mechanism. 14.3 Clear signs shall be placed at construction sites in view of the public, warning people of potential dangers such as moving vehicles, hazardous materials, excavations, etc. and raising awareness on safety issues. 14.4 Local communities and residents shall be alerted if night time construction work shall occur nearby (no night time construction within 500 m of the nearest household). 14.5 Local communities shall be alerted on the time and location of hazardous and noisy activities such as piling and asphalt road paving. 14.6 The contractor shall liaise with schools on examination periods and scale down construction activities during such periods if necessary. 14.7 All construction sites shall be made secure and access by members of the public shall be discouraged through appropriate fencing, signage and/or security personnel, as appropriate.	A bulletin board has been set up in the project department, and special personnel have been assigned at the construction site for traffic guidance. The school examination time was avoided during the high noise operation.
15. Utility interruption 15.1 Contractors shall assess construction locations in advance and identify potential for disruption to services and risks before starting construction. Any damage or hindrance/disadvantage to local businesses caused by the premature removal or insufficient	The construction of the project has been fully started, and most of the road sections have been completed, without

replacement of public utilities shall be subject to full compensation, at the full liability of the contractor who causes the problem. 15.2 If temporary disruption is unavoidable the contractor shall, in collaboration with relevant local authorities such as power company, water supply company and communication company, develop a plan to minimize the disruption and communicate the dates and duration in advance to affected persons.	causing interference to public services.
16. Grievance redress mechanism 16.1 The contractor shall establish a grievance redress mechanism (GRM) for receiving and handling complaints. In case of a complaint, the contractor shall notify the PMO within one week and advise on the agreed solution. 16.2 The contractor shall disclose the GRM to affected people before construction begins at the main entrance to each construction site. 16.3 The contractor shall maintain and update a Complaint Register to document all complaints.	There was no appeal during the implementation of the project.

Source: The Project EMP (2016)

D. Overall Project Implementation Progress

17 By December 2022, all counties have completed the construction of rural branch lines with self-raised funds. Among the seven trunk highways, the construction of Wangtuan-Yuwang Highway in Tongxin County was commenced in July 2019 and completed in November 2020; The construction of the Jiucai to Sikouzi Highway in Zhengqi, Haiyuan County was started in March 2019 and completed in November 2020, and is currently undergoing acceptance work; The construction of the Guanting to Guyuan Highway in Yuanzhou District was started in August 2020 and completed in June 2022; The construction of Wanzhang-Sanying Highway in Yuanzhou District was started in October 2020 and completed in December 2021; The construction of Xiji County Jiangtai to Pingfeng Highway via Xitan was started in June 2020, the main works was completed in October 2022, and the auxiliary facilities are expected to be completed in April 2023; The construction of Shatang-Haodian Highway in Huanghua Township, Jingyuan County was commenced in July 2020 and completed in November 2022; The construction of Chunshucha to Chengyang Yangping Highway in Pengyang County was officially started in March 2021 and completed in August 2022. All completed projects have not completed the environmental protection acceptance of domestic projects.

E. Detailed Engineering Progress

1. Output 1: Priority rural roads rehabilitated and upgraded.

18 This component includes (i) rehabilitation and upgrading of high-volume rural trunk roads connecting high-poverty areas with national or provincial highways, and (ii) rehabilitation and

paving of rural feeder roads reaching further into poor villages. Specific outputs include improvement of (i) seven rural trunk roads (266.7 km) connecting 63 administrative villages and 126 natural villages;14 and (ii) 21 rural feeder roads (168.3km) linking 47 administrative villages and 111 natural villages (84 of which lack paved road access).Table 5 summarizes the engineering progress.

Table 5: Summary of rural roads rehabilitation and upgrade progress during the Reporting Period

Road Name	Administrative Area	Road Length (km)	Proposed Scope				Engineering Progress Status
			Road Class	Design Speed (km/h)	Subgrade Width (m)	Pavement Type	
Rural Trunk Roads							
1. Guanting–Yuanzhou District Guyuan Road	Yuanzhou District	26.3	II	60 (K0+000-K5+000)	12 (K1+245-K1+670)	Asphalt concrete	Commenced in the end of August 2020，Comleted in June 2022.
				40 (K5+000-K26+330)	8.5		
2. Wanzhang–Sanying Road	Yuanzhou District	31.7	III	40	8.5	Asphalt concrete	Commenced in the middle of October 2020, Comleted in December 2021.
3. Jiangtai–Xitan–Pingfeng Road	Xiji County	73.0	III	40	8.5	Asphalt concrete	Commenced in June 2020, Expected to be completed in April 2023.
4. Wangtuan–Yuwang Road	Tongxin County	61.5	II (K0+000-K4+165)	60	10	Asphalt concrete	Commenced in July 2019, Completed in November 2020.
			III (K4+165-K67+410)	40	8.5		
5. Mengyuan Chunshucha–Chengyang Yangping	Pengyang County	30.8 (includes 0.6 km branch road)	III	30	7.5	Asphalt concrete	Commenced in March 2021, Completed in August, 2022.

Road							
6. Zhengqi–Jiucai–Sikouzi Road	Haiyuan County	28.4	III	30	7.5	Asphalt concrete	Commenced in March 2019, Completed in November 2020.
7. Shatang (Huanghua County)– Gaodian Road	Jingyuan County	15.0	III (K0+000-K13+423)	30	7.5	Asphalt concrete	Commenced in July 2020, Completed in November 2022.
			III (branch road K0+000-K1+782)	20	6.5		
Subtotal:		266.7					
Rural Feeder Roads							
1. Hongzhuang – Dadian – Shahexian Road	Yuanzhou District	13.0	IV	20	6.5	Cement concrete	Completed in October 2016 and now it is in Operation.
2. Guhu Road – Qiaowa – Miaotai Road		10.0	IV	20	6.5	Cement concrete	Completed in October 2016 and now it is in Operation.
3. Ligou – Xiaojiashengou Road		7.0	IV	20	6.5	Cement concrete	Completed in October 2016 and now it is in Operation.
4. Ke Village – Feng Village Road		5.0	IV	20	6.5	Cement concrete	Completed in October 2016 and now it is in Operation.
5. Licha – Dongjia Village Road		5.0	IV	20	6.5	Cement concrete	Completed in October 2016 and now it is in

							Operation.
6. Caichuan – Yangjiayaoxian Road		4.4	IV	20	6.5	Cement concrete	Completed in October 2016 and now it is in Operation.
7. Wangping – Lizhang Road	Xiji County	11.5	IV	20	6.5	Cement concrete	Completed in February 2017 and now it is in Operation.
8. Daying – Ya'erpo Road		8.5	IV	20	6.5	Cement concrete	Completed in February 2017 and now it is in Operation.
9. Mawan – Caonao Road		8.5	IV	20	6.5	Cement concrete	Completed in February 2017 and now it is in Operation.
10. Bataijiao – Quancha Road		7.0	IV	20	6.5	Cement concrete	Completed in February 2017 and now it is in Operation.
11. Nanchuan – Lujiagou Road		6.0	IV	20	6.5	Cement concrete	Completed in February 2017 and now it is in Operation.
12. Tongfu Village – Shanghewan Village Road	Tongxin County	8.6	IV	15	6.5	Cement concrete	Completed in November 2016 and now it is in Operation.
13. Majiajing – Suocha Road		6.7	IV	20	6.5	Cement concrete	Completed in December 2016 and now it is in Operation.
14. Tongyu Road – Lijiagangzi – Liushubaozi		6.6	IV	20	6.5	Cement concrete	Completed in November 2016 and now it is in

Road							Operation.
15. Xiachen Road – Chen'er Village		6.1	IV	20	6.5	Cement concrete	Completed in September 2016 and now it is in Operation.
16. Caomiaoxinwa – Caochuan Road	Pengyang County	7.2	IV	20	6.5	Cement concrete	Completed in July 2017 and now it is in Operation.
17. Xiaochadiaocha – Qigeshan Road		6.0	IV	20	6.5	Cement concrete	Completed in July 2017 and now it is in Operation.
18. Xi'an – Zhangwan Road	Haiyuan County	13.3	III	30	8.5-11.5	Asphalt concrete	Completed in November 2016 and now it is in Operation.
19. Xiangtong – Huitiaogou Road		7.2	IV	20	6.5	Asphalt concrete	Completed in November 2016 and now it is in Operation.
20. Dongxia – Digou Road	Jingyuan County	6.2	IV	20	6.5	Cement concrete	Commenced in May 2019 and completed by September 2019. Now it is in Operation.
21. Zhangtian – Jinglin – Yangchuan Road	Longde County	9.0	III	30	7.5	Asphalt concrete	Completed in July 2017 and now it is in Operation.
Subtotal:		168.3					

Source: FSRs for the rural trunk roads and FSRs and construction scheme reports for the rural feeder roads. Length after realignment, original distance was 67.400km.

2. Output 2: Rural road safety and sustainability enhanced

19 Road safety enhancement is designed to apply to the seven trunk roads Rural Trunk Roads,which are at the design stage. 21 rural feeder roads have been completed and safety measures have been finished.
The outcome will be improved rural transport network in the Liupanshan area.

3. Output 3: Impact evaluation is conducted and project implementation capacity improved

20 The impact of the project is to increase the income of rural population in the Liupanshan area and reduce the incidence of poverty. The construction of the rural roads has improved the efficiency of the rural road network and shortened the transit time.

III. IMPLEMENTATION OF THE ENVIRONMENTAL MANAGEMENT PLAN

21 This Environmental Management Plan (EMP) is developed for the Ningxia Liupanshan Poverty Reduction Rural Road Development, which identifies the potential project environmental impacts and defines mitigation measures and monitoring requirements for the design, construction, and operational stages of the project. It also defines the institutional arrangements and mechanisms, the roles and responsibilities of different institutions, procedures and budgets for implementation of the EMP. The EMP seeks to ensure environmental protection activities during preconstruction, construction, and operation continuously improve to prevent, reduce, or mitigate adverse environmental impacts and risks.

22 Potential environmental issues and impacts during pre-construction, construction and operation phases, and corresponding mitigation measures. Table 6 shows the summary of implementation status on mitigation measures during this reporting period.

23 There is no update in EMP due to detailed engineering design change.

Table 6: Summary of Potential Impacts and Mitigation Measures and their Implementation Status

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
A: Mitigation measures applicable to all rural trunk roads and rural feeder roads						
A.1: Detailed Design Stage						
Conservation of natural resources	Soil resources	Loss of land and topsoil and increased risk of erosion	• Minimize permanent and temporary land take for development. • Optimize balance between cut and fill and avoid deep cuts and high embankments to minimize earthworks. • Maximize reuse of spoil and old asphalt paving material within the construction or adjacent construction works. • Agree spoil disposal sites, management and rehabilitation plan with local Environment Protection Bureau • Specify the storage of topsoil (10-30cm) removed prior to main earthworks for restoration works • Specify vegetation that serves specific bioengineering functions. • Design engineering measures for prevention of soil erosion according to recommendations in the EIRs.	LDI	PMO	• Design has been carefully reviewed to minimize permanent and temporary land take for development. • Design has been carefully reviewed to minimize earthworks. • Topsoil has been stored as needed. • Vegetation has been included in detailes design to use as much as local species. • Measures for prevention of soil erosion have been designed.
	Materials	Efficient use of resources	• Maximize the re-use of C&D wastes on the project, including the re-use of old asphalt or concrete road pavements for subgrade materials • Specify materials that are recycled, have recycled content or are from sustainable sources, particularly for road furniture, fixtures/fittings. • Specify energy efficient lighting systems. • Specify the use of renewable energy (such as photovoltaic panels) for signs, lighting, where appropriate.	LDI	PMO	• The recyclable materials are fully recycled
Design of road alignment, road surface, drainage, flood control, lighting and construction staging areas	Extreme weather event	Road surface cracking due to extreme hot or cold weather, landslide and flooding due to torrential rainfall	• Consider potential impacts from extreme weather events in designing road subgrade, pavement, road-side slopes, drainage system, bridges and culverts including but not limited to the following: ■ Bridge (river crossing) and drainage design shall adopt a 15% flood volume increase. The key solution to water damage to the roads shall start with a proper design of an integrated drainage system. (Due diligence indicated that the bridges satisfied the national standard after the 15% flood volume increase and the drainage design in the FSRs was considered to be adequate with 15% runoff or flood water volume increase.) ■ The following methods for enhancing the physical strength of loess for road development in particular new road sections shall be considered:	LDI	PMO	• Measures to mitigate potential impacts from extreme weather evants have been included in the detailes design,particularly for bridge design.

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
			◆ Replace the loess with suitable foundation materials ◆ Compact the loess foundation with rammer ◆ Compact the loess with fly ash or lime soil poles. Use fly ash or lime as the stabilization agent to the subgrade ◆ Use suitable compactor equipment such as vibratory compactor machine in road embankment construction ■ For road sections that are under high landslide threat, appropriate interception ditches shall be designed and applied to landslide prone sections to reduce the landslide risks. Necessary engineering slope stabilization measures shall be considered in the detailed design. Shotcrete grid together with re-grassing has been demonstrated to have the best result for the project area. ● Adopt appropriate protective measures such as vegetation cover, geotextiles, settling basins, permeable paving, infiltration ditches, stepped slopes, riprap, crib walls, retaining walls and intercepting ditches to reduce the speed of surface run-off.			
	Ecology	Loss of vegetation	● Technical design of new road sections will avoid intact woodland and mature trees ● If avoidance is not possible, design replanting schemes for compensation	LDI	PMO	● Have been considered in the design. ● No trees are under protection at any level.
	Health and safety	Protection of vulnerable road users	● Design must ensure public health and safety, especially pedestrians and school zones	LDI	PMO	● Protective measures have been included in the design.
	Air emissions	Construction emissions	● Specify local materials from licensed providers that minimize transport distance. ● Locations for asphalt mixing and concrete batching stations must be at least 300 m downwind of the nearest household.	LDI	PMO	● Local suppliers are used as many as possible. ● The site selection of asphalt mixing station and concrete mixing station met the requirements.
	Water quality	Polluted run-off into water bodies	● Technical design of road drainage to ensure that drainage design and discharge locations minimize risk of polluting nearby water bodies. ● Locations of spoil disposal sites must be at least 300 m from the nearest water body.	LDI	PMO	● Retention tanks have been included in the detailed design for seven rural trunk roads. ● The spoil disposal sites are 300 meters away from the nearest water body
A.2: Pre-construction Stage						
Institutional strengthening	-	Lack of environmental	● Appoint qualified environment specialist on staff within PMO ● Contract EEM within PMC services	PMO	ADB	● Appointed. ● EEM has been contracted.

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
		management capacities within PMO and IAs	• Conduct environment management training.			• Environmental management training has been carried out
	-	Lack of environmental monitoring capability and qualification	• Contract local EMS to conduct environmental quality monitoring during construction.	IAs	PMO	• Two phases of environmental monitoring were carried out in 2021.
			• Contract local EMS to conduct environmental quality monitoring during the operational stage.	O&M units	PMO	• Environmental monitoring has been contracted.
EMP Update	-	-	• Review mitigation measures defined in this EMP, update as required to reflect detailed design, disclose updated EMP on project website.	PMO, EEM	ADB	/
Tender and contract documents	-	Environmental contract clauses-	Put into all civil works tender documents and contracts the environmental contract clauses listed in Section I of this EMP	PMO, IAs, Tendering Agent	EEM, ADB	• EMP has been included as part of the tender documents.
A.3: Construction Stage						
Construction site good practice	Soil resources	Spoil disposal and borrow area	• Locate borrow areas at least 300m from residential areas. • Avoid borrow areas and spoil disposal sites with long, steep slopes, susceptible to erosion and include small level cut-off drains to break up and redirect runoff. • Strip and store topsoil in a stockpile for reuse in restoration. • Use spoil disposal sites approved by local EPB and manage in accordance with approved design. • Avoid side casting of spoil on slopes. • Rehabilitate and restore spoil disposal sites within one month after site closure.	Contractors	IAs, ESE, EEM	Well implemented
		Soil erosion	• Install and implement soil erosion prevention measures in all construction sites, construction staging areas and spoil disposal sites in accordance with approved EIR requirements. • Stabilize all cut slopes, embankments and other erosion-prone working areas while works are ongoing. Implement permanent stabilization measures as soon as possible, at least within 30 days. • Pay close attention to drainage provision and establishment of vegetation cover on backfilled areas to prevent soil erosion. • If restoration is carried out during periods of hot or extreme weather, ensure adequate aftercare to maximize survival. • Implement protection measures for river embankment works, cut slopes, material stockpiles and other areas at risk of soil erosion prior to periods of heavy rainfall.	Contractor	IAs, ESE, EEM	Well implemented
		Soil contamination	• Properly store petroleum products, hazardous materials and waste in clearly labeled containers on an impermeable surface in secure and covered areas, with a containment tray or provided with bunds for any	Contractor	IAs, ESE, EEM	Well implemented

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
			leaks. ● Develop spill response plan. Keep a stock of absorbent materials (e.g. sand, earth or commercial products) on site to deal with spillages and train staff in their use. ● If there is a spill take immediate action to prevent entering drains, watercourses, unmade ground or porous surfaces. Do not hose the spillage down or use any detergents use oil absorbents and dispose of used absorbents at a waste management facility. ● Record any spill events and actions taken in environmental monitoring logs and report to EEM. ● Remove all construction & demolition waste from the site to approved waste disposal sites.			
	Air quality	Dust (TSP) during construction	● Spray water at least twice each day on unpaved areas, haul roads and exposed dust-prone stockpiles. Frequency to be increased if construction activities are generating dust and/or during windy conditions. ● During the removal of existing pavement and during backfilling, spray water to the working face to suppress dust. ● Pave frequently travelled haul roads and construction site and construction staging area exits with gravel or asphalt. ● Control vehicle speed to ≤ 8 km/h in unpaved areas including unpaved haul roads. Post the speed limit sign in these areas. ● Install wheel washing equipment or conduct wheel washing manually at each exit of the works area and asphalt/concrete mixing station to prevent trucks from carrying muddy or dusty substances on public roads. ● Store dust-prone materials in areas with shelters on four sides and on top. If such materials have to be stored in open area, cover with strong tarpaulin. ● Vehicles with an open load-carrying case, which transport potentially dust-producing materials, shall have proper fitting sides and tail boards. Dust-prone materials shall not be loaded to a level higher than the side and tail boards, and shall always be covered with a strong tarpaulin. ● Unauthorized burning of construction and demolition waste material and refuse shall be subject to penalties for the Contractor, and withholding of payment.	Contractor	IAs, ESE, EEM	Well implemented. During the construction period, the monitoring results showed that TSP did not exceed the standard.
		Fumes and particulate matter from asphalt mixing plant,	● Site asphalt/concrete mixing stations at least 300m downwind of the nearest household (plant noise is the limiting factor). ● Equip asphalt, hot mix and batching plants with fabric filters and/or wet scrubbers to reduce the level of dust emissions.	Contractor	IAs, ESE, EEM	Well implemented

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
		concrete batching plant and during asphalt road paving	• Provide personal protective equipment (PPE) such as goggles, gloves and respirators to construction workers doing asphalt concrete and cement concrete road paving to minimize skin exposure to and inhalation of fumes and dust.			
	Noise and vibration	Noise from PME and vehicles	• During daytime construction, the contractor will: · properly maintain machinery to minimize noise; · deploy low noise machinery or the equipment with sound insulation when working within 100 m from villages or townships; · site asphalt/concrete mixing stations and pre-casting yards at least 300 m away and downwind (for air quality purpose) from the nearest sensitive receptor; and · erect temporary noise barriers or hoardings around construction activities to shield the noise from equipment when there are residences, schools, health clinics or mosques within 80 m of the noise source. • For all new road sections and new bridges, there will be no night time (between 22:00 and 06:00 hours) construction. • For existing road sections, night time construction shall be avoided. Yet, recognizing that construction occasionally would require some works to be conducted at night to take advantage of less road traffic or to avoid worsening day time traffic conditions. If night time construction work is needed, nearby residents should be notified of such night time activities well beforehand. No night time (between 22:00 and 06:00 hours) work shall be allowed on existing road sections that are within 500m of the nearest household. • Provide the construction workers with suitable hearing protection (ear muffs). • Ensure regular equipment repair and maintenance to keep them in good working condition. • Forbid the use of horns unless absolutely necessary, minimize the use of whistles.	Contractor	IA, ESE, EEM	Well implemented. The monitoring results during construction show that the acoustic environment quality meets the standard.
	Water quality	Construction site runoff and wastewater discharge	• Provide portable toilets and small package wastewater treatment plants and/or septic tanks on construction sites and construction camps for the workers. If there are nearby public sewers, install interim storage tanks and pipelines to convey wastewater to public sewers. Collect and treat site runoff from construction sites and construction camps with drainage provisions. • Install and operate sedimentation tanks on construction sites, asphalt/concrete mixing stations and pre-casting yards to treat process water (e.g. concrete batching for bridge construction) and muddy runoff with high concentrations of suspended solids. If necessary, use	Contractor	IA, ESE, EEM	Well implemented. The monitoring results during the construction period show that the water environment quality meets the standard.

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
			flocculants such as polyacryl amide (PAM) to facilitate sedimentation. • Deploy mitigation measures such as placement of sandbags or berms around foundation and shoreline works during construction of river crossing road bridge foundations to contain muddy water runoff. Pump slurry from bored piling in the river bed to sedimentation pond on shore for settling. Repair and wash machinery for bridge construction at designated locations at least 100m from the water body. No onsite machine repair and washing shall be allowed. • Site storage and refueling facilities for fuels, oil, and other hazardous materials within secured areas on impermeable surfaces at least 300 m away from water bodies, and provided with bunds and cleanup kits. If refueling in the field is required, it shall be done from road-licensed fuel trucks away from watercourses or other environmentally sensitive areas. • Protect material stockpiles against wind and runoff water which might transport them to surface waters. There shall be no storage of materials and equipment in or close to water bodies. Temporary storage of materials and equipment on river banks, if necessary, shall be short-term and protected to prevent run-off polluting river water. • Clean up any chemical spills into water bodies according to PRC norms and codes within 24 hours of the occurrence, with contaminated soils and water treated according to PRC norms and codes. Records must be handed over without delay to the PMO and local EPB. • Mitigation of water quality impact during river crossing bridge construction shall be based on water quality monitoring results. At each river crossing bridge construction location, upstream and downstream monitoring stations will be set up and SS levels monitored. When the SS levels at the downstream impact station is 130% higher than the SS levels at the upstream control station, the contractor shall adopt alternative construction methods or additional mitigation measures until the downstream SS level is less than 130% above the upstream SS level.			
	Solid waste	Construction site refuse and spoil disposal	• Maximize the re-use of earth cut materials and C&D wastes on the project, including the re-use of old asphalt or concrete road pavements for subgrade materials. • Site borrow pits and spoil disposal sites at least 300m from residential areas so as to reduce dust and noise from these sites. • Include all soil erosion prevention measures listed in the EIRs in the design of spoil disposal sites. • Rehabilitate and vegetate spent borrow areas and spoil disposal sites within one month after closure to prevent soil erosion and dust	Contractor	IA, ESE, EEM	Well implemented. So far, no solid waste pollution has occurred. Jingyuan County is set up with a waste slag yard, which is located within the permanent land occupation; Three waste disposal sites in Haiyuan county have gone through the restoration

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
			generation. • Store all refuse and C&D waste generated on construction sites and construction staging areas in designated areas and remove them from these locations for disposal or reuse regularly.			procedures; There are 5 spoil sites in Pengyang County, and temporary land agreement has been handled. See Annex 1; The agreement on temporary land use has been completed in the original state District, see Annex 2; The temporary land agreement has been completed in Xiji County. There is no waste dump in Tongxin county.
	Ecology	Destruction of vegetation and wildlife	• Construction workers are prohibited from capturing any wildlife during construction. • Protect existing trees and grassland during construction; remove trees or shrubs only as the last resort if they impinge directly on the permanent works or necessary temporary works. • Where a tree has to be removed or an area of grassland disturbed, replant trees and re-vegetate the area after construction. • Construction staging areas, haul roads, spoil disposal sites and borrow areas are not allowed to be established within the boundary of the Yunwushan National Nature Reserve	Contractor	IA, ESE, EEM	Well implemented. So far, there is no damage to vegetation and wildlife
	Physical cultural resources	Destruction of buried cultural relics	• Comply with PRC's Cultural Relics Protection Law and Cultural Relics Protection Law Implementation Ordinance if such relics are discovered, stop work immediately and notify the local cultural authority, adopt measures to protect the site.	Contractor	IA, ESE, EEM	Well implemented. So far, no cultural relics have been found.
	Overall disturbance to communities	Excessive disturbance to communities due to prolonged construction times	• Identify and adhere to strict schedule for completion of each road section and avoid prolonged construction and disturbance. • Keep communities informed of construction activities, in particular those that may result in disruption of access, night-time working or noisy or dust-generating activities that are likely to result in significant disturbance. Ensure communities are aware of Grievance Redress Mechanism entry points.	Contractor	IA, ESE, EEM	Well implemented. So far, there have been no complaints about interference.
Health and Safety	Occupational health and safety	Environment, health & safety officer	• Appoint at least one environment, health and safety (EHS) officer to manage occupational health and safety risks on construction sites by applying the following measures.	Contractor	IAs, ESE, EEM	Well implemented. Each county has appointed an environmental, health and safety officer.
		Construction site sanitation	• Provide adequate and functional systems for sanitary conditions, toilet facilities, waste management with waste separation, labor dormitories and cooking facilities. • Effectively clean and disinfect the site. During site formation, spray	Contractor	IAs, ESE, EEM	Well implemented

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
			with phenolated water for disinfection. Disinfect toilets and refuse bins and ensure timely removal of solid waste. • Exterminate rodents on site at least once every 3 months, and exterminate mosquitoes and flies at least twice each year. • Provide public toilets in accordance with the requirements of labor management and sanitation departments in the living areas on construction site, and appoint designated staff responsible for cleaning and disinfection • Discharge work camp wastewater into the municipal sewer system or treated on-site using a portable system.			
		Occupational safety	• Provide personal protective equipment (safety hats and shoes and high visibility vests) to all construction workers and strictly enforce all workers to put on the PPE. • Provide safety goggles, gloves and respiratory masks to workers doing asphalt road paving. • Provide ear defenders to workers operating and working near noisy PME. • Prepare and obtain approvals of method statements for hazardous activities such as working near water.	Contractor	IAs, ESE, EEM	Well implemented
		Food safety	• Inspect and supervise food hygiene in canteens on site regularly. Canteen workers must have valid health permits. • If food poisoning is discovered, implement effective control measures immediately to prevent it from spreading.	Contractor	IAs, ESE, EEM	Well implemented
		Disease prevention and safety awareness	• Construction workers must have physical examination before starting work on site. If infectious disease is found, the patient must be isolated for treatment to prevent the disease from spreading. From the second year onwards, conduct physical examination on 20% of the workers every year. • Establish health clinic at location where workers are concentrated, which should be equipped with common medical supplies and medication for simple treatment and emergency treatment for accidents. • Provide induction and training by local health departments on prevention and management of communicable diseases.	Contractor	IAs, ESE, EEM	Well implemented
		Prevention and control of new coronavirus pneumonia	• Returning personnel. The health status of the returned employees should be mastered in advance. The returned employees should apply in advance and provide their physical condition and behavior track for nearly 14 days. After being approved by the leaders, they should be isolated for 7 days. Employees with fever, sore throat, cough and other symptoms, employees from high-risk areas, or employees who may have been exposed to confirmed cases shall	Contractor	IAs, ESE, EEM	Well implemented.

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
			provide nucleic acid negative certificate. • Daily management. The returning personnel shall provide health code and their physical condition and behavior track in recent 14 days, and the full-time personnel shall detect and register their body temperature, and immediately report and take corresponding prevention and control measures in case of abnormal conditions; detect and supervise the wearing of masks and hand washing disinfection; external personnel (drivers of raw and auxiliary materials, etc.) shall not get off the train in the whole process of wearing masks, and carry out disinfection process; personnel in contact with external personnel They all wore masks and disposable gloves. • Strengthen publicity and education. Through wechat, e-mail notification or online training, the staff were educated on epidemic prevention and control, and publicity materials such as health and epidemic prevention posters and wall charts were posted in the office area, factory area and living area. • Wear masks. After entering the project area or construction site, employees can wear qualified masks and replace them on time; disposable medical masks can be worn in dormitory, canteen, bathhouse, ground duty room, office, rest room and other areas. • Implement closed management. Strictly implement the closed management for the construction projects, assign special personnel to be responsible for the registration of entering and leaving the site and temperature detection, and set up 24-hour post on duty. • Reduce personnel aggregation. Control the flow of personnel in different operation teams on the construction site to reduce personnel aggregation.			
	Community health and safety	Temporary traffic management	• Prepare a traffic control and operation plan together with the local traffic police prior to any construction. The plan shall include provisions for diverting or scheduling construction traffic to avoid morning and afternoon peak traffic hours, regulating traffic at road crossings with an emphasis on ensuring public safety through clear signs, controls and planning in advance. • In case of lane closures, deploy workers to direct traffic. • Erect speed limit signs of 8 km/h on all unpaved haul roads and unpaved construction site areas as a means of controlling fugitive dust emission in unpaved areas.	Contractor, local traffic police	IAs, ESE, EEM	Well implemented

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
		Information disclosure	• Erect construction billboards, which include construction contents, schedule, responsible person and complaint phone number, at the entry to each construction site and construction staging area. • Inform residents and businesses in advance of the road improvement activities, given the dates and duration of expected disruption and make aware of the project GRM. • Place clear signs at construction sites in view of the public, warning people of potential dangers such as moving vehicles, hazardous materials, excavations etc. and raising awareness on safety issues. • Alert communities and residents if night time construction work shall occur nearby (no night time construction within 500 m of the nearest household). • Alert local communities of the time and location of hazardous and noisy activities such as piling and asphalt road paving. • Liaise with schools on examination periods and scale down construction activities during such periods if necessary.	Contractor	IAs, ESE, EEM	Well implemented
		Access to construction sites	• Make all sites secure, and discourage access by members of the public through appropriate fencing, signage and/or security personnel, as appropriate.	Contractor	IAs, ESE, EEM	Well implemented. There are obvious signs around the construction site.
		Utility services interruptions	• Assess construction locations in advance and identify potential for disruption to services and risks before starting construction. Any damage or hindrance/disadvantage to local businesses caused by the premature removal or insufficient replacement of public utilities is subject to full compensation, at the full liability of the contractor who caused the problem. • If temporary disruption is unavoidable, develop a plan in collaboration with relevant local authorities such as power company, water supply company and communication company to minimize the disruption and communicate the dates and duration in advance to affected persons.	Contractor, local utility service providers	IAs, ESE, EEM	Well implemented
Grievance redress mechanism	Social & environmental	Handling and resolving complaints on contractors	• Establish a GRM, appoint a GRM coordinator within PMO • Brief and provide training to GRM access points (PMO, IAs, contractors). • Disclose GRM to affected people before construction begins at the main entrance to each construction site. • Maintain and update a Complaint Register to document all complaints.	Contractor, IAs, PMO,	Local EPBs, EEM	Well implemented. During the construction period of the project, we conducted public opinion surveys and clarified the appeal mechanism. No appeal has been received during the construction period.
A.4: Operational Stage						
Project roads	Traffic	Road and drainage	Regularly inspect and maintain the road surface and drainage system.	County	PMO	Well implemented.

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
		condition		Transport Bureaus		
		Road safety and traffic accidents	Strictly enforce traffic law to improve road safety and reduce traffic accidents.	Local traffic police	PMO	Well implemented.
B: Rural trunk road: Yuanzhou District: Guanting – Yuanzhou District Guyuan Road						
B.1: Operational Stage						
Installation of double glazed windows	Traffic noise	Traffic noise affecting existing sensitive receptors	Replace the windows having a direct line of sight to the road with double glazed windows at the following sensitive receptors 1. Guanting Town 官厅镇 (maximum 10 households) 2. Cheng'ershan Village 程儿山村 (maximum 4 households)	Yuanzhou District Transport Bureau	PMO	It is not implemented. Considering the small traffic volume, the existing building structure is not suitable for installing double-layer sound insulation windows, and the existing noise meets the standard. During the operation period, noise reduction measures will be considered according to the monitoring results.
C: Rural trunk road: Tongxin County: Wangtuan – Yuwang Road						
C.1: Operational Stage						
Installation of double glazed windows	Traffic noise	Traffic noise affecting existing sensitive receptors	Replace the windows having a direct line of sight to the road with double glazed windows at the following sensitive receptors 1. Qianhong Village 前红村 (maximum 96 households) 2. Mujiagou Mosque 穆家沟清真寺 3. Qianhong Grand Mosque 前红清真大寺	Tongxin County Transport Bureau	PMO	It is not implemented. Considering the small traffic volume, the existing building structure is not suitable for installing double-layer sound insulation windows, and the existing noise meets the standard. During the operation period, noise reduction measures will be considered according to the monitoring results.
D: Rural feeder road: Yuanzhou District: Caichuan – Yangjiayaoxian Road						
D.1: Detailed Design Stage						
Yunwushan National Nature Reserve	Ecology	Protection of habitat	1. No road widening and alignment change within the nature reserve. 2. No siting of construction camp, asphalt/concrete mixing station, pre-casting yard, spoil disposal site, borrow area and haul road within the nature reserve.	LDI	PMO	The original roads are directly used in the natural reserve.
D.2: Construction Stage						
Yunwushan	Ecology	Protection of	1. No siting of construction camp, asphalt/concrete mixing station,	Contractor	Yuanzhou	The original roads are directly

Item	Impact Factor	Potential Impact and/or Issues	Mitigation Measures	Implementing Entity	Supervising Entity	Implementation Status
National Nature Reserve		habitat	pre-casting yard, spoil disposal site, borrow area and haul road within the nature reserve. 2. Confine all construction activities to within the road red line, implement sufficient training of construction workforce and controls to avoid encroachment of construction activities on adjacent grassland habitats.		District Transport Bureau, ESE, EEM	used in the natural reserve.

Key: **ADB** = Asian Development Bank; **EEM** = external environmental monitor; **EHS** = environment, health & safety; **EIR** = Environmental Impact Report; **EMP** = environmental management plan; **EMS** = Environmental Monitoring Station; **EPB** = Environmental Protection Bureau; **ESE** = Environmental supervision engineer; **GRM** = grievance redress mechanism; **IA** = implementing agency; **IEE** = initial environmental examination; **LDI** = local design institute; **O&M** = operation & maintenance; **PMO** = Project Management Office; **PMC** = Project Management Consultant; **PME** = powered mechanical equipment; **PPE** = personal protective equipment; **SS** = suspended solid; **TSP** = total suspended particulates

Source: The Project EMP.

IV. IMPLEMENTATION OF ENVIRONMENTAL MONITORING PROGRAM

24 This section presents the progress of environmental monitoring framework in details and the summary of environmental monitoring results.

A. Implementation Status of Environmental Monitoring

25 Table 7 shows the summary of implementation status on environmental quality monitoring, which was designed for different outputs of the Project. Environmental quality monitoring included monitoring of air quality, noise and water quality. Environmental monitoring was done by EMS—the local Environmental Monitoring Station:NingXia ZhongKe JingKe Test Tech.,Co.,Ltd, who was engaged by IAS since November,2017.

Table 7. Summary of Implementation Status of Environmental Quality Monitoring

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
Yuanzhou District						
Construction stage						
Rural trunk road Guanting – Yuanzhou District Guyuan Road: **1.** Qianwa Village前洼村(K0+020 – K0+250) **2.** Guanting Primary School官厅小学(K1+300 – K1+600) **3.** Guanting Town官厅镇 (K1+425 – K1+670) **4.** Guanting Village #2 Group官厅村2组(K3+750 – K4+375) **5.** Guanting Village #4 Group官厅村4组(K6+000 – K8+100) **6.** Liudian Village刘店村 (K7+000 – K8+100) **7.** Liuzhendian刘镇店 (K9+500 – K10+350) **8.** Shizhuang Village石庄村 (K14+200 – K14+800) **9.** Erdaocha Village二道岔村 (K17+800 – K18+300) **10.** Cheng'ershan Village程儿山村 (K18+900 – K19+800) Rural trunk road Wanzhang – Sanying Road: **1.** Lijiacha Village李家岔村(K4+100 – k4+780) **2.** Dongyuan Village #2 Team东源村二队 (K24+100 – K24+600) **3.** Dongyuan Primary School 东源小学 (K24+710) **4.** Dongyuan Village #4 Team东源村四队 (K26+200 – K26+760) **5.** Malu Mosque马路清真寺 (K31+250) **6.** Malu Village马路村 (K30+420 – K31+500) Rural feeder road Hongzhuang – Daidian – Shahexian Road: 1.Hongzhuang 红庄 2.Chengou 陈沟 3.Dadian 大店 4.Shahexian 沙河岘 Rural feeder road Guhu Road – Qiaowa – Miaotai Road: 1.Qiaowa 乔洼 2.Miaotai 庙台 Rural feeder road Ligou –Xiaojiashengou Road: 1.Ligou Village 里沟 2.Yaomo 姚磨	Air quality	TSP	1 day (24-hr) per month (Monitor only when road section has construction activities within 300 m)	Local EMS	Yuanzhou District Transport Bureau, ESE	Three phases of monitoring were carried out on rural trunk roads in April, June and December 2022.
	Noise	L_{Aeq}	1 day (day time only) per month (Monitor only when road section has construction activities within 300 m)			Three phases of monitoring were carried out on rural trunk roads in April, June and December 2022.

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
3.Xiaogou 肖沟 Rural feeder road Ke Village – Feng Village Road: 1.Kezhuang 柯庄 2.Fengzhuang 冯庄 Rural feeder road Licha – Dongjia Village Road: 1. Licha 李岔 2. Caijiachuan #9 Group蔡家川九组 Rural feeder road Caichuan – Yangjiayaoxian Road: 1. Licha 李岔 2. Caichuan Village Wa Group蔡川村庄洼组						
Rural trunk road Wanzhang – Sanying Road: Set up 2 stations for water quality monitoring at the Qingshui River 清水河 bridge crossing (K31+550) as follows: 1. Control station: 50 m upstream of the bridge alignment 2. Impact station 100 m downstream of the bridge alignment (Note: if downstream impact station SS data > 130% of upstream control station data , mitigation measures are needed)	Water quality	DO, SS, TPH	1 time per day; 1 day per month during bridge construction			Three phases of monitoring were carried out on rural trunk roads in April, June and December 2022.
Xiji County						
Construction stage						
Rural trunk road Jiangtai – Xitan – Pingfeng Road: 1. Xiji County Jiangtai Secondary School 西吉县将台中学 (K0+000 – K0+100) 2. Jiangtai Village Central Health Clinic 将台乡中心卫生院 (K0+600) 3. Mingtai Village 明台村 (K+250- K1+500) 4. Maogou Village 毛沟村 (K2+250 – K2+500) 5. Maojiagou Village 毛家沟村 (K2+800 – K3+200) 6. Shencha Village 深岔村 (K5+800 – K6+000) 7. Heihugou Village 黑虎沟村 (K9+440 – K10+000) 8. Xitan Village Central Primary School 西滩乡中心小学 (K17+400) 9. Xitan Village 西滩村 (K17+500 – K18+600) 10. Hejiawan 何家湾 (K22+400 – K23+500) 11. Gancha Primary School 甘岔小学 (K24+500) 12. Gancha Village 甘岔村 (K24+500 – K25+400)	Air quality	TSP	1 day (24-hr) per month (Monitor only when road section has construction activities within 300 m)	Local EMS	Xiji County Transport Bureau, ESE	Two phases of monitoring were carried out on rural trunk roads in April and June 2022.
	Noise	L_{Aeq}	1 day (day time only) per month (Monitor only when road section has construction			Two phases of monitoring were carried out on rural trunk roads in April

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
13. Xinzhuangzi 新庄子 (K29+500 – K29+750) 14. Xingping Village 兴坪村 (K30+450 – K30+600) 15. Youai Village 友爱村 (K32+000 – K33+100) 16. Yuwan Village 玉弯村 (K33+900 – K34+400) 17. Minhe Village 民和村 (K41+650 – K41+800) 18. Hewa Village 河洼村 (K49+650 – K49+950) 19. Pingfeng Village 平峰村 (K51+000 – K51+300) 20. Xiji Pingfeng Secondary School 西吉平峰中学 (K51+450) 21. Fujiawan 伏家湾 (K65+500 – K65+800) 22. Wangnao Village 王垴村 (K67+100 – K68+010) 23. Lijiazhuang 李家庄 (K69+100 – K69+180) 24. Luotuocha 骆驼岔 (K70+000 – K70+400) 25. Libao Primary School 李堡小学 (K72+000) <u>Rural feeder road Wangping – Lizhang Road:</u> 1. Wangjiawan 王家湾 2. Guanjia Village 官家村 3. Wangping 王坪 4. Lizhang Village 李章村 5. Qianchuan 前川 6. Houwan 后湾 7. Gaowan 高湾 8. Wangwan 王湾 9. Tuwan 兔湾 10. Liangnao 梁垴 11. Xiazhuang 下庄 12. Muwa 慕洼 13. Guanwan 官湾 <u>Rural feeder road Daying – Ya'erpo Road:</u> 1. Dawanzu 大湾组 2. Gaojiagou 高家沟 3. Laohugou 老虎沟 4. Daying Village 大营村 5. Xiejiawan 谢家湾 6. Ya'ertai 雅儿台 7. Liuzu 六组			activities within 300 m)			and June 2022.

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
Rural feeder road Mawan – Caonao Road: 1. Caonao Village 曹垴村 2. Mawan Village 马湾村 3. Halagou Village 哈拉沟村 4. Gaoxi Village 高西村 5. Xianwan 碱湾 6. Huitao 会套 7. Shangzhuang 上庄 8. Bainao 白垴 9. Gaodong 高东 10. Tianhuagou 田花沟 Rural feeder road Bataijiao – Quancha Road: 1. Baoziwan 堡子湾 2. Yapo 崖坡 3. Yangping 杨坪 4. Bataijiao 八台轿 5. Quancha Village 权岔村 6. Nantai 南台 7. Sigoucha 四沟岔 8. Xiawa 下佤 9. Chamagou 岔马沟 10. Baowan 堡湾 Rural feeder road Nanchuan – Lujiagou Road: 1. Nanchuan 南川 2. Lujiagou 陆家沟 3. Xi'nanmen 西南门 4. Luzigou 芦子沟						
Rural trunk road Jiangtai – Xitan – Pingfeng Road: 4 locations for bridges & road crossing the following rivers/reservoir : 1. Hulu River 葫芦河 (K1+760 – K1+800) 2. Lanni River 滥泥河 (K31+033.5) 3. Lanni River 滥泥河 (K31+409) 4. Libaoba Reservoir 李堡坝水库 (K72+788) Set up 2 stations for water quality monitoring at each river/stream crossing bridge location as follows:	Water quality	DO, SS, TPH	1 time per day; 1 day per month during bridge construction			Two phases of monitoring were carried out on rural trunk roads in April and June 2022.

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
1. Control station: 50 m upstream of the bridge/road alignment 2. Impact station 100m downstream of the bridge/road alignment (Note: if downstream impact station SS data > 130% of upstream control station data, mitigation measures are needed)						
Operational stage						
Rural trunk road Jiangtai – Xitan – Pingfeng Road: Follow up monitoring at 7 locations in year 2030 to determine the need for noise mitigation 1. Mingtai Village (left of K1+250- K1+500) 2. Maogou Village 毛沟村 (K2+250 – K2+500) 3. Xitan Village 西滩村 (K17+500 – K18+600) 4. Youai Village 友爱村 (K32+000 – K33+100) 5. Minhe Village 民和村 (K41+650 – K41+800) 6. Hewa Village 河洼村 (left of K49+650 – K49+950) 7. Wangnao Village 王垴村 (left of K67+100 – K68+010)	Noise	L_{Aeq}	Night time monitoring on 2 consecutive nights	Local EMS	Xiji County Transport Bureau	One phases of monitoring was carried out on rural trunk roads in December 2022.
Tongxin County						
Construction stage						
Rural trunk road Wangtuan – Yuwang Road: 1. Qianhong Village 前红村 (K0+800 – K2+200 and K3+400 – K4+200) 2. Mujiagou Mosque 穆家沟清真寺 (K2+270) 3. Qianhong Grand Mosque 前红清真大寺 (K3+820) 4. Humaqi Village 胡麻旗村 (K6+000 – K6+500) 5. Yangjiawan Village 杨家湾村 (K15+400 – K15+900) 6. Hujiawan Village 虎家湾村 (K21+150 – K21+300) 7. Zhangjiawan Village 张家湾村 (K29+150 – K29+850) 8. Zhang'ershui Village 张尔水村 (K30+300 – K30+600) 9. Luzhouchuan Village 铲轴川村 (K41+000 – K42+150) 10. Gongjiawan 龚家湾 (K49+750 – K49+850) 11. Qingyangquan Village 青羊泉村 (K58+800 – K60+150) 12. Shanghujiayuan 上胡家塬 (K61+150 – K61+500) 13. Shangyuan Primary School 上塬小学 (K61+375) 14. Hujiayuan 扈家塬 (K65+900 – K66+450)	Air quality	TSP	1 day (24-hr) per month (Monitor only when road section has construction activities within 300 m)	Local EMS	Tongxin County Transport Bureau, ESE	Three phases of monitoring were carried out on rural trunk roads in April, June and December 2022.
	Noise	L_{Aeq}	1 day (day time only) per month (Monitor only when road section has construction activities within 300 m)			Three phases of monitoring were carried out on rural trunk roads in April, June and December 2022.

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
15. Nanguan Village 南关村 (K67+410) <u>Rural feeder road Tongfu Village – Shanghewan Village Road:</u> 1. Tongfu Village 同富村 2. Shanghewan 上河湾 <u>Rural feeder road Majiajing – Suocha Road:</u> 1. Majiajing Village 马家井村 2. Suojiacha Village 锁家岔村 3. Qianjing 千井 <u>Rural feeder road Tongyu Road – Lijiagangzi - Liushubaozi Road:</u> 1. Nanguan Village 南关村 2. Beiguan Village 北关村 3. Liushubaozi Village 柳树堡子村 4. Shatupo Village 沙土坡村 5. Tufeng Village 土峰村 6. Ligangzi Primary School 李岗子小学 7. Lijiagangzi 李家岗子 8. Wanglaoba 王涝坝 9. Lulubaozi 辘辘堡子 10. Tiangangzi 田岗子 <u>Rural feeder road Xiachen Road – Chen'er Village Road:</u> 1. Chen'er Village 陈儿庄 2. Ni'er Village 倪儿庄 3. Mingchangcheng 明长城 4. Erbudun 二步墩 5. Sanbudun 三步墩						
Pengyang County						
Construction stage						

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
Rural trunk road Mengyuan Chunshucha – Chengyang Yangping Road: 1. Baiyangzhuang 白杨庄 (K4+100 – K4+300) 2. Mengyuan Village Central School 孟塬乡中心学校 (K4+520) 3. Mengyuan Village Central Kindergarten 孟塬乡中心幼儿园 (K4+530) 4. Mengyuan Village Health Clinic 孟塬乡卫生院 (K4+700) 5. Shuangshu Village 双树村 (K8+480 – K8+780) 6. Huaishuzhuang 槐树庄 (K9+510 – K9+850) 7. Zhaoshanzhuang 赵山桩 (K12+100 – K12+350) 8. Caotan Village 草滩村 (K12+500 – K13+900) 9. Ligouwan 李沟湾 (K21+100 – K21+300) 10. Chenwan Beiyuan Village 陈湾北源村 (K24+600 – K24+800) 11. Yangping Village 杨坪村 (K30+400)	Air quality	TSP	1 day (24-hr) per month (Monitor only when road section has construction activities within 300 m)	Local EMS	Pengyang Transport Bureau, ESE	Two phases of monitoring were carried out on rural trunk roads in April and June 2022.
Rural feeder road Caomiaoxinwa – Caochuan Road: 1. Caochuan Village 曹川村 2. Xinwa Village 新洼村 3. Daxizhang 大西掌 4. Dagouwa 大沟洼 5. Shewa 佘洼 6. Caichuan 蔡川 7. Xinwa 新洼 Rural feeder road Xiachadiaocha – Qigeshan Road: 1. Diaocha 吊岔 2. Lizhang 李掌 3. Lianggeshan 两个山 4. Qigeshan 七个山	Noise	L_{Aeq}	1 day (day time only) per month (Monitor only when road section has construction activities within 300 m)			Two phases of monitoring were carried out on rural trunk roads in April and June 2022.
Operational stage						
Rural trunk road Mengyuan Chunshucha – Chengyang Yangping Road: Follow up monitoring at 4 locations in year 2030 to determine the need for noise mitigation 1. 白杨庄 (K4+100 – K4+300) 2. 孟塬乡中心学校 (K4+520) 3. 孟塬乡中心幼儿园 (K4+530) 4. 双树村 (K8+480 – K8+780)	Noise	L_{Aeq}	Night time monitoring on 2 consecutive nights	Local EMS	Pengyang Transport Bureau	One phases of monitoring was carried out on rural trunk roads in December 2022.

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
Haiyuan County						
Construction stage						
<u>Rural trunk road Zhengqi – Jiucai – Sikouzi Road</u>: 1. Tangbao Village 唐堡村 (K0+180 – K0+340 and K3+050 – K3+600) 2. Guluwan Village 古路湾村 (K7+100 – K8+400) 3. Lubiliang Village 路壁梁村 (K12+800 – K14+000) 4. Matao Village 马套村 (K18+000 – K19+000) 5. Matao Primary School 马套小学 6. Yuantao Village 元套村 (K20+400 – K22+000) 7. Houshang Village 后塌村 (K23+750 – K24+500)	Air quality	TSP	1 day (24-hr) per month (Monitor only when road section has construction activities within 300 m)	Local EMS	Haiyuan County Transport Bureau, ESE	Construction has been completed.
	Noise	L_{Aeq}	1 day (day time only) per month (Monitor only when road section has construction activities within 300 m)			Construction has been completed.
<u>Rural feeder road Xi'an – Zhangwan Road:</u> 1. Xianhe 小河 2. Xi'an Town 西安镇 3. Beiba 北坝 4. Yuanhe 园河 5. Liuwan 刘湾 6. Zhangwan 张湾 <u>Rural feeder road Xiangtong – Huitiaogou Road:</u> 1. Xiangtong Village 相桐村 2. Huitialgou 灰条沟 3. Liuhe 刘河 4. Hongjing 红井						
<u>Rural trunk road Zhengqi – Jiucai – Sikouzi Road</u>: A water quality monitoring point is set up in gaipai reservoir.	Water quality	DO, SS, TPH	1 time per day; 1 day per month during bridge construction			Construction has been completed.
Operational stage						
<u>Rural trunk road Zhengqi – Jiucai – Sikouzi Road</u>: Follow up monitoring at 1 locations in year 2035 to determine the need for noise mitigation 1. Tangbao Village 唐堡村 (right of K3+050 – K3+600)	Noise	L_{Aeq}	Night time monitoring on 2 consecutive nights	Local EMS	Haiyuan County Transport Bureau	Three phases of monitoring were conducted in April, June and December 2022.
Jingyuan County						

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
Construction stage						
Rural trunk road Shatang (Huanghua County) – Gaodian Road: 1. Shatang Village 沙塘村 (K0+000 – K0+500) 2. Nonglin Village 农林村 (K12+800 – K12+900) 3. Nonglin Primary School 农林小学 (K12+850) 4. Tuyao Village 土窑村 (Branch K0+800 – K1+781) Rural feeder road Dongxia - Digou Road: 1. Pangdong 庞东 2. Dongxia 东峡 3. Digou 底沟 4. Shidi 石底	Air quality	TSP	1 day (24-hr) per month (Monitor only when road section has construction activities within 300 m)	Local EMS	Jingyuan County Transport Bureau, ESE	Two phases of monitoring were carried out on rural trunk roads in April and June 2022.
	Noise	L_{Aeq}	1 day (day time only) per month (Monitor only when road section has construction activities within 300 m)			Two phases of monitoring were carried out on rural trunk roads in April and June 2022.
Rural trunk road Shatang (Huanghua County) – Gaodian Road: Set up 2 stations for water quality monitoring at the Tuyaokou 土窑沟 bridge crossing (K2+698) as follows: • Control station: 50 m upstream of the bridge alignment • Impact station 100 m downstream of the bridge alignment (Note: if downstream impact station SS data > 130% of upstream control station data, mitigation measures are needed)	Water quality	DO, SS, TPH	1 time per day; 1 day per month during bridge construction			Two phases of monitoring were carried out on rural trunk roads in April and June 2022.
Longde County						
Construction stage						
Rural feeder road Zhangtian – Jinglin – Yangchuan Road: 1. Liangbao 梁堡 2. Jinglin 景林 3. Yanmiao 闫庙 4. Zhangtian 张田 5. Xueyang 薛阳	Air quality	TSP	1 day (24-hr) per month (Monitor only when road section has construction activities within 300 m)	Local EMS	Longde County Transport Bureau, ESE	Three phases of monitoring were conducted in April, June and December 2022.

Monitoring Location	Item	Monitoring Parameter	Monitoring Frequency & Duration	Implementing Entity	Supervising Entity	Implementation Status
6. Dingjia 丁家 7. Shangqu 上渠 8. Yanggou 杨沟 9. Songyuan 宋源 10. Diwan 地湾	Noise	L_{Aeq}	1 day (day time only) per month (Monitor only when road section has construction activities within 300 m)			Three phases of monitoring were conducted in April, June and December 2022.

Note: EMS = Environmental Monitoring Station; ESE = environmental supervision engineer; PMO = project management office; **TSP** = total suspended particulates; **L_{Aeq}** = A-weight equivalent sound pressure level; **DO** = dissolved oxygen; **SS** = suspended solids; **TPH** = total petroleum hydrocarbon

Source: The Project EMP. Three phases of monitoring were carried out in April, June and December 2022, and December is actually the monitoring in the operation period, and the monitoring points are consistent with the monitoring points in the construction period. The construction period of Guanting-Guyuan Highway is Phase 2, and the operation period is Phase 1; Phase 3 of the operation period from Wanzhang to Sanying; The construction period of Jiangtai Road from Xitan to Pingfeng is Phase 2, and the operation period is Phase 1; The operation period of Wangtuan-Yuwang Highway is Phase 3; The construction period of Mengyuan Chunshucha to Chengyang Yangping Highway is Phase 2, and the operation period is Phase 1; Phase 3 of Zhengqi Jingjiucai to Sikouzi Highway; The construction period of Shatang-Haodian Highway in Huanghua Township is Phase 2, and the operation period is Phase 1.

B. Monitoring Results

26 Reflecting the monitoring program under the Project EMP, tables below show the summary of environmental monitoring results in air quality, noise and wastewater quality during this reporting period by output. The monitoring reports are attached.

1. Air Quality

Table 8. Summary of Air Quality Monitoring Results During this Reporting Period

Monitoring Date	Monitoring Site	TSP Daily mean value(μg/m^3)
	Yuanzhou District	
	Rural trunk road Guanting – Yuanzhou District Guyuan Road:	N/A during this reporting period
Mar. 25th,Jun.12th& Dec.24th	1. Qianwa Village 前洼村(K0+020 – K0+250)	101-170
Mar. 25th,Jun.12th& Dec.24th	2. Guanting Primary School 官厅小学(K1+300 – K1+600)	142-228
Mar. 25th,Jun.12th& Dec.24th	3. Guanting Town 官厅镇 (K1+425 – K1+670)	103-145
Mar. 25th,Jun.12th& Dec.24th	4. Guanting Village #2 Group 官厅村 2 组(K3+750 – K4+375)	77-166
Mar. 25th,Jun.12th& Dec.24th	5. Guanting Village #4 Group 官厅村 4 组(K6+000 – K8+100)	115-180
Mar. 25th,Jun.12th& Dec.24th	6. Liudian Village 刘店村 (K7+000 – K8+100)	60-172
Mar. 25th,Jun.12th& Dec.24th	7. Liuzhendian 刘镇店 (K9+500 – K10+350)	49-148
Mar. 25th,Jun.12th& Dec.24th	8. Shizhuang Village 石庄村 (K14+200 – K14+800)	117-128
Mar. 25th,Jun.12th& Dec.24th	9.Erdaocha Village 二道岔村 (K17+800 – K18+300)	111-163
Mar. 25th,Jun.12th& Dec.24th	10.Cheng'ershan Village 程儿山村 (K18+900 – K19+800)	56-216
	Rural trunk road Wanzhang – Sanying Road:	
Mar. 25th,Jun.12th& Dec.24th	1.Lijiacha Village 李家岔村(K4+100 – k4+780)	101-149
Mar. 25th,Jun.12th& Dec.24th	2.Dongyuan Village #2 Team 东源村二队 (K24+100 – K24+600)	118-172
Mar. 25th,Jun.12th& Dec.24th	3.Dongyuan Primary School 东源小学 (K24+710)	74-150
Mar. 25th,Jun.12th& Dec.24th	4. Dongyuan Village #4 Team 东源村四队 (K26+200 – K26+760)	91-148
Mar. 25th,Jun.12th& Dec.24th	5. Malu Mosque 马路清真寺 (K31+250)	115-195
Mar. 25th,Jun.12th& Dec.24th	6. Malu Village 马路村 (K30+420 – K31+500)	151-168
	Rural feeder road Hongzhuang – Daidian – Shahexian Road:	

/	1. Hongzhuang 红庄	N/A
/	2. Chengou 陈沟	N/A
/	3. Dadian 大店	N/A
/	4. Shahexian 沙河岘	N/A
	Rural feeder road Guhu Road – Qiaowa – Miaotai Road:	
/	1. Qiaowa 乔洼	N/A
/	2. Miaotai 庙台	N/A
	Rural feeder road Ligou –Xiaojiashengou Road:	
/	1. Ligou Village 里沟	N/A
/	2. Yaomo 姚磨	N/A
/	3. Xiaogou 肖沟	N/A
	Rural feeder road Ke Village – Feng Village Road:	
/	1. Kezhuang 柯庄	N/A
/	2. Fengzhuang 冯庄	N/A
	Rural feeder road Licha – Dongjia Village Road:	
/	1. Licha 李岔	N/A
/	2. Caijiachuan #9 Group 蔡家川九组	N/A
	Rural feeder road Caichuan – Yangjiayaoxian Road:	
/	1. Licha 李岔	N/A
/	2. Caichuan Village Wa Group 蔡川村庄洼组	N/A
	Xiji County	
	Rural trunk road Jiangtai – Xitan – Pingfeng Road:	N/A during this reporting period
Mar. 29th,Jun.9th& Dec.21st	1. Jiangtai Village Central Health Clinic 将台乡中心卫生院 (K0+600)	96-149
Mar. 29th,Jun.9th& Dec.21st	2. Mingtai Village 明台村 (K+250- K1+500)	94-157
Mar. 29th,Jun.9th& Dec.21st	3. Maojiagou Village 毛家沟村 (K2+800 – K3+200)	103-171
Mar. 29th,Jun.9th& Dec.21st	4. Shencha Village 深岔村 (K5+800 – K6+000)	118-177
Mar. 29th,Jun.9th& Dec.21st	5. Heihugou Village 黑虎沟村 (K9+440 – K10+000)	63-230
Mar. 29th,Jun.9th& Dec.21st	6. Xitan Village Central Primary School 西滩乡中心小学 (K17+400)	97-173
Mar. 29th,Jun.9th& Dec.21st	7. Xitan Township Health Center (K17+500 – K18+600)	120-181
Mar. 29th,Jun.9th& Dec.21st	8. Hejiawan 何家湾 (K22+400 – K23+500)	97-150
Mar. 29th,Jun.9th& Dec.21st	9. Gancha Primary School 甘岔小学 (K24+500)	73-229
Mar. 29th,Jun.9th& Dec.21st	10. Gancha Village 甘岔村 (K24+500 – K25+400)	107-180
Mar. 29th,Jun.9th& Dec.21st	11. Xinzhuangzi 新庄子 (K29+500 – K29+750)	105-141
Mar. 29th,Jun.9th& Dec.21st	12. Xingping Village 兴坪村 (K30+450 – K30+600)	145-161

Mar. 29th,Jun.9th& Dec.21st	13. Youai Village 友爱村 (K32+000 – K33+100)	79-218
Mar. 29th,Jun.9th& Dec.21st	14. Yapowan Village	119-169
Mar. 29th,Jun.9th& Dec.21st	15. Pingfeng Village 平峰村 (K51+000 – K51+300)	116-139
Mar. 29th,Jun.9th& Dec.21st	16. Xiji Pingfeng Secondary School 西吉平峰中学 (K51+450)	93-180
Mar. 29th,Jun.9th& Dec.21st	17. Fujiawan 伏家湾 (K65+500 – K65+800)	121-134
Mar. 29th,Jun.9th& Dec.21st	18. Wangnao Village 王垴村 (K67+100 – K68+010)	102-162
Mar. 29th,Jun.9th& Dec.21st	19. Luotuocha 骆驼岔 (K70+000 – K70+400)	106-191
Mar. 29th,Jun.9th& Dec.21st	20. Libao Primary School 李堡小学 (K72+000)	99-143
	Rural feeder road Wangping – Lizhang Road:	
/	1. Wangjiawan 王家湾	N/A
/	2. Guanjia Village 官家村	N/A
/	3. Wangping 王坪	N/A
/	4. Lizhang Village 李章村	N/A
/	5. Qianchuan 前川	N/A
/	6. Houwan 后湾	N/A
/	7. Gaowan 高湾	N/A
/	8. Wangwan 王湾	N/A
/	9. Tuwan 兔湾	N/A
/	10. Liangnao 梁垴	N/A
/	11. Xiazhuang 下庄	N/A
/	12. Muwa 慕洼	N/A
/	13. Guanwan 官湾	N/A
	Rural feeder road Daying – Ya'erpo Road:	
/	1. Dawanzu 大湾组	N/A
/	2. Gaojiagou 高家沟	N/A
/	3. Laohugou 老虎沟	N/A
/	4. Daying Village 大营村	N/A
/	5. Xiejiawan 谢家湾	N/A
/	6. Ya'ertai 雅儿台	N/A
/	7. Liuzu 六组	N/A
	Rural feeder road Mawan – Caonao Road:	
/	1. Caonao Village 曹垴村	N/A
/	2. Mawan Village 马湾村	N/A
/	3. Halagou Village 哈拉沟村	N/A
/	4. Gaoxi Village 高西村	N/A
/	5. Xianwan 碱湾	N/A
/	6. Huitao 会套	N/A
/	7. Shangzhuang 上庄	N/A
/	8. Bainao 白垴	N/A

/	9. Gaodong 高东	N/A
/	10. Tianhuagou 田花沟	N/A
	Rural feeder road Bataijiao – Quancha Road:	
/	1. Baoziwan 堡子湾	N/A
/	2. Yapo 崖坡	N/A
/	3. Yangping 杨坪	N/A
/	4. Bataijiao 八台轿	N/A
/	5. Quancha Village 权岔村	N/A
/	6. Nantai 南台	N/A
/	7. Sigoucha 四沟岔	N/A
/	8. Xiawa 下屲	N/A
/	9. Chamagou 岔马沟	N/A
/	10. Baowan 堡湾	N/A
	Rural feeder road Nanchuan – Lujiagou Road:	
/	1. Nanchuan 南川	N/A
/	2. Lujiagou 陆家沟	N/A
/	3. Xi'nanmen 西南门	N/A
/	4. Luzigou 芦子沟	N/A
	Tongxin County	
	Rural trunk road Wangtuan – Yuwang Road:	N/A during this reporting period
Apr. 2nd,Jun.15th& Dec.26th	1. Mujiagou Mosque 穆家沟清真寺 (K2+270)	63-138
Apr. 2nd,Jun.15th& Dec.26th	2. Qianhong Grand Mosque 前红清真大寺 (K3+820)	93-149
Apr. 2nd,Jun.15th& Dec.26th	3. Humaqi Village 胡麻旗村 (K6+000 – K6+500)	81-147
Apr. 2nd,Jun.15th& Dec.26th	4. Shanghujiayuan 上胡家塬 (K61+150 – K61+500)	100-187
Apr. 2nd,Jun.15th& Dec.26th	5. Shangyuan Primary School 上塬小学 (K61+375)	103-118
Apr. 2nd,Jun.15th& Dec.26th	6. Hujiayuan 扈家塬 (K65+900 – K66+450)	95-129
Apr. 2nd,Jun.15th& Dec.26th	7. Nanguan Village 南关村 (K67+410)	86-196
	Rural feeder road Tongfu Village – Shanghewan Village Road:	
/	1. Tongfu Village 同富村	N/A
/	2. Shanghewan 上河湾	N/A
	Rural feeder road Majiajing – Suocha Road:	
/	1. Majiajing Village 马家井村	N/A
/	2. Suojiacha Village 锁家岔村	N/A
/	3. Qianjing 千井	N/A
	Rural feeder road Tongyu Road – Lijiagangzi - Liushubaozi Road:	
/	1. Nanguan Village 南关村	N/A

/	2. Beiguan Village 北关村	N/A
/	3. Liushubaozi Village 柳树堡子村	N/A
/	4. Shatupo Village 沙土坡村	N/A
/	5. Tufeng Village 土峰村	N/A
/	6. Ligangzi Primary School 李岗子小学	N/A
/	7. Lijiagangzi 李家岗子	N/A
/	8. Wanglaoba 王涝坝	N/A
/	9. Lulubaozi 辘辘堡子	N/A
/	10.Tiangangzi 田岗子	N/A
	Rural feeder road Xiachen Road – Chen'er Village Road:	
/	1. Chen'er Village 陈儿庄	N/A
/	2. Ni'er Village 倪儿庄	N/A
/	3. Mingchangcheng 明长城	N/A
/	4. Erbudun 二步墩	N/A
/	5. Sanbudun 三步墩	N/A
	Pengyang County	
	Rural trunk road Mengyuan Chunshucha – Chengyang Yangping Road:	
Mar. 27th,Jun.8th& Dec.16th	1. Baiyangzhuang 白杨庄 (K4+100 – K4+300)	86-168
Mar. 27th,Jun.8th& Dec.16th	2. Mengyuan Village Central School 孟塬乡中心学校 (K4+520)	138-145
Mar. 27th,Jun.8th& Dec.16th	3. Mengyuan Village Central Kindergarten 孟塬乡中心幼儿园 (K4+530)	104-142
Mar. 27th,Jun.8th& Dec.16th	4. Mengyuan Village Health Clinic 孟塬乡卫生院 (K4+700)	102-149
Mar. 27th,Jun.8th& Dec.16th	5. Shuangshu Village 双树村 (K8+480 – K8+780)	80-169
Mar. 27th,Jun.8th& Dec.16th	6. Huaishuzhuang 槐树庄 (K9+510 – K9+850)	127-145
Mar. 27th,Jun.8th& Dec.16th	7. Zhaoshanzhuang 赵山桩 (K12+100 – K12+350)	123-219
Mar. 27th,Jun.8th& Dec.16th	8. Caotan Village 草滩村 (K12+500 – K13+900)	111-161
Mar. 27th,Jun.8th& Dec.16th	9. Ligouwan 李沟湾 (K21+100 – K21+300)	104-181
Mar. 27th,Jun.8th& Dec.16th	10. Chenwan Beiyuan Village 陈湾北源村 (K24+600 – K24+800)	96-133
Mar. 27th,Jun.8th& Dec.16th	11. Yangping Village 杨坪村 (K30+400)	129-203
	Rural feeder road Caomiaoxinwa – Caochuan Road:	
/	1. Caochuan Village 曹川村	N/A
/	2. Xinwa Village 新洼村	N/A
/	3. Daxizhang 大西掌	N/A
/	4. Dagouwa 大沟洼	N/A
/	5. Shewa 佘洼	N/A
/	6. Caichuan 蔡川	N/A
/	7. Xinwa 新洼	N/A

	Rural feeder road Xiachadiaocha – Qigeshan Road:	
/	1. Diaocha 吊岔	N/A
/	2. Lizhang 李掌	N/A
/	3. Lianggeshan 两个山	N/A
/	4. Qigeshan 七个山	N/A
	Haiyuan County	
	Rural trunk road Zhengqi – Jiucai – Sikouzi Road:	N/A during this reporting period
Apr. 2nd,Jun.10th& Dec.28th	1. Tangbao Village 唐堡村 (K0+180 – K0+340 and K3+050 – K3+600)	120-170
Apr. 2nd,Jun.10th& Dec.28th	2. Guluwan Village 古路湾村 (K7+100 – K8+400)	74-120
Apr. 2nd,Jun.10th& Dec.28th	3. Lubiliang Village 路壁梁村 (K12+800 – K14+000)	105-143
Apr. 2nd,Jun.10th& Dec.28th	4. Matao Village 马套村 (K18+000 – K19+000)	86-159
Apr. 2nd,Jun.10th& Dec.28th	5. Matao Primary School 马套小学	55-179
Apr. 2nd,Jun.10th& Dec.28th	6. Yuantao Village 元套村 (K20+400 – K22+000)	79-181
Apr. 2nd,Jun.10th& Dec.28th	7. Houshang Village 后塝村 (K23+750 – K24+500)	123-131
	Rural feeder road Xi'an – Zhangwan Road:	
/	1. Xianhe 小河	N/A
/	2. Xi'an Town 西安镇	N/A
/	3. Beiba 北坝	N/A
/	4. Yuanhe 园河	N/A
/	5. Liuwan 刘湾	N/A
/	6. Zhangwan 张湾	N/A
	Rural feeder road Xiangtong – Huitiaogou Road:	
/	1. Xiangtong Village 相桐村	N/A
/	2. Huitialgou 灰条沟	N/A
/	3. Liuhe 刘河	N/A
/	4. Hongjing 红井	N/A
	Jingyuan County	
	Rural trunk road Shatang (Huanghua County) – Gaodian Road:	
Mar.27th,Jun.8th& Dec.19th	1. Shatang Village 沙塘村 (K0+000 – K0+500)	125-142
Mar.27th,Jun.8th& Dec.19th	2. Nonglin Village 农林村 (K12+800 – K12+900)	114-143
Mar.27th,Jun.8th& Dec.19th	3. Tuyao Village 土窑村 (Branch K0+800 – K1+781)	84-187
	Rural feeder road Dongxia - Digou Road:	
/	1. Pangdong 庞东	N/A
/	2. Dongxia 东峡	N/A
/	3. Digou 底沟	N/A
/	4. Shidi 石底	N/A

	Longde County	
	Rural feeder road Zhangtian – Jinglin – Yangchuan Road:	
/	1. Liangbao 梁堡	N/A
/	2. Jinglin 景林	N/A
/	3. Yanmiao 闫庙	N/A
/	4. Zhangtian 张田	N/A
/	5. Xueyang 薛阳	N/A
/	6. Dingjia 丁家	N/A
/	7. Shangqu 上渠	N/A
/	8. Yanggou 杨沟	N/A
/	9. Songyuan 宋源	N/A
/	10. Diwan 地湾	N/A
Class II Ambient air Quality Standards(GB3095-2012)		300

27 During this period, there is no issue of exceedance or non-compliance.

2. Noise

Table 9:.Summary of Noise Monitoring Results

Monitoring Date	Monitoring Site	Day (L_{Aeq})	Night (L_{Aeq})
	Yuanzhou District		
	Rural trunk road Guanting – Yuanzhou District Guyuan Road:		
Mar. 25th,Jun.22th& Dec.17th	1. Qianwa Village 前洼村(K0+020 – K0+250)	48-50	42
Mar. 25th,Jun.22th& Dec.17th	2. Guanting Primary School 官厅小学(K1+300 – K1+600)	46-49	39
Mar. 25th,Jun.22th& Dec.17th	3. Guanting Town 官厅镇 (K1+425 – K1+670)	51-54	45
Mar. 25th,Jun.22th& Dec.17th	4. Guanting Village #2 Group 官厅村 2 组(K3+750 – K4+375)	50-55	44
Mar. 25th,Jun.22th& Dec.17th	5. Guanting Village #4 Group 官厅村 4 组(K6+000 – K8+100)	50-53	41
Mar. 25th,Jun.22th& Dec.17th	6. Liudian Village 刘店村 (K7+000 – K8+100)	47-49	40
Mar. 25th,Jun.22th& Dec.17th	7. Liuzhendian 刘镇店 (K9+500 – K10+350)	50-51	42
Mar. 25th,Jun.22th& Dec.17th	8. Shizhuang Village 石庄村 (K14+200 – K14+800)	48-49	39
Mar. 25th,Jun.22th& Dec.17th	9. Erdaocha Village 二道岔村 (K17+800 – K18+300)	48-49	40
Mar. 25th,Jun.22th& Dec.17th	10. Cheng'ershan Village 程儿山村 (K18+900 – K19+800)	49-52	42
	Rural trunk road Wanzhang – Sanying Road:		
Mar. 25th,Jun.22th& Dec.17th	1. Lijiacha Village 李家岔村(K4+100 – k4+780)	47-50	38
Mar. 25th,Jun.22th& Dec.17th	2. Dongyuan Village #2 Team 东源村二队 (K24+100-K24+600)	50-51	39
Mar. 25th,Jun.22th& Dec.17th	3. Dongyuan Primary School 东源小学 (K24+710)	47-50	38

Mar. 25th,Jun.22th& Dec.17th	4. Dongyuan Village #4 Team 东源村四队 (K26+200-K26+760)	50-53	45
Mar. 25th,Jun.22th& Dec.17th	5. Malu Mosque 马路清真寺 (K31+250)	51-53	41
Mar. 25th,Jun.22th& Dec.17th	6. Malu Village 马路村 (K30+420 – K31+500)	50-51	40
	Rural feeder road Hongzhuang – Daidian – Shahexian Road:		
/	1. Hongzhuang 红庄	N/A	
/	2. Chengou 陈沟	N/A	
/	3. Dadian 大店	N/A	
/	4. Shahexian 沙河岘	N/A	
	Rural feeder road Guhu Road – Qiaowa – Miaotai Road:		
/	1. Qiaowa 乔洼	N/A	
/	2. Miaotai 庙台	N/A	
	Rural feeder road Ligou –Xiaojiashengou Road:		
/	1. Ligou Village 里沟	N/A	
/	2. Yaomo 姚磨	N/A	
/	3. Xiaogou 肖沟	N/A	
	Rural feeder road Ke Village – Feng Village Road:		
/	1. Kezhuang 柯庄	N/A	
/	2. Fengzhuang 冯庄	N/A	
	Rural feeder road Licha – Dongjia Village Road:		
/	1. Licha 李岔	N/A	
/	2. Caijiachuan #9 Group 蔡家川九组	N/A	
	Rural feeder road Caichuan – Yangjiayaoxian Road:		
/	1. Licha 李岔	N/A	
/	2. Caichuan Village Wa Group 蔡川村庄洼组	N/A	
	Xiji County		
	Rural trunk road Jiangtai – Xitan – Pingfeng Road:		
Mar. 29th,Jun.9th& Dec.16th	1. Jiangtai Village Central Health Clinic 将台乡中心卫生院 (K0+600)	50-51	39
Mar. 29th,Jun.9th& Dec.16th	2. Mingtai Village 明台村 (K+250- K1+500)	49-50	41
Mar. 29th,Jun.9th& Dec.16th	3. Maojiagou Village 毛家沟村 (K2+800 – K3+200)	46-49	42
Mar. 29th,Jun.9th& Dec.16th	4. Shencha Village 深岔村 (K5+800 – K6+000)	49-51	44
Mar. 29th,Jun.9th& Dec.16th	5. Heihugou Village 黑虎沟村 (K9+440 – K10+000)	48-50	38
Mar. 29th,Jun.9th& Dec.16th	6. Xitan Village Central Primary School 西滩乡中心小学 (K17+400)	47-49	39
Mar. 29th,Jun.9th& Dec.16th	7. Xitan Township Health Center (K17+500 – K18+600)	50-53	39
Mar. 29th,Jun.9th& Dec.16th	8. Hejiawan 何家湾 (K22+400 – K23+500)	49-52	40
Mar. 29th,Jun.9th& Dec.16th	9. Gancha Primary School 甘岔小学 (K24+500)	48-51	41
Mar. 29th,Jun.9th& Dec.16th	10. Gancha Village 甘岔村 (K24+500 – K25+400)	48-51	43
Mar. 29th,Jun.9th& Dec.16th	11. Xinzhuangzi 新庄子 (K29+500 – K29+750)	46-49	41

Mar. 29th,Jun.9th& Dec.16th	12. Xingping Village 兴坪村 (K30+450 – K30+600)	50-56	47
Mar. 29th,Jun.9th& Dec.16th	13. Youai Village 友爱村 (K32+000 – K33+100)	49-52	43
Mar. 29th,Jun.9th& Dec.16th	14. Yapowan Village	48-50	40
Mar. 29th,Jun.9th& Dec.16th	15. Pingfeng Village 平峰村 (K51+000 – K51+300)	51-52	48
Mar. 29th,Jun.9th& Dec.16th	16. Xiji Pingfeng Secondary School 西吉平峰中学 (K51+450)	50-51	39
Mar. 29th,Jun.9th& Dec.16th	17. Fujiawan 伏家湾 (K65+500 – K65+800)	47-50	44
Mar. 29th,Jun.9th& Dec.16th	18. Wangnao Village 王垴村 (K67+100 – K68+010)	46-48	41
Mar. 29th,Jun.9th& Dec.16th	19. Luotuocha 骆驼岔 (K70+000 – K70+400)	46-48	40
Mar. 29th,Jun.9th& Dec.16th	20. Libao Primary School 李堡小学 (K72+000)	47-49	38
	Rural feeder road Wangping – Lizhang Road:		
/	1. Wangjiawan 王家湾	N/A	
/	2. Guanjia Village 官家村	N/A	
/	3. Wangping 王坪	N/A	
/	4. Lizhang Village 李章村	N/A	
/	5. Qianchuan 前川	N/A	
/	6. Houwan 后湾	N/A	
/	7. Gaowan 高湾	N/A	
/	8. Wangwan 王湾	N/A	
/	9. Tuwan 兔湾	N/A	
/	10. Liangnao 梁垴	N/A	
/	11. Xiazhuang 下庄	N/A	
/	12. Muwa 慕洼	N/A	
/	13. Guanwan 官湾	N/A	
	Rural feeder road Daying – Ya'erpo Road:		
/	1. Dawanzu 大湾组	N/A	
/	2. Gaojiagou 高家沟	N/A	
/	3. Laohugou 老虎沟	N/A	
/	4. Daying Village 大营村	N/A	
/	5. Xiejiawan 谢家湾	N/A	
/	6. Ya'ertai 雅儿台	N/A	
/	7. Liuzu 六组	N/A	
	Rural feeder road Mawan – Caonao Road:		
/	1. Caonao Village 曹垴村	N/A	
/	2. Mawan Village 马湾村	N/A	
/	3. Halagou Village 哈拉沟村	N/A	
/	4. Gaoxi Village 高西村	N/A	
/	5. Xianwan 碱湾	N/A	
/	6. Huitao 会套	N/A	
/	7. Shangzhuang 上庄	N/A	

/	8. Bainao 白垴	N/A	
/	9. Gaodong 高东	N/A	
/	10. Tianhuagou 田花沟	N/A	
	Rural feeder road Bataijiao – Quancha Road:		
/	1. Baoziwan 堡子湾	N/A	
/	2. Yapo 崖坡	N/A	
/	3. Yangping 杨坪	N/A	
/	4. Bataijiao 八台轿	N/A	
/	5. Quancha Village 权岔村	N/A	
/	6. Nantai 南台	N/A	
/	7. Sigoucha 四沟岔	N/A	
/	8. Xiawa 下屲	N/A	
/	9. Chamagou 岔马沟	N/A	
/	10. Baowan 堡湾	N/A	
	Rural feeder road Nanchuan – Lujiagou Road:		
/	1. Nanchuan 南川	N/A	
/	2. Lujiagou 陆家沟	N/A	
/	3. Xi'nanmen 西南门	N/A	
/	4. Luzigou 芦子沟	N/A	
	Tongxin County		
	Rural trunk road Wangtuan – Yuwang Road:		
Apr. 2nd,Jun.15th& Dec.26th	1. Mujiagou Mosque 穆家沟清真寺 (K2+270)	50-54	46
Apr. 2nd,Jun.15th& Dec.26th	2. Qianhong Grand Mosque 前红清真大寺 (K3+820)	49-51	43
Apr. 2nd,Jun.15th& Dec.26th	3. Humaqi Village 胡麻旗村 (K6+000 – K6+500)	48-49	45
Apr. 2nd,Jun.15th& Dec.26th	4. Shanghujiayuan 上胡家塬 (K61+150 – K61+500)	47-50	42
Apr. 2nd,Jun.15th& Dec.26th	5. Shangyuan Primary School 上塬小学 (K61+375)	47-50	39
Apr. 2nd,Jun.15th& Dec.26th	6. Hujiayuan 扈家塬 (K65+900 – K66+450)	45-48	47
Apr. 2nd,Jun.15th& Dec.26th	7. Nanguan Village 南关村 (K67+410)	49-50	41
	Rural feeder road Tongfu Village – Shanghewan Village Road:		
/	1. Tongfu Village 同富村	N/A	
/	2. Shanghewan 上河湾	N/A	
	Rural feeder road Majiajing – Suocha Road:		
/	1. Majiajing Village 马家井村	N/A	
/	2. Suojiacha Village 锁家岔村	N/A	
/	3. Qianjing 千井	N/A	
	Rural feeder road Tongyu Road – Lijiagangzi - Liushubaozi Road:		
/	1. Nanguan Village 南关村	N/A	
/	2. Beiguan Village 北关村	N/A	

/	3. Liushubaozi Village 柳树堡子村	N/A	
/	4. Shatupo Village 沙土坡村	N/A	
/	5. Tufeng Village 土峰村	N/A	
/	6. Ligangzi Primary School 李岗子小学	N/A	
/	7. Lijiagangzi 李家岗子	N/A	
/	8. Wanglaoba 王涝坝	N/A	
/	9. Lulubaozi 辘辘堡子	N/A	
/	10. Tiangangzi 田岗子	N/A	
	Rural feeder road Xiachen Road – Chen'er Village Road:		
/	1. Chen'er Village 陈儿庄	N/A	
/	2. Ni'er Village 倪儿庄	N/A	
/	3. Mingchangcheng 明长城	N/A	
/	4. Erbudun 二步墩	N/A	
/	5. Sanbudun 三步墩	N/A	
	Pengyang County		
	Rural trunk road Mengyuan Chunshucha – Chengyang Yangping Road:		
Mar. 27th,Jun.8th& Dec.15th	1. Baiyangzhuang 白杨庄 (K4+100 – K4+300)	50-54	45
Mar. 27th,Jun.8th& Dec.15th	2. Mengyuan Village Central School 孟塬乡中心学校 (K4+520)	48-52	38
Mar. 27th,Jun.8th& Dec.15th	3. Mengyuan Village Central Kindergarten 孟塬乡中心幼儿园 (K4+530)	48-50	39
Mar. 27th,Jun.8th& Dec.15th	4. Mengyuan Village Health Clinic 孟塬乡卫生院 (K4+700)	49-52	40
Mar. 27th,Jun.8th& Dec.15th	5. Shuangshu Village 双树村 (K8+480 – K8+780)	50-51	42
Mar. 27th,Jun.8th& Dec.15th	6. Huaishuzhuang 槐树庄 (K9+510 – K9+850)	50-52	43
Mar. 27th,Jun.8th& Dec.15th	7. Zhaoshanzhuang 赵山桩 (K12+100 – K12+350)	48-50	46
Mar. 27th,Jun.8th& Dec.15th	8. Caotan Village 草滩村 (K12+500 – K13+900)	47-52	40
Mar. 27th,Jun.8th& Dec.15th	9. Ligouwan 李沟湾 (K21+100 – K21+300)	49-51	42
Mar. 27th,Jun.8th& Dec.15th	10. Chenwan Beiyuan Village 陈湾北源村 (K24+600 – K24+800)	48-51	39
Mar. 27th,Jun.8th& Dec.15th	11. Yangping Village 杨坪村 (K30+400)	50-52	42
	Rural feeder road Caomiaoxinwa – Caochuan Road:		
/	1. Caochuan Village 曹川村	N/A	
/	2. Xinwa Village 新洼村	N/A	
/	3. Daxizhang 大西掌	N/A	
/	4. Dagouwa 大沟洼	N/A	
/	5. Shewa 佘洼	N/A	
/	6. Caichuan 蔡川	N/A	
/	7. Xinwa 新洼	N/A	
	Rural feeder road Xiachadiaocha – Qigeshan Road:		

/	1. Diaocha 吊岔	N/A	
/	2. Lizhang 李掌	N/A	
/	3. Lianggeshan 两个山	N/A	
/	4. Qigeshan 七个山	N/A	
	Haiyuan County		
	Rural trunk road Zhengqi – Jiucai – Sikouzi Road:	N/A during this reporting period	
Apr. 2nd,Jun.10th& Dec.28th	1. Tangbao Village 唐堡村(K0+180–K0+340 and K3+050–K3+600)	47-49	42
Apr. 2nd,Jun.10th& Dec.28th	2. Guluwan Village 古路湾村 (K7+100-K8+400)	49-51	41
Apr. 2nd,Jun.10th& Dec.28th	3. Lubiliang Village 路壁梁村 (K12+800-K14+000)	45-50	38
Apr. 2nd,Jun.10th& Dec.28th	4. Matao Village 马套村 (K18+000-K19+000)	48-51	40
Apr. 2nd,Jun.10th& Dec.28th	5. Matao Primary School 马套小学	47-50	40
Apr. 2nd,Jun.10th& Dec.28th	6. Yuantao Village 元套村 (K20+400-K22+000)	48-49	42
Apr. 2nd,Jun.10th& Dec.28th	7. Houshang Village 后塌村 (K23+750-K24+500)	47-51	43
	Rural feeder road Xi'an – Zhangwan Road:		
/	1. Xianhe 小河	N/A	
/	2. Xi'an Town 西安镇	N/A	
/	3. Beiba 北坝	N/A	
/	4. Yuanhe 园河	N/A	
/	5. Liuwan 刘湾	N/A	
/	6. Zhangwan 张湾	N/A	
	Rural feeder road Xiangtong – Huitiaogou Road:		
/	1. Xiangtong Village 相桐村	N/A	
/	2. Huitialgou 灰条沟	N/A	
/	3. Liuhe 刘河	N/A	
/	4. Hongjing 红井	N/A	
	Jingyuan County		
	Rural trunk road Shatang (Huanghua County) – Gaodian Road:	N/A during this reporting period	
Mar. 27th,Jun.8th& Dec.19th	1. Shatang Village 沙塘村 (K0+000- K0+500)	48-50	44
Mar. 27th,Jun.8th& Dec.19th	2. Nonglin Village 农林村 (K12+800- K12+900)	49-50	45
Mar. 27th,Jun.8th& Dec.19th	3. Tuyao Village 土窑村 (Branch K0+800- K1+781)	46-52	42
	Rural feeder road Dongxia - Digou Road:		
/	1. Pangdong 庞东	N/A	
/	2. Dongxia 东峡	N/A	
/	3. Digou 底沟	N/A	

/	4. Shidi 石底	N/A	
	Longde County		
	Rural feeder road Zhangtian – Jinglin – Yangchuan Road:		
/	1. Liangbao 梁堡	N/A	
/	2. Jinglin 景林	N/A	
/	3. Yanmiao 闫庙	N/A	
/	4. Zhangtian 张田	N/A	
/	5. Xueyang 薛阳	N/A	
/	6. Dingjia 丁家	N/A	
/	7. Shangqu 上渠	N/A	
/	8. Yanggou 杨沟	N/A	
/	9. Songyuan 宋源	N/A	
/	10. Diwan 地湾	N/A	
Class II Ambient air Quality Standards(GB3095-2012)		60	50

28 During this period, there is no issue of exceedance or non-compliance.

3. Water quality

Table 10: Summary of Water Quality Monitoring Results During Construction

Monitoring Date	Monitoring Site	DO	SS	TPH
Yuanzhou District				
Mar. 27th,Jun.10th& Dec.19th	Rural trunk road Wanzhang – Sanying Road:			
	50m upstream of Qingshui River Bridge	7.52-9.94	15-56	0.01L
	100m downstream of Qingshui River Bridge	7.12-10.2	24-69	0.01L
Xiji County				
Mar. 27th,Jun.9th& Dec.19th	Rural trunk road Jiangtai – Xitan – Pingfeng Road:			
	50m upstream of Hulu Bridge	7.73-10.7	4L-16	0.01L
	100m downstream of Hulu Bridge	7.08-10.4	5-16	0.01L
	Libao Reservoir	7.13-8.93	5-15	0.01L
Haiyuan County				
Mar. 27th & Dec.31st	Rural trunk road Zhengqi – Jiucai – Sikouzi Road:	N/A	N/A	N/A
	GaiPai Reservoir	7.96-9.52	16	0.01L
Jingyuan County				
Mar.27th,Jun.8th& Dec.19th	Rural trunk road Shatang (Huanghua County) – Gaodian Road:	N/A	N/A	N/A
	50m upstream of Yanzhi Bridge	7.11-10.3	5-19	0.01L
	100m downstream of yanzhi Bridge	7.08-10.1	5-30	0.01L

Note: 1. Please mark in bold or color if there is any excess;

2. Gaipai Reservoir in Haiyuan County will be dry for one month in June 2022;

3.The nighttime noise value was monitored in the fourth quarter, while the nighttime noise value was not monitored in the first and third quarters.

29 During this period, there is no issue of exceedance or non-compliance.

V. INSTITUTIONAL CAPACITY BUILDING AND TRAINING

30 Training program has been designed to improve the capacity of CPMO, IA, OPFs, CSCs and contractors' staff in EMP implementation and supervision. Table 11 shows the training program designed for the project. During this reporting period, no training has been carried out. As of December 2018, Rural Trunk Roads are still at the design stage, the contractors are undetermined, so the training time is postponed and the training will be carried out according to the project plan immediately.

Table 11: Training Program and its Implementation Summary

Training	Attendees	Contents	Times	Period (days)	No. of persons	Training Implemented
EMP adjustment and implementation	PMO, IAs, contractors	Development and adjustment of the EMP, roles and responsibilities, monitoring, supervision and reporting procedures, review of experience (after 12 months)	/	/	/	No adjustment
Grievance Redress Mechanism	PMO, IAs, contractors, local EPBs	Roles and responsibilities, Procedures, review of experience (after 12 months)	/	/	/	Unenforced
Environmental protection	PMO, IAs, contractors	Pollution control on construction sites (air, noise, wastewater, solid waste)	/	/	/	No training
Environmental monitoring	PMO, IAs, contractors	Monitoring methods, data collection and processing, reporting systems	1	6	10	Centralized training was not carried out, and on-site guidance was given to the construction personnel during on-site monitoring.
Notes: The project has been basically completed. Except for environmental monitoring, no other training has been conducted during this period.						

VI. CONSULTATION, PARTICIPATION AND INFORMATION DISCLOSURE

31 Plans for public involvement during construction and operation stages were developed during project preparation. Table 12 shows the public consultation plan and summary of its implementation status during this reporting period.

Table12: Public Consultation Plan and Implementation Summary

Organizer	Format	No. of Times	Subject	Attendees	Implementation Status
Construction Stage					
PMO	Public consultation & site visit	4 times: 1 time before construction commences and 1 time each year during construction	Adjusting of mitigation measures, if necessary; construction impact; feedback and suggestions	Residents adjacent to components, village / group representatives	/
PMO	Expert workshop /	As needed based on public consultation	Feedback / suggestions on mitigation measures, public	Experts of various sectors,	/

Organizer	Format	No. of Times	Subject	Attendees	Implementation Status
	press conference		opinions	media	
PMO	Resettlement survey	As required by relevant resettlement plan	Comments on resettlement, improvement of living conditions, livelihood, and poverty reduction; comments and suggestions	Persons affected by resettlement and relocation	/
Operational Stage					
PMO, O&M Units	Public consultation and site visits	Once in the first year	Effectiveness of mitigation measures, impacts of operation, feedback and suggestions	Residents adjacent to component sites, social sectors	/
PMO, O&M Units	Expert workshop or press conference	As needed based on public consultation	Feedback and suggestions on operational impacts, public opinions	Experts of various sectors, media	During the reporting period, a public participation survey was conducted and 42 questionnaires were distributed.
Note: Note: In December 2022, a public participation survey was conducted for residents along the project in the form of questionnaires. A total of 42 questionnaires were distributed (Annex 1), and 42 were recovered. The survey results showed that: ① All the public believe that the modification of the highway is very beneficial to the regional economic development; ② All the public believe that the construction of the project facilitates travel and is satisfied with the traffic; ③ Most of the public said that after the completion of the highway, the noise and fugitive dust have relatively large impact on the environment, but it has been greatly improved compared with that before the reconstruction, and they are generally satisfied with the environmental protection work of the project.					

VII. GRIEVANCE REDRESS MECHANISM

32 A project-level grievance redress mechanism (GRM) was developed in accordance with the ADB's SPS requirement so to receive and facilitate resolution of affected person's concerns and complaints about the project's environmental performance during construction as well as operation phase of the project. The project GRM includes a procedure for receiving grievances, recording/ documenting key information, and evaluating and responding to the complainants in a reasonable period of time. Any concerns raised through the GRM will need to be addressed promptly and transparently.

33 Please provide contact information details of all the GRM focal persons at all levels.

Table 6. Contact Information of GRM focal points at Various Institutions

Institution	Name of Company	Name of GRM staff	Contact Information (phone number/email)
PMO		Mr. Yongming Yang	+86 13639506456 yym13777@163.com
EEM		Ms. Yurong Wu	+86 13683683432 10258572@qq.com
IA	CTB Yuanzhou	Mr. Wuming Wang	+8615809591421

			yzqjtxzjsj@163.com
	CTB Xiji	Mr. Xuxiong Wei Ms. Xiaoyan Shang	+8613995143987 +8615226242200 1287763390@qq.com
	CTB Longde	Mr.ZhangJun	+8618995446299 18995446299@163.com
	CTB Jingyuan	Mr. Xiaoping Wu	+8613995345808 290986914@qq.com
	CTB Pengyang	Mr. ZhangHua	+8613995449215 876319903@qq.com
	CTB Tongxin	Mr.YanhuaMian	+8613895284678 txjt8022391@163.com
	CTB Haiyuan	Mr.Fenglong Hei	+8618809609405 249315165@qq.com

34 No environmental complaints were received during the reporting period.

VIII. KEY ENVIRONMENTAL ISSUES

A. Key Issues Identified

35 As of December 2022, 21 rural branch roads have been completed and are in good operation. The auxiliary facilities of the Jiangtai to Pingfeng Highway through Xitan in Xiji County have not been completed, but the 7 main roads have been opened to traffic and are in good operation.

36 All waste disposal sites of the project have been used up and have been leveled and restored, but since the construction in Jingyuan County has just finished in November, the construction site has not completed the restoration procedures.

37 It is recommended to install double glazing to mitigate the impact of traffic noise in Guanting Town, Chengershan Village, and Qianhong Village, Mujiagou Mosque, and Qianhong Mosque along the Guanting to Guyuan Highway in Yuanzhou District, as well as Wangtuan-Yuwang Highway in Tongxin County. At this stage, considering the small traffic volume, the existing building structure is not suitable for installing double sound insulation windows, and the existing monitoring results show that the environmental noise at this stage meets the standard, and the installation of double sound insulation windows is not implemented.

38 All projects have not carried out independent acceptance of environmental protection. It is recommended that all projects complete independent acceptance of environmental protection by the end of April 2023.

39 The projects in Pengyang, Xiji and Jingyuan counties were completed in 2022, and were put into operation during the environmental status monitoring in December 2022. The status monitoring results showed that the acoustic environment and ambient air of the environmental sensitive points along the project reached the standard. However, the public consultation on the effectiveness and environmental impact of environmental measures during the operation period has not been conducted.

B. Action Taken to mitigate key environmental issues

40 The monitoring of Guanting Town, Chengershan Village and Qianhong Village, Mujiagou Mosque and Qianhong Mosque along the Guanting to Guyuan Highway in Yuanzhou District and Wangtuan-Yuwang Highway in Tongxin County during the operation period shall be strengthened, and noise reduction measures shall be considered according to the monitoring results.

41 The construction site in Jingyuan County shall handle the acceptance and handover procedures in time with the relevant local departments.

42 Each implementing agency shall timely organize independent acceptance of environmental protection for completed projects.

43 The public participation survey during the project operation period in Pengyang County, Xiji County and Jingyuan County will be conducted in the first quarter of 2023.

IX. CONCLUSIONS

44 By December 2022, all counties have completed the construction of rural branch lines with self-raised funds. Among the seven trunk highways, the construction of Wangtuan-Yuwang Highway in Tongxin County was commenced in July 2019 and completed in November 2020; The construction of the Jiucai to Sikouzi Highway in Zhengqi, Haiyuan County was started in March 2019 and completed in November 2020, and is currently undergoing acceptance work; The construction of the Guanting to Guyuan Highway in Yuanzhou District was started in August 2020 and completed in June 2022; The construction of Wanzhang-Sanying Highway in Yuanzhou District was started in October 2020 and completed in December 2021; The construction of Xiji County Jiangtai to Pingfeng Highway via Xitan was started in June 2020, the main works was completed in October 2022, and the auxiliary facilities are expected to be completed in April 2023; The construction of Shatang-Haodian Highway in Huanghua Township, Jingyuan County was commenced in July 2020 and completed in November 2022; The construction of Chunshucha to Chengyang Yangping Highway in Pengyang County was officially started in March 2021 and completed in August 2022. All completed projects have not completed the environmental protection acceptance of domestic projects.

45 The PMO assigned a special environmental personnel to supervise the coordination, implementation and on-site inspection of the environmental management plan, and hired an environmental expert to coordinate and manage. The implementing agency has appointed full-time environmental personnel, and has entrusted Ningxia Zhongke Jingke Testing Technology Co., Ltd. to monitor the air, water and noise. The monitoring unit has carried out the current quality monitoring of the ambient air, water and acoustic environment along the project in April, June and December 2022, respectively. The monitoring results indicate that the project construction has not produced unacceptable environmental impact on the surrounding environmental quality.

46 During the reporting period, there are three key environmental problems: ① All waste disposal sites of the project have been used up and have been leveled and restored, but the construction of Jingyuan County was completed in November 2022, and the relevant

restoration procedures of the construction site have not been handled. It is recommended that the construction unit should handle the acceptance and handover procedures in the relevant departments in a timely manner; ② It is recommended to install double glazing to mitigate the impact of traffic noise in Guanting Town, Chengershan Village, and Qianhong Village, Mujiagou Mosque, and Qianhong Mosque along the Guanting to Guyuan Highway in Yuanzhou District, as well as Wangtuan-Yuwang Highway in Tongxin County. At this stage, considering the small traffic volume, the existing building structure is not suitable for installing double sound insulation windows, and the existing monitoring results show that the environmental noise at this stage meets the standard, and the installation of double sound insulation windows is not implemented. It is suggested to strengthen the monitoring during the operation period and consider noise reduction measures according to the monitoring results. ③ All projects have not carried out independent acceptance of environmental protection. It is recommended that all projects complete independent acceptance of environmental protection by the end of April 2023.

47 The public participation survey shows that the public along the line strongly supports the construction of the project, believes that the reconstruction and expansion of the project has improved the existing traffic conditions, and is satisfied with the environmental protection work of the project.

Annex 1: Public Participation Questionnaire

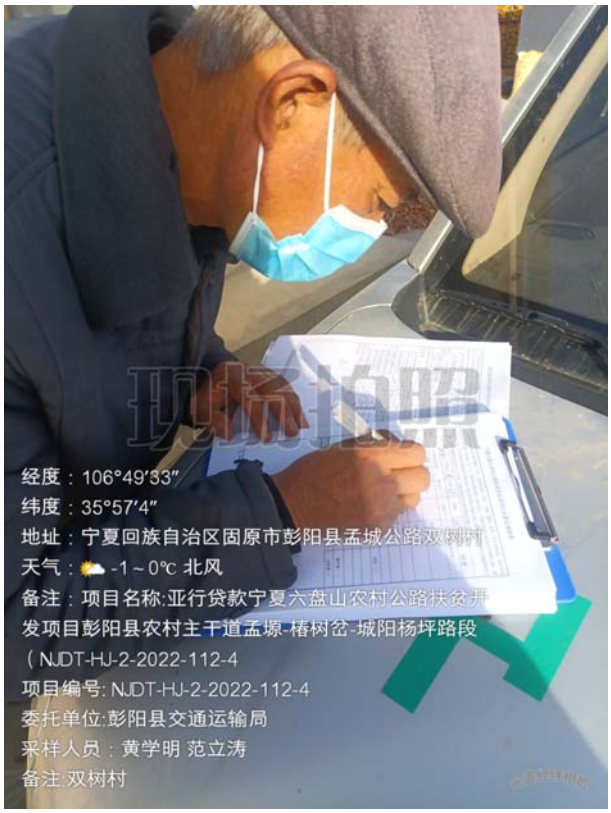
Public Opinion Questionnaire for Rural Highway Poverty Alleviation and Development Project in Liupanshan, Ningxia

<table>
<tr><td>Project overview</td><td colspan="6">The Liupanshan area in the south of Ningxia covers seven counties, including Yuanzhou District, Xiji, Jingyuan, Longde, Pengyang, Tongxin and Haiyuan. The project includes seven trunk highways (267km) and 21 rural branch highways (168.3km), including the Guanting to Guyuan Highway in Yuanzhou District, Wanzhang to Sanying Highway, Jiangtai to Pingfeng Highway in Xiji County, Wangtuan to Yuwang Highway in Tongxin County, Chunshucha to Chengyang Yangping Highway in Pengyang County, Zhengqi to Sikouzi Highway in Haiyuan County via Jiucai, Shatang to Haodian Highway in Huanghua Township, Jingyuan County.</td></tr>
<tr><td rowspan="3">Basic information</td><td colspan="2">Name M/F</td><td>Age</td><td>Nation</td><td colspan="2">Education</td></tr>
<tr><td colspan="2">Relationship with the Project</td><td>Demolition households ( )</td><td>Land acquisition households ( )</td><td colspan="2">No direct relationship ( )</td></tr>
<tr><td>Address
Tel</td><td>Post</td><td></td><td>Occupation</td><td colspan="2"></td></tr>
<tr><td>Basic attitude</td><td colspan="2">Whether the construction of the highway is conducive to the economic development of the region</td><td>Favorable ( )</td><td>Unfavourable ( )</td><td>I don't know ( )</td><td></td></tr>
<tr><td rowspan="8">Operation period</td><td colspan="2">How satisfied with the basic facilities of highway engineering?</td><td>Satisfied( )</td><td>Basically satisfied ( )</td><td>Dissatisfied ( )</td><td></td></tr>
<tr><td colspan="2">Whether the project is convenient for you?</td><td>Y ( )</td><td>N ( )</td><td></td><td></td></tr>
<tr><td colspan="2">Whether the traffic is satisfactory after the road construction?</td><td>Satisfied( )</td><td>Basically satisfied ( )</td><td>Dissatisfied ( )</td><td></td></tr>
<tr><td colspan="2">After the completion of the highway, you will be greatly affected</td><td>Noise ( )</td><td>Automobile exhaust ( )</td><td>Dust ( )</td><td>other ( )</td></tr>
<tr><td colspan="2">How do you feel the impact of automobile exhaust after the completion of the highway</td><td>Heavy ( )</td><td>Light ( )</td><td>Not obvious ( )</td><td></td></tr>
<tr><td colspan="2">You feel the noise impact after the completion of the highway</td><td>Heavy ( )</td><td>Light ( )</td><td>Not obvious ( )</td><td></td></tr>
<tr><td colspan="2">Whether there is a warning sign near the residential area?</td><td>Y ( )</td><td>N ( )</td><td>Ignore ( )</td><td></td></tr>
<tr><td colspan="2">Suggested measures to reduce noise impact</td><td>Green ( )</td><td>Sound barrier ( )</td><td>Speed limit ( )</td><td>Soundproof window ( )</td></tr>
<tr><td colspan="3">Overall evaluation of environmental protection of the highway project</td><td>satisfied ( )</td><td>Basically satisfied ( )</td><td>dissatisfied ( )</td><td>Indifferent ( )</td></tr>
<tr><td colspan="7">Other suggestions：</td></tr>
</table>

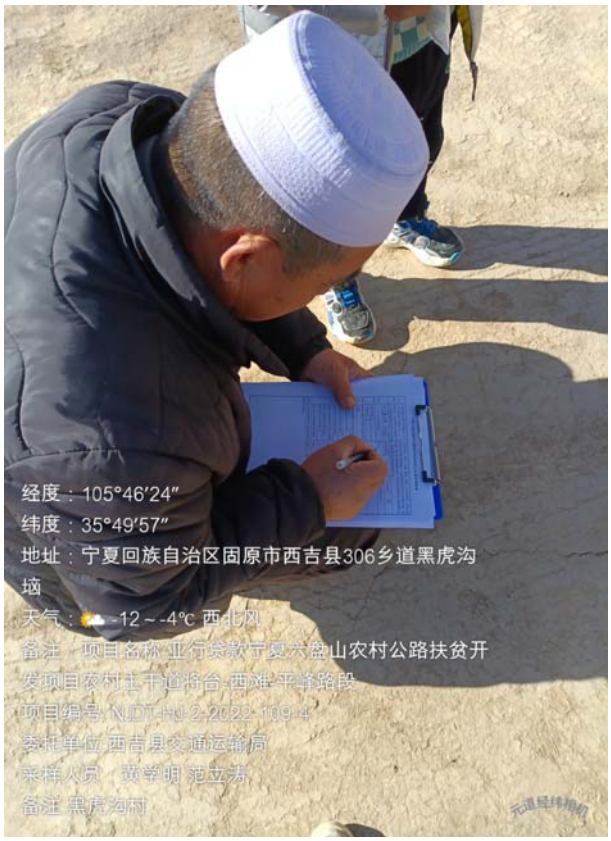
Note: Please draw " √ " in the brackets after the answer you choose.

公众调查现场照片


现场拍照
经度：106°51′0″
纬度：35°55′6″
地址：宁夏回族自治区固原市彭阳县草滩村文化广场
天气：-1～0℃ 北风
备注：项目名称:亚行贷款宁夏六盘山农村公路扶贫开发项目彭阳县农村主干道孟塬-椿树岔-城阳杨坪路段（NJDT-HJ-2-2022-112-4
项目编号: NJDT-HJ-2-2022-112-4
委托单位:彭阳县交通运输局
采样人员：黄学明 范立涛
备注:赵山庄村


现场拍照
经度：106°49′33″
纬度：35°57′4″
地址：宁夏回族自治区固原市彭阳县孟城公路双树村
天气：-1～0℃ 北风
备注：项目名称:亚行贷款宁夏六盘山农村公路扶贫开发项目彭阳县农村主干道孟塬-椿树岔-城阳杨坪路段（NJDT-HJ-2-2022-112-4
项目编号: NJDT-HJ-2-2022-112-4
委托单位:彭阳县交通运输局
采样人员：黄学明 范立涛
备注:双树村


经度：106°25′32″
纬度：35°39′1″
地址：宁夏回族自治区固原市泾源县沙嵩路清水沟
天气：-10～-8℃ 北风
备注：项目名称:亚行贷款宁夏六盘山农村公路扶贫开发项目农村主干道沙塘（黄花乡）-嵩店路段
项目编号: NJDT-HJ-2-2022-110-4
委托单位:西吉县交通运输局
采样人员：黄学明 范立涛
备注:农林村


经度：105°46′24″
纬度：35°49′57″
地址：宁夏回族自治区固原市西吉县306乡道黑虎沟垴
天气：-12～-4℃ 西北风
备注：项目名称:亚行贷款宁夏六盘山农村公路扶贫开发项目农村主干道将台-西滩-平峰路段
项目编号: NJDT-HJ-2-2022-109-4
委托单位:西吉县交通运输局
采样人员：黄学明 范立涛
备注:黑虎沟村


经度：105°41'47"
纬度：35°52'14"
地址：宁夏回族自治区固原市西吉县白家甘岔村
天气：-12～-4℃ 西北风
备注：项目名称:亚行贷款宁夏六盘山农村公路扶贫开
发项目农村主干道将台-西滩-平峰路段
项目编号: NJDT-HJ-2-2022-109-4
委托单位:西吉县交通运输局
采样人员：黄学明 范立涛
备注:甘岔村


JINDELI
经度：105°40'19"
纬度：35°50'44"
地址：宁夏回族自治区固原市西吉县410县道兴坪乡
天气：-12～-4℃ 西北风
备注：项目名称:亚行贷款宁夏六盘山农村公路扶贫开
发项目农村主干道将台-西滩-平峰路段
项目编号: NJDT-HJ-2-2022-109-4
委托单位:西吉县交通运输局
采样人员：黄学明 范立涛
备注:新庄子

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 1th Quarter Report in March 2022 for Guanting Town Yuanzhou District and Wanzhang Sanying road in Yuanzhou District)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

April 1st, 2022

1 TASK SOURCE

Entrusted by the Construction and Environmental Protection Bureau of Communication Township in Yuanzhou District of Guyuan City, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from March 25 to March 27, 2022 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Guanting Town Yuanzhou District and Wanzhang Sanying Road, the main rural road of Yuanzhou county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Qianwa Village(〇1#),Guanting Primary School(〇2#),Guanting Town(〇3#), Group 2,Guanting Village(〇 4#),Group 4, Guanting Village(〇 5#),Liudian Village(〇 6#) 、Liuzhengdian(〇 7#) 、Shizhuang Village(〇 8#)、Erdaocha Village(〇 9#) 、 Chengershan Village(〇 10#) ,distributed in Guanting town-Yuanzhou District of Guyuan Citye. The other six points are Lijiacha Village(〇11#),Group 2,Dongyuan Village(〇12#),Dongyuan Primary School(〇 13#), Group 4,Dongyuan Village(〇 14#),Malu Mosques(〇 15#) and Malu Village(〇16#), distributed in Wanzhang Sanying Road. Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Road section	Latitude and longitude coordinates	Testing items
○1#	Qianwa Village	Guanting town-Yuanzhou District of Guyuan Citye Road	N：36° 10' 19" E：106° 24' 34"	TSP
○2#	Guanting Primary School		N：36° 9' 42" E：106°24' 56"	
○3#	Guanting Town		N：36°9' 43" E：106° 24' 56"	
○4#	Group 2, Guanting Village		N：36° 9' 35" E：106° 24' 53"	
○5#	Group 4, Guanting Village		N：36° 9'14" E：106° 24' 23"	
○6#	Liudian Village		N：36° 7' 0" E：106° 22' 2"	
○7#	Liuzhengdian		N：36° 6' 55" E：106° 22' 18"	
○8#	Shizhuang Village		N：36° 5' 46" E：106° 21' 1"	
○9#	Erdaocha Village		N：36° 4' 37" E：106° 20' 16"	
○10#	Chengershan Village		N：36° 3' 31" E：106° 20' 10"	
○11#	Lijiacha Village	Wanzhang Sanying Road	N：36° 7' 19" E：106° 19' 25"	
○12#	Group 2,Dongyuan Village		N：36° 16' 17" E：106° 14' 13"	
○13#	Dongyuan Primary School		N：36° 16' 24" E：106° 13' 31"	
○14#	Group 4, Dongyuan Village		N：36° 16' 25" E：106° 12' 21"	
○15#	Malu Mosques		N：36° 16' 26" E：106° 10' 26"	
○16#	Malu Village		N：36° 16' 26" E：106° 10' 12"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the

relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit（mg/m^3）**
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for

manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

2.1.5 Test Results

Table 2-4 shows the weather conditions。

Table 2-4 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature（℃）	Mean Pressure（kpa）	Mean Humidity（%RH）	Mean Wind Direction	Mean Wind Speed（m/s）
March 25~March 26	3.7	82.0	38	NW	2.4

2.1.6 Ambient Air Test Results

Table 2-5 shows the Ambient air test results。

Table 2-5 Statistical table of ambient air test results **(μg/m³)**

Date	**Point**	○**1**# Qianwa Village	○**2**# Guanting Primary School	○**3**# Guanting Town	○**4**# Group 2, Guanting Village	○**5**# Group 4, Guanting Village	○**6**# Liudian Village	
March 25~March 26	TSP	128	142	145	164	151	167	
Date	**Point**	○**7**# Liuzhengdian	○**8**# Shizhuang Village	○**9**# Erdaocha Village	○**10**# Chengershan Village			
March 25~March 26	TSP	148	117	155	124			
Date	**Point**	○**11**# Lijiacha Village	○**12**# Group 2,Dongyuan Village	○**13**# Dongyuan Primary School	○**14**# Group 4, Dongyuan Village	○**15**# Malu Mosques	○**16**# Malu Village	
March 25~March 26	TSP	149	128	150	148	151	152	
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300						

Analysis of test results：

〇1#~〇16# total suspended particles at each test point（TSP）are 117~167μg/m^3 from March 25th to 26th，2022. All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 16 noise detection points are arranged in this time，Table 2-6 shows the List of monitoring points of acoustic environment quality status。

Table 2-6 List of Monitoring Points of Acoustic Environment

Number	Name	Road section	Latitude and longitude coordinates
△1#	Qianwa Village	Guanting town-Yuanzhou District of Guyuan Citye Road	N：36° 10' 19" E：106° 24' 34"
△2#	Guanting Primary School		N：36° 9' 42" E：106°24' 56"
△3#	Guanting Town		N：36°9' 43" E：106° 24' 56"
△4#	Group 2, Guanting Village		N：36° 9' 35" E：106° 24' 53"
△5#	Group 4, Guanting Village		N：36° 9'14" E：106° 24' 23"
△6#	Liudian Village		N：36° 7' 0" E：106° 22' 2"
△7#	Liuzhengdian		N：36° 6' 55" E：106° 22' 18"
△8#	Shizhuang Village		N：36° 5' 46" E：106° 21' 1"
△9#	Erdaocha Village		N：36° 4' 37" E：106° 20' 16"
△10#	Chengershan Village		N：36° 3' 31" E：106° 20' 10"
△11#	Lijiacha Village	Wanzhang Sanying Road	N：36° 7' 19" E：106° 19' 25"
△12#	Group 2,Dongyuan Village		N：36° 16' 17" E：106° 14' 13"
△13#	Dongyuan Primary School		N：36° 16' 24" E：106° 13' 31"

△14#	Group 4, Dongyuan Village		N：36° 16' 25"　E：106° 12' 21"
△15#	Malu Mosques		N：36° 16' 26"　E：106° 10' 26"
△16#	Malu Village		N：36° 16' 26"　E：106° 10' 12"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6228+ multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-023-2; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-075-1. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-7 shows the Specific Calibration Value。

Table 2-7　List of Sound Level Calibration Results

Model of Testing Instrument	AWA6228+ multi function sound level meter No.: JK-2-023-2	Calibration Instrument Model	AWA6221B Sound Level Calibrator No.: JK-2-075-1
Instrument	Calibration Result	March 25	

Calibration	Daytime	Before Calibration	93.7dB（A）
		After Calibration	93.8dB（A）
Basis	《Acoustic environment quality standard》（GB3096-2008）		

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：On March 25, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-8 shows the result.

Table 2-8 Monitoring Results of Acoustic Environment quality dB(A)

Number	**Location**	March 12th	
		Daytime	**Nighttime**
△1#	Qianwa Village	49	Not detected at night
△3#	Guanting Town	51	
△4#	Group 2, Guanting Village	50	
△5#	Group 4, Guanting Village	50	
△6#	Liudian Village	49	
△7#	Liuzhengdian	50	
△8#	Shizhuang Village	49	
△9#	Erdaocha Village	49	
△10#	Chengershan Village	50	

△11#	Lijiacha Village	48	
△12#	Group 2,Dongyuan Village	50	
△14#	Group 4, Dongyuan Village	50	
△15#	Malu Mosques	52	
△16#	Malu Village	50	
《Acoustic environment quality standard》（GB3096-2008）Class II		60	
△2#	Guanting Primary School	47	
△13#	Dongyuan Primary School	48	
《Acoustic environment quality standard》（GB3096-2008）Class I		55	

Analysis of test results: on March 25, 2022, the noise detection values of the daytime acoustic environmental quality at △1 #, △3 #~△12 #, △14 #~△16 # test points were between 48dB (A) and 52dB (A), meeting the class II standard of《Acoustic environment quality standard》（GB3096-2008）; At △2 # and △13 # test points, the daytime acoustic environmental quality noise detection value is 47dB (A)~48dB (A), meeting the class I standard of《Acoustic environment quality standard》（GB3096-2008）.

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, one sampling point is set in GaiPai Reservoir，Table 2-9 shows the Specific location.

Table 2-9 List of surface water detection points

Number	Name	Latitude and longitude coordinates
☆1#	50m upstream of Qingshui River Bridge	N36°16'1.76"，E106°10'22.90"
☆2#	100m downstream of Qingshui River Bridge	N36°16'7.85"，E106°10'24.06"

2.3.2 Testing items, Testing time and Frequency

Test Items：DO, Petroleum, SS

Detection Time：March 27th,2022

Frequency：One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according to the methods recommended in 《Environmental Quality Standard for Surface Water (GB3838-2002)》and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》. Table 2-10 shows the detailed monitoring and analysis method。

Table 2-10 List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in《Technical Specifications for Surface Water and Sewage Monitoring》(HJ/T91-2002)、《Technical Regulations on Preservation and Management of Water Quality Sampling Samples》(HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》(the Second Edition). The current effective standard analysis method

issued by the relevant departments of the state is adopted for the detection and analysis method. All the testing personnel are employed with certificates. The detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as laboratory blank and quality control sample analysis were taken, and the quality control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-11 shows the result.

Table 2-11 Monitoring Results

Number	**Test Items**	Results	
		☆1#	☆2#
1	DO(mg/L)	7.52	7.52
2	Petroleum(mg/L)	0.01L	0.01L
3	SS(mg/L)	15	24

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

It can be seen from the table that the monitoring results of dissolved oxygen and petroleum in Qingshui River reach the Class 1 water quality standard.

Monitor：_____ Auditor：_____ Issuer：_____

Date ：_____ Date ：_____ Date：_____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 1st Quarter Report in March 2022 for Jiangtai Xitan Pingfeng Road in Xiji County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

April 10th, 2022

1 TASK SOURCE

Entrusted by the Transportation Bureau of Xiji County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from March 27 to April 1, 2022 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Jiangtai Xitan Pingfeng Road, the main rural road of Xiji county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Central Health Center of Jiangtai Township (○1#), Mingtai Village (○2#), Maojiagou Village (○3#), Shencha Village (○4#), Heihugou Village (○5#), Central Primary School of Xitan Township (○6#), Health Center of Xitan Township (○7#), Hejiawan Village (○8#) , Gancha Primary School (○9#), Gancha Village (○10#), Xinzhuangzi Village (○11#), Xingping Village (○12#), Youai Village (○13#), Yapowan Village (○14#), Pingfeng Village (○15#), Pingfeng Middle School in Xiji(○16#), Fujiawan Village (○17#), Wangnao Village (○18#), Luotuocha Village (○19#) and Libao Primary School (○20#).Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1#	Central Health Center of Jiangtai Township	N35°48' 40"，E105° 50' 08"	TSP
○2#	Mingtai Village	N35° 48' 44"，E105° 49' 50"	
○3#	Maojiagou Village	N35° 48' 47"，E105° 49' 01"	
○4#	Shencha Village	N35° 49' 25"，E105° 48' 05"	
○5#	Heihugou Village	N35° 49' 54"，E105° 46' 40"	
○6#	Central Primary School of Xitan Township	N35° 52' 56"，E105° 44' 38"	
○7#	Health Center of Xitan Township	N35° 52' 53"，E105° 44' 33"	
○8#	Hejiawan Village	N35° 52' 46"，E105° 42' 34"	
○9#	Gancha Primary School	N35° 52' 16"，E105° 42' 02"	
○10#	Gancha Village	N35° 52' 14"，E105° 42' 03"	
○11#	Xinzhuangzi Village	N35° 50' 41"，E105° 40' 31"	
○12#	Xingping Village	N35° 50' 32"，E105° 39' 57"	
○13#	Youai Village	N35°49' 35"，E105° 39' 03"	
○14#	Yapowan Village	N35°46' 29"，E105° 35' 32"	
○15#	Pingfeng Village	N35° 44' 43"，E105° 34' 02"	
○16#	Pingfeng Middle School in Xiji	N35° 44' 33"，E105° 33' 50"	
○17#	Fujiawan Village	N35° 44' 23"，E105° 28' 59"	
○18#	Wangnao Village	N35° 45' 29"，E105° 29' 01"	
○19#	Luotuocha Village	N35° 46' 11"，E105° 28' 46"	
○20#	Libao Primary School	N35° 46' 39"，E105° 27' 52"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the

ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit（mg/m^3）**
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance

with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

2.1.5 Test Results

Table 2-4 shows the weather conditions。

Table 2-4 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature（℃）	Mean Pressure（kpa）	Mean Humidity（%RH）	Mean Wind Direction	Mean Wind Speed（m/s）
March 29~March 30	4.8	81.0	48	NE	2.6
March 31~March 23	5.2	80.9	46	NE	2.0

2.1.6 Ambient Air Test Results

Table 2-5 shows the Ambient air test results。

Table 2-5 Statistical table of ambient air test results **(μg/m³)**

Date	**Point**	○1# Central Health Center of Jiangtai Township	○2# Mingtai Village	○3# Maojiagou Village	○4# Shencha Village	○5# Heihugou Village
March 29~March 30	TSP	149	157	122	177	152
Date	**Point**	○6# Central Primary School of Xitan Township	○7# Health Center of Xitan Township	○8# Hejiawan Village	○9# Gancha Primary School	○10# Gancha Village
March 29~March 30	TSP	173	181	133	129	144
Date	**Point**	○11# Xinzhuangzi Village	○12# Xingping Village	○13# Youai Village	○14# Yapowan Village	○15# Pingfeng Village
March 31~April 1	TSP	141	145	110	131	116
Date	**Point**	○16# Pingfeng	○17#	○18#	○19#	○20# Libao

		Middle School in Xiji	Fujiawan Village	Wangnao Village	Luotuocha Village	Primary School
March 31~April 1	TSP	154	134	162	156	125
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300				

Analysis of test results：

From March 29th to April 1st ,2022,○1#~○20# total suspended particles at each test point（TSP）are 110~181μg/m^3，All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 20 noise detection points are arranged in this time，Table 2-6 shows the List of monitoring points of acoustic environment quality status。

Table 2-6 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲1#	Central Health Center of Jiangtai Township	N35°48' 40"，E105° 50' 08"
▲2#	Mingtai Village	N35° 48' 44"，E105° 49' 50"
▲3#	Maojiagou Village	N35° 48' 47"，E105° 49' 01"
▲4#	Shencha Village	N35° 49' 25"，E105° 48' 05"
▲5#	Heihugou Village	N35° 49' 54"，E105° 46' 40"
▲6#	Central Primary School of Xitan Township	N35° 52' 56"，E105° 44' 38"
▲7#	Health Center of Xitan Township	N35° 52' 53"，E105° 44' 33"
▲8#	Hejiawan Village	N35° 52' 46"，E105° 42' 34"
▲9#	Gancha Primary School	N35° 52' 16"，E105° 42' 02"
▲10#	Gancha Village	N35° 52' 14"，E105° 42' 03"
▲11#	Xinzhuangzi Village	N35° 50' 41"，E105° 40' 31"
▲12#	Xingping Village	N35° 50' 32"，E105° 39' 57"

▲13#	Youai Village	N35°49' 35"，E105° 39' 03"
▲14#	Yapowan Village	N35°46' 29"，E105° 35' 32"
▲15#	Pingfeng Village	N35° 44' 43"，E105° 34' 02"
▲16#	Pingfeng Middle School in Xiji	N35° 44' 33"，E105° 33' 50"
▲17#	Fujiawan Village	N35° 44' 23"，E105° 28' 59"
▲18#	Wangnao Village	N35° 45' 29"，E105° 29' 01"
▲19#	Luotuocha Village	N35° 46' 11"，E105° 28' 46"
▲20#	Libao Primary School	N35° 46' 39"，E105° 27' 52"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6228+ multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-023-2; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-075-1. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-7 shows the Specific Calibration Value。

Table 2-7 List of Sound Level Calibration Results

Model of Testing Instrument	AWA6228 + multi function sound level meter No.: JK-2-023-2		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-2-075-1
Instrument Calibration	Calibration time		March 29th	
	Calibration Result	Before Calibration	93.7	
		After Calibration	93.8	
Basis	《Acoustic environment quality standard》（GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：March 29th and 30th, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-8 shows the result.

Table 2-8 Monitoring Results of Acoustic Environment quality dB(A)

Number	**Location**	August 8th	
		Daytime	**Nighttime**
▲2#	Mingtai Village	50	Not detected at night
▲3#	Maojiagou Village	49	
▲4#	Shencha Village	49	
▲5#	Heihugou Village	49	
▲8#	Hejiawan Village	50	

▲10#	Gancha Village	50	
▲11#	Xinzhuangzi Village	49	
▲12#	Xingping Village	50	
▲13#	Youai Village	49	
▲14#	Yapowan Village	50	
▲15#	Pingfeng Village	51	
▲17#	Fujiawan Village	50	
▲18#	Wangnao Village	48	
▲19#	Luotuocha Village	48	
《Acoustic environment quality standard》（GB3096-2008）Class II		60	
▲1#	Central Health Center of Jiangtai Township	51	
▲6#	Central Primary School of Xitan Township	49	
▲7#	Health Center of Xitan Township	50	
▲9#	Gancha Primary School	48	
▲16#	Pingfeng Middle School in Xiji	50	
▲20#	Libao Primary School	48	
《Acoustic environment quality standard》（GB3096-2008）Class I		55	

Analysis of the test results: on March 29th and 31st, 2022, the noise detection values of the daytime acoustic environmental quality at each test point △2 #~△5 #,△8 #, △10 #~△15 #, △17 #~△19 # were between 48dB (A) and 51dB (A), meeting the class II standard of 《Acoustic environment quality standard》（GB3096-2008）; The noise detection values of△1 #, △6 #, △7 #,△9 #, △16 # and △20 # detection points are between 48dB (A) and 51dB (A) in the daytime, meeting the class I standard of《Acoustic environment quality standard》

（GB3096-2008）.

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, two sampling points are set in Hulu River and one sampling point is set in Libao Reservoir，Table 2-9 shows the Specific location.

Table 2-9　List of surface water detaection points

Number	Name	Latitude and longitude coordinates
☆1#	50m upstream of Hulu Bridge	N35° 48' 53.12"，E105° 49' 38.29"
☆2#	100m downstream of Hulu Bridge	N35° 48' 51.07"，E105° 49' 31.30"
☆3#	Libao Reservoir	N35° 46' 21.00"，E105° 27' 33.79"

2.3.2 Testing items, Testing time and Frequency

Test Items：DO, Petroleum, SS

Detection Time：March 27th, 2022

Frequency：One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according to the methods recommended in 《Environmental Quality Standard for Surface Water (GB3838-2002)》and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》. Table 2-10 shows the detailed monitoring and analysis method。

Table 2-10　List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009

2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in《Technical Specifications for Surface Water and Sewage Monitoring》(HJ/T91-2002) 、《Technical Regulations on Preservation and Management of Water Quality Sampling Samples》(HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》(the Second Edition). The current effective standard analysis method issued by the relevant departments of the state is adopted for the detection and analysis method. All the testing personnel are employed with certificates. The detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as laboratory blank and quality control sample analysis were taken, and the quality control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-11 shows the result.

Table 2-11 Monitoring Results

Number	Test Items	Results		
		☆1#	☆2#	☆3#
1	DO(mg/L)	7.73	7.75	7.68
2	Petroleum(mg/L)	0.01L	0.01L	0.01L
3	SS(mg/L)	16	6	14

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

It can be seen from the table that Hulu River and Libao Reservoir reach the standard value of Class 1 water body.

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 1st Quarter Report in April 2022 for Wangtuan-Yuwang road in Tongxin County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

April 10, 2022

1 TASK SOURCE

Entrusted by the Transportation Bureau of Tongxin County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from April 2 to April 3, 2022 to test the environmental air and acoustic environment quality of the designated testing points in Wangtuan Yuwang Road, the main rural road of Tongxin county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Mujiagou Mosque (○1#), Qianhong Mosque (○2#), Humaqi Village (○3#), Shanghujiayuan Village (○4#), Shangyuan primary school (○5#), Hujiayuan Village (○6#) and Nanguan Village (○7#).Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1#	Mujiagou Mosque	N：36° 49' 45.30"，E：106° 01' 19.12"	TSP
○2#	Qianhong Mosque	N：36° 48' 0.48"，E：106° 02' 35.09"	
○3#	Humaqi Village	N：36°49' 13.34"，E：106° 03' 18.06"	
○4#	Shanghujiayuan Village	N：36° 49' 05.24"，E：106° 19' 03.11"	
○5#	Shangyuan primary school	N：36° 49'12.90"，E：106° 19' 25.05"	
○6#	Hujiayuan Village	N：36° 49' 11.06"，E：106° 21' 27.29"	
○7#	Nanguan Village	N：36° 49' 08.04"，E：106° 22' 17.65"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit**（**mg/m^3**）
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual

monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

2.1.5 Test Results

Table 2-4 shows the weather conditions.

Table 2-4 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature (℃)	Mean Pressure (kpa)	Mean Humidity (%RH)	Mean Wind Direction	Mean Wind Speed (m/s)
April 2~April 3	7.0	85.1	27	SE	2.0

2.1.6 Ambient Air Test Results

Table 2-5 shows the Ambient air test results。

Table 2-5 Statistical table of ambient air test results **(μg/m³)**

Date	Point / Items	○1# Mujiagou Mosque	○2# Qianhong Mosque	○3# Humaqi Village	○4# Shanghujiayuan Village	○5# Shangyuan primary school	○6# Hujiayuan Village	○7# Nanguan Village
April 2~April 3	TSP	134	149	126	169	118	117	101
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300						

Analysis of test results：

From April 2 to April 3, 2022, ○1#~○7# total suspended particles at each

test point（TSP）are 101~169μg/m^3，All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 7 noise detection points are arranged in this time，Table2-6 shows the List of monitoring points of acoustic environment quality status。

Table 2-6 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲1#	Mujiagou Mosque	N：36° 49' 45.30" E：106° 01' 19.12"
▲2#	Qianhong Mosque	N：36° 48' 0.48" E：106° 02' 35.09"
▲3#	Humaqi Village	N：36°49' 13.34" E：106° 03' 18.06"
▲4#	Shanghujiayuan Village	N：36° 49' 05.24" E：106° 19' 03.11"
▲5#	Shangyuan primary school	N：36° 49'12.90" E：106° 19' 25.05"
▲6#	Hujiayuan Village	N：36° 49' 11.06" E：106° 21' 27.29"
▲7#	Nanguan Village	N：36° 49' 08.04" E：106° 22' 17.65"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6228 multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-023-2; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-075-1.

The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-7 shows the Specific Calibration Value。

Table 2-7 List of Sound Level Calibration Results

Model of Testing Instrument	AWA6218B + multi function sound level meter No: JK-2-023-2		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-075-1
Instrument Calibration	Calibration Time		April 2nd	
	Calibration Result	Before Calibration	93.8dB（A）	
		After Calibration	93.9dB（A）	
Basis	《Acoustic environment quality standard》（GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：April 2, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-8 shows the result.

Table 2-8 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	April 2nd	
		Daytime	Nighttime
▲1#	Mujiagou Mosque	50	Not detected at night
▲2#	Qianhong Mosque	50	
▲3#	Humaqi Village	49	
▲4#	Shanghujiayuan Village	49	
▲6#	Hujiayuan Village	48	
▲7#	Nanguan Village	49	
《Acoustic environment quality standard》（GB3096-2008）Class II		60	
▲5#	Shangyuan primary school	50	
《Acoustic environment quality standard》（GB3096-2008）Class I		55	

Analysis of test results：On April 2, 2022, the noise detection value of the daytime acoustic environment quality at △1 #~△4 # and △6 #~△7 # test points was between 48dB (A) and 50dB (A), meeting the class II standard of 《Acoustic environment quality standard》（GB3096-2008）. The noise detection value of the daytime acoustic environment quality at 5 # test point is 50dB (A), meeting the class I standard of 《Acoustic environment quality standard》（GB3096-2008）.

Monitor：_____ Auditor：_____ Issuer：_____

Date ：_____ Date ：_____ Date：_____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 1st Quarter Report in March 2022 for Mengyuan Chunshucha Chengyangyangping Road in Pengyang County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

April 10th, 2022

1 TASK SOURCE

Entrusted by the Transportation Bureau of Pengyang County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from March 27 to March 28, 2022 to test the environmental air and acoustic environment quality of the designated testing points in Mengyuan Chunshucha Chengyangyangping Road, the main rural road of Pengyang county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Baiyang Village(〇1#), Central School of Mengyuan Township(〇2#), Central kindergarten of Mengyuan Township(〇3#), Health Center of Mengyuan Township (〇4#), Shuangshu Village (〇5#), Huaishu Village(〇6#), Zhaoshan Village(〇7#), Caotan Village (〇8#) , Ligou Wan(〇9#), Beiyun Village in Chenwan(〇10#), Yangping Village (〇11#).Table 2-1 shows the specific points.

Table 2-1 List of Ambient Air Detection Points

Number	Name	Latitude and longitude coordinates	Testing items
〇1#	Baiyang Village	N35° 58' 53"，E106° 48' 46"	TSP
〇2#	Central School of Mengyuan Township	N35° 58' 45"，E106° 48' 52"	
〇3#	Central kindergarten of Mengyuan Township	N35° 58' 45"，E106° 48' 54"	
〇4#	Health Center of Mengyuan Township	N35° 58' 49"，E106° 49' 02"	
〇5#	Shuangshu Village	N35° 57' 05"，E106° 49' 30"	
〇6#	Huaishu Village	N35° 56' 27"，E106° 50' 06"	
〇7#	Zhaoshan Village	N35° 54' 52"，E106° 51' 08"	

○8#	Caotan Village	N35° 54' 31"，E106° 51' 34"	
○9#	Ligou Wan	N35° 52' 01"，E106° 52' 13"	
○10#	Beiyun Village in Chenwan	N35° 49' 40"，E106° 52' 49"	
○11#	Yangping Village	N35° 48' 09"，E106° 52' 19"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit**（**mg/m^3**）
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point,

sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

2.1.5 Test Results

Table 2-4 shows the weather conditions。

Table 2-4 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature（℃）	Mean Pressure（kpa）	Mean Humidity（%RH）	Mean Wind Direction	Mean Wind Speed（m/s）
March 27~March 28	8.6	83.5	49	SW	2.0

2.1.6 Ambient Air Test Results

Table 2-5 shows the Ambient air test results。

Table 2-5 Statistical table of ambient air test results **(μg/m³)**

Date	Point	○1# Baiyang Village	○2# Central School of Mengyuan Township	○3# Central kindergarten of Mengyuan Township	○4# Health Center of Mengyuan Township	○5# Shuangshu Village	○6# Huaishu Village
March 27~March 28	TSP	114	143	142	149	124	145

Date	Point	○7# Zhaoshan Village	○8# Caotan Village	○9# Ligou Wan	○10# Beiyun Village in Chen wan	○11# Yangping Village	
March 27	TSP	123	146	121	133	129	
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300					

Analysis of test results：

From March 27 to Marchr 28, 2022,○1#~○11# total suspended particles at each test point（TSP）are 114~149184μg/m^3，All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 11 noise detection points are arranged in this time，Table 2-6 shows the List of monitoring points of acoustic environment quality status。

Table 2-6 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲1#	Baiyang Village	N35° 58' 53"，E106° 48' 46"
▲2#	Central School of Mengyuan Township	N35° 58' 45"，E106° 48' 52"
▲3#	Central kindergarten of Mengyuan Township	N35° 58' 45"，E106° 48' 54"
▲4#	Health Center of Mengyuan Township	N35° 58' 49"，E106° 49' 02"
▲5#	Shuangshu Village	N35° 57' 05"，E106° 49' 30"
▲6#	Huaishu Village	N35° 56' 27"，E106° 50' 06"
▲7#	Zhaoshan Village	N35° 54' 52"，E106° 51' 08"
▲8#	Caotan Village	N35° 54' 31"，E106° 51' 34"

▲9#	Ligou Wan	N35° 52' 01"，E106° 52' 13"
▲10#	Beiyun Village in Chenwan	N35° 49' 40"，E106° 52' 49"
▲11#	Yangping Village	N35° 48' 09"，E106° 52' 19"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6228+ multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-023-2; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-075-1. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-7 shows the Specific Calibration Value。

Table 2-7 List of Sound Level Calibration Results

Model of Testing Instrument	AWA6228 + multi function sound level meter No.: JK-2-023-2		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-2-075-1
Instrument Calibration	Calibration Daytime		March 27th	
	Calibration	Before Calibration	93.8dB（A）	

	Result	After Calibration	93.9dB（A）
Basis	《Acoustic environment quality standard》（GB3096-2008）		

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：March 27th, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-8 shows the result.

Table 2-8 Monitoring Results of Acoustic Environment quality dB(A)

Number	**Location**	March 15th	
		Daytime	**Nighttime**
▲1#	Baiyang Village	50	Not detected at night
▲5#	Shuangshu Village	50	
▲6#	Huaishu Village	51	
▲7#	Zhaoshan Village	50	
▲8#	Caotan Village	49	
▲9#	Ligou Wan	50	
▲10#	Beiyun Village in Chenwan	48	
▲11#	Yangping Village	50	
《Acoustic environment quality standard》（GB3096-2008）Class II		60	
▲2#	Central School of Mengyuan Township	50	

▲3#	Central kindergarten of Mengyuan Township	49	
▲4#	Health Center of Mengyuan Township	51	
《Acoustic environment quality standard》（GB3096-2008）Class I		55	

Analysis of test results：On March 27, 2022, the noise detection value of the daytime acoustic environment quality at △1 #, △5 #~△11 # test points was between 48dB (A) and 51dB (A), meeting the II standard of 《Acoustic environment quality standard》（GB3096-2008）.The noise detection value of the daytime acoustic environment quality at 2 #~4 # detection points is between 49dB (A) and 51dB (A), meeting the Class class I standard of《Acoustic environment quality standard》（GB3096-2008）.

Monitor：_____ Auditor：_____ Issuer：_____

Date ：_____ Date ：_____ Date：_____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 1st Quarter Report in March 2022 for Shatang haodian road in Jingyuan County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

March 1, 2022

1 TASK SOURCE

Entrusted by the Transportation Bureau of Jingyuan County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from March 27 to March 28, 2022 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Shatang Haodian Road, the main rural road of Jingyuan county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Shatang Village (○1#), Nonglin Village (○2#) and Tuyao Village (○3#).Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1#	Shatang Village	N35°34' 49"，E106° 26' 39"	TSP
○2#	Nonglin Village	N35° 39' 01"，E106° 25' 33"	
○3#	Tuyao Village	N35° 39' 24"，E106° 24' 44"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit（mg/m^3）**
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued

by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

2.1.5 Test Results

Table 2-4 shows the weather conditions。

Table 2-4 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature（℃）	Mean Pressure（kpa）	Mean Humidity（%RH）	Mean Wind Direction	Mean Wind Speed（m/s）
March 27~March 28	6.2	81.3	50	SW	1.8

2.1.6 Ambient Air Test Results

Table 2-5 shows the Ambient air test results。

Table 2-5 Statistical table of ambient air test results **(μg/m³)**

Date	Point	○1# Shatang Village	○2# Nonglin Village	○3# Tuyao Village
March 27~ March 28	TSP	125	133	107
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300		

Analysis of test results：

From March 27 to Marchr 28, 2022,○1#~○3# total suspended particles at each test point（TSP）are 107~133μg/m³，All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 3 noise detection points are arranged in this time，Table 2-6 shows the List of monitoring points of acoustic environment

quality status。

Table 2-6 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲1#	Shatang Village	N35°34' 49"，E106° 26' 39"
▲2#	Nonglin Village	N35° 39' 01"，E106° 25' 33"
▲3#	Tuyao Village	N35° 39' 24"，E106° 24' 44"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6228+ multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-023-2; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-075-1. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-7 shows the Specific Calibration Value。

Table 2-7 List of Sound Level Calibration Results

Model of Testing Instrument	AWA5680 + multi function sound level meter No.: JK-2-023-2		Calibration Instrument Model	AWA6021A Sound Level Calibrator No: JK-2-075-1
Instrument Calibration	Calibration Daytime		March 27th	
	Calibration Result	Before Calibration	93.8dB（A）	
		After Calibration	93.9dB（A）	
Basis	《Acoustic environment quality standard》（GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：March 27th, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-8 shows the result.

Table 2-8 Monitoring Results of Acoustic Environment quality dB(A)

Number	**Location**	March 27th	
		Daytime	**Nighttime**
▲1#	Shatang Village	49	Not detected at night
▲2#	Nonglin Village	50	
▲3#	Tuyao Village	51	
《Acoustic environment quality standard》（GB3096-2008）Class II		60	

Analysis of the test results: on March 27, 2022, the noise detection value of the daytime acoustic environment quality at △1 #~△3 # test points was between 49dB (A) and 51dB (A), meeting the class II standard of 《Acoustic environment quality standard》（GB3096-2008）.

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, two sampling points are set in YanZhi River，Table 2-9 shows the Specific location.

Table 2-9 List of surface water detaection points

Number	Name	Latitude and longitude coordinates
☆1#	50m upstream of Yanzhi Bridge	N35°35'35.45"，E106°25'24.98"
☆2#	100m downstream of yanzhi Bridge	N35°35'31.45"，E106°25'30.97"

2.3.2 Testing items, Testing time and Frequency

Test Items：DO, Petroleum, SS

Detection Time：March 27th,2022

Frequency：One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according to the methods recommended in 《Environmental Quality Standard for Surface Water (GB3838-2002)》and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》. Table 2-10 shows the detailed monitoring and analysis method.

Table 2-10 List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in《Technical Specifications for Surface Water and Sewage Monitoring》(HJ/T91-2002)、《Technical Regulations on Preservation and Management of Water Quality Sampling Samples》(HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》(the Second Edition). The current effective standard analysis method issued by the relevant departments of the state is adopted for the detection and analysis method. All the testing personnel are employed with certificates. The detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as laboratory blank and quality control sample analysis were taken, and the quality control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-11 shows the result.

Table 2-11 Monitoring Results

Number	Test Items	Results	
		☆1#	☆2#
1	DO(mg/L)	7.81	7.82
2	Petroleum(mg/L)	0.01L	0.01L
3	SS(mg/L)	5	5

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

It can be seen from Table 2-11 that the Yanzhi River has reached the standard value of Class 1 water body.

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 1st Quarter Report in April 2022 for Zhengqi Jiucai Sikouzi road in Haiyuan County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

April 10, 2022

1 TASK SOURCE

Entrusted by the Transportation Bureau of Haiyuan County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from April 2 to April 3, 2022 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Zhengqi Jiucai Sikouzi Road, the main rural road of Haiyuan county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Tangbao Village (○1#), Guluwan Village (○2#), Lubiliang Village (○3#), Matao Village (○4#), Matao primary school (○5#), Yuantao Village (○6#) and Houtang Village (○7#).Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1#	Tangbao Village	N36° 24' 38.78"，E106° 58' 28.84"	TSP
○2#	Guluwan Village	N36° 23' 03.43"，E106° 56' 31.20"	
○3#	Lubiliang Village	N36° 20' 45.27"，E105° 56' 1.25"	
○4#	Matao Village	N36° 18' 45.96"，E105°55' 26.14"	
○5#	Matao primary school	N36° 18' 43.17"，E105°55'27.30"	
○6#	Yuantao Village	N36° 17' 41.80"，E105°55' 31.04"	
○7#	Houtang Village	N36° 16' 51.62"，E105°55' 45.02"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit**（**mg/m^3**）
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual

monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable.

2.1.5 Ambient Air Test Results

Table 2-4 shows the weather conditions。

Table 2-4 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature（℃）	Mean Pressure（kpa）	Mean Humidity（%RH）	Mean Wind Direction	Mean Wind Speed（m/s）
April 2~April3	7.2	81.2	28	SE	1.8

Table 2-5 shows the ambient air test result。

Table 2-5 Ambient Air Test Results **(μg/m³)**

Date	**Point / Items**	○1# Tangbao Village	○2# Guluwan Village	○3# Lubiliang Village	○4# Matao Village	○5# Matao primary school	○6# Yuantao Village	○7# Houtang Village
April 2~April 3	TSP	121	120	143	132	179	113	123
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300						

Analysis of test results：

From April 2 to April 3, 2022,○1#~○7# total suspended particles at each test point（TSP）are 113~179μg/m³，All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 7 noise detection points are arranged in this time，Table 2-6 shows the List of monitoring points of acoustic environment quality status。

Table 2-6 List of Monitoring Points of Acoustic Environment

Number	**Name**	**Latitude and longitude coordinates**
▲1#	Tangbao Village	N36° 24' 38.78"，E106° 58' 28.84"
▲2#	Guluwan Village	N36° 23' 03.43"，E106° 56' 31.20"
▲3#	Lubiliang Village	N36° 20' 45.27"，E105° 56' 1.25"
▲4#	Matao Village	N36° 18' 45.96"，E105°55' 26.14"
▲5#	Matao primary school	N36° 18' 43.17"，E105°55'27.30"
▲6#	Yuantao Village	N36° 17' 41.80"，E105°55' 31.04"
▲7#	Houtang Village	N36° 16' 51.62"，E105°55' 45.02"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6228 multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-023-2; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-075-1. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-7 shows the Specific Calibration Value。

Table 2-7 List of Sound Level Calibration Results

<table>
<tr><td>Model of Testing Instrument</td><td colspan="2">AWA5680 + multi function sound level meter No.: JK-2-023-2</td><td>Calibration Instrument Model</td><td>AWA6021A Sound Level Calibrator No.: JK-2-075-1</td></tr>
<tr><td rowspan="3">Instrument Calibration</td><td colspan="2">Calibration Result</td><td colspan="2">April 2nd</td></tr>
<tr><td rowspan="2">Daytime</td><td>Before Calibration</td><td colspan="2">93.8dB（A）</td></tr>
<tr><td>After Calibration</td><td colspan="2">93.9dB（A）</td></tr>
<tr><td>Basis</td><td colspan="4">《Acoustic environment quality standard》（GB3096-2008）</td></tr>
</table>

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument

before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：April 2, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-8 shows the result.

Table 2-8 Monitoring Results of Acoustic Environment quality dB(A)

Number	**Location**	April 2nd	
		Daytime	**Nighttime**
▲1#	Tangbao Village	49	Not detected at night
▲2#	Guluwan Village	50	
▲3#	Lubiliang Village	49	
▲4#	Matao Village	50	
▲6#	Yuantao Village	48	
▲7#	Houtang Village	49	
《Acoustic environment quality standard》（GB3096-2008）Class II		60	
▲5#	Matao primary school	50	
《Acoustic environment quality standard》（GB3096-2008）Class I		55	

Analysis of test results: on April 2nd, 2022, the noise detection value of the daytime acoustic environment quality at △ 1 #~△4 # and △6 #~△7 # test points was between 48dB (A) and 50dB (A), meeting the Class II standard of the Environmental Quality Standard for Noise (GB3096-2008); The daytime acoustic

environmental quality noise detection value of 5 # detection point is 50dB (A), meeting the Class 1 standard in the Environmental Quality Standard for Noise (GB3096-2008).

2.3 Surface water environment monitoring

2.3.1 Location of detection points

According to the detection scheme, 1 sampling point is set at Gaipai Reservoir (☆ 1 #) for the current detection of surface water environmental quality. See Table 2-9 for specific points.

Table 2-9 List of Surface Water Detection Points

Number	Point	Coordinate
☆1#	Gaipai Reservoir	N36° 25' 55" , E 105° 58' 28"

2.3.2 Test items, Test time and Frequency

Test items: DO, petroleum and SS.

Test time and frequency: Mach 27, 2022, test 1 day, once a day.

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is based on the methods recommended in the Environmental Quality Standard for Surface Water (GB 3838-2002) and the Monitoring and Analysis Method for Water and Waste Gas (Supplement). See Table 2-10 for details.

Table 2-10 List of Surface Water Detection and Analysis Methods

Number	Test items	Analytical method	Detection Limit	Method source
1	DO	Electrochemical probe method	/	HJ 506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ 970-2018
3	SS	Electrochemical probe method	4mg/L	GB 11901-1989

2.3.4 Quality Assurance and Quality Control Measures

In order to ensure the accuracy and reliability of the test data, the whole process of water quality sample collection, transportation, storage, laboratory analysis and data processing is carried out in accordance with the requirements of the Technical Specifications for Surface Water and Sewage Monitoring (HJ/T 91-2002), the Technical Regulations for the Storage and Management of Water Quality Sampling Samples (HJ 493-2009), and the Environmental Water Quality Monitoring Quality Assurance Manual (second edition). The detection and analysis method adopts the current effective standard analysis method issued by the relevant national departments. The detection personnel are employed with certificates. The detection and analysis instruments used in the detection process have been verified/calibrated by a qualified metrological verification and calibration unit and are within the validity period.

Quality control measures such as laboratory blank and quality control sample analysis were taken during the analysis of laboratory samples. The quality control results were within the controlled range and met the requirements. See Table 2-11 for the statistics of quality control results.

2.3.5 Surface water detection results

See Table 2-11 for surface water detection results.

Table 2-11 Surface Water Test Results

Number	**Items**	**Result**
		☆1# Gaipai Reservoir
1	DO（mg/L）	7.96
2	Petroleum（mg/L）	0.01L

3	SS（mg/L）	16
Note: When the detection result is lower than the detection limit of the method, the detection result is indicated by the detection limit plus "L".		

It can be seen from Table 2-11 that the Gaipai Reservoir has reached the standard value of Class 1 water body.

Monitor：_____ Auditor：_____ Issuer：_____

Date ：_____ Date ：_____ Date：_____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 2st Quarter Report in July 2022 for Guanting Town Yuanzhou District and Wanzhang Sanying road in Yuanzhou District)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

July 5, 2022

1 TASK SOURCE

Entrusted by the Construction and Environmental Protection Bureau of Communication Township in Yuanzhou District of Guyuan City, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from June 10 to June 15, 2022 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Guanting Town Yuanzhou District and Wanzhang Sanying Road, the main rural road of Haiyuan county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Qianwa Village(○1#),Guanting Primary School(○2#),Guanting Town(○3#), Group 2,Guanting Village(○ 4#),Group 4, Guanting Village(○ 5#),Liudian Village(○ 6#) 、Liuzhengdian(○ 7#) 、Shizhuang Village(○ 8#)、Erdaocha Village(○ 9#) 、 Chengershan Village(○ 10#) ,distributed in Guanting town-Yuanzhou District of Guyuan Citye. The other six points are Lijiacha Village(○11#),Group 2,Dongyuan Village(○12#),Dongyuan Primary School(○ 13#), Group 4,Dongyuan Village(○ 14#),Malu Mosques(○ 15#) and Malu Village(○16#), distributed in Wanzhang Sanying Road. Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Road section	Latitude and longitude coordinates	Testing items
○1#	Qianwa Village	Guanting town-Yuanzhou District of Guyuan Citye Road	N：36° 10' 19" E：106° 24' 34"	TSP
○2#	Guanting Primary School		N：36° 9' 42" E：106°24' 56"	
○3#	Guanting Town		N：36°9' 43" E：106° 24' 56"	
○4#	Group 2, Guanting Village		N：36° 9' 35" E：106° 24' 53"	
○5#	Group 4, Guanting Village		N：36° 9'14" E：106° 24' 23"	
○6#	Liudian Village		N：36° 7' 0" E：106° 22' 2"	
○7#	Liuzhengdian		N：36° 6' 55" E：106° 22' 18"	
○8#	Shizhuang Village		N：36° 5' 46" E：106° 21' 1"	
○9#	Erdaocha Village		N：36° 4' 37" E：106° 20' 16"	
○10#	Chengershan Village		N：36° 3' 31" E：106° 20' 10"	
○11#	Lijiacha Village	Wanzhang Sanying Road	N：36° 7' 19" E：106° 19' 25"	
○12#	Group 2,Dongyuan Village		N：36° 16' 17" E：106° 14' 13"	
○13#	Dongyuan Primary School		N：36° 16' 24" E：106° 13' 31"	
○14#	Group 4, Dongyuan Village		N：36° 16' 25" E：106° 12' 21"	
○15#	Malu Mosques		N：36° 16' 26" E：106° 10' 26"	
○16#	Malu Village		N：36° 16' 26" E：106° 10' 12"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the

relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit（mg/m^3）**
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for

manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable. Table 2-4 shows the Quality control data.

Table2-4 Quality Control Data

Number	Testing items	Sample number	Blank sample	Standard membrane	Parallel sample	Pass rate（%）	Test value (mg/L)	Standard value (mg/L)
1	TSP	16	/	2	/	100	/	/

2.1.5 Test Results

Table 2-5 shows the weather conditions。

Table 2-5 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature（℃）	Mean Pressure（kpa）	Mean Humidity（%RH）	Mean Wind Direction	Mean Wind Speed（m/s）
June 12~June 13	18.3	82.0	38	NE	1.8
June 13~June 14	17.8	82.1	37	NW	1.9
June 14~June 15	19.3	82.0	36	NE	1.8

2.1.6 Ambient Air Test Results

Table 2-6 shows the Ambient air test results。

Table 2-6 Statistical table of ambient air test results **(μg/m³)**

Date	**Point**	**○1#** Qianwa Village	**○2#** Guanting Primary School	**○3#** Guanting Town	**○4#** Group 2, Guanting Village	**○5#** Group 4, Guanting Village	**○6#** Liudian Village	
June 12~June 13	TSP	170	228	128	166	180	172	
Date	**Point**	**○7#** Liuzhengdian	**○8#** Shizhuang Village	**○9#** Erdaocha Village	**○10#** Chengershan Village			
June 13~June 14	TSP	142	128	163	216			
Date	**Point**	**○11#** Lijiacha Village	**○12#** Group 2,Dongyuan Village	**○13#** Dongyuan Primary School	**○14#** Group 4, Dongyuan Village	**○15#** Malu Mosques	**○16#** Malu Village	
June 13~June 15	TSP	135	172	147	91	115	168	
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300						

Analysis of test results：

○ 1#~ ○ 16# total suspended particles at each test point（TSP）are 91~228μg/m³ from June 12th to 15th，2022. All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 16 noise detection points are arranged in this time，Table 2-7 shows the List of monitoring points of acoustic environment quality status。

Table 2-7 List of Monitoring Points of Acoustic Environment

Number	**Name**	**Road section**	**Latitude and longitude coordinates**
△1#	Qianwa Village	Guanting town-Yuanzhou District of Guyuan Citye Road	N：36° 10' 19" E：106° 24' 34"
△2#	Guanting Primary School		N：36° 9' 42" E：106°24' 56"

△3#	Guanting Town		N：36°9' 43" E：106° 24' 56"
△4#	Group 2, Guanting Village		N：36° 9' 35" E：106° 24' 53"
△5#	Group 4, Guanting Village		N：36° 9'14" E：106° 24' 23"
△6#	Liudian Village		N：36° 7' 0" E：106° 22' 2"
△7#	Liuzhengdian		N：36° 6' 55" E：106° 22' 18"
△8#	Shizhuang Village		N：36° 5' 46" E：106° 21' 1"
△9#	Erdaocha Village		N：36° 4' 37" E：106° 20' 16"
△10#	Chengershan Village		N：36° 3' 31" E：106° 20' 10"
△11#	Lijiacha Village	Wanzhang Sanying Road	N：36° 7' 19" E：106° 19' 25"
△12#	Group 2,Dongyuan Village		N：36° 16' 17" E：106° 14' 13"
△13#	Dongyuan Primary School		N：36° 16' 24" E：106° 13' 31"
△14#	Group 4, Dongyuan Village		N：36° 16' 25" E：106° 12' 21"
△15#	Malu Mosques		N：36° 16' 26" E：106° 10' 26"
△16#	Malu Village		N：36° 16' 26" E：106° 10' 12"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6228+ multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-023（1）; the instrument is calibrated with AWA6221B class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-026. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-8 shows the Specific Calibration Value。

Table 2-8 List of Sound Level Calibration Results

Model of Testing Instrument	AWA6228+ multi function sound level meter No.: JK-2-023（1）		Calibration Instrument Model	AWA6221B Sound Level Calibrator No.: JK-2-026
Instrument Calibration	Calibration Result		June 10	
	Daytime	Before Calibration	93.7dB（A）	
		After Calibration	93.8dB（A）	
Basis	《Acoustic environment quality standard》（GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：On June 12, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-9 shows the result.

Table 2-9 Monitoring Results of Acoustic Environment quality dB(A)

Number	**Location**	June 12th	
		Daytime	**Nighttime**
△1#	Qianwa Village	48	No production at night, so no noise monitoring at nigh.
△3#	Guanting Town	51	
△4#	Group 2, Guanting Village	52	
△5#	Group 4, Guanting Village	52	
△6#	Liudian Village	47	
△7#	Liuzhengdian	50	
△8#	Shizhuang Village	48	
△9#	Erdaocha Village	48	
△10#	Chengershan Village	49	
《Acoustic environment quality standard》（GB3096-2008）Class II		60	
△2#	Guanting Primary School	46	
《Acoustic environment quality standard》（GB3096-2008）Class I		55	
Number	**Location**	March 9th	
		Daytime	**Nighttime**
△11#	Lijiacha Village	50	No production at night, so no noise monitoring at nigh.
△12#	Group 2,Dongyuan Village	51	
△14#	Group 4, Dongyuan Village	51	
△15#	Malu Mosques	53	
△16#	Malu Village	51	
《Acoustic environment quality standard》（GB3096-2008）Class II		60	
△13#	Dongyuan Primary School	47	
《Acoustic environment quality standard》（GB3096-2008）Class I		55	

Analysis of test results：On June 12, 2022, the noise detection values of the second and thirteenth testing point are between 46db (A) and 47db (A) in the

daytime, meeting the class I standard of《Acoustic environment quality standard》（GB3096-2008）.The Monitoring results of other points are between 47db(A) and 53db(A) in the daytime, meeting the class II standard of 《Acoustic environment quality standard》（GB3096-2008）.

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, one sampling point is set in GaiPai Reservoir，Table 2-10 shows the Specific location.

Table 2-10 List of surface water detection points

Number	Name	Latitude and longitude coordinates
☆1#	50m upstream of Qingshui River Bridge	N36°16'1.76"，E106°10'22.90"
☆2#	100m downstream of Qingshui River Bridge	N36°16'7.85"，E106°10'24.06"

2.3.2 Testing items, Testing time and Frequency

Test Items：DO, Petroleum, SS

Detection Time：June 3rd,2022

Frequency：One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according to the methods recommended in 《Environmental Quality Standard for Surface Water (GB3838-2002)》and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》. Table 2-11 shows the detailed monitoring and analysis method。

Table 2-11 List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in《Technical Specifications for Surface Water and Sewage Monitoring》(HJ/T91-2002)、《Technical Regulations on Preservation and Management of Water Quality Sampling Samples》(HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》(the Second Edition). The current effective standard analysis method issued by the relevant departments of the state is adopted for the detection and analysis method. All the testing personnel are employed with certificates. The detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as laboratory blank and quality control sample analysis were taken, and the quality control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-12 shows the result.

Table 2-12 Monitoring Results

Number	Test Items	Results	
		☆1#	☆2#
1	DO(mg/L)	7.13	7.12
2	Petroleum(mg/L)	0.01L	0.01L
3	SS(mg/L)	27	24

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 2st Quarter Report in July 2022 for Jiangtai Xitan Pingfeng Road in Xiji County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

July 5th, 2022

1 TASK SOURCE

Entrusted by the Transportation Bureau of Xiji County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from June 9 to June 13, 2022 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Jiangtai Xitan Pingfeng Road, the main rural road of Xiji county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Central Health Center of Jiangtai Township (○1#), Mingtai Village (○2#), Maojiagou Village (○3#), Shencha Village (○4#), Heihugou Village (○5#), Central Primary School of Xitan Township (○6#), Health Center of Xitan Township (○7#), Hejiawan Village (○8#) , Gancha Primary School (○9#), Gancha Village (○10#), Xinzhuangzi Village (○11#), Xingping Village (○12#), Youai Village (○13#), Yapowan Village (○14#), Pingfeng Village (○15#), Pingfeng Middle School in Xiji(○16#), Fujiawan Village (○17#), Wangnao Village (○18#), Luotuocha Village (○19#) and Libao Primary School (○20#).Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1#	Central Health Center of Jiangtai Township	N35°48' 40"，E105° 50' 08"	TSP
○2#	Mingtai Village	N35° 48' 44"，E105° 49' 50"	
○3#	Maojiagou Village	N35° 48' 47"，E105° 49' 01"	
○4#	Shencha Village	N35° 49' 25"，E105° 48' 05"	
○5#	Heihugou Village	N35° 49' 54"，E105° 46' 40"	
○6#	Central Primary School of Xitan Township	N35° 52' 56"，E105° 44' 38"	
○7#	Health Center of Xitan Township	N35° 52' 53"，E105° 44' 33"	
○8#	Hejiawan Village	N35° 52' 46"，E105° 42' 34"	
○9#	Gancha Primary School	N35° 52' 16"，E105° 42' 02"	
○10#	Gancha Village	N35° 52' 14"，E105° 42' 03"	
○11#	Xinzhuangzi Village	N35° 50' 41"，E105° 40' 31"	
○12#	Xingping Village	N35° 50' 32"，E105° 39' 57"	
○13#	Youai Village	N35°49' 35"，E105° 39' 03"	
○14#	Yapowan Village	N35°46' 29"，E105° 35' 32"	
○15#	Pingfeng Village	N35° 44' 43"，E105° 34' 02"	
○16#	Pingfeng Middle School in Xiji	N35° 44' 33"，E105° 33' 50"	
○17#	Fujiawan Village	N35° 44' 23"，E105° 28' 59"	
○18#	Wangnao Village	N35° 45' 29"，E105° 29' 01"	
○19#	Luotuocha Village	N35° 46' 11"，E105° 28' 46"	
○20#	Libao Primary School	N35° 46' 39"，E105° 27' 52"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the

ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit（mg/m^3）**
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance

with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable. Table 2-4 shows the Quality control data.

Table2-4 Quality Control Data

Number	Testing items	Sample number	Blank sample	Standard membrane	Parallel sample	Pass rate（%）	Test value (mg/L)	Standard value (mg/L)
1	TSP	20	/	2	/	100	/	/

2.1.5 Test Results

Table 2-5 shows the weather conditions。

Table 2-5 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature（℃）	Mean Pressure（kpa）	Mean Humidity（%RH）	Mean Wind Direction	Mean Wind Speed（m/s）
June 9~June 10	19.9	82.0	35	NW	1.8
June 10~June 11	20.2	82.1	36	NE	1.9
June 11~June 12	18.7	82.0	37	NW	1.7
June 12~June 13	19.6	82.1	38	NW	1.7

2.1.6 Ambient Air Test Results

Table 2-6 shows the Ambient air test results。

Table 2-6 Statistical table of ambient air test results **(μg/m³)**

Date	**Point**	○1# Central Health Center of Jiangtai Township	○2# Mingtai Village	○3# Maojiagou Village	○4# Shencha Village	○5# Heihugou Village
June 9~June 10	TSP	96	142	171	129	230
Date	**Point**	○6# Central Primary School of Xitan Township	○7# Health Center of Xitan Township	○8# Hejiawan Village	○9# Gancha Primary School	○10# Gancha Village
June 10~June 11	TSP	1267	163	150	229	180
Date	**Point**	○11# Xinzhuangzi Village	○12# Xingping Village	○13# Youai Village	○14# Yapowan Village	○15# Pingfeng Village
June 12~June 13	TSP	105	156	218	169	137
Date	**Point**	○16# Pingfeng Middle School in Xiji	○17# Fujiawan Village	○18# Wangnao Village	○19# Luotuocha Village	○20# Libao Primary School
March 12th	TSP	180	124	102	191	143
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300				

Analysis of test results：

From June 9th to 12th,2020,○1#~○20# total suspended particles at each test point （TSP）are 96~230μg/m³，All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 20 noise detection points are arranged in this time，Table 2-7 shows the List of monitoring points of acoustic environment quality status。

Table 2-7 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲1#	Central Health Center of Jiangtai Township	N35°48' 40"，E105° 50' 08"
▲2#	Mingtai Village	N35° 48' 44"，E105° 49' 50"
▲3#	Maojiagou Village	N35° 48' 47"，E105° 49' 01"
▲4#	Shencha Village	N35° 49' 25"，E105° 48' 05"
▲5#	Heihugou Village	N35° 49' 54"，E105° 46' 40"
▲6#	Central Primary School of Xitan Township	N35° 52' 56"，E105° 44' 38"
▲7#	Health Center of Xitan Township	N35° 52' 53"，E105° 44' 33"
▲8#	Hejiawan Village	N35° 52' 46"，E105° 42' 34"
▲9#	Gancha Primary School	N35° 52' 16"，E105° 42' 02"
▲10#	Gancha Village	N35° 52' 14"，E105° 42' 03"
▲11#	Xinzhuangzi Village	N35° 50' 41"，E105° 40' 31"
▲12#	Xingping Village	N35° 50' 32"，E105° 39' 57"
▲13#	Youai Village	N35°49' 35"，E105° 39' 03"
▲14#	Yapowan Village	N35°46' 29"，E105° 35' 32"
▲15#	Pingfeng Village	N35° 44' 43"，E105° 34' 02"
▲16#	Pingfeng Middle School in Xiji	N35° 44' 33"，E105° 33' 50"
▲17#	Fujiawan Village	N35° 44' 23"，E105° 28' 59"
▲18#	Wangnao Village	N35° 45' 29"，E105° 29' 01"
▲19#	Luotuocha Village	N35° 46' 11"，E105° 28' 46"
▲20#	Libao Primary School	N35° 46' 39"，E105° 27' 52"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6228+ multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-023(1); the instrument is calibrated with AWA6221B class I noise calibrator

produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-026. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-8 shows the Specific Calibration Value。

Table 2-8 List of Sound Level Calibration Results

Model of Testing Instrument	AWA6228 + multi function sound level meter No.: JK-2-023(1)		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-2-026
Instrument Calibration	Calibration time		June 9th	
	Calibration Result	Before Calibration	93.7	
		After Calibration	93.8	
Basis	《Acoustic environment quality standard》（GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：June 9th, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-9 shows the result.

Table 2-9 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	August 8th	
		Daytime	Nighttime
▲2#	Mingtai Village	49	No production at night, so no noise monitoring at nigh.
▲3#	Maojiagou Village	48	
▲4#	Shencha Village	49	
▲5#	Heihugou Village	50	
▲8#	Hejiawan Village	52	
▲10#	Gancha Village	48	
▲11#	Xinzhuangzi Village	48	
▲12#	Xingping Village	52	
▲13#	Youai Village	50	
▲14#	Yapowan Village	50	
▲15#	Pingfeng Village	52	
▲17#	Fujiawan Village	48	
▲18#	Wangnao Village	47	
▲19#	Luotuocha Village	48	
《Acoustic environment quality standard》（GB3096-2008）Class II		60	
▲1#	Central Health Center of Jiangtai Township	51	
▲6#	Central Primary School of Xitan Township	47	
▲7#	Health Center of Xitan Township	52	
▲9#	Gancha Primary School	51	
▲16#	Pingfeng Middle School in Xiji	51	
▲20#	Libao Primary School	47	

《Acoustic environment quality standard》（GB3096-2008）Class I	55	

Analysis of test results：On June 9th,2022, the noise detection value of the school and the Health Center are between 47db (A) and 51db (A) in the daytime, meeting the class I standard of《Acoustic environment quality standard》（GB3096-2008）.The Monitoring results of other points are between 47db (A)~52db(A) in the daytime, meeting the class II standard of 《Acoustic environment quality standard》（GB3096-2008）.

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, two sampling points are set in Hulu River and one sampling point is set in Libao Reservoir，Table 2-10 shows the Specific location.

Table 2-10 List of surface water detaection points

Number	Name	Latitude and longitude coordinates
☆1#	50m upstream of Hulu Bridge	N35° 48' 53.12"，E105° 49' 38.29"
☆2#	100m downstream of Hulu Bridge	N35° 48' 51.07"，E105° 49' 31.30"
☆3#	Libao Reservoir	N35° 46' 21.00"，E105° 27' 33.79"

2.3.2 Testing items, Testing time and Frequency

Test Items：DO, Petroleum, SS

Detection Time：June 9th, 2022

Frequency：One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according to the methods recommended in 《Environmental Quality Standard for Surface

Water (GB3838-2002)》and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》. Table 2-11 shows the detailed monitoring and analysis method。

Table 2-11 List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in《Technical Specifications for Surface Water and Sewage Monitoring》(HJ/T91-2002)、《Technical Regulations on Preservation and Management of Water Quality Sampling Samples》(HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》(the Second Edition). The current effective standard analysis method issued by the relevant departments of the state is adopted for the detection and analysis method. All the testing personnel are employed with certificates. The detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as laboratory blank and quality control sample analysis were taken, and the quality

control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-12 shows the result.

Table 2-12 Monitoring Results

Number	Test Items	Results		
		☆1#	☆2#	☆3#
1	DO(mg/L)	7.09	7.08	7.13
2	Petroleum(mg/L)	0.01L	0.01L	0.01L
3	SS(mg/L)	15	16	15

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 2st Quarter Report in July 2022 for Wangtuan-Yuwang road in Tongxin County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

July 5, 2022

1 TASK SOURCE

Entrusted by the Transportation Bureau of Tongxin County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from June 11 to June 16, 2022 to test the environmental air and acoustic environment quality of the designated testing points in Wangtuan Yuwang Road, the main rural road of Tongxin county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Mujiagou Mosque (○1#), Qianhong Mosque (○2#), Humaqi Village (○3#), Shanghujiayuan Village (○4#), Shangyuan primary school (○5#), Hujiayuan Village (○6#) and Nanguan Village (○7#).Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1#	Mujiagou Mosque	N：36° 49' 45.30"，E：106° 01' 19.12"	TSP
○2#	Qianhong Mosque	N：36° 48' 0.48"，E：106° 02' 35.09"	
○3#	Humaqi Village	N：36°49' 13.34"，E：106° 03' 18.06"	
○4#	Shanghujiayuan Village	N：36° 49' 05.24"，E：106° 19' 03.11"	
○5#	Shangyuan primary school	N：36° 49'12.90"，E：106° 19' 25.05"	
○6#	Hujiayuan Village	N：36° 49' 11.06"，E：106° 21' 27.29"	
○7#	Nanguan Village	N：36° 49' 08.04"，E：106° 22' 17.65"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit**（**mg/m^3**）
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual

monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable. Table 2-4 shows the Quality control data.

Table2-4 Quality Control Data

Number	Testing items	Sample number	Blank sample	Standard membrane	Parallel sample	Pass rate（%）	Test value (mg/L)	Standard value (mg/L)
1	TSP	7	/	2	/	100	/	/

2.1.5 Test Results

Table 2-5 shows the weather conditions。

Table 2-5 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature（℃）	Mean Pressure（kpa）	Mean Humidity（%RH）	Mean Wind Direction	Mean Wind Speed（m/s）
June 15~June 16	21.2	84.2	37	NE	1.9

2.1.6 Ambient Air Test Results

Table 2-6 shows the Ambient air test results。

Table 2-6 Statistical table of ambient air test results **(μg/m³)**

Date	Point / Items	○1# Mujiagou Mosque	○2# Qianhong Mosque	○3# Humaqi Village	○4# Shanghujiayuan Village	○5# Shangyuan primary school	○6# Hujiayuan Village	○7# Nanguan Village
June 15~June 16	TSP	138	93	147	187	103	129	196
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300						

Analysis of test results：

From June 15 to Juner 16, 2022, ○1#~○7# total suspended particles at each test point（TSP）are 93~196μg/m³，All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 7 noise detection points are arranged in this time，Table2-7 shows the List of monitoring points of acoustic environment quality status。

Table 2-7 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲1#	Mujiagou Mosque	N：36° 49' 45.30" E：106° 01' 19.12"

▲2#	Qianhong Mosque	N：36° 48' 0.48"　E：106° 02' 35.09"
▲3#	Humaqi Village	N：36°49' 13.34"　E：106° 03' 18.06"
▲4#	Shanghujiayuan Village	N：36° 49' 05.24"　E：106° 19' 03.11"
▲5#	Shangyuan primary school	N：36° 49'12.90"　E：106° 19' 25.05"
▲6#	Hujiayuan Village	N：36° 49' 11.06"　E：106° 21' 27.29"
▲7#	Nanguan Village	N：36° 49' 08.04"　E：106° 22' 17.65"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6228+ multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-023(1); the instrument is calibrated with AWA6221B class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-026. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-8 shows the Specific Calibration Value。

Table 2-8 List of Sound Level Calibration Results

Model of Testing Instrument	AWA6218B + multi function sound level meter No.: JK-2-023-1		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-2-024
Instrument Calibration	Calibration Time		June 11th	
	Calibration Result	Before Calibration	93.7dB（A）	
		After Calibration	93.8dB（A）	
Basis	《Acoustic environment quality standard》（GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：June 11, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-9 shows the result.

Table 2-9 Monitoring Results of Acoustic Environment quality dB(A)

Number	**Location**	March 2	
		Daytime	**Nighttime**
▲1#	Mujiagou Mosque	51	No production at night, so no noise monitoring at nigh.
▲2#	Qianhong Mosque	49	
▲3#	Humaqi Village	49	
▲4#	Shanghujiayuan Village	50	

▲6#	Hujiayuan Village	48	
▲7#	Nanguan Village	50	
《Acoustic environment quality standard》（GB3096-2008）Class II		60	
▲5#	Shangyuan primary school	47	
《Acoustic environment quality standard》（GB3096-2008）Class I		55	

Analysis of test results：On June 11th, 2022, the noise detection value of the fifth testing point is 47db (A) in the daytime, meeting the class I standard of 《Acoustic environment quality standard》（GB3096-2008）.The Monitoring results of other points are between 48db (A)~51db (A) in the daytime, meeting the class II standard of 《Acoustic environment quality standard》（GB3096-2008）.

Monitor：_____ Auditor：_____ Issuer：_____

Date ：_____ Date ：_____ Date：_____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 2st Quarter Report in July 2022 for Mengyuan Chunshucha Chengyangyangping Road in Pengyang County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

July 5th, 2022

1 TASK SOURCE

Entrusted by the Transportation Bureau of Pengyang County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from June 8 to June 10, 2022 to test the environmental air and acoustic environment quality of the designated testing points in Mengyuan Chunshucha Chengyangyangping Road, the main rural road of Pengyang county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Baiyang Village(〇1#), Central School of Mengyuan Township(〇2#), Central kindergarten of Mengyuan Township(〇 3#), Health Center of Mengyuan Township (〇4#), Shuangshu Village (〇5#), Huaishu Village(〇6#), Zhaoshan Village(〇7#), Caotan Village (〇8#) , Ligou Wan(〇9#), Beiyun Village in Chenwan(〇10#), Yangping Village (〇11#).Table 2-1 shows the specific points.

Table 2-1 List of Ambient Air Detection Points

Number	Name	Latitude and longitude coordinates	Testing items
〇1#	Baiyang Village	N35° 58' 53"，E106° 48' 46"	TSP
〇2#	Central School of Mengyuan Township	N35° 58' 45"，E106° 48' 52"	
〇3#	Central kindergarten of Mengyuan Township	N35° 58' 45"，E106° 48' 54"	
〇4#	Health Center of Mengyuan Township	N35° 58' 49"，E106° 49' 02"	
〇5#	Shuangshu Village	N35° 57' 05"，E106° 49' 30"	
〇6#	Huaishu Village	N35° 56' 27"，E106° 50' 06"	
〇7#	Zhaoshan Village	N35° 54' 52"，E106° 51' 08"	

○8#	Caotan Village	N35° 54' 31"，E106° 51' 34"	
○9#	Ligou Wan	N35° 52' 01"，E106° 52' 13"	
○10#	Beiyun Village in Chenwan	N35° 49' 40"，E106° 52' 49"	
○11#	Yangping Village	N35° 48' 09"，E106° 52' 19"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit**（**mg/m^3**）
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point,

sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable. Table 2-4 shows the Quality control data.

Table2-4 Quality Control Data

Number	Testing items	Sample number	Blank sample	Standard membrane	Parallel sample	Pass rate（%）	Test value (mg/L)	Standard value (mg/L)
1	TSP	11	/	2	/	100	/	/

2.1.5 Test Results

Table 2-5 shows the weather conditions。

Table 2-5 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature（℃）	Mean Pressure（kpa）	Mean Humidity（%RH）	Mean Wind Direction	Mean Wind Speed（m/s）
June 8~June 9	17.9	82.1	36	NW	1.6
June 9~June 10	18.3	82.0	36	NE	1.8

2.1.6 Ambient Air Test Results

Table 2-6 shows the Ambient air test results。

Table 2-6 Statistical table of ambient air test results **(μg/m³)**

Date	**Point**	○1# Baiyang Village	○2# Central School of Mengyuan Township	○3# Central kindergarten of Mengyuan Township	○4# Health Center of Mengyuan Township	○5# Shuangshu Village	○6# Huaishu Village
June 8~June 9	TSP	86	145	112	102	169	127
Date	**Point**	○7# Zhaoshan Village	○8# Caotan Village	○9# Ligou Wan	○10# Beiyun Village in Chen wan	○11# Yangping Village	
June 9~June 10	TSP	219	161	181	106	203	
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300					

Analysis of test results：

From June 8 to Juner 10, 2022,○1#~○11# total suspended particles at each test point（TSP）are 86~219μg/m³，All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 11 noise detection points are arranged in this time，Table 2-7 shows the List of monitoring points of acoustic environment quality status。

Table 2-7　List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲1#	Baiyang Village	N35° 58' 53"，E106° 48' 46"
▲2#	Central School of Mengyuan Township	N35° 58' 45"，E106° 48' 52"
▲3#	Central kindergarten of Mengyuan Township	N35° 58' 45"，E106° 48' 54"
▲4#	Health Center of Mengyuan Township	N35° 58' 49"，E106° 49' 02"
▲5#	Shuangshu Village	N35° 57' 05"，E106° 49' 30"
▲6#	Huaishu Village	N35° 56' 27"，E106° 50' 06"
▲7#	Zhaoshan Village	N35° 54' 52"，E106° 51' 08"
▲8#	Caotan Village	N35° 54' 31"，E106° 51' 34"
▲9#	Ligou Wan	N35° 52' 01"，E106° 52' 13"
▲10#	Beiyun Village in Chenwan	N35° 49' 40"，E106° 52' 49"
▲11#	Yangping Village	N35° 48' 09"，E106° 52' 19"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6228+ multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-023(1); the instrument is calibrated with AWA6221B class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-026. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-8 shows the Specific Calibration Value。

Table 2-8 List of Sound Level Calibration Results

Model of Testing Instrument	AWA6228 + multi function sound level meter No.: JK-2-028-1		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-2-024
Instrument Calibration	Calibration Daytime		June 8th	
	Calibration Result	Before Calibration	93.7dB（A）	
		After Calibration	93.8dB（A）	
Basis	《Acoustic environment quality standard》（GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：June 8th, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-9 shows the result.

Table 2-9 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	March 6th	
		Daytime	Nighttime
▲1#	Baiyang Village	52	No production at night, so no noise monitoring at nigh.
▲5#	Shuangshu Village	51	
▲6#	Huaishu Village	50	
▲7#	Zhaoshan Village	50	
▲8#	Caotan Village	47	
▲9#	Ligou Wan	51	
▲10#	Beiyun Village in Chenwan	48	
▲11#	Yangping Village	52	
《Acoustic environment quality standard》（GB3096-2008）Class II		60	
▲2#	Central School of Mengyuan Township	48	
▲3#	Central kindergarten of Mengyuan Township	48	
▲4#	Health Center of Mengyuan Township	49	
《Acoustic environment quality standard》（GB3096-2008）Class I		55	

Analysis of test results：On June 8th,2022, the noise detection value of the school and the Health Center are between 48db (A) and 49db (A) in the daytime, meeting the class I standard of 《 Acoustic environment quality standard 》（GB3096-2008）.The Monitoring results of other points are between 47db (A)~52db(A) in the daytime, meeting the class II standard of 《Acoustic environment quality standard》（GB3096-2008）.

Monitor：_____ Auditor：_____ Issuer：_____

Date ：_____ Date ：_____ Date：_____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 2st Quarter Report in July 2022 for Shatang haodian road in Jingyuan County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

July 5th, 2022

1 TASK SOURCE

Entrusted by the Transportation Bureau of Jingyuan County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from June 8 to June 9, 2022 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Shatang Haodian Road, the main rural road of Jingyuan county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Shatang Village (○1#), Nonglin Village (○2#) and Tuyao Village (○3#).Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1#	Shatang Village	N35°34' 49"，E106° 26' 39"	TSP
○2#	Nonglin Village	N35° 39' 01"，E106° 25' 33"	
○3#	Tuyao Village	N35° 39' 24"，E106° 24' 44"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit（mg/m^3）**
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued

by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable. Table 2-4 shows the Quality control data.

Table 2-4 Quality Control Data

Number	Testing items	Sample number	Blank sample	Standard membrane	Parallel sample	Pass rate （%）	Test value (mg/L)	Standard value (mg/L)
1	TSP	3	/	2	/	100	/	/

2.1.5 Test Results

Table 2-5 shows the weather conditions。

Table 2-5 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature （℃）	Mean Pressure（kpa）	Mean Humidity （%RH）	Mean Wind Direction	Mean Wind Speed （m/s）
June 8~June 9	18.4	82.1	37	NW	1.7

2.1.6 Ambient Air Test Results

Table 2-6 shows the Ambient air test results。

Table 2-6 Statistical table of ambient air test results **(μg/m³)**

Date	**Point**	○1# Shatang Village	○2# Nonglin Village	○3# Tuyao Village
June 8~June 9	TSP	142	114	187
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300		

Analysis of test results：

From June 8 to Juner 9, 2022,○1#~○3# total suspended particles at each test point（TSP）are 114~187μg/m³，All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 3 noise detection points are arranged in this time，Table 2-7 shows the List of monitoring points of acoustic environment quality status。

Table 2-7 List of Monitoring Points of Acoustic Environment

Number	**Name**	**Latitude and longitude coordinates**
▲1#	Shatang Village	N35°34' 49"，E106° 26' 39"
▲2#	Nonglin Village	N35° 39' 01"，E106° 25' 33"
▲3#	Tuyao Village	N35° 39' 24"，E106° 24' 44"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6228+ multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-023; the instrument is calibrated with AWA6221B class I noise calibrator

produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-026. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-8 shows the Specific Calibration Value。

Table 2-8 List of Sound Level Calibration Results

<table>
<tr><td>Model of Testing Instrument</td><td colspan="2">AWA5680 + multi function sound level meter No.: JK-2-023-1</td><td>Calibration Instrument Model</td><td>AWA6021A Sound Level Calibrator No.: JK-2-024</td></tr>
<tr><td rowspan="3">Instrument Calibration</td><td colspan="2">Calibration Daytime</td><td colspan="2">July 8th</td></tr>
<tr><td rowspan="2">Calibration Result</td><td>Before Calibration</td><td colspan="2">93.8dB（A）</td></tr>
<tr><td>After Calibration</td><td colspan="2">93.9dB（A）</td></tr>
<tr><td>Basis</td><td colspan="4">《Acoustic environment quality standard》（GB3096-2008）</td></tr>
</table>

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：June 8th, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-9 shows the result.

Table 2-9 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	March 14th	
		Daytime	**Nighttime**
▲1#	Shatang Village	50	No production at night, so no noise monitoring at nigh.
▲2#	Nonglin Village	50	
▲3#	Tuyao Village	52	
《Acoustic environment quality standard》（GB3096-2008）Class II		60	

Analysis of test results：On June 8th, 2022, the Monitoring results of the villages are between 50db (A)~52db (A) in the daytime, meeting the class II standard of 《Acoustic environment quality standard》（GB3096-2008）.

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, two sampling points are set in YanZhi River，Table 2-10 shows the Specific location.

Table 2-10 List of surface water detaection points

Number	Name	Latitude and longitude coordinates
☆1#	50m upstream of Yanzhi Bridge	N35° 35' 36"，E106° 25' 09"
☆2#	100m downstream of yanzhi Bridge	N35° 35' 32"，E106° 25' 15"

2.3.2 Testing items, Testing time and Frequency

Test Items：DO, Petroleum, SS

Detection Time：June 8th,2022

Frequency：One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according to the methods recommended in 《Environmental Quality Standard for Surface Water (GB3838-2002)》and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》. Table 2-11 shows the detailed monitoring and analysis method。

Table 2-11 List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in《Technical Specifications for Surface Water and Sewage Monitoring》(HJ/T91-2002)、《Technical Regulations on Preservation and Management of Water Quality Sampling Samples》(HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》(the Second Edition). The current effective standard analysis method issued by the relevant departments of the state is adopted for the detection and analysis method. All the testing personnel are employed with certificates. The

detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as laboratory blank and quality control sample analysis were taken, and the quality control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-12 shows the result.

Table 2-12 Monitoring Results

Number	**Test Items**	Results	
		☆1#	☆2#
1	DO(mg/L)	7.11	7.08
2	Petroleum(mg/L)	0.01L	0.01L
3	SS(mg/L)	6	12

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 2st Quarter Report in July. 2022 for Zhengqi Jiucai Sikouzi road in Haiyuan County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

July 5, 2022

1 TASK SOURCE

Entrusted by the Transportation Bureau of Haiyuan County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from June 10 to June 16, 2022 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Zhengqi Jiucai Sikouzi Road, the main rural road of Haiyuan county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Tangbao Village (○1#), Guluwan Village (○2#), Lubiliang Village (○3#), Matao Village (○4#), Matao primary school (○5#), Yuantao Village (○6#) and Houtang Village (○7#).Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1#	Tangbao Village	N36° 24' 38.78"，E106° 58' 28.84"	TSP
○2#	Guluwan Village	N36° 23' 03.43"，E106° 56' 31.20"	
○3#	Lubiliang Village	N36° 20' 45.27"，E105° 56' 1.25"	
○4#	Matao Village	N36° 18' 45.96"，E105°55' 26.14"	
○5#	Matao primary school	N36° 18' 43.17"，E105°55'27.30"	
○6#	Yuantao Village	N36° 17' 41.80"，E105°55' 31.04"	
○7#	Houtang Village	N36° 16' 51.62"，E105°55' 45.02"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit**（**mg/m^3**）
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual

monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable. Table 2-4 shows the Air sampling instrument flow calibration, Table 2-5 shows the Quality control data.

Table 2-4 Air Sampling Instrument Flow Calibration

Number	**Calibration Flow Rate（ml/min）**		**Before sampling**		**After sampling**		**Y/N**
			Measured flow（ml/min）	**relative error（%）**	**Measured flow（ml/min）**	**relative error（%）**	
Tsp integrated sampler JK-2-002-7	Dust Road	100	100.5	0.5	100.6	0.6	**Y**
Tsp integrated sampler JK-2-002-12	Dust Road	100	99.6	-0.4	99.9	-0.1	**Y**
Tsp integrated sampler JK-2-002-19	Dust Road	100	99.2	-0.8	99.2	-0.8	**Y**
Tsp integrated sampler JK-2-002-2	Dust Road	100	100.1	0.1	99.9	-0.1	**Y**

Tsp integrated sampler JK-2-034-1	Dust Road	100	99.8	-0.2	100	0.0	**Y**
Tsp integrated sampler JK-2-034-3	Dust Road	100	100.4	0.4	100.5	0.5	**Y**
Tsp integrated sampler JK-2-034-4	Dust Road	100	100.1	0.1	100.5	0.3	**Y**

Table2-5 Quality Control Data

Number	**Testing items**	**Sample number**	**Blank sample**	**Standard membrane**	**Parallel sample**	**Pass rate（%）**	**Test value (mg/L)**	**Standard value (mg/L)**
1	TSP	7	/	2	/	100	/	/

2.1.5 Test Results

Table 2-6 shows the weather conditions。

Table 2-6 Statistical Table of Meteorological Conditions

Items / Date	**Average Temperature（℃）**	**Mean Pressure（kpa）**	**Mean Humidity（%RH）**	**Mean Wind Direction**	**Mean Wind Speed（m/s）**
June 10~June 12	20.2	82.5	36	NE	1.7
June 14~June 16	20.3	82.4	37	NW	1.9

2.1.6 Ambient Air Test Results

Table 2-7 shows the Ambient air test results。

Table 2-7 Statistical table of ambient air test results **(μg/m³)**

Date	**Point / Items**	**○1#** Tangbao Village	**○2#** Guluwan Village	**○3#** Lubilian g Village	**○4#** Matao Village	**○5#** Matao primary school	**○6#** Yuantao Village	**○7#** Houtang Village
June 10~June 16	TSP	170	80	105	159	93	181	124
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300						

Analysis of test results：

From June 10 to Juner 16, 2022,○1#~○7# total suspended particles at each test point（TSP）are 80~181μg/m^3，All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 7 noise detection points are arranged in this time，Table 2-8 shows the List of monitoring points of acoustic environment quality status。

Table 2-8 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲1#	Tangbao Village	N36° 24' 38.78"，E106° 58' 28.84"
▲2#	Guluwan Village	N36° 23' 03.43"，E106° 56' 31.20"
▲3#	Lubiliang Village	N36° 20' 45.27"，E105° 56' 1.25"
▲4#	Matao Village	N36° 18' 45.96"，E105°55' 26.14"
▲5#	Matao primary school	N36° 18' 43.17"，E105°55'27.30"
▲6#	Yuantao Village	N36° 17' 41.80"，E105°55' 31.04"
▲7#	Houtang Village	N36° 16' 51.62"，E105°55' 45.02"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6228+ multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-023; the instrument is calibrated with AWA6221B class I noise calibrator

produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-026. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-9 shows the Specific Calibration Value。

Table 2-9 List of Sound Level Calibration Results

<table>
<tr><td>Model of Testing Instrument</td><td colspan="2">AWA5680 + multi function sound level meter No.: JK-2-023</td><td>Calibration Instrument Model</td><td>AWA6021A Sound Level Calibrator No.: JK-026</td></tr>
<tr><td rowspan="3">Instrument Calibration</td><td colspan="2">Calibration Result</td><td colspan="2">June 11th</td></tr>
<tr><td rowspan="2">Daytime</td><td>Before Calibration</td><td colspan="2">93.8dB（A）</td></tr>
<tr><td>After Calibration</td><td colspan="2">93.9dB（A）</td></tr>
<tr><td>Basis</td><td colspan="4">《Acoustic environment quality standard》（GB3096-2008）</td></tr>
</table>

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：June 15th, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-10 shows the result.

Table 2-10 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	November 25th	
		Daytime	**Nighttime**
▲1#	Tangbao Village	47	No production at night, so no noise monitoring at nigh.
▲2#	Guluwan Village	49	
▲3#	Lubiliang Village	50	
▲4#	Matao Village	51	
▲6#	Yuantao Village	48	
▲7#	Houtang Village	51	
《Acoustic environment quality standard》（GB3096-2008）Class II		60	
▲5#	Matao primary school	48	
《Acoustic environment quality standard》（GB3096-2008）Class I		55	

Analysis of test results：On June 15th, 2022, the noise detection value of the fifth testing point is 50db (A) in the daytime, meeting the class I standard of 《Acoustic environment quality standard》（GB3096-2008）.The Monitoring results of other points are between 47db (A)~51db (A) in the daytime, meeting the class II standard of 《Acoustic environment quality standard》（GB3096-2008）.

2.3 Surface water environment monitoring

Gaipai reservoir: After on-site verification on June 11, 2022, there was no water within one month from the detection time, and it was not detected.

Monitor：_____ Auditor：_____ Issuer：_____

Date ：_____ Date ：_____ Date：_____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 4th Quarter Report in December 2022 for Guanting Town Yuanzhou District and Wanzhang Sanying road in Yuanzhou District)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

December 25, 2022

1 TASK SOURCE

Entrusted by the Construction and Environmental Protection Bureau of Communication Township in Yuanzhou District of Guyuan City, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from December 17 to December 25, 2022 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Guanting Town Yuanzhou District and Wanzhang Sanying Road, the main rural road of Yuanzhou county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Qianwa Village(○1#),Guanting Primary School(○2#),Guanting Town(○3#), Group 2,Guanting Village(○ 4#),Group 4, Guanting Village(○ 5#),Liudian Village(○ 6#) 、Liuzhengdian(○ 7#) 、Shizhuang Village(○ 8#)、Erdaocha Village(○ 9#) 、 Chengershan Village(○ 10#) ,distributed in Guanting town-Yuanzhou District of Guyuan Citye. The other six points are Lijiacha Village(○11#),Group 2,Dongyuan Village(○12#),Dongyuan Primary School(○ 13#), Group 4,Dongyuan Village(○ 14#),Malu Mosques(○ 15#) and Malu Village(○16#), distributed in Wanzhang Sanying Road. Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Road section	Latitude and longitude coordinates	Testing items
○1#	Qianwa Village	Guanting town-Yuanzhou District of Guyuan Citye Road	N：36° 10' 19" E：106° 24' 34"	TSP
○2#	Guanting Primary School		N：36° 9' 42" E：106°24' 56"	
○3#	Guanting Town		N：36°9' 43" E：106° 24' 56"	
○4#	Group 2, Guanting Village		N：36° 9' 35" E：106° 24' 53"	
○5#	Group 4, Guanting Village		N：36° 9'14" E：106° 24' 23"	
○6#	Liudian Village		N：36° 7' 0" E：106° 22' 2"	
○7#	Liuzhengdian		N：36° 6' 55" E：106° 22' 18"	
○8#	Shizhuang Village		N：36° 5' 46" E：106° 21' 1"	
○9#	Erdaocha Village		N：36° 4' 37" E：106° 20' 16"	
○10#	Chengershan Village		N：36° 3' 31" E：106° 20' 10"	
○11#	Lijiacha Village	Wanzhang Sanying Road	N：36° 7' 19" E：106° 19' 25"	
○12#	Group 2,Dongyuan Village		N：36° 16' 17" E：106° 14' 13"	
○13#	Dongyuan Primary School		N：36° 16' 24" E：106° 13' 31"	
○14#	Group 4, Dongyuan Village		N：36° 16' 25" E：106° 12' 21"	
○15#	Malu Mosques		N：36° 16' 26" E：106° 10' 26"	
○16#	Malu Village		N：36° 16' 26" E：106° 10' 12"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the

relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit（mg/m^3）**
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for

manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

2.1.5 Test Results

Table 2-4 shows the weather conditions。

Table 2-4 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature（℃）	Mean Pressure（kpa）	Mean Humidity（%RH）	Mean Wind Direction	Mean Wind Speed（m/s）
December 24~December 25	-7.2	82.3	51	NW	1.4

2.1.6 Ambient Air Test Results

Table 2-5 shows the Ambient air test results。

Table 2-5 Statistical table of ambient air test results **(μg/m³)**

Date	**Point**	○**1**# Qianwa Village	○**2**# Guanting Primary School	○**3**# Guanting Town	○**4**# Group 2, Guanting Village	○**5**# Group 4, Guanting Village	○**6**# Liudian Village	
December 24~December 25	TSP	101	143	103	77	115	60	
Date	**Point**	○**7**# Liuzhengdian	○**8**# Shizhuang Village	○**9**# Erdaocha Village	○**10**# Chengershan Village			
December 24~December 25	TSP	49	124	111	56			
Date	**Point**	○**11**# Lijiacha Village	○**12**# Group 2,Dongyuan Village	○**13**# Dongyuan Primary School	○**14**# Group 4, Dongyuan Village	○**15**# Malu Mosques	○**16**# Malu Village	
December 24~December 25	TSP	101	118	74	135	195	151	
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300						

Analysis of test results：

〇1#～〇16# total suspended particles at each test point（TSP）are 91~228μg/m^3 from December 24th to 25th，2022. All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 16 noise detection points are arranged in this time，Table 2-6 shows the List of monitoring points of acoustic environment quality status。

Table 2-6 List of Monitoring Points of Acoustic Environment

Number	Name	Road section	Latitude and longitude coordinates
△1#	Qianwa Village	Guanting town-Yuanzhou District of Guyuan Citye Road	N：36° 10' 19" E：106° 24' 34"
△2#	Guanting Primary School		N：36° 9' 42" E：106°24' 56"
△3#	Guanting Town		N：36°9' 43" E：106° 24' 56"
△4#	Group 2, Guanting Village		N：36° 9' 35" E：106° 24' 53"
△5#	Group 4, Guanting Village		N：36° 9'14" E：106° 24' 23"
△6#	Liudian Village		N：36° 7' 0" E：106° 22' 2"
△7#	Liuzhengdian		N：36° 6' 55" E：106° 22' 18"
△8#	Shizhuang Village		N：36° 5' 46" E：106° 21' 1"
△9#	Erdaocha Village		N：36° 4' 37" E：106° 20' 16"
△10#	Chengershan Village		N：36° 3' 31" E：106° 20' 10"
△11#	Lijiacha Village	Wanzhang Sanying Road	N：36° 7' 19" E：106° 19' 25"
△12#	Group 2,Dongyuan Village		N：36° 16' 17" E：106° 14' 13"
△13#	Dongyuan Primary School		N：36° 16' 24" E：106° 13' 31"

△14#	Group 4, Dongyuan Village		N：36° 16' 25"　E：106° 12' 21"
△15#	Malu Mosques		N：36° 16' 26"　E：106° 10' 26"
△16#	Malu Village		N：36° 16' 26"　E：106° 10' 12"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6292 multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-074（1）; the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-024. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-7 shows the Specific Calibration Value。

Table 2-7　List of Sound Level Calibration Results

Model of Testing Instrument	AWA6228+ multi function sound level meter No.: JK-2-074（1）		Calibration Instrument Model	AWA6221B Sound Level Calibrator No.: JK-2-024
Instrument Calibration	Calibration Result		December 17	
	Daytime	Before Calibration	93.9dB（A）	

		After Calibration	93.9dB（A）
Basis	《Acoustic environment quality standard》（GB3096-2008）		

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：On December 17, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-8 shows the result.

Table 2-8 Monitoring Results of Acoustic Environment quality dB(A)

Number	**Location**	December 12th	
		Daytime	**Nighttime**
△1#	Qianwa Village	50	42
△3#	Guanting Town	54	45
△4#	Group 2, Guanting Village	55	44
△5#	Group 4, Guanting Village	53	41
△6#	Liudian Village	47	40
△7#	Liuzhengdian	51	42
△8#	Shizhuang Village	48	39
△9#	Erdaocha Village	49	40
△10#	Chengershan Village	52	42
△11#	Lijiacha Village	47	38

△12#	Group 2,Dongyuan Village	50	39
△14#	Group 4, Dongyuan Village	53	45
△15#	Malu Mosques	51	41
△16#	Malu Village	50	40
《Acoustic environment quality standard》（GB3096-2008）Class II		60	50
△2#	Guanting Primary School	49	39
△13#	Dongyuan Primary School	50	38
《Acoustic environment quality standard》（GB3096-2008）Class I		55	

Analysis of test results: on December 17, 2022, the noise detection values of the daytime acoustic environmental quality at △1 #, △3 #~△12 #, △14 #~△16 # test points were between 47dB (A) and 55dB (A), and the noise detection values of the nighttime acoustic environmental quality were between 38dB (A) and 45dB (A), all in line with the class II standard of 《Acoustic environment quality standard》（GB3096-2008）; At △2 # and △13 # test points, the daytime acoustic environmental quality noise detection value is 49dB (A)~50dB (A), and the nighttime acoustic environmental quality noise detection value is 38dB (A)~39dB (A), which conforms to the class I standard of《Acoustic environment quality standard》（GB3096-2008）.

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, one sampling point is set in GaiPai Reservoir，Table 2-9 shows the Specific location.

Table 2-9 List of surface water detection points

Number	Name	Latitude and longitude coordinates
☆1#	50m upstream of Qingshui River Bridge	N36°16'1.76"，E106°10'22.90"
☆2#	100m downstream of Qingshui River Bridge	N36°16'7.85"，E106°10'24.06"

2.3.2 Testing items, Testing time and Frequency

Test Items：DO, Petroleum, SS

Detection Time：December 19th,2022

Frequency：One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according to the methods recommended in 《Environmental Quality Standard for Surface Water (GB3838-2002)》and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》. Table 2-10 shows the detailed monitoring and analysis method。

Table 2-10 List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in《Technical Specifications for

Surface Water and Sewage Monitoring》(HJ/T91-2002) 、《Technical Regulations on Preservation and Management of Water Quality Sampling Samples》(HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》(the Second Edition). The current effective standard analysis method issued by the relevant departments of the state is adopted for the detection and analysis method. All the testing personnel are employed with certificates. The detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as laboratory blank and quality control sample analysis were taken, and the quality control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-11 shows the result.

Table 2-11 Monitoring Results

Number	**Test Items**	Results	
		☆1#	☆2#
1	DO(mg/L)	9.94	10.2
2	Petroleum(mg/L)	0.01L	0.01L
3	SS(mg/L)	56	69

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

It can be seen from the table that the monitoring results of dissolved oxygen and petroleum in Qingshui River reach the Class 1 water quality standard.

Monitor：_____ Auditor：_____ Issuer：_____

Date ：_____ Date ：_____ Date：_____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 4th Quarter Report in December 2022 for Jiangtai Xitan Pingfeng Road in Xiji County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

December 25th, 2022

1 TASK SOURCE

Entrusted by the Transportation Bureau of Xiji County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from December 16 to December 23, 2022 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Jiangtai Xitan Pingfeng Road, the main rural road of Xiji county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Central Health Center of Jiangtai Township (○1#), Mingtai Village (○2#), Maojiagou Village (○3#), Shencha Village (○4#), Heihugou Village (○5#), Central Primary School of Xitan Township (○6#), Health Center of Xitan Township (○7#), Hejiawan Village (○8#) , Gancha Primary School (○9#), Gancha Village (○10#), Xinzhuangzi Village (○11#), Xingping Village (○12#), Youai Village (○13#), Yapowan Village (○14#), Pingfeng Village (○15#), Pingfeng Middle School in Xiji(○16#), Fujiawan Village (○17#), Wangnao Village (○18#), Luotuocha Village (○19#) and Libao Primary School (○20#).Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1#	Central Health Center of Jiangtai Township	N35°48' 40"，E105° 50' 08"	TSP
○2#	Mingtai Village	N35° 48' 44"，E105° 49' 50"	
○3#	Maojiagou Village	N35° 48' 47"，E105° 49' 01"	
○4#	Shencha Village	N35° 49' 25"，E105° 48' 05"	
○5#	Heihugou Village	N35° 49' 54"，E105° 46' 40"	
○6#	Central Primary School of Xitan Township	N35° 52' 56"，E105° 44' 38"	
○7#	Health Center of Xitan Township	N35° 52' 53"，E105° 44' 33"	
○8#	Hejiawan Village	N35° 52' 46"，E105° 42' 34"	
○9#	Gancha Primary School	N35° 52' 16"，E105° 42' 02"	
○10#	Gancha Village	N35° 52' 14"，E105° 42' 03"	
○11#	Xinzhuangzi Village	N35° 50' 41"，E105° 40' 31"	
○12#	Xingping Village	N35° 50' 32"，E105° 39' 57"	
○13#	Youai Village	N35°49' 35"，E105° 39' 03"	
○14#	Yapowan Village	N35°46' 29"，E105° 35' 32"	
○15#	Pingfeng Village	N35° 44' 43"，E105° 34' 02"	
○16#	Pingfeng Middle School in Xiji	N35° 44' 33"，E105° 33' 50"	
○17#	Fujiawan Village	N35° 44' 23"，E105° 28' 59"	
○18#	Wangnao Village	N35° 45' 29"，E105° 29' 01"	
○19#	Luotuocha Village	N35° 46' 11"，E105° 28' 46"	
○20#	Libao Primary School	N35° 46' 39"，E105° 27' 52"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the

ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit（mg/m^3）**
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance

with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

2.1.5 Test Results

Table 2-4 shows the weather conditions。

Table 2-4 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature (℃)	Mean Pressure(kpa)	Mean Humidity (%RH)	Mean Wind Direction	Mean Wind Speed (m/s)
December 21~December 22	-13.7	80.3	72	SW	1.6
December 22~December 23	1.4	79.8	40	SW	1.6

2.1.6 Ambient Air Test Results

Table 2-5 shows the Ambient air test results。

Table 2-5 Statistical table of ambient air test results **(μg/m³)**

Date	**Point**	○1# Central Health Center of Jiangtai Township	○2# Mingtai Village	○3# Maojiagou Village	○4# Shencha Village	○5# Heihugou Village
December 21~December 22	TSP	141	94	103	118	63
Date	**Point**	○6# Central Primary School of Xitan Township	○7# Health Center of Xitan Township	○8# Hejiawan Village	○9# Gancha Primary School	○10# Gancha Village
December 21~December 22	TSP	97	120	97	73	107
Date	**Point**	○11# Xinzhuangzi Village	○12# Xingping Village	○13# Youai Village	○14# Yapowan Village	○15# Pingfeng Village
December	TSP	126	161	79	119	139

21~December 23						
Date	**Point**	○16# Pingfeng Middle School in Xiji	○17# Fujiawan Village	○18# Wangnao Village	○19# Luotuocha Village	○20# Libao Primary School
December 22~December 23	TSP	93	121	131	106	99
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300				

Analysis of test results：

From December 21th to 23th,2022,○1#~○20# total suspended particles at each test point（TSP）are 63~161μg/m^3，All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 20 noise detection points are arranged in this time，Table 2-6 shows the List of monitoring points of acoustic environment quality status。

Table 2-6 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲1#	Central Health Center of Jiangtai Township	N35°48' 40"，E105° 50' 08"
▲2#	Mingtai Village	N35° 48' 44"，E105° 49' 50"
▲3#	Maojiagou Village	N35° 48' 47"，E105° 49' 01"
▲4#	Shencha Village	N35° 49' 25"，E105° 48' 05"
▲5#	Heihugou Village	N35° 49' 54"，E105° 46' 40"
▲6#	Central Primary School of Xitan Township	N35° 52' 56"，E105° 44' 38"
▲7#	Health Center of Xitan Township	N35° 52' 53"，E105° 44' 33"
▲8#	Hejiawan Village	N35° 52' 46"，E105° 42' 34"
▲9#	Gancha Primary School	N35° 52' 16"，E105° 42' 02"
▲10#	Gancha Village	N35° 52' 14"，E105° 42' 03"

▲11#	Xinzhuangzi Village	N35° 50' 41"，E105° 40' 31"
▲12#	Xingping Village	N35° 50' 32"，E105° 39' 57"
▲13#	Youai Village	N35°49' 35"，E105° 39' 03"
▲14#	Yapowan Village	N35°46' 29"，E105° 35' 32"
▲15#	Pingfeng Village	N35° 44' 43"，E105° 34' 02"
▲16#	Pingfeng Middle School in Xiji	N35° 44' 33"，E105° 33' 50"
▲17#	Fujiawan Village	N35° 44' 23"，E105° 28' 59"
▲18#	Wangnao Village	N35° 45' 29"，E105° 29' 01"
▲19#	Luotuocha Village	N35° 46' 11"，E105° 28' 46"
▲20#	Libao Primary School	N35° 46' 39"，E105° 27' 52"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6292 multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-074(1); the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-024. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-7 shows the Specific Calibration Value。

Table 2-7 List of Sound Level Calibration Results

Model of Testing Instrument	AWA6228 + multi function sound level meter No.: JK-2-074(1)		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-2-024
Instrument Calibration	Calibration time		December 16th	
	Calibration Result	Before Calibration	93.78	
		After Calibration	93.9	
Basis	《Acoustic environment quality standard》（GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：December 16th, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-8 shows the result.

Table 2-8 Monitoring Results of Acoustic Environment quality dB(A)

Number	**Location**	August 8th	
		Daytime	**Nighttime**
▲2#	Mingtai Village	50	41
▲3#	Maojiagou Village	46	42
▲4#	Shencha Village	51	44
▲5#	Heihugou Village	48	38
▲8#	Hejiawan Village	53	39

▲10#	Gancha Village	49	40
▲11#	Xinzhuangzi Village	51	43
▲12#	Xingping Village	46	41
▲13#	Youai Village	56	47
▲14#	Yapowan Village	52	43
▲15#	Pingfeng Village	48	40
▲17#	Fujiawan Village	51	48
▲18#	Wangnao Village	47	44
▲19#	Luotuocha Village	46	41
《Acoustic environment quality standard》（GB3096-2008）Class II		60	50
▲1#	Central Health Center of Jiangtai Township	50	39
▲6#	Central Primary School of Xitan Township	48	39
▲7#	Health Center of Xitan Township	51	41
▲9#	Gancha Primary School	50	39
▲16#	Pingfeng Middle School in Xiji	49	38
▲20#	Libao Primary School	48	39
《Acoustic environment quality standard》（GB3096-2008）Class I		55	45

Analysis of the test results: on December 16, 2022, the noise detection values of the daytime acoustic environmental quality at each test point △ 1 #~△ 5 #, △ 7 #~△ 8 #, △ 10 #~△ 15 #, △ 17 #~△ 19 # were between 46dB (A) and 56dB (A), and the noise detection values of the nighttime acoustic environmental quality were between 38dB (A) and 48dB (A), all in line with the class II standard of《Acoustic environment quality standard》(GB3096-2008); The noise detection values of △ 6 #, △ 9 #, △ 16 # and △ 20 # detection points are between

48dB (A) and 51dB (A) in the daytime, and between 38dB (A) and 41dB (A) in the nighttime, which are in line with the class I standard of《Acoustic environment quality standard》（GB3096-2008）.

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, two sampling points are set in Hulu River and one sampling point is set in Libao Reservoir，Table 2-9 shows the Specific location.

Table 2-9 List of surface water detaection points

Number	Name	Latitude and longitude coordinates
☆1#	50m upstream of Hulu Bridge	N35° 48' 53.12"，E105° 49' 38.29"
☆2#	100m downstream of Hulu Bridge	N35° 48' 51.07"，E105° 49' 31.30"
☆3#	Libao Reservoir	N35° 46' 21.00"，E105° 27' 33.79"

2.3.2 Testing items, Testing time and Frequency

Test Items：DO, Petroleum, SS

Detection Time：December 19th, 2022

Frequency：One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according to the methods recommended in 《Environmental Quality Standard for Surface Water (GB3838-2002)》and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》. Table 2-10 shows the detailed monitoring and analysis method。

Table 2-10 List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in《Technical Specifications for Surface Water and Sewage Monitoring》(HJ/T91-2002)、《Technical Regulations on Preservation and Management of Water Quality Sampling Samples》(HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》(the Second Edition). The current effective standard analysis method issued by the relevant departments of the state is adopted for the detection and analysis method. All the testing personnel are employed with certificates. The detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as laboratory blank and quality control sample analysis were taken, and the quality control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-11 shows the result.

Table 2-11 Monitoring Results

Number	Test Items	Results		
		☆1#	☆2#	☆3#
1	DO(mg/L)	10.7	10.4	8.93
2	Petroleum(mg/L)	0.01L	0.01L	0.01L
3	SS(mg/L)	4L	5	5

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

It can be seen from the table that Hulu River and Libao Reservoir reach the standard value of Class 1 water body.

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 4th Quarter Report in December 2022 for Wangtuan-Yuwang road in Tongxin County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

December 31, 2022

1 TASK SOURCE

Entrusted by the Transportation Bureau of Tongxin County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from December 26 to December 27, 2022 to test the environmental air and acoustic environment quality of the designated testing points in Wangtuan Yuwang Road, the main rural road of Tongxin county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Mujiagou Mosque (○1#), Qianhong Mosque (○2#), Humaqi Village (○3#), Shanghujiayuan Village (○4#), Shangyuan primary school (○5#), Hujiayuan Village (○6#) and Nanguan Village (○7#).Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1#	Mujiagou Mosque	N：36° 49' 45.30"，E：106° 01' 19.12"	TSP
○2#	Qianhong Mosque	N：36° 48' 0.48"，E：106° 02' 35.09"	
○3#	Humaqi Village	N：36°49' 13.34"，E：106° 03' 18.06"	
○4#	Shanghujiayuan Village	N：36° 49' 05.24"，E：106° 19' 03.11"	
○5#	Shangyuan primary school	N：36° 49'12.90"，E：106° 19' 25.05"	
○6#	Hujiayuan Village	N：36° 49' 11.06"，E：106° 21' 27.29"	
○7#	Nanguan Village	N：36° 49' 08.04"，E：106° 22' 17.65"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit**（**mg/m^3**）
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual

monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

2.1.5 Test Results

Table 2-4 shows the weather conditions.

Table 2-4 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature (℃)	Mean Pressure (kpa)	Mean Humidity (%RH)	Mean Wind Direction	Mean Wind Speed (m/s)
December 26~December 27	-10.7	85.6	51	NW	1.5

2.1.6 Ambient Air Test Results

Table 2-5 shows the Ambient air test results。

Table 2-5 Statistical table of ambient air test results **(μg/m³)**

Date	Point / Items	○1# Mujiagou Mosque	○2# Qianhong Mosque	○3# Humaqi Village	○4# Shanghujiayuan Village	○5# Shangyuan primary school	○6# Hujiayuan Village	○7# Nanguan Village
December 26~December 27	TSP	63	130	81	100	110	95	86
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300						

Analysis of test results：

From December 26 to December 27, 2022, ○1#~○7# total suspended particles at each test point（TSP）are 63~130μg/m^3，All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 7 noise detection points are arranged in this time，Table2-6 shows the List of monitoring points of acoustic environment quality status。

Table 2-6 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲1#	Mujiagou Mosque	N：36° 49' 45.30" E：106° 01' 19.12"
▲2#	Qianhong Mosque	N：36° 48' 0.48" E：106° 02' 35.09"
▲3#	Humaqi Village	N：36°49' 13.34" E：106° 03' 18.06"
▲4#	Shanghujiayuan Village	N：36° 49' 05.24" E：106° 19' 03.11"
▲5#	Shangyuan primary school	N：36° 49'12.90" E：106° 19' 25.05"
▲6#	Hujiayuan Village	N：36° 49' 11.06" E：106° 21' 27.29"
▲7#	Nanguan Village	N：36° 49' 08.04" E：106° 22' 17.65"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6292 multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-074(1); the instrument is calibrated with AWA6021A class I noise calibrator produced by

Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-024. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-8 shows the Specific Calibration Value。

Table 2-8 List of Sound Level Calibration Results

<table>
<tr><td>Model of Testing Instrument</td><td colspan="2">AWA6218B + multi function sound level meter No: JK-2-074（1）</td><td>Calibration Instrument Model</td><td>AWA6021A Sound Level Calibrator No.: JK-2-024</td></tr>
<tr><td rowspan="3">Instrument Calibration</td><td colspan="2">Calibration Time</td><td colspan="2">December 26th</td></tr>
<tr><td rowspan="2">Calibration Result</td><td>Before Calibration</td><td colspan="2">93.8dB（A）</td></tr>
<tr><td>After Calibration</td><td colspan="2">93.9dB（A）</td></tr>
<tr><td>Basis</td><td colspan="4">《Acoustic environment quality standard》（GB3096-2008）</td></tr>
</table>

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：December 26, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind

speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-9 shows the result.

Table 2-9 Monitoring Results of Acoustic Environment quality dB(A)

Number	Location	December 26	
		Daytime	Nighttime
▲1#	Mujiagou Mosque	54	46
▲2#	Qianhong Mosque	51	43
▲3#	Humaqi Village	48	45
▲4#	Shanghujiayuan Village	47	42
▲6#	Hujiayuan Village	45	47
▲7#	Nanguan Village	50	41
《Acoustic environment quality standard》（GB3096-2008）Class II		60	50
▲5#	Shangyuan primary school	47	39
《Acoustic environment quality standard》（GB3096-2008）Class I		55	45

Analysis of test results：On December 26, 2022, the noise detection value of the daytime acoustic environment quality at △ 1 #~△ 4 # and △ 6 #~△ 7 # test points was between 45dB (A) and 54dB (A), and the noise detection value of the nighttime acoustic environment quality was between 41dB (A) and 47dB (A), meeting the class II standard of《Acoustic environment quality standard》（GB3096-2008）. The noise detection value of the daytime acoustic environment quality at 5 # test point is 47dB (A), and the noise detection value of the nighttime acoustic environment quality is 39dB (A), meeting the class I standard of《Acoustic environment quality standard》（GB3096-2008）.

Monitor：_____ Auditor：_____ Issuer：_____

Date ：_____ Date ：_____ Date：_____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 4th Quarter Report in December 2022 for Mengyuan Chunshucha Chengyangyangping Road in Pengyang County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

December 20th, 2022

1 TASK SOURCE

Entrusted by the Transportation Bureau of Pengyang County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from December 15 to December 18, 2022 to test the environmental air and acoustic environment quality of the designated testing points in Mengyuan Chunshucha Chengyangyangping Road, the main rural road of Pengyang county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Baiyang Village(○1#), Central School of Mengyuan Township(○2#), Central kindergarten of Mengyuan Township(○3#), Health Center of Mengyuan Township (○4#), Shuangshu Village (○5#), Huaishu Village(○6#), Zhaoshan Village(○7#), Caotan Village (○8#) , Ligou Wan(○9#), Beiyun Village in Chenwan(○10#), Yangping Village (○11#).Table 2-1 shows the specific points.

Table 2-1 List of Ambient Air Detection Points

Number	Name	Latitude and longitude coordinates	Testing items
○1#	Baiyang Village	N35° 58' 53"，E106° 48' 46"	TSP
○2#	Central School of Mengyuan Township	N35° 58' 45"，E106° 48' 52"	
○3#	Central kindergarten of Mengyuan Township	N35° 58' 45"，E106° 48' 54"	
○4#	Health Center of Mengyuan Township	N35° 58' 49"，E106° 49' 02"	
○5#	Shuangshu Village	N35° 57' 05"，E106° 49' 30"	
○6#	Huaishu Village	N35° 56' 27"，E106° 50' 06"	
○7#	Zhaoshan Village	N35° 54' 52"，E106° 51' 08"	

○8#	Caotan Village	N35° 54' 31"，E106° 51' 34"	
○9#	Ligou Wan	N35° 52' 01"，E106° 52' 13"	
○10#	Beiyun Village in Chenwan	N35° 49' 40"，E106° 52' 49"	
○11#	Yangping Village	N35° 48' 09"，E106° 52' 19"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit**（**mg/m^3**）
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point,

sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

2.1.5 Test Results

Table 2-4 shows the weather conditions。

Table 2-4 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature（℃）	Mean Pressure（kpa）	Mean Humidity（%RH）	Mean Wind Direction	Mean Wind Speed（m/s）
December 15~December 16	-4.3	83.7	35	NW	1.4
December 16~December 17	-8.3	84.7	31	NW	1.7
December 17~December 18	-3.4	84.7	26	NW	1.9

2.1.6 Ambient Air Test Results

Table 2-5 shows the Ambient air test results。

Table 2-5 Statistical table of ambient air test results **(μg/m³)**

Date	**Point**	○1# Baiyang Village	○2# Central School of Mengyuan Township	○3# Central kindergarten of Mengyuan Township	○4# Health Center of Mengyuan Township	○5# Shuangshu Village	○6# Huaishu Village
December 16~December 18	TSP	168	138	104	116	80	141
Date	**Point**	○7# Zhaoshan Village	○8# Caotan Village	○9# Ligou Wan	○10# Beiyun Village in Chenwan	○11# Yangping Village	
December 16~December 17	TSP	184	111	104	96	162	
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300					

Analysis of test results：

From December 15 to Decemberr 18, 2022,○1#~○11# total suspended particles at each test point（TSP）are 80~219184μg/m³，All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 11 noise detection points are arranged in this time，Table 2-6 shows the List of monitoring points of acoustic environment quality status。

Table 2-6 List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲1#	Baiyang Village	N35° 58' 53"，E106° 48' 46"
▲2#	Central School of Mengyuan Township	N35° 58' 45"，E106° 48' 52"
▲3#	Central kindergarten of Mengyuan Township	N35° 58' 45"，E106° 48' 54"
▲4#	Health Center of Mengyuan Township	N35° 58' 49"，E106° 49' 02"
▲5#	Shuangshu Village	N35° 57' 05"，E106° 49' 30"
▲6#	Huaishu Village	N35° 56' 27"，E106° 50' 06"
▲7#	Zhaoshan Village	N35° 54' 52"，E106° 51' 08"
▲8#	Caotan Village	N35° 54' 31"，E106° 51' 34"
▲9#	Ligou Wan	N35° 52' 01"，E106° 52' 13"
▲10#	Beiyun Village in Chenwan	N35° 49' 40"，E106° 52' 49"
▲11#	Yangping Village	N35° 48' 09"，E106° 52' 19"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6228+ multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-023(1); the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-026. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and

after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-7 shows the Specific Calibration Value。

Table 2-7　List of Sound Level Calibration Results

Model of Testing Instrument	AWA6228 + multi function sound level meter No.: JK-2-023（1）		Calibration Instrument Model	AWA6021A Sound Level Calibrator No.: JK-2-024
Instrument Calibration	Calibration Daytime		December 15th	
	Calibration Result	Before Calibration	93.8dB（A）	
		After Calibration	93.9dB（A）	
Basis	《Acoustic environment quality standard》（GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：December 15th, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-8 shows the result.

Table 2-8　Monitoring Results of Acoustic Environment quality　dB(A)

Number	**Location**	December 15th	
		Daytime	**Nighttime**
▲1#	Baiyang Village	54	45
▲5#	Shuangshu Village	51	42

▲6#	Huaishu Village	52	43
▲7#	Zhaoshan Village	48	46
▲8#	Caotan Village	52	40
▲9#	Ligou Wan	49	42
▲10#	Beiyun Village in Chenwan	51	39
▲11#	Yangping Village	50	42
《Acoustic environment quality standard》（GB3096-2008）Class II		60	50
▲2#	Central School of Mengyuan Township	52	38
▲3#	Central kindergarten of Mengyuan Township	50	39
▲4#	Health Center of Mengyuan Township	52	40
《Acoustic environment quality standard》（GB3096-2008）Class I		55	45

Analysis of test results：On December 15, 2022, the noise detection value of the daytime acoustic environment quality at △ 1 #, △ 5 #~△ 11 # test points was between 48dB (A) and 54dB (A), and the noise detection value of the nighttime acoustic environment was between 39dB (A) and 46dB (A), which all met the II standard of 《Acoustic environment quality standard》（GB3096-2008）.The noise detection value of the daytime acoustic environment quality at 2 #~4 # detection points is between 50dB (A) and 52dB (A), and the noise detection value of the nighttime acoustic environment quality is between 38dB (A) and 40dB (A), both of which comply with the Class class I standard of《Acoustic environment quality standard》（GB3096-2008）.

Monitor：_____ Auditor：_____ Issuer：_____

Date ：_____ Date ：_____ Date：_____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 4th Quarter Report in December 2022 for Shatang haodian road in Jingyuan County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

December 25th, 2022

1 TASK SOURCE

Entrusted by the Transportation Bureau of Jingyuan County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from December 19 to December 20, 2022 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Shatang Haodian Road, the main rural road of Jingyuan county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Shatang Village (○1#), Nonglin Village (○2#) and Tuyao Village (○3#).Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1#	Shatang Village	N35°34' 49"，E106° 26' 39"	TSP
○2#	Nonglin Village	N35° 39' 01"，E106° 25' 33"	
○3#	Tuyao Village	N35° 39' 24"，E106° 24' 44"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit（mg/m^3）**
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued

by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

2.1.5 Test Results

Table 2-4 shows the weather conditions。

Table 2-4 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature（℃）	Mean Pressure（kpa）	Mean Humidity（%RH）	Mean Wind Direction	Mean Wind Speed（m/s）
December 19~December 20	-5.3	78.9	43	NW	1.7

2.1.6 Ambient Air Test Results

Table 2-5 shows the Ambient air test results。

Table 2-5 Statistical table of ambient air test results **(μg/m³)**

Date	Point	○1# Shatang Village	○2# Nonglin Village	○3# Tuyao Village
December 19~ December 20	TSP	130	143	84
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300		

Analysis of test results：

From December 19 to Decemberr 20, 2022,○1#~○3# total suspended particles at each test point（TSP）are 84~143μg/m³，All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 3 noise detection points are arranged in this

time，Table 2-6 shows the List of monitoring points of acoustic environment quality status。

Table 2-6　List of Monitoring Points of Acoustic Environment

Number	Name	Latitude and longitude coordinates
▲1#	Shatang Village	N35°34' 49"，E106° 26' 39"
▲2#	Nonglin Village	N35° 39' 01"，E106° 25' 33"
▲3#	Tuyao Village	N35° 39' 24"，E106° 24' 44"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6292 multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-074(1); the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-024. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-7 shows the Specific Calibration Value。

Table 2-7 List of Sound Level Calibration Results

Model of Testing Instrument	AWA5680 + multi function sound level meter No.: JK-2-074(1)		Calibration Instrument Model	AWA6021A Sound Level Calibrator No: JK-2-024
Instrument Calibration	Calibration Daytime		December 19th	
	Calibration Result	Before Calibration	93.8dB（A）	
		After Calibration	93.9dB（A）	
Basis	《Acoustic environment quality standard》（GB3096-2008）			

After the instrument has been verified and within the validity period of verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：December 19th, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-8 shows the result.

Table 2-8 Monitoring Results of Acoustic Environment quality dB(A)

Number	**Location**	December 19th	
		Daytime	**Nighttime**
▲1#	Shatang Village	48	44
▲2#	Nonglin Village	49	45
▲3#	Tuyao Village	46	42
《Acoustic environment quality standard》（GB3096-2008）Class II		60	50

Analysis of the test results: on December 19, 2022, the noise detection value of the daytime acoustic environment quality at △ 1 #~△ 3 # test points was between 46dB (A) and 49dB (A), and the noise detection value of the night acoustic environment quality was between 42dB (A) and 45dB (A), meeting the class II standard of 《Acoustic environment quality standard》（GB3096-2008）.

2.3 Surface water environment monitoring

2.3.1 Detection point

According to the detection scheme, two sampling points are set in YanZhi River，Table 2-9 shows the Specific location.

Table 2-9 List of surface water detaection points

Number	Name	Latitude and longitude coordinates
☆1#	50m upstream of Yanzhi Bridge	N35° 35' 36"，E106° 25' 097"
☆2#	100m downstream of yanzhi Bridge	N35° 35' 32"，E106° 25' 15"

2.3.2 Testing items, Testing time and Frequency

Test Items：DO, Petroleum, SS

Detection Time：December 19th,2022

Frequency：One day, Once a day

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is according to the methods recommended in 《Environmental Quality Standard for Surface Water (GB3838-2002)》and 《Monitoring and Analysis Methods for Water and Waste Gas (supplementary Edition)》. Table 2-10 shows the detailed monitoring and analysis method。

Table 2-10 List of Surface Water Detection and Analysis Methods

Serial Number	Test Items	Analysis Method	Detection Limit of Method	Method Source
1	DO	Electrochemical probe method	/	HJ506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ970-2018
3	SS	Gravimetric method	4mg/L	GB 11901-1989

2.3.4 Quality assurance and quality control

In order to ensure the accuracy and reliability of the test data, the collection, transportation, storage, laboratory analysis and data processing of water quality samples are in accordance with the requirement in《Technical Specifications for Surface Water and Sewage Monitoring》(HJ/T91-2002)、《Technical Regulations on Preservation and Management of Water Quality Sampling Samples》(HJ493-2009) and 《Quality Assurance Manual for Environmental Water Quality Monitoring》(the Second Edition). The current effective standard analysis method issued by the relevant departments of the state is adopted for the detection and analysis method. All the testing personnel are employed with certificates. The detection and analysis instruments used in the detection process have been calibrated by a qualified metrological verification and calibration unit, and are within the validity period.

In the process of laboratory sample analysis, quality control measures such as laboratory blank and quality control sample analysis were taken, and the quality control results were within the control range and met the requirements.

2.3.5 Monitoring Result

Table 2-11 shows the result.

Table 2-11 Monitoring Results

Number	Test Items	Results	
		☆1#	☆2#
1	DO(mg/L)	10.3	10.1
2	Petroleum(mg/L)	0.01L	0.01L
3	SS(mg/L)	19	30

Note: when the detection result is lower than the detection limit of the method, the detection result is represented by the detection limit plus "L".

It can be seen from Table 2-11 that the Yanzhi River has reached the standard value of Class 1 water body.

Monitor: _____ Auditor: _____ Issuer: _____

Date : _____ Date : _____ Date: _____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）

Environmental Status Monitoring Report

People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

(The 4th Quarter Report in December 2022 for Zhengqi Jiucai Sikouzi road in Haiyuan County)

Ningxia Zhongke Jingke Testing Technology Co., Ltd

January 5, 2023

1 TASK SOURCE

Entrusted by the Transportation Bureau of Haiyuan County, Ningxia Zhongke Jingke Testing Technology Co., Ltd. organized technicians from December 28 to December29, 2022 to test the environmental air, surface water and acoustic environment quality of the designated testing points in Zhengqi Jiucai Sikouzi Road, the main rural road of Haiyuan county.

2 MONITORING CONTENT

2.1 Ambient Air

2.1.1 Detection point

Based on the field survey, technicians chose to set up air quality monitoring points in Tangbao Village (○1#), Guluwan Village (○2#), Lubiliang Village (○3#), Matao Village (○4#), Matao primary school (○5#), Yuantao Village (○6#) and Houtang Village (○7#).Table 2-1 shows the specific points.

Table 2-1 List of ambient air detection points

Number	Name	Latitude and longitude coordinates	Testing items
○1#	Tangbao Village	N36° 24' 38.78"，E106° 58' 28.84"	TSP
○2#	Guluwan Village	N36° 23' 03.43"，E106° 56' 31.20"	
○3#	Lubiliang Village	N36° 20' 45.27"，E105° 56' 1.25"	
○4#	Matao Village	N36° 18' 45.96"，E105°55' 26.14"	
○5#	Matao primary school	N36° 18' 43.17"，E105°55'27.30"	
○6#	Yuantao Village	N36° 17' 41.80"，E105°55' 31.04"	
○7#	Houtang Village	N36° 16' 51.62"，E105°55' 45.02"	

2.1.2 Testing items

According to the characteristics of the project and the characteristics of the ambient air pollution in the surrounding area, the current detection project of the ambient air is total suspended particles (TSP), and the 24-hour average concentration is detected.

2.1.3 Test technical requirements and methods

The project carries out sampling and sample analysis in accordance with the relevant technical requirements of 《Ambient Air Quality Standard》(GB3095-2012)、《Technical code for manual monitoring of ambient air quality》(HJ194-2017) and《Ambient air -- Determination of total suspended particles -- Gravimetric method》(GB/T15432-1995).Table 2-2 shows the specific test content and frequency, Table 2-3 shows Test sampling and analysis method.

Table 2-2 Specific Test Content And Frequency

Testing items	**Sampling flow rate**（L/min）	**Detection frequency**	**Detection time**
TSP	100	Daily average value, continuous detection for 1 day	24 hours for each sampling

Table 2-3 Test Sampling And Analysis Method

Testing items	**Sampling method**	**Analysis methods and sources**	**Method detection limit**（**mg/m^3**）
TSP	Filter membrane barrier	Gravimetric method GB/T 15432-1995	0.001

2.1.4 Quality assurance and quality control

The inspectors of the project shall work with certificates, and the sampling point, sampling environment, sampling height and analysis method shall be strictly in accordance with the relevant provisions of 《Technical code for manual

monitoring of ambient air quality》 (HJ194-2017) and 《Air And Waste Gas Monitoring And Analysis Method》(Fourth Edition supplement). The quality assurance measures in the process of this test shall be carried out in accordance with the requirements of the technical specifications such as 《Regulations on Quality Management of Environmental Monitoring》 (HF (2006) No. 114) issued by the State Environmental Protection Administration and 《Technical code for manual monitoring of ambient air quality》 (HJ194-2017), and the quality control of the whole procedure shall be implemented.

In order to ensure the accuracy and reliability of the atmospheric test results, a batch of samples with two standard filter membranes. The testing instrument shall meet the relevant national standards or technical requirements, and the flow of the used instrument shall be calibrated before and after the test. The automatic control results of each item in this test are qualified, and the data is accurate and reliable.

Test Results

Table 2-4 shows the weather conditions。

Table 2-4 Statistical Table of Meteorological Conditions

Items / Date	Average Temperature（℃）	Mean Pressure（kpa）	Mean Humidity（%RH）	Mean Wind Direction	Mean Wind Speed（m/s）
December 28~December 29	-10.3	81.5	67	NW	1.4

2.1.5 Ambient Air Test Results

Table 2-5 shows the Ambient air test results。

Table 2-7 Statistical table of ambient air test results **(μg/m³)**

Date	**Point** / **Items**	○1# Tangbao Village	○2# Guluwan Village	○3# Lubiliang Village	○4# Matao Village	○5# Matao primary school	○6# Yuantao Village	○7# Houtang Village
December 28~December 29	TSP	120	74	112	86	55	79	131
Secondary standard of Ambient Air Quality Standard (GB3095-2012)		300						

Analysis of test results：

From December 28 to December 29, 2022, ○1#~○7# total suspended particles at each test point（TSP）are 55~131μg/m³，All of them meet the secondary standard of 《Ambient Air Quality Standard》 (GB3095-2012).

2.2 Acoustic Environment Quality Status Monitoring

2.2.1 Detection point

According to the detection scheme, 7 noise detection points are arranged in this time，Table 2-6 shows the List of monitoring points of acoustic environment quality status。

Table 2-6 List of Monitoring Points of Acoustic Environment

Number	**Name**	**Latitude and longitude coordinates**
▲1#	Tangbao Village	N36° 24' 38.78"，E106° 58' 28.84"
▲2#	Guluwan Village	N36° 23' 03.43"，E106° 56' 31.20"
▲3#	Lubiliang Village	N36° 20' 45.27"，E105° 56' 1.25"
▲4#	Matao Village	N36° 18' 45.96"，E105°55' 26.14"
▲5#	Matao primary school	N36° 18' 43.17"，E105°55'27.30"
▲6#	Yuantao Village	N36° 17' 41.80"，E105°55' 31.04"
▲7#	Houtang Village	N36° 16' 51.62"，E105°55' 45.02"

2.2.2 Monitoring Method

According to the measurement method specified in the 《Acoustic environment quality standard》（GB3096-2008）: the measurement is carried out in the daytime. The testing instrument is AWA6292 multi-functional sound level meter produced by Hangzhou Aihua Instrument Co., Ltd. with instrument number of JK-2-074(1); the instrument is calibrated with AWA6021A class I noise calibrator produced by Hangzhou Aihua instrument Co., Ltd. with instrument number of JK-2-024. The project is measured at least 3.5m away from any reflecting surface, and the microphone of the testing instrument is more than 1.2m away from the ground.

2.2.3 Quality Control Measures

The measurement shall be carried out in the daytime. Each measurement point shall be measured for 20 minutes. The instrument shall be calibrated before and after the test. If the deviation of indication is less than ± 0.5dB (A), the calibration is qualified，The microphone is equipped with a windscreen during monitoring. Table 2-7 shows the Specific Calibration Value。

Table 2-7 List of Sound Level Calibration Results

<table>
<tr><td>Model of Testing Instrument</td><td colspan="2">AWA5680 + multi function sound level meter No.: JK-2-074(1)</td><td>Calibration Instrument Model</td><td>AWA6021A Sound Level Calibrator No.: JK-2-024</td></tr>
<tr><td rowspan="3">Instrument Calibration</td><td colspan="2">Calibration Result</td><td colspan="2">December 28</td></tr>
<tr><td rowspan="2">Daytime</td><td>Before Calibration</td><td colspan="2">93.9dB（A）</td></tr>
<tr><td>After Calibration</td><td colspan="2">93.9dB（A）</td></tr>
<tr><td>Basis</td><td colspan="4">《Acoustic environment quality standard》（GB3096-2008）</td></tr>
</table>

After the instrument has been verified and within the validity period of

verification, the tester shall take the post with certificate, calibrate the instrument before and after the test, and the calibration result shall meet the relevant requirements.

2.2.4 Test Time and Meteorological Conditions

Monitoring time：December 28, 2022.

Weather Conditions：There is no rain or snow, no lightning and the wind speed is less than 5m/s.

2.2.5 Monitoring Result

Table 2-8 shows the result.

Table 2-8 Monitoring Results of Acoustic Environment quality dB(A)

Number	**Location**	December 28th	
		Daytime	**Nighttime**
▲1#	Tangbao Village	47	42
▲2#	Guluwan Village	51	41
▲3#	Lubiliang Village	45	38
▲4#	Matao Village	48	40
▲6#	Yuantao Village	49	42
▲7#	Houtang Village	47	43
《Acoustic environment quality standard》（GB3096-2008）Class II		60	50
▲5#	Matao primary school	47	40
《Acoustic environment quality standard》（GB3096-2008）Class I		55	45

Analysis of test results: on December 28, 2022, the noise detection value of the daytime acoustic environment quality at △ 1 #~△ 4 # and △ 6 #~△ 7 # test points was between 45dB (A) and 51dB (A), and the noise detection value of

the nighttime acoustic environment quality was between 40dB (A) and 43dB (A), which all met the Class II standard of the Environmental Quality Standard for Noise (GB3096-2008); The daytime acoustic environmental quality noise detection value of 5 # detection point is 47dB (A), and the nighttime acoustic environmental quality noise detection value is 40dB (A), which conforms to the Class 1 standard in the Environmental Quality Standard for Noise (GB3096-2008).

2.3 Surface water environment monitoring

2.3.1 Location of detection points

According to the detection scheme, 1 sampling point is set at Gaipai Reservoir (☆ 1 #) for the current detection of surface water environmental quality. See Table 2-9 for specific points.

Table 2-9 List of Surface Water Detection Points

Number	Point	Coordinate
☆1#	Gaipai Reservoir	N36° 25' 55" , E 105° 58' 28"

2.3.2 Test items, Test time and Frequency

Test items: DO, petroleum and SS.

Test time and frequency: December 31, 2022, test 1 day, once a day.

2.3.3 Detection and Analysis Method

The analysis method of surface water detection factors in this project is based on the methods recommended in the Environmental Quality Standard for Surface Water (GB 3838-2002) and the Monitoring and Analysis Method for Water and

Waste Gas (Supplement). See Table 2-10 for details.

Table 2-10 List of Surface Water Detection and Analysis Methods

Number	Test items	Analytical method	Detection Limit	Method source
1	DO	Electrochemical probe method	/	HJ 506-2009
2	Petroleum	Ultraviolet spectrophotometry	0.01mg/L	HJ 970-2018
3	SS	Electrochemical probe method	4mg/L	GB 11901-1989

2.3.4 Quality Assurance and Quality Control Measures

In order to ensure the accuracy and reliability of the test data, the whole process of water quality sample collection, transportation, storage, laboratory analysis and data processing is carried out in accordance with the requirements of the Technical Specifications for Surface Water and Sewage Monitoring (HJ/T 91-2002), the Technical Regulations for the Storage and Management of Water Quality Sampling Samples (HJ 493-2009), and the Environmental Water Quality Monitoring Quality Assurance Manual (second edition). The detection and analysis method adopts the current effective standard analysis method issued by the relevant national departments. The detection personnel are employed with certificates. The detection and analysis instruments used in the detection process have been verified/calibrated by a qualified metrological verification and calibration unit and are within the validity period.

Quality control measures such as laboratory blank and quality control sample analysis were taken during the analysis of laboratory samples. The quality control results were within the controlled range and met the requirements. See Table 2-11 for the statistics of quality control results.

2.3.5 Surface water detection results

See Table 2-11 for surface water detection results.

Table 2-11 Surface Water Test Results

Number	Items	Result
		☆1# Gaipai Reservoir
1	DO（mg/L）	9.52
2	Petroleum（mg/L）	0.01L
3	SS（mg/L）	16

Note: When the detection result is lower than the detection limit of the method, the detection result is indicated by the detection limit plus "L".

It can be seen from Table 2-11 that the Gaipai Reservoir has reached the standard value of Class 1 water body.

Monitor：_____ Auditor：_____ Issuer：_____

Date ：_____ Date ：_____ Date：_____

Ningxia Zhongke Jingke Testing Technology Co., Ltd

（Special seal for inspection and detection）