



PT. GEOMINE BARA STUDIO
Surface & Underground Mining

Company Profile

PT Geomine Bara Studio

Surface & Underground Mining



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Our focus is on interpretation, analysis and design using the full range skills available within the disciplines of Geology, Civil constructions, Hydrology and Surface and Underground Mining.



The Brief

The Prime emphasis of the services provided by GEOMINE STUDIO is on design supported by appropriate analysis and leading to an on going program of monitoring and mapping to check that the design assumption are borne out by reality. Our fundamental tenet is that accurate engineering geological and hydrogeological models must be established for any analytical work to be meaningful.

The formulation of any of an appropriate geological/ geotechnical model is critical to underground and open pit rock mechanics studies. Therefore the first phase of any of our studies is to collate available data, both regional and site specific, and to collect additional relevant data by drilling and/or mapping to the stage that we are satisfied the appropriate geotechnical models can be formula- ted.

These models usually comprise plans and cross sections giving an interpretation of the geological and hydrogeological features expected to control rock mass performance and setting out the engineering parameters (strength, deformability, permeability) of the different units and structures. Obviously the level of detail in these models is less for a feasibility study than for detailed design. Final designs are developed using the results of the numerical analyses but within the framework of experience with the performance of similar structures in similar geological Environments.

In summary our approach to geotechnical and hydrologic engineering is:

1. Site specific data collection programs,
2. Advanced computer based collation and analysis systems,
3. Careful integration of rock mechanics data with mine geology to ensure a rigorous geotechnical model
4. Use of advanced computer modelling techniques and systems,
5. Design based on a sound, practicable construction or mining approach, and
6. Ongoing mapping and monitoring to check actual performance

GEOMINE STUDIO is a consulting engineering firm offering specialist skills in the areas of geology, geotechnical engineering and the related fields of geosciences. We support on going training for our staff in order to maintain competence and motivation for individuals within their chosen fields of expertise.

Our Focus

Our focus is on interpretation, analysis and design using the full range of skills available within the disciplines of geology, hydrology and mining engineering. We demonstrate our commitment to consistently meet and where possible exceed the needs and expectations of both our clients and staff by providing quality professional advice to our clients in a timely and cost effective manner. We have established and maintained an effective organizational structure within which all staff may participate in the continual improvement of our Quality Management System and ultimately the quality of service to our clients.

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Man Power



Novandri Kusuma Wardana, S.T., S.Si., M.T.

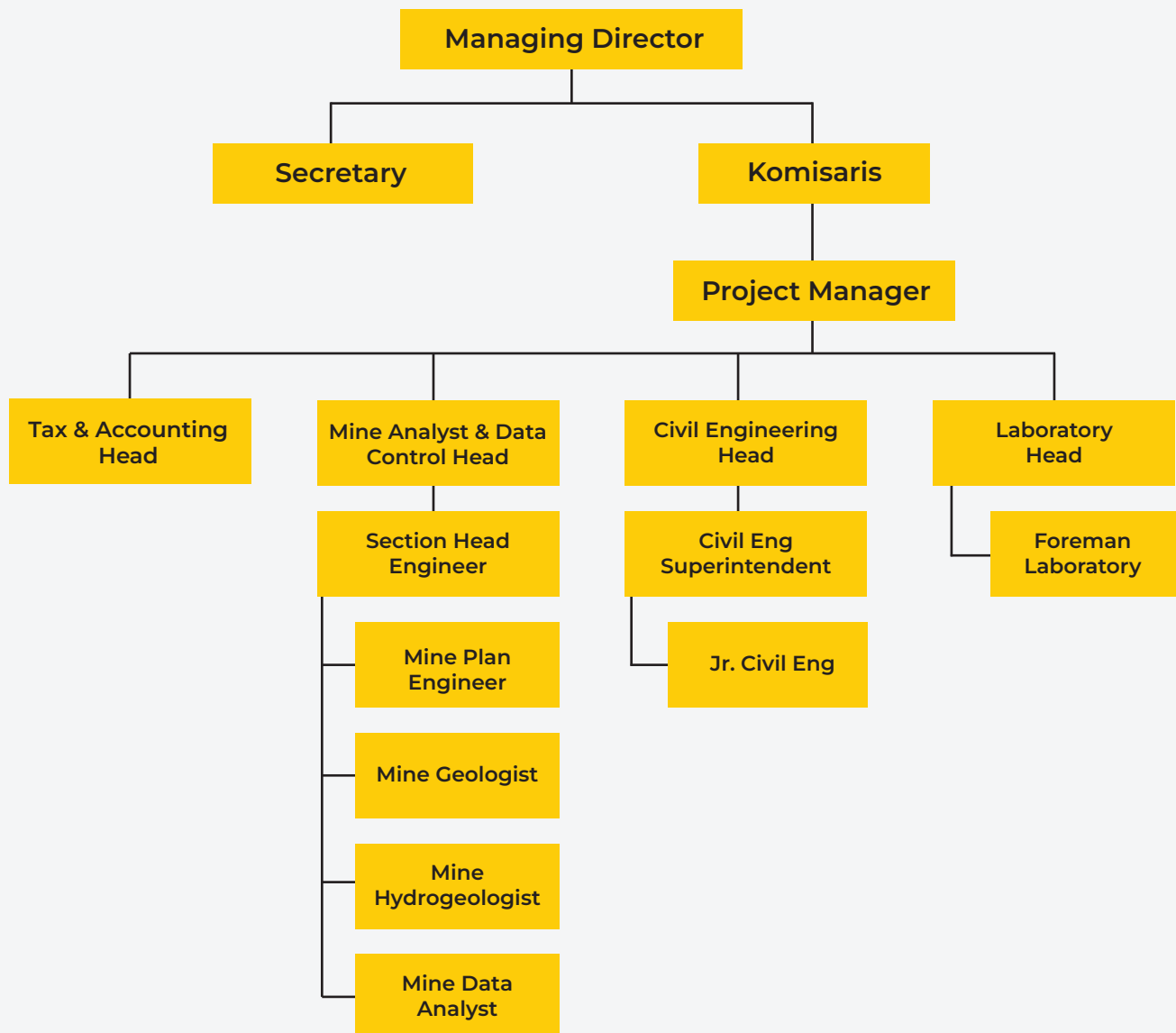
Novandri Kusuma Wardana is Principle, Surface Mine Geotechnical and founder GEOMINE STUDIO. He is bachelor degree Mining Engineering, Bachelor degree in Mathematics Science and Master degree Mining Engineering with more 10 years experiences on surface mine Geotechnical. He have additional trainee for international expert and active as keynote speaker on Geotechnical seminar at Indonesia. He also as Rock mechanic lecture at University at the Yogyakarta Indonesia. Some paper has been published at international forum such as :

1. Novandri Kusuma Wardana, GEDMAR, 2015, Approaching optimization pit slope Design using probability of failure, 2015. Proceeding of Asian Rock Mechanic Symposium (ASRM), Sapore Japan 2015, Single Author,
2. Novandri Kusuma Wardana, ARMS8, 2015, Geotechnical Study for Inpit Dump on Low-wall Part in Coal Mining South Kalimantan, 2014. Proceeding of Geotechnical Engineering of Disaster Mitigation and Rehabilitation (GEDMAR-2015), Kyoto Japan, Single Author,
3. Novandri Kusuma Wardana, EUROCK 2016, Determination material properties on bedding contact at the lowwall part of coal mine, 2016,
4. Proceedings of EUROCK 2014, International Society Rock Mechanic EUROPEAN Regional Symposium on –EUROCK2014, Vigo - Spain, Page 229, First Author, CRC Pers– ISBN 978-1-138-00149-7



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Struktur Organisasi PT Geomine Bara Studio Tahun 2023



Project Done

Our geotechnical project has been done and some of other project has been continuing with well currently. The geotechnical project not specialized for soft rock and hard rock but we able to work on both material.

1. Geotechnical, Hydrology & Geochemical Study PT Pendopo Energy Batubara (PEB), Bumi Resources Group, South Sumatera.
2. Geotechnical & Modelling in PT. Samudera Indonesia.
3. Hydrology Study, South Amanuban, Timur Tengah Selatan, Nusa Tenggara Timur.
4. Geotechnical & hydrology Study, PT Lion Power Energy SUGICO) Muara Enim, Sumatera Selatan.
5. Geotechnical & hydrology Study – PT PLN Batubara site PT Megapura Prima Industri (PT MPI) Sorong West Papua.
6. Geotechnical & Hydrology Study – PT Bukit Baiduri Energy - Gajah Tunggal Group, East Kalimantan.
7. Geotechnical Study for Low-wall stability KPP Pit, site PT Amanah Anugerah Adi Mulia Kalimantan Selatan.
8. Geotechnical & Hydrology Study, Block Central, West & North PT Khotai Makmur Insan Abadi, Separi East Kalimantan.
9. Geochemical Study Blok Banta & Blok Tarungin PT Bangun Banua Persada Kalimantan (PT BBPK) Kalimantan Selatan.
10. Geotechnical & hydrology Study, Pit Merandai dan Pit Goldstar PT Bukit Baiduri Energy, East Kalimantan.
11. Geotechnical & Hydrology Study, PT Buana Bara Ekapratama, Bayung Lencir, Jambi.

Other project can't listed on this poster and our project not limited on Papua, Sulawesi, Kalimantan, Sumatera and Java. We have experiences to handling geotechnical project on coal, nickel, Copper- Gold mine and quarry. We have full support JORC Consultants such as PT Greenland Resources, PT New Resources Mine Consulting, D & P Consulting, PT Andalan Tangguh Mandiri (ATM) and etc

Technical Expert Job Experience Related Soil Investigation Civil Engineering are:

1. Soil investigation for Limo Dump Project, Limo, South Jakarta,
2. Soil investigation for construction 30km coal hauling at the swampy area, South Kalimantan.
3. Soil investigation for widening coal yard and port facilities at the swampy area, South Kalimantan
4. Soil investigation for construction weight bridge 80 ton capacity,
5. South Kalimantan Soil investigation for bridge 165ton capacity, South Kalimantan.
6. Review soil investigation report for construction dolphin South Kalimantan.
7. Engineering design and Quality control for Construction pad or ground foundation with rate capacity 7500 ton/hour, Papua.
8. Engineering design with cut and fills method for construction 11km hauling road, South Kalimantan.
9. Supervising soil investigation for construction tripper conveyor, South Kalimantan.
10. Etc.

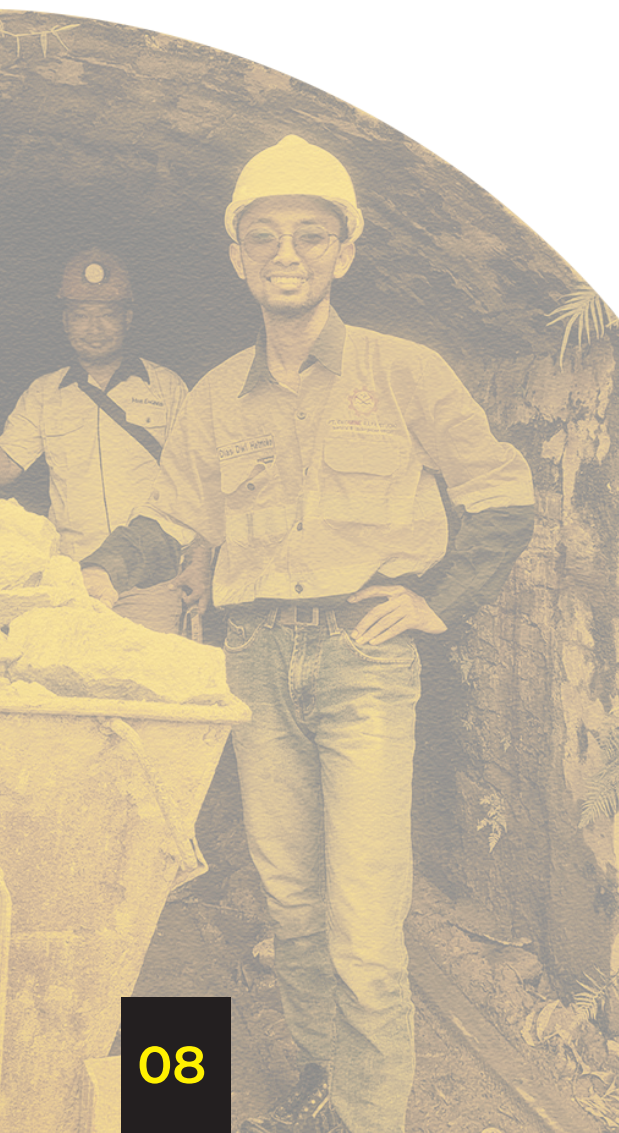
Our Services

Our firm consists of a small team of specialty consultants with expert knowledge in geotechnical engineering, geological engineering, hydrogeology–geochemistry, slope monitoring, dump and their application to mining. Our experience, integrity and quality of work is widely recognized in the environmental mining community.

01

Engineering Geology

- Geologic and engineering data analysis and calculations for stability analysis.
- Rock-mass strengths and material-properties and numerical analysis.
- Rock mapping.
- Identify rock-mass for each site characteristic.
- Joint – filling mapping on the pit wall.
- Groundwater identify for each exposed wall.
- Calculate orientation of joint toward mining sequences.
- Identify slope design toward potential structural issue.
- Review geological model based on additional data.
- Site characterization, geologic and rock-fabric mapping.



02**Site Investigation**

- Surface and Underground Geotechnical Mapping.
- Supervising Geotechnical drilling.
- Including geotechnical logging and sampling.
- Geotechnical, geomechanical, oriented-core, and geologic logging.
- Drilling and Modelling Geotechnical Underground PT. Sumatera Copper Gold.
- Determination of Stability in Underground Of Numerical Modelling.
- Insitute testing determine parameter actual geomechanic parameter.
- Field measurement for collect geomechanic evidens such angle of repose or failure.
- Review geotechnical exploration program

04**Feasibility Studies**

- Feasibility study for open mine operation and Review on going mine operation.
- Provide Geotechnical parameter for slope design for pit and disposal/dump.
- Provide parameter geohydrologic for slope design.
- Provide criterion of water management.
- Study for mineral optimalization.
- Mining engineering.
- Environmental due diligence, audit and monitoring.

03**Evaluation Of The Mechanical Properties Of Geologic Materials**

- Collecting and sample handling for geomechanic testing.
- Determination sampling sampling method for each site characteristic.
- Review analysis method for determine geomechanic parameter.
- Supervising geomechanic testing result

05**Hydro-Geologic Evaluation**

- Create model geo-hydrologic based on piezometer hole.
- Collecting data using piezometer hole with open hole method.
- Supervising installation Vibrating Wire Piezometer (VWP).
- Collecting data using Vibrating Wire Piezometer (VWP) method.
- Modelling groundwater behaviour.
- Provide geohydrology parameter for slope stabilities analysis.
- Calculate water management for surface mine operation.
- Groundwater management and control at mining site.
- Drainage and surface management system.
- Dewatering program.
- Performing testing and analyzing hydrological information.
- Identify Ground Geophysical program Geo-electric

06

Open Pit Mine Operations

- Concept studies for open pit mine operation.
- Review slope stability for open pit mine.
- Review mining sequences to keep optimalization based on site characteristic.
- Due dilligent for investor.
- Mining engineering
- Geotechnical audit for surface mine operation.
- Assisting mine owner or investor in mine engineering by provide technical information.

07

Waste Dump Stability

GEOMINE STUDIO provides a full suite of technical services related to geochemistry and acid rock drainage (ARD) such as field investigations including site characterization, drilling, monitoring well installation, water quality sampling and monitoring, laboratory testing, interpretation and prediction as well as engineering and management for contaminant control.

While assessment of waste dump stability involves well established geotechnical design methods, the real difficulty arises in assessing appropriate design shear strength parameters for the waste materials and dump foundations.

The key issue is the shear strength of the waste material, which includes rock fragments of a tonne or more, and is therefore not amenable to normal laboratory testing. There is also the issue of the appropriate density to use for determining design shear strengths. The procedure adopted involved the use of laboratory shear strengths of the fines component of the waste couple with back analysis of existing dump performance. Individual dump heights over 120m have been successfully operated.

- Potential Acid Forming (PAF) – Neutralization Acid Forming (NAF) calculation.
- Acid Management to reduce mine acid
- Review slope stability of disposal/dump
- Develop Geotechnical parameter for disposal/dump design.
- Calculation optimum crest advance rate using Crest Advance method (CAR).
- Construction and engineering rock drain for disposal/dump.
- Calculate blending ration for slope stability improvement
- Identify Ground Geophysical program Geo-electric

08**Water Management**

Consulting and engineering services are provided for all aspects of mine related surface and groundwater management. Surface water management to develop design, and carry out alternative measures in order to maintain the balance system of water management strategically relevant to the land-use change and comply with the environment and sustainability. The study is started from investigations and assessments in forecasting design flood, sump capacity, drainage system, and also settling pond, to remediate the pollution appear in a variety of dynamic geologic settings and enhance the technical solutions for groundwater, erosion and sedimentation. Define the impacts on water resources to answer questions about how technical problems are brought together and solved, and how management issues are decided among interests on hydrological resources. Our services comprise;

- Calculate surface water management to keep optimum capacity.
- Calculate potential water flowing down into mine area.
- Provide model for settling pond construction.
- Management dumping for disposal/dump area.
- Provide model ditch capacity toward rainfall intensity.
- Calculate pump requirement plan for each site mine operation.
- Integrated calculation method between field calculation and desk study.
- Back analysis using comprehensive method to calibrate analysis result.
- Study or reduce erosional surface using some method.
- Back analysis to get material properties on the difficult material.
- Fragmentation control on the high slope for rock drain construction.

09**Tailing – Embankment
Slope Stability**

- Calculate stability of embankment or tailing using finite element method.
- Provide geotechnical parameter for embankment design.
- Provide prediction embankment stability after one period time.
- Reduce erosional surface
- Encapsuling tailing dump/disposal.
- Hydrological analysis for planning and spillway design.
- Sizing of cover dam and temporary diversion based on geohydrology study.
- Creek diversion assessment based on hydrological risk assessment

Our Services

10

Depressurizing

- Concept studies for depressurizing and identify type of aquifer for each mine site.
- Study for depressurization operation including spacing, depth target, inclination and etc.
- Calculation impact slope stabilization toward ground water level.

11

Blasting Improvement And Monitoring

- Wall control concept to keep wall stabilities.
- Backbreak mapping to develop probability of failure for each slope.
- Blasting monitoring
- Develop site characteristic based on part particle velocity (PPv).
- Cell mapping for each mine wall to determine wall quality.
- Determine wall reliability.
- Review impact blasting toward environment.
- Fragmentation analysis for blasting result.
- Optimization blasting toward fragmentation target.
- Review blasting method toward geotechnical issue.

12

Geotechnical Instrumentation

- Provide technical information for clients to choose slope
- Make comparison between some slope monitoring system
- Review current slope monitoring system on surface and subsurface.
- Provide slope monitoring parameter for each site characteristic.
- Back analysis for establish monitoring criterion.
- Establish geotechnical action plan for site characteristic.

13

Slope Monitoring

Almost every aspect of the mining industry involves numerous uncertainties and risks. Understanding and properly handling uncertainty and risk are crucial skills that can make the difference between success and failure. Slope Monitoring is very required to make sure slope stabilization. We have experiences related some slope monitoring system such as;

- Slope stability radar.
- Extensometer.
- Slide minder.
- Inclinator.
- Time Domain Reflectometer (TDR).
- Hydrostatic Settlement.
- Vibrating Wire Piezometer (VWP).
- Blast mate.
- Robotic Total Station (RTS).
- Crack meter.
- Supervising to install slope monitoring.

14**Back Analysis**

- Failure study for back analysis
- Establish failure database to establish slope behavior for site characteristic.
- Calculate model estimation life of wall for responsive material.
- Develop new material properties based on back analysis.
- Reducing data based on rock-mass mapping.

15**Cost Benefit Analysis**

- By increasing the area available for immediate development,
- Reducing the costs associated with the development
- Ensuring that work undertaken will result in acceptable total and differential settlement profiles. By ensuring that work is actually implemented as intended.
- Providing the comfort necessary for third parties wanting to buy and develop the land.
- Review slope stability to optimization resources.
- Due diligent with owner or clients to make comparison mine operation method.
- Comparison effective cost to solve Project economic evaluation
- Calculation Net Present Value (NPV)
- Calculation Internal Rate Return (IRR)
- Sensitivity analysis for production cost.

16**Mine Closure Plan**

- Conceptual mine closure based on best mining practice.
- Review mine closure plan.
- Review slope stability after mine operation – during reclamation.
- Review mine closure method to improve further plan.
- Waste and geochemical assessment.
- Soil cover and reclamation.
- Provide geotechnical parameter for land form design for mine optimization.
- Design, build and monitoring services.
- Cost estimation.
- Design trial plot to determine optimum value based on specific site characterization.

17

Dewatering

- Identify aquifer model of each site characteristic.
- Study toward correlation groundwater level toward slope stability.
- Calculate impact groundwater level toward slope stability.
- Comparisons slope stabilization method with reducing overall slope.
- Optimization study for dewatering project include spacing, target, inclination and etc.
- Create model impact slope stabilization toward ground water level

18

Soil Investigation Related Infrastructure Engineering

- Soil investigation for hauling road
- Quality control construction hauling road
- Soil investigation for jetty, port and pilling at the swampy or river or beach.
- Soil investigation for any building
- Soil investigation for bridge construction Index Properties
- Test Engineering Properties Test Plate Bearing Test SPT
- Test DCP (Insitu) Soil Compaction



Our Portfolio

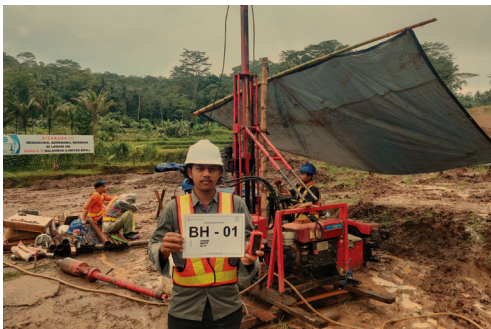
Kami sudah menyelesaikan beberapa proyek kerjasama dan beberapa proyek sedang berjalan. Proyek tersebut meliputi:

1. Studi Geoteknik, Hidrologi & Geokimia PT Pendopo Energy Batubara (PEB), Bumi Resources Group, Sumatera Selatan.
2. Geoteknik dan Pemodelan di PT Sumatera Indonesia.
3. Studi Hidrologi di Amanuban Selatan, Timur Tengah Selatan, Nusa Tenggara Timur.
4. Studi Geoteknik dan Hidrologi pada PT Lion Power Energy (SUGICO) Muara Enim, Sumatera Selatan.
5. Penyelidikan Geoteknik dan Hidrologi pada PT PLN Batubara PT Megapura Prima Industri (PT MPI) Sorong Papua Barat.
6. Studi Geoteknik dan Hidrologi pada PT Bukit Baiduri Energy - Gajah Tunggal Group, Kalimantan Timur.
7. Studi Geoteknik untuk Kestabilan low-wall situs proyek KPP, PT Amanah Anugerah Adi Mulia Kalimantan Selatan
8. Jasa Uji Laboratorium Geoteknik dan Hidrogeologi PT. Marunda Grahaminerals.



9. Perencanaan Geoteknik dan Hidrogeologi dan Revisi RKAB PT. Lais Coal Mine, Muara Enim, Sumatera Selatan.
10. Pembuatan Dokumen Geoteknik dan Uji Laboratorium PT. Bara Manunggal Sakti, Sumatera Selatan.
11. Pekerjaan Pemboran Geoteknik dan Uji Laboratorium Kestabilan Lereng PT. AB Barito Raya, Kalimantan Tengah.
12. Pekerjaan Uji Laboratorium Geoteknik dan Hidrogeologi PT. Pipit Muara Jaya.
13. Perancangan Desain Lereng PIT dan Output Dump tambang batubara PT. Duta Alam Sumatra
14. Review Desain Terowongan Pembuatan Terowongan PLTA Kerinci, Merangin, Jambi.
15. Studi Geoteknik, Hidrologi dan Hidrogeologi Penambangan PT. Selo Argodedali, Batu Agung, Baturaja, Sumatera Selatan.
16. Studi Geoteknik & Hidrologi, Block Central, West & North PT Khotai Makmur Insan Abadi, Separi Kalimantan Timur
17. Studi Geoteknik & Hidrologi Blok Banta & Blok Tarungin PT Bangun Banua Persada Kalimantan (PT BBPK) Kalimantan Selatan.
18. Kajian Geoteknik & Hidrologi, PT Buana Bara Ekapratama, Bayung Lencir, Jambi.
19. SHERINA (Investigasi dan Manajemen Risiko Keselamatan), PT Petrosea, Tbk
20. Jasa konsultansi, kajian strategis penyediaan batubara untuk kelistrikan nasional, PT PLN Batubara
21. Pelaksanaan konsultasi dan digitalisasi sistem manajemen keselamatan pertambangan, PT Jambi Prima Coal, PT Banyan Koalindo Lestari. Proyek yang sudah dikerjakan Tim Kami tidak terbatas di Papua, Sulawesi, Kalimantan, Sumatera dan Jawa. Tim kami memiliki pengalaman dalam menangani proyek geoteknik di batubara, nikel, tambang tembaga-emas dan kuari. Kami juga menjalin kerja sama dengan berbagai konsultan eksplorasi dan pertambangan.
22. Pekerjaan Pra Studi Kelayakan Tambang Bawah Tanah PT. Asmin Bara Baronang, Pemboran Hidrogeologi dan Geoteknik.
23. Revisi Dokumen Studi Kelayakan PT. Marunda Grahamineral, Laung Tuhup Project, Kab. Murung Raya, Provinsi Kalimantan Tengah 2023
24. Revisi Dokumen Rencana Reklamasi PT. Selo Argodedali, Batumarta, Kab. Baturaja, Provinsi Sumatera Selatan 2023
25. Revisi Dokumen Rencana Reklamasi PT. Selo Argokencono Sakti, Babat Toman, Kab. Musi Banyuasin, Prov. Sumatera Selatan 2023
26. Studi dan Analisis Pekerjaan Geokimia, Hidrologi dan Hidrogeologi Blok V dan Blok I, PT Marunda Grahamineral, Laung Tuhup Project, Kab. Murung Raya, Prov. Kalimantan Tengah 2023

Project Documentation





PT. GEOMINE BARA STUDIO
Surface & Underground Mining

Geomine Bara Studio

Office Address

📍 Komplek Perumahan Pertamina Blok
N-01 Purwomartani, kalasan, Sleman,
Yogyakarta, 55571

☎ 0274 - 2855249

📞 +62 813-9266-6795

✉ info@geomine-studio.com

