

BUDHI GANGA HYDROPOWER PROJECT (20 MW)

Comprehensive Monthly Progress & Status Report

EMPLOYER:

Budhiganga Hydropower Project

REPORTING PERIOD COVERAGE:

July 2026

SOURCE:

Owner's Engineers Monthly Report

1. EXECUTIVE SUMMARY & CONTRACT SUMMARY

The Budhi Ganga Hydropower Project (BHP) is a 20 MW Peaking Run-of-River (PRoR) development situated in the Achham District of the Far Western Province, Nepal. The project is implemented by the Department of Electricity Development (DoED), Ministry of Energy, Water Resources and Irrigation, Government of Nepal. This project represents a critical clean energy development initiative aimed at boosting electricity supply and supporting sustainable industrial development in the Far Western region. Funding is provided via joint international development assistance from the Saudi Fund for Development (SFD) and the Kuwait Fund for Arab Economic Development (KFAED), alongside counterpart funding from the Government of Nepal.

As of July , 2026, 10.5 months have elapsed since the signing of the Lot 1 Engineering, Procurement, and Construction (EPC) Contract for Civil and Hydro-mechanical Works on September 14, 2025. This time elapsed corresponds to 25.0% of the total 42-month scheduled construction period, with project completion targeted for March 17, 2029. Overall project progress up to this reporting month stands at an estimated 6.50% physical progress, and 10.00% financial progress, which is defined by the mobilization and deployment of the contractor's first installment of advance payment (NRs. 61.30 Crore).

To provide a structured and transparent contractual overview, Table 1.1 below summarizes the key Lot 1 EPC Contract Data, including details on the investors, the executing parties, financial subdivisions, and progress parameters.

Contract Parameters	Project Data & Contract Provisions
Project Name	Budhiganga Hydropower Project (20 MW)
Contract No.	BHP/ICB/EPC/Lot 1-2022/23
Contract Type	EPC (Engineering, Procurement, and Construction) Contract
Employer (Client)	Budhiganga Hydropower Project, Department of Electricity Development (DoED), Ministry of Energy, Water Resources and Irrigation, Government of Nepal
Owner's Engineer	PINI-BIDR-SIDEF JV (Joint Venture of PINI Group SA, Switzerland; China Water Resources Beifang Investigation, Design and Research Co. Ltd., China; and SIDEF Consultant Pvt. Ltd. Nepal)
EPC Contractor	Superpower-Baniya JV (Sichuan Superpower Engineering Construction Co., Ltd., China and Baniya Nirman Sewa Pvt. Ltd., Nepal)
Contract Agreement Date	14 September 2025
Work Commencement Date	14 September 2025
Contract Period & Completion	42 Months (Target Scheduled Completion: 17 March 2029)
Time Elapsed (up to 31 July 2026)	10.5 Months (25.0% of construction period)
Total Contract Price (with VAT)	NRs. 6,935,254,603.62 (5.14% below the original cost estimate)
Contract Cost breakdown	Construction Cost: NRs. 6,130,000,000.00 VAT: NRs. 796,900,000.00 Provisional Sum: NRs. 8,354,603.62
First Installment of Advance	NRs. 613,000,000.00 (10% of construction cost, paid against Bank Guarantees)

Project Progress Status	Physical Progress: ~6.50% Financial Progress: 10.00% (Advance 1)
Defects Liability Period (DLP)	1,095 Days (3 Years) after project completion
Latent Defects Liability	10 Years after completion of the Defects Liability Period

2. PROJECT PROFILE & SALIENT FEATURES

The Budhi Ganga Hydropower Project utilizes the perennial water discharge of the Budhi Ganga River, a major tributary of the Karnali River system in Far Western Nepal. The geographical coordinates of the project extend between longitudes 81°13'47" to 81°17'50" East and latitudes 29°15'30" to 29°18'35" North. The project boundary is laid out at elevations between 621 m and 694 m above mean sea level. The concrete gravity dam and side intake (headworks) are situated at Budhabagar, spanning Sanfe Bagar Municipality (Achham) and Mellekh Rural Municipality (Achham) on the left bank and Budhi Ganga Municipality (Bajura) on the right bank. The surface powerhouse is situated on the left bank of the river at Thapagaon (Mellekh Rural Municipality, Achham).

The electrical energy generation is estimated to reach 109.61 GWh annually, ensuring a crucial contribution of 33.54 GWh of dry season energy and 76.07 GWh of wet season energy. Water conveyance is facilitated by twin feeder tunnels and a concrete-lined headrace tunnel stretching 5.602 km to a restricted orifice surge shaft and penstock. Detailed engineering parameters based on Detailed Design Reports are compiled in Table 1.2 below.

Civil / Mechanical Component	Technical Design Specifications
Catchment Area & Hydrology	Catchment Area (Dam axis): 1,075 km ² 90% Dependable Flow: 0.9 m ³ /s Average Annual Flow: 53.04 m ³ /s Design Flow: 26.0 m ³ /s
Design Floods	Spillway Design Flood (1,000-year return): 3,900 m ³ /s Stilling Basin Design Flood (100-year return): 2,700 m ³ /s Probable Maximum Flood (PMF): 5,100 m ³ /s
Dam Structure	Conventional Concrete Gravity Dam, 86.00 m long x 44.00 m high, Top width: 8.35 m
Spillway & Under-Sluice	Spillway: 3 radial gates, each 8.0 m wide x 12.50 m high Under-sluice (Single Bay): 4.0 m wide x 12.50 m high
Side Intake	Side Intake, 2 openings, each 4.8 m wide x 6.4 m high
Settling Basin	Surface Closed Dufour Type, Double Chamber. Dimensions: 92 m long x 12 m wide x 13 m high per chamber, with conventional flushing system
Peaking Pond	Storage capacity: 1.05 MCM at Full Supply Level (FSL El. 718.00 masl). Minimum Operating Level (MOL El. 712.00 masl). Active reservoir length: 2.06 km
Headrace Tunnel	Length: 5.602 km Excavated diameter: 4.775 m (D-shape) Finished diameter: 4.00 m with concrete lining throughout
Surge Shaft	Restricted Orifice type, underground. Height: 53.35 m, Diameter: 7.50 m (Max Upsurge: 734.50 masl Min Downsurge: 694.31 masl)
Penstock Pipe	Length: 182.80 m (Covered and exposed sections), Diameter: 2.80 m, Pipe thickness: 10 mm to 20 mm
Powerhouse Structure	Surface type, situated at Thapagaon on the left bank of Budhi Ganga. Dimensions: 39.70 m long x 14.80 m wide x 26.30 m high

Tailrace Channel	Box culvert type, Length: 69.90 m, Width: 4.45 m, Height: 3.00 m (equipped with freeboard and concrete cover)
Turbine Units	Francis, horizontal axis orientation. 2 units of 10.0 MW each. Installed Capacity: 20 MW
Generators	3-Phase Synchronous AC, 3 units, unit capacity: 12.93 MVA
Power Evacuation System	3 substations: Thapagaon (Powerhouse), Chapartola, and Pahalmanpur (bay extension). 81.70 km, 132 kV double circuit Transmission Line (separated from Lot 1 Scope)
Overall Cost & payback	Total Project Cost: NRs. 10.33 Billion (including TL) Cost per MW: NRs. 318,464,152.77 Simple Payback Period: 9.54 years

3. SURVEY, DESIGN, AND GEOTECHNICAL/GEOPHYSICAL INVESTIGATIONS

Detailed field surveys, structural layout design, and subterranean geotechnical investigations have progressed significantly to refine design assumptions, determine rock mass quality, and finalize construction alignments. This work has been subjected to extensive review and comments incorporation by the Owner's Engineer PINI-BIDR-SIDF JV.

3.1 Topographical and Bathymetric Surveys

The topographical and bathymetric surveys of the river and adjacent terraces are complete. The survey subcontractor, KSM Engineering Services P. Ltd. (Madhyapur Thimi, Bhaktapur), originally submitted the topographical report. The Consultant reviewed and issued preliminary comments, followed by a second set of comments. Incorporating all adjustments, the contractor submitted the finalized topographical mapping report. After detailed verification of ground elevation contours and river profiles, the Owner's Engineer issued formal approval, confirming the topographical mapping as acceptable for detailed design works.

3.2 Geotechnical Sub-surface Drilling & Testing

Sub-surface geotechnical drilling and investigation works have been successfully completed by the contractor's specialized subcontractor, NS Engineering and Geotechnical Services P. Ltd. (Jwagal, Lalitpur). The program consisted of drilling 8 deep boreholes across critical structural locations, including the concrete gravity dam axis (headworks), the adit portal area, and the surface powerhouse foundation. Drilled core logs were collected, logged, and sent for laboratory testing, including direct shear tests on samples extracted from the dam axis and powerhouse area to determine foundation friction parameters and rock mechanical strength.

3.3 Geophysical Surveys (Electrical Resistivity Tomography - ERT)

To supplement the drilling data and capture continuous geological profiles of the rock mass, the contractor executed an Electrical Resistivity Tomography (ERT) program. Based on the formal advice issued by the Consultant, the ERT work was performed along 7 designated survey lines, covering a total

length of 1,800 meters. The survey targets spanned the underground headrace tunnel cover, the surge shaft area, the powerhouse foundation, and the adit portals. The comprehensive geophysical survey and ERT report were submitted in mid-July. The Owner's Engineer completed a thorough evaluation of the ERT profiles alongside drilling data, and shared final technical comments and structural alignment advice with the contractor.

3.4 Hydrological Analysis and Project Layout Finalization

A draft report on hydrological analysis and river diversion works is under review. The project's layout plan has been revised and reviewed. While the layout structurally covers all necessary components, the Consultant has requested confirmation of critical hydraulic and safety parameters. These include the precise dimensioning of the Dufour settling basin, the vertical and lateral rock cover of the headrace tunnel, the dam foundation excavation levels, alternative flood routing studies, and powerhouse protective wall structures. A technical clarification meeting was held in Kathmandu to finalize layout details in alignment with the geological report.

4. PREPARATORY SITE INFRASTRUCTURE PROGRESS

Preparatory works on site infrastructure, including structural camps, construction power grids, warehouse storage, and quality control laboratories, are underway to ensure rapid full-scale mobilization of the civil works. Progress for individual preparatory infrastructure elements as of late July 2026 is detailed below.

4.1 Owner's Engineer Executive Camp

The construction of the main camp for the Owner's Engineer's executive personnel has entered its advanced structural phases. The completed works include foundation excavation, concrete footings, stone soling for the wall foundations, and plain cement concrete (PCC) casting. Structural vertical steel posts have been erected, and stone masonry wall works were completed incrementally throughout July. The steel truss fabrication for the roof structures has commenced.

4.2 Contractor Camps & Site Warehousing (Budhabagar & Headworks)

Camps and material warehousing are being established at Budhabagar and headworks to facilitate material storage and contractor accommodations:

- **Contractor's Executive Camp (Headworks):** Site preparation and clearing are completed. Foundation excavation, stone soling, and post installation have been finished. By late July 2026, the roof truss was fully assembled and installed, and fencing posts were erected around the perimeter.
- **Contractor's Engineer Camp (Budhabagar):** Site preparation and leveling of sloped land were executed between July 27 and July 29, 2026. Excavation and concrete foundations for the septic tank system were completed on July 30, 2026.

- **Material Warehouse (Budhabagar):** To protect materials and mechanical parts for the crusher plant, a secure warehouse has been constructed. Concrete flooring (PCC) was completed on July 21, and structural framing, trusses, and wall partitions were fully assembled by July 23, 2026.

4.3 Construction Power Supply System

The installation of the dedicated 11 kV construction power grid is ongoing. A total of 38 steel electric poles, each 11 meters long, have been delivered to the project site and are stockpiled at Budhabagar and Tashi Bazar. By late July, 26 poles have been successfully erected at the headworks and adit portal areas to supply construction power for tunneling and excavation machinery.

4.4 Site Quality Control Laboratory & Testing Plan

The contractor has completed the earthwork excavation and plain cement concrete (PCC) flooring for the dedicated site testing laboratory. However, because the laboratory is not yet equipped, no testing can be performed on-site. To ensure compliance with quality assurance protocols, the Consultant has approved a temporary testing plan. Construction materials, including fine and coarse aggregates and Sagarmatha Cement, are being sampled and sent to the Department of Roads (DoR) Government Laboratory in Safebagar or standard commercial laboratories in Kathmandu. Testing completed to date includes gradation of coarse and fine aggregates, Aggregate Impact Value (AIV), initial/final setting times, and soundness tests of Cement.

5. CONTRACTOR PLANT, EQUIPMENT, AND MOBILIZATION

Mobilization of heavy construction plants, Earthmoving machinery, and core project management personnel is currently in progress to support structural concrete and excavation works.

5.1 Construction Processing Plants

Two key material processing and production facilities are being mobilized on-site to ensure continuous construction supplies:

- **Crusher Plant:** The contractor has leased land in Budhabagar for a heavy aggregate crushing plant. The plant machinery (Siemens 280S) has been mobilized to the site, and foundation installation and gabion protection works are ongoing. The system features a primary crusher (80-100 TPH), a secondary Cone Crusher (315 S, 100-180 TPH), and a Vertical Shaft Impactor (VSI 600, 60-120 TPH) for fine sand production.
- **Concrete Batching Plants:** Site preparation and land leveling are ongoing on the right bank of the Budhi Ganga River near the headworks. The contractor has opened a Letter of Credit (LC) to import two Putzmeister concrete batching plants, which will be installed as soon as they arrive on-site.

5.2 Mobilized Construction Equipment

While several major heavy construction vehicles have been mobilized, some equipment remains idle or has been temporarily relocated. The site fleet currently includes: 1 unit of JCB NXT 221 LC Excavator (bucket capacity 1.0 - 1.2 m³) and 1 unit of S10 Mahindra Pickup Jeep. A second JCB excavator, a CASE 1107 EX-D vibratory roller, and a Santaoi motor grader (118 kW) were relocated on May 27, 2026, to other contractor projects, which has led to slow progress on site access road grading.

6. CONCERNS, BOTTLENECKS, AND ACTION PLAN

A critical comparison of actual progress on-site against the approved baseline construction schedule indicates that major civil components are experiencing significant delays. To inform public stakeholders and managing authorities, this section outlines specific structural delays, administrative bottlenecks, and the ongoing proactive remedial measures.

6.1 Major Civil Components Status & Scheduled Delays

A detailed analysis of the construction schedule reveals that key civil structures have not yet commenced physical excavation or concreting. The delays relative to the baseline start dates as of July 31, 2026, are detailed in Table 1.4 below.

Civil Component	Planned Start	Delay	Current Status
River Protection Works	15-Jan-26	198 Days	Not Started (Catch-up plan requested)
Cofferdam Construction	30-May-26	62 Days	Not Started (Linked to diversion works)
Diversion Tunnel	19-Jun-26	42 Days	Not Started (Explosive license pending)
Main Dam and Spillway	07-Apr-26	115 Days	Not Started (Design under review)
Headrace Tunnel (0+000 to 1+600)	29-Mar-26	124 Days	Not Started
Adit Tunnel Portal	16-May-26	76 Days	Not Started (Access road pending)
Bypass Tunnel	28-Mar-26	125 Days	Not Started
Surge Shaft	28-Mar-26	125 Days	Not Started (Design under finalization)
Penstock Alignment	29-Jun-26	32 Days	Not Started
Powerhouse Protection Works	06-Jul-26	25 Days	Not Started (Access road grading ongoing)

6.2 Administrative & Technical Bottlenecks

The critical bottlenecks currently restricting physical progress on the major civil works are as follows:

- **Diversion Tunnel & Explosive License:** The initiation of the diversion tunnel works has been completely held up pending the acquisition of an explosive import and storage license. While the Consultant has processed and recommended the explosive estimates and the contractor has finalized subcontractor agreements, formal government approval has been delayed, which remains a critical barrier on the overall project path.
- **Access Road & Bailey Bridge Design Discrepancies:** The contractor originally submitted design details for a 3.25-meter wide Bailey bridge, which did not meet the Employer's requirement specifications (VI B Section 14 Bridges, requiring 4.25 meters width). Based on the Engineer's instructions, the contractor resubmitted a revised design for a 4.25-meter wide bridge. The Consultant reviewed and shared final comments for incorporation. In parallel, land acquisition for the access road is in progress, with the cadastral and verification surveys completed in May and June, respectively.
- **Quality Testing and Laboratory Establishment:** The slow mobilization of quality testing equipment and failure to set up the site testing laboratory has delayed on-site testing, requiring material samples to be transported over 10 km to Safebagar for third-party government testing. This slows the concrete mix design and material approval cycle.

6.3 Proactive Remedial Measures & Site Actions

To resolve these bottlenecks and accelerate progress, Budhiganga Hydropower Project (BHP), the Owner's Engineer, and the Contractor are coordinating several proactive remedial measures:

- **Forest Clearance and Tree Enumeration:** The tree cutting clearance was initiated in June 2026. A formal agreement was reached with the Division Forest Offices of Achham and Bajura to start site tree enumeration. In July 2026, field-level tree numbering and counting were actively carried out at the Adit area (spanning multiple days in July) and headworks area, in coordination with the ward chairpersons and affected community forest user groups (including Jukens, Imeltukra, Rakshe, and Sukethana) to expedite land possession.
- **Instruction for Catch-Up Plan:** In response to cumulative schedule delays across River Protection, Dam, and Tunnel works, the Consultant has formally instructed the contractor to prepare and submit a robust, resource-loaded 'Catch-Up Plan'. This plan must detail how the contractor will deploy additional excavators, vibratory rollers, and labor forces to recover lost time and align with the March 17, 2029 completion target.
- **Alternative Lab Routing:** The contractor is actively constructing the site laboratory masonry. To prevent aggregate stacking delays, the contractor has been authorized to utilize the divisional road laboratory at Safebagar and verified private laboratories in Kathmandu for immediate concrete mix trials.