

MIDDLE TAMOR HYDROPOWER PROJECT (73 MW)

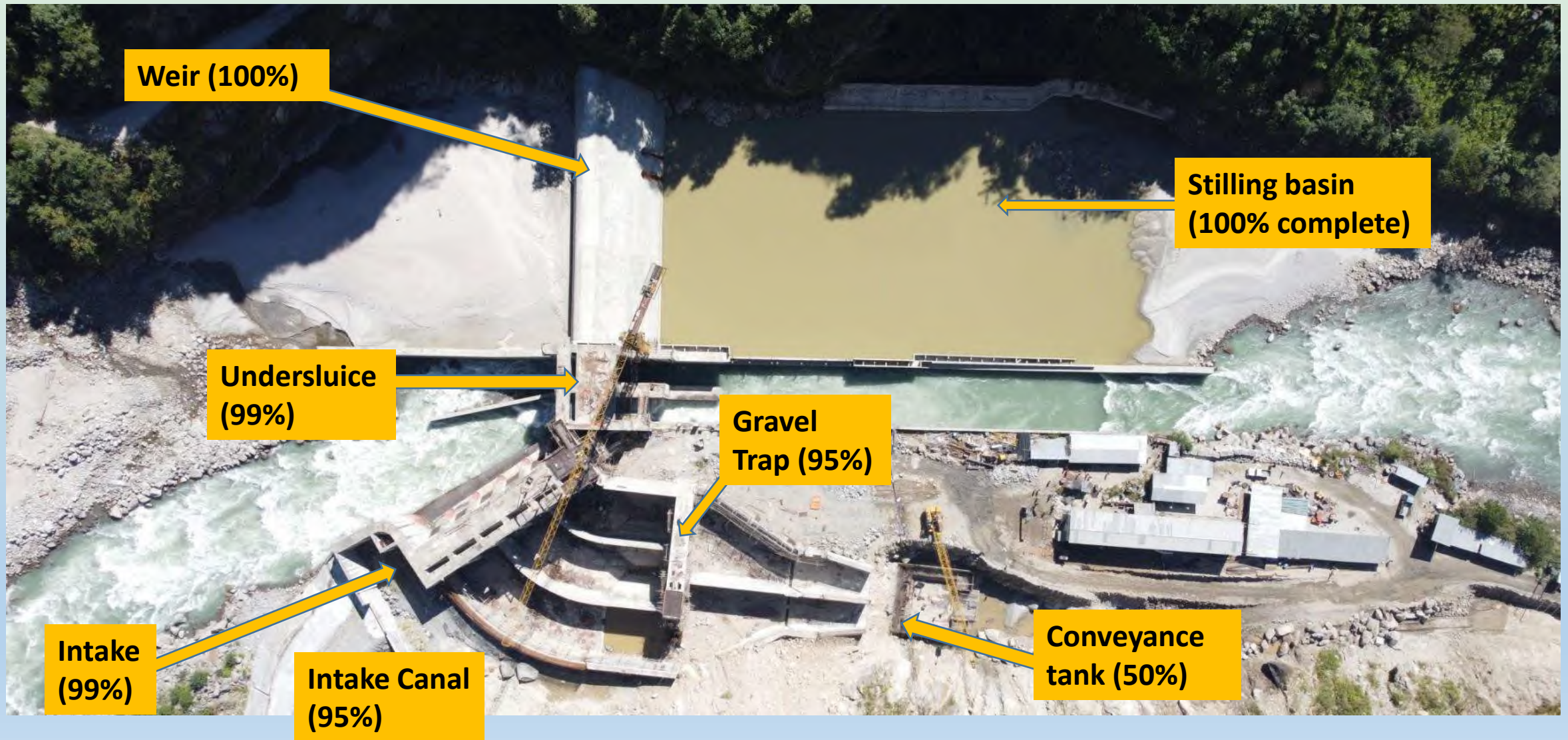
CONSTRUCTION PROGRESS OF THE PROJECT (Pictorial)



October, 2022

SANIMA MIDDLE TAMOR HYDROPOWER LIMITED

PROGRESS AT MAIN CIVIL WORKS (HEADWORKS)



View of Headworks (October 2022)

PROGRESS AT MAIN CIVIL WORKS (HEADWORKS)



Bellmouth region



Concreting works at Conveyance tank (Bellmouth section)

PROGRESS AT MAIN CIVIL WORKS (HEADWORKS)

PROGRESS AT HEADWORKS SUMMARY:

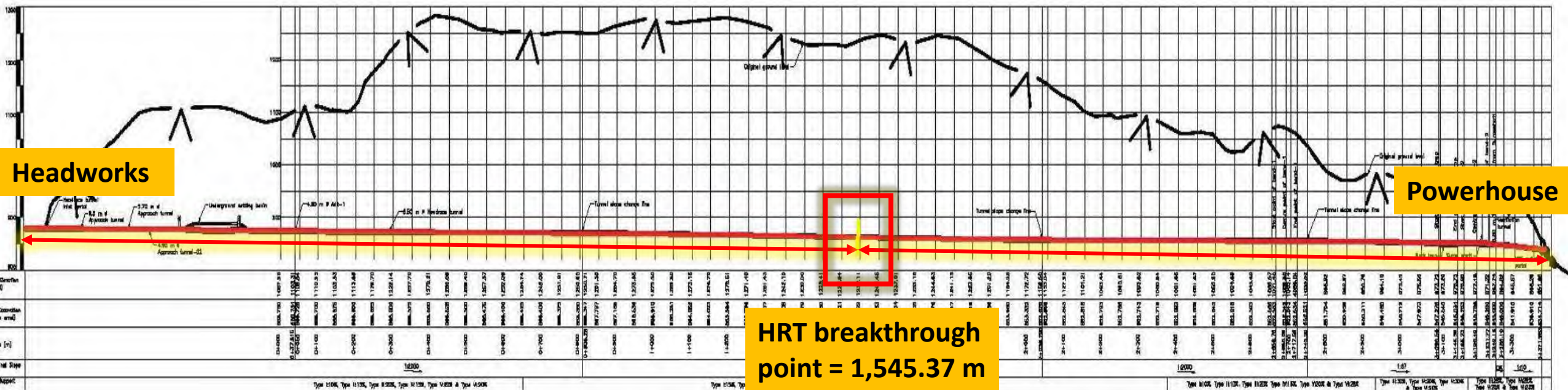
S.N.	Structure	Concrete Progress till date
1	Intake (Orifice structure)	99%
2	Undersluice	99%
3	U/s floodwall	96%
4	Gravel Trap	95%
5	Intake canal	95%
6	D/s right floodwall	100%
7	Weir	100%
8	Stilling Basin	100%
9	Gravel flushing gate	100%
10	Conveyance Tank	50%
11	Bedload sluice culvert	35%

**Headworks
Construction
Progress = 82%**

PROGRESS AT MAIN CIVIL WORKS (UG WORKS)

PROGRESS AT UNDERGROUND TILL DATE:

- **6,625 m** tunnel network with **3,370 m Headrace Tunnel**
- Almost **6,300 m** excavation completed (**95% by length and 82% by volume**)
- Breakthrough of **3,370 m** of HRT (**100% excavation**)
- Concrete Lining works ongoing



PROGRESS AT MAIN CIVIL WORKS (UG WORKS)



Invert lining works at HRT

PROGRESS AT MAIN CIVIL WORKS (UG WORKS)



Backfilling works at HRT tunnel (Chainage 0+50)

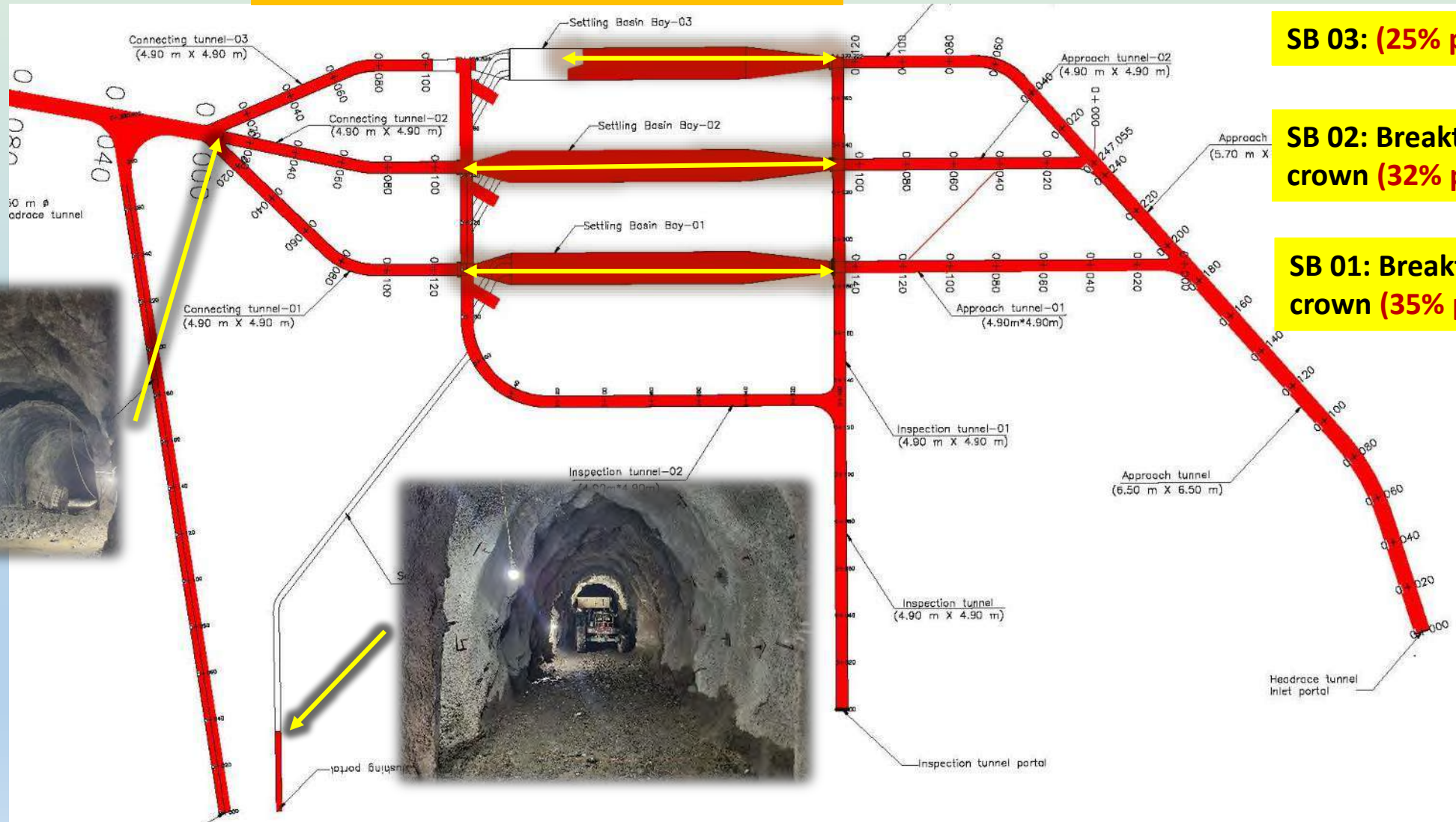


Backfilling works at HRT Tunnel (Chainage 2+200)

HRT Progress = 85%

PROGRESS AT MAIN CIVIL WORKS (UG WORKS)

Underground works near headworks



SB 03: (25% progress)

SB 02: Breakthrough at crown (32% progress)

SB 01: Breakthrough at crown (35% progress)

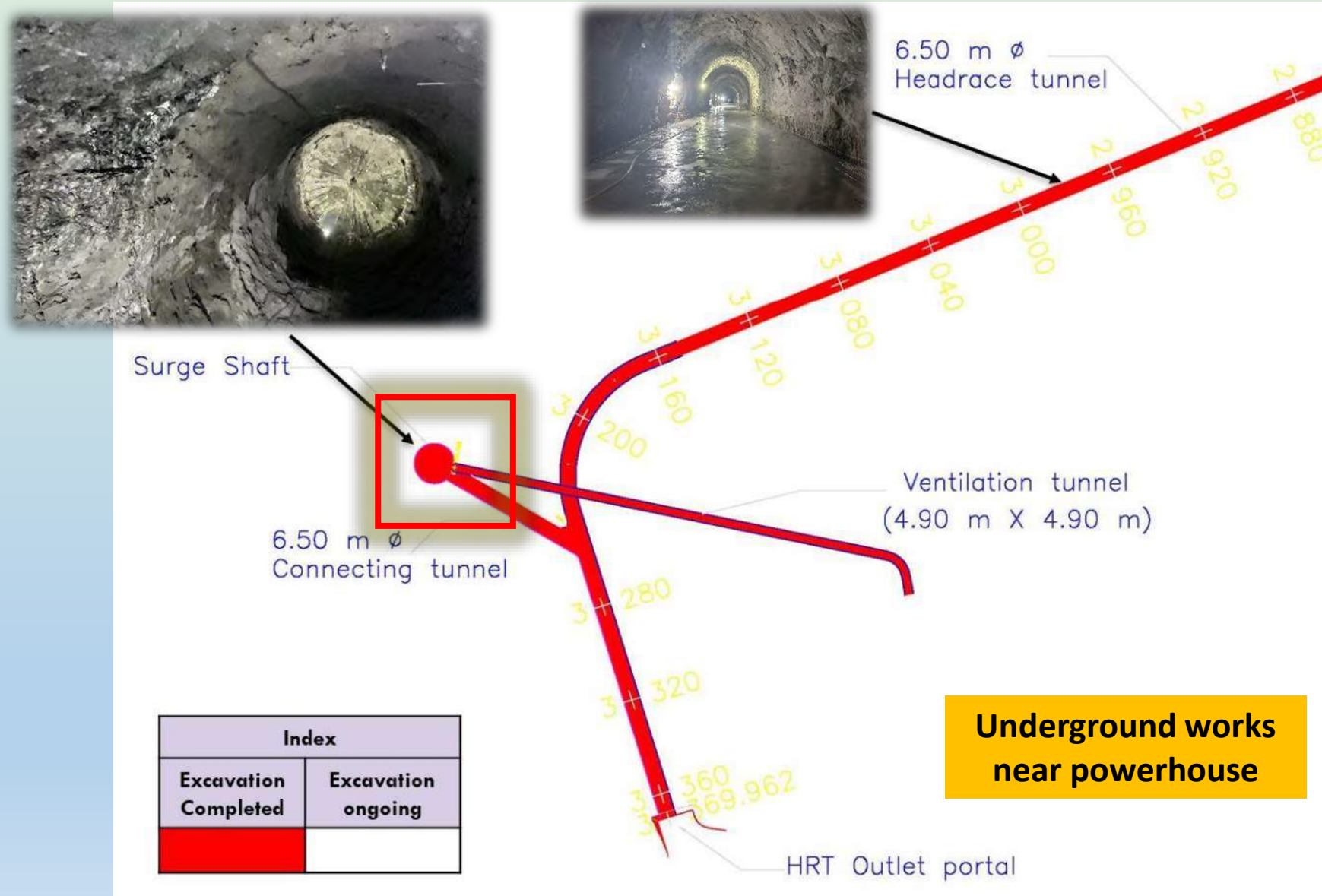
PROGRESS AT MAIN CIVIL WORKS (UG WORKS)



**Settling Basin
Progress = 40%**

Excavation works

PROGRESS AT MAIN CIVIL WORKS (UG WORKS)



PROGRESS AT MAIN CIVIL WORKS (UG WORKS)

**Excavation works of
Surge shaft completed**



**Formwork installation
for lining of Surge shaft**



**Surge Shaft
Progress = 80%**

PROGRESS AT MAIN CIVIL WORKS (UG WORKS)



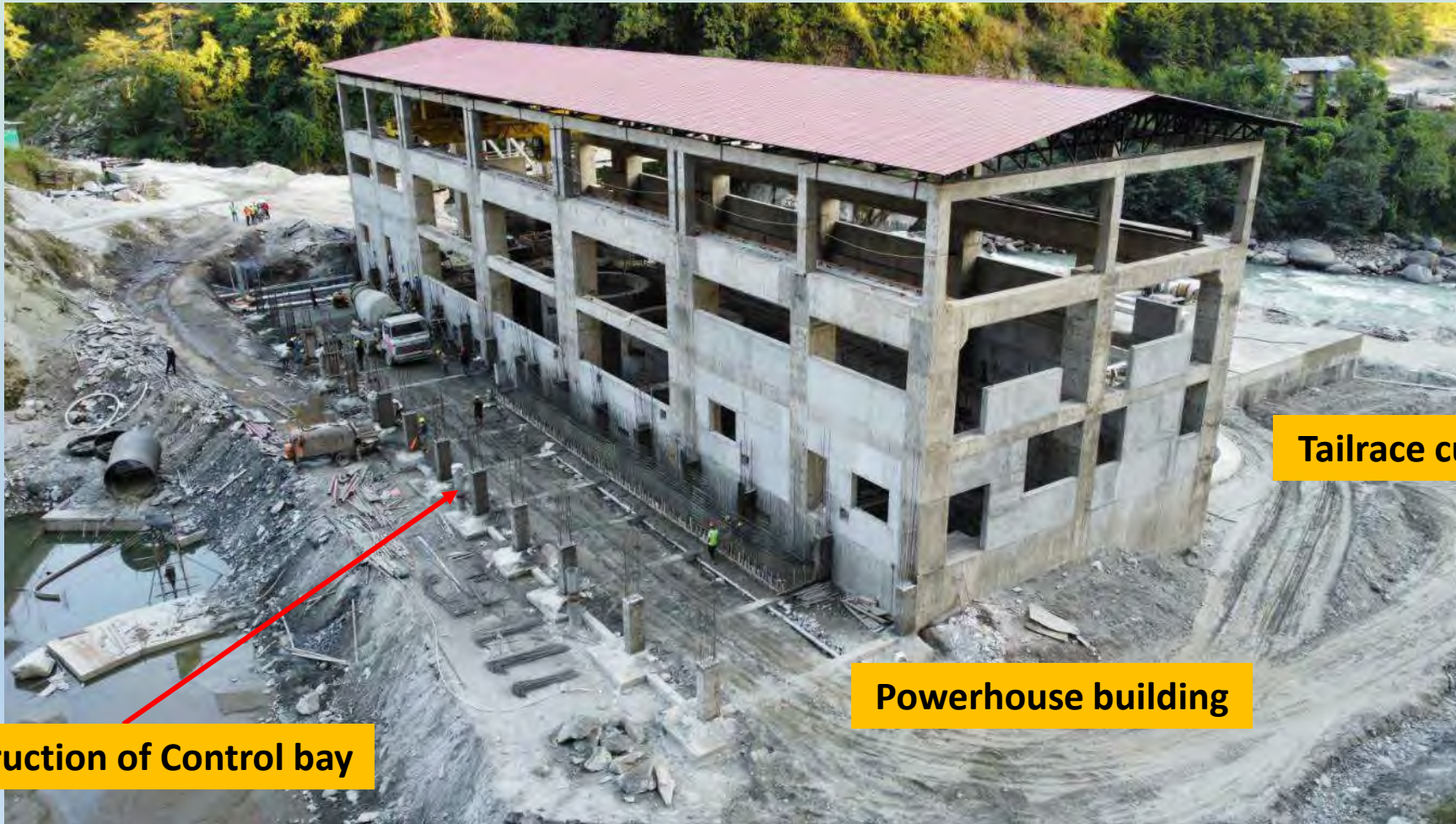
Shotcreting works at HRT

**Excavation progress
= Volume wise 82%**

**Overall construction
progress = 71%**

PROGRESS AT MAIN CIVIL WORKS (POWERHOUSE)

- Concreting works at Powerhouse superstructure and tailrace section **completed**
- Control bay construction **ongoing**



Tailrace culvert

Powerhouse building

Construction of Control bay

PROGRESS AT MAIN CIVIL WORKS (POWERHOUSE)



Generator casing at Unit 02



**Unit 01
(Generator casing)**

**Unit 02
(Generator casing)**

**Unit 03 (Spiral
casing assembly)**

PROGRESS AT MAIN CIVIL WORKS (POWERHOUSE)

**Tailrace culvert
during construction**



PROGRESS AT MAIN CIVIL WORKS (POWERHOUSE)



**Overall progress In Main
Civil Works = 76%**

An aerial view of Powerhouse

PROGRESS AT MAIN CIVIL WORKS (POWERHOUSE)

PROGRESS AT POWERHOUSE SUMMARY:

Concreting in superstructure of powerhouse **(100% completed)**

S.N.	Structure	Progress till date
1	Powerhouse and Control bay	87%
2	Tailrace floodwall	100%
3	Tailrace culvert and chamber	98%
4	Penstock and anchor blocks	40%

**Progress of civil
works at
Powerhouse and
penstock= 66%**

**Overall progress In Main
Civil Works = 76%**

PROGRESS IN HYDRO-MECHANICAL (HM) WORKS

- Contractor: **Machhapuchhre Metal and Machinery Works Pvt. Ltd.**



Aerial view of HM Camp, work shop and storage yard

PROGRESS IN HYDRO-MECHANICAL (HM) WORKS

S.N.	Works	Progress	Status	Remarks
1	Steel lining installation	100%	Completed	Intake, undersluice and bed load sluice
2	Approach Pipes (fabrication) Approach Pipes (installation)	100% 20%	Ongoing	Will be installed after work front opened by MCW
3	Stop log frame, radial gate frame and gates erection	100%	Completed	
4	Penstock Pipes (fabrication)	100%	Ongoing	All units fabricated
5	Bends (fabrication) Bends (installation)	100% 20%	Ongoing	3 units Approach pipe bends and 4 units branch pipe bends
6	Bifurcation (fabrication) Bifurcation (installation)	100% 70%	Area is under clearing	Fabrication of all units completed
7	Reducers (fabrication) Reducers (installation)	100% 60%	Stored	4 units completed
8	Diffusers	100%	Completed	Already installed
9	Branch pipes (fabrication) Branch pipes (installation)	100% 50%	Ongoing	All fabricated, 8 units installed
10	Intake gates (fabrication) Intake gates (installation)	100% 50%	Ongoing	All 6 units fabricated, 3 installed
11	Bell mouth (fabrication)	80%	Ongoing	Bellmouth at Conveyance tank and approach pipe junction is ongoing

PROGRESS IN HYDRO-MECHANICAL (HM) WORKS



Fabrication of bell mouth for approach pipe



Erection of approach pipes

PROGRESS IN HYDRO-MECHANICAL (HM) WORKS



Erection work Unit 2 (Complete) and Unit 1 (Ongoing)

Aerial View of Power house Penstock Pipe Erection



Erection work(Unit 1) (Dia: 2.0 m and thk: 20 mm)



Steel lining works at gravel flushing culvert (thk: 12 mm)

PROGRESS IN HYDRO-MECHANICAL (HM) WORKS



Flap gate at trash passage



Erection of air vent pipe at gravel flushing
Unit 3 (Dia. 200 mm)



Erection of approach pipe and
simultaneous concreting

PROGRESS IN HYDRO-MECHANICAL (HM) WORKS



Fabrication of intake gate



Lifting of intake gate Unit 2 for erection

**Overall HM
Progress = 65%**



Erection work at Unit 1 of Intake Gate



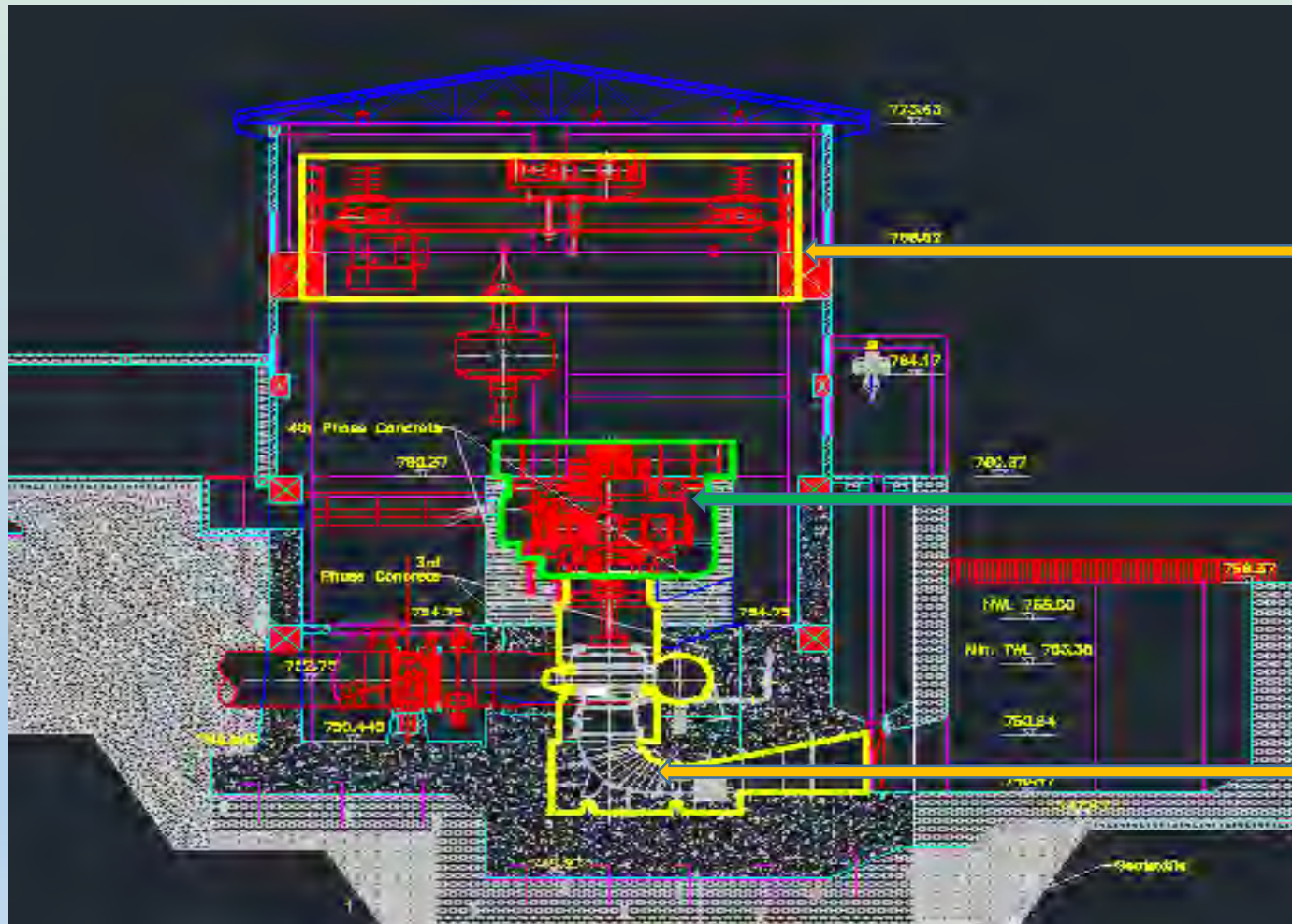
Erection of Intake gate



Fabrication of radial gates at Pokhara workshop

PROGRESS IN ELECTRO-MECHANICAL (EM) WORKS

- Contractor: **Chongqing Water Turbine Works Co. (CWTW), Ltd., China**



EOT Crane Installed

Generator Delivered to Site

Pit liner, Spiral case, Draft tube installed

Section drawing of Powerhouse

PROGRESS IN ELECTRO-MECHANICAL (EM) WORKS

S.N.	Particulars	Progress	Status	Remarks
1	Fabrication works (In China)	95%	Ongoing	<ul style="list-style-type: none"> Generator, turbine, stator, brackets, spiral casing, draft tube, EOT crane, etc.
2	Import of equipment and delivery at site	65%	Ongoing	<ul style="list-style-type: none"> 7 lots of equipment delivered Spiral case of all units, draft tube, elbow, cone, pit liner, EOT Crane and accessories, runner and generator set for 2 units arrived at site 8th lot of equipment (<i>including switchyard embedded parts, governor, excitation panels</i>) due to arrive at Calcutta port
3	Installation and erection works at site	40%	Ongoing	<ul style="list-style-type: none"> Draft tube installed in all units Spiral casing for all units have been installed Generator casing at unit 1 and unit 2 installed
4	Testing and commissioning	15%	Ongoing	<ul style="list-style-type: none"> Hydrostatic pressure test of Spiral casing (3 units Completed) EOT commissioning (Completed) EOT load testing (Completed on Nov. 07, 2022)

PROGRESS IN ELECTRO-MECHANICAL (EM) WORKS



An aerial view of Powerhouse after installation of spiral casing

PROGRESS IN ELECTRO-MECHANICAL (EM) WORKS



EOT crane being commissioned with the medium load



Static load testing of EOT crane

PROGRESS IN ELECTRO-MECHANICAL (EM) WORKS



Installation of bottom ring at Unit 01 (Base of guide vane)

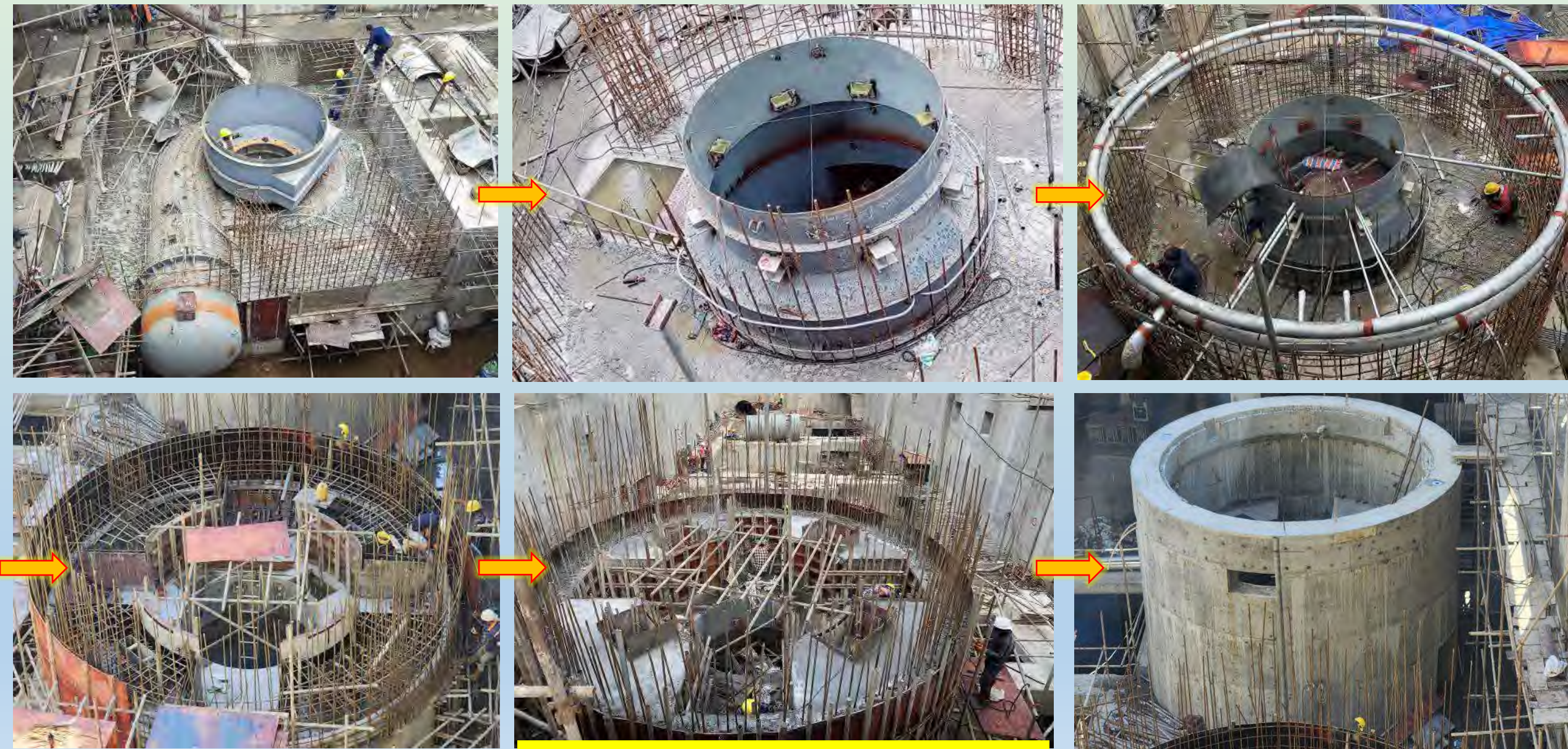


Installation of pit liner at Unit 03



Guide vanes of turbine

PROGRESS IN EM, HM and CIVIL INTERFACE (PH)



Generator casing at Unit 01

PROGRESS IN ELECTRO-MECHANICAL (EM) WORKS

Fabrication of EM equipment and parts in various factories in China



Main Inlet Valve (MIV)



A view of Transformer and switchgear (Contractor's factory in China)



PROGRESS IN ELECTRO-MECHANICAL (EM) WORKS

Fabrication of EM equipment and parts in various factories in China



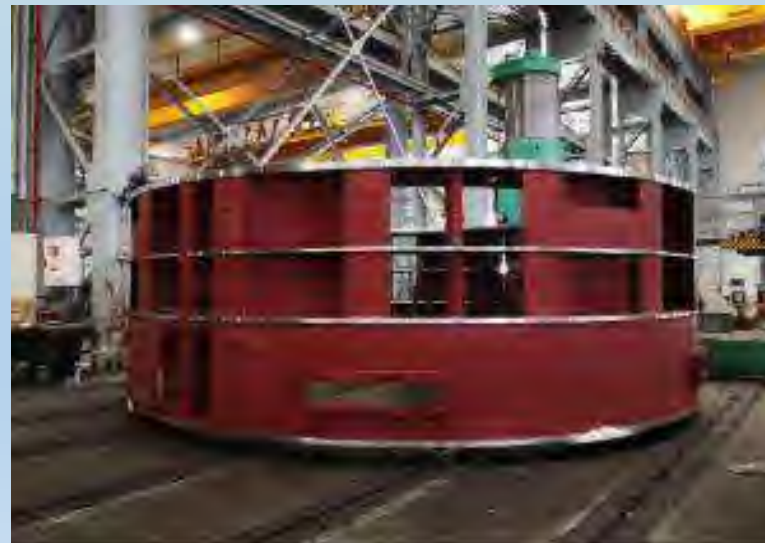
Transformer being factory tested(Contractor's factory in China)



Rotor spider hub



Runner



Stator

**Overall EM
Progress = 62%**

PROGRESS IN TRANSMISSION LINE (TL) WORKS

- Contractor: **Cosmic Electrical Engineering Associates Pvt. Ltd.**

S.N.	Particulars	Progress	Status	Remarks
1	Initial Environment Examination (IEE)	100%	All Completed	Approved by DoED
2	Construction license of TL	100%		Acquired from DoED
3	Detailed design	100%		

S.N.	Tower works	No. of Towers	Completed	Ongoing	Progress	Remarks
1	Land acquisition	24	23	1	96%	Ongoing at AP 17
2	Tower Foundation works	24	22	1	92%	Remaining at AP 01 and AP 17
3	Erection of tower	24	22	1	92%	
4	Stringing works	9 km	-	-	-	After completion of RoW acquisition

S.N.	Fabrication, import and delivery	Progress	Status	Remarks
1	Fabrication of Tower Parts (In India and China), Conductor in Nepal and OPGW and Insulator (In India and China)	100%	Completed	Import and delivery completed

PROGRESS IN TRANSMISSION LINE (TL) WORKS



Tower erection works (From left: AP13, AP14, AP16, AP03)

PROGRESS IN TRANSMISSION LINE (TL) WORKS



**Overall
Progress in TL
works = 82%**

View of erected towers from right bank of Tamor

CONSTRUCTION PROGRESS SUMMARY

Construction Progress of the Project till September 2022

S.N.	Major Contract Packages	Project Weightage	Physical Progress out of 100%
1	Main Civil Works	66%	76%
1.1	Headworks and Temporary River Diversion	25%	82%
1.2	Powerhouse and Penstock	7%	66%
1.3	Underground Works (HRT and Settling Basin)	30%	71%
1.4	General Items	4%	80%
2	Hydro-mechanical Works including Procurement of steels	6%	65%
2.1	Contract amount	5%	62%
2.2	Procurement of steel plates	1%	98%
3	Electro-mechanical Works	13%	62%
4	Transmission Line Works	2%	83%
5	Infrastructure Development Works	13%	93%

**Overall Physical Progress of Middle Tamor
Hydropower Project: About 76%**

