



## **Presentation to ESTIS**

---

**2 x 235 MW Oil-Shale Fired Mine Mouth IPP Power Project  
at Attarat Um Ghudran, Jordan**

**24<sup>th</sup> September 2018**

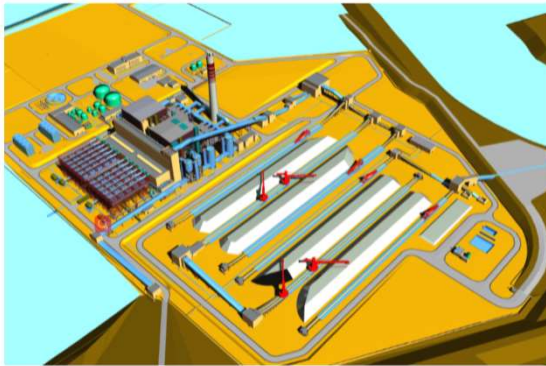
## Presentation Outline

---

1. **Project Overview**
2. **Power Plant Works**
3. **Infrastructure Works**
4. **Mine Works**

# 1 Project Overview

## Project Overview



### Power Plant

- 2 x 277 MW Gross Electrical Power
- Circulating Fluidized Bed Boilers
- Air Cooled Condensers
- 2 Fuel Yards with 10 days and 12 days storage capacity
- 3 Stages of Oil Shale Crushing
- Completion time – October 2020



### Oil Shale Mine

- Open Cast Mining
- Mine Opening Period : 50 mn bcm Overburden to be removed
- Operational Period : 10 mn tpa Oil Shale to be supplied to Power Plant



### Project Infrastructure

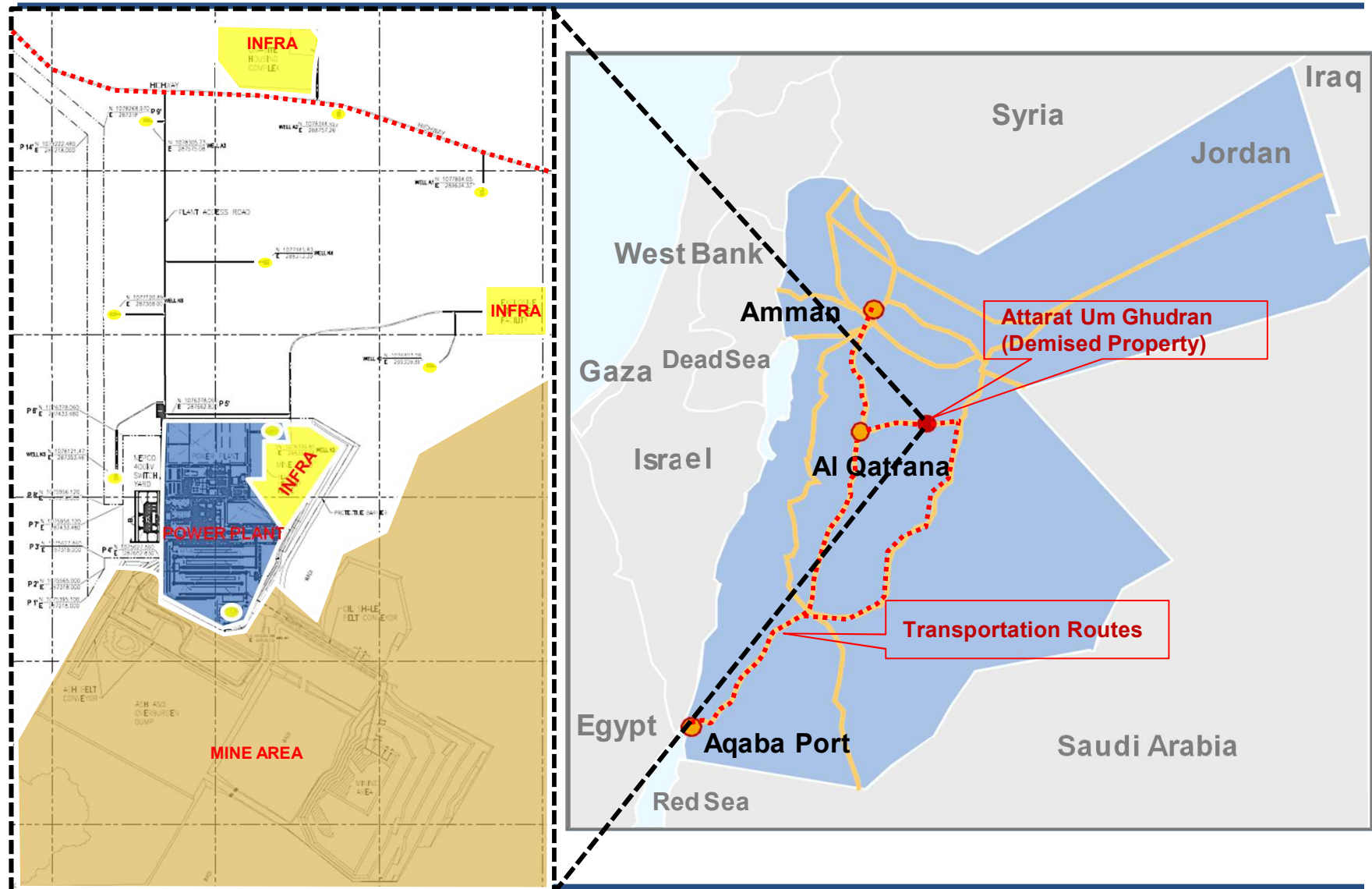
- Water Wells Construction
- On-Site Housing Camp
- Mining Camp
- Explosive Store

**Project Construction Started on 16 March 2017**

## Project Execution Structure



## Project Layout



# 2 Power Plant Works

## Overall Progress of Power Plant Works

Work Stage	Weight (%)	Overall (%)
Engineering	10	7.09
Procurement	35	16.39
Construction	45	10.19
Commissioning & Testing	10	0.00
<b>Total</b>	<b>100</b>	<b>33.67</b>

\* as of August 2018

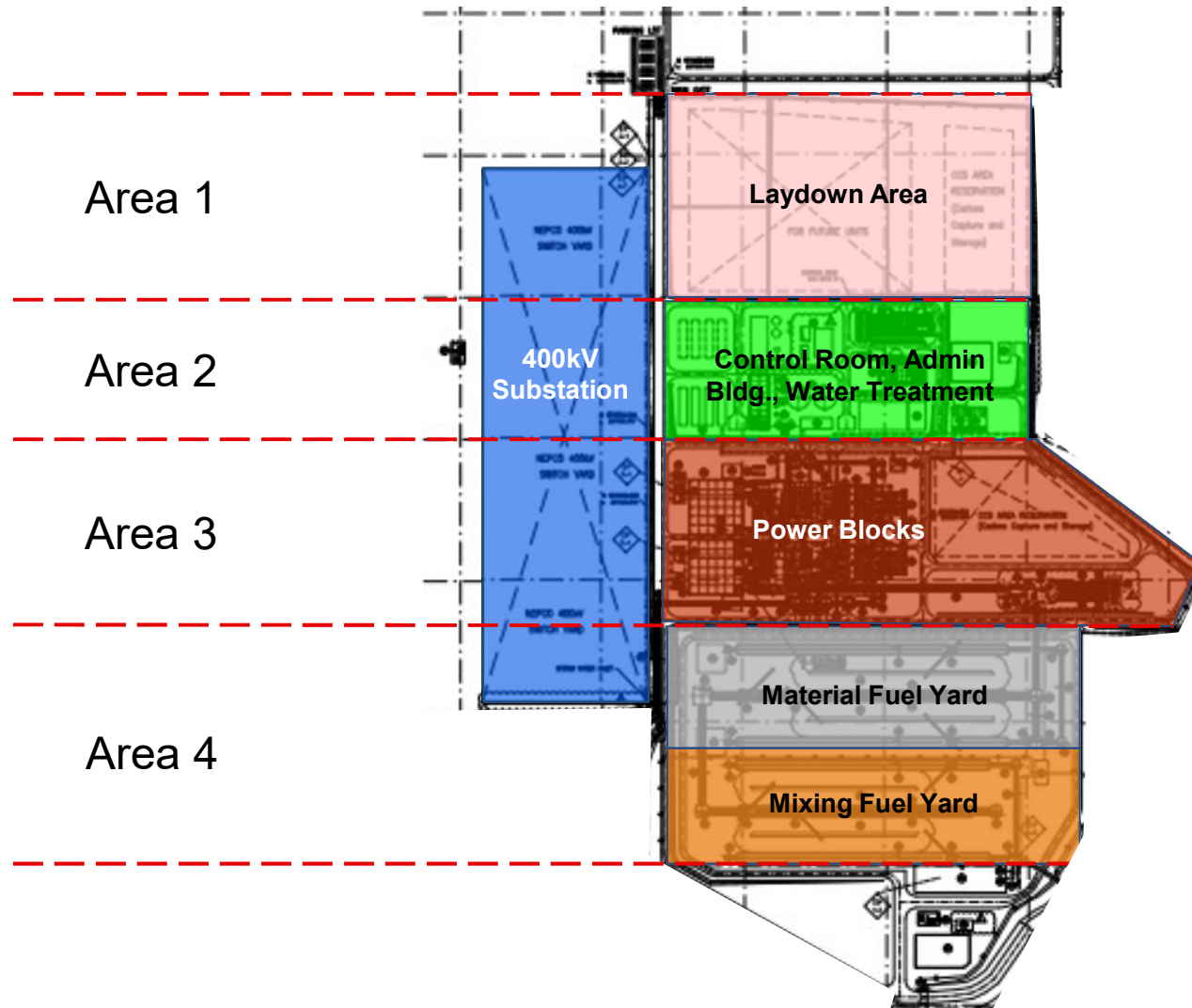
**The cumulative progress till end of August is 33.67 %, which is matching with the schedule**



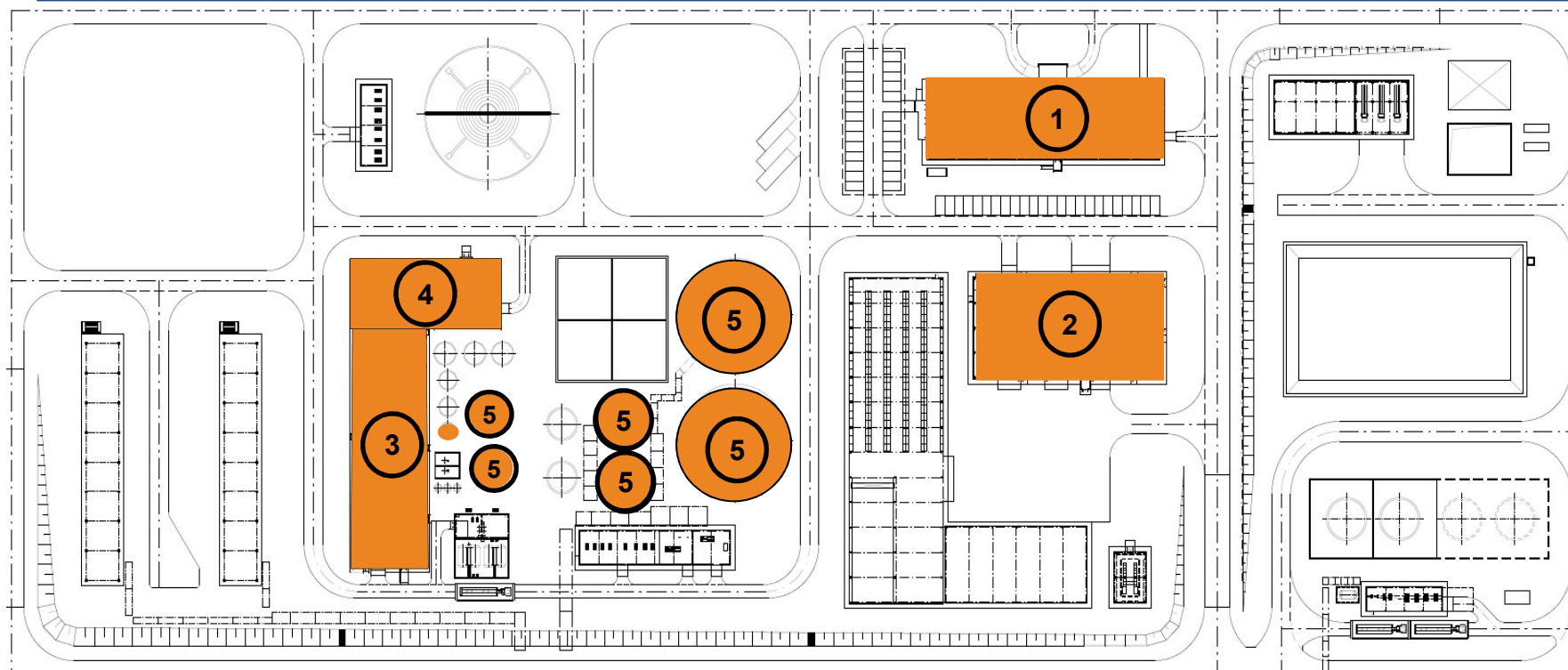
## Power Plant Equipment Suppliers (Non Exhaustive List)

No.	Equipment	Supplier	Country
1	Boiler	Sumitomo Foster Wheeler	Finland/China
1.1	Bottom Ash Coolers	Qingdao Songling power Environmental equipment Co. Ltd	China
1.2	Boiler Feedwater Pumps	KSB Shanghai Pump Co. Ltd	China
1.3	Boiler Fans	Nantong Dart-Pollrich Fan Co. Ltd	China
1.4	ID Fans	TLT-Turbo (Sichuan) Co. Ltd	China
1.5	High Pressure Blowers	Gardner Denver Nash Machinery Ltd	China
2	Turbine & Generator	Siemens	Germany
3	Air-Cooled Condenser	Shanghai Electric-SPX Engineering & Technologies Co. Ltd.	China
4	Crusher (First Stage)	MMD	UK/China
5	Crushers (Second and Third Stage)	Sichuan Huanglong Intelligent Crushing Technology Co. Ltd.	China
6	Ash Disposal Equipment	FLSmidth Beijing Ltd.	China

## Power Plant General Construction Layout



## Area 2 - Admin & Common Facilities Construction



No.	Construction Area
1	Administration Building
2	Workshop & Warehouse
3	Water Treatment Building
4	Water Treatment Laboratory
5	Water tanks

## Area 2 Pictures



Water Treatment Laboratory – second floor work in progress



Administration Building Construction in progress



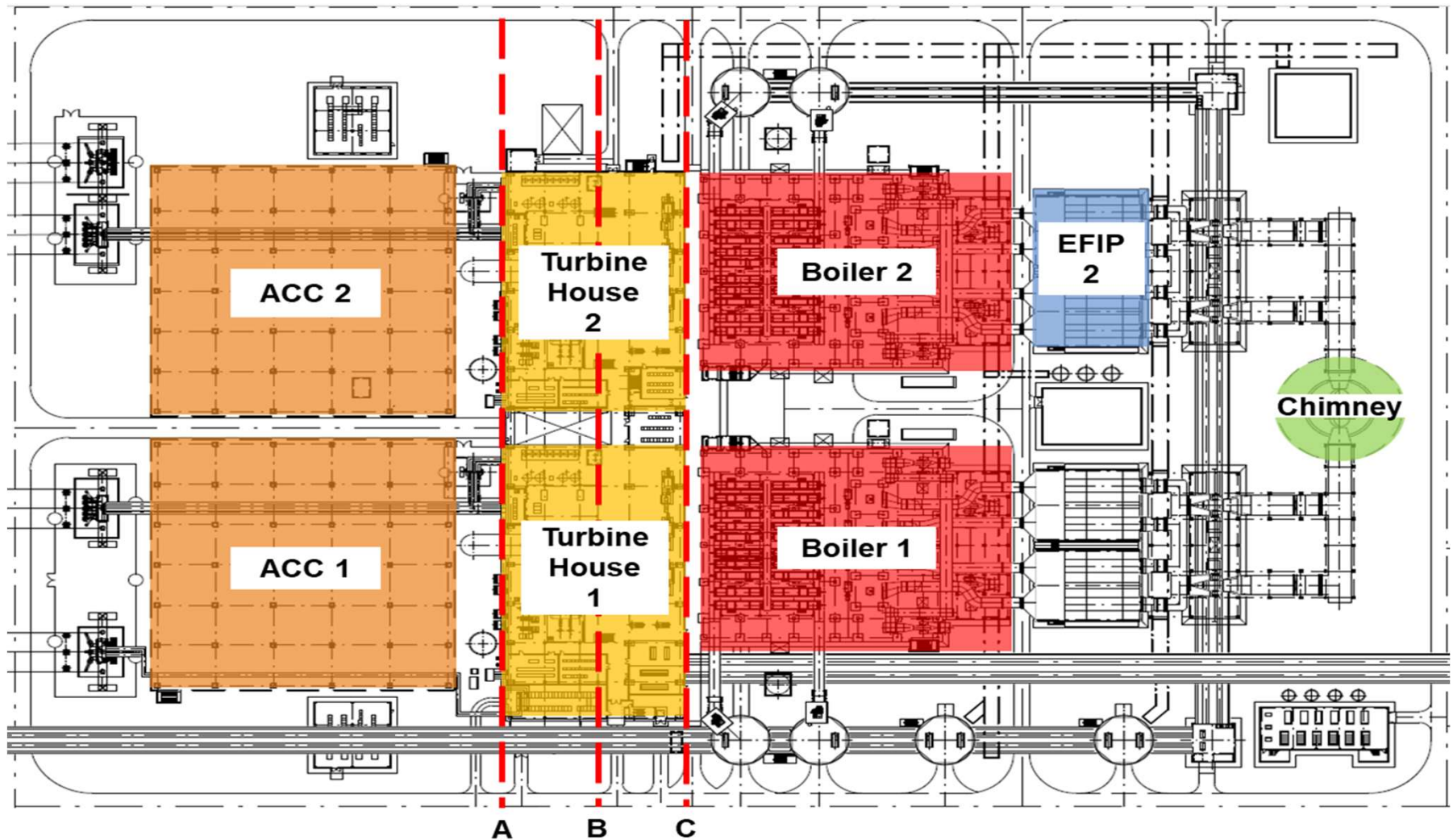
Water Tanks foundation works



Water Treatment Building foundation works



## Area 3 - Power Block Construction



## Area 3 Pictures (1/2)



Unit 1 STG foundation works



Unit 2 STG foundation works



Unit 1 Boiler steel structure works



Unit 2 Boiler steel structure works



## Area 3 Pictures (2/2)



Unit 1 Boiler furnace water-walls installation



Unit 2 Boiler APH installation



Chimney Construction in progress

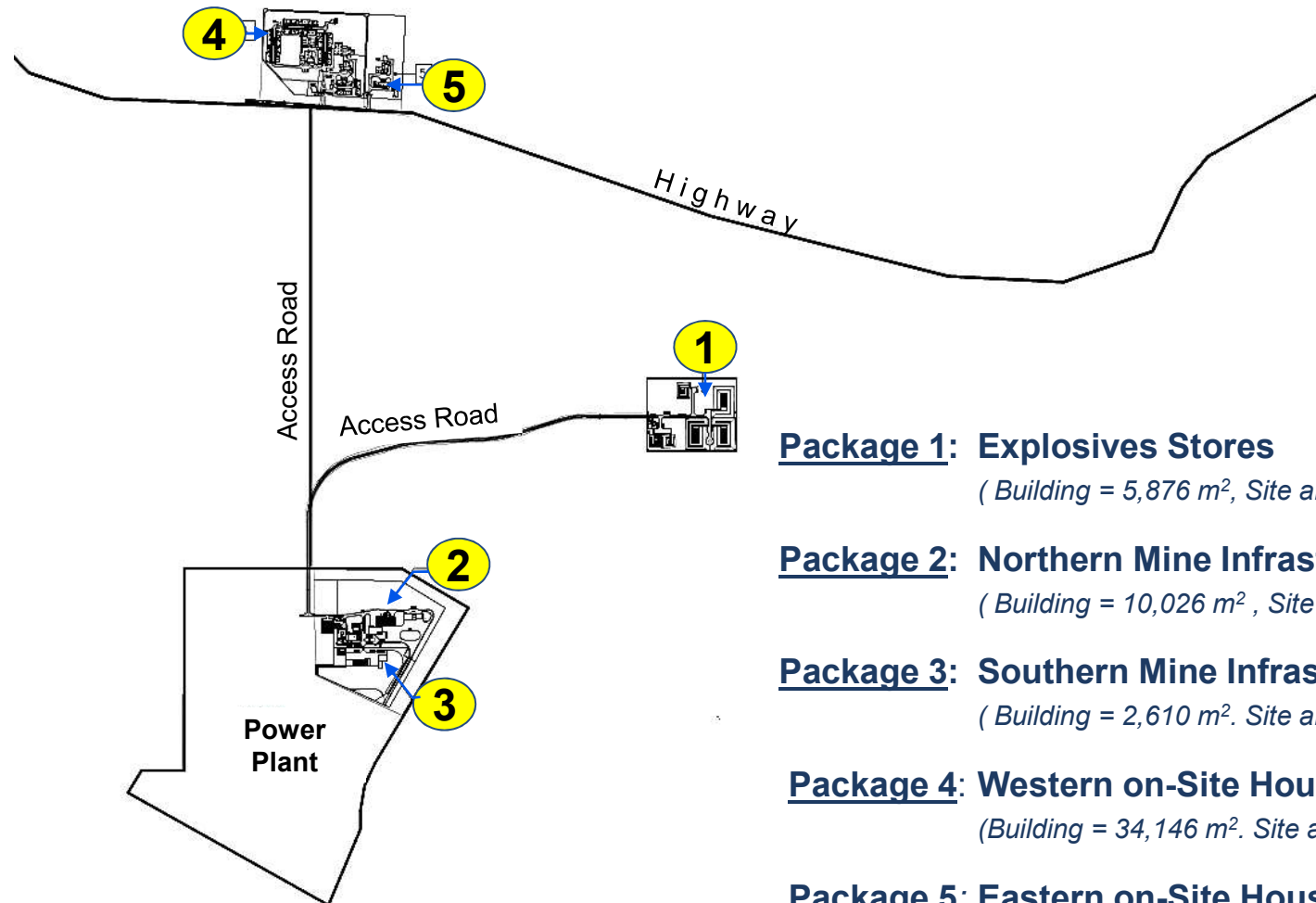


Unit 1 ACC steel structure installation in progress

# 3 Infrastructure Works



## Mine Infrastructures, Housing and Explosive Store Overview



### Package 1: Explosives Stores

( Building = 5,876 m<sup>2</sup>, Site area = 121,793 m<sup>2</sup> )

### Package 2: Northern Mine Infrastructure

( Building = 10,026 m<sup>2</sup>, Site area = 146,157 m<sup>2</sup> )

### Package 3: Southern Mine Infrastructure

( Building = 2,610 m<sup>2</sup>. Site area = 73,970 m<sup>2</sup> )

### Package 4: Western on-Site Housing Complex

( Building = 34,146 m<sup>2</sup>. Site area = 150,792 m<sup>2</sup> )

### Package 5: Eastern on-Site Housing Complex

( Building areas = 6,078 m<sup>2</sup>, Site area = 57,600 m<sup>2</sup> )

## Mine Infrastructures, Housing and Explosive Store Pictures



**Ammonium Nitrate Store Completed**



**Workshop & Warehouse Completed**

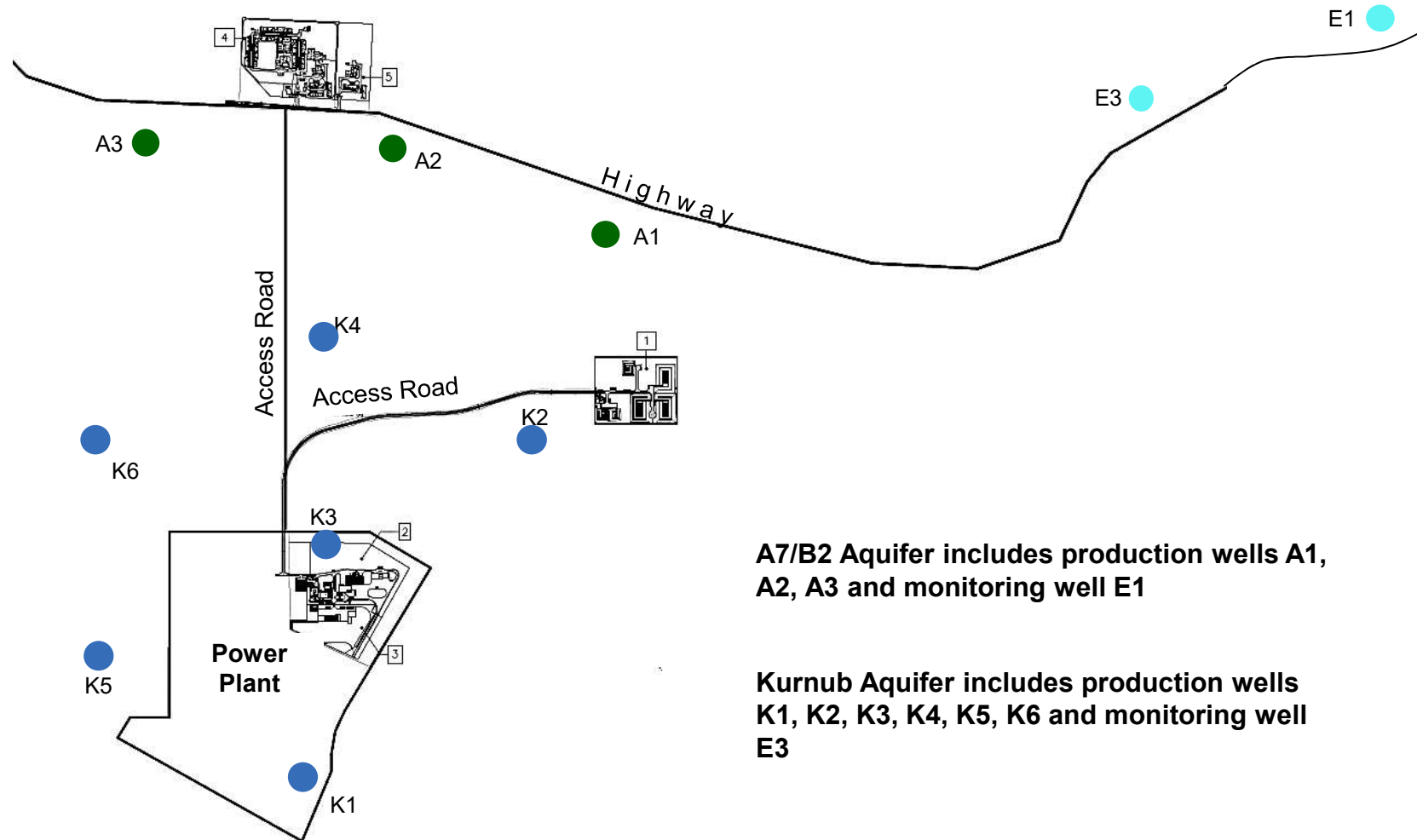


**Engineer Dormitory of Eastern Housing Completed**



**Eastern Housing Club House Completed**

## Wells Construction Overview



**All drilling works are completed**

## Wells Construction Pictures



K4 Well final stage of drilling (completed on 28 Dec 2017)



Drilling Rig for A7/B2 Wells

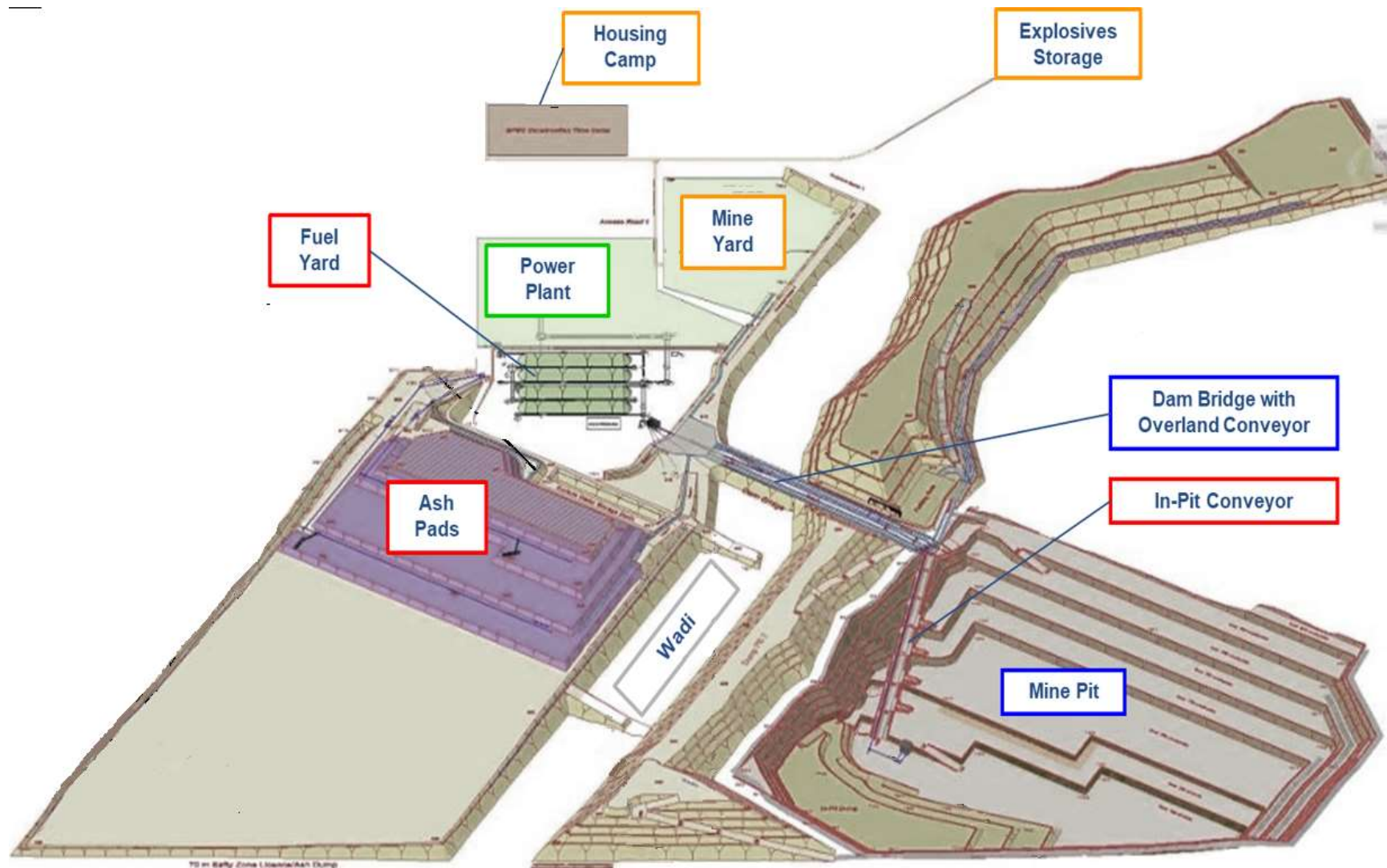


A3 Well Pumping Test

# 4 Mine Works

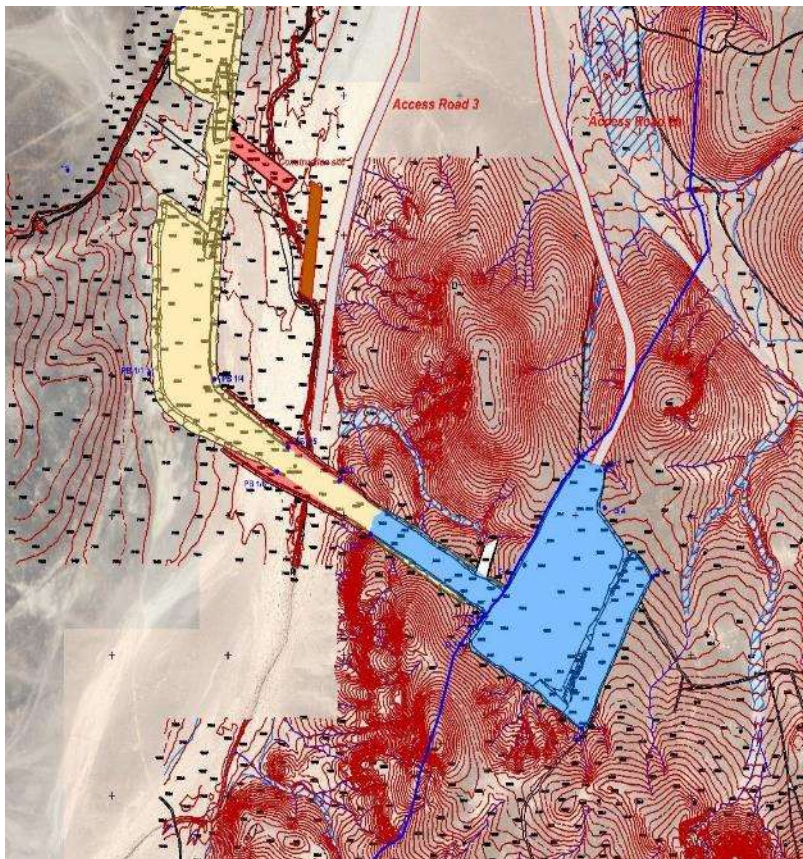


## Mine Layout



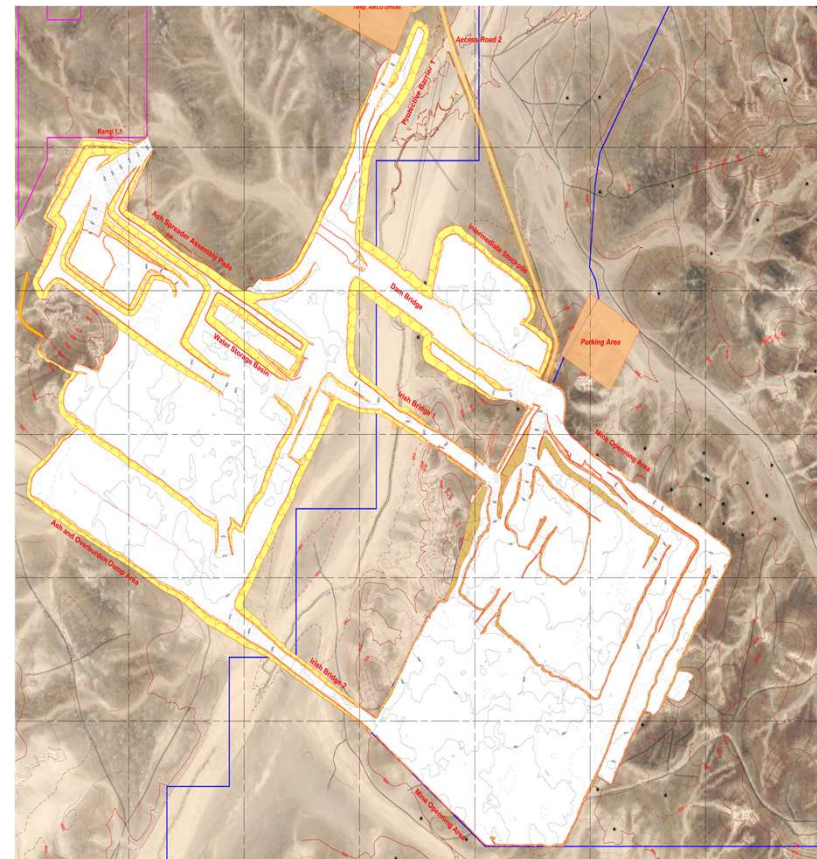
## Overburden Removal Progress

**July 2017**



**Total: 331,816 bcm**

**August 2018**



**Cumulative Total: 13.4 M. bcm**



## Mine Works Pictures



Borehole drilling for mine blasting



Mine blasting activity



Excavation activity



Transportation of overburden by dump trucks





Thank You ♦ شكرا ♦ 谢谢 ♦ Aitäh