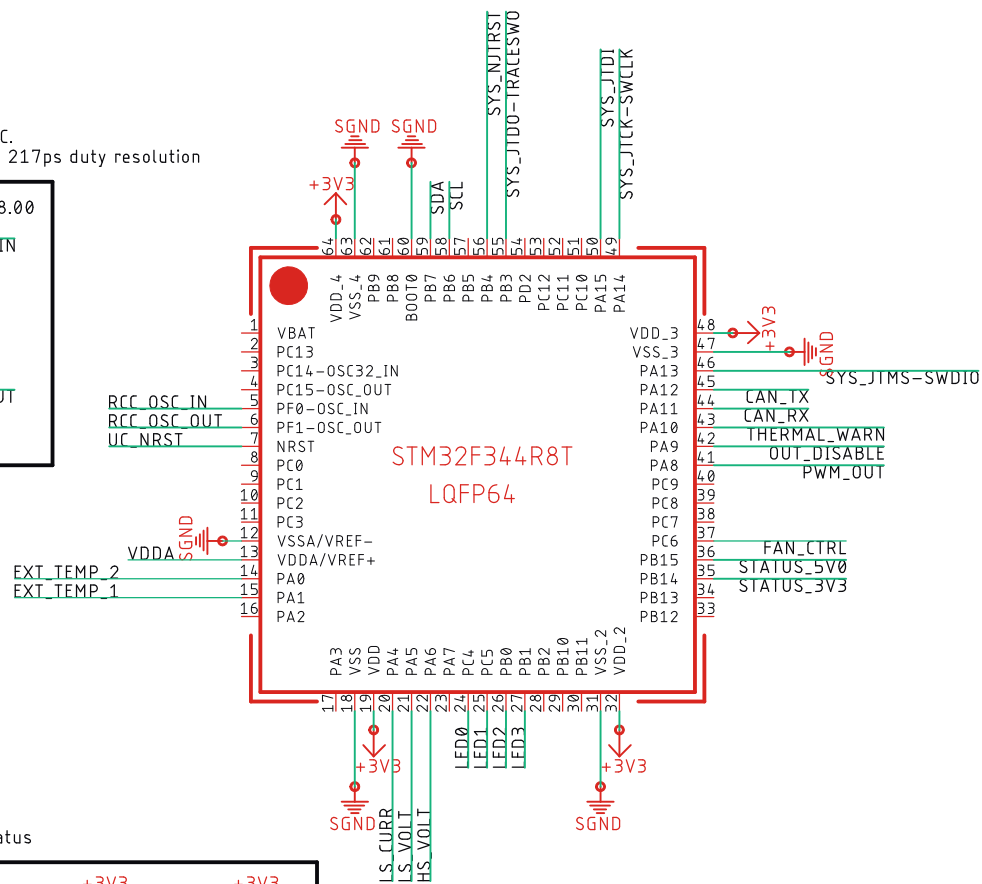
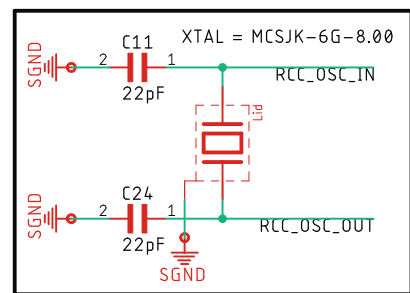
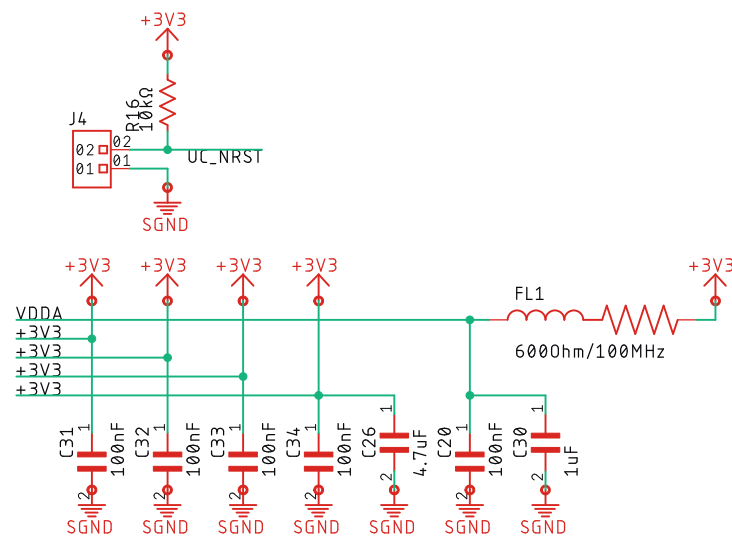
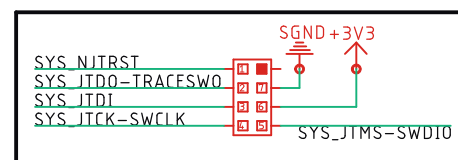


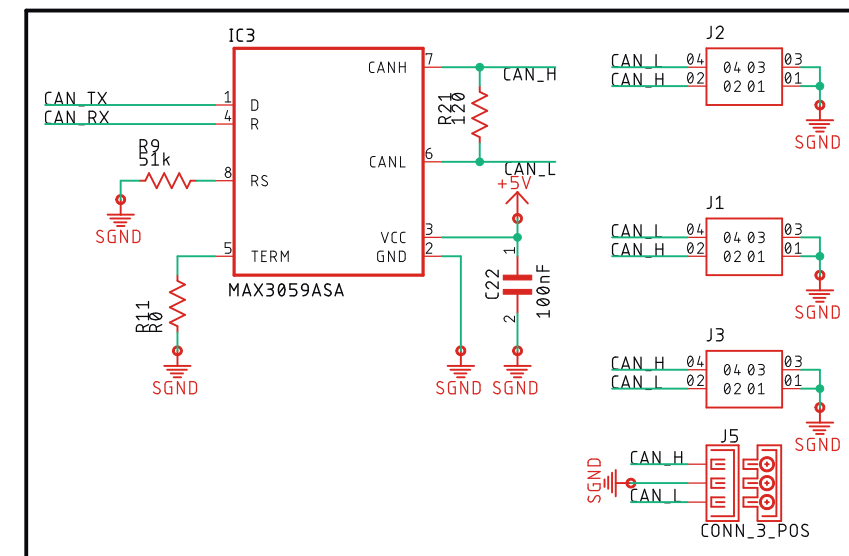
8MHz crystal oscillator enables fast RCC.  
It provides the capability to reach up to 217ps duty resolution



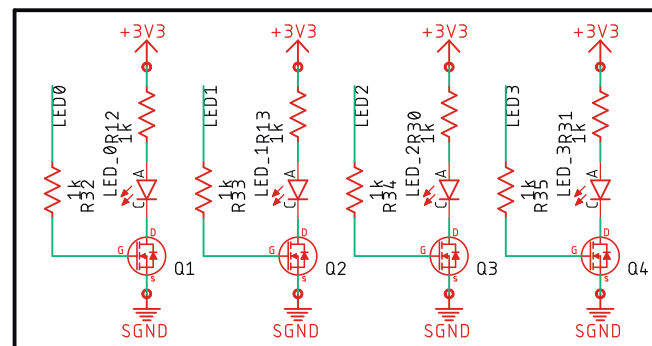
Full debugging 5-wire JTAG



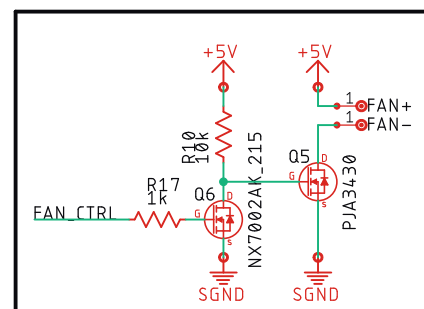
CAN Trasnceiver



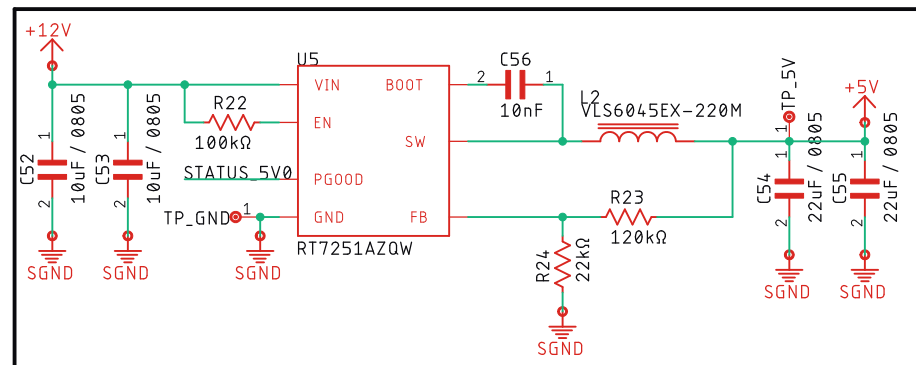
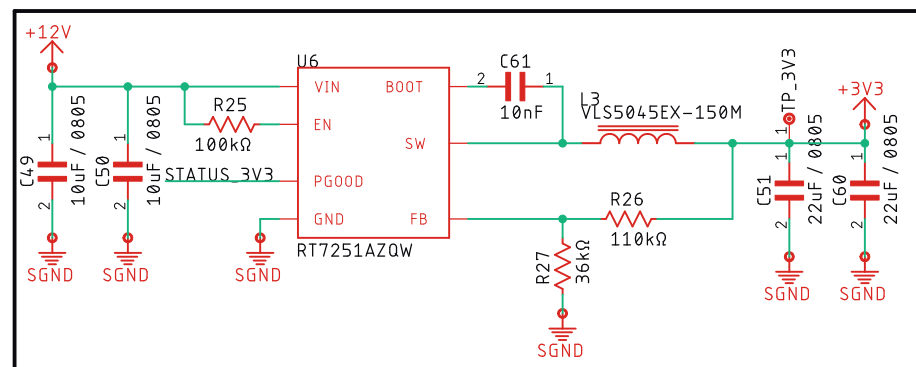
4 LED array indicator:  
Indicates control modes and error status



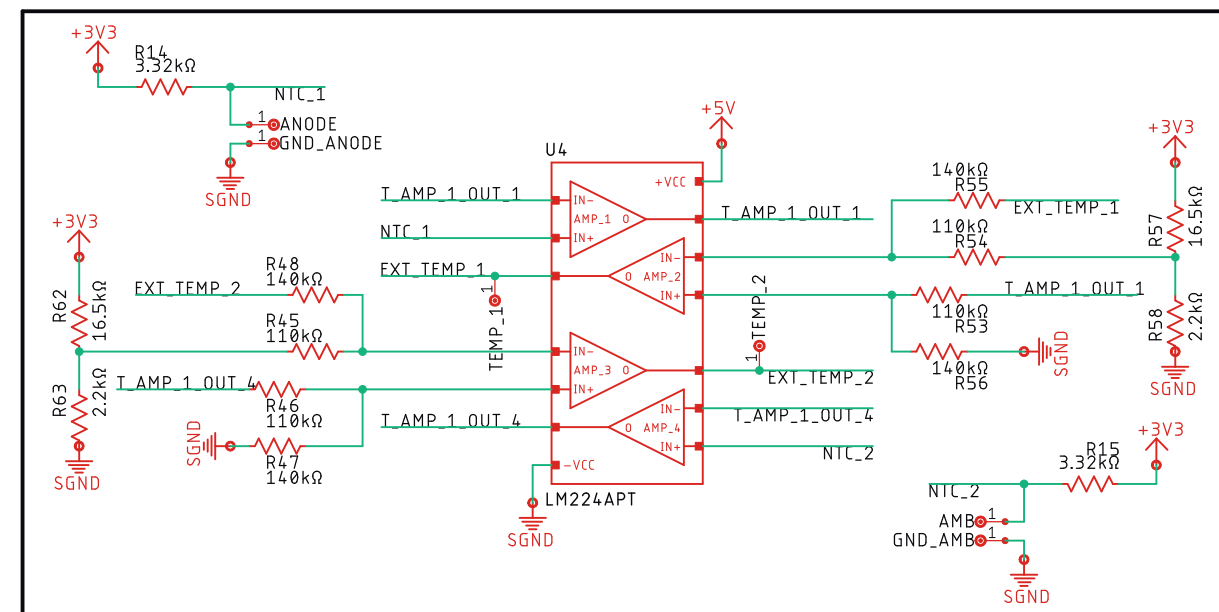
DC FAN PWM Control



Auxiliar DC-DC buck converters that provides 3.3V and 5V to converter.  
Minimum operating voltage 5.25V



NTC Temperature monitoring. Measure range [-20°C to +70°C] --> TP Voltage Range [3.3V (-20°C) --> 0V (70°C)]



**Title:** Schematics main board (1)

**Description:** --

**Drawn by:** I. O. Popa

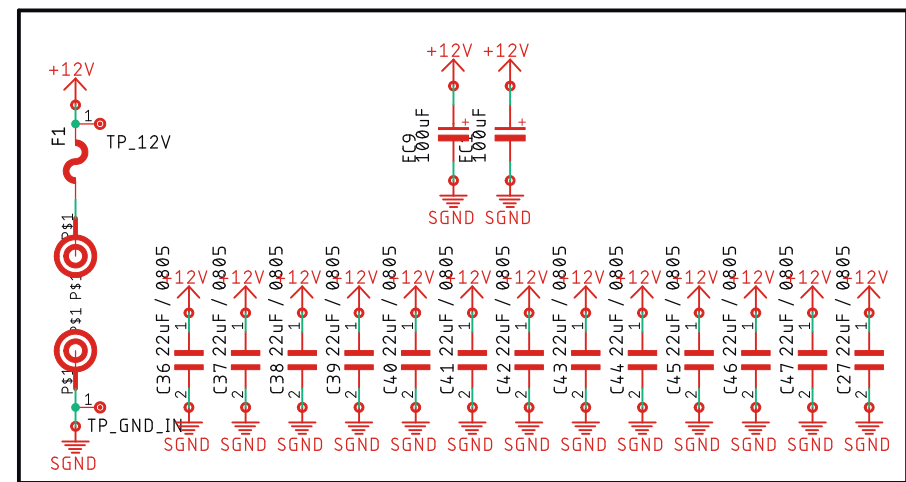
**Approved by:** P. Pastor

**Project:** Regen.EPC **Rev:** A

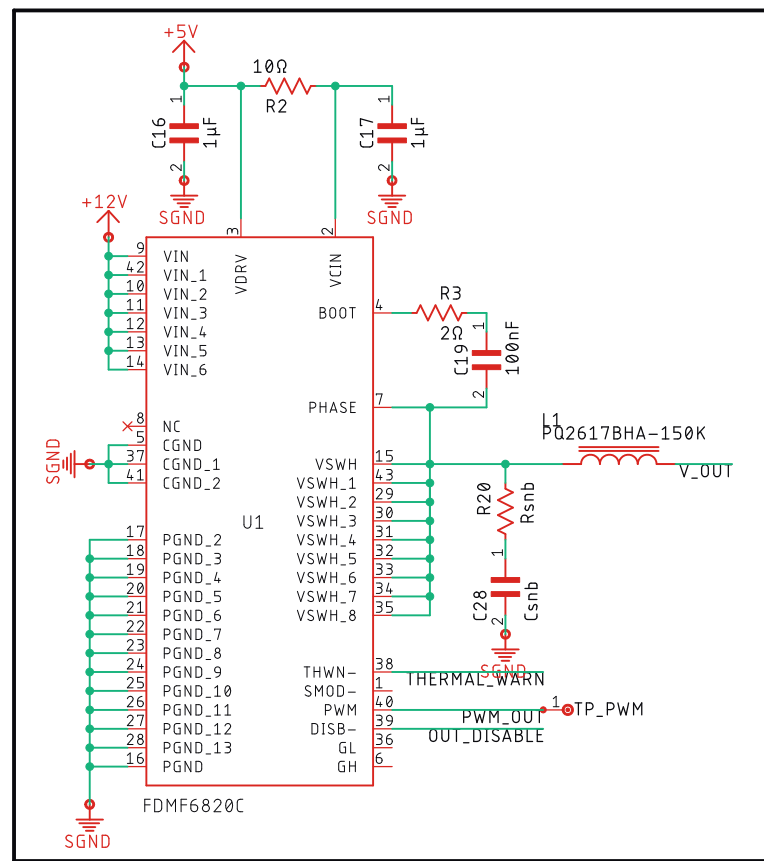
**Sheet:** 1/23



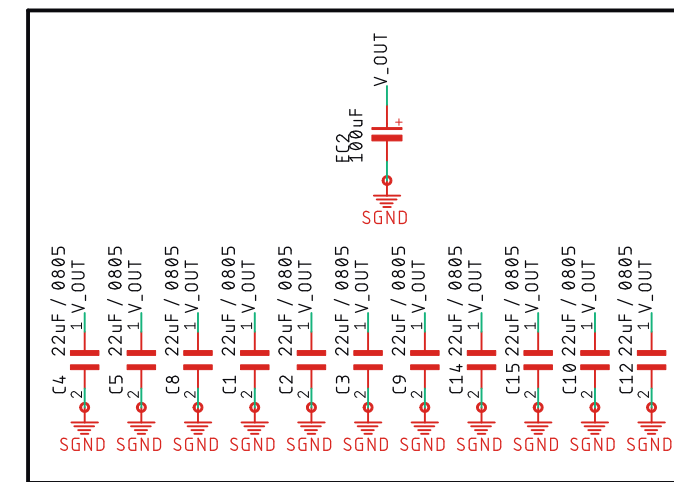
High Side - Power Input  
Mixed-type input capacitors: Up to 2 electrolytic capacitors and up to 12 MLCC 22uF / 0805.  
Input fuse: 5A@4hours, 200% I<sub>rated</sub> = 5sec



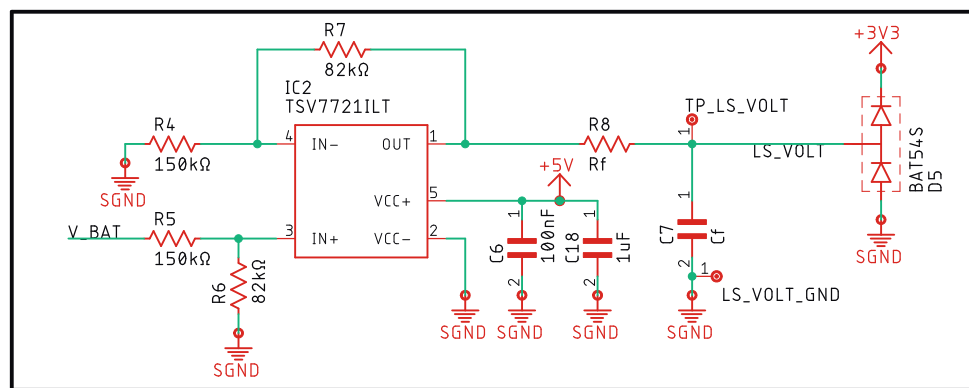
DrMOS module. It includes driver and mosfet half-bridge. 27V@50A maximum capability.



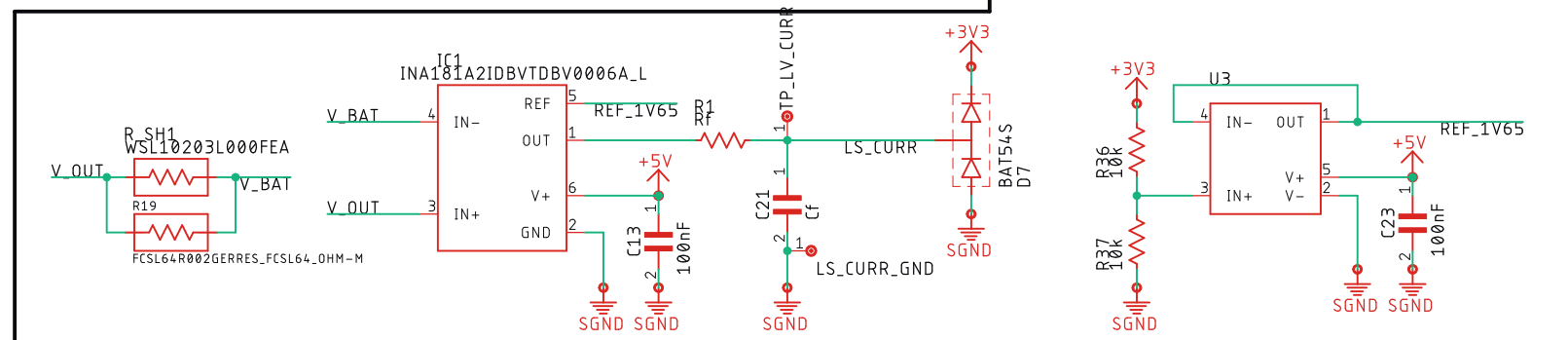
Mixed-type output capacitors. Electrolytic SMD + up to 11 MLCC 22uF / 0805.  
It improves frequency response and reduces parasitics



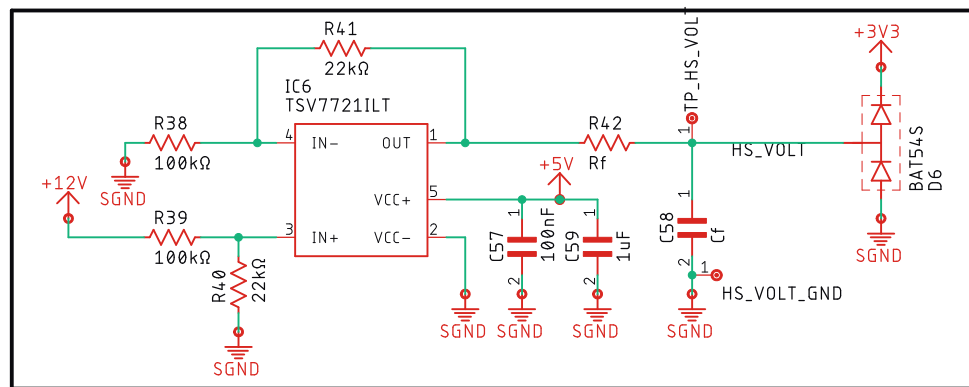
High-Side and Low-Side Voltage monitors based on precision differential amplifiers  
Low-Side range is 0-6V on battery terminals



Low-Side bidirectional current monitor:  
Based on INA181 and 3m0 power shunt resistor  
Symmetrical charge / discharge current capability up to +-11A



High-Side range is 5.5-15V on battery terminals



**Title:** Schematics main board (2)

**Description:** --

**Drawn by:** I. O. Popa

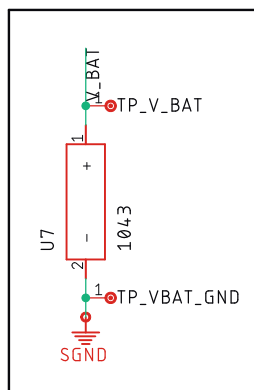
**Approved by:** P. Pastor

**Project:** Regen.EPC **Rev:** A

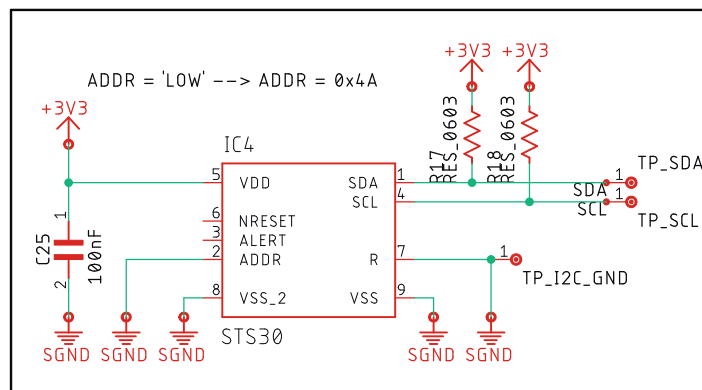
**Sheet:** 2/23



18650 THD BATTERY HOLDER

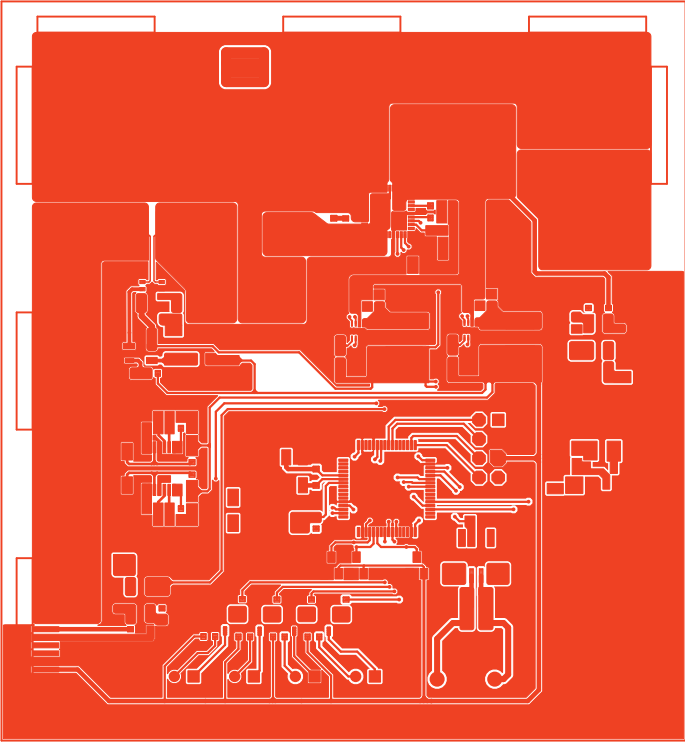


I2C TEMPERATURE SENSOR -40°C --> 125°C (MOUNTED UNDER 18650 BODY)



<b>Title:</b>	Schematics 18650 side board
<b>Description:</b>	Side board for 18650 cell
<b>Drawn by:</b>	I. O. Popa
<b>Approved by:</b>	P. Pastor
<b>Project:</b>	Regen.EPC
<b>Rev:</b>	A
<b>Sheet:</b>	3/23





**Title:** L1 (Top) -- Copper

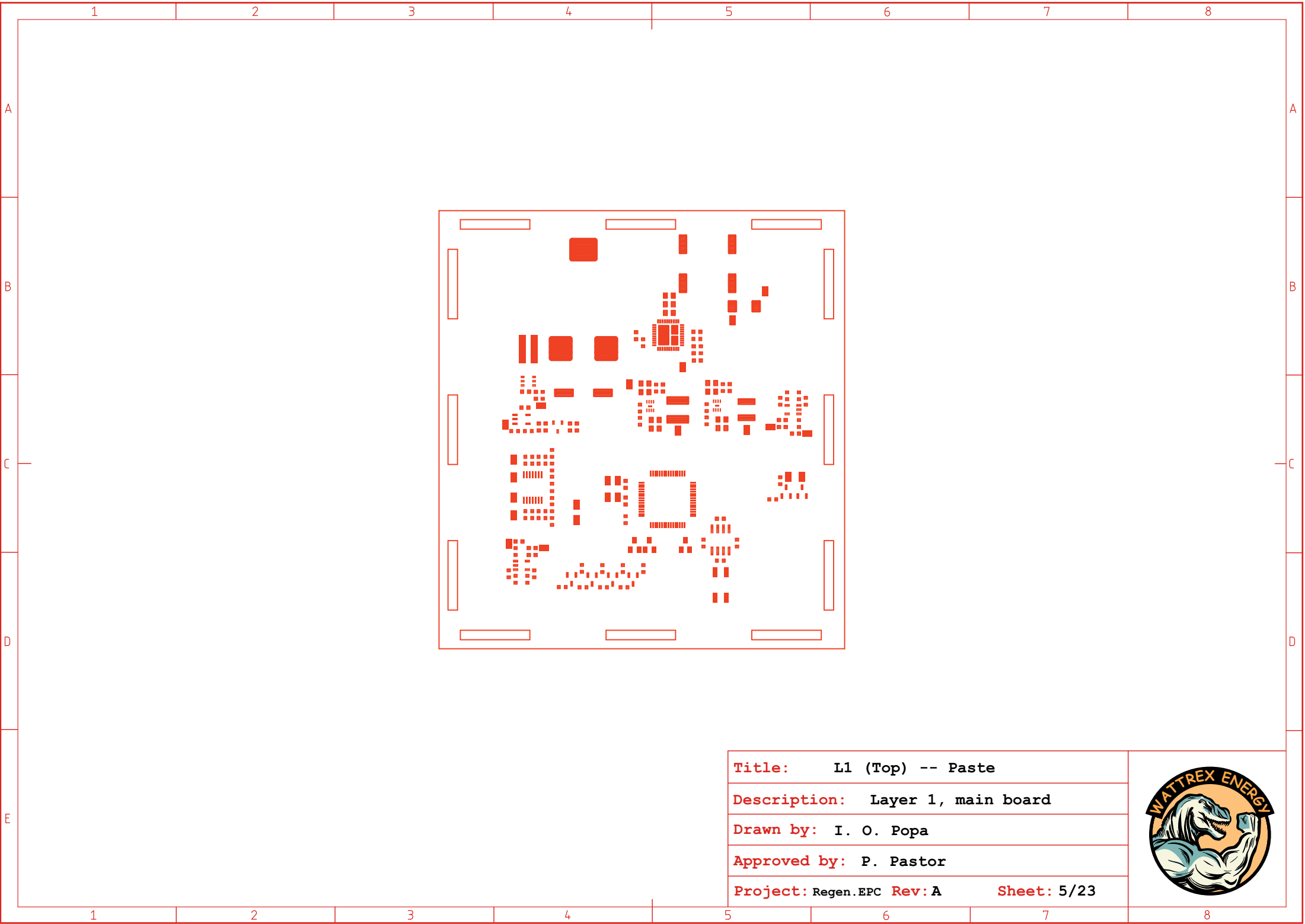
**Description:** Layer 1, main board

**Drawn by:** I. O. Popa

**Approved by:** P. Pastor

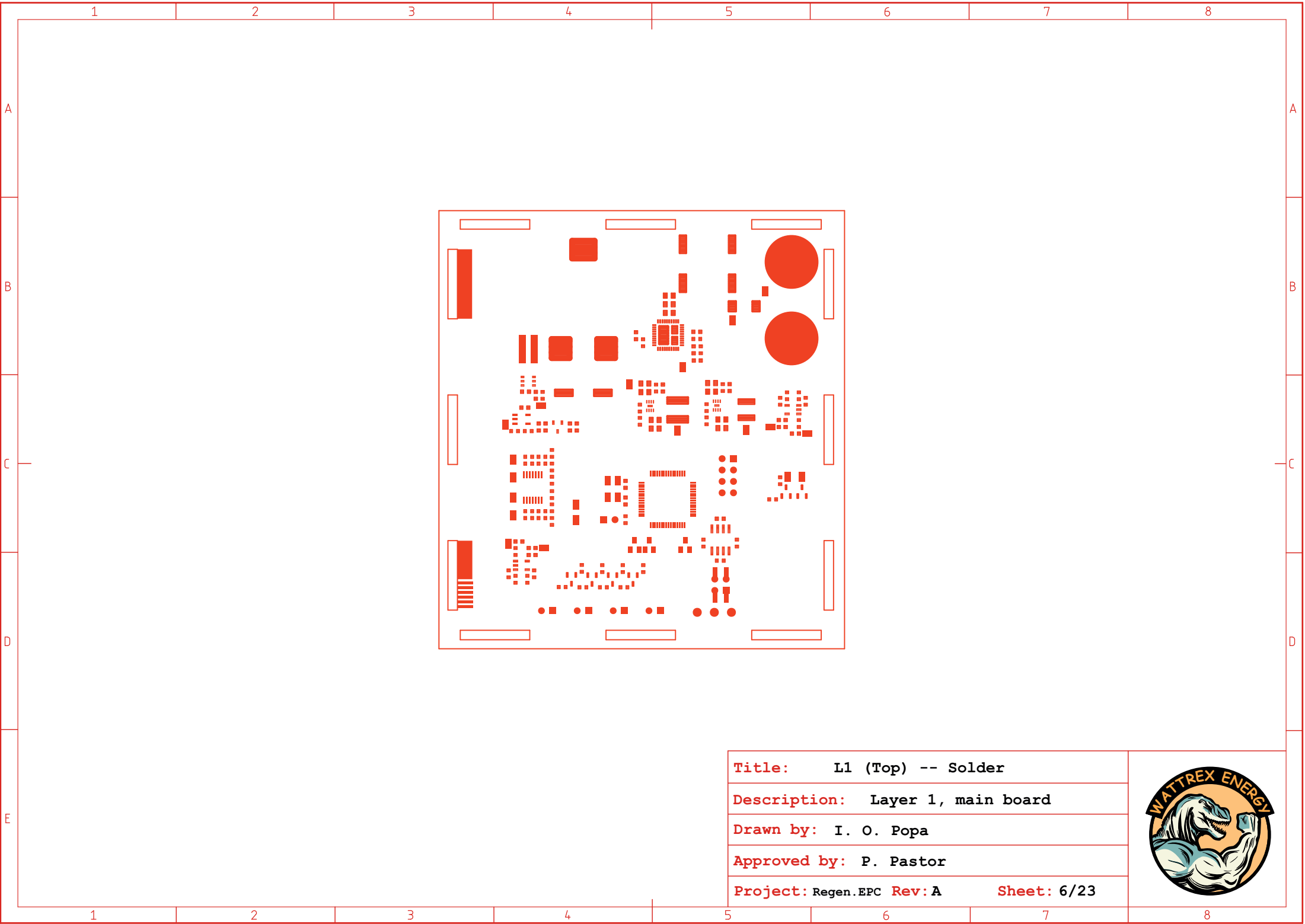
**Project:** Regen.EPC **Rev:** A **Sheet:** 4/23





<b>Title:</b>	L1 (Top) -- Paste	
<b>Description:</b>	Layer 1, main board	
<b>Drawn by:</b>	I. O. Popa	
<b>Approved by:</b>	P. Pastor	
<b>Project:</b>	Regen.EPC	<b>Rev:</b> A
		<b>Sheet:</b> 5/23

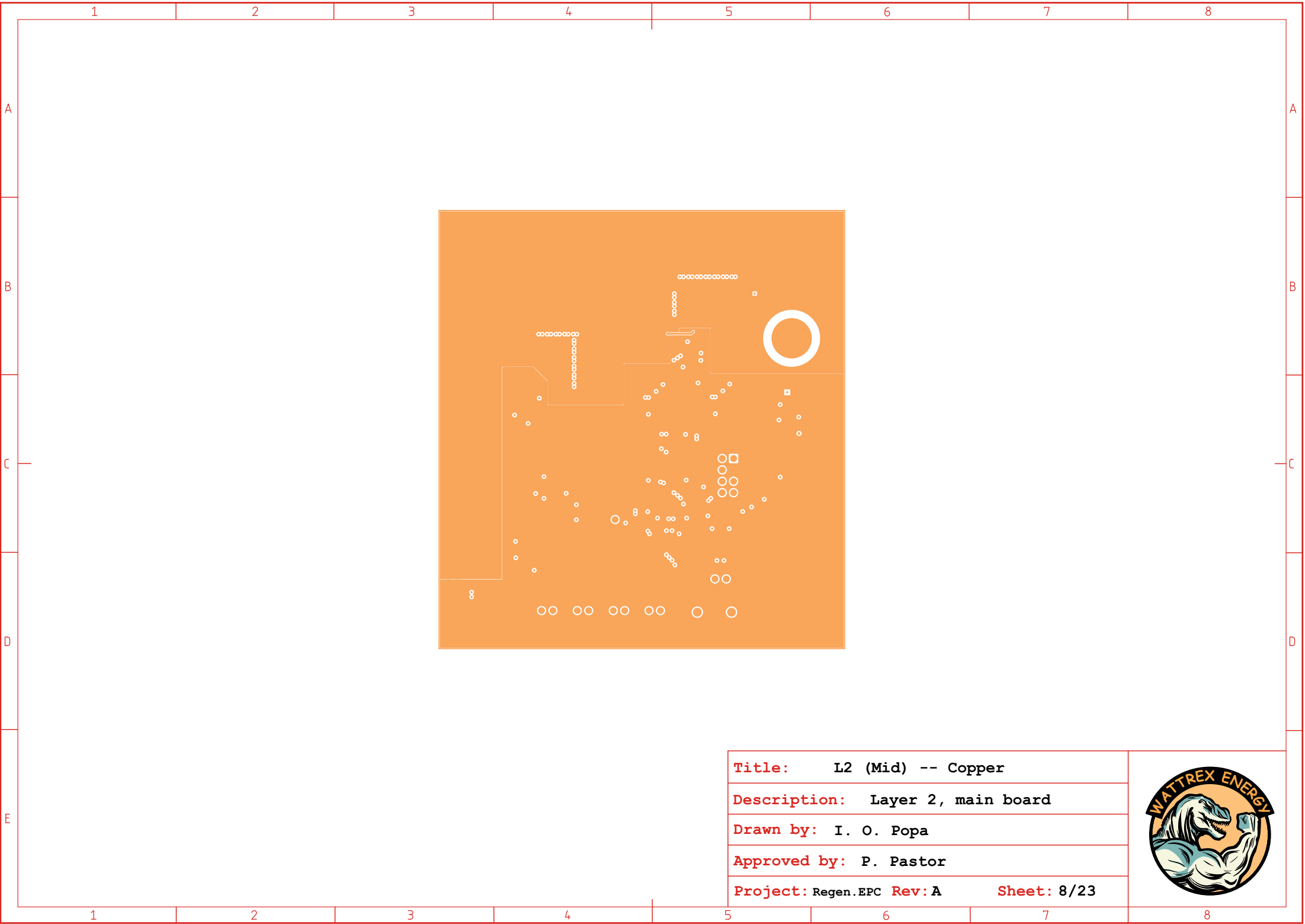




<b>Title:</b>	L1 (Top) -- Solder	
<b>Description:</b>	Layer 1, main board	
<b>Drawn by:</b>	I. O. Popa	
<b>Approved by:</b>	P. Pastor	
<b>Project:</b>	Regen.EPC	<b>Rev:</b> A
		<b>Sheet:</b> 6/23



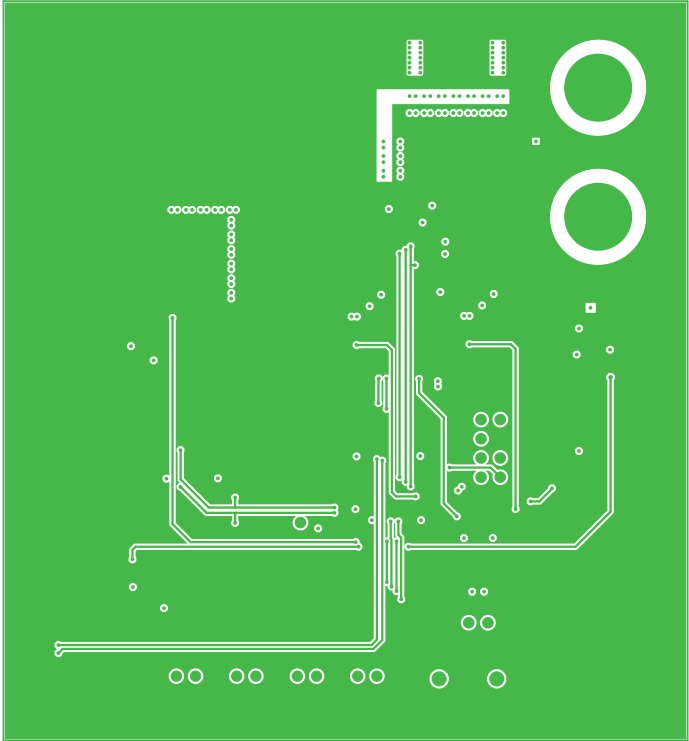




<b>Title:</b>	L2 (Mid) -- Copper
<b>Description:</b>	Layer 2, main board
<b>Drawn by:</b>	I. O. Popa
<b>Approved by:</b>	P. Pastor
<b>Project:</b>	Regen.EPC
<b>Rev:</b>	A
<b>Sheet:</b>	8/23

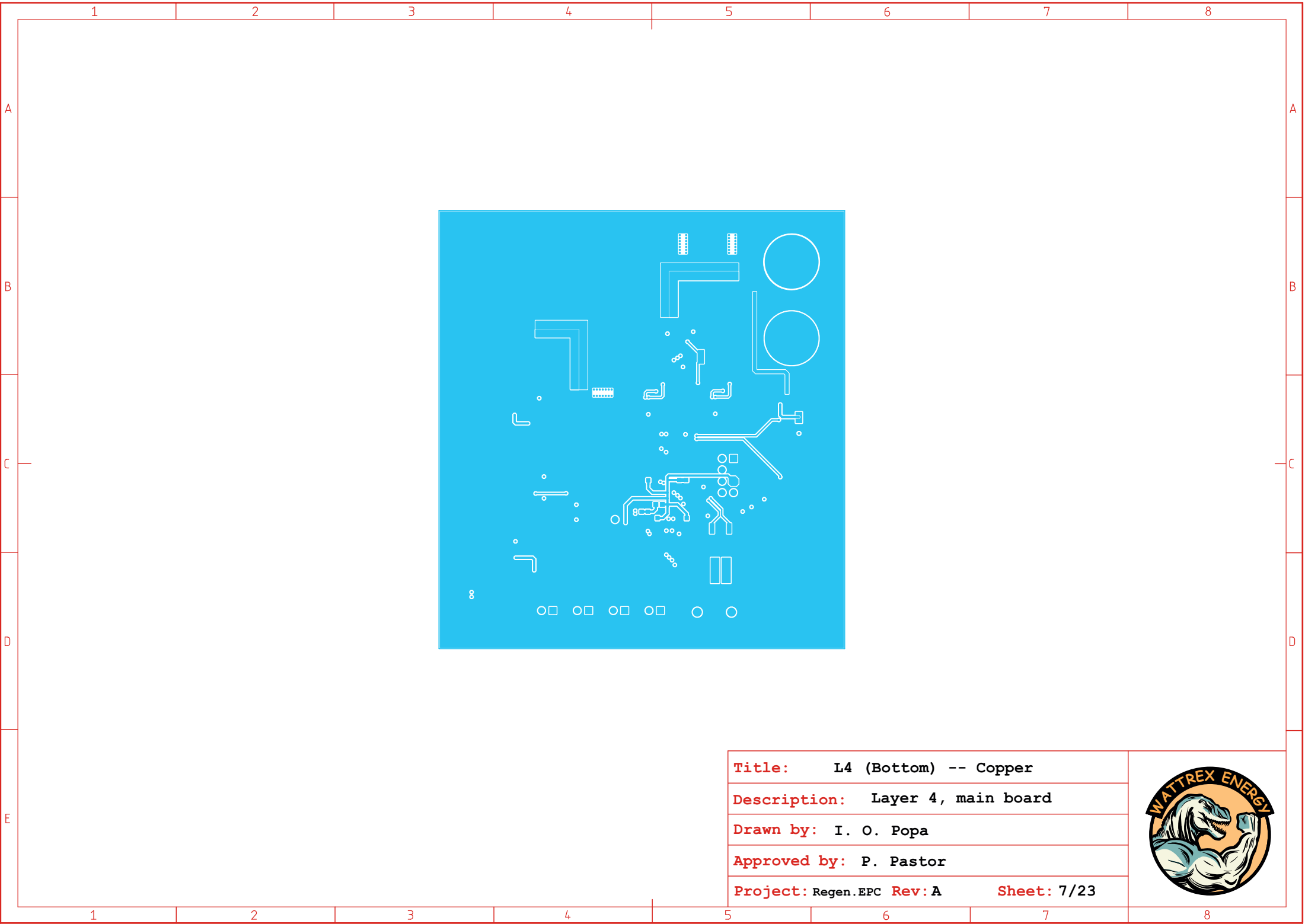






<b>Title:</b>	L3 (Mid) -- Copper
<b>Description:</b>	Layer 3, main board
<b>Drawn by:</b>	I. O. Popa
<b>Approved by:</b>	P. Pastor
<b>Project:</b>	Regen.EPC
<b>Rev:</b>	A
<b>Sheet:</b>	9/23

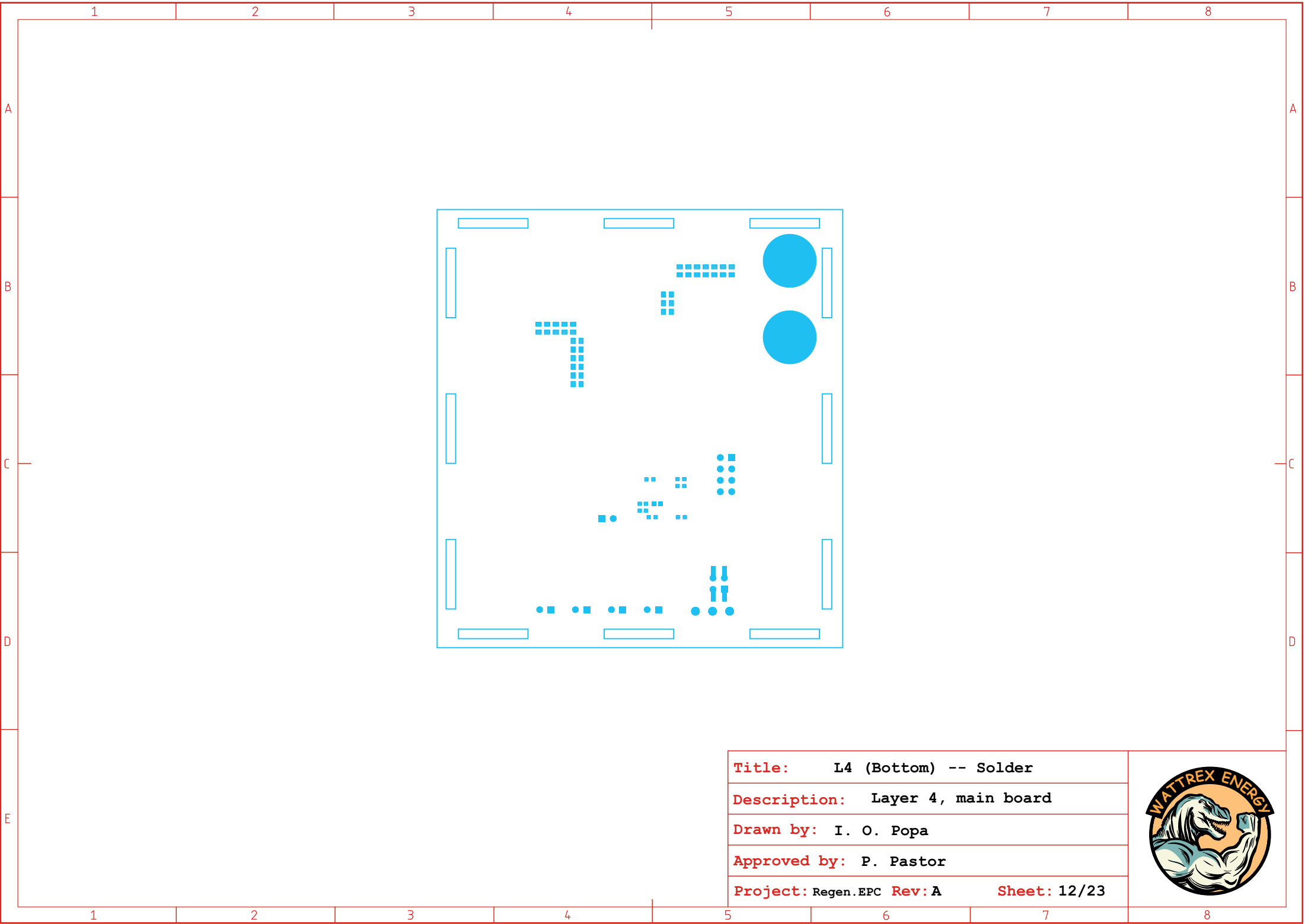




<b>Title:</b>	L4 (Bottom) -- Copper
<b>Description:</b>	Layer 4, main board
<b>Drawn by:</b>	I. O. Popa
<b>Approved by:</b>	P. Pastor
<b>Project:</b>	Regen.EPC
<b>Rev:</b>	A
<b>Sheet:</b>	7/23



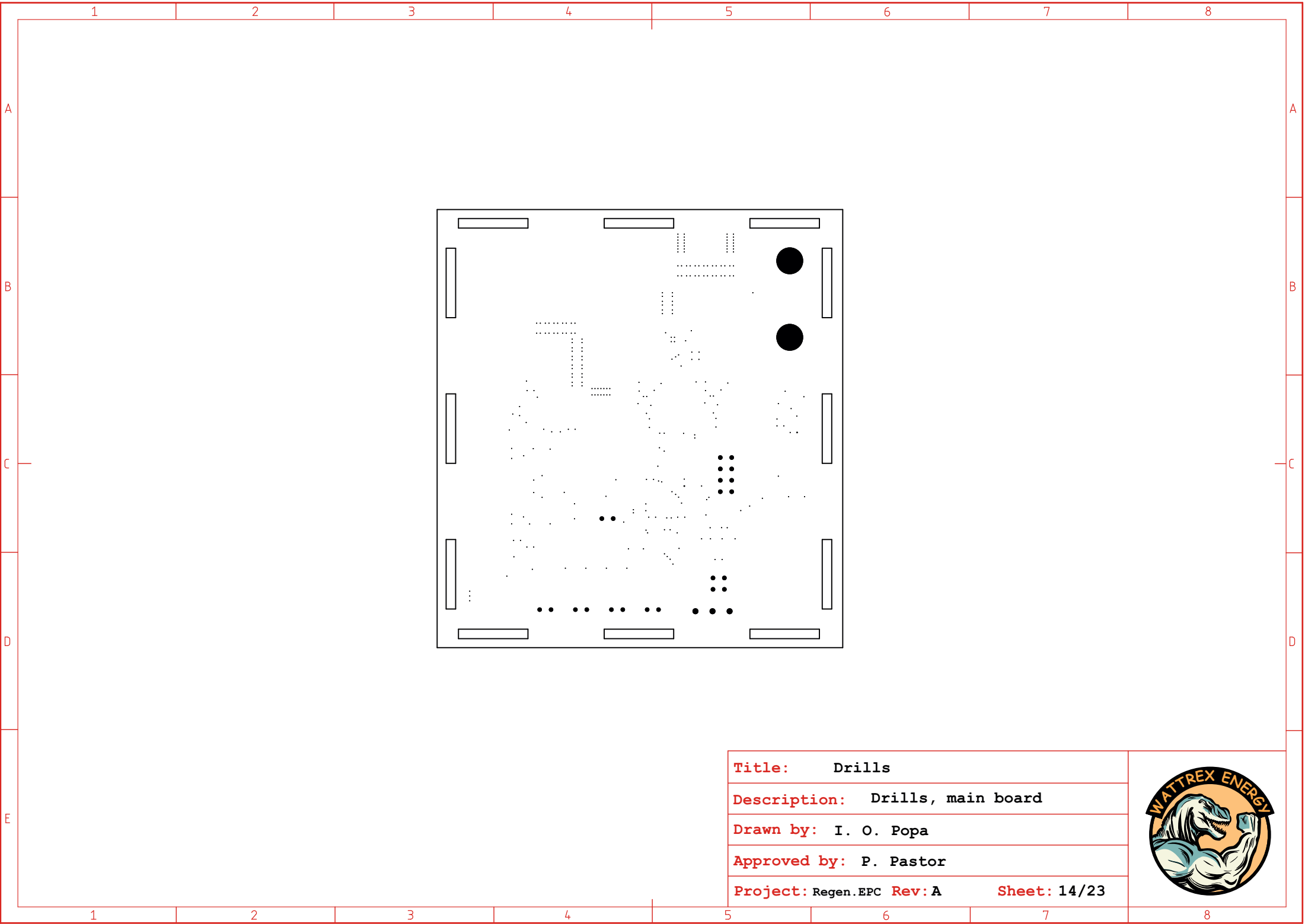





<b>Title:</b>	L4 (Bottom) -- Solder		
<b>Description:</b>	Layer 4, main board		
<b>Drawn by:</b>	I. O. Popa		
<b>Approved by:</b>	P. Pastor		
<b>Project:</b>	Regen.EPC	<b>Rev:</b> A	<b>Sheet:</b> 12/23

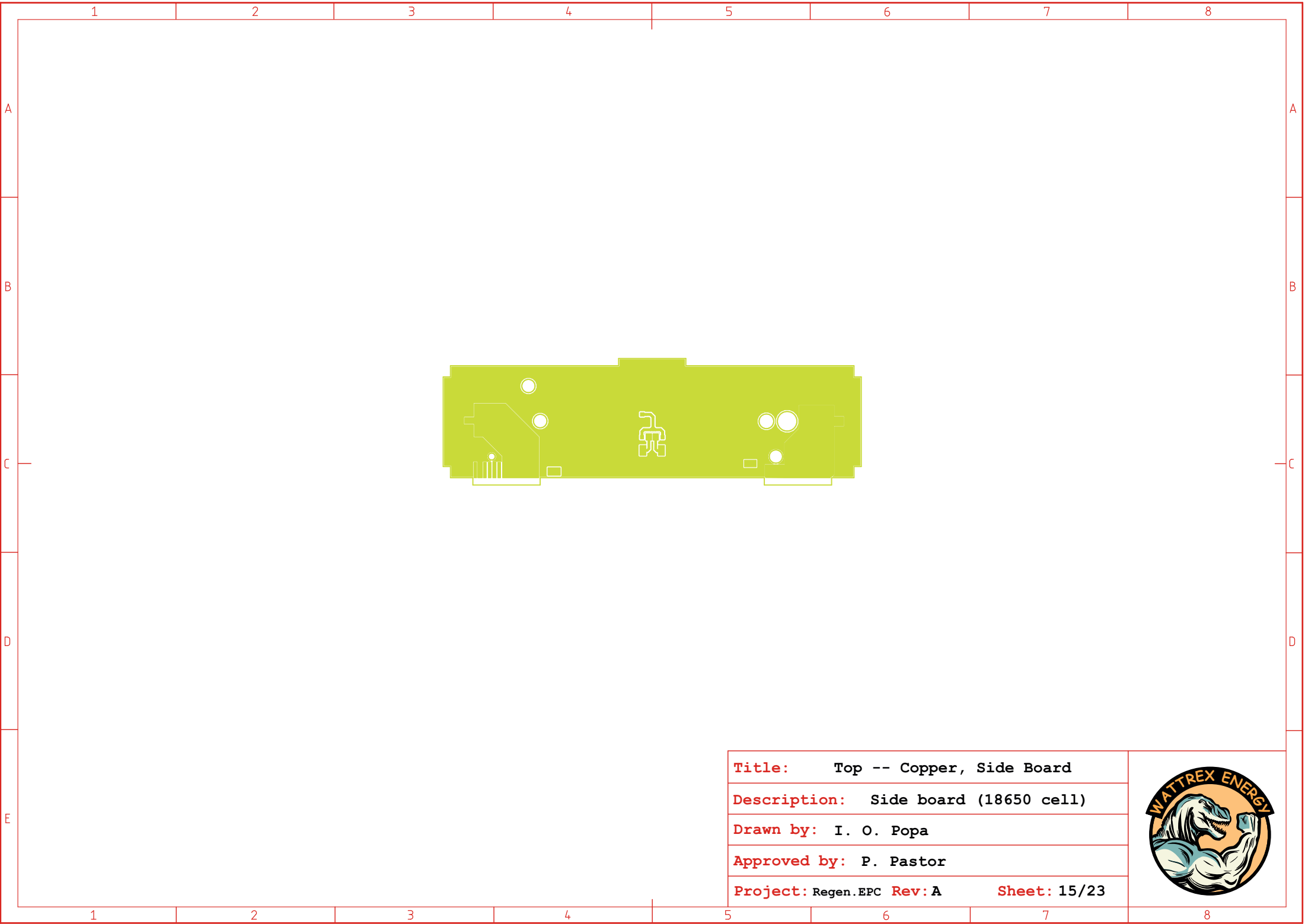






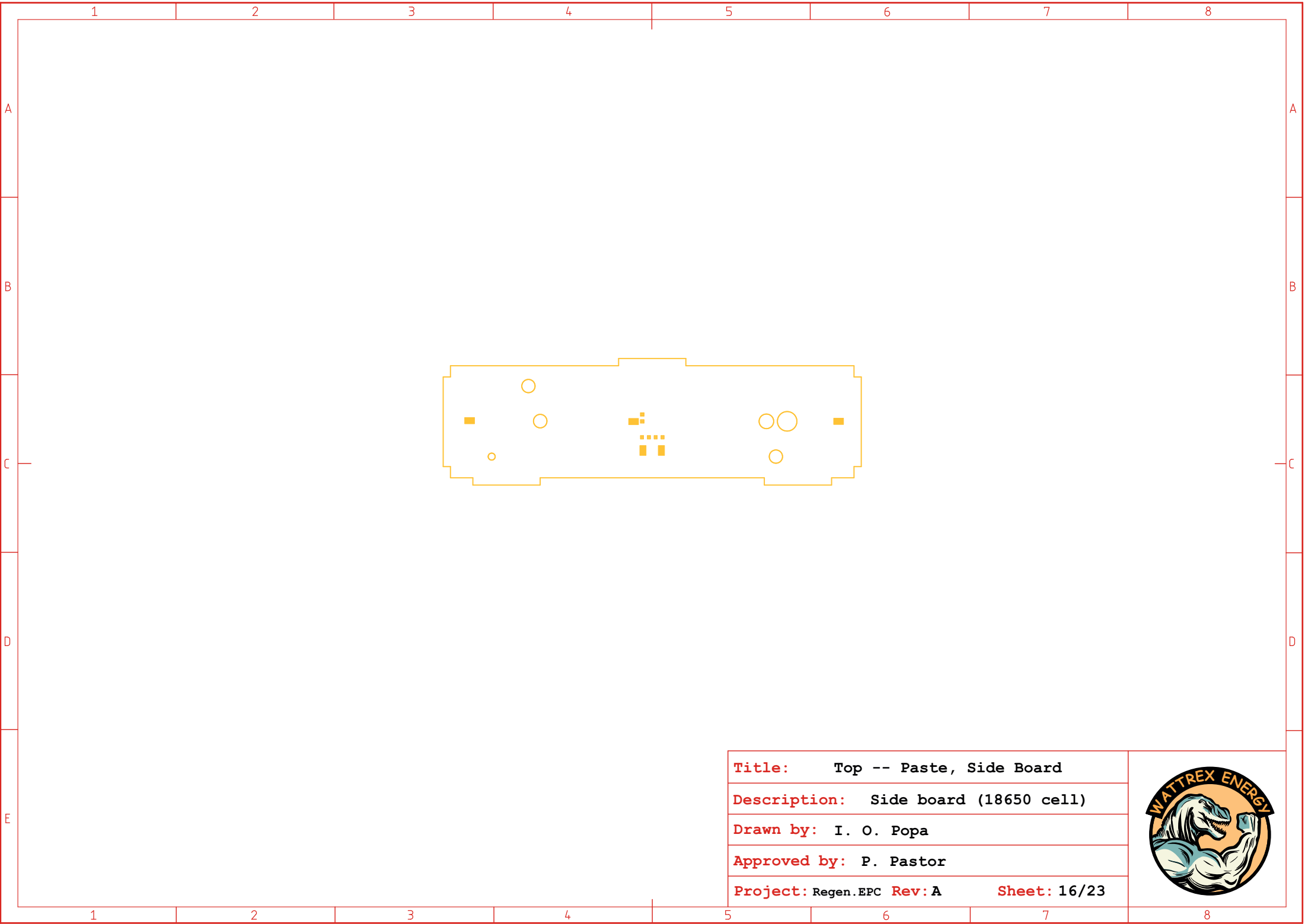
Title:	Drills		
Description:	Drills, main board		
Drawn by:	I. O. Popa		
Approved by:	P. Pastor		
Project:	Regen.EPC	Rev: A	Sheet: 14/23





<b>Title:</b>	Top -- Copper, Side Board	
<b>Description:</b>	Side board (18650 cell)	
<b>Drawn by:</b>	I. O. Popa	
<b>Approved by:</b>	P. Pastor	
<b>Project:</b>	Regen.EPC	<b>Rev:</b> A
		<b>Sheet:</b> 15/23

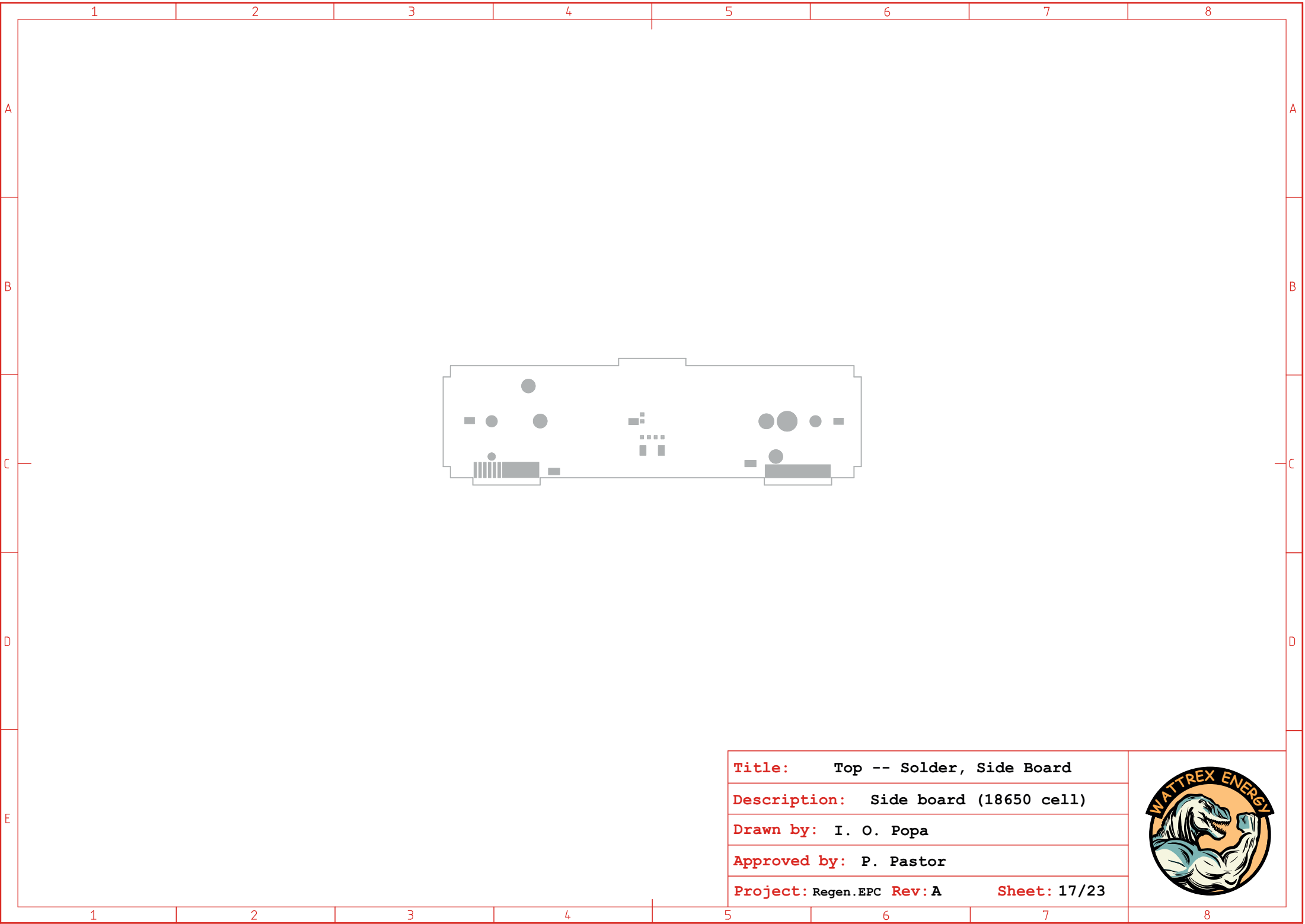




<b>Title:</b>	Top -- Paste, Side Board	
<b>Description:</b>	Side board (18650 cell)	
<b>Drawn by:</b>	I. O. Popa	
<b>Approved by:</b>	P. Pastor	
<b>Project:</b>	Regen.EPC	<b>Rev:</b> A
		<b>Sheet:</b> 16/23

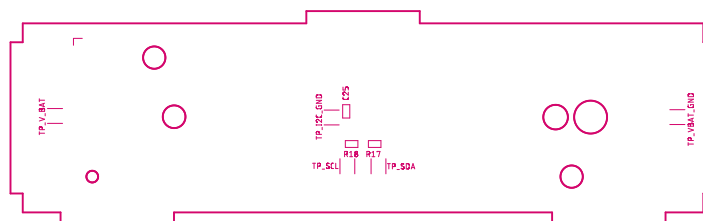






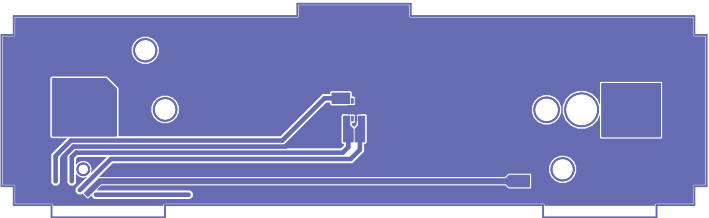
Title:	Top -- Solder, Side Board	
Description:	Side board (18650 cell)	
Drawn by:	I. O. Popa	
Approved by:	P. Pastor	
Project:	Regen.EPC	Rev: A
		Sheet: 17/23





<b>Title:</b>	Top -- Silk, Side Board	
<b>Description:</b>	Side board (18650 cell)	
<b>Drawn by:</b>	I. O. Popa	
<b>Approved by:</b>	P. Pastor	
<b>Project:</b>	Regen.EPC	<b>Rev:</b> A
		<b>Sheet:</b> 18/23





**Title:** Bottom -- Copper, Side Board

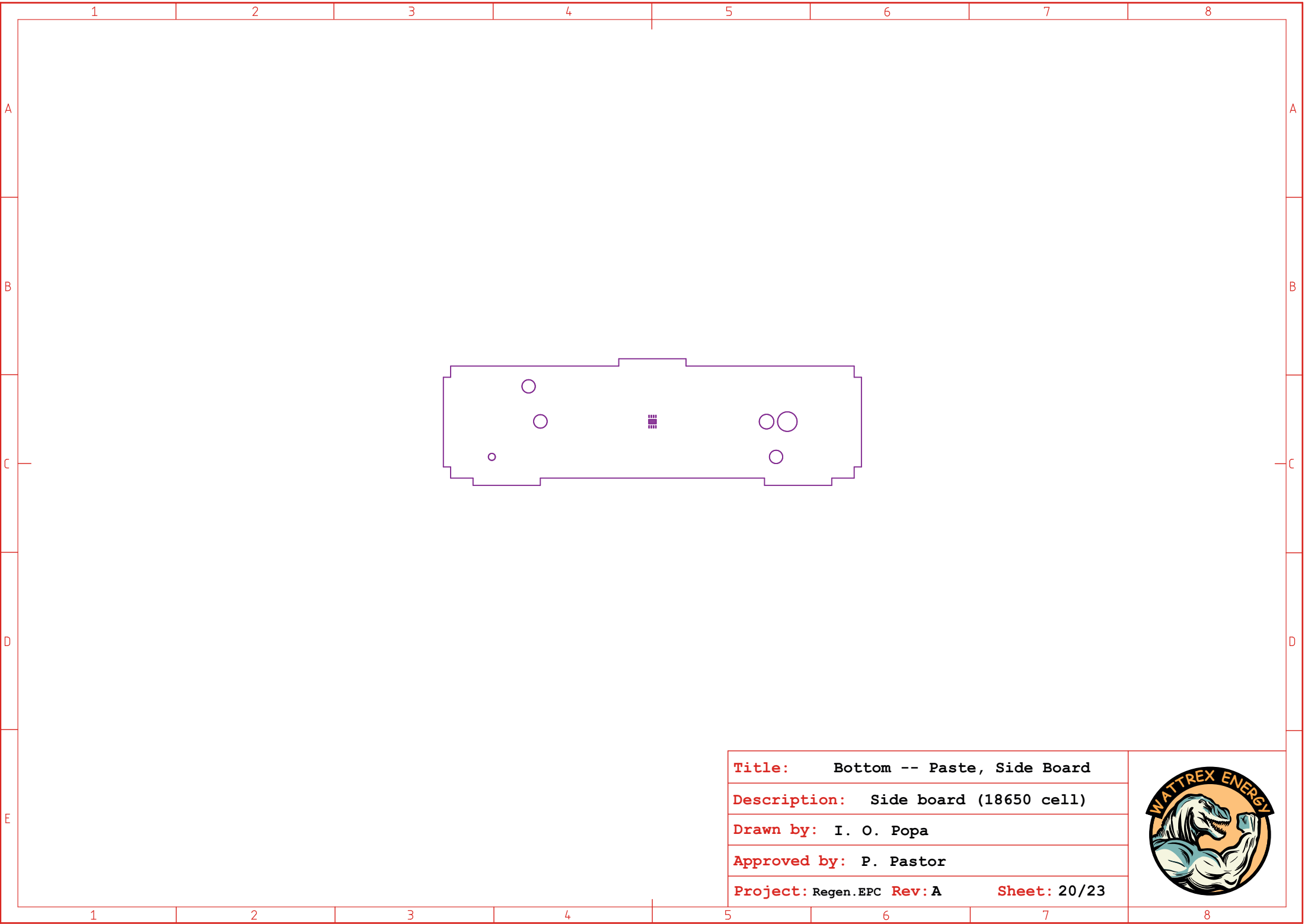
**Description:** Side board (18650 cell)

**Drawn by:** I. O. Popa

**Approved by:** P. Pastor

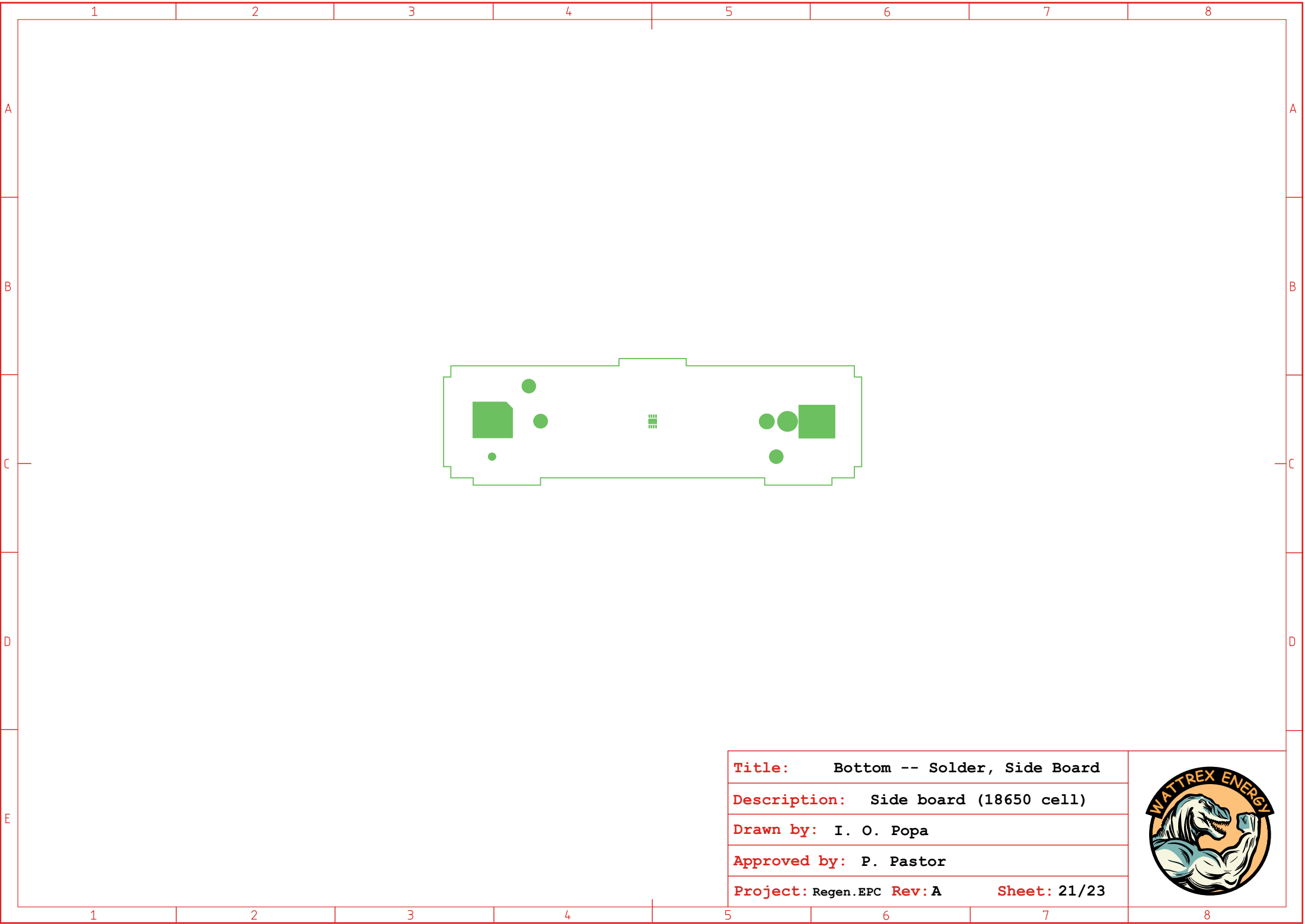
**Project:** Regen.EPC **Rev:** A **Sheet:** 19/23





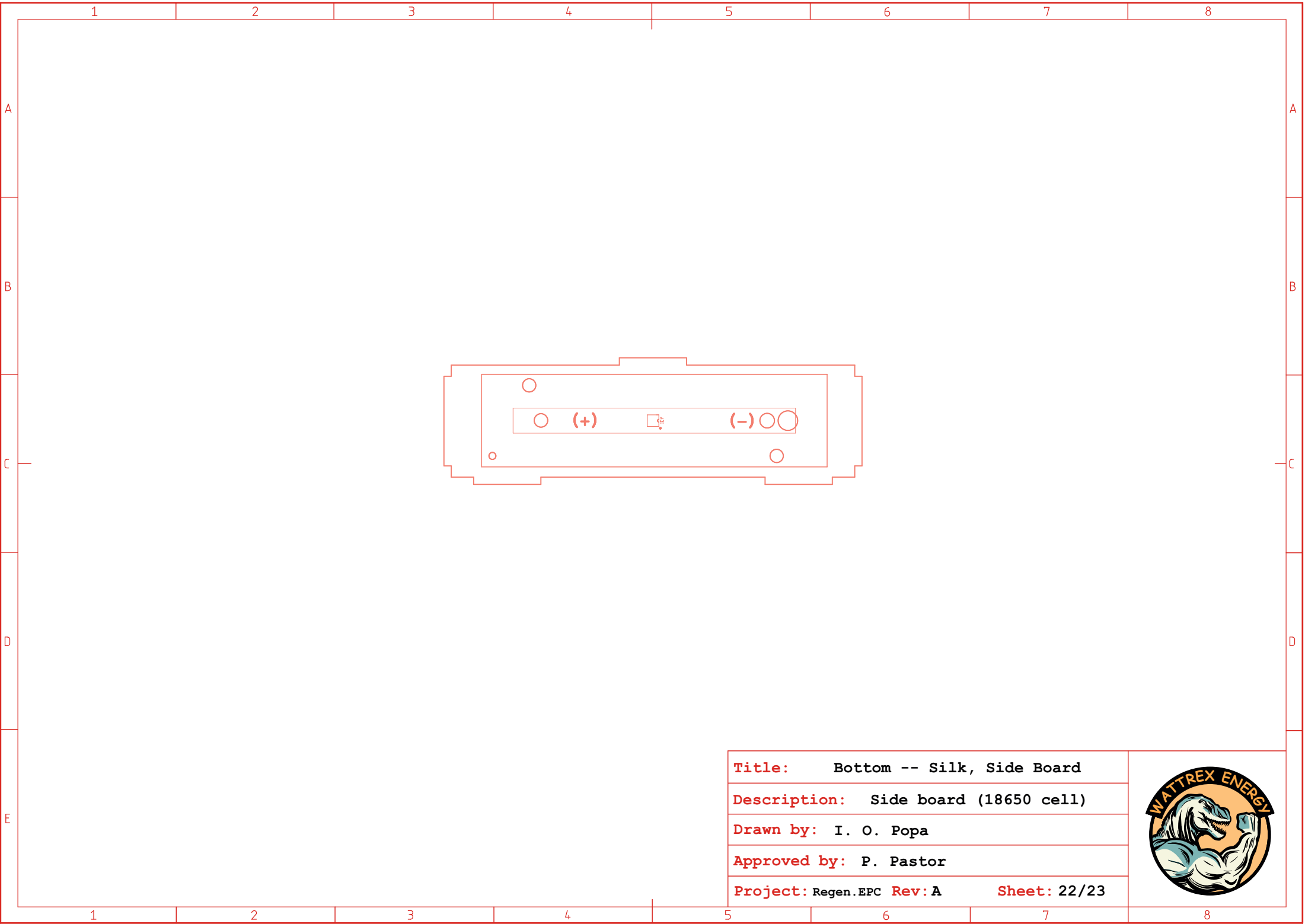
<b>Title:</b>	Bottom -- Paste, Side Board	
<b>Description:</b>	Side board (18650 cell)	
<b>Drawn by:</b>	I. O. Popa	
<b>Approved by:</b>	P. Pastor	
<b>Project:</b>	Regen.EPC	<b>Rev:</b> A
		<b>Sheet:</b> 20/23





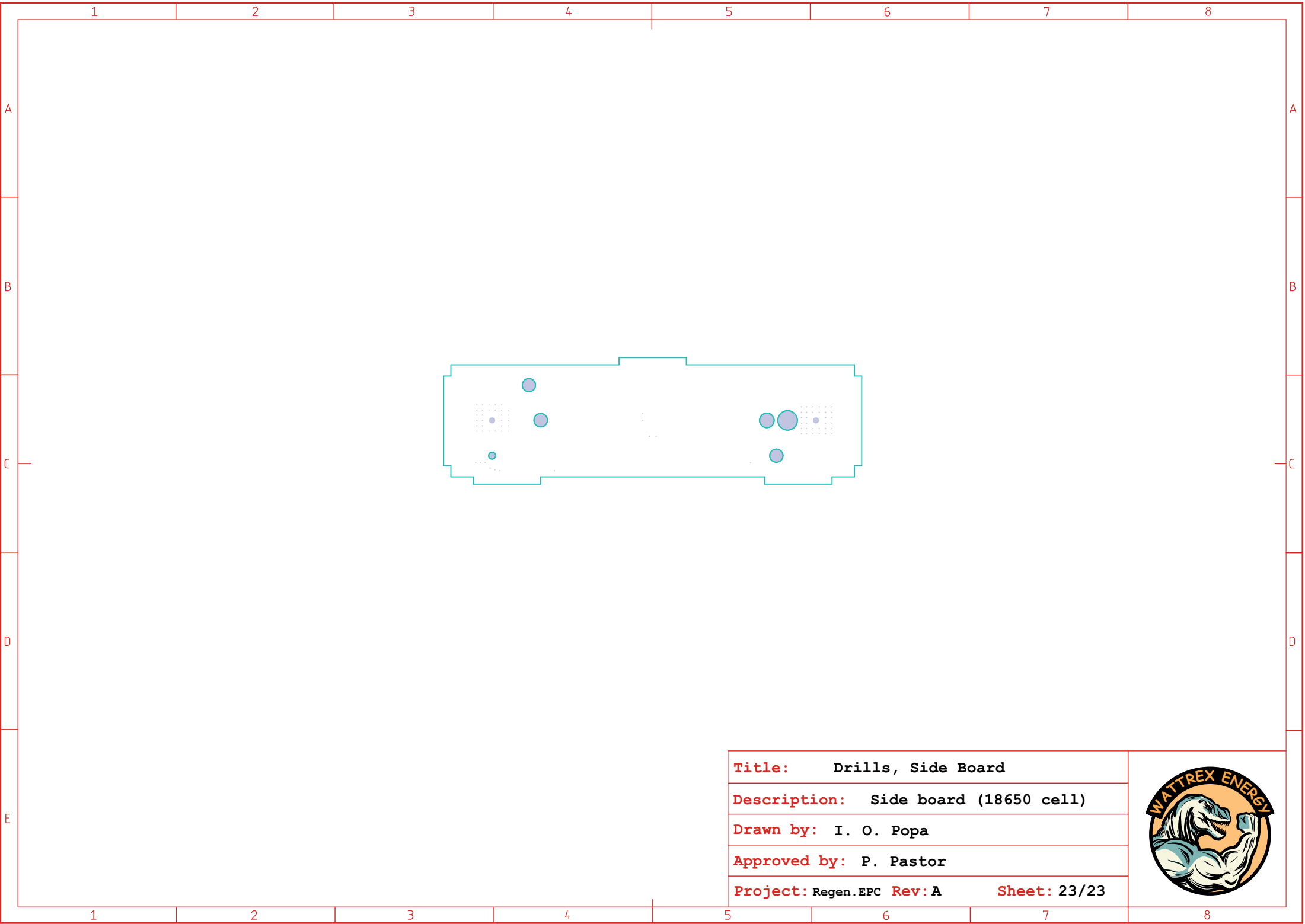
<b>Title:</b>	Bottom -- Solder, Side Board		
<b>Description:</b>	Side board (18650 cell)		
<b>Drawn by:</b>	I. O. Popa		
<b>Approved by:</b>	P. Pastor		
<b>Project:</b>	Regen.EPC	<b>Rev:</b> A	<b>Sheet:</b> 21/23





<b>Title:</b>	Bottom -- Silk, Side Board	
<b>Description:</b>	Side board (18650 cell)	
<b>Drawn by:</b>	I. O. Popa	
<b>Approved by:</b>	P. Pastor	
<b>Project:</b>	Regen.EPC	<b>Rev:</b> A
		<b>Sheet:</b> 22/23





<b>Title:</b> Drills, Side Board			
<b>Description:</b> Side board (18650 cell)			
<b>Drawn by:</b> I. O. Popa			
<b>Approved by:</b> P. Pastor			
<b>Project:</b> Regen.EPC <b>Rev:</b> A <b>Sheet:</b> 23/23			

