FAST TRACK

MISSION 2027

PRESENTED BY ROBOLINK

Game Element Assembly Instructions Version 1.2

RECF DRONE COMPETITIONS

RECF Aerial Drone Competition
Mission 2027: Fast Track

2026-2027

Game Element Assembly Instructions Version 1.2

November 10, 2026

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Table of Contents

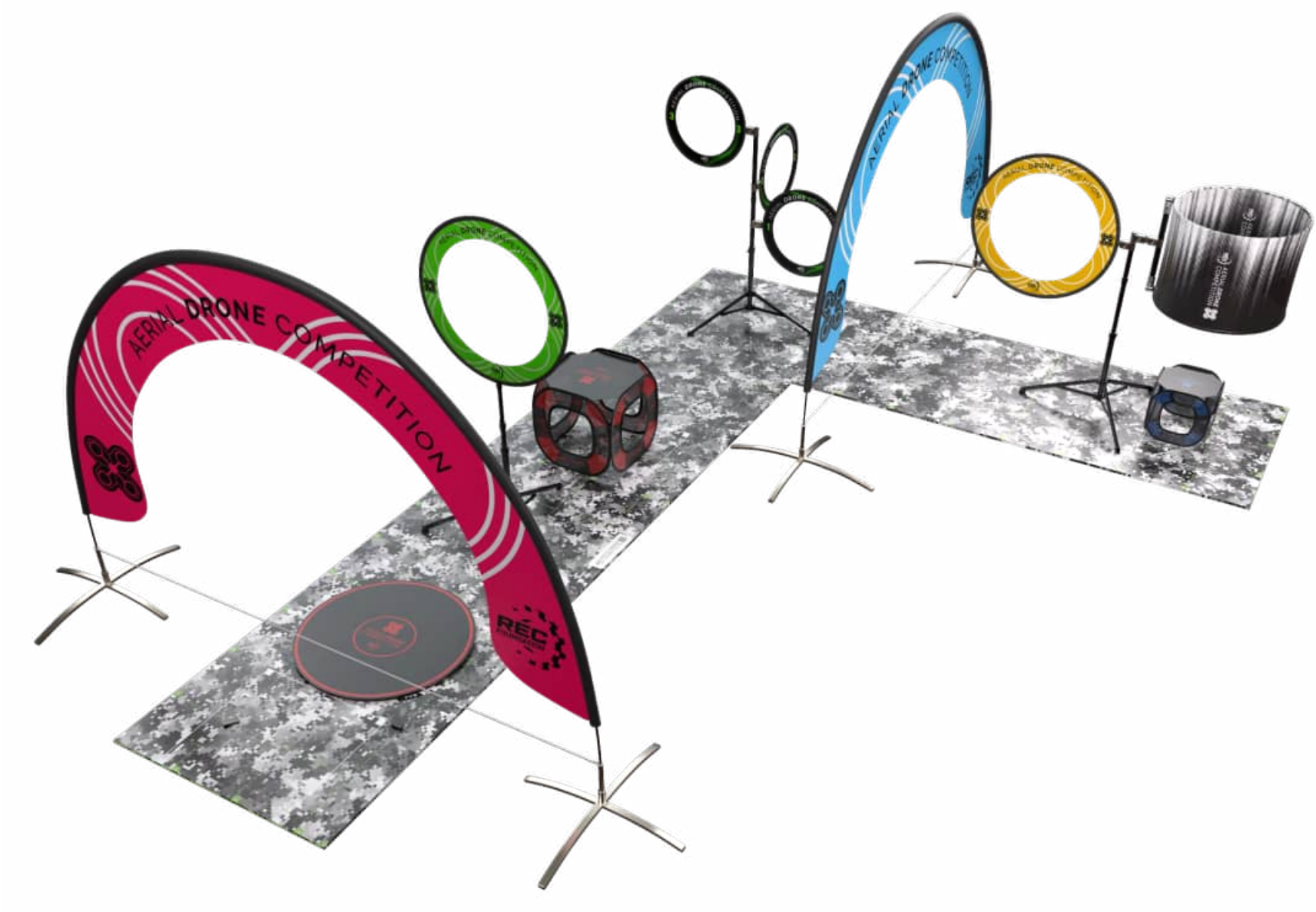
Table of Contents 3
Section 1: Setting up the Solo Mission Field 5
1.1 Solo Mission Field Setup Step 1: Place the Mats 6
1.2 Solo Mission Field Setup Step 2: Place the Arch Gates 7
1.3 Solo Mission Field Setup Step 3: Place Supports for the Green & Yellow Keyhole Gates 8
1.4 Solo Mission Field Setup Step 4: Add Green & Yellow Keyhole Gates and the Tunnel 9
1.5 Solo Mission Field Setup Step 5: Place the Support for the Spiral 10
1.6 Solo Mission Field Setup Step 6: Add the Mini Keyholes to the Spiral Support 11
1.7 Solo Mission Field Setup Step 7: Place the Landing Pad and Cubes 12
Section 2: Assembling the Low Switches (4 total) 13
2.1 Table of Parts for Each Low Switch 14
2.2 Low Switch Assembly Overview 16
2.3 Low Switch Assembly Step 1: Build the Base of the Switch 17
2.4 Low Switch Assembly Step 2: Build the Center Structure 18
2.5 Low Switch Assembly Step 3: Insert the Support Pole 19
2.6 Low Switch Assembly Step 4: Attach the Switch Plate 20
2.7 Low Switch Technical Drawings 21
Section 3: Assembling the High Switches (2 total) 24
3.1 Table of Parts for Each High Switch 25
3.2 High Switch Assembly Step 1: Attach Metal T-Connectors to 1” Metal Pipe 28
3.3 High Switch Assembly Step 2: Assemble and Attach Level Bracket 29
3.4 High Switch Assembly Step 3: Insert the Support Pole 30
3.5 High Switch Assembly Step 4: Attach the Switch Plate 31
3.6 High Switch Assembly Step 5: Attach the Switch to the High Switch Pole 32
3.7 High Switch Assembly Step 6: Attach the Wire to a Block and a Switch 33
3.8 High Switch Technical Drawings 34
Section 4: Assembling the Triangle Goal Segments (12 total) 37
Section 5: Setting up the Alliance/Teamwork Mission Field 39
5.1 Alliance Mission Field Setup Step 1: Create a Perimeter and Assemble the Track 40

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5.2 Alliance Mission Field Setup Step 2: Place the Arch Gates 41
5.3 Alliance Mission Field Setup Step 3: Place the Low Switches 42
5.4 Alliance Mission Field Setup Step 4: Place the Pillars 43
5.5 Alliance Mission Field Setup Step 5: Place Cubes 44
5.6 Alliance Mission Field Setup Step 6: Complete the High Switch Assembly 45
5.7 Alliance Mission Field Setup Step 7: Attach Landing Pads 46
5.8 Alliance Mission Field Setup Step 8: Place the High Switch Assembly 47
5.9 Alliance Mission Field Setup Step 9: Place a Bean Bag on each High Switch 48
5.10 Alliance Mission Field Setup Step 10: Place the Blocks on Track 4 49
5.11 Alliance Mission Field Setup Step 11: Place the Goals 50
5.12 Alliance Mission Field Setup Step 12: Add Balls to the Loading Stations 51
5.13 Alliance Mission Field Setup Step 13: Add Balls to Tracks 2 & 3 52

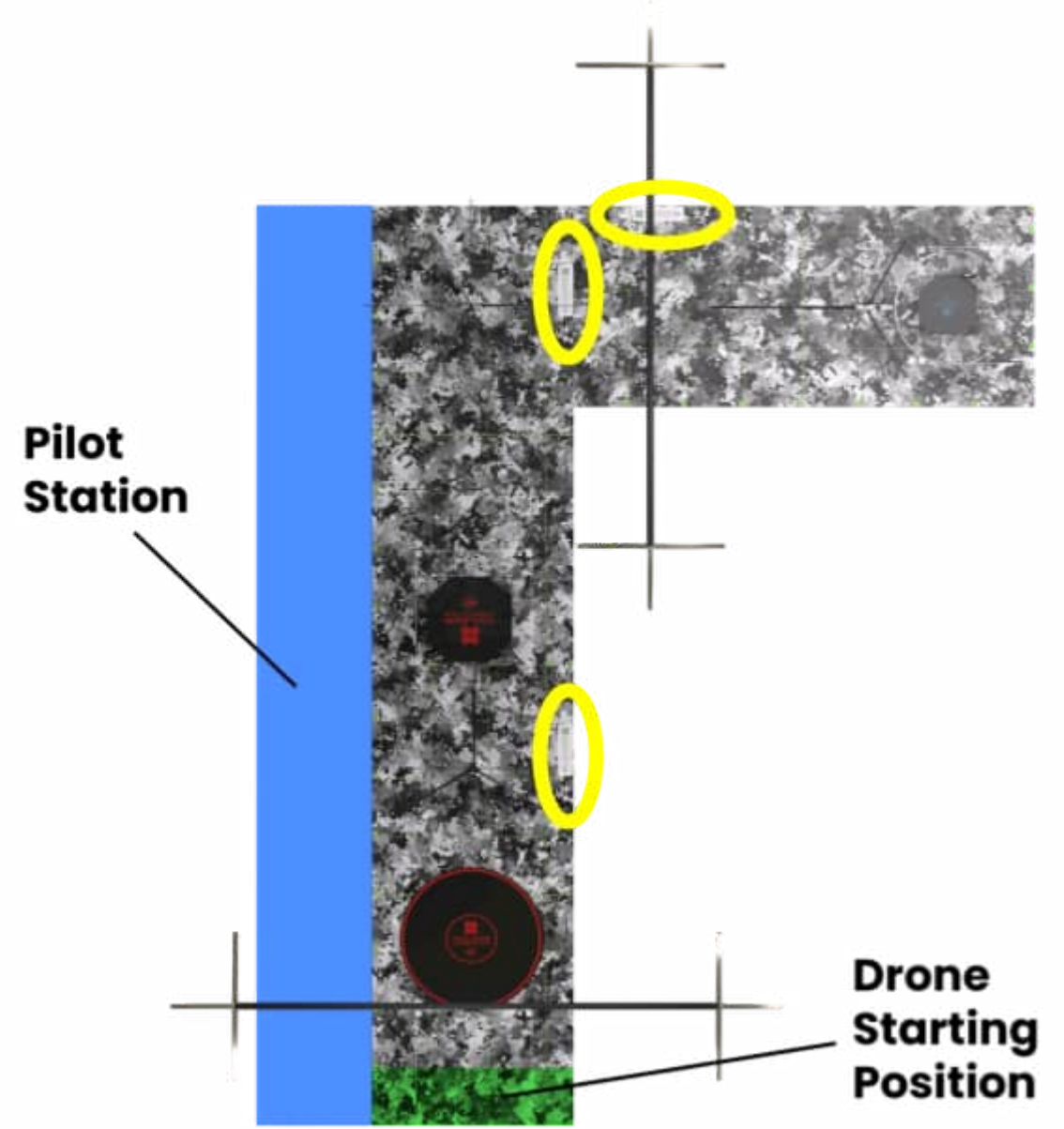
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Section 1: Setting up the Solo Mission Field



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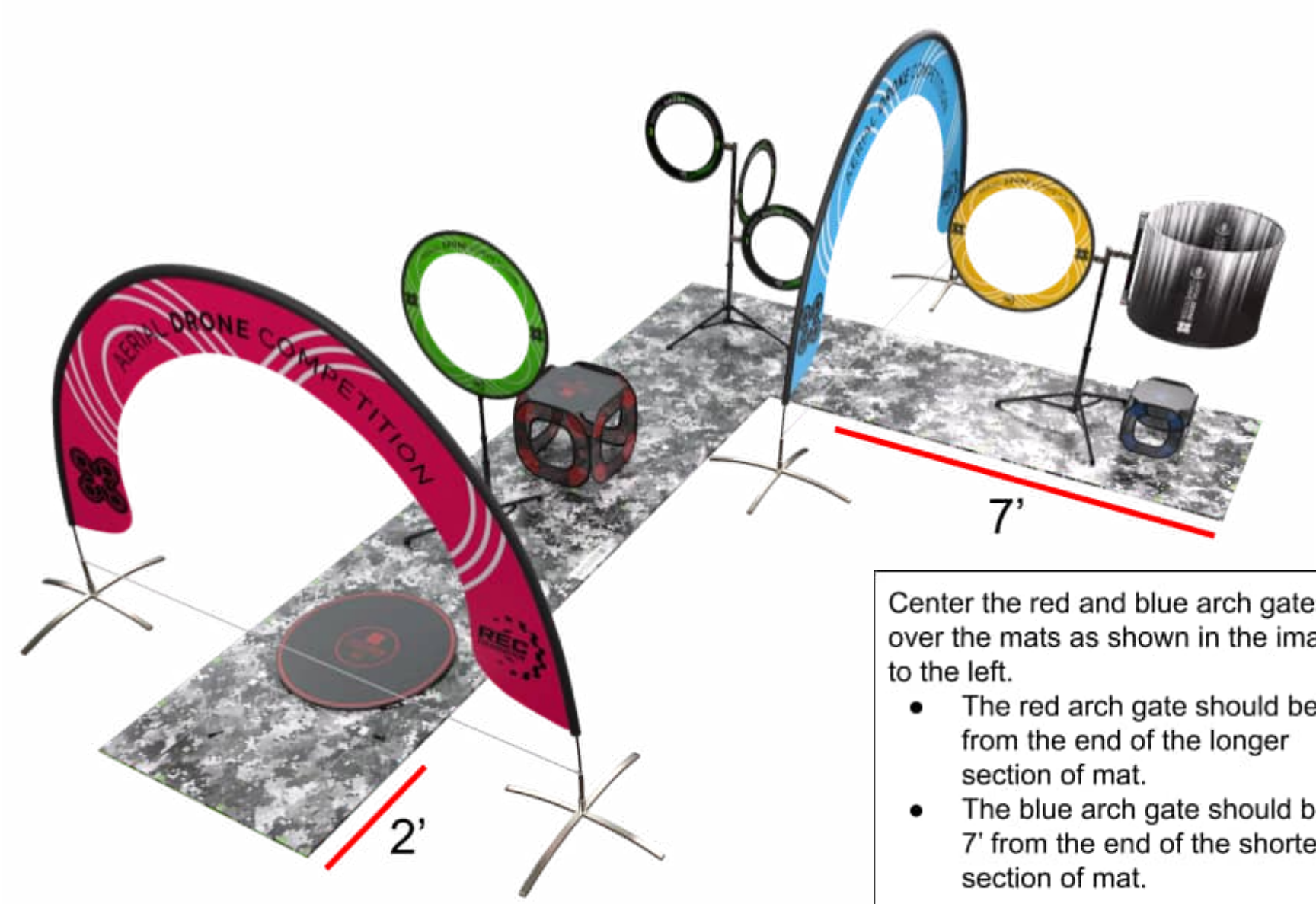
1.1 Solo Mission Field Setup Step 1: Place the Mats



Place the three mats on the floor as shown, ensuring that the positions of the logos (circled in yellow on the image to the left) on the mats line up as indicated.

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1.2 Solo Mission Field Setup Step 2: Place the Arch Gates

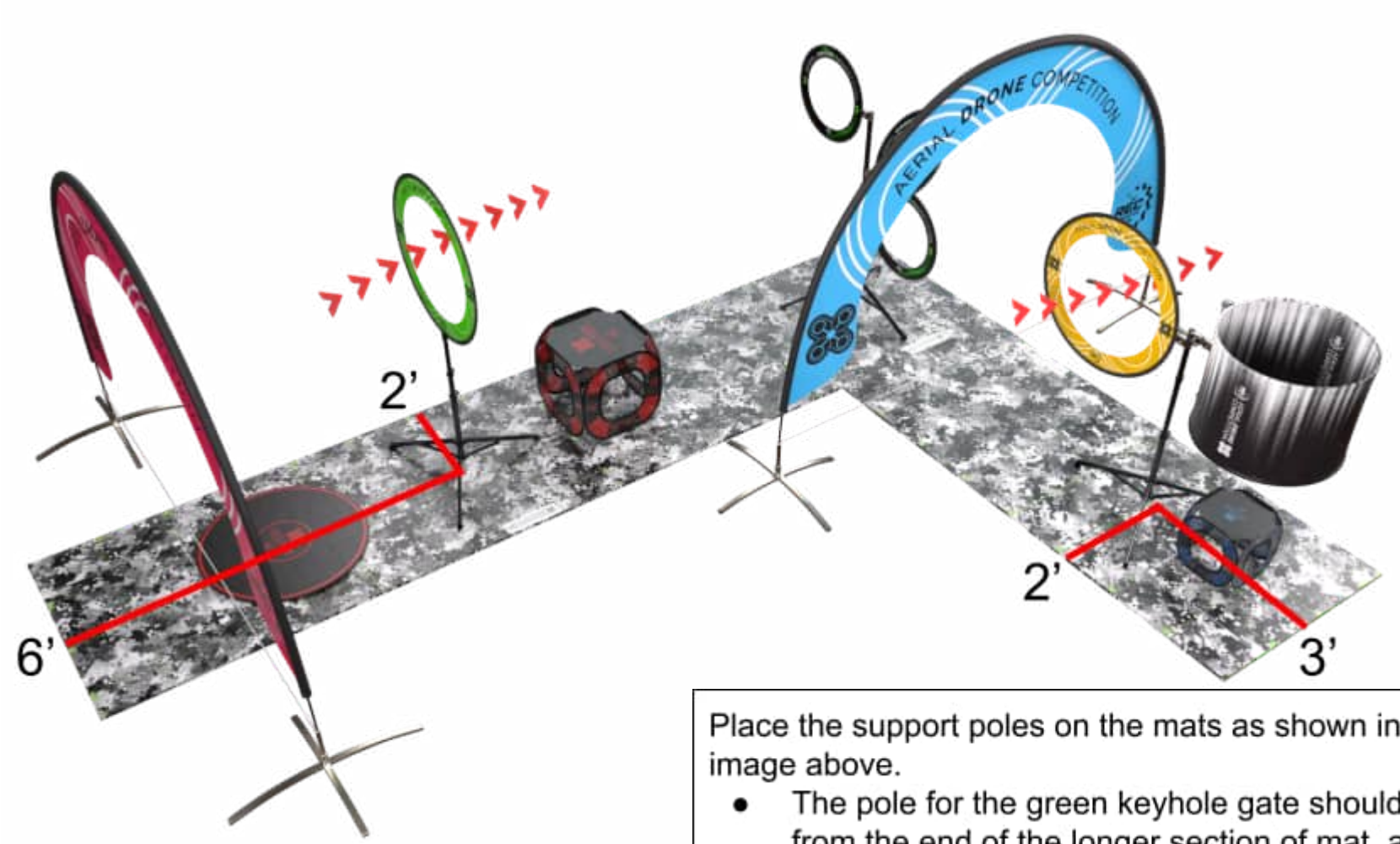


Center the red and blue arch gates over the mats as shown in the image to the left.

- The red arch gate should be 2’ from the end of the longer section of mat.
- The blue arch gate should be 7’ from the end of the shorter section of mat.

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1.3 Solo Mission Field Setup Step 3: Place Supports for the Green & Yellow Keyhole Gates

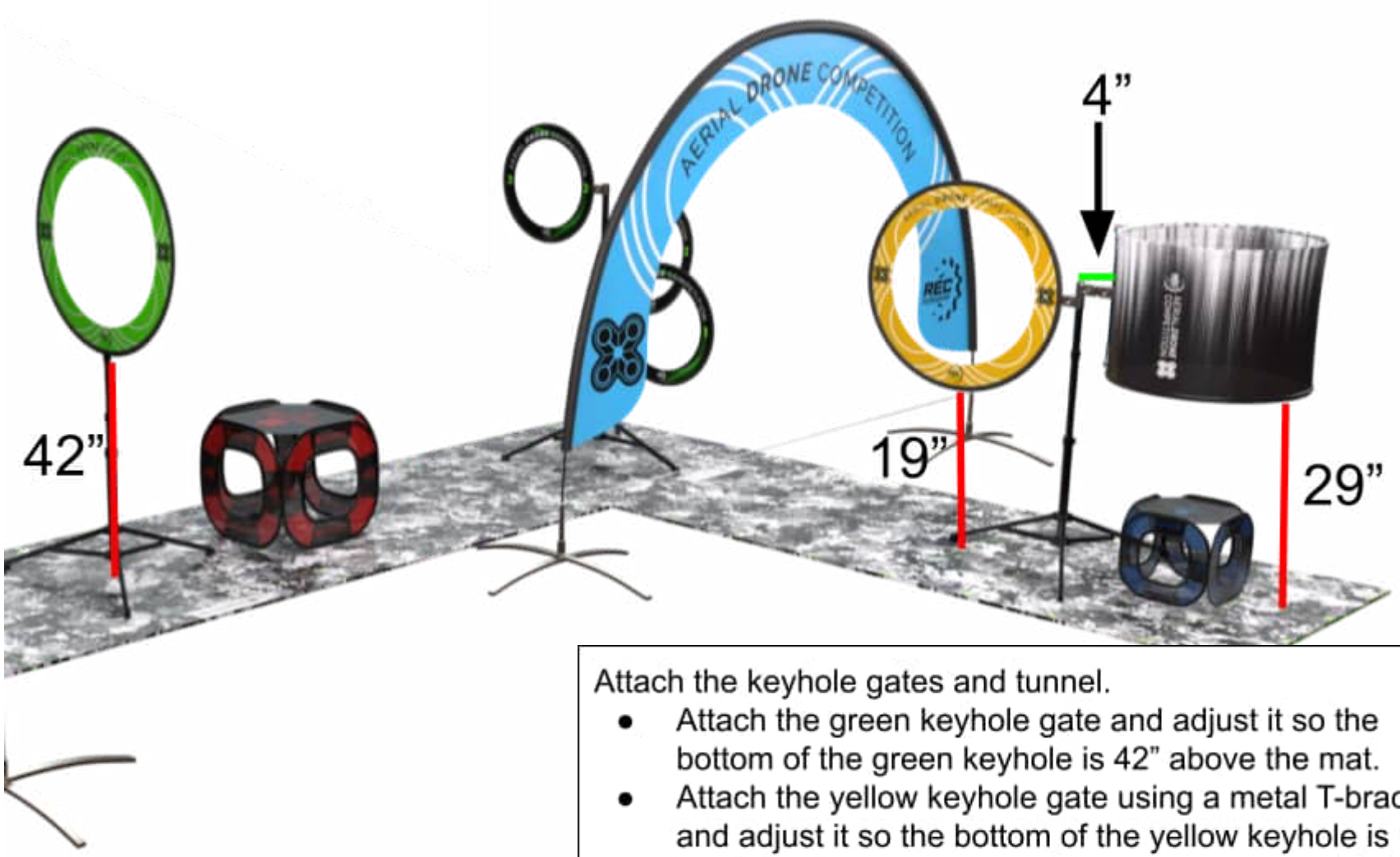


Place the support poles on the mats as shown in the image above.

- The pole for the green keyhole gate should be 6' from the end of the longer section of mat, and 2' in from the edge of the mat.
- The pole for the yellow keyhole gate should be 3' from the end of the shorter section of mat, and 2' in from the edge of the mat.

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1.4 Solo Mission Field Setup Step 4: Add Green & Yellow Keyhole Gates and the Tunnel

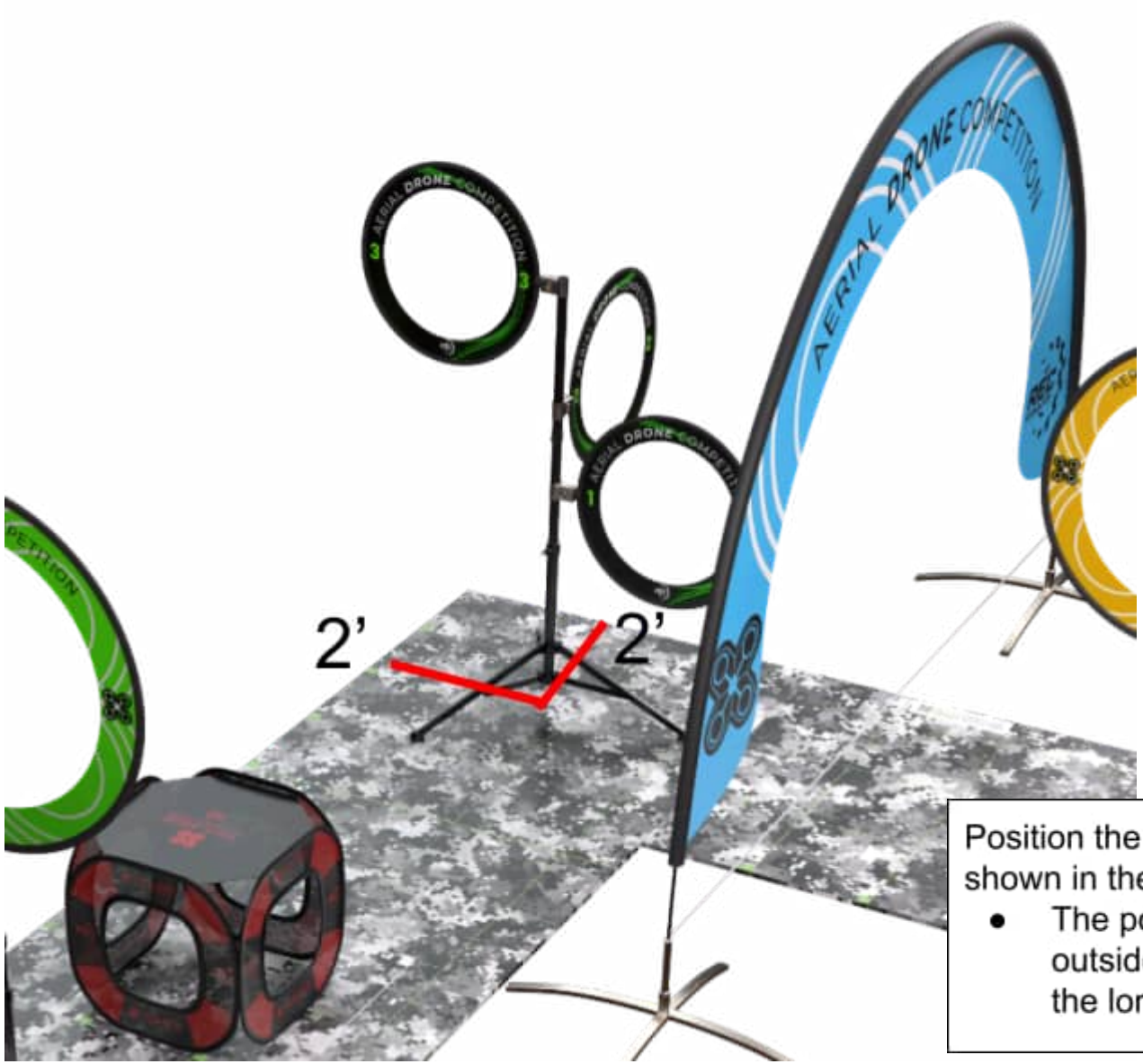


Attach the keyhole gates and tunnel.

- Attach the green keyhole gate and adjust it so the bottom of the green keyhole is 42” above the mat.
- Attach the yellow keyhole gate using a metal T-bracket and adjust it so the bottom of the yellow keyhole is 19” above the mat.
- Attach the tunnel using two metal T-brackets connected by a 4” metal pipe, and adjust it so the bottom of the tunnel is 29” above the mat.

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1.5 Solo Mission Field Setup Step 5: Place the Support for the Spiral

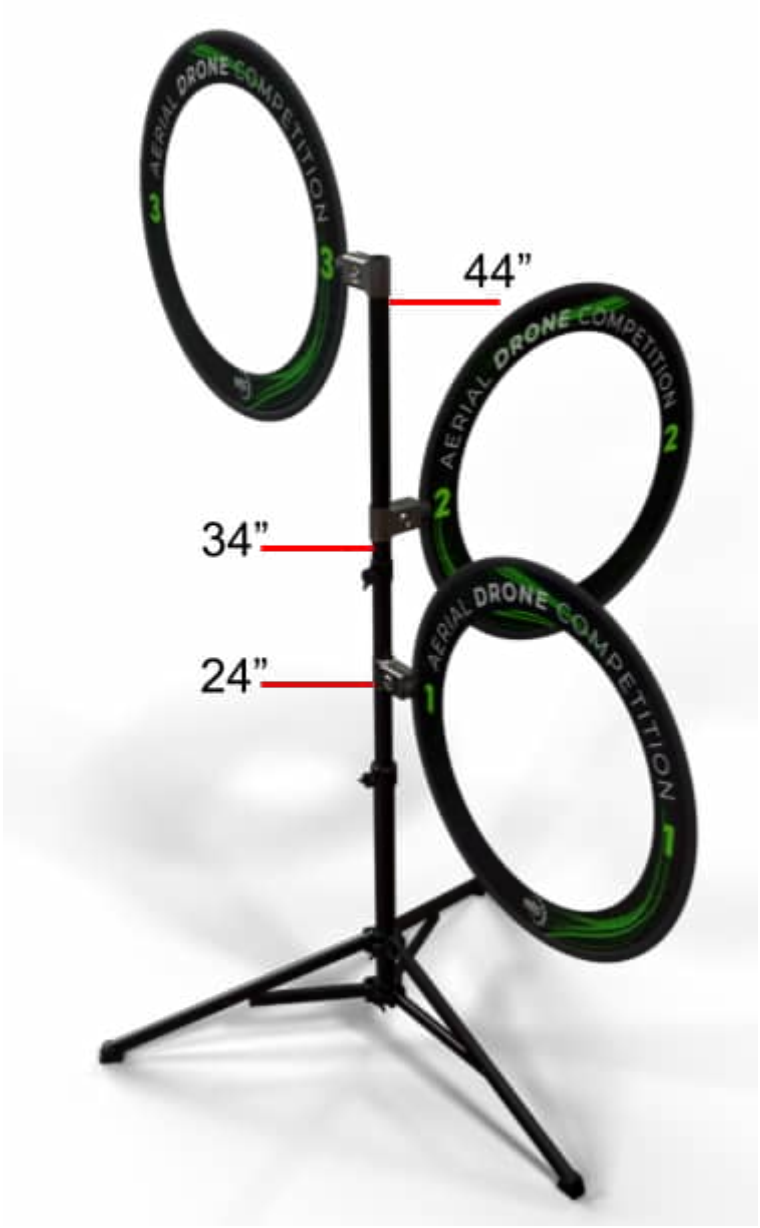


Position the support pole on the mats as shown in the image to the left.

- The pole should be 2’ from each outside edge of the corner made by the long and short sections of mat.

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1.6 Solo Mission Field Setup Step 6: Add the Mini Keyholes to the Spiral Support



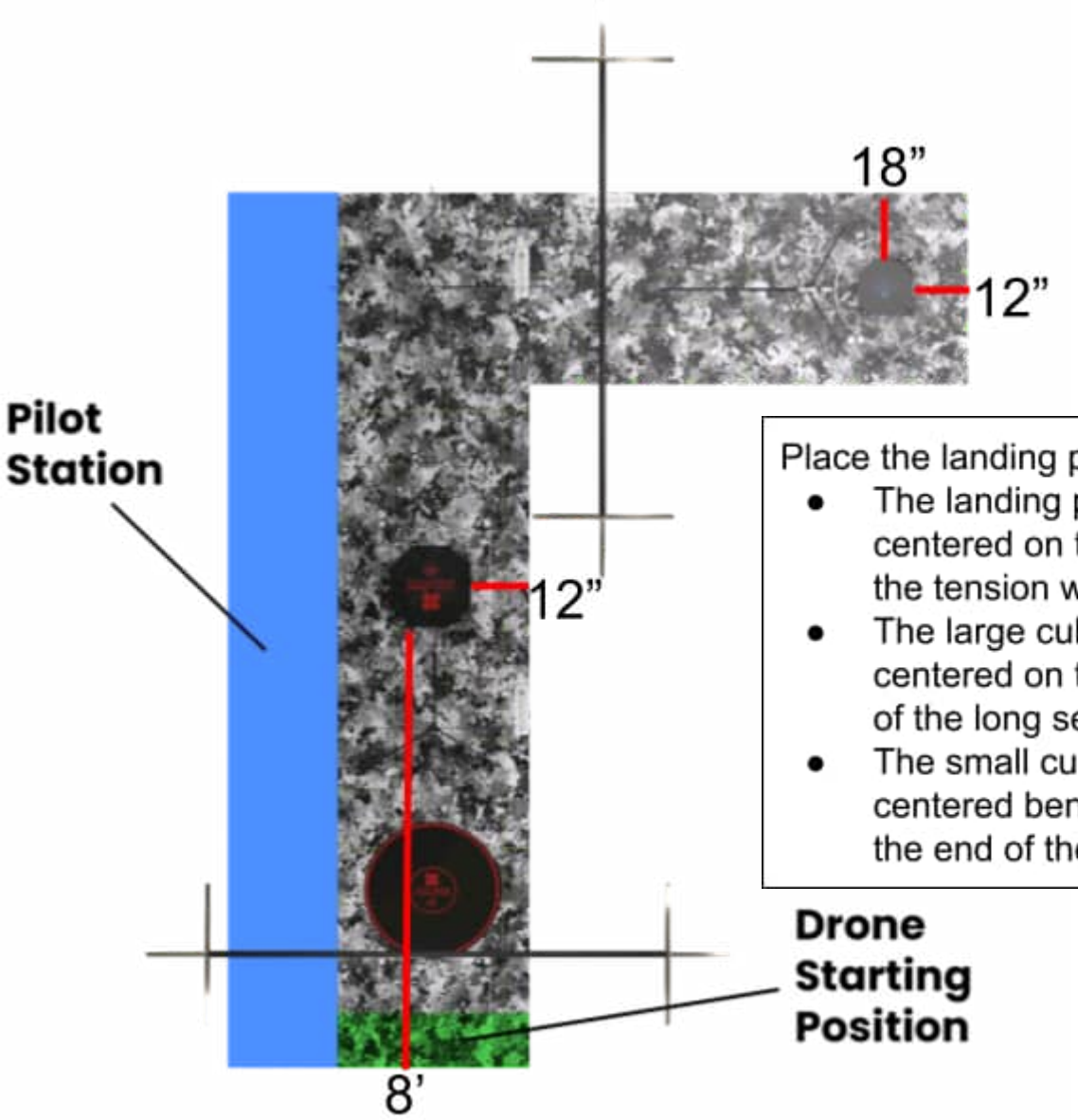


Attach the mini keyhole gates using metal T-brackets.

- Each mini keyhole is 90 degrees from the previous one, with mini keyholes 1 & 3 parallel to the edge of the mat.
- Adjust the heights so the bottom of each bracket is at the specified height.
  - Mini keyhole 1 = 24”
  - Mini keyhole 2 = 34”
  - Mini keyhole 3 = 44”

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1.7 Solo Mission Field Setup Step 7: Place the Landing Pad and Cubes

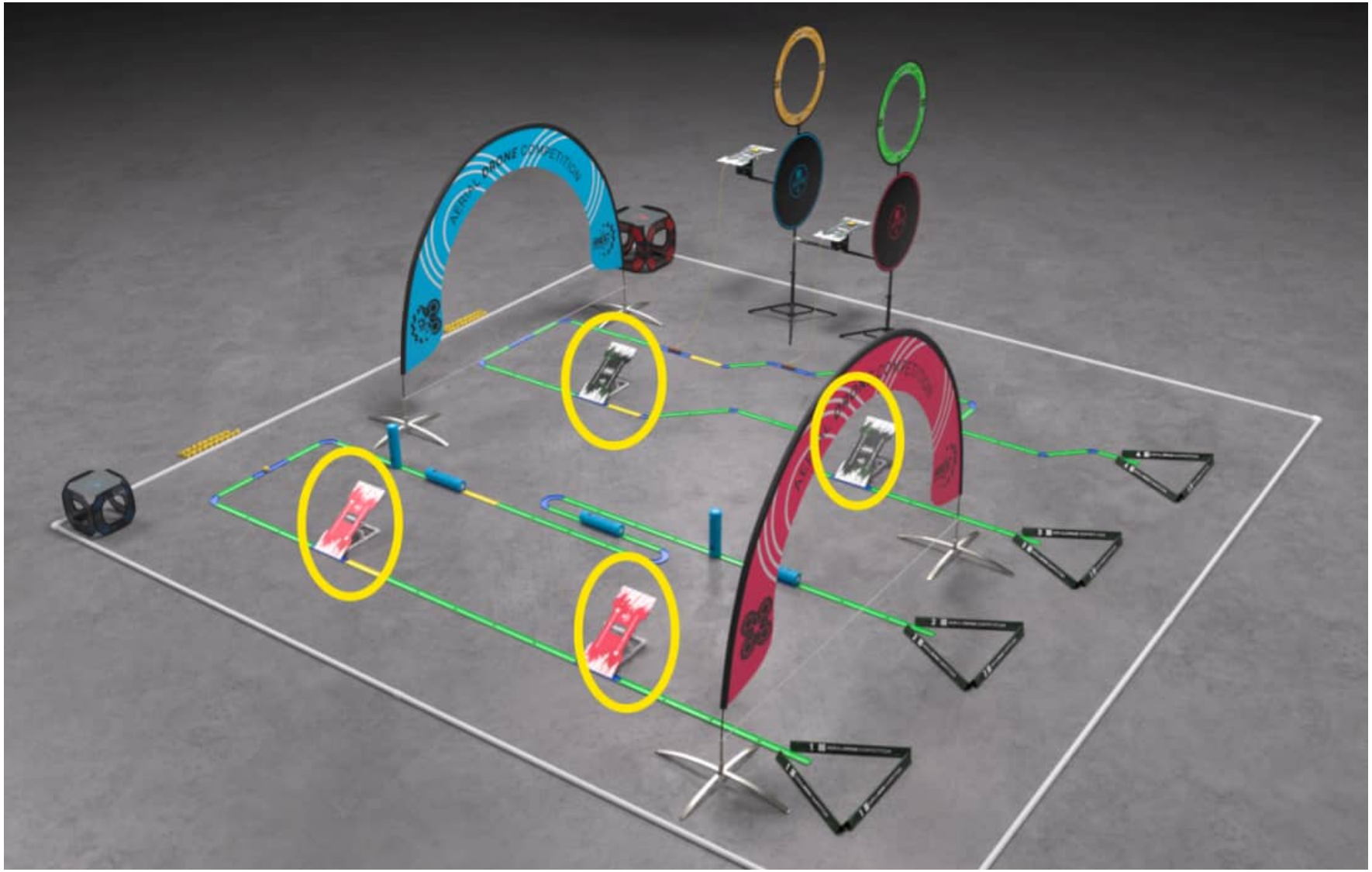


Place the landing pad and cubes on the mat.

- The landing pad (can be red or blue) should be centered on the mat, with its edge aligned with the tension wire of the red arch gate.
- The large cube (can be red or blue) should be centered on the mat in a position 8’ from the end of the long section of mat.
- The small cube (can be red or blue) should be centered beneath the tunnel in a position 12” from the end of the short section of mat.

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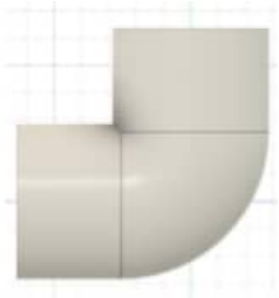
Section 2: Assembling the Low Switches (4 total)



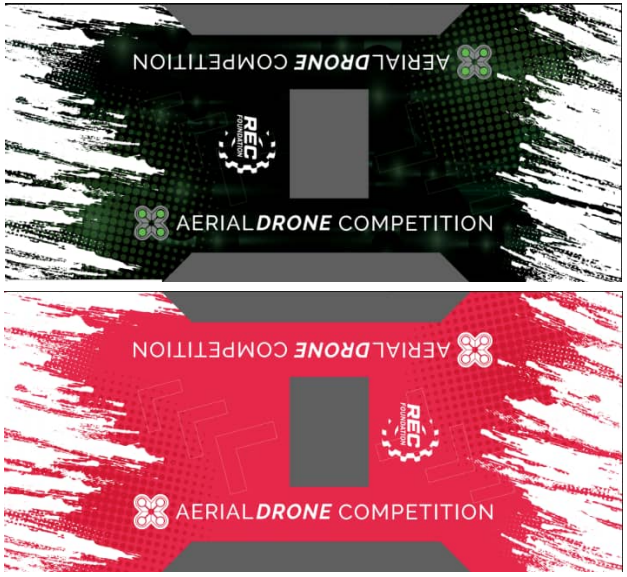
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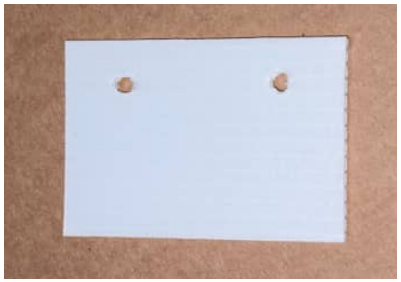
2.1 Table of Parts for Each Low Switch

Color in Instructions	Quantity for each assembly	Description	
Cyan	5	½” PVC - 5cm length	
Purple	3	½” 3-way PVC T-Connector	
Blue	6	½” PVC Elbow Connector	
Yellow	6	½” PVC - 12cm length	

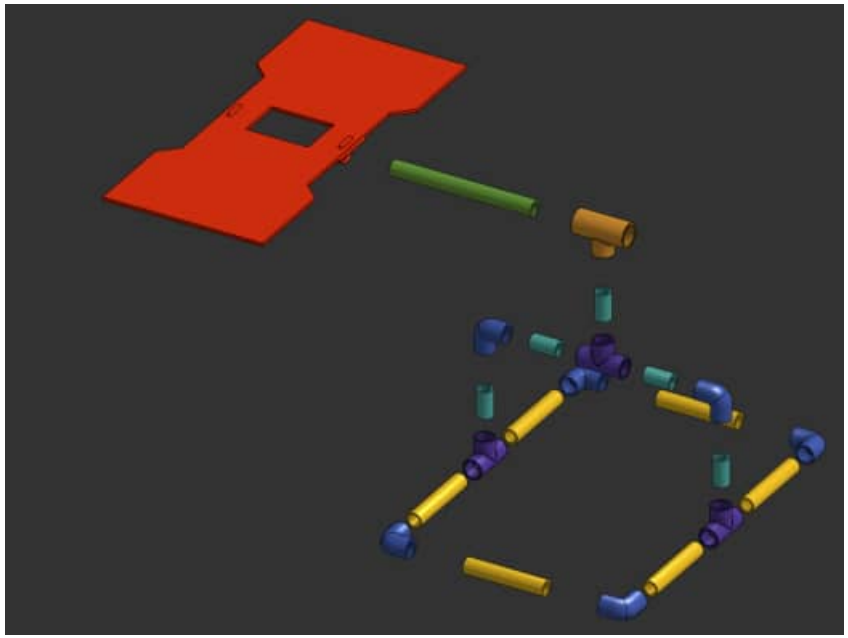
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Orange	1	½” to ¾” 3-way PVC T-Connector	
Green	1	½” PVC - 17cm length	
Red	1	Low switch plate - corrugated plastic The game element includes two green/black switch plates and two red/white switch plates	

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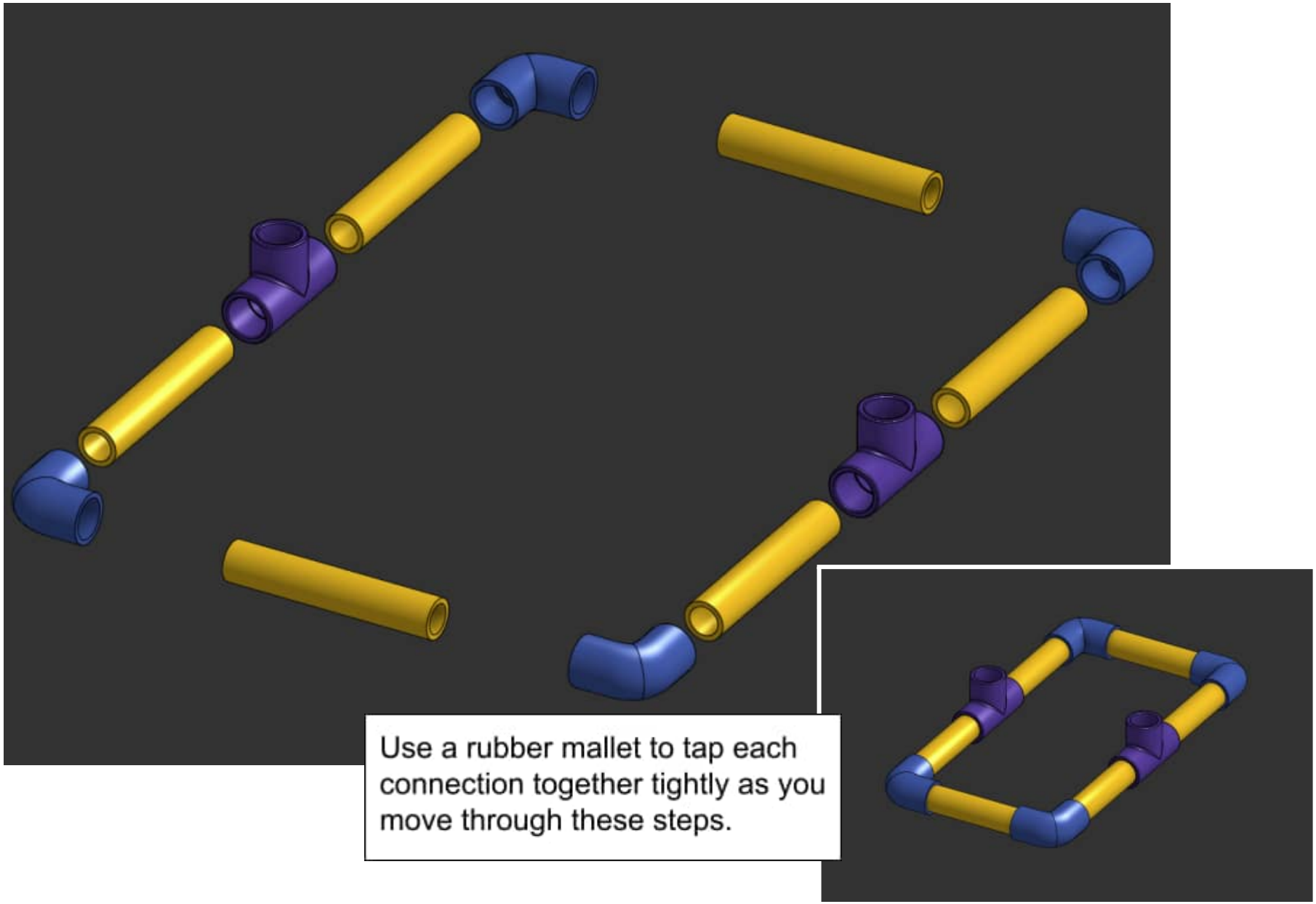
N/A; see step 4	2	Small corrugated plastic piece - 6.5cm x 4.5cm	
N/A; see step 4	2	Zip tie	

2.2 Low Switch Assembly Overview



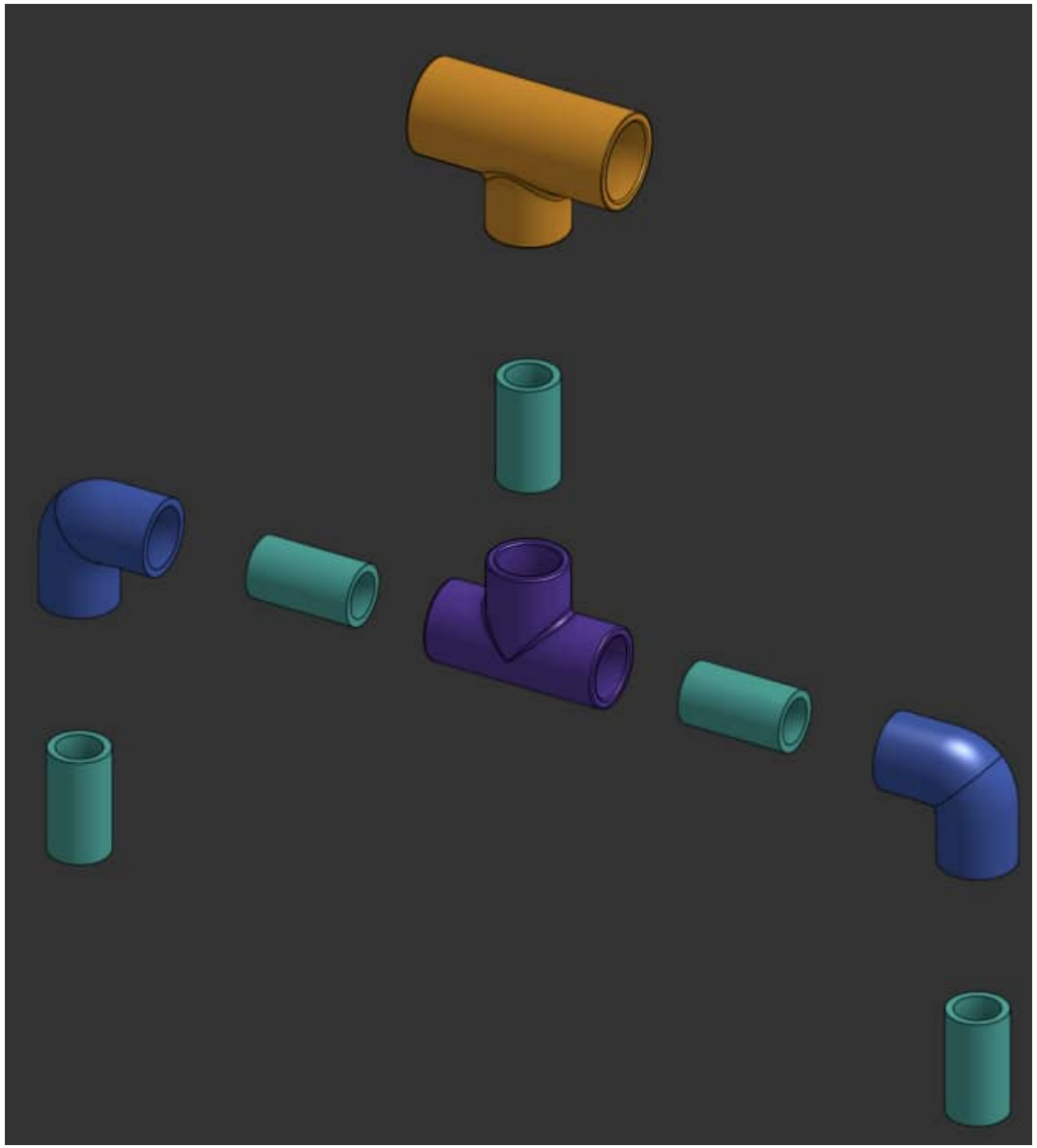
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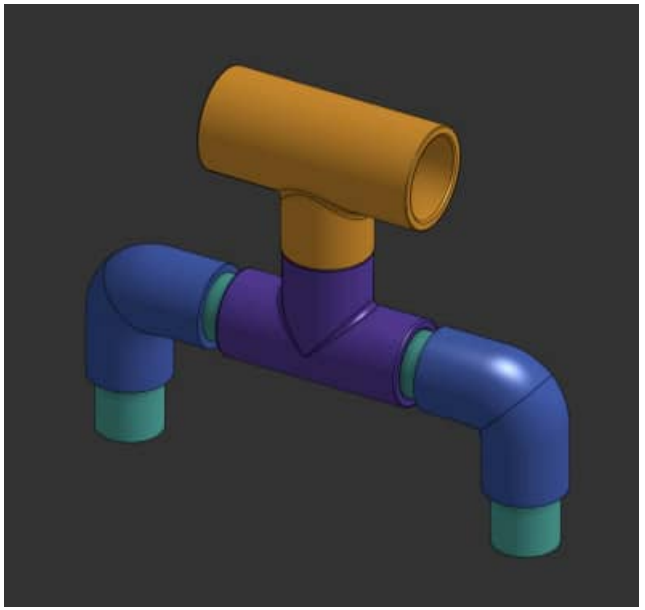
2.3 Low Switch Assembly Step 1: Build the Base of the Switch

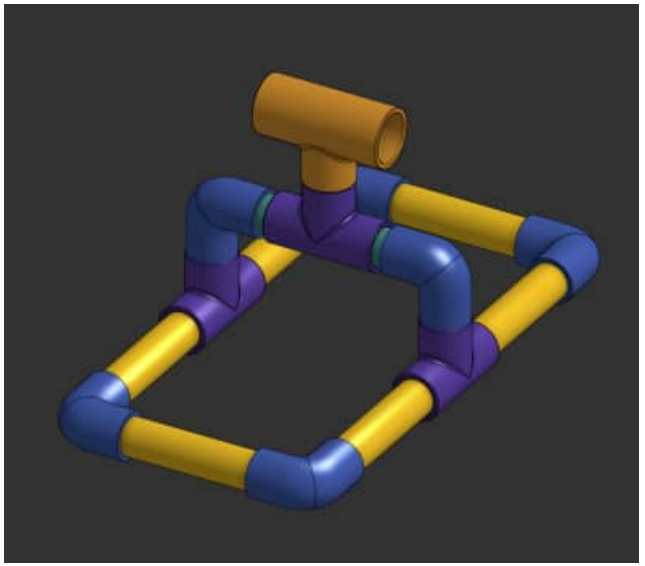


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2.4 Low Switch Assembly Step 2: Build the Center Structure

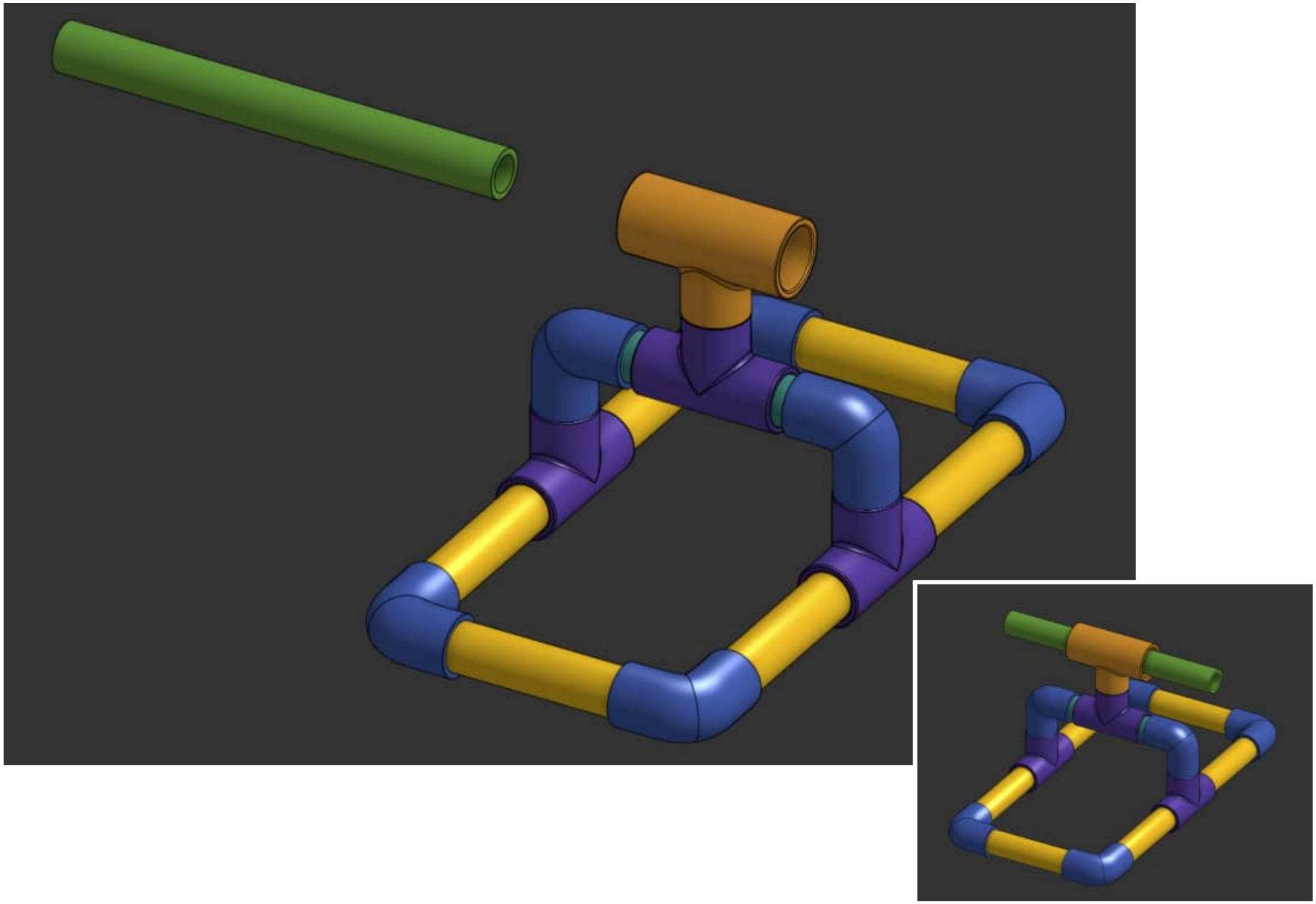






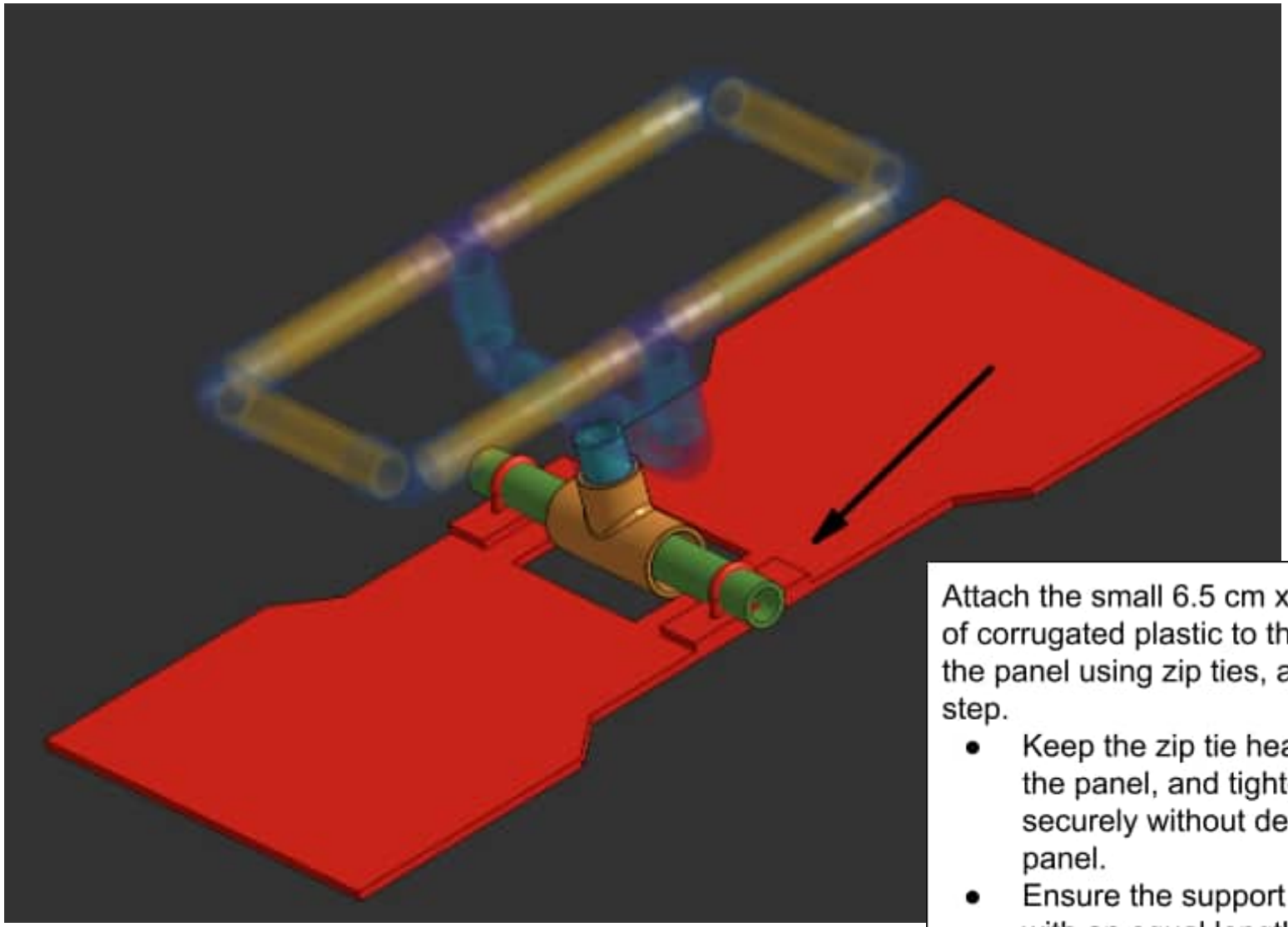
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2.5 Low Switch Assembly Step 3: Insert the Support Pole



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2.6 Low Switch Assembly Step 4: Attach the Switch Plate

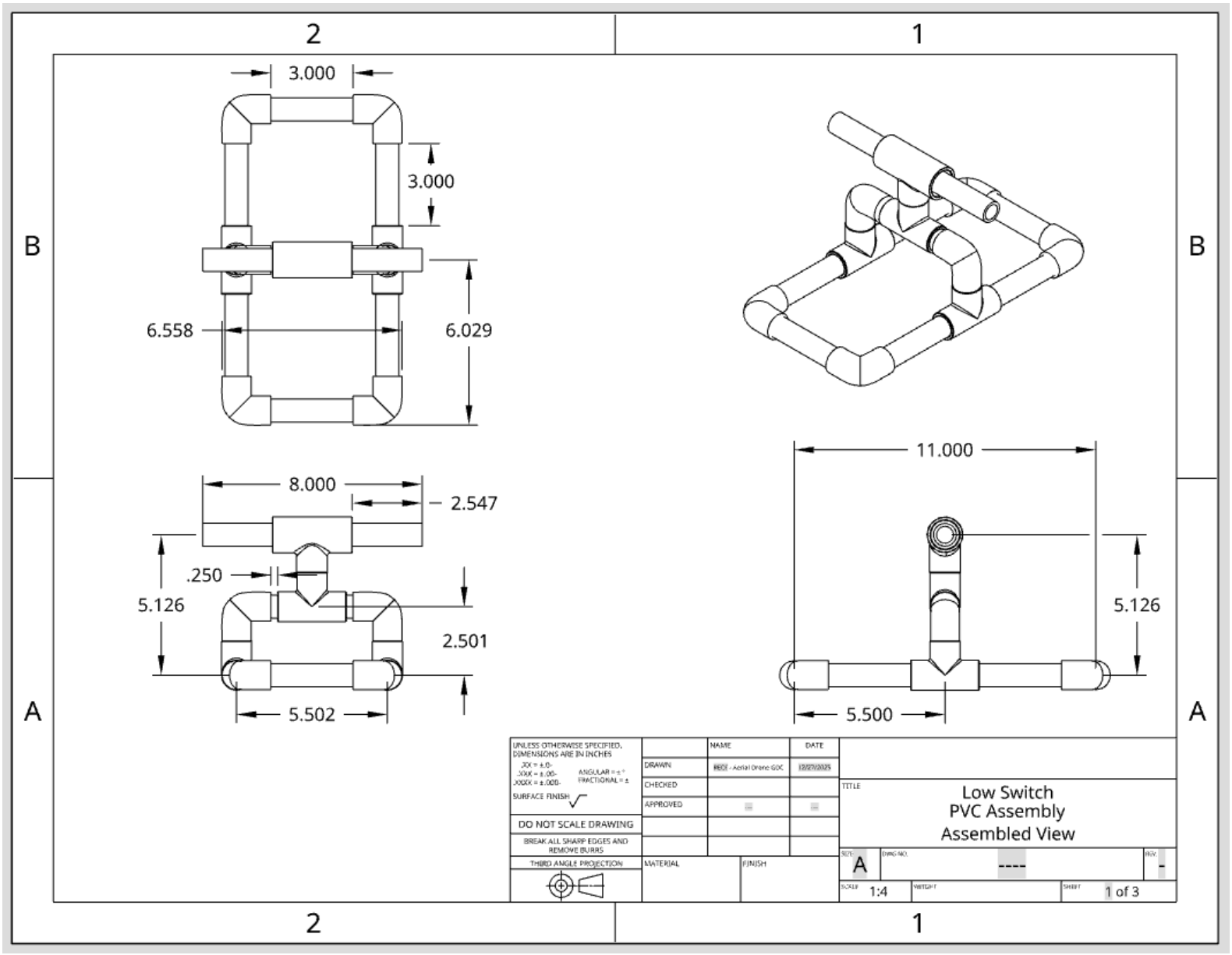


Attach the small 6.5 cm x 4.5 cm pieces of corrugated plastic to the underside of the panel using zip ties, as shown in this step.

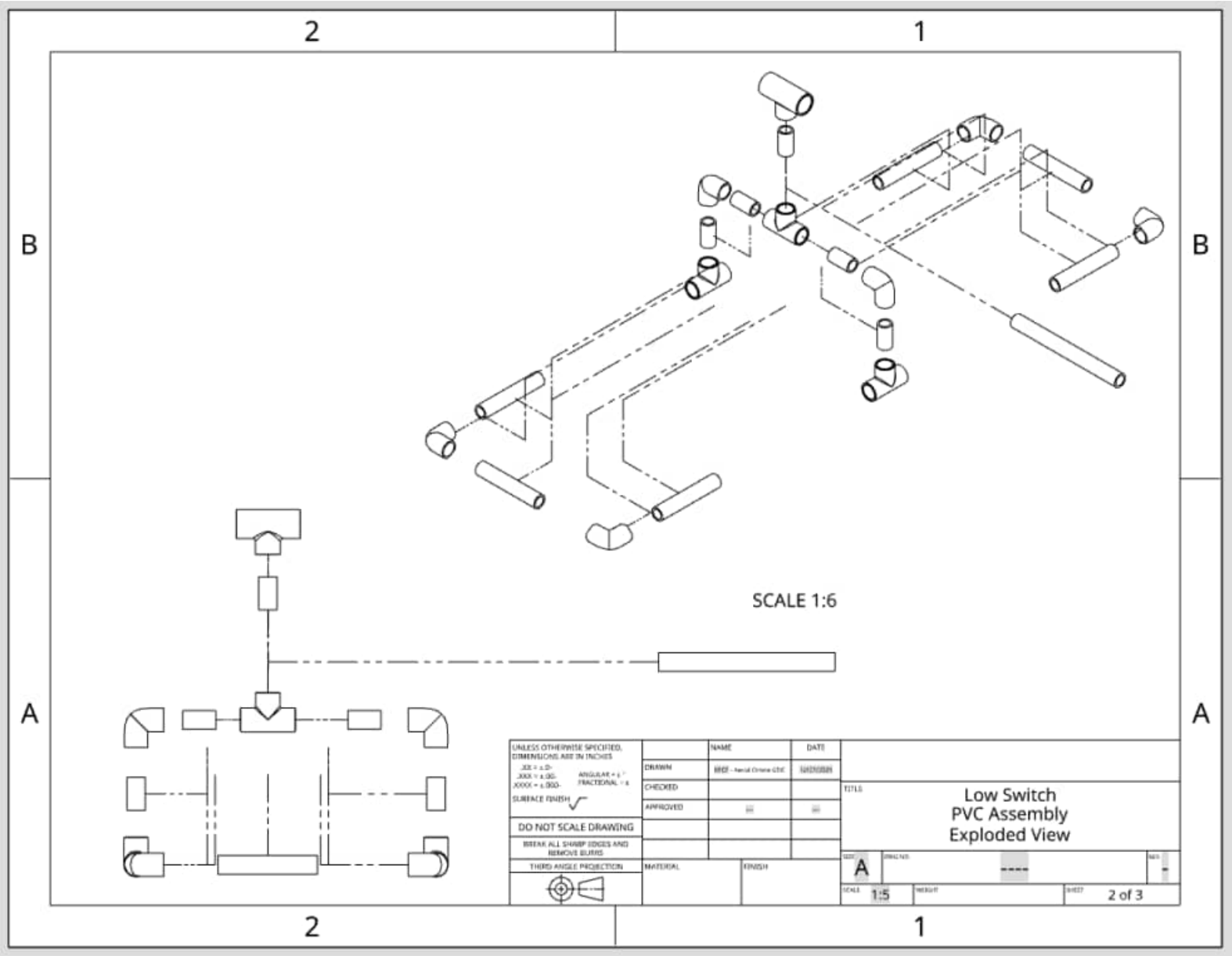
- Keep the zip tie head underneath the panel, and tighten the zip tie securely without deforming the panel.
- Ensure the support pipe is centered, with an equal length extending on each side.

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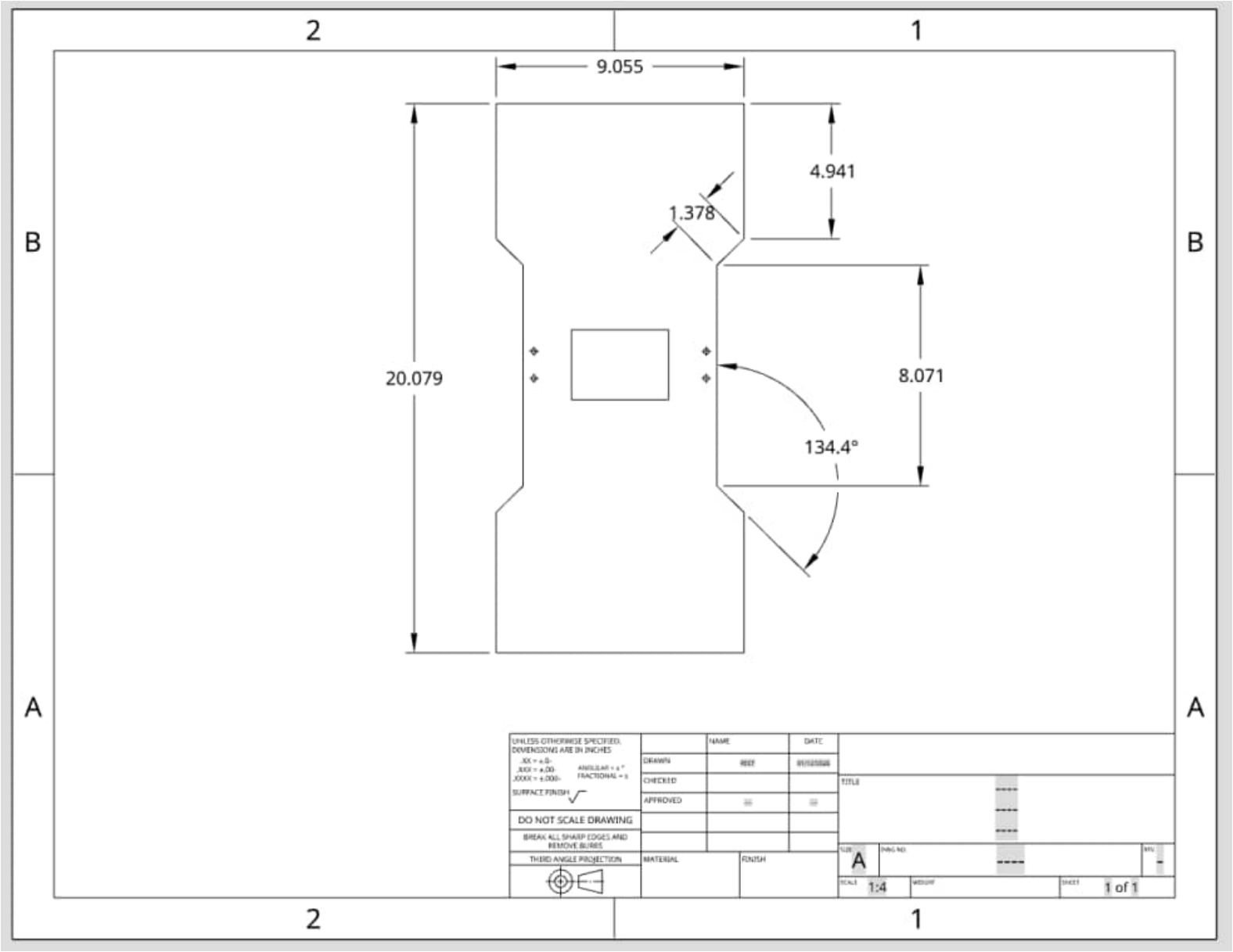
2.7 Low Switch Technical Drawings



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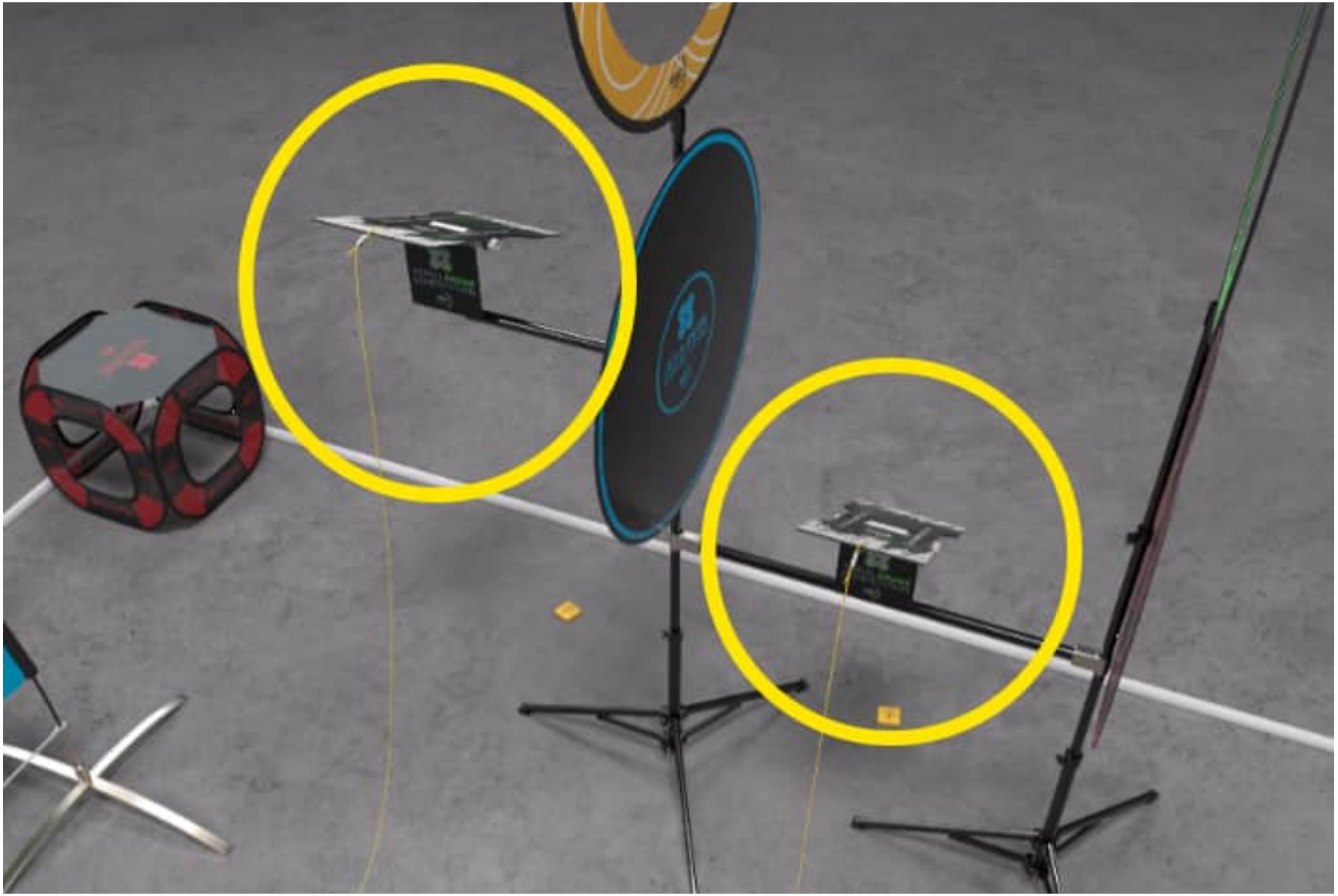


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Section 3: Assembling the High Switches (2 total)

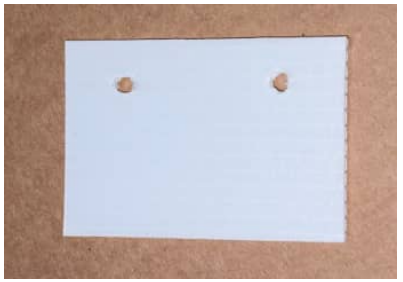


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3.1 Table of Parts for Each High Switch

Color in Instructions	Quantity for each assembly	Description	
Light Blue	1	High switch plate - corrugated plastic Note: A green square (on the left side of the image) shows the intended starting position for the bean bag on the assembled switch.	
Purple	1	Level plate - corrugated plastic - 18cm x 14cm	
Blue	2	Metal T-Connector	

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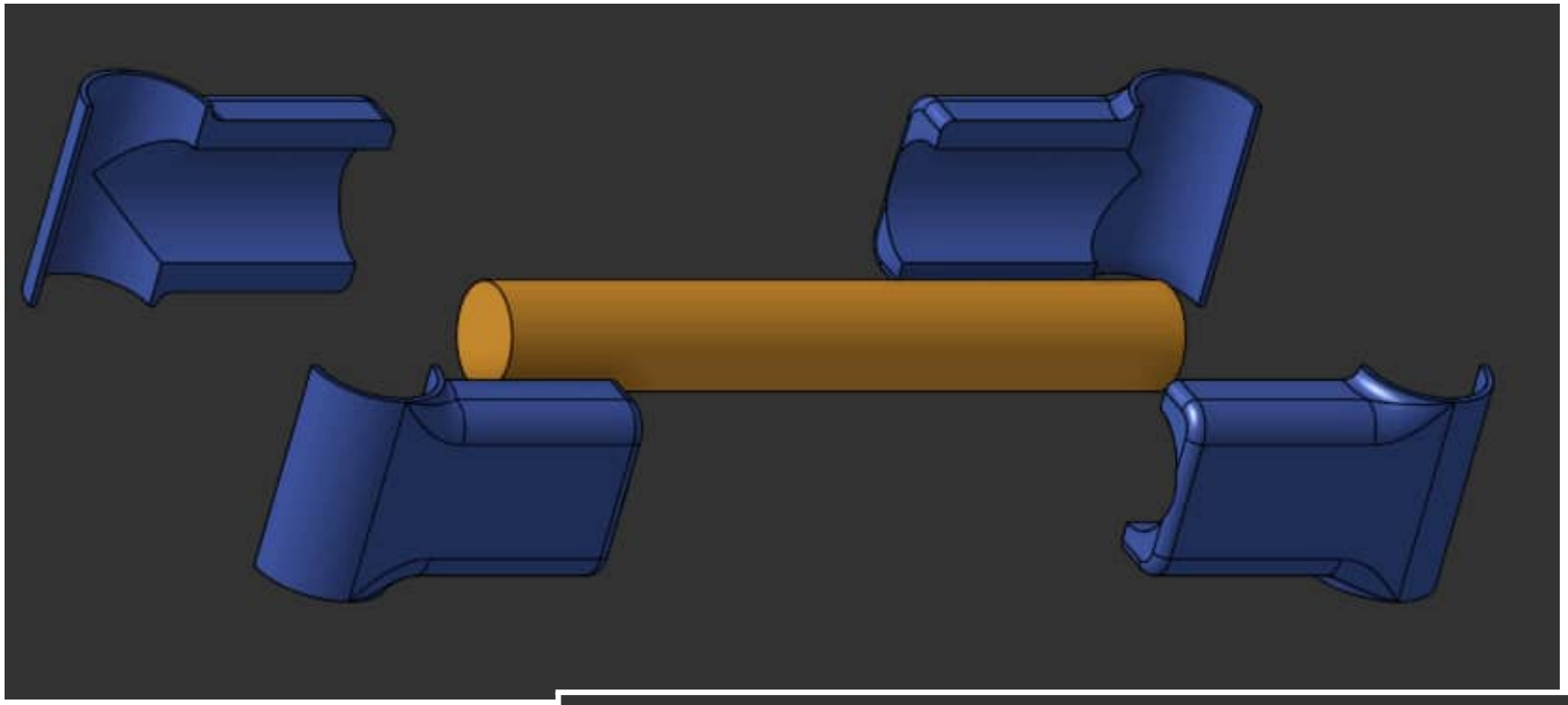
Orange	1	1” metal pipe - 6” length	
Yellow	1	½” PVC - 6.5” length	
Black	1	Clip bracket and adhesive	
N/A; see step 4	2	Small corrugated plastic piece - 6.5cm x 4.5cm	

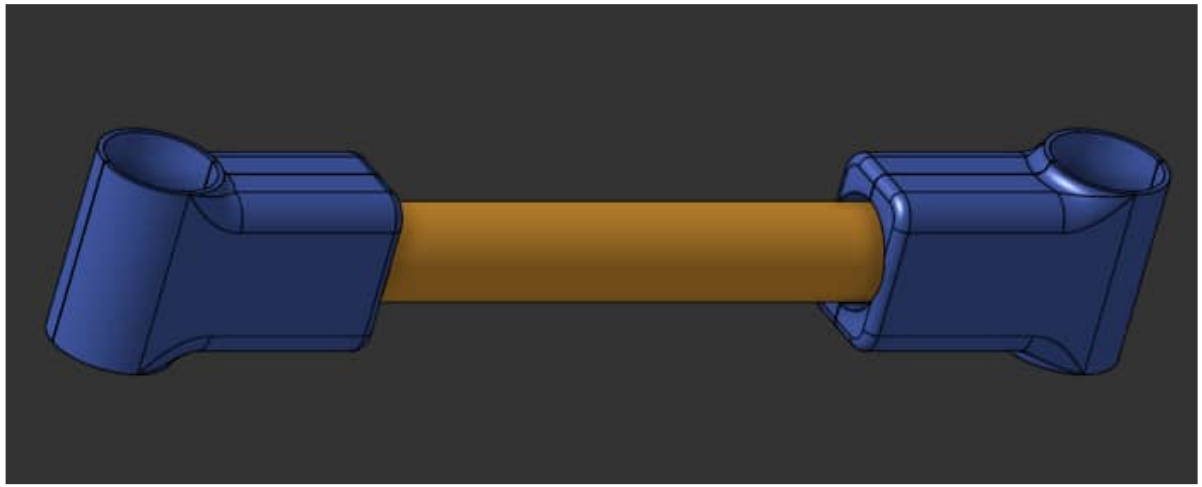
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N/A; see step 4	2	Zip tie	
N/A; see step 6	1	Wire	

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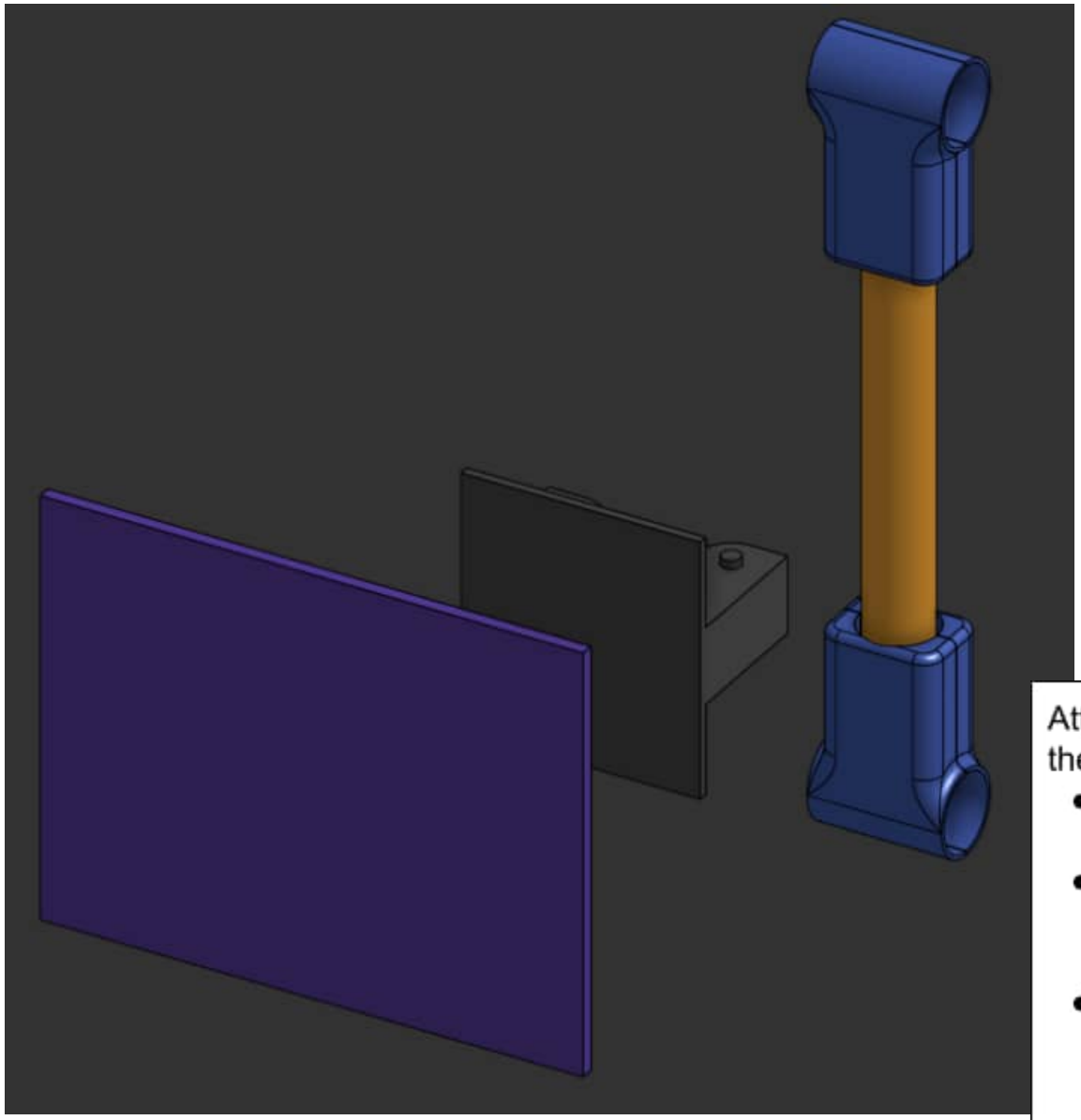
3.2 High Switch Assembly Step 1: Attach Metal T-Connectors to 1” Metal Pipe





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3.3 High Switch Assembly Step 2: Assemble and Attach Level Bracket

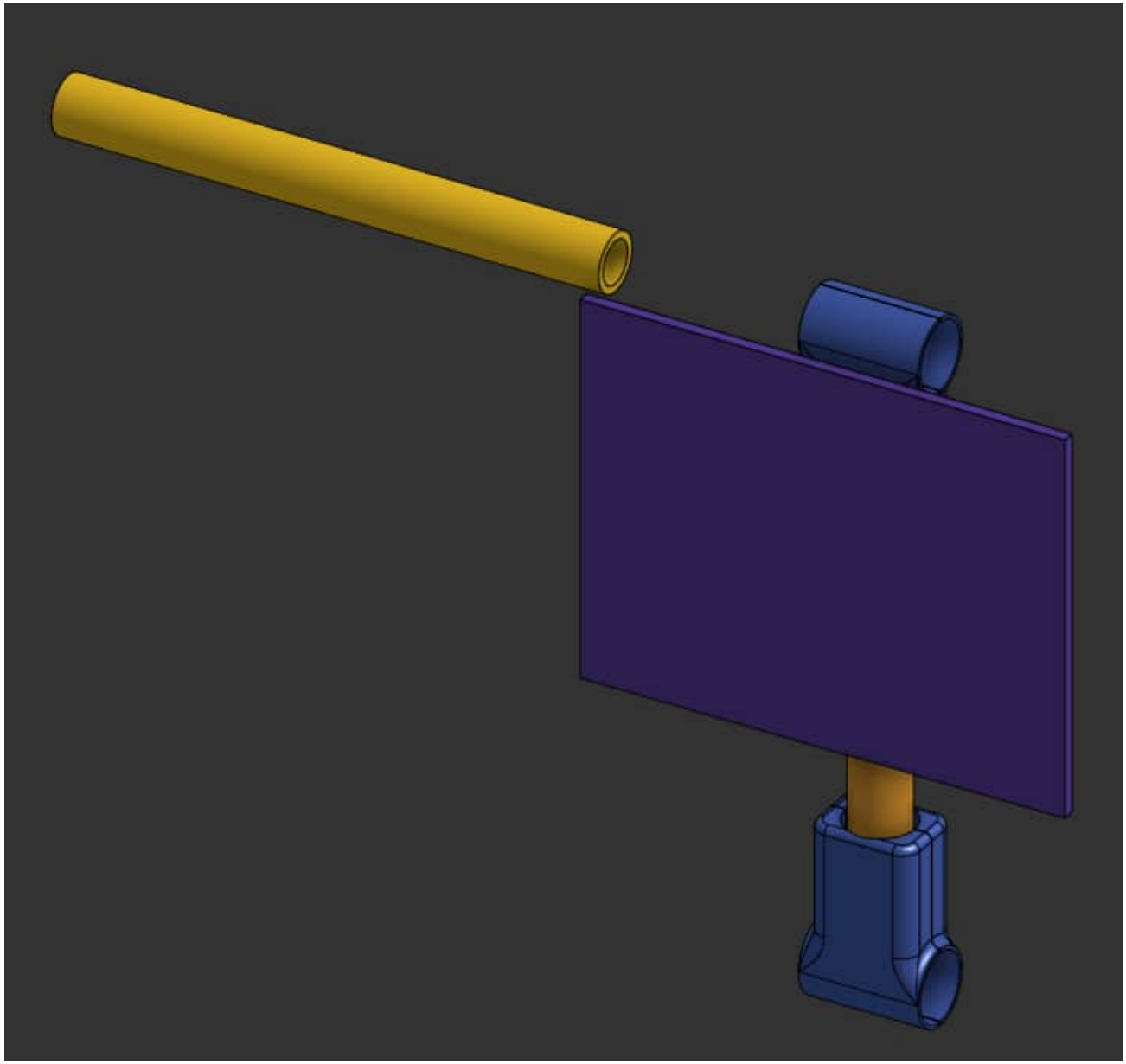


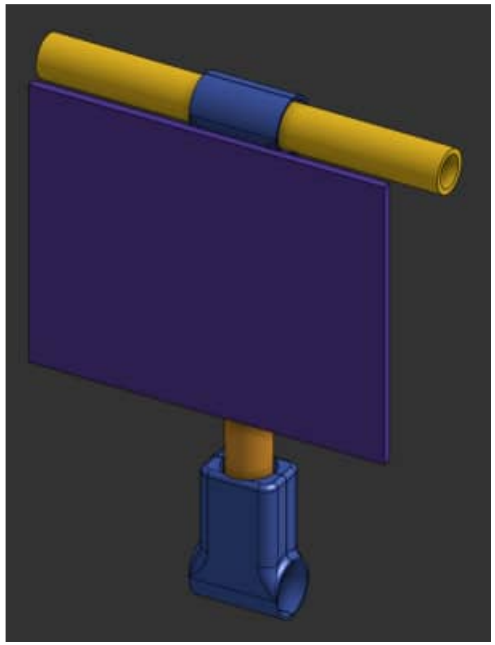
Attach the level plate (18cm x 14cm) to the bracket using the enclosed adhesive.

- Align the bracket with the bottom of the level plate.
- Attach the clip bracket to the PVC from step 1 (you can adjust the height later).
- When assembled correctly, this assembly will keep the high switch level and prevent it from tipping forward.

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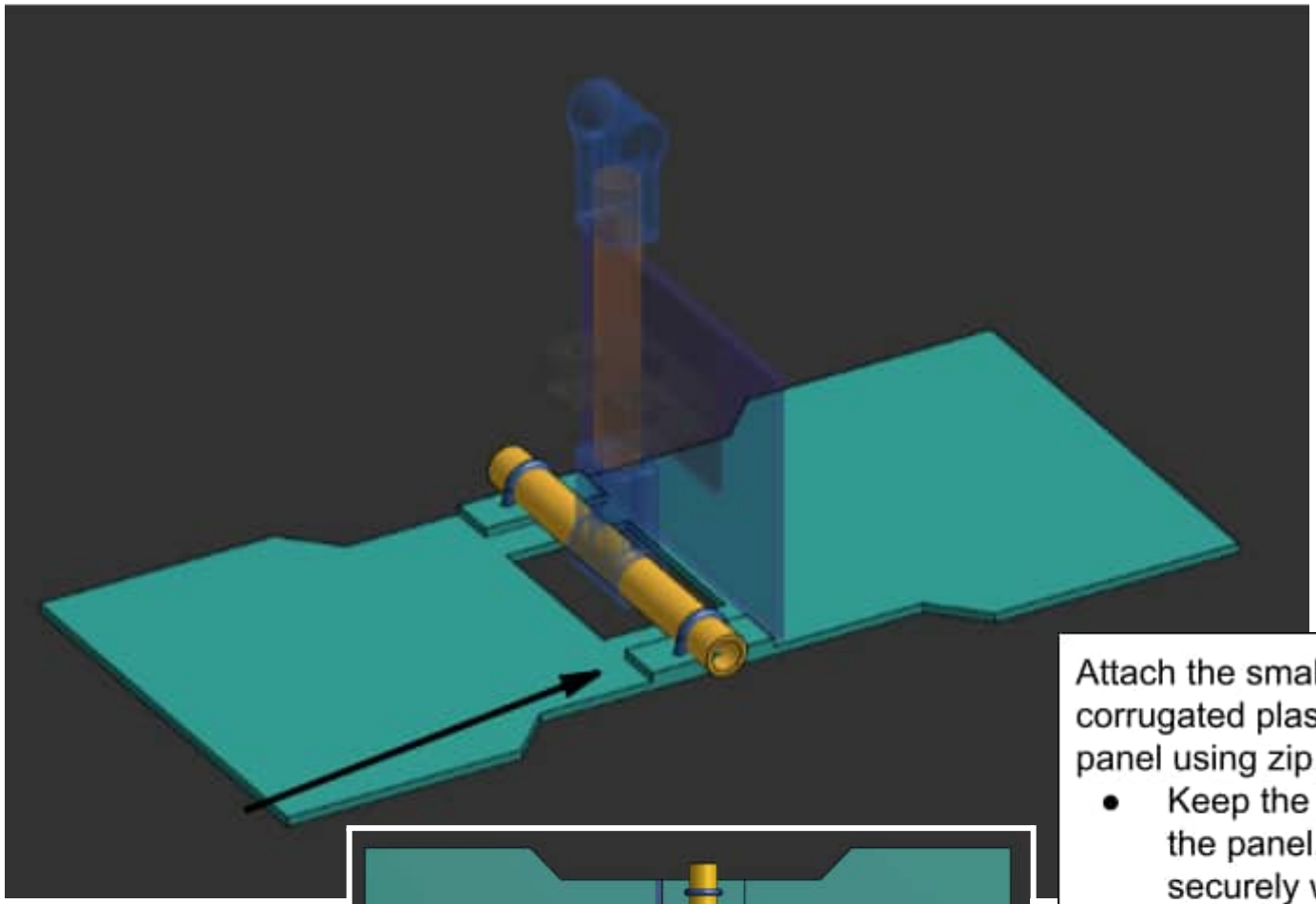
3.4 High Switch Assembly Step 3: Insert the Support Pole

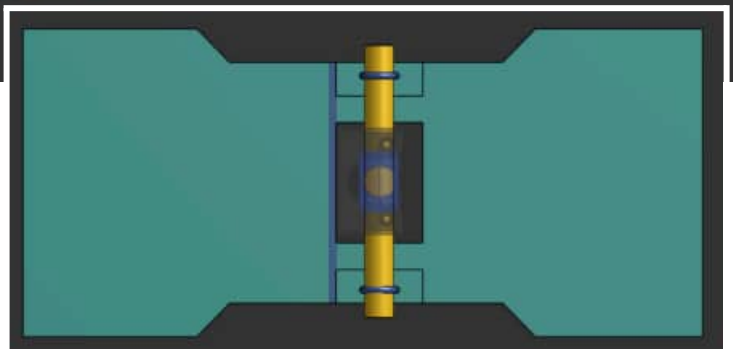




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3.5 High Switch Assembly Step 4: Attach the Switch Plate



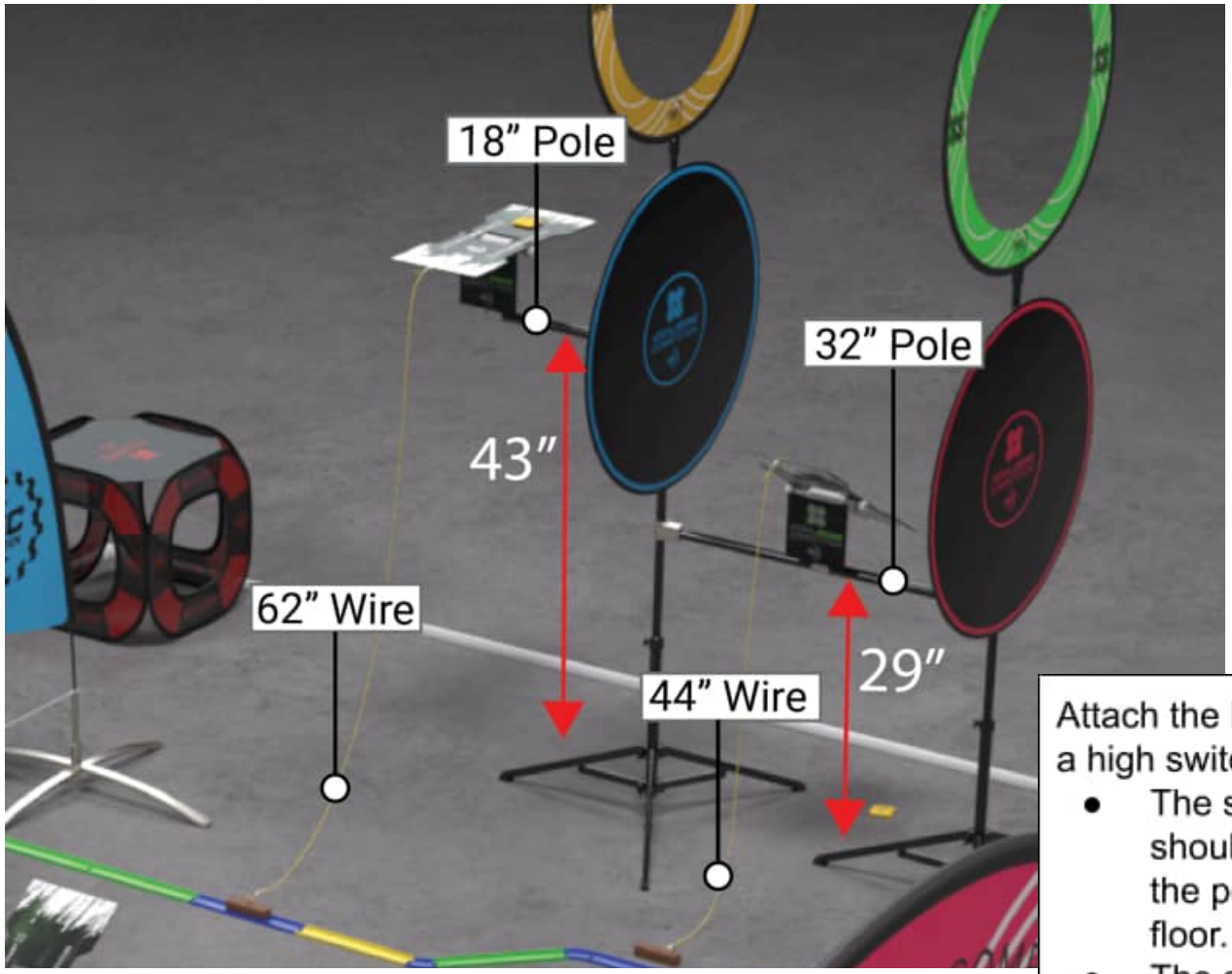


Attach the small 6.5cm x 4.5cm pieces of corrugated plastic to the underside of the panel using zip ties, as shown in this step.

- Keep the zip tie head underneath the panel, and tighten the zip tie securely without deforming the panel.
- Ensure the support pipe is centered, with an equal length extending on each side.

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3.6 High Switch Assembly Step 5: Attach the Switch to the High Switch Pole



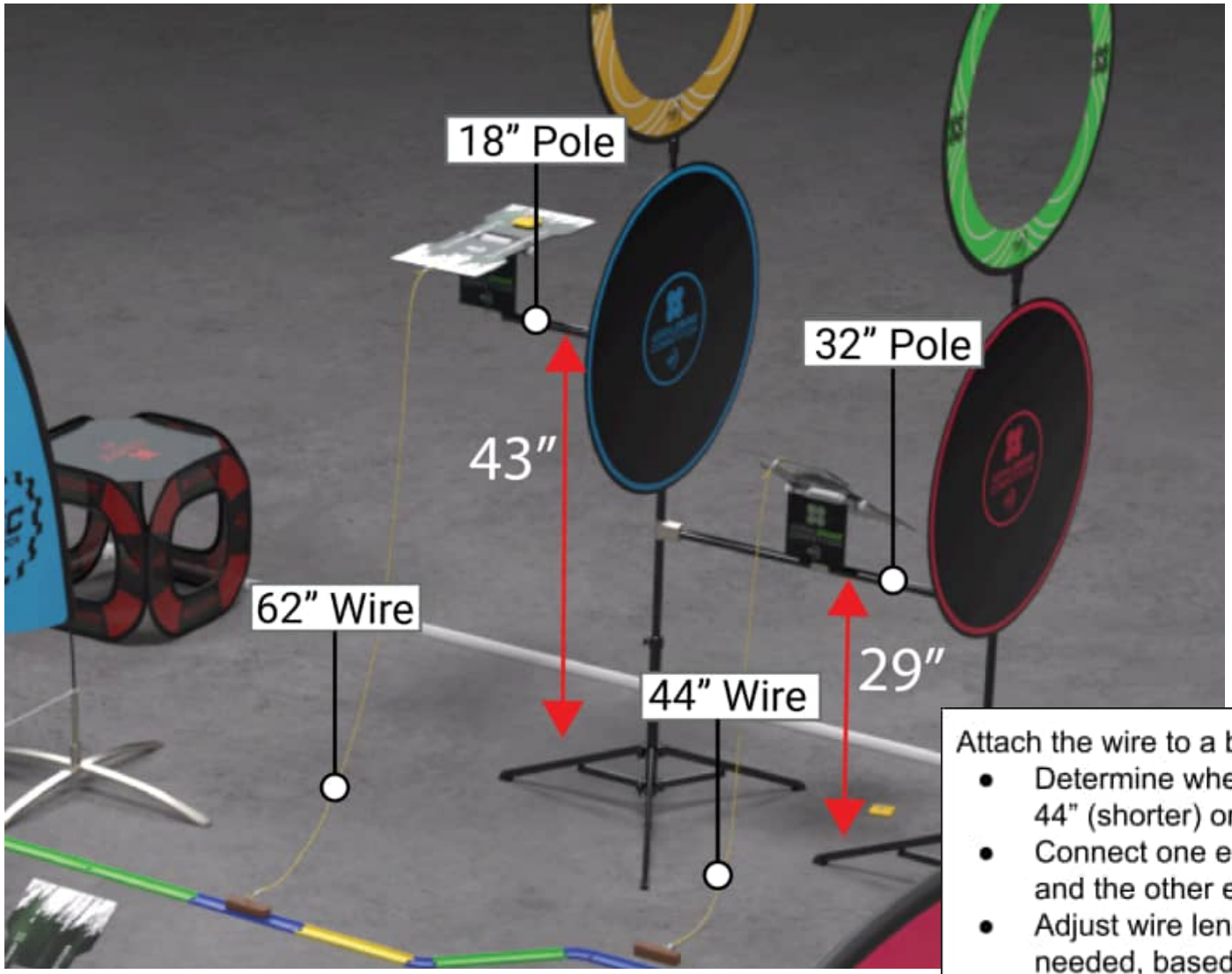
Note: This figure does not reflect changes to the field layout made in the November 10, 2026, update. See sections 5.1 & 5.10 for current details.

Attach the high switch to a cross pole on a high switch pole.

- The switch on the lower cross pole should be centered on the pole, with the pole at a height of 29” from the floor.
- The switch on the higher cross pole should be positioned at the end of the pole, with the pole at a height of 43” from the floor.

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3.7 High Switch Assembly Step 6: Attach the Wire to a Block and a Switch



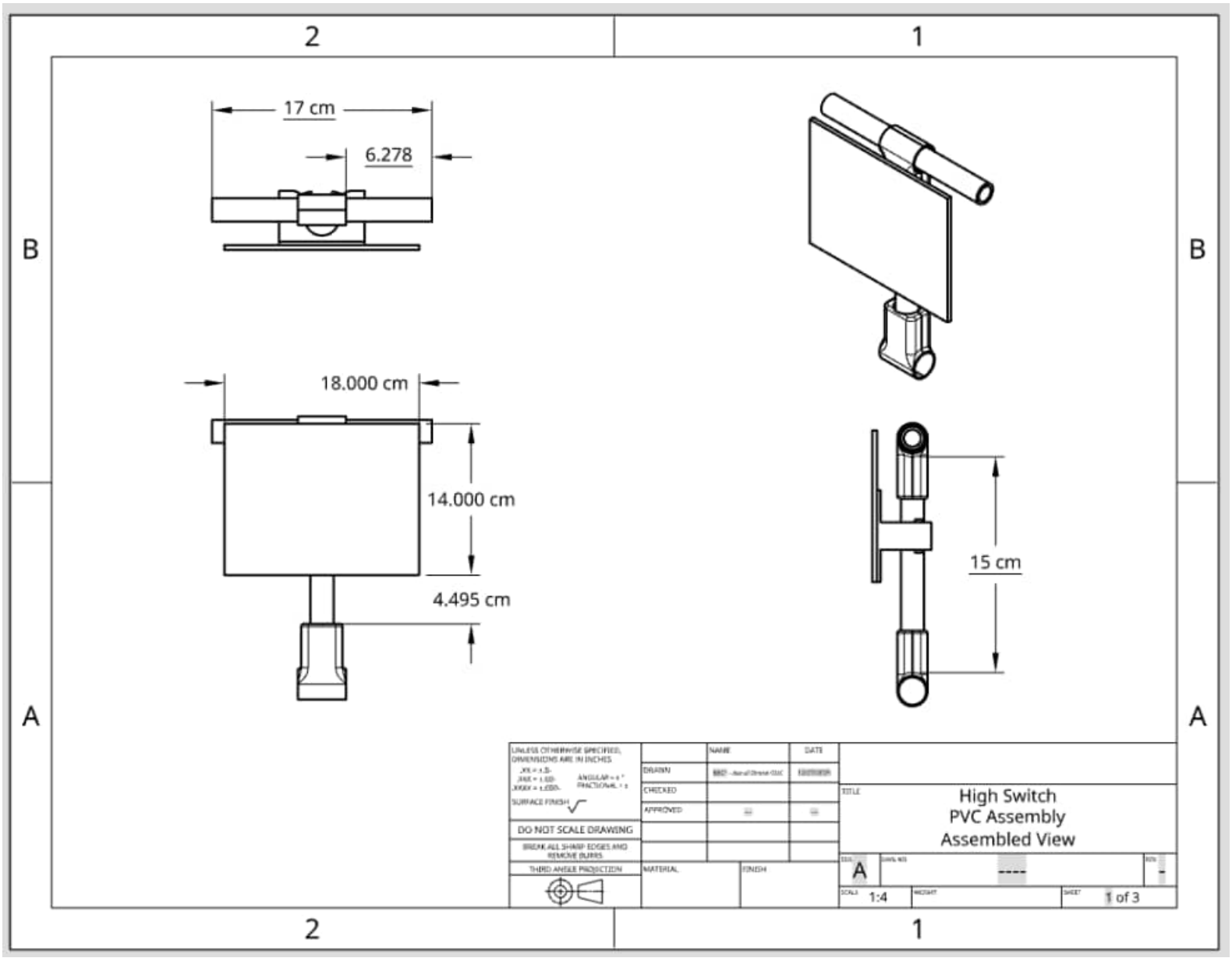
Attach the wire to a block and a switch.

- Determine whether the wire should be 44” (shorter) or 62” (longer)
- Connect one end of the wire to a switch and the other end to a block.
- Adjust wire lengths to 44” and 62” as needed, based on the illustration.
- Both high switch plates should be level at the start of each match.

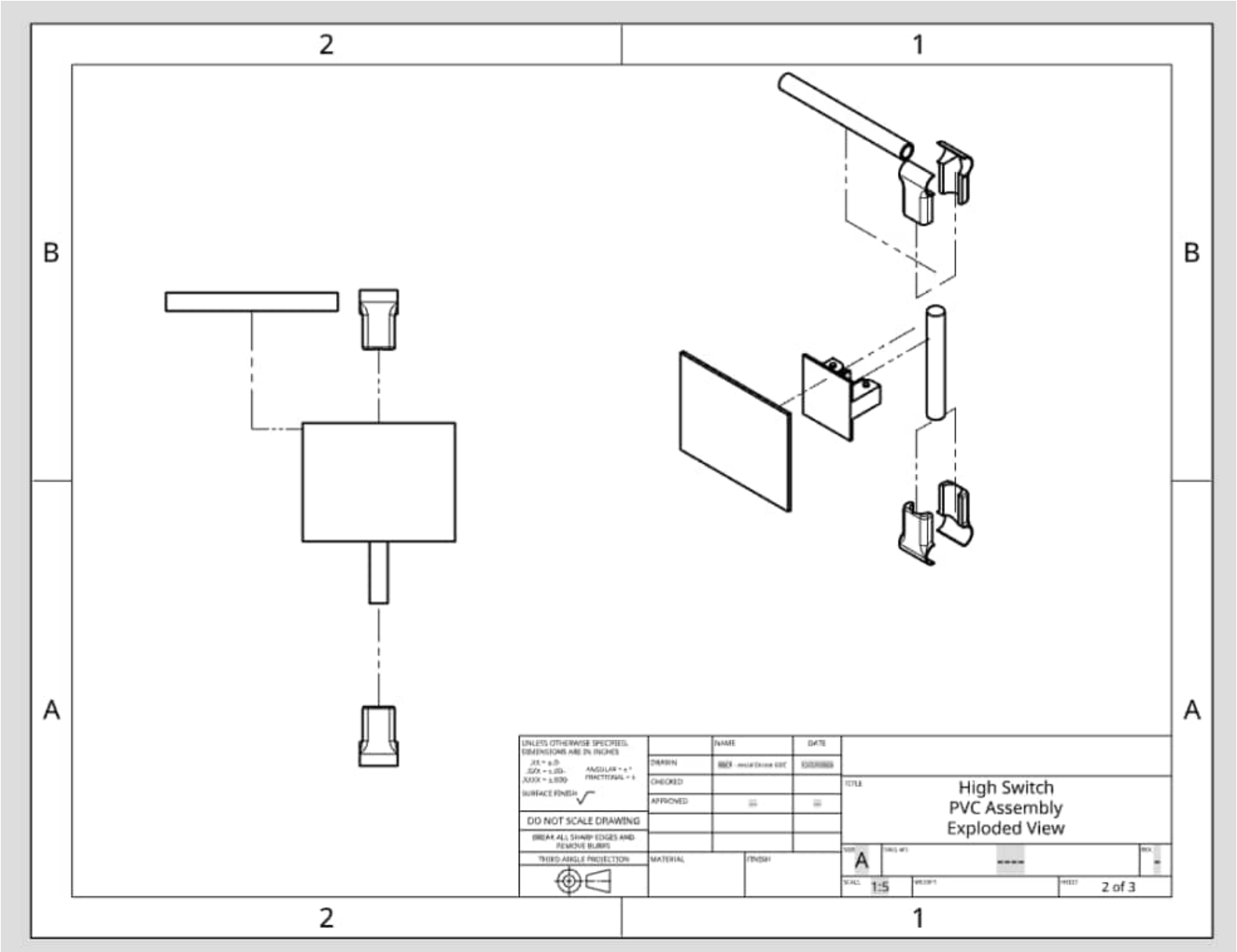
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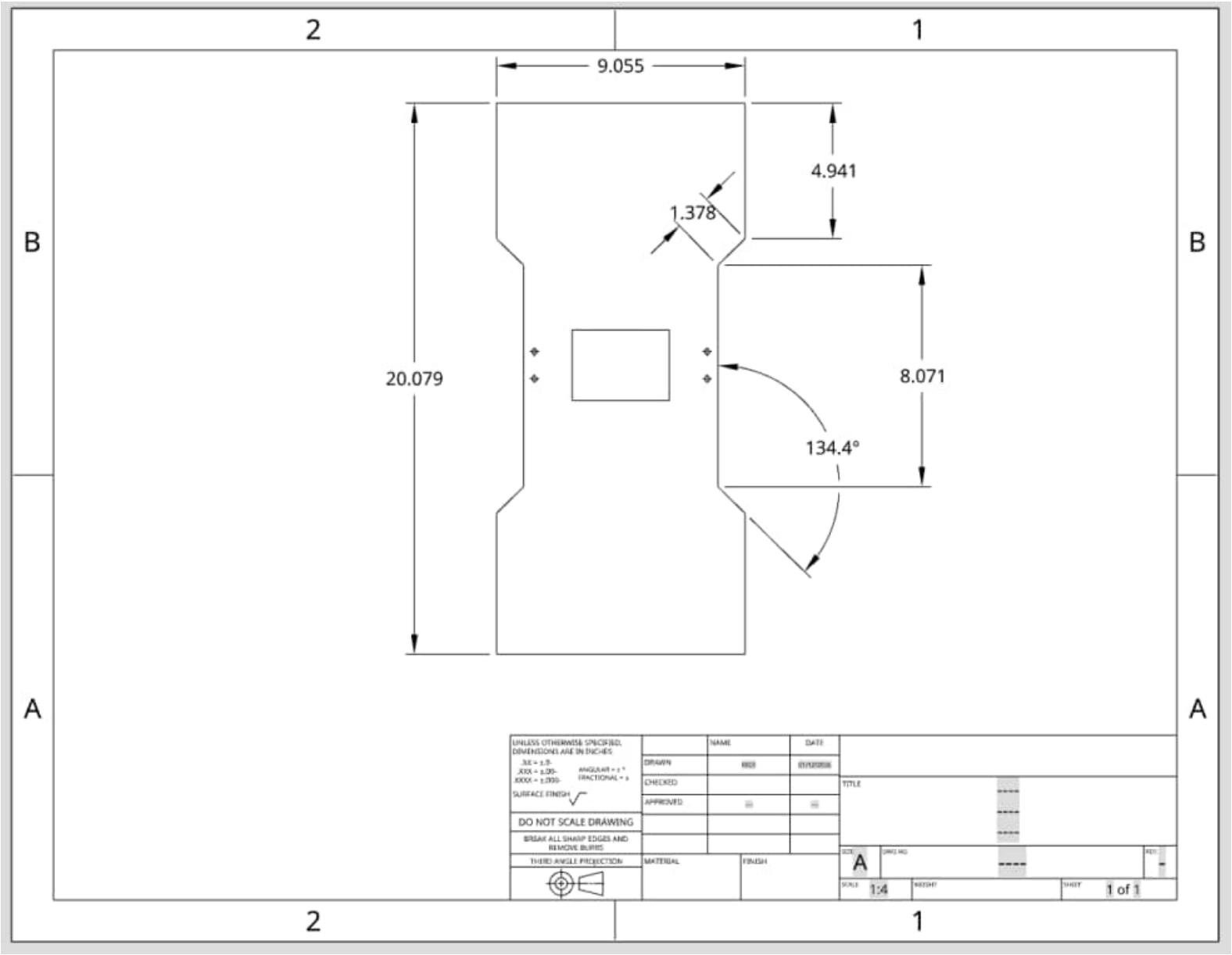
3.8 High Switch Technical Drawings



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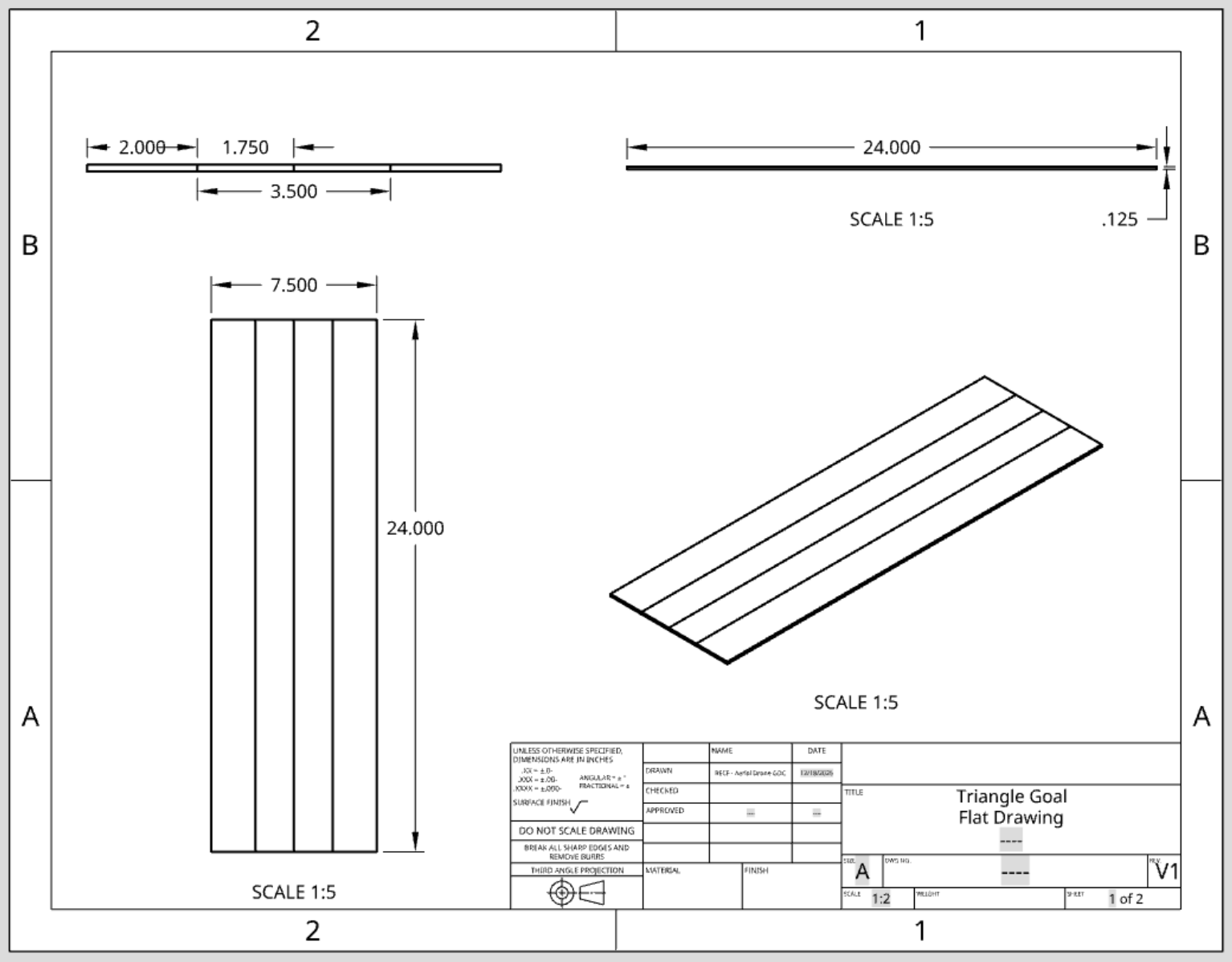


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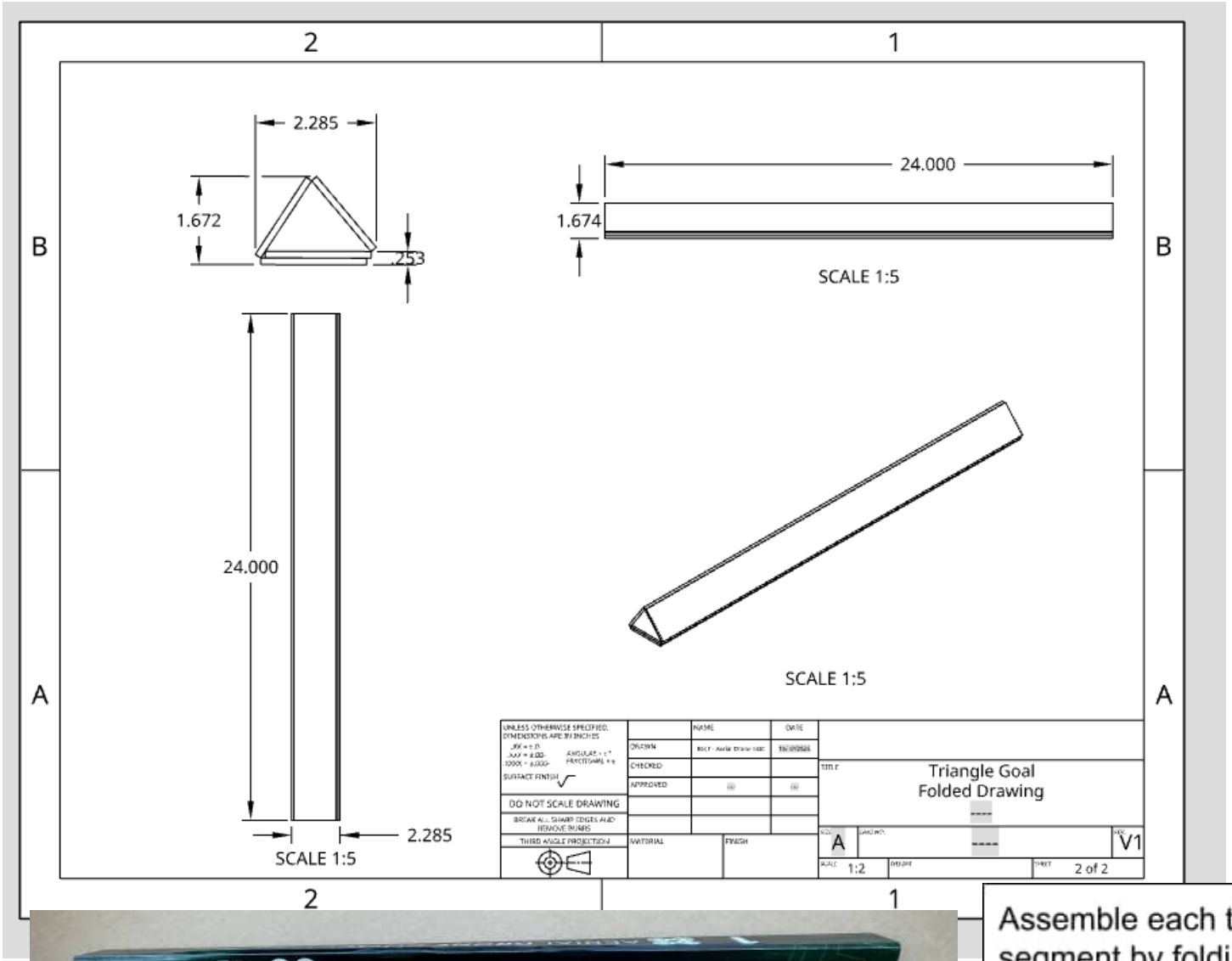


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Section 4: Assembling the Triangle Goal Segments (12 total)



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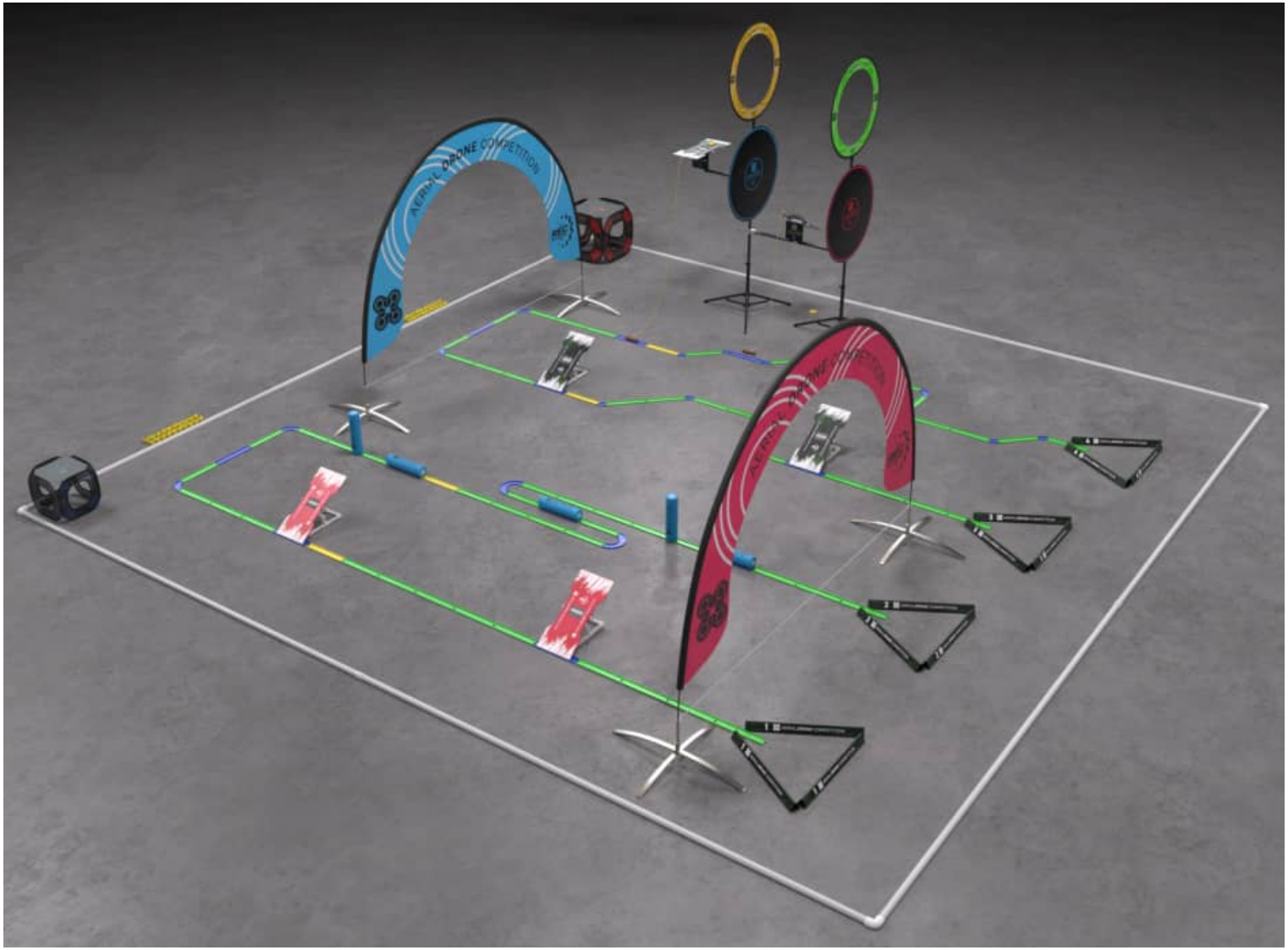




Assemble each triangle goal segment by folding the corrugated plastic along the scored seams, and secure the edge with tape.

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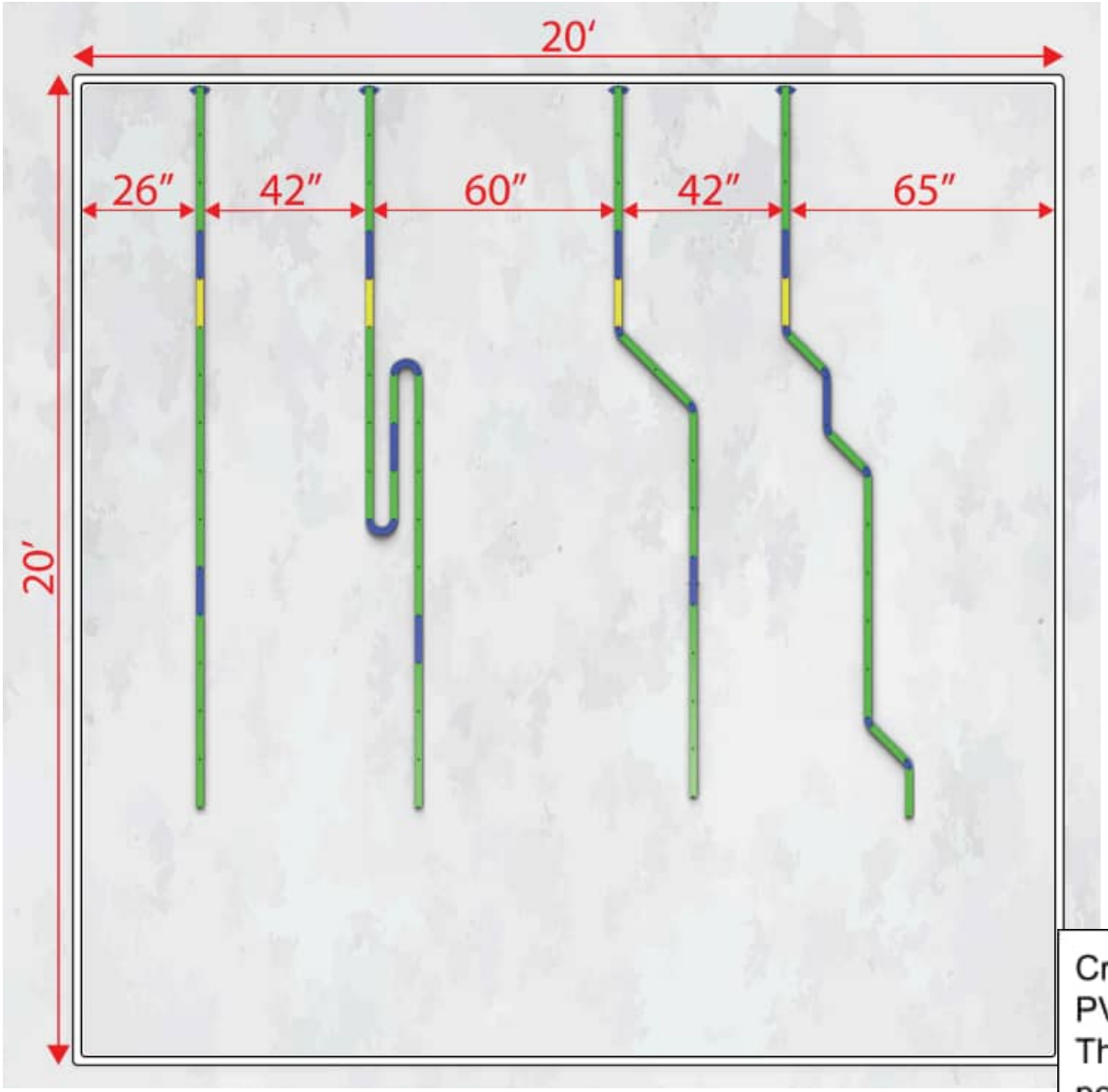
Section 5: Setting up the Alliance/Teamwork Mission Field



Note: This figure does not reflect changes to the field layout made in the November 10, 2026, update. See sections 5.1 & 5.10 for current details.

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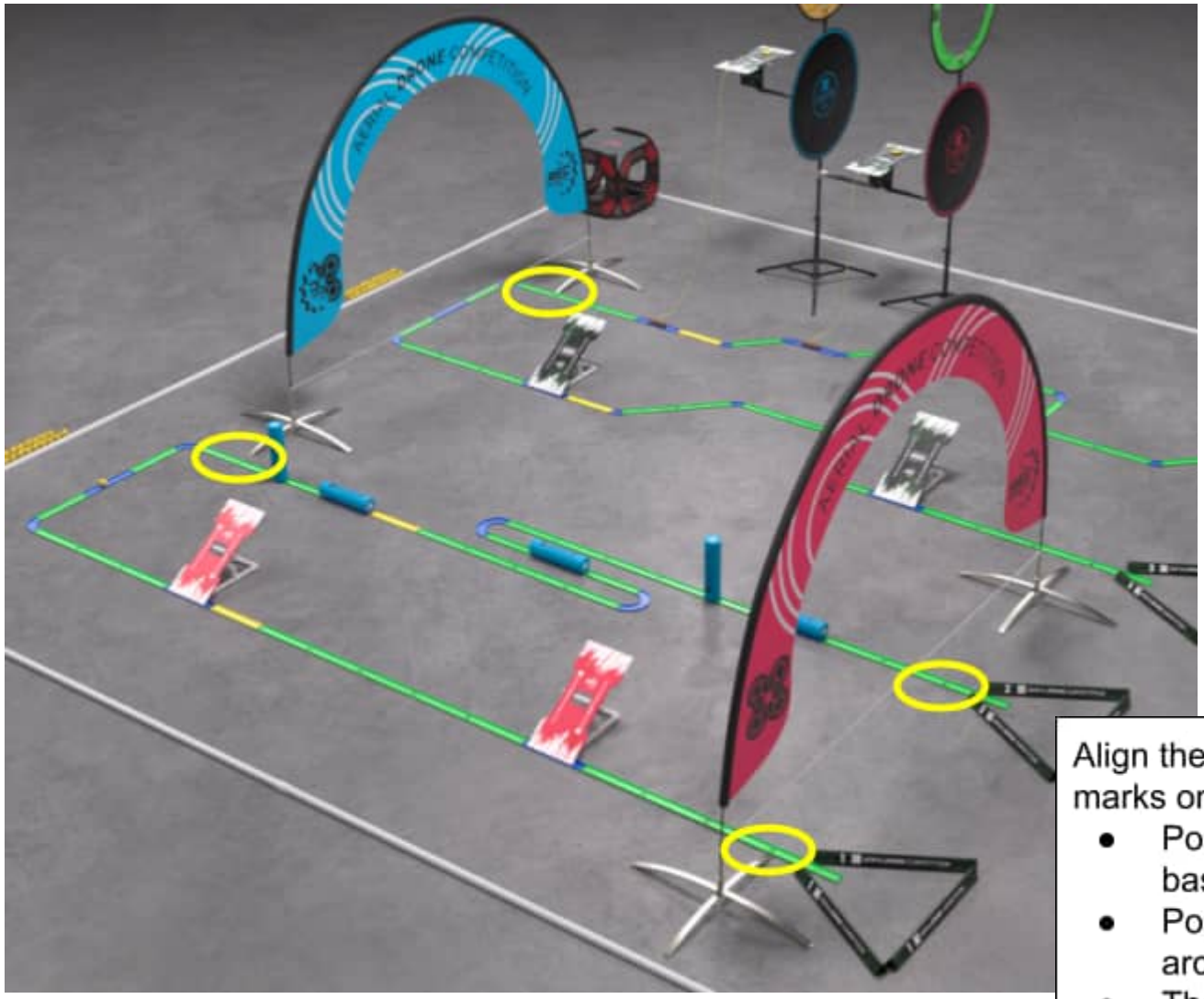
5.1 Alliance Mission Field Setup Step 1: Create a Perimeter and Assemble the Track



Create a 20’ x 20’ perimeter using PVC pipe, tape, rope, or cones. Then lay out the track inside the perimeter as shown.

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5.2 Alliance Mission Field Setup Step 2: Place the Arch Gates



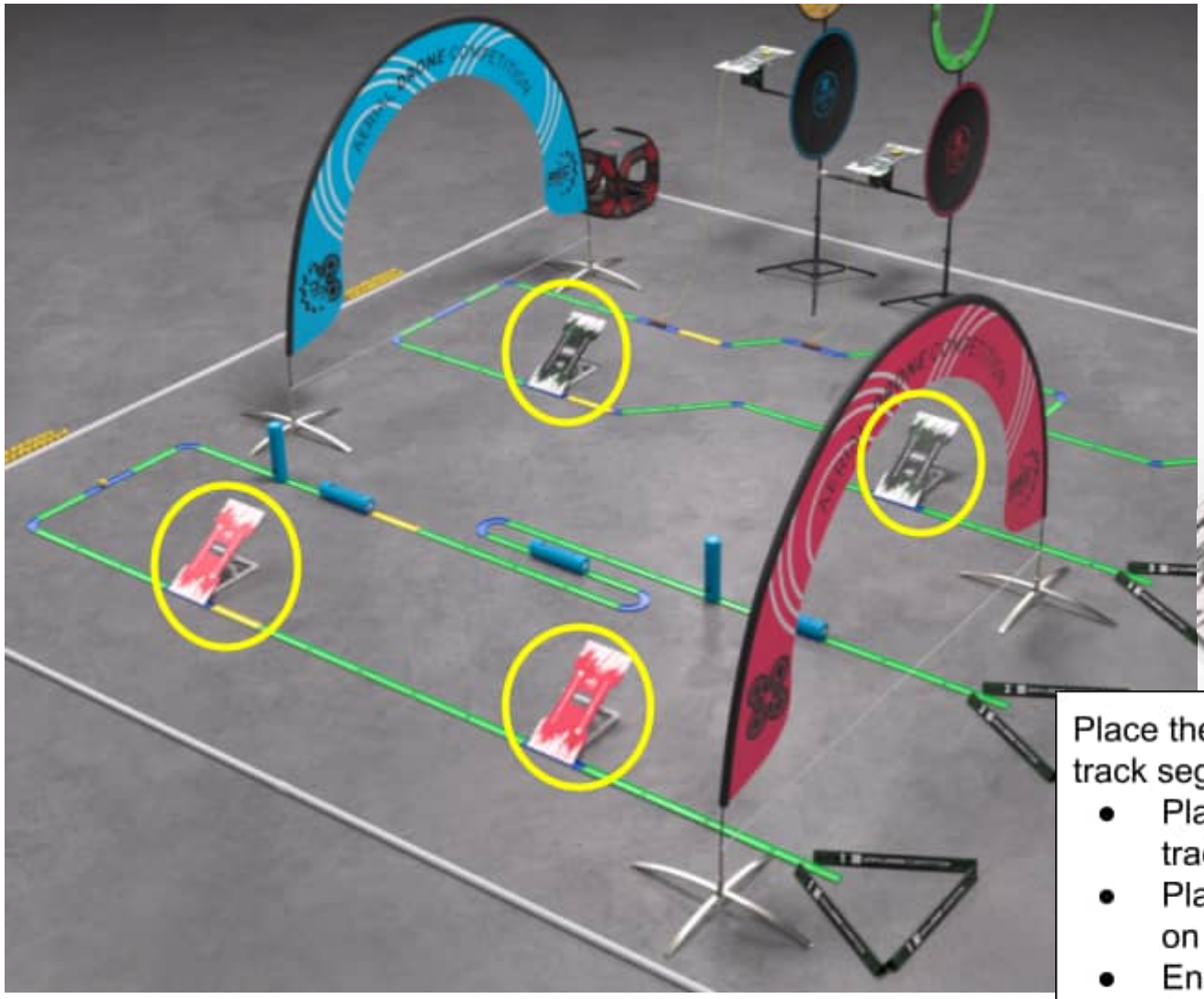
Note: This figure does not reflect changes to the field layout made in the November 10, 2026, update. See sections 5.1 & 5.10 for current details.

Align the arch gates with the 1' marks on the tracks.

- Position the feet of the red arch base along track 1.
- Position the feet of the blue arch base along track 4.
- The tension wire should be 102" long.

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5.3 Alliance Mission Field Setup Step 3: Place the Low Switches





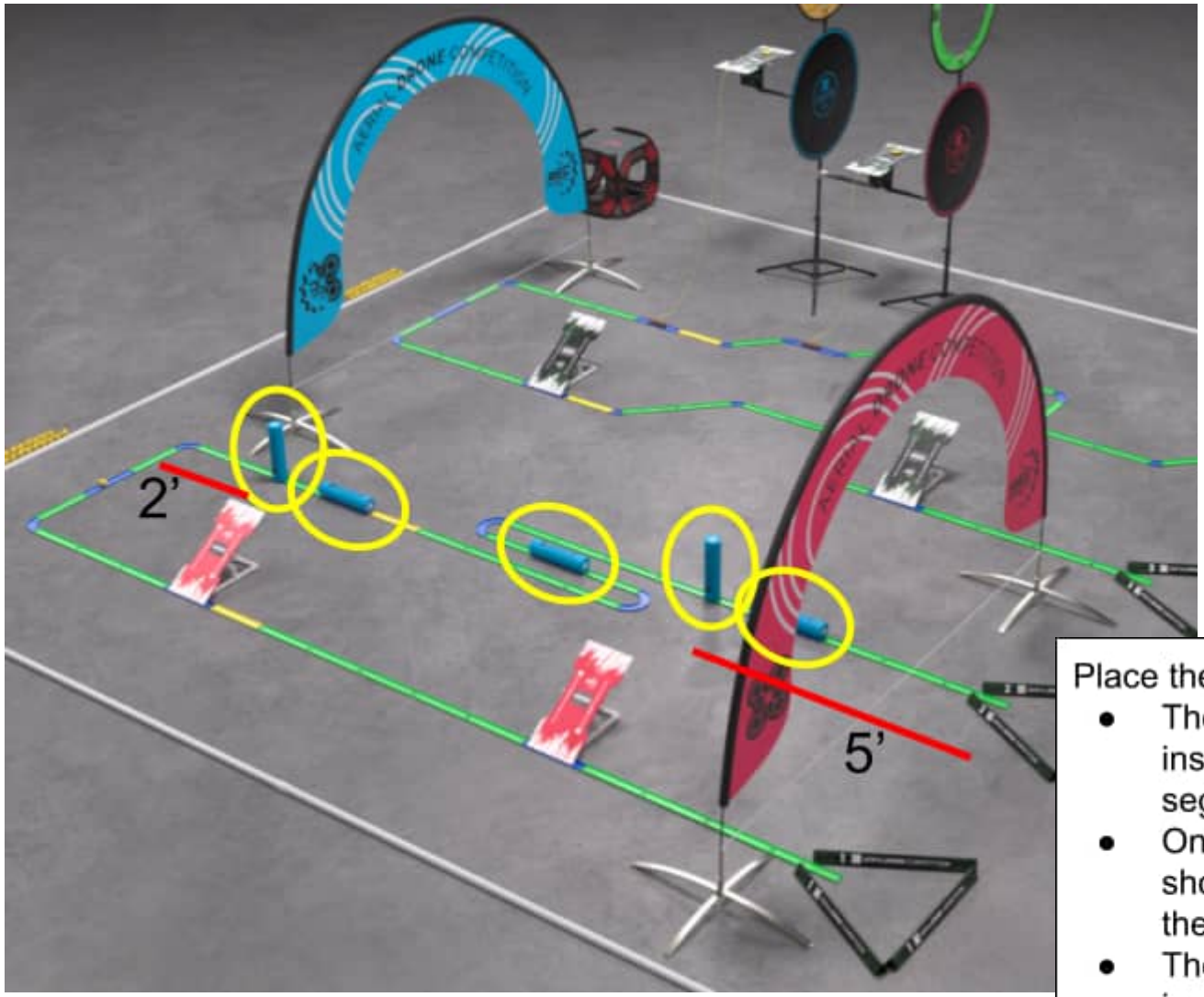
Note: This figure does not reflect changes to the field layout made in the November 10, 2026, update. See sections 5.1 & 5.10 for current details.

Place the low switches at the blue track segments.

- Place the red low switches on track 1.
- Place the black low switches on track 3.
- Ensure the RECF logos on the switches are oriented correctly when the switches are installed on the track.

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5.4 Alliance Mission Field Setup Step 4: Place the Pillars



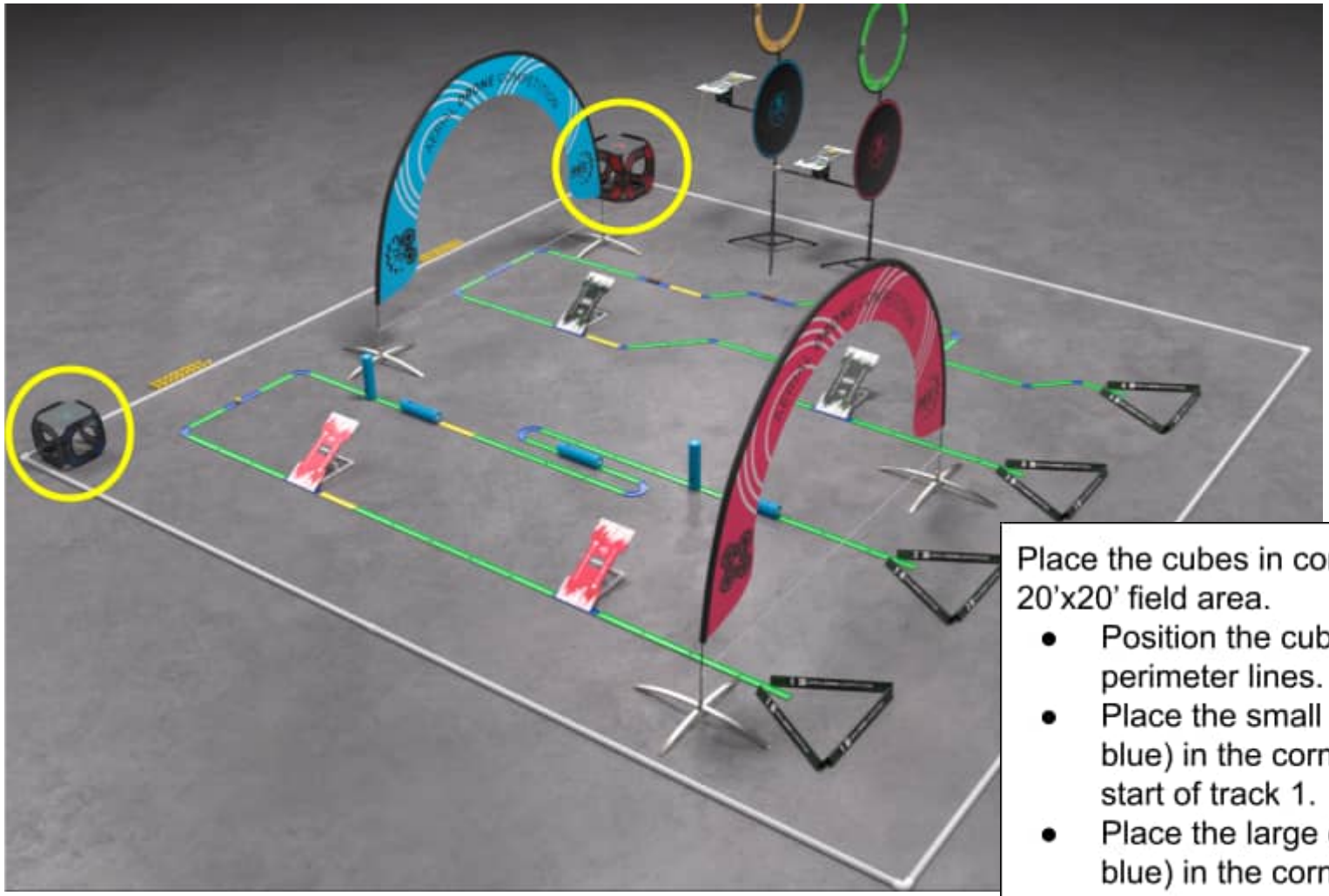
Note: This figure does not reflect changes to the field layout made in the November 10, 2026, update. See sections 5.1 & 5.10 for current details.

Place the pillars on track 2.

- The horizontal pillars (without inserts) rest on blue track segments.
- One vertical pillar (with insert) should stand on the track at the 2’ mark.
- The other vertical pillar (with insert) should stand on the track at a point 5’ from the end of the track.

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5.5 Alliance Mission Field Setup Step 5: Place Cubes



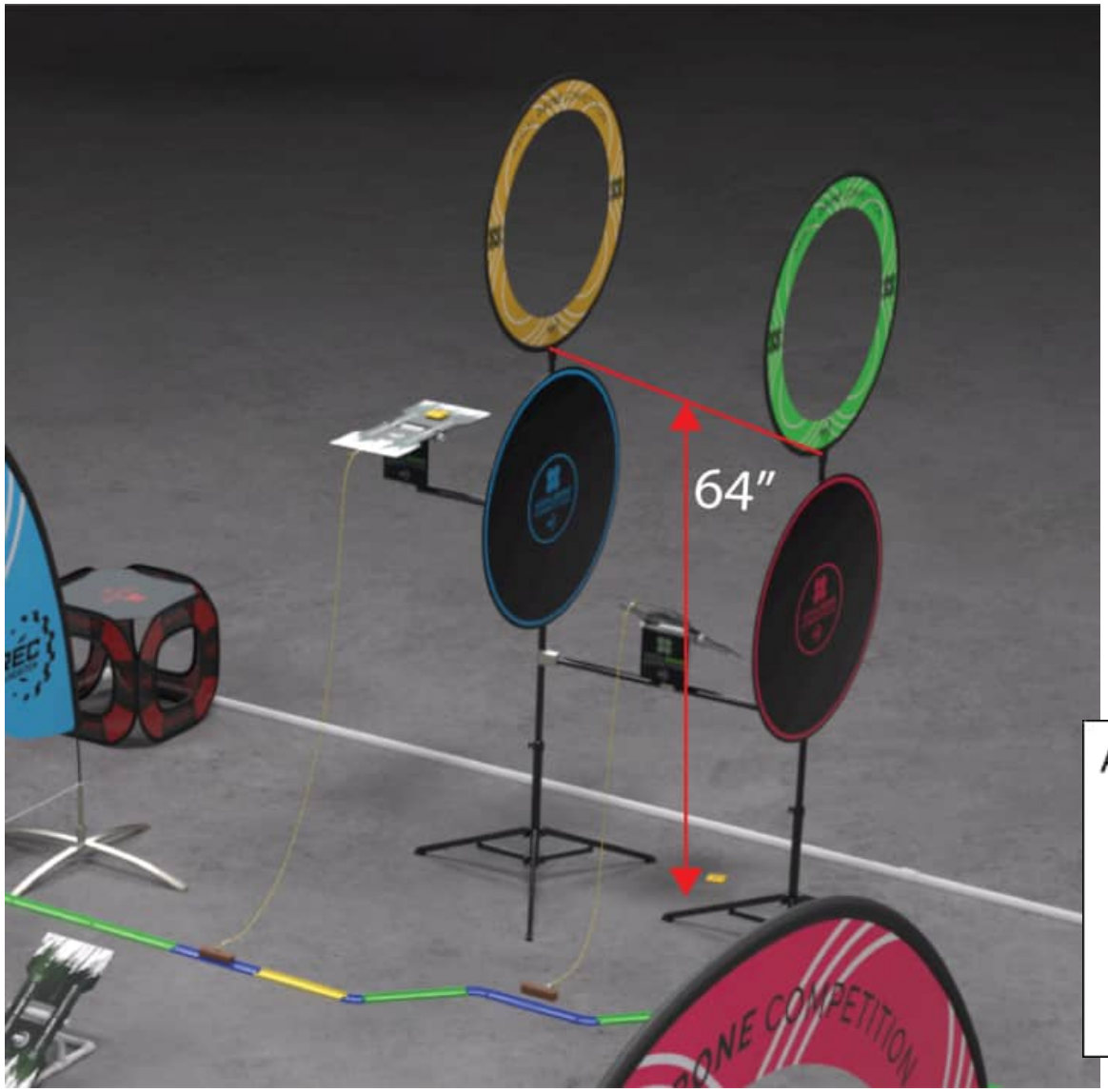
Place the cubes in corners of the 20'x20' field area.

- Position the cubes 3" from the perimeter lines.
- Place the small cube (red or blue) in the corner near the start of track 1.
- Place the large cube (red or blue) in the corner near the start of track 4.

Note: This figure does not reflect changes to the field layout made in the November 10, 2026, update. See sections 5.1 & 5.10 for current details.

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5.6 Alliance Mission Field Setup Step 6: Complete the High Switch Assembly



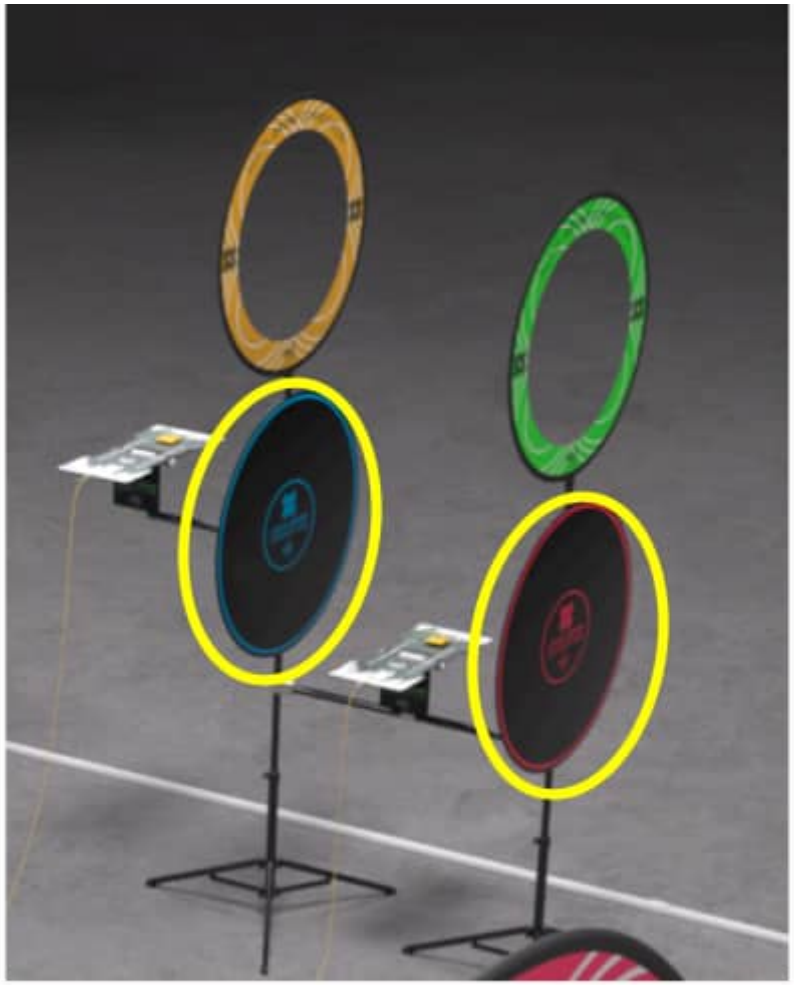
Adjust heights, switches, and wires.

- Adjust keyhole gates so the bottom edge is 64” inches from the floor.
- Adjust the high switches and wires as needed (see sections 3.6 & 3.7).

Note: This figure does not reflect changes to the field layout made in the November 10, 2026, update. See sections 5.1 & 5.10 for current details.

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5.7 Alliance Mission Field Setup Step 7: Attach Landing Pads





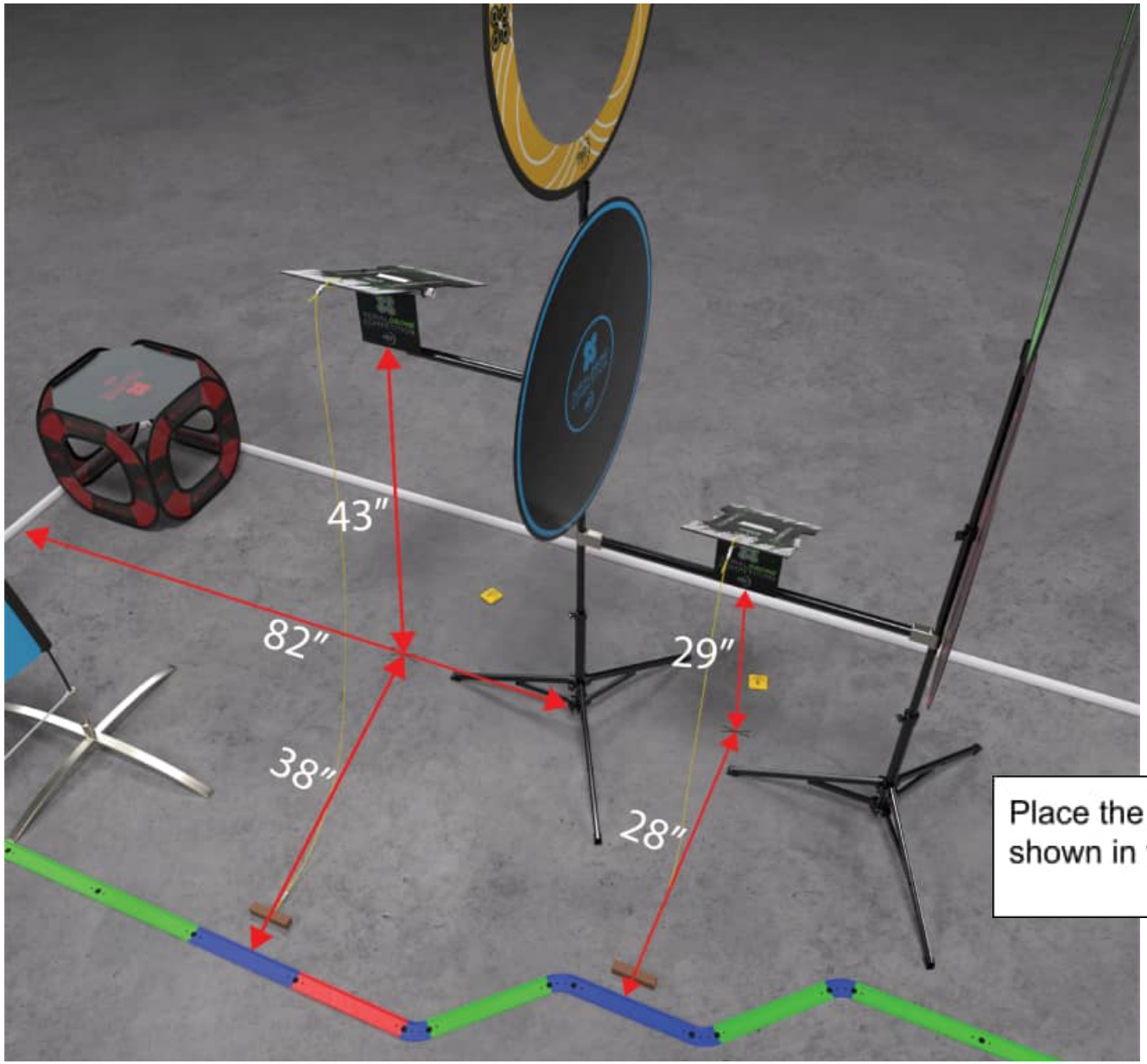


Use zip ties to attach landing pads.

- Run a zip tie through the loop of a landing pad above the bracket that holds a keyhole gate, and tighten.
- The top of the landing pad should be 1-2” below the bottom of the keyhole gate.

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5.8 Alliance Mission Field Setup Step 8: Place the High Switch Assembly

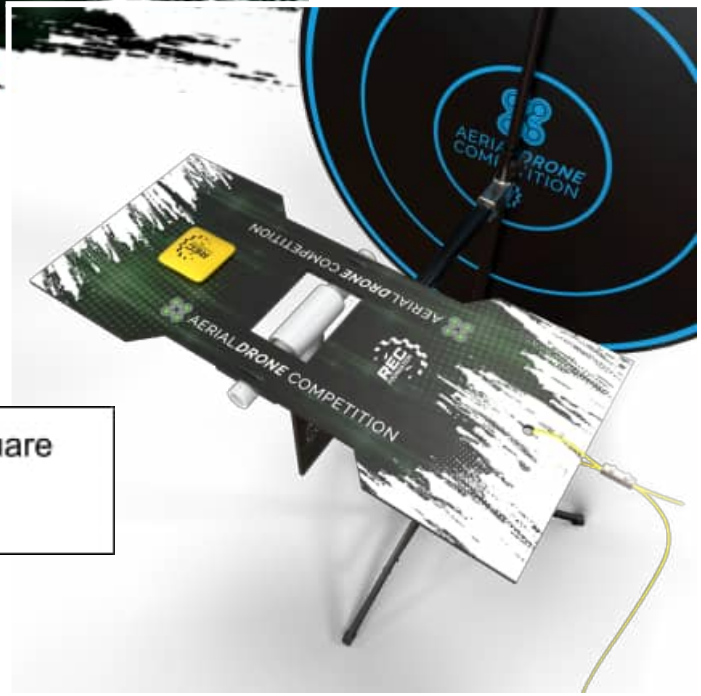


Place the high switch assembly as shown in the image on the left.

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5.9 Alliance Mission Field Setup Step 9: Place a Bean Bag on each High Switch

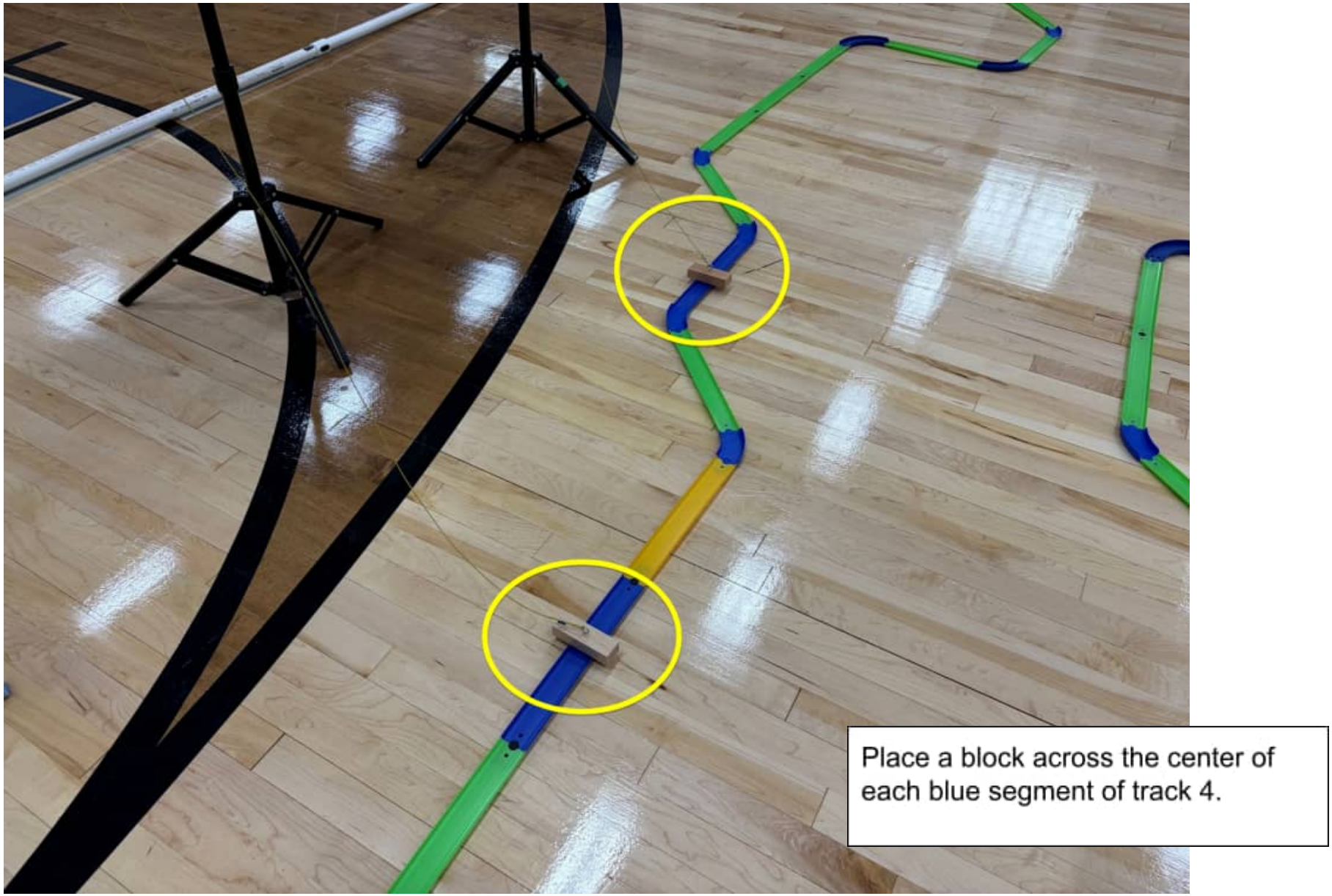




Place a bean bag on the green square marked on the high switch plate.

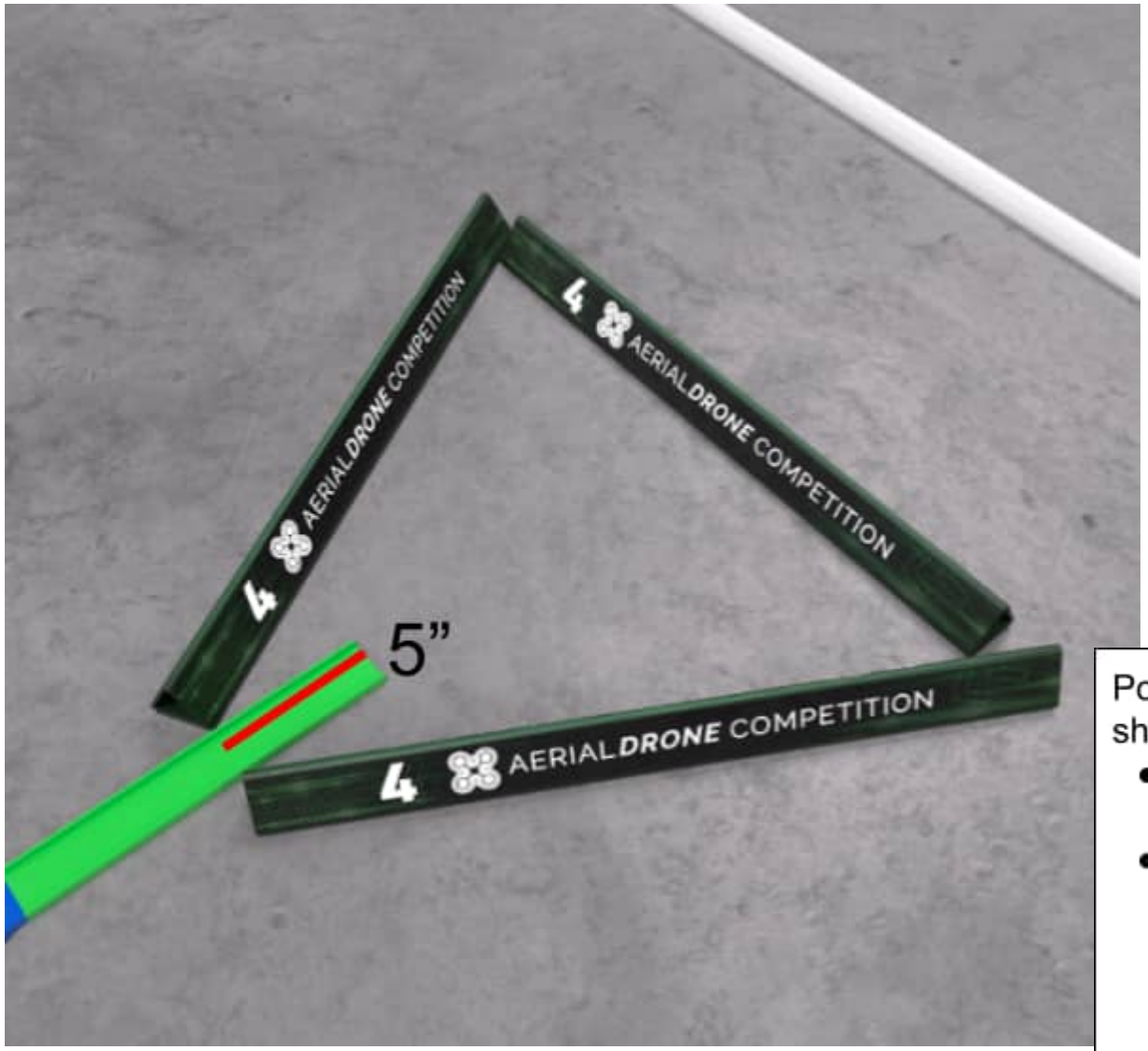
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5.10 Alliance Mission Field Setup Step 10: Place the Blocks on Track 4



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5.11 Alliance Mission Field Setup Step 11: Place the Goals

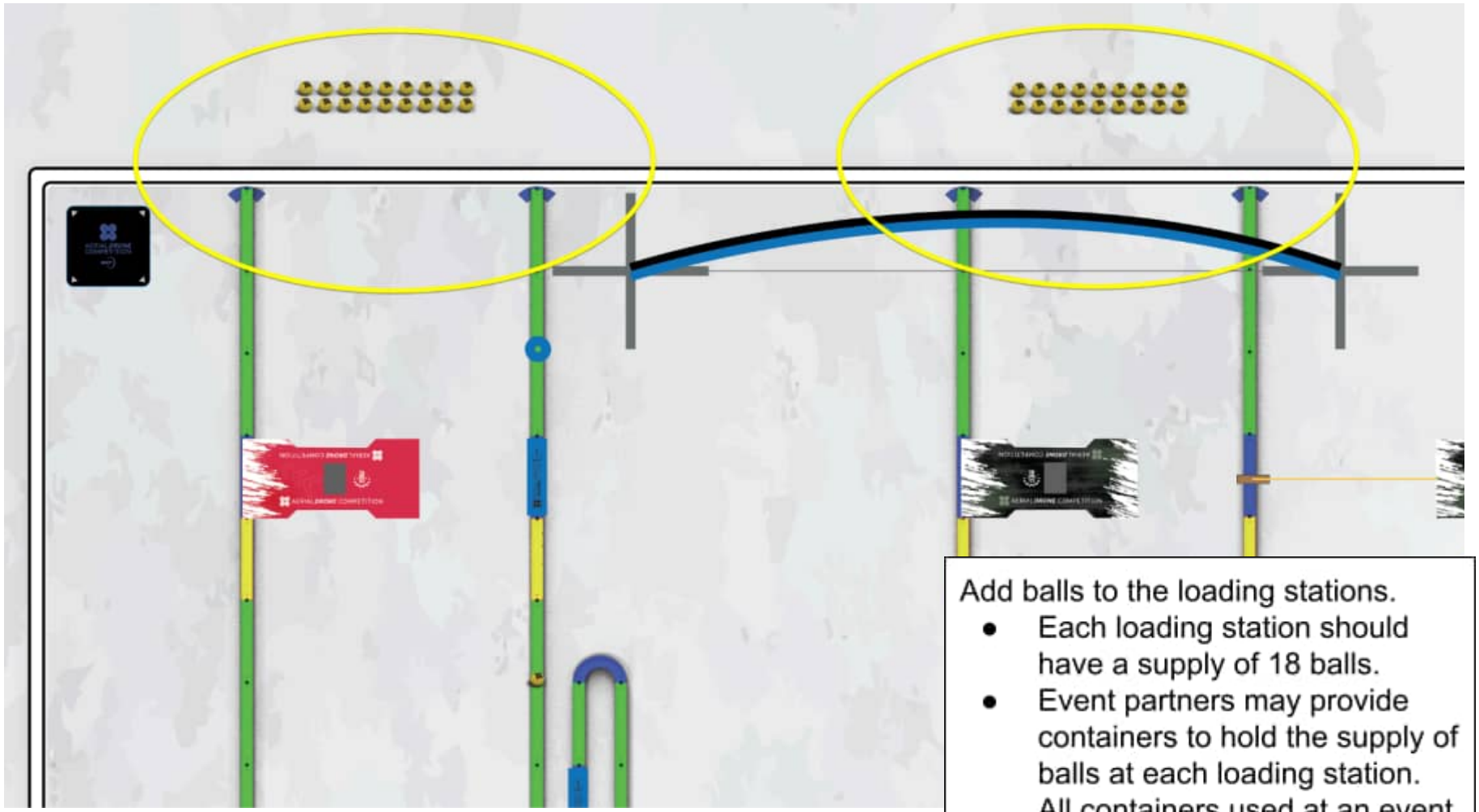


Position three goal segments as shown at the end of each track.

- The track should extend approximately 5” into the goal.
- The track segments and goal are not attached to each other, and simply create an enclosed space for scored balls in a way that allows for easy setup and storage.

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5.12 Alliance Mission Field Setup Step 12: Add Balls to the Loading Stations



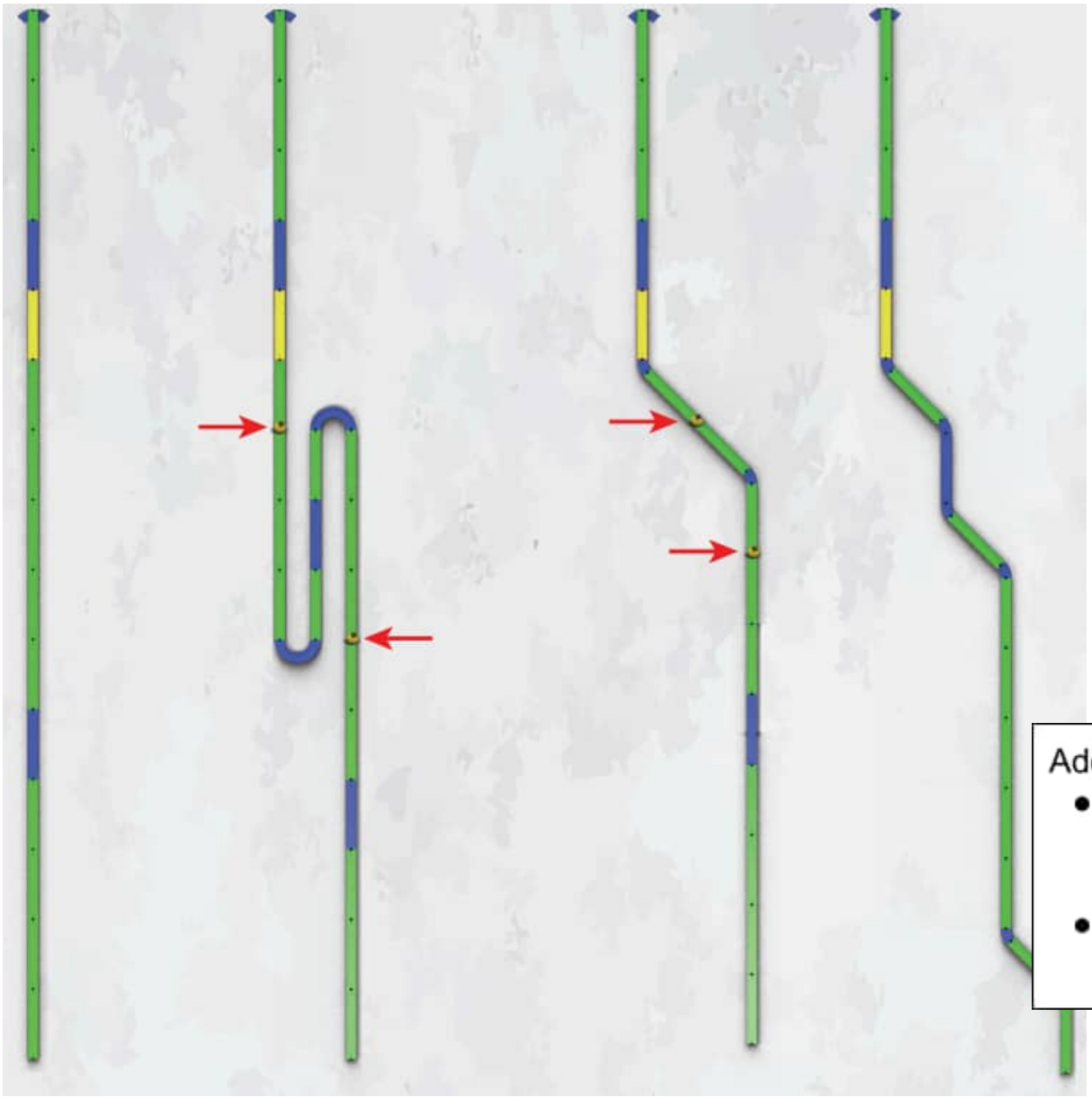
Add balls to the loading stations.

- Each loading station should have a supply of 18 balls.
- Event partners may provide containers to hold the supply of balls at each loading station. All containers used at an event must be identical in size and shape across all loading stations at that event.

Note: This figure does not reflect changes to the field layout made in the November 10, 2026, update. See sections 5.1 & 5.10 for current details.

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5.13 Alliance Mission Field Setup Step 13: Add Balls to Tracks 2 & 3



Add balls to tracks 2 & 3.

- Tracks 2 & 3 each begin with two balls in predetermined positions for each match.
- Balls should be placed on the track sections as illustrated.

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