

Designing a  
**Holistic  
Environment for  
Athletic  
Performance:**

**Athletics Canada High  
Performance Training  
Center**



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(Krzic, 2016)

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# Global Sports Industry Revenue

2022 —→ \$487 billion

2027 —→ >\$600 billion

(Gough, 2023)



(Ryan, 2013)



**“The whole idea is  
to get an edge.  
Sometimes it  
takes just a little  
extra something  
to get that edge,  
but you have to  
have it.”**

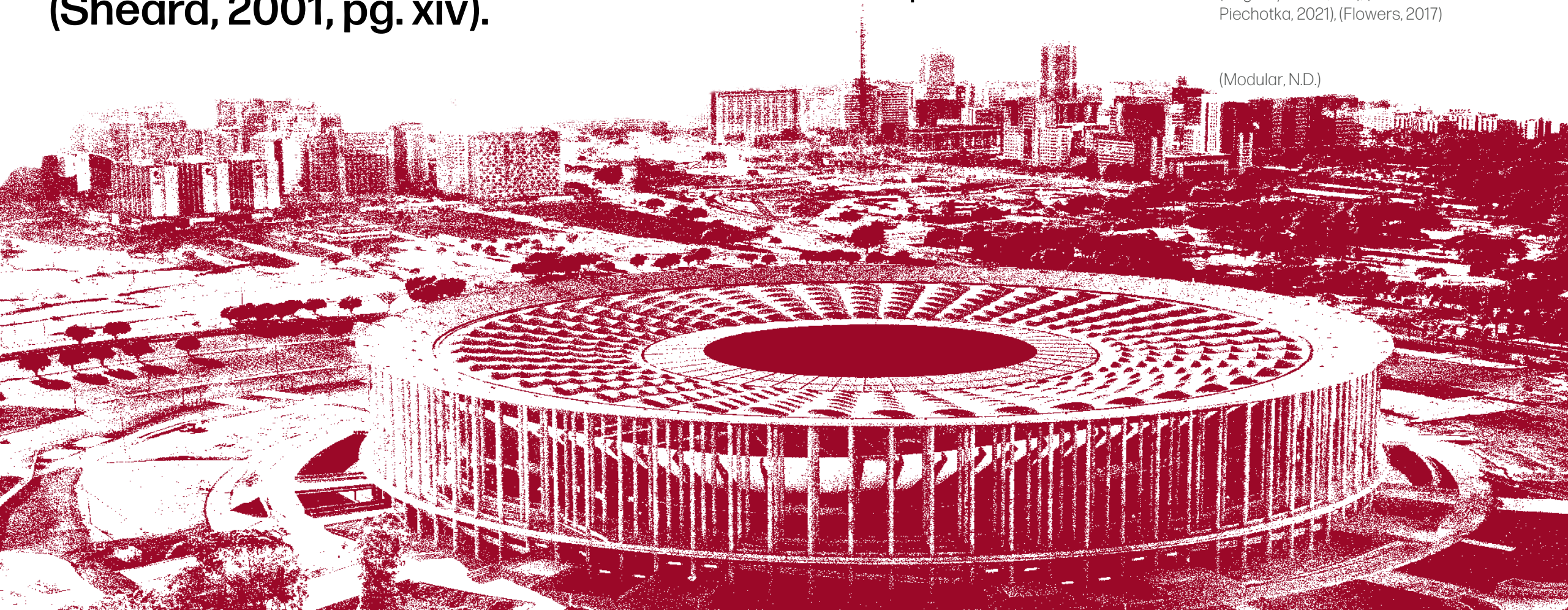
**-Don Shula, NFL Hall of Fame Coach**

**“there is no building type so powerfully able to touch the hearts and minds of the ‘common man’”  
(Sheard, 2001, pg. xiv).**

- Building type seen as far back as 80 CE
- Form took shape so that spectators can view competition
- Limited research regarding the rich relationship between sports and architecture
- Focus on the spectator and owner user group, where the athletes’ needs are pushed aside

(Augustyn et al., n.d.), (Pawlikowska-Piechotka, 2021), (Flowers, 2017)

(Modular, N.D.)



# Sports Performance

- “An adoption of a holistic perspective” is required to be fully knowledgeable
- Stress is highly correlated with athletic burnout
- How an athlete responds to stress can determine their likelihood of physical injury
- Intrinsic motivation is desired in an athlete
- Tasks that fulfill desires of “competence, autonomy, and relatedness” can help intrinsic motivation
- Athletes have been praised for not letting pain interfere with reaching their goals
- Mindfulness can help athletes enter flow state, harbors a good mindset, deters psychological issues, and lessens the likelihood of physical injury

(Gomes et al., 2020), (Li et al., 2013), (Appaneal et al., 2014), (Hollembek & Amorose, 2005), (Schinke et al., 2018), (Anderson et al., 2021), (Nippert & Smith, 2008).

# Design's Effect on the User

- High levels of luminance and natural light with lighter colors and visibility of external landmarks reduced stress
- Light reduces stress and pain while improving visual accuracy and balancing circadian rhythm
- Views of nature and indoor plants reduced pain, anxiety and stress
- Colors can induce certain physical and psychological reactions
- Materials can also have similar effects as colors
- Design following Traditional Japanese, biophilic design and Buddhist contemplative space standards are related to mindfulness

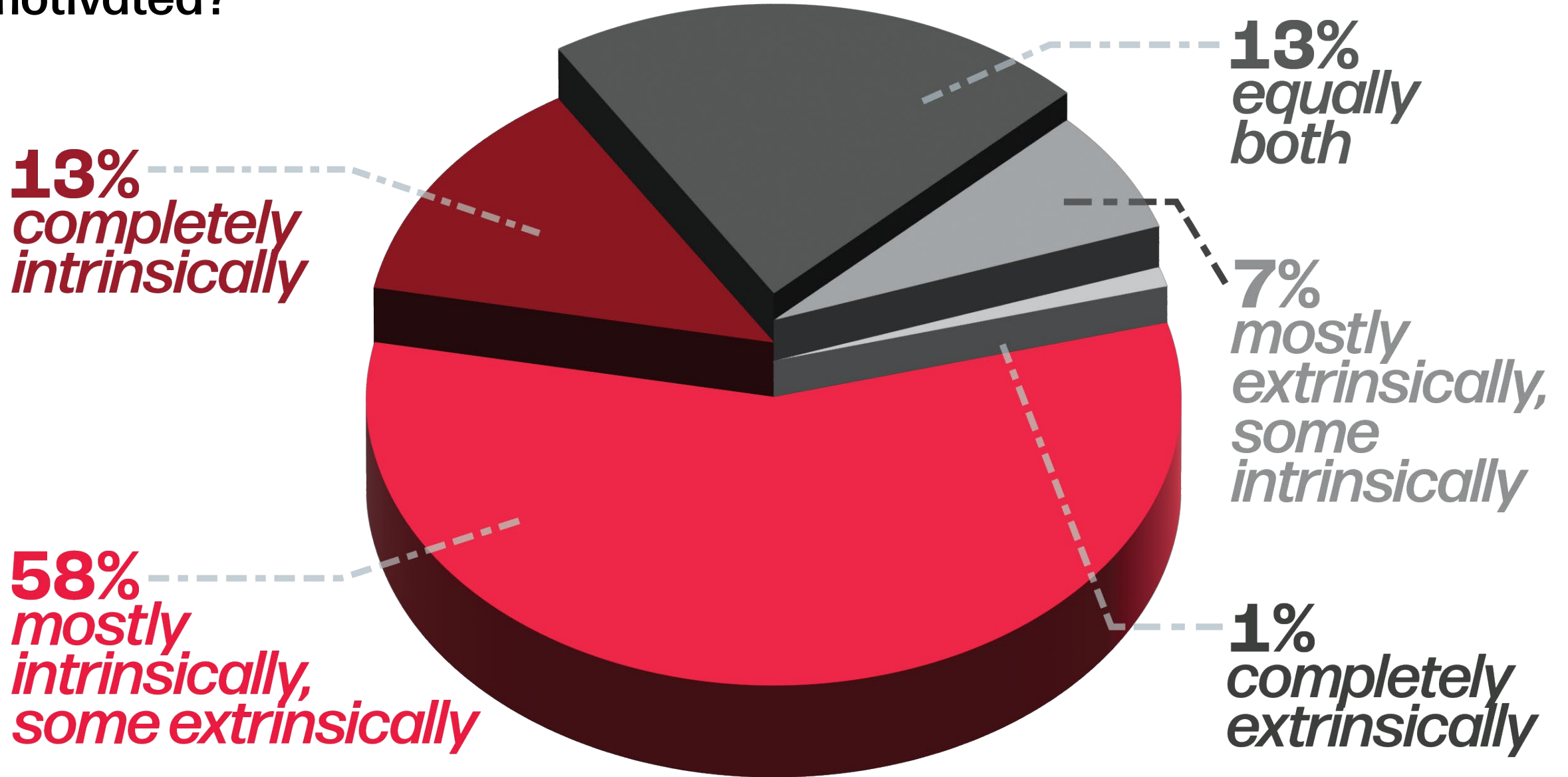
(Ergan et al., 2019), (Connellan et al., 2013), (Ulrich et al., 2008), (Ramadan & Kamel Ahmed, 2019), (Thampanichwat et al., 2023).

# Sports Represented in Survey

A word cloud of sports represented in a survey. The words are arranged in a non-uniform, overlapping layout. The largest word is 'cross country' in red. Other large words include 'baseball', 'volleyball', 'track & field', 'soccer', and 'softball'. Smaller words include 'golf', 'field hockey', 'basketball', 'archery', 'cheer', 'rowing', 'diving', 'lacrosse', 'hockey', 'football', and 'wrestling'. The colors used are red, dark red, black, and grey.

baseball cross country  
golf field hockey  
volleyball archery basketball  
track & field cheer  
diving lacrosse hockey rowing  
softball football soccer cheer wrestling

Would you describe yourself as more intrinsically or extrinsically motivated?



List one or more intrinsic motivation you have

**competitiveness**

being apart  
of something

pride self-worth **health benefits**

love being  
an athlete

**personal**

sense of  
belonging

staying  
busy

**achievement**

religion

inner youth

fear of

**enjoyment**

something  
to prove

disappointment

winning

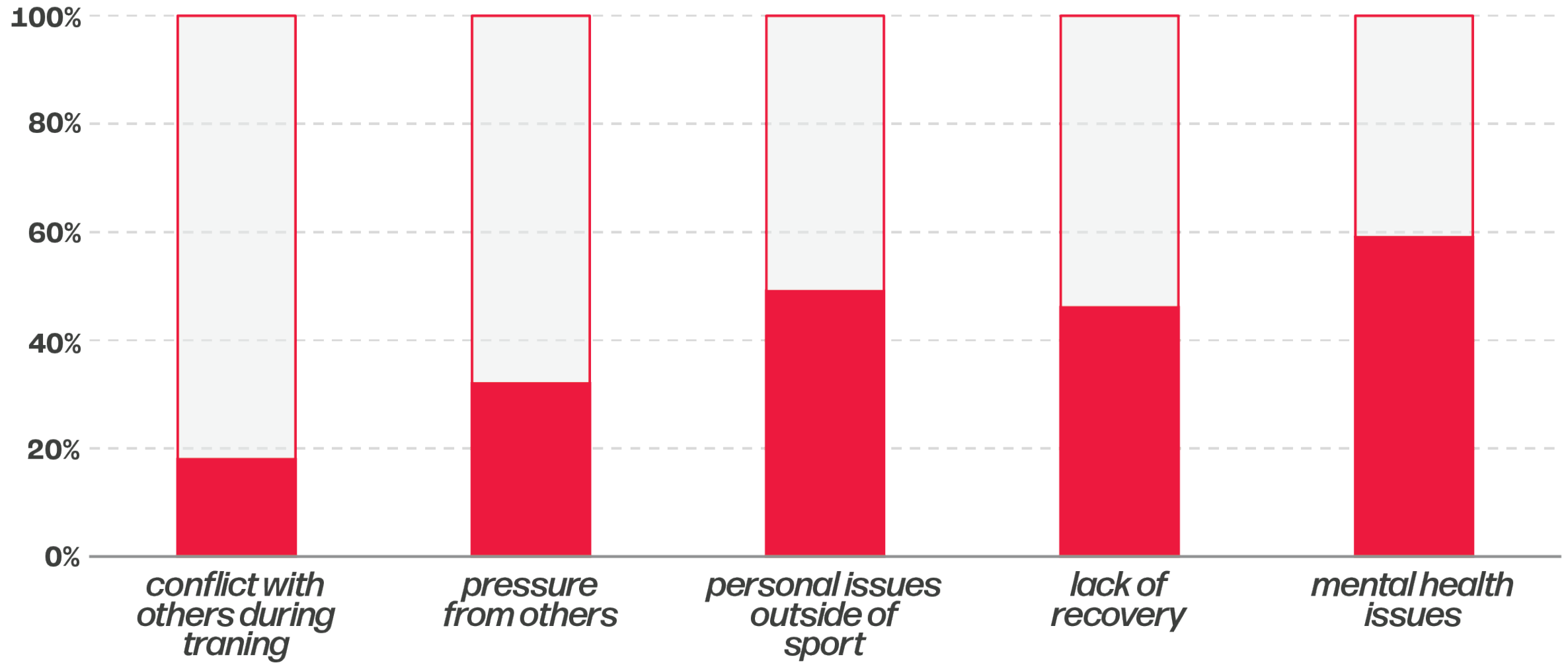
**opportunity**



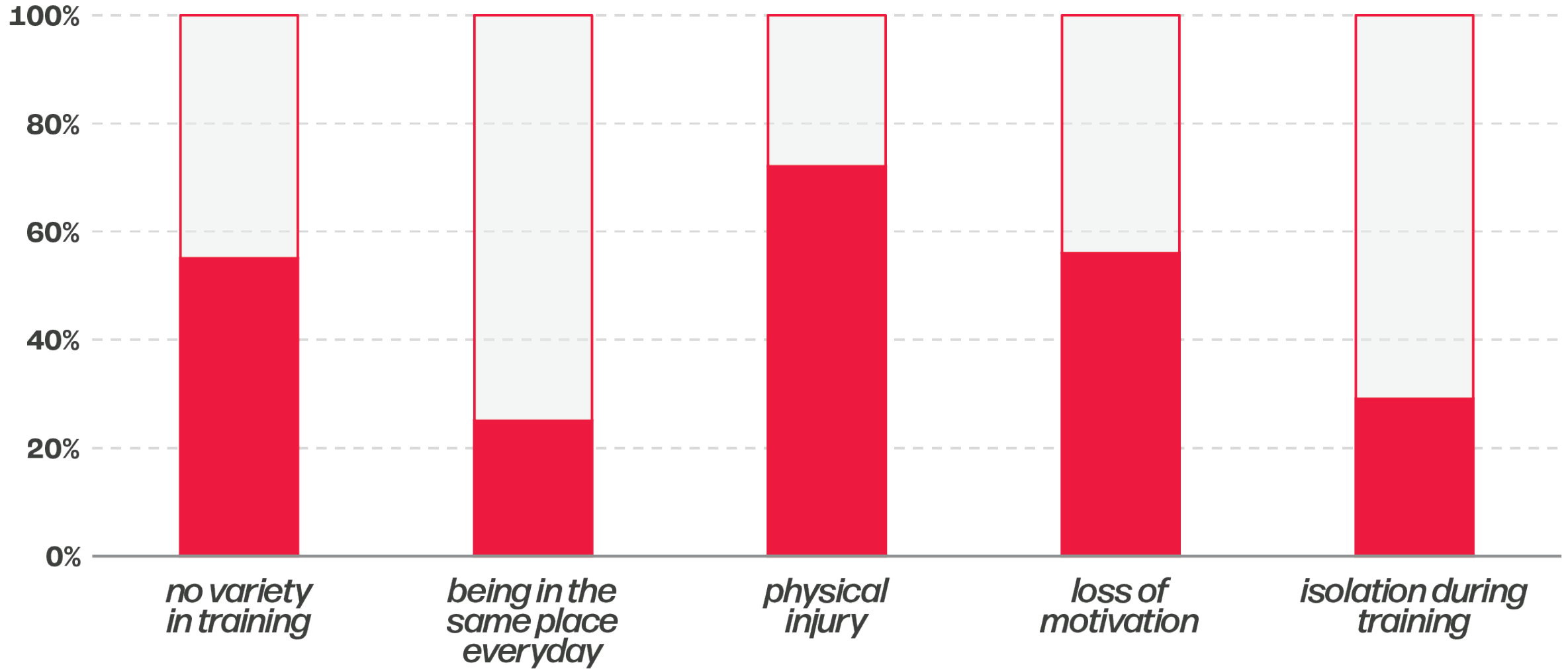
# When you are not motivated, what do you depend on to complete your training?



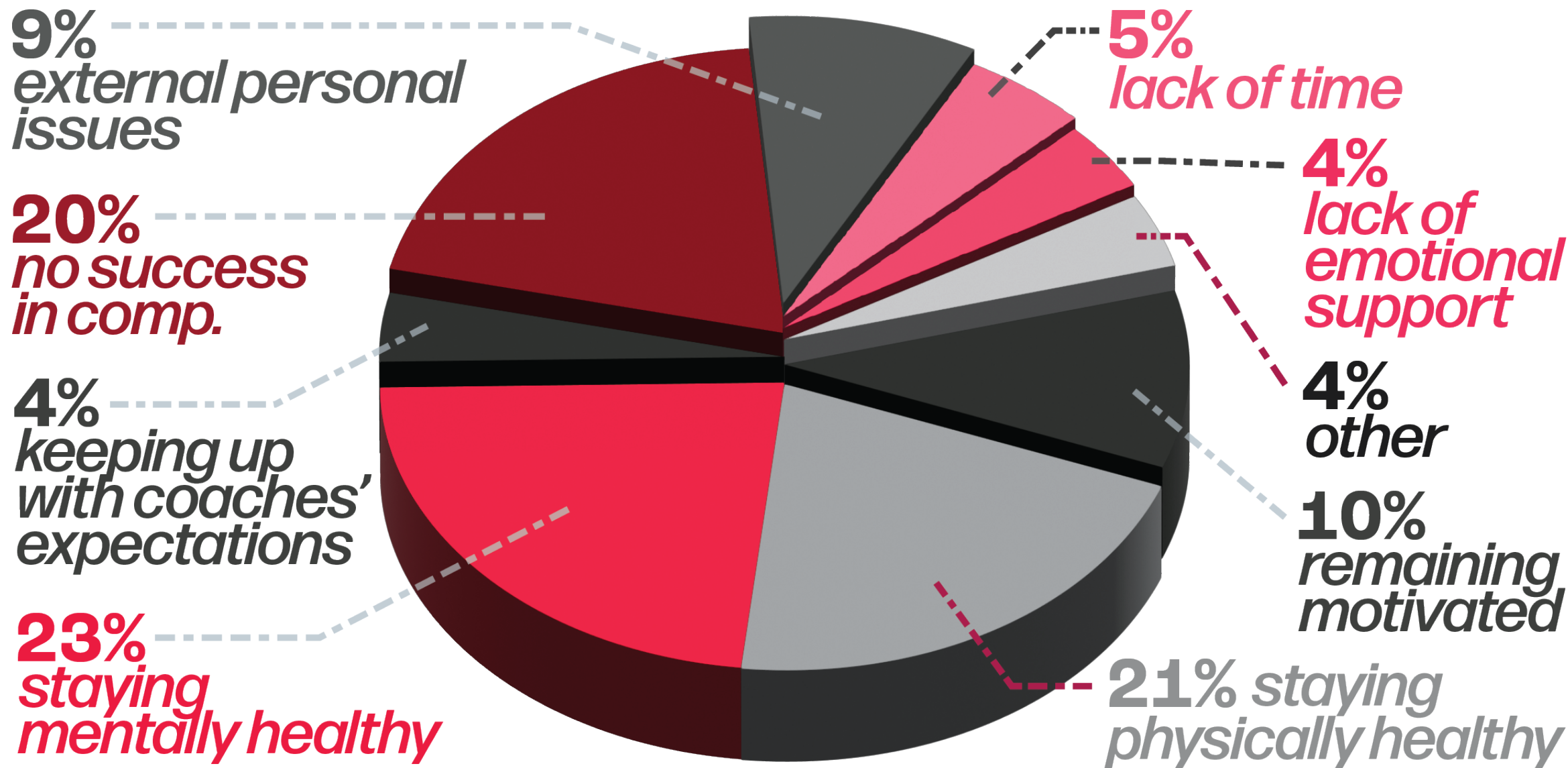
# What causes you to burnout from training?



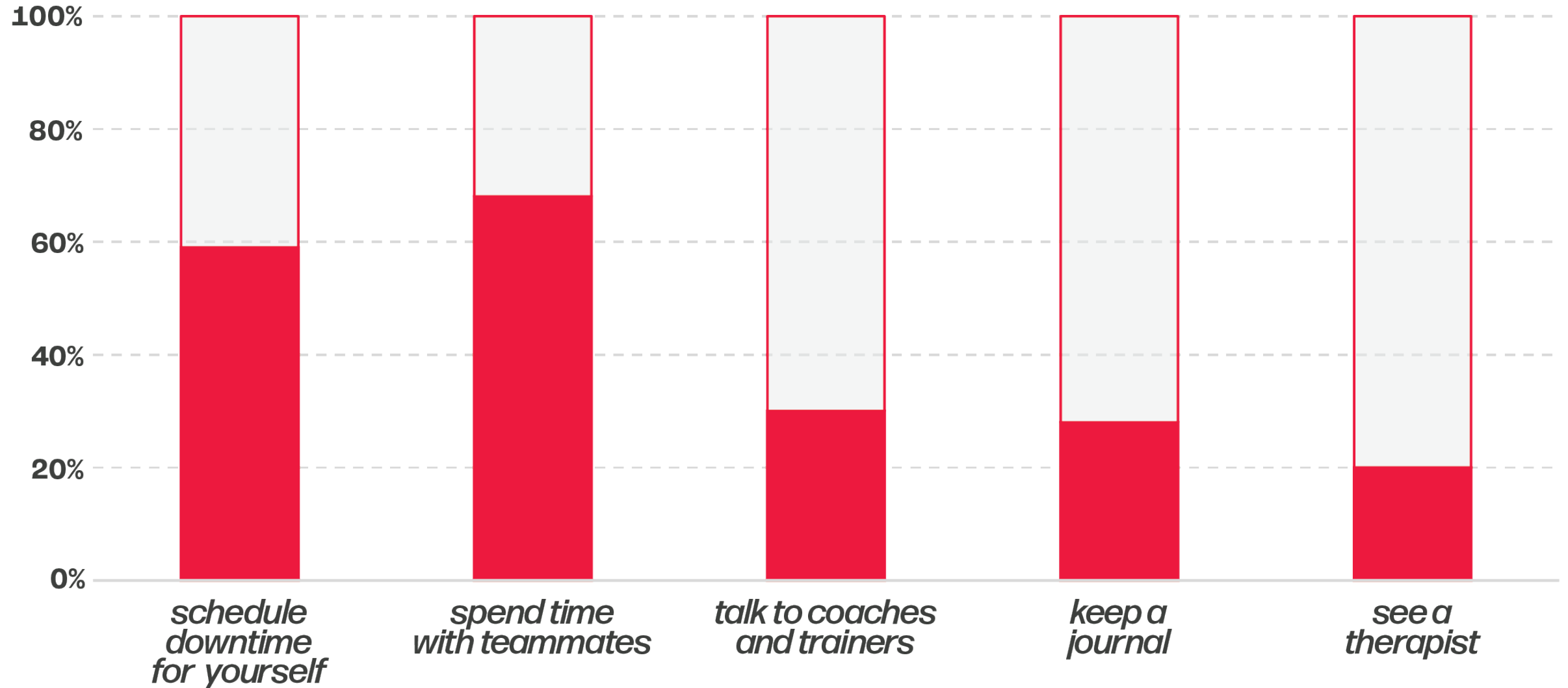
# What causes you to burnout from training? Continued.



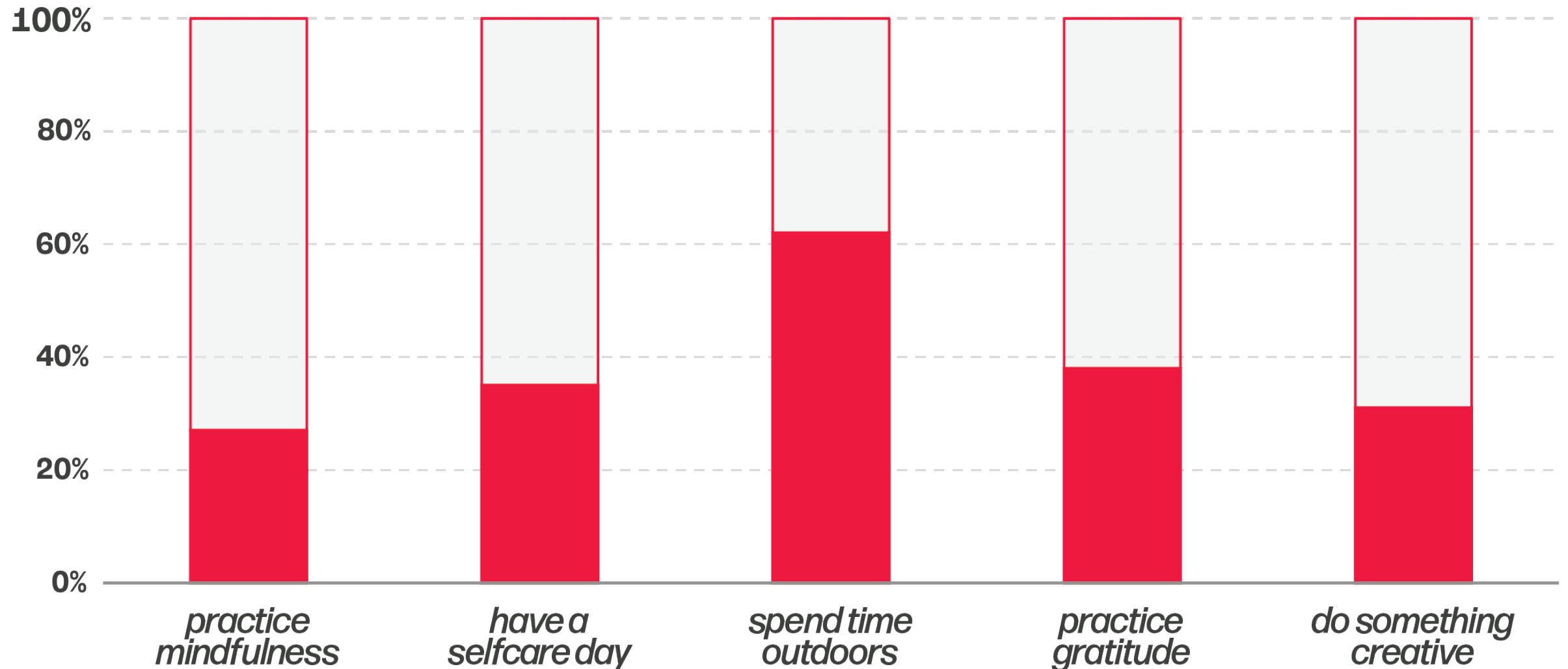
# What is your greatest obstacle when it comes to training successfully?



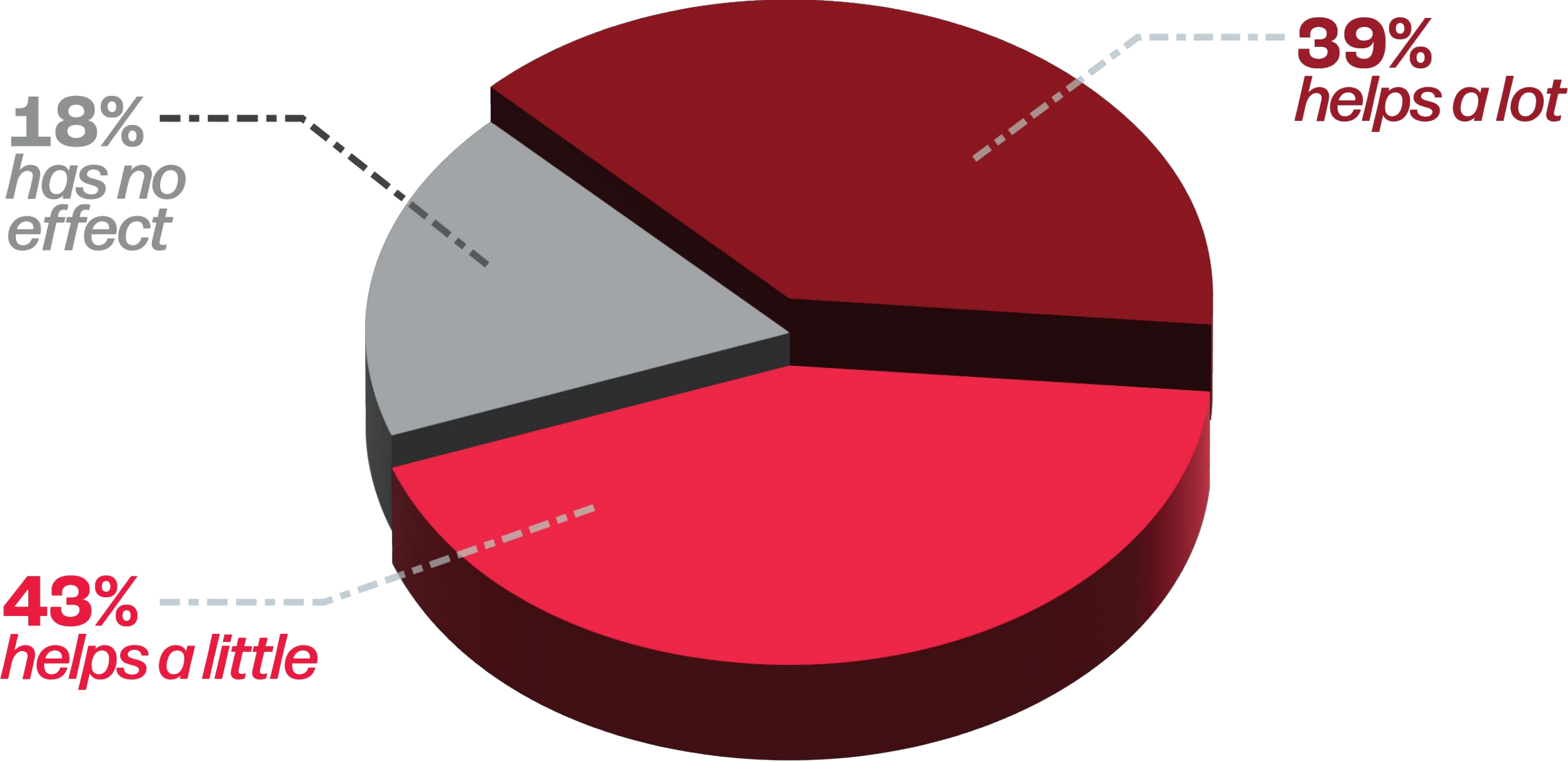
# What do you do to take care of your mental health as an athlete?



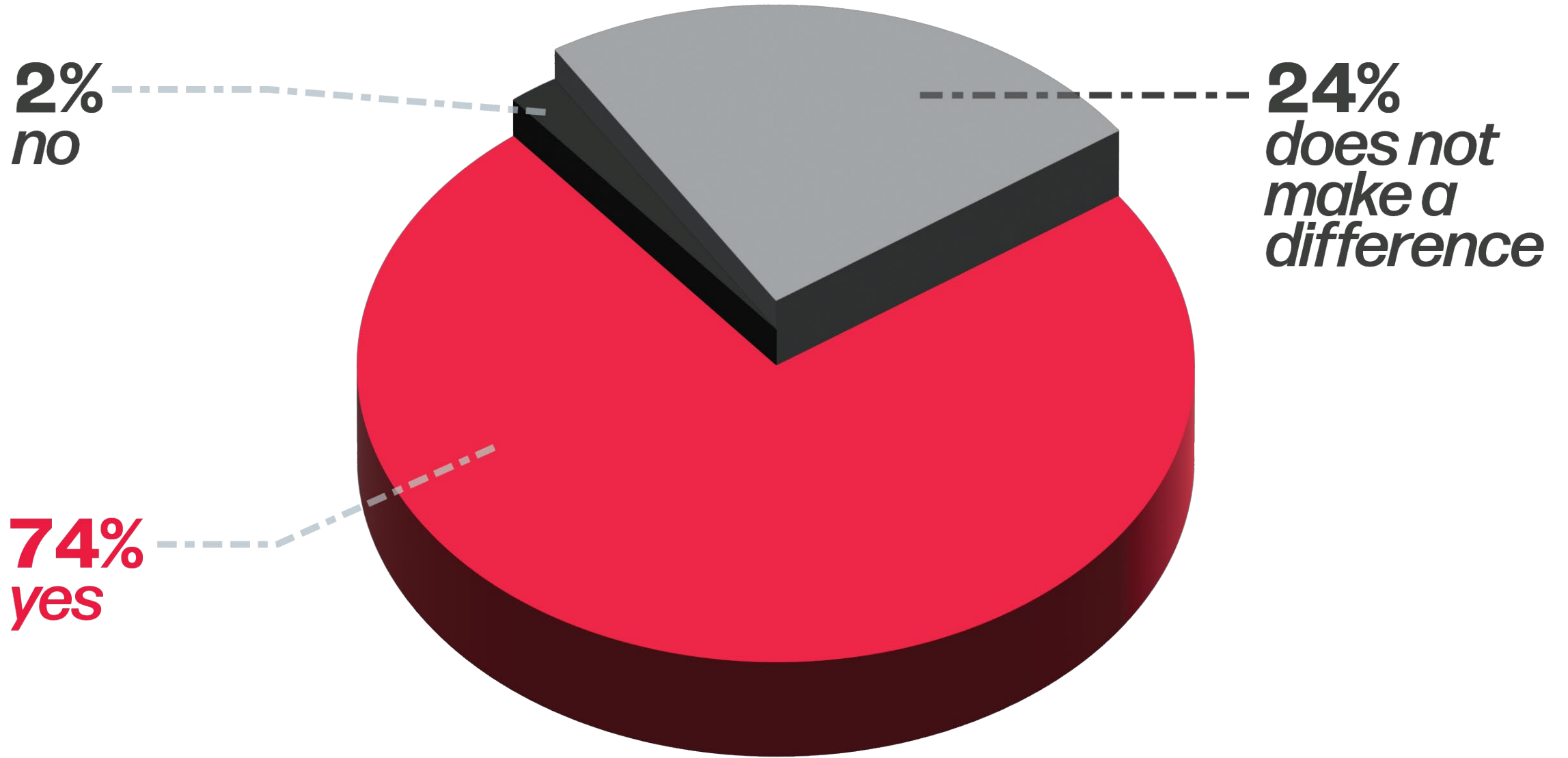
# What do you do to take care of your mental health as an athlete? Continued.



# Does having a choice in your training help you stay motivated?

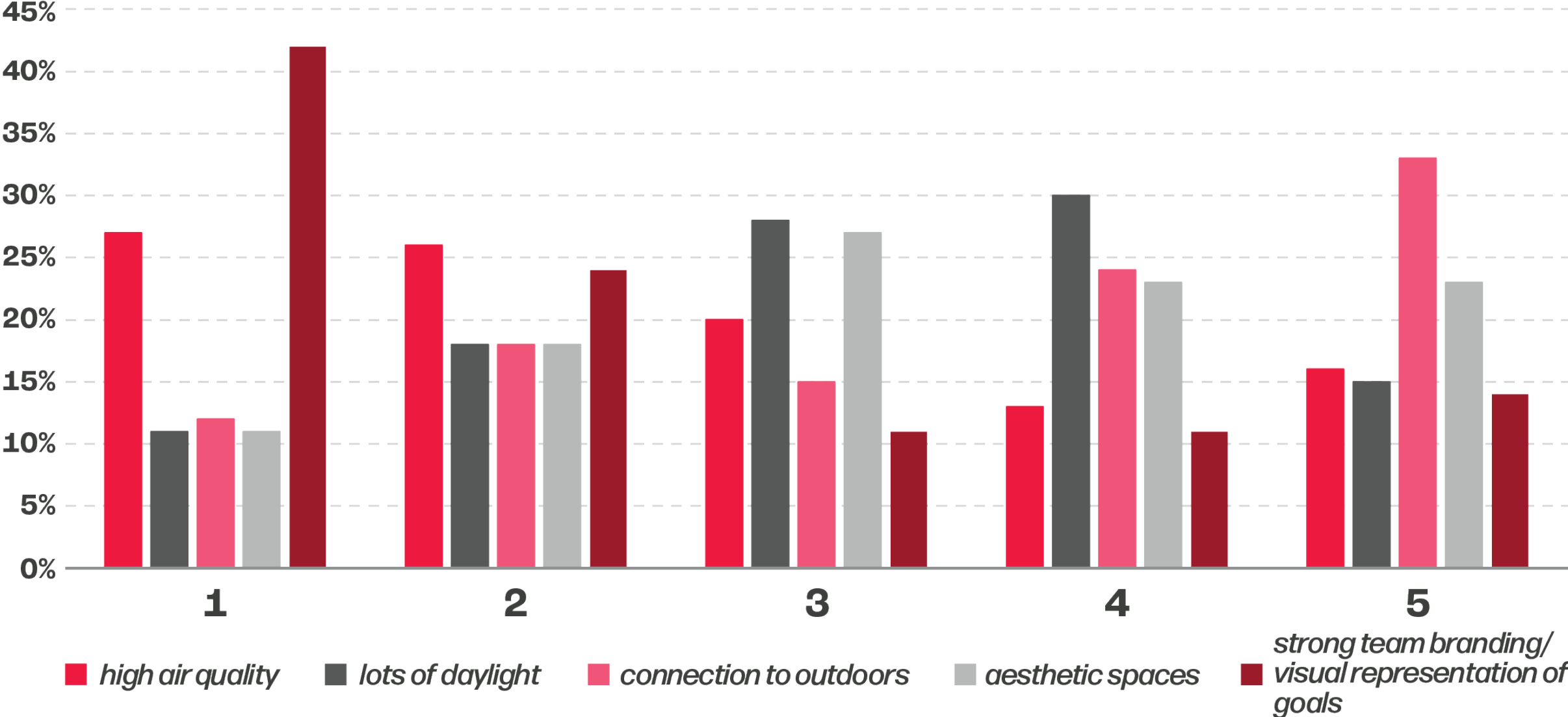


# Is a change of scenery, environment or location helpful in avoiding burnout?

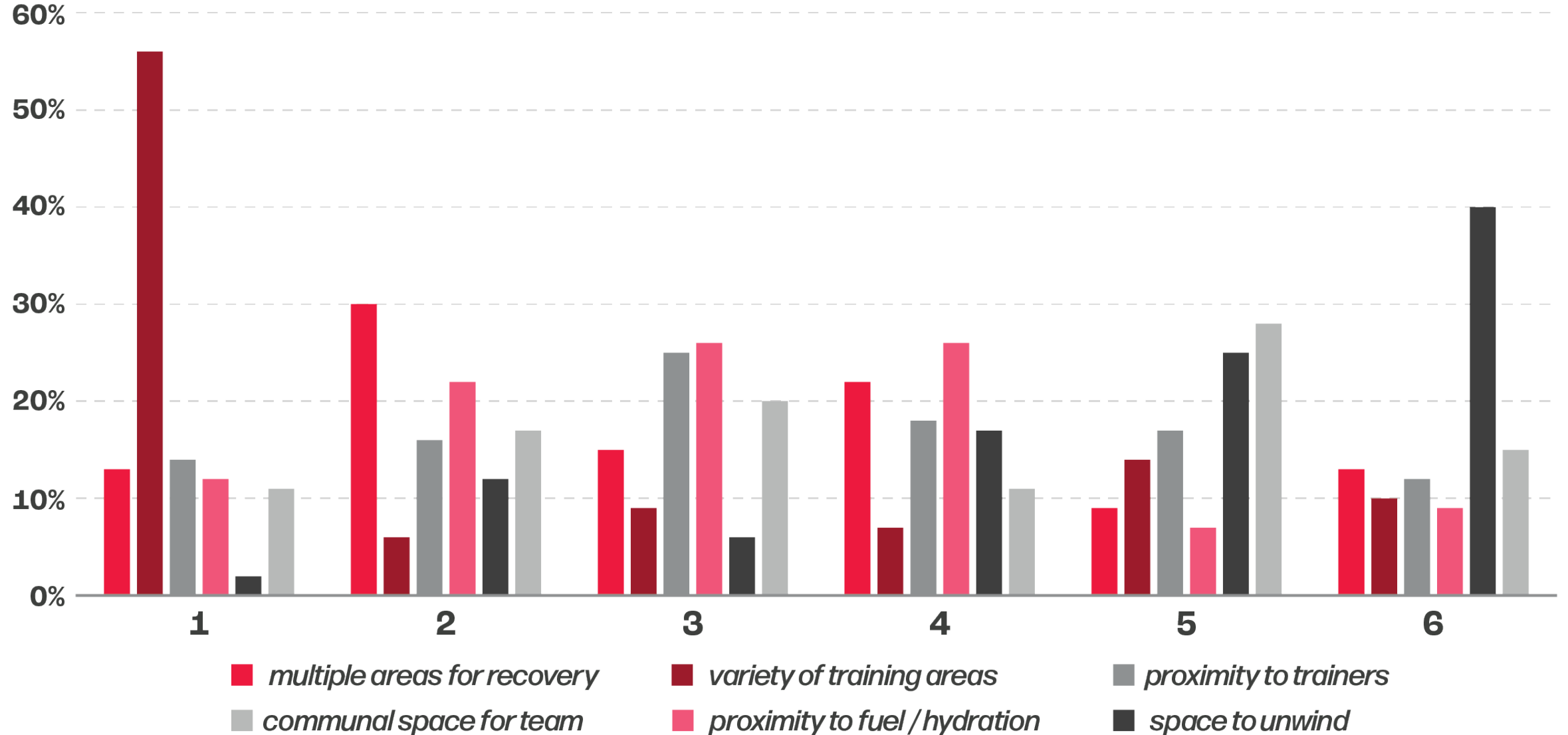




# Which of these items are most important in a high-quality training facility?



# Which of these items are most important in a high-quality training facility?



# Design Protocol for a Holistic Environment for Athletic Performance

## Goals:

- Reduce stress to reduce chance of injury and mental illness
- Decrease likelihood of burnout
- Promote mindfulness
- Design with athlete and purpose of spaces in mind



*multiple of areas for training*



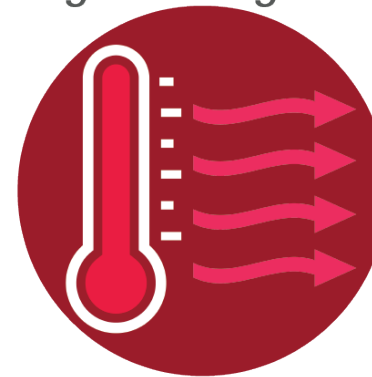
*team branding and goal visualization*



*natural light*



*connection to nature*



*high air quality and temp. control*



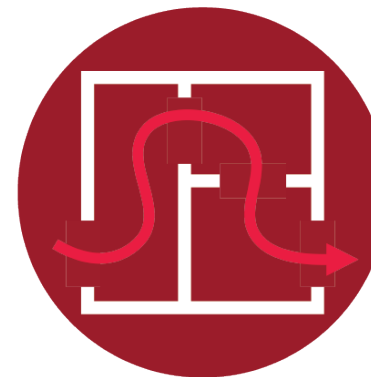
*designated area for mental training*



*communal spaces*



*healthy materials and surfaces*



*intentional layouts*



*intentional use of colors and materials*

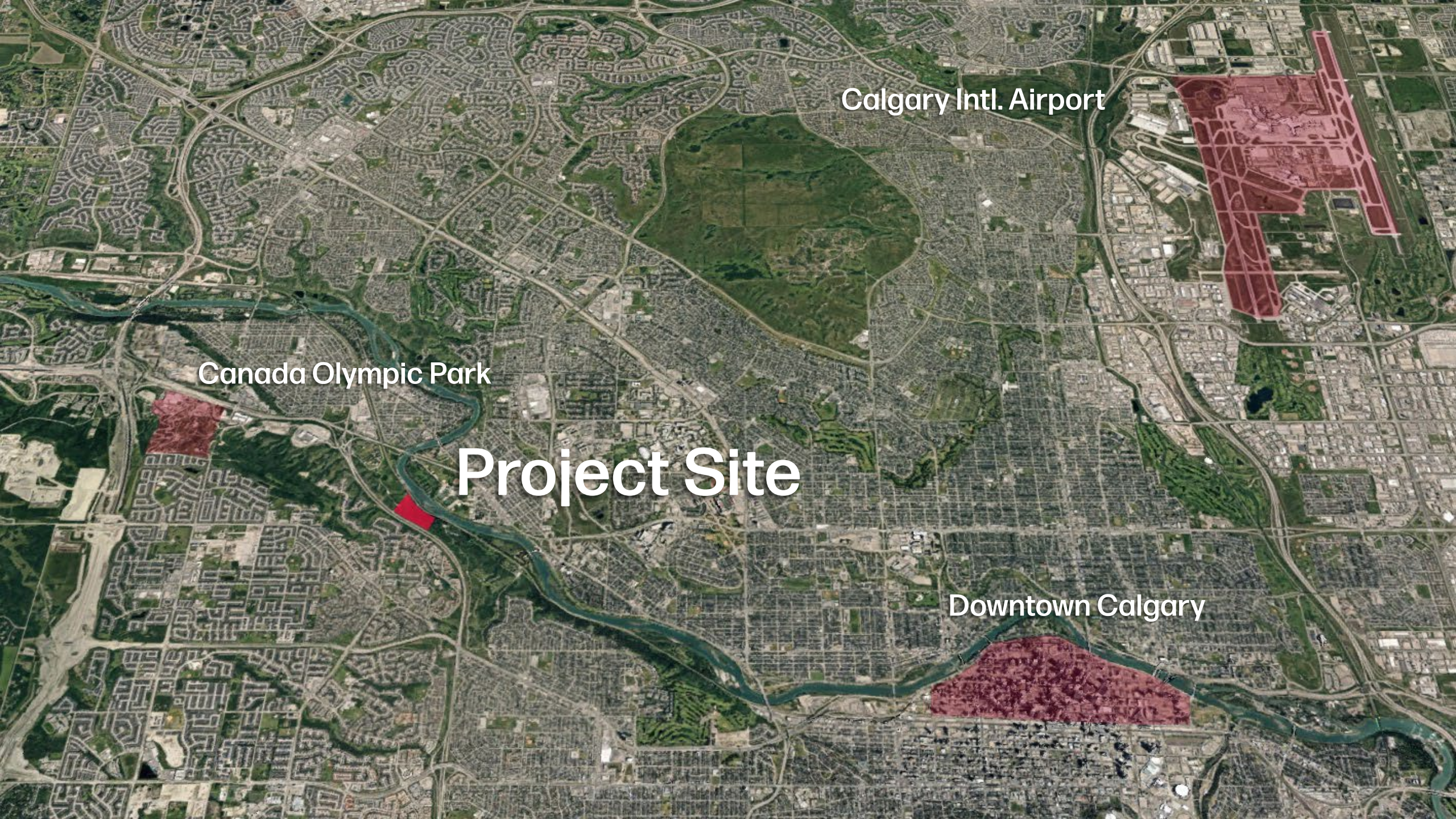
# Athletics Canada High Performance Training Center



Year-round, indoor track and field training facility for Athletics Canada

Program Elements:

- Tracks: 200m and 300m
- Training spaces for all field events
- Additional training spaces: weight rooms, aquatics training, performance lab, altitude rooms
- Athlete support spaces: athletic training area, recovery areas, mental wellness area, communal spaces
- Administrative areas for Athletics Canada and coaches
- Additional support spaces for sports facility and to host competitions



Calgary Intl. Airport

Canada Olympic Park

Project Site

Downtown Calgary

Bird's Eye - SW



Bird's Eye - SE

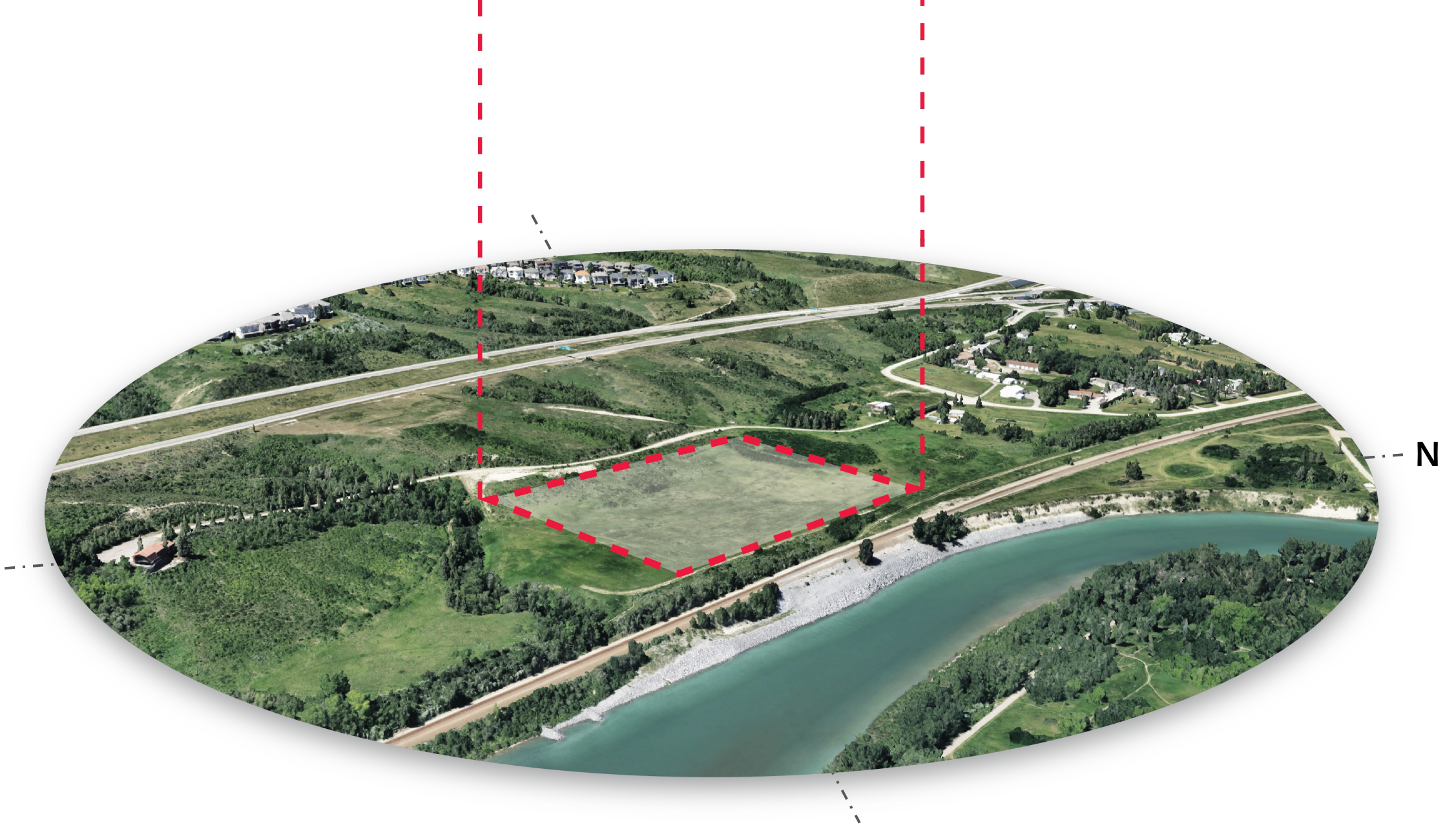


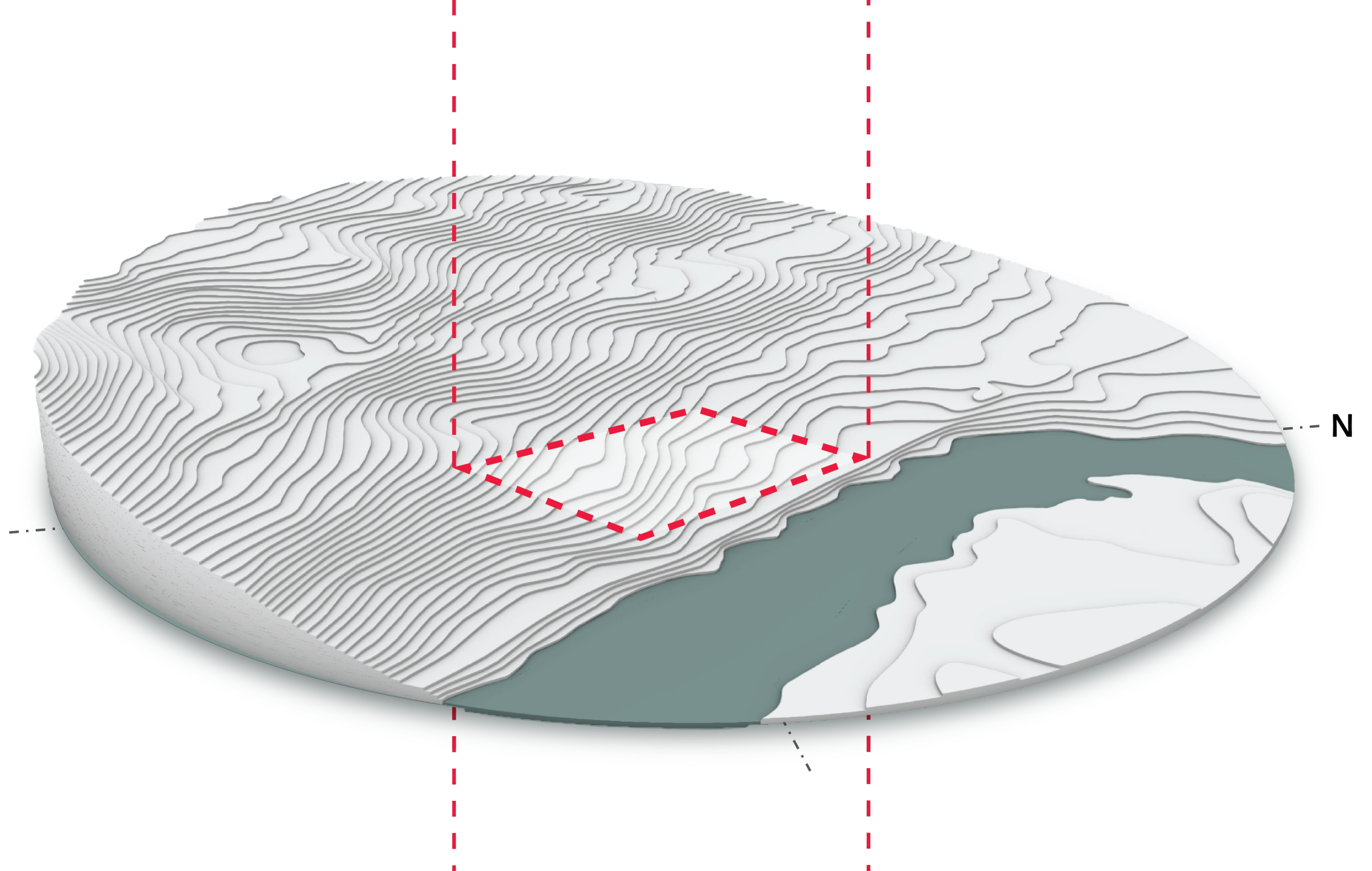
Bird's Eye - NW



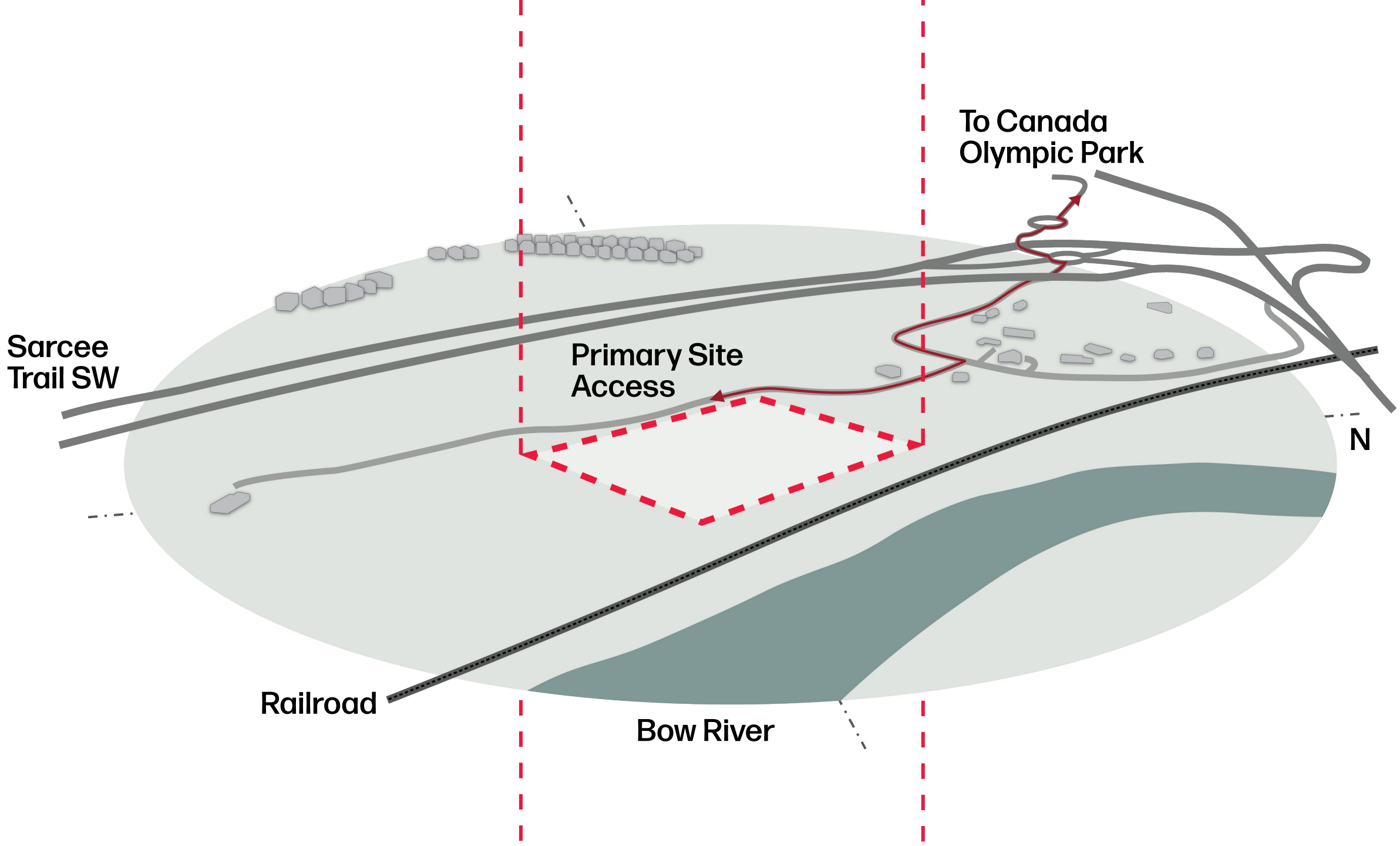
Bird's Eye - NE











Sarcee Trail SW

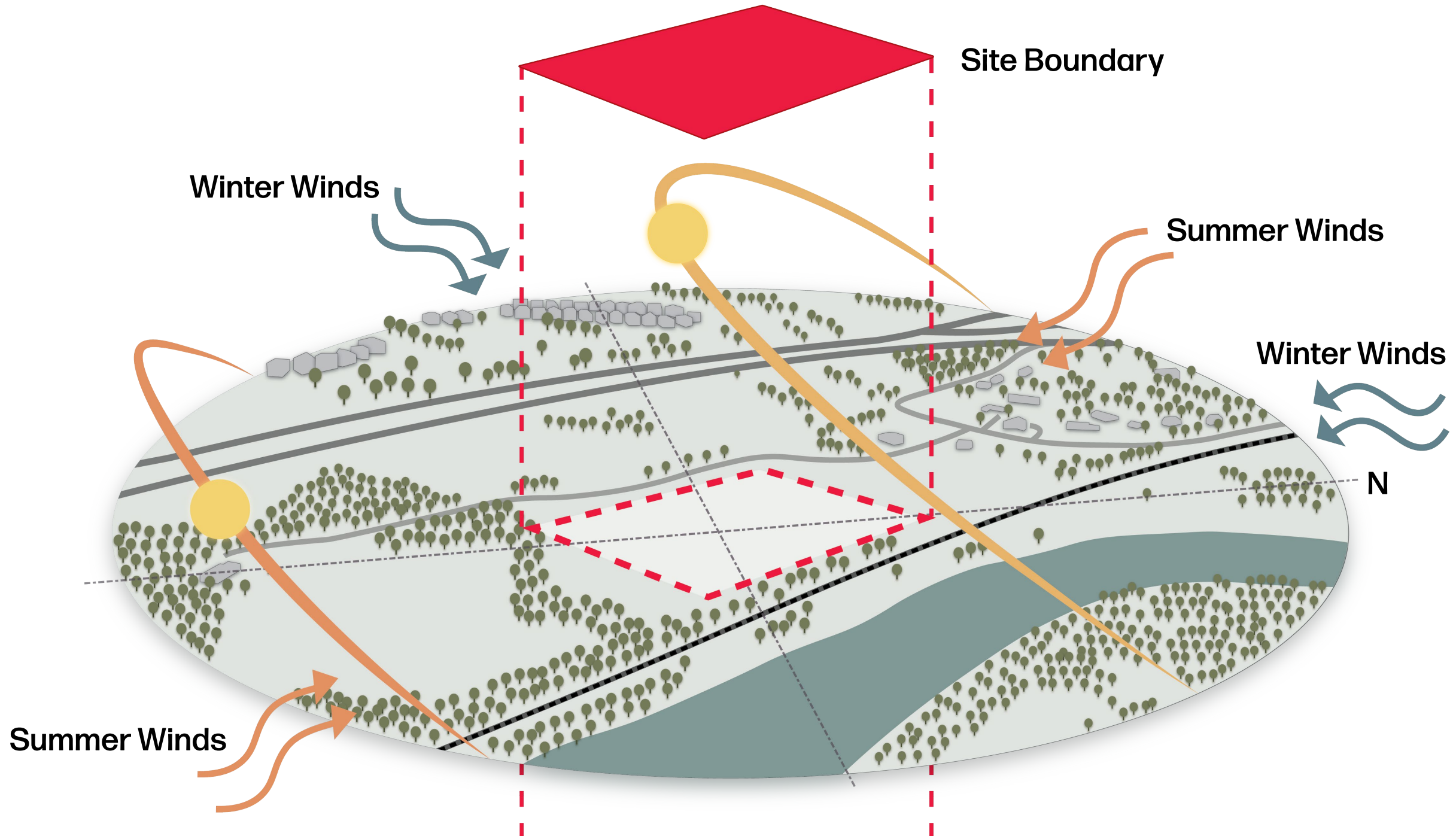
Primary Site Access

To Canada Olympic Park

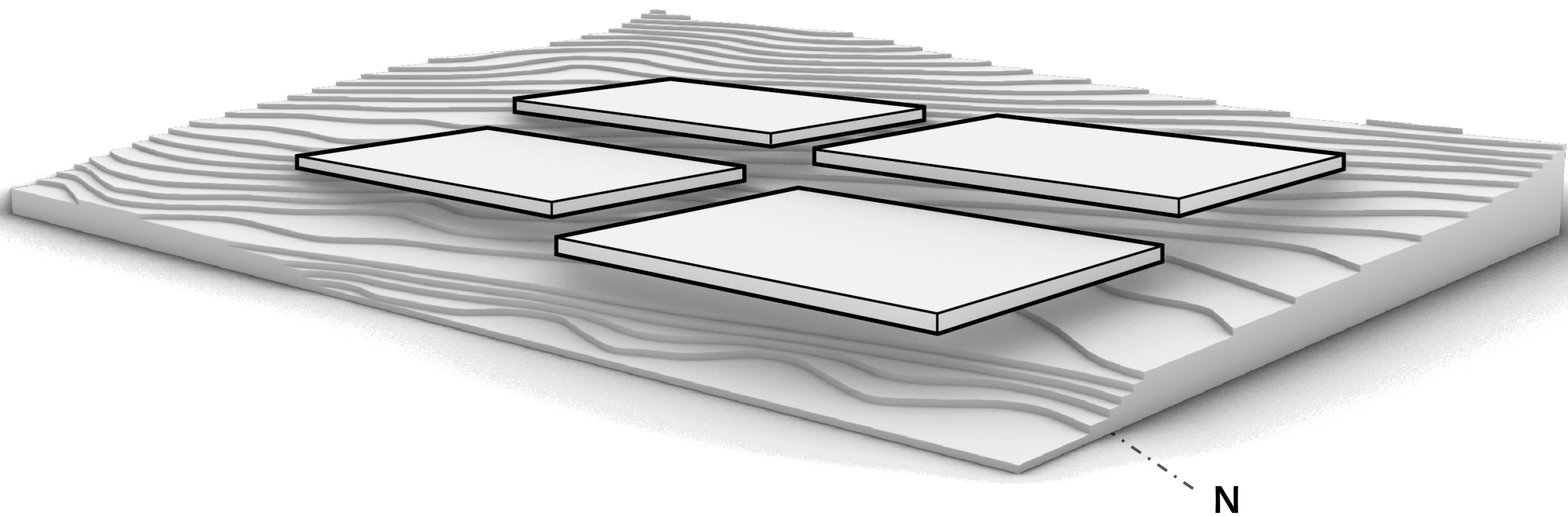
Railroad

Bow River

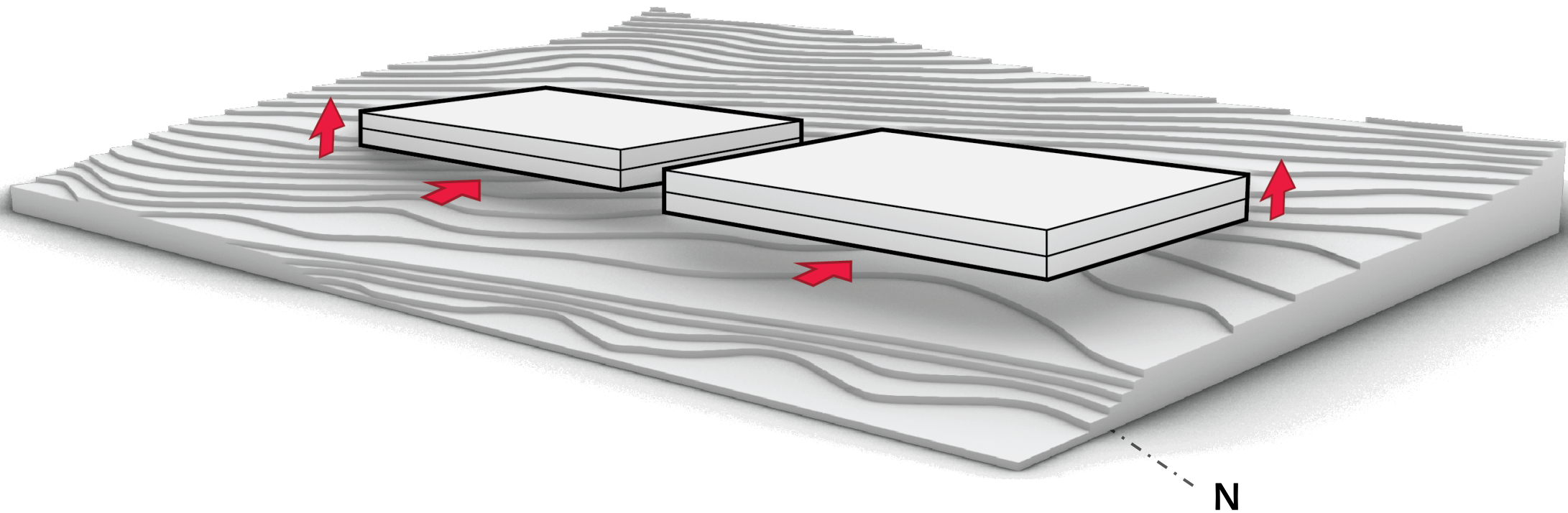
N



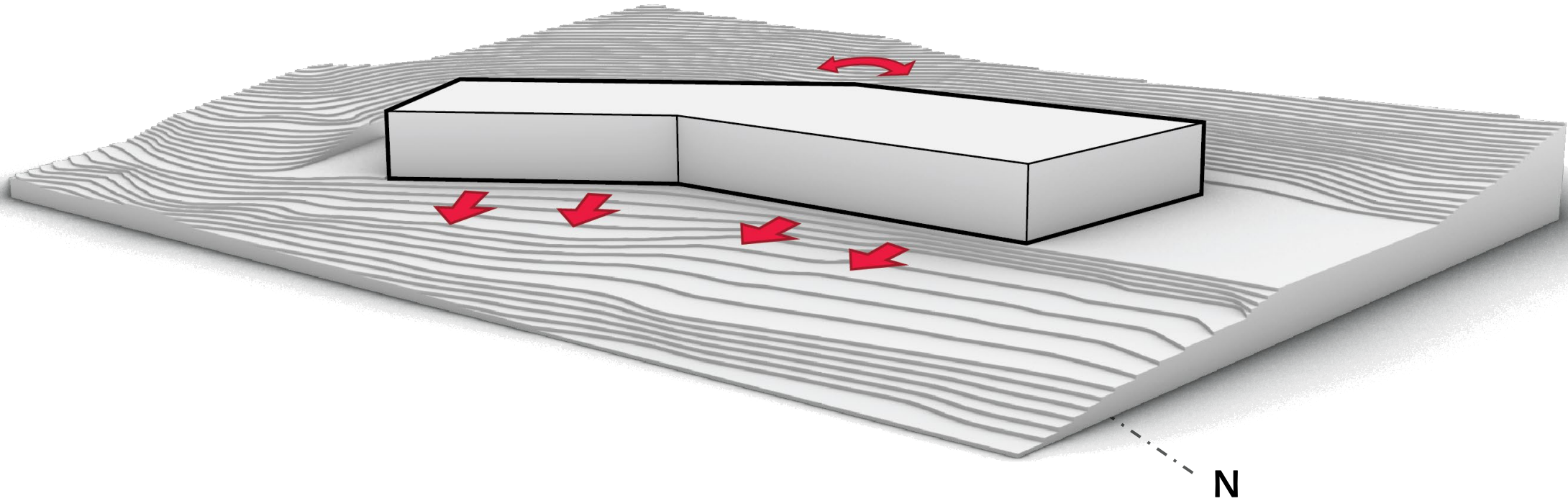
# Mass areas



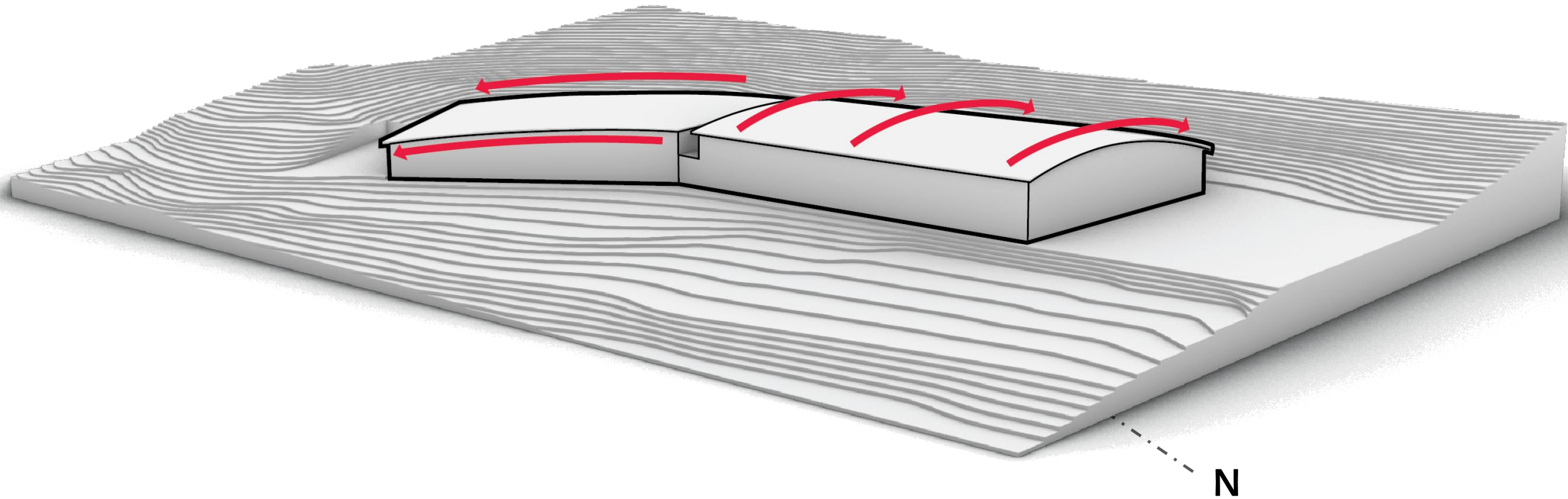
# Stack masses



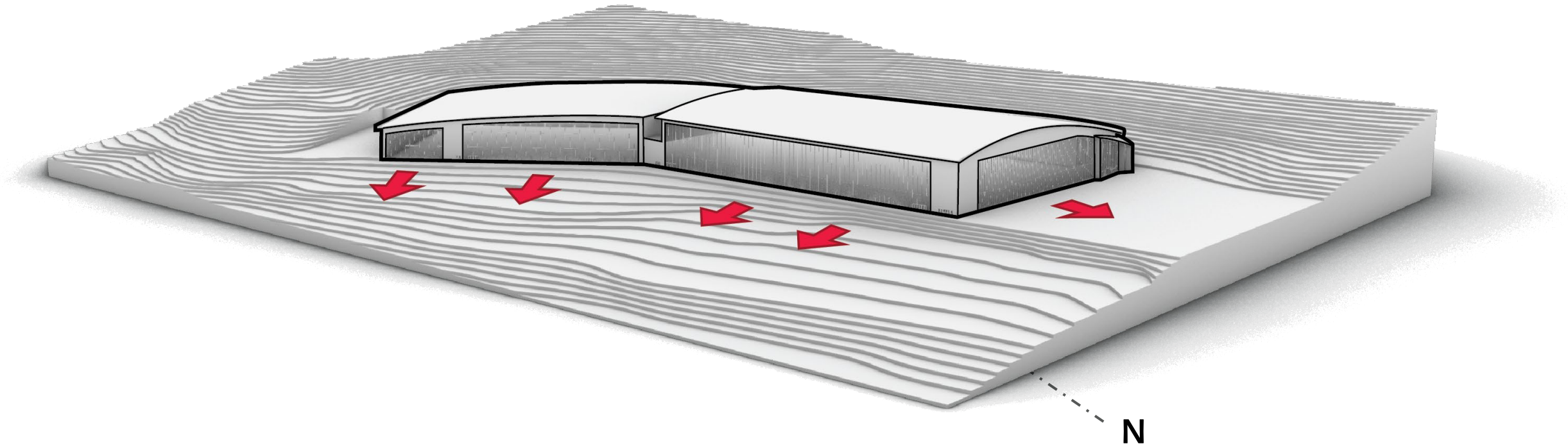
# Angle masses



# Sculpt masses



# Add glazing



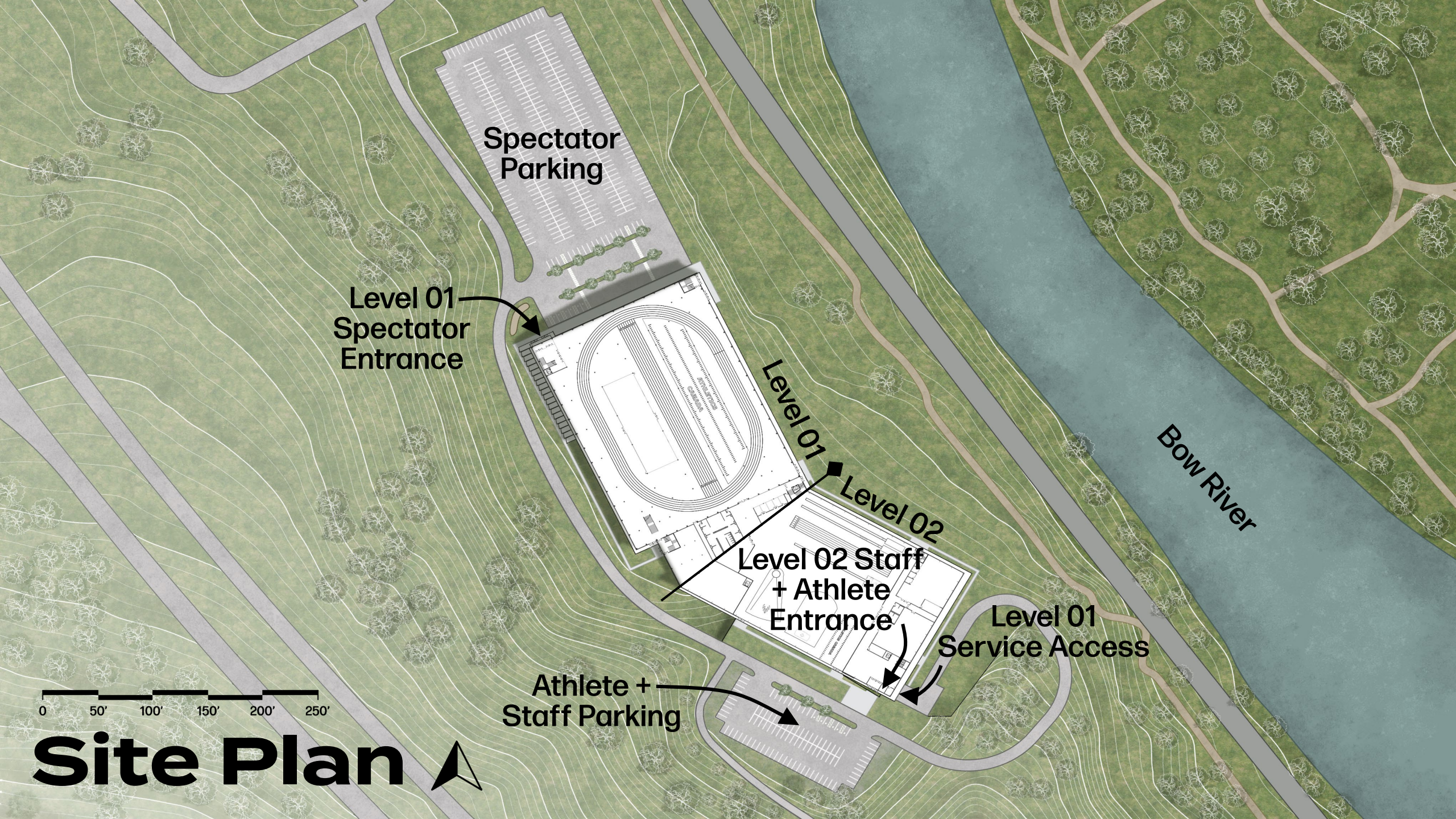


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HIGH PERFORMANCE  
TRAINING CENTER





Spectator  
Parking

Level 01  
Spectator  
Entrance

Level 01

Level 02

Level 02 Staff  
+ Athlete  
Entrance

Level 01  
Service Access

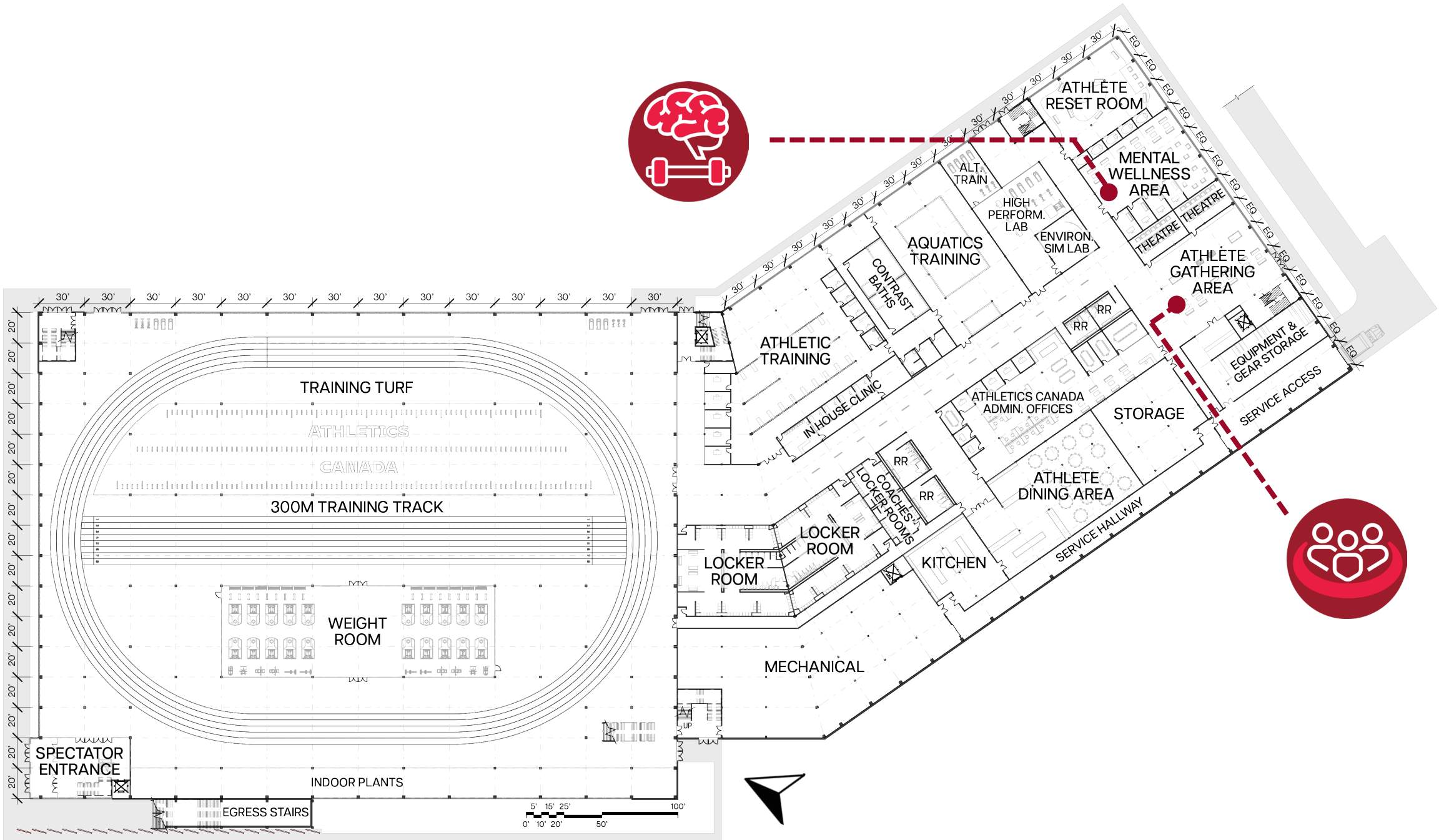
Athlete +  
Staff Parking

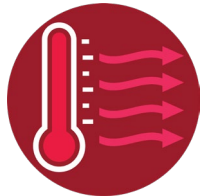
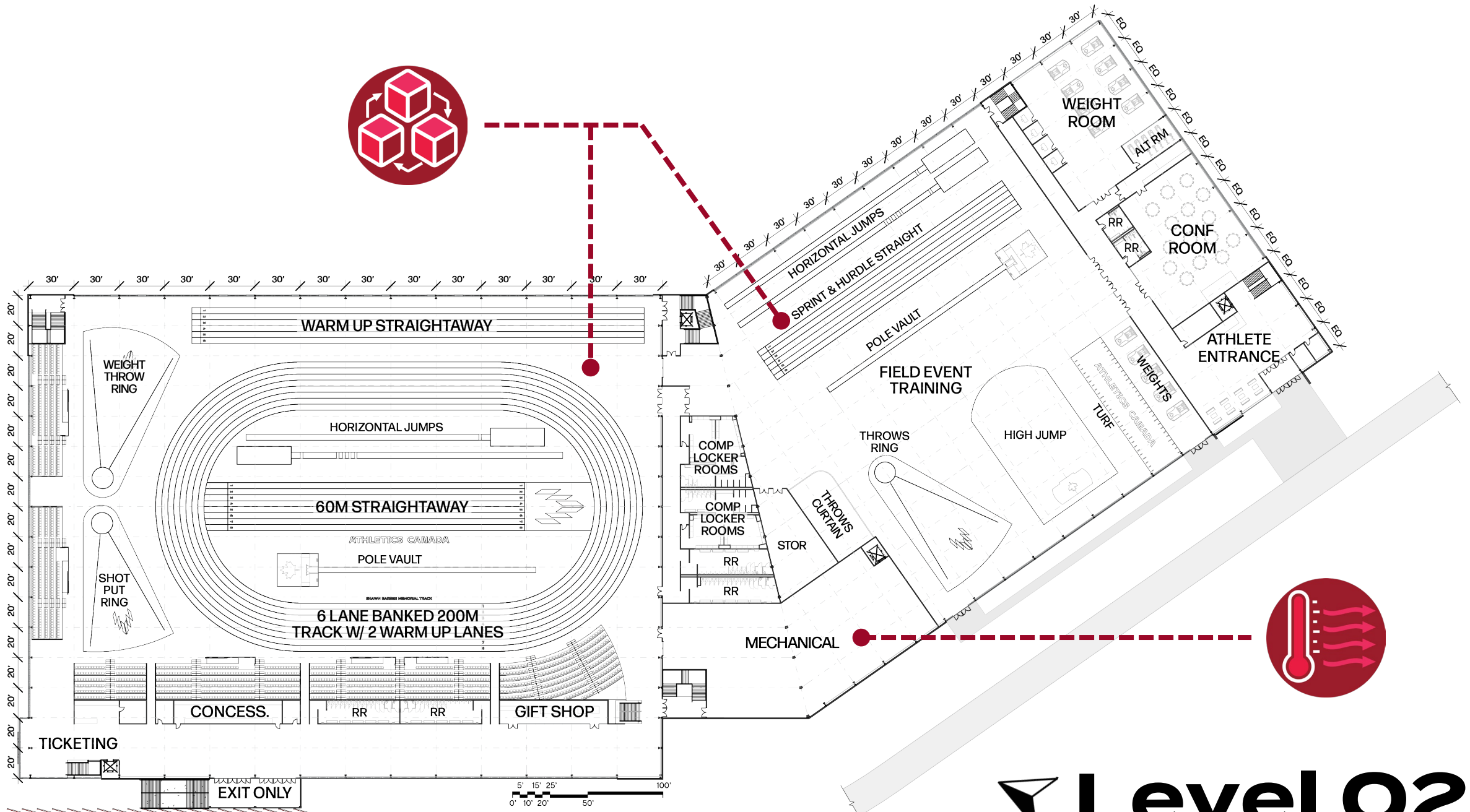
Bow River

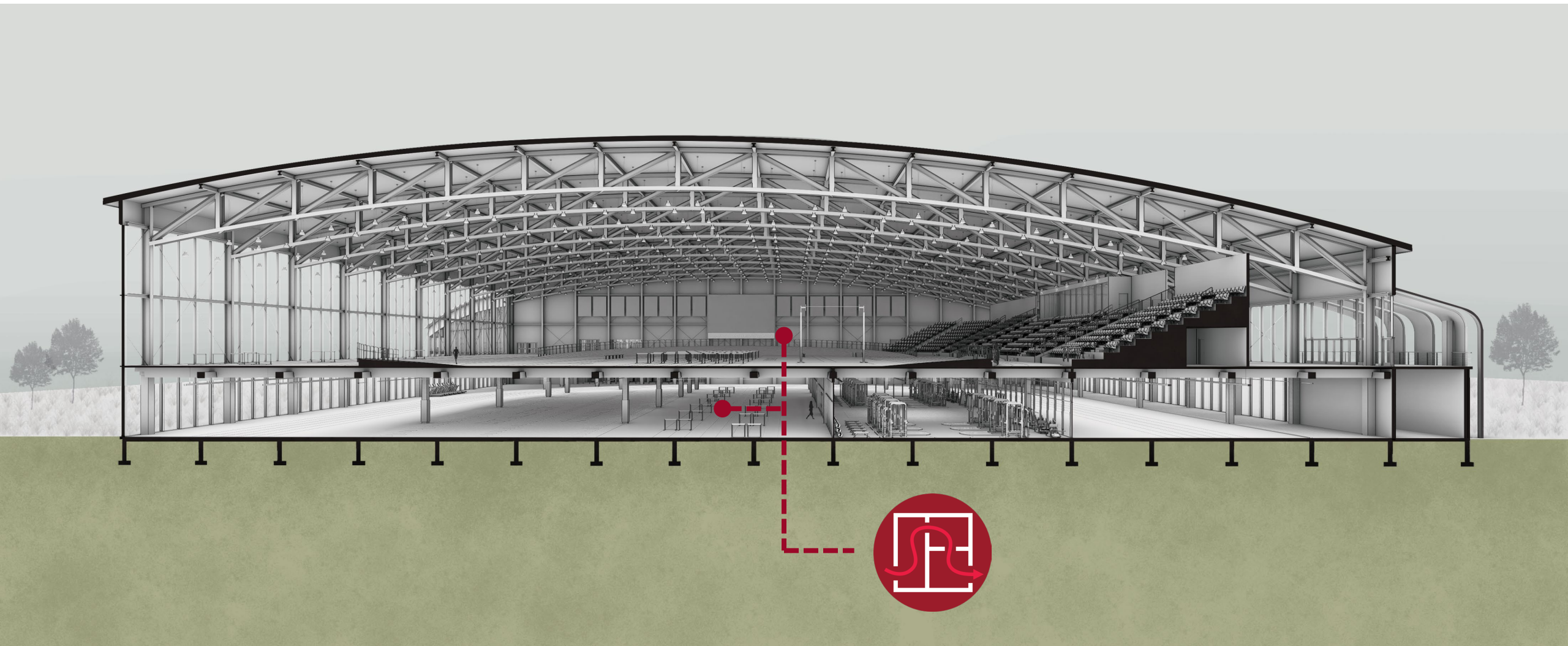
0 50' 100' 150' 200' 250'

Site Plan

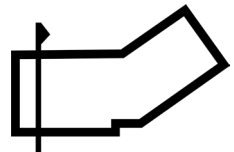


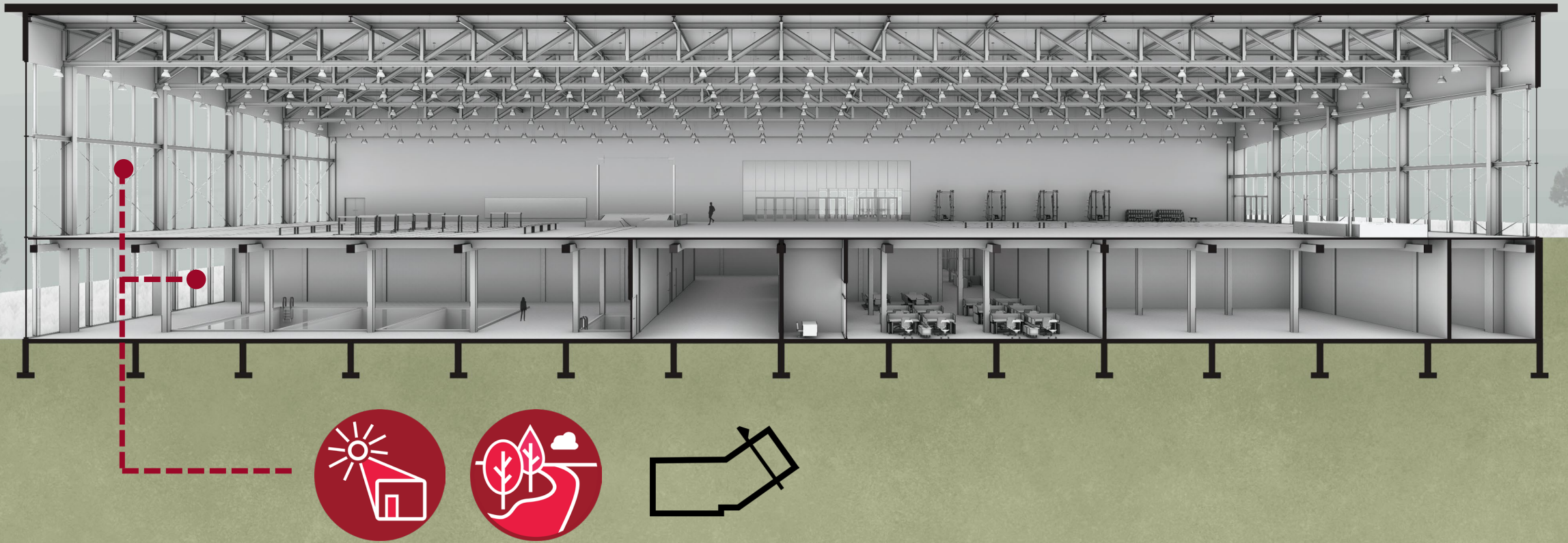






# Section 1





# Section 2



SHAWN BARBER MEMORIAL TRACK



ATHLETICS CANADA

2:53.7





**DON'T  
RUN AWAY  
FROM  
CHALLENGES**  
**RUN  
OVER  
THEM**









**START UNKNOWN  
FINISH UNFORGETTABLE**

CANADA  
DE GRASSE

CAN

CAN



WHERE THERE IS  
NO STRUGGLE  
THERE  
IS NO  
STRENGTH



ATHLETICS  
CANADA  
THROWS









# REFUEL RESTORE REBUILD











ATHLETICS CANADA



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HIGH PERFORMANCE TRAINING CENTER

Thank You

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