



HRVATSKA GORSKA SLUŽBA SPAŠAVANJA
CROATIAN MOUNTAIN RESCUE SERVICE

IKAR CISA 2011, Sweden

AGILE TASK MANAGEMENT IN SAR OPERATIONS

Frane Bebić

17. listopad 2011

Investigation / planning / operation roles



Behaviour of search operations

- ◆ Working with many searchers
 - ◆ Keep track about who is coming, who is on the field, who is waiting for tasks?
- ◆ Dynamic change of searchers
 - ◆ Lack of number of tasks
- ◆ Handling a large number of tasks
 - ◆ Managing a list on paper → mess on the paper
- ◆ Reevaluation of tasks
 - ◆ New list, writing it again on paper?
- ◆ Sharing task list between search managers
 - ◆ Same list of tasks is needed for 2-3 search managers



Common consequences of overloaded management

1. Lack of available tasks
2. Searchers are waiting in queue
3. Operation leaders apply an ad-hoc techniques!
4. Task management becomes a bottle neck

“Too many” searchers instead of “very powerful”!

Solution is:

Process that can take as many searchers as it is possible without scalability (i.e. big numbers) problems.



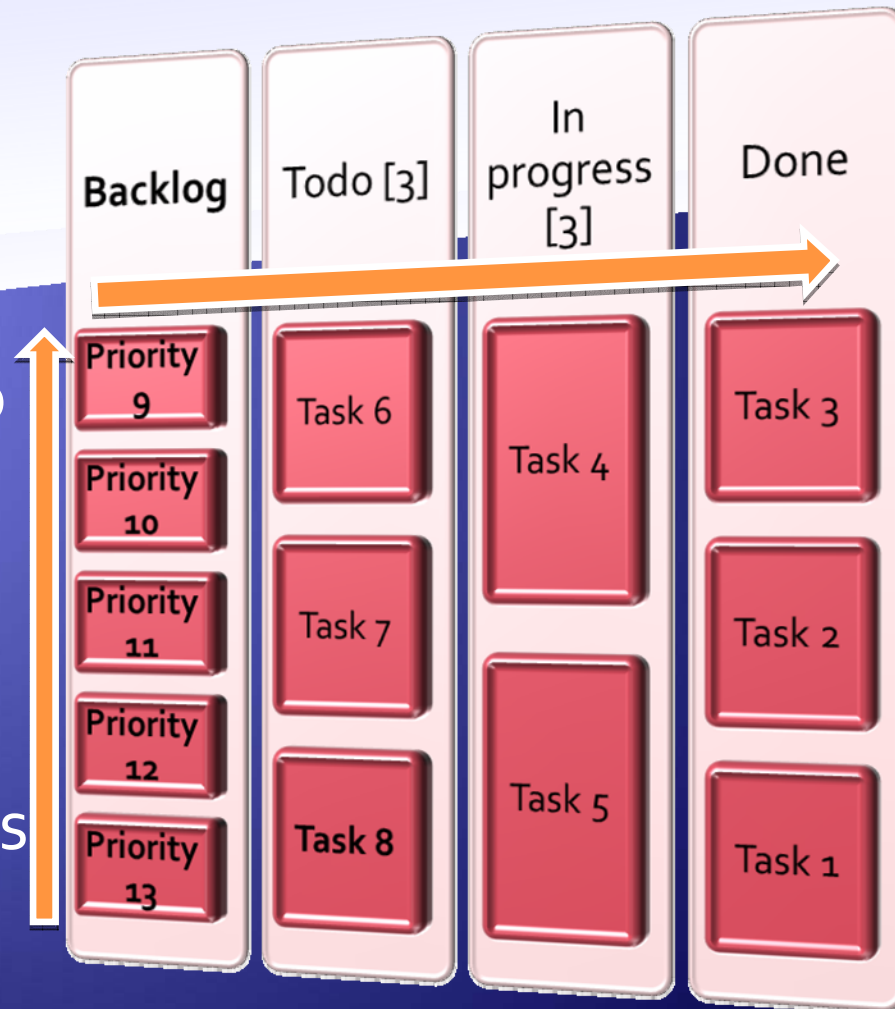
Solution

- ◆ Solution invented by Toyota car industry
- ◆ **KanBan** literally means “signboard” or “billboard”
- ◆ Uses a card as an information about what has to be produced
- ◆ Same principle has been applied to software industry in the last 10 years

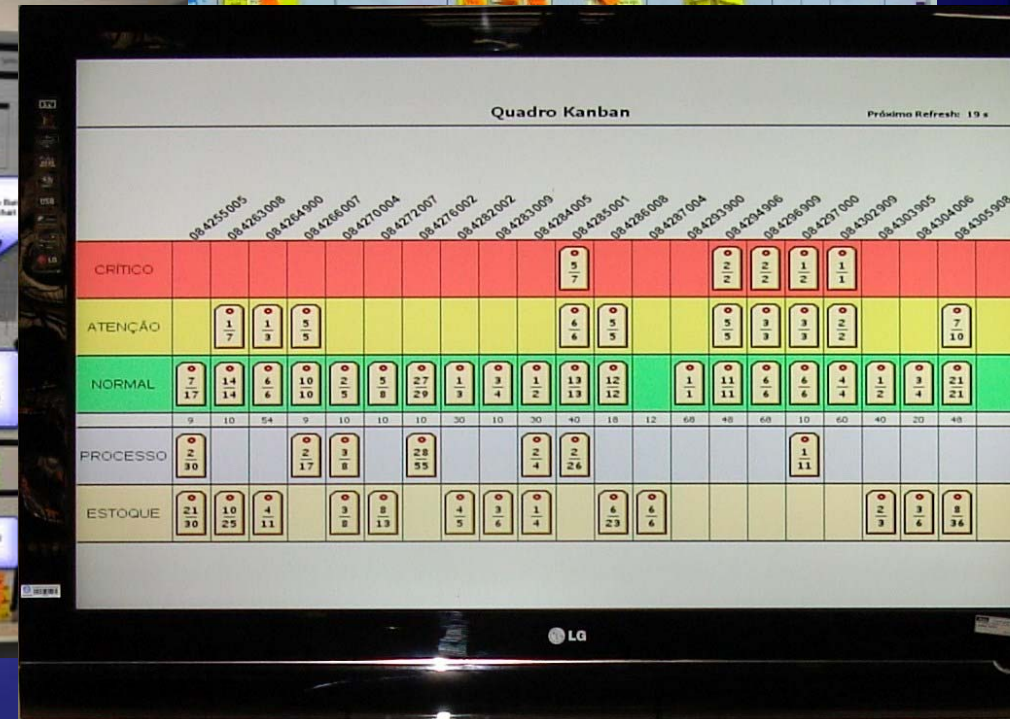
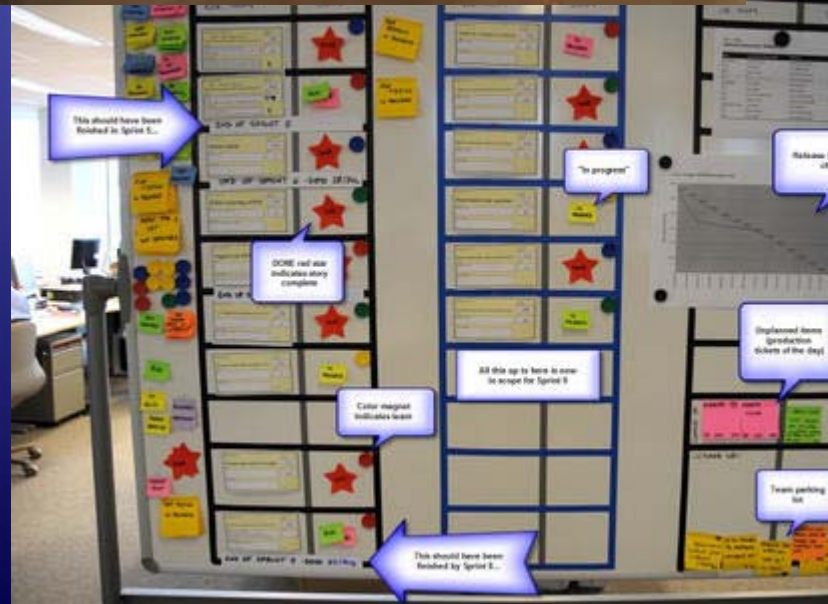


Introduction to KanBan board

- ◆ Backlog – bin for new tasks:
 - ◆ Evaluation
 - ◆ Do not execute yet
- ◆ Todo – bin for “Ready to perform” tasks
 - ◆ Choose for execution
 - ◆ Do not evaluate
- ◆ In progress – bin of currently executing tasks
- ◆ Done – bin of done job



Real world samples



Bridge to the Mountain Rescue Service

- ◆ KanBan board is adopted by adding new columns
- ◆ KanBan card is adopted to a Rescue Card
- ◆ Each card represents a task in SAR mission





KanBan rescue card

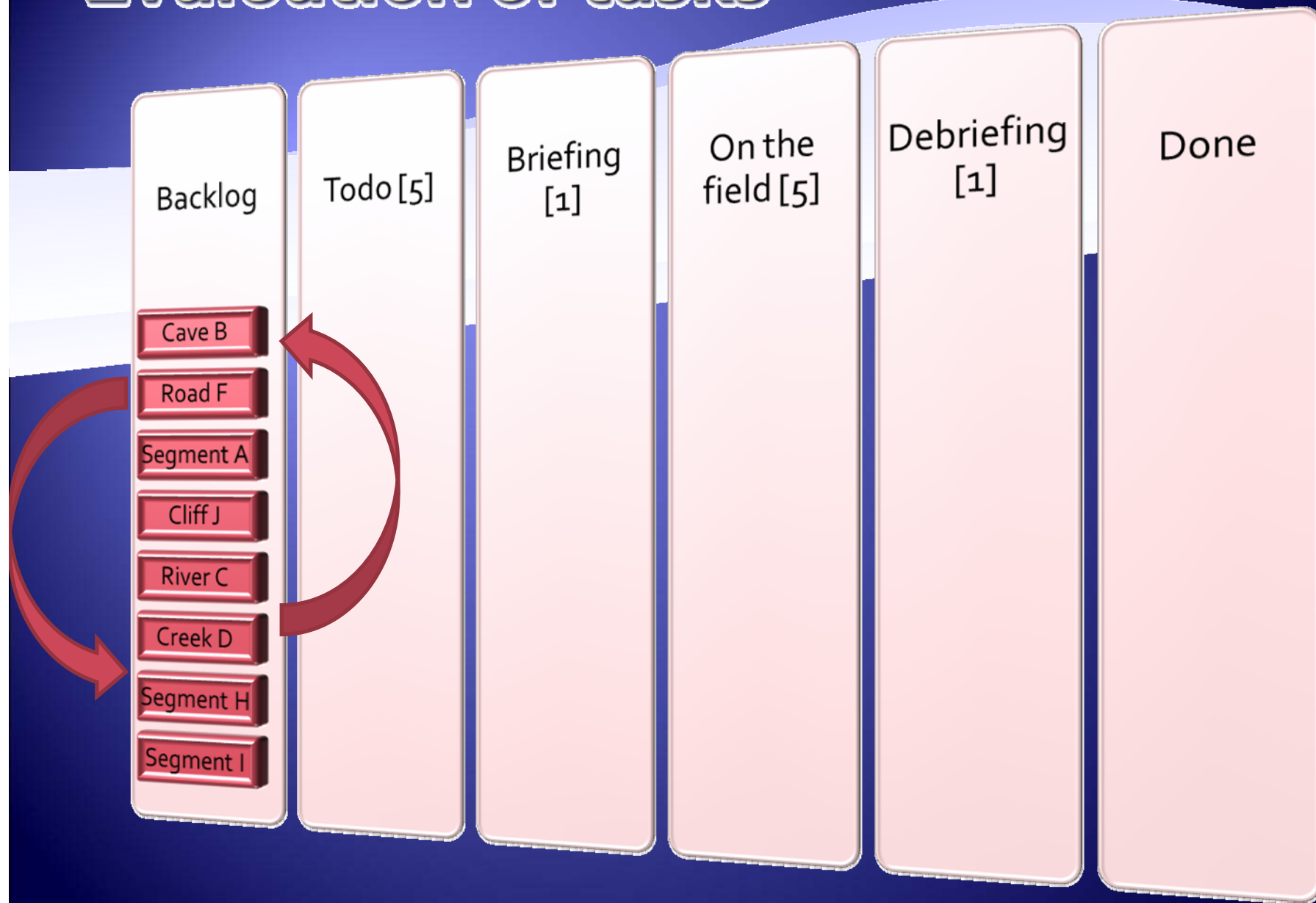
TASK	TIME
	DEPART _____
	START _____
	FINISH _____
	ARRIVAL _____
ASSIGNEE/ CALL CODE	POD% COMMENT

HGSS - 20110927

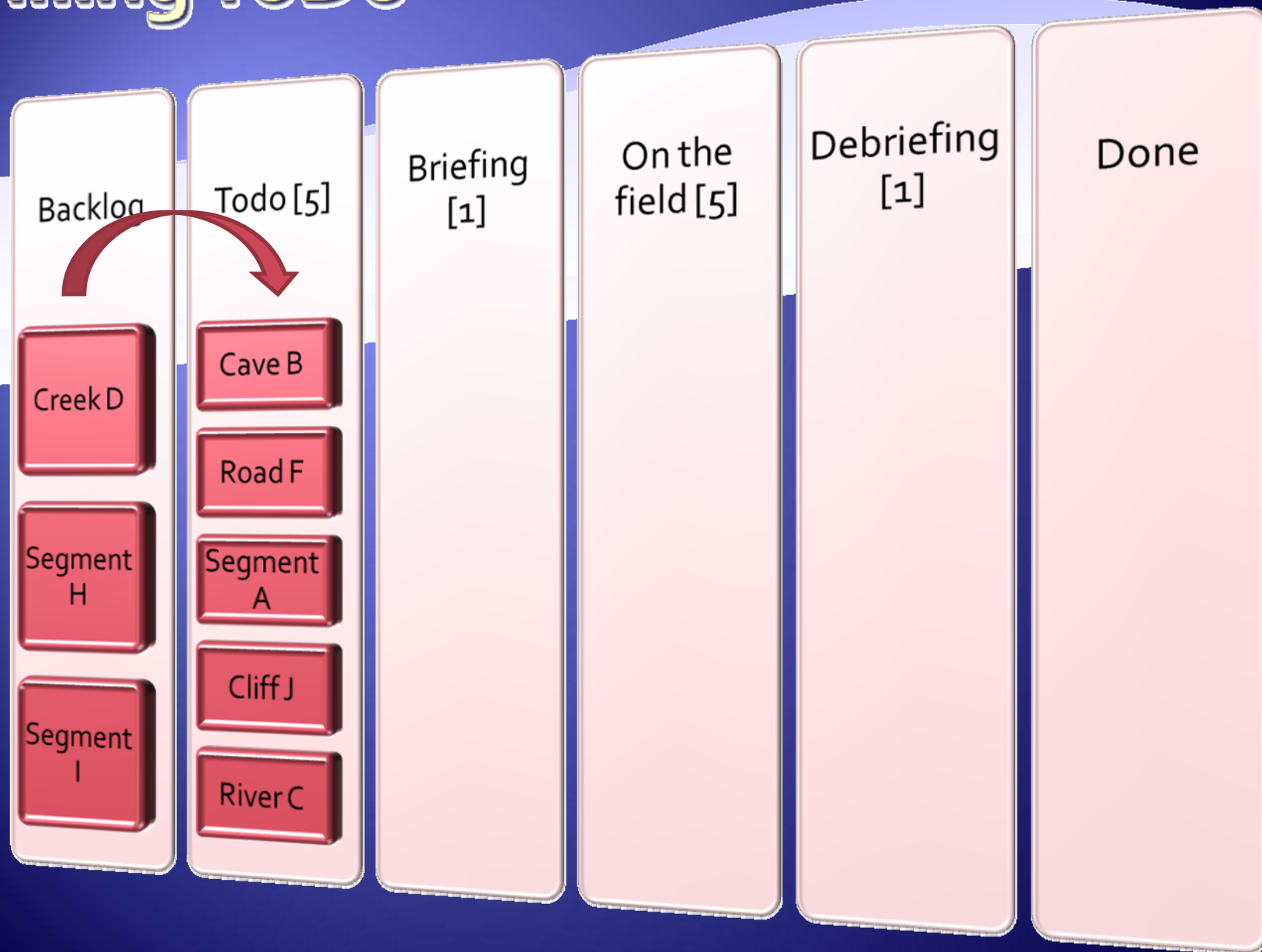
Mountain Rescue KanBan – fill Backlog



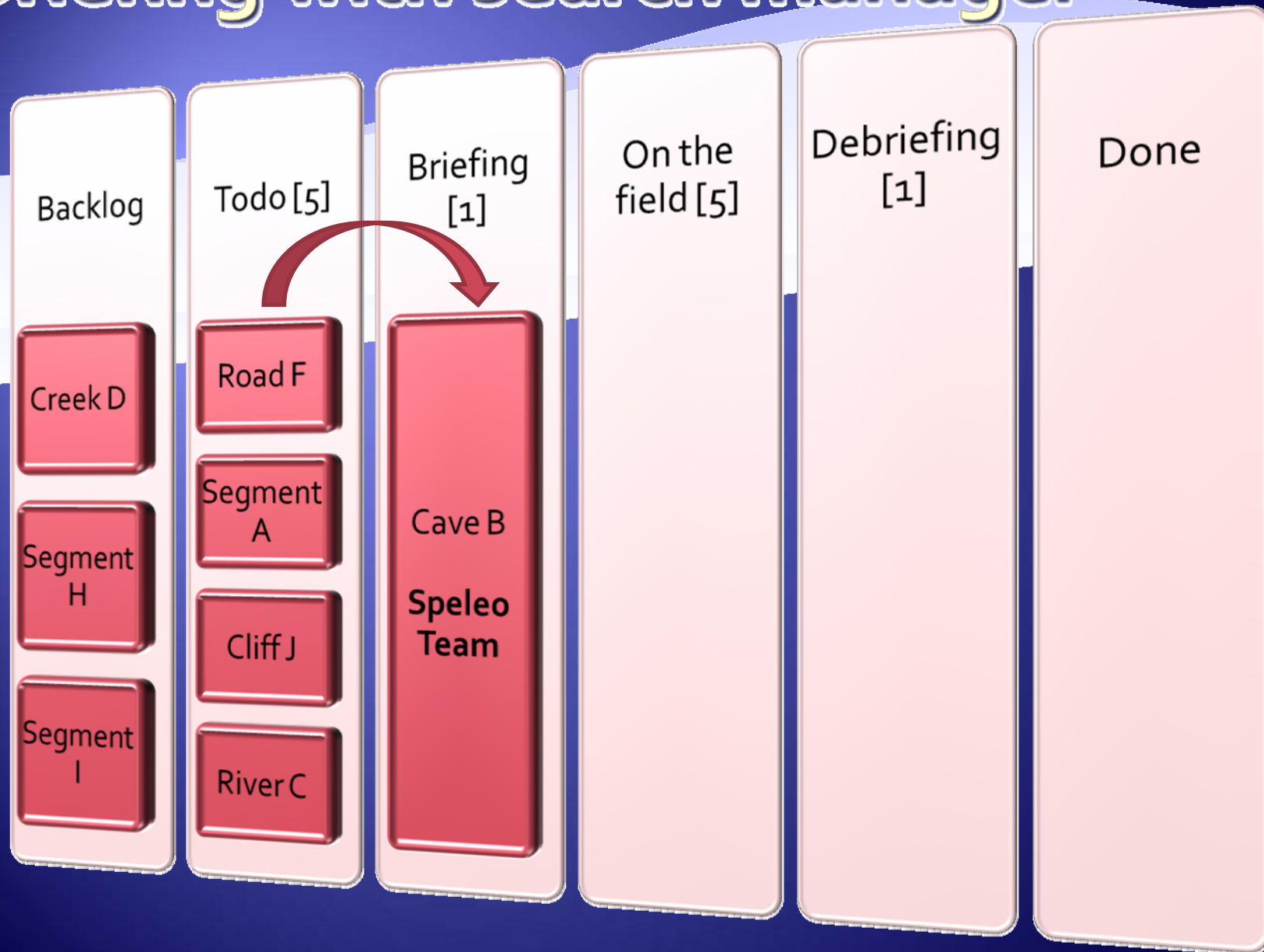
Evaluation of tasks



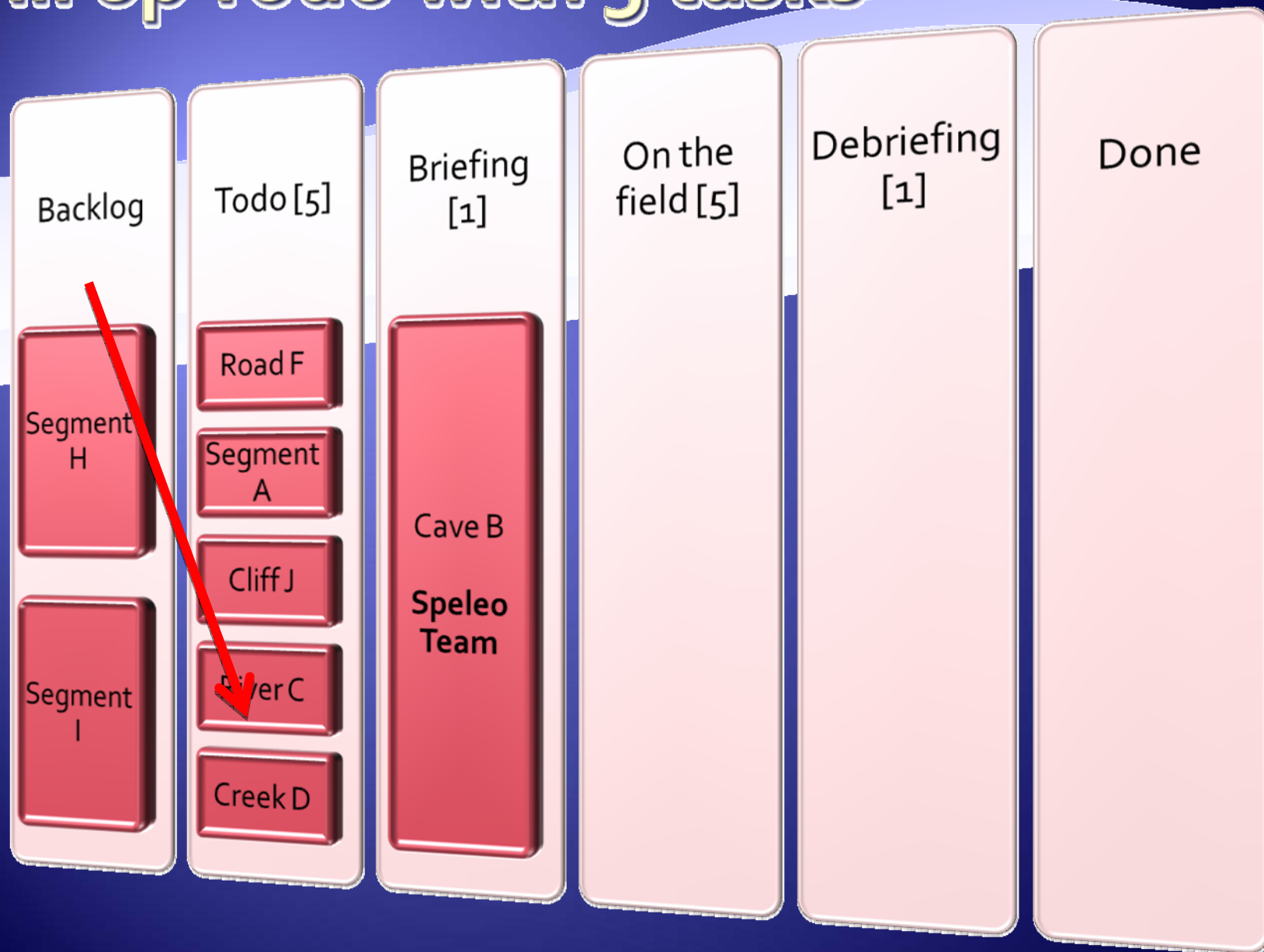
Filling ToDo



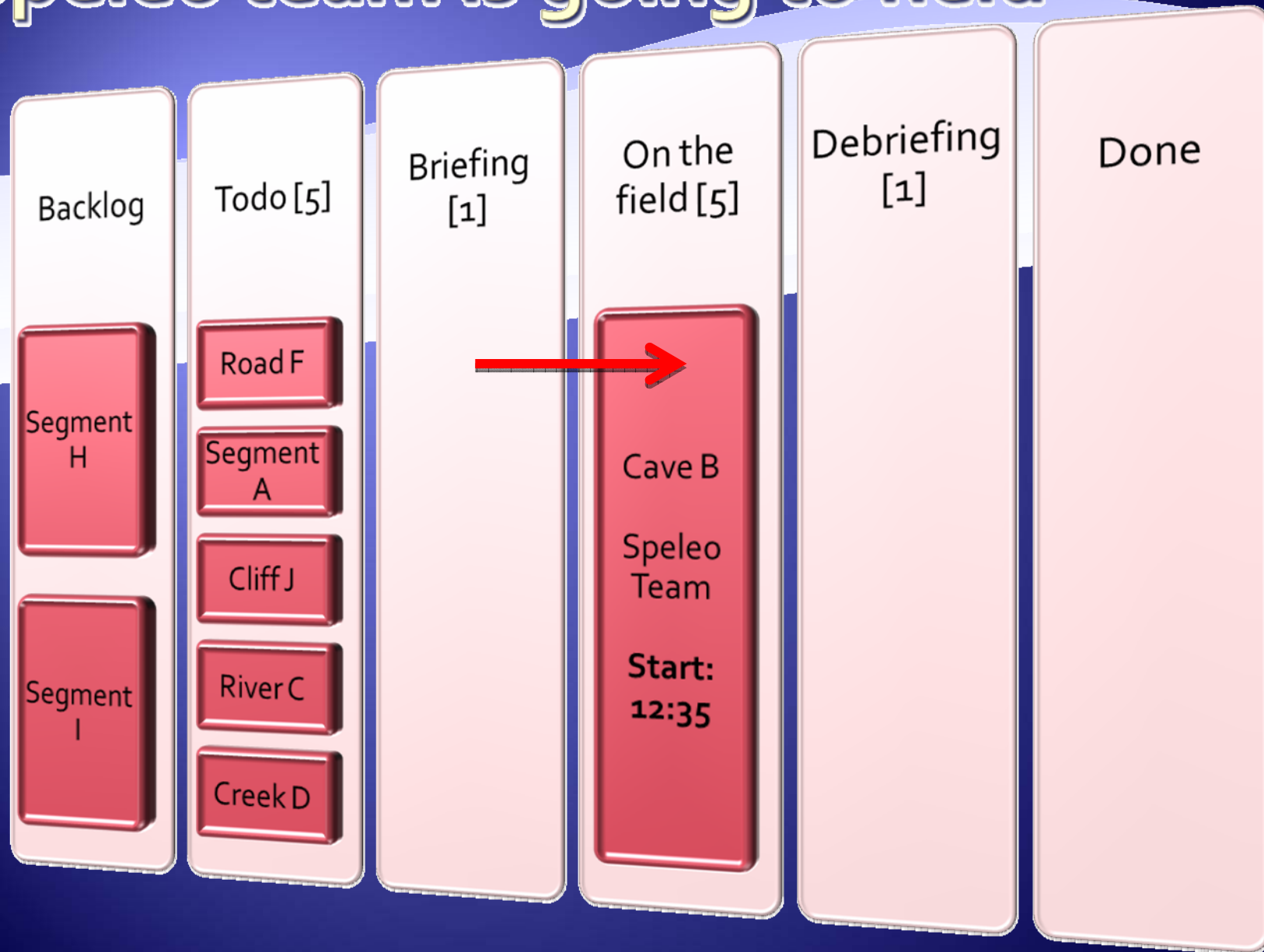
Briefing with search manager



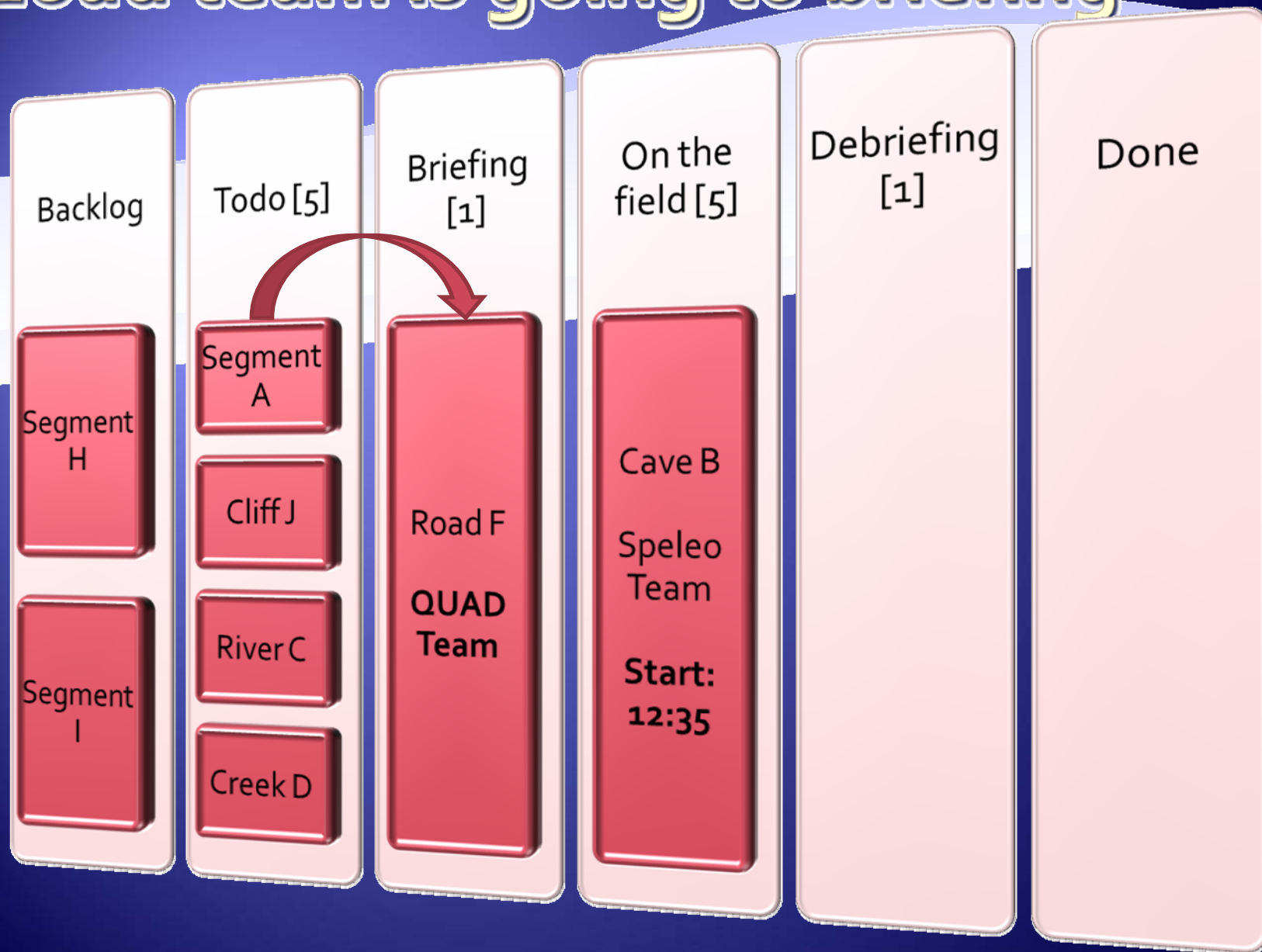
Fill up Todo with 5 tasks



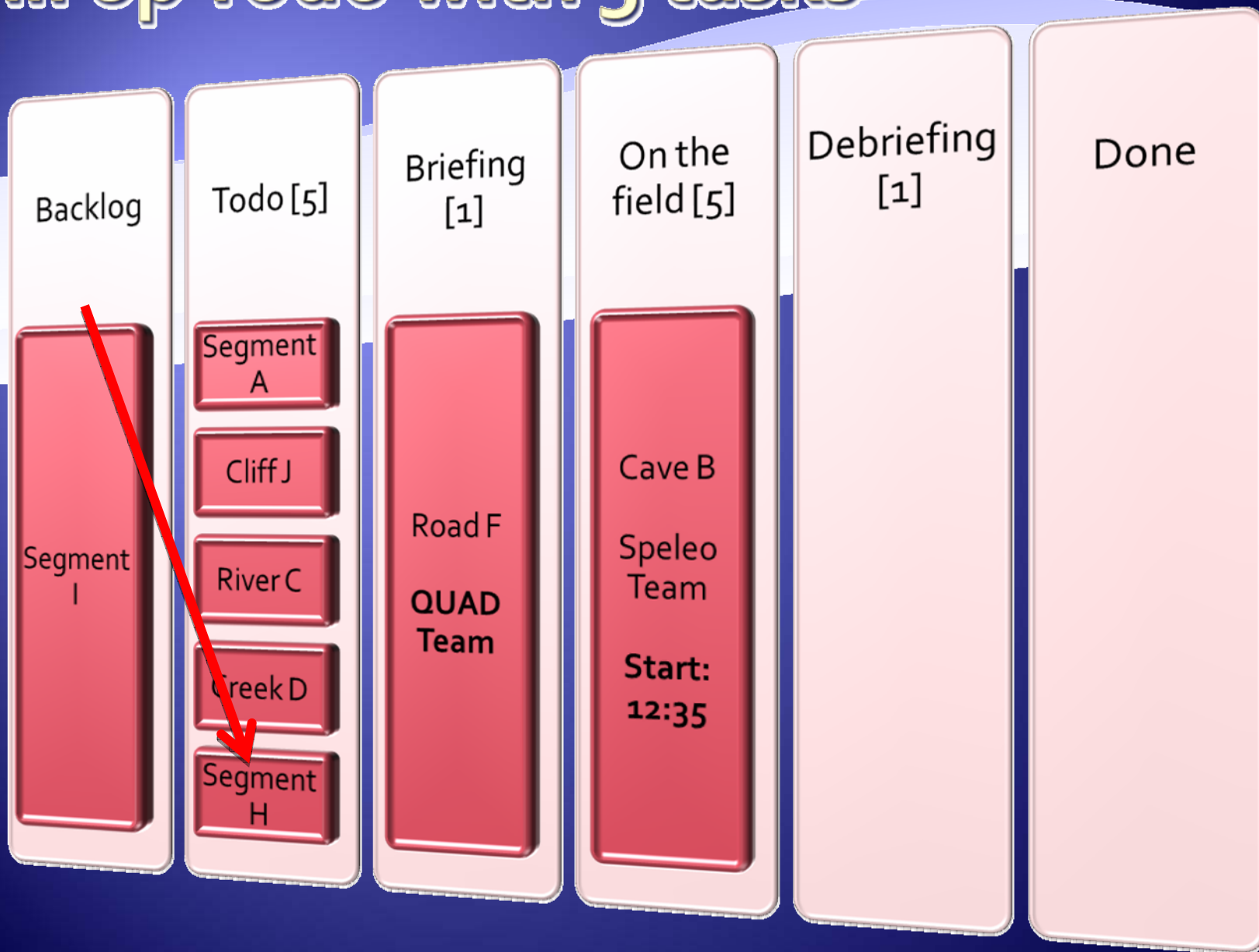
Speleo team is going to field



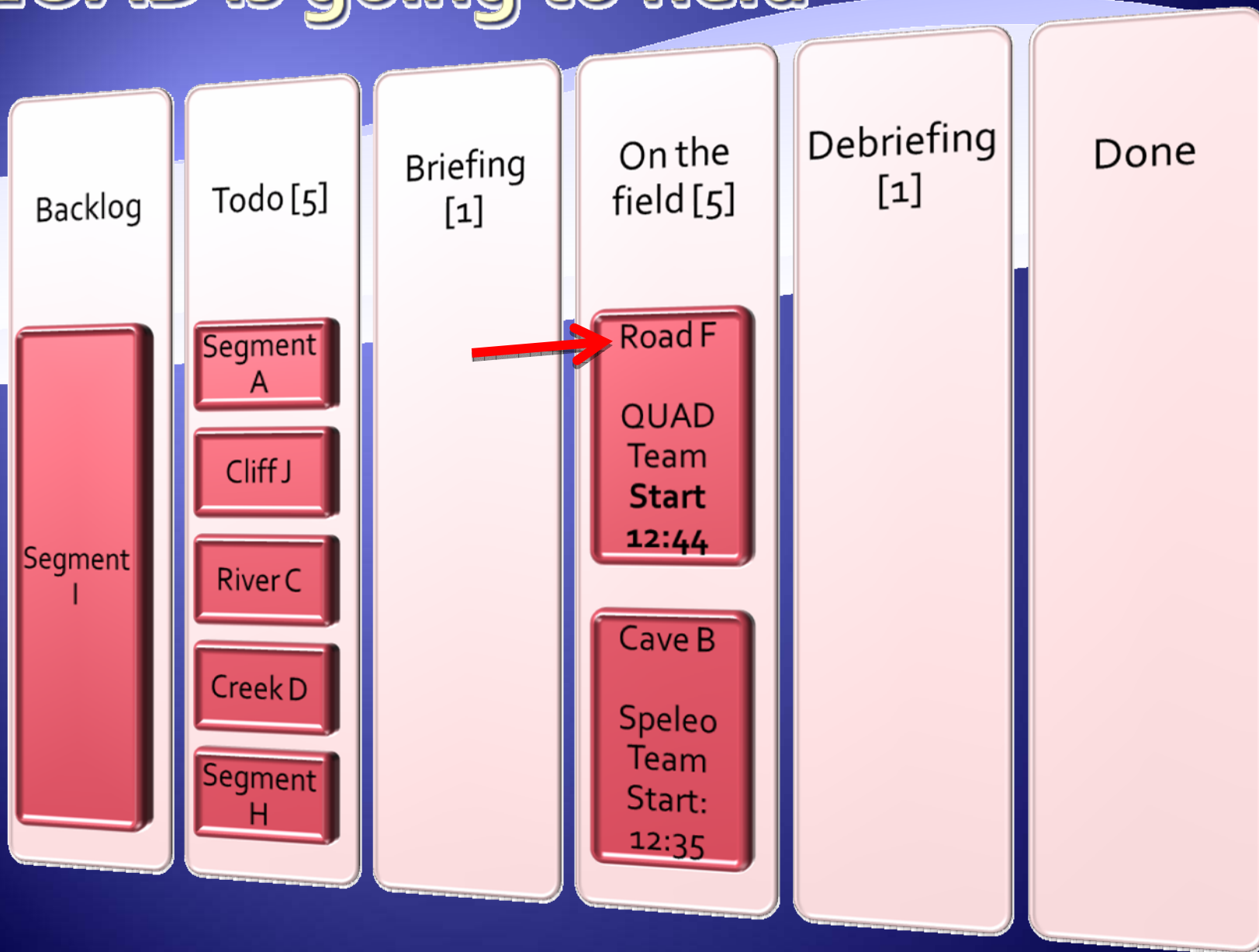
Quad team is going to briefing



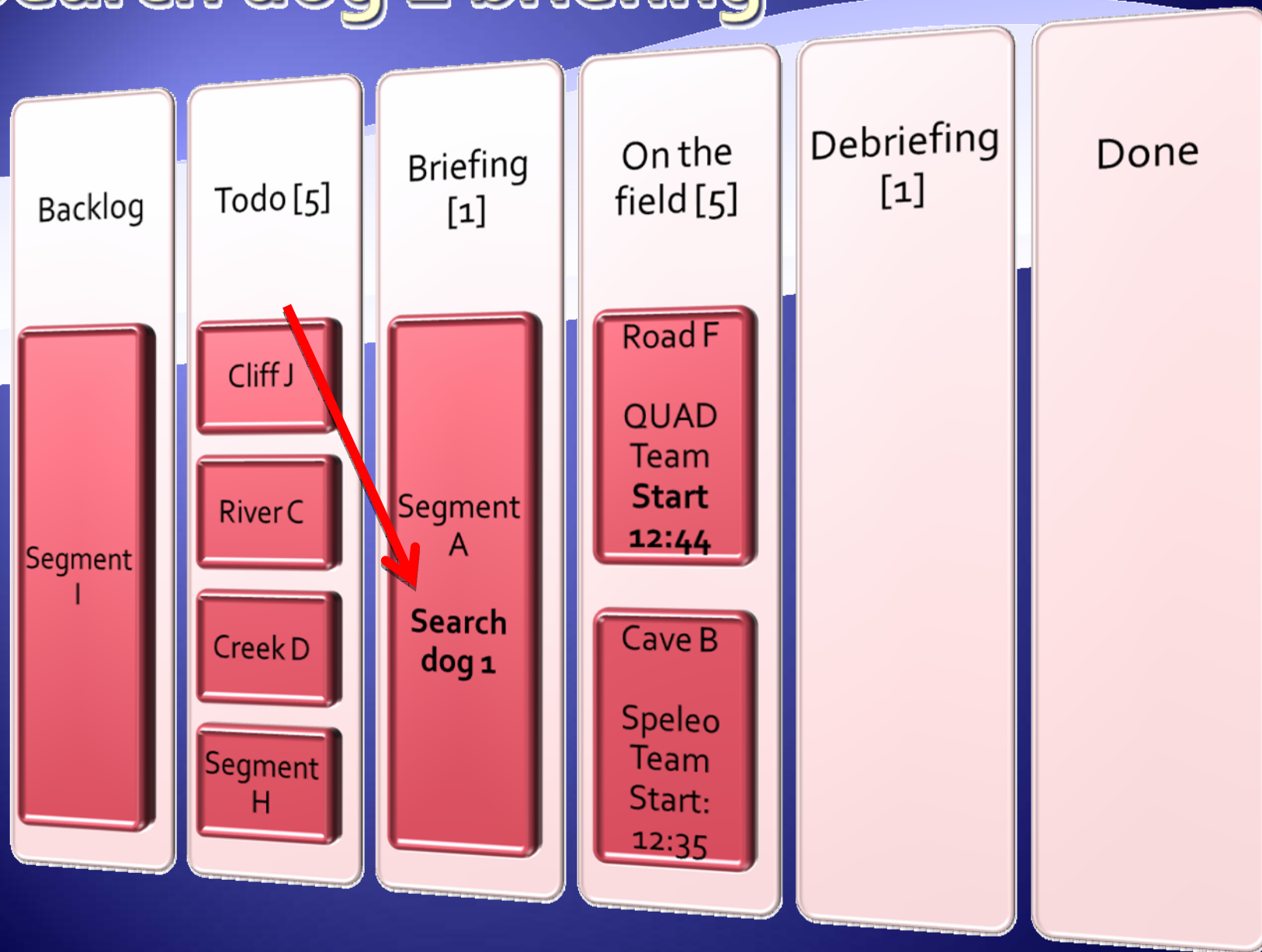
Fill up Todo with 5 tasks



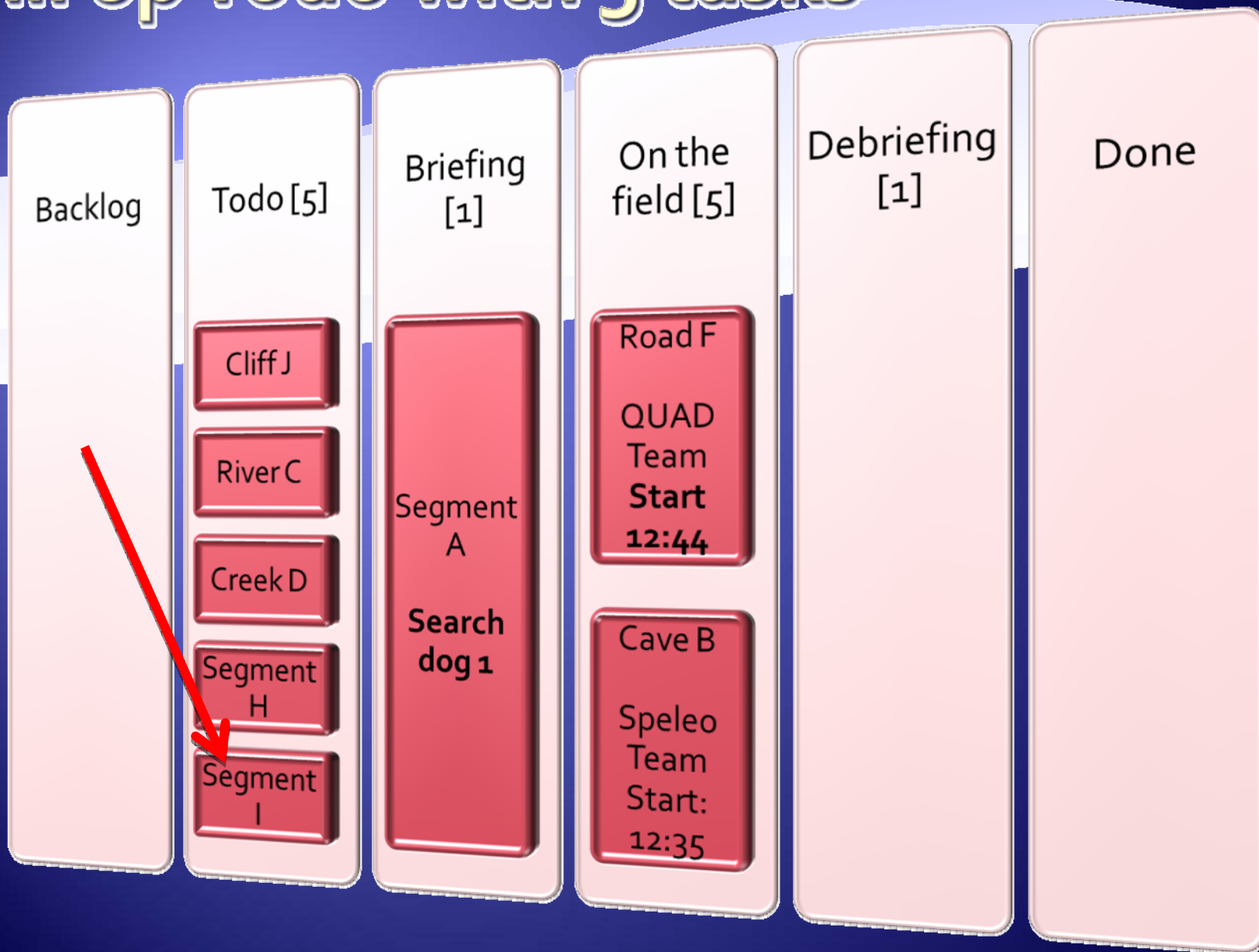
QUAD is going to field



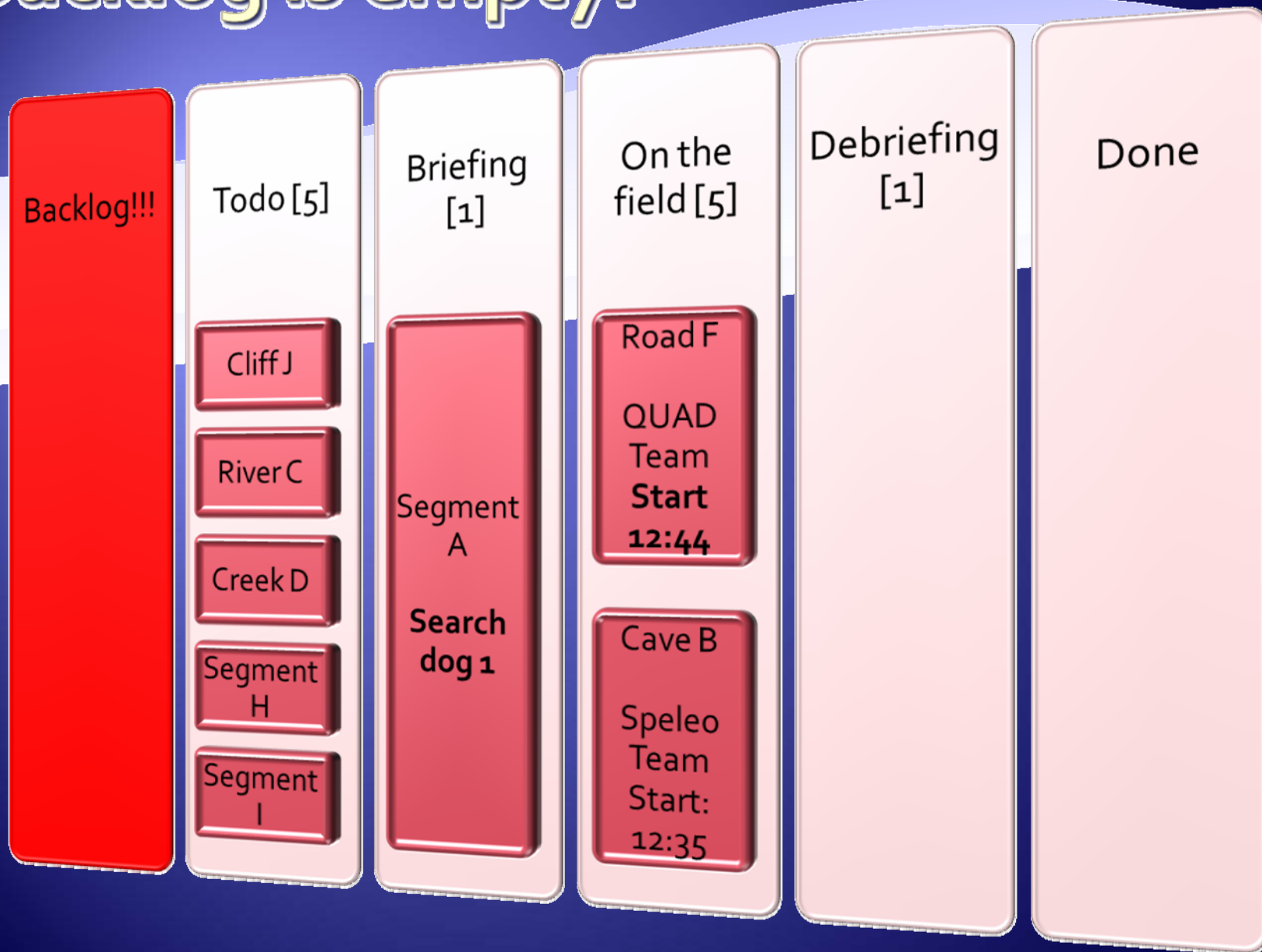
Search dog 1 briefing



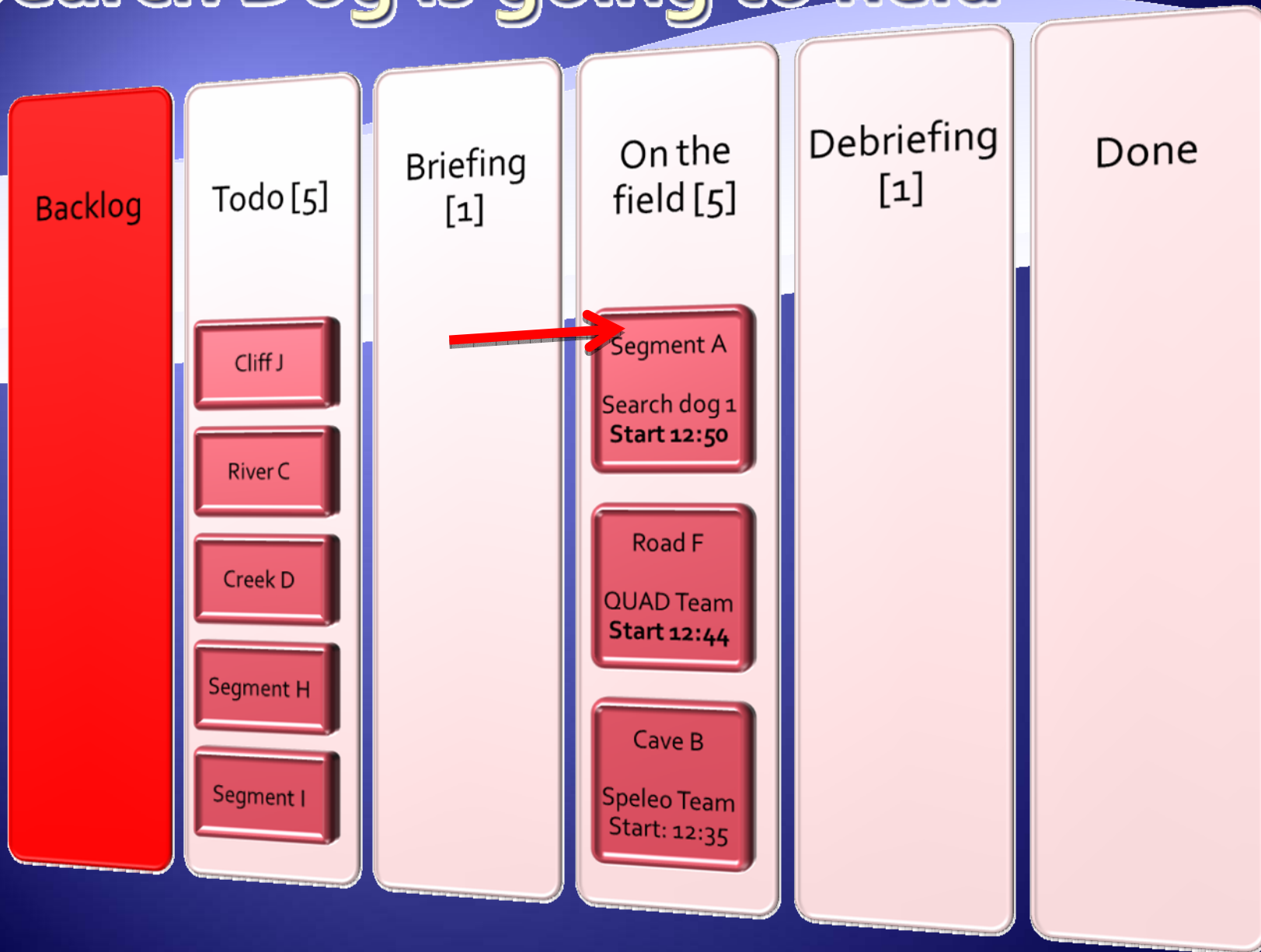
Fill up Todo with 5 tasks



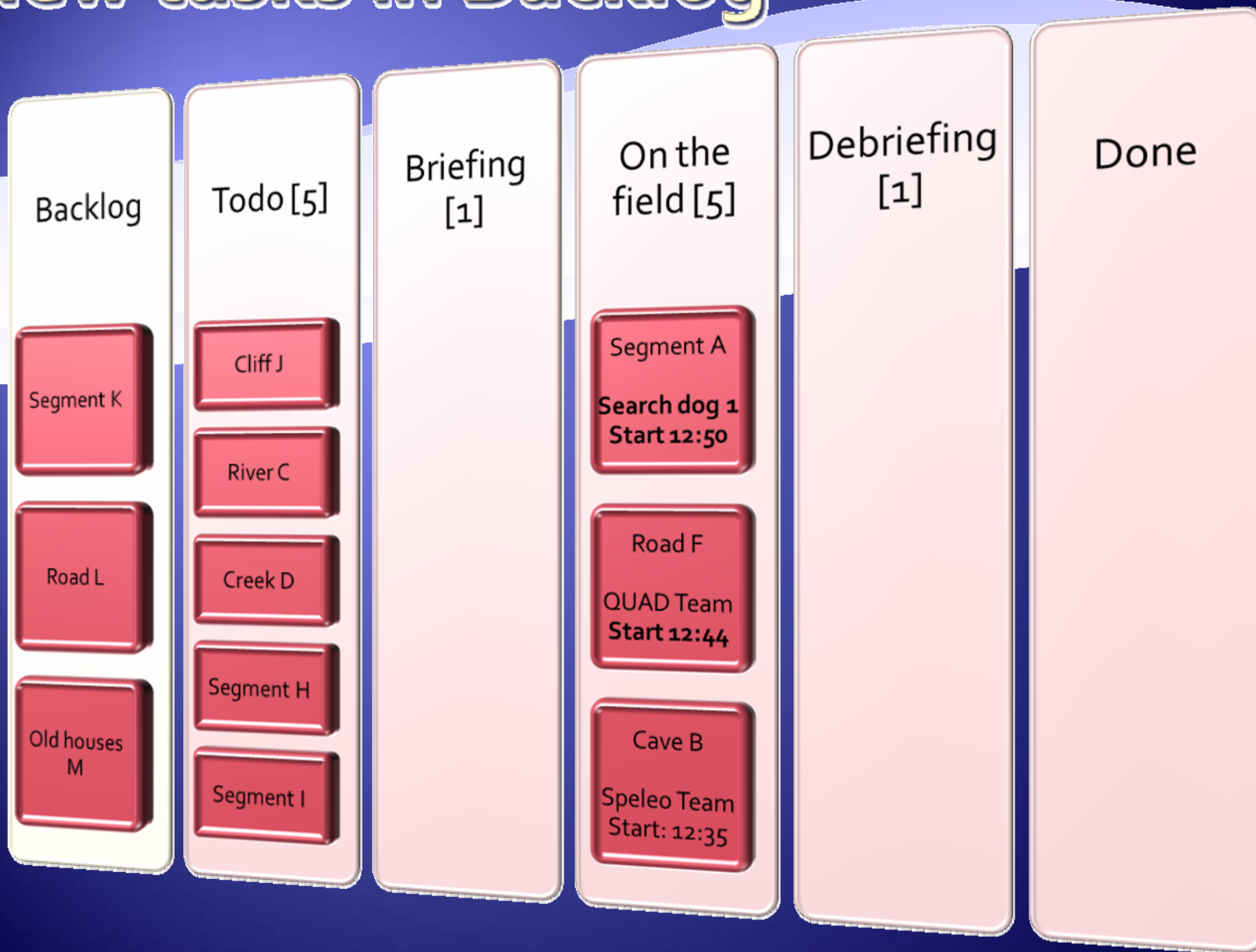
Backlog is empty!



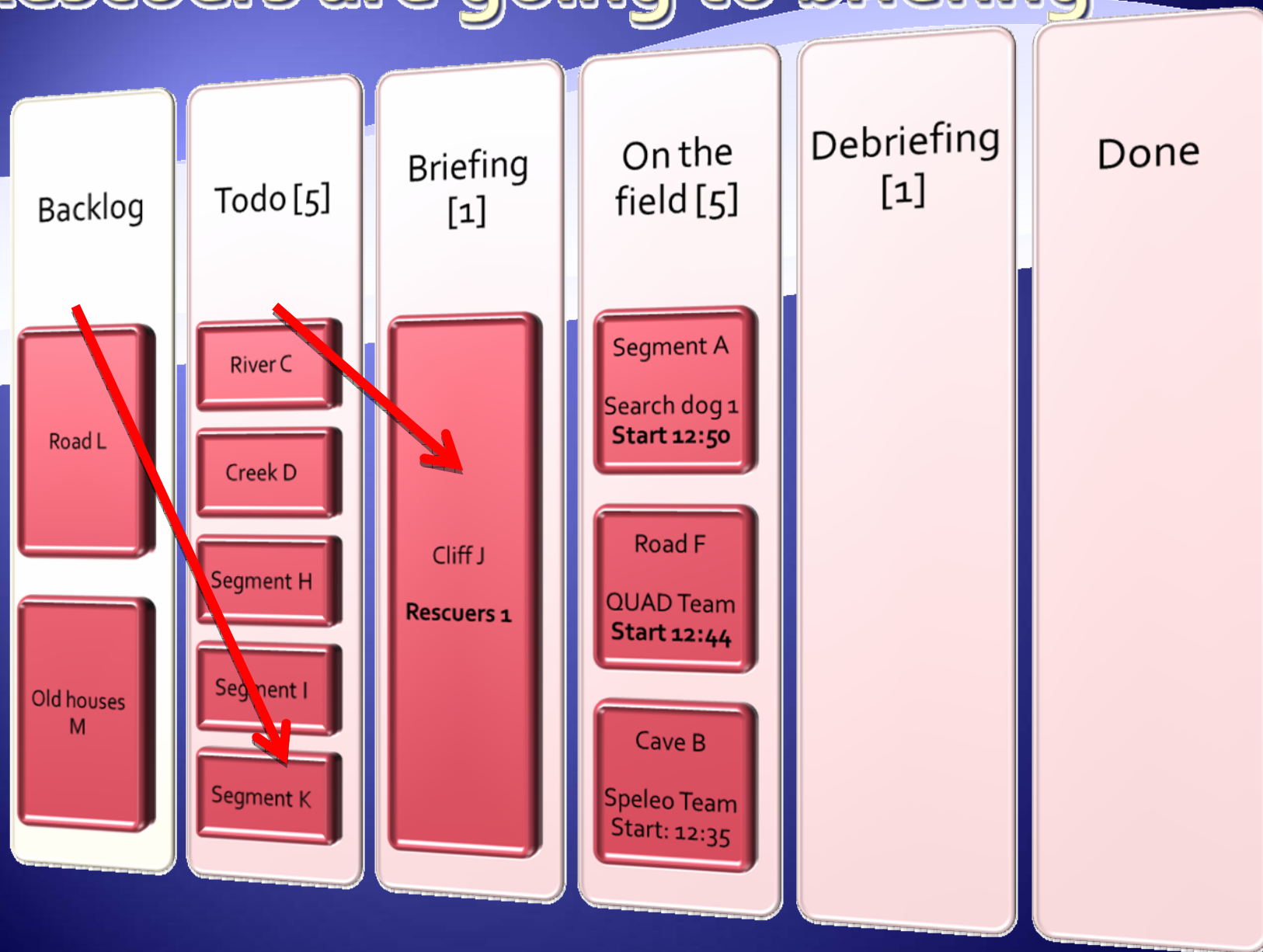
Search Dog is going to field



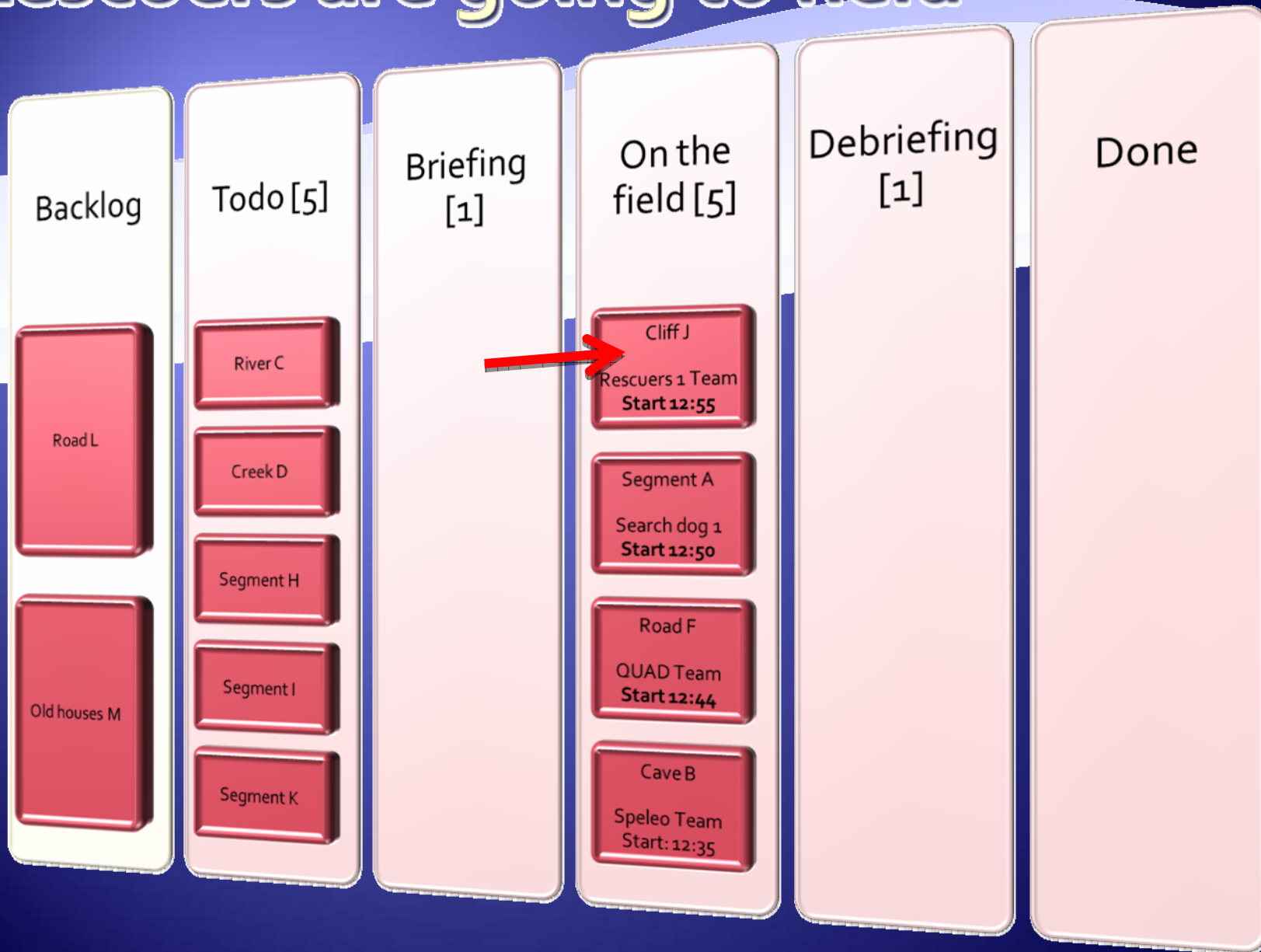
New tasks in Backlog



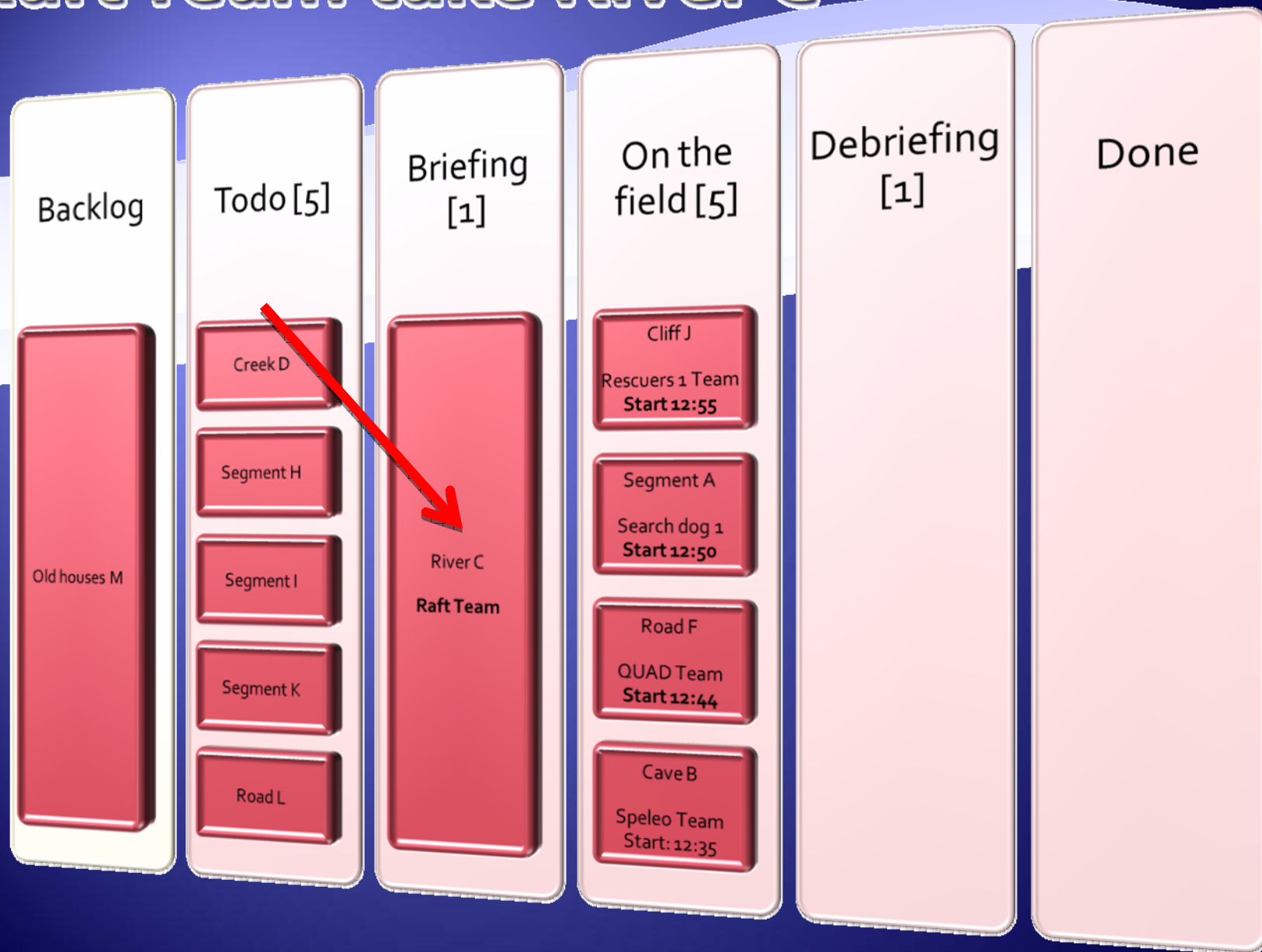
Rescuers are going to briefing



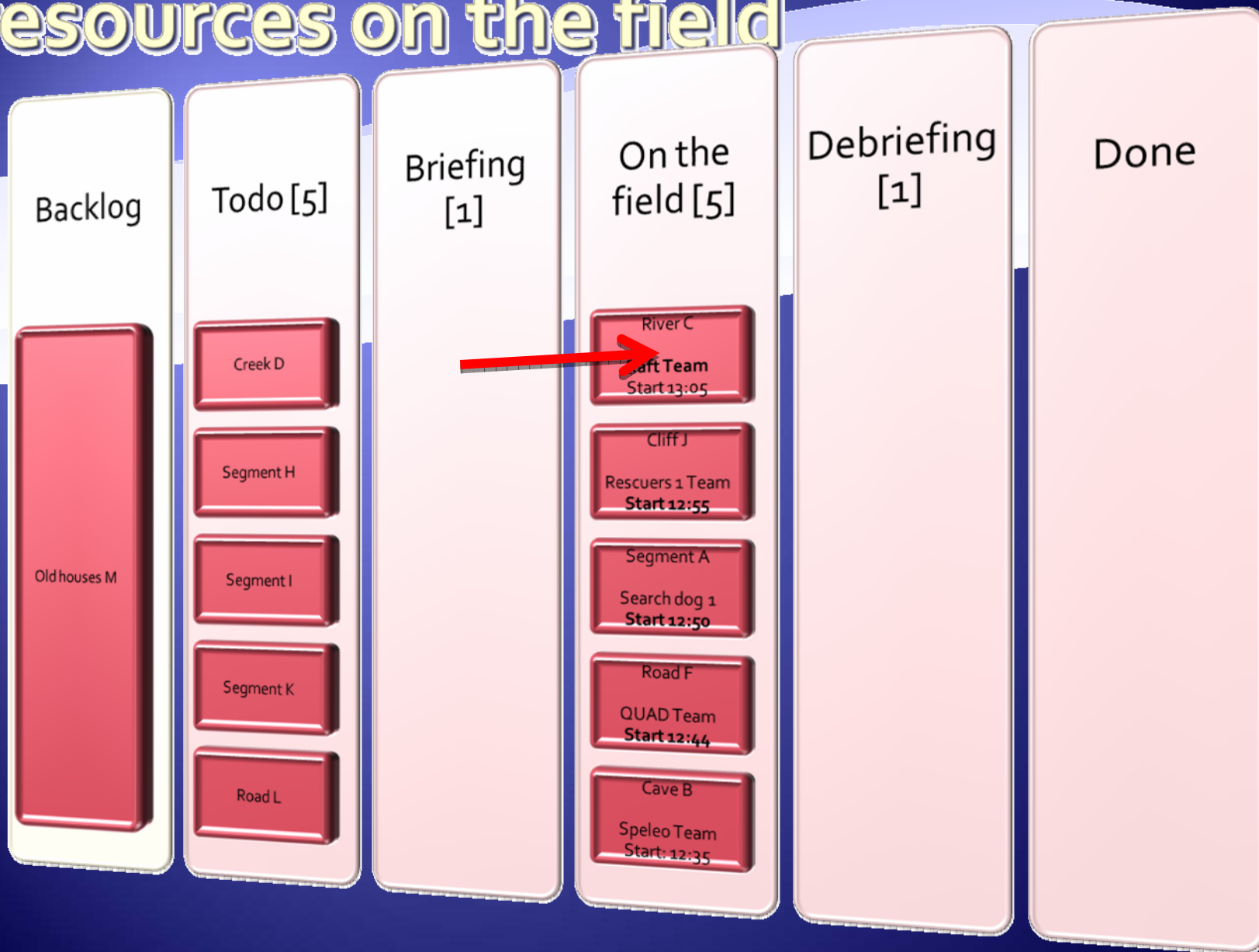
Rescuers are going to field



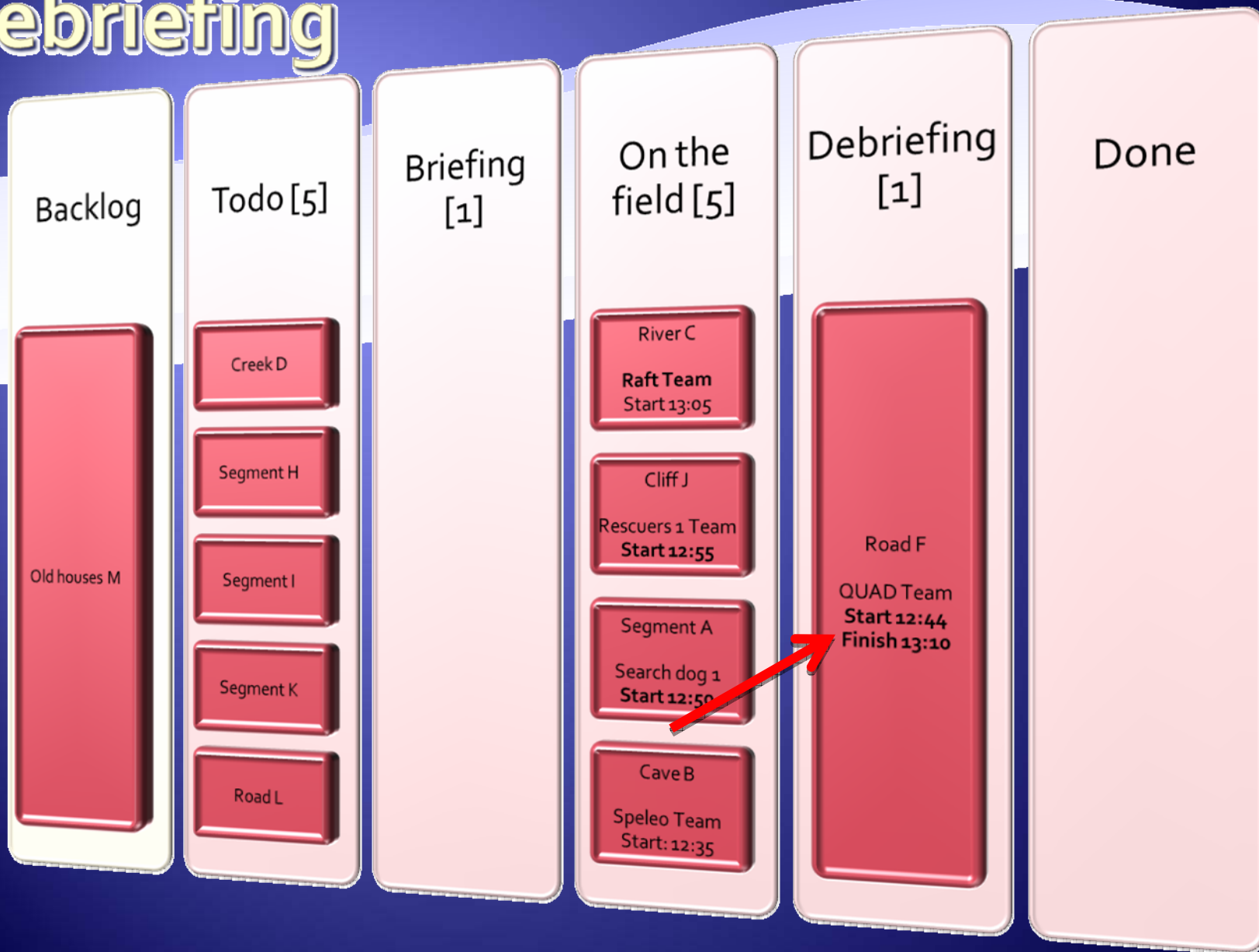
Raft Team take River C



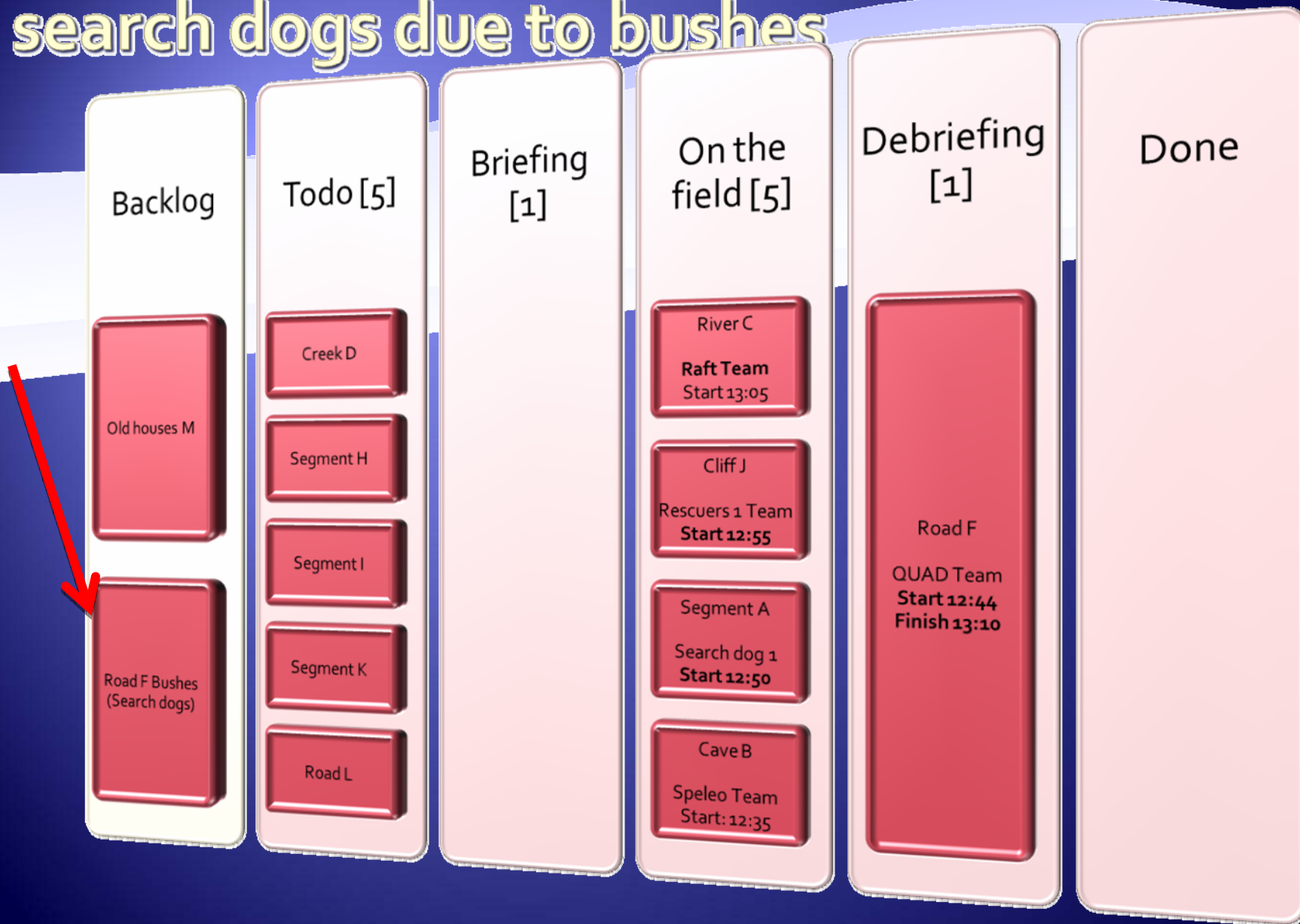
Raft Team go to River C, all resources on the field



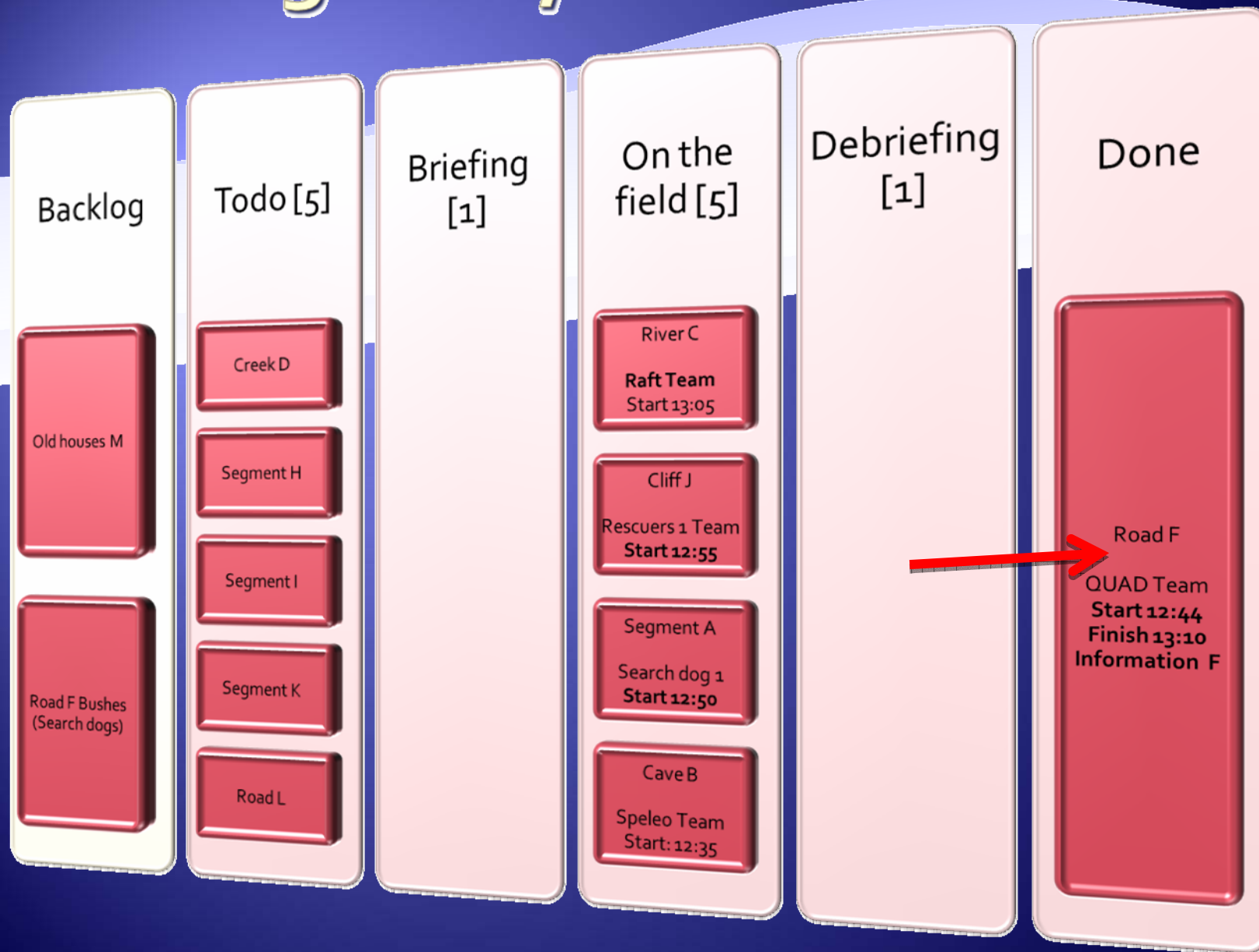
QUAD is finished, going to Debriefing



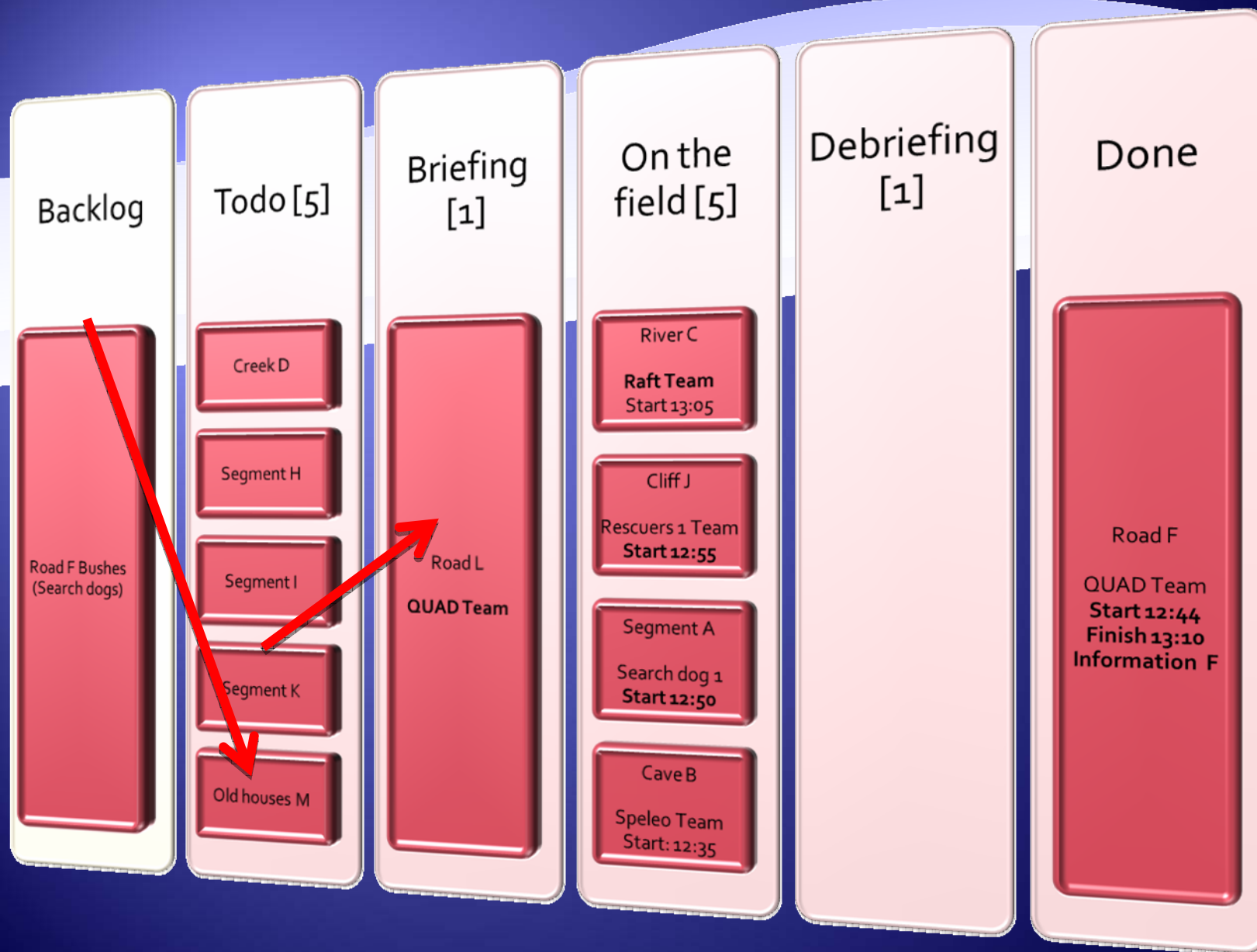
QUAD Team propose: search Road F by search dogs due to bushes



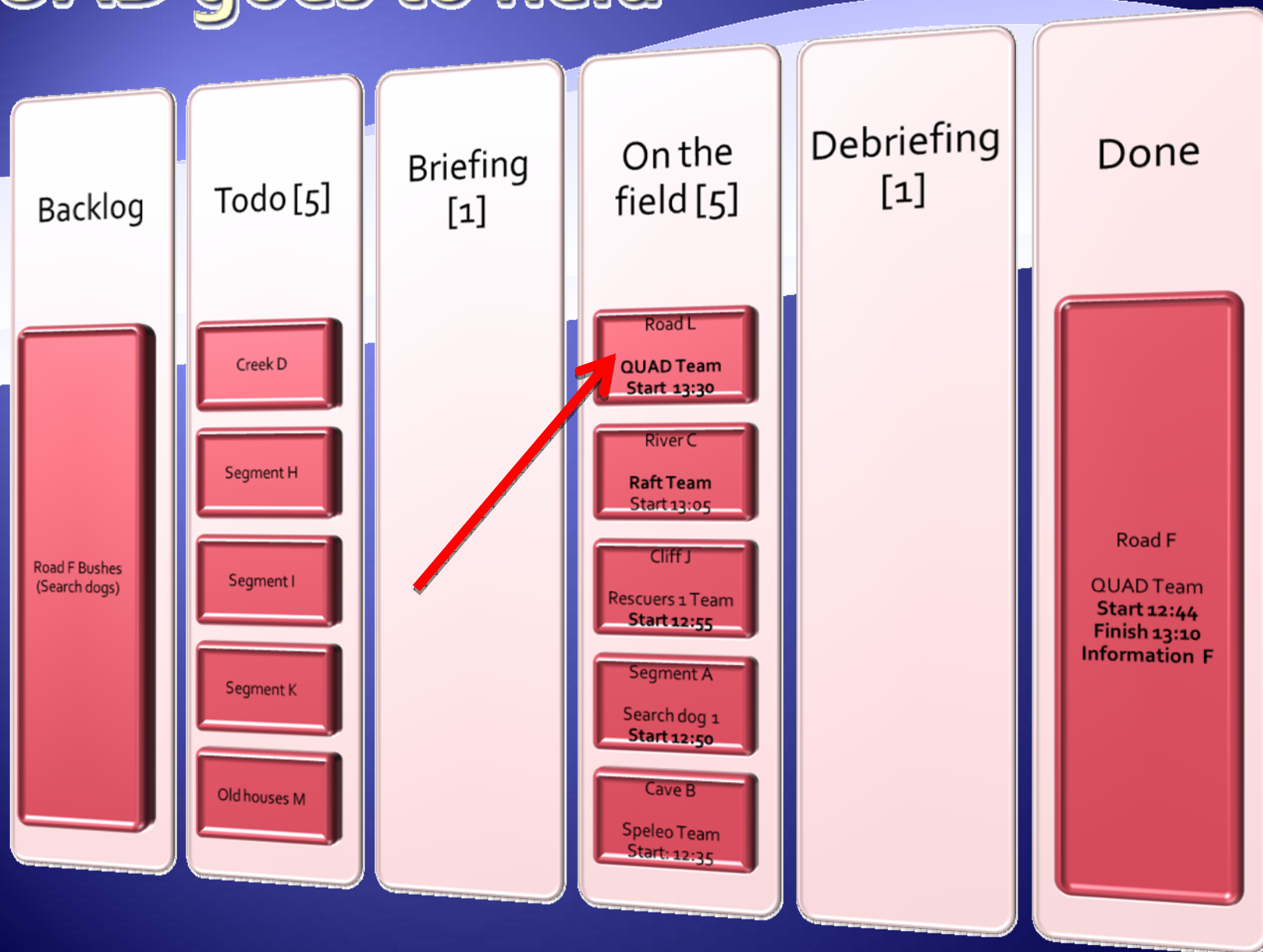
Debriefing done, QUAD is free



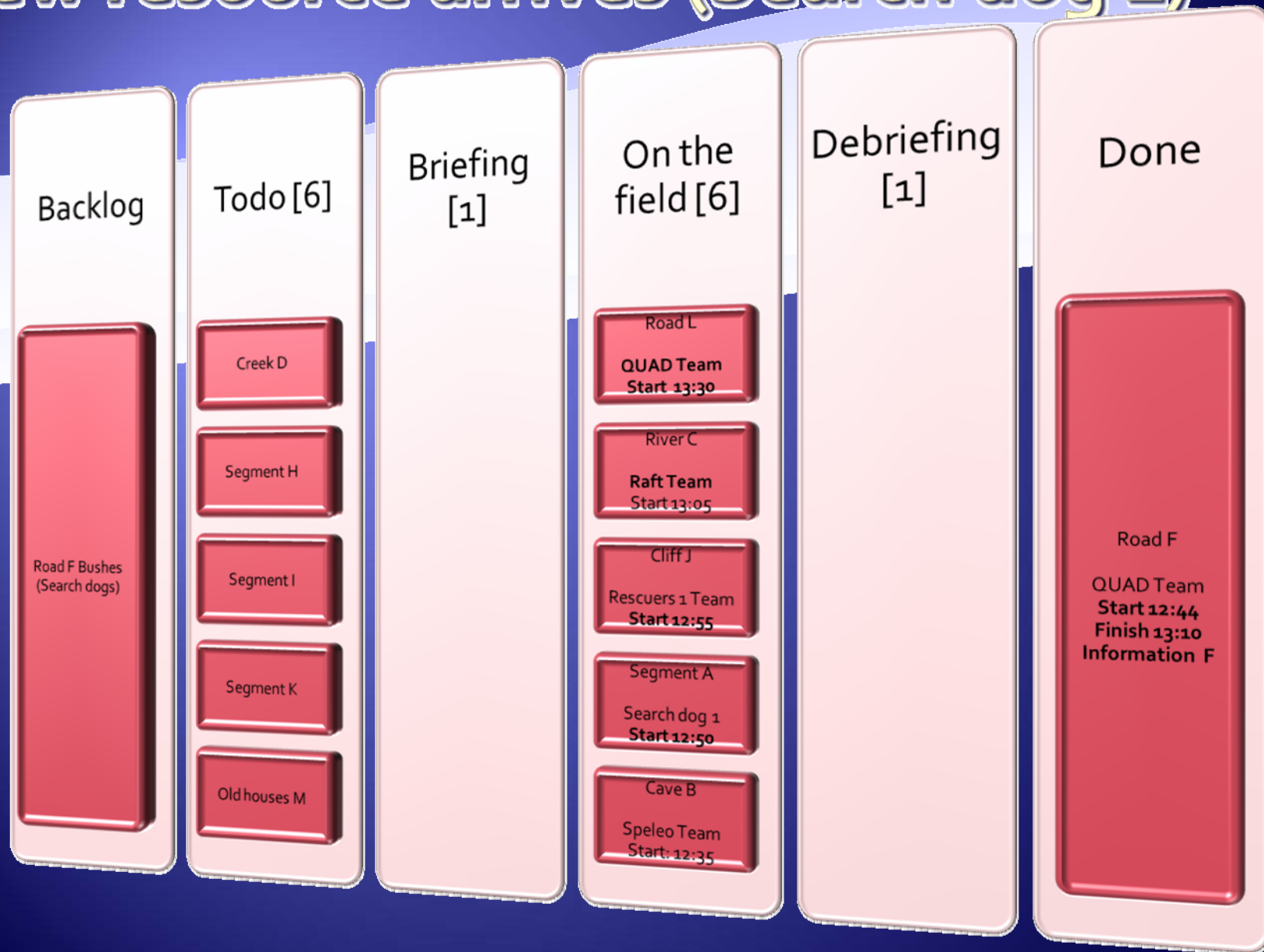
QUAD takes Road L



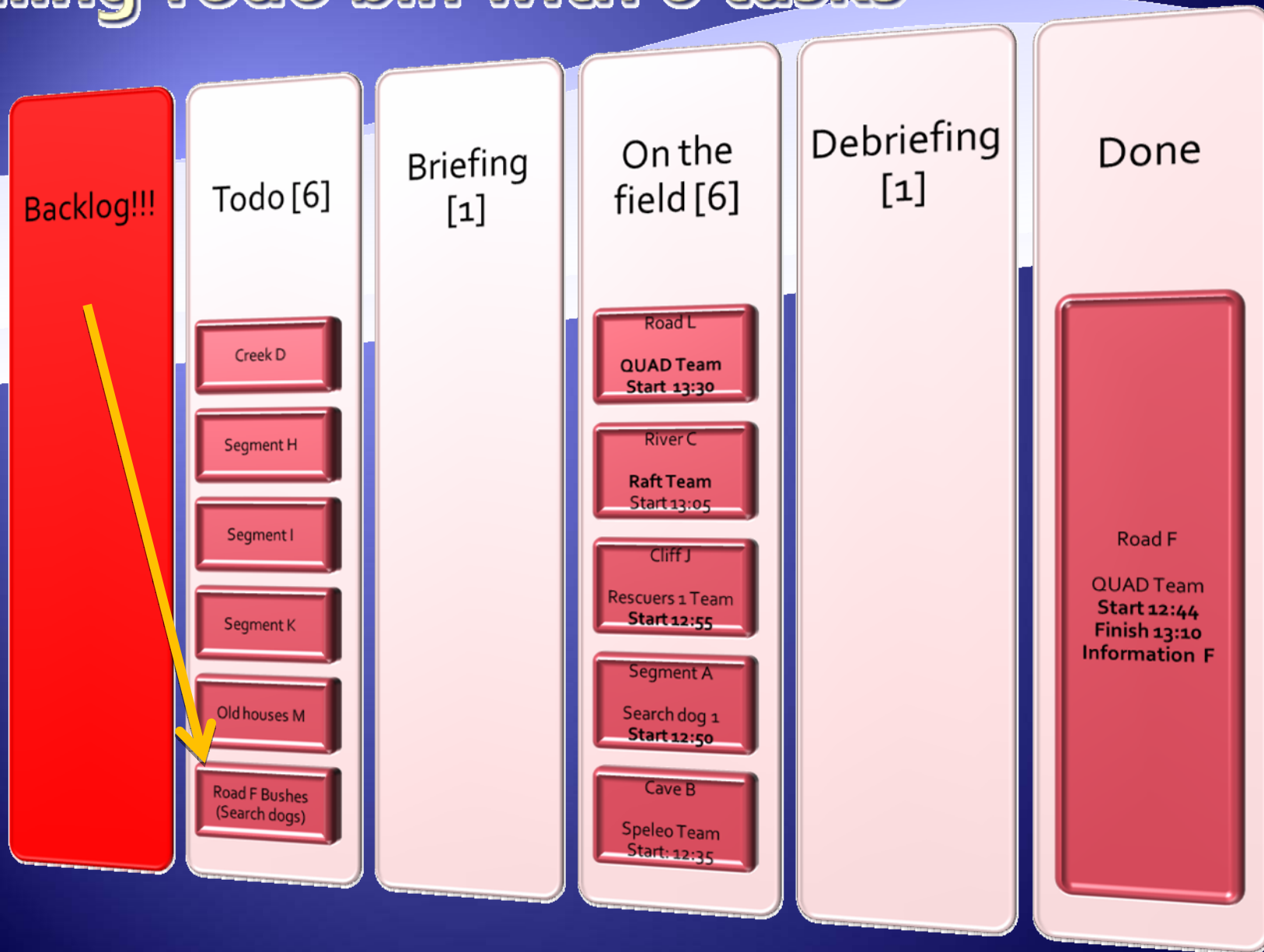
QUAD goes to field



New resource arrives (Search dog 2)



Filling Todo bin with 6 tasks



...after some time, a lot of job has been done...



...and a lot is still working on...

Backlog

Segment N

Segment O

Todo [6]

Segment I

Segment K

Bridge P

Road R

Briefing
[1]

On the
field [6]

Old houses M
Search Dog 1
Start: 14:00

Segment H
Rescue Team
Start: 14:15

Road L
QUAD Team
Start: 13:35

Creek D
Search Dog 2
Start: 13:08

Debriefing
[1]

Done

Segment A

Search dog 1
Start: 12:50
Finish: 13:24
Information B

River C

Raft Team
Start: 13:05
Finish: 14:15
Information D

Cliff J

Rescuers 1 Team
Start: 12:55
Finish: 14:02
Information C

Cave B

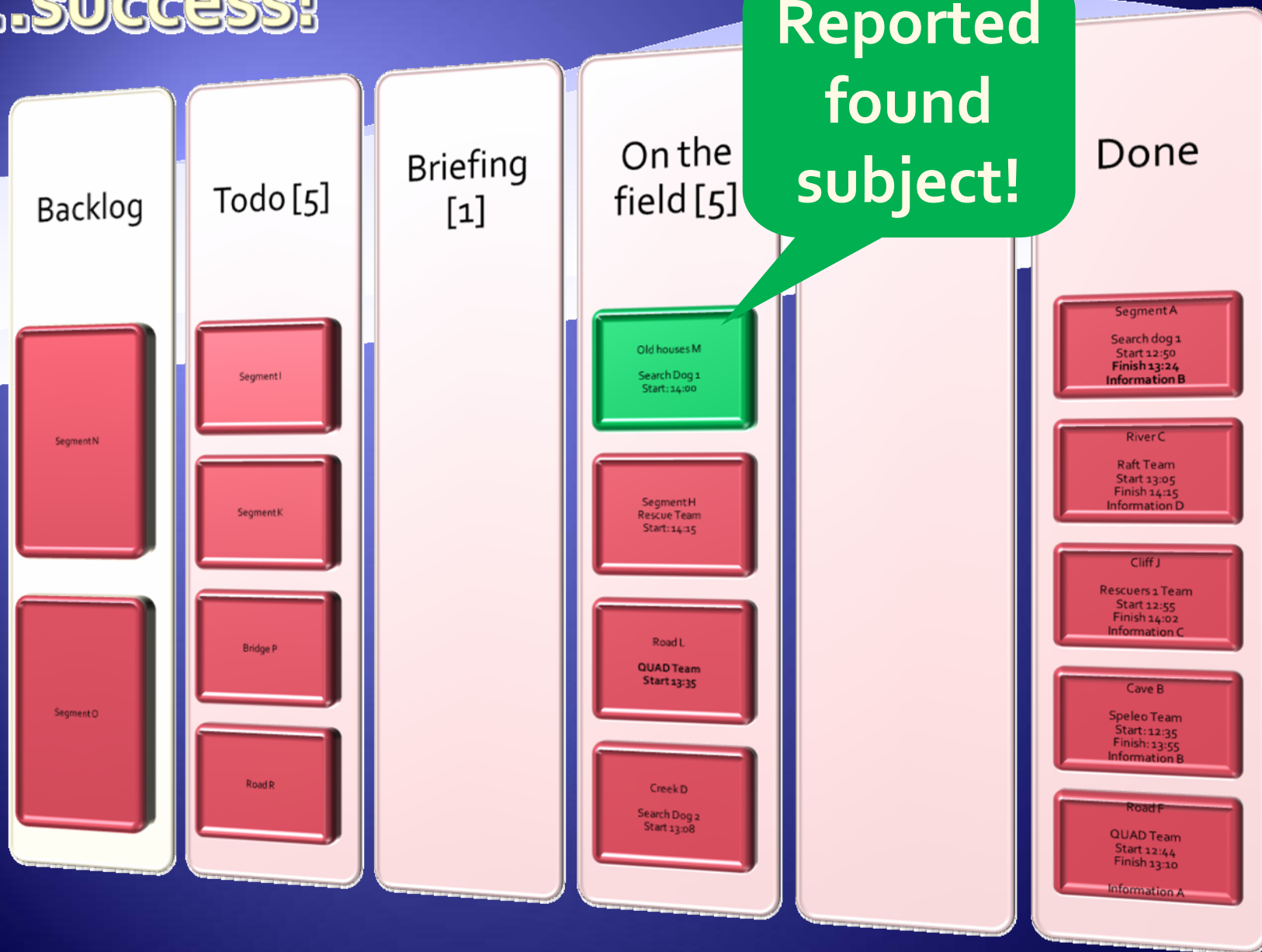
Speleo Team
Start: 12:35
Finish: 13:55
Information B

Road F

QUAD Team
Start: 12:44
Finish: 13:10
Information A

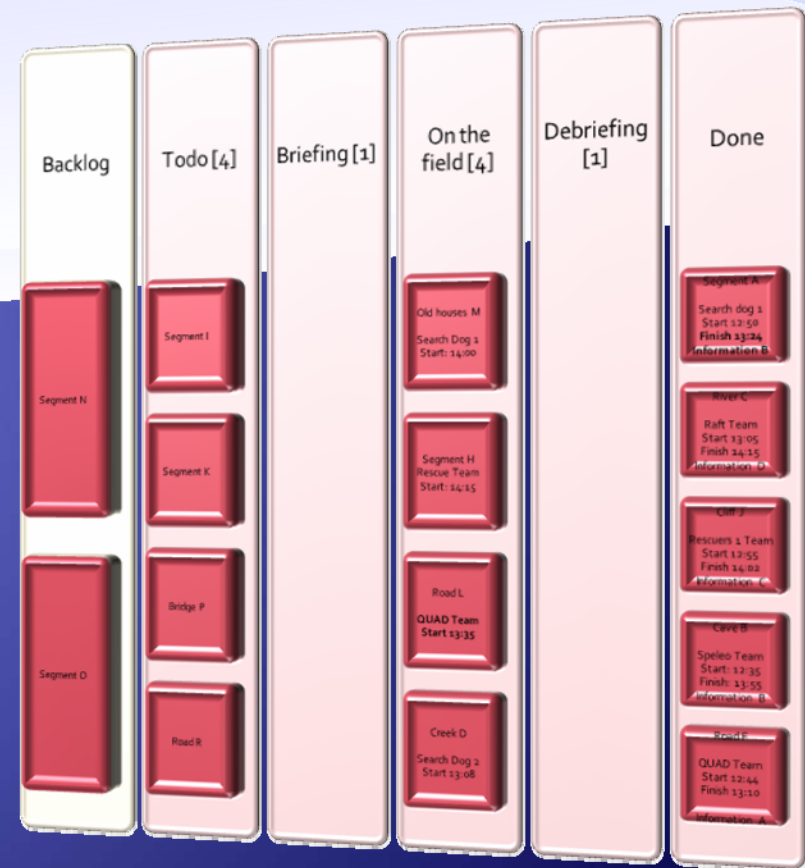
...and...

...Success!



Conclusion

- ◆ Visualisation to all members:
 - ◆ Plan
 - ◆ In progress
 - ◆ Completed job
- ◆ Ability to choose tasks
- ◆ Ability to accept and evaluate new tasks.
- ◆ Adjustable to change of number of searchers.
- ◆ Enables separation of two jobs: task creation, task execution
- ◆ Prioritisation of tasks → optimal use of resources
- ◆ The lack of available tasks is visible
- ◆ Documentation?



KanBan rescue card

TASK		TIME	
		DEPART	_____
		START	_____
		FINISH	_____
		ARRIVAL	_____
ASSIGNEE/ CALL CODE		POD%	COMMENT

H068 - 20110327

Thank you for your attention!

