Sikanni Green Remediation Pilot Project

Presented to: RemTech Conference 2011

Presented by: Hemmera

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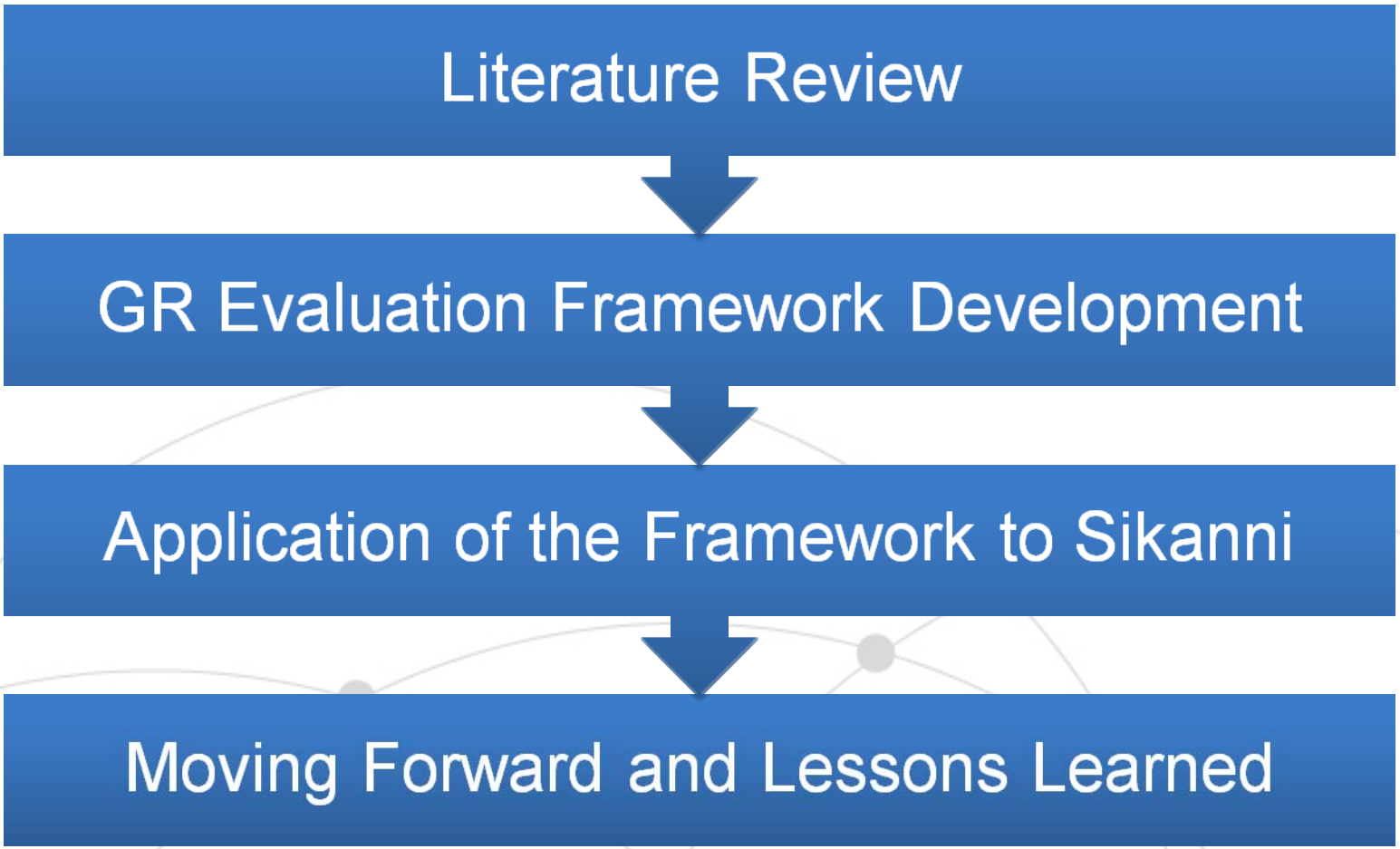
Agenda

1. Project Objective
2. Green Remediation Evaluation Framework
3. Sikanni Pilot Project
4. Next Steps

Project Objectives

- Partner with PWGSC to develop a green remediation evaluation framework
- Identify a suitable remediation project
- Evaluate Remedial Options with additional green aspects

Our Project Approach



GR Evaluation Framework

GRIs Database Development

GRIs Evaluation Methodology

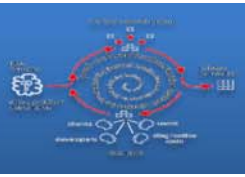
Application of GRIs in Remedial Options Evaluation

Green Remediation Indicators (GRIs)

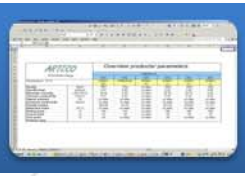
Applying the Framework

Select GRIs & Assign Weights

Set specific boundary conditions



Data Collection & Reduction



Raw GRI results

Scale GRI results

Apply to Remedial Options Evaluation

Applying the Framework - Sikanni

Option 1: Excavation + Offsite Disposal

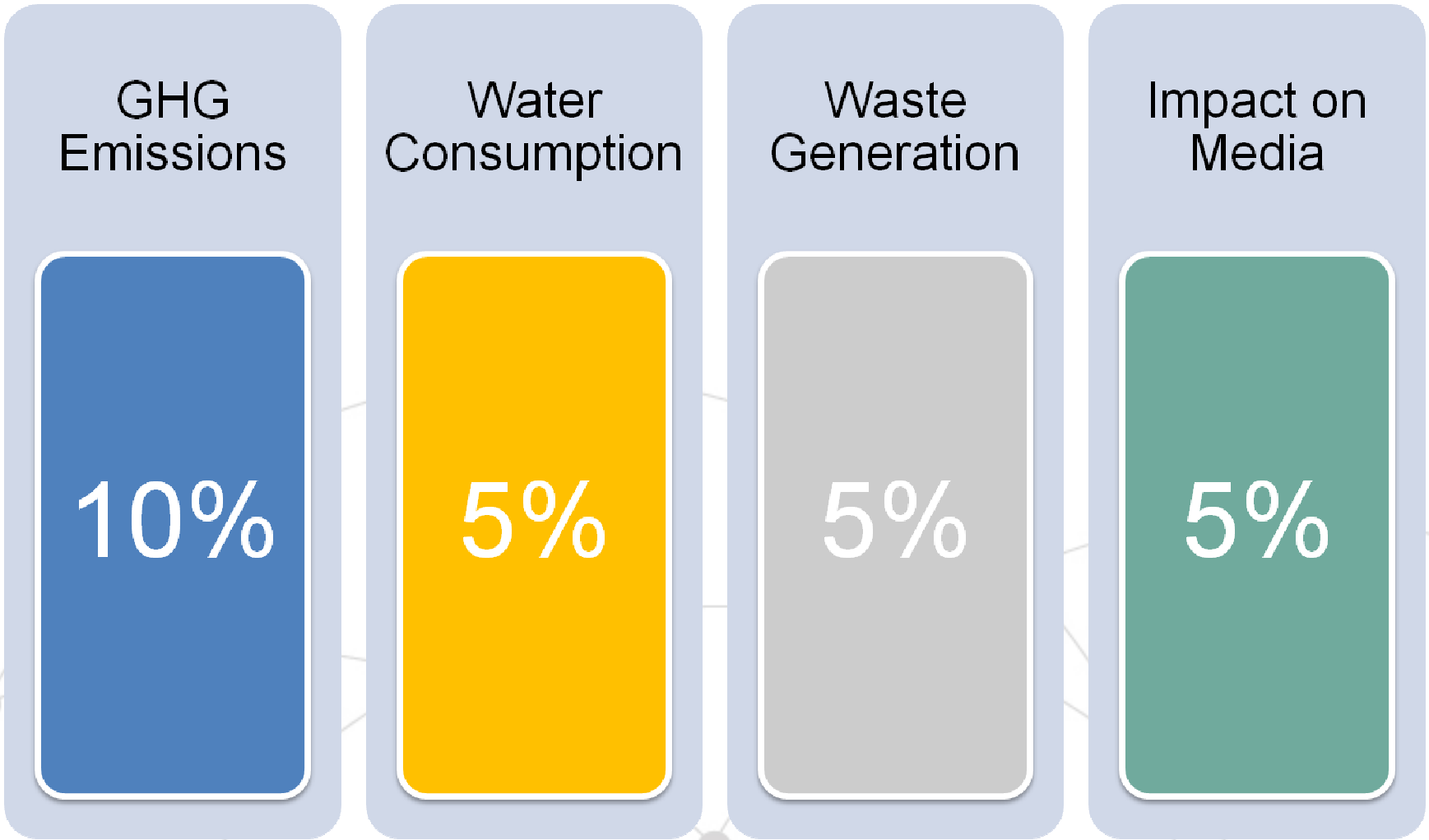
Option 2: Excavation + Onsite Conventional Biocell Treatment

Option 3: Excavation + Onsite Phytoremediation Treatment

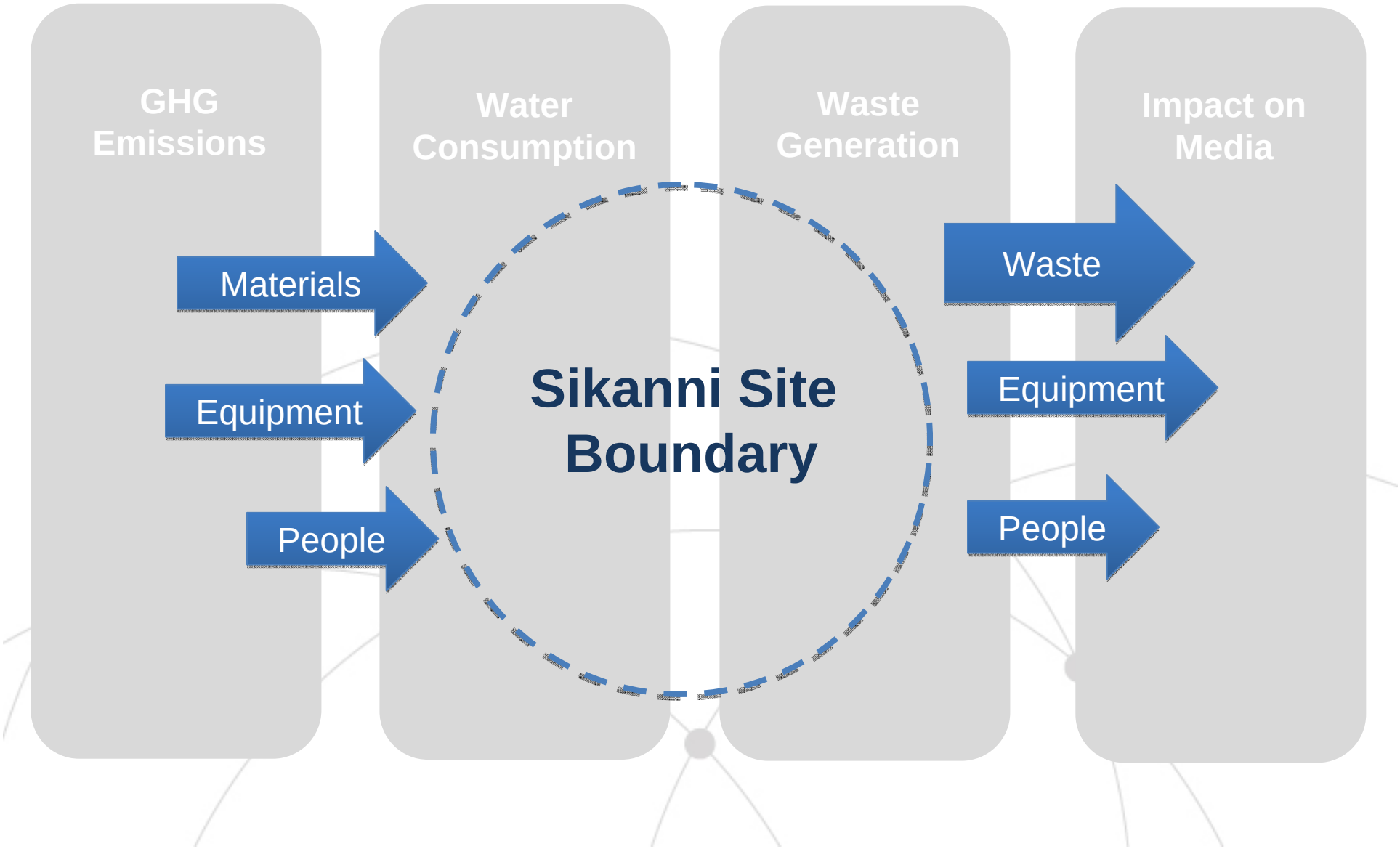
Option 4: Excavation + Onsite Conventional Biocell & Phytoremediation Treatment

Option 5: Green Excavation + Offsite Disposal

Select GRIs & Assign Weights



Set Specific Boundary Conditions



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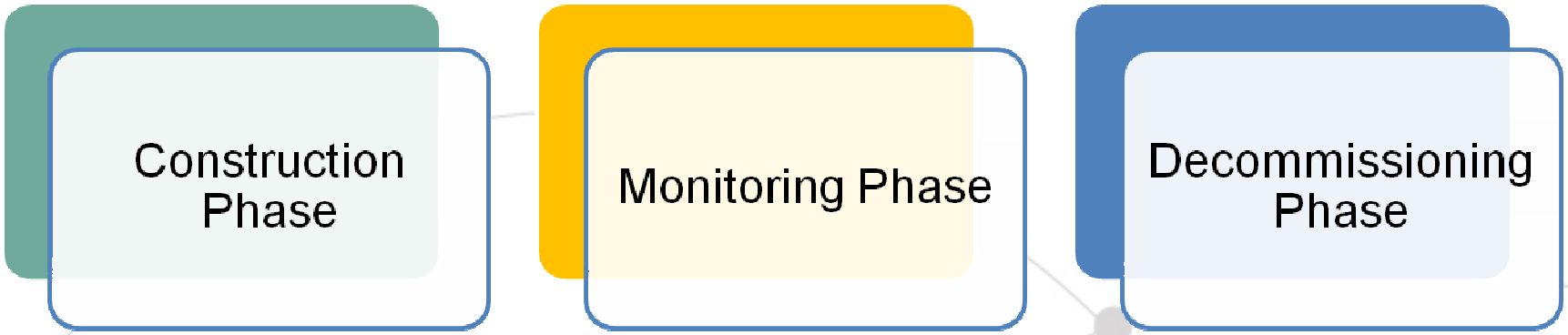


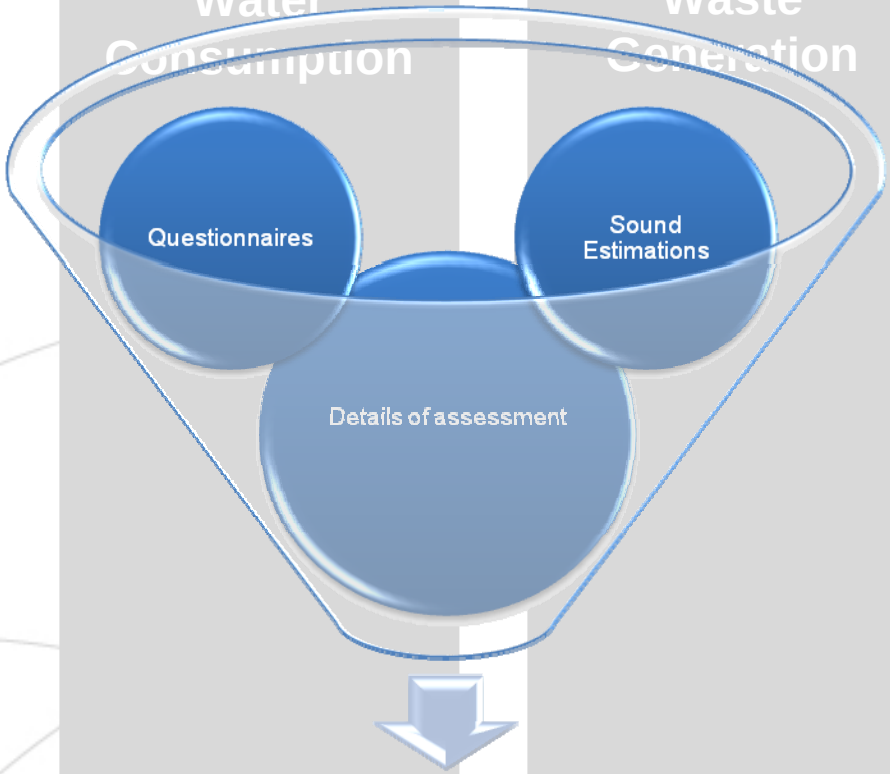
Data Collection and Reduction

GHG Emissions

Water Consumption

Waste Generation

Impact on Media



GRI Evaluation Tool

Raw GRI Results

Option	GHG Emissions (tCO2 e)	Water Consumption (Litres)	Waste Generated (tonnes)	Impacts on Media (higher score, less impact)
1	936	217,200	14,619	6
2	539	238,200	246	4
3	464	217,200	209	5
4	532	236,100	242	4
5	889	217,200	14,619	6

Scale GRI Results

Option	GHG Emissions (tCO2 e)	Water Consumption (Litres)	Waste Generated (tonnes)	Impacts on Media (higher score, less impact)	Total GRI Score
1	1	5	2	4	12
2	4	3	5	3	15
3	5	5	5	3	18
4	4.5	3.5	5	3	16
5	1.5	5	2	4	12.5

Remedial Options Evaluation

Option	Ranking without GRIs	Ranking with GRIs
1	1	3
2	2	3
3	3	1
4*	2.5*	1.5*
5	1	2

Next Steps

- Incorporate Green Remediation Activities in Technical Specification
- Track GRIs During Remediation
- Expand GRI Evaluation Tool
- Test the Framework in other sites
- Set up a Working Group and Update the Framework

Conclusion

- Implementing the GRI Framework can influence the decision making matrix
- The developed GRI Framework can potentially be applied to any and all sites
- Implementing Green Remediation Best Management Practices during remediation can reduce the overall environmental footprint of the project.

Questions? Thank You!

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