## Proposed Milton Quarry East Extension JART COMMENT SUMMARY TABLE – Natural Environment

Please accept the following as feedback from the Milton Quarry Joint Agency Review Team (JART). Fully addressing each comment below will help expedite the potential for resolutions of the consolidated JART objections and individual agency objections. Additional, new comments may be provided once a response has been prepared to the comments raised below and additional information provided.

	JART Comments (December 2022)	Reference	Source of Comment	Applicant Response
Report	/Date: Level 1 and 2 Natural Environment Technical Report (NETR) and Environ	mental Impact Asses	ssment (EIA) Dece	ember 2021 Author: GHD
1.	The term "common setback" used in the first line of the fourth paragraph on page 1 should be explained/defined.	Page 1	Sarah Mainguy, NSE	
2.	Section 1.3. Environmental Impact Assessment (EIS), Page 4, second full paragraph, third bullet references a local NHS. Please clarify what this refers to.	Section 1.3	Sarah Mainguy, NSE	
3.	It is stated on page 63 that there are no suitable breeding pools in the Cox Tract for Jefferson Salamander. However, the investigations within the Cox Tract are not described. Dates and other details for these investigations should be provided. Should woodland pools be present in the Cox Tract, the potential function of the pools as Jefferson Salamander habitat should be examined, with potential re- mapping of regulated habitat. - The MECP should provide comment on the need to survey the Cox Tract for salamander habitat	Level 1 and 2 Natural Environment Technical Report and Environmental Impact Assessment	Sarah Mainguy, NSE	
4.	<ul> <li>The potential occurrence of bat hibernacula within 200 m of the study area should be investigated. The area of bat hibernacula SWH includes a 200m radius (OMNR 2000) around the entrance of the hibernaculum within which most development types have the potential for impacts.</li> <li>The absence of bat hibernacula in this part of the escarpment should be confirmed.</li> </ul>	Level 1 and 2 Natural Environment Technical Report and Environmental Impact Assessment	Sarah Mainguy, NSE	

JART Response

5.	Methods for bat maternity roost habitat assessment provided in Section 5.1.2, which state that trees over 25 cm diameter at breast height (dbh) were counted, do not conform to the most recent protocols published by MNRF (Guelph District Office, 2017). These state: "Following the completion of ELC mapping of a study area, any coniferous, deciduous or mixed wooded ecosite, including treed swamps, that includes trees at least 10cm dbh should be considered suitable maternity roost habitat." All potential bat habitat trees of 10 cm dbh and over should be counted.	Section 5.1.2	Sarah Mainguy, NSE	
6.	Analysis of Significant Features Black Ash (Fraxinus nigra) should be listed as a significant species in Section 6.1. This species was listed as Endangered under the Endangered Species Act, 2007 on January 26, 2022.	Section 6.1	North South Environmental	
7.	<ul> <li>Section 7 provides an analysis of the provincial significance of wetlands in Ecoregion 6E. However, significance of wetlands in Halton Region should also be considered. Analysis of whether wetlands U1 and W56 would be considered significant according to Region of Halton criteria should be provided, in accordance with s.276.5(1) of the Regional Official Plan and in consultation with Conservation Halton and MNRF staff.</li> <li>it is noted that these wetlands are being protected from extraction, with a buffer of 50 m, which is likely more than a Regionally significant wetland would be buffered.</li> </ul>	Section 7	Sarah Mainguy, NSE	
8.	As noted in Region's comments on the Terms of Reference, wetlands U1 and W56 have not been evaluated by the Ministry of Natural Resources and Forestry (MNRF); however, they have been identified within MNRF and Conservation Halton wetland mapping. It is recommended that the NETR/EIS assess whether these wetlands should be added to the Provincially Significant Wetland complex. Comments on the analysis of Wetland U1 as an ecological trap are provided in point 12 below.	Level 1 and 2 Natural Environment Technical Report and Environmental Impact Assessment	Sarah Mainguy, NSE	
9.	Section 7 recommends a 50 m buffer to Wetland U1. The appropriate buffer width for the wetlands should also be determined in accordance with s.220.1.1 of the ROP.	Level 1 and 2 Natural Environment Technical Report and Environmental Impact Assessment	Sarah Mainguy, NSE	
10.	Mapping and Interpretation of Significant Features Wetland U1 is described as an ecological trap, but no evidence is provided to support that statement other than the description of the hydroperiod. However, the wetland has been instrumented only since 2020 (with general observations in 2019). Section 6.1.2.4,, page 63, referring to Figure 26, states that "The area shown in green tint would not function as dispersal habitat related to Wetland U1, because under existing conditions this pool does not contain water for a long enough period, i.e., its hydroperiod is too short, and no juveniles emanate from this feature." However, there is no description of drift fence studies to determine if juvenile salamanders emanate from the feature. This should be clarified. This wetland appears, on the basis of the	Section 6.1.2.4,, page 63	Sarah Mainguy, NSE	

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	<ul> <li>biteding population numbers provided, to have a high number as breeding habitat for amphibians. It is described in Section 5.5.1.3 as having eight Jefferson Salamander captured in 2019 and 20 Jefferson Salamander captured in 2020. In addition, the wetland was found to have full choruses of Spring Peepers in one of the years studied, as well as low numbers of Wood Frogs, American Toad and Gray Treefrog. Salamanders and frogs have a high fidelity to breeding habitat, so their continued presence in this feature may indicate that they breed successfully in some years. Many amphibians are dependent on "good" years for reproduction. There is insufficient information on hydroperiod to show how long the low water levels have persisted. The potential for successful breeding in some years should be discussed. The rationale for the conclusion that juveniles are not produced should be clarified.</li> <li>It is understood that the property was formerly owned by another company, and has only been monitored since 2019 because there was no access to the pond. It is not known when the spring water levels stopped being appropriate for amphibian breeding. The main quarry has likely affected the spring water levels in the pond for many years. The East Extension likely exacerbated these impacts, but it is not possible to separate the proportion of impact to the main quarry and East Extension.</li> <li>Regardless of when the impacts took place, it is clear that water levels should be supplemented in this pond as soon as possible to restore the function of the pond to support breeding amphibians. We understand that Wetland V2 was temporarily restored prior to the implementation of the Water Management System, which effectively restored the function. We recommend that the same approach be used to supplement early spring water levels in Wetland U1 as early as possible after the license is obtained.</li> </ul>			
11.	The extraction footprint encroaches on a Jefferson Salamander movement corridor shown in Figure 26. The extraction footprint should be restricted outside the movement corridor, notwithstanding the application of the salamander habitat regulation shown in Section 6.1.2.4. As noted in point 12, the evidence indicating that Wetland U1 is not suitable salamander breeding habitat is quite weak. It is noted in Section 6.1.2.4. that the field habitat surrounding wetland U1 would not be ideal dispersal habitat, but there is no direct evidence of whether it does or does not in fact provide dispersal habitat. The fact that there are salamanders and frogs still breeding in the pond may indicate that the pond is still functional. Amphibians move through farmland and fields to and from breeding habitat in many areas of southern Ontario, moving through long grass or cropland at night and during rainy periods to minimize desiccation.	Section 6.1.2.4	Sarah Mainguy, NSE	
12.	The Cox Tract should be enhanced by connecting it to the forests to the east as much as possible following rehabilitation, by restoring the haul road (as well as providing linkage as shown in the Site Plans). It is important that the Cox Tract remain linked to the forests to the east, as they provide additional habitat for forest species. This linkage should be enhanced as part of the woodland restoration. Please refer to guidance in the Sustainable Halton Report 3.02 – Natural Heritage System Definition and Implementation (NSE 2009) to incorporate an ecologically appropriate linkage as part of the Regional NHS. It is understood that the linkage will be enhanced following rehabilitation, but the linkage should also be maintained during extraction.	Level 1 and 2 Natural Environment Technical Report and Environmental Impact Assessment	Sarah Mainguy, NSE	

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13.	Page 92 provides a description of Significant Wildlife Habitat (SWH) for breeding amphibians, which is supported by mapping in Figure 32. The Ecoregion Schedules for Ecoregion 7E specify that SWH for woodland breeding amphibians should include the breeding pool plus the woodland 230 m surrounding the pool. The SWH should be mapped accordingly.	Page 92	Sarah Mainguy, NSE	
14.	The methods for mapping of Significant Wildlife Habitat (SWH) for Forest Area- sensitive Breeding Birds and Significant Wildlife Habitat for bird Species of Conservation Concern should be explained, as the mapping shown on Figure 31 does not conform to standard practice. The entire forest unit, which is a mosaic of several forest types, should be included in area-sensitive breeding bird habitat. The habitat is described as "candidate" SWH on page 90, but the identification of a forest of the suitable configuration and size, meeting the criteria for the number and type of species, would be confirmed SWH rather than candidate.	Page 90	Sarah Mainguy, NSE	
15.	There should be discussion of potential impacts on habitat for Black Ash in wetland W41. This species was listed as Endangered under the Endangered Species Act, 2007 on January 26th, 2022, though the prohibitions of the Act were deferred. A recovery strategy for this species was prepared (by NSE), which has been posted on the Environmental Registry of Ontario (ERO) for additional information (ERO Number 019-5053). Even though the wetland that supports this species is being protected for Jefferson Salamander, the potential impacts on the wetland's ability to support this tree species should be determined. Section 16.2.2 notes that additional water will be recharged to the wetland through the recharge wells designed to provide hydrogeological support to Jefferson Salamander breeding salamander ponds. Black Ash may not tolerate flooding to the same depth and duration as the salamander, should there be an increase in groundwater or flooding periods to Wetland W41, as is predicted in Section 16.2.2. We disagree with the statement in Section 9.3.1. that the habitat for Black Ash should not be considered for protection of the habitat, and thereby protection of populations that may be resistant, there would be no chance of recovery. The Recovery Strategy lists protection of remaining populations as an important part of recovery.	Section 16.2.2 and Section 9.3.1.	Sarah Mainguy, NSE	
16.	Cumulative Impacts Cumulative impacts have been dealt with only in a cursory way (in short sections on page 16.2.1.4 and on 17.4). Additional detail of cumulative impact analysis should be provided that examines the potential interaction between the change in groundwater regime, increase in drying winds and ambient light as a result of removal of vegetation and extraction activities, and invasion of non-native species. These cumulative impacts particularly should be examined for the period between extraction and rehabilitation as well as post-rehabilitation. - The effect of the water management on wetland V2 was demonstrated during the site visit, and many aspects of cumulative impacts were addressed by the effect of the water management system on that wetland. It was noted that the non-native species that originally dominated the wetland (Reed Canary-grass) had been replaced by a more diverse suite of species because of the increase in water levels. However, this is not necessarily certain to occur in wetland U1. It is understood that the water management system is proposed to compensate for the increase in drying winds, ambient light and change in groundwater regime. Monitoring should be proposed to assess the changes in the vegetation of the wetland over the long term, to account for these potential cumulative impacts.	Sections 16.2.1.4 and 17.4	Sarah Mainguy, NSE	

17.	<ul> <li>Proposed Mitigation</li> <li>Section 15.3.1.2 describes that mitigation measures for potential impacts on groundwater (Section 15.3) prior to rehabilitation are highly dependent on the effectiveness of constructed recharge wells. The effectiveness of this mitigation should be discussed with JART's groundwater experts.</li> <li>This comment still stands. It is our understanding that the groundwater rehabilitation is still under review.</li> </ul>	Section 15.3.1.2	Sarah Mainguy, NSE	
18.	As described in Section 15.3.1.2, seasonal pumping with quarry water will be used extensively for mitigation prior to rehabilitation, should there be reductions in water levels in salamander breeding wetlands. It is understood that the water management system has been highly effective in the past. However, there is evidence that high conductivity, which can be found in quarry discharge, can impair amphibian larval development. It should be clarified whether water monitoring includes monitoring of parameters related to ecological function. For example, if quarry water continues to be used to mitigate impacts on vernal pool hydroperiod, it should be confirmed that discharge water conductivity (and other parameters that could affect amphibian breeding such as pH) will not change with excavation in the extension, and/or that it will be monitored for potential changes in conductivity, pH and other parameters that could affect amphibian breeding, with appropriate actions if mitigation indicated a potential adverse impact.	Section 15.3.1.2	Sarah Mainguy, NSE	
19.	Some detail on compensation for Eastern Meadowlark and Bobolink habitat in accordance with requirements under the ESA should have been included, as this habitat is to be removed.	Level 1 and 2 Natural Environment Technical Report and Environmental Impact Assessment	Sarah Mainguy, NSE	
20.	Buffers Additional, detailed justification should be provided for reduction of buffers to the Significant Woodland on the southwest side of the extraction area on Page 173 (mapped on Figure 39). The Region OP Schedule 1G includes a 30 m buffer width from Key Features of the Regional Natural Heritage System (RNHS). Buffers are a component of the RNHS as per Section 115.3 of the ROP. Section 116.1 of the ROP allows for refinements and boundary adjustments to components of the RNHS, including buffers, through the submission of a study accepted by the Region. As part of the NETR, refinements to the 30 m buffer should be justified, including clearly illustrating the relationship between the buffer and the installation of the feedermain, recharge wells, control huts and the access road on more detailed mapping of this area.	Section 115.3 and 116.1	Sarah Mainguy, NSE	

21.	In accordance with Section 116.1 of the ROP, the reduction in the 30 m buffer width for the woodland adjacent to wetland V2 should be justified in detail. This pond appears to have a high function, that is protected by the surrounding woodland.	Section 116.1	Sarah Mainguy, NSE	
22.	Monitoring Section 16.1.2.2: In areas where feeder lines will be installed within the woodland boundary, long-term commitment to monitoring and management of non-native species should be described.	Section 16.1.2.2	Sarah Mainguy, NSE	
23.	In addition, in Section 16.1.2.2, a long-term monitoring plan should be outlined to manage the potential for invasion of non-native invasive species into the restoration areas, also in the long term.	Section 16.1.2.2	Sarah Mainguy, NSE	
24.	<ul> <li>Rehabilitation Plan</li> <li>The rehabilitation plan aims to create a lake, islands and cliffs in place of the current landscape that includes meadow, thicket and small patches of woodland. The restoration is to enhance Niagara Escarpment biodiversity. However, Policy 2.9.11 of the Niagara Escarpment Plan states: Rehabilitation shall incorporate the following: <ul> <li>a) natural heritage and hydrologic features and functions shall be restored or enhanced;</li> <li>b) aquatic areas remaining after extraction shall be rehabilitated as representative of the natural ecosystem in that particular setting or ecodistrict, and the combined terrestrial and aquatic rehabilitation shall protect and where possible enhance the ecological value of the site.</li> </ul> </li> <li>This policy emphasizes that the proposed rehabilitation should be representative of the existing ecodistrict. However, lakes, shoals and islands are not characteristic features within this Ecodistrict, Ecodistrict 6E-7 (Henson and Brodribb 2006). The following are documented as vegetation types characteristic of this Ecodistrict (Henson and Brodribb 2006): <ul> <li>Broad-leaved Sedge Organic Shallow Marsh Type</li> <li>Bulblet Fern - Herb Robert Open Shaded Limestone / Dolostone Cliff Face Type</li> <li>Cliffbrake - Lichen Open Unshaded Limestone / Dolostone Cliff Face Type</li> <li>Dry - Fresh Red Oak Deciduous Forest Type</li> </ul> </li> </ul>	Section 110	Sarah Mainguy, NSE	

- Dry Fresh White Oak Deciduous Forest Type
- Dry Fresh White Pine Oak Mixed Forest Type
- Dry Fresh White Pine Red Maple Mixed Forest Type
- Dry Black Oak White Oak Tallgrass Woodland Type
- Dry Black Oak Deciduous Forest Type
- Dry Black Oak-Pine Tallgrass Savannah Type
- Dry Herbaceous Limestone / Dolostone Talus
- Dry Red Pine White Pine Coniferous Forest Type
- Dry Tallgrass Prairie Type
- Fresh Sugar Maple Beech Deciduous Forest Type
- Fresh Sugar Maple White Ash Deciduous Forest Type
- Fresh Sugar Maple Deciduous Forest Type
- Hemlock Sugar Maple Moist Limestone Talus Type
- Leatherleaf Shrub Kettle Peatland Type
- Moist Fresh Hemlock Sugar Maple Mixed Forest Type
- Moist Fresh Sugar Maple Black Maple Deciduous Forest Type
- Mountain Maple Open Limestone Talus Shrubland Type
- Open Limestone / Dolostone Seepage Cliff Type
- Round-leaved Dogwood Open Limestone / Dolostone Cliff Rim Shrubland Type
- Sugar Maple Moist Treed Limestone Talus Type
- White Birch Dry Treed Limestone Talus Type
- White Cedar Hemlock Coniferous Organic Swamp Type
- White Cedar White Spruce Coniferous Organic Swamp Type
- White Cedar Dry Treed Limestone Talus Type
- White Cedar Treed Limestone Cliff Type
- Willow Organic Thicket Swamp Type

Additional policies emphasize the need for compatibility with the existing landscape. Goal of the Niagara Escarpment Plan section 1.9.1.5 states: To ensure that, after a licence is surrendered, the land is re-designated to a land use designation that is compatible with the rehabilitation of the site, the designation criteria of adjacent lands, the surrounding Escarpment environment and existing land uses in the area.

In addition, Niagara Escarpment Plan policies governing the use of off-site material state: 2.9.9 The use of off-site material shall not be permitted unless it is determined through appropriate environmental, technical and planning studies that doing so will achieve greater long-term ecological and land use compatibility (e.g., the importation of topsoil to improve site capability for agriculture, forestry or habitat diversity) and the implementing authority is satisfied that the use of off-site material does not constitute a commercial fill or landfill operation.

Regional policies echo this philosophy in Section 110 (7.2) d) C): Priorities for restorations or enhancements to the Greenbelt and/or Regional Natural Heritage Systems through post-extraction rehabilitation shall be based on the following in descending order of priority:

[i] restoration to the original features and functions on the areas directly affected by the extractive operations,



	It is understood that there are no alternatives to a rehabilitation plan for a quarry on the Niagara Escarpment other than a large lake of some kind. However, it should be demonstrated that the rehabilitation plan is composed of communities as consistent as is feasible with the characteristic vegetation communities of the Niagara Escarpment.			
25.	Within the Geology and Water Resources Assessment Report it is stated that some of the key wetlands are within the historic zone of influence of the Main, North Quarry and East Cell. Based on this, the proposed extension may cause additional impacts within its zone of influence, therefore, additional target levels are required, and further mitigation measures may be needed to ensure there will be no negative impacts to the regulated wetlands form and functions.	Level 1 and 2 Natural Environment Technical Report and Environmental Impact Assessment Sections 16.2.1.4 a and 17.4 Cumulative Effects (Pages 169 and 185)	СН	
26.	We recommend a screening table be included that provides a full complement of SWH present within the MQEE area and Natural Environment Study area that incorporates all components in the SWH Ecoregion Criteria Schedule 7E, 2015 on the confirmed and candidate SWH identified, impacts to the ecological functions characterized to ensure the mitigation measures proposed are appropriate and ensure no negative impacts to natural heritage features and their ecological functions.	Level 1 and 2 Natural Environment Technical Report and Environmental Impact Assessment Section 9.0 Significant Wildlife Habitat (Page 83)	СН	
27.	We recommend consultation with MNRF to determine if the wetland significance of unevaluated wetlands U1 and W56 should be further evaluated from a complexing perspective as they both are within close proximity to the Halton Escarpment Wetland PSW Complex.	Level 1 and 2 Natural Environment Technical Report and Environmental Impact Assessment, Section 5.5 Wetland Characterization, (Page 43)	CH	
28.	The boundary delineation for wetland U1 was completed on Wednesday, August 10 <sup>th</sup> with CH staff, North South Environmental, and Goodban Consulting. Minor modifications to Dufferin's previously staked wetland boundary were completed by moving some of the stakes to better represent the wetland vegetation community and establish CH's regulatory limits. A memo entitled, "MQEE Wetland Boundary Review – August 10, 2022 Site Visit" dated August 29th, 2022, prepared by Goodban Consulting was provided regarding the updated wetland staking exercise and adjusted boundary limit. Upon review of this memo, CH does not have any concerns and agree with the adjusted limit of extraction in response to the adjusted boundary limits for wetland U1. Update all drawings, report figures and the proposed site plan to accurately show the updated boundary limits for wetland U1 and revised limits of extraction.	Level 1 and 2 Natural Environment Technical Report and Environmental Impact Assessment	СН	

29.	We recommend conducting targeted turtle basking or nesting surveys to provide a comprehensive characterization of potential habitat present to identify and address potential negative impacts to ensure the mitigation measures and habitat enhancements proposed are appropriate.	Section 4.2.2 (Page 13)	CH	
3.	This section indicates that if the final lake level is high enough to support wetlands and sufficient seasonal fluctuations the groundwater recharge system operation will be discontinued. Please clarify the expected monitoring duration to ensure the lake levels are sufficient to ensure the wetlands form and function are maintained post extraction.	Section 10.3.3.2 (Page 70)	СН	
31.	Without detailed surveys completed for the woodland within the Cox Tract (West of the extraction area), it is difficult to confirm that JESA habitat is not present. Therefore, we recommend conducting additional surveys to confirm the potential migration and dispersal habitat of the Jefferson Salamander and Unisexual Ambystoma (Jefferson Salamander dependent population) to the west of the extraction area.	Section 16.1.2.1, Extraction Footprint (Page 153)	СН	
32.	Figure 42b Simulated Water Level Change- Rehabilitation Condition: The Significant woodland located between the North and Main Quarry shows an increase water level ranging from 5.00 to 0.20m. Include additional discussion on potential impacts, as there is no interim condition proposed for the woodland.	16.2.1.2 Groundwater Assessment	СН	
33.	Figure 42a and 42b: There is a decrease in water level conditions for Wetland U1 during the proposed mitigation (interim period)_Please provide discussion on the proposed conditions in the interim (during extraction) and after rehabilitation for this wetland. Please update the figures and discuss this in the report.	16.2.1.2 Groundwater Assessment	СН	
34.	The Level 1 and 2 NETR and EIA (Goodban 2021b) identified a confirmed Jefferson Salamander and Unisexual Ambystoma breeding pond contained within the licensed area of the MQEE named as wetland U1. The NETR also identified another confirmed Jefferson Salamander and Unisexual Ambystoma breeding pond breeding pond, known as wetland V2, that occurs just outside of the licensed area boundary to the north and northeast of the proposed extraction area limit.	General	Matrix Solutions	





	(Figure 36 of the Level 1 and 2 NETR)			
	Figure 40 of the Level 1 and 2 NETR shows that the distance from the edge of the MQEE extraction limit and wetland U1 to be 50 m. For wetland V2, no distance measurement is provided between the edge of the MQEE extraction limit and the wetland boundary in any of the figures provided in in the Level 1 and 2 NETR. However, based on the scale of the mapping provided in the NETR, the distance from the northeast corner edge of the MQEE Extraction Limit to wetland V2 is estimated to be 60 to 70 m. The northern edge of wetland V2 appears to be within 35m of the southern extraction limit of the East Cell. It is not known whether blasting will occur or has already occurred within the northern edge of wetland V2, as this is within an existing approved licensed area in the East Cell. The Level 1 and 2 NETR states that expansion of the quarry will occur with the elimination of the common setback between the East Cell and the MQEE.			
	As blasting is used to break up the rock as part of the excavation process, it is assumed that blasting activities in the East Cell and the MQEE will be conducted near wetland V2 at distances ranging from 35 to 70m. It is also assumed that blasting activities will be conducted within 50 m of wetland U1.			
35.	Although the function of Salamander breeding within wetlands U1 and V2 is documented in the Level 1 and 2 NETR, the Environmental Impact Analysis does not discuss the potential impacts to Jefferson Salamanders and unisexual Ambystoma at all life stages and their habitat in relation to blasting activities. By extension, other animals using the wetlands U1 and V2, such as amphibians, may also be impacted by blasting. Although untested, amphibians with air-containing organs, such as lungs, probably have mortality comparable to fish with swim bladders. For impact assessment purposes, the relationship between distance/pressure and fish mortality/injury are likely to be similar.	General	Matrix Solutions	
	discussion of the potential impact of blasting associated with all animals residing in wetlands U1 and V2, given the close proximity of blasting activities to directly affect or disrupt their life cycle activities.			
36.	NEC concurs with and relies upon all of the peer review findings and identified additional areas of concern identified herein as they relate to the requirements of the NEP. Of particular note are the comments respecting cumulative impacts in Item 16 above, as it relates to the conclusions of the PJR. NEC concurs that the cumulative impacts discussion requires additional consideration.	General	NEC	

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