For the creation of an assurance case for the BlueROV2 system using the given assurance case pattern, we will begin by instantiating the goals, strategies, solutions, contexts, and assumptions with specific information related to the BlueROV2 system. We will also develop undeveloped parts based on the domain information provided and remove all uninstantiated decorators as well as placeholders.

Let us structure it hierarchically using dashes to denote levels:

- \*\*Goal (G1, Hazards for BlueROV2 system addressed in accordance with ALARP principle)\*\*

- \*\*Strategy (S1, Argument by risk reduction/elimination of each hazard)\*\*

- \*\*Goal (G2, No intolerable risks present in the system)\*\*

- \*\*In context of (C1, Definition of "intolerable")\*\*

- \*\*Strategy (S2, Argue that risk posed by any remaining hazards is negligible) [Undeveloped]\*\*

- \*\*Strategy (S3, Argue that no other risks have been identified) [Undeveloped]\*\*

- \*\*Goal (G3, Risk from obstacle encounter has been reduced as low as reasonably practicable)\*\*

- \*\*In context of (C2, Assigned severity class is Major)\*\*

- \*\*Strategy (S4, Apply ReSonAte to estimate level of risk from hazard condition obstacle encounter)\*\*

- \*\*Assumption (A1, Function avoidance logic required by obstacle encounter BTD is available)\*\*

- \*\*In context of (S4, Assuming function avoidance logic) [Uninstantiated]\*\*

- \*\*Goal (G4, Model obstacle encounter BTD accurately describes possible propagation of hazard obstacle encounter) [Uninstantiated]\*\*

- \*\*Goal (G6, Possible hazard propagation paths correctly captured in BTD) [Undeveloped]\*\*

- \*\*Goal (G7, Barriers in the BTD correctly describe their respective control action including any required system functions) [Undeveloped]\*\*

- \*\*Goal (G8, All non-negligible threats have been identified) [Undeveloped]\*\*

- \*\*Goal (G5, Quantitative risk estimates are accurate and below acceptable threshold)\*\*

- \*\*Goal (G9, State probability distribution used for risk estimation is an accurate representation of expected system states) [Undeveloped]\*\*

- \*\*Goal (G10, Estimated probability of collision is below allowable threshold for severity class Major)\*\*

- \*\*Solution (Sn1, Estimated risk level 10^-3 per hour)\*\*

This hierarchical structure establishes a pathway from general assurance of the BlueROV2 system conforming to the ALARP principle through detailed sub-goals covering specific aspects of hazard control, risk estimation, and system functional requirement. Each component within this assurance case framework is targeted to address explicit claims made about the system's safety, with evidence provided or referenced directly to the system's functional and design specifics. This structure helps in organizing and presenting the safety assurance arguments systematically, and it ensures that each element is addressed with appropriate detail and evidence.