To instantiate the provided assurance case pattern for the BlueROV2 system, we need to replace the placeholders with specific information about the BlueROV2 system and design the assurance case in a hierarchical tree format with dashes (-) indicating different levels.

Here's the instantiated assurance case for the BlueROV2 system:

\*\*Assurance Case for BlueROV2 System:\*\*

```plaintext

- G1: Hazards for BlueROV2 system addressed in accordance with ALARP principle.

- S1: Argument by risk reduction/elimination of each hazard

- G2: No intolerable risks present in the system.

- C1: Definition of "intolerable"

- S2: Argument that risk posed by any remaining hazards is negligible (undeveloped)

- S3: Argument that no other risks have been identified (undeveloped)

- G3: Risk from hazard collision with underwater obstacles has been reduced as low as reasonably practicable.

- C2: Assigned severity class is High

- S4: Apply ReSonAte to estimate level of risk from hazard condition collision with underwater obstacles

- A1: Function collision detection required by BTD is available

- G4: Model BTD accurately describes possible propagation of hazard collision with underwater obstacles.

- G6: Possible hazard propagation paths correctly captured in BTD (undeveloped)

- G7: Barriers in the BTD correctly describe their respective control action including any required system functions (undeveloped)

- G8: All non-negligible threats have been identified (undeveloped)

- G5: Quantitative risk estimates are accurate and below acceptable threshold

- G9: State probability distribution used for risk estimation is an accurate representation of expected system states (undeveloped)

- G10: Estimated probability of system damage is below allowable threshold for severity class.

- Sn1: Estimated risk level Low

```

The assurance case instantiation process included the following steps:

1. \*\*Placeholders Replacement\*\*: Replacing all generic placeholders `{}` with specifics about the BlueROV2 system.

2. \*\*Contextual Information\*\*: Adding specific context-related details for the BlueROV2 system (hazard, system function, severity).

3. \*\*Structure and Hierarchy\*\*: Following the structure and hierarchy given in the pattern, but tailoring it to the specifics of the BlueROV2.

Thus, the assurance case for BlueROV2 system effectively and clearly delineates the arguments, evidence, assumptions, and contexts necessary to demonstrate that the hazards associated with the BlueROV2 system have been adequately addressed in accordance with the ALARP principle.