# NDT Report Template: Structural Integrity Assessment

**1. Project Information**

* **Project Name:** [Enter Project Name]
* **Asset Identification:** [Serial Number/Tag Number/Unique Identifier]
* **Location:** [Site Address/Location & Specific Location within Structure (e.g., Grid Coordinates)]
* **Client Name:** [Name of Client/Company]
* **Date of Testing:** [DD/MM/YYYY]
* **Purpose of Testing:** [Baseline Inspection/In-Service Inspection/Post-Modification Inspection/Condition Assessment]
* **Testing Method Used:** [UT/RT/MT/PT/VT/ET/AE/LT]
* **Reference Standards:** [ASTM/ISO/ASME/API/OSHA - Specify exact standard and edition]
* **Weather/Conditions During Testing:** [Temperature, Humidity, Wind, etc.]

**2. Inspection Details**

* **Description of Tested Areas:** [Detailed description referencing engineering drawings or coordinate system]
* **Test Equipment Used:** [Equipment Name, Model, Serial Number, Calibration Details]
* **Test Parameters:**
  + **(Conditional Fields based on Testing Method):**
    - **UT:** Probe Frequency, Angle, Sensitivity, Couplant
    - **RT:** Source Type, Exposure Time, Film Type, Distance
    - **MT:** Current Type, Magnitude, Particle Type, Lighting Conditions
    - **PT:** Penetrant Type, Dwell Time, Developer Type, Cleaning Method
    - **VT:** Lighting Intensity, Magnification, Distance
    - **ET:** Frequency, Probe Type, Gain, Phase
    - **AE:** Sensor Type, Threshold, Gain, Frequency Range
    - **LT:** Test Pressure, Leak Detection Method, Sensitivity
  + **Surface Preparation:** [Cleaning, Coating Removal, etc.]

**3. Test Results**

* **Pass/Fail:** [Indicate for each tested area]
* **Observed Defects:**
  + **Defect Classification:** [Cracks, Corrosion, Porosity, Inclusions, Laminations, Weld Imperfections, etc. - Based on ASTM E1316]
  + **Defect Dimensions:** [Length, Width, Depth]
  + **Defect Orientation:** [Angle, Direction]
  + **Defect Location:** [Precise location relative to reference point or coordinate system]
  + **Defect Quantity:** [Number of defects]
  + **Defect vs. Discontinuity:** [Is it a Defect based on acceptance criteria? Yes/No, Reference standard]

**4. Findings**

* **Detailed Analysis of Results:** [Thorough analysis of test results, trends, patterns, anomalies]
* **Severity of Defects:**
  + [Use Table 1 from research, or similar, to classify severity. Must reference Acceptance Criteria from Standards.]
  + **Justification for Severity Level:** [Explanation of how the defect impacts structural integrity]
* **Root Cause Analysis (if applicable):** [Material Fatigue, Corrosion, Manufacturing Defects, Overloading, Environmental Factors, etc.]
  + **Link to Structural Integrity Implications:** [How the root cause affects the structural integrity]

**5. Recommendations**

* **Immediate Actions Required:** [Temporary Support, Isolation, etc.]
  + **Justification for Immediate Actions:** [Explanation of urgency]
* **Long-Term Monitoring Suggestions:** [Monitoring Techniques, Frequency, Acceptance Criteria]
* **Repair or Reinforcement Recommendations:** [Repair Methods, Materials, Procedures, Engineering Drawings]
* **Follow-Up Testing Requirements:** [Type of Testing, Extent, Acceptance Criteria]

**6. Technician Information**

* **Technician Name:** [Full Name]
* **Signature:** [Digital/Handwritten]
* **Certification Number:** [e.g., ASNT Level II/III, ISO 9712]
* **Certification Body:** [Organization that issued the certification]
* **Certification Expiration Date:** [DD/MM/YYYY]
* **Personnel Field of Application:** [Welds, Castings, Forgings, etc.]
* **Company Name:** [Testing Company/Organization]
* **Contact Information:** [Email, Phone Number, Address]

**7. Attachments**

* **Photographs/Drawings:** [Defects, Tested Areas, Equipment Setup]
* **Calibration Certificates:** [Testing Equipment]
* **Map of Indications:** [Visual representation of defect locations]
* **Raw Data/Logs:** [Charts, Graphs, Data Files]
* **Relevant Engineering Drawings.**

**8. Approval and Review**

* **Reviewed By:** [Name and Signature of Supervising Engineer/QA Personnel]
* **Date of Review:** [DD/MM/YYYY]
* **Approval Status:** [Approved/Rejected/Needs Revision]
* **Reviewer Comments:** [Justification for approval status, required revisions]

**Table 1: Severity Levels for Defects (Example)**

|  |  |  |
| --- | --- | --- |
| Severity Level | Description | Example Criteria |
| Negligible | Defect size and type are well within acceptable limits and pose no immediate or foreseeable threat to structural integrity or performance. | Surface scratch not exceeding specified length and depth limits in a non-critical area as per [Specific Standard]. |
| Minor | Defect size or type slightly exceeds optimal conditions but does not significantly compromise structural integrity or performance under normal operating conditions. May require monitoring or future inspection. | Small corrosion pit within acceptable limits but showing signs of progression according to [Specific Standard]. |
| Moderate | Defect size or type approaches or slightly exceeds critical limits, potentially impacting structural integrity or performance under certain loading conditions. Repair or increased monitoring may be necessary. | Crack length nearing the maximum allowable limit specified in [Specific Design Code] for a secondary structural member. |
| Critical | Defect size or type significantly exceeds critical limits, posing an immediate threat to structural integrity and potentially leading to failure under anticipated loads. Immediate repair or replacement is required. | Crack exceeding the allowable size for a primary load-bearing element according to [Specific Standard]. |