AASHTOWare BrDR 7.6.1

Report Tutorial

RPT2 – Report Tool with XSL Formatting

RPT2 – Report Tool with XSL Formatting

Topics Covered

- Overview of BrDR Report Tool.
- What is XML?
- What is XSL?

Overview of BrDR Report Tool

The **BrDR** Report Tool as the capability to create 3 types of summary reports:

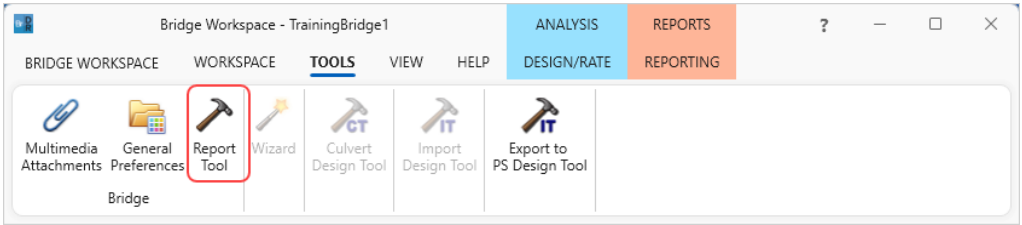
1. Bridge Explorer report - Information representing the bridges in the BrDR database.
2. Bridge Workspace report - Input data representing a bridge.
3. LFR, LRFR, and LRFD Analysis Output - Output data representing the current analysis event.

The **Report Tool** generates an XML file in the **Reports** folder, which is located in the **AASHTOWare** folder, for each type of report that it creates. For **Bridge Explorer** and **Bridge Workspace** reports, the filenames correspond to the names of the report definition files (.XML) that were used to create the reports. For an **LFR Analysis Output** report, the files *LFRReport.XML* and *LFRReport.XSL* are created. Likewise, for an **LRFD Analysis Output** report, the files *LRFDReport.XML* and *LRFDReport.XSL* are created.

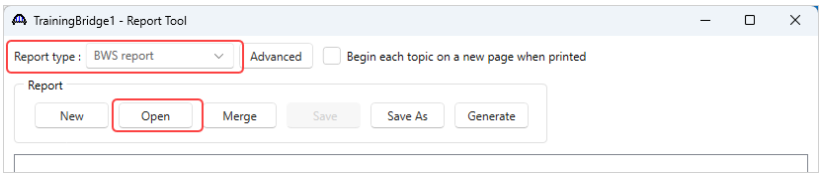
The XML file contains the report data and the accompanying XSL file contains formatting instructions to display the report data. If the XML file is saved to a folder other than the **Reports** folder, the XSL file must be manually copied to that folder. The name of the XSL file should not be changed from what was originally generated by the **Report Tool** since the name of the XSL file is referenced inside of the XML file.

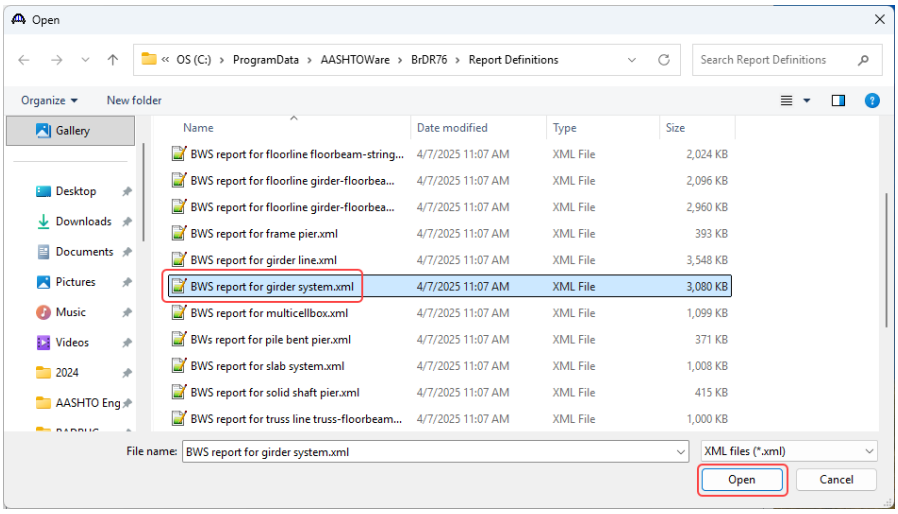
The *BWS Report for girder system.xml* shown below was generated by the steps below:

1. Start BrDR version 7.5.0 from the Start Menu.
2. Open **TrainingBridge1** from the **Bridge Explorer**.
3. Rate **TrainingBridge1** with the **HS 20 LFR Rating** template.
4. Open the **Report Tool** by clicking on the **Report Tool** button from the **TOOLS** ribbon

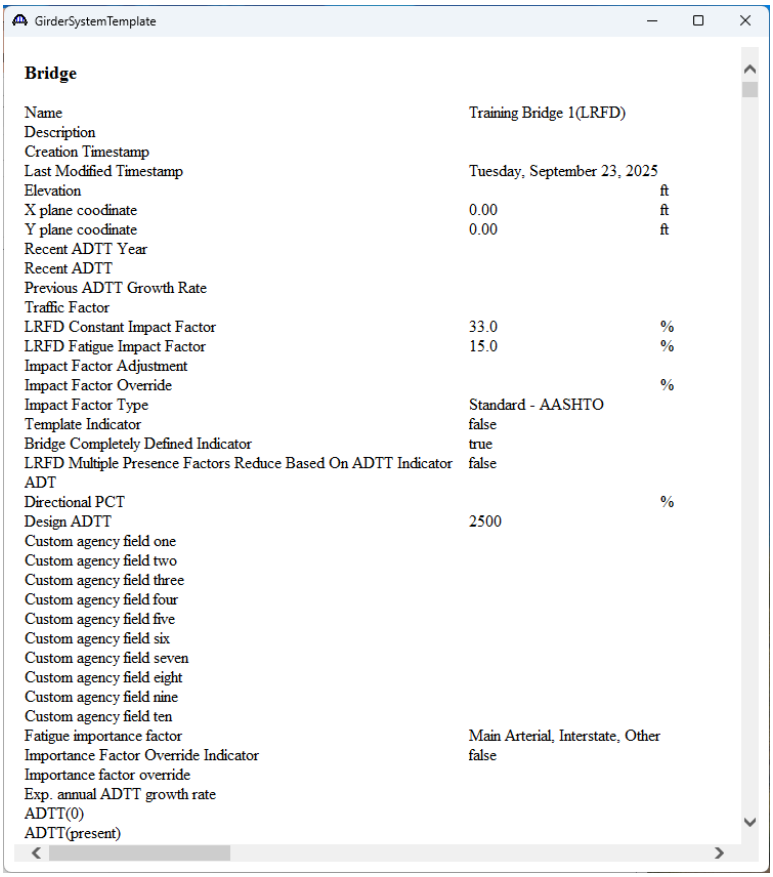


5. With **BWS report** selected as the **Report Type**, click on the **Open** button, and select **BWS Report for girder system.xml** report type as shown below.





6. Click on the **Generate** button to generate and display the report. The generated report is shown below.



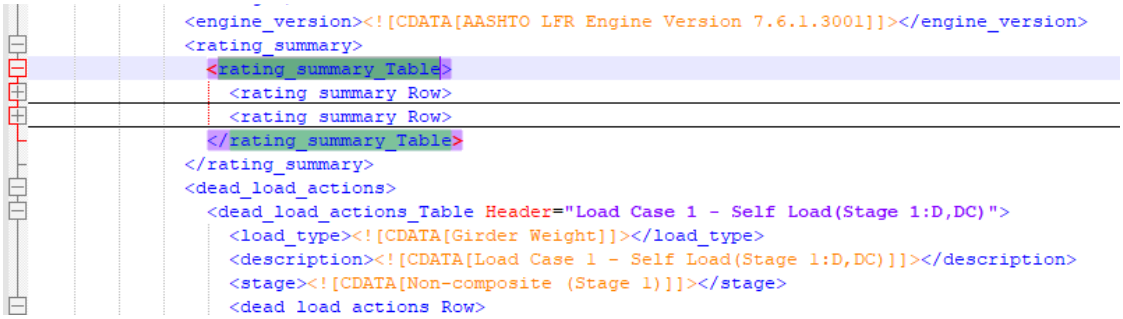
What is XML?

- Extensible Markup Language (XML) is a subset of Standard General Markup Language (SGML) for data storage.
- SGML is an international standard (ISO 8879) for the definition of device-independent and system-independent methods for information representation in electronic form.
- The XML document does not contain information for data presentation.
- XML syntax: (See below for partial content of the ***BWS Report for girder system.xml*** document)
- All XML documents should have a root node.

  - The <*report_tool*> tag is the root node of the document.
- All XML tags should be closed.

  - The </*report_tool*> tag closes the <*report_tool*> tag.
- All XML tags should be properly nested.

  - The start <*rating_summary_Table*> and end </*rating_summary_Table*> tags are nested inside the start <*rating_summary*> and end <*rating_summary*> tags.



- All XML tags are case-sensitive.
- No XML tags may contain spaces in the name.
- Partial content of the **BWS Report for girder system.xml** is shown below.

```
<?xml version="1.0" encoding="utf-8"?>
<?xml-stylesheet type ="text/xsl" href="GirderSystemTemplate.xsl"?>
<report_tool>
  <bridge>
    <name><![CDATA[Training Bridge 1(LRFD)]]></name>
    <description />
    <creation_modified_time_stamp />
    <last_modified_time_stamp><![CDATA[Tuesday, September 23, 2025]]></last_modified_time_stamp>
    <elevation units="ft" />
    <x_plane_coordinate units="ft"><![CDATA[0.00]]></x_plane_coordinate>
    <y_plane_coordinate units="ft"><![CDATA[0.00]]></y_plane_coordinate>
    <recent_count_year />
    <recent_count_adtt />
    <previous_growth_rate />
    <traffic_factor />
    <lrfd_constant_impact_factor units="%"><![CDATA[33.0]]></lrfd_constant_impact_factor>
    <lrfd_fatigue_impact_factor units="%"><![CDATA[15.0]]></lrfd_fatigue_impact_factor>
    <impact_factor_adjustment />
    <impact_factor_override units="%" />
    <impact_factor_type><![CDATA[Standard - AASHTO]]></impact_factor_type>
    <template_ind><![CDATA[false]]></template_ind>
    <completely_defined_ind><![CDATA[true]]></completely_defined_ind>
    <mpf_reduce_based_on_adtt_ind><![CDATA[false]]></mpf_reduce_based_on_adtt_ind>
    <traffic_adt />
    <traffic_directional_percent units="%" />
    <traffic_design_adtt><![CDATA[2500]]></traffic_design_adtt>
    <custom_agency_field_one />
    <custom_agency_field_two />
    <custom_agency_field_three />
    <custom_agency_field_four />
    <custom_agency_field_five />
    <custom_agency_field_six />
    <custom_agency_field_seven />
    <custom_agency_field_eight />
    <custom_agency_field_nine />
    <custom_agency_field_ten />
    <fatigue_importance_factor_type><![CDATA[Main Arterial, Interstate, Other]]></fatigue_importance_factor_type>
    <override_importance_factor_ind><![CDATA[false]]></override_importance_factor_ind>
    <importance_factor_override />
    <expected_annual_adttsl_growth_rate />
    <initial_adttsl />
    <present_adttsl />
    <limit_adttsl />
    <current_bridge_alt_name><![CDATA[Single Span Bridge]]></current_bridge_alt_name>
    <existing_bridge_alt_name><![CDATA[Single Span Bridge]]></existing_bridge_alt_name>
    <featint><![CDATA[SR 6060]]></featint>
```

```
<bridge alt>
<materials>
<beam shapes>
<appurtenances>
<factors>
<superstructures_definitions>
  <girder_system_structure_def>
    <name><![CDATA[Simple Span Structure]]></name>
    <description />
    <dl_distribution2_type><![CDATA[Uniformly to All Girders]]></dl_distribution2_type>
    <dl_distribution1_type><![CDATA[Tributary Area]]></dl_distribution1_type>
    <modular_ratio_sustained_factor><![CDATA[3.000]]></modular_ratio_sustained_factor>
    <deck_crack_control_param_z units="kip/in"><![CDATA[130.000]]></deck_crack_control_param_z>
    <girder_spacing_display_type><![CDATA[Perpendicular]]></girder_spacing_display_type>
    <frame_struct_simple_def_ind><![CDATA[false]]></frame_struct_simple_def_ind>
    <truck_traffic_fraction_single_lane />
    <num_lanes_available_to_trucks />
    <override_truck_traffic_ind><![CDATA[false]]></override_truck_traffic_ind>
    <deck_exposure_factor />
    <dist_left_most_girder_to_struct_def_ref_line units="ft" />
    <nbi_struct_matl_type><![CDATA[Concrete]]></nbi_struct_matl_type>
    <nbi_struct_const_type><![CDATA[Slab]]></nbi_struct_const_type>
    <super_struct_service_life />
    <impact_factor_adjustment><![CDATA[0.000]]></impact_factor_adjustment>
    <impact_factor_override units="%"><![CDATA[0.0]]></impact_factor_override>
    <lrfd_constant_impact_factor units="%"><![CDATA[33.0]]></lrfd_constant_impact_factor>
    <lrfd_fatigue_impact_factor units="%"><![CDATA[15.0]]></lrfd_fatigue_impact_factor>
    <impact_factor_type><![CDATA[Standard - AASHTO]]></impact_factor_type>
    <average_humidity units="%" />
    <consider_slab_effthick_rat_ind><![CDATA[true]]></consider_slab_effthick_rat_ind>
    <consider_slab_effthick_des_ind><![CDATA[true]]></consider_slab_effthick_des_ind>
    <consider_wear_surface_rat_ind><![CDATA[true]]></consider_wear_surface_rat_ind>
    <consider_wear_surface_des_ind><![CDATA[true]]></consider_wear_surface_des_ind>
    <lrfd_model_noncomposite_ind><![CDATA[false]]></lrfd_model_noncomposite_ind>
    <lrfr_model_noncomposite_ind><![CDATA[false]]></lrfr_model_noncomposite_ind>
    <struct_def_units_type><![CDATA[US Customary]]></struct_def_units_type>
    <default_analysis_method_type><![CDATA[LFR]]></default_analysis_method_type>
    <number_of_girders><![CDATA[4]]></number_of_girders>
    <number_of_spans><![CDATA[1]]></number_of_spans>
    <modeling_type><![CDATA[Multi Girder System]]></modeling_type>
    <span lengths>
    <load case description>
    <structure framing plan details>
    <structure typical section>
    <transverse stiffiners- plate>
    <transverse stiffiners- plate>
```

```
    <span lengths>
    <load case description>
    <structure framing plan details>
    <structure typical section>
    <transverse stiffiners- plate>
    <transverse stiffiners- plate>
    <transverse stiffiners- plate>
    <bearing stiffiners- plate>
    <girder_member>
      <name><![CDATA[G1]]></name>
      <description />
      <creation_modified_time_stamp />
      <last_modified_time_stamp><![CDATA[Tuesday, October 23, 2001]]></last_modified_time_stamp>
      <pedestrian_live_load_force units="lb/ft" />
      <current_member_alt_name><![CDATA[Plate Girder]]></current_member_alt_name>
      <existing_member_alt_name><![CDATA[Plate Girder]]></existing_member_alt_name>
      <member loads>
      <supports>
      <member alt- steel plate i beam- schd>
    </girder_member>
    <girder member>
    <girder member>
    <girder member>
  </girder_system_structure_def>
</superstructures_definitions>
</bridge>
</report_tool>
```

What is XSL?

Extensible Stylesheet Language (XSL) is a language for defining XML document transformation and presentation. XSL consists of XSL Transformations (XSLT), XML Path Language (XPath), and XSL Formatting Objects (XSL-FO). Separating the content (XML) and the styling information (XSL) allows customizing the same content just by using a different stylesheet.

The simplified figure below describes the relationship between XML, XSL, and the displayed form: