

AASHTOWare BrDR 7.5.0

Report Tutorial

LFR/ LFRF Detailed Rating Results Report

LFR/ LRFR Detailed Rating Results Report

Topics Covered

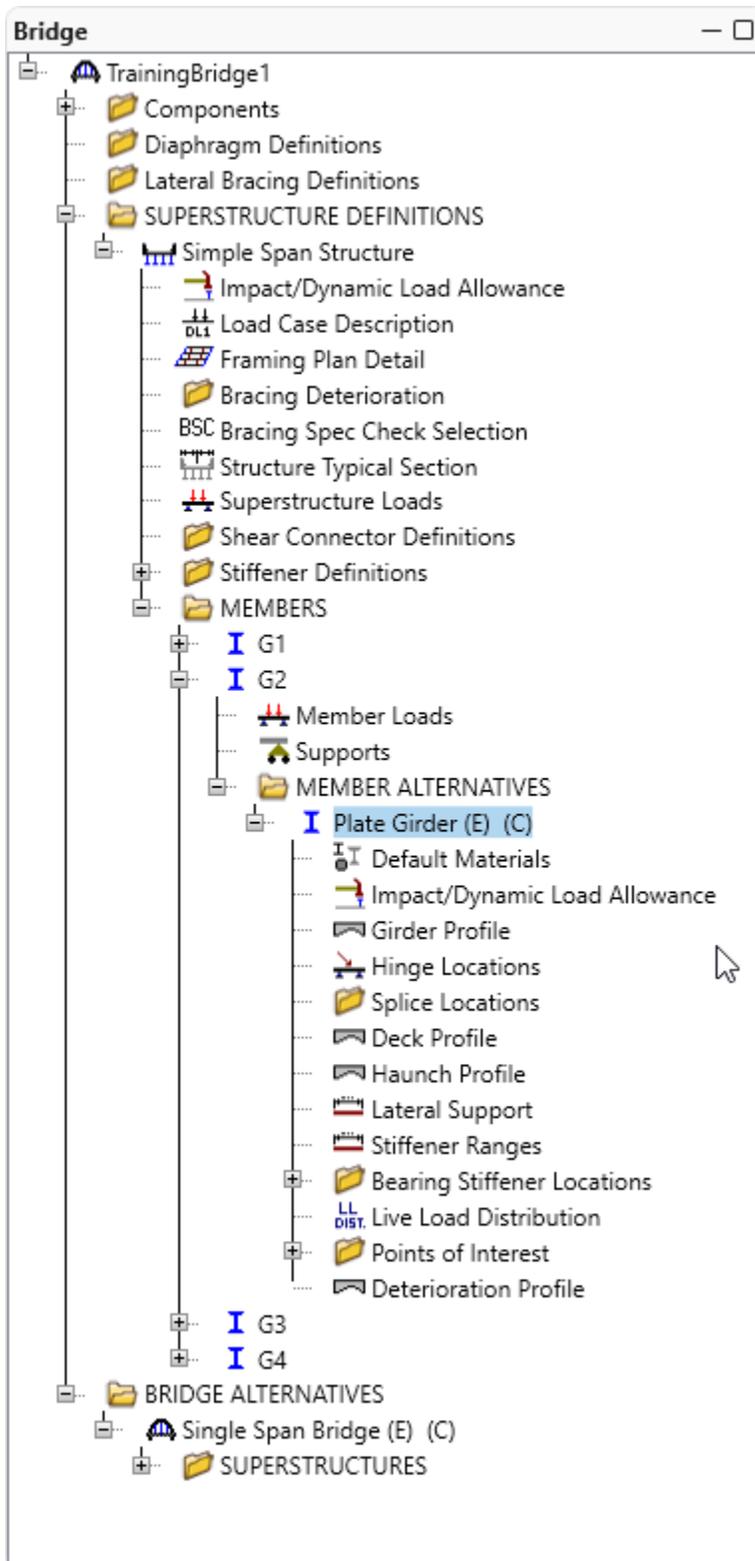
- LFR Detailed Rating Results Report.
- LRFR Detailed Rating Results Report.

LFR Detailed Rating Results Report

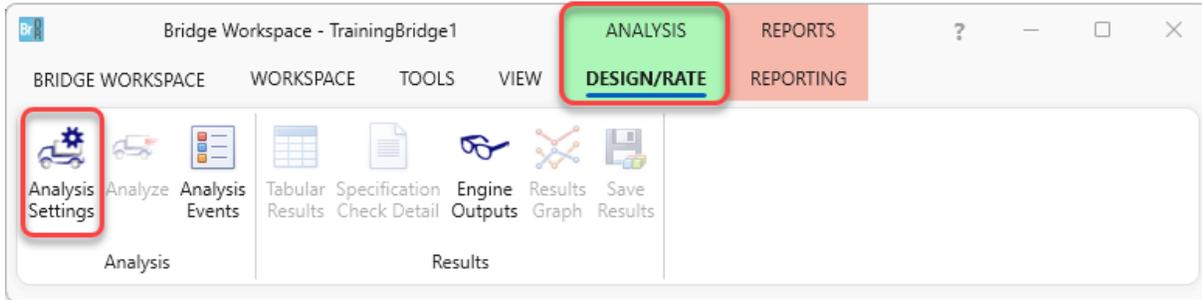
BID	Bridge ID	Bridge Name	District	County	Facility	Location	Route	Feature Intersected	Mile/Km Post (m)	Owner	Maintainer	Admin Area	Length (ft)	Year Built
1	TrainingBridge1	Training Bridge 1(LRFD)	District 11	01 Abbeville	SR 0051	Pittsburgh	0051	SR 6060	17.00	State Highway Agency	State Highway Agency	Not Applicable	161.001	1999
2	TrainingBridge2	Training Bridge 2(LRFD)	Unknown	Unknown (P)	N/A	N/A	-1	N/A		Unknown (P)		Unknown		1996
3	TrainingBridge3	Training Bridge 3(LRFD)	District 11	01 Abbeville	I-79	Pittsburgh	0079	Ohio River	125.00	State Highway Agency	State Highway Agency	Unknown	455.000	1999
4	PCITrainingBridge1	PCI TrainingBridge1(LFR)					-1					Unknown		
5	PCITrainingBridge2	PCI TrainingBridge2(LRFD)					-1					Unknown		
6	PCITrainingBridge3	PCI TrainingBridge3(LFR)					-1					Unknown		
7	PCITrainingBridge4	PCI TrainingBridge4(LRFD)					-1					Unknown		
8	PCITrainingBridge5	PCI TrainingBridge5(LFR)					-1					Unknown		
9	PCITrainingBridge6	PCI TrainingBridge6(LRFD)					-1					Unknown		
10	Example7	Example 7 PS (LFR)					-1					Unknown		
11	RCTrainingBridge1	RC Training Bridge1(LFR)					-1					Unknown		
12	TimberTr TrainingBridge1	Timber Tr. Bridge1 (ASR)					-1					Unknown		
13	FSys GFS TrainingBridge1	FloorSystem GFS Training Bridge 1	District 6	15 Colleton	NJ-Turnpike	NJCity	-1					Unknown		2002
14	FSys FS TrainingBridge2	FloorSystem FS Training Bridge 2	District 11	333 Norfolk	I-95	NYC	-1			State Highway Agency	County Hwy Agency	Unknown		1998
15	FSys GF TrainingBridge3	FloorSystem GF Training Bridge 3	District 7	06 Barnwell	I-95	ATL	-1			County Hwy Agency		Unknown		1998
16	FLine GFS TrainingBridge1	FloorLine GFS Training Bridge 1	District 1	01 Abbeville	I-75	JAX	-1			State Highway Agency	State Highway Agency	Unknown		2001
17	FLine FS TrainingBridge2	FloorLine FS Training Bridge 2	District 2	02 Adken	I-75	GNV	-1			State Highway Agency	State Highway Agency	Unknown		2000
18	FLine GF TrainingBridge3	FloorLine GF Training Bridge 3	District 1	01 Abbeville	I-95	NY	15		2200.00	County Hwy Agency	Unknown (P)	Unknown		1999
19	TrussTrainingExample	Truss Training Example					5					Unknown		1930
20	LRFD Substructure Example 1	LRFD Substructure Example 1										Unknown		
21	LRFD Substructure Example 2	LRFD Substructure Example 2			SR 4034	ERIE COUNTY	4034	FOUR MILE CREEK	8.12			Unknown	1095.801	2002
22	LRFD Substructure Example 3	LRFD Substructure Example 3										Unknown		
23	LRFD Substructure Example 4	LRFD Substructure Example 4 (NHI I					-1					Unknown	240.000	2004
24	Visual Reference 1	Visual Reference 1	District 1	12 Chester	I-76	WATSFIELD	I-76	MAD RIVER	1199.25	State Highway Agency	State Highway Agency	Unknown	168.000	1938
25	Culvert Example 1	Culvert Example 1						STH60				Unknown		
26	Curved Guide Spec	Curved Guide Spec Example(LFR)					1					Unknown		
27	MultiCell Box Examples	Multi Cell Box Examples					100					Unknown		2014
28	Gusset Plate Example	Gusset Plate Example	District 1			Some Highway				State Highway Agency		Unknown	67.900	2015
29	Splice Example	Splice Example					-1					Unknown	240.000	2004
30	Simple DL-Cont LL-Splice	Simple DL Splice	Unknown	Unknown (P)	N/A	N/A	-1	N/A		Unknown (P)		Unknown		1996
31	MetalCulvertExample1	MetalCulvertExample 1					1					Unknown		

From the **Bridge Explorer** select **TrainingBridge1** (BID 1) and double click (or right click and select **Open**) to open it.

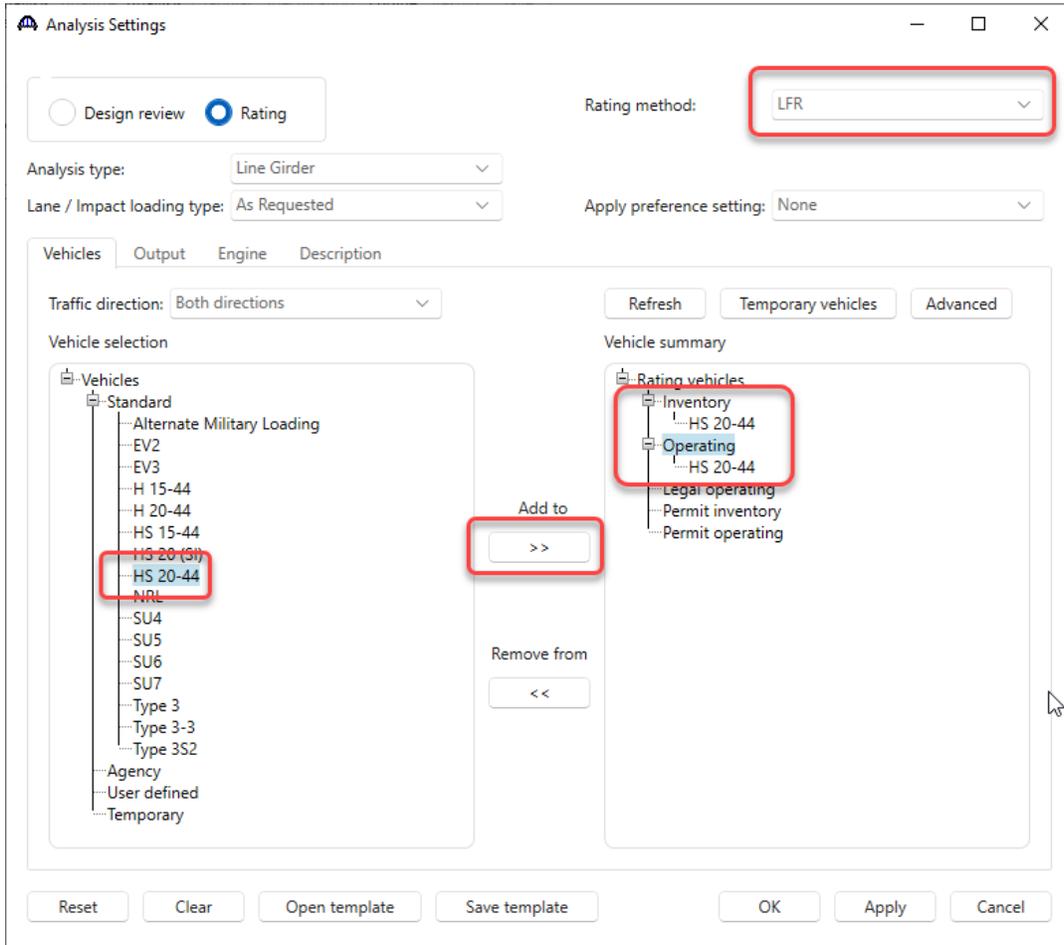
Once **Bridge Workspace** tree is populated, expand **Simple Span Structure** under **SUPERSTRUCTURE DEFINITIONS** in the tree by clicking on “+”. Then expand **MEMBERS** and select **G2**. Expand **G2** and select **Plate Girder (E) (C)** under **MEMBER ALTERNATIVES**. Expand **Plate Girder (E) (C)** by clicking on the “+”. The partially expanded **Bridge Workspace** tree is shown below.



Select member alternative **Plate Girder (E) (C)**. From the **Analysis** group of the **DESIGN/RATE** tab on the **Bridge Workspace** ribbon, click on the **Analysis Settings** button to open the **Analysis Settings** window.

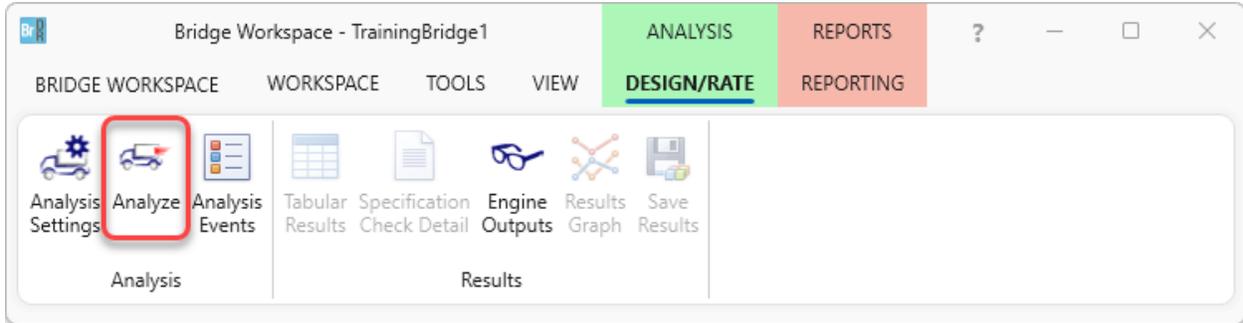


On the **Analysis Settings** window select the **Rating method** as **LFR**. Go to **Vehicle selection** column and select **HS 20-44** vehicle, in the **Vehicle summary** column select **Inventory** and click on the **Add to** button. Repeat for **Operating**. The updated **Analysis Settings** window is shown below.

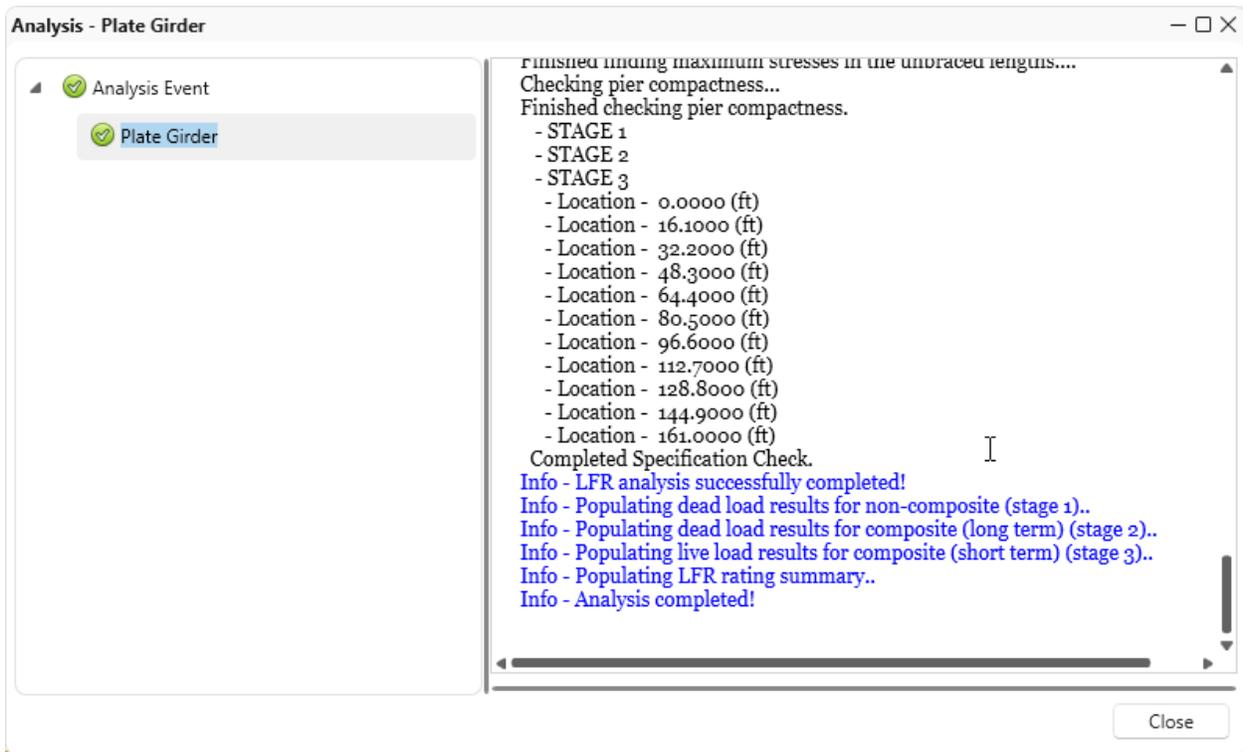


Click on the **OK** button to save and close the window.

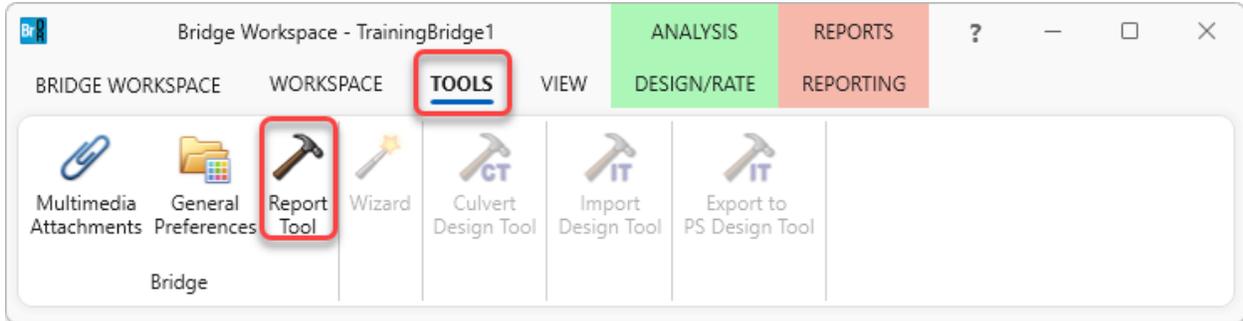
With the focus still on the member alternative **Plate Girder (E) (C)** on G2. Click on the **Analyze** button in the **Analysis** Group to run the analysis.



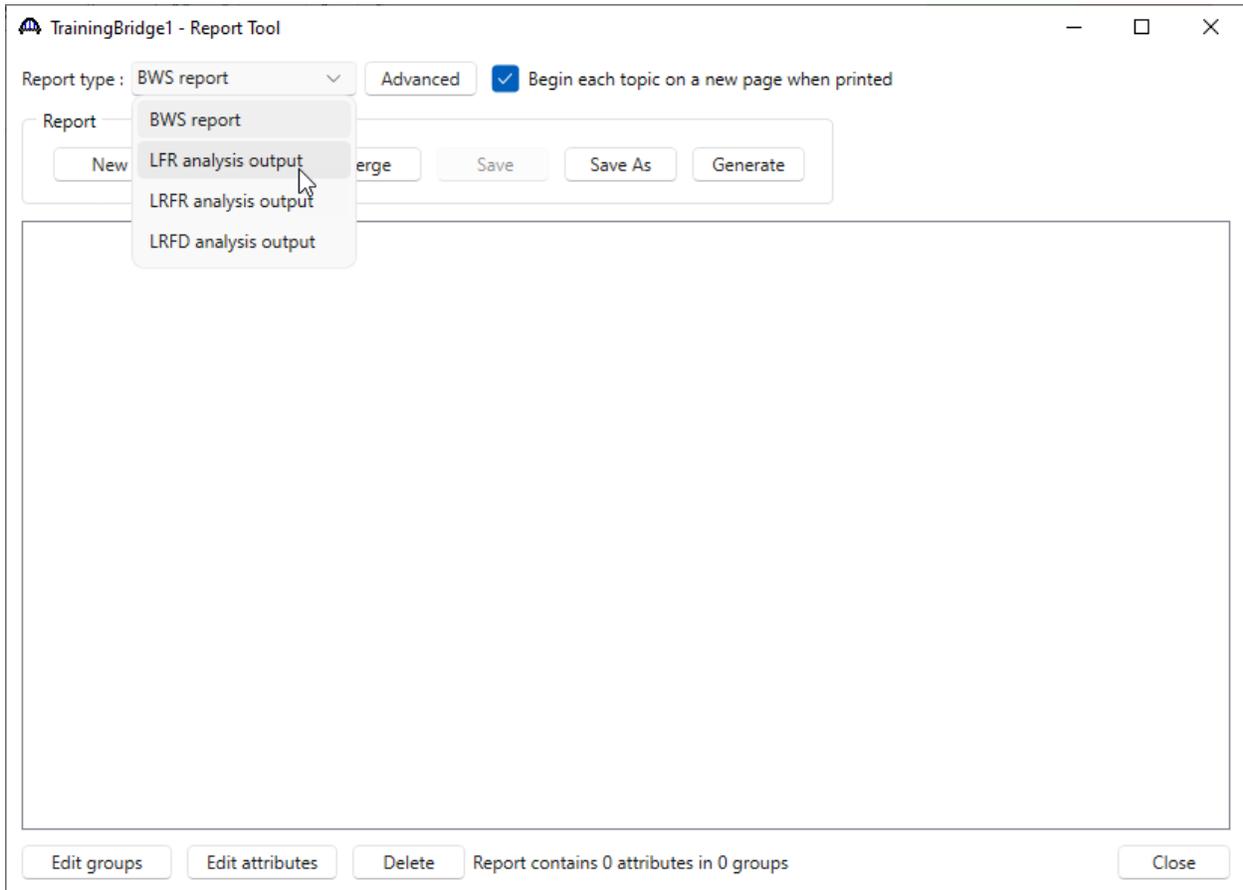
Once the **Analyze** button is clicked the **Analysis Progress** window is populated as shown below.



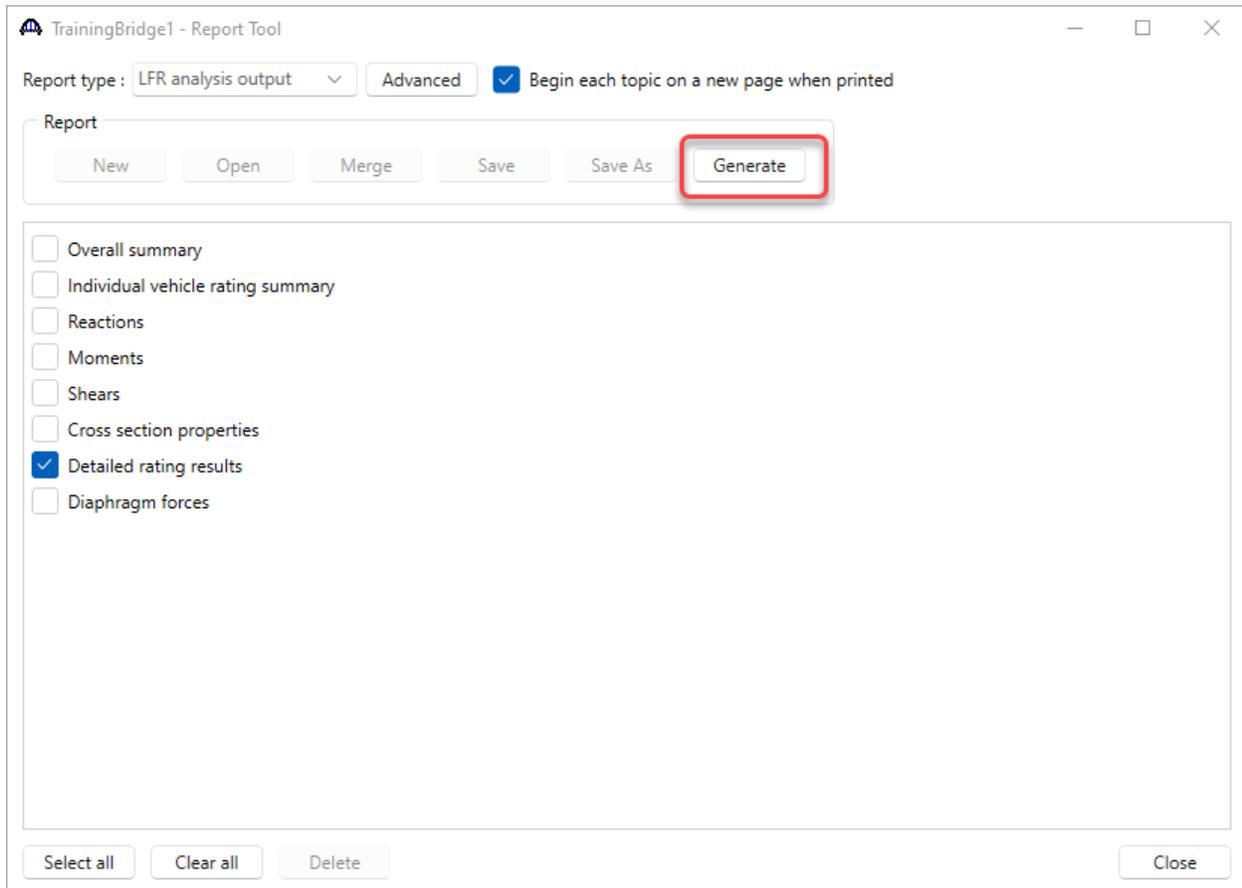
Click on the **TOOLS** ribbon and then the **Report Tool** button in the **Bridge** Group to open the **Report Tool** as shown below.



Select **Report type** as **LFR analysis output**. List of options to generate various reports for LFR analysis will be populated.



Uncheck all the options except **Detailed rating results**. Now click the **Generate** button to generate **LFR Detailed Rating Results report**.



Bridge Name: Training Bridge 1(LRFD)
 NBI Structure ID: TrainingBridge1
 Bridge ID: TrainingBridge1

Analyzed By: Bridge
 Analyze Date: Thursday, November 9, 2023 09:55:20
 Analysis Engine: AASHTO LFR Engine Version 7.5.0.3001
 Analysis Preference Setting: None

Report By: Bridge
 Report Date: Thursday, November 9, 2023 10:41:54

Structure Definition Name: Simple Span Structure
 Member Name: G2
 Member Alternative Name: Plate Girder

Report by Action: Flexure Shear Overload Critical

Detailed Rating Results
Plate Girder
HS 20-44
Axle Load
Impact: As Requested
Lane: As Requested

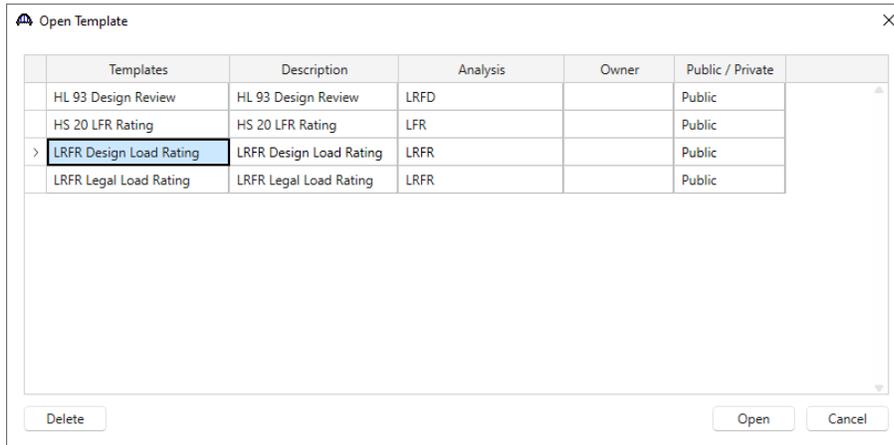
Span 1

Location							Inventory	Inventory	Operating	Operating
(ft)	Percent	Action Type	Units	Capacity	DL + Adj -LL*	LL	Rating Factor	Load Rating (Ton)	Rating Factor	Load Rating (Ton)
0.00	0.0	Flexure	kip-ft	15115.80	0.00	0.00	99.000	3564.00	99.000	3564.00
0.00	0.0	Shear	kip	571.00	210.68	101.14	1.353	48.72	2.260	81.35
0.00	0.0	Overload	ksi	-47.50	0.00	0.00	99.000	3564.00	99.000	3564.00
16.10	10.0	Flexure	kip-ft	15115.80	3056.70	1355.22	2.503	90.09	4.179	150.46
16.10	10.0	Shear	kip	527.64	169.04	84.92	1.670	60.12	2.789	100.40
16.10	10.0	Overload	ksi	47.50	15.58	5.63	3.397	122.28	5.672	204.21
32.20	20.0	Flexure	kip-ft	15115.80	5442.94	2388.54	1.321	47.56	2.206	79.43
32.20	20.0	Shear	kip	526.81	127.39	75.58	1.321	47.56	2.206	79.43
32.20	20.0	Overload	ksi	47.50	27.74	9.92	1.193	42.95	1.992	71.72
48.30	30.0	Flexure	kip-ft	19785.49	7154.92	3099.97	1.420	51.11	2.371	85.35
48.30	30.0	Shear	kip	465.67	85.10	66.12	1.420	51.11	2.371	85.35
48.30	30.0	Overload	ksi	47.50	25.78	9.15	1.422	51.18	2.374	85.48
64.40	40.0	Flexure	kip-ft	19785.49	8182.45	3520.61	1.197	43.09	1.999	71.96

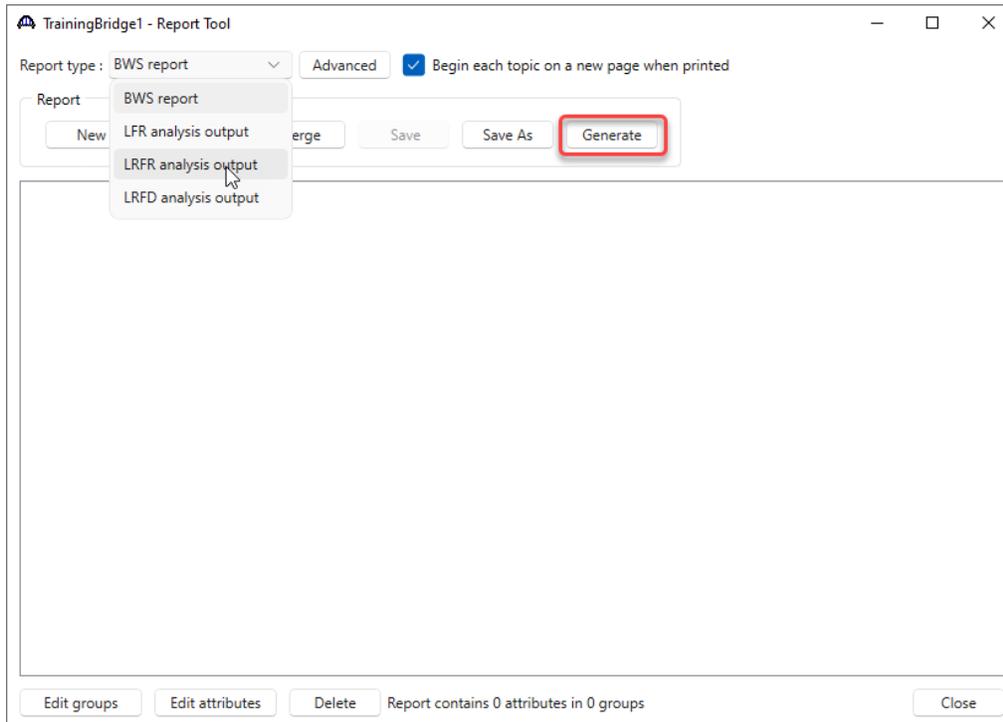
Above report would display details of critical rating factors at each location for Flexure, Shear and Overload. Critical of four at a location is displayed in bold font. There are also checkboxes provided in the report for each type. By checking and unchecking them report can be narrowed down or detailed for a particular type.

LRFR Detailed Rating Results Report

Similar report is available for an LRFR analysis. To view an **LRFR Detailed Rating Results**, select **G2 - Plate Girder (E) (C)** girder member alternative. Go to **DESIGN/RATE** ribbon and click on the **Analysis Settings** button to open the **Analysis Settings** window. Click on the **Open Template** button to open the template library.



Select **LRFR Design Load Rating** template from template library. Click on the **Open** button to apply it to **Analysis Settings** window. Click **OK** in the **Analysis Settings** window. Select **G2- Plate Girder (E) (C)** and click **Analyze** button in the **Analysis** Group to run the analysis. Once the analysis is complete, open the **Report Tool** window as discussed in previous step. Select **Report type** as **LRFR analysis output**. List of options to generate various reports for LRFR analysis will be populated.



Select option to generate LRFR analysis **Detailed Rating Results** report. Now click on **Generate** button to generate the report.

Bridge Name: Training Bridge 1(LRFD)
NBI Structure ID: TrainingBridge1
Bridge ID: TrainingBridge1

Analyzed By: Bridge
Analyze Date: Thursday, November 9, 2023 10:56:44
Analysis Engine: AASHTO LRFR Engine Version 7.5.0.3001
Analysis Preference Setting: None

Report By: Bridge
Report Date: Thursday, November 9, 2023 11:05:33

Structure Definition Name: Simple Span Structure
Member Name: G2
Member Alternative Name: Plate Girder

Report by Action: Shear Flexure Overload Critical

Detailed Rating Results
Plate Girder
HL-93 (US)
Truck + Lane
Impact: As Requested
Lane: As Requested

Span 1

Location							Inventory Rating	Inventory Load Rating	Operating Rating	Operating Load Rating
(ft)	Percent	Action Type	Units	Capacity	DL + Adj-LL*	LL	Factor	(Ton)	Factor	(Ton)
0.00	0.0	Shear	kip	577.73	210.68	162.33	1.087	39.14	1.409	50.73
0.00	0.0	Flexure	ksi	-50.00	0.00	0.00	99.000	3564.00	99.000	3564.00
0.00	0.0	Overload	ksi	-47.50	0.00	0.00	99.000	3564.00	99.000	3564.00
16.10	10.0	Shear	kip	529.81	169.04	140.15	1.281	46.10	1.660	59.76
16.10	10.0	Flexure	ksi	50.00	19.83	11.84	2.549	91.75	3.304	118.93
16.10	10.0	Overload	ksi	47.50	15.58	6.76	3.630	130.67	4.719	169.88
32.20	20.0	Shear	kip	528.98	127.39	119.15	1.757	63.26	2.278	82.01
32.20	20.0	Flexure	ksi	50.00	35.31	20.93	0.702	25.27	0.910	32.75
32.20	20.0	Overload	ksi	47.50	27.74	11.96	1.271	45.75	1.652	59.47
48.30	30.0	Shear	kip	467.91	85.10	99.33	2.067	74.41	2.680	96.46
48.30	30.0	Flexure	ksi	50.00	32.81	19.39	0.887	31.92	1.149	41.38
48.30	30.0	Overload	ksi	47.50	25.78	11.08	1.508	54.30	1.961	70.59
64.40	40.0	Shear	kip	627.53	42.55	80.69	4.059	146.14	5.262	189.44

Above report displays details of critical rating factors at each location for Flexure, Shear and Overload. Critical of three at a location is displayed in bold font. There are also checkboxes provided in report for each type. By checking and unchecking them report can be narrowed down or detailed for a particular type.