



**Director**

Colonel (OF-5) Niels JANEKE  
Command Group  
Tel.: +49 (0) 841 88660 5000  
Mail: director@milengcoe.org

**CALLING NOTICE FOR THE NATO BRIDGE CLASSIFICATION WORKSHOP**

**IN SUPPORT OF THE INTEROPERABLE BRIDGE CLASSIFICATION PROJECT -  
UPGRADING TO A GEOGRAPHICAL USER INTERFACE**

**DATE: 27th Mar 2018**

**DATE: 10-12 JUL 2018**

**PLACE: MILENG COE, INGOLSTADT, GERMANY**

**1. INTRODUCTION**

MILENG COE started the "Interoperable Bridge Classification Project" in the summer of 2016 with the intent to propose a common NATO standard (included in STANAG 2021 - Military Load Classification of Bridges, Ferries, Rafts and Vehicles) as an expeditionary method in nature, to be used in an Operational Environment for computing and to rapidly determine the load carrying capacity of civilian bridges along the maneuver routes.

The initial proposed deadline (end of 2017) to disseminate the final products to the NATO Nations and Partners could not be met. This was mainly due to the products developed up until the end of 2017 were based on national standards and they did not fit with other countries requirements where different design standards of building bridges were applied. As a result, additional steps for product developments and upgrades have been identified to include further data collection regarding with different bridge design standards from other countries and therefore trying to set up patterns to achieve standards covering different geographical regions. As a consequence, on 15<sup>th</sup> Dec 2017, "The Interoperable Bridge Classification Project" was officially closed and a new project has been proposed by MILENG COE and accepted to be sponsored by Emerging Security Challenges Division / NATO HQ, called "The Interoperable Bridge Classification Project – Upgrading to a Geographical User Interface" commencing on Jan 2018 with a finish due date in Jun 2019, foreseen as further development and completion of the already existing products resulted up until now, with regards of the following:

- Phase I - Products development to meet NATO requirements - 01 Jan 2018 - 30 Jun 2018 - to extend the common user interfaces to work in different geographical areas based on the different national design standards and safety factors and embedding the current rating philosophies for bridge assessment (correlation, analytical and numerical/alpha values) as per 3 national methodologies (BEL, CAN and DEU) into common user interfaces able to work on Windows as well as on Android platforms.
- Phase II - Field validation - 01 Jul 2018 - 31 Dec 2018 - MILENG COE will host a NATO Bridge Classification Workshop with support provided by the products developers, 10 - 12 Jul 2018 in Ingolstadt, Germany, for the purpose of setting up all the prerequisites to perform follow on field tests of the project deliverables in different geographical areas.
- Phase III - Implementation - 01 Jan 2019 - 30 Jun 2019 - with the feedback provided from the field validation phase, final upgrades and improvements to the products will be performed for a final preparation and dissemination in the summer of 2019.



The plan is to have in the summer of 2019, 4 different products which will be disseminated to NATO Nations and Partners:

- a **Traffic Correlation Method** in the form of a booklet and a software;
- a **Rapid Analytical Method** as a software for Windows Operating Systems;
- a **Parameter Correlation Method** as a software for Android Operating Systems;
- a **Detailed Analytical Method** as a software for an analytical bridge assessment for both Windows and Android Operating Systems.

## 2. WORKSHOP OBJECTIVES

The primary scope of work during the workshop is to set up the prerequisites for all participants at the event, in order to perform follow on field tests of the project deliverables by the 30<sup>th</sup> Nov 2018 (after receiving the products and understanding how they were built and operate) in different geographical areas corresponding to their belonging nations.

Secondly, the aim is to explain to the participants, the different rating procedures existing at the basis of the current project deliverables (to include the technical explanations of how these products were developed and the practical performance associated with the user interface).

Finally, the intent is to agree on a collection plan of the results expected during the field validation, as well as other current data gaps for a follow on upgrade and completion of the project deliverables.

## 3. REQUESTED ATTENDANCE

This Workshop is opened to both civilian and military Subject Matter Experts from NATO/ Partner countries, who are expected:

- to have a thorough knowledge and experience in bridge designs and structural engineering;
- to be experienced in bridge assessment and familiar with military load classification as per STANAG 2021;
- to have access to their own national bridge design standards and data in order to perform follow on practical field tests of the project deliverables on some bridge types agreed during the Workshop – **see Annex A for details**;
- to be able to provide a feedback NLT 30<sup>th</sup> Nov 2018 to the Guest Speakers and to the MILENG COE POC, regarding the results of the project deliverables applied on some national bridges, mentioning also the real data (not assumed) of the tested bridges (single span types bridges, span length between 10 and 40 meters, geometrical data, materials type and properties, reinforcements type and properties, the design load characteristics and so on); it is expected that an estimation regarding the MLC or at least the moment and shear capacity to support traffic live loads for those tested bridges be calculated and provided by the participants within the requested feedback; it is also expected that the participants may suggest whether very common bridge types in their countries/region are not represented at all or not appropriate reflected, in the content of the current project deliverables – **see Annex A for details**;

**Annex A describes in detail the data and info requested from the participants specific to all bridges subject to the methods testing phase.**

## 4. GUEST SPEAKERS

This Workshop will be supported by experts involved in the products development from The University of Bundeswehr from Munich, the Royal Military College of Canada and Prof. Thierry Goris from Belgium (individual contribution). At the end of the Workshop, they will provide the project deliverables to each participant associated with the necessary disclaimers and software licenses valid for at least 4 months. They will agree with the attendees upon the bridge types to be field tested and the form of the feedback to be returned by the attendees.



- 5. **AGENDA OF THE WORKSHOP** – see **Annex B**.
- 6. **ADMINISTRATIVE INSTRUCTIONS OF THE WORKSHOP** – see **Annex C**.
- 7. **REGISTRATION.** Participants are kindly requested to register using the online event registration at MILENG COE website **NLT 15<sup>th</sup> JUN 2018** – Event Registration button at <https://external.milengcoe.org/default.aspx>.

**8. MILENG COE POC.**

Major (ROU A)  
Ovidiu DAMIAN


Project Manager for the Interoperable Bridge Classification Project – Upgrading to a Geographical User Interface


+49 1525 464 1325 (Mobile)

+49 841 88660 5200 (Tel)

+49 841 88660 5102 (Fax)

[supportbc@milengcoe.org](mailto:supportbc@milengcoe.org)

  
**Niels JANEKE**  
**OF-5 (DEU A)**  
**Director MILENG COE**



**ANNEXES:**

Annex A – Request for Feedback Details.

Annex B – Agenda of the Workshop.

Annex C – Administrative Instructions of the Workshop.

DISTRIBUTION		
ACTION	INFO	INTERNAL
NATO Nations and Partners Senior Joint Engineers	ACT CAPDEV/C2DS/LDS SO-Engineering	MILENG COE Senior National Representatives
	ACO Senior Joint Engineer	





Major (OF-3) Ovidiu DAMIAN  
Support Branch  
Tel.: +49 (0) 841 88660 5200  
Mail: supportbc@milengcoe.org

## Annex A to Calling Notice - Request for Feedback Details

**DATE: 27th Mar 2018**

The primary scope of work during the workshop is to set up the prerequisites for all participants at the event, in order to perform follow on field tests of the project deliverables by the 30<sup>th</sup> Nov 2018, therefore, each participant will be asked to test the received methodologies on different types of bridges (the exact type and the number of these bridges will be established during the workshop on a consent basis).

This annex intends to highlight the necessary data of the tested bridges which the participants will be asked to provide during the testing period (by the 30<sup>th</sup> Nov 2018). If necessary, this period of time may be extended with 2-4 months, for this is the most important phase of the project – the Validation phase.

The MILENG COE therefore, will provide during the workshop an electronic excel spreadsheet to each of the participants, that will comprise data and info necessary for all the tested bridges (to be filled by the participants throughout the testing period) consisting in:

**1. Identification Info:**

- Current Number;
- Type of the bridge;
- Lanes.

**2. Basic Geometry:**

- Support type;
- Number of spans;
- Deck material;
- Girder type;
- Span length (m).

**3. Sketch of the bridge:**

- Elevation sketch;
- Cross section sketch.

**4. Basic Design Information:**

- Location of the bridge;
- Design code – a full description and the characteristics of the load model used in the bridge design will be requested;
- Year of design / construction.

**5. Materials properties:**

- Grade of each material used per components;





**6. Girders geometry (at mid-span if varies through length of bridge):**

- Girders spacing (mm);
- Number of intermediate diaphragms;
- Girders sections;
- Total area (mm<sup>2</sup>);
- Top flange thickness (mm);
- Top flange width (mm);
- Bottom flange thickness (mm);
- Bottom flange width (mm);
- Web width (mm);
- Area of pre-stressing reinforcement in girder (mm<sup>2</sup>) – if the bridge is pre-stressed;
- Centroid of pre-stressing reinforcement from bottom of girder (mm) – if the bridge is pre-stressed;
- Area of tension reinforcement in girder (mm<sup>2</sup>);
- Centroid of tension reinforcement from bottom of girder (mm);
- Area of compression reinforcement in girder (mm<sup>2</sup>);
- Centroid of compression reinforcement from bottom of girder (mm).

**7. Details about haunches – if applicable:**

- Depth (mm) [negative for embedded girder];
- Width (mm).

**8. Details about the deck:**

- Deck thickness (mm);
- Deck out-to-out width (mm);
- Longitudinal reinforcing steel area top per meter width (mm<sup>2</sup>);
- Centroid of top longitudinal deck steel from top of deck (mm);
- Longitudinal reinforcing steel bottom of deck per meter width (mm<sup>2</sup>);
- Centroid of bottom longitudinal deck steel from top of deck (mm).

**9. Other concrete features:**

- Total area of other concrete features (sidewalks, curbs, parapets, barriers), (mm<sup>2</sup>).

**10. Wearing Surface:**

- Type of wearing surface;
- Thickness of wearing surface (mm);
- Wearing surface thickness measured or assumed?;
- Width of wearing surface (mm).



**11. Summary of Dead Loads (at midspan):**

- Dead Load of each girder (kN/m);
- Dead Load of deck per length of bridge (kN/m);
- Dead Load of all haunchs per length of bridge (kN/m);
- Average Dead Load of all diaphragms per length of bridge (kN/m);
- Average Dead Load of all other concrete features per length of bridge (kN/m);
- Average Dead Load of all other bridge features (railings, light poles, non-structural components, covers, etc.) per length of bridge (kN/m).

**12. Unit Bending Moments and Unit Shear Forces (if not provided in the bridges design, they must be claculated):**

- Minimum Lane Unit Bending Moment Capacity, 2 Lane Traffic, Wheeled, (kNm/m);
- Minimum Lane Unit Bending Moment Capacity, 1 Lane Traffic, Wheeled, (kNm/m);
- Minimum Lane Unit Bending Moment Capacity, 2 Lane Traffic, Tracked, (kNm/m);
- Minimum Lane Unit Bending Moment Capacity, 1 Lane Traffic, Tracked, (kNm/m);
- Minimum Lane Shear Capacity, 2 Lane Traffic, Wheeled, (kN);
- Minimum Lane Shear Capacity, 1 Lane Traffic, Wheeled, (kN);
- Minimum Lane Shear Capacity, 2 Lane Traffic, Tracked, (kN);
- Minimum Lane Shear Capacity, 1 Lane Traffic, Tracked, (kN).

**13. Finally, the participants will be asked to insert the values generated by the received methods when these were applied on the tested bridges:**

MLC with the Traffic Correlation Method - booklet		MLC with the Traffic Correlation Method - software Windows				MLC with the Rapid Analytical Method - software Windows				MLC with the Parameter Correlation Method - software Android				MLC with the Detailed Analytical Method - software Windows			
MLC (Wheeled) 1 Lane Traffic	MLC (Tracked) 1 Lane Traffic	MLC (Wheeled) 1 Lane Traffic	MLC (Wheeled) 2 Lane Traffic	MLC (Tracked) 1 Lane Traffic	MLC (Tracked) 2 Lane Traffic	MLC (Wheeled) 1 Lane Traffic	MLC (Wheeled) 2 Lane Traffic	MLC (Tracked) 1 Lane Traffic	MLC (Tracked) 2 Lane Traffic	MLC (Wheeled) 1 Lane Traffic	MLC (Wheeled) 2 Lane Traffic	MLC (Tracked) 1 Lane Traffic	MLC (Tracked) 2 Lane Traffic	MLC (Wheeled) 1 Lane Traffic	MLC (Wheeled) 2 Lane Traffic	MLC (Tracked) 1 Lane Traffic	MLC (Tracked) 2 Lane Traffic
?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?

A filled example for each type of bridge will be inserted in the electronic excel spreadsheet to serve for guidance and orientations.



Major (ROU A)  
Ovidiu DAMIAN

Project Manager for the Interoperable Bridge Classification Project – Upgrading to a Geographical User Interface





**AGENDA**  
**- The NATO BRIDGE CLASSIFICATION WORKSHOP -**  
**in support of the Interoperable Bridge Classification Project – Upgrading to a Geographical User Interface, 10 - 12 JUL 2018**

Serial	Timing	Event	Leading Guest Speaker
(a)	(b)	(c)	(d)
<b>TUE 10<sup>th</sup> JUL 2018</b>			
1	0800 - 0815	Opening Remarks including Admin Instructions.	Dir MILENG COE / MILENG COE OPR
2	0815 - 0840	STANAG 2021 Ed. 8 - Allied Engineering Publication AEP – 3.12.1.5 – Military Load Classification of bridges, ferries, rafts and vehicles: <ul style="list-style-type: none"> <li>- Purpose;</li> <li>- General information;</li> <li>- MLC signs and markings;</li> <li>- Level of expertise of the assessment team and levels of reliability of the assessment procedure.</li> </ul>	MILENG COE OPR
3	0840 - 0910	Overview of the Interoperable Bridge Classification Project – short history and major achievements.	MILENG COE OPR
4	0910 - 0945	Current status of the project and the way ahead.	MILENG COE OPR
5	0945 - 1000	Coffee break.	-
6	1000 - 1130	Bridge Types and forces in bridges. Structural engineering.	TBD
7	1130 - 1230	Lunch Break. Group photo at 1130.	-
8	1230 - 1400	Presentation of the „ <b>Traffic Correlation Method</b> ”, in the form of a booklet for rapid bridge assessment based on the correlation of curves rating philosophy as well as based on the observation of the civilian traffic procedure (silhouettes).	BEL SME
9	1400 - 1415	Coffee break.	-
10	1415 - 1500	Presentation of the „ <b>Traffic Correlation Method</b> ” as a software for <b>Windows Operating Systems</b> for a rapid bridge assessment.	CAN SME
10	1500 - 1545	Presentation of the analytical methods used in MLC software for <b>Windows Operating Systems: „Rapid Analytical Method”</b> for a rapid bridge assessment and the “ <b>Detailed Analytical Method</b> ” as a software for Windows Operating Systems for a deliberate bridge assessment.	CAN SME
11	1545 - 1600	End of day 1 – open discussions.	All attendees
<b>WED 11<sup>th</sup> JUL 2018</b>			
12	0800 - 0930	Continued Presentation of the analytical methods used in MLC software for <b>Windows Operating Systems: „Rapid Analytical Method”</b> for a rapid bridge assessment and the “ <b>Detailed Analytical Method</b> ” as a software for Windows Operating Systems for a deliberate bridge assessment.	CAN SME
13	0930 - 0945	Coffee break.	-
14	0945 - 1115	Presentation of the „ <b>Parameter Correlation Method</b> ” as a software for <b>Android Operating Systems</b> for a rapid bridge assessment.	DEU SME
15	1115 - 1130	Presentation of the Reconnaissance Module. Content and concept of integration into the all methodologies.	DEU SME
16	1130 - 1230	Lunch Break.	-
17	1230 - 1300	Selection of the relevant bridge types (from the MILENG COE bridges database) subject to practical exercises.	All attendees
18	1300 - 1400	Practical exercises. All methodologies application on selected bridge types.	All attendees
19	1400 - 1415	Coffee break.	-
20	1415 - 1545	Practical exercises. All methodologies application on selected bridge types.	All attendees
21	1545 - 1600	End of day 2 – open discussions.	All attendees
<b>THU 12<sup>th</sup> JUL 2018</b>			
22	0800 - 0930	Practical exercises. All methodologies application on selected bridge types.	All attendees
23	0930 - 0945	Coffee break.	All attendees
24	0945 - 1100	Practical exercises. All methodologies application on selected bridge types.	All attendees
25	1100 - 1130	Results comparison and analysis from the practical sessions.	All attendees
26	1130 - 1230	Lunch Break.	-
27	1230 - 1400	Setting up the requirements, timeline, essential information, expectations and feedback format regarding the case study tests of the all methodologies performed by the attendees.	All attendees
28	1400 - 1530	Group discussion focused on the way forward to upgrade the existing methodologies to meet NATO requirements.	All attendees
29	1530 - 1545	Distribution of all methodologies to the attendees.	Guest Speakers
30	1545 - 1600	Final closing remarks and departure of all attendees.	Dir MILENG COE / MILENG COE OPR



**Support Branch Chief**

Major (OF-3) Ovidiu DAMIAN  
Support Branch  
Tel.: +49 (0) 841 88660 5200  
Mail: supportbc@milengcoe.org

**Annex C to Calling Notice - ADMINISTRATIVE INSTRUCTIONS**

**DATE: 27th Mar 2018**

**1. General:**

- a. The NATO Bridge Classification Workshop will be hosted by MILENG COE, in Ingolstadt, Pionierkaserne Auf der Schanz, Germany, from **10<sup>th</sup> to 12<sup>th</sup> JUL 2018**.
- b. Delegates should plan to arrive at MILENG COE no later than 0800hrs on Tuesday 10<sup>th</sup> JUL 2018 when the event is commencing.

**2. Confirmation of Attendance.** All attendees are requested to register for the event using the online registration available through the protected MILENG COE knowledge portal <https://external.milengcoe.org/default.aspx> (log-in required) NLT than **15<sup>th</sup> JUN 2018**.

**3. Transportation:**

**a. Arrival by air.**

The recommended airport is Munich (MUC). The Airport Shuttle Bus, Ingolstadt Express - X 109 - <http://www.invg.de/airportexpress.php> leaves every 60 min from the Airport to Ingolstadt ZOB. Travel time is approx. 60 minutes. The ticket price is €22.00 one-way and €35.00 for a return ticket. The MILENG COE is unable to provide transport from the ZOB to your accommodation.

**b. Arrival by train.**

Ingolstadt can also be reached by DB ICE train or regional trains. All information related to train connections and schedules can be found at <http://www.bahn.de>. The MILENG COE is unable to provide transportation from the railway station to your accommodation.

**c. Arrival by car.**

Leave the Autobahn A9 at Exit 62 INGOLSTADT SÜD and then follow directions to Ingolstadt. The barracks main gate is approx 400m from the highway on the right (Manchinger Str. 1).

**d. During the event.**

MILENG COE will not be responsible to provide transportation from/to the designated hotels or at the end of the event to the bus station, railway station or the hotel.

**4. Accommodation.**

The recommended hotel is ENSO hotel ([www.enso-hotel.de](http://www.enso-hotel.de)) located just 10 minutes walking distance from the barracks (Pionierkaserne in Manchingerstrasse 1). The MILENG COE has negotiated lower room rates for the participants (a single room for €96 and a double room for €119). Participants are asked to book their own accommodation rooms directly with the hotel using the booking form (see Enclosure 1) not later than 15<sup>th</sup> JUN 2018. The booking reference is "BRIDGING". Further information about the hotel can be found at <http://www.enso-hotel.de/>.

Military accommodation is also available at a limited number of 24 rooms, the room rate is € 13.60 for single room (breakfast not included which can be taken in the Officers' Mess (Casino) or in the All Ranks Mess hall.

C -1

NATO UNCLASSIFIED



**5. Dress.**

Dress throughout the meeting is civilian, smart casual.

**6. Information Folder.**

On arrival an information folder will be provided to the attendees containing the final agenda, as well as other project related information.

**7. Costs and associated fees.**

- a. There will be a conference fee of 15 € for this event, to cover the costs associated with coffee and refreshments provided as well as for the printed material or other admin related issues.
- b. Costs for the meals or for other voluntary social events during the event will be "pay as you go" by each participant. There will be no organized social event by the MILENG COE.
- c. Delegates are responsible for funding their travel, accommodation and meals. Breakfast / Lunch/ Dinner may be served in the Mess hall, located within the barracks, with the following prices: 1,73 € / 3,23 € / 3,23 €.
- d. Delegates must pay their own hotel bills, directly to the hotel (Credit Cards accepted), on departure.
- e. Currency: The currency in Germany is Euro. It is recommended to change currency at the airport or at the local banks. All major credit cards are accepted in the hotels, but not in every restaurants.

**8. NATO Travel Order.**

It is recommended that NATO members obtain a NATO travel order.

**9. Visas.**

Delegates from Countries other than NATO or the EU, where a visa to gain access to Germany is required, will have to take the appropriate action through their own national authorities.

**10. Electricity.**

Voltage in Germany is 220 / 240 volts. If bringing a Laptop delegates are reminded to bring suitable "worldwide" adapters with them.

**11. IT.**

The Workshop will be hosted in the classroom which will be equipped with working stations for each attendee and projection facilities. Data transfer is best achieved by memory stick or CD. Presentations will be placed on the protected MILENG Knowledge portal following the event. Internet may also be available in the MILENG COE building (Wi-Fi) and in the military accommodation (LAN) based on request, by filling a Disclaimer Form provided to all attendees in the first day of the event.

Major (ROU A)  
Ovidiu DAMIAN  
Project Manager for the Interoperable Bridge Classification Project – Upgrading to a Geographical User Interface  
+49 1525 464 1325 (Mobile)  
+49 841 88660 5200 (Tel)  
+49 841 88660 5102 (Fax)  
[supportbc@milengcoe.org](mailto:supportbc@milengcoe.org)



# Enso Hotel Booking Form

The Arena 1, 85053 Ingolstadt

Please complete this form and send it DIRECTLY to the hotel NLT 15<sup>th</sup> JUN 2018

Enso Hotel Fax: + 49(0)841 88559-100 – Email: [info@enso-hotel.de](mailto:info@enso-hotel.de)

Past this date, all reservations will be processed upon availability, rate may change.

Event Code :	BRIDGING
--------------	----------

<input type="checkbox"/> Mr.	<input type="checkbox"/> Ms.	<input type="checkbox"/> Mrs.
------------------------------	------------------------------	-------------------------------

<b>Personal Information:</b>			
Family Name:		First Name:	
Complete Address:			
City:	Country:	Nationality:	
Telephone:	Fax:		
E-mail:			
Arrival Date:		Departure Date:	

<b>Payment Information:</b>			
<i>Accommodation will not be confirmed unless one of the payment methods listed below is used to guarantee your reservation.</i>			
<input type="checkbox"/> Visa	<input type="checkbox"/> Master Card	<input type="checkbox"/> American Express	<input type="checkbox"/> Bank Transfer
Credit Card Number:		Expiration Date:	
Card Holder's Name:			

<b>Enso Hotel:</b>		
<input type="checkbox"/> Single Room	96,00 EUR (breakfast + Wireless Internet included)	
<input type="checkbox"/> Double Room	119,00 EUR (breakfast + Wireless Internet included)	

<b>Cancellation Policy:</b>
See conditions at Enso Hotel-homepage

Date: .....

