Errata for Girder Stability Analysis v1.0

(PCI_Girder_Stability_CB-04-20_Calc.xlsx)

March 2022

In 2020, the Precast/Prestressed Concrete Institute published the *User Manual for Calculating the Lateral Stability of Precast, Prestressed Concrete Bridge Girders (CB-04-20)*. Included with this user manual was a PCI-developed concatenated Microsoft Excel spreadsheet program entitled Girder Stability Analysis v1.0. The errata published herein are intended to supplement, revise, or clarify the information provided in Girder Stability Analysis v1.0.

These errata have been incorporated into Girder Stability Analysis v1.1. PCI suggests you replace Girder Stability Analysis v1.0 with Girder Stability Analysis v1.1 so that your spreadsheet program is as accurate as possible. Please go to the PCI Bookstore and download the free Girder Stability Analysis v1.1.

As this Microsoft Excel spreadsheet program is used, additional errata may be discovered. You are urged to notify PCI of any potential errata for committee review. You are also encouraged to send any questions or comments to PCI regarding the material in the User Manual or the spreadsheet program, and suggested improvements or clarifications. Please send to transportation@pci.org.

Revisions:

Inserted a "Revision Log" tab in the revised excel calculator to identify errata revisions.

In all tabs, updated AASHTO LRFD Bridge Design Specifications from 8th Edition to 9th Edition.

In all tabs, removed the word "unit" before girder linear weight and torsion references.

In various tabs, corrected spelling of yoke in equations and internal variables.

Instructions tab, cell A107, removed "Assuming no skew is a conservative assumption for this inactive construction case."

Instructions tab, cells B109-B113, added guidance for girders with flared spacing.

Instructions tab, cells B242-B245, added Guidance Note 2 for Active Construction Stage Case

General Input tab, cell A18, revised Bottom to Top.

General Input tab, cell A51, revised equation for w_DC.girder.

General Input tab, cell F52, revised equation for w_DC.girder.

General Input tab, cell F55, revised kcf to klf.

General Input tab, cell M140, revised *h_brg* to *h_brg.seat2*.

General Input tab, cell U140, revised *h_brg* to *h_brg.seat2*.

General Input tab, cell Q169, revised variable reference to *Check_Eccentricity*

General Input tab, cell X170, revised the conditional formatting for proper evaluation.

Lift from Bed – Vertical tab, cell L222, revised *theta_eq.lift1.wr to theta_eq.lift1.wl.*

Lift from Bed – Vertical tab, cell E261, added equal sign.

Lift from Bed – Vertical tab, cell E267, added equal sign.

Lift from Bed – Inclined tab, cells F67 and E68, added squared symbols to equation numerator and denominator

Lift from Bed – Inclined tab, cell A284, revised *variable subscripts from wr to wl*.

Lift from Bed – Inclined tab, cell A284, revised *M_wind.lift1i* to be subtracted in equation.

Lift from Bed – Inclined tab, cell J288, revised *M_wind.lift1i* to be subtracted in equation.

Lift from Bed – Inclined tab, cell G290, revised *M_wind.lift1i* to be subtracted in equation.

Lift from Bed – Inclined tab, cell A291, revised *variable subscripts from wr to wl*.

Lift from Bed – Inclined tab, cell A291, revised *M_wind.lift1i* to be added in equation.

Lift from Bed – Inclined tab, cell J295, revised *M_wind.lift1i* to be added in equation.

Lift from Bed – Inclined tab, cell G297, revised *M_wind.lift1i* to be added in equation.

Lift from Bed – Inclined tab, cell E239, added equal sign.

Lift from Bed – Inclined tab, cell E245, added equal sign.

Lift from Bed – Inclined tab, cell G408, revised conditional evaluation from *I324<0,99 to I397<0,99*.

Lift from Bed – Inclined tab, cell G408, revised *e_conn* to *e_conn.lift1i*.

Lift from Bed – Inclined tab, cell A440, moved *e_wind.lift1i* outside of *z* term parenthesis.

Lift from Bed – Inclined tab, cell G443, moved *e_wind.lift1i* outside of *z* term parenthesis.

Lift from Bed – Inclined tab, cell G444, revised *e_conn* to *e_conn.lift1i*.

Seated on Dunnage tab, cell H228, revised definition of FS_ult.seat1 from F210 to H228

Seated on Dunnage tab, cell F250, revised *M_ot.seat1* to *M_roll.seat1*.

Seated on Transport tab, cell F261, revised *W_girder* to *W_girder.trans*.

Seated on Transport tab, cell W222, corrected reference to AASHTO LRFD Bridge Design Specifications for Compression Service Limit State after Losses

Lift in Field – Vertical tab, cell M153, revised subtraction to addition within parenthesis.

Lift in Field – Vertical tab, cell R200, revised $f\_t.lift1.wr.right$ and $f\_t.lift1.wr.left$ to $f\_t.lift2.wr.right$ and $f\_t.lift2.wr.left$, respectively.

Lift in Field – Vertical tab, cell W251, corrected reference to AASHTO LRFD Bridge Design Specifications for Compression Service Limit State after Losses

Lift in Field – Vertical tab, cells E263 and E269, added equal sign (=).

Lift in Field – Inclined tab, cells C50 and A58, Revised $theta\_yoke21$ to $theta\_yoke.lift2i.$

Lift in Field – Inclined tab, cells F68 and E69, add squared symbols to equation numerator and denominator.

Lift in Field – Inclined tab, cell F68, revised I_y units from in to in^4

Lift in Field – Inclined tab, cells T371 and T376, removed feet to inch conversion of $z\_0.lift2i$.

Lift in Field – Inclined tab, cells H372 and H377, revised units of $M\_g.lift2i$ to kip-in to be consistent with Lift from Bed - Inclined tab.

Lift in Field – Inclined tab, cell A297, revised $M\_wind.lift2i$ to be subtracted in equation.

Lift in Field – Inclined tab, cell J301, revised $M\_wind.lift2i$ to be subtracted in equation.

Lift in Field – Inclined tab, cell G303, revised $M\_wind.lift2i$ to be subtracted in equation.

Lift in Field – Inclined tab, cell A304, revised $M\_wind.lift2i$ to be added in equation.

Lift in Field – Inclined tab, cell J308, revised $M\_wind.lift2i$ to be added in equation.

Lift in Field – Inclined tab, cell G310, revised $M\_wind.lift2i$ to be added in equation.

Lift in Field – Inclined tab, cell W333, corrected reference to AASHTO LRFD Bridge Design Specifications for Compression Service Limit State after Losses

Lift in Field – Inclined tab, cell E345, added equal sign.

Lift in Field – Inclined tab, cell E351, added equal sign.

Lift in Field – Inclined tab, cell G418, revised conditional evaluation from $I334<0,99$ to $I407<0,99$.

Lift in Field – Inclined tab, cell G418, revised e_conn to $e\_conn.lift2i$.

Lift in Field – Inclined tab, cell A441, moved $e\_wind.lift2i$ outside of z term parenthesis.

Lift in Field – Inclined tab, cell G442, moved $e\_wind.lift2i$ outside of z term parenthesis.

Lift in Field – Inclined tab, cell G443, revised e_conn to $e\_conn.lift2i$.

First Girder Seated on Bearings tab, cell W175, corrected reference to AASHTO LRFD Bridge Design Specifications for Compression Service Limit State after Losses

First Girder Seated on Bearing tab, cell H237, revised definition of FS_ult.seat2 from F218 to H237

First Girder Seated on Bearings tab, cell K237, revised *FS_ult.lift1* to *FS_ult.seat2.*

First Girder Seated on Bearings tab, cell F280, revised formula to add *e_brg.seat2* per equation in B276.

Inactive Construction tab, cell W177, corrected reference to AASHTO LRFD Bridge Design Specifications for Compression Service Limit State after Losses

Inactive Construction tab, cell T259, revised "Add Bracing" to "N.G., Add Bracing"

Inactive Construction tab, cell U340, revised *FIXED(f_r.seat3,3)* to *f_r.seat3*.

Inactive Construction tab, cell AE340, revised conditional evaluation from *J340<=U340* to *J340>=U340*.

Deck (Active) Construction tab, cell F38, revised t.deck to t.deck.cant.

Deck (Active) Construction tab, cell F108, revised 42.0 in / (12 in/ft) to FIXED(b_topflange,2)&" in / (12 in/ft)".

Deck (Active) Construction tab, cell F118, removed unit conversion of s_screed.

Deck (Active) Construction tab, cell G147, revised formula to move F_mod from denominator to numerator

Deck (Active) Construction tab, cell G149, revised numerator to include F_mod

Deck (Active) Construction tab, cell G150, denominator to remove F_mod

Deck (Active) Construction tab, cell G151, revised formula to move F_mod from denominator to numerator

Deck (Active) Construction tab, cell G151, revised n_brace to (n_brace-1)

Deck (Active) Construction tab, cell A167, revised *0.5* coefficient to *0.25* coefficient.

Deck (Active) Construction tab, cell F168, revised *0.5* coefficient to *0.25* coefficient.

Deck (Active) Construction tab, cell F169, revised the *J_girder* term to show as *(in^4)* rather than *(in)^4*.

Deck (Active) Construction tab, cell F170, revised *0.5* coefficient to *0.25* coefficient.

Bearing Rotation Stiffness tab, cell H65, revised the *I_brg.z* term to show as *(in^4)* rather than *(in)^4*.