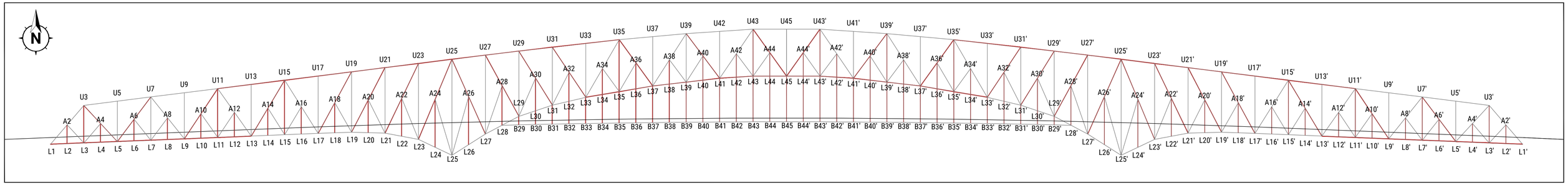
BRIDGE PROTECTION SYSTEMS ATTACHMENT

NTSB-Generated Nonredundant Steel Tension Member Plan

Baltimore, MD

DCA24MM031

(2 pages)



LOWER CHORDS

Member	Length	Tangent
L1 – L3	60.048′	0.04000
L3 – L5	60.048′	0.04000
L5 – L7	60.048′	0.04000
L7 – L9	60.048′	0.04000
L9 – L11	60.048′	0.04000
L11 – L13	60.048′	0.04000
L33 – L35	60.842′	0.16816
L35 – L37	60.842′	0.16816
L37 – L39	60.395′	0.11500
L39 – L41	60.395′	0.11500
L41 – L43	60.127′	0.06500
L43 – L45	60.000′	0.00000
L35′ – L33′	60.842′	0.16816
L37′ – L35′	60.842′	0.16816
L39′ – L37′	120.746′	0.11166
L41′ – L39′	60.395′	0.11500
L43′ – L39′	60.127′	0.06500
L45 – L43′	60.000′	0.00000
L13′ – L11′	60.048′	0.04000
L11′ – L9′	60.048′	0.04000
L9′ – L7′	60.048′	0.04000
L7′ – L5′	60.048′	0.04000
L5′ – L3′	60.048′	0.04000
L3′ – L1′	60.048′	0.04000

UPPER CHORDS

Member	Length	Tangent
U11 – U15	120.934′	0.12500
U15 - U19	120.934′	0.12500
U19 – U21	60.467′	0.12500
U21 – U23	60.467′	0.12500
U23 – U25	60.467′	0.12500
U25 – U27	60.455′	0.12333
U27 – U29	60.419′	0.11833
U29 – U31	60.407′	0.11666
U31 – U35	120.746′	0.11166
U35′ – U31′	120.746′	0.11666
U31′ – U29′	60.407′	0.11166
U29′ – U27′	60.419′	0.11833
U27′ – U25′	60.455′	0.12333
U25′ – U23′	60.467′	0.12500
U23′ – U21′	60.467′	0.12500
U21′ – U19′	60.467′	0.12500
U19′ – U15′	120.934′	0.12500
U15′ – U11′	120.934′	0.12500

DIAGONALS

Member	Length	Tangent
U3 – L5	88.165′	1.07666
L5 – U7	99.680′	1.32666
L9 – U11	108.000′	1.49666
L13 – U15	116.619′	1.66666
L17 – U19	125.475′	1.83666
L19 – U21	130.039′	1.92283
L21 – U23	138.293′	2.07666
L23 – U25	155.354′	2.38833
U25 – L27	146.691′	2.23100
U27 – L29	124.791′	1.82366
U29 – L31	113.649′	1.60866
U31 – L33	107.734′	1.49133
U35 – L37	102.173′	1.37833
U39 – L41	99.920′	1.33166
U43 – L45	103.065′	1.39666
L45 – U43′	103.065′	1.39666
L41′ – U39′	99.920′	1.33166
L37′ – U35′	102.173′	1.37833
L33′ – U31′	107.734′	1.49133
L31′ – U29′	113.649′	1.60866
L29′ – U27′	124.791′	1.82366
L27′ – U25′	146.691′	2.23100
U25′ – L23′	155.354′	2.38833
U23′ – L21′	138.293′	2.07666
U21′ – L19′	130.039′	1.92283
U19′ – L17′	125.475′	1.83666
U15′ – L13′	116.619′	1.66666
U11′ – L9′	108.000′	1.49666
U7′ – L5′	99.680′	1.32666

VERTICALS

Member	Length	Member	Length
L2 – A2	33.5	A44′ – L44′	41.900′
L3 – U3	67.000′	U43′ – L43′	83.800′
L4 -A4	33.500′	A42′ – L42′	41.900′
L6 -A6	38.600′	A40′ – L40′	43.400′
L8 -A8	38.600′	A38′ – L38′	43.400′
L10 -A10	43.700′	A36′ – L36′	46.395′
L11 – U11	87.400′	U35′ – L35′	92.790′
L12 -A12	43.700′	A34′ – L34′	46.395′
L14 – A14	48.800′	A32′ – L32′	51.760′
L15 – U15	97.600′	A30′ – L30′	58.260′
L16 – A16	48.800′	A28′ – L28′	70.630′
L18 – A18	53.935′	A26′ – L26′	85.750′
L20 – A20	58.550′	A24′ – L24′	85.750′
L22 – A22	67.900′	A22′ – L22′	67.900′
L24 – A24	85.750′	A20′ – L20′	58.550′
L26 – A26	85.750′	A18′ – L18′	53.935′
L28 – A28	70.630′	A16′ – L16′	48.800′
L30 – A30	58.260′	U15′ – L15′	97.600′
L32 – A32	51.760′	A14′ – L14′	48.800′
L34 – A34	46.395′	A12′ – L12′	43.700′
L35 – U35	92.790′	U11′ – L11′	87.400′
L36 – A36	46.395′	A10′ – L10′	43.700′
L38 – A38	43.400′	A8′ – L8′	38.600′
L40 – A40	43.400′	A6′ – L6′	38.600′
L42 – A42	41.900′	A4′ – L4′	33.500′
L43 – U43	83.800′	U3′ – L3′	67.000′
L44 – A44	41.900′	A2′ – L2′	33.5

SUSPENDED VERTICALS

Member	Length	Member	Length
B29 – L29	15.220′	B44′ – L44′	81.740′
B30 – L30	24.560′	B43′ – L43′	81.800′
B31 – L31	33.950′	B42′ – L42′	79.960′
B32 – L32	40.400′	B41′ – L41′	78.160′
B33 – L33	46.890′	B40′ – L40′	74.900′
B34 – L34	51.445′	B39′ – L39′	71.680′
B35 – L35	56.050′	B38′ – L38′	68.510′
B36 – L36	60.695′	B37′ – L37′	65.380′
B37 – L37	65.380′	B36′ – L36′	60.695′
B38 – L38	68.510′	B35′ – L35′	56.050′
B39 – L39	71.680′	B34′ – L34′	51.445′
B40 – L40	74.900′	B33′ – L33′	46.890′
B41 – L41	78.160′	B32′ – L32′	40.400′
B42 – L42	79.960′	B31′ – L31′	33.950′
B43 – L43	81.800′	B30′ – L30′	24.560′
B44 – L44	81.740′	B29′ – L29′	15.220′
B45 – L45	81.720′		

Note: This NTSB-generated Nonredundant Steel Tension Member Plan was developed based upon information contained within the MDTA Baltimore Harbor Outer Crossings Patapsco River Bridge As-Built Plans (Bridge Protection Systems Attachment #3) and the MDTA 2023 Bridge Inspection Report (Bridge Protection Systems Attachment #5)

NTSB	**NATIONAL TRANSPORTATION SAFETY BOARD** OFFICE OF HIGHWAY SAFETY	
SCALE: 0 80′ 160′	**DCA24MM031** Baltimore, Maryland March 26, 2024 1:27 a.m. EST	
Drawn By:Scott Parent, Highway Investigator	**Nonredundant Steel Tension Member Plan**	SHEET NO. 1 of 1