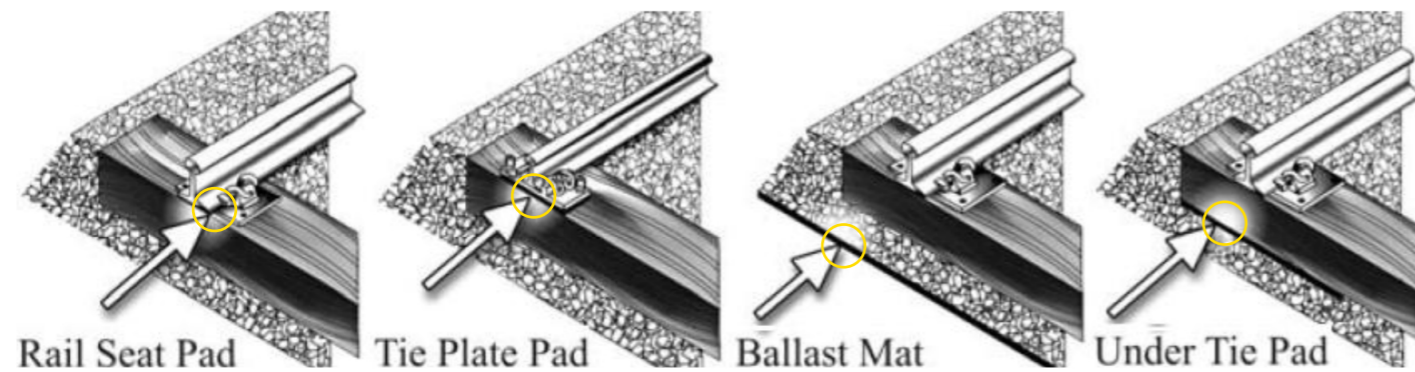


Our analysis is capable of examining 4 tracks (8 rails) over 50 ties with the positions varied according to the users requirements or to cope with curves or special trackwork.

Tiflex will work with maintenance contractors to ensure implementation is currently organised.

The payback periods for investing in improvement of track and bridge quality can be relatively short. Leaving track transitions as they are will lead to constantly increasing budgets as wear and tear take effect. Providing an engineering solution is an investment for the future.



TRACKELAST

Specialist Rail Solutions
the high performance solution provider

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Engineering of Track Transitions

Tiflex

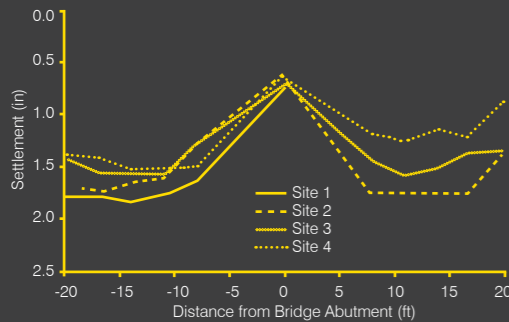
Engineering of Track Transitions

Track maintenance and bridge engineers know that bridge and adjacent track maintenance takes up a much larger proportion of their annual maintenance budgets compared with track in general. Track engineers are often faced with approach settlement, excessive wear and migration of the ballast, hanging ties, and increased impact loading on the bridges.

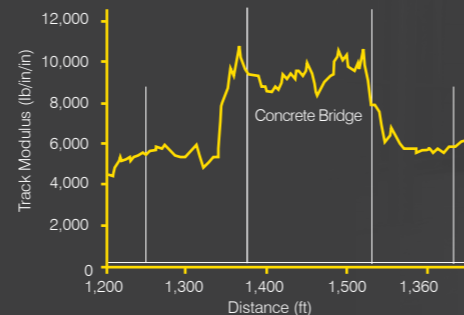
having a stiff section of track whilst the ballasted section can be considered as soft track. The change in stiffness results in a significant increase in the stressing with the highest loadings being when the train moves from soft track to stiff track. The vertical acceleration of the wheels and cars in the transition zone is accentuated by the differential change in track stiffness with faster trains causing higher impact loads and greater track deflection.

Tiflex being a specialist supplier of elastomeric and plastic components for track can undertake the analysis and provide a complete set of components so that the track and bridge engineers can smooth the track which not only saves then money it also can lead to lower energy consumption of the trains and less wear and tear on the wheelsets.

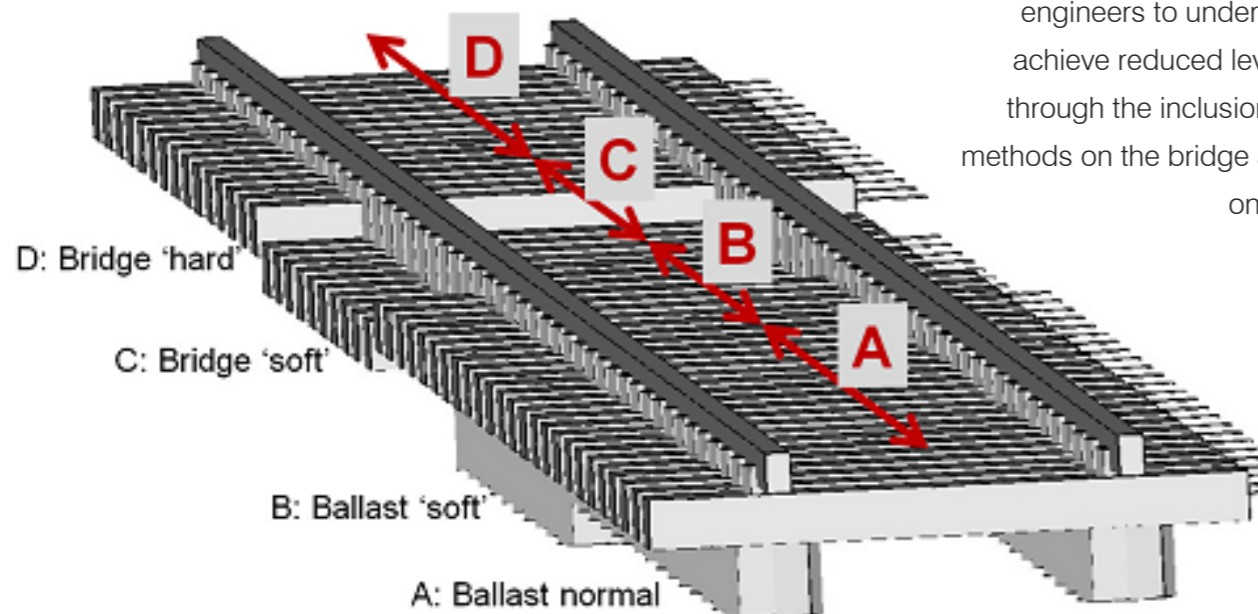
Transition zones can be recognised as the bridge



Source TCRP Track Transitions Digest 79



bearer	xb	ry1	ry2
101	0	0	1435
102	650	0	1435
103	1300	0	1435
104	1950	0	1435
105	2600	0	1435
106	3250	0	1435
107	3900	0	1435
108	4550	0	1435
109	5200	0	1435
110	5850	0	1435
111	6500	0	1435
112	7150	0	1435
113	7800	0	1435
114	8450	0	1435
115	9100	0	1435
116	9750	0	1435
117	10400	0	1435
118	11050	0	1435
119	11700	0	1435
120	12350	0	1435
121	13000	0	1435
122	13650	0	1435
123	14300	0	1435
124	14950	0	1435
125	15600	0	1435
126	16250	0	1435
127	16900	0	1435
128	17550	0	1435
129	18200	0	1435
130	18850	0	1435
131	19500	0	1435
132	20150	0	1435
133	20800	0	1435
134	21450	0	1435
135	22100	0	1435
136	22750	0	1435
137	23400	0	1435
138	24050	0	1435
139	24700	0	1435
140	25350	0	1435
141	26000	0	1435
142	26650	0	1435
143	27300	0	1435
144	27950	0	1435
145	28600	0	1435
146	29250	0	1435
147	29900	0	1435
148	30550	0	1435
149	31200	0	1435
150	31850	0	1435



Every situation is different but TRIG allows engineers to understand how they can achieve reduced levels of maintenance through the inclusion of track softening methods on the bridge and track stiffening on the ballast section.

This model has four track sections ABCD with 15-10-10-15 bearers each. It is a branch from generic template 2R-50B version 1.04. Stiffness properties are defined by combining rail and pad thicknesses and ballast depth.

		A	B	C	D
rail height		160			
pad thickness		6	6	6	6
plate thickness		20	20	20	20
bearer thickness		0	0	0	0
ballast depth		200	200	200	200
bearer spacing		1400	2800	100	100
rail		650			
pads	E	210000			
	E	300			
	kp1	125000.0	125000.0	125000.0	125000.0
	kp2	109090.9	109090.9	109090.9	109090.9
ballast	kb	16000.0	8275.9	120000.0	120000.0
overall	k	12552.3	7246.4	39215.7	39215.7
bearer	E	50000			

bearer end constraint Y	300
bearer end length Y	500
bearer side restraint X	325
rail end constraint X	300

Notes: Track sections are set up with typical (A:20MPa), soft or degraded (B:10MPa) ballasted sections, then hard (C&D: 68MPa) structure.