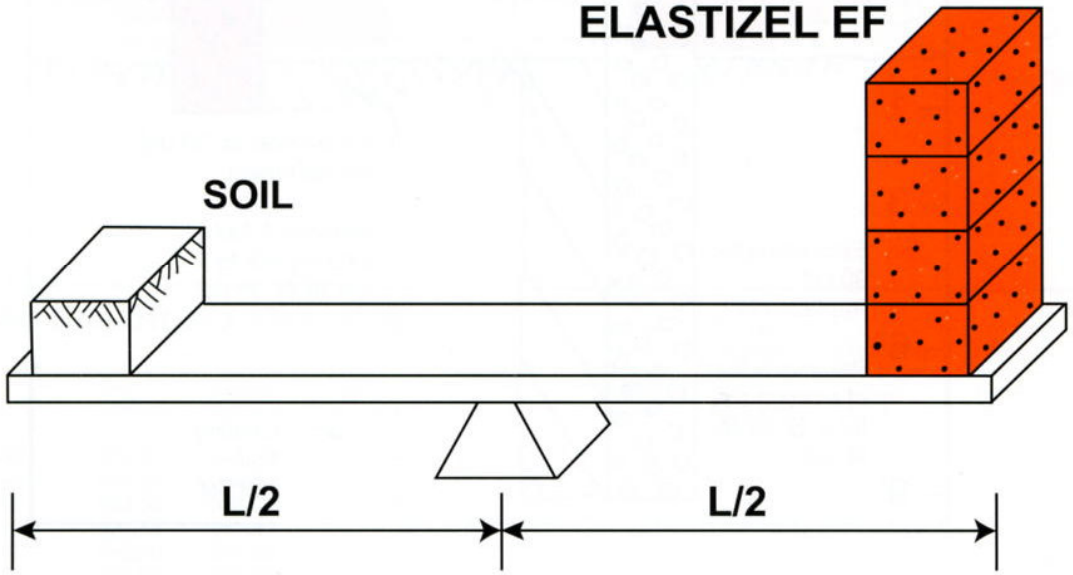
ELASTIZELL EF (Engineered Fill)

RESEARCH REPORT

www.Elastizell.com

Load Balancing & Load Reduction



CAUTION: For products that may appear similar, demand material test data, in-place performance documentation, and a certified applicator with experienced personnel using approved equipment.

Comparison of Fill Material Densities

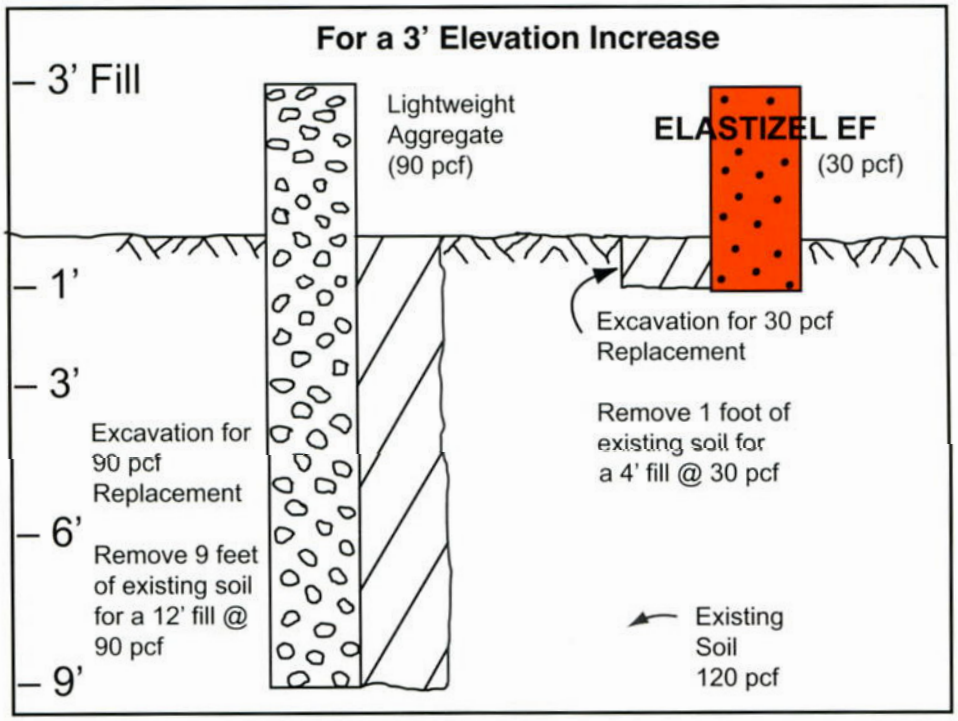
ELASTIZELL EF	
Class I	18 – 24 pcf
Class II	24 – 30 pcf
Class III	30 – 36 pcf
Class IV	36 – 42 pcf
Water	**62.4 pcf**
Lightweight Aggregates	**60 – 90 pcf**
Soils	**120 pcf**
Aggregates	**125 pcf**
Lean Concrete	**145 pcf**

Elastizell Corporation of America

LOAD RELIEF COMPARISON

Load Balancing and Load Reduction concepts involve removing a specific depth of existing heavy material such as soil or part of a structure and replacing it with an equal or greater depth of **Elastizell EF.** The **Elastizell EF** places less load on the existing soil or structure even though the new fill depth is significantly greater than the original fill. This concept is utilized for both new construction as well as for rehabilitation applications. These may be applied on existing marginal ground conditions such as peat areas or deep poor soils overlain with better material. In addition, older structures such as bridges, abutments, retaining walls, culverts, etc. may have reduced loading on them utilizing **Elastizell EF.**

ELASTIZELL EF vs. Lightweight Aggregate

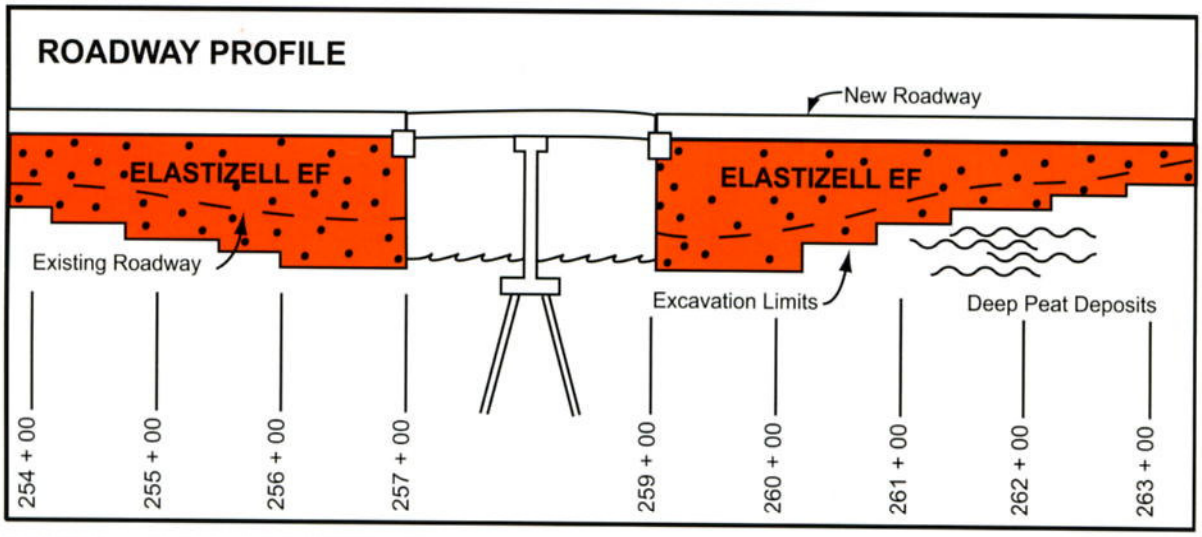


	Elastizell EF	vs. Lightweight Aggregate
Excavate	1 unit	9 units
Replace	4 units	12 units
Compaction	not required	required
Compaction in Restricted Areas	not necessary	impossible

ROADWAY CONSTRUCTION

In roadway construction (or reconstruction), **Elastizell EF** is an effective method for raising roadway grades over marginal surface soils as well as deep deposits of poor material overlain by fairly good soil. Load balancing reduces normal roadway loadings for equal or greater final elevations.

In the sample below, it is required to raise the roadway elevation about 10+ feet since it is located in a flood plain. It will be necessary to balance the added load and subsequent settlements with the buoyant uplift forces at the 100 year flood level. A computer analysis simplifies this calculation and aids in the selection of the optimum solution. Stepped **Elastizell EF** controls the dead weight, volume and cost of this renovation.

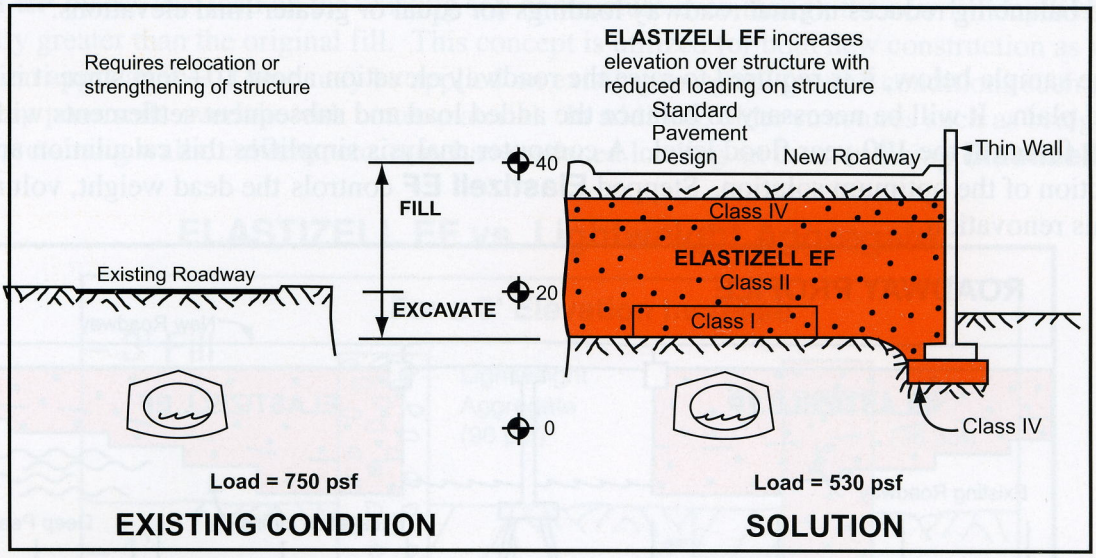


LOAD BALANCING ANALYSIS

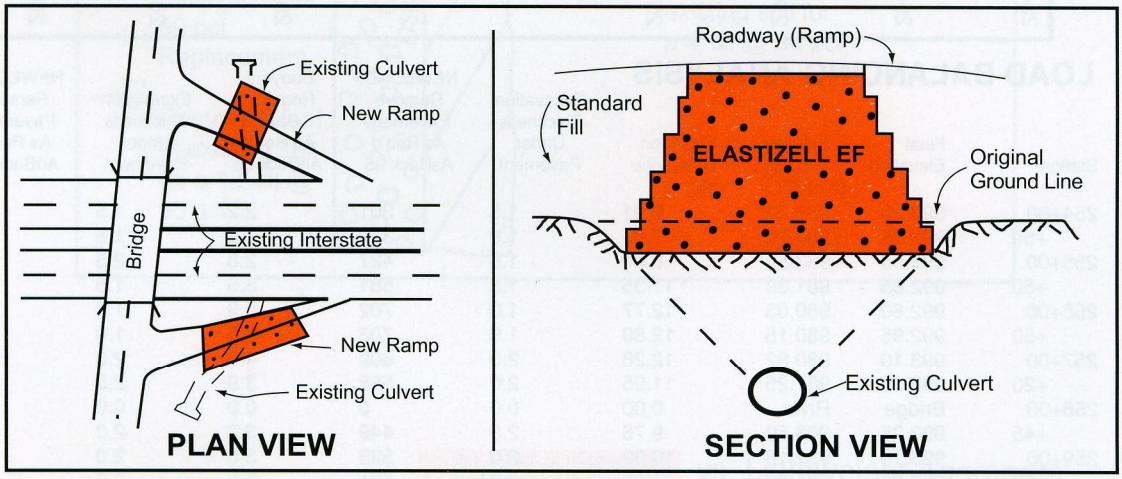
Station	Final Elevation	Existing Elevation	Elevation Difference	Excavation Thickness Under Pavement	NEWLOAD: Remove Pavement As Req'd AsBack 35	Buoyant: Required Base As Req'd AsBack 35	Excavation Thickness Under Pavement	NEWLOAD: Remove Pavement As Req'd AdBack 35	Buoyant: Required Base As Req'd AsBack 35
254+00	992.20	985.29	6.91	1.5	301	2.2	1.5	301	2.2
+50	992.35	984.70	7.65	1.0	379	2.2	1.5	348	2.4
255+00	992.50	983.59	8.91	1.5	427	2.8	2.5	365	3.1
+50	992.65	981.30	11.35	1.5	581	3.5	1.5	581	3.5
256+00	992.80	980.03	12.77	1.0	702	3.8	1.0	702	3.8
+50	992.95	980.15	12.80	1.0	703	3.8	1.0	703	3.8
257+00	993.10	980.82	12.28	2.0	609	4.0	2.0	609	4.0
+20	993.20	981.25	11.95	2.0	588	3.9	2.0	588	3.9
258+00	Bridge	River	0.00	0.0	0	0.0	0.0	0	0.0
+45	993.25	983.50	9.75	2.0	449	3.2	2.0	449	3.2
259+00	993.10	982.18	10.92	2.0	523	3.6	2.0	523	3.6
+50	992.95	981.90	11.05	2.0	531	3.6	2.0	531	3.6
260+00	992.80	982.02	10.78	2.0	514	3.5	2.0	514	3.5
+50	992.65	982.15	10.50	2.0	497	3.4	2.0	497	3.4
261+00	992.50	981.94	10.56	2.0	500	3.5	2.0	500	3.5
+50	992.35	981.50	10.85	1.5	550	3.4	2.0	519	3.5
262+00	992.20	980.78	11.42	1.5	585	3.6	2.5	523	3.9
+50	992.05	980.40	11.65	2.0	569	3.8	2.0	569	3.8
263+00	991.90	980.90	11.00	2.0	528	3.6	2.5	497	3.7
+50	991.75	982.60	9.15	1.0	473	2.7	2.5	380	3.2
264+00	991.60	983.92	7.68	1.0	381	2.2	2.5	350	2.4
+50	991.45	986.20	5.25	1.0	228	1.5	2.0	166	1.8
265+00	991.30	987.68	3.62	1.0	125	1.0	2.0	63	1.3
+20	991.30	988.20	3.10	1.0	92	0.8	1.0	92	0.8
	Average Thickness		9.25	1.54		3.02	1.87		3.13

UNDERGROUND CULVERT STRUCTURES

ELASTIZELL EF Reduces Loading Over an Underground Culvert Structure Unable to Support Additional Loads



ELASTIZELL EF Permits Higher Levee and Embankment Structures Over Poor Soils



Please contact the Elastizell Corporation of America for additional specific design values and a customized specification.

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