May 18, 2023

Attention: La Conner Mayor and Council Members
La Conner City Hall
204 Douglas St.
La Conner, WA 98257

Subject: Your endorsement is requested

Attachments:
My article titled, "Making Earthquakes no longer Dangerous."

Dear Mayor and Council Members

Because my proposal to design structures to be actually earthquake-proof, although true, it is beyond belief. The result is no publisher will believe it and they all refuse publication. Because I have not yet earned their respect, I am reaching out to the addressed for their endorsement. To this mission, I am requesting a meeting with the addressed at your convenience, time, and place that would give me an opportunity to explain my proposal to design structures to be actually earthquake-proof.

It is believed that an endorsement from any or all of the addressed would be of value to get my work published informing not only the paper's readers, but the world.

To help convince the addressed of the justification for your valued endorsement, I am including my article titled, "Making Earthquakes no longer Dangerous."

Thank you and I look forward for your cooperation on this issue.

Sincerely,

Joseph C. Coomer
2920 N Heller Rd, Unit E
Oak Harbor, WA 98277
Phone: 360-929-2397

Making Earthquakes no longer Dangerous!

by Joseph C. Coomer

Currently, earthquakes are very dangerous. Evidence is the recent massive one that occurred in the Turkey-Syria area where the fatalities exceeded 40,000 victims.

When one researches earthquakes, they will conclude that it is not the quake itself that causes casualties, but the failing structures that fail because they cannot absorb the huge dynamic loads that major quakes create. ***Accept that if they were able to design new structures and to modify existing ones, all to be earthquake-proof, this would make earthquakes no longer a danger or even a concern***! This is the ultimate "goal!" Designing structures to be earthquake-proof, able to survive any quake unharmed, even the maximum one of magnitude 10, and not just "earthquake resistant."

To achieve this goal, one needs to consider the following ***"FACTS."***

FACT:Current research on designing structures to be earthquake-proof involve the use of the strength of the material and the design itself in achieving this goal. It assumes that everything is connected to the quake-moving earth that ***transfers*** its motion to items and they will then move in sync with the quake. Those ***transferred motions*** create dynamic loads and it is the dynamic loads that destroy items.

Their success is limited to making items ***"earthquake resistant"*** and not "***earthquake-proof.***" About the maximum quake that an item can survive unharmed is one roughly of about 6.0 magnitude. Quakes stronger than that, then the dynamic loads are just too great and then it becomes impractical to design an item that strong. (This writer terms this concept the "brute-strength" one.

FACT: Now consider a radical new concept that has little to do with the strength of the materials used or the design. ***It focuses on reducing or eliminating the motion itsel!*** With little or no motion, there are few if any dynamic loads generated. With no or few dynamic loads to absorb, one can understand and accept that an item with little or no motion, even from a major quake. To summarize, with near zero movement creates near zero dynamic loads. Accept and believe that with near zero dynamic loads to absorb, requires little strength, just the normal strength for static loads. ***If the item is suspended, its design only requires it to be designed for static loads and then it is earthquake-proof, able to survive unharmed by any quake, even the maximum one of magnitude 10!***

FACT: To achieve the goal of little or no motion, ***one needs to suspend the item.*** When an item is suspended, ***it is no longer connected to the quake-moving earth***. Accept that for the quake-moving earth to transfer its motion, ***this requires both to be connected!*** Accept that a suspended item remains basically motionless during even a major quake. The conclusion is suspension achieves the goal of near zero motion. Repeating the above statement. Accept that an item with near zero motion, even from a major quake, ***it is earthquake-proof, able to survive unharmed by any quake, even the maximum one of magnitude 10.***

These "FACTS should prove to all that suspension is the KEY to earthquake-proof design. One may then consider when, in a not too distant future with almost all structures suspended, and thus earthquake-proof, earthquakes, even major ones, are then no longer dangerous or even a concern!

Recognizing that it may be easier to understand a design than it is the theory, one needs to understand the design depicted in Illustration A, a design for a suspension support. One can understand that the design starts with a section of steel pipe that is buried roughly 30 inches in the ground. On top of this pipe is a fitting with a flat surface. On that surface is installed a "nest of ball bearings." On top of this nest is an assembly consisting of a plate, a large coil spring, and a plate. (The coil spring is welded to both plates.) On top of this assembly is a suspension beam and then the structure, that is now "suspended." (Accept the concept that the suspension support is one among several as it is TBD depending on the design. The design could have a minimum of 2 suspension beams and 4 suspension supports. Understand that all are designed for the predicted loads. See Illustration B.)

With some imagination one can vision the motions of a quake. All can accept that the quake "transfers" its motions to both the pipe and the fitting. Logically, one can also believe that the nest of ball bearings will absorb the quake's lateral motion and the coil spring will absorb the vertical ones. With both lateral and vertical motions being absorbed, the beam and structure are predicted to move little if any during a quake. Obviously, the suspended structure is earthquake-proof!

In applying the concept of suspension, there are some rules that could be critical for success of it. The cardinal rule is the suspended structure cannot have "hard-ties" to anything that ties the non-moving suspended structure to anything directly or indirectly tied to the "quake-moving earth. If this condition exists, then the item is not truly suspended and will move some with the quake meaning that it is not earthquake-proof. Candidates for this problem are ***decks and stairs***, and to comply with this rule, ***these items must be only tied to one and not both. An item that could be ignored is the utility piping for sewer, water, and gas. These need flexability to accommodate the difference in motion like a short section of hose inserted in the piping or a special bend.***

A significant point is with all the structure weight supported by the suspension supports, there is no requirement for a foundation and that item can be deleted. On new construction, the savings of eliminating the foundation, will offset much of the extra cost of suspension.

On modifying an existing structure to be suspended requires that the existing foundation to meet the suspension requirements must be cut free from the structure as it represents a hard tie to the quake-moving earth.

The construction of a suspended structure may resemble how a mobile home is done. With no foundation, the "crawl space" will still need to be covered. It is suggested to use the same concept of skirting one finds on mobile homes, but with a major change. The skirting cannot be hard-tied to both the suspended structure and the quake-moving earth. Both options

may be considered. Suspending the skirting from the suspended structure with the "free" end "loosely" installed in a channel secured to the quake-moving-earth allowing the earth to move without transmitting its movement to the non-moving structure. The opposite is also viable. Install the skirting to something like a concrete footing with the "free" end "loosely" installed in a channel that is fastened to the suspended structure. This design also permits the quake movement without transferring it to the suspended structure.

Of interest to many is with the suspended structure having little movement, masonry products like brick or stone can be used in its design.

As a final recommendation with the use of quantity production, instead of custom design, design supports that are significantly stronger than a custom design requires. (This engineer-writer has some ideas of how to do this with quantity production of the supports that are over-strength but low cost, that should be considered. Being two or more times stronger than they need to be eliminates weighing the structure and then custom designing the springs for that weight. For brevity, these ideas are not discussed in this article.)

Next, consider if this article especially these "FACTS" were published as recently as 5 years ago, it is predicted that the world would have responded. They would have evaluated, tested, proved, and applied the concept. Property owners are predicted to have the intelligence to understand the consequences of doing nothing. They would have acted by designing new structures or modifying existing ones to be suspended and thus earthquake-proof.

(This would have included the Turkey and Syria area,The massive quake would still have occurred. With all structures suspended, it is predicted that the results would have been radically different. Instead of massive property destruction and 40,000 dying, property damage would be minimum as well as the loss of life and possible none!)

Is this not the world that we all seek? A world where earthquakes are no longer dangerous or even a concern.

The next consideration is the future. If status quo is still maintained, quakes in the future will continue to cause wide-spread death and destruction just like the past. One can do little about the past, ***but there is much that can be done to impact the future***. If this is done for the future, future editions of our history books could declare that the Turkey-Syria tragedy is the last such tragedy ever recorded as the people now know the "FACTS."

Illustration # A

Suspension Support

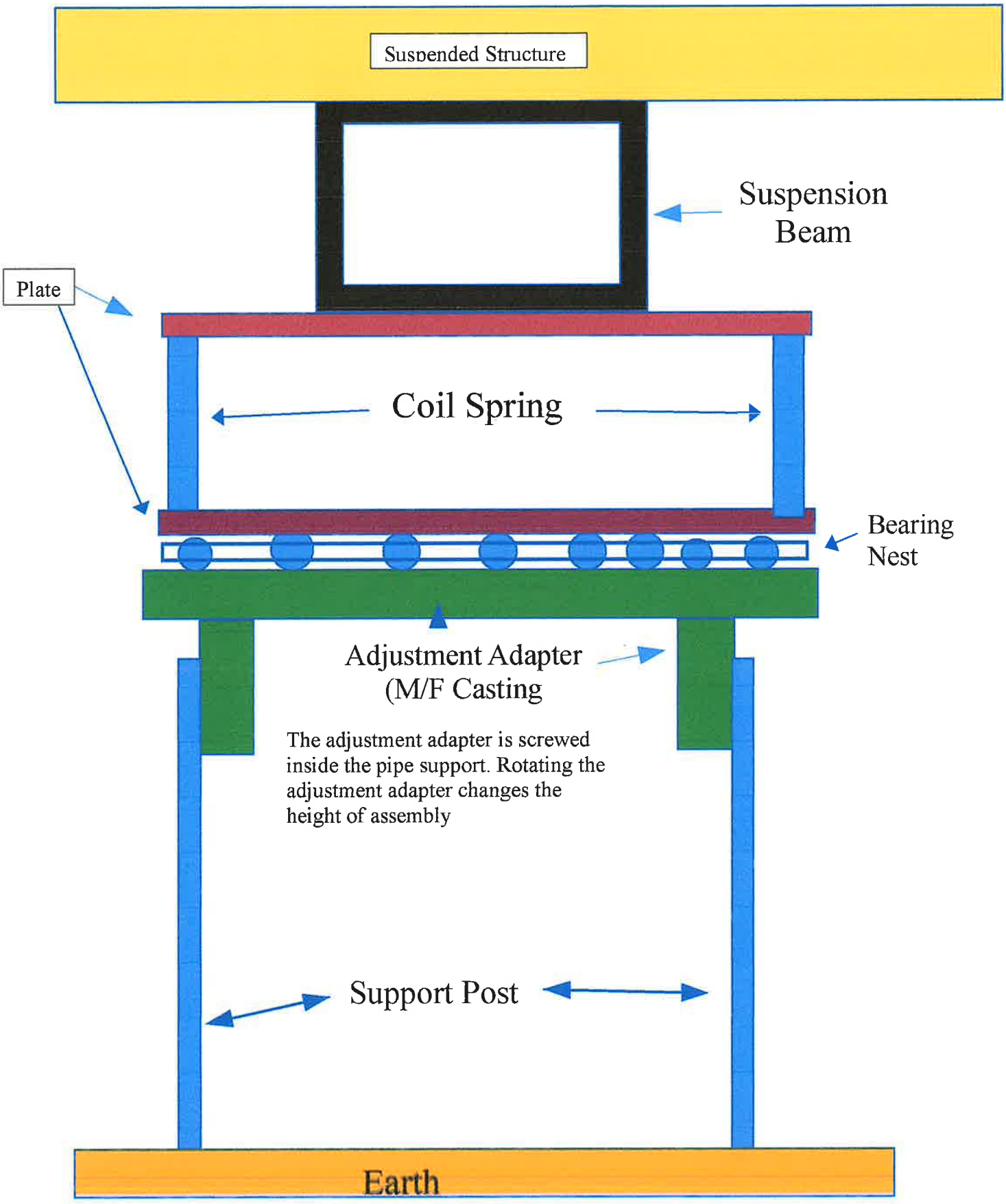
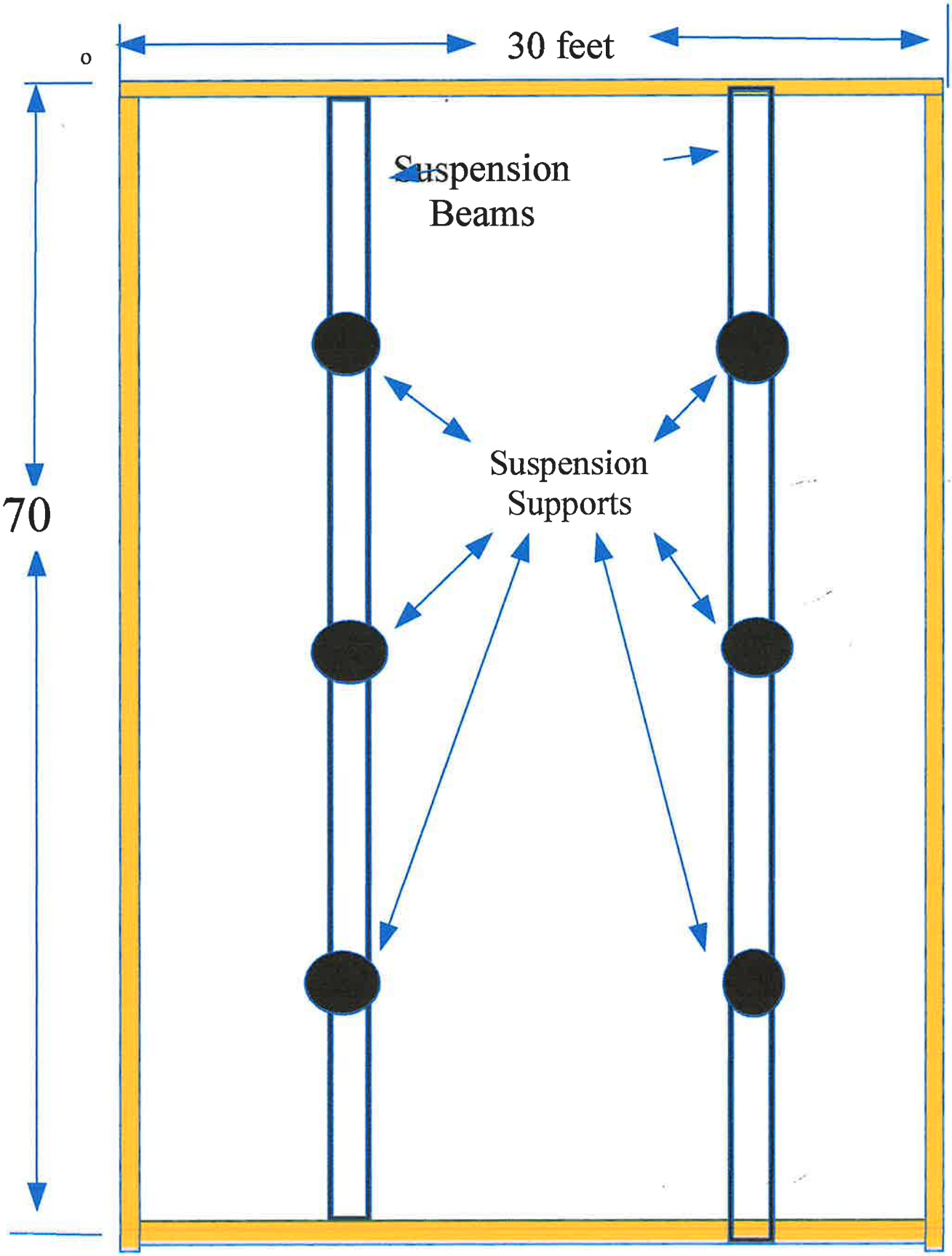


Illustration B

30' X 70' Suspended Structure

By Joseph C7. Coomer



Note: Illustration F is on the back

Illustration # C

Proposed Bridge Design, Roadway is Suspended

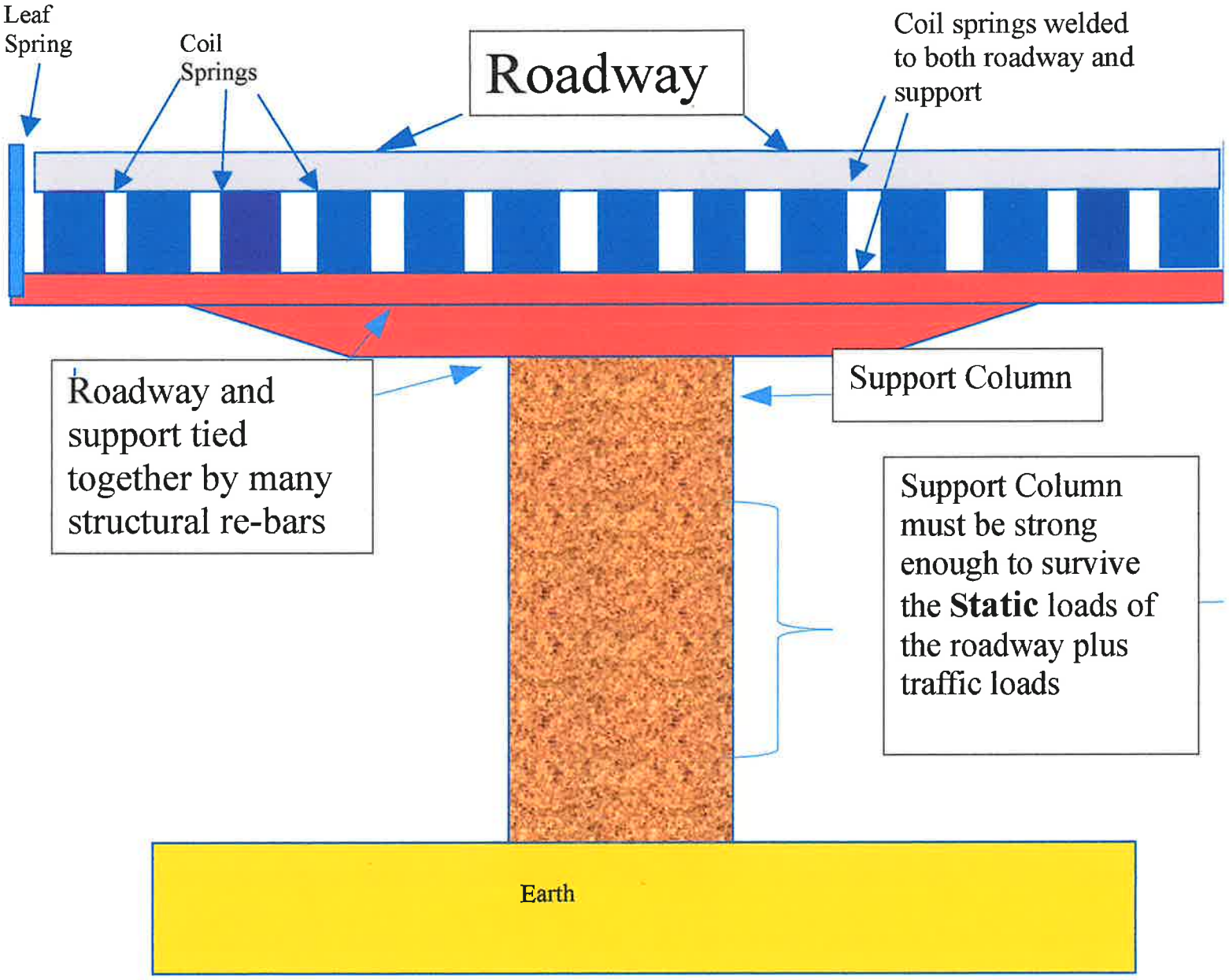


Illustration D

Bridge Deck Suspended with LS Assemblies

By Joseph C. Coomer