

CAPITAL COST AND TIME SAVINGS FOR BULK GRAIN DISCHARGE

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Dermot F Knight
Allan G Benn











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VILLE D' ORION
HAMBURG



BULK OPERATIONS AT GRAIN HANDLING SITES



BULK OPERATIONS AT GRAIN HANDLING SITES

Transport mode {

BULK OPERATIONS AT GRAIN HANDLING SITES

Transport mode { road trucks

BULK OPERATIONS AT GRAIN HANDLING SITES

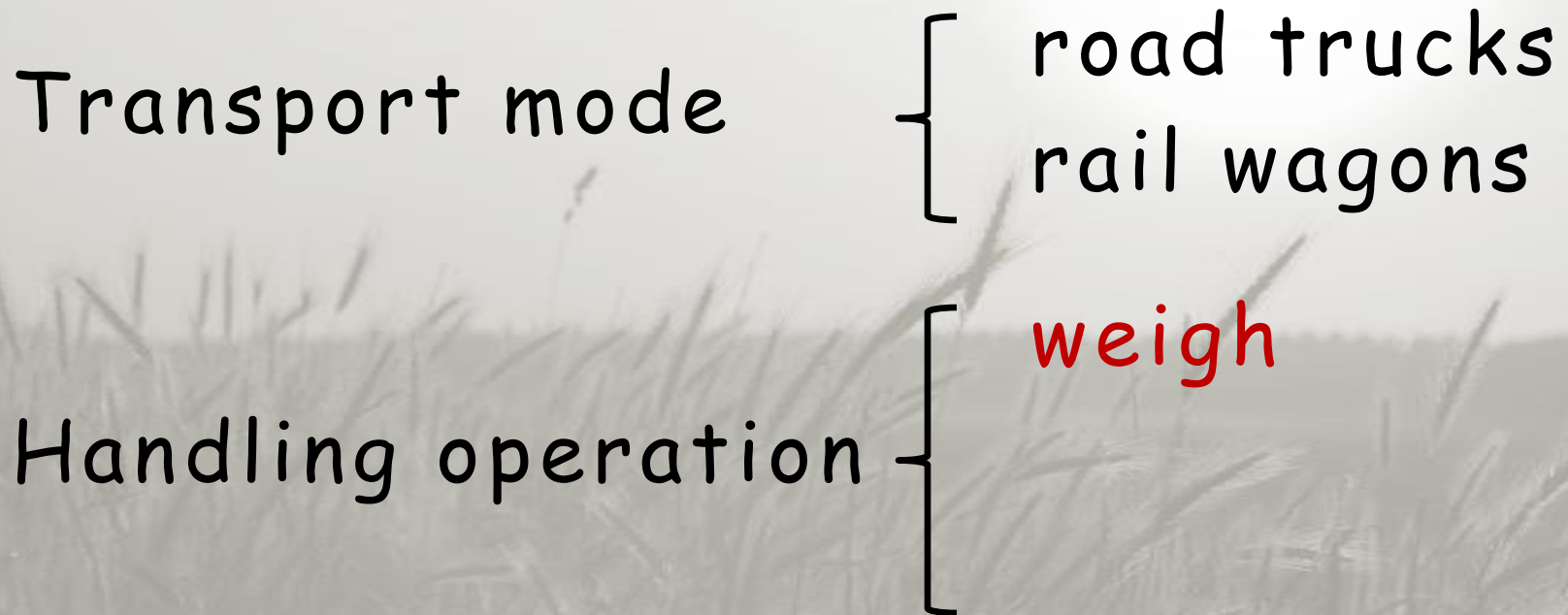
Transport mode { road trucks
rail wagons

BULK OPERATIONS AT GRAIN HANDLING SITES

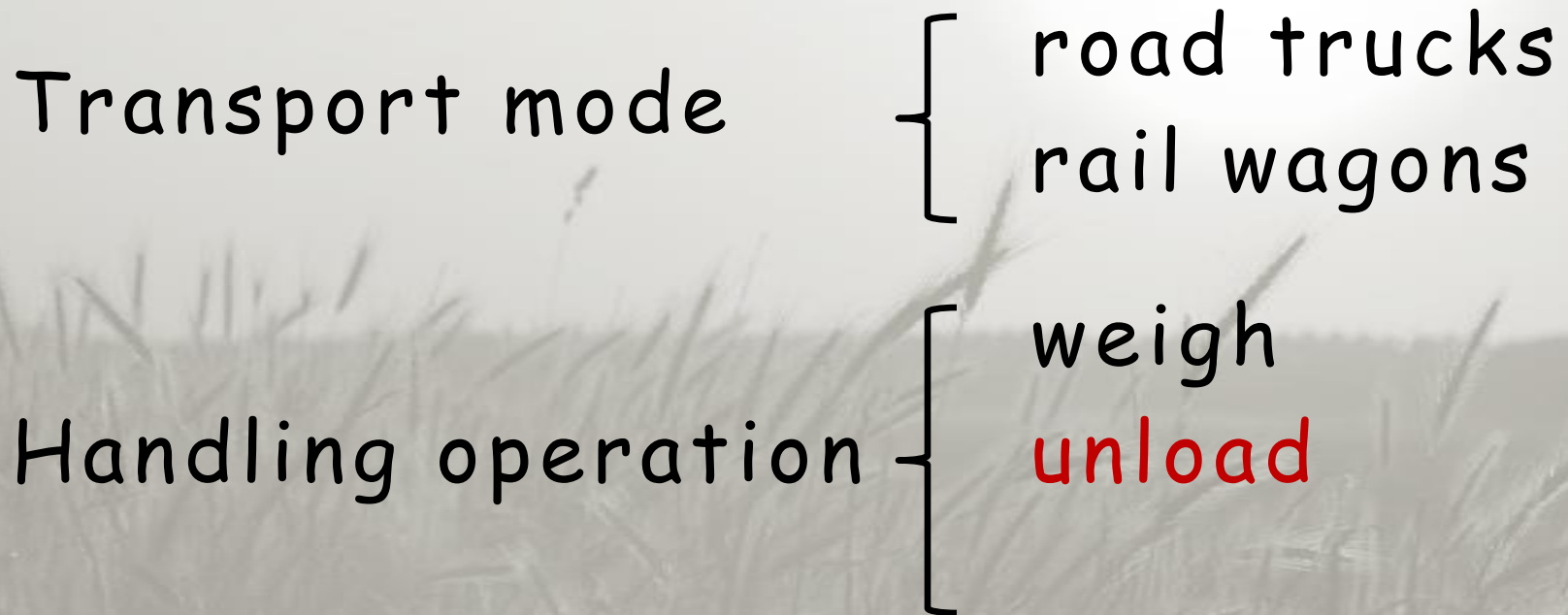
Transport mode { road trucks
rail wagons

Handling operation {

BULK OPERATIONS AT GRAIN HANDLING SITES



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Transport mode	{	road trucks rail wagons
Handling operation	{	weigh unload tare

BULK OPERATIONS AT GRAIN HANDLING SITES

Transport mode { road trucks
rail wagons

Handling operation { weigh
unload
tare

conveyors

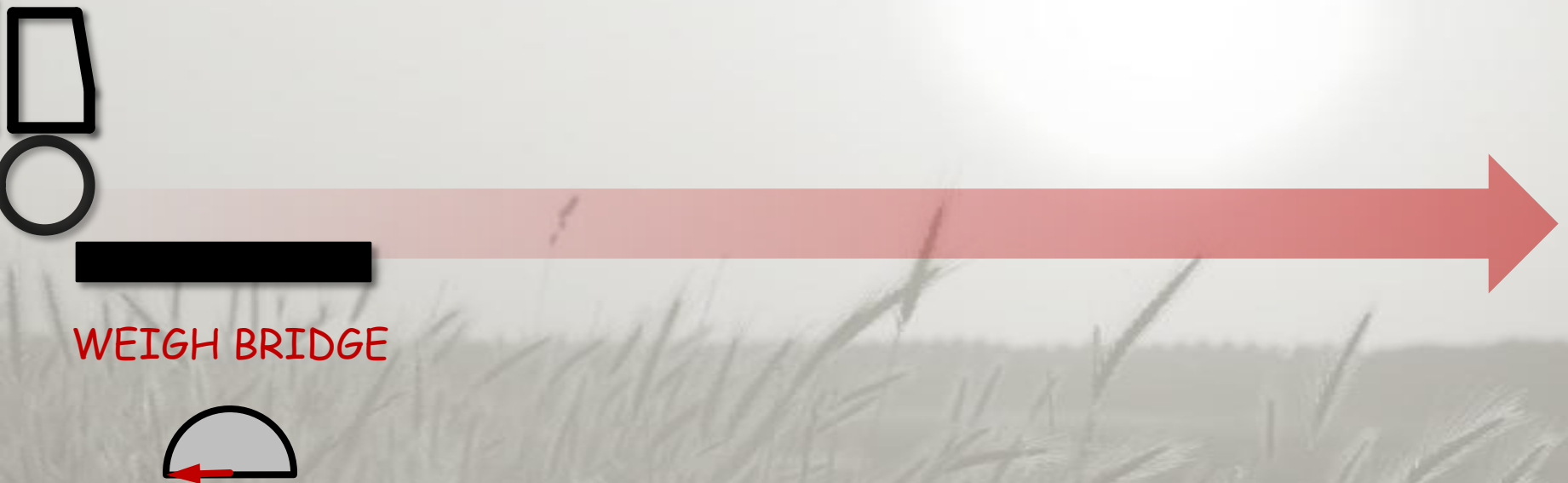
1. Bulk grain delivery by road



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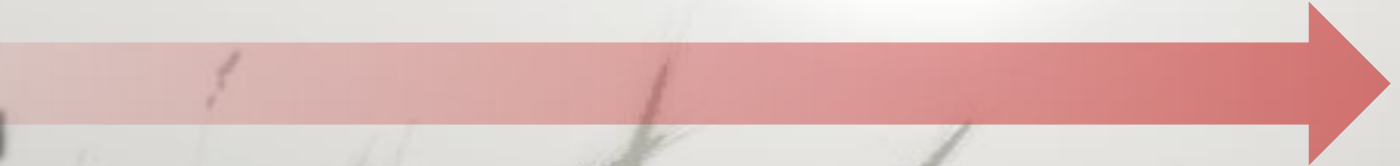
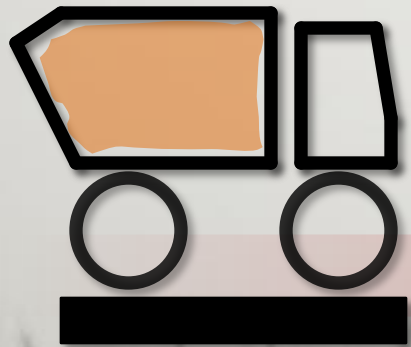
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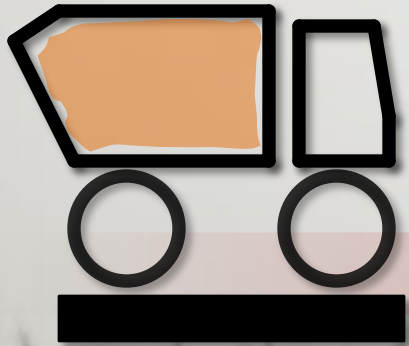
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WEIGH BRIDGE



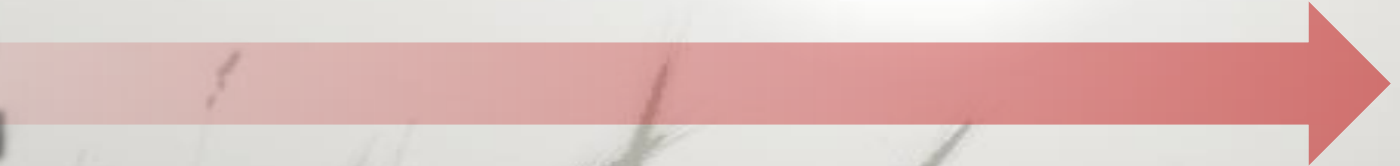
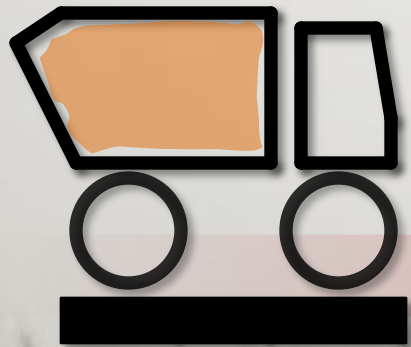
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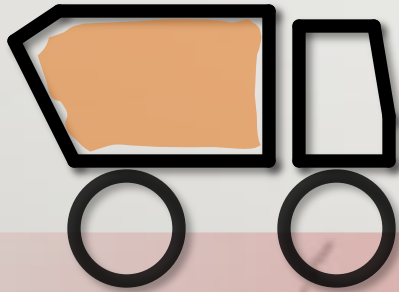
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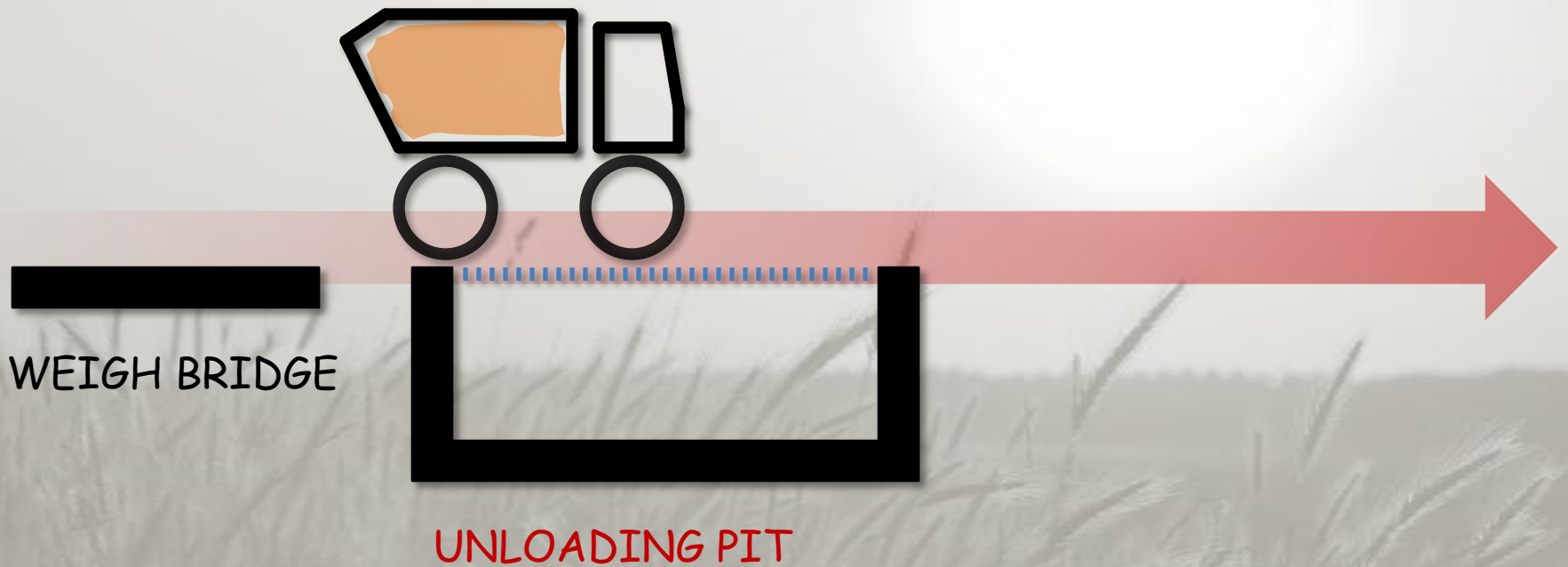


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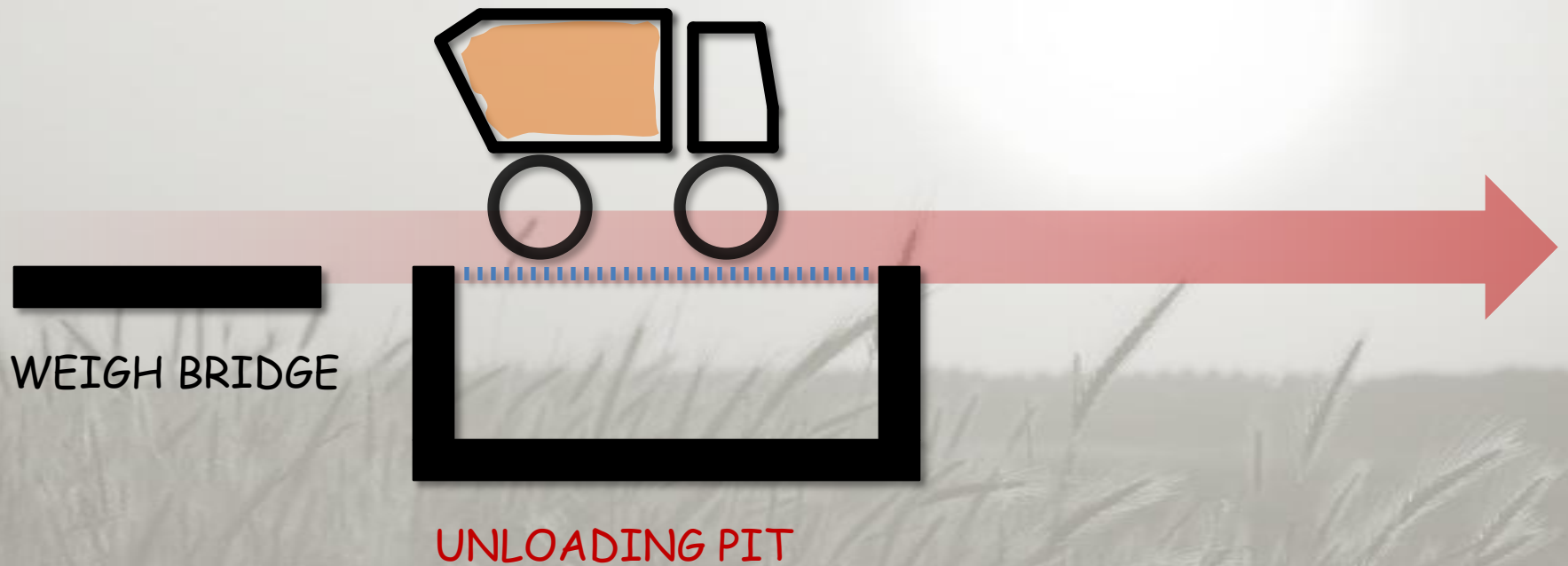


WEIGH BRIDGE

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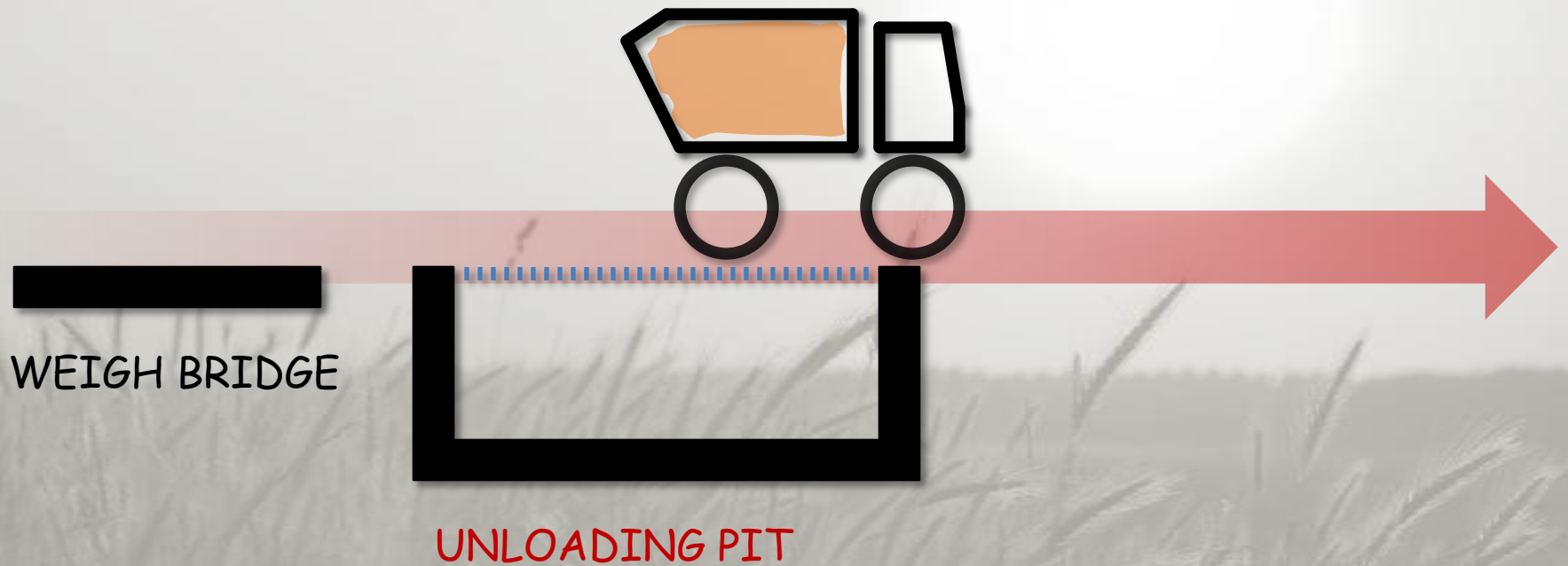
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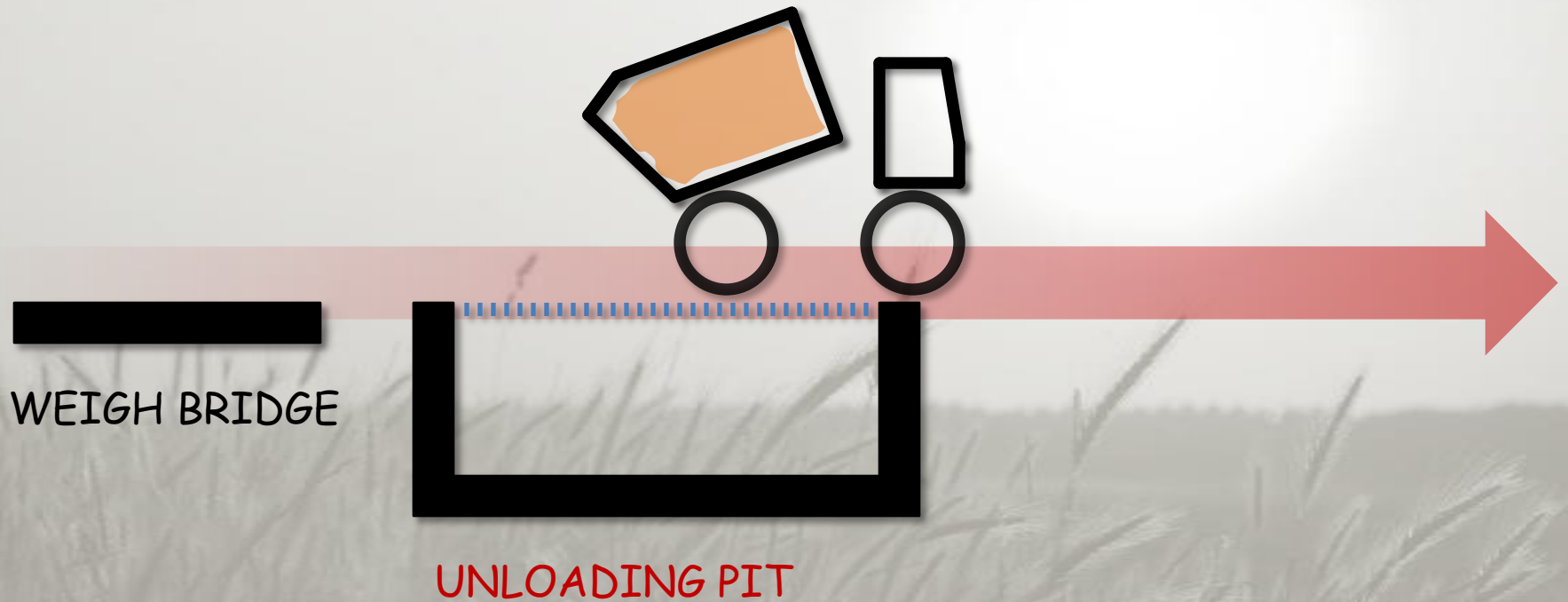
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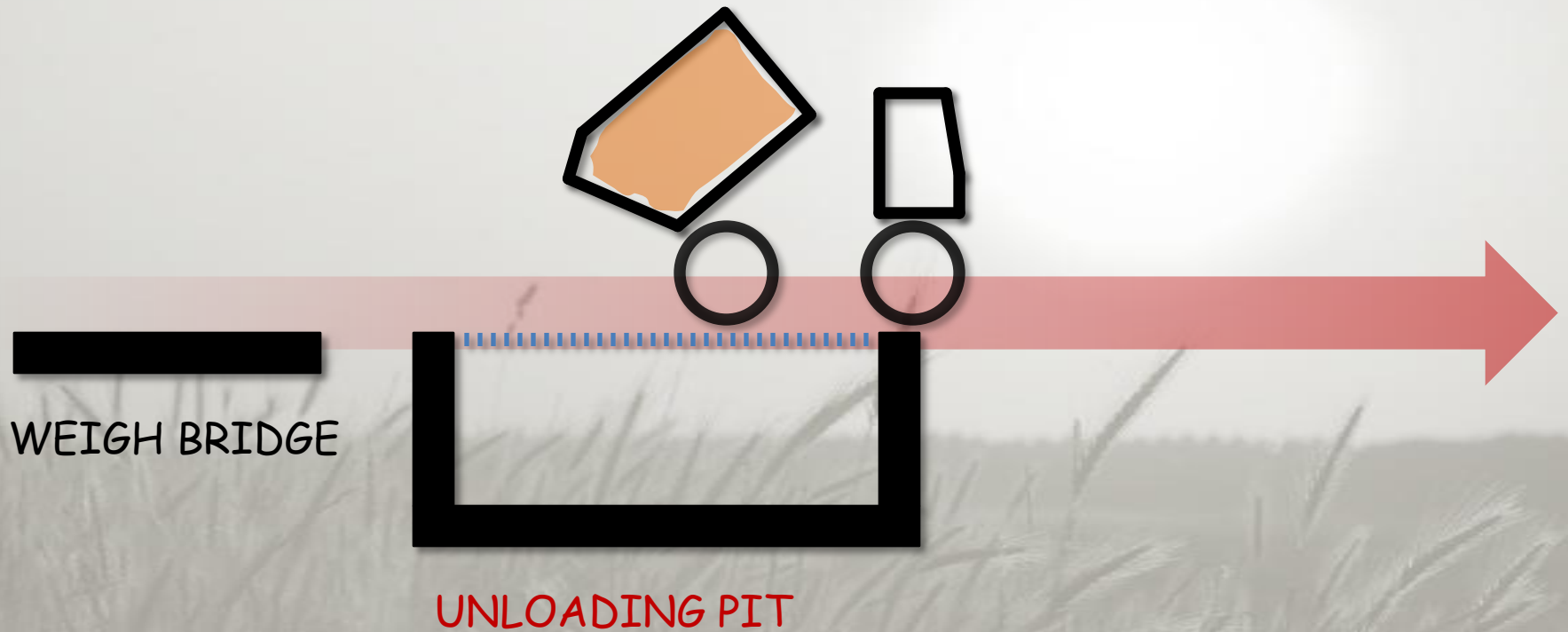
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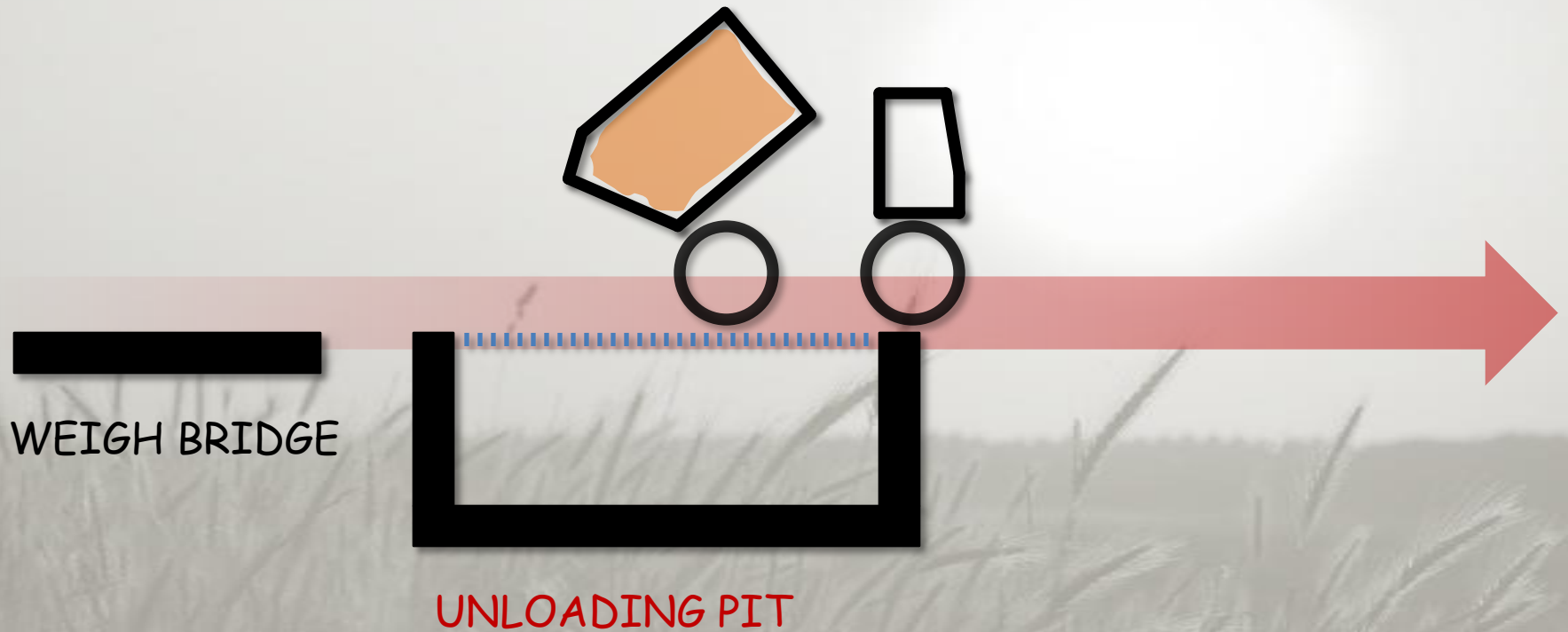
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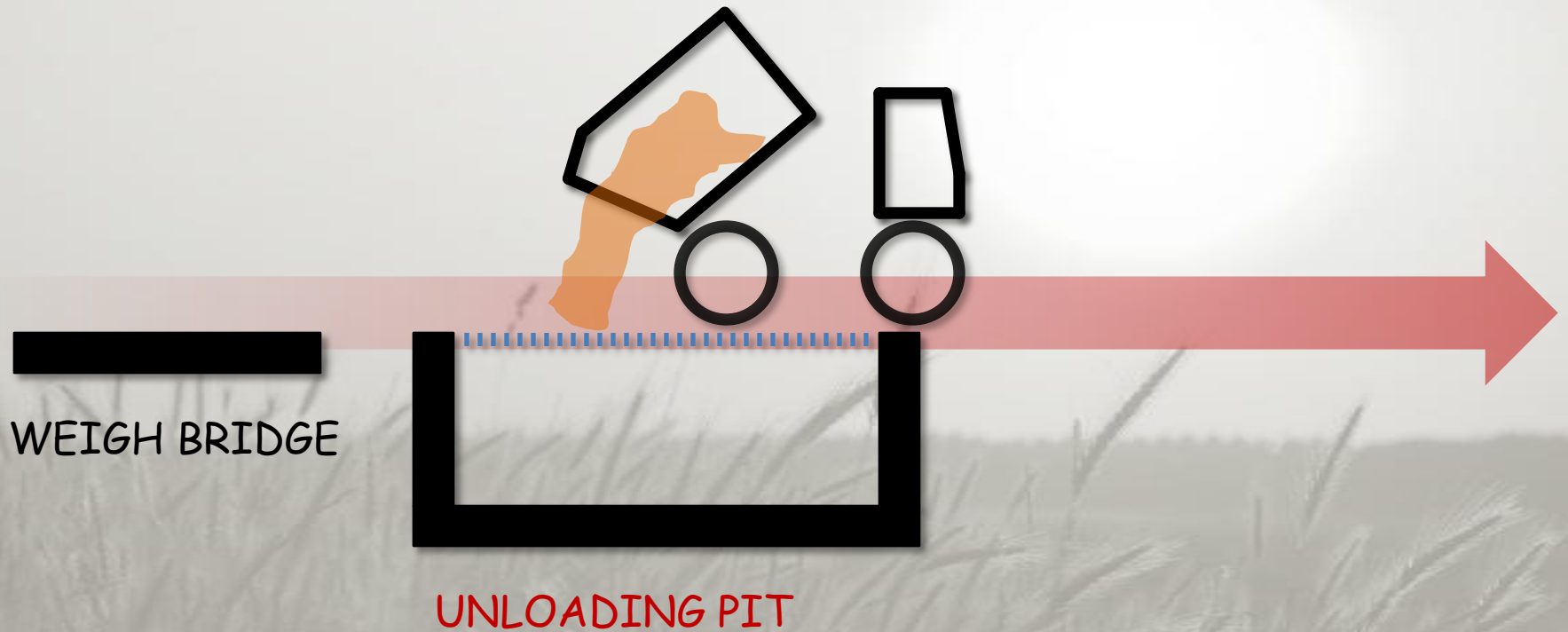
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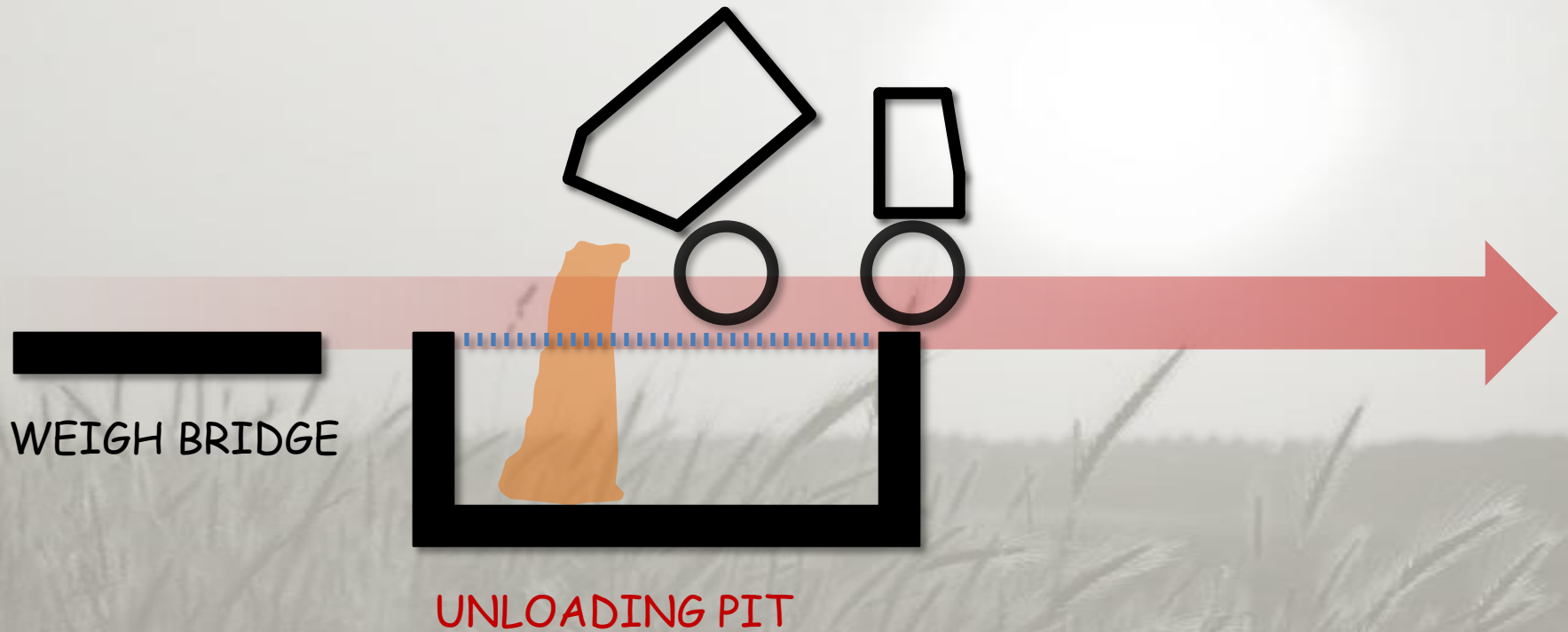
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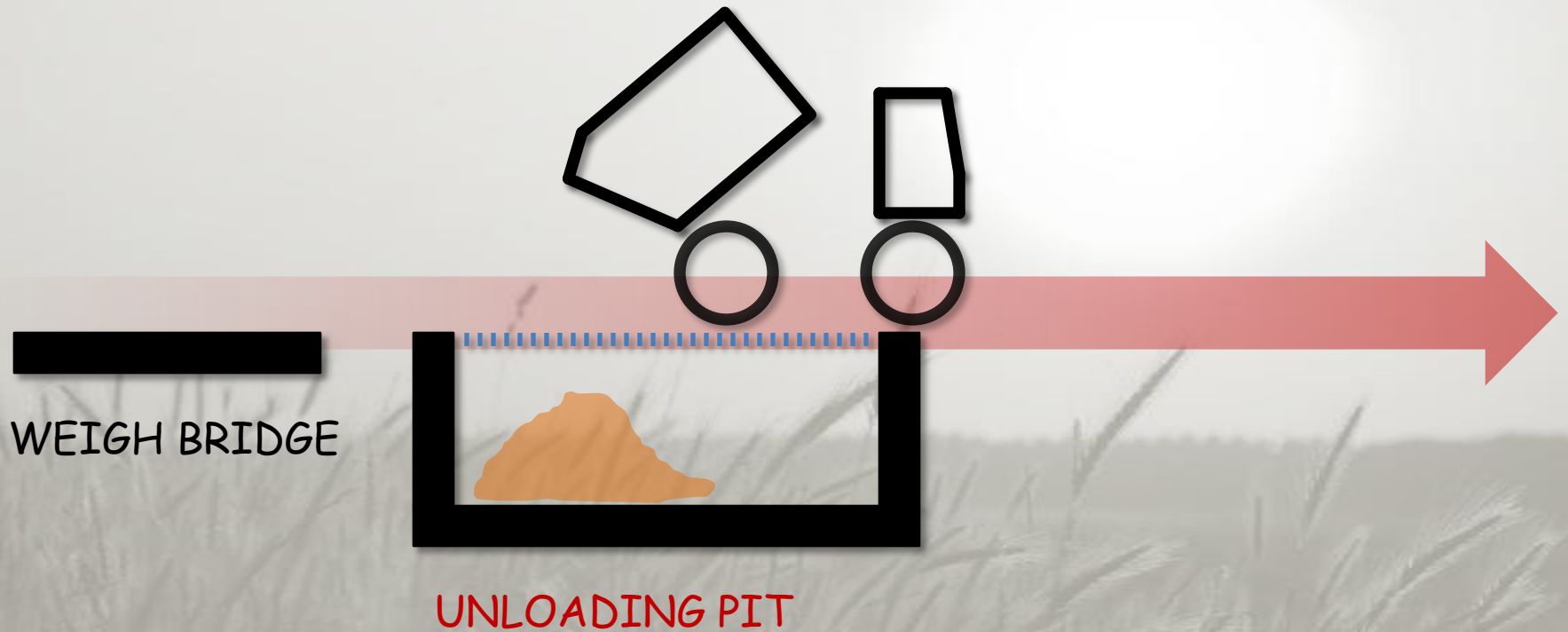
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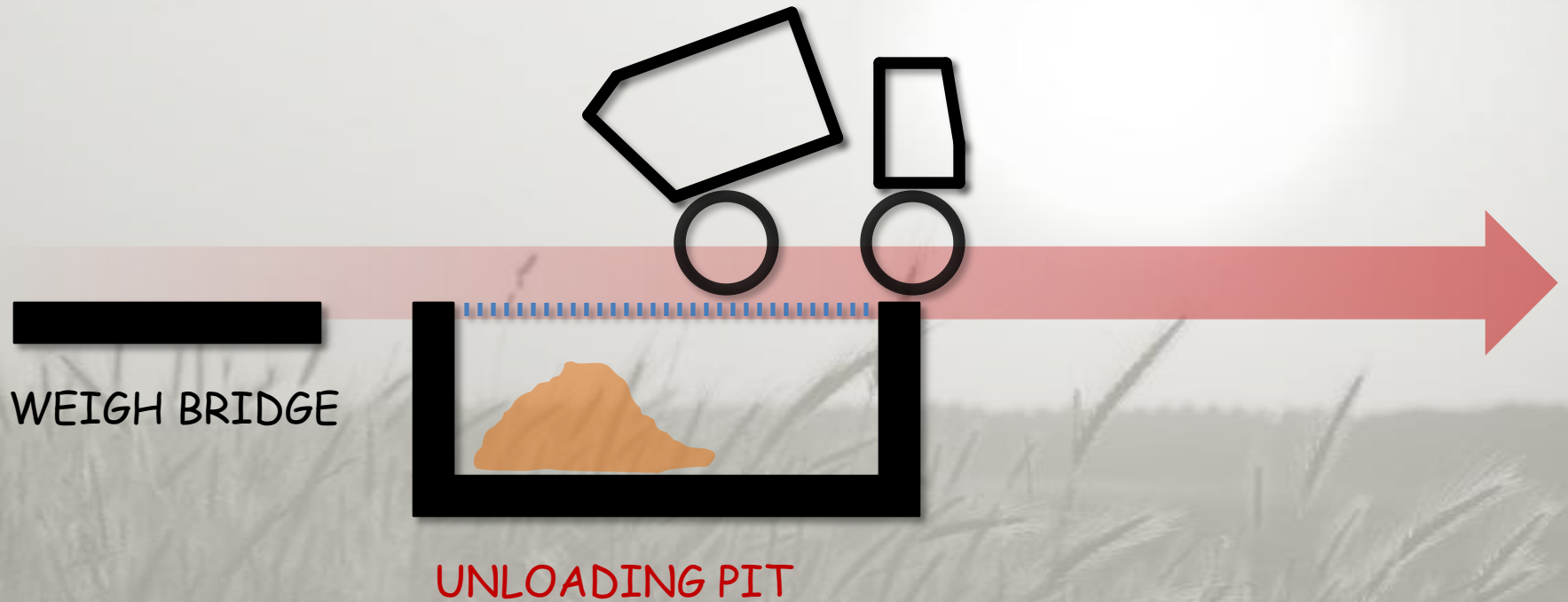
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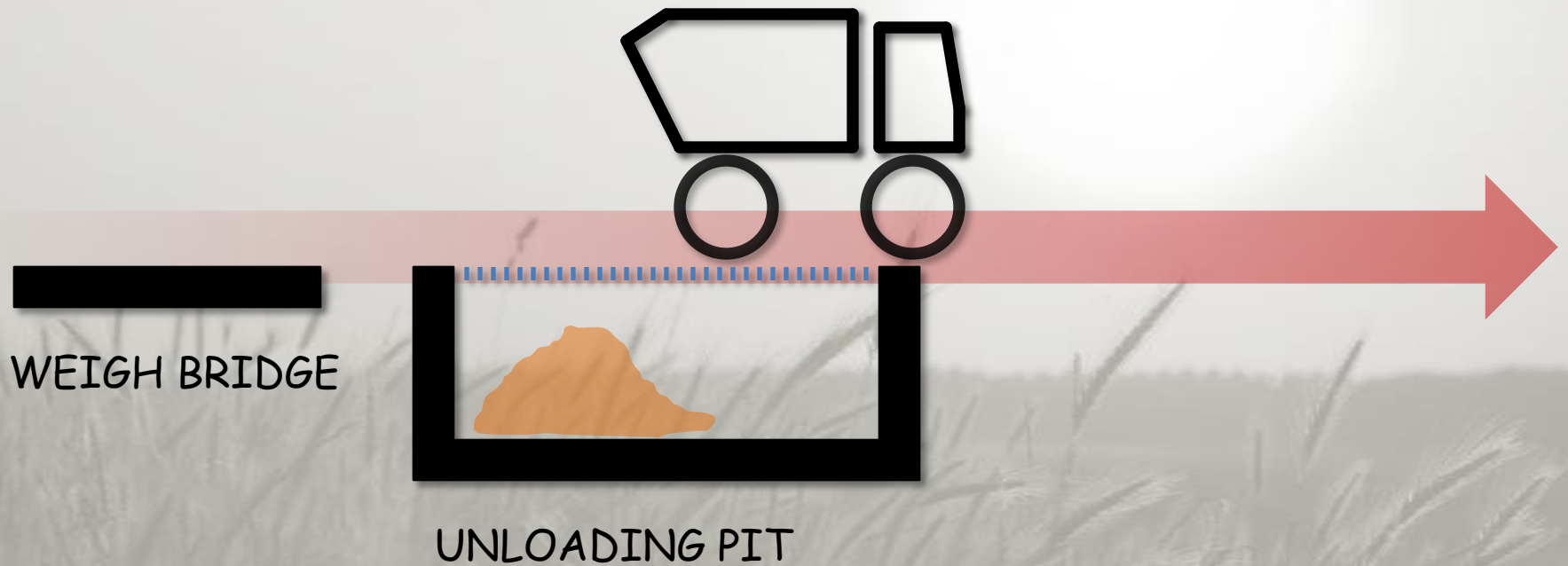
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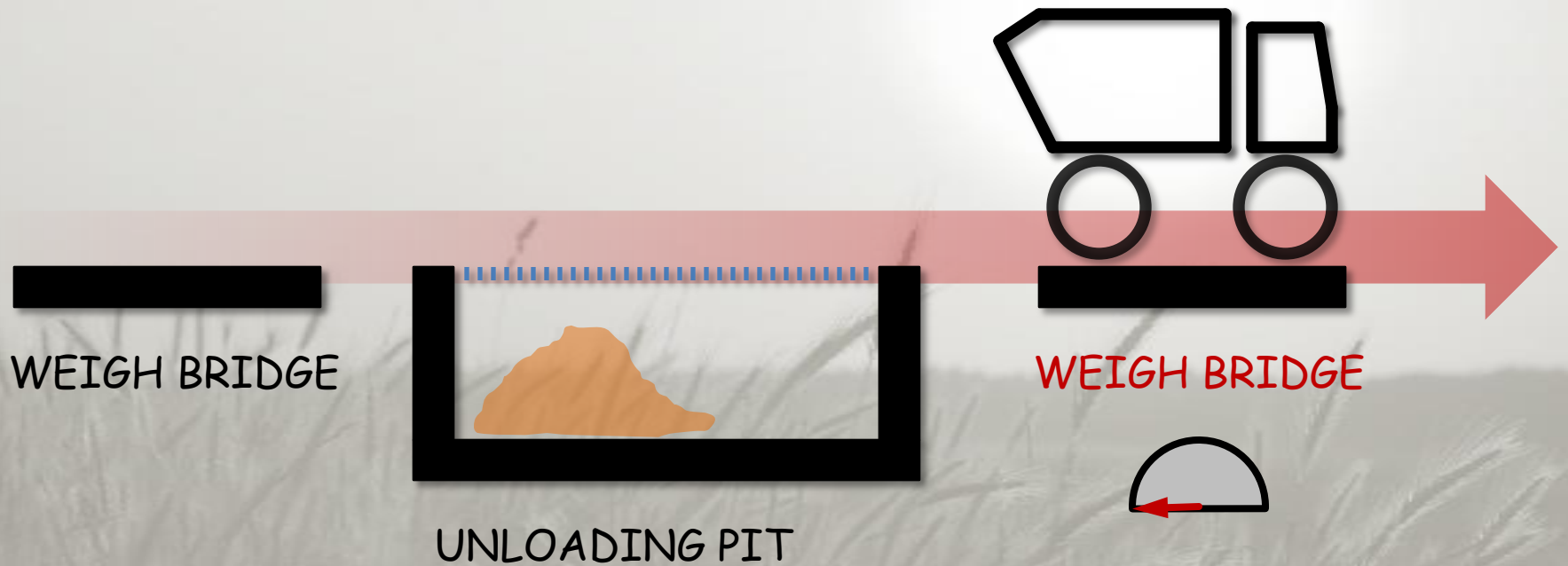
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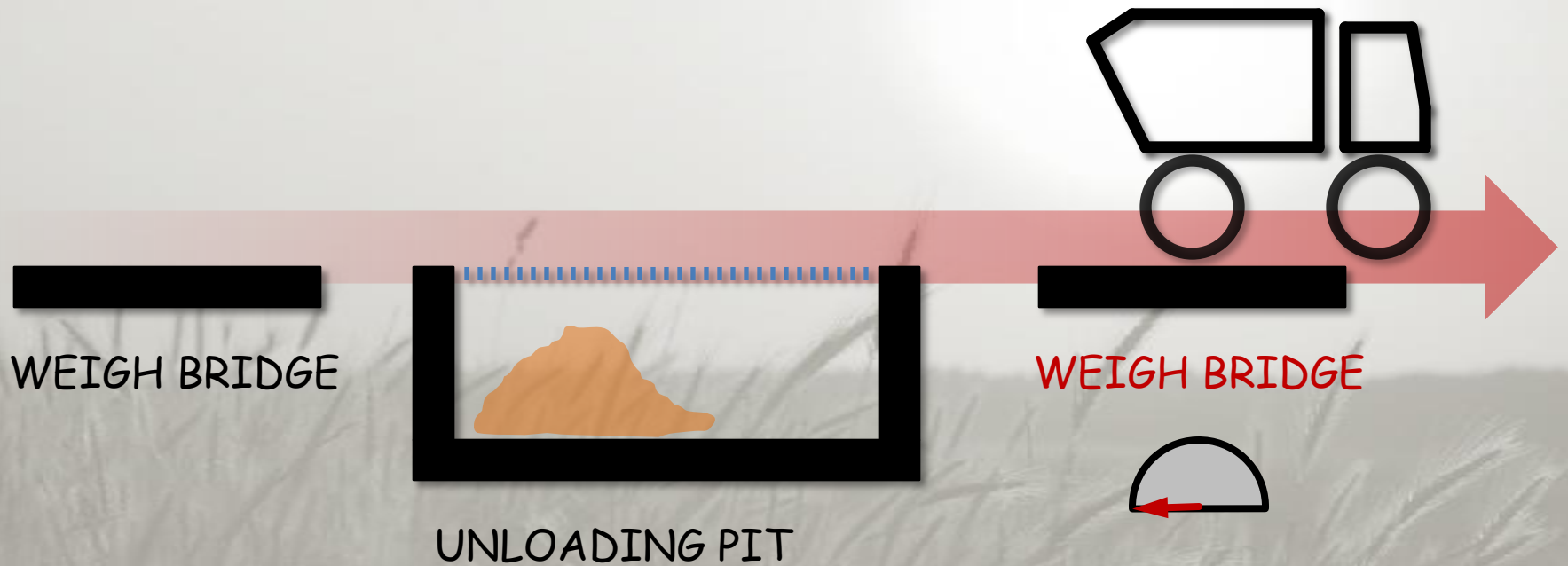
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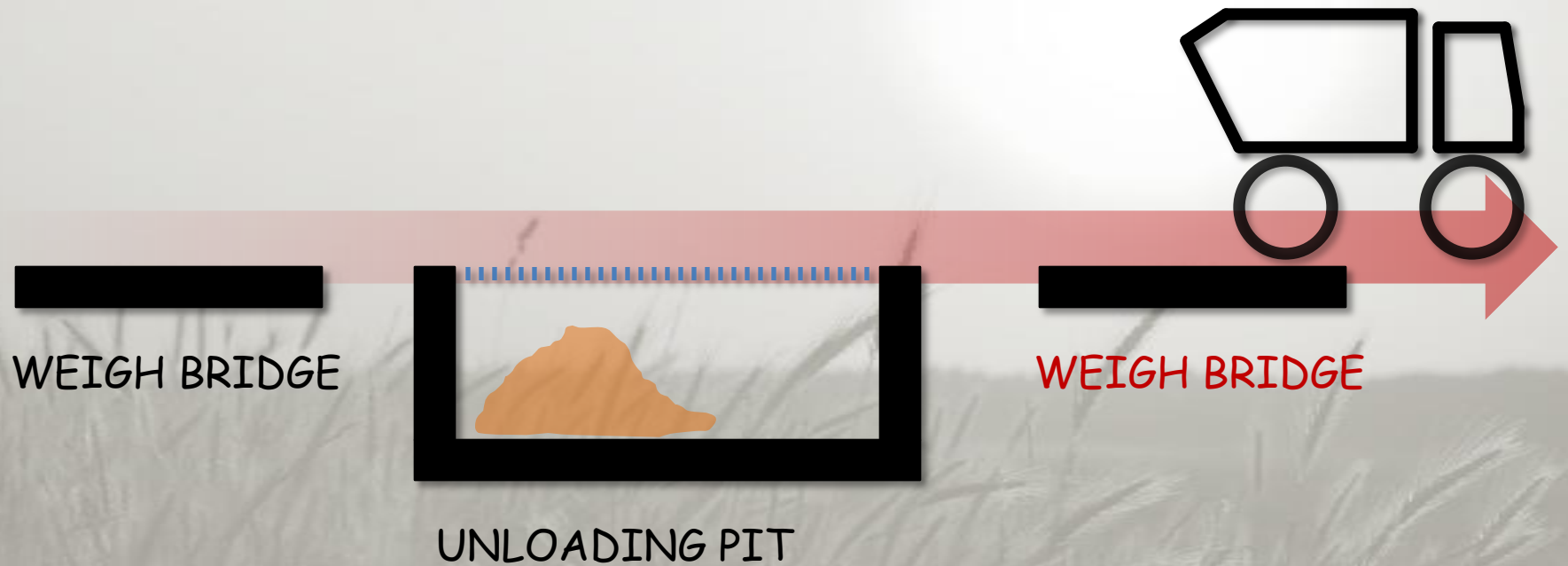
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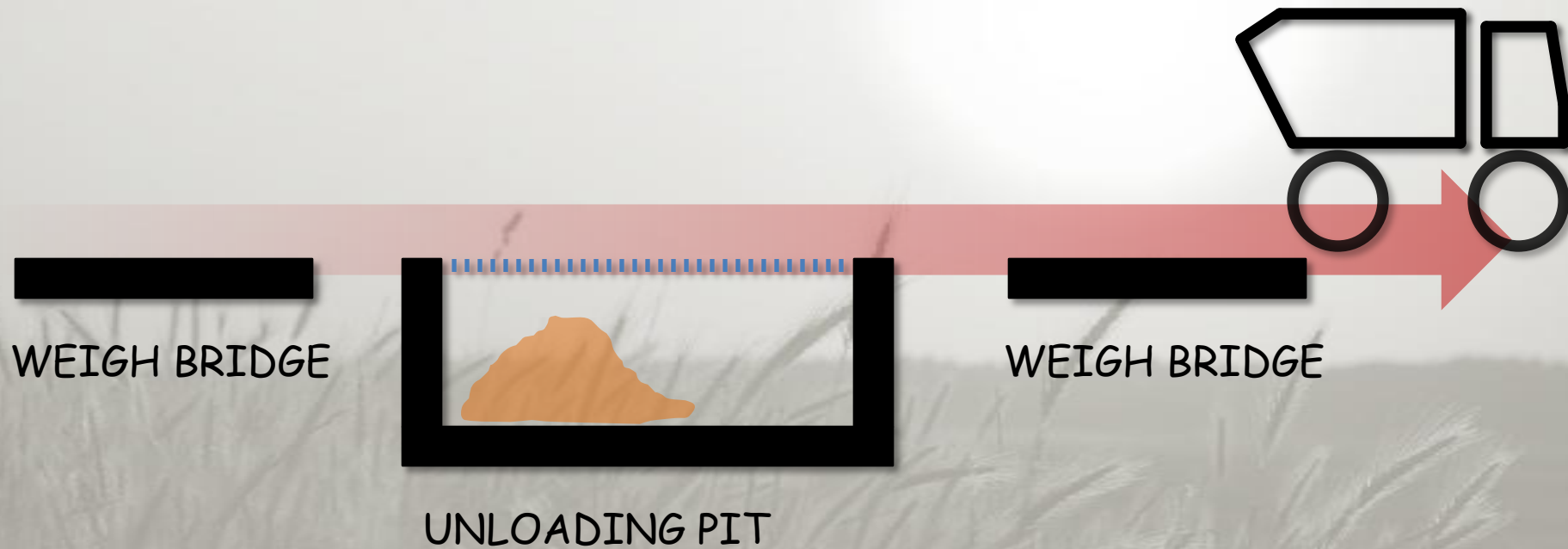
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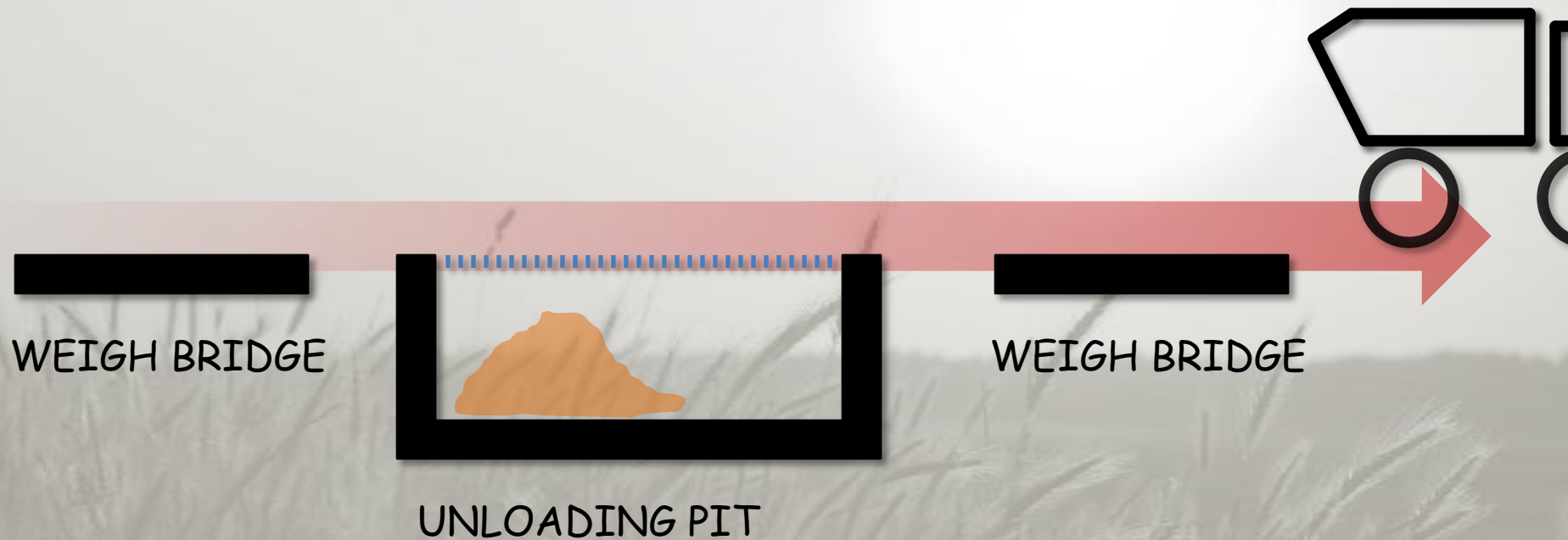
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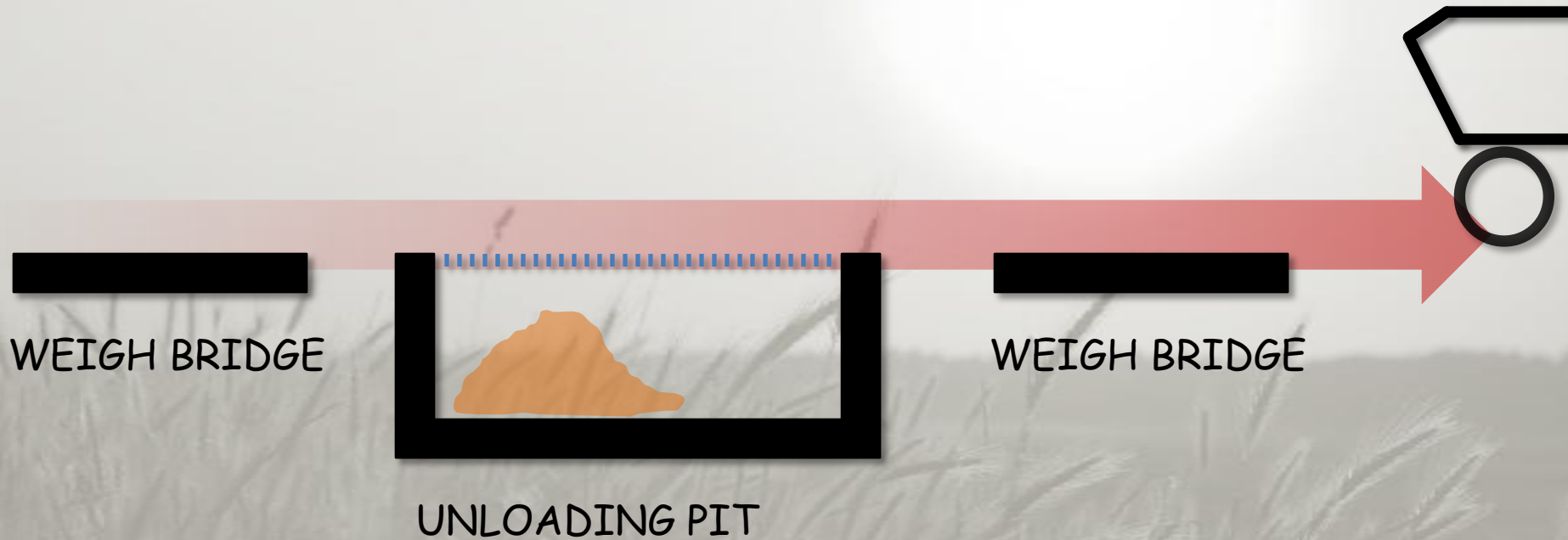
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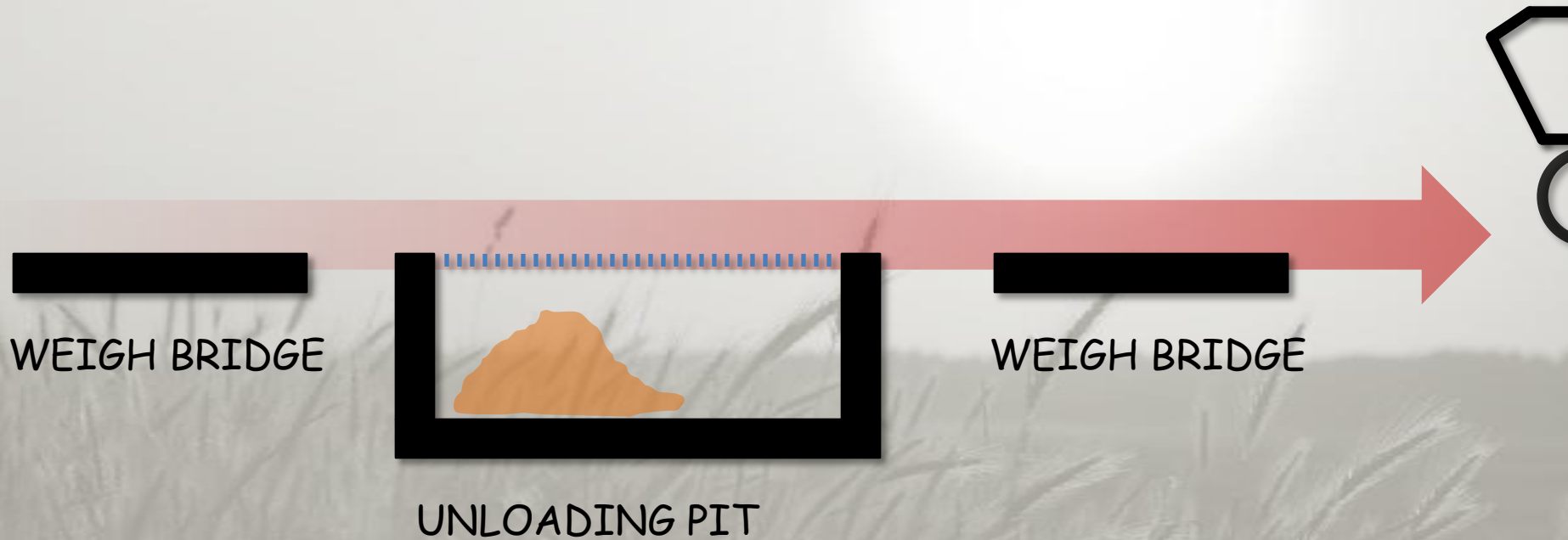
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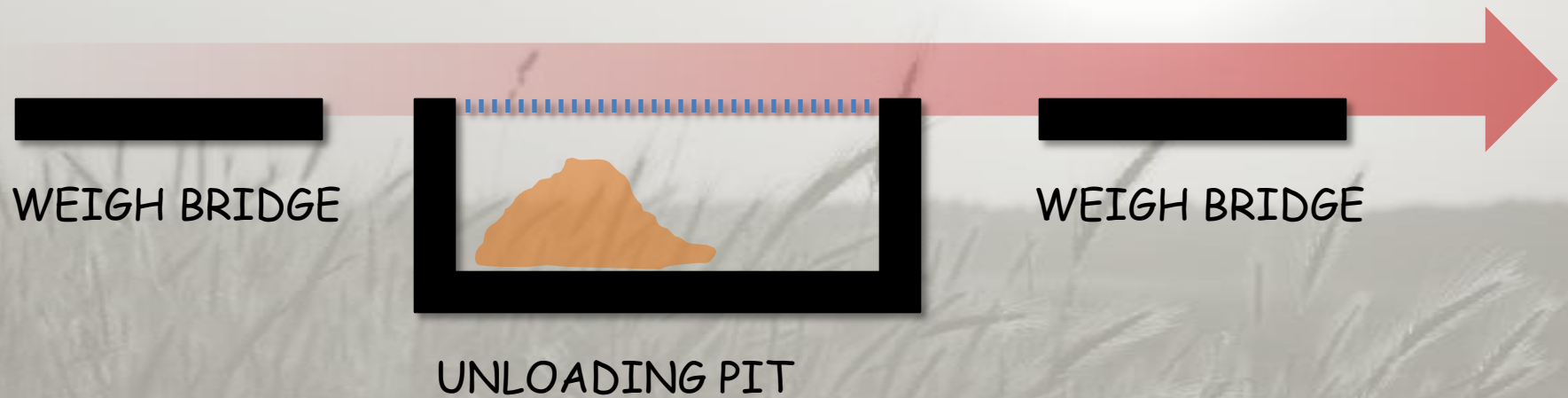
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2. Bulk grain delivery by rail.



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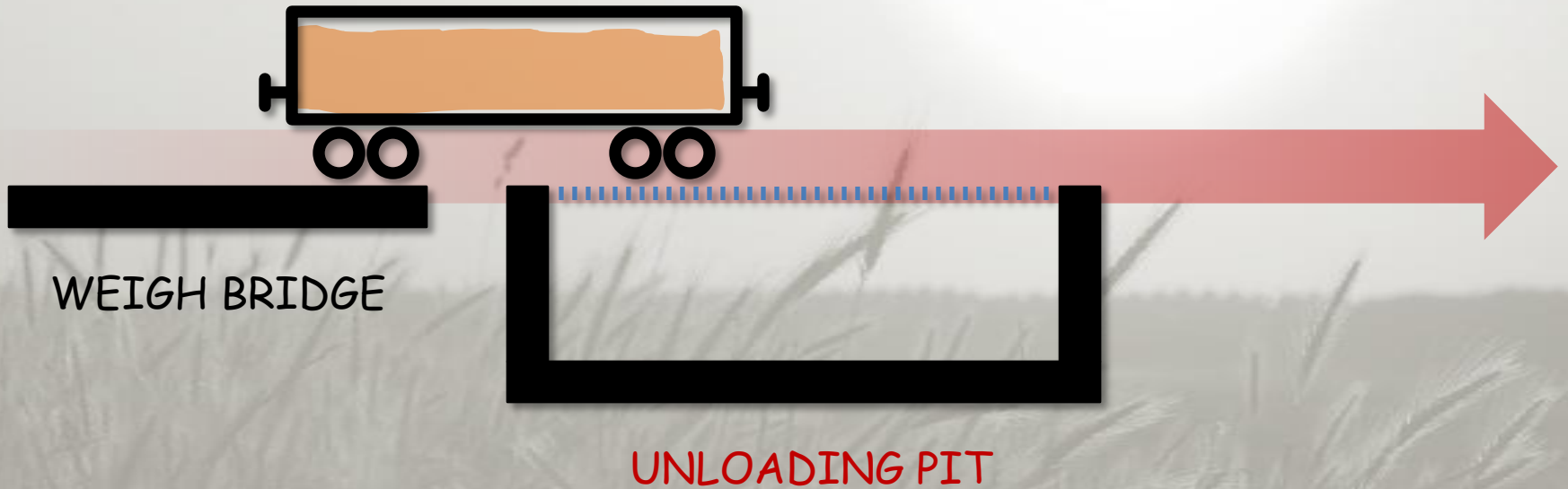
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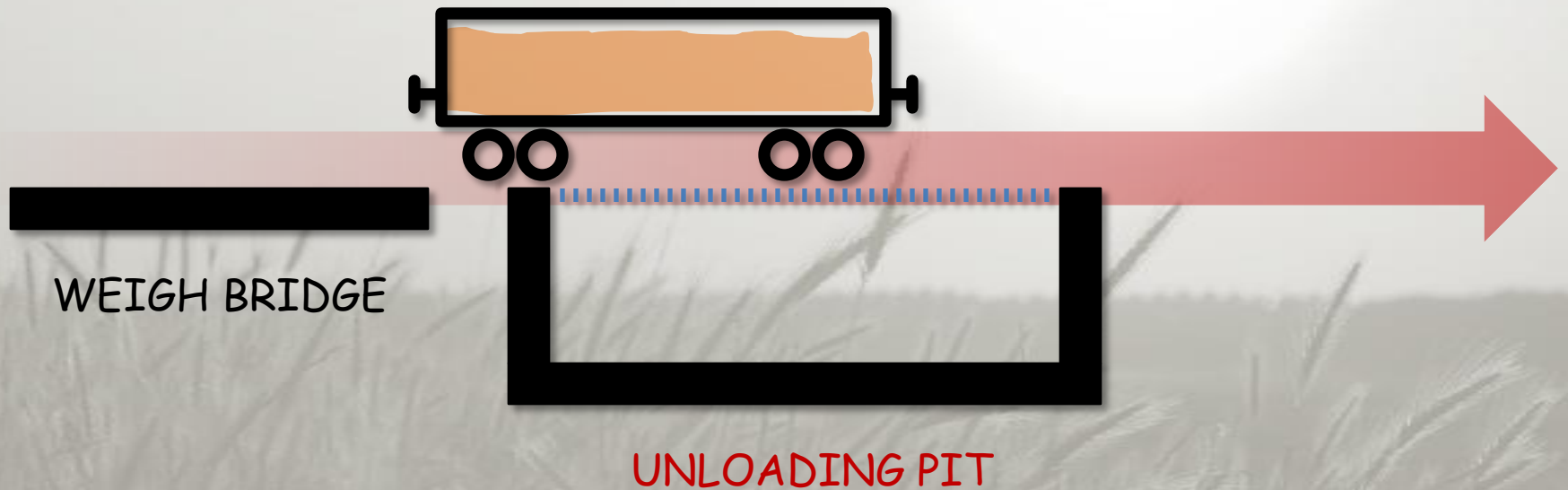
2. Bulk grain delivery by rail.



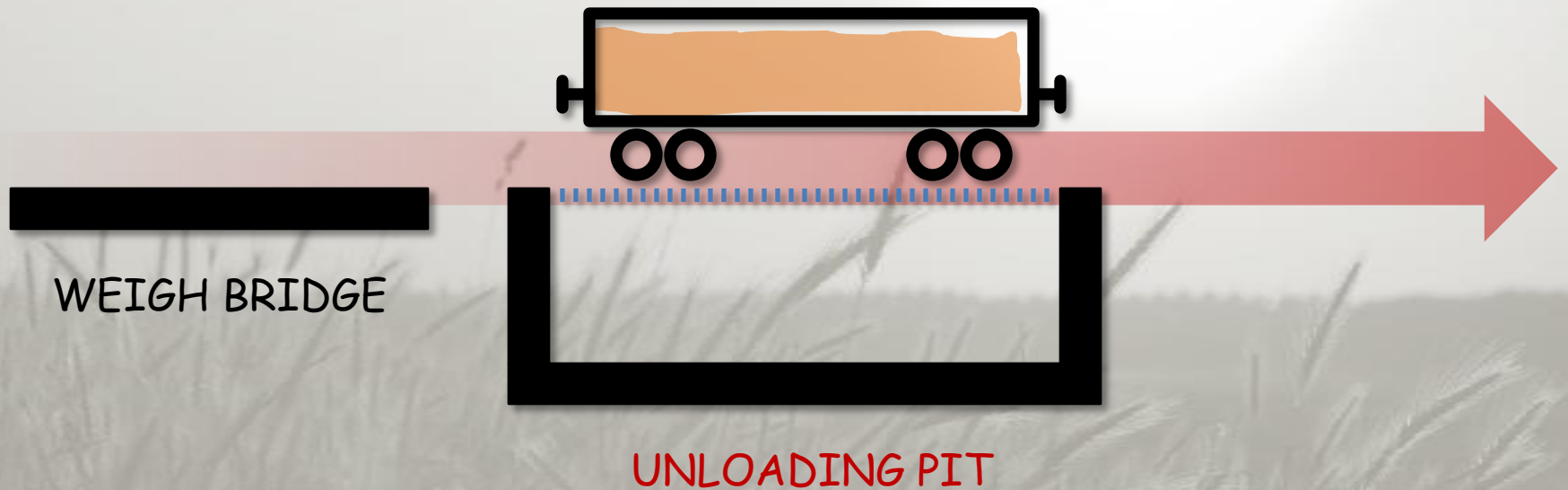
2. Bulk grain delivery by rail.



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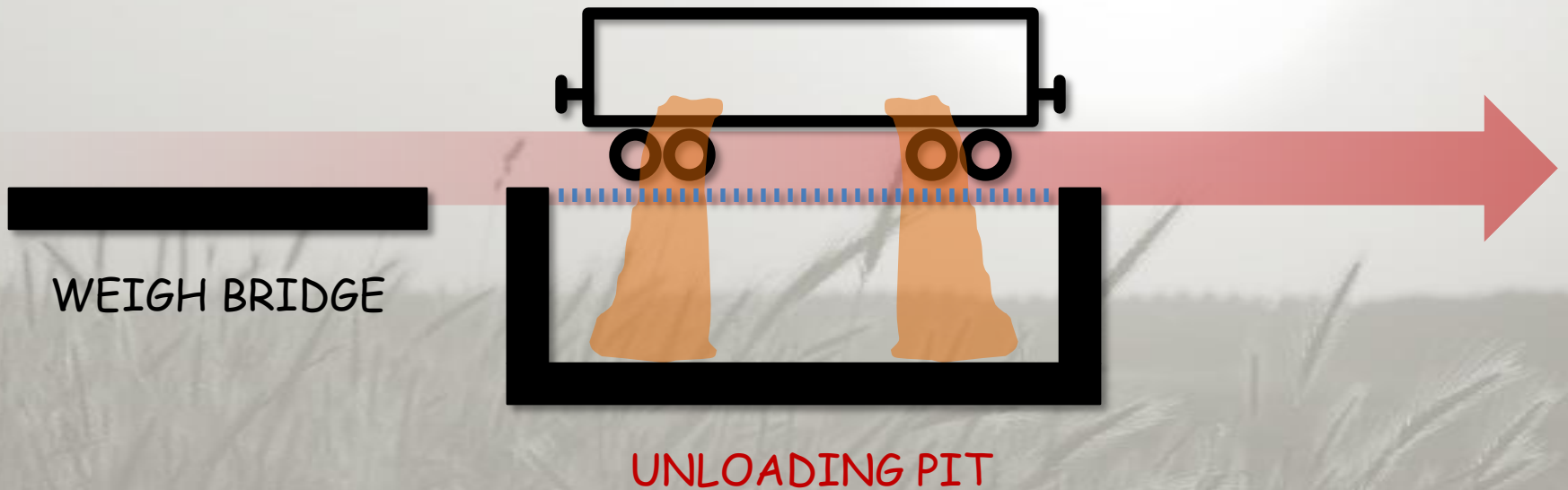
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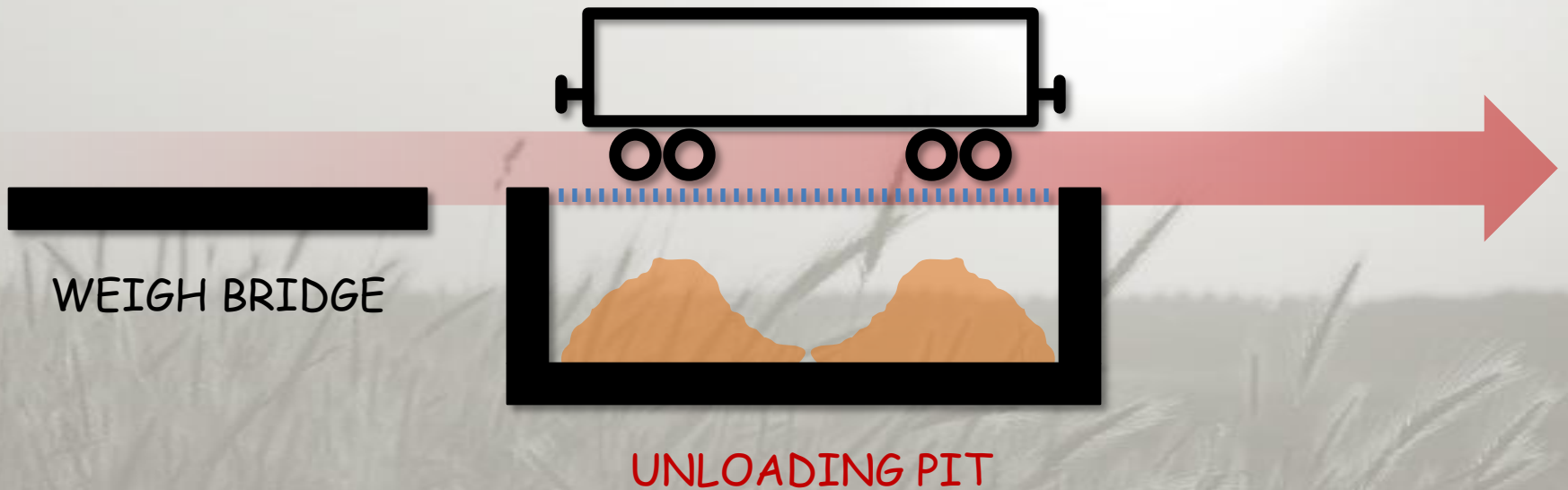
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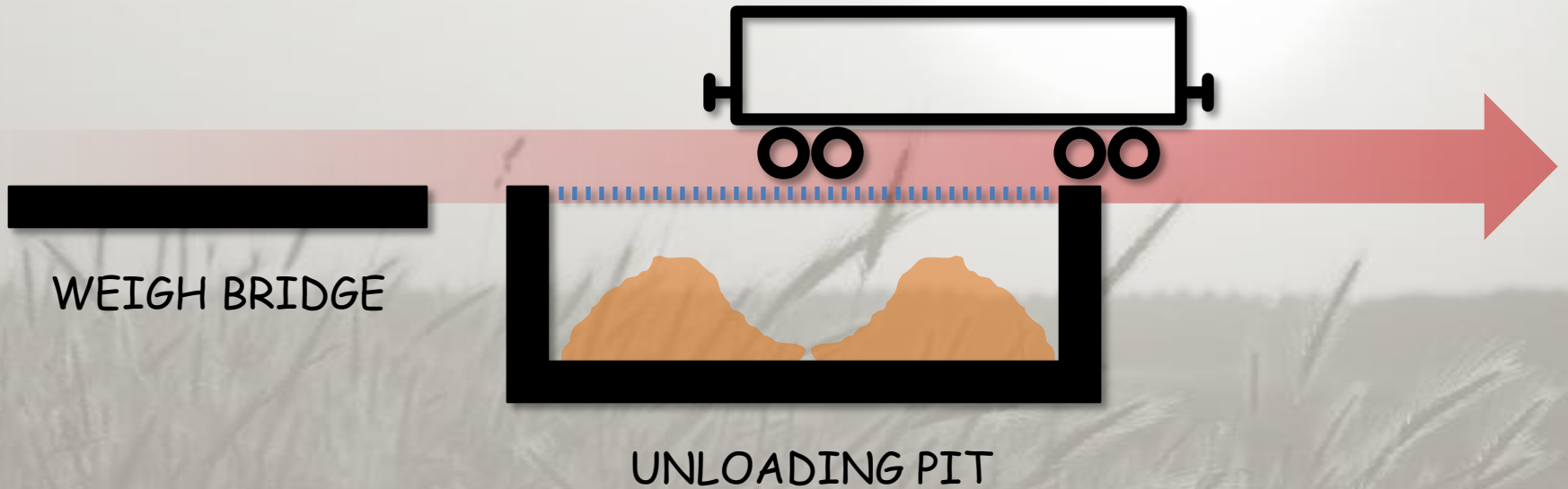
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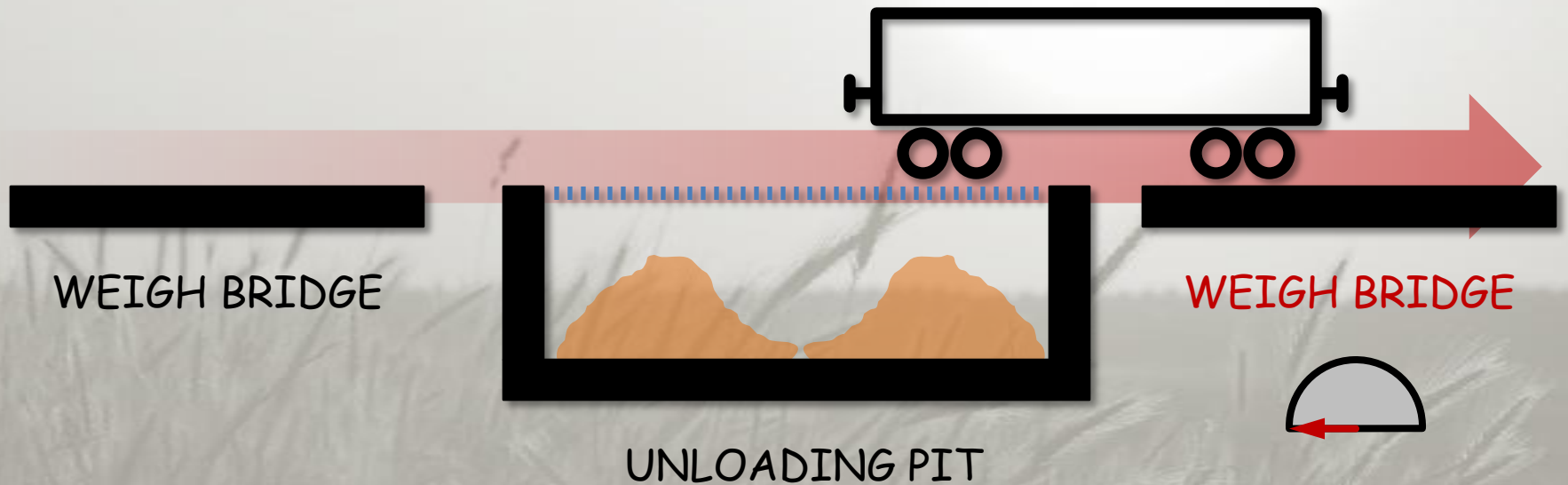
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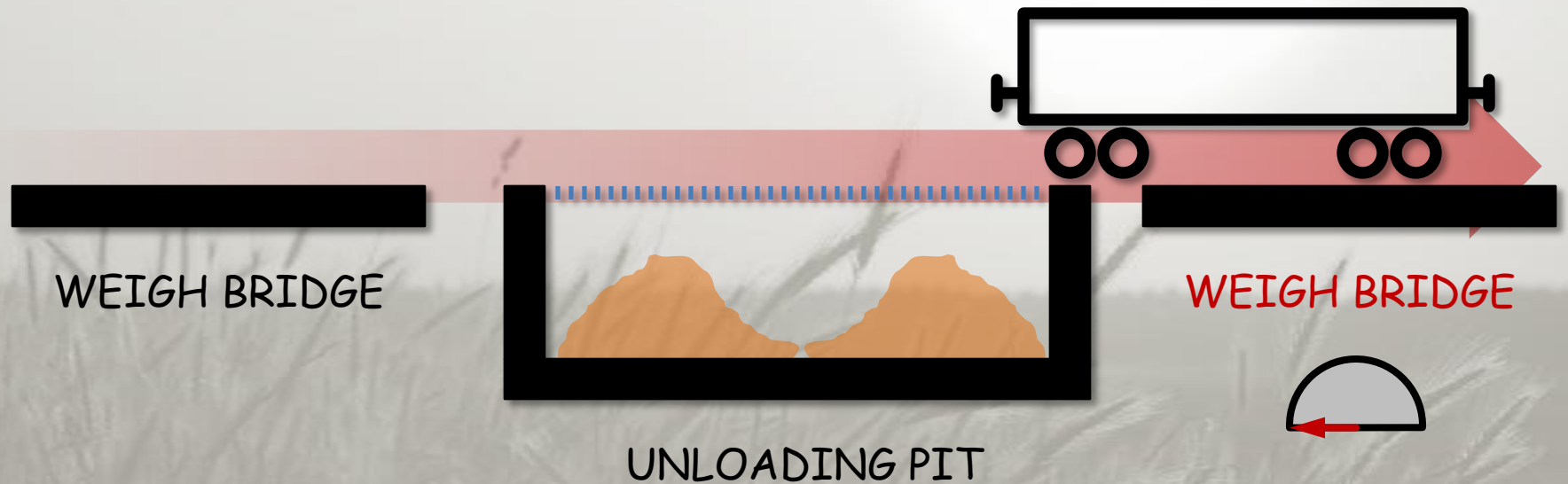
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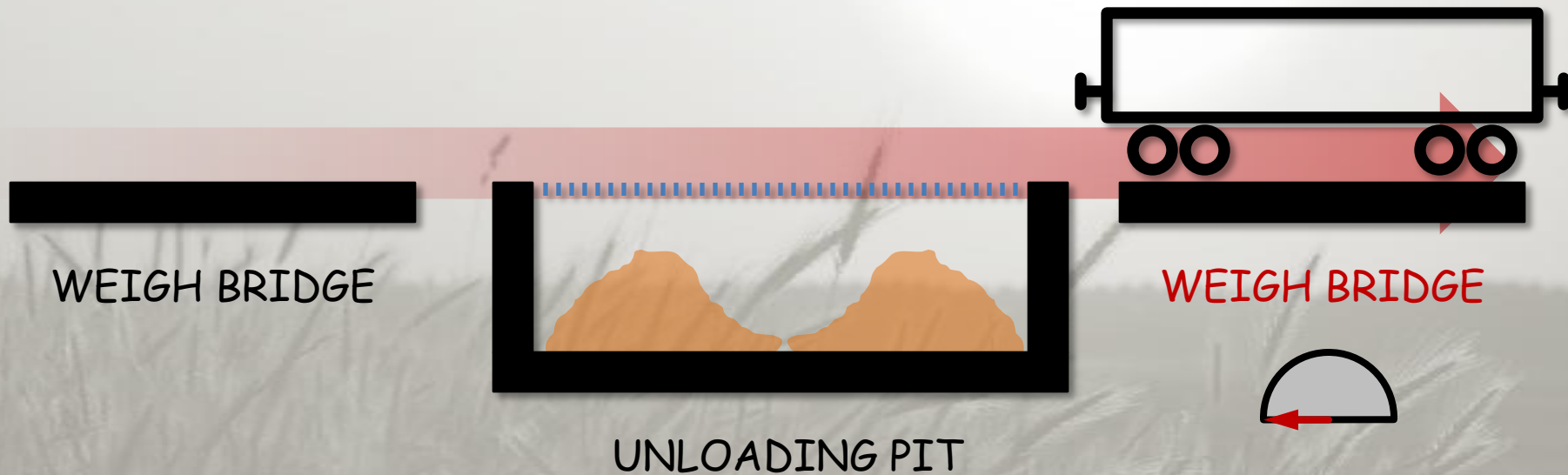
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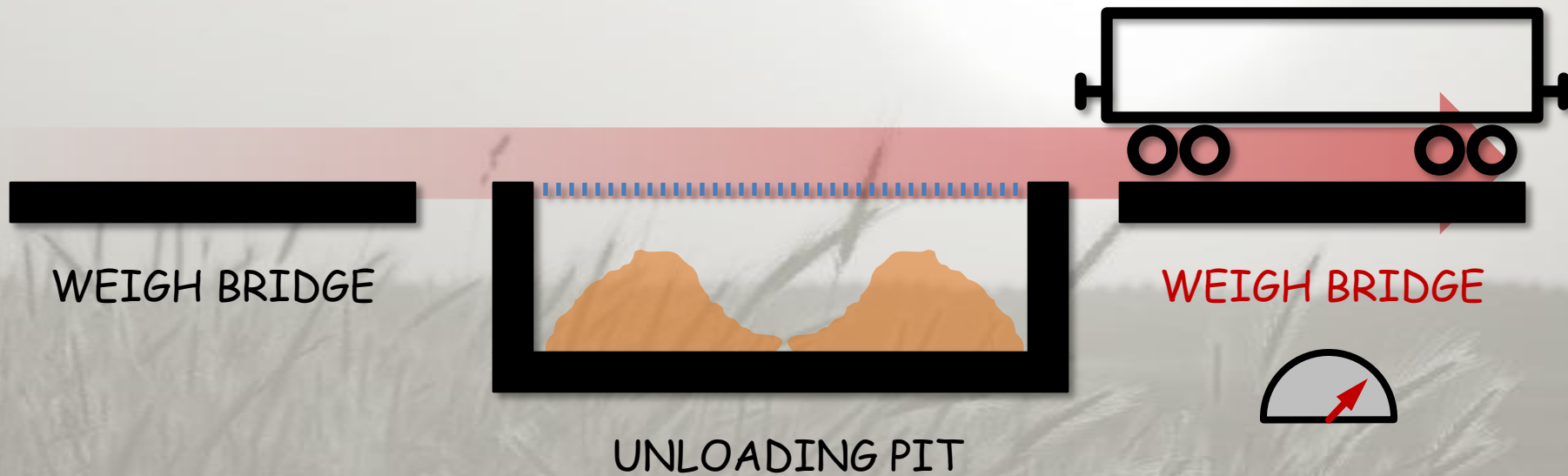
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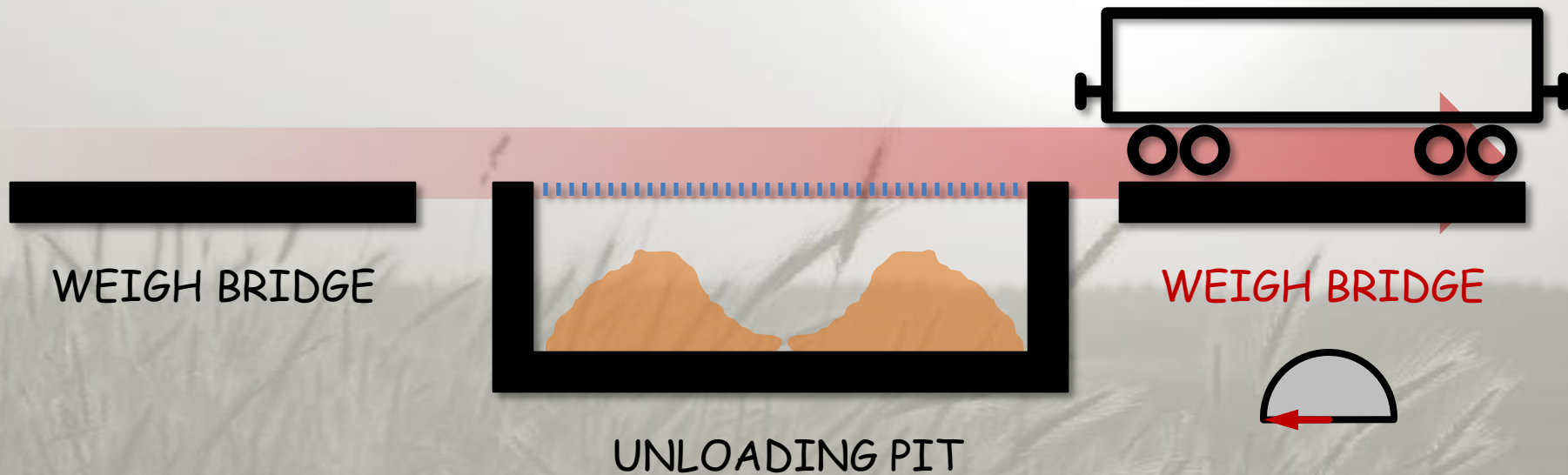
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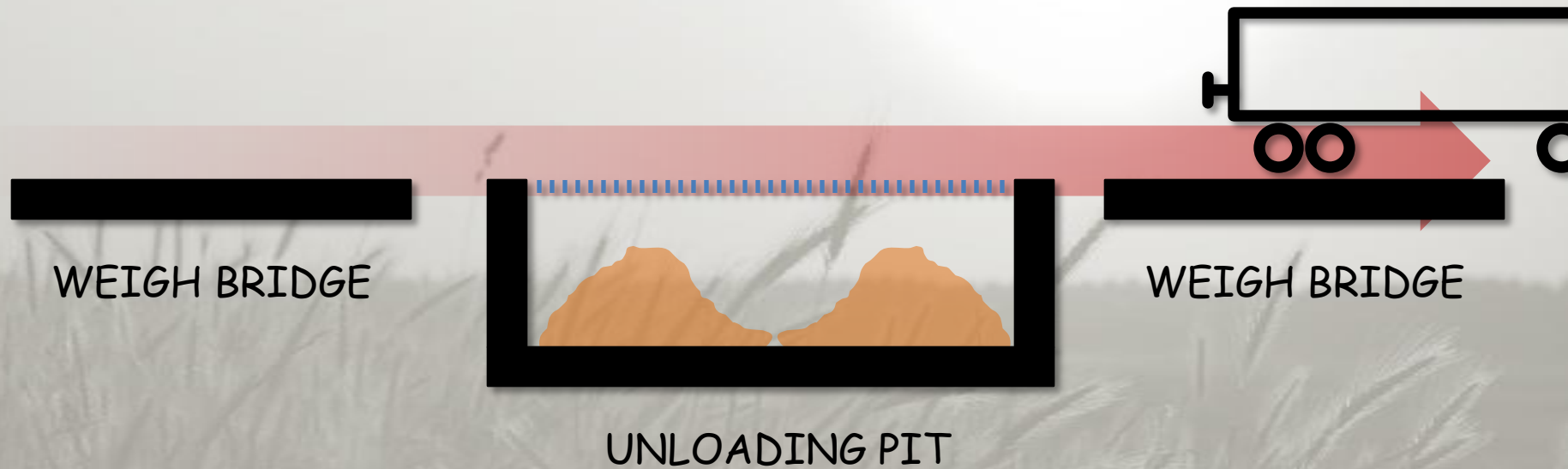
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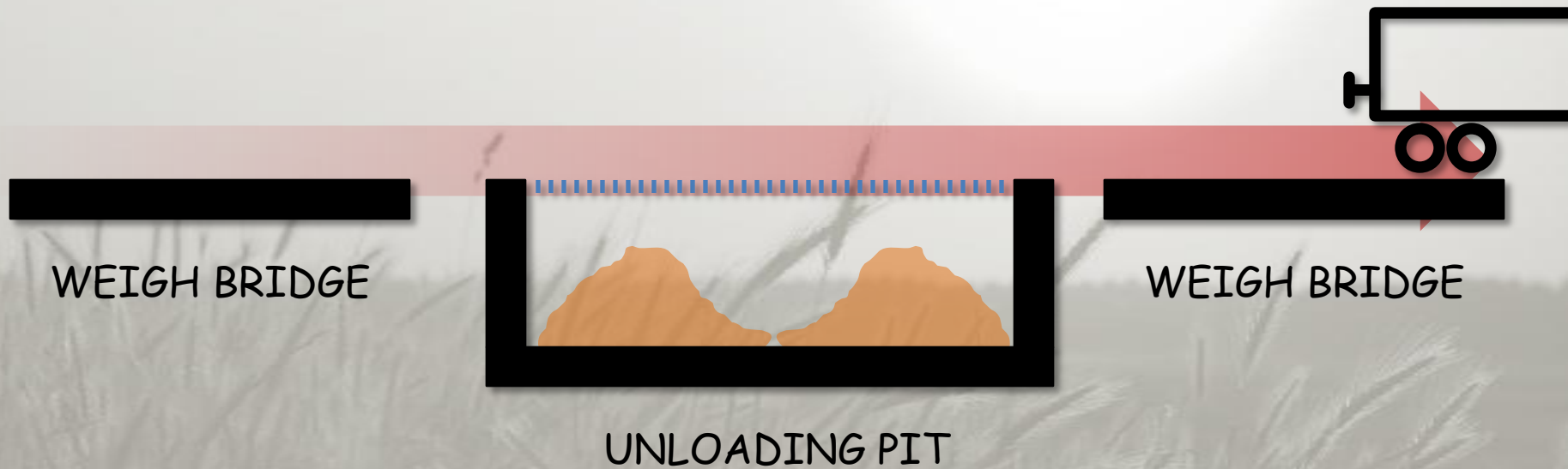
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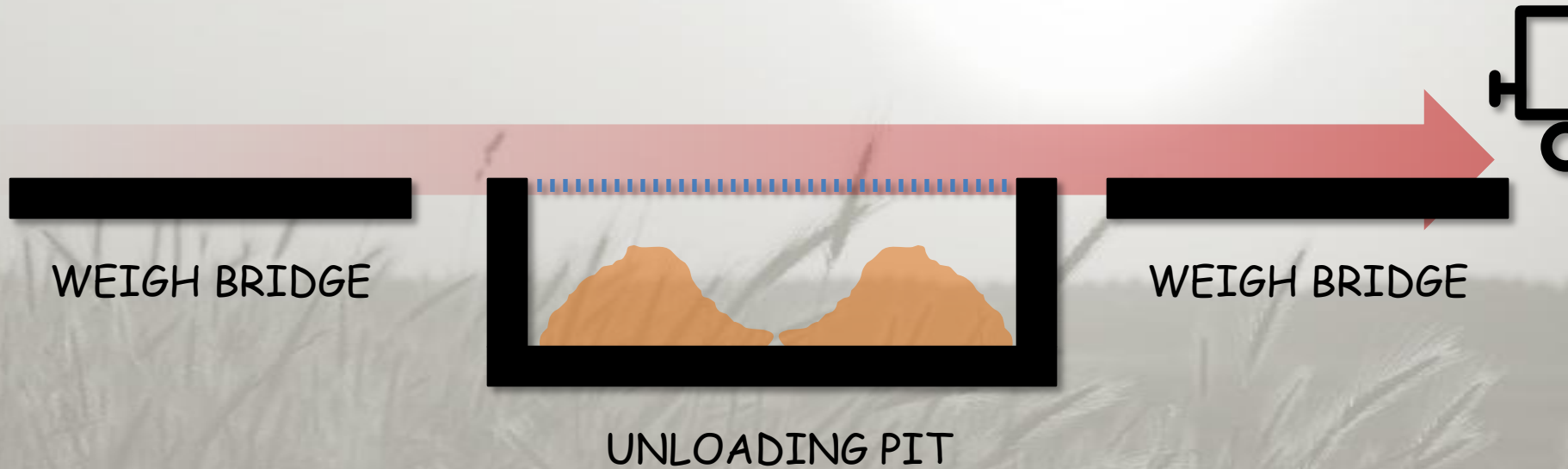
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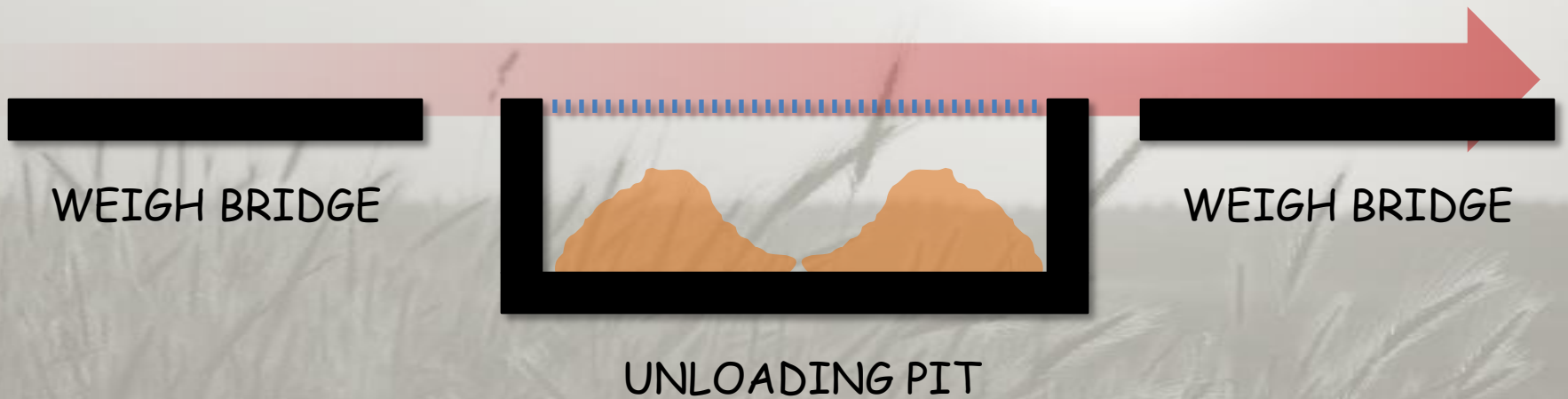
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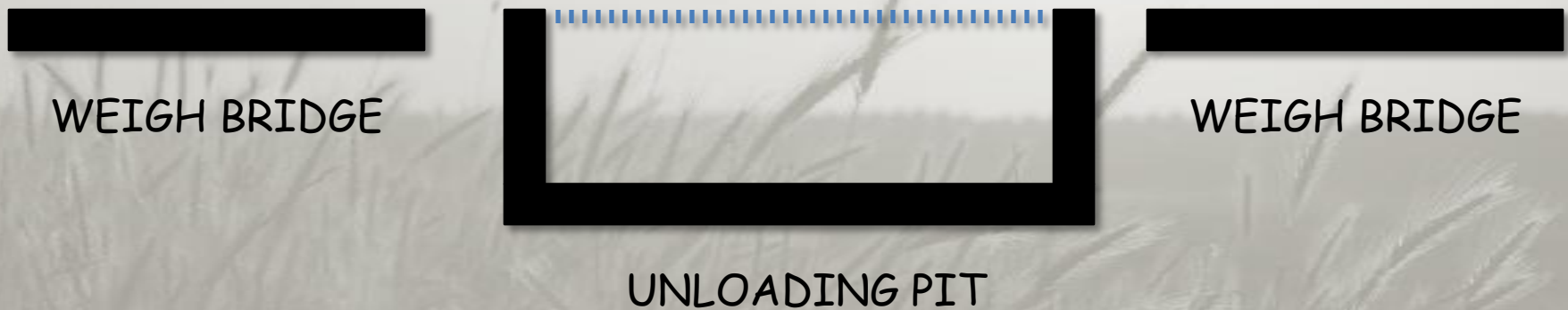
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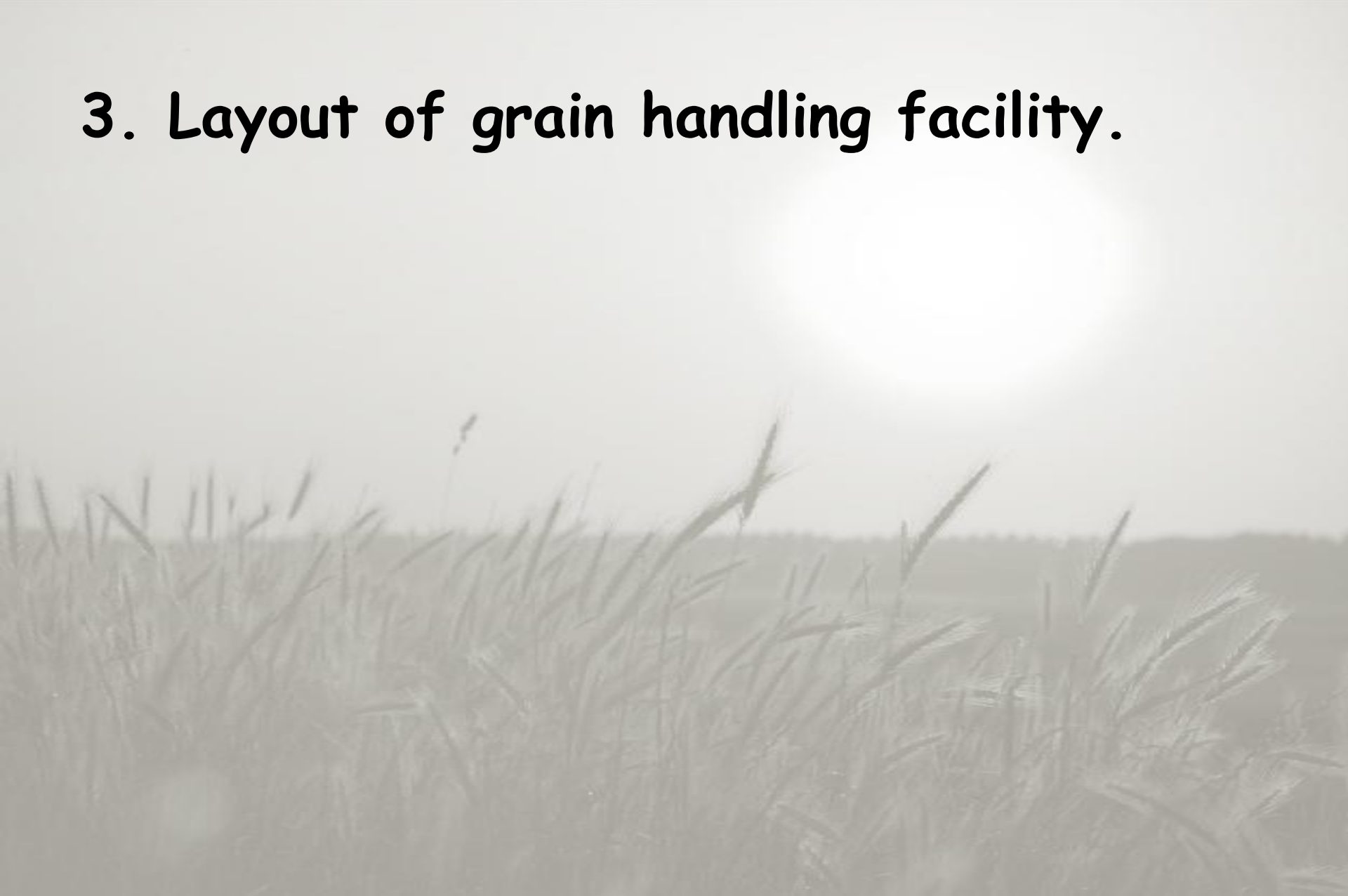
2. Bulk grain delivery by rail.



2. Bulk grain delivery by rail.



3. Layout of grain handling facility.



3. Layout of grain handling facility.

RAIL LINE



3. Layout of grain handling facility.

INTAKE PIT

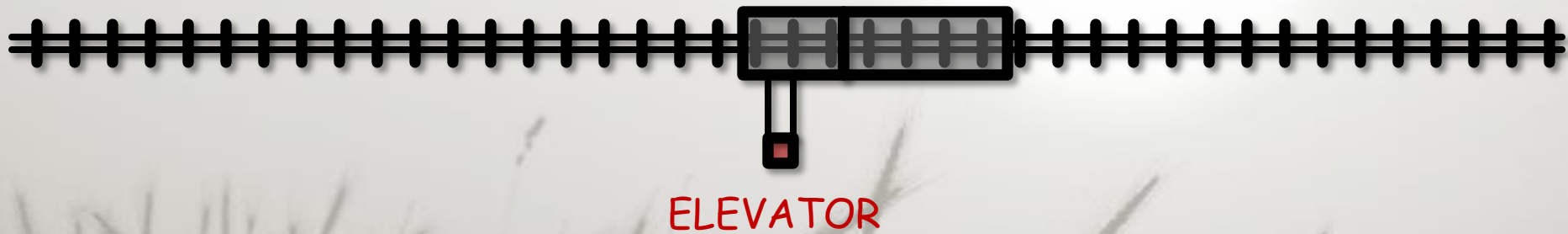


3. Layout of grain handling facility.

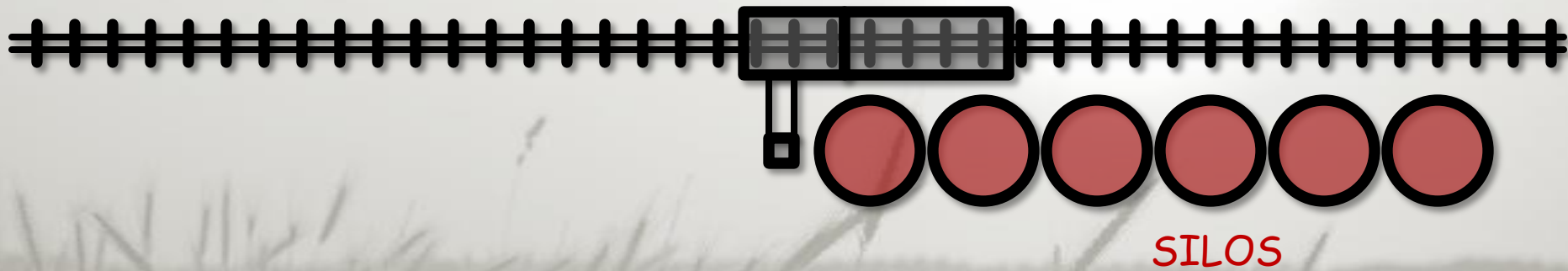
WEIGH BRIDGE



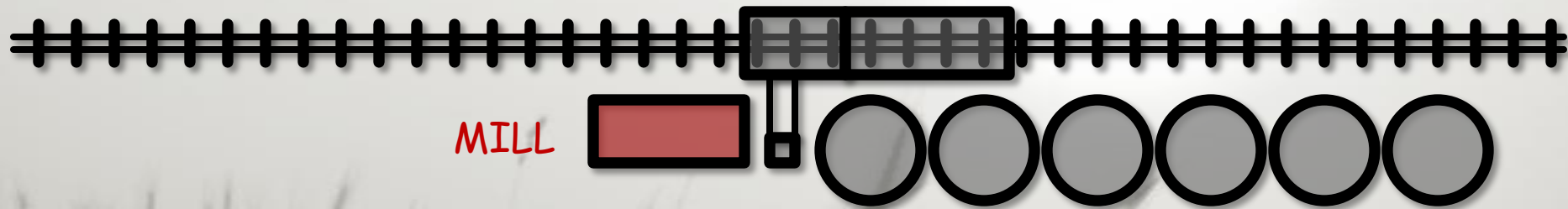
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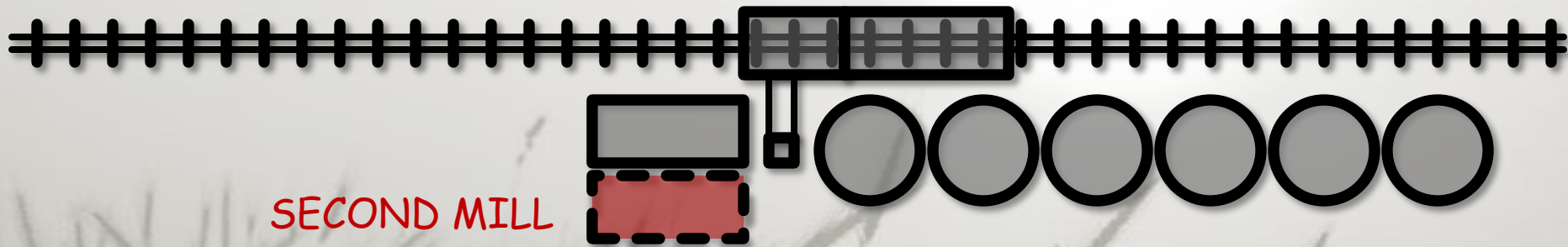
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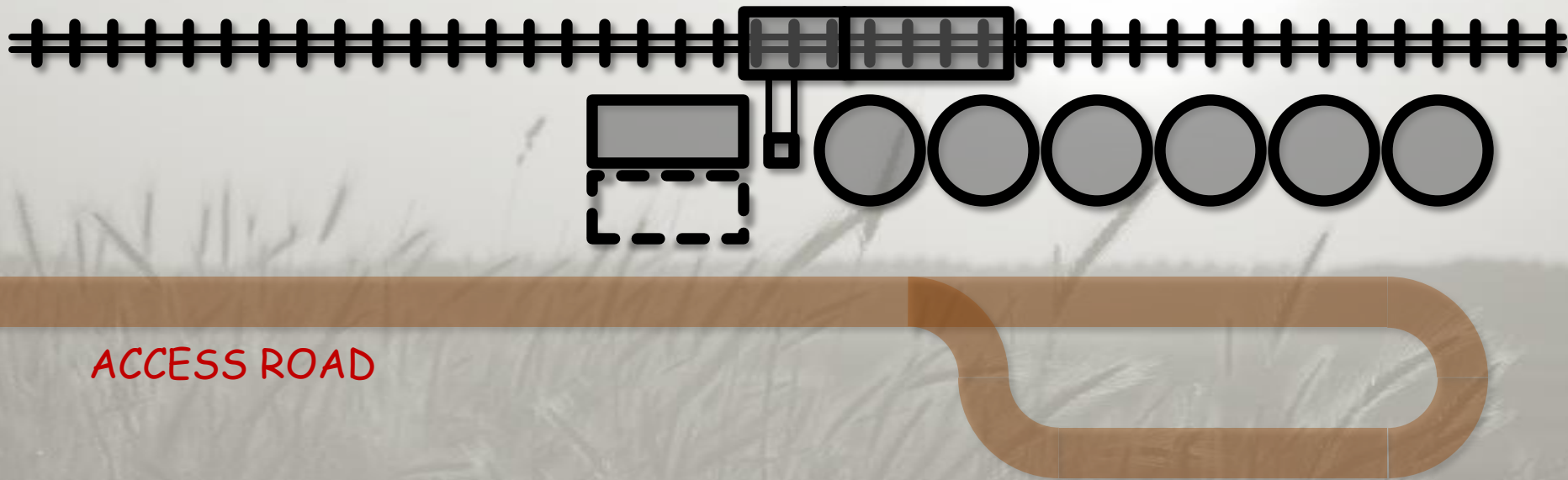
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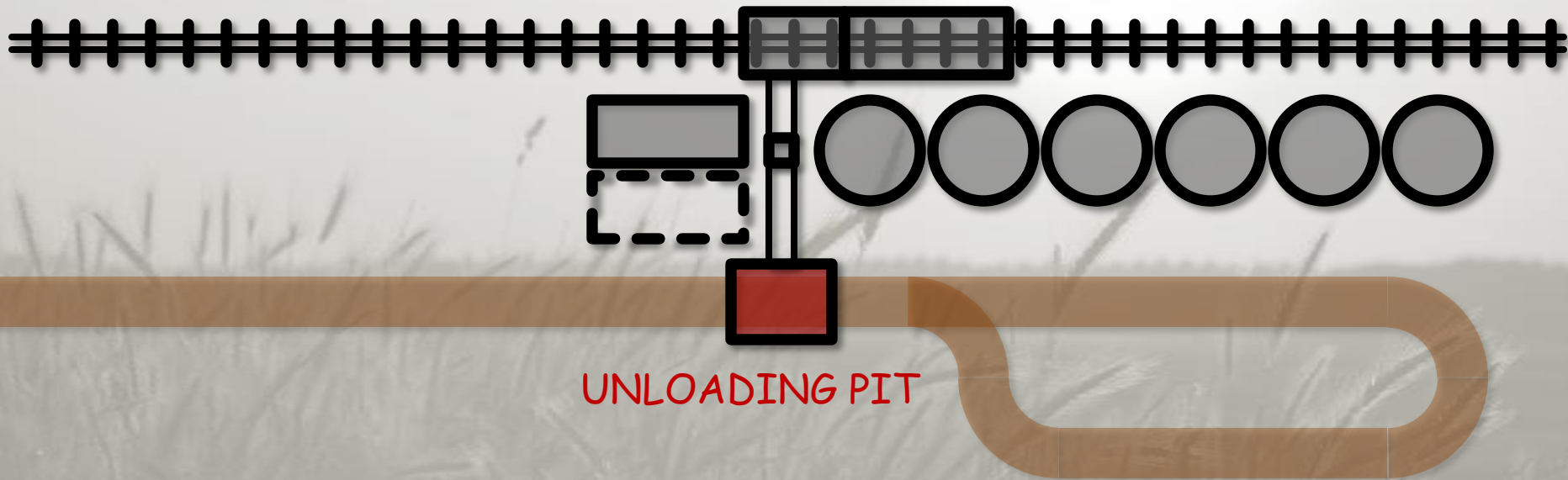
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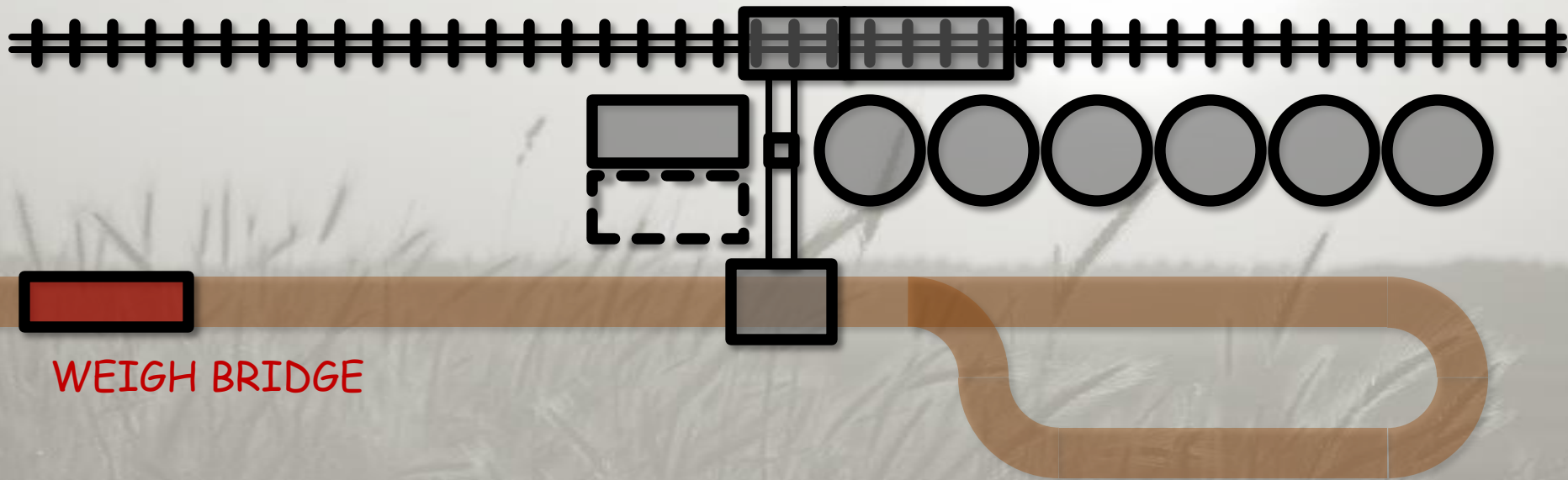
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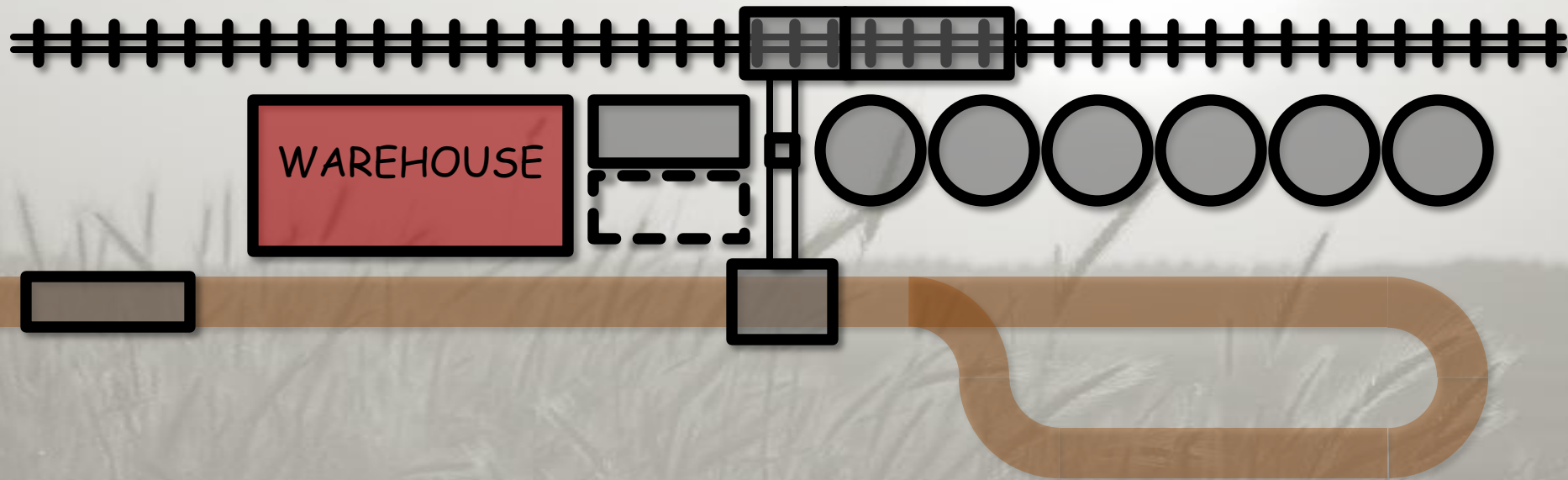
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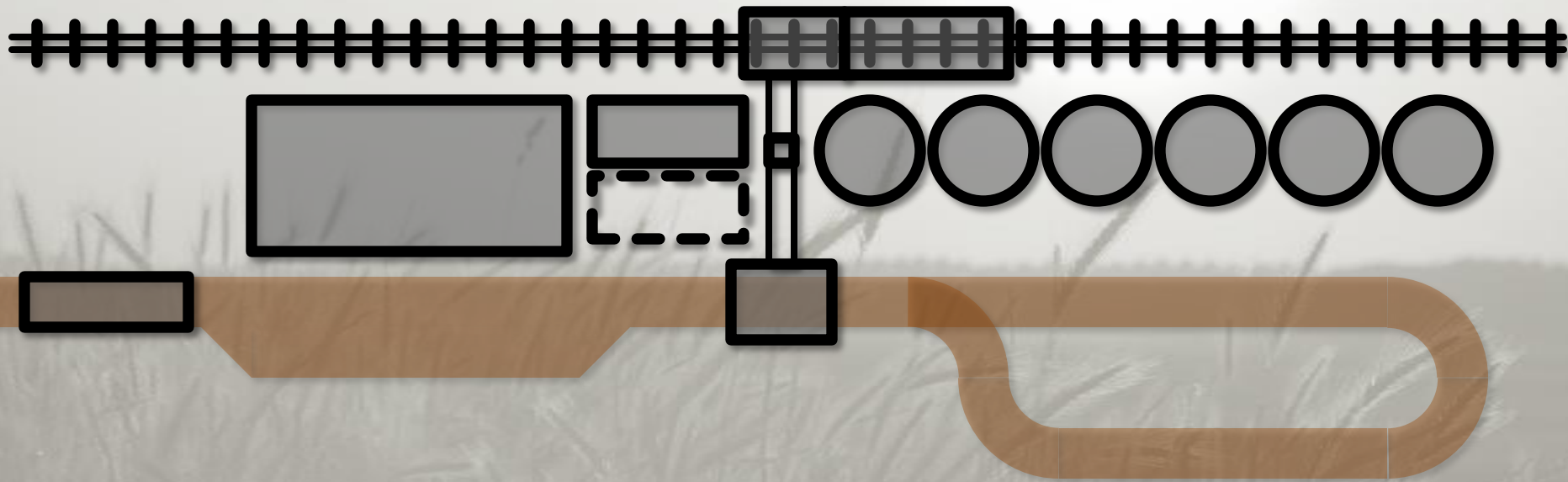
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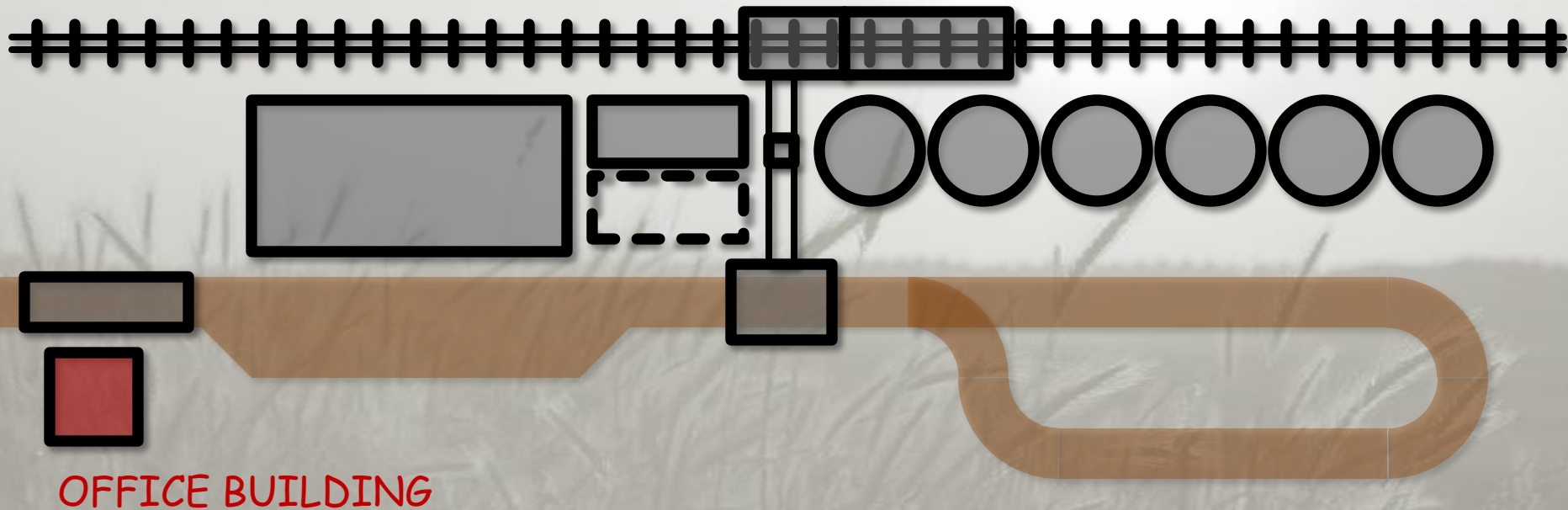
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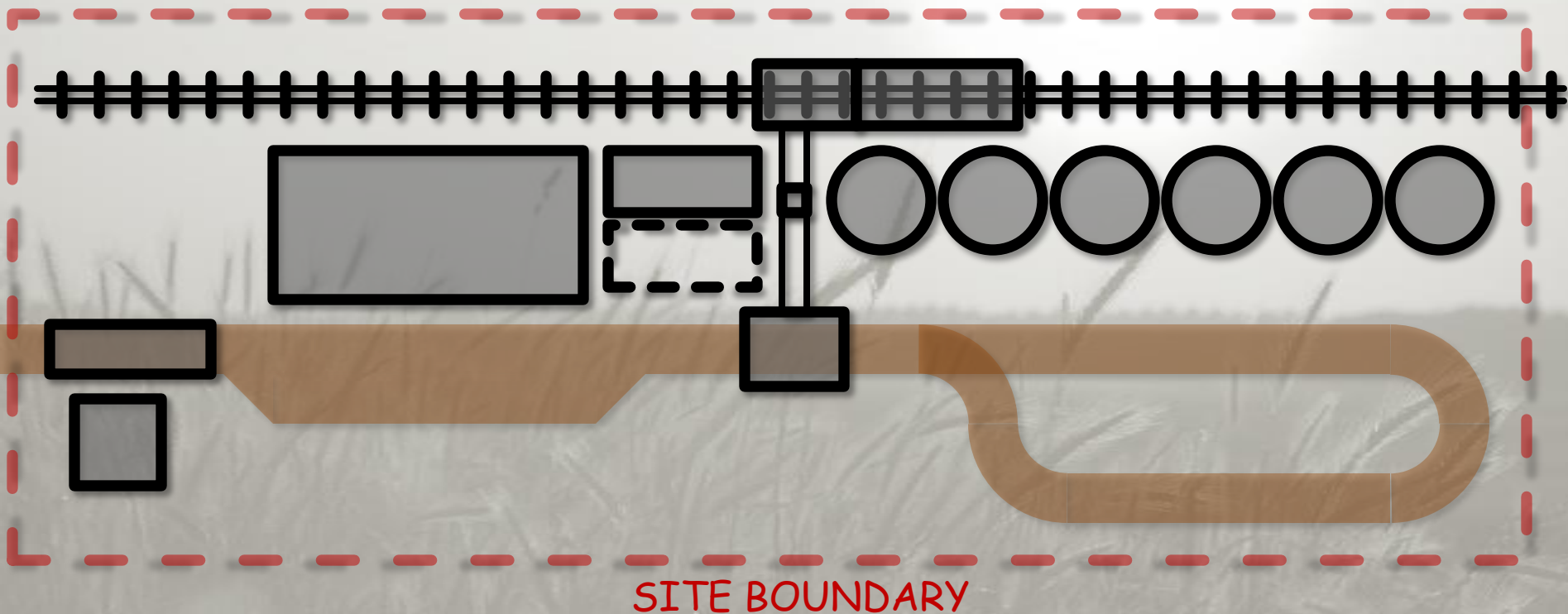
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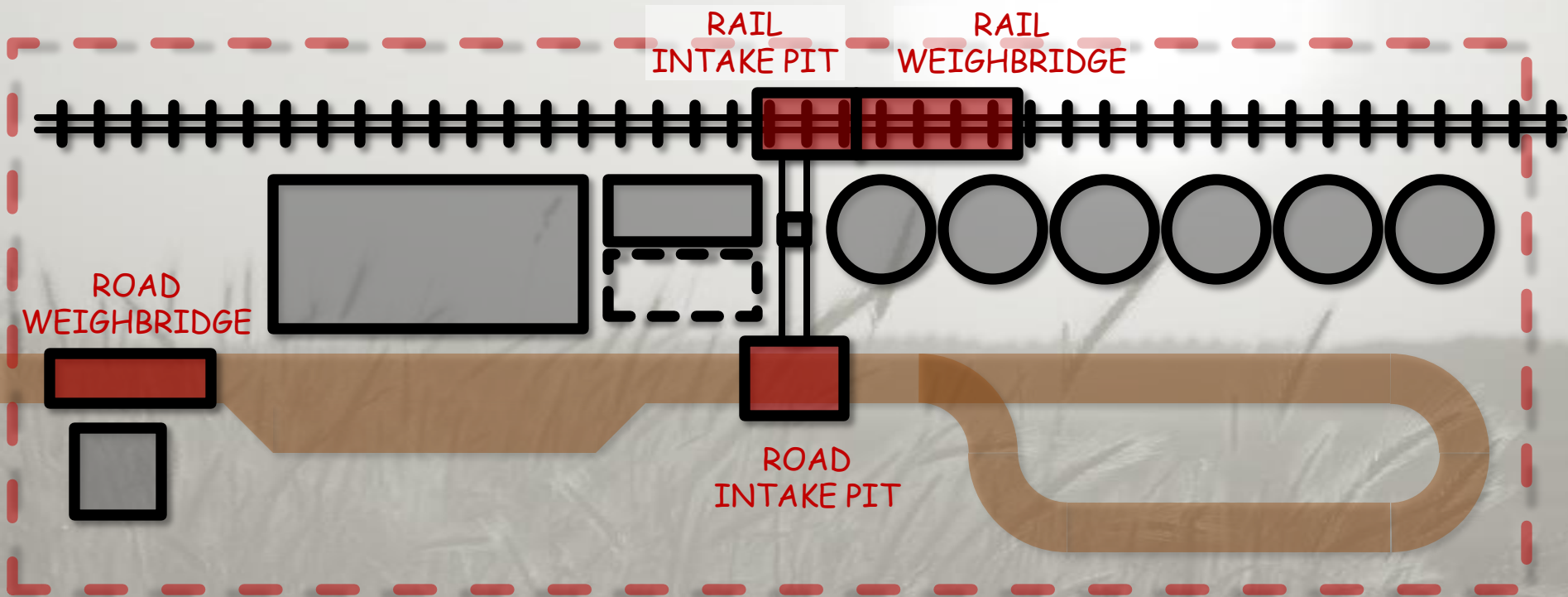
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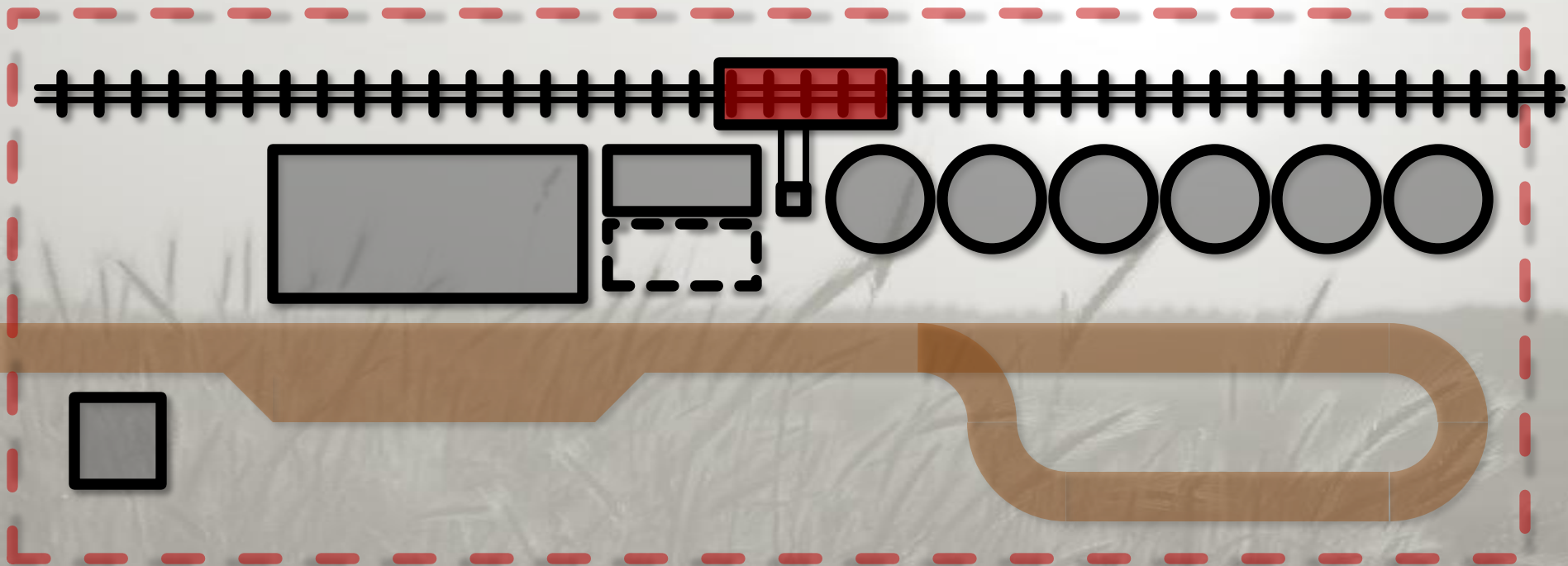


4. Improved layout of grain facility.

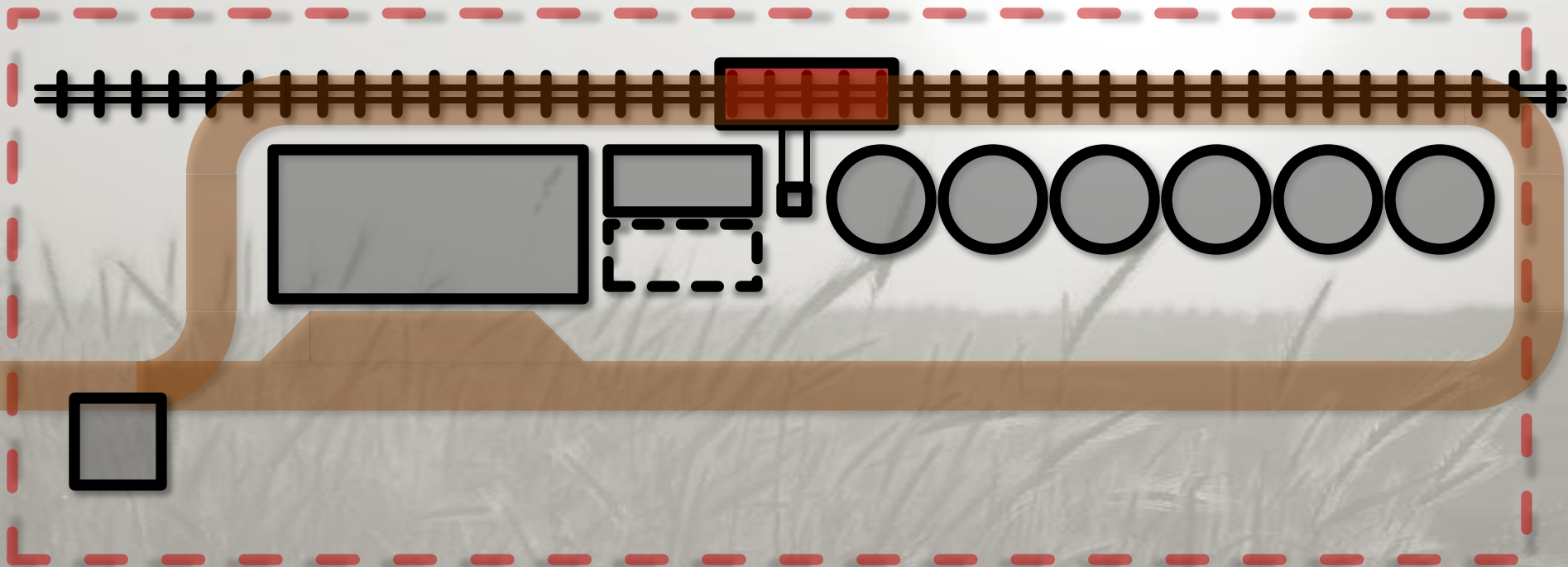


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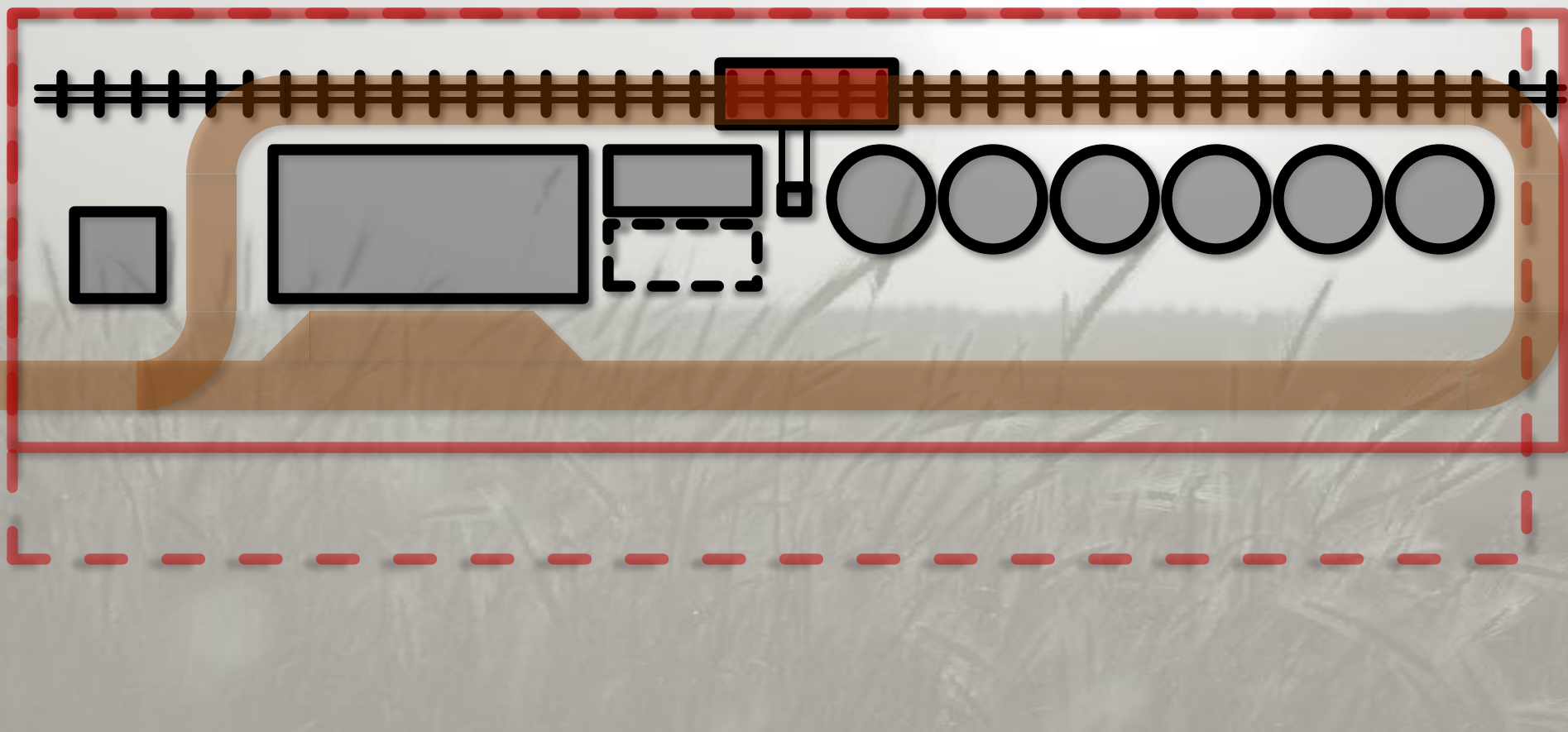
COMBINED ROAD/RAIL
INTAKE WEIGHBRIDGE



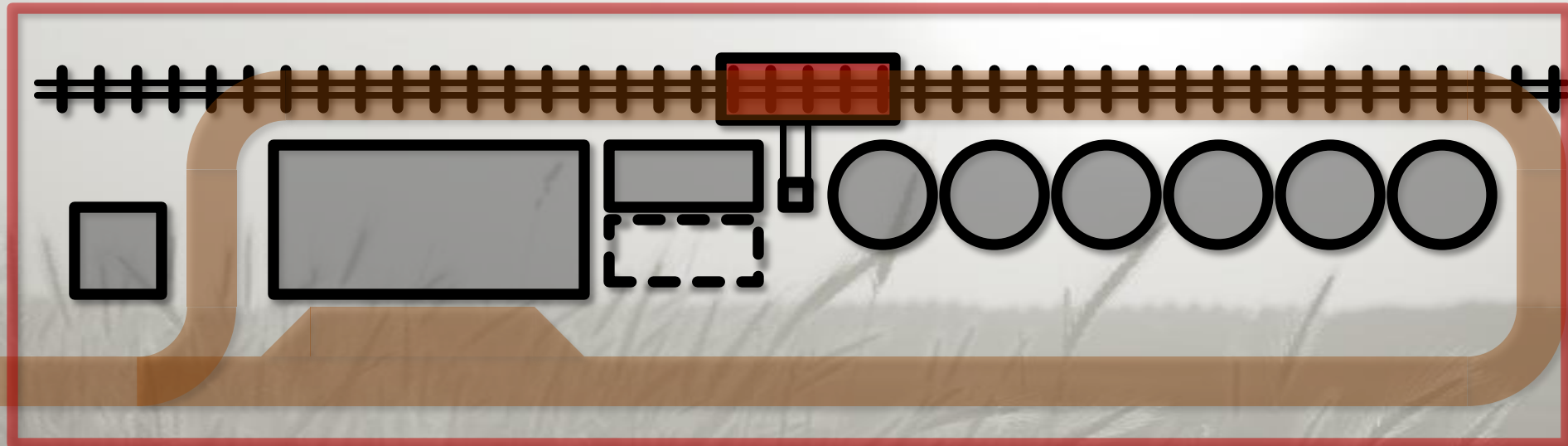
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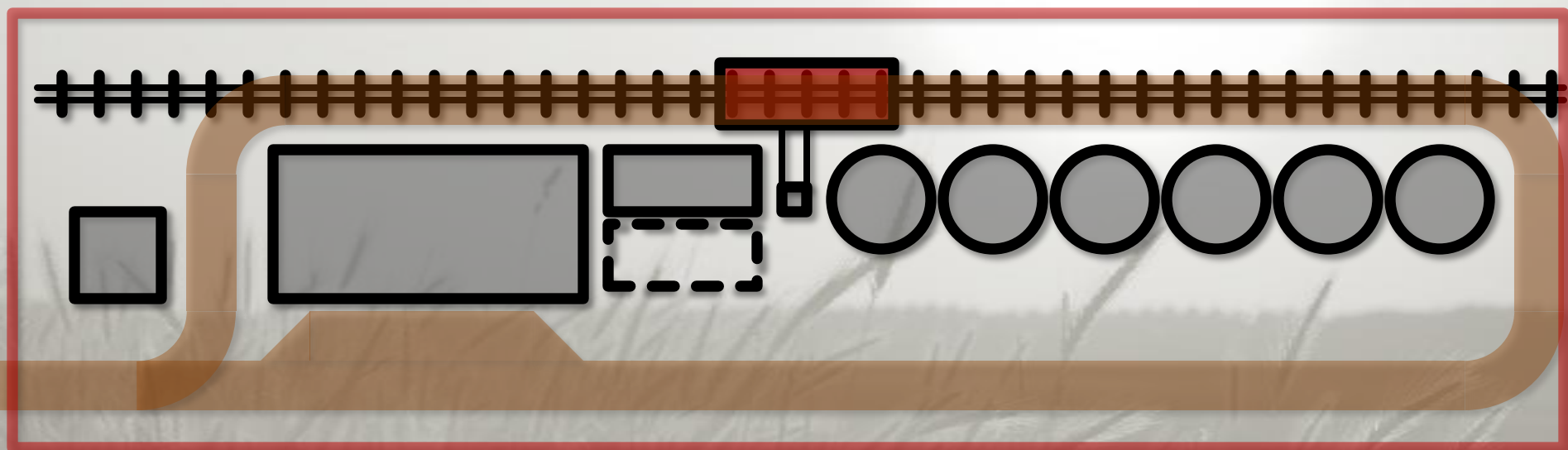
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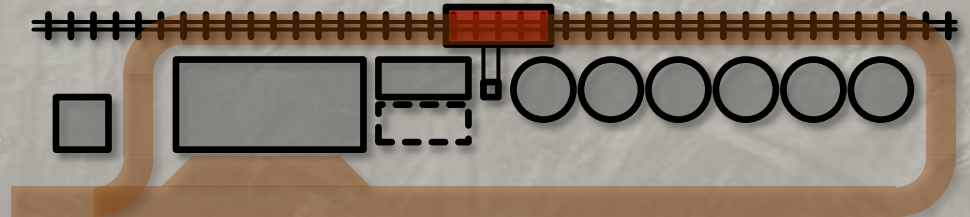


4. Savings from better design.



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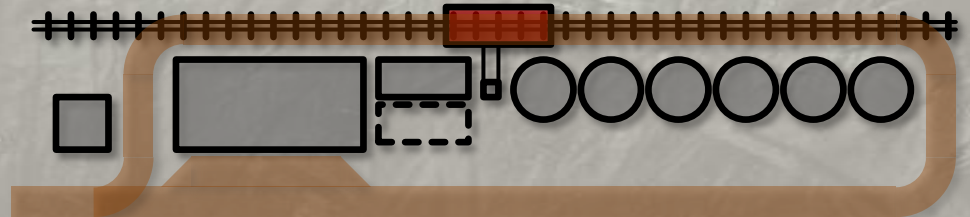
CAPITAL



4. Savings from better design.

CAPITAL

Fewer structures

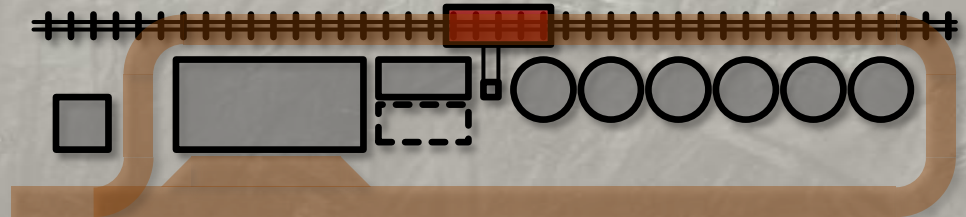


4. Savings from better design.

CAPITAL

Fewer structures

Less mechanical
equipment



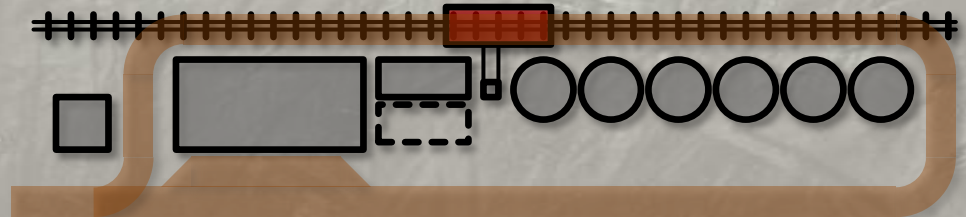
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Smaller land size



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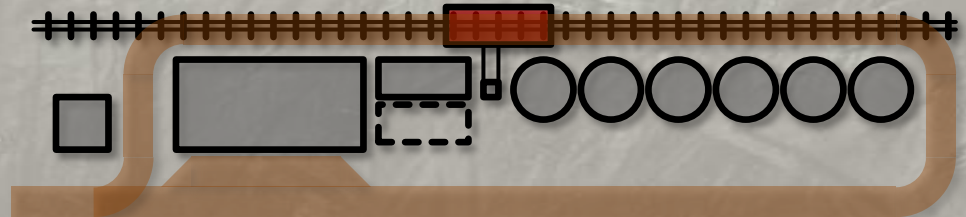
CAPITAL

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CONSTRUCTION



4. Savings from better design.

CAPITAL

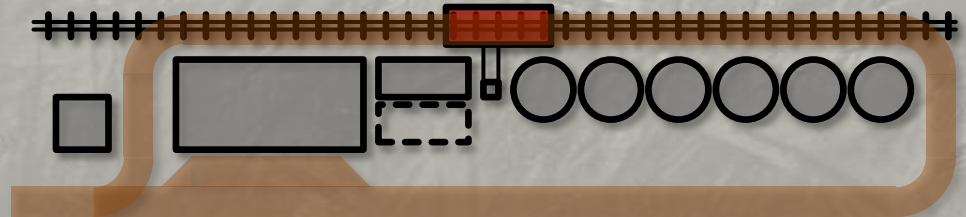
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CONSTRUCTION

Shorter contract
programme time



4. Savings from better design.

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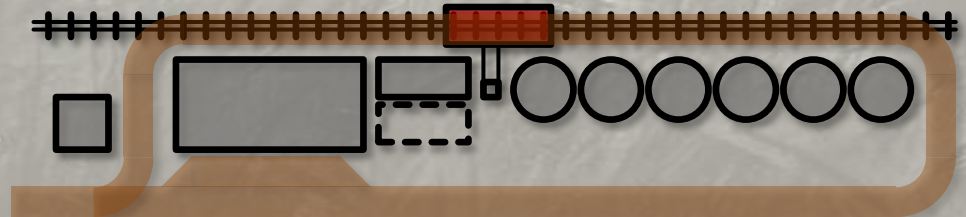
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CONSTRUCTION

Shorter contract
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Faster assembly



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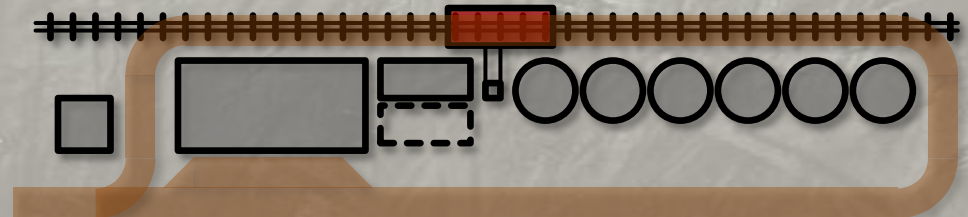
Smaller land size

CONSTRUCTION

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Less congestion on
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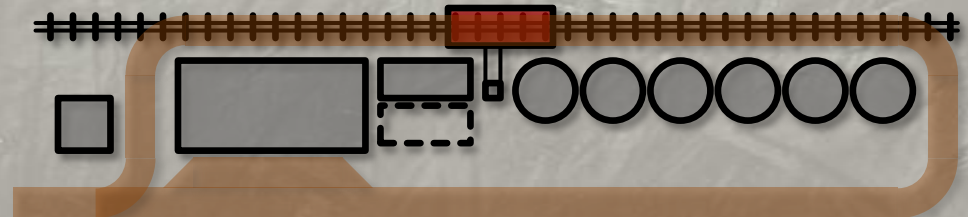
CONSTRUCTION

Shorter contract programme time

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OPERATION



4. Savings from better design.

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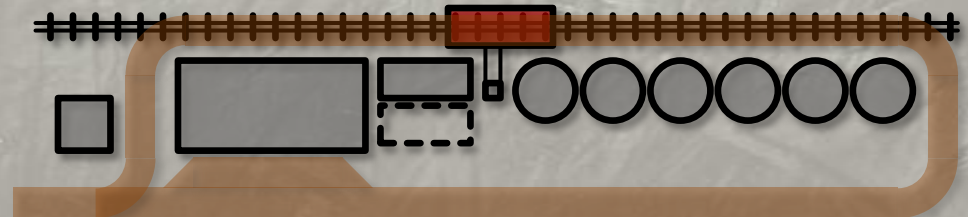
Shorter contract programme time

Faster assembly

Less congestion on site

OPERATION

Less maintenance



4. Savings from better design.

CAPITAL

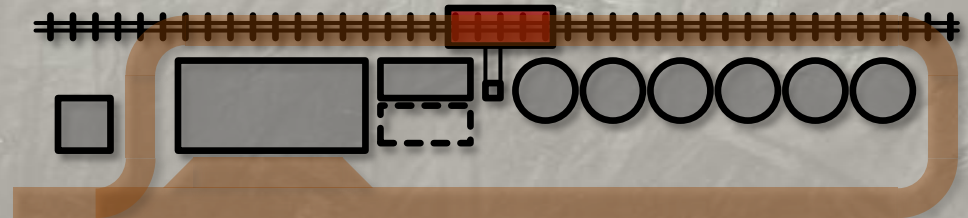
Fewer structures
Less mechanical
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Smaller land size

CONSTRUCTION

Shorter contract
programme time
Faster assembly
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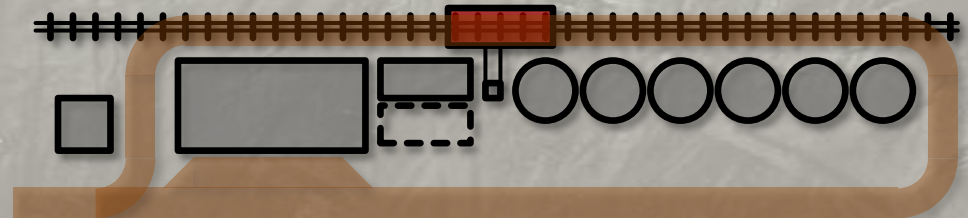
OPERATION

Less maintenance
**Easier to control
on-site movements**



4. Savings from better design.

<u>CAPITAL</u>	<u>CONSTRUCTION</u>	<u>OPERATION</u>
Fewer structures	Shorter contract programme time	Less maintenance
Less mechanical equipment	Faster assembly	Easier to control on-site movements
Smaller land size	Less congestion on site	Quicker delivery turn around



4. Savings from better design.

CAPITAL

Fewer structures

Less mechanical equipment

Smaller land size

CONSTRUCTION

Shorter contract programme time

Faster assembly

Less congestion on site

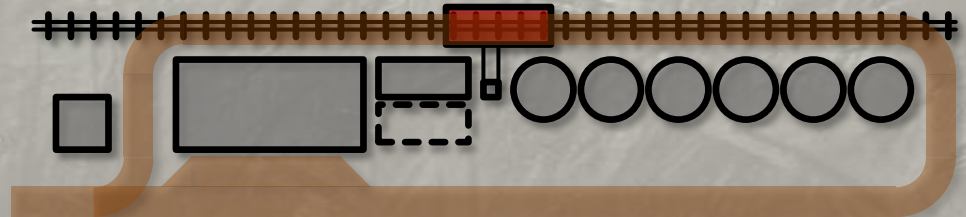
OPERATION

Less maintenance

Easier to control on-site movements

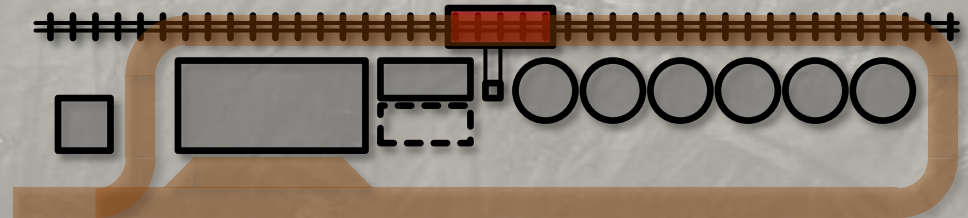
Quicker delivery turn around

Space available for upgrading



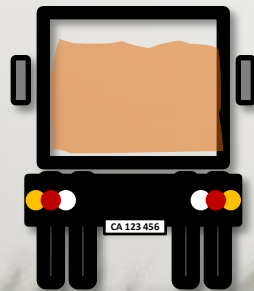
4. Savings from better design.

<u>CAPITAL</u>	<u>CONSTRUCTION</u>	<u>OPERATION</u>
Fewer structures	Shorter contract programme time	Less maintenance
Less mechanical equipment	Faster assembly	Easier to control on-site movements
Smaller land size	Less congestion on site	Quicker delivery turn around
		Space available for upgrading

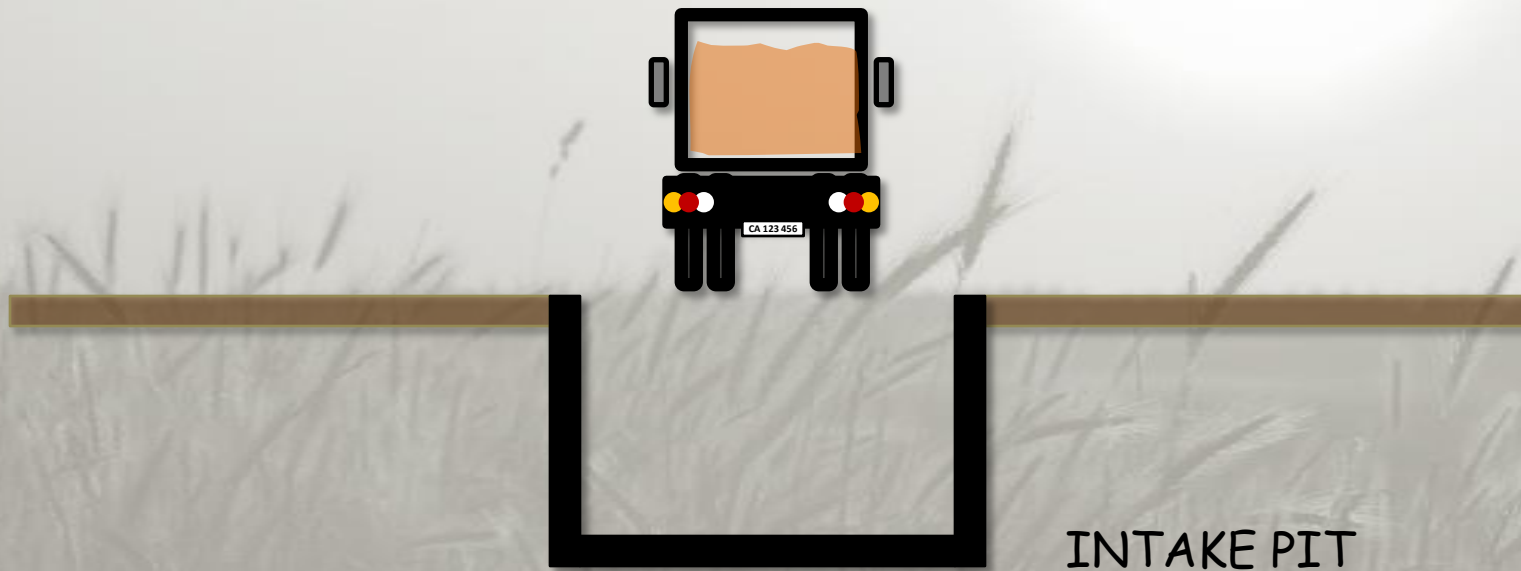


6. Design of combined facility.

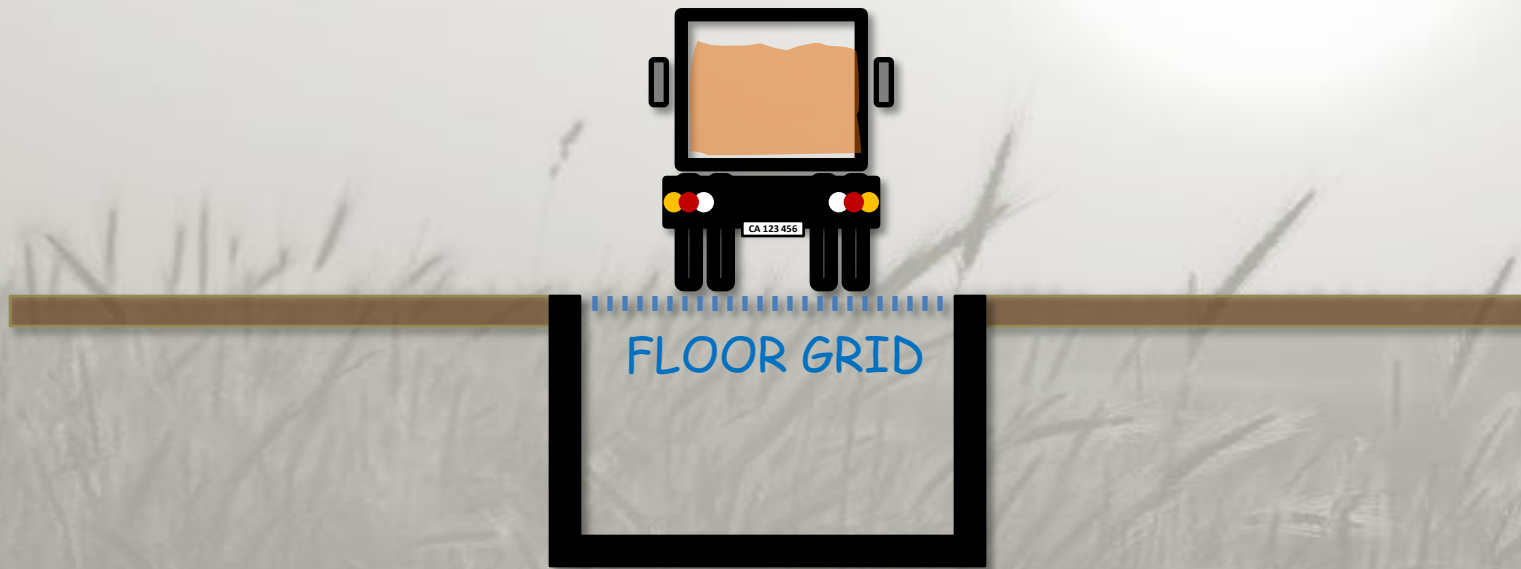
ROAD DELIVERY VEHICLE



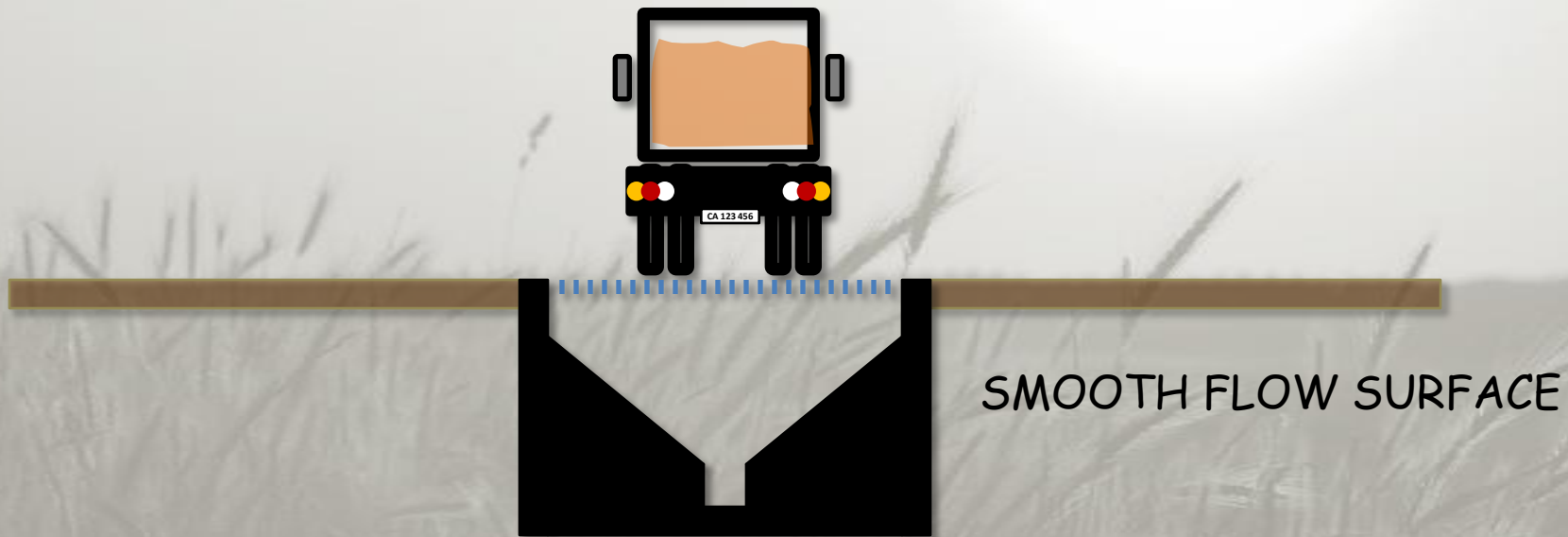
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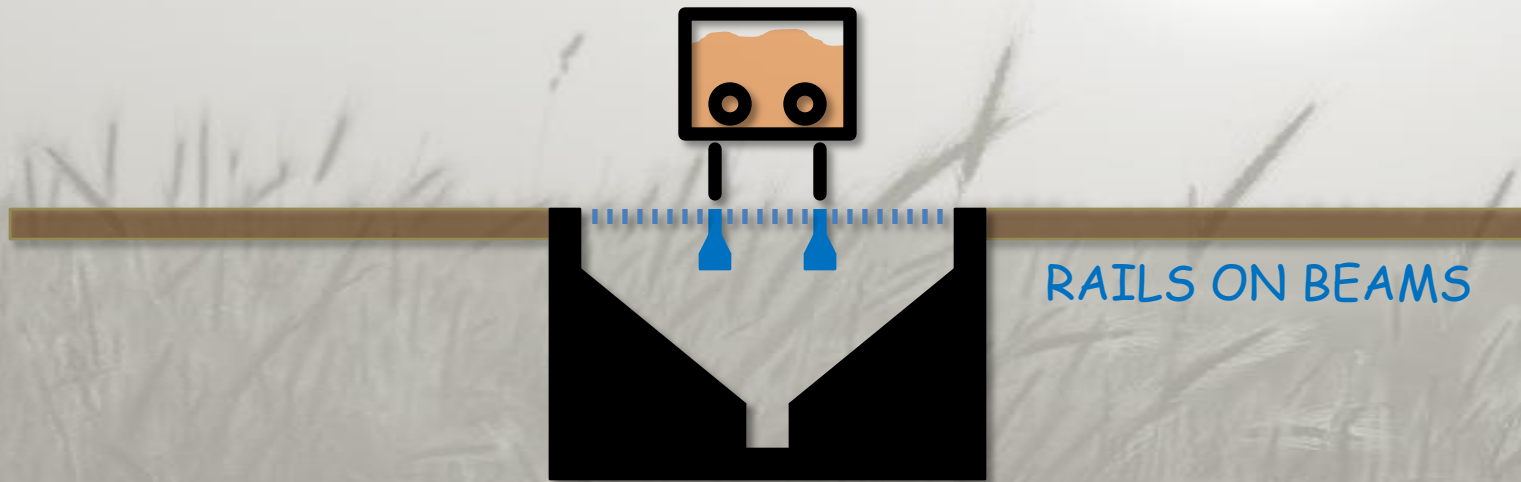
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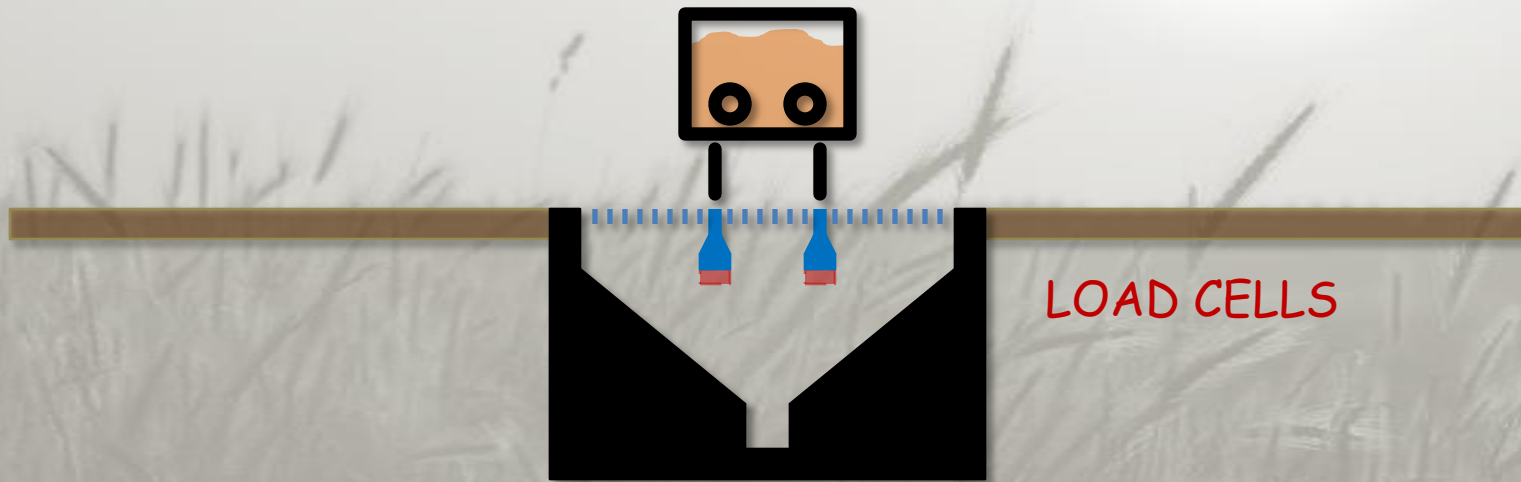
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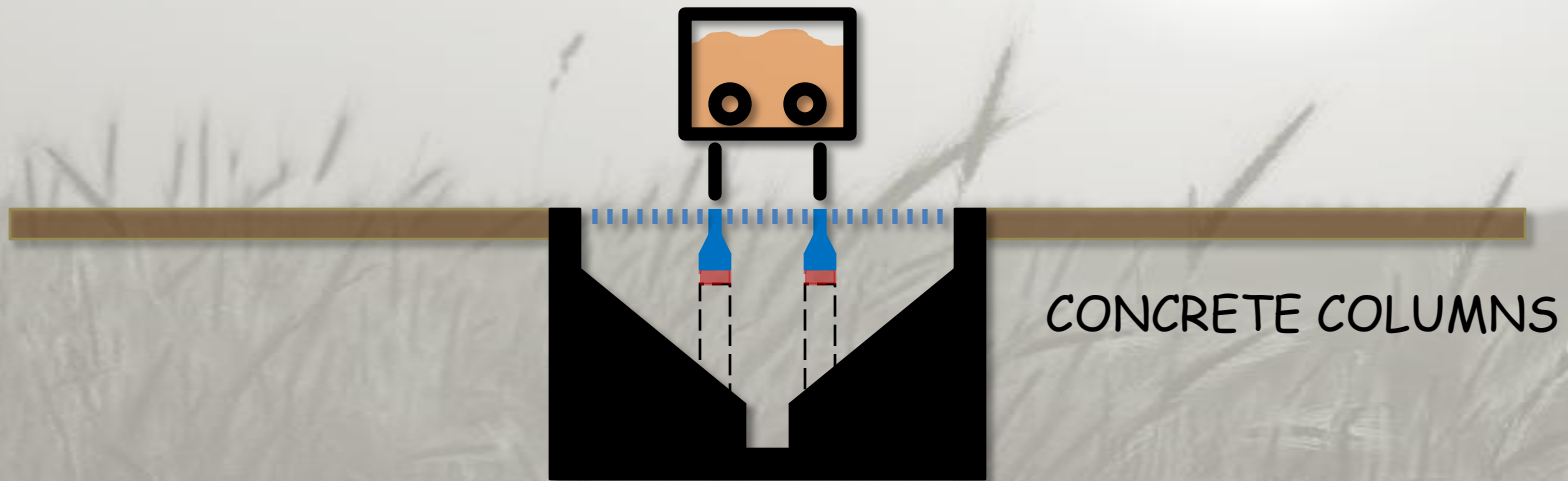
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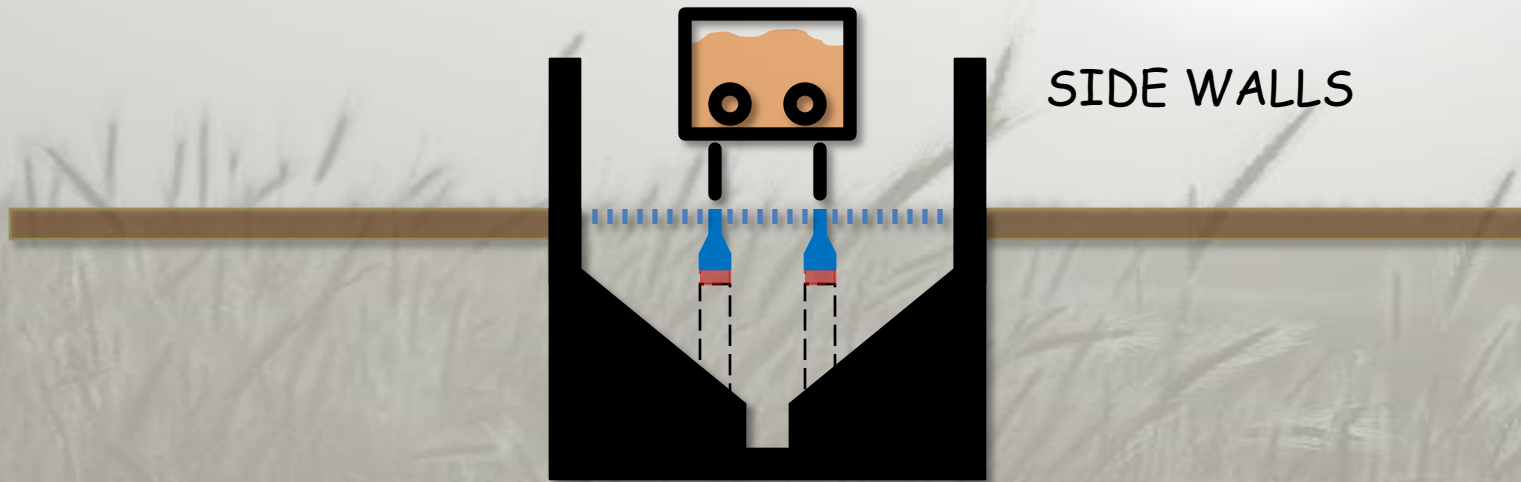
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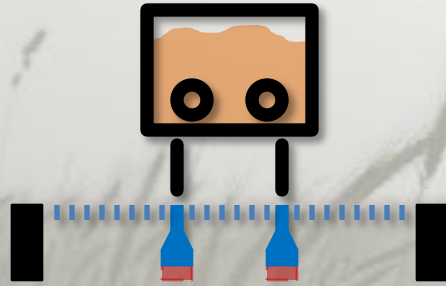
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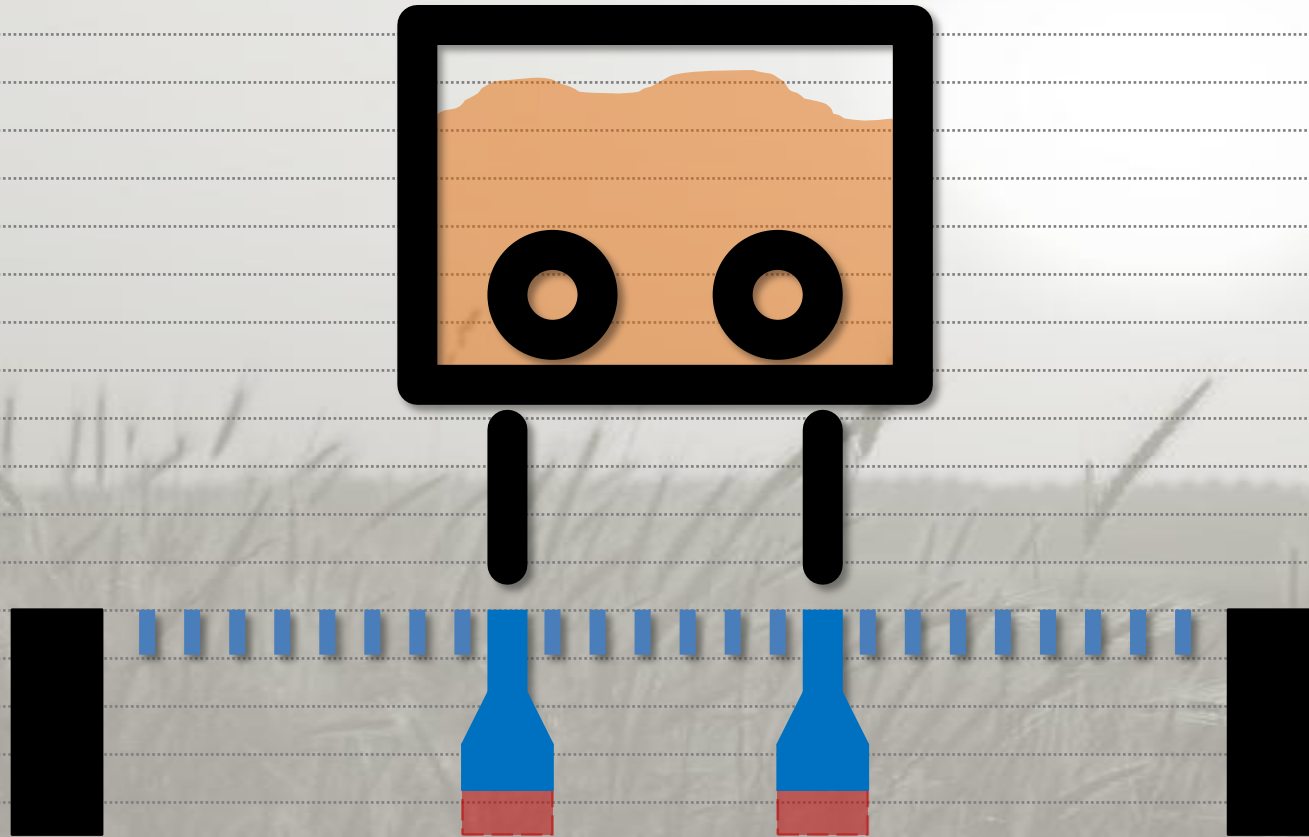
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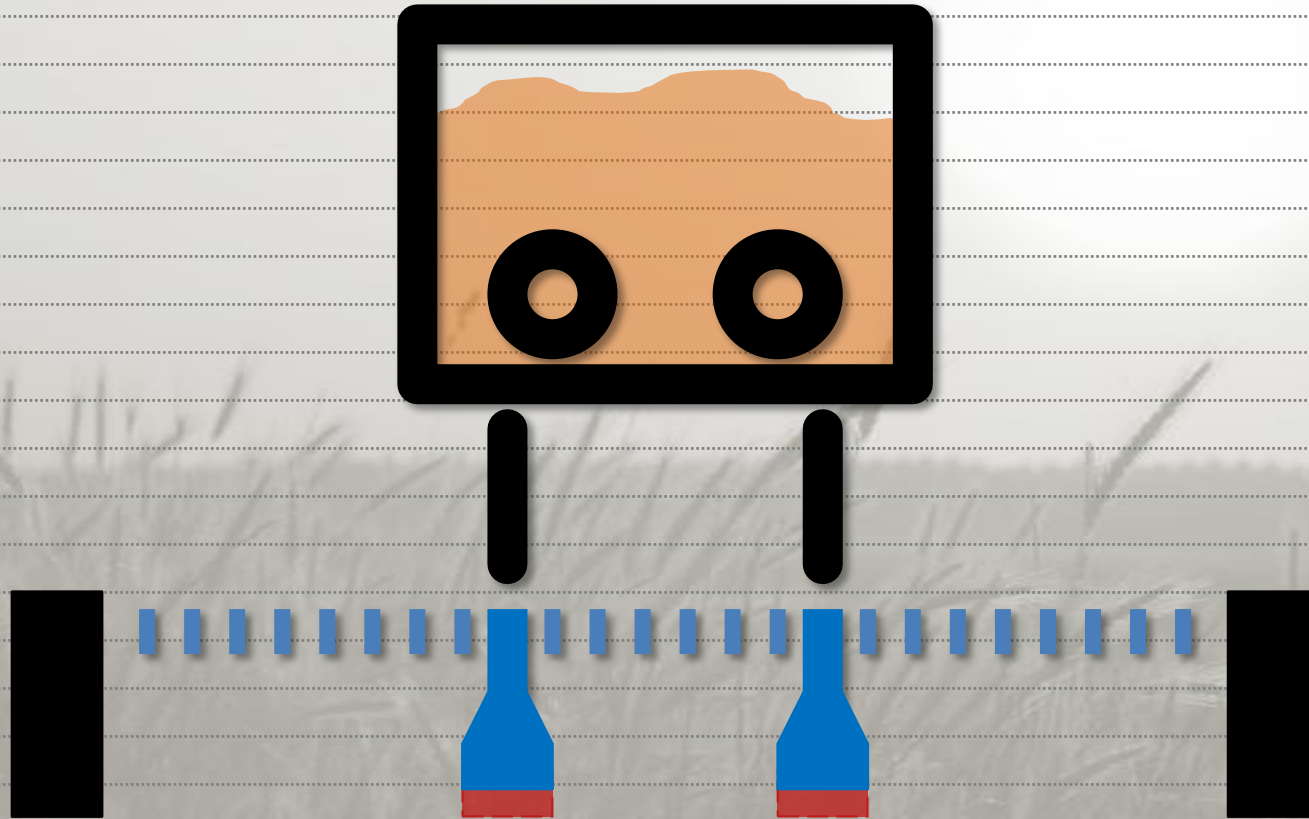
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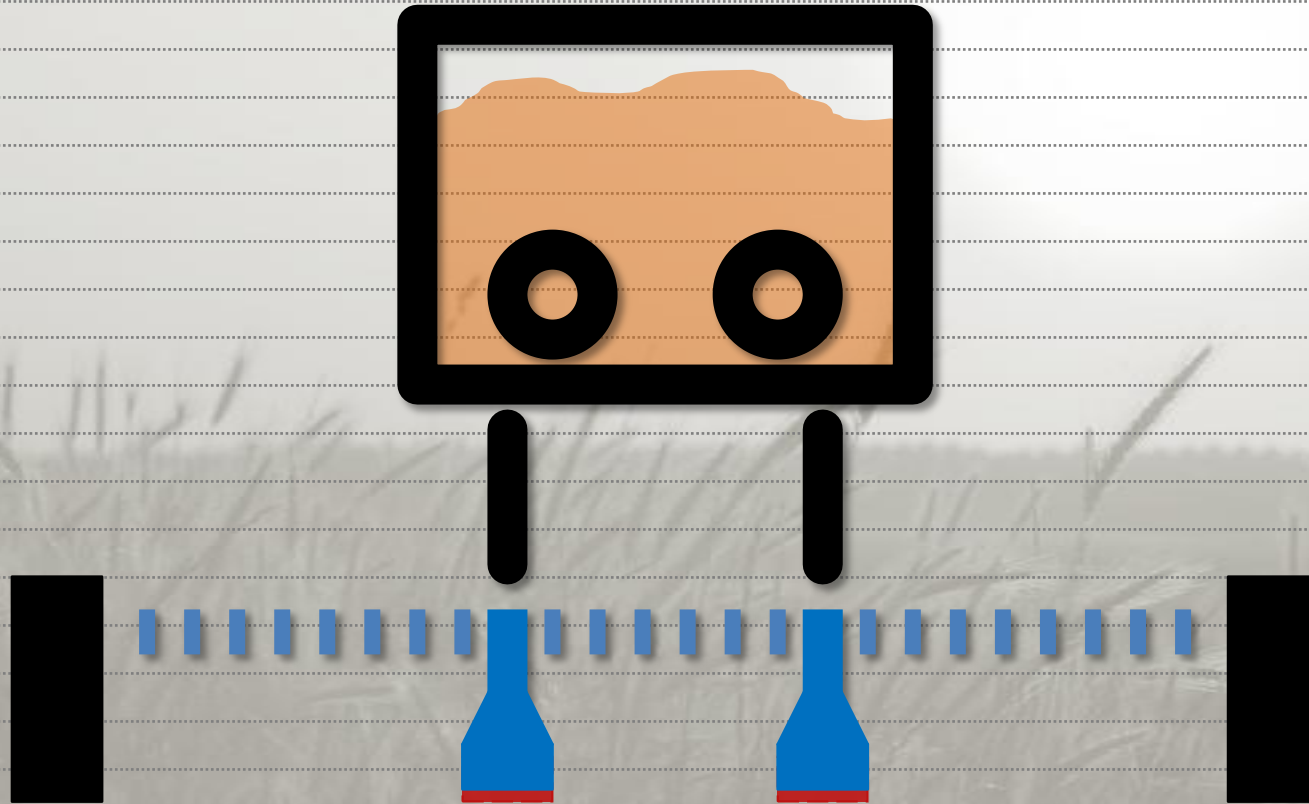
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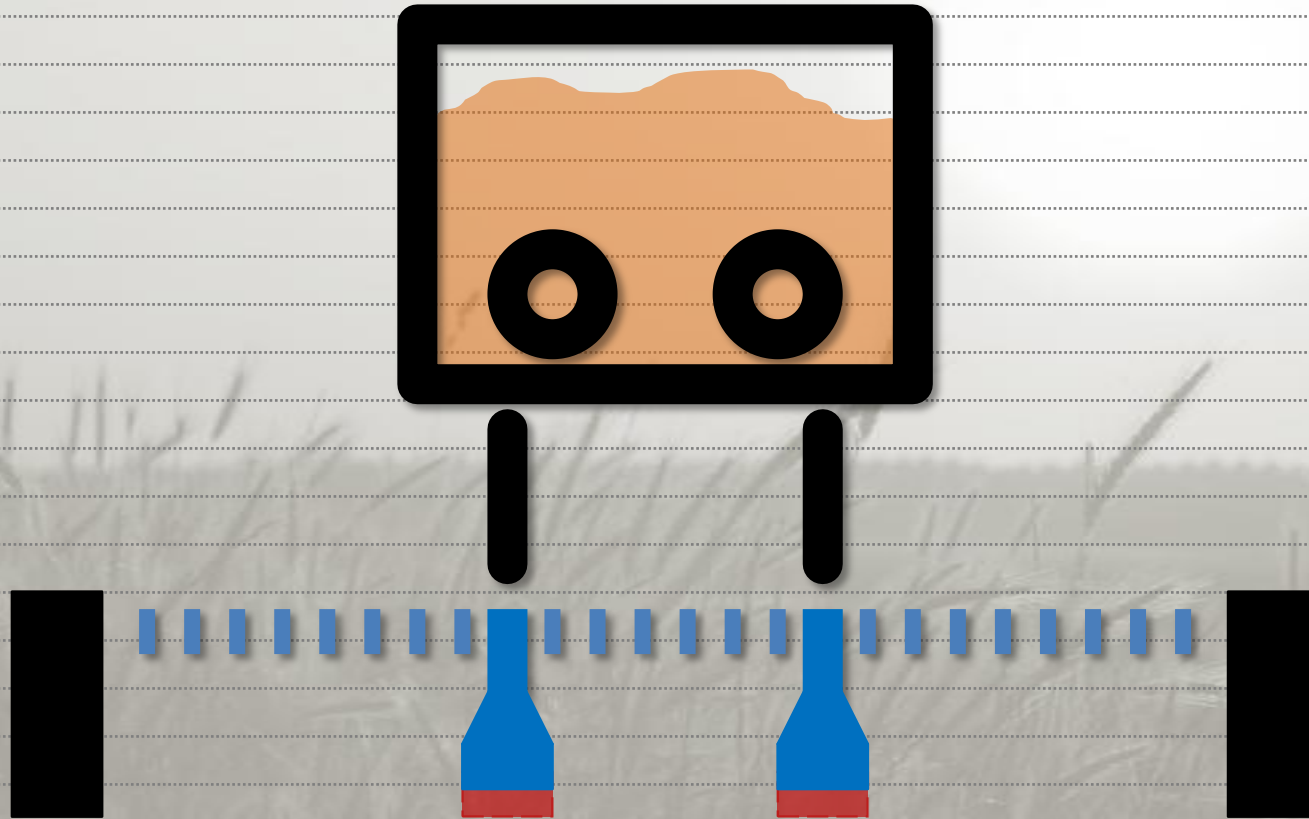
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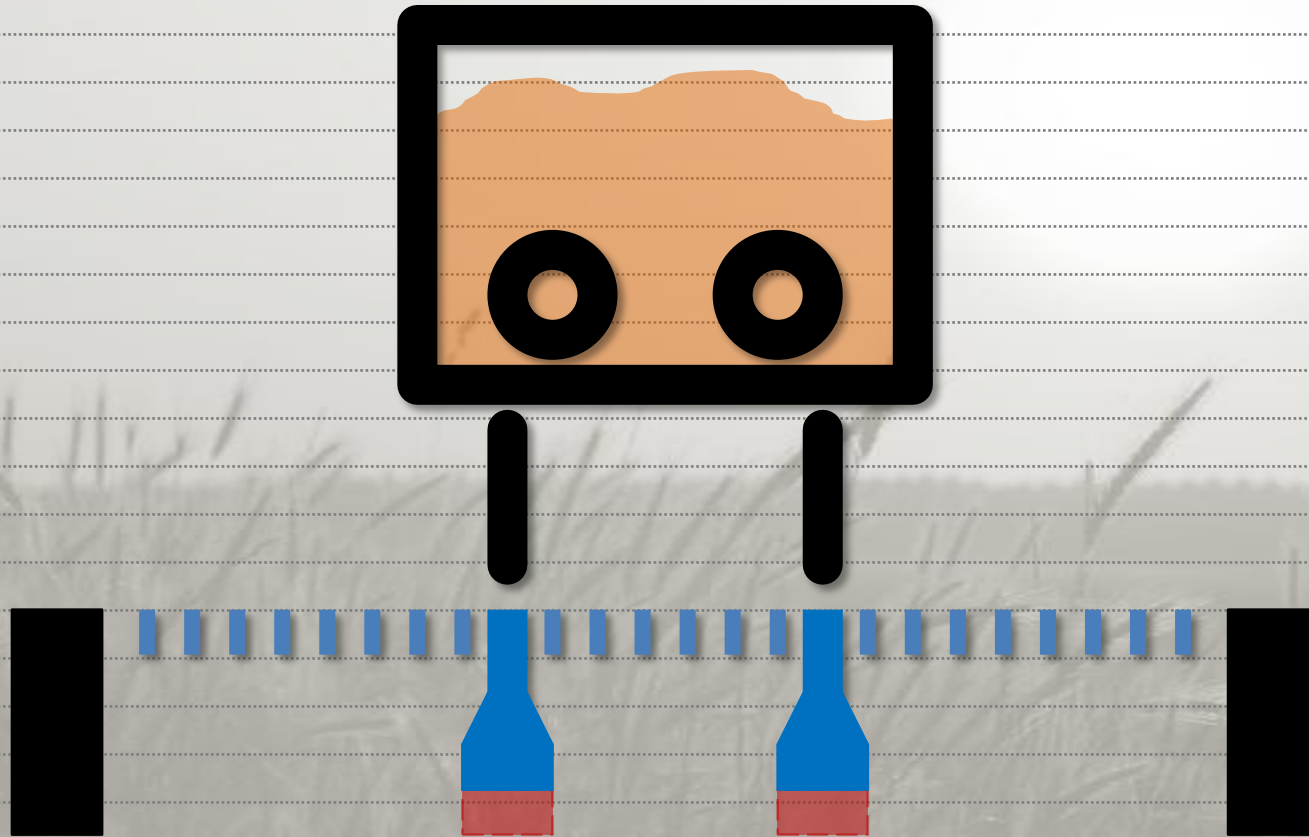
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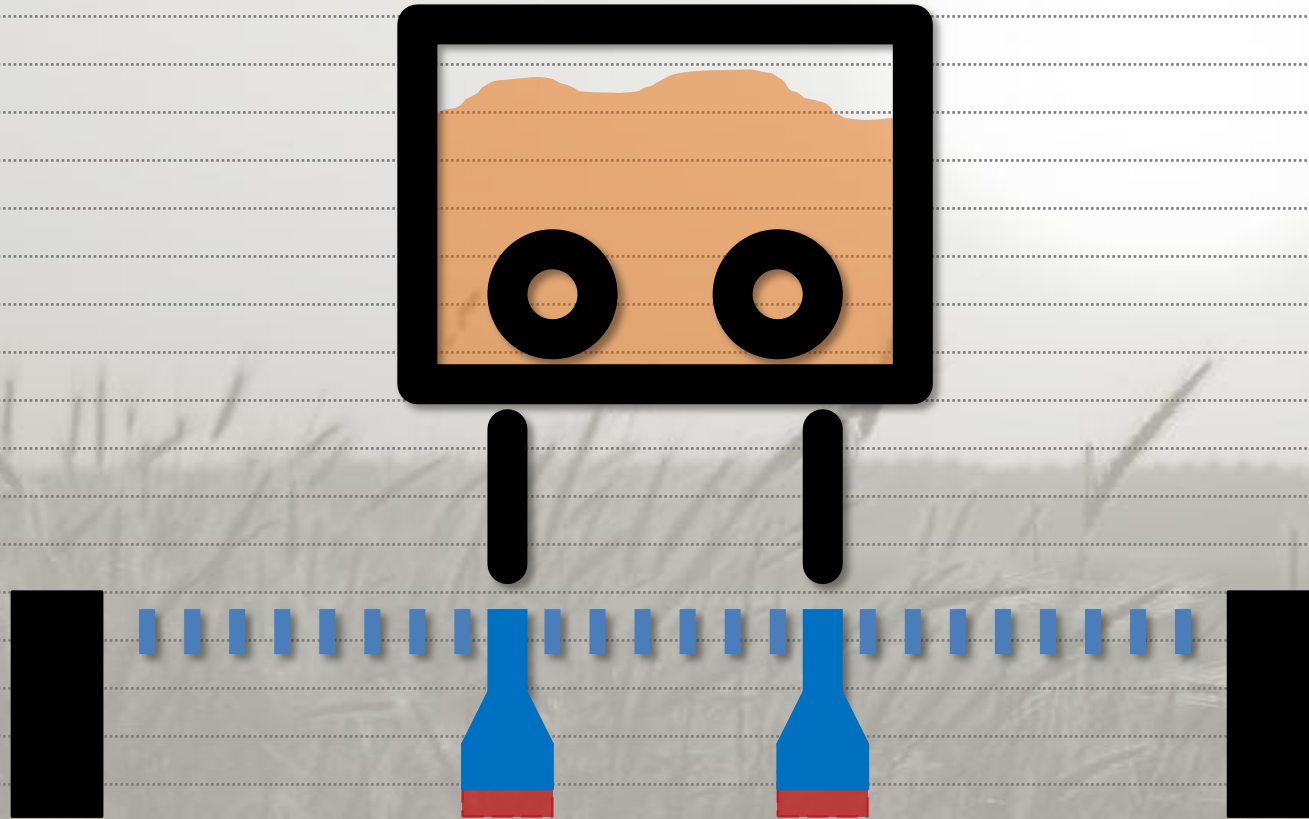
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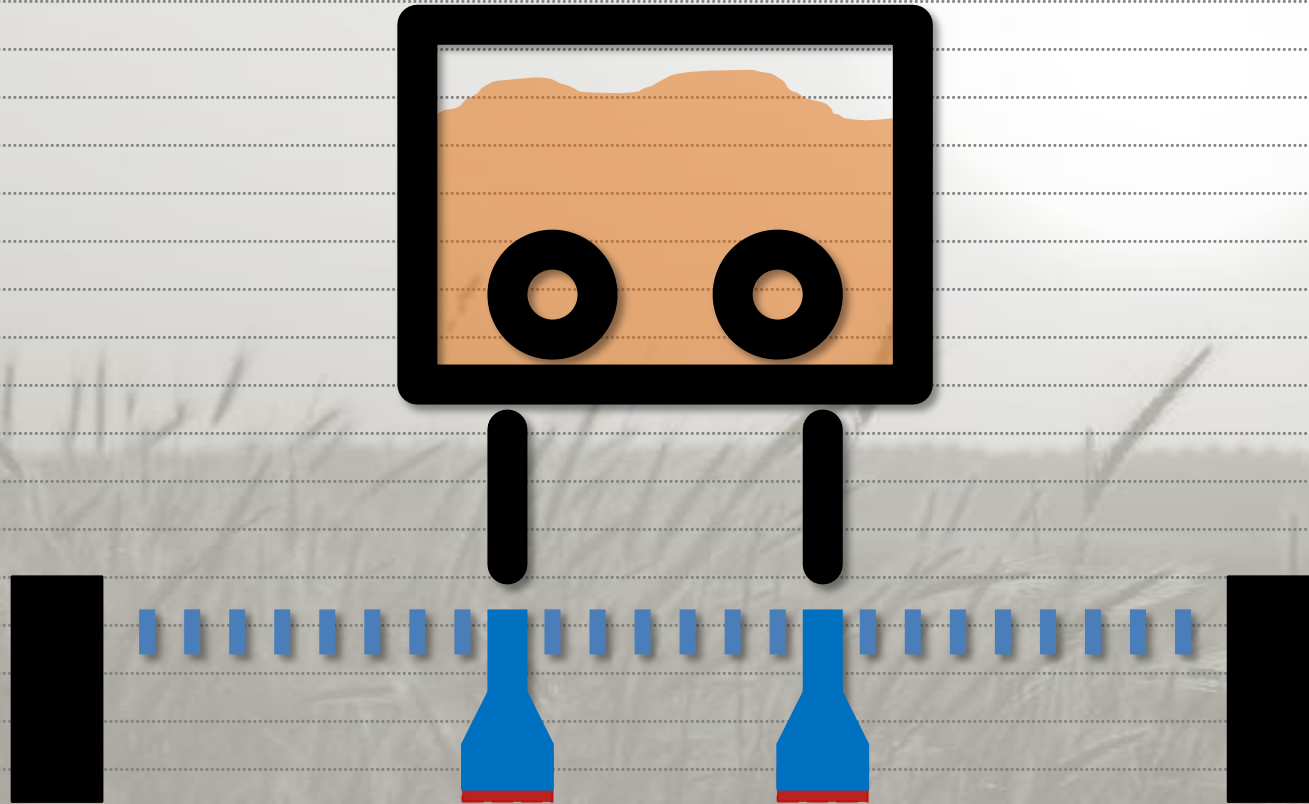
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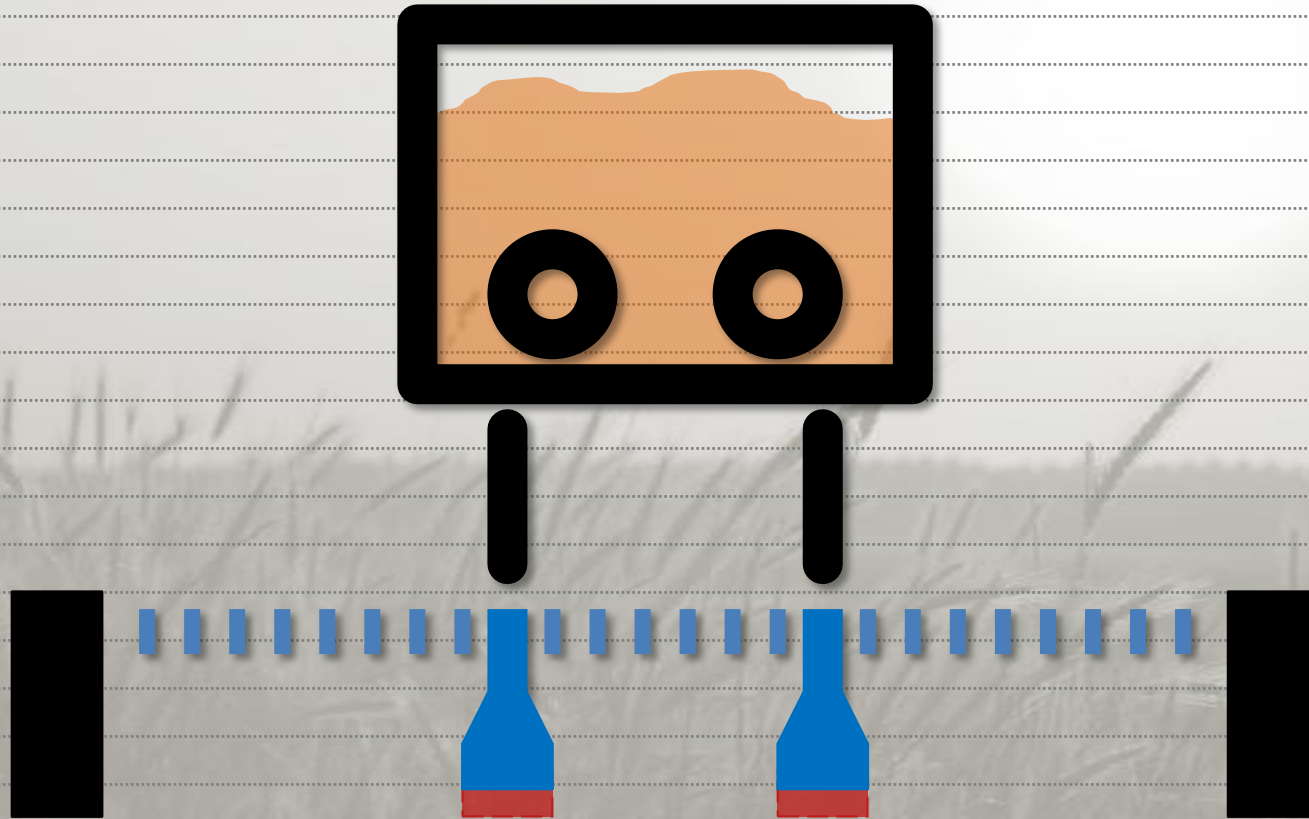
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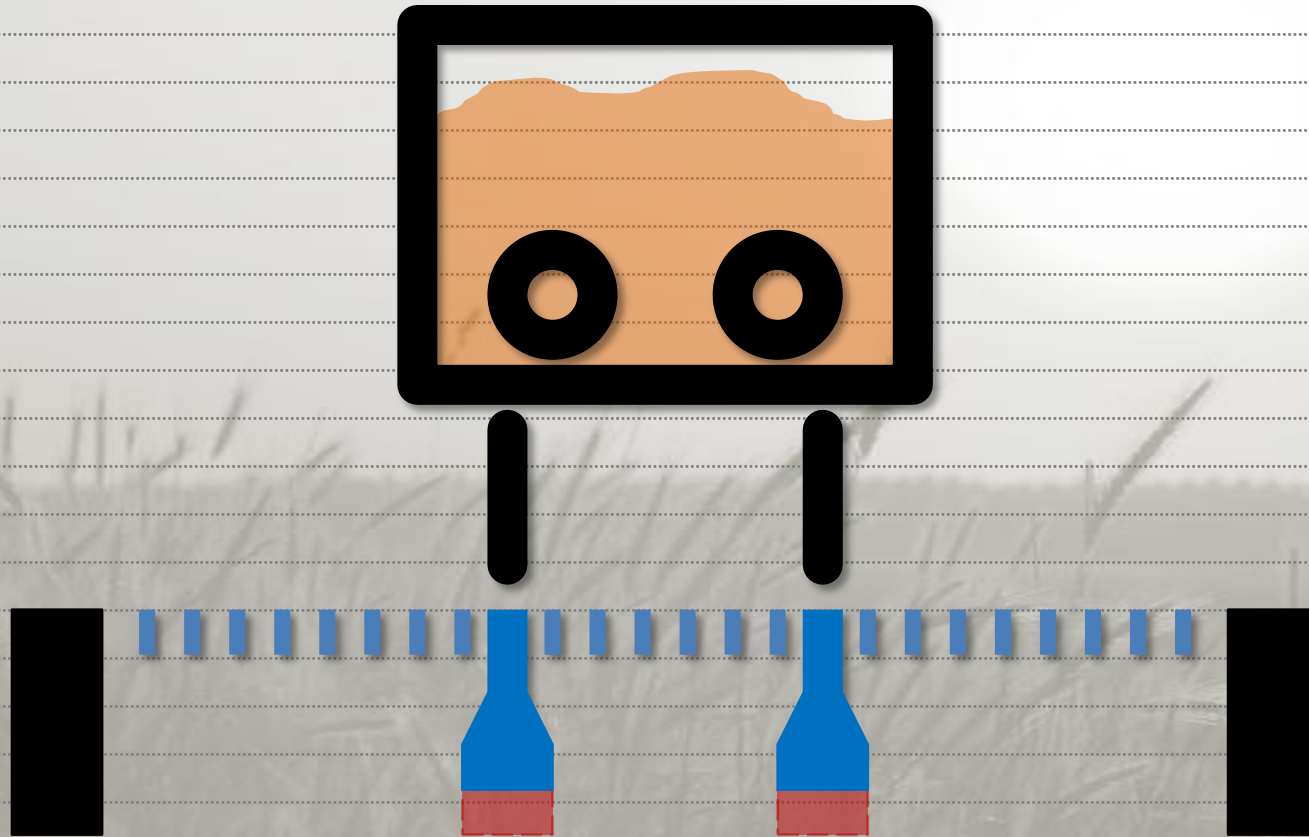
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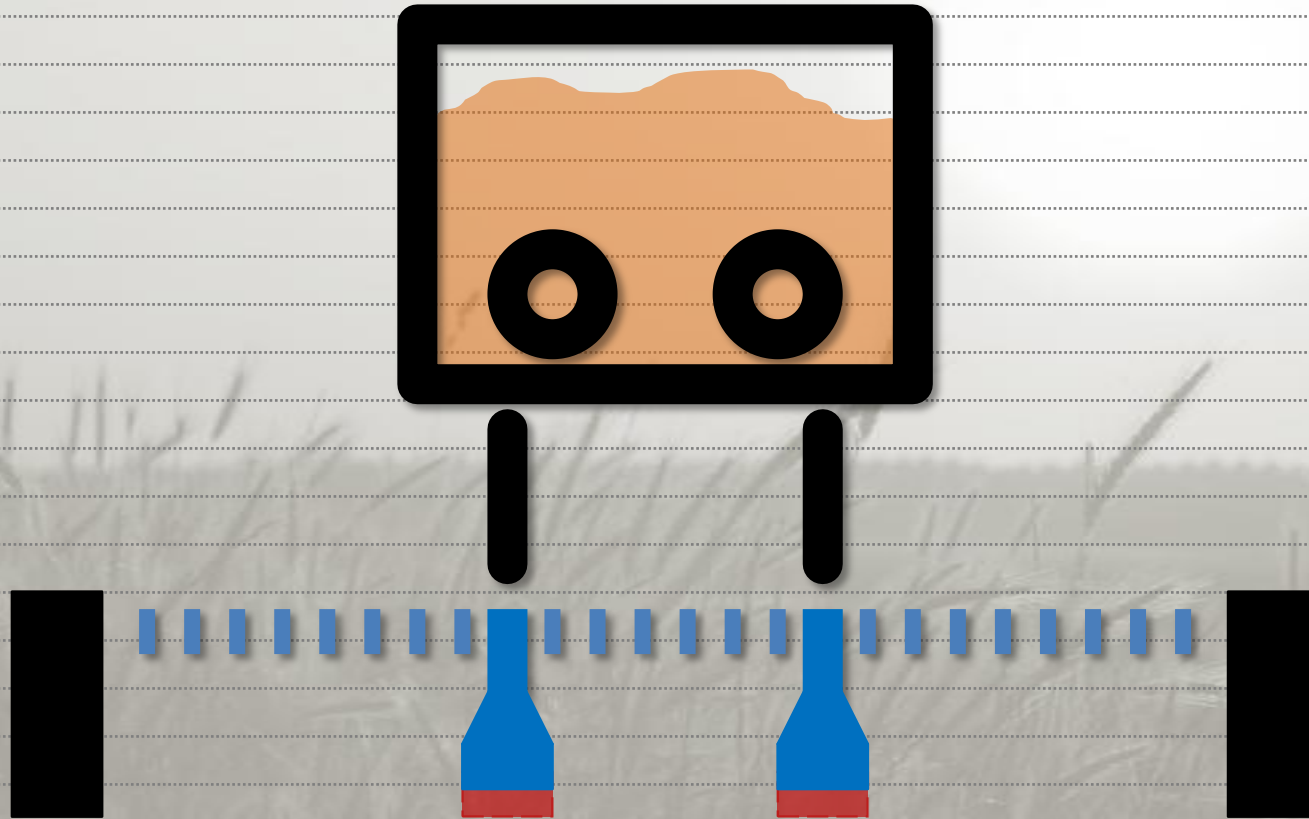
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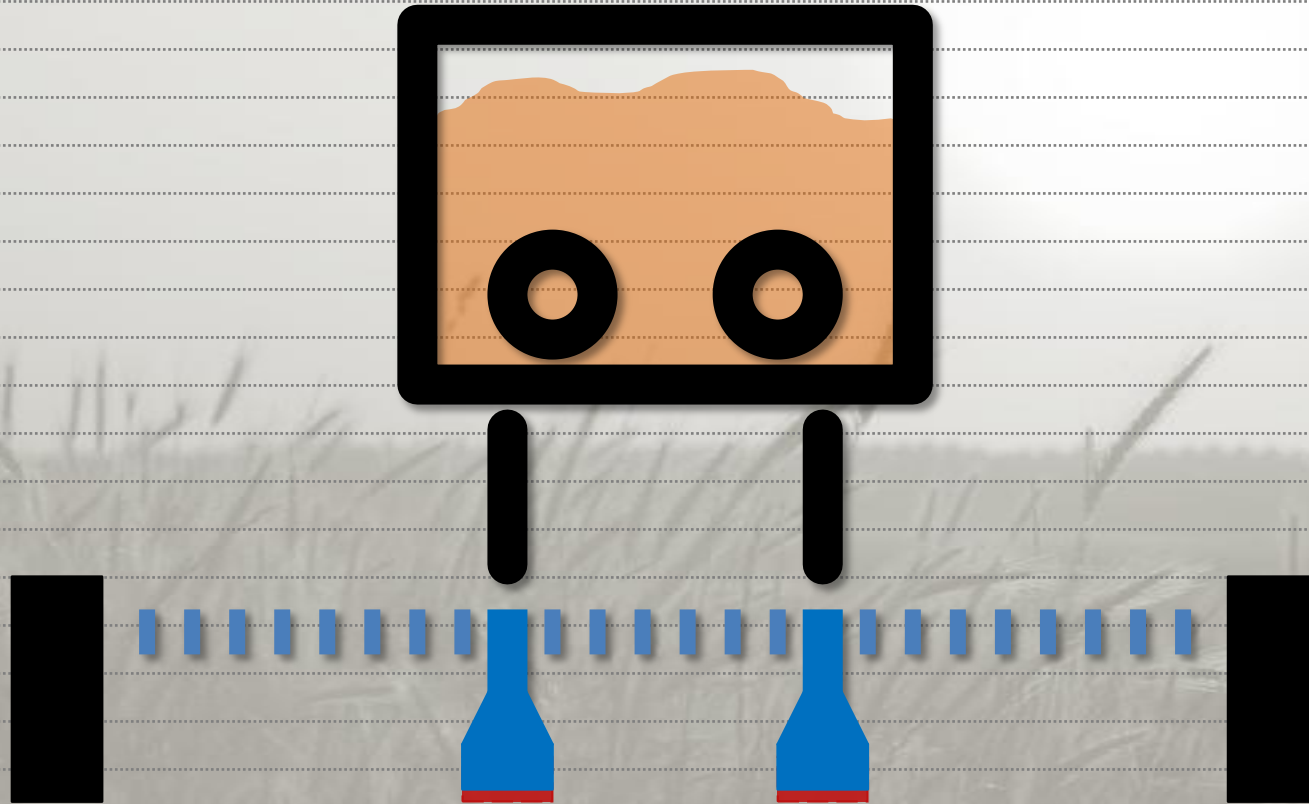
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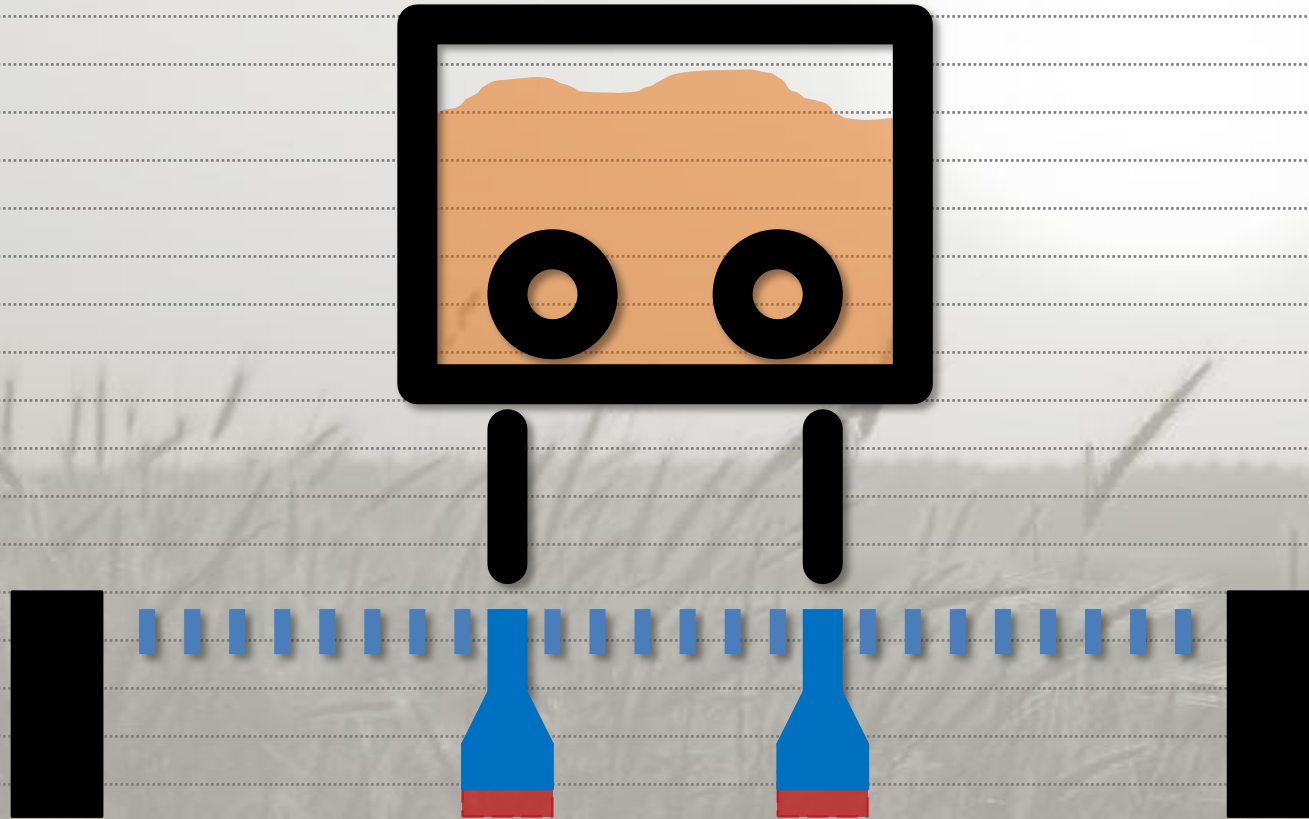
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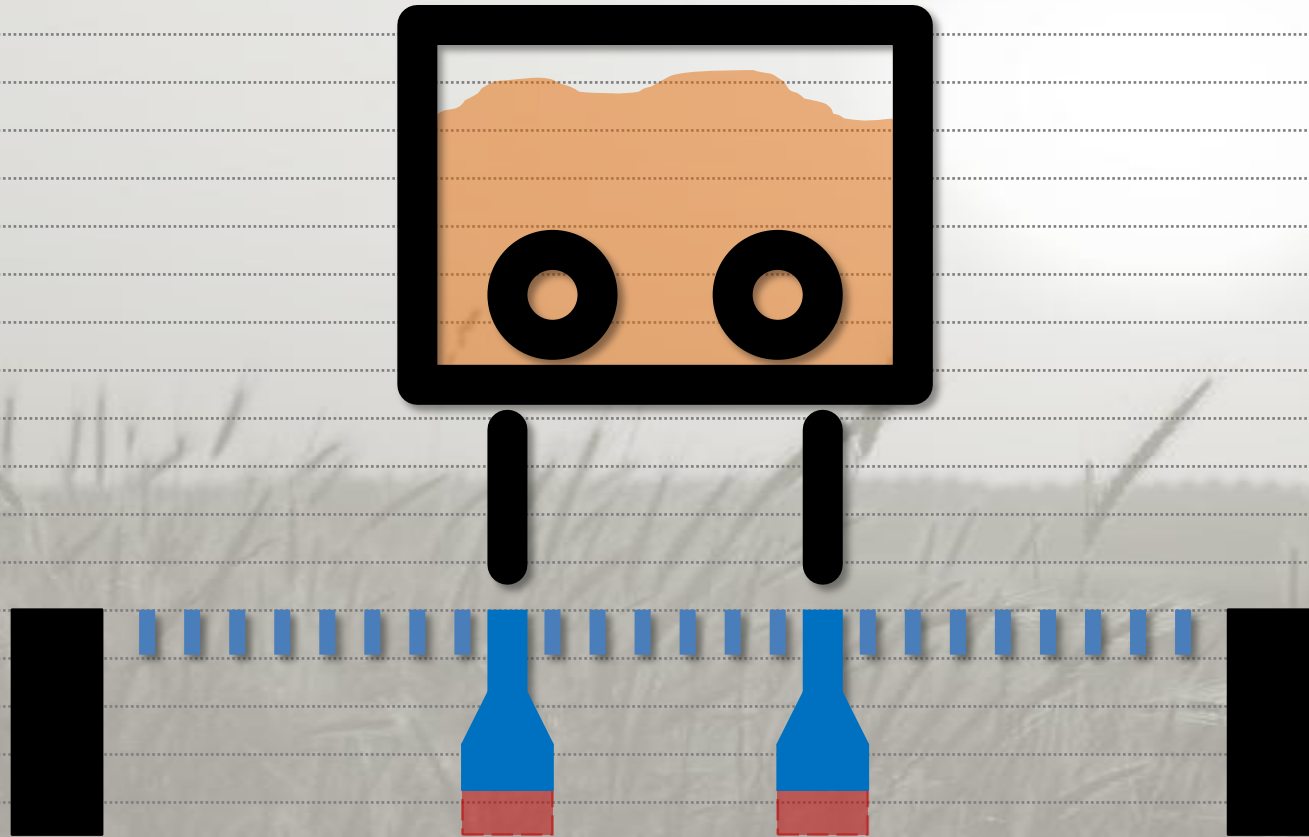
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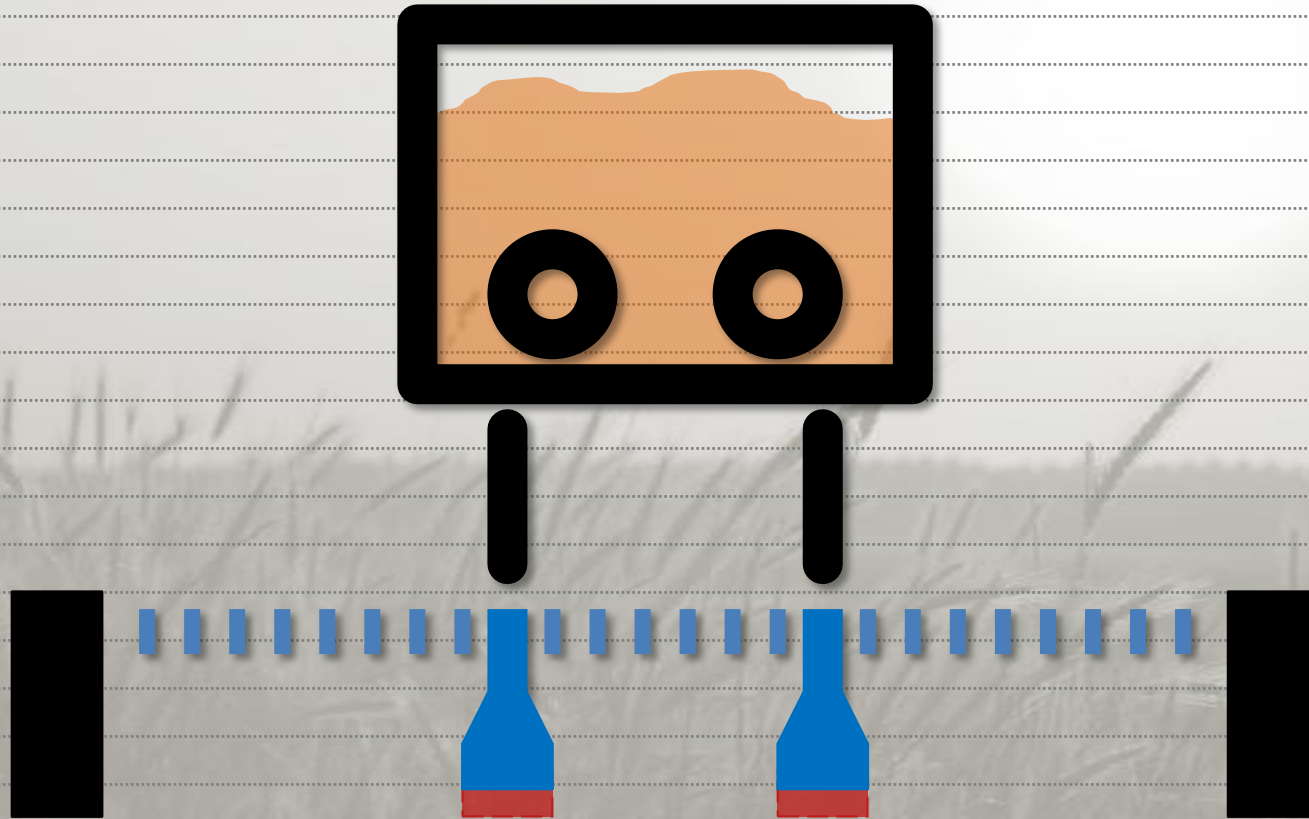
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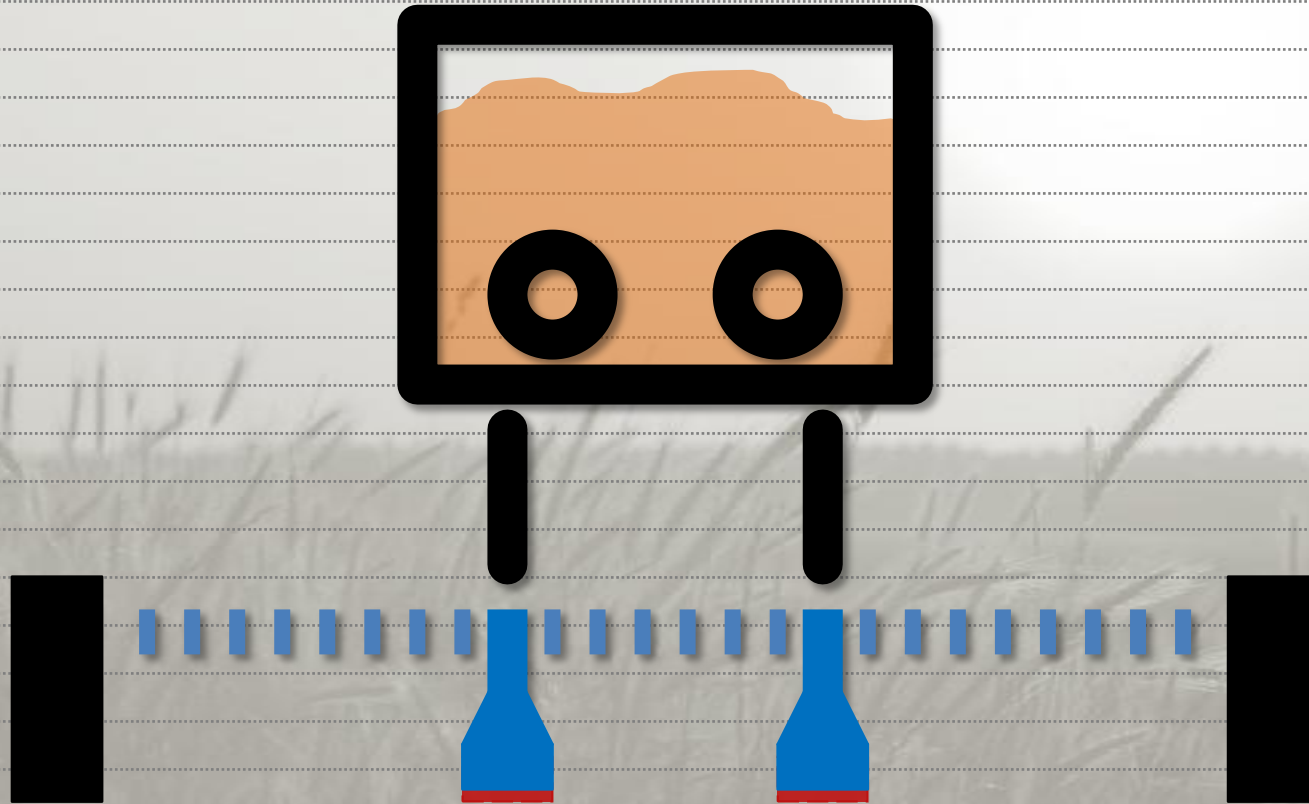
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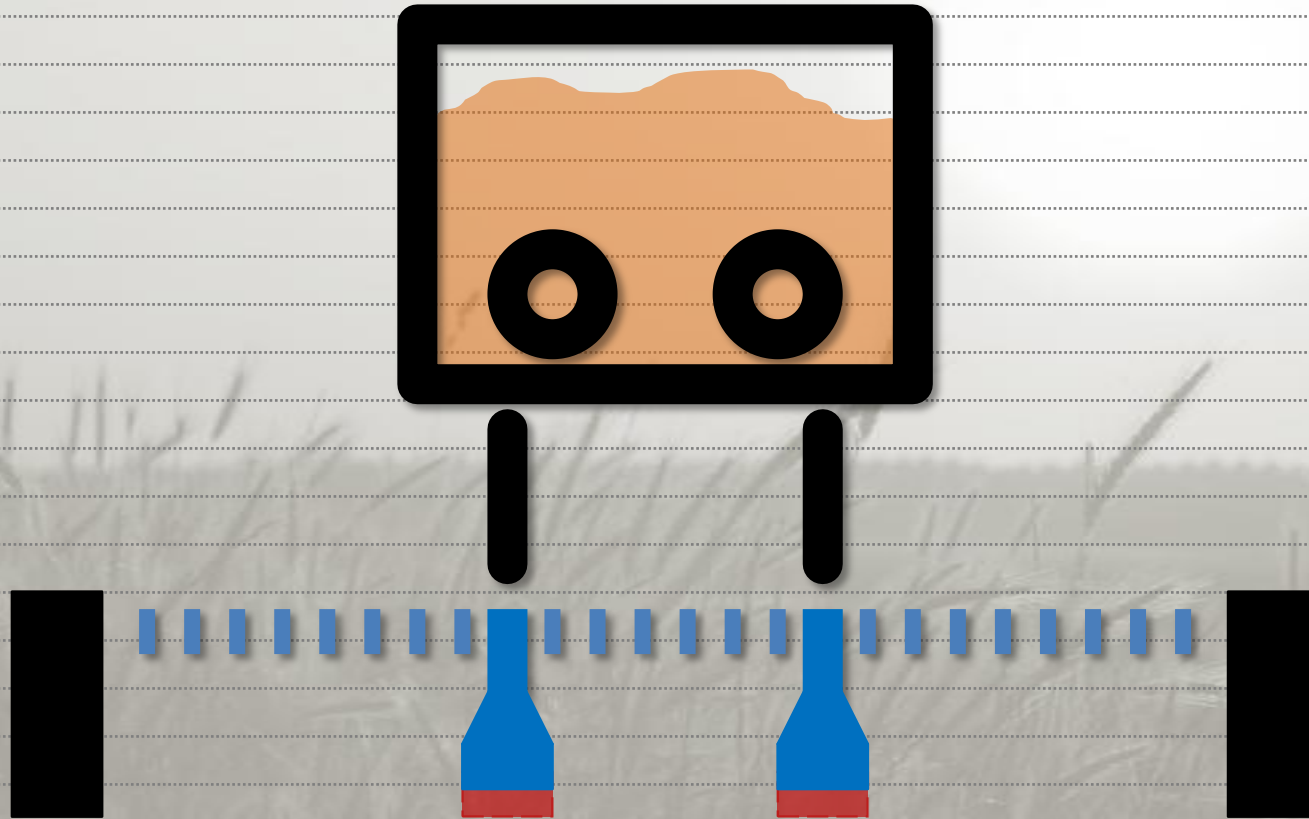
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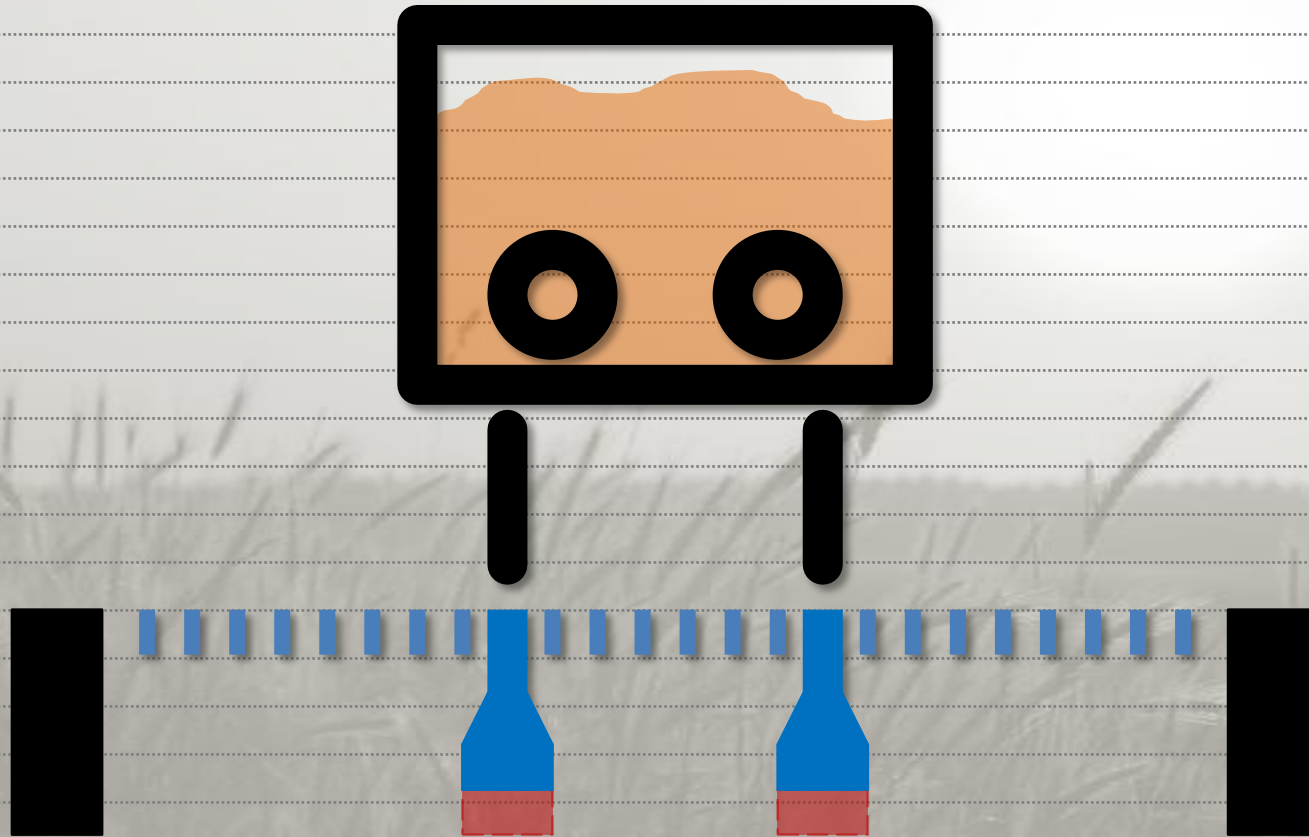
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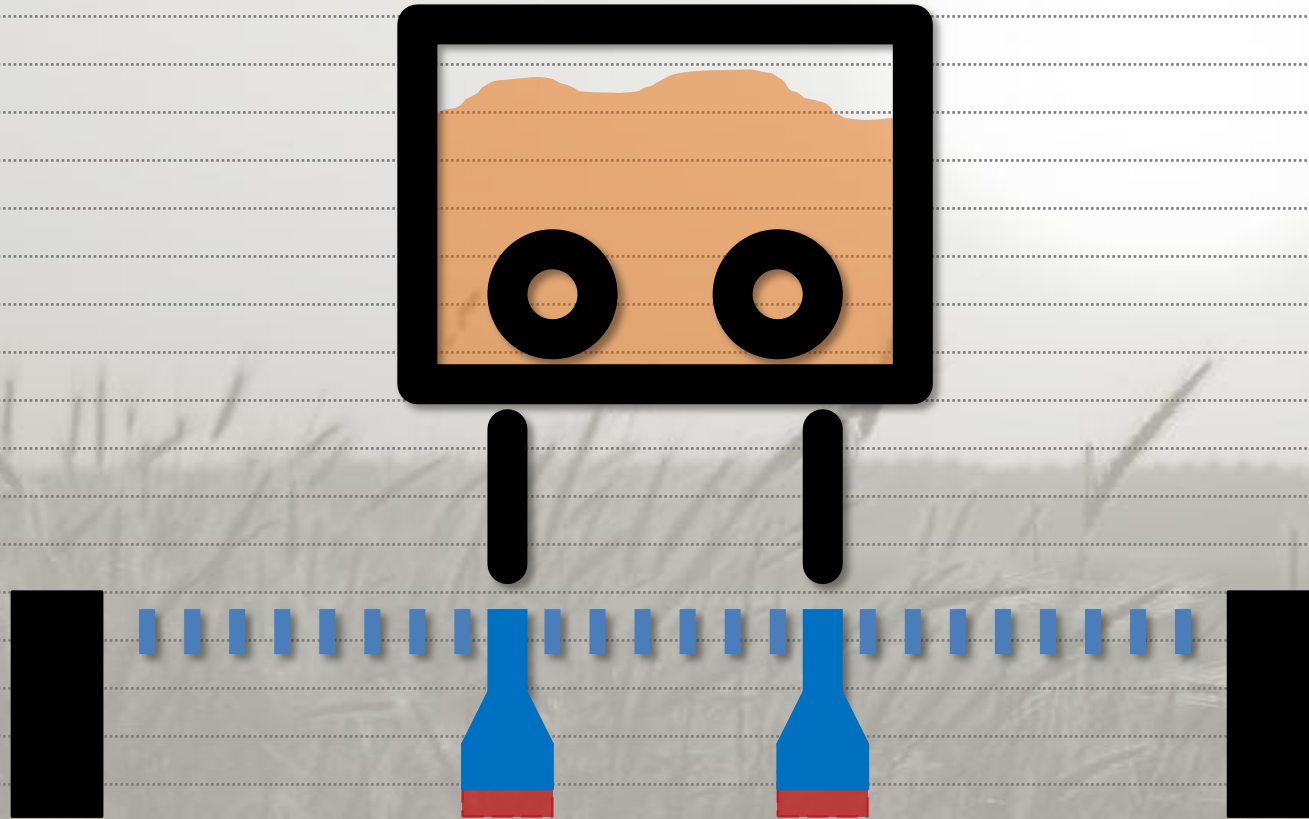
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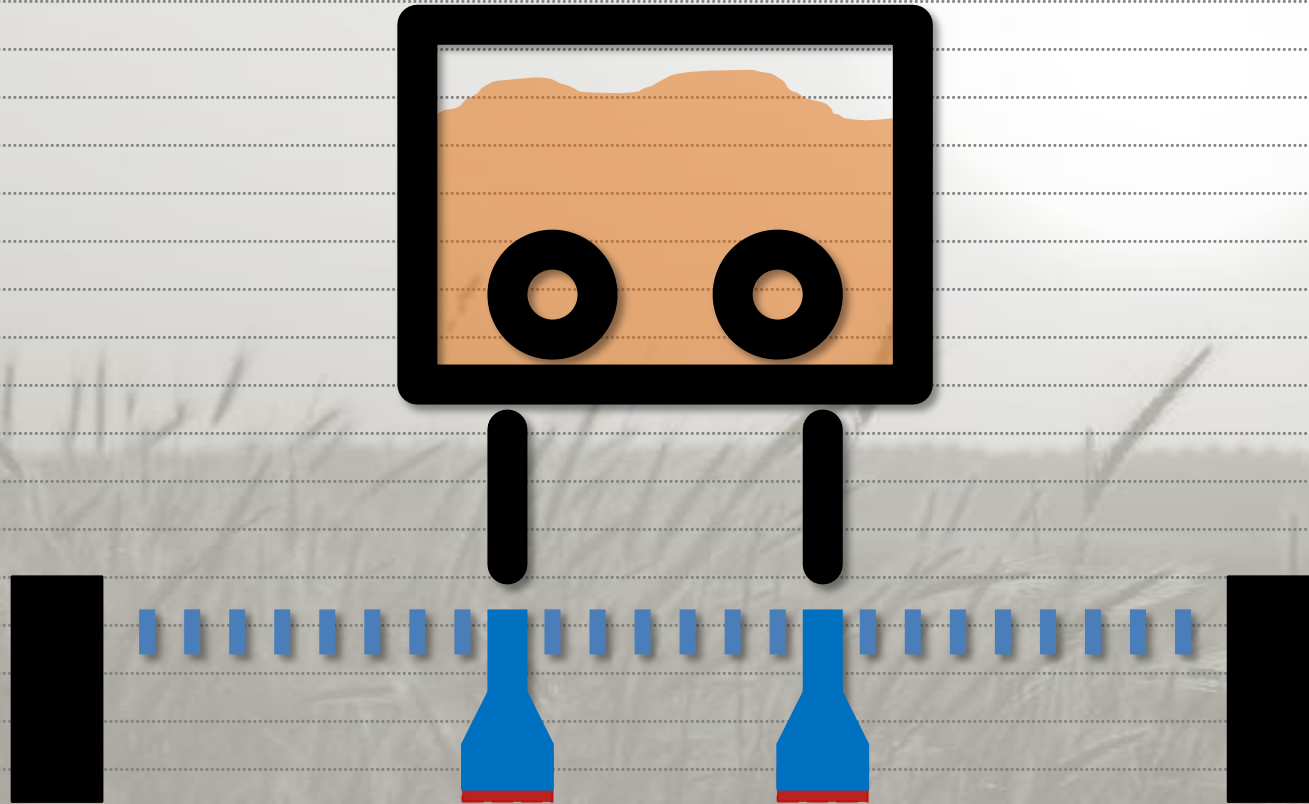
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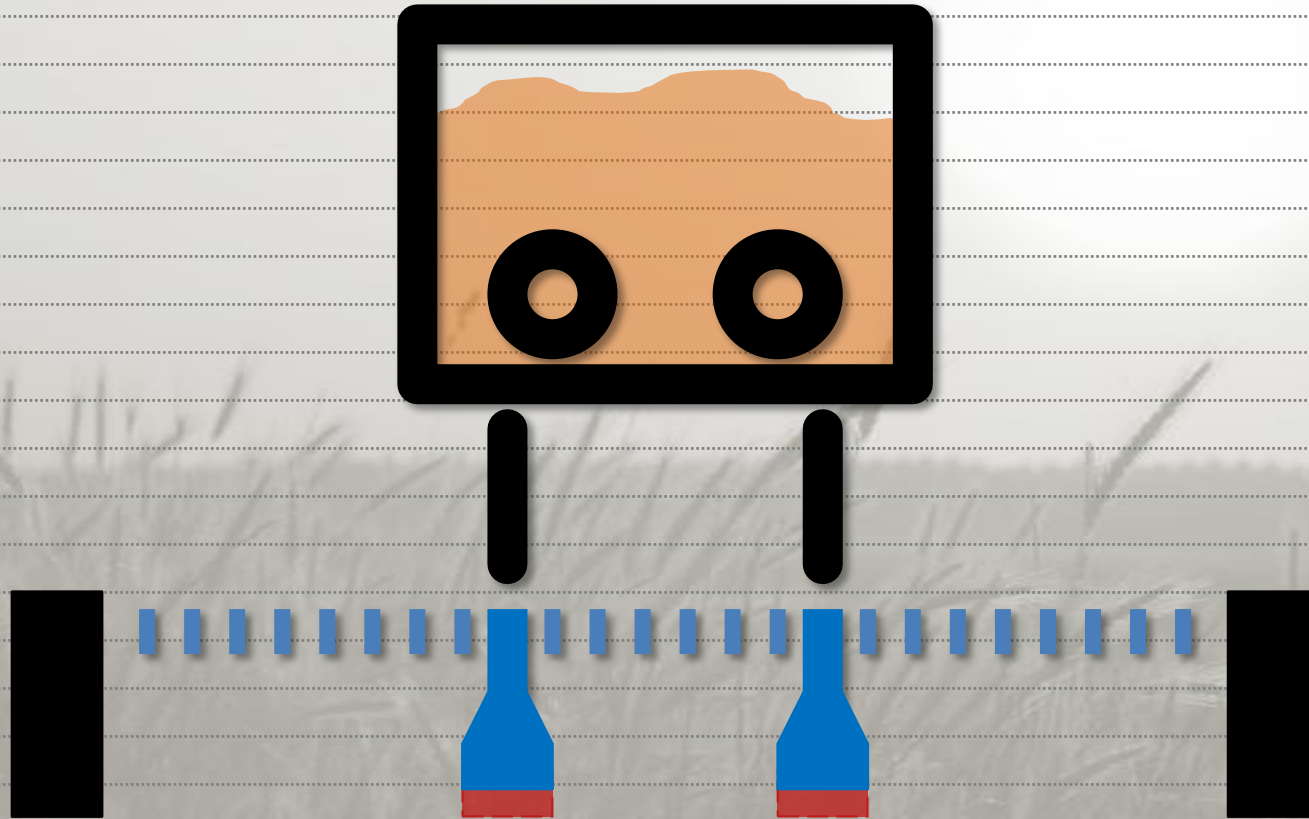
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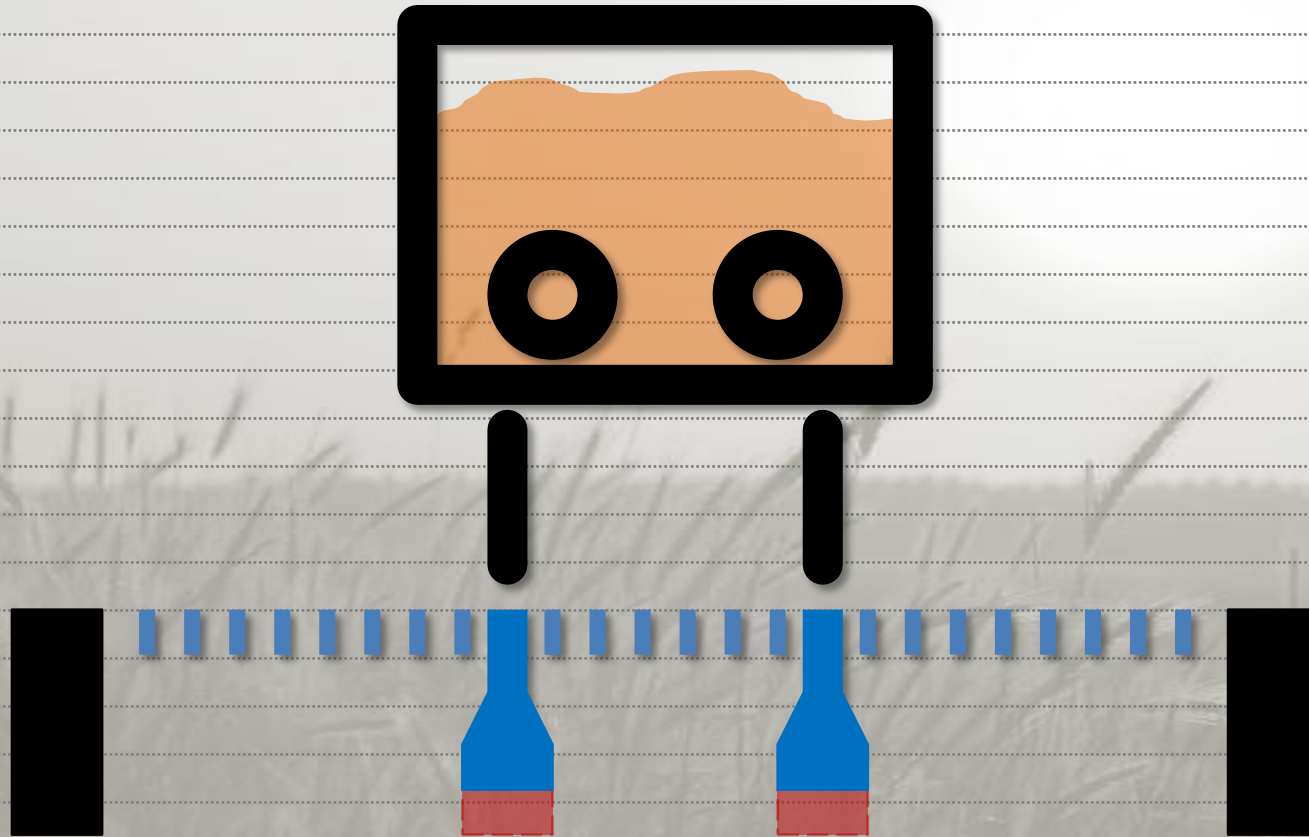
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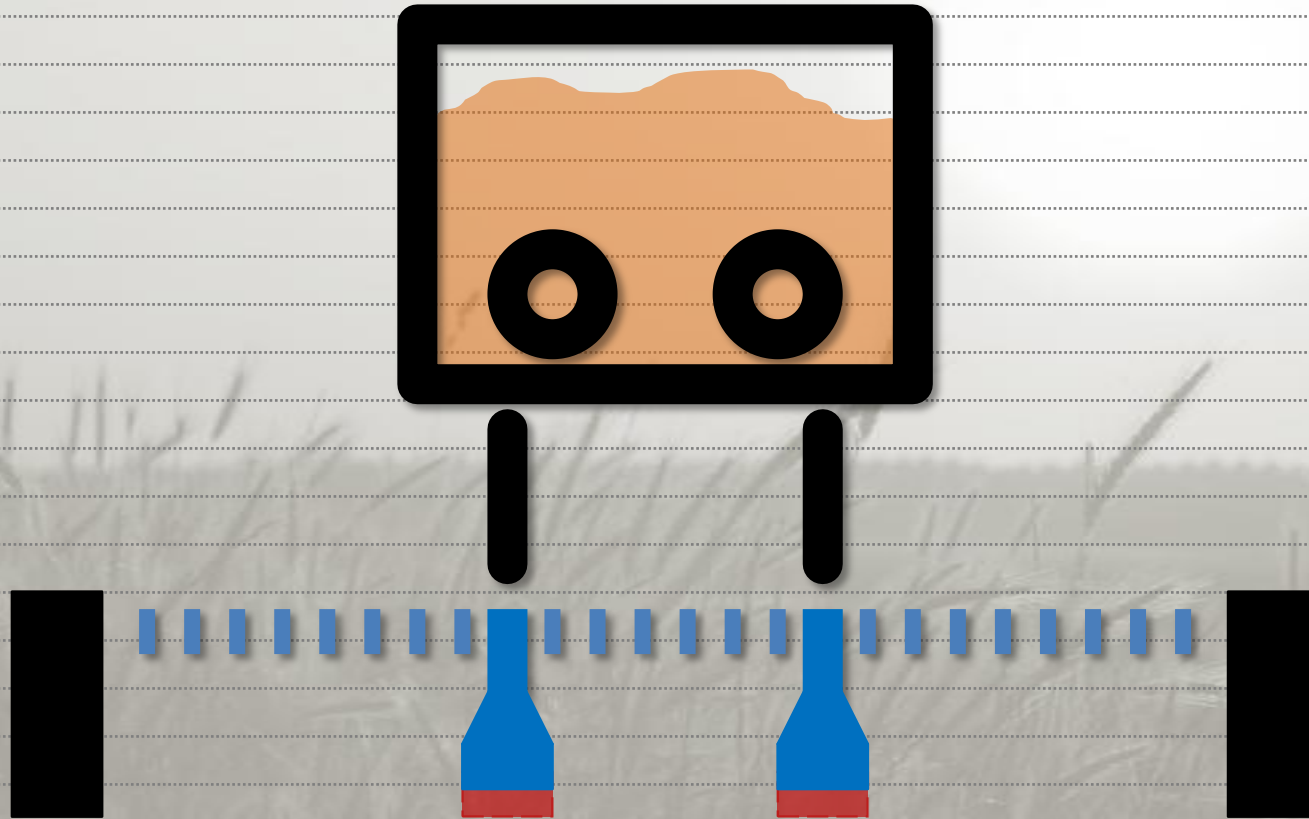
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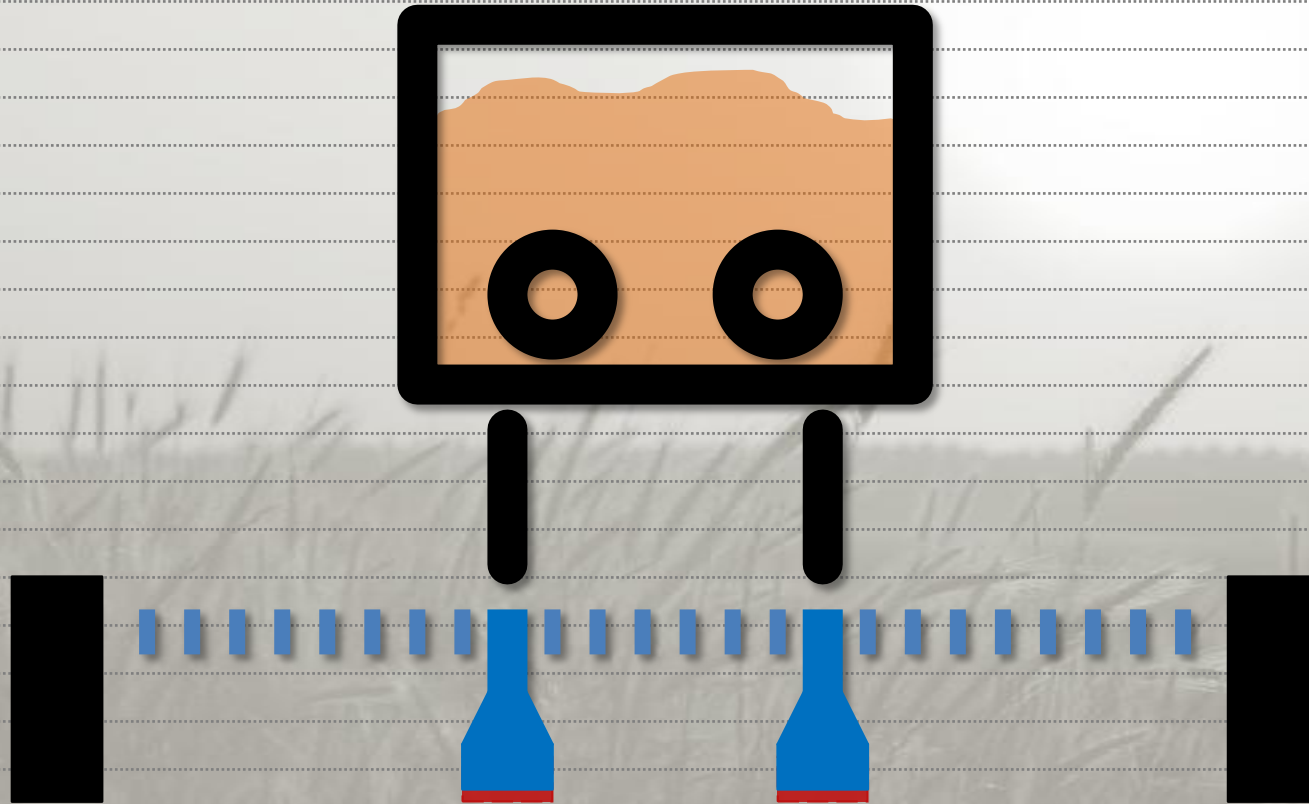
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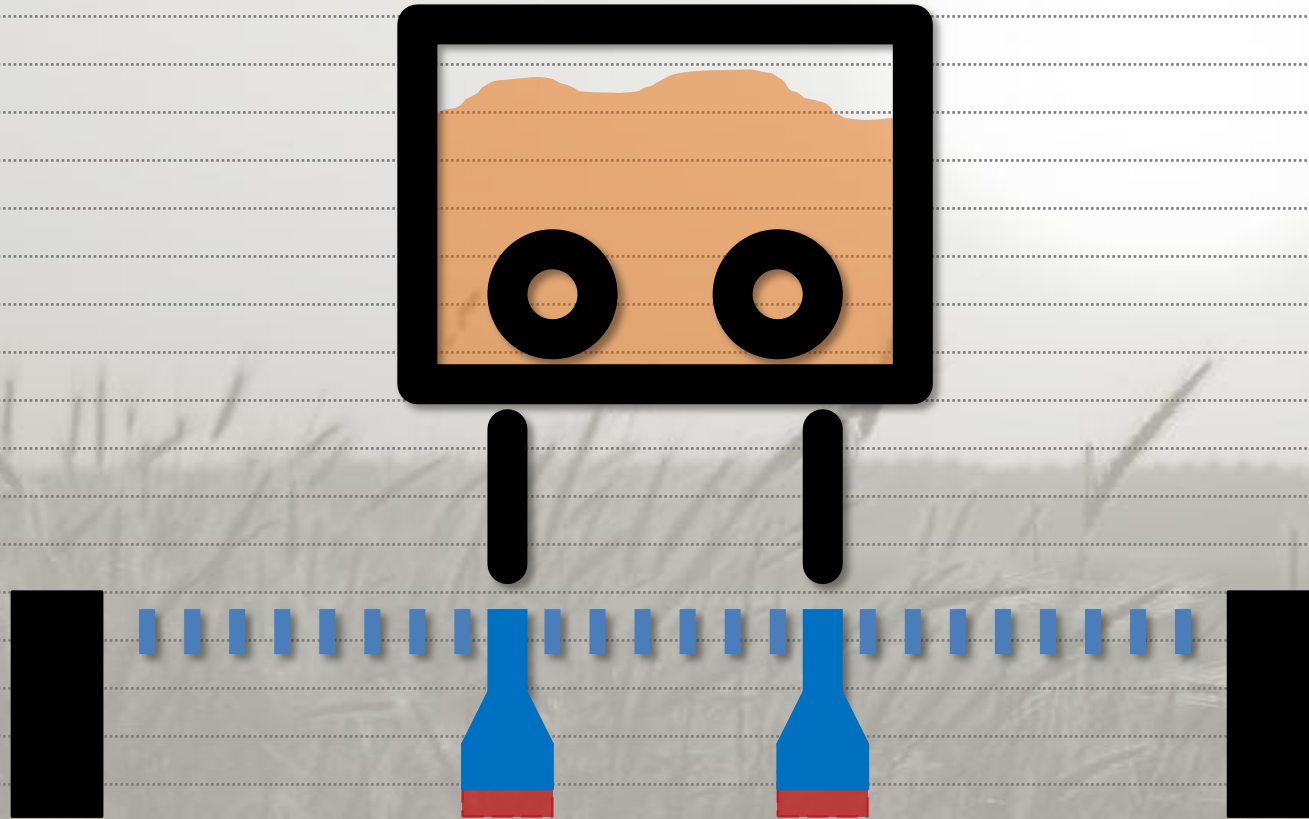
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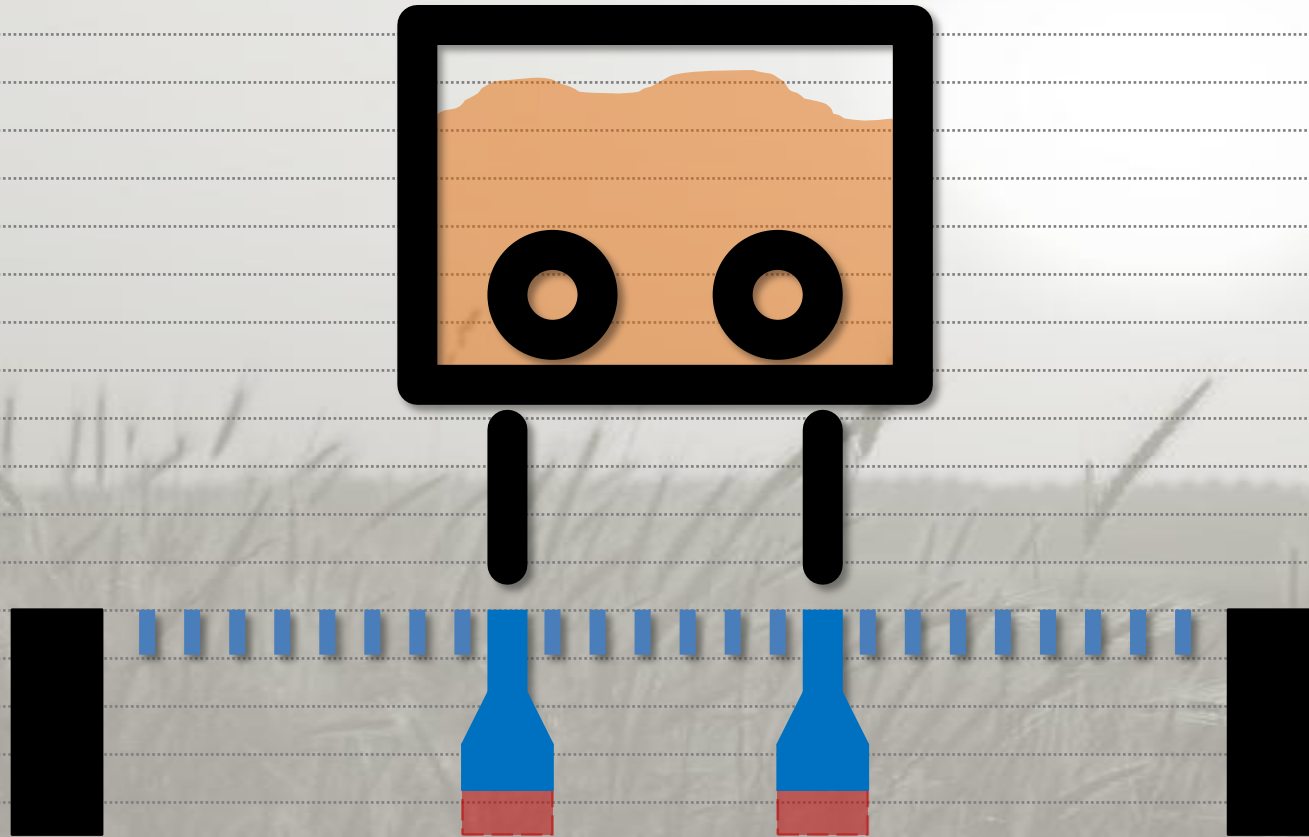
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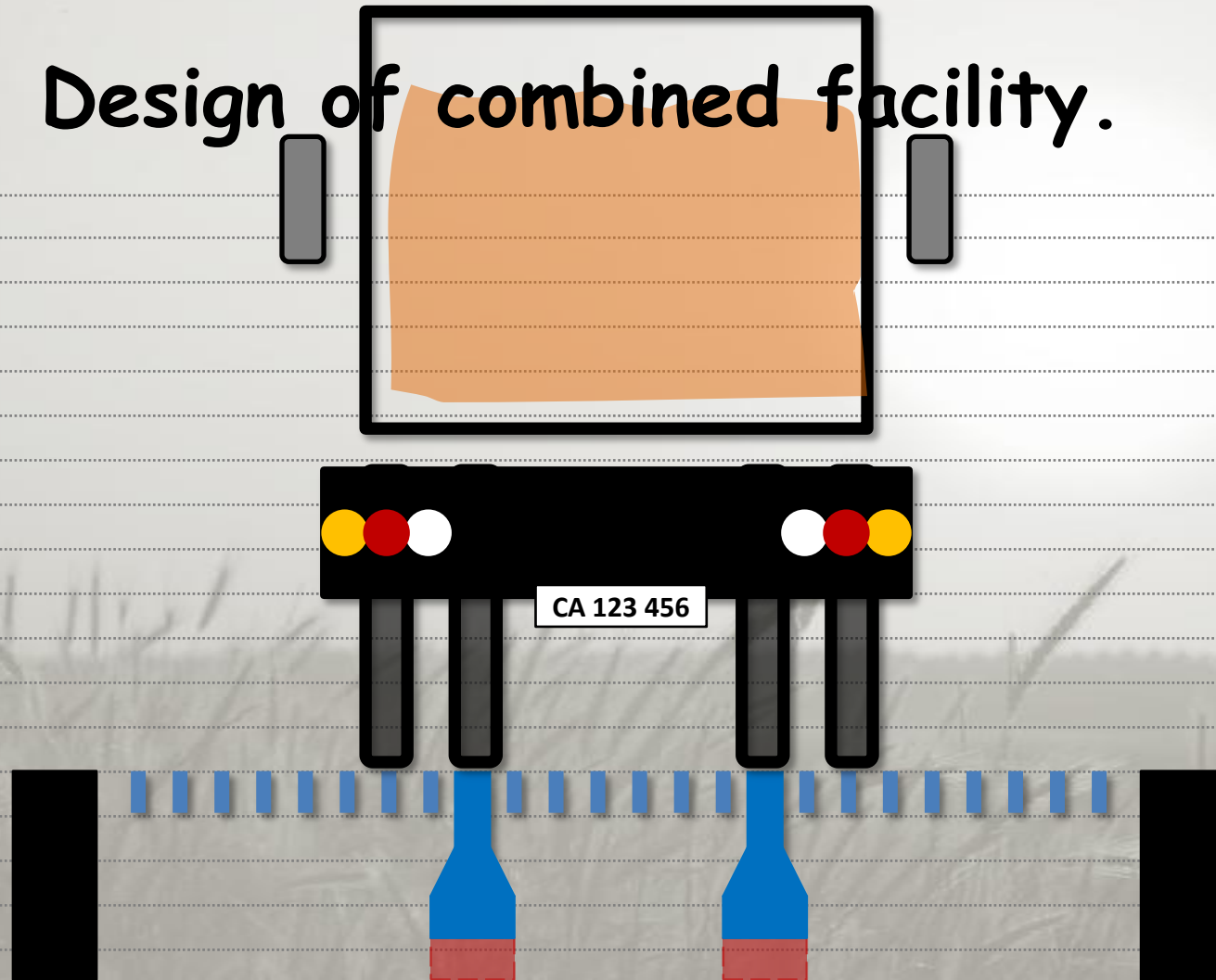
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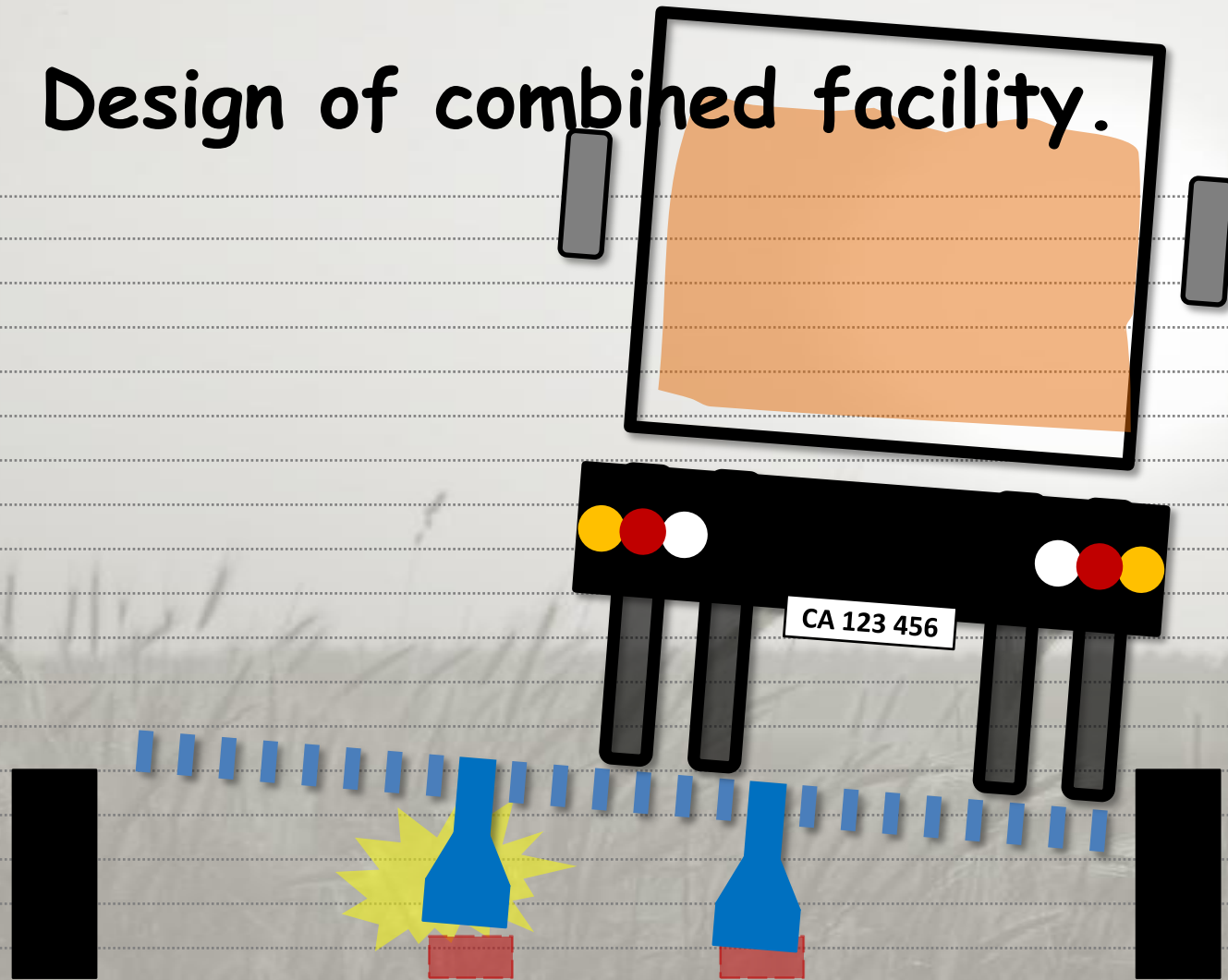
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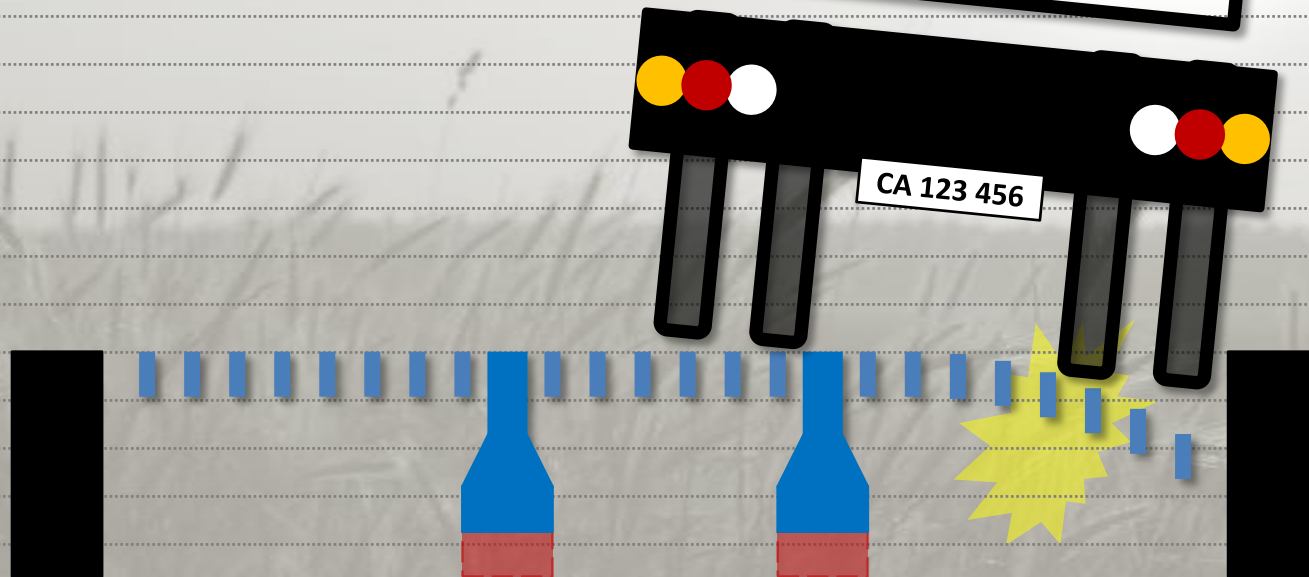
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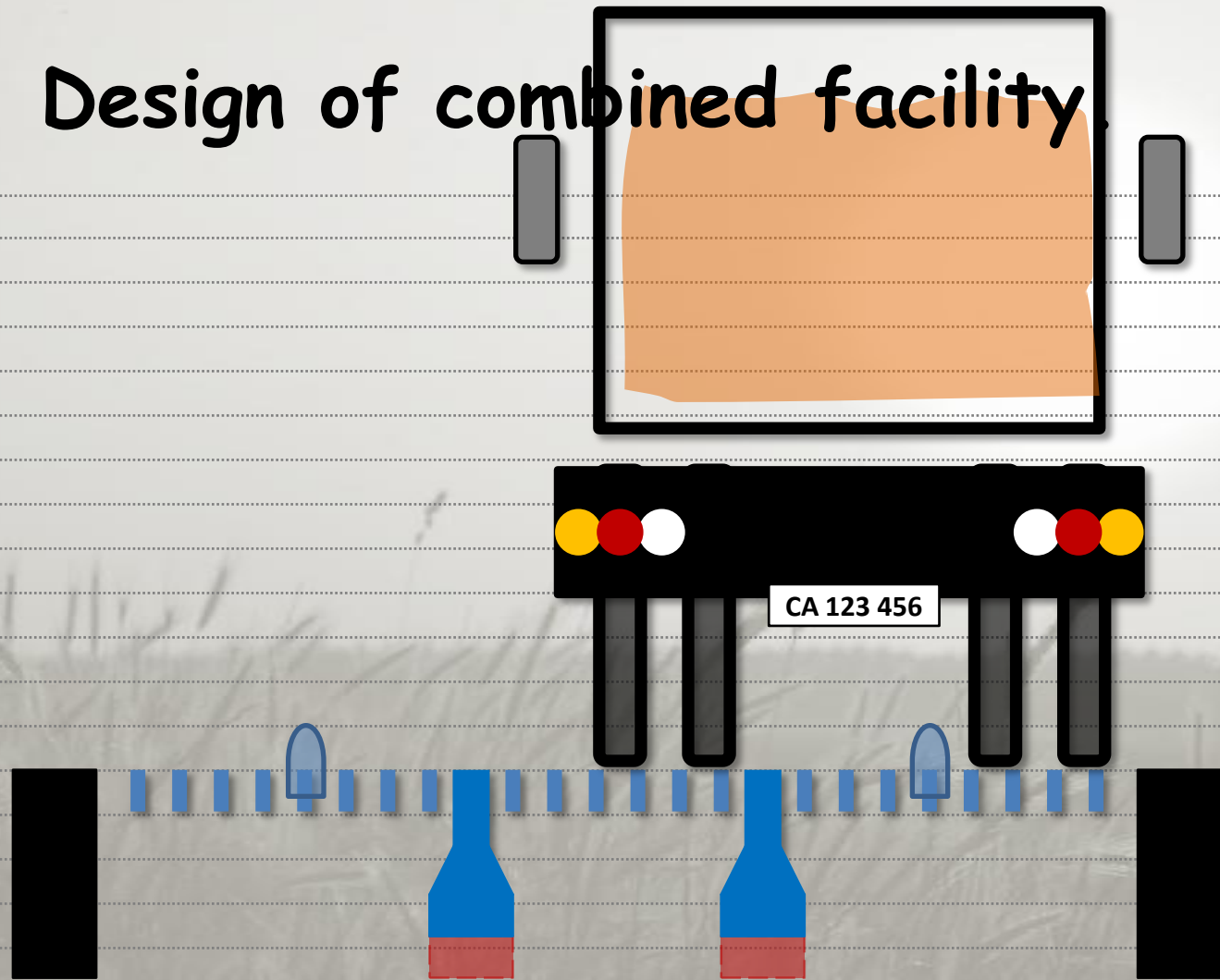
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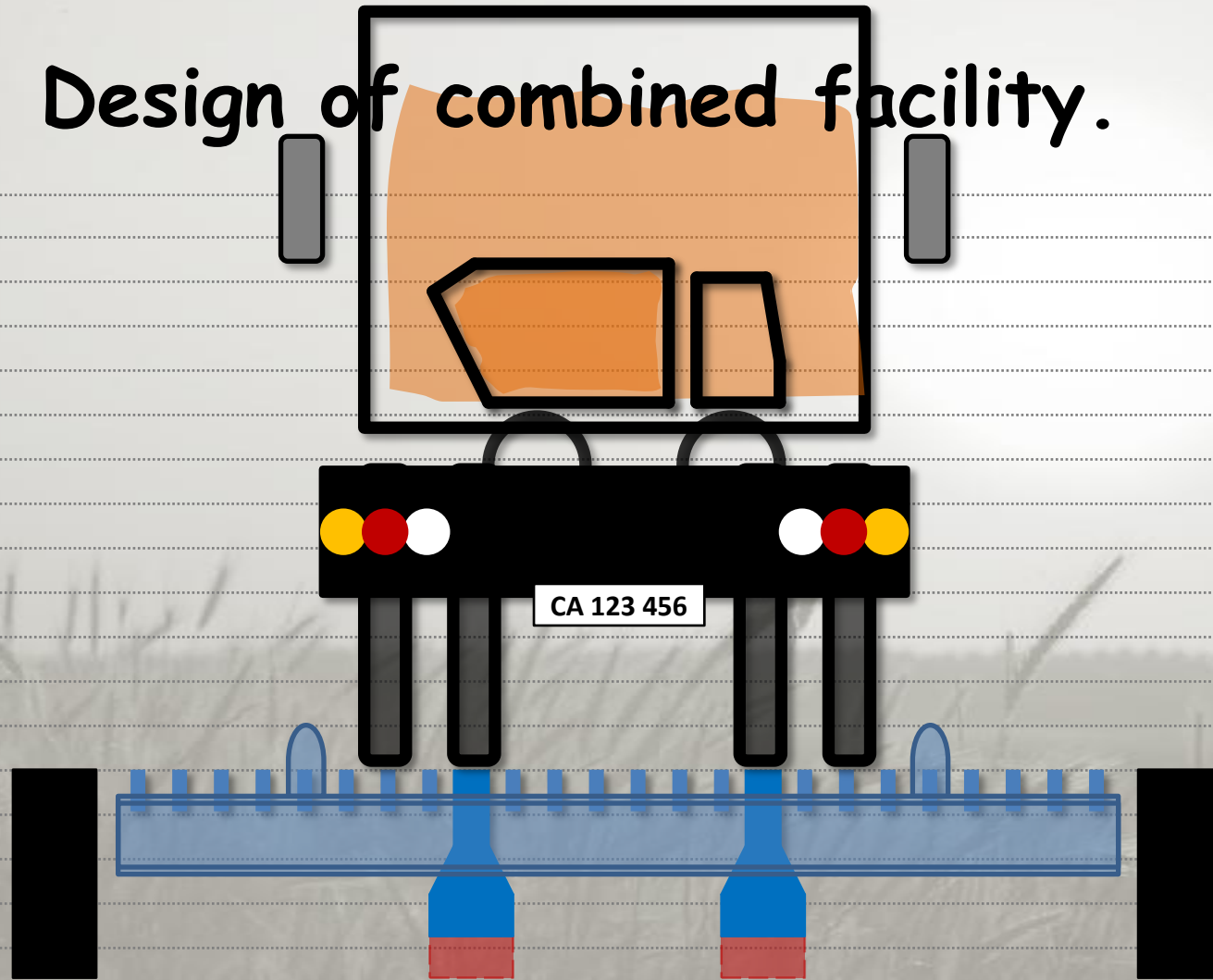
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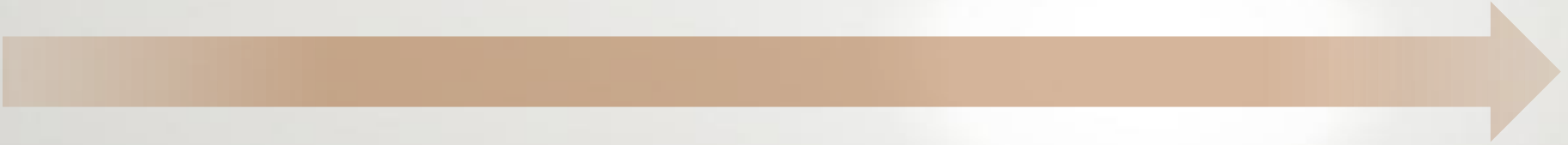
6. Design of combined facility.



7. Costs and savings.



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CONCEPT
DESIGN

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CONCEPT
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DETAIL
DESIGN

7. Costs and savings.

CONCEPT
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DETAIL
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FABRICATION
AND
CONSTRUCTION



7. Costs and savings.



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OPERATION AND MAINTENANCE
OVER THE LIFE OF THE STRUCTURE

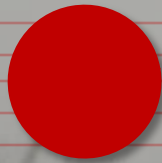
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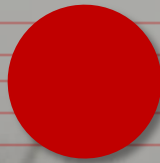
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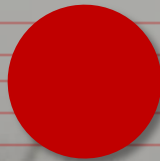
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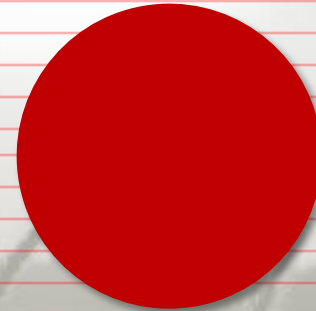
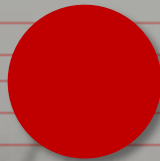
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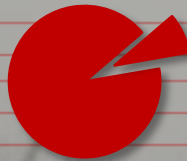
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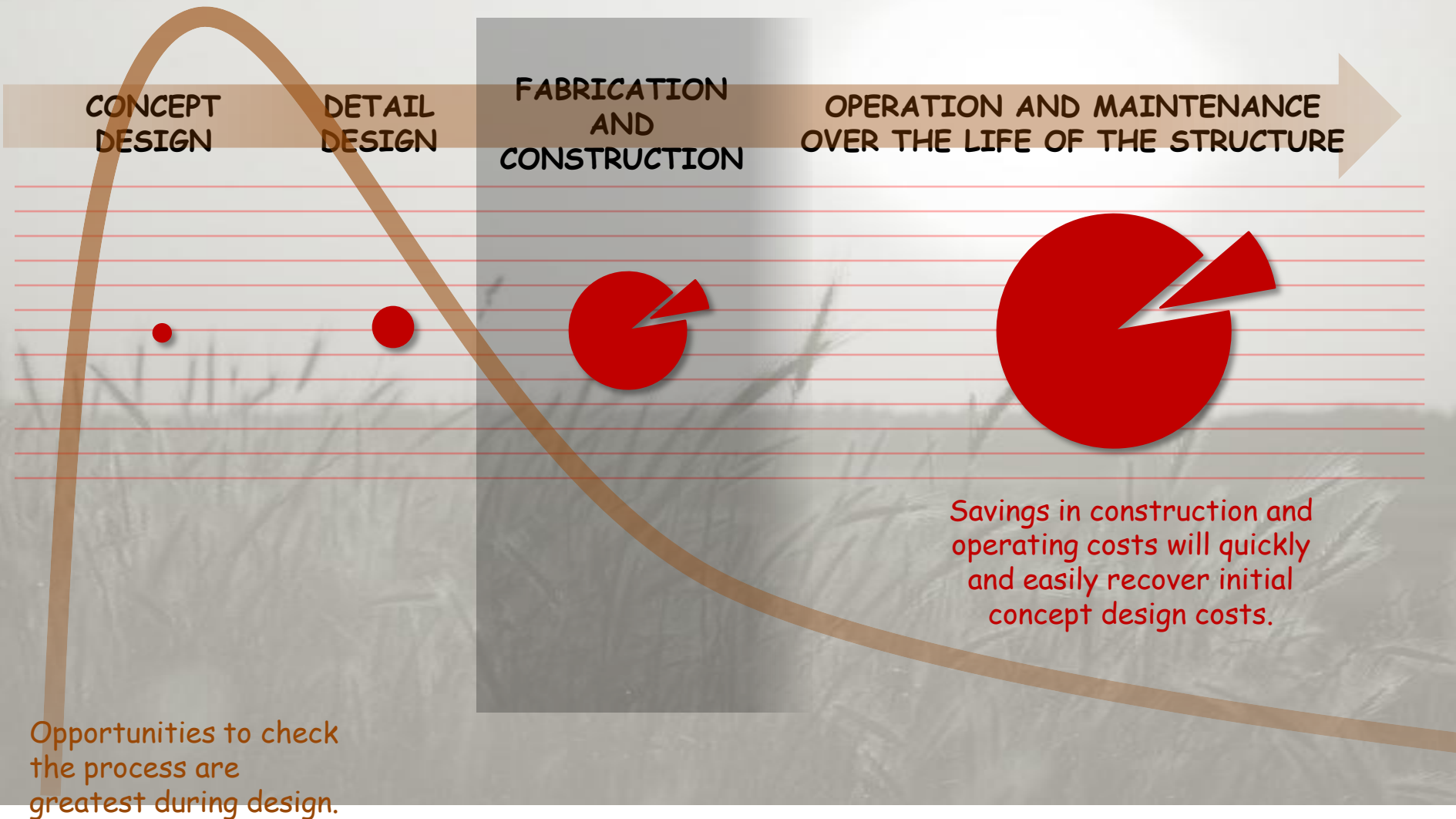
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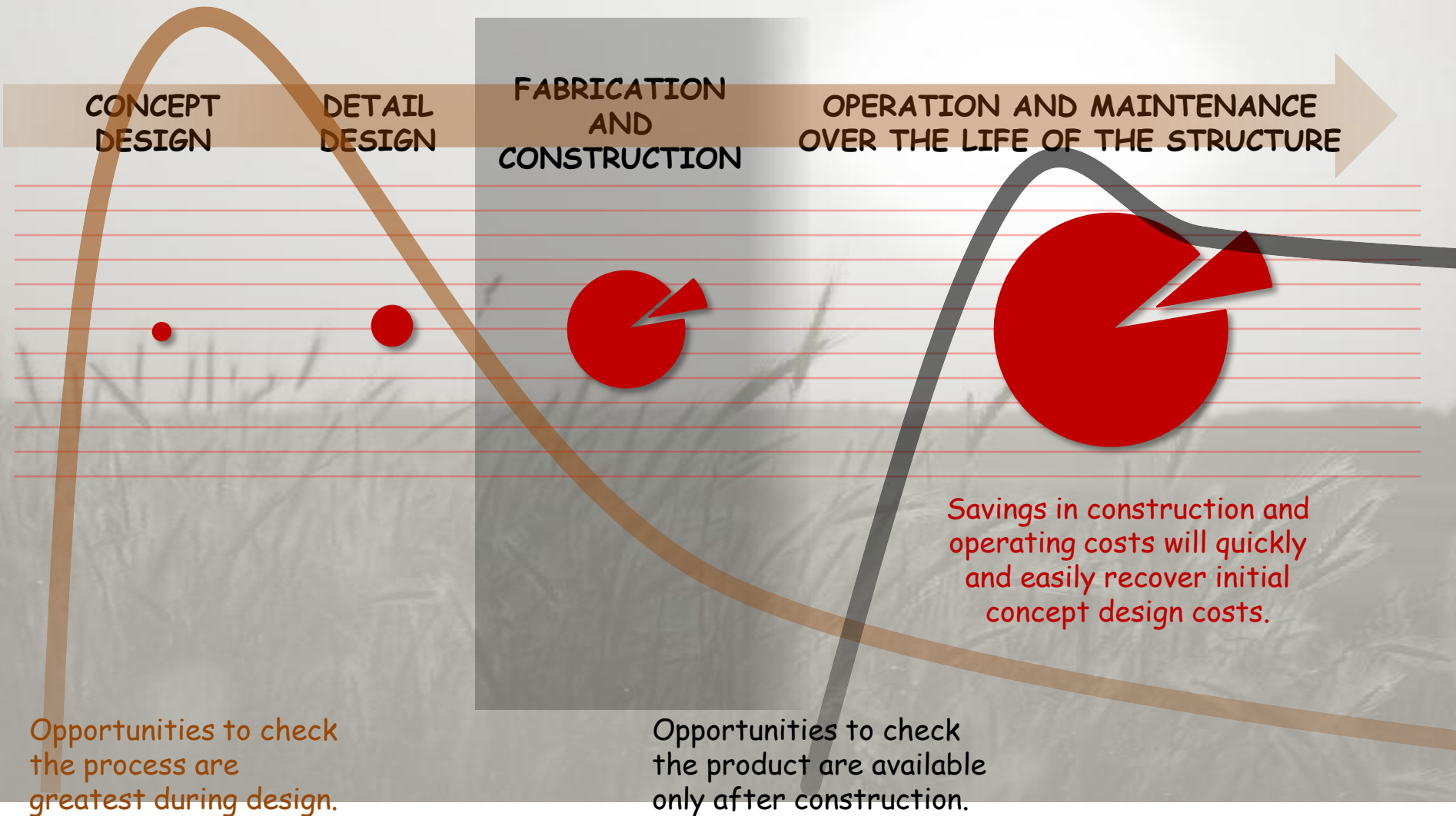


Savings in construction and operating costs will quickly and easily recover initial concept design costs.

7. Costs and savings.



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7. Costs and savings.



Engineering success

Successful projects don't happen by chance - they're the result of experience, good communication, good design that understands the whole process, and a passion for excellence.



Dermot F. M. Knight *PrEng CEng BSc(Eng) FICE FZwIE MIEZ MSAICE*

Dermot Knight has 40 years experience in planning and managing grain handling and milling projects in Southern Africa.

Dermot is skilled in strategic and logistic planning of grain facilities. He is experienced in the management of industrial and commercial projects in the grain storage, processing and handling industry.

He has been chairman and director of engineering companies Scott Wilson and Ascon and is well respected in the field of design engineering.

Dermot has worked with the major suppliers of milling equipment and grain handling equipment in over 250 projects in Southern Africa – all of these projects delivered on time and budget. The number increases to 500 when all food handling projects are considered.

Dermot has also been appointed Consultant to the IFC as part of the Botswana Government transaction advisory team. He is also mentor and turnaround agent for ABSA Incubator Fund.



Allan G. Benn *PrEng CEng BSc(Eng)civil G.D.E. MSAICE MStructE*

Allan Benn is a civil and structural engineer with over 20 years experience in designing structures in Southern Africa and Europe.

Allan's specialities are structural scheme designs in reinforced concrete, steelwork and masonry.

He is experienced in adapting designs to accommodate site and delivery constraints and in creative thinking to find cost effective solutions within time and budget constraints.

Allan has worked on large structural schemes in the grain and water industries and has run his own engineering consultancy service specializing in alterations to existing structures. Much of this work has been built on the ability to analyse and successfully communicate structural engineering issues in projects.



