



Nyamihanga Bridge

Belgian development agency

enabel.be



Nyamihanga Bridge





Geographical Location





EXISTING CROSSING



SAFETY



CONFORTABILITY



ACCESSIBILITY





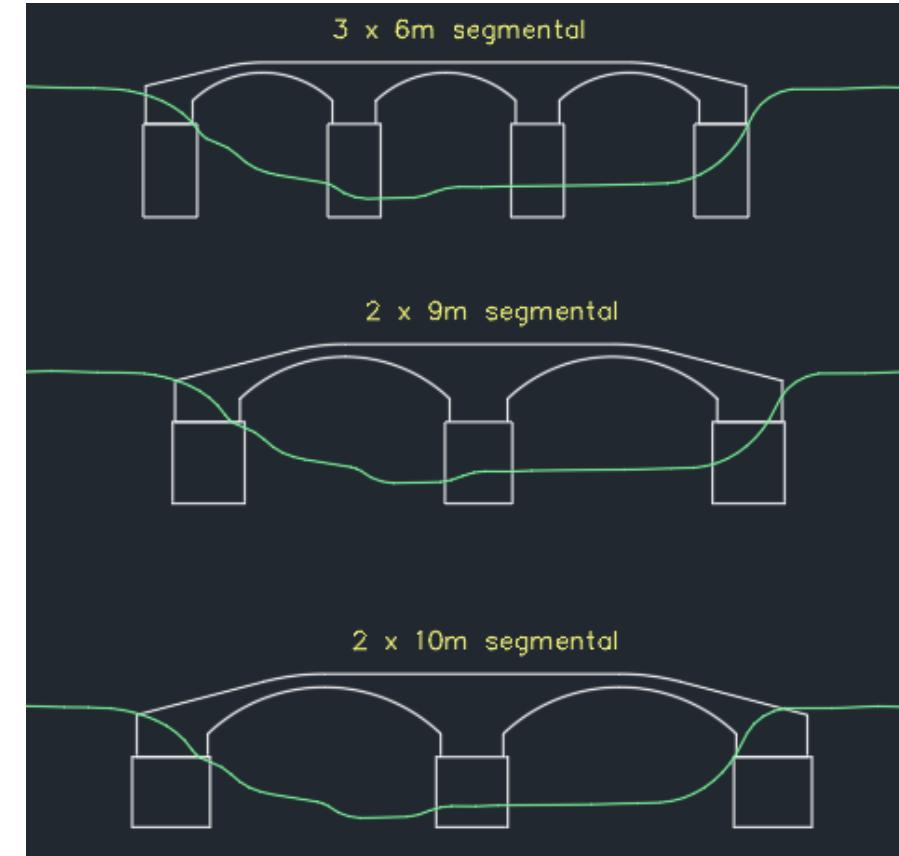
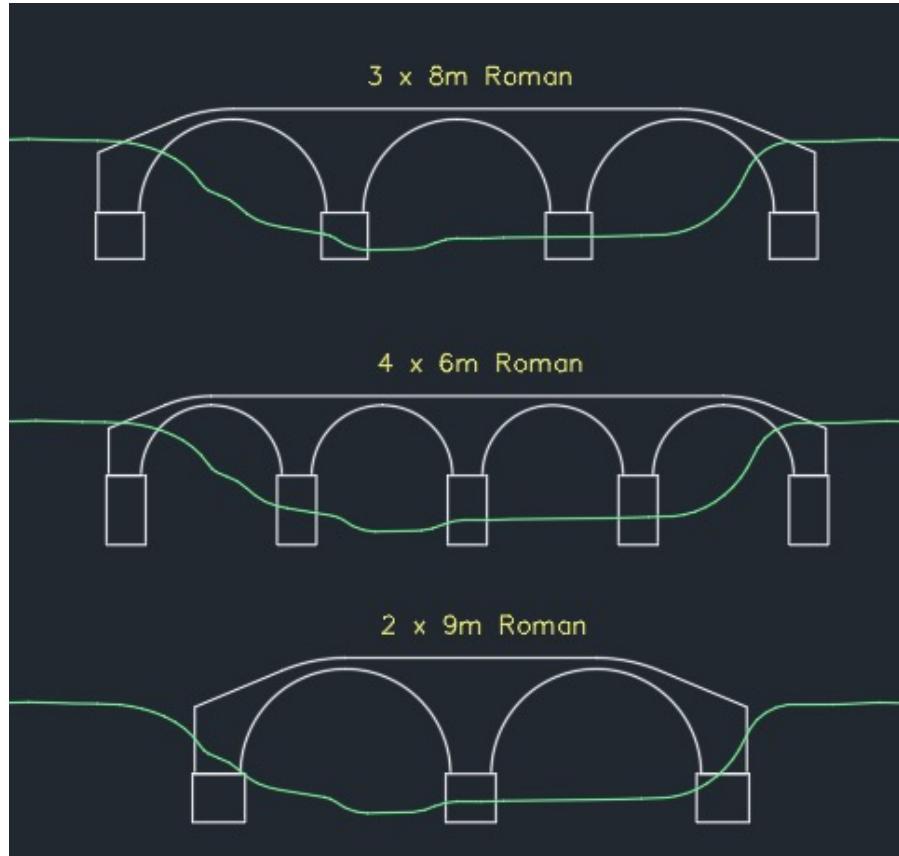
About the Project

Nyamihanga Stone Arch Bridges

Aspect	Detail
Designed	Indoor (Enabel), Review and Approval by TARURA
Funds	Co Funded , Enabel, Tarura and Buhigwe DC
Span	32m
Cells	Three cells, 8m Roman Arches
Supervision	Enabel and Tarura
Project Time	4 months
Type of Contract	Force Account
COST	135,565,980 TZS (with no profit margin)



Design consideration and Typology



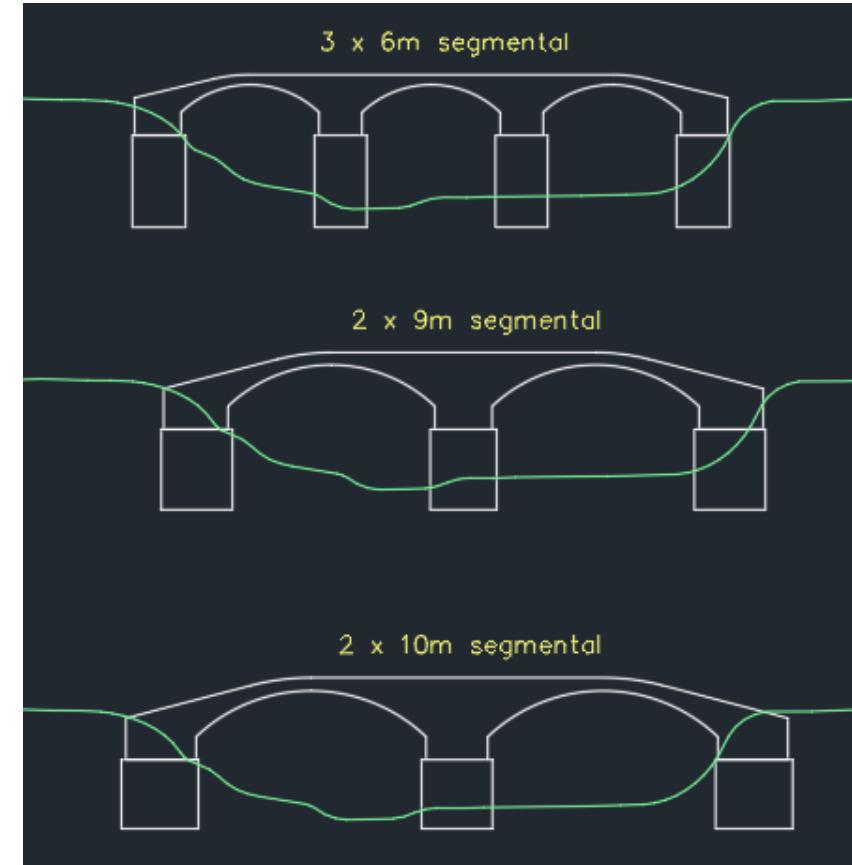
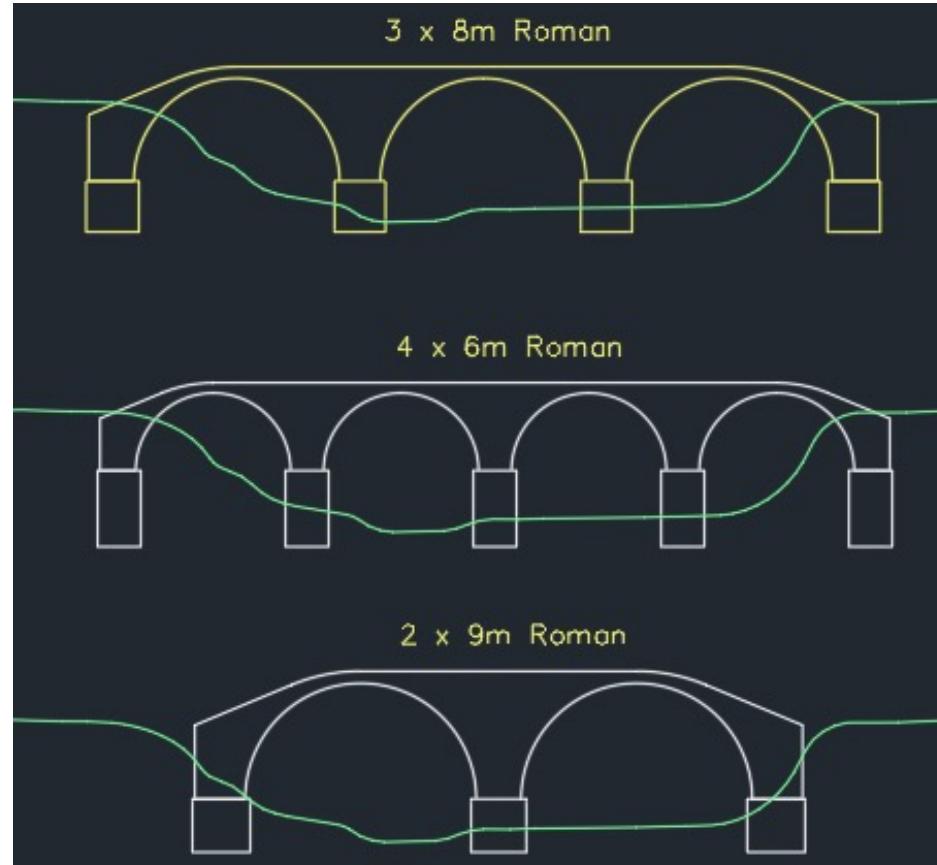


Design consideration and Typology

Bridge Type	width	Masonry volume	Area for discharge
3 x 8m Roman	5.6	393	107%
4 x 6m Roman	5.6	389	75%
2 x 9m Roman	5.6	327	78%
3 x 6m segmental	5.6	379	68%
2 x 9m segmental	5.6	386	68%
2 x 10m segmental	5.6	407	77%



Design consideration and Typology





Quantity of Main Material

s/No	Material	unit	Quantity	Contribution	Status
01	Cement	Bags	1384	Enabel	Supplied
02	Stones	Trips	239	Village Contribution	Bottleneck
03	Sand	Trips	41	Village contribution	Bottleneck
04	Backfill	Trips	56	Village contribution	Bottleneck



Effective collaboration with different stake holders to overcome bottlenecks



Expedited Work

TARURA Input in the Supply of the Stones

Buhigwe DC in Excavation Works



Initial Excavation via Labour based technology by the Villagers



Buhigwe DC hired machinery to expedite excavation process



Piles of stones delivered by Tarura at the site

Nyamihanga	32m	5 months
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Construction Phases.

1. Excavation and Construction of Foundation





Construction Phases.

2. Formworks Erection





Construction Phases.

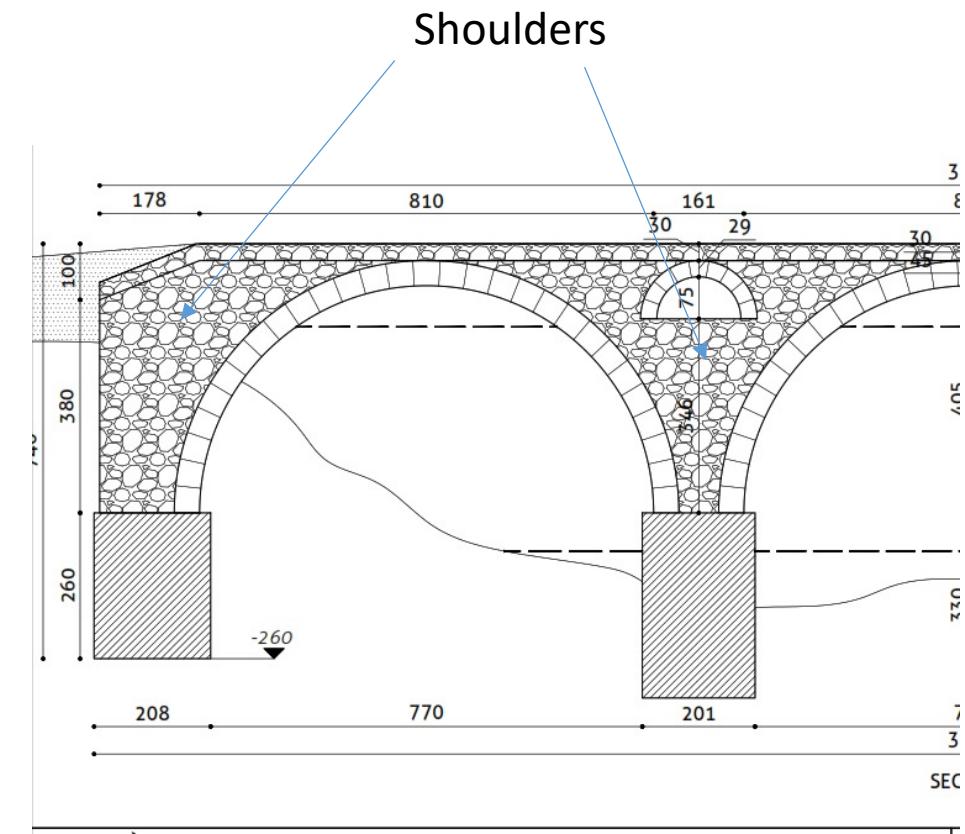
3. Arch Construction and Keystone





Construction Phases.

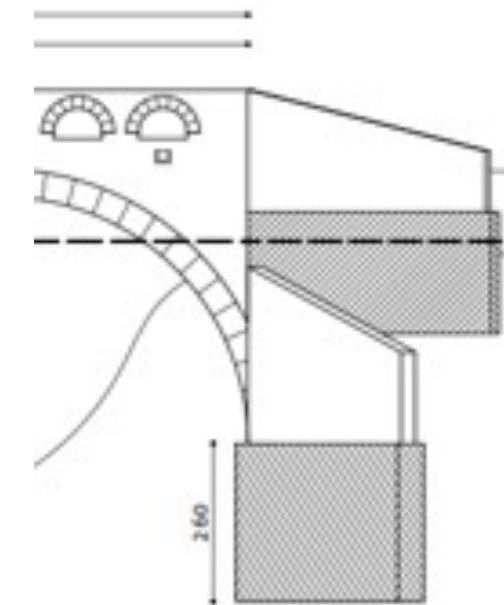
4. Shoulders





Construction Phases.

5. Wing walls and Headwalls





Construction Phases.

6. Stonelining





Construction Phases.

6. Stonelining





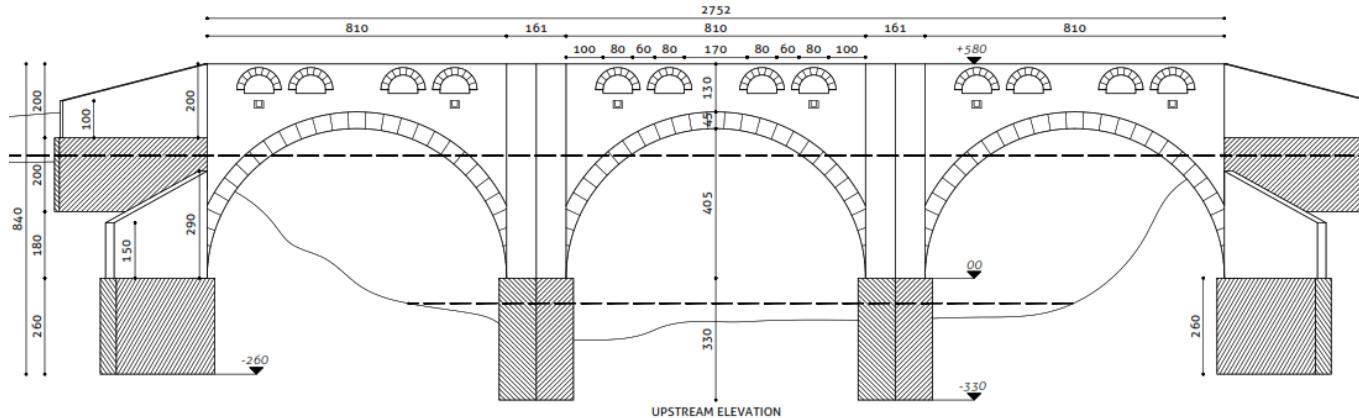
Construction Phases.

7. Finishing works





Architectural Design



UNIQUE FEATURES

- Stone lining as A deck to replace concrete slab on top.
- Small Arches in the shoulders.
- V shaped piers to the Top of the Headwalls.
- Double Wingwall system
- Concrete Gutters



Stone Lining as the Deck

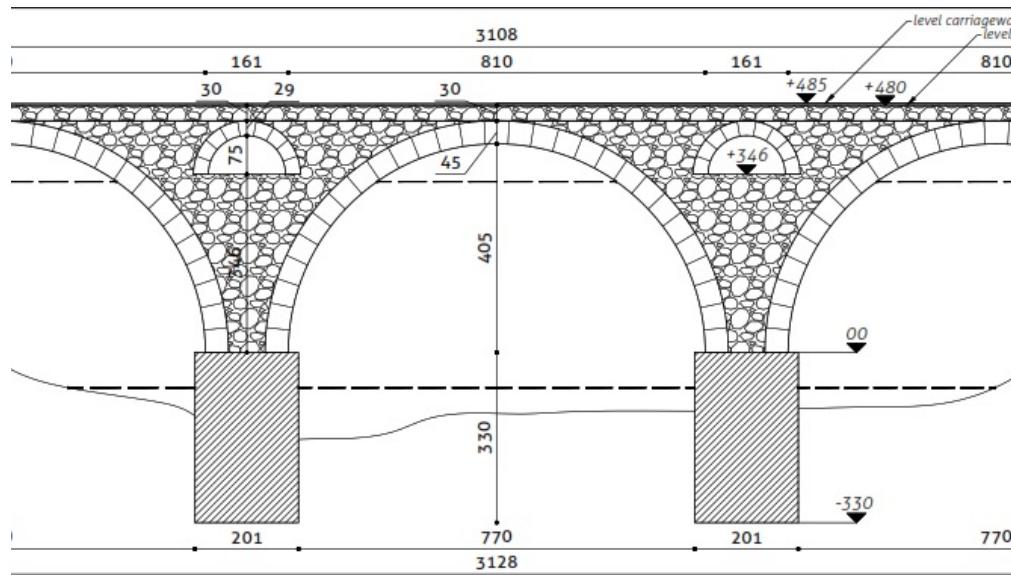


ADVANTAGES

- Structural stability
- Less Cost
- Utilization of locally available resources



Small Arches in the shoulders.



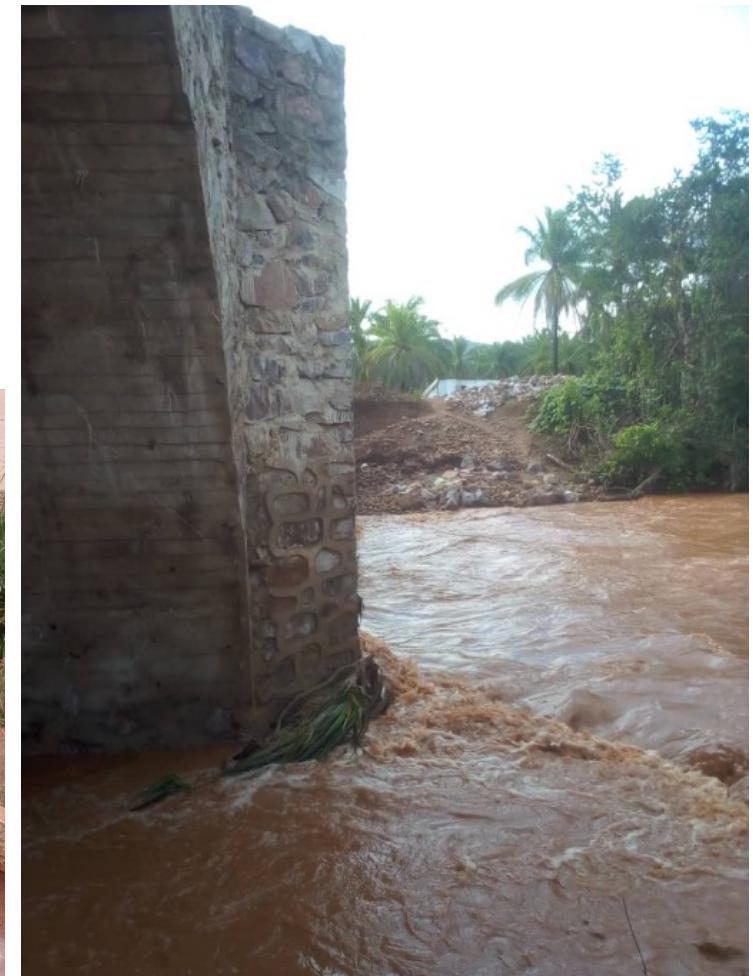
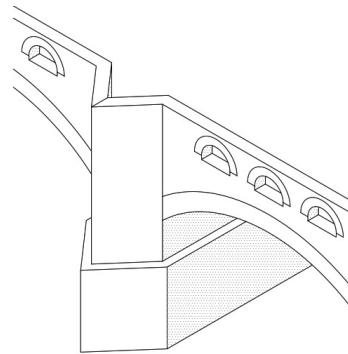
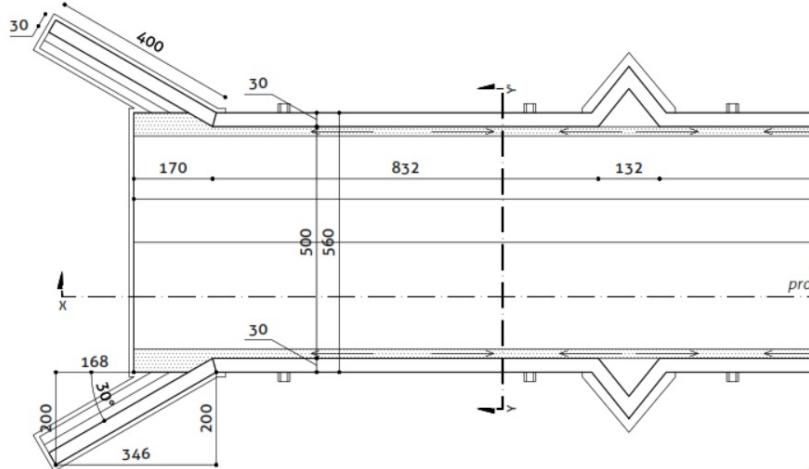
DESCRIPTION	UNIT	QUANTITY	AMOUNT(TZS)
Stones	m ³	18	1,200,000
Cement	Bags	31	728,500
Labour	TZS		720,000

TOTAL COST SAVED BY THIS OPENING 2,648,500



V shaped Piers to the Top headwalls.

They acted as the water Breakers as well as they a special provision for the pedestrians using the bridge





Bridging present and the future, One
stone at a Time

Q/A

thank you