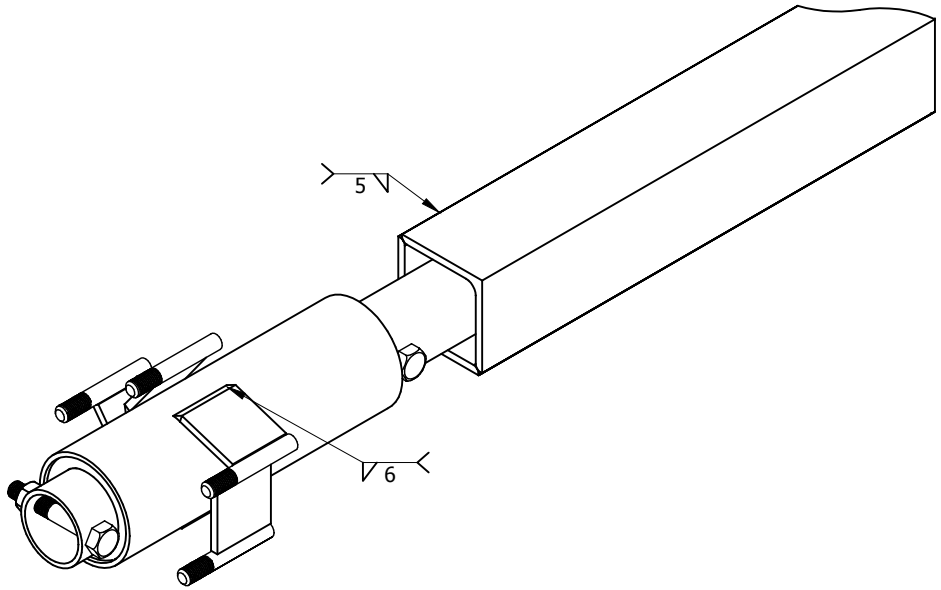
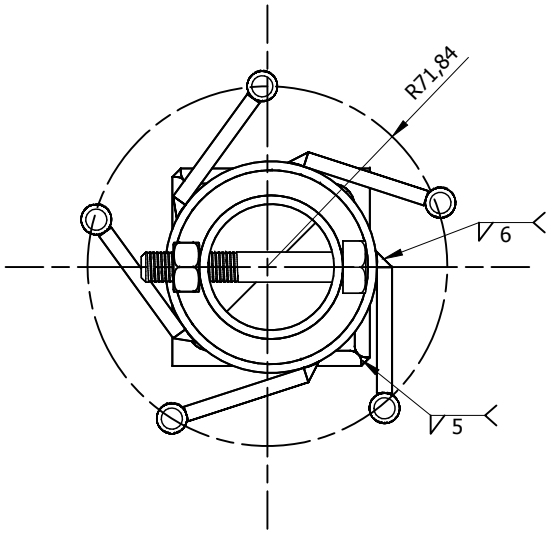
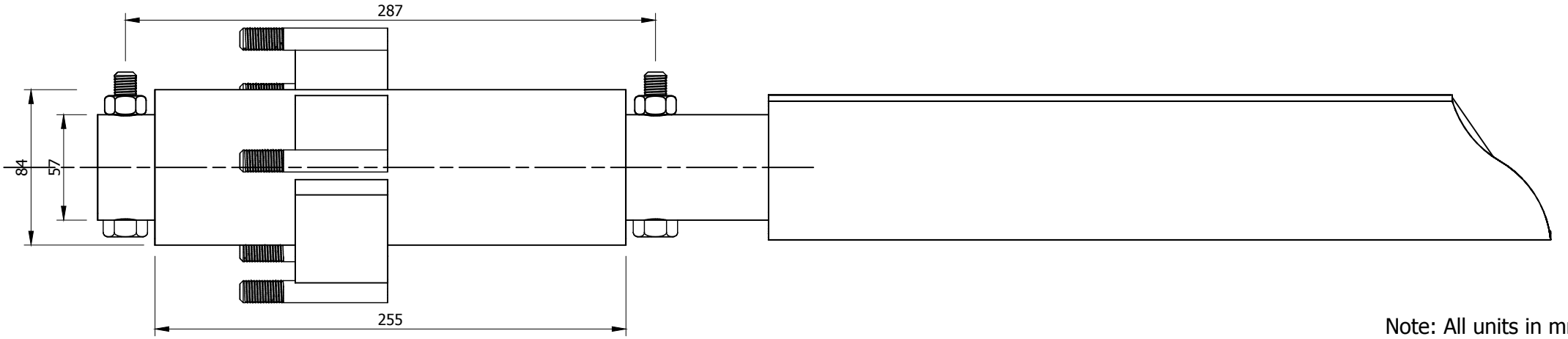
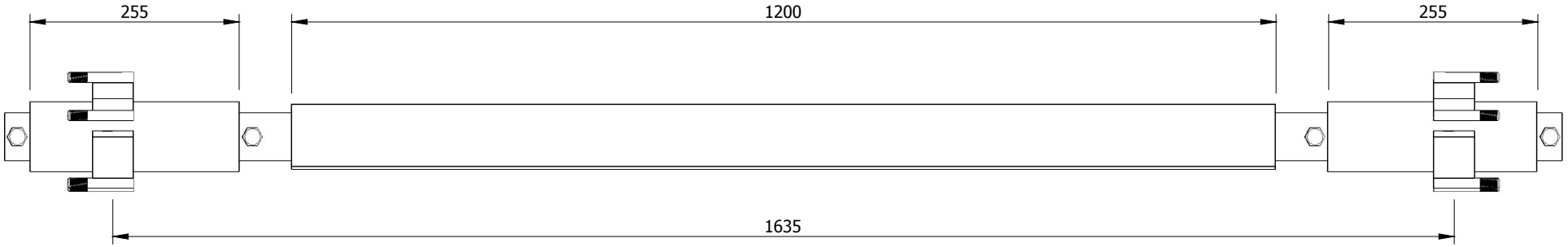


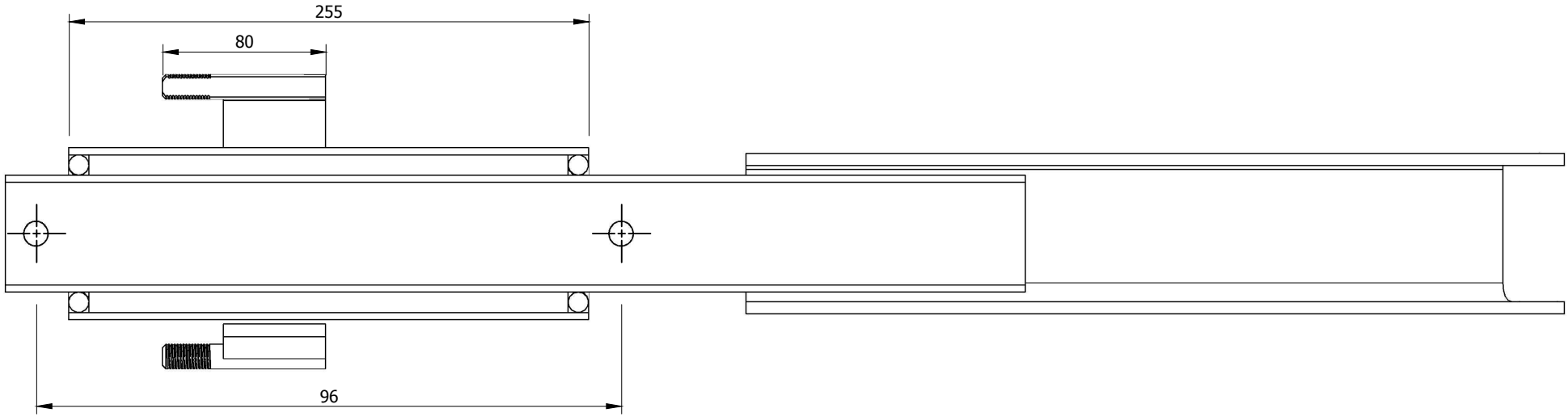


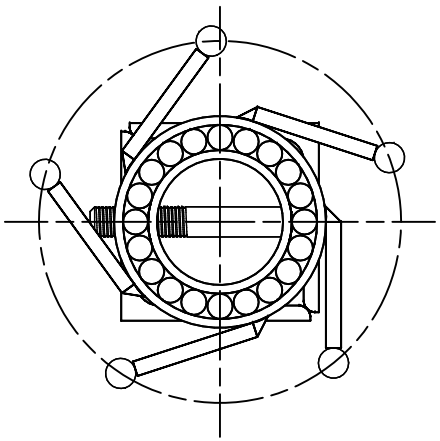


Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Pipe and roller axle for ox carts	E. Araujo	A. Morillo	28-06-21	1.0
PART NAME	FILE NAME			POS
3d views	Pipe_and_rolle_ axle_for_ox_carts.dwg			A1
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Assembly		1
		LICENCE	SCALE	SHEET
Practical Action	OHO e.V.	CC-BY-SA 4.0	1:4	1/11

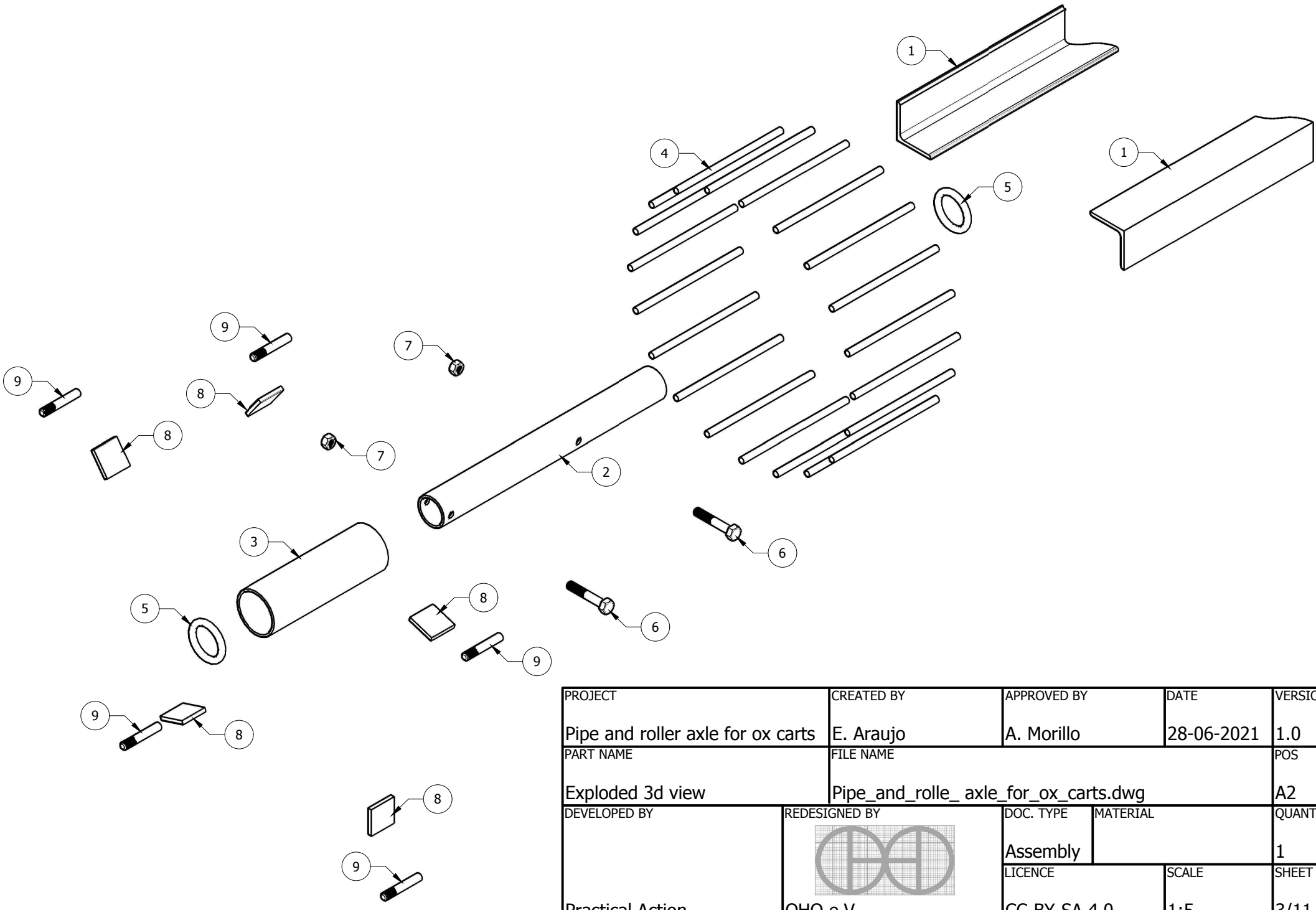






Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Pipe and roller axle for ox carts	E. Araujo	A. Morillo	28-06-2021	1.0
PART NAME	FILE NAME			POS
3d views	Pipe_and_rolle_ axle_for_ox_carts.dwg			A1
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Assembly		1
		LICENCE	SCALE	SHEET
Practical Action	OHO e.V.	CC-BY-SA 4.0	1:4	2/11



PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Pipe and roller axle for ox carts	E. Araujo	A. Morillo	28-06-2021	1.0
PART NAME	FILE NAME			POS
Exploded 3d view	Pipe_and_rolle_ axle_for_ox_carts.dwg			A2
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Assembly		1
		LICENCE	SCALE	SHEET
Practical Action	OHO e.V.	CC-BY-SA 4.0	1:5	3/11

Parts list

POS	QTY	PART NAME	FILE NAME	PART TYPE	SPECIFICATIONS	SHEET
A1		3d views	Pipe_and_roller_axle_for_ox_carts.dwg			1
A1		3d views	Pipe_and_roller_axle_for_ox_carts.dwg			2
A2		Exploded 3d view	Pipe_and_roller_axle_for_ox_carts.dwg			3
B1		Parts list	ML_A1_P1_Pipe and roller axle for ox carts			4
C1		Technical notes	Pipe_and_roller_axle_for_ox_carts.dwg			5
1	2	Central axle	Pipe_and_roller_axle_for_ox_carts.dwg	Production	Steel A36, Angle 75	6
2	2	Hub stub axles	Pipe_and_roller_axle_for_ox_carts.dwg	Production	Steel A36	7
3	2	Hub outer race	Pipe_and_roller_axle_for_ox_carts.dwg	Production	Steel A36	8
4	40	Rollers	Pipe_and_roller_axle_for_ox_carts.dwg	Production	Steel A36	9
5	4	Roller retaining rings	Pipe_and_roller_axle_for_ox_carts.dwg	Production	Steel A36	10
6	4	Hub restraint bolts		Standard	M12 Bolt x 100mm Din 931	
7	4	Hub restraint nuts		Standard	M12 Nut x 12mm Din 934	
8	10	Wheel studs	Pipe_and_roller_axle_for_ox_carts.dwg	Production	Steel A36 6mm	11
9	10	Wheel stud struts		Standard	M12 Studding Din 913	

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Pipe and roller axle for ox carts	E.Araujo	A. Morillo	28-06-2021	1.0

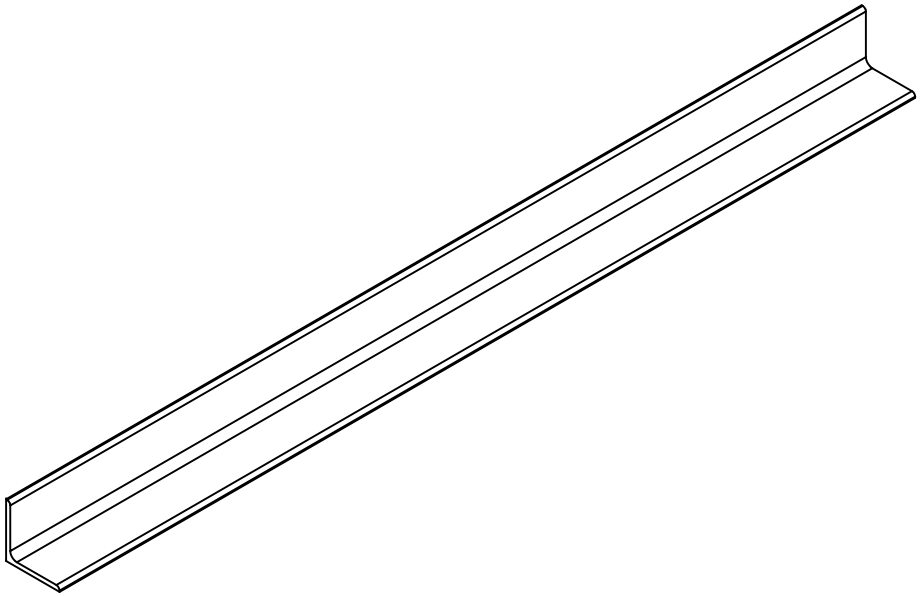
PART NAME	FILE NAME	POS
Parts list	ML_A1_P1_Pipe and roller axle for ox carts.xlsx	B1

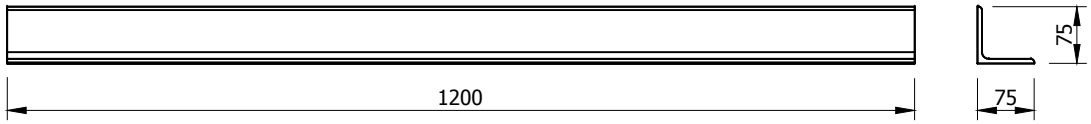
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
Practical Action	OHO e.V.	Parts list		

LICENCE	SCALE	SHEET
CC-BY-SA 4.0		4/11

TECHNICL NOTES	
NOTES	CONTENT
GENERAL NOTES	
Metal structure treatment	Iron structures should be painted to prevent rust and improve equipment life. - Remove loose rust with a wire brush, sandpaper or chemical rust remover. - If applicable, sand areas where paint is chipping until surface is smooth. - Remove dust or oil with a degreaser or denatured alcohol. - Prime surface to protect against rust and corrosion
Foundations fixing	- The ground must be stable and have a low water table. - The structure must be fixed on firm oncrete soil or on poured footings with steel reinforcement. - The anchorage can be bolted with expansive ramplugs or welded.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Pipe and roller axle for ox carts	E. Araujo	A. Morillo	28-06-2021	1.0
PART NAME	FILE NAME			POS
Technical notes	ML_A1_P1_Pipe and roller axle for ox carts.dwg			C1
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		T. Notes		
		LICENCE	SCALE	SHEET
Practical Action	OHO e.V.	CC-BY-SA 4.0		5/11

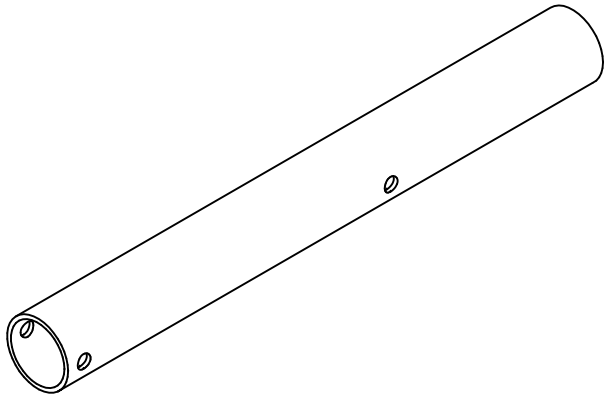


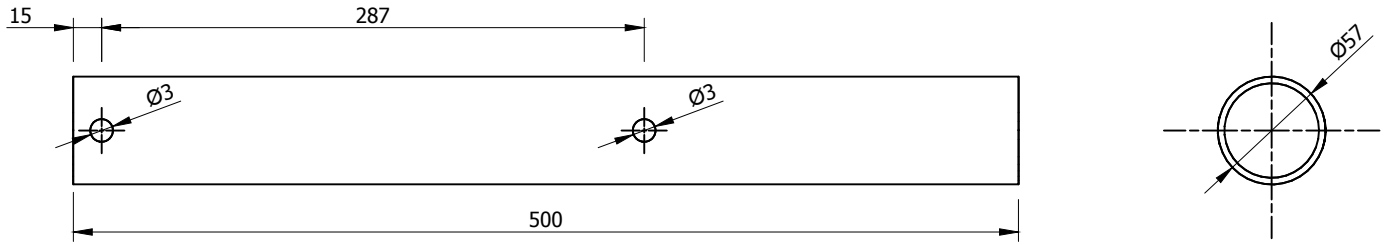


Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Pipe and roller axle for ox carts	E. Araujo	A. Morillo	28-06-2021	1.0
PART NAME	FILE NAME			POS
Central axle	Pipe_and_rolle_ axle_for_ox_carts.dwg			1

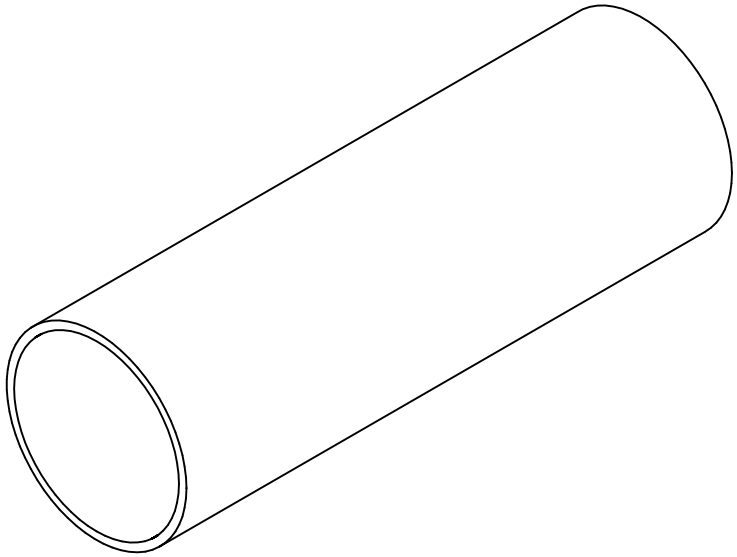
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel A36	2
		LICENCE	SCALE	SHEET
Practical Action	OHO e.V.	CC-BY-SA 4.0	1:5	6/11

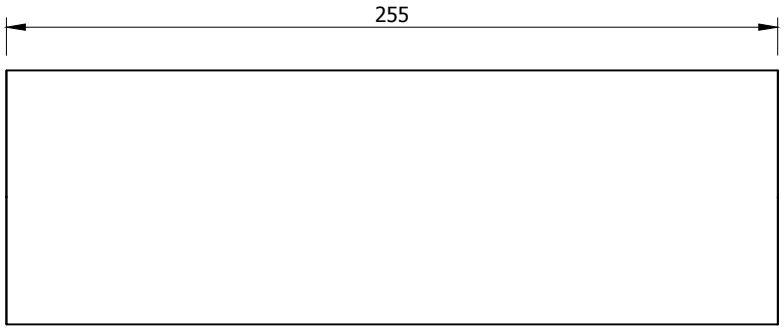


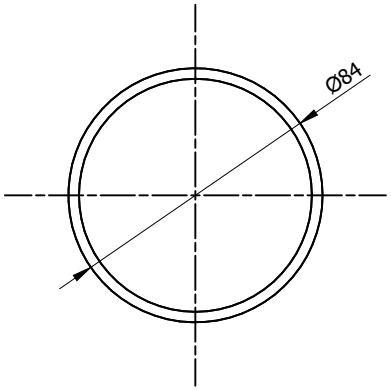


Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Pipe and roller axle for ox carts	E. Araujo	A. Morillo	28-06-2021	1.0
PART NAME	FILE NAME			POS
Hub stub axles	Pipe_and_rolle_ axle_for_ox_carts.dwg			2
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel A36	2
		LICENCE	SCALE	SHEET
Practical Action	OHO e.V.	CC-BY-SA 4.0	1:5	7/11

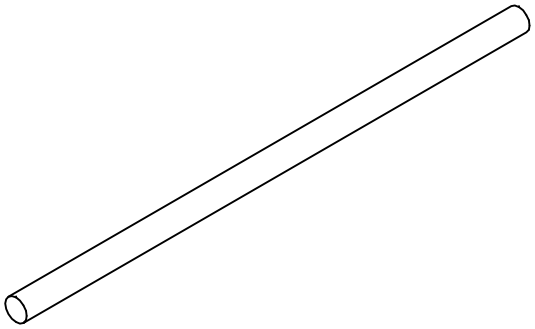


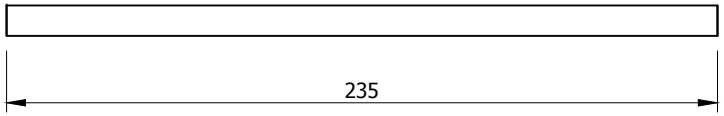


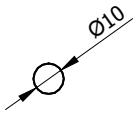


Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Pipe and roller axle for ox carts	E. Araujo	A. Morillo	28-06-2021	1.0
PART NAME	FILE NAME			POS
Hub outer race	Pipe_and_rolle_ axle_for_ox_carts.dwg			3
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel A36	2
		LICENCE	SCALE	SHEET
Practical Action	OHO e.V.	CC-BY-SA 4.0	1:2.5	8/11

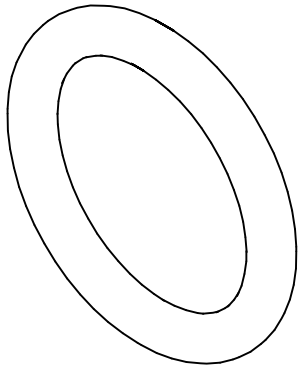


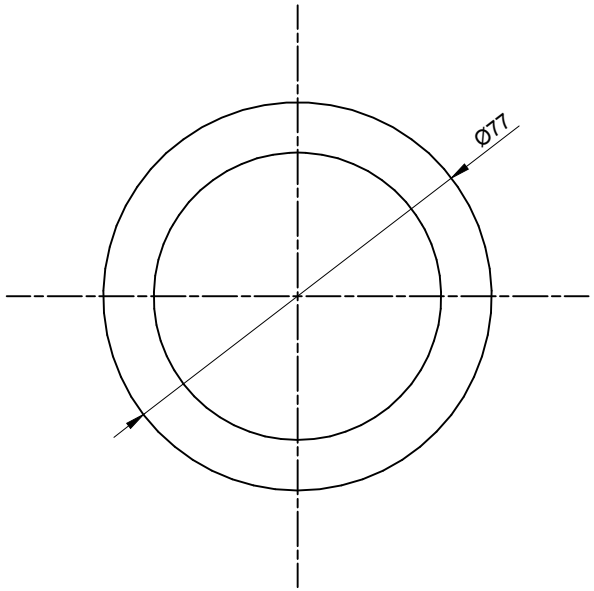


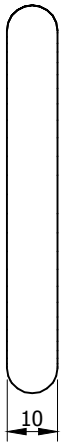


Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Pipe and roller axle for ox carts	E. Araujo	A. Morillo	28-06-2021	1.0
PART NAME	FILE NAME			POS
Rollers	Pipe_and_rolle_ axle_for_ox_carts.dwg			4
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel A36	40
		LICENCE	SCALE	SHEET
Practical Action	OHO e.V.	CC-BY-SA 4.0	1:2.5	9/11

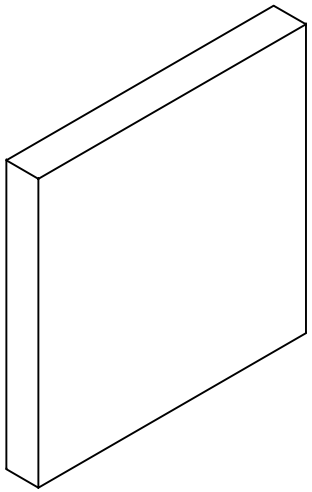


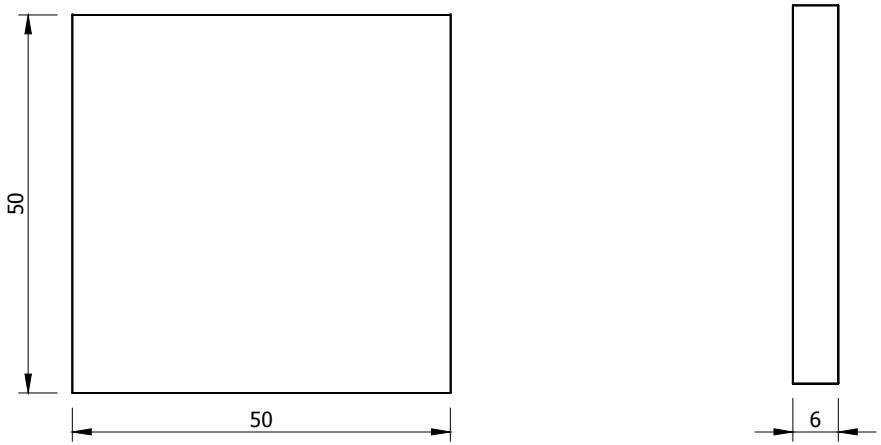




Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Pipe and roller axle for ox carts	E. Araujo	A. Morillo	28-06-2021	1.0
PART NAME	FILE NAME			POS
Roller retaining rings	Pipe_and_rolle_ axle_for_ox_carts.dwg			5
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel A36	4
		LICENCE	SCALE	SHEET
Practical Action	OHO e.V.	CC-BY-SA 4.0	1:1.5	10/11





Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Pipe and roller axle for ox carts	E. Araujo	A. Morillo	28-06-2021	1.0
PART NAME	FILE NAME			POS
Wheel studs	Pipe_and_rolle_ axle_for_ox_carts.dwg			8
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel A36	10
		LICENCE	SCALE	SHEET
Practical Action	OHO e.V.	CC-BY-SA 4.0	1:1	11/11