



IMPLEMENTATION – POST-TRIP REPORT

The Post-Implementation Report is a document written within 8 weeks post-travel to describe the progression of the project from the trip. It is composed of multiple sections detailing our history with the community, the context for the project, the construction process and materials used, and the changes made to the original design. It also evaluates the overall success of the project and addresses any steps and considerations needed. The post-implementation report includes many additional elements to aid in understanding the project process and design, such as plan-views of the site, photographs, diagrams, drawings, and tables. While our post-implementation report can be more than 40 pages long, this abbreviated version gives an overview of the document and hits the key points.

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1. Project Description

The Project Description section discusses the context and history of our project, as well as some of the community concerns in regards to the issue the project addresses. This section also explains the goals and objectives of our project, as well as the scope of the design and construction. It concludes with a discussion of future steps that should be considered in regards to the project.

Project Context

This section discusses the situation in the community and findings from the 2017 assessment trip that led to the development of the project. Maras experiences a severe water shortage, and one of the areas greatly affected in the community was the local elementary school. The school was only receiving one source of water due to a failure in their other water system. The following is an excerpt from this detailing the issue:

"

~~XXXXXXXXXX~~ wt kpi 'y g'cuuguo gpv't kr "qh'4239. 'y g'uej qqr'luc'h'ldt qwi j v'vq'y g'vgo au'c'wgpvkqp'y g' lcev'y cv'y g'pqt y gtp'dwxf kpi 'f qgu'pqr't gegkxg'y cvgt 'ugt xkegOVj ku'y cu'dgecwug'cp'gzkukpi " y cvgt 'uqtc g'vcpm'kpuwngf "qp'y g't qql'qhl'y g'dwxf kpi . 'ruw'ku'ecr 'f wt kpi 'c' uqto ODktfu' eqpxo kpcvxf 'y g'u'wgo 'y kj 'lgeguOVj g'vcpm't gegkxgu'y cvgt 'lt qo 'c'rkr g'cweej gf 'f kt gev' 'vq' Oct cu'f'kut kdwkqp'u'wgo . 'lt qo 'y g'unt gg'v'f kt gev' 'pqt y y gw'qhl'y g'uej qqrOVj ku'ku'y g' ugeqpf ct { 'y cvgt 'uwr rrf . 'pqr'y g'rt ko ct { 'y cvgt 'uwr rrf . 'vq'y g'uej qqrOVj g'uej qqr'u'rt ko ct { ' y cvgt 'uwr rrf 'eqo gu'lt qo 'c'eqppgevkqp'vq'O ct cu'f'kut kdwkqp'u'wgo 'lt qo 'y g'unt gg'v'f kt gev' " y gw'qhl'y g'uej qqrOVj g'ugeqpf ct { 'y cvgt 'uwr rrf 'qt ki kpcn' 'rt qxlf gf 'y cvgt 'ugt xkeg'lt 'y g' nkej gp'cpf 'y g'dcvt tqo u'iqecvxf 'y kj k'p'y g'pqt y 'dwxf kpi O'

Vj g'uej qqr'luc'h'gzrt guugf 'kpvgt gw'vq'j c'xg'y ku'vcpm't gr'ceg' 'cpf 'y g'vcpm'cpf 'rkr g' u'wgo 'ergcpgf 'uq'y cv'y g' 'eqw'f 'wkk'g'y g'y cvgt 'y cv'eqo gu'lt qo 'y g'unt gg'v'pqt y y gw'qhl'y g' uej qqr 'lt qo 'y g'f'kut kdwkqp'u'wgo OK'y cu'f'gelf gf 'y cv'y g'f'kt gev't gr'cego gpv'qhl'y g' Gzkukpi 'Y cvgt 'Uqtc g'Vcpm'y qwf 'kpxqnx'vq' 'o cpl 'uch'v' 'j c/ctf u'lt 'y g'vgo 'vq' 'ko rigo gpv'cpf 'y qwf 'j c'xg'ko k'gf 'ko rceOVj gt glqt g. 'y g'vgo 'kpvgt egr'v'f 'cpf 't gt qw'gf 'y ku' ugeqpf ct { 'eqppgevkqp'k'p'y g'pqt y y gw'eqt pgt '342' 'o vgt u'q'xgt 'vq' 'c' 'pgy 'cdqxi tqw'pf 'y cvgt " uqtc g'vcpm'OVj g'vgo 'dqwi j v'y g'uco g'Tqqr'rcu'3322N'vcpm'y cv'ku'cvqr 'y g'pqt y 'dwxf kpi " vq'gpw'v'y cv'eqo o w'k'f 'o go dgt u'cu'y gm'cu'y g'uej qqr'luc'h'ly gt g'lc'o k'kt 'y kj 'ku'lge'w'gu' cpf 'h'p'ek'pu'k'p'qt f gt 'vq'g'cuk'f 'wkk'g'y ku'y cvgt 'lt 'nkej gp'w'ugO' "

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Project Goals and Objective

This section discusses the project team's goals and objectives which are expected to be reached after project completion. Some of the objectives the team outlined included setting

a concrete base of the Rotoplas tank metal stand, implement the PVC pipe route to connect the water source to the tank, and the disinfection of the implemented 1100 L Rotoplas tank. Below is an excerpt of this section which lists the team's overall goal and one such objective:

Vj g"qxgtcm'i qcn'kp"vj g"423: "ko rrgo gpwvqp"vkr"y cu'vq"rtqxf g"vj g'uej qqn'y kj "c" ugeqpfct{"y cvgt "uwr rrf"cpf "c"ucpkct{"y c{"vq"uqt g"vj ku'y cvgtOVj tqwi j "vj g'wug"qhl" ö"RXE" rkr g"cu"y gni'cu" c "3.322N" Tqvr rcu"y cvgt "uqt ci g" wpm'vj g"ugeqpfct{"y cvgt "uwr rrf"y kni' dgeqo g"gpdcrgf "cpf "uqt gf "kp"cp"cpvko ket qdken'ldcukp0'
Vj g"lkt w'qdlgevkg"qhl'eqpiat wvqp"y cu'vq"ugv'vj g'eqpet gv"dcug"qhl'vj g" Tqvr rcu" wpm' o gwn'wcpfOVj g"rrv'qto "wpgt "vj g"rtqr qugf "Cdqxi tqwpf "Y cvgt "Uqt ci g"Vcpm'pggf gf "vq" uwr rqt v'vj g"y gki j v'qhl'vj g'hw'vcpn0'Vj g"y gki j v'qhl'vj g"vcpm'ku'65'ndu."cpf "y kj "3322N"qhl'y cvgt." yj g"Cdqxi tqwpf "Y cvgt "Uqt ci g"Vcpm'y kni'y gki j "468: 'nduOVj g'o gwrlwcpf "ku'cuwwo gf "vq"dg" 322'ndu0'Kp"qtf gf "vq"kpemf g" c "lcvqt "qhl'wlv'." yj g'eqpet gv"rcf "y cu'f guki pgf "vq"uwr rqt v'c" y gki j v'qhl'5222'ndu" f kuwugf "hw'vj gt "kp"ugevqp"40+"Vj ku'y cu'f gekf gf "vq"dg'vj g' lkt w'qdlgevkg" y kj kp'eqpiat wvqp"ukpeg'eqpet gv"pggf u'vko g'vq"ugwv"cpf "ewt gl

2. Construction Activities

This section gives a detailed overview of the construction process and provides images of each step. It also discusses any issues that were encountered and changes made to the original plan to mitigate these issues. It concludes with a description and budget for the materials needed, as well as any changes made to the expected number of materials.

Description of Completed Construction Activities

This section describes the construction process step-by step and is illustrated with corresponding images. Below is an excerpt explaining the construction of the foundation for the water tower, along with images of the process.

Wrqp"qwt "cttkcn'cv'vj g'uej qqn"qwt "vgco "ugv'qmw'vq"eqo rrvv"vj g'lqwpf cvkqp"lqt "vj g" cdqxi tqwpf "y cvgt "uqt ci g" wpm'OVj ku'vum'y cu'r gthqto gf "d{"Vqo cu'O qhl'w" Mgnt "Pcrqrk" Pqcj "Guj co ."cpf "F gppku"J qt pud{" "j gtgd{"t ghtgf "vq"cu'vj g'õeqpiat wvqp"vgco ö+"cpf "c"lgy " rct gpw'qhl'ej kft gp"cv'vj g'uej qqn"y j q"xqmpvgt gf "vq"cu'vq"õeqpiat wvqp"vgco ö+"cpf "c"lgy " j qrg"y cu'f wi "kp"vj g'uej qqn'u'i ctf gp"ctgc "r'kwmt g"dgrqy "OVj gp."kp"gc ej "qhl'vj g'lqwt "eqt pgtu" qhl'vj ku'us wct g"j qrg."4ø"z"4ø"z"3ø"j qrgu"y gt g'f wi "O'cnj qrgu"y gt g'o gcuwt gf "y kj "c"6"lqqv'vrgxn' Vj g'eqpiat wvqp"vgco "cpf "xqmpvgt "rct gpw'vj gp"o kzgf "eqpet gv"vq"dg"r qwt gf "kp"vj g"j qrgu" vq"lgt.xg"cu'vj g'lqwpf cvkqp"lqt "vj g"cdqxi tqwpf "y cvgt "uqt ci g" wpm'wvgn'ldcug"vq"dg"r rvegf "qp0'Á Vj g'eqpet gv"y cu'cmqy gf "vq"ugv'qxgtpki j v."cpf "vj gp"vj g'eqpiat wvqp"vgco "cuugo drgf " yj g" wvgn'dcug"lqt "vj g" cdqxi tqwpf "y cvgt "uqt ci g" wpm'cpf "r rvegf "k'cvr "vj g'eqpet gv"

*hqwpf cvkqp0'0qt g"eqpet gvg"y cu"vj gp"o k.zgf "cpf "r qwt gf "ct qwpf "vj g"ngi u"qhl"vj g"uwgn'dcug"uq"
vj cv"vj g"dcug"y qwf "dg"chkgf "kp"r rceg0Vj g"Tvqr cu'dcukp"y cu"vj gp"r rceg"qp"vqr "qhl"vj g"uwgn'
dcug"cpf "ugewt gf "kp"r rceg"d{ "vj g"eqpwt wevkqp"vgco 0'*



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The following is an excerpt detailing the pipe installation process:

*Y qt m"vj gp"dgi cp"qp"r nwo dkpi "vj g"ugeqpf ct{"y cvgt "uqwt eg"vq"vj g"cdqxi tqwpf "y cvgt "
uqt ci g"vcpn0'Wukpi "RXE"rkr"g"cpf " RXE"lklpi u"vj g"eqpwt wevkqp"vgco "wrrgf "kpw"vj g"
ugeqpf ct{"y cvgt "uwr rrf "cpf "t qwgf "rkr lpi "crqpi "vj g"gzvgt kqt "y cmu"qhl"vj g"uej qqr"vq"vj g"pgy "
cdqxi tqwpf "y cvgt "uqt ci g"vcpn0'Vj g"rkr lpi "y cu"vj gp"eqppgevfg "vq"vj g"vcpm"cpf "c"lcwgv"
cpf "y cvgt "lkwgt "y gt g"r rceg"qp"vj g"qwwgv"qhl"vj g"vcpnlvq"vj cv"kv'eqwf "dg"uwgf "vq"lwr rrf "ergcp"
y cvgt "vq"vj g"uej qqr0'Á*

*eqxgt kpi "uqrf "eqpet gvg0Hqt "vj gug"y cmu"y g"gf gekf gf "vq"wguc"eqpet gvg"ft kn'dk"vq"rt gft kn"vj g"
y cm"vj gp"kpugt v"c"eqpet gvg"pckl"cjej qt "kpvq"vj g"ft kn"gf "j qrf. "cpf "vj gp"wguc"eqpet gvg"pckl"vq"
cwcej "vj g"rkr g"erco r "vq"vj g"y cm0"*

Materials Used Description

This section describes the materials used and the changes made to the original material list, including quantity. The following is an excerpt that describes the material changes needed to accommodate the piping:

*Y j gp"rmo dkpi "vj g"ugeqpf ct{"y cvgt "uwr rrf "vq"vj g"pgy "cdqxi tqwpf "y cvgt "uqtc i g"
wpm"vj g"s wcpvkf "qhl"vj g"RXE"rkr g"cpf "eqwr rgt u"ej cpi gf 0Wr qp"ctt kxkpi "cv"vj g"eqo o wpkf."
vj g"vgco "f gekf gf "vq"o qf kf "vj g"qt ki kpcnf guki p"vq"t wp"vj g"rkr g"cv"cp"grgxcvgf "qecvkqp"crppi "
vj g"qmwkf g"qhl"vj g"uej qqn'dwxf kpi "kpwgcf "qhl"t gpej kpi "k"vj tqwi j "vj g"uej qqr"u"eqwt v"ctf 0"
Dgecwug"qhl"vj ku"cf f kkpncn"eqwr rgt u"y gt g"pgeguact {"vq"t qwv"vj g"rkr g"ct qwpf "vj g"gzkxkpi "
eqt pgt u"qhl"vj g"uej qqn'dwxf kpi 0Vj g"s wcpvkku"qhl"RXE"ego gpv"cpf "vghqp"vcr g"y gt g"lpet gcugf "
cu"y gm'dgecwug"qhl"vj g"lpet gcug"kp"s wcpvkf "qhl"RXE"eqwr rgt u."y j kej "ct g"j g"vqi gj gt "d"
gkj gt "vj g"RXE"ego gpv"qt "vj g"vghqp"vcr g0"Vj g"s wcpvkf "qhl"uwxkrguu"uvggn"rkr g"erco ru"
lpet gcugf "dgecwug"vj g"grgxcvgf "rkr g"t wp"crppi "vj g"uej qqn'dwxf kpi "t gswt gf "vj g"cwcej o gpv"qhl"
vj g"rkr g"vq"vj g"y cmu"qhl"vj g"uej qqn'dwxf kpi u."vj ku"ecngf "hqt "cf f kkpncn"uwxkrguu"uvggn"rkr g"
erco ru0"*

3. Testing Results

This section discusses the procedure for any testing done to materials or the system, as well as the results of the testing. The following is an excerpt describing the system performance testing done:

Tztuf n!Qfsgps n bodf!Ebul

*K"vqqlcp"j qwt "cpf "72"o kpwgu"vq"lkn"wr "vj g"3322N"vcpn0Vj g"kwpcwpcpgqu"lqy "t cvg"
vj cv"y cu"ceswt gf "y cu"646"N"r gt "ugeqpf "qt "38"N"r gt "ugeqpf 0Vj g"ghkkgpe {"cpf "t crkf "lknkpi "
qhl"vj g"wpnlf go qpuat cvgu"vj cv"vj gt g"ku"xt {"i qaf "rt guamt g"y kj kp"vj g"uf wgo "cpf "y kn"gpumt g"
vj cv"vj g"uej qqn"y kn'dg"cdrg"vq"ecrwat g"cu"o wej "y cvgt "cu"r quikdrg"fw t kpi "vj g"rko kvgf "vko g"qhl"
cxckcdrg"y cvgt 0Vj g"t gw"qhl"vj g"uf wgo "r gt hqt o cpeg"y cu"vj tqwi j "qdugt xcvkqp."o cnkpi "umt g"
vj cv" y gt g" y gt g" pq" rgcmu" qt " lcvnu" vj tqwi j qwv" vj g" RXE" rkp g" kpvq" vj g" wcpn0" O qpj r"
eqo o wpkcvkqp"y kj "vj g"rt kpekr cn"lwp"lmuq"qhl"vj g"uej qqn"j cu"cuamt gf "vj cv"vj g"uf wgo "cpf "
kwpcngf "y cvgt "dcukp"ct g"cnl"y qtnkpi "rt qr gtr"0Lwp"lmuq"j cu"o gpvkqpgf "vj cv"vj g"ct g"vukpi "
vj g"uqtf gf "y cvgt "hqt "eqqnkpi lnxj gp"vug0"*

4. Construction Budget

This section describes the final material quantity and overall cost summary of the project. It also discusses any unexpected costs or variance from the initial estimate. The following is an excerpt evaluating our costs and a table summarizing the project.

*Vj g"xcw" o clqt kx "qh'equ" f kltg ppegu" cu" t grvxf "vq" eqpnt wvkap" o cvgt kcu" gzknu" dgecwug" qh'f kltg ppegu" kp" s wcpvkv "qh" o cvgt kcu" r wtej cugf O'C" f gwkgf "gzr rcpvkap" qh'vj g" f kltg ppegu" kp" s wcpvkv ku" qh" o cvgt kcu" ecp" dg" hqwpf "kp" vj g" ugevkap" cdqxoVj g" Tqqr rcu" Dcu" kp" *\$479+ "vj g" eqpet gvg" o kx " *\$356+ "vj g" RXE " rkr g" cpf " eqwr rgt u" *\$592+ "cpf" y cvgt "vgu" GF "nk" *\$367+ "y qwf " dg" eqpuf gt gf " o clqt o" eqpnt wvkap" kgo u" r wtej cugf O'C" f gwkgf " rku" qh'vj g" hpcn' equu" qh'cm' eqpnt wvkap" kgo u" r wtej cugf " ecp" dg" uggp" kp" vj g" Cwcej o gpv' DOC" iki pkkcpv" f kltg ppeg" dgvy ggp" vj g" dwf i gv' cpf " vj g" cewcn' g'zr gpugu" ugevkap" hku" kp" vj g" rcm' qh'c " o Tgugt xgf " co qwpv' hqt " r t qlgev' t grck t u' ugevkap" O' Y g' f kf " pqv' g'zr gt kgpeg" cpf " iki pkkcpv' f co ci g' vq" cpf " qh' qwt " r t qlgev' eqo r qpgvu" f wtpi " vj g" ko r rgo gpv' vkap. " vj gt g' hqt g" y g' f kf " pqv' pggf " vq" vcr " kvq" cpf " qh'vj g" t gugt xgf " hwpf uO*

Primary Trip Activity :: Implementation				
<i>Lines with an asterisk are automatically calculated.</i>		BUDGET (PRE-TRIP)	ACTUAL EXPENSES (POST-TRIP)	
Expenses				
DIRECT COSTS TRAVEL				
Travel + Logistics				
	Airfare (7 people at \$675 each)	\$4,725	\$4,178	
	Food + Lodging	\$125	\$125	
	Other Travel Expenses (ex: Rental Vehicle, Taxis/Drivers, Exit Fees/Visas, Inoculations/Medical Exams, Insurance)	\$795	\$795	
	In-Country Logistical Support	\$1,385	\$1,385	
	Travel and Logistics Sub-Total*	\$7,030	\$6,483	
DIRECT COSTS CONSTRUCTION				
Material				
			Expected Quantity	Actual Quantity
	Rotoplas Basin and Installation Kit With Tank Stand	\$257	\$257	1
	Shipment of Tank to Community	\$82	\$82	1
	Wheelbarrow	\$10	\$10	1
	Quick Concrete Mix	\$134	\$134	40 Bags
	Concrete Spreader	\$9	\$18	1
	Trowel	\$11	\$22	1
	Level	\$21	\$21	1
	Faucet	\$11	\$11	1
	PVC Attachment for Faucet	\$1	\$0	1
	PVC Pipe and Couplers	\$310	\$370	300' of Pipe (15 couplers)
	PVC Cement	\$5	\$20	1
	PVC Primer	\$9	\$9	2
	Hard Hats	\$15	\$15	6
	Teflon Tape (10 yds)	\$2	\$10	1
	Ball Valve	\$13	\$20	5
	Stainless Steel Pipe Clamps	\$10	\$50	5
	Steel Cable and Clamps	\$25	\$25	2
	Water Test ED Kit	\$145	\$145	1
	Water Analysis Test Kit	\$56	\$56	1
	Reserved Amount for Project Repairs	\$300	\$0	1
	Material Sub-Total*	\$1,427	\$1,275	
Labor				
	Local Skilled Labor (Community has agreed to supply at no cost)	\$0	\$0	
	Labor Sub-Total*	\$0	\$0	
	Total Construction Costs			
	Total Construction Cost*	\$1,427	\$1,275	
EWB-USA PROJECT FEE (calculated based on trip type)				
	Owed by Chapter Sub-Total*	\$1,210	\$1,210	
	Total Cost of Trip			
	Total Trip Cost*	\$9,667	\$8,968	

5. Baseline Monitoring Data Collection

Before the onset of the project certain standards and expectations are established to monitor the success of the project. The standards are examined at multiple stages of the project to monitor its progress. Below is some of the baseline questions set and answers to those questions:

Baseline Data Results

Vj g"fcv" eqmgevxf "lt qo "vj g"dcugrkpg"o qpkxt kpi "qhl"vj g"ko r rgo gpvxf "rt qlgev"kpemf g"vj g" hqmvy kpi <"

J qy "hpi "f qgu"kv"vcng"vq"lkn"vj g"cdqxi t qwpf "lwt ci g"vcpnA"

K"vqmi"qpg"j qwt "cpf "lhl"o kpwgu"vq"lkn"vj g"vcpmleqo r rvgv"OVj g"vcpmi"ku" 3322"Nkgt u"kp"xqmw gO"

Y j cv"ku"vj g"hmvy "t cvg"qhl"vj g"y cvgt "eqo kpi "kpv"vj g"vcpnA"

Vj g"y cvgt "eco g"kv"vj g"vcpmicv"t cvg"qhl"%"Nkgt "r gt "ugeqpf O"

F qgu"vj g"hmvcv"vy ke j "y qtnA"

Vj g"hmvcv"vy ke j "y cu"qdugt xgf "vq"qr gt cvg"eqt t gew"O"

F qgu"vj g"rkr kpi "uf wgo "y qtnir t qr gt r". "y kj "pq"rgcmuA"

Vj g"rkr kpi "uf wgo "f kf "pqv"dgpf. "uj cmg. qt "rgcm"y j gp"y cvgt "y cu"hmvy kpi " kpv"vj g"vcpnOY ggm" kpur gev kpu"ij qwf "dg"o cf gO"

Ecp"uej qqn"lwl"hl"ceegu"vj g"cdqxi t qwpf "lwt ci g"vcpmi"gcukr" A"

[guOVj g"uej qqn"lwl"hl"y cu"cdrg"vq"t gcej "vj g"vcpmi"gcukr" "cpf "wug"vj g"lcvwgv" vq"eqmgev"vj g"y cvgt "kpvkf gO"

Beneficiary Analysis

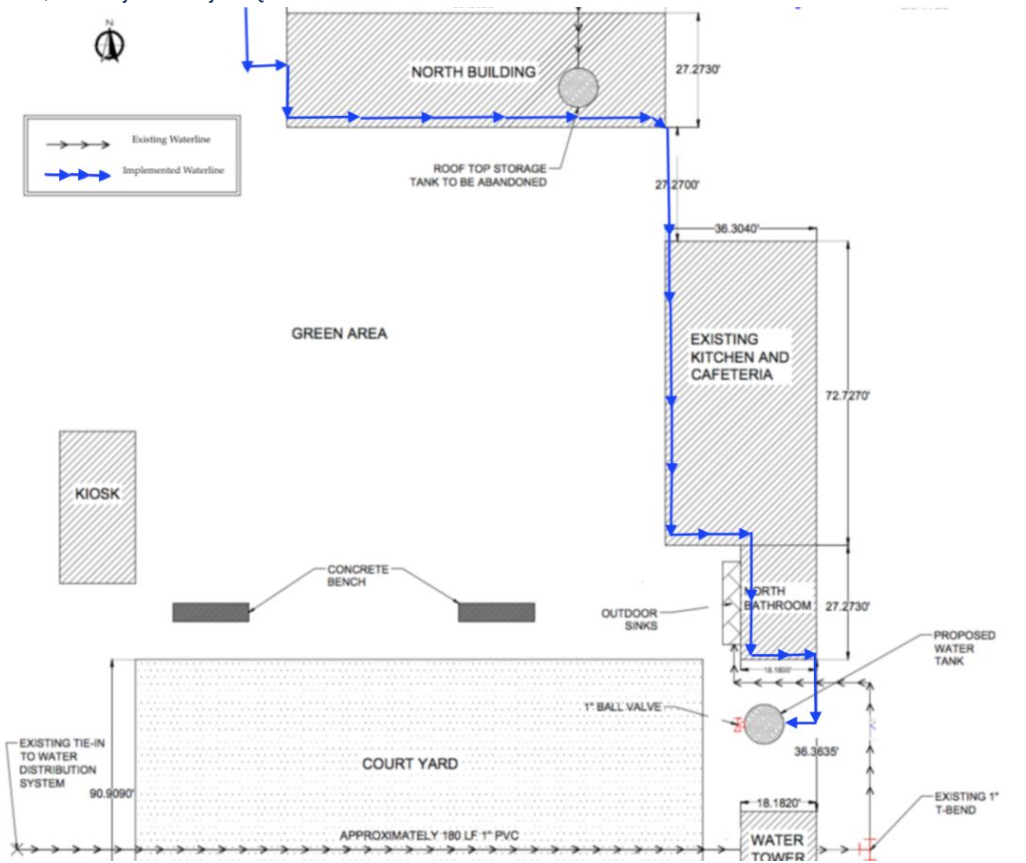
The document concludes with a brief analysis of the potential impact of the project. Below is an excerpt from this section:

Vj g"qxgt cni"rt qlgev" gpcdrf "c"pqp/hmpevkqkpi "y cvgt "uqwt eg"vq"rt qxf g"cp"gzvt c"3322N"qhl" erp"y cvgt "vq"vj g"rgo gpvct { "uej qqn"qhl"Xlt i gp"FnEcto gpOEapukf gt kpi "vj cv"vj g"uej qqn"qpr" t gegkxgu"y cvgt "hqt "c"o czko wo "vko g"qhl"cdqw"3"j qwt. "vj g"gpcdrgo gpv"qhl"c"ugeqpf ct { "y cvgt " uwr r r" "y kn"t grkxg" vj g"wt guu" qhl"cxkcdrg"y cvgt O" Fk gew" "rt qxf kpi "erpcp"y cvgt "vq"338" uwf gpw. "vj g"pgy r" "kpwcmgf" cdqxg/i t qwpf "y cvgt "vcpm"y kn" gpw g"rgu"i cwt qkpvguakpcn" krpguugu"co qpi "ej kf t gpOVj ku"y kn"kpet gcug"uej qqn"cvwgpf cpeg"cu"y gn"cu" f get gcug"vj g"pggf " hqt "rt qdcdrf"j gcmj "ect g"equuO"

List of Attachments

In this section, we included images, maps, and diagrams that are relevant to our project. This includes plan views and photographs of the project site and construction process. Additionally, there are tables and computer generated drawings providing dimensional information on design of the project components. This section also includes additional documents such as the community partnership document and the operations manual. Below are a few of these attachments.

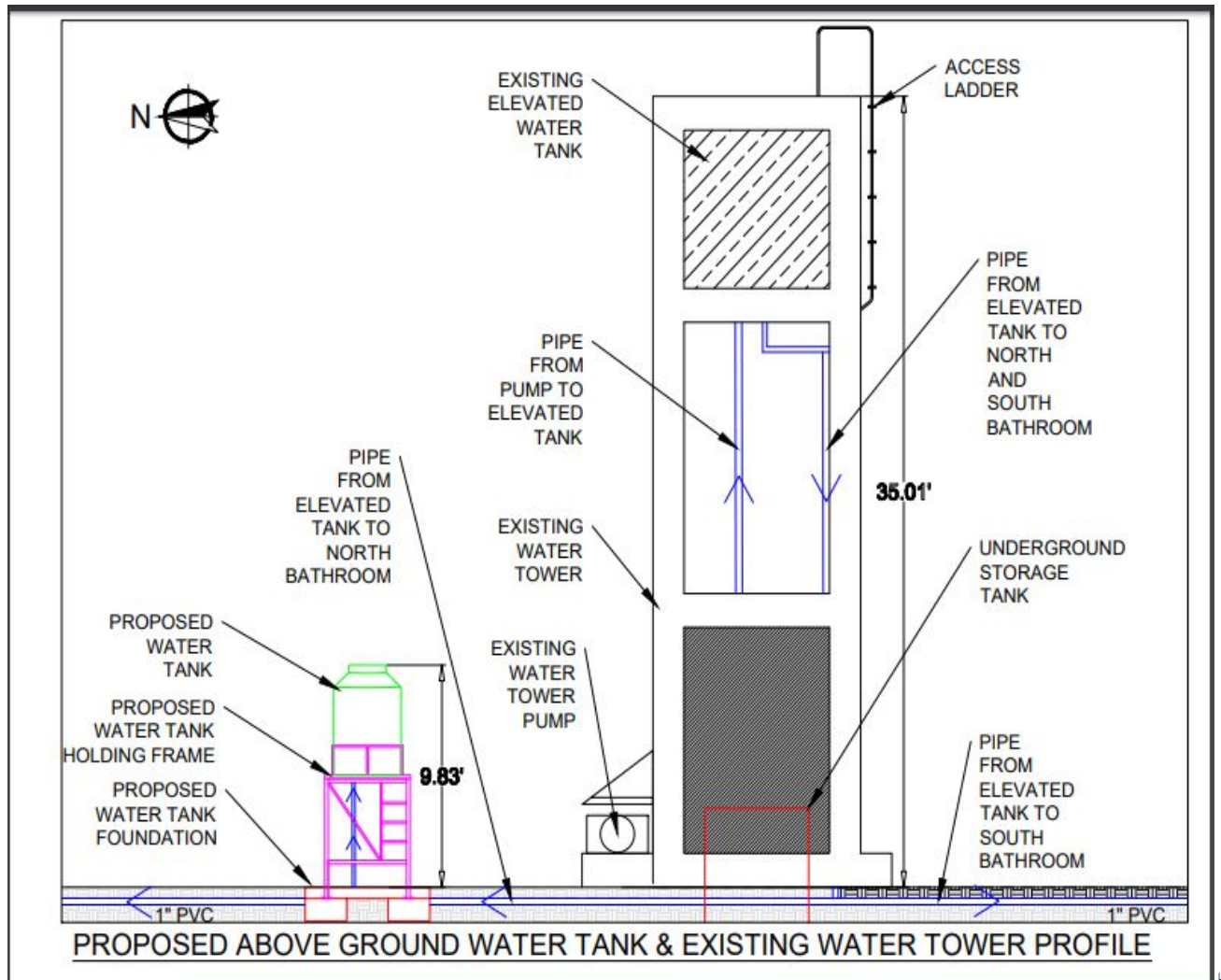
Buubdi n fou!B;!Bt.Cvjmu!Esbxjoh!QbdI bh f



A-1: Above-ground 1/2" PVC route from secondary water source (NW corner) to the above-ground 1100L water storage tank

b1
b1
b1

b1



b1
b1

b1