

**REPUBLIC OF LEBANON (GoL)**  
**COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION (CDR)**

**Lake Qaraoun Pollution Prevention Project**  
 Loan Agreement No. LB-8637 – Project ID IBRD P147854

**Component 1.3 - Expansion of the sewerage  
 network to connect to Aitanit WWTP**  
 Relocation of Pumping Stations in Baaloul and Qaraoun

Revision	Date	Prepared by
0	October 22 <sup>nd</sup> , 2021	Environmental and Social Consultant – CDR PMU
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## **ABBREVIATIONS AND ACRONYMS**

BOQ – Bill of Quantities

CDR – Council for Development and Reconstruction

ESMP – Environmental and Social Management Plan

E&S – Environmental and Social

LAP – Land Acquisition Plan

LRA – Litani River Authority

LQPPP – Lake Qaraoun Pollution Prevention Project

PS – Pumping Station

WWTP – Waste Water Treatment Plant

## 1. Introduction

Under subcomponent 1.3, expansion of the sewerage network to connect to Aitanit WWTP, the relocation of three out of the six pumping stations (PS1, PS3, and PS6) is proposed. This justification report presents the reasons behind relocation, and highlights all implications on the technical, contractual (re-measurement of items in the BOQ) and E&S safeguards aspects for each PS. E&S baseline conditions are presented in the ESMP; however, they describe conditions at the level of Baaloul and Qaraoun villages and not at the location of the PS. The LAP describes baseline land use and fixed assets at the PS location. This report presents all E&S impacts resulting from relocation, and identifies any mitigation measures additional to the measures presented in the ESMP. It serves as an annex to E&S instruments (LAP<sup>1</sup>, ESMP<sup>2</sup>) for any changes resulting from the relocation of the three pumping stations.

## 2. Pumping Station 1

In 2017, designs for constructing sewer lines in Baaloul and Qaraoun were prepared in coordination with the municipalities. PS1 was designed to be located in Baaloul on lot number 2283 owned by the Lebanese Republic.

However, in 2019, the municipality of Baaloul constructed a public drinking water well for the village downstream of the location of PS1. In October 2021, Baaloul municipality requested from the CDR (Letter ref. 209 dated 4/10/2021 attached in Appendix 1) to move the location of the pumping station towards the north by 25 m within the same lot (Figure 1). The request was also communicated to the Engineer, BTD. Relocation is required to prevent any risks of contaminating the water well in the event of overflow at the PS. The table below presents a comparison between the original location (baseline presented in the LAP) and the new location of PS1.

Pumping Station 1	Lot Number	Owner	Land Acquisition	Lot Area (m <sup>2</sup> )	Area of acquisition (m <sup>2</sup> )	Land use	Fixed assets	Fixed assets to be removed
Original location as per LAP <sup>3</sup>	2283	Lebanese Republic <sup>4</sup>	Designation	1,270	278	Non-irrigated rocky land	<ul style="list-style-type: none"> <li>• 4 olive trees (low production)</li> <li>• 1 walnut tree (low production)</li> </ul>	6 out of 7 trees (low production)
Proposed Relocation <sup>5</sup>	2283	Lebanese Republic	Designation	1,270	612	Non-irrigated rocky land	<ul style="list-style-type: none"> <li>• 2 almond trees (low production)</li> </ul>	None. One olive tree might be translocated.

<sup>1</sup> LAP link: [Aitanit Wastewater System - LAP](#)

<sup>2</sup> ESMP link: [Aitanit Wastewater System - ESMP](#)

<sup>3</sup> Note that there is an error in Table 3-2 in LAP. PS-1 is on Plot No. 2283 and PS-2 is on Plot No. 2587.

<sup>4</sup> Based on the property record, the lot belongs to Lebanese Republic (الجمهورية اللبنانية) and not the government of Lebanon as mentioned in LAP.

<sup>5</sup> An additional area of 334 m<sup>2</sup> compared to the LAP

The public water well is at an elevation of 1095.65 m. The original design of PS1 is at an elevation of 1099.35 m. At the new location, PS1 will be 25 m away from the original location at an elevation of 1097 m, and 17 m away from the water well. A survey and site plan at PS1 and section drawings at the proposed location are presented in Appendix 2. Based on site topography, in case of any overflow at the PS, the wastewater would be directed away from the public water well. Moreover, the design of PS will be adjusted to include the following overflow mitigation measures:

- Increase the size of the wet pit to hold inflow up to six hours at the peak flow calculated for 2040, which would secure enough time for the station's operating authority to take action in the event of pump failure (already implemented in the design presented in Appendix 2)
- Install screens and construct a precipitation pit or channel at the inlet of PS to reduce debris carried from storm water into the sewer network, thus reducing the risk of pump clogging (already implemented in the design presented in Appendix 2)
- Installing an automated sensor monitoring system to transmit information to the operator's control center which helps in identifying any malfunction at the PS and take immediate action (submitted for WB No Objection in variation order no.2)

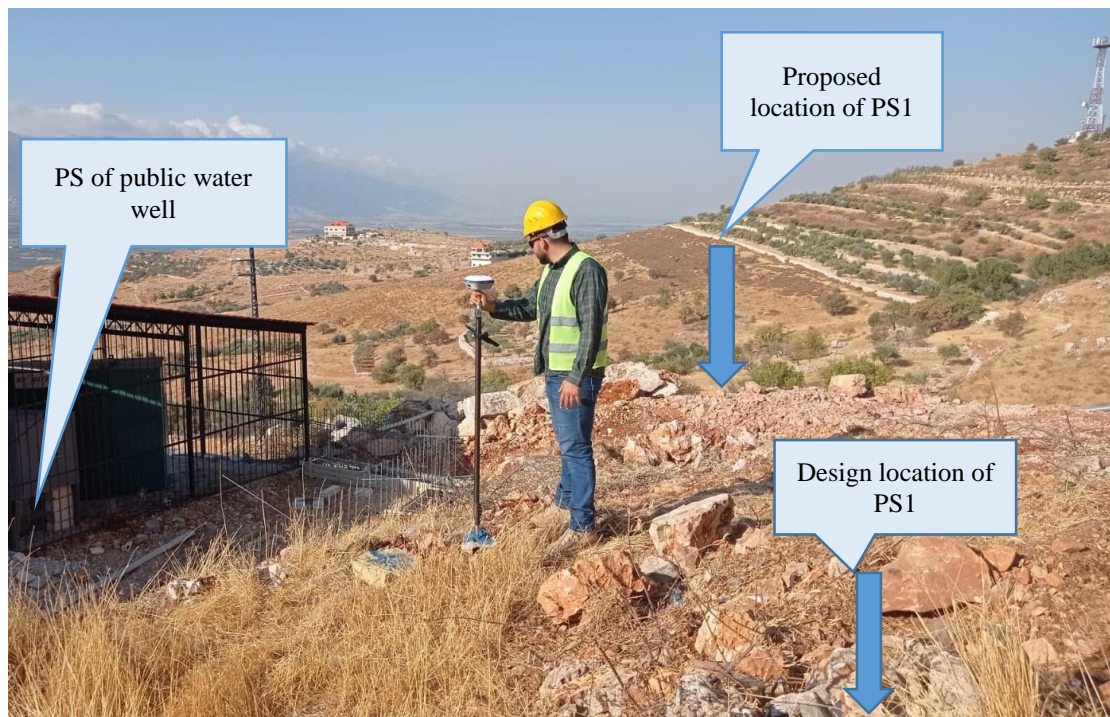


Figure 1: Site photograph of design and proposed location of PS1

Appendix 3 presents a satellite image of the design and proposed location of PS1. Based on site visit, attached photograph, the satellite image of the proposed location of PS1, and the mitigation measures proposed there are no foreseen impacts on the surrounding environment. Relocating PS1 would require designation for an additional area of 334 m<sup>2</sup> within the same lot

No. 2283 owned by the Lebanese Republic. The designation of the former area will not be cancelled as it is needed for the construction of the solar power station. The Engineer, BTD, shall prepare a designation file for the required additional area and submit it to CDR. After approval, the file would be transferred to the Ministry of Energy and Water (MoEW) and then to the Ministry of Finance (MoF) for approval. The expected time to complete these procedures is three months but the procedure is administrative and doesn't affect the commencement of construction works.

Relocating PS1 25 m north of original location would require the following additional works:

- Extending the length of the gravity and pumping sewer lines by 25 m
- Extending the length of the fence by 61 m assuming that the area for the solar power panels is part of the PS fenced area.

### 3. Pumping Station 3

Originally, PS3 was designed to be located on lot number 7365 in Qaraoun owned by the Lebanese Republic – LRA. In 2018, CDR later, requested the design consultant, BTD, to add additional sewer lines to serve all of Baaloul and Qaraoun. This required the relocation of PS3 from lot No. 7365 to an area of 144 m<sup>2</sup> that belongs to public domain because a suitable public lot located at a lower elevation could not be found in the surrounding area. This change was not reflected in the LAP. Moreover, for undocumented reasons, no actions were taken by CDR PMU in 2018 to follow up on the relocation of the PS to the public domain, and obtain the necessary occupation decree. Therefore, this option is discarded for relocation, but it is presented here for documentation purposes.

In November 2021, Qararoun municipality requested the CDR (Letter Ref. 708 dated 10/11/2021, copy is attached in Appendix 4) to relocate PS3 to lot number 7316, 200 m from the original location and at an elevation lower by 10 m. The lot is owned by the Lebanese Republic. The required area for designation is 250 m<sup>2</sup> for the PS and 300 m<sup>2</sup> for the solar power system, for a total area of 550 m<sup>2</sup>. The main reason for relocation is to avoid paying yearly fees for the occupation of public domain at the original location of PS3. Moreover, since the new location is further downstream, the PS would serve a bigger area. The table below presents a comparison between the original location (presented in the LAP) and the new location of PS3.

Pumping Station 3	Lot Number	Owner	Land Acquisition	Lot Area (m <sup>2</sup> )	Area of acquisition (m <sup>2</sup> )	Land use	Fixed assets	Fixed assets to be removed
Original location as per LAP	7365	LRA	Designation	1,122	222	Non-irrigated land/ shrub land planted grains	• Station building owned by LRA, bounded by a fence	None
	7366 (for access road)	LRA	Designation	1,465	127			

							• A water well room	
CDR Request in 2018	Public domain	-	Regularized occupation decree	-	144	Illegal occupation	Encroachment on public domain in 2019 : goat farm and a concrete room where a family of 7 Syrians, who work for the farm owner, reside <sup>6</sup>	Encroachment on public domain <sup>7</sup>
Proposed Relocation	7316	Lebanese Republic	Designation	630	550	Nonutilized rocky land	None	None



Figure 2: Site photograph of the proposed location of PS3

Appendix 5 presents an aerial image of the design and proposed location of PS3. Based on site photograph (Figure 2) and the aerial image of the proposed location of PS3, there are no

<sup>6</sup> Based on field visit conducted by CDR ES Consultant on September 20<sup>th</sup>, 2021, as reported in Semestrial Report (January – September 2021).

<sup>7</sup> Based on letter from Qaraoun Municipality (Letter Ref 595 dated 04/10/2021) noting that the municipality will remove all encroachments based on an agreement with the encroacher. The letter also states that the encroachment happened in 2019.

foreseen impacts on the surrounding environment. The land is not cultivated and there are no sensitive receptors. The Engineer, BTD, shall prepare a designation file and submit it to CDR. After approval, the file would be transferred to the Ministry of Energy and Water (MoEW) and then to the Ministry of Finance (MoF) for approval. The expected time to complete these procedures is three months but the procedure is administrative and doesn't affect the commencement of construction works.

Relocating PS3 would require the following additional works:

- Extending the length of the gravity line by 200 m within public domain. The works include excavation, concrete encasement, backfilling and asphaltting.
- Extending the length of the lift line by 200 m (public road)
- Increasing the length of the fence by 91 m in the event that the proposed area for constructing the solar power system would be included in the pumping station area

#### 4. Pumping Station 6

The original design of PS6 is located on lot number 4243 in Qaraoun that belongs to the Lebanese Republic - LRA. During a field visit held on August 18<sup>th</sup>, 2021 the representative of the LRA requested the Engineer, BTD, to relocate PS6 a distance of 30 m to lot number 639 (Figure 3) in Qaraoun that is partially expropriated by LRA. The main reason is that LRA is planning to construct a road around Qaraoun Lake which would pass through the designed location of PS6. The table below presents a comparison between the original location (presented in the LAP) and the new location of PS6.

Pumping Station 6	Lot Number	Ownership	Land Acquisition	Lot Area (m <sup>2</sup> )	Area of acquisition (m <sup>2</sup> )	Land use	Fixed assets	Fixed assets to be removed
Original location as per LAP	4243	LRA	Designation	1,122	222	Non-irrigated land/ shrub land planted grains	Forest of pine trees and prickly cedar trees	Approx. 15 trees
	643 (for access road)	LRA	Designation	1,465	127	Non-irrigated land/ Part planted with vine/ part planted with	<ul style="list-style-type: none"> <li>• Existing road of width 5 m</li> <li>• Approx. 10 pine trees</li> </ul>	Approx. 10 trees

						three almond trees		
Proposed Relocation	639	LRA (partial expropriation of 560 m <sup>2</sup> )	Designation	1,381	560	Non-irrigated land/shrub land	None	None



Figure 3: Site photographs of the proposed location of PS6

Appendix 6 presents an aerial image of the design and proposed location of PS6. Relocating PS6 would lead to decreasing the length of the sewer line by 30 m. It would not impact the number of housing units benefiting from this station, neither now nor in the future. It would require designation of an area of 560 m<sup>2</sup> at lot 639. Following an official request from LRA, the Engineer, BTM, shall prepare a designation file for the required additional area and submit it to CDR. After approval, the file would be transferred to the Ministry of Energy and Water and then to the Ministry of Finance for approval. The expected time to complete these procedures is three months but the procedure is administrative and doesn't affect the commencement of construction works.



**Appendix 1**  
Letter from Baaloul Municipality

الجمهورية اللبنانية  
وزارة الداخلية والبلديات  
محافظة البقاع - قضاء البقاع الغربي  
بلدية بعول  
ص/١٤٢

جانب مجلس الاتماء والاعمار  
المرجع: بلدية بعول  
الموضوع: طلب إزاحة محطة ضخ صرف صحي

لما كانت بلدية بعول قد قامت عام ٢٠١٩ بحفر بئر أرتوازي لمياه الشفة لصالح البلدة على العقار رقم ٢٢٨٣ منطقة بعول العقارية، وقامت ببناء محطة ضخ لصالح البئر وتشغيله عام ٢٠٢٠.

لذلك نتقدم منكم بلدية بعول بطلب إزاحة محطة الصرف الصحي المزمع تنفيذها من قبلكم ٢٥ خمسة وعشرون متراً باتجاه الشمال على العقار ذاته كما تبين الخريطة المرفقة، لإبعادها عن بئر المياه.

بعول في ٢٠٢١/١٠/٤

وتفضلوا بقبول الإحترام  
رئيس بلدية بعول  
محمد نصر الدين محي الدين

بلدية بعول  
رقم التسجيل: ٢٠٩  
التاريخ: ٢٠٢١/١٠/٤

**Appendix 2**

Site topography and section drawings at PS1

**Appendix 3**

Aerial Image of design and proposed location of PS1

**Appendix 4**  
Letter from Qaraoun Municipality

**Appendix 5**

Aerial Image of design and proposed location at PS3

**Appendix 6**

Aerial Image of design and proposed location PS6