



**SILVERTOWN TUNNEL**




**DOCUMENT TITLE:**

**Groundwater Monitoring and Verification Plan – SGN  
Accesses/PRS Replacement**

**DOCUMENT NUMBER:**

**ST150030-RLC-ZZZ-06-S10-PEM-TP-0007**

<b>PURPOSE OF ISSUE</b>	For Acceptance	<b>DOCUMENT SUITABILITY</b>	S3 - For Review & Comment	<b>TOTAL PAGES (Including this page)</b>	11
-------------------------	----------------	-----------------------------	---------------------------	--	----

Prepared by	Checked by	Approved by	Date	Revision
 CJV Environmental Manager	 CJV Consents Coordinator	 CJV Consents Manager	07/05/2020	P01

**Issue and Revision Control**

Document uncontrolled when printed.

<b>Revision History</b>			
<b>Rev No</b>	<b>Date</b>	<b>Summary of Changes</b>	<b>Section &amp; Number</b>
P01	07/05/2020	First Issue	

## Contents

<b>1. Overview .....</b>	<b>4</b>
1.1 Introduction .....	4
1.1 Groundwater Monitoring and Verification Plan .....	4
1.2 Scottish Gas Networks Accesses and Pressure Reduction Station Relocation Works .....	4
1.3 Depths of Excavations .....	9
1.4 Groundwater and ground conditions.....	10
1.5 Groundwater controls required during the works.....	11

# 1. Overview

## 1.1 Introduction

The Silvertown Tunnel (STT) scheme involves the construction of a twin bore road tunnel providing a new connection between the A102 Blackwall Tunnel Approach on the Greenwich Peninsula (Royal Borough of Greenwich) and the Tidal Basin roundabout junction on the A1020 Lower Lea Crossing / Silvertown Way (London Borough of Newham). The project was formally granted planning permission through a Development Consent Order (DCO) issued by the Department of Transport in May 2018. STT will be approximately 1.4km long and able to accommodate large vehicles including double-decker buses. It will include a dedicated bus, coach and goods vehicle lane, enabling TfL to provide additional cross-river bus routes. The scheme also includes the introduction of free-flow user charging on both the Blackwall Tunnel (northern portal located in London Borough of Tower Hamlets) and the new Silvertown Tunnel.

Transport for London (TfL) have entered into a Project Agreement with the Project Company Riverlinx (Project Co) who are responsible for the detailed design, construction, financing and maintenance of the tunnel and supporting infrastructure. A 5 year period of design and construction will be followed by a further 25 years of operation and maintenance. The Project Co has appointed Riverlinx CJV as the Design and Construction (D&C) Contractor responsible for undertaking the detailed design and construction of the STT scheme all in accordance with the constraints and parameters of the Development Consent Order (DCO), TfL specifications and other commitments made by TfL to stakeholders. Riverlinx CJV is a joint venture formed between Ferrovial Agroman (UK) Ltd, BAM Nuttall and SK Engineering and Construction Co Ltd.

## 1.1 Groundwater Monitoring and Verification Plan

The DCO, Schedule 2, Paragraph 5 requires that prior to works commencing for a part of the project, various plans are submitted to consenting bodies for their approval. One such plan is a Groundwater Monitoring and Verification Plan. The purpose of the Groundwater Monitoring and Verification (GMVP) is to detail how Riverlinx CJV will set out groundwater monitoring and reporting criteria during preconstruction, construction and post-construction.

A GMVP covering the construction works has been submitted to the Environment Agency as part of the formal consenting process set out within Schedule 2 of the DCO (document number ST150030-RLC-ZZZ-XX-ZX-PLN-EN-0002). It is recognised that the wider Silvertown Tunnel construction works will involve multiple groundwater activities, as well as some limited dewatering/depressurisation of groundwater. The significant scope and depth of information contained within the main GMVP referenced above is commensurate with the scale of the main construction works.

However, it is proposed that there are some minor utility works and highways accesses to be undertaken in advance of the commencement of the main construction works. These works are very minor in nature, and require small and shallow excavations. Due to the minor scale of these works and the low risk that they are deemed to represent to groundwater, a short standalone document has been produced (this document) in order to provide the Environment Agency with the opportunity to expeditiously discharge the requirement set out within the DCO for a GMVP to be approved – in respect to the scope of these small scale advanced works only. The works are described in further detail below.

## 1.2 Scottish Gas Networks Accesses and Pressure Reduction Station Relocation Works

The Scottish Gas Networks (SGN) accesses and Pressure Reduction Station (PRS) works are of a very minor scale and are situated upon existing operation Scottish Gas Networks (SGN) land.

These small-scale works consist of the following activities;

- **SGN Access 2 – (PRS Relocation)** – The STT permanent highway design will redirect the A102 (Northbound) toward the new Silvertown Tunnel. In doing so the existing SGN Pressure Reduction System

(PRS) is required to be relocated by SGN in order to facilitate the new highways design. For SGN to relocate the existing PRS, a new access is required to be constructed to connect directly to the northbound carriageway of Millennium Way. The works to construct this access will be split in two phases to allow the PRS relocation by SGN. See Figure 1 for location of SGN Access 2 – PRS Relocation works.

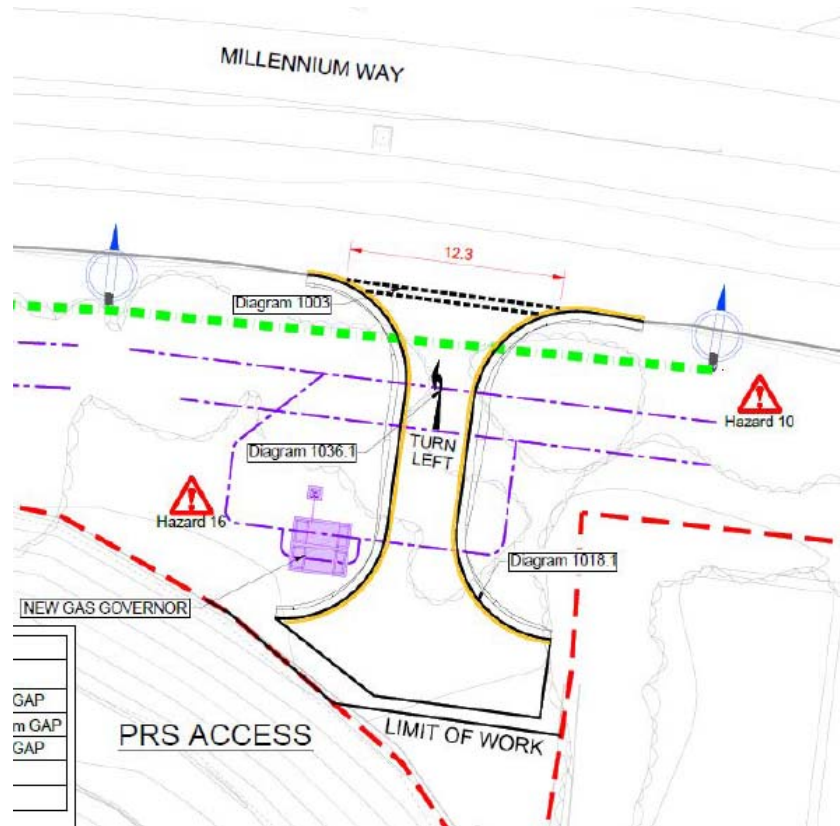


Figure 1 - Location of SGN Access 2 – PRS Relocation works

- **SGN Access 1 – (Gasholder)** – Due to the permanent design of the Cut and Cover tunnel section of Silvertown Tunnel the existing SGN facility access will be removed therefore Riverlinx CJV will construct a new access (SGN Access 1) to the SGN facility. Once construction of the access splay is completed for SGN Access 2 (PRS relocation) a second access splay for SGN access will commence (SGN Access 1). This new access is required to be constructed to connect directly to the northbound carriageway of Millennium Way. See Figure 1 for location of SGN Access 2 – PRS Relocation works.

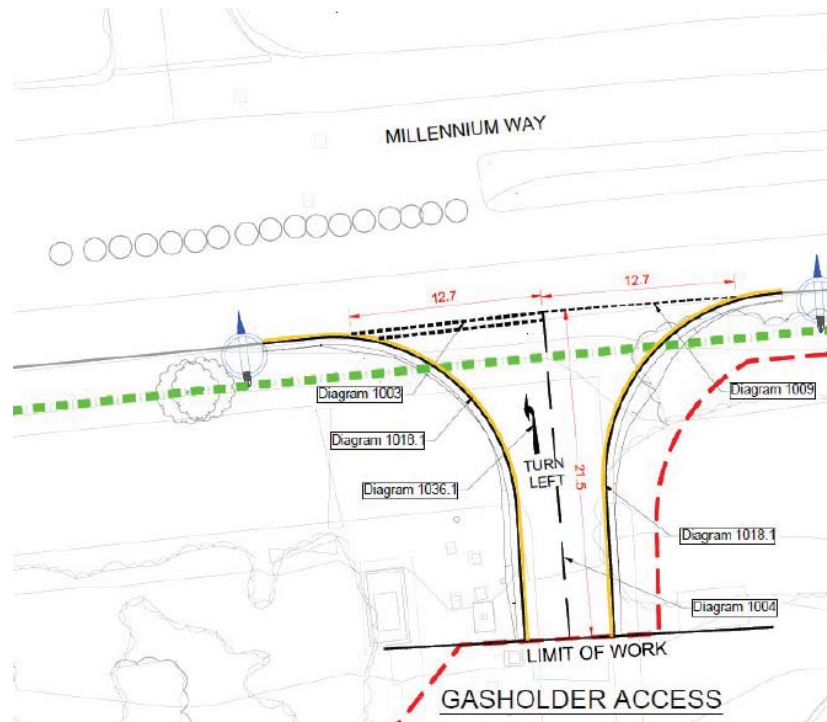


Figure 2 – Location of SGN Access 1 – Gasholder Access works

- **PRS Works (undertaken by Scottish Gas Networks)** – Undertaken by SGN in the vicinity of access 2 (as shown above), following the removal of the existing Gas Pressure Reduction Station to the south of the Gas Holder site, these works consist of the installation of a partially buried prefabricated pipework and cabinets. Small scale excavation between 1 and 2 meters will be required to house the cabinets. A picture providing an indicative illustration of the replacement PRS (this is of an existing albeit near identical PRS) is provided below as Figure 3. A replacement palisade fence and protection bollards (within the compound) will be installed around the completed PRS.



**Figure 3 – Illustrative photograph of a standard SGN Gas PRS, of the type to be installed (note that the PRS proposed for Greenwich involves only two of the grey cabinets rather than the three in the image)**



For site context, please see figure 4 below showing where the sites are located within the Greenwich Peninsula.



**Figure 4 – SGN Accesses and PRS Relocation works location within the Greenwich Peninsula**

The works are currently planned to commence as follows;

- PRS phase 1 on the 14th of July 2020
- PRS Relocation undertaken by SGN
- PRS phase 2 on the 18th December 2020
- Gasholder on the 18th December 2020

The anticipated durations of each item of works is as follows;

- The PRS access phase 1 to be constructed within 15 working days.
- The PRS access phase 2 to be constructed within 10 working days.
- The Gasholder access to be constructed within 30 working days.



### 1.3 Depths of Excavations

Generally the excavations will be no greater than approximately circa 2.3m below ground level. The following plans illustrate the scale and nature of the excavations required

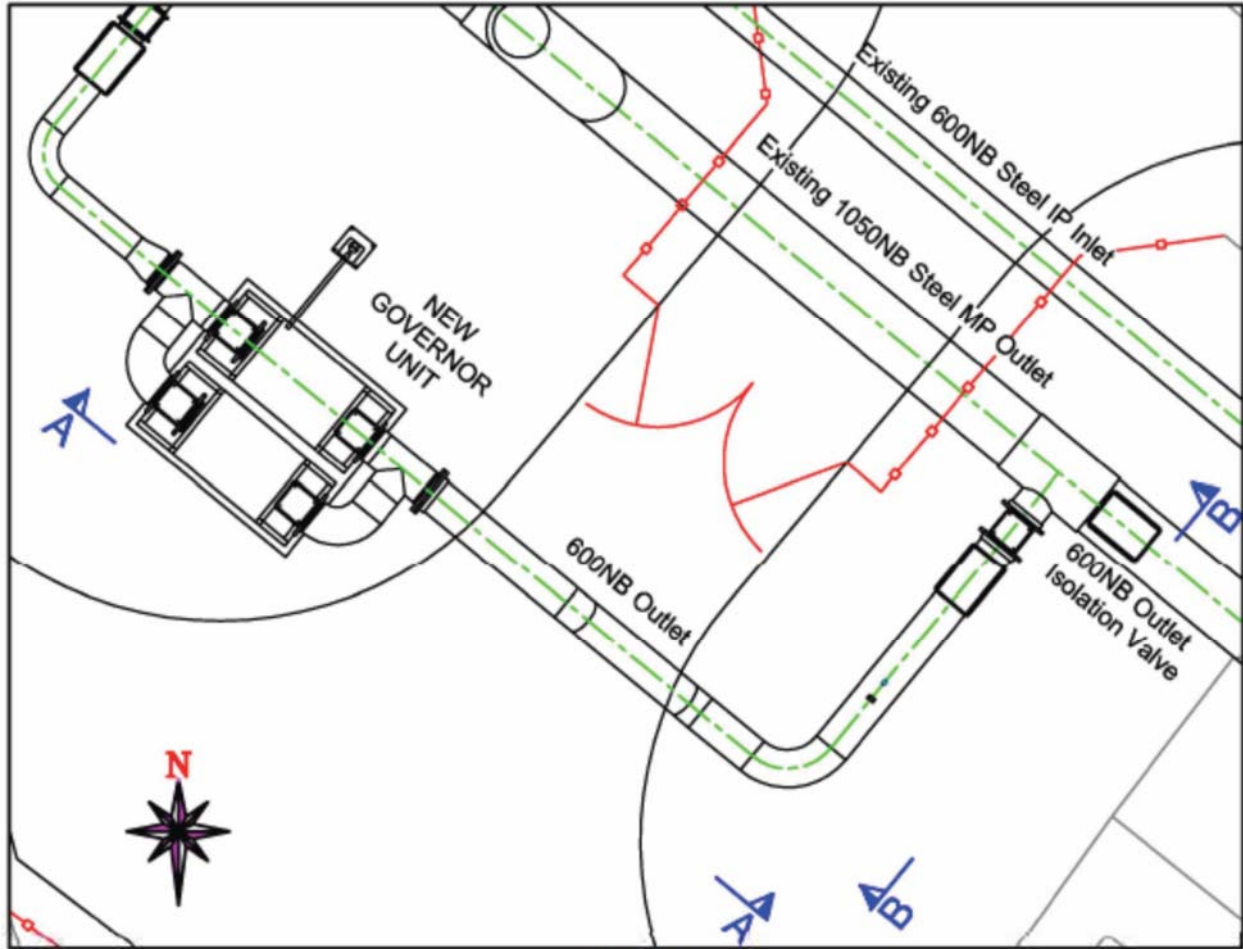


Figure 5 – Plan view of the PRS works

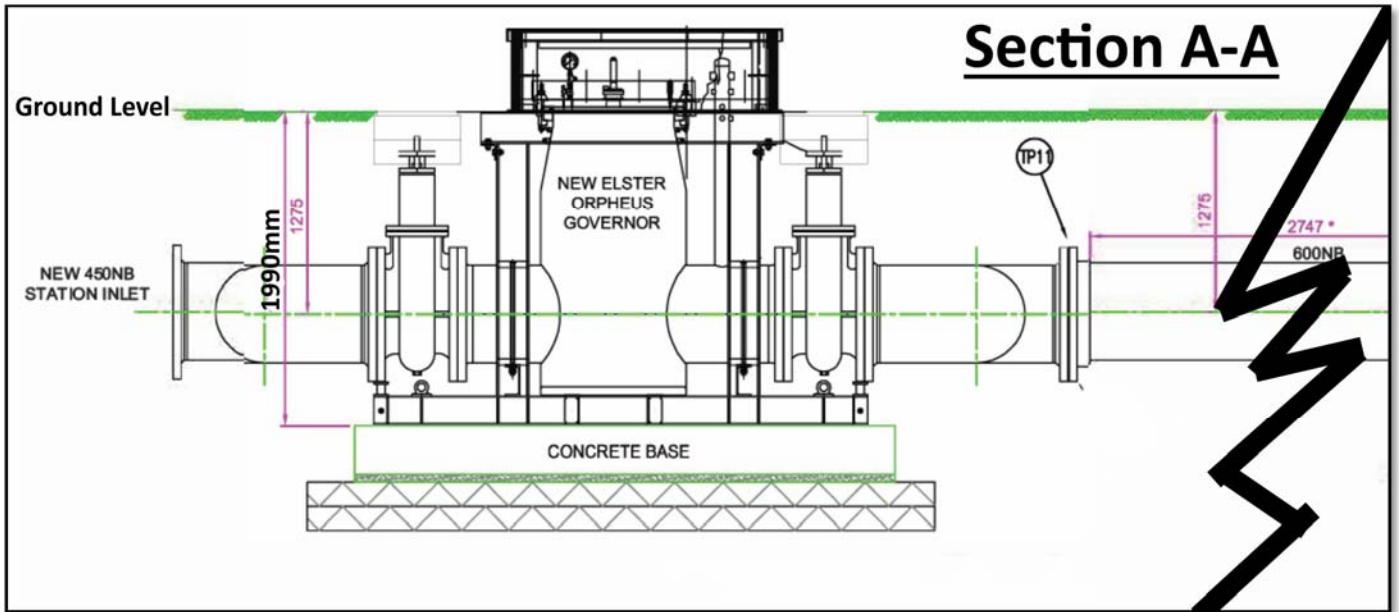


Figure 6 – Plan Illustrating PRS works – Section A-A

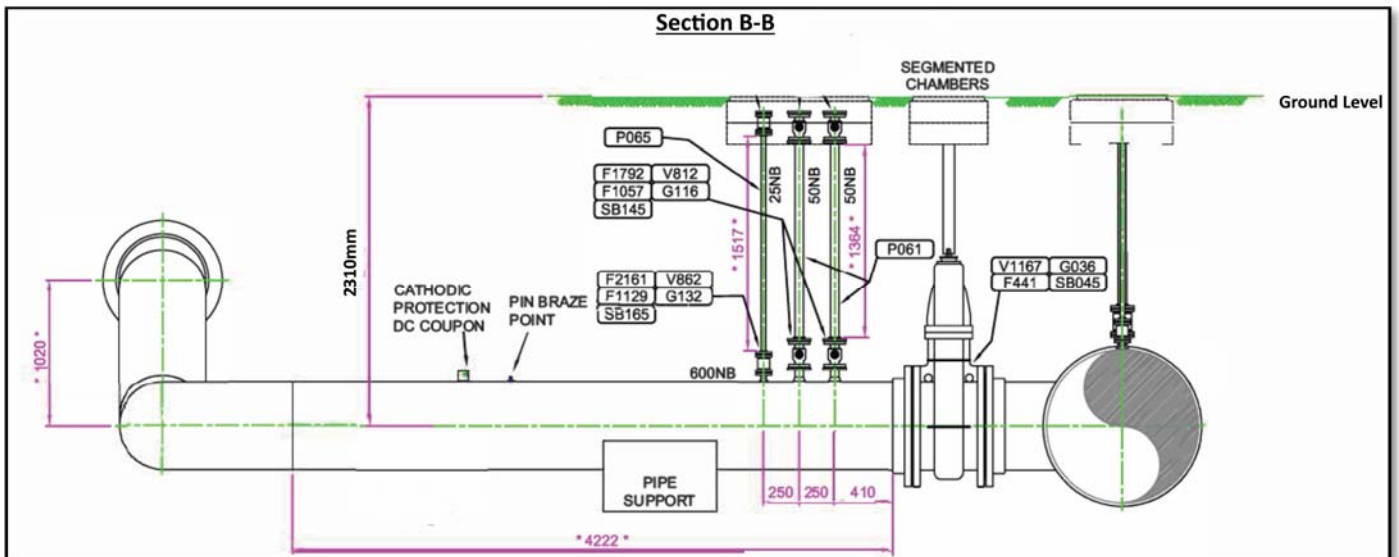


Figure 7 – Plan Illustrating PRS works – Section B-B

### 1.4 Groundwater and ground conditions

Three distinct aquifers are recognised at this location:

- An ‘upper aquifer’ associated with the River Terrace Deposits (RTD) (secondary A aquifer) which is located above the low permeability London Clay Formation;
- An ‘intermediate aquifer’ associated with the Harwich Formation and granular beds within the upper Lambeth Group (a secondary A aquifer) located below the London Clay; and
- A ‘lower aquifer’ associated with the lower Lambeth Group (Upnor Formation), Thanet Sand which are hydraulically connected to the underlying Chalk (principal aquifer), known as the Chalk and basal sands aquifer.

The site is not located within a groundwater source protection zone (SPZ) for potable water supply.

The nearest surface water feature is the River Thames which is approximately 250m south west and 550m to the east of the works area. The River Thames is tidal within this section of London, with a maximum range of spring tides between Mean Low Water Springs (MLWS) -2.78mOD and Mean High Water Springs (MHWS) 3.76mOD.

Drawing upon past ground investigations in this area, it is anticipated that groundwater levels are approximately 4m bgl – which would be below the deepest trenches/excavations required as part of these works.

These works are anticipated to be undertaken predominantly within Made Ground, with a very slight possibility of encountering upper Alluvium.

### 1.5 Groundwater controls required during the works

No dewatering/depressurisation of groundwater is required for these works – due to the shallow and limited nature of the excavations, which are not anticipated to extend below the groundwater levels. The excavations will be limited to the Made Ground and upper Alluvium and will therefore not interfere with the RTD aquifer and associated groundwater (controlled waters).

Accordingly, there is no specific monitoring that has been identified as necessary, nor is proposed, associated with these works.