



# **The Line C Central Section:** **where Engineering meets** **Archaeology**

**ing. Andrea Sciotti**

**Roma Metropolitane s.r.l.**  
**Technical Director and Line 'C' Project Manager**

## Line C: the 'Fundamental Route'

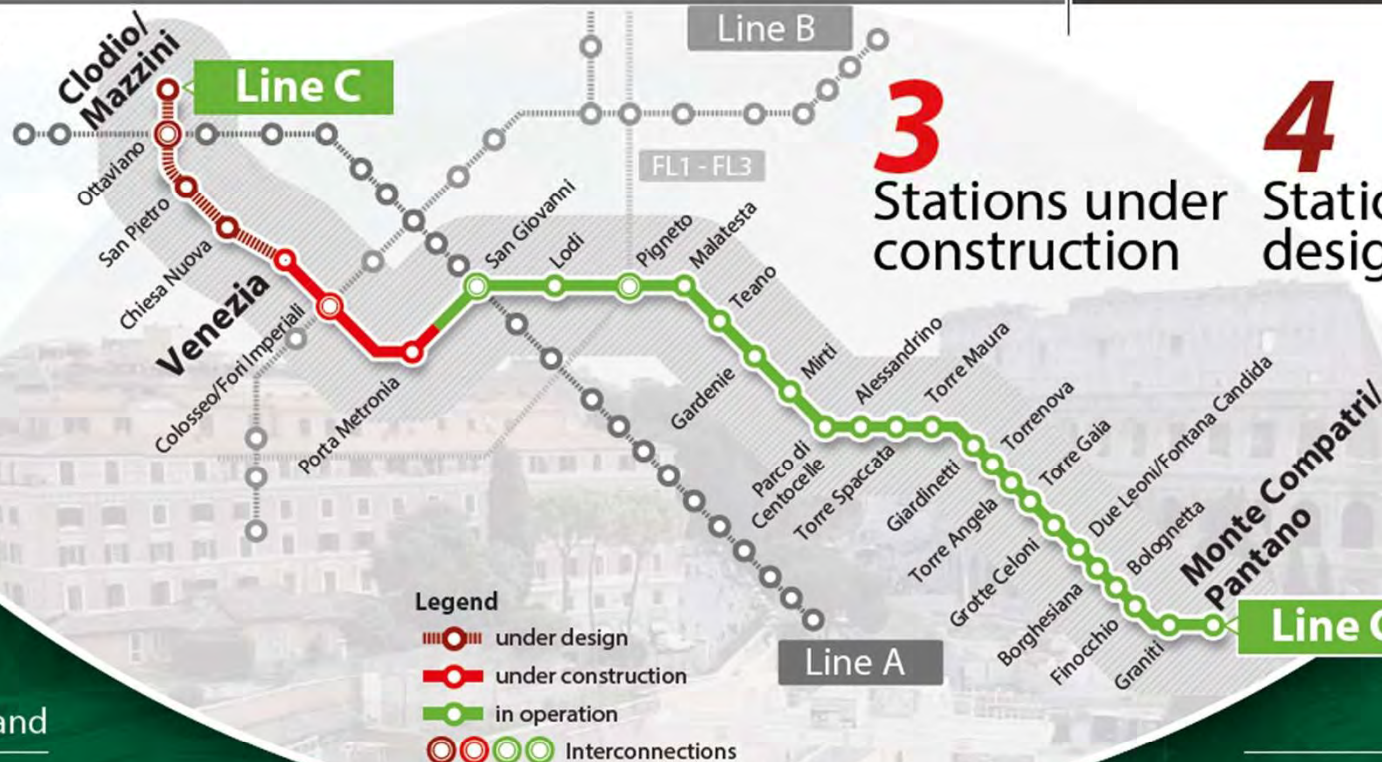
Underground line **17km**

Overall length **26km**

Open-air line **9km**

**22**

Stations in operation



**3**

Stations under construction

**4**

Stations under design

### BENEFITS FOR THE TERRITORY



**-310** thousand  
tons/year of CO<sub>2</sub>



**24** thousand  
passengers/hour  
in each direction



**585** thousand m<sup>3</sup>  
archaeological excavations

**4**

museum-stations

### PEOPLE & SUPPLY CHAIN

**>500**



people engaged  
directly and indirectly hired workers (as at December 31, 2023)

**>1,500**



suppliers involved (from when works began to December 2023)

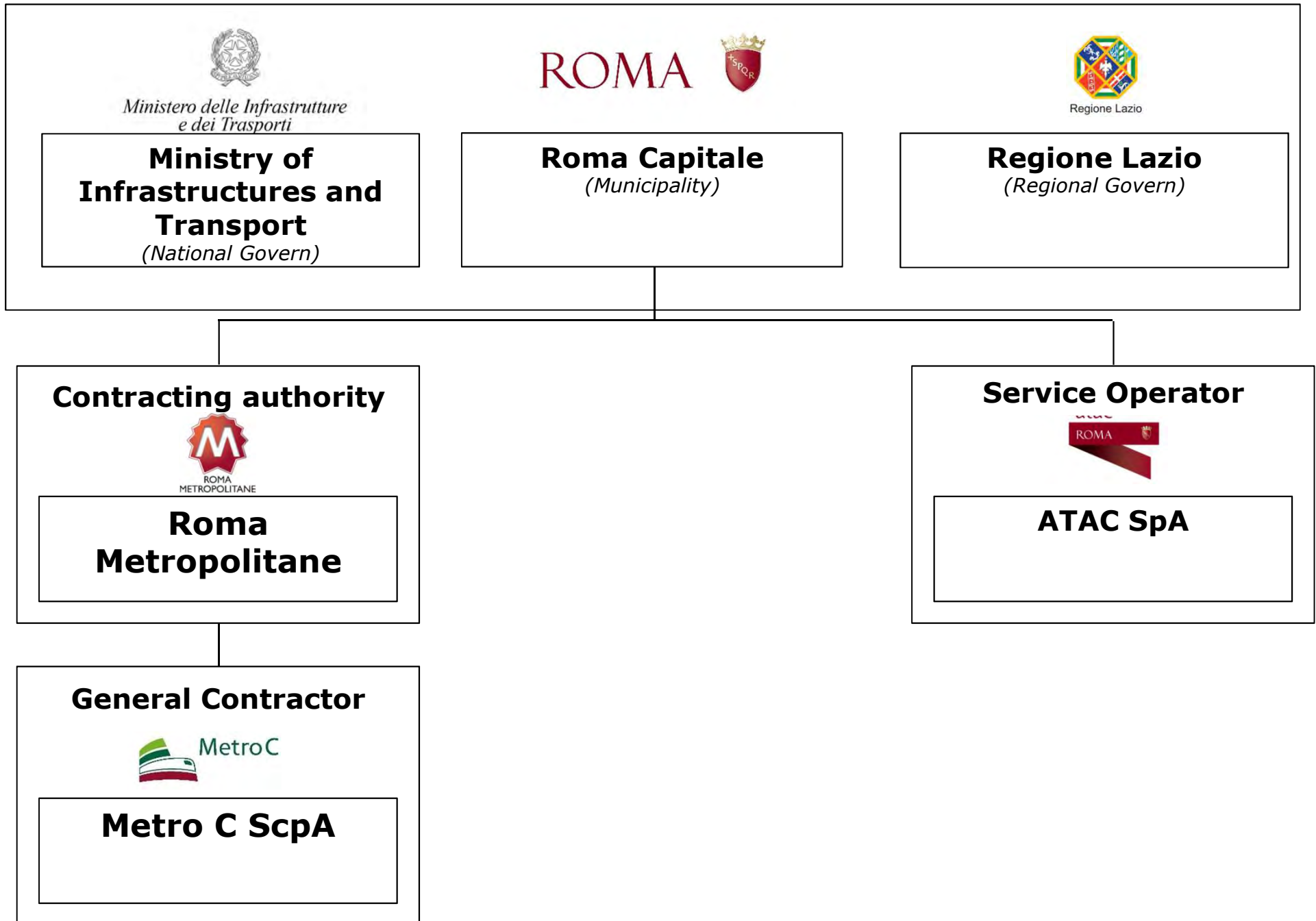
**4,400,000 m<sup>3</sup>**  
Earth and rock  
from excavation

**585,000 m<sup>3</sup>**  
Archaeological  
investigations

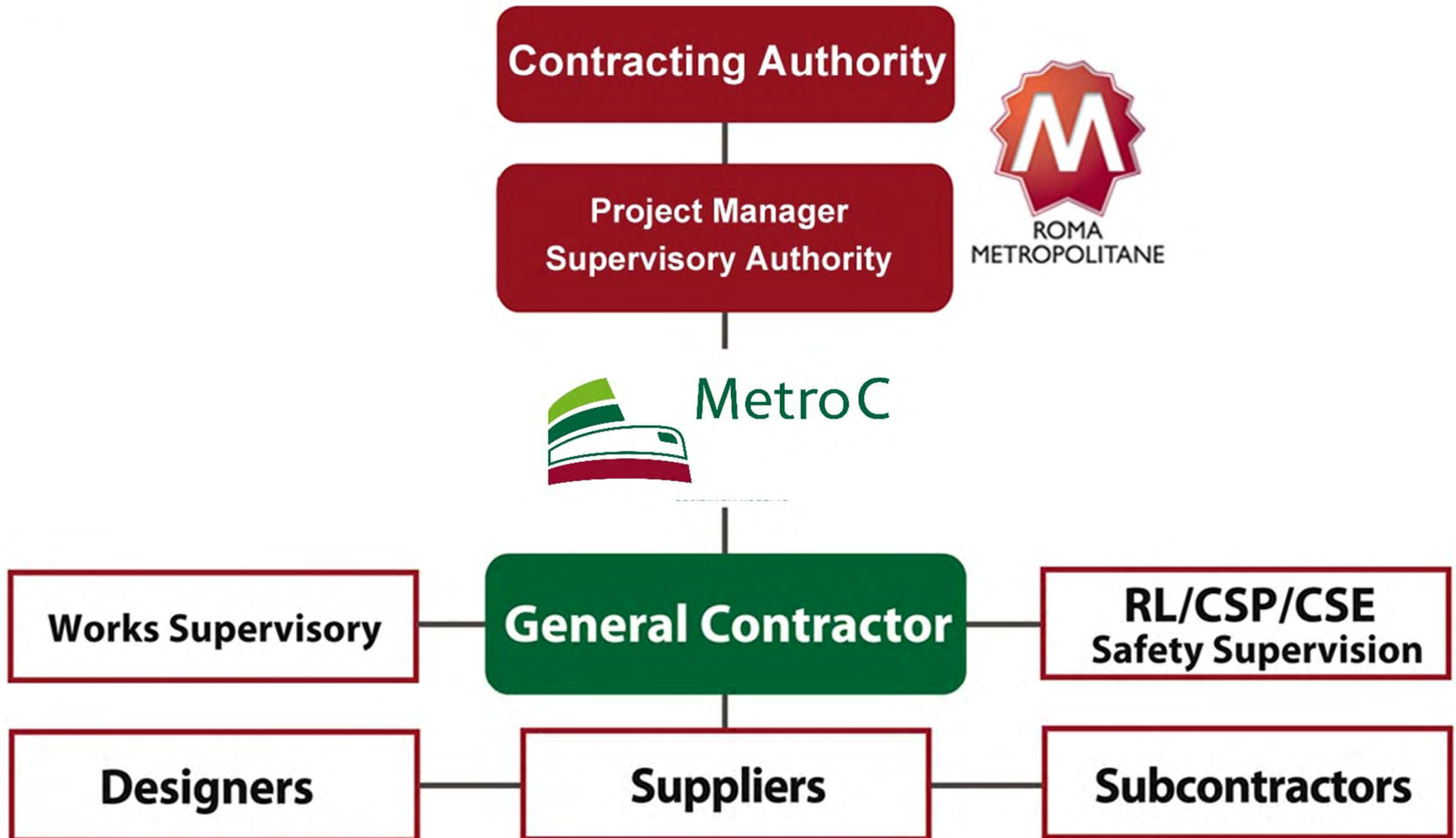
**285,000 t**  
Steel reinforcement  
bars

**1,830,000 m<sup>3</sup>**  
Structural concrete

## Line C: funding bodies



## Line C: entrustment to a General Contractor





## Line C: main characteristics

**Line C** is the first **fully automated** underground metro line in Rome.

The trains are **driverless** with automated **platform sliding doors** which increase station safety and improve service quality



**Line C train**

**24.000 passengers/h**  
for each direction

**30 trains** of 6 cars each

**204 sitting places**  
for each car + bicycle

**107 m** train length

**80 km/h** max speed



**Platform sliding doors**



## Line C: main characteristics

An area of about **220,000 m<sup>2</sup>** called “Deposito di Graniti” is used to house the complete rolling stock fleet of Line C and to carry out maintenance operations



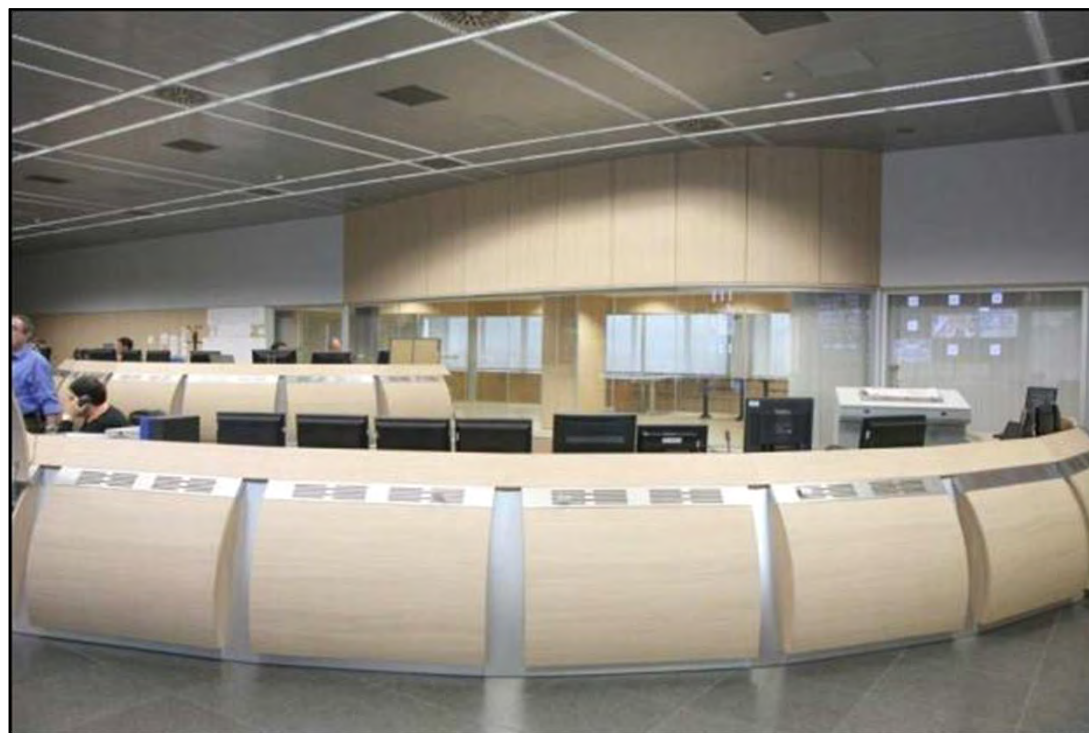


## Line C: main characteristics

The **Operation Head Office**, for remote train **steering and control**, is located in a dedicated building in the "Deposito di Graniti"



**Operation Head Office –  
external view**



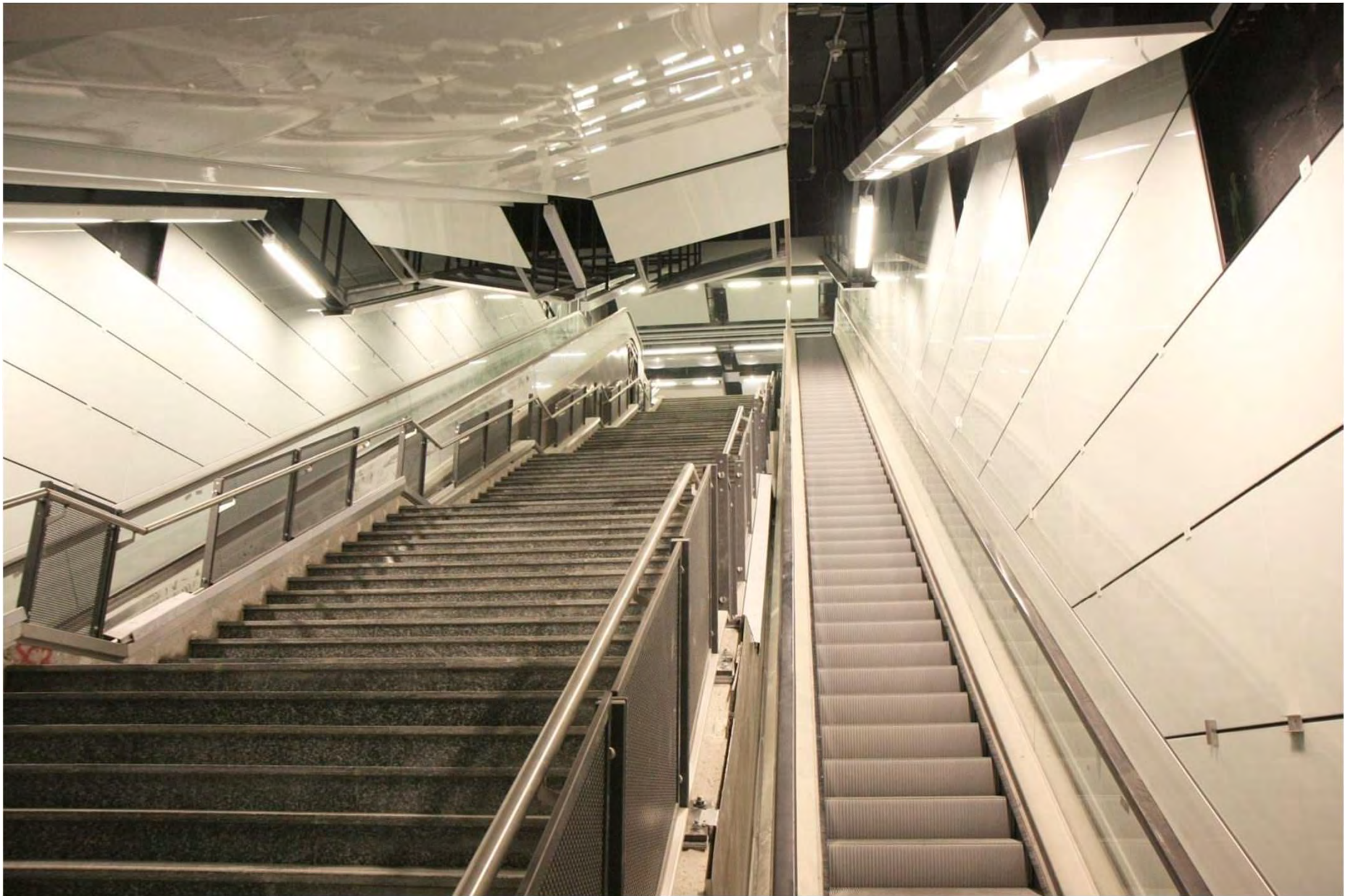
**Operation Head Office –  
internal view**

## Line C: station in operation





## Line C: station in operation





## Line C: station in operation





## Line C: line in operation





## Linea C: T3 section and S. Giovanni Station





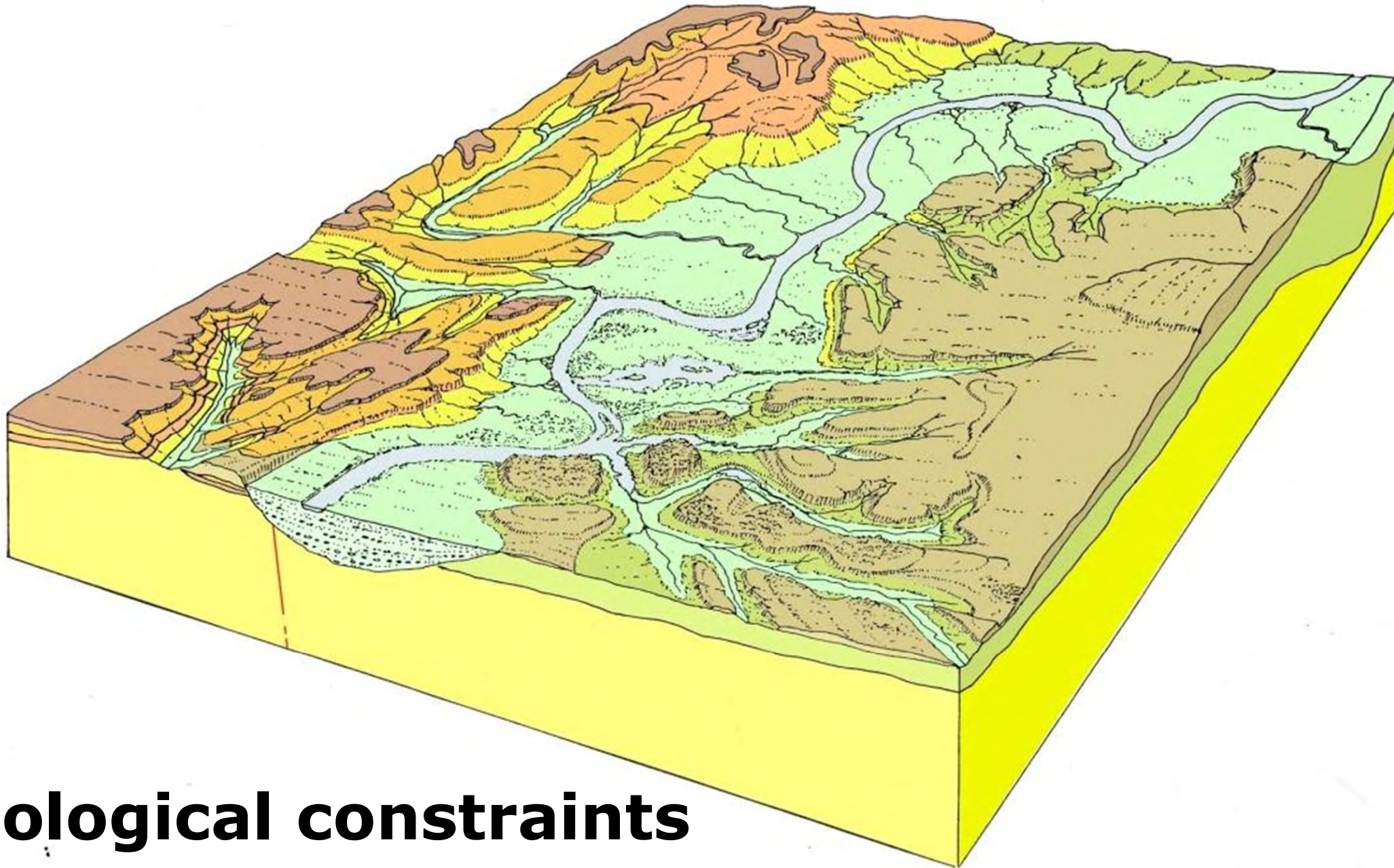
## Underground Works in Rome: the challenges



**Heavily built-up areas**



## Underground Works in Rome: the challenges



# Geological constraints



## Underground Works in Rome: the challenges



## The Monuments and the Historical Buildings





## Underground Works in Rome: the challenges



# The stratified sub-soil

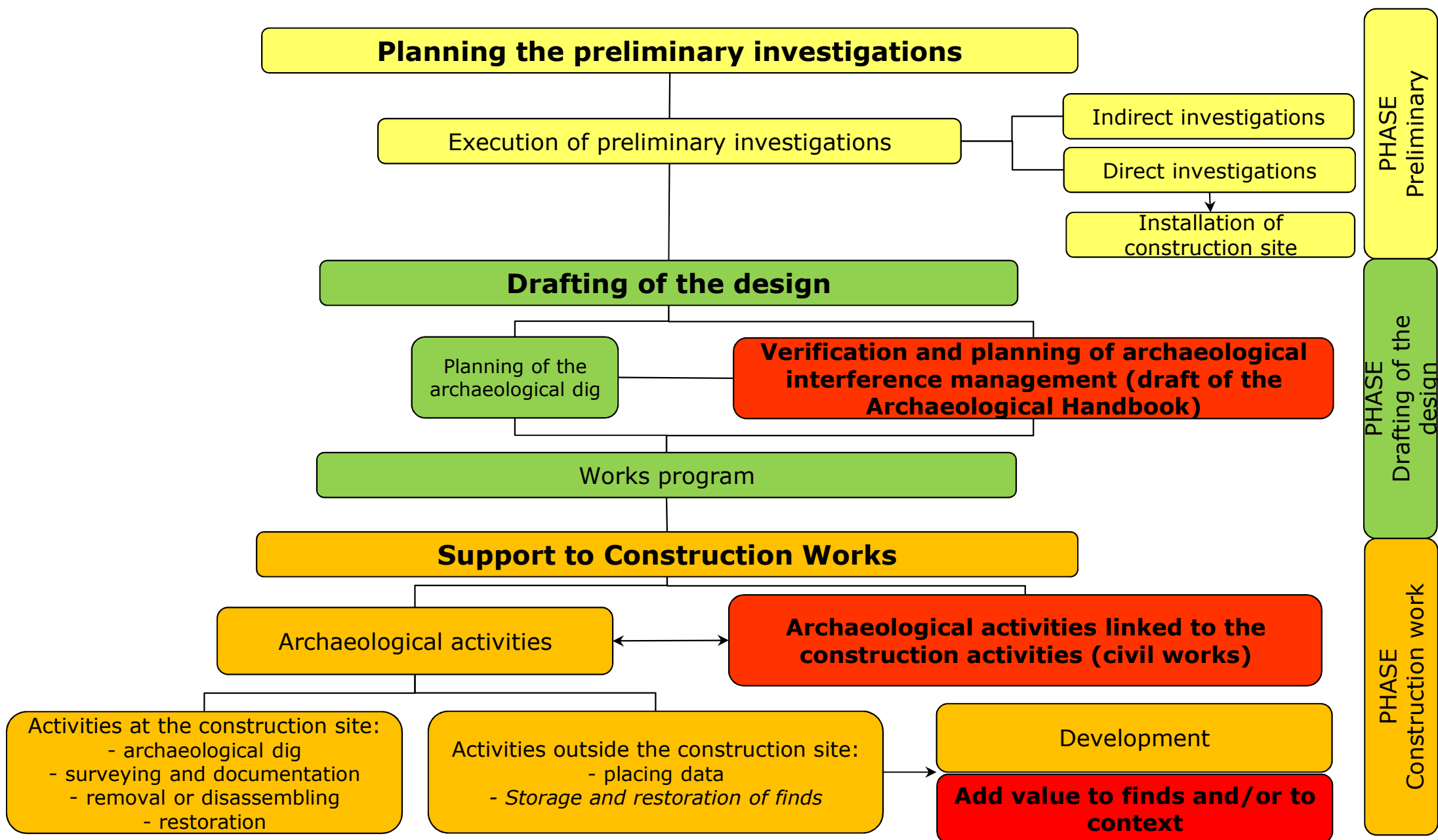


## **Line C: archaeological surveys**

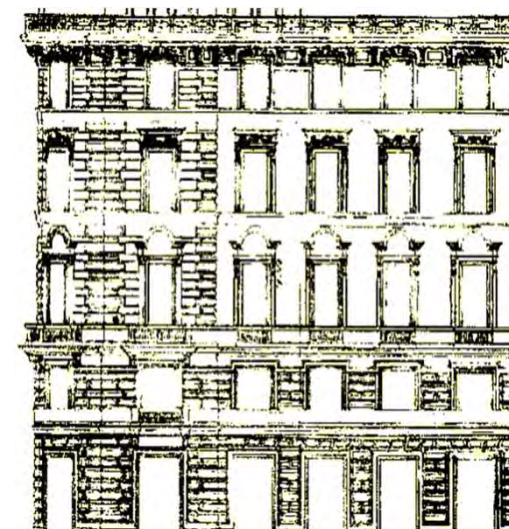
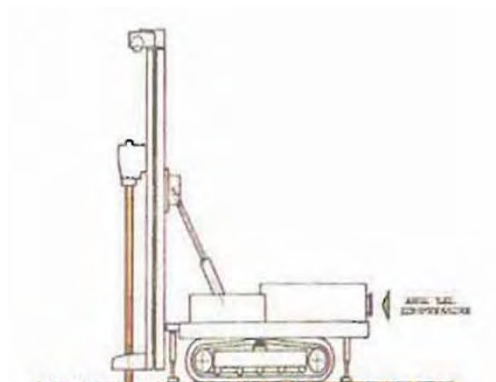
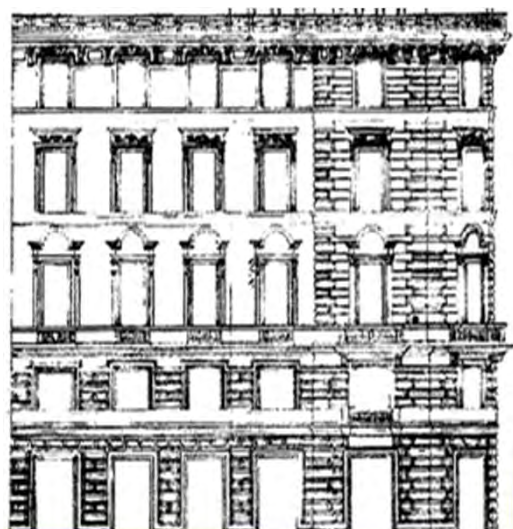
The archaeological surveys started in 2006 with the execution of preliminary investigations. The results of these surveys were reported in a document named “Prontuario” - “handbook”. This document sets, already in the design phase, with the Cultural Ministry Office, the excavation methods and the organization of the archaeological excavations during station construction phases. This method ensures the respect of the Project and the performance times, safeguarding the archaeological findings.

It is the first example in Italy of an important and constant cooperation between the Client, the Contractor and the Archaeological Ministerial Office.

## Line C: the 'archaeological solution'

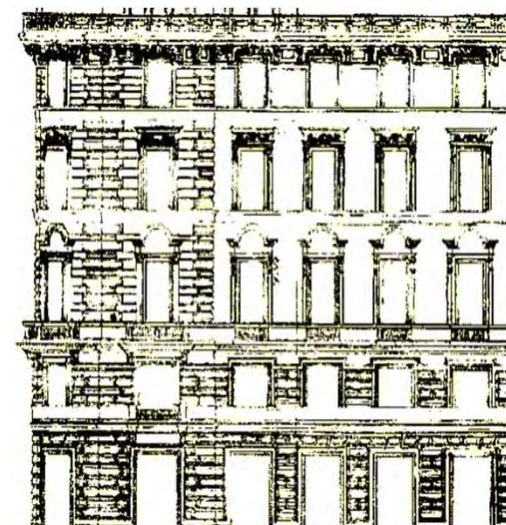
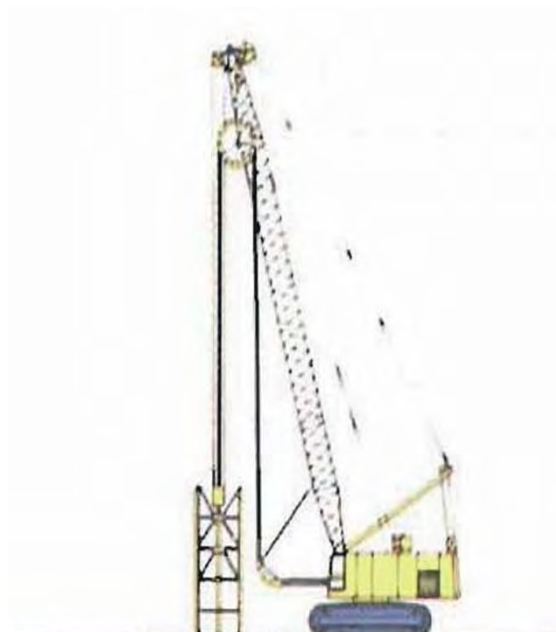
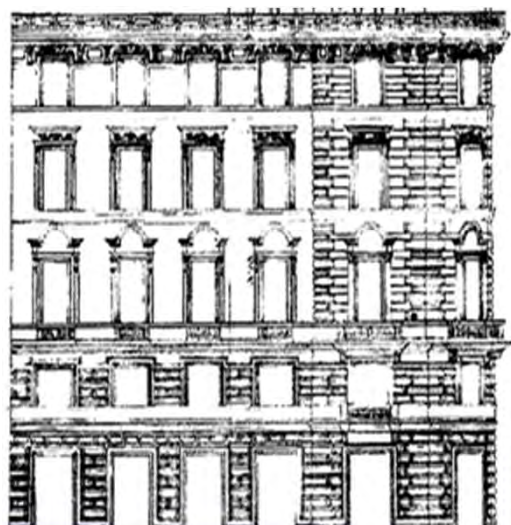


## Line C: the 'archaeological solution'



Preliminary archaeological  
surveys (step 1)

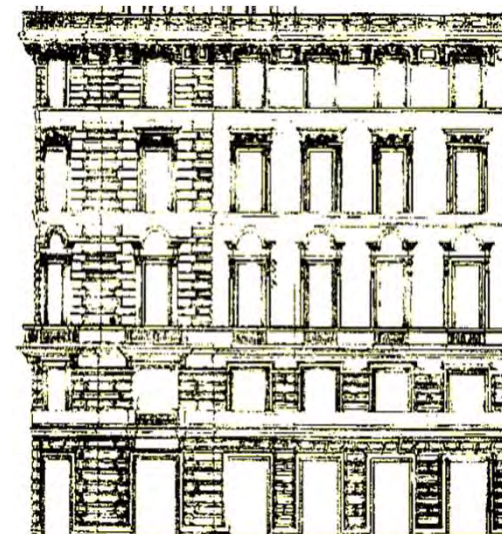
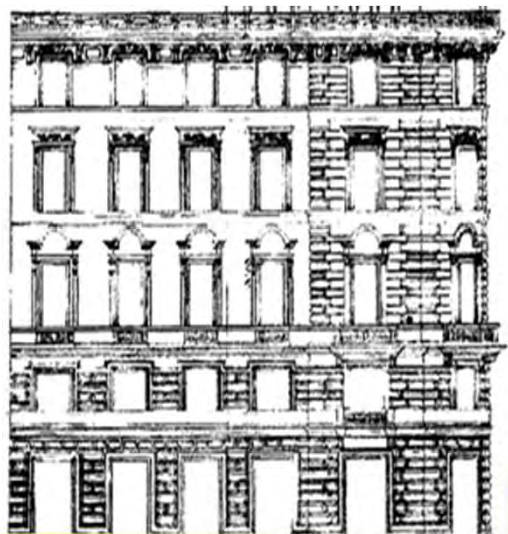
## Line C: the 'archaeological solution'



Diaphragm walls execution



## Line C: the 'archaeological solution'



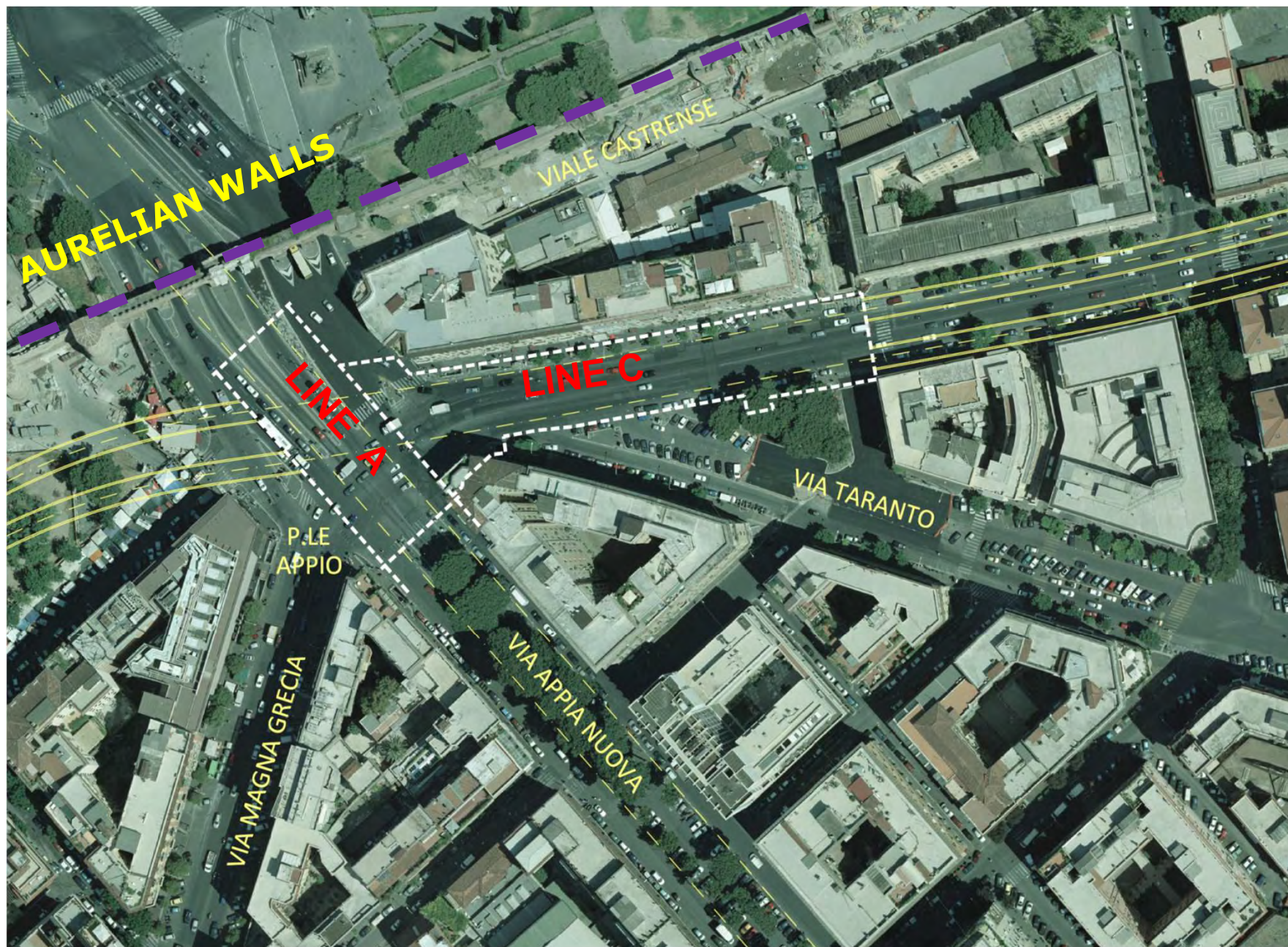
6 - 20 m

Excavation by  
archaeological methods  
down to the natural  
ground  
(for the entire area of  
stations and shafts)

Final archaeological  
verification (step 2)



## Line C: San Giovanni station





## Linea C: S. Giovanni Station

## San Giovanni Station - Line C

39,00 asl

**MODERN AND  
CONTEMPORARY  
PERIOD  
(XVIII-XXI a.C.)**

32,00 asl

**EARLY MODERN  
PERIOD  
(XV-XVII a.C.)**

30,50 asl

**MIDDLE AGES  
(VII-XIV a.C.)**

29,00 asl

**LATE IMPERIAL  
PERIOD (IV-VI a.C.)**

25,50 asl

**MIDDLE IMPERIAL  
PERIOD (III a.C.)**

20,00 asl

**EARLY IMPERIAL  
PERIOD (I-II a.C.)**

19,50 asl

**REPUBLICAN  
PERIOD (V-I b.C.)**

19,00 asl

**ARCHAIC PERIOD  
(VII-VI b.C.)**

15,50 asl

**PROTOHISTORIC  
PERIOD**

14,00 asl

**PLEISTOCENE  
FORMATIONS**

FASE 21	1880-1910 (XIX-XXI a.C.)	b Rasature e livellamenti per la realizzazione del quartiere contemporaneo a Interri su Via dei Canneti, messa in opera degli ambienti 9, 10 e nuovi interventi edili negli ambienti 4-5
FASE 20	1880-1910 (XIX-XXI a.C.)	Ambienti 4, 5, 7, 8
FASE 19	1880-1910 (XIX-XXI a.C.)	b Vialotto e nuovi interventi edili nell'amb. 3 a Selciato dell'Appia e condotti idrici
FASE 18	1880-1910 (XIX-XXI a.C.)	Irreggimentazione del fosso, vasche per la calce ed i battuti della via Appia. I primi battuti di via dei Canneti e gli ambienti 2-3
FASE 17	1880-1910 (XIX-XXI a.C.)	Interventi di rasatura della stratigrafia e delle strutture, livellamenti e primi battuti su via dei Canneti
FASE 16	1880-1910 (XIX-XXI a.C.)	Realizzazione dell'ambiente 1=11
FASE 15	1880-1910 (XIX-XXI a.C.)	Resti di strutture medioevali
FASE 14	1880-1910 (XIX-XXI a.C.)	Depositi naturali, accrescimento lento tra VI secolo d.C. e medioevo
FASE 13	1880-1910 (XIX-XXI a.C.)	Seppulture e riporti tardo-antichi
FASE 12	1880-1910 (XIX-XXI a.C.)	Bonifiche ad anfore e canali drenaggio
FASE 11	1880-1910 (XIX-XXI a.C.)	Riporti legati a bonifiche e canali di drenaggio Interfaccia di distruzione delle strutture idrauliche e livellamento a quota m. 22,70 sim Spoliazioni ed interro della vasca
FASE 10	1880-1910 (XIX-XXI a.C.)	Fase di uso della vasca e della noria, sistemazione del giardino Realizzazione della vasca
FASE 9	1880-1910 (XIX-XXI a.C.)	Le strutture idrauliche del Corpo 3 ed i condotti con tubuli fittili Realizzazione canale principale NW/SE, corpo 3 Realizzazione del muro in opera reticolata
FASE 8	1880-1910 (XIX-XXI a.C.)	Abbandono della canaletta in cappellaccio e della chiusa Seconda fase di utilizzo della canaletta in cappellaccio e realizzazione della chiusa
FASE 7	1880-1910 (XIX-XXI a.C.)	Messa in opera della canaletta in cappellaccio e sistemazione del bacino idrico nel settore nord
FASE 6	1880-1910 (XIX-XXI a.C.)	Realizzazione del muro ad empilecton con cortine in blocchi di cappellaccio
FASE 5	1880-1910 (XIX-XXI a.C.)	Depositi alluvio-colluviali con materiali antropici
FASE 4	1880-1910 (XIX-XXI a.C.)	Occupazione agricola dell'area con reticolo di canali ed una struttura con scapoli di tufo
FASE 3	1880-1910 (XIX-XXI a.C.)	Canalizzazione con argine artificiale in blocchi di cappellaccio
FASE 2	1880-1910 (XIX-XXI a.C.)	Alluvioni con materiali antropici
FASE 1	1880-1910 (XIX-XXI a.C.)	Limi Sabbie e ghiaie

STREET LEVEL

39.00

30.00

20.00

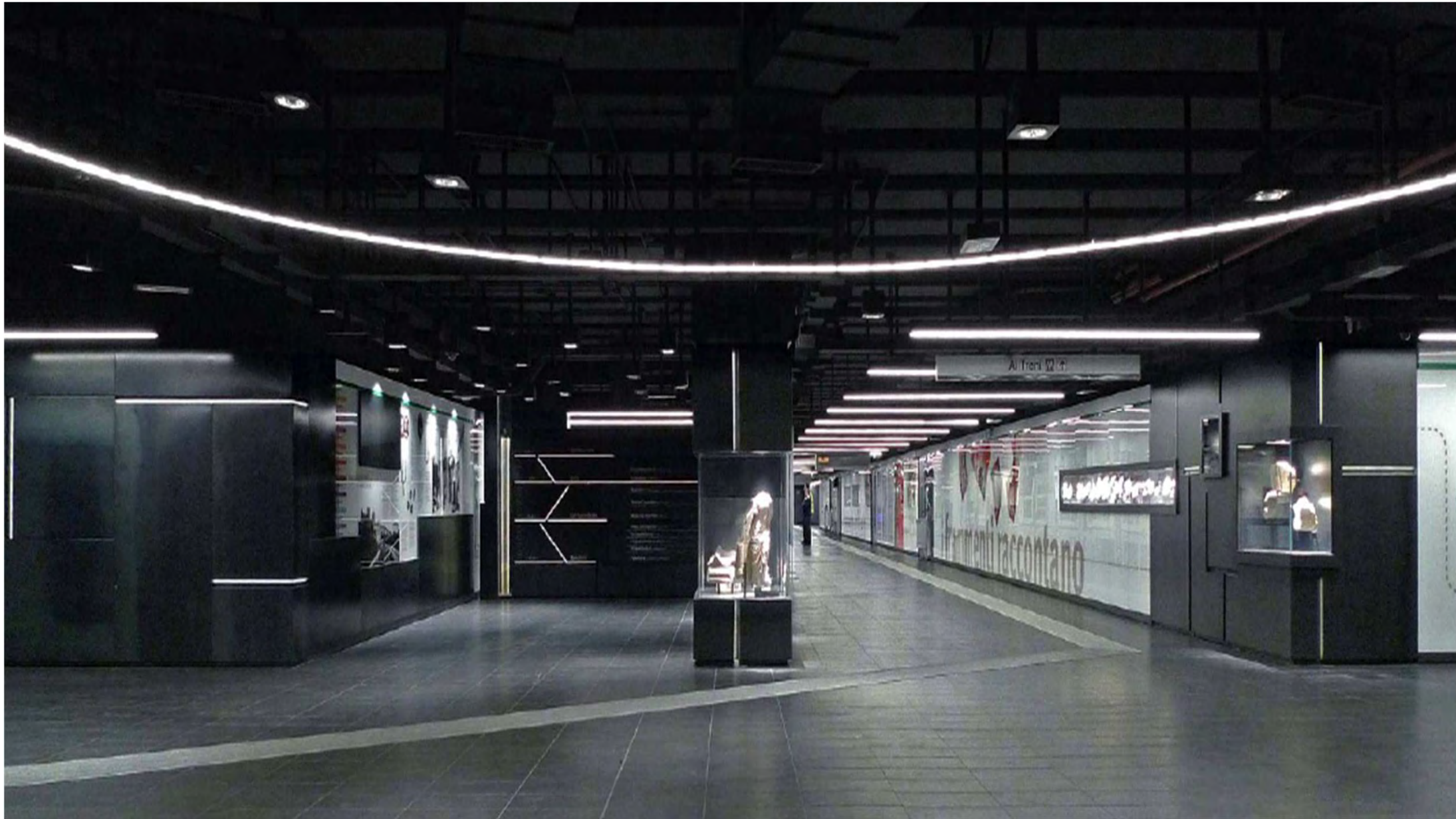
10.00

0.00

# The case history of San Giovanni station



## Line C: the San Giovanni museum-station





## Line C: the San Giovanni museum-station



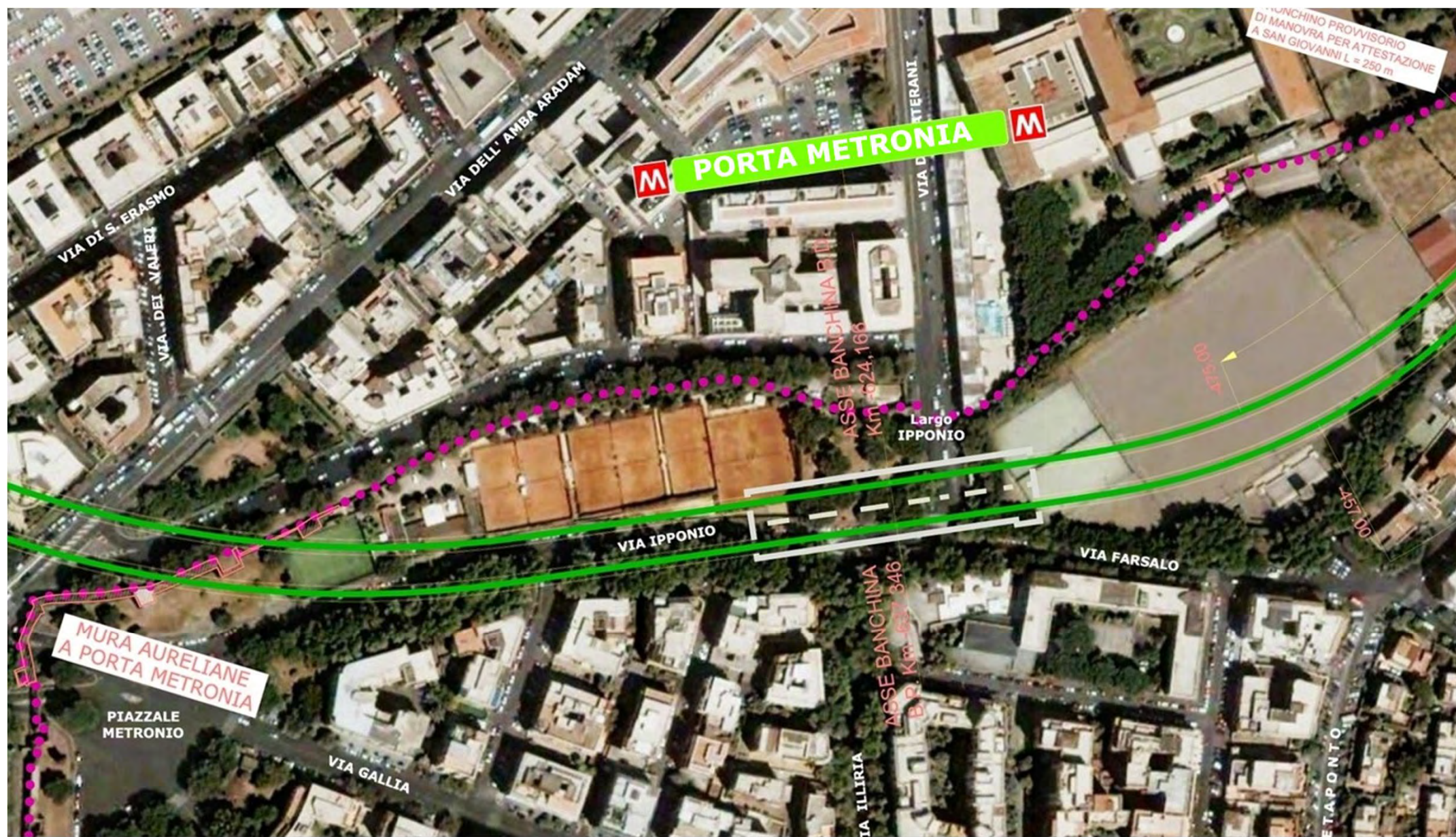


## Line C: the San Giovanni museum-station



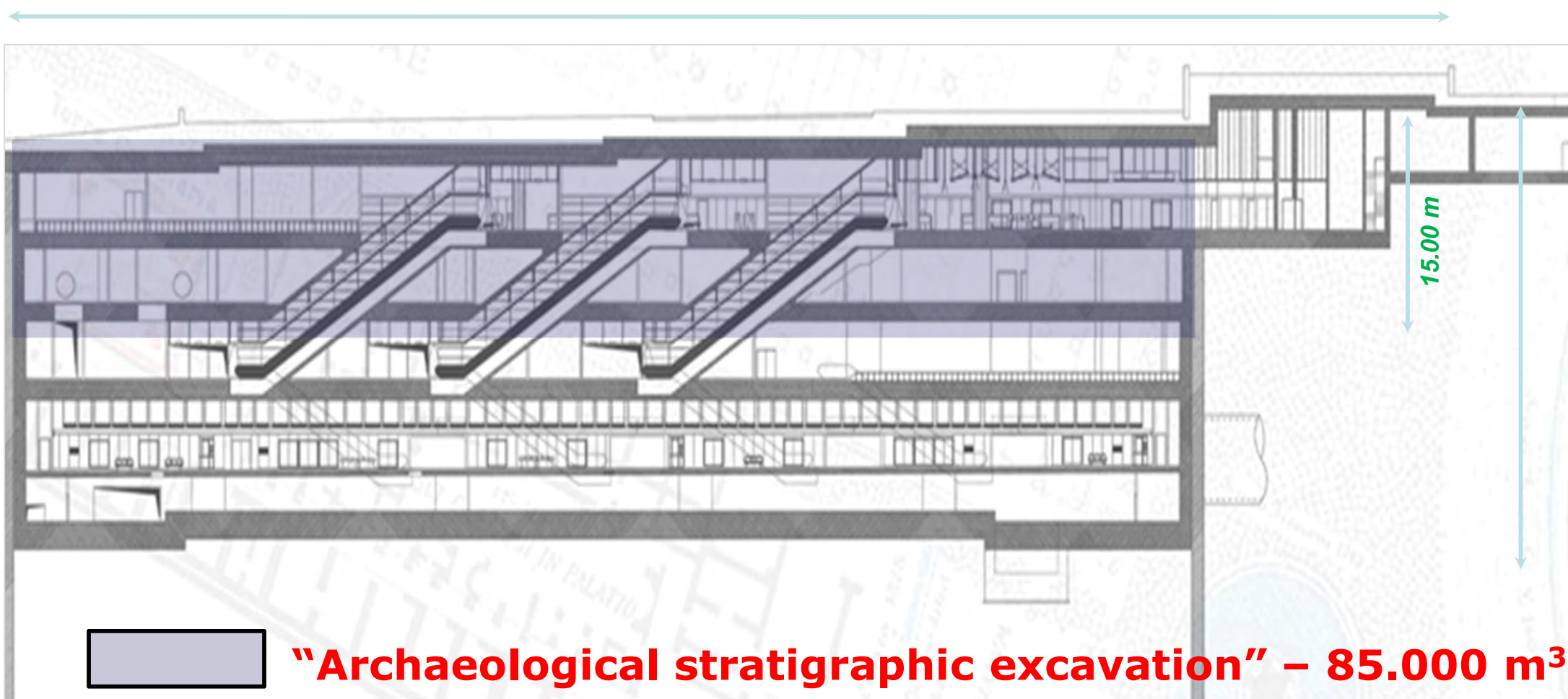


## Line C: Porta Metronia station



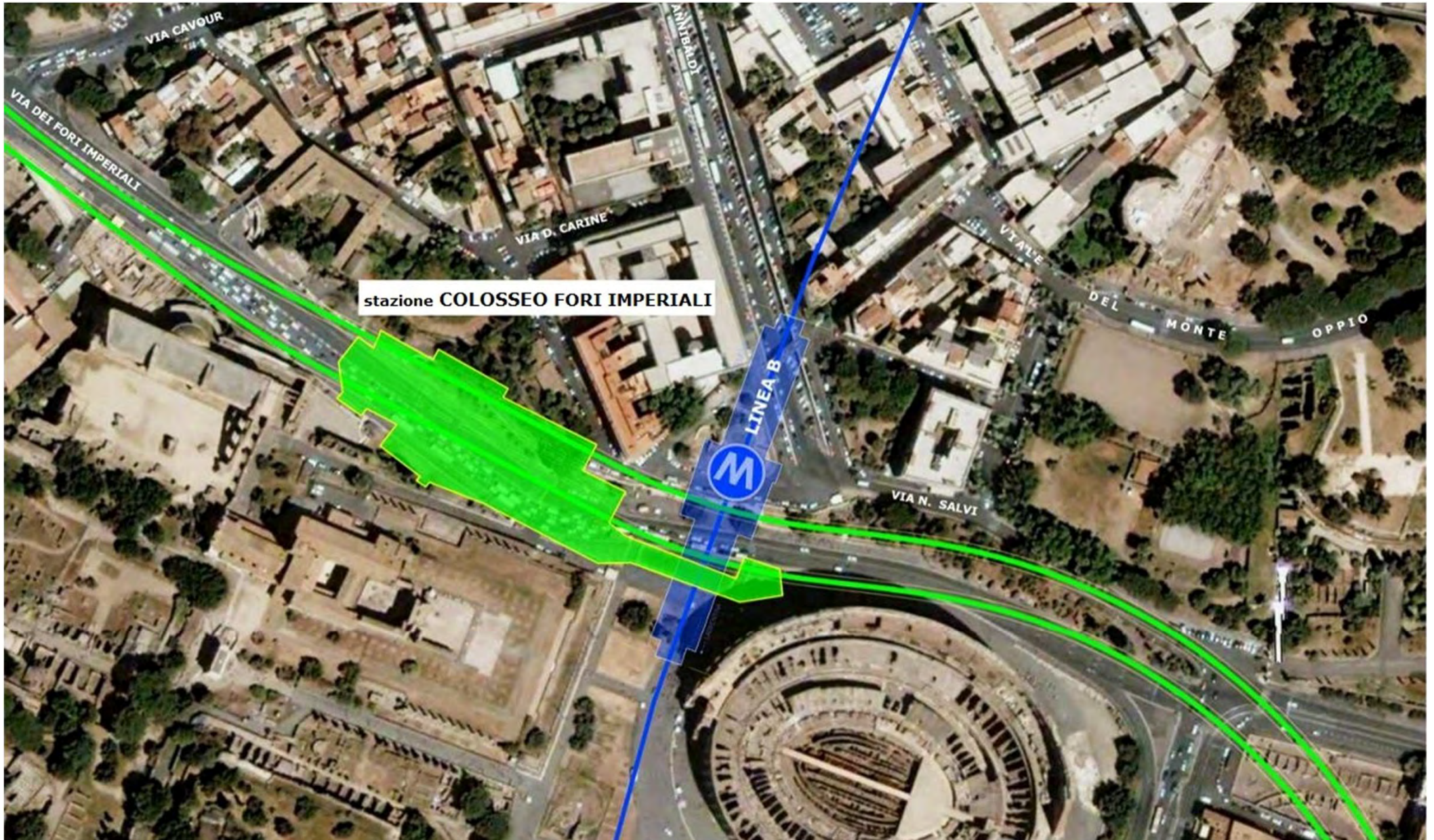


## Line C: Porta Metronia station





## Line C: the Colosseo Fori Imperiali Station



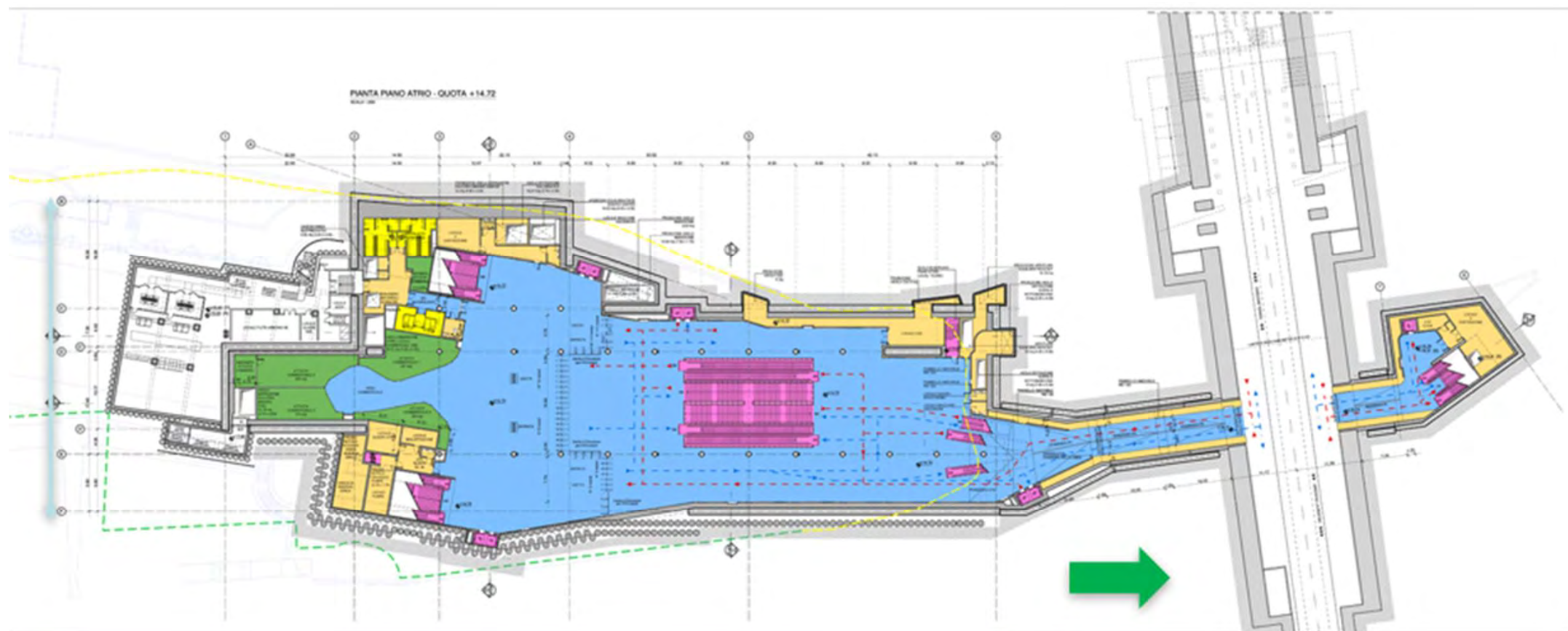


## Line C: the Colosseo Fori Imperiali Station





## Line C: the Colosseo Fori Imperiali Station

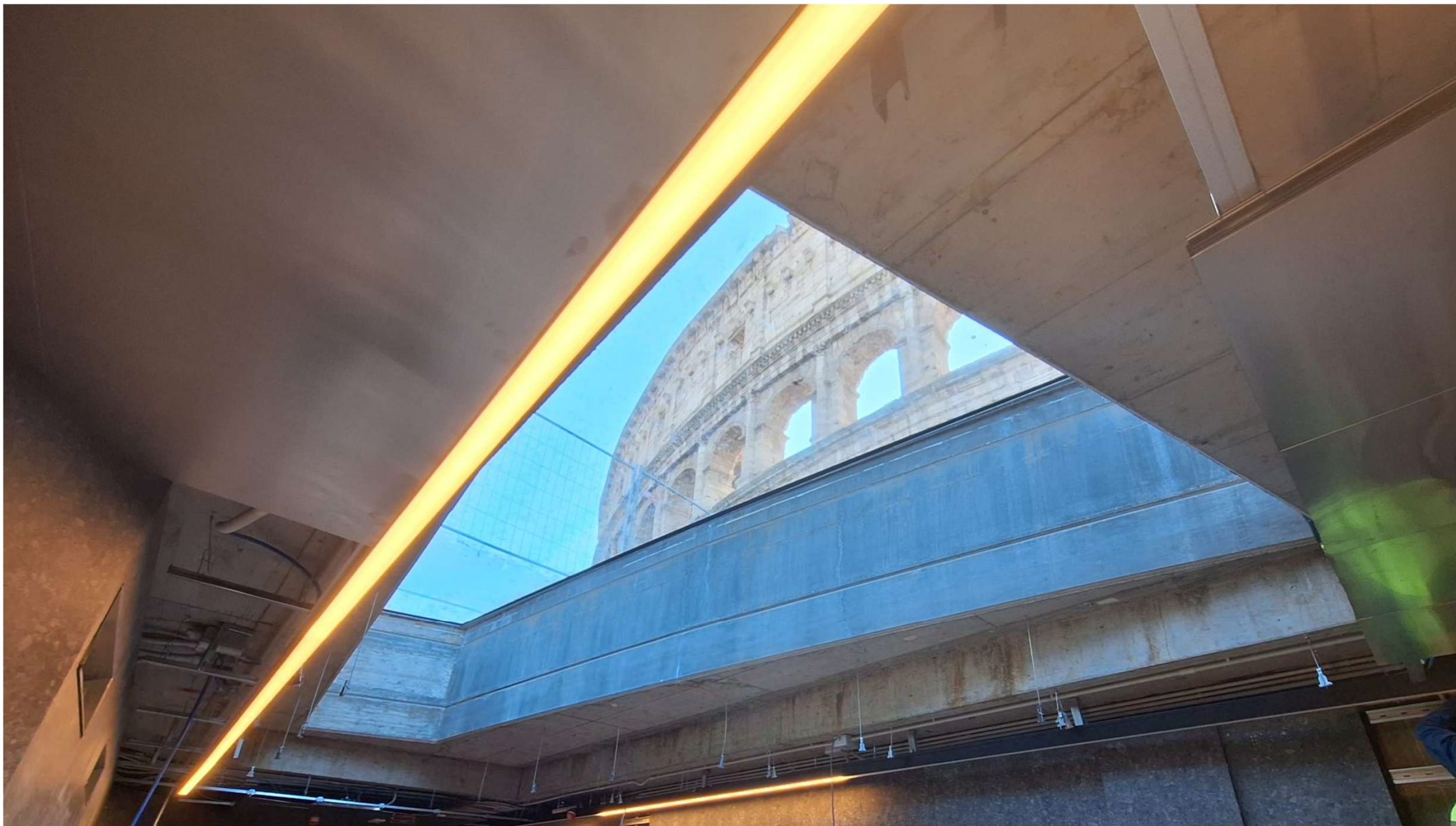


**150 m Long – 34 m Wide**

**Connection with  
existing Line B**

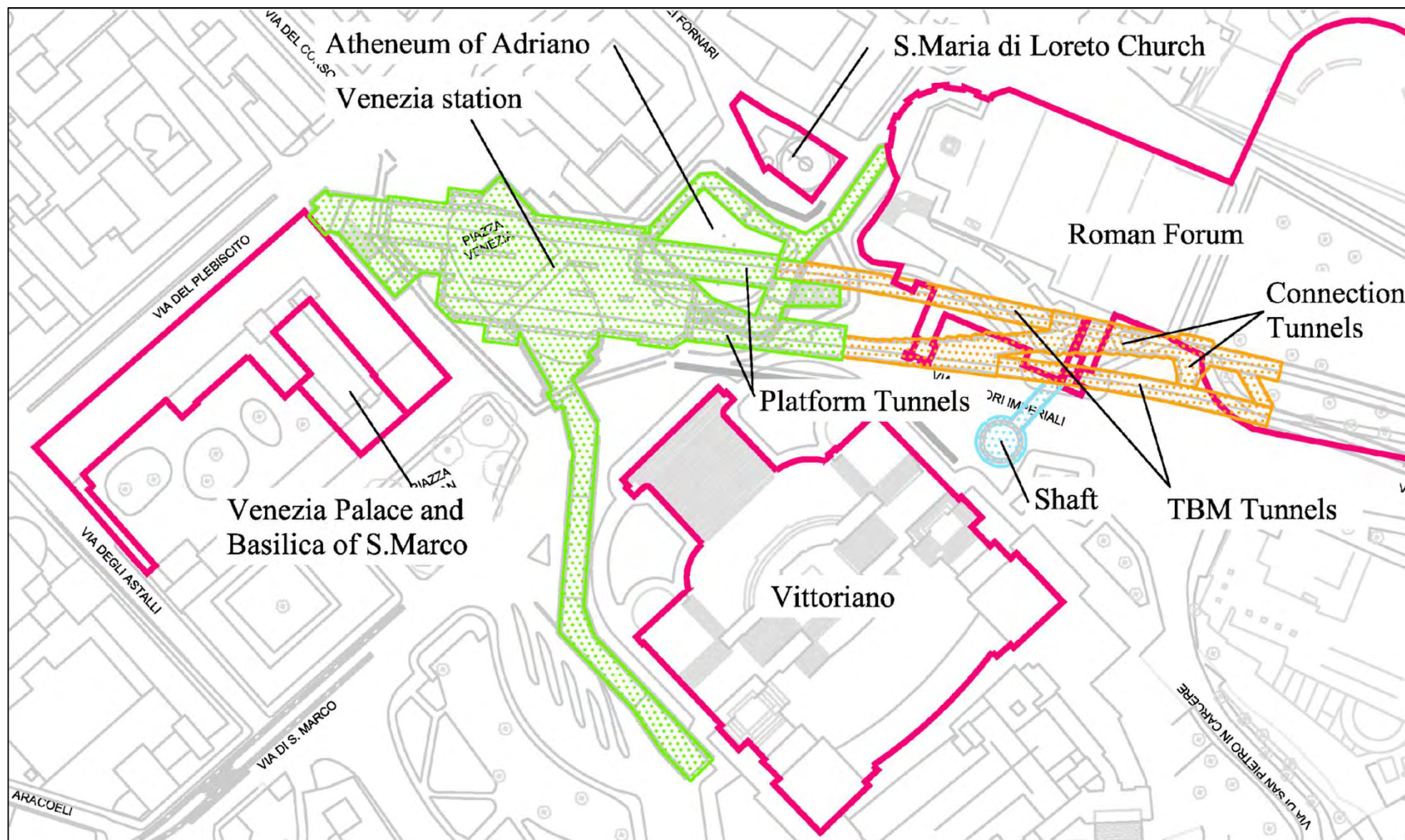


## Line C: the Colosseo Fori Imperiali Station





## Line C: the Venezia station







## Line C: Venezia station



### Museum entrance ▼

Underground connection  
Trajan's Forum 1

Adrian's Auditoria 2

Exposition area:  
Ancient tabernae 3

Connection  
with the platforms 4

Wall exposition showcases 5

Underground connection  
Palazzo Venezia 6

Underground connection  
Vittoriano 7

**M** Entrances

**6**  
Levels

Exposition area  
connecting with  
Palazzo Venezia



**Vittoriano**  
Altar of the  
Fatherland

**27**  
Escalators

Depth

**85m**  
perimeter  
walls

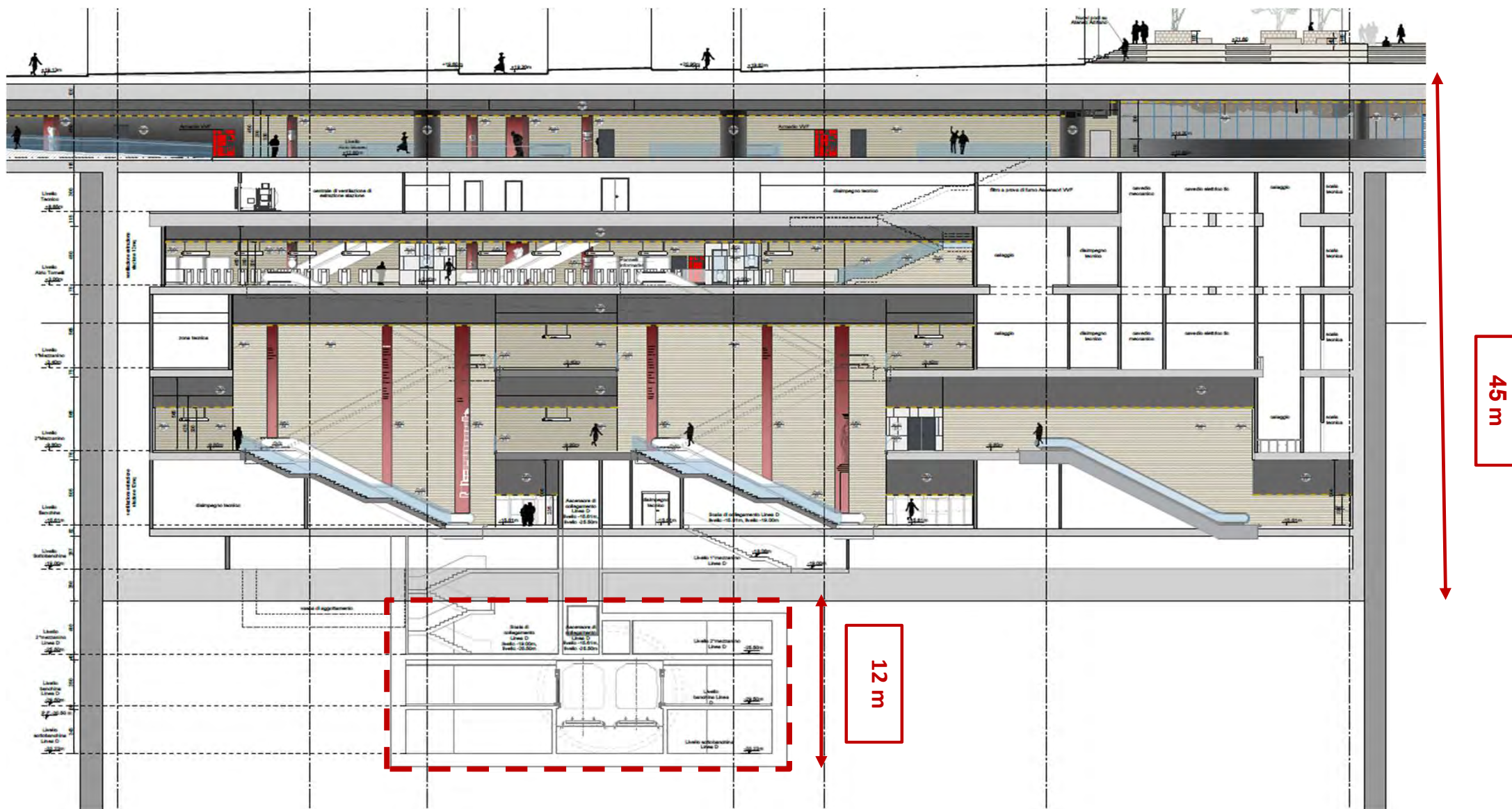
**~45m**  
station



Archaeological area:  
Adrian's Auditoria

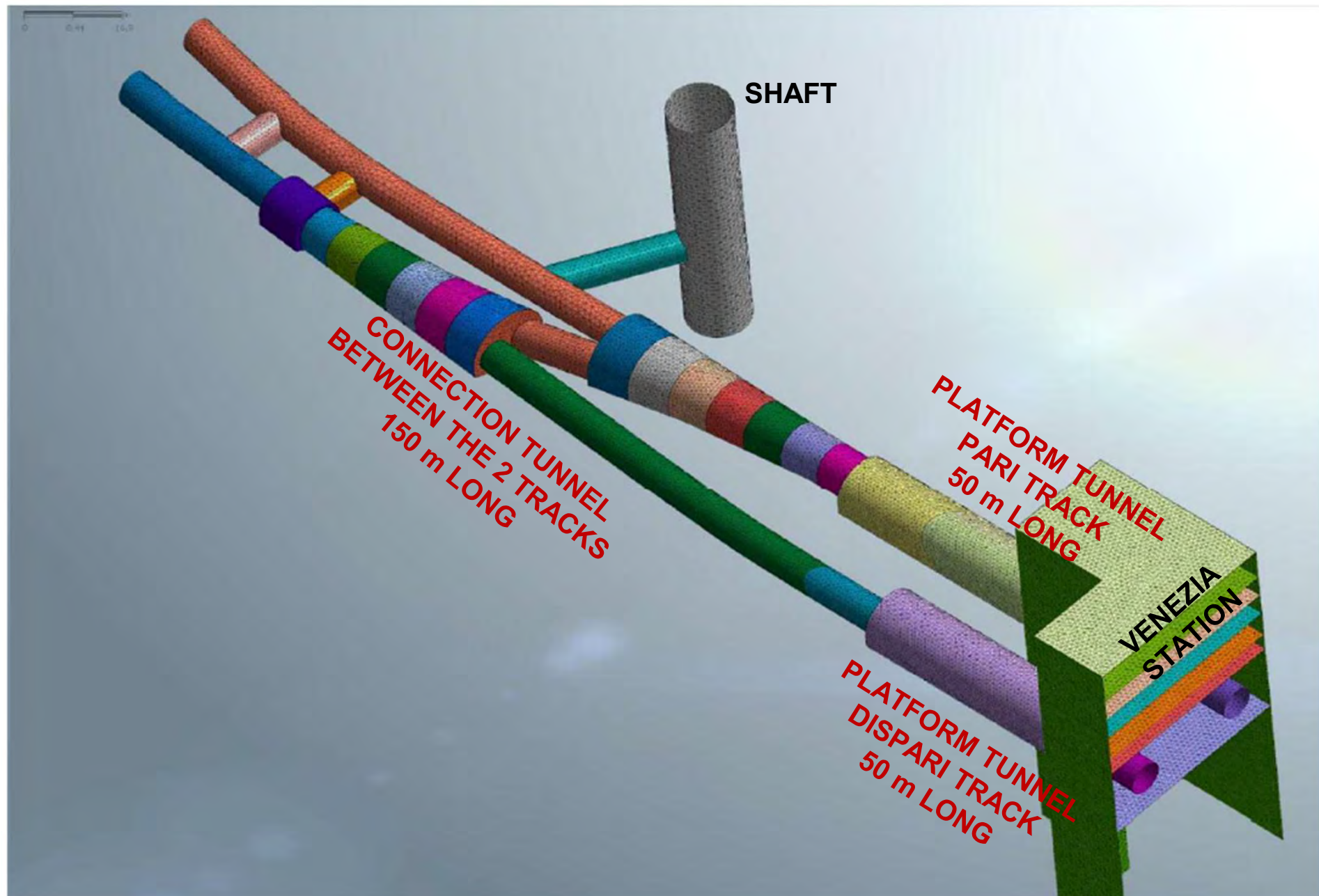


# Line C: Venezia Station





### Line C: Venezia station





## Line C: Venezia station construction site





## Line C: Venezia Station construction site



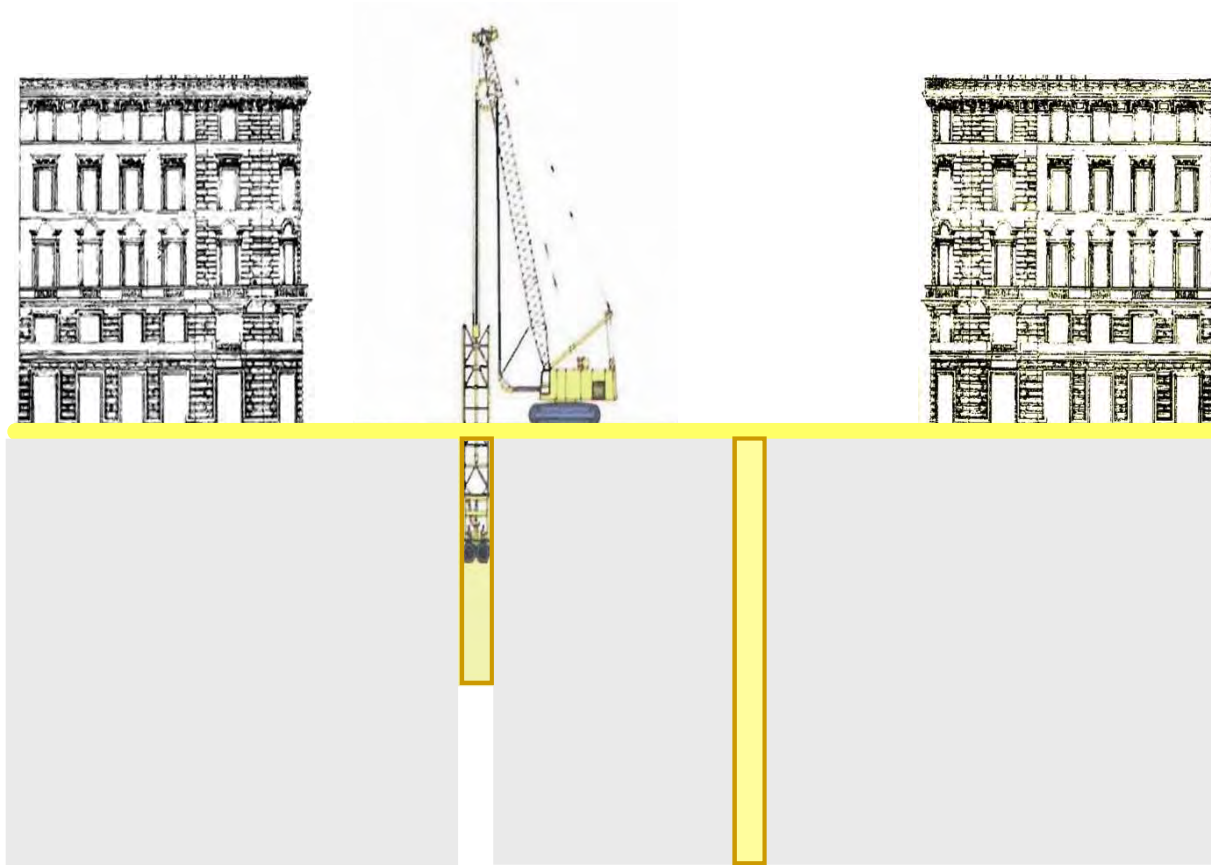


## Line C: Venezia Station construction site





## Line C: Venezia Station construction site





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