

Grays Underpass

Single Option Selection Report

May 2020



TABLE OF CONTENTS

1. INTRODUCTION	5	4.4. OPTION A - CRESCENT	27	8.0. SUMMARY PAGE.....	77
1.1. EXECUTIVE SUMMARY	6	4.5. OPTION B - DYNAMIC.....	35	8.1. OPPORTUNITIES FOR FURTHER DESIGN DEVELOPMENT.....	78
1.2. SCOPE AND PURPOSE OF REPORT	7	4.6. OPTION C - PLAZA.....	43	8.2. SUMMARY OF KEY PROJECT ISSUES AND ACTIONS PAGE	79
1.3. SCHEME BACKGROUND	8	4.7. OPTION EVALUATION MATRIX	50		
1.4. GRIP 2 SUMMARY	9				
		5. COST ESTIMATES	53	9.0. APPENDICES	80
2. THE SITE	11	5.1. OVERVIEW	54		
2.1. SITE CONTEXT.....	12	5.2. COMPARISON ON OPTION COST PLANS..	55		
2.2. ANALYSIS.....	15				
3. DESIGN REQUIREMENTS AND ASSUMPTIONS.....	17	6. RAILWAY SYSTEMS	57		
3.1. MAIN PROJECT REQUIREMENTS.....	18	6.1. UNDERPASS AND RETAINING WALLS	58		
3.2. UNDERPASS POSITIONING.....	19	6.2. PERMANENT WAY	59		
3.3. DEMOLITION/ REDEVELOPMENT OF EXISTING PROPERTIES	20	6.3. OVERHEAD LINE EQUIPMENT	60		
3.4. DESIGN ASSUMPTIONS	21	6.4. SIGNALLING	61		
3.5. INTERFACES WITH OTHER SCHEMES	21	6.5. MEP AND DRAINAGE.....	63		
		6.6. TELECOMS.....	68		
4. OPTION EVALUATION.....	23	6.7. ENVIRONMENT AND SUSTAINABILITY	70		
4.1. OPTION ASSESSMENT CRITERIA.....	24				
4.2. GUIDANCE AND STANDARDS	25	7.0. CONSTRUCTION METHODOLOGY..	73		
4.3. THE OPTIONS	26	7.1. ASSUMPTIONS.....	74		
		7.2. OUTLINE CONSTRUCTION SEQUENCE.....	75		

4.1. OPTION ASSESSMENT CRITERIA

The following assessment criteria have been developed to enable a fair and objective evaluation of the three options. The criteria and weighting were agreed on 30/01/20 between Network Rail, Thurrock Borough Council and VolkerFitzpatrick.

1. Alignment:

Does the option convey a sense of continuation for the High Street?

Weighting: LOW

2. Cut and Fill:

Amount of material (m³) required to be excavated and disposed of during construction

Weighting: LOW/MEDIUM

3. Activation:

- a) Extent and quality of activity frontages of public spaces created by the underpass
- b) Minimise dead space (area unlikely to be utilised. Wasted space)

Weighting: MEDIUM

4. Cost:

Magnitude of cost associated with the options in relation to the AFC budget allocated

Weighting: MEDIUM (Note: To be confirmed following submission of Option Selection Report + AFC)

5. Integration with Surroundings:

Ease of tie-in to adjacent boundaries. Quality and m² of remaining space for further development or surface level public realm.

Weighting: MEDIUM

6. Microclimate:

Review of shaded areas of usable public dwell space using basic sun path analysis

Weighting: MEDIUM

7. Ease of Maintenance:

Provide easy access for maintenance staff / vehicles to the portal and slope area. Reduce frequency of landscape maintenance.

Weighting: MEDIUM/HIGH

8. Placemaking:

- a) Minimise invasiveness of slopes and associated safety measures i.e. guard rails.
- b) Design concept and sense of place: Is the space the right scale?
- c) Does it relate to the local area's character and history?
- d) Is there a clear and consistent design language used?
- e) Does it complement and add to the series of public spaces along the High Street, from the War Memorial to the river front?

Weighting: HIGH

9. Disruption to the Public:

Extent of closure of level crossing and overall construction duration

Weighting: HIGH

10. Amenity:

Suitability of public spaces to support a wide range of town centre events and activities which supports continuation of the high street. (Size, gradient, conflict of movement, floor level)

Weighting: HIGH

11. Sight lines:

Providing clear views of key landmarks (High Street to the north, Church and proposed Civic Offices extension to the south) as well as sight lines into portal from a distance. Ensure clear views from access slope into portal, train station, bus station and Crown Road

Weighting: HIGH

12. Heritage:

Framing of views towards the Grade II listed St Peter & St Paul's Church, churchyard and its mature planting from the middle of the portal. Contributing positively with setting of the church and the churchyard.

Weighting: HIGH

13. Accessibility:

a) Simplify slope navigation, total slope length, journey time and number of switch backs (technical compliance is assumed). Slopes and stairs to converge towards same entry and exit points and reflect predominant pedestrian flows.

Weighting: HIGH

14. Safety / Security / Fear of Crime / Anti-social Behaviour:

Minimise hidden viewpoint and blind corners, optimise long-distance clear views (including for CCTV) throughout the underpass. Natural surveillance into the underpass from surrounding buildings and streets.

Weighting: HIGH

4.2. GUIDANCE AND STANDARDS

The Grays Underpass project aims to provide a safer route beneath the railway with enhanced capacity, amenity, inclusiveness and safety.

In preparing the design the team consulted with Thurrock Borough Council and referred to the following guidance:

- National Planning Policy Framework
- Thurrock Core Strategy (2015) and Policies for the Management of Development
- Thurrock Borough Local Plan - schedule of saved policies (2012)
- Thurrock Design Strategy SPD (2017)

The design has been with reference to the following:

- BS 8300-1:2018: Design of an accessible and inclusive built environment. External environment. Code of practice
- BSI BS EN 81-20 - Safety rules for the construction and installation of lifts — Lifts for the transport of persons and goods Part 20: Passenger and goods passenger lifts - CORR: November 30, 2015

Whilst acknowledging the underpass itself is not within a station, the following standards have referenced where applicable, as good practice:

- Design Standards for Accessible Railway Stations: a code of practice by the Department for Transport and Transport Scotland: The Code identifies European and national standards relevant for all passenger

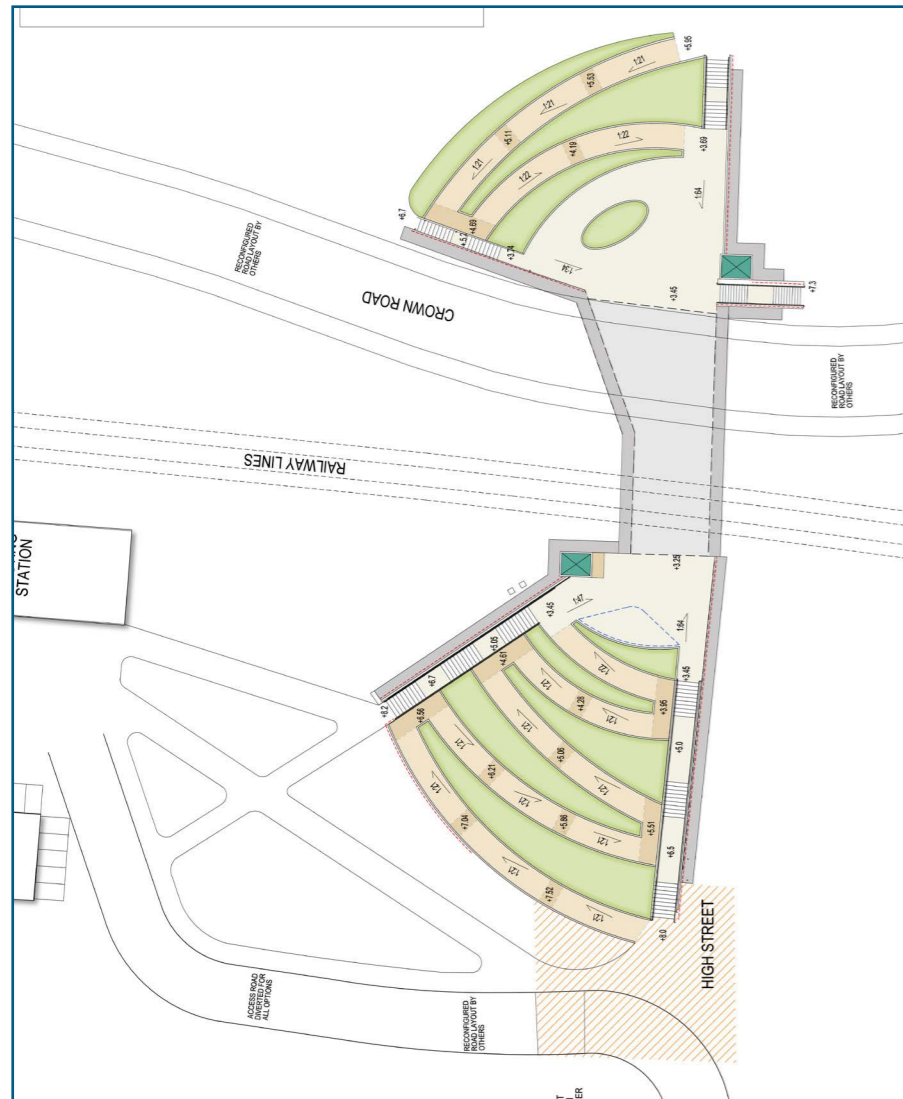
train and station operators in Great Britain.

- PRM (Persons with reduced mobility) TSI: 1300/2014/EU

Network Rail standards and guidance where relevant including:

- Station Capacity Planning Guidance: Network Rail November 2016
- GI/RT7016 Interface between Station Platform, Track and Trains
- GI/GN7616 Issue Two: March 2014
- NR/L2/INI/02009: Issue 6 Engineering Management for Projects
- NR/L1/INI/PM/GRIP100 Governance for Railway Investment Projects (GRIP) - Policy
- NR NR/L3/CIV/162 ISSUE 2 - Platform Extensions - Compliance Date: 03 December 2011; Contains NR/BS/LI/371
- AMS-GN-BLDG-001: Guidance on the planning and management of station flooring to public areas - Performance Requirements Guidance
- Letter of Instruction: NR/BS/LI/331 Issue 2

4.3. THE OPTIONS



GRIP 3: Option A, Crescent

Option A has retained the same footprint, underpass box position, 1:21 gradient slopes and amphitheatre-style curved design from the GRIP 2 stage.

A number of elements have been rationalised in the design including:

- Replacing the 'off-line' resting areas with intermediate landings on the slopes. These are 1.5m in length and provided every 500mm rise, to conform with British Standards.
- The total number of slopes has been reduced, which has enabled larger swathes of feature planting to be introduced - this creates a much softer visual impact, reducing the dominance of the slopes. It also improves constructibility by removing the very steep sections of retaining features between slopes.

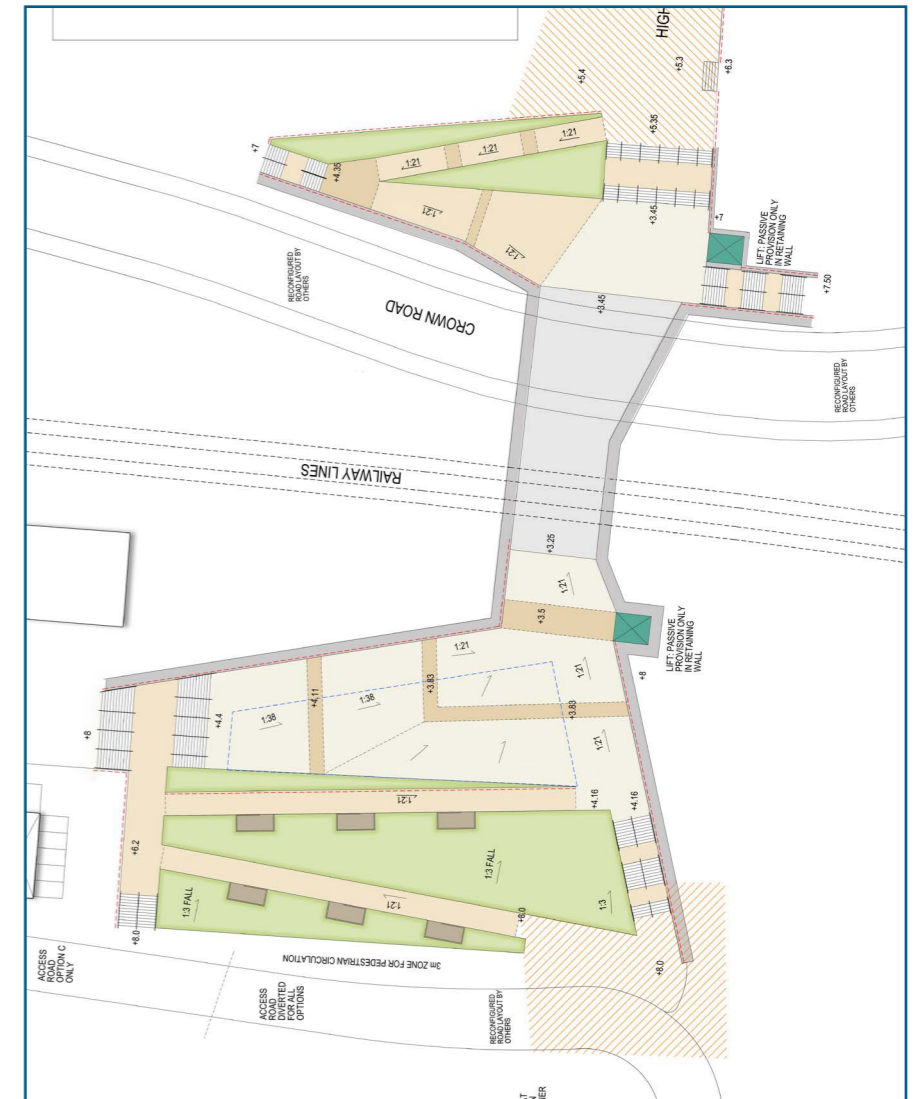


GRIP 3: Option B, Dynamic

Option B has retained the same footprint and 1:21 gradient slopes from the GRIP 2 stage. A new striking geometric design language has been introduced to create a contemporary layout.

Design developments during the GRIP 3 stage include:

- Moving the underpass box position by approximately 10 metres to the west.
- Curved slopes have been minimised for constructibility.
- Replacing the 'off-line' resting areas with intermediate landings on the slopes. These are 1.5m in length and provided every 500mm rise, to conform with British Standards.
- Introduction of wide chunky seat edges along the slopes to replace retaining walls. These create a modern design feature that is both functional and aesthetically pleasing.



GRIP 3: Option C, Plaza (new option or GRIP 3 replacing)

Option C is a new arrangement introduced since the GRIP 2 phase. A new sunken town square / plaza connects the underpass entrance to the station. Generous stepped routes lead people in and out of the underpass.

This design was initially developed by Thurrock Borough Council's design consultant but will be taken forward by Atkins as agreed in the design workshop on 17/07/2019 (refer to meeting minutes in appendix)

'Off-line' resting areas have been retained at the north side of the underpass for comparison purposes with the other options.

Option C also involves moving the underpass box position by approximately 10 metres to the west from the GRIP 2 position.

OPTION A - CRESCENT

4.4

4.4. OPTION A - CRESCENT

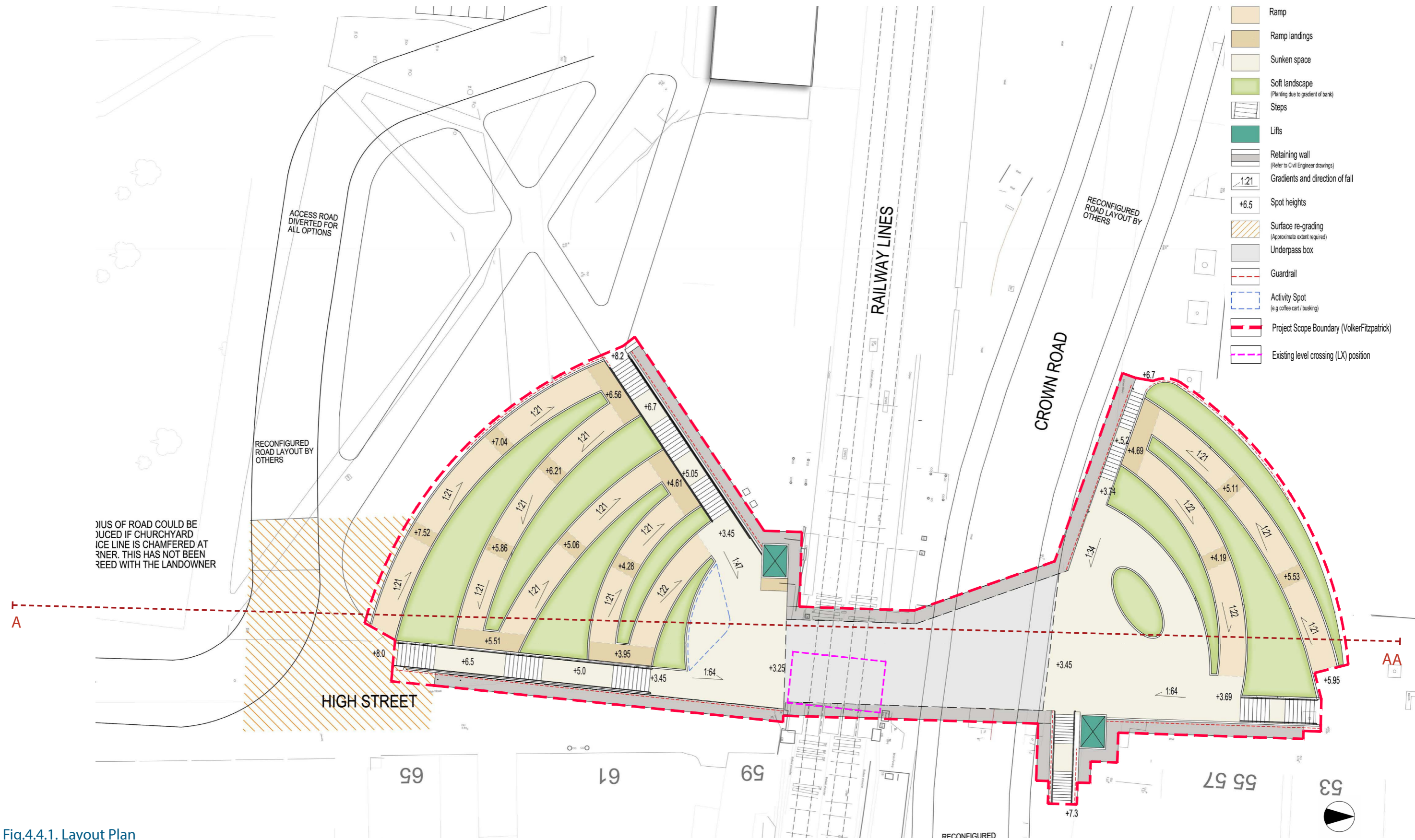


Fig.4.4.1. Layout Plan

4.4. OPTION A - CRESCENT

1. Alignment:

Option A provides a direct continuation of the High Street north - south.

2. Cut and Fill:

6,100m³

- Rounded to nearest 100m³
- Subject to pavement design depths
- Not including excavation and backfilling for PCC / brick retaining walls

3. Activation:

a) There is limited potential for future activation of the pile walls due to the positioning of steps, however, there is **338m²** space at lower level at north and south, which is sufficient to enable small pop up retailers such as a coffee cart.

b) The required size and positioning of spaces for activation is dependant on the end user's judgement for their desired use.

4. Cost:

Refer to appendices for full cost report.

5. Integration with Surroundings:

Option A has the smallest total footprint of the 3 options. This means significantly more space is leftover at surface level for further development.

- **960m²** of space is available for new public realm between the top of the underpass access, Station Approach and the Station.
- **450m²** remains for potential commercial development between the underpass and station. However, the angular form of this plot creates an awkward constraint for new buildings.

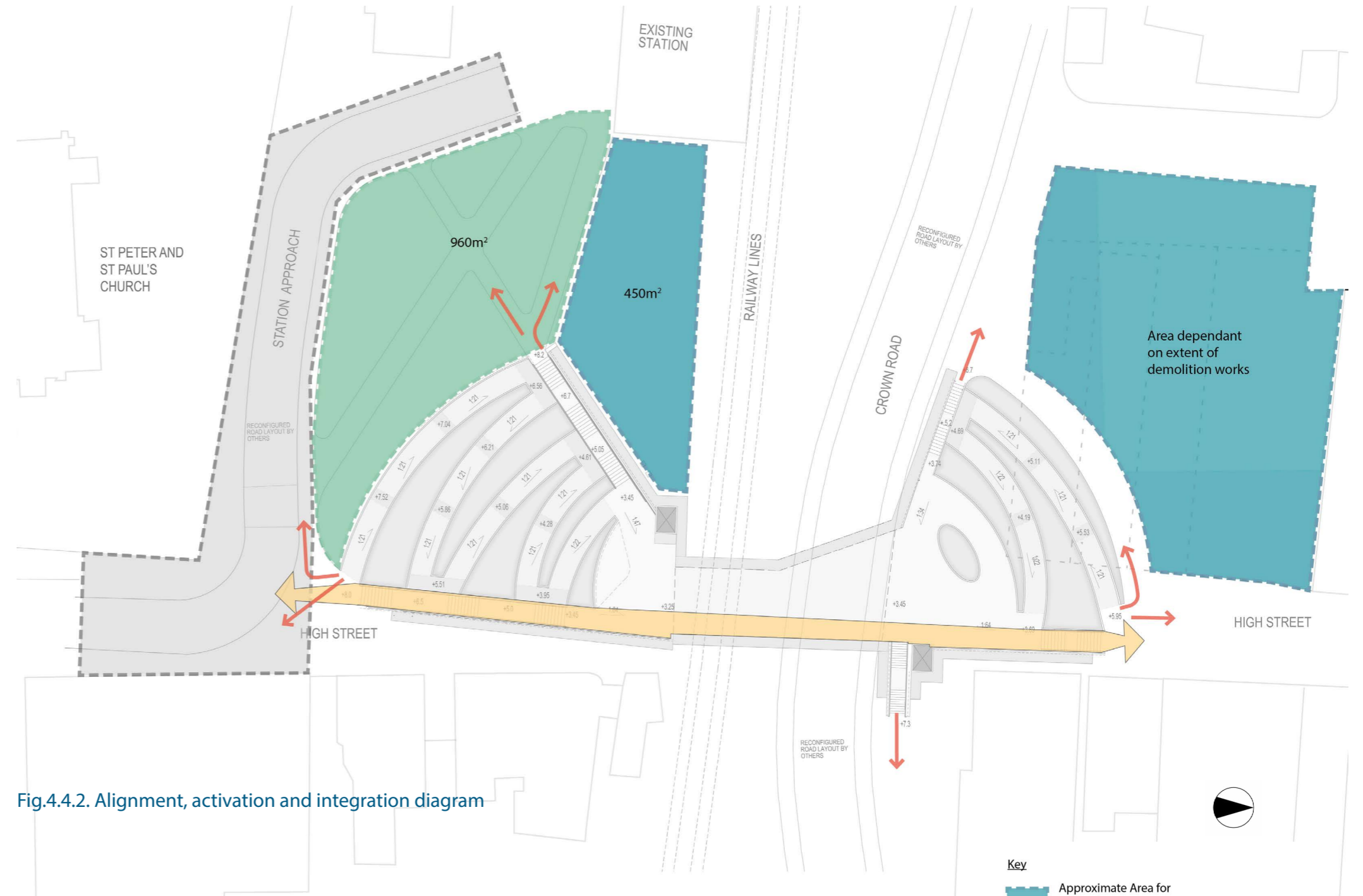


Fig.4.4.2. Alignment, activation and integration diagram

4.4. OPTION A - CRESCENT

6. Microclimate:

- In the winter months the south and north sides are over shadowed throughout most of the day.
- In Spring the southern side is overshadowed in the morning and the afternoon.
- In the summer there is minimal over shadowing.

7. Ease of Maintenance:

All slopes are designed to accommodate a standard street sweeper with a 5m radius turning circle (Thurrock Borough Council to provide details of exact vehicle specification for tracking).

The soft landscaped areas are 1:2.5 at the steepest points. This is too steep for commercial mowing and primarily evergreen, low maintenance planting is required. Watering, fertiliser and pruning maintenance will be required.

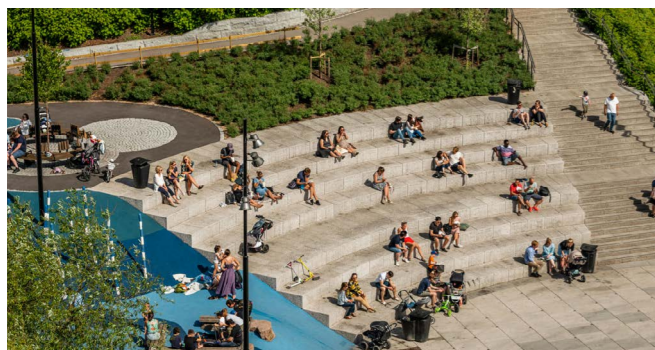


Fig.4.4.3. Placemaking precedents

8. Placemaking:

- Guardrails are only required at upper surface level to prevent falling.
- The area taken up is the most compact of the options and has more of a sense of enclosure. This may make the space feel less welcoming.
- The steep nature of the slope arrangement creates a physical disconnect from St Peter and St Paul's Church, rather than adding to the setting of this important heritage asset
- A simple and elegant curved design creates amphitheatre-shaped space when viewed from the upper levels
- The space created is designed for the movement of people rather than dwelling and other activities. It functions well as an efficient connecting space and has small potential for some pop-up activities at lower level.

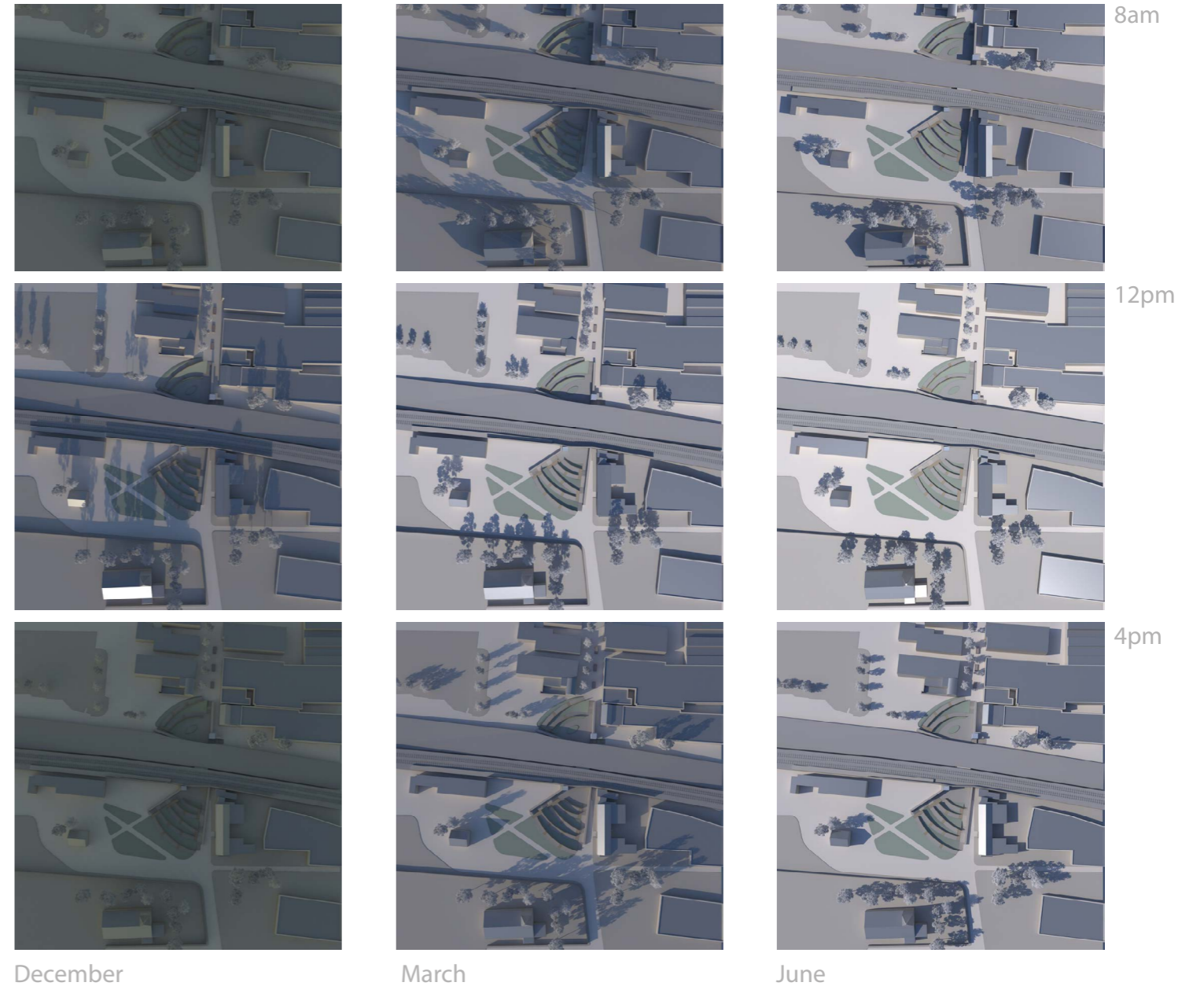


Fig.4.4.4. Sun path analysis diagrams

4.4. OPTION A - CRESCENT

9. Disruption to the Public:

The existing level crossing must be closed for circa 2 years at the start of the works due to the box position. An alternative diverted route must be provided, but there is nothing that is readily available.

10. Amenity:

There is limited space at the lower level for the extension of any events from the High Street (such as markets) as this would cause conflicts of movement. However, the lower spaces are gently sloping and a good platform is available on the southern and northern side of the underpass for small pop-up retailers or busking / entertainment. At surface level of the southern side there is the potential for a new public plaza between the underpass and station which could host a range of activities and events.

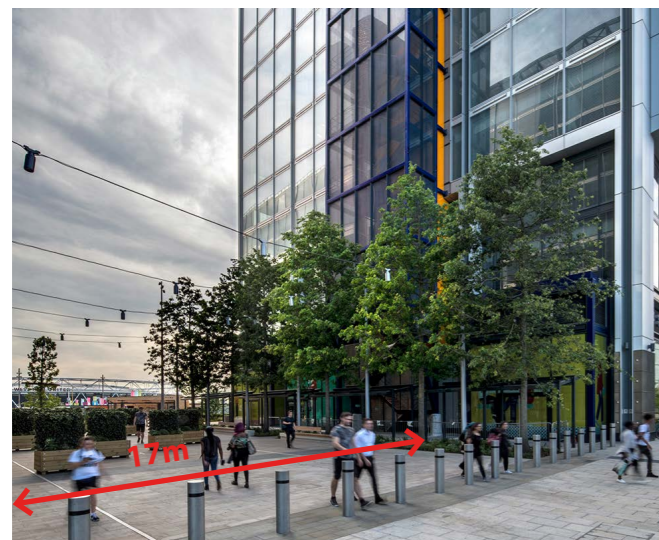


Fig.4.4.5. Space comparison precedent (Endeavour Square, Stratford)

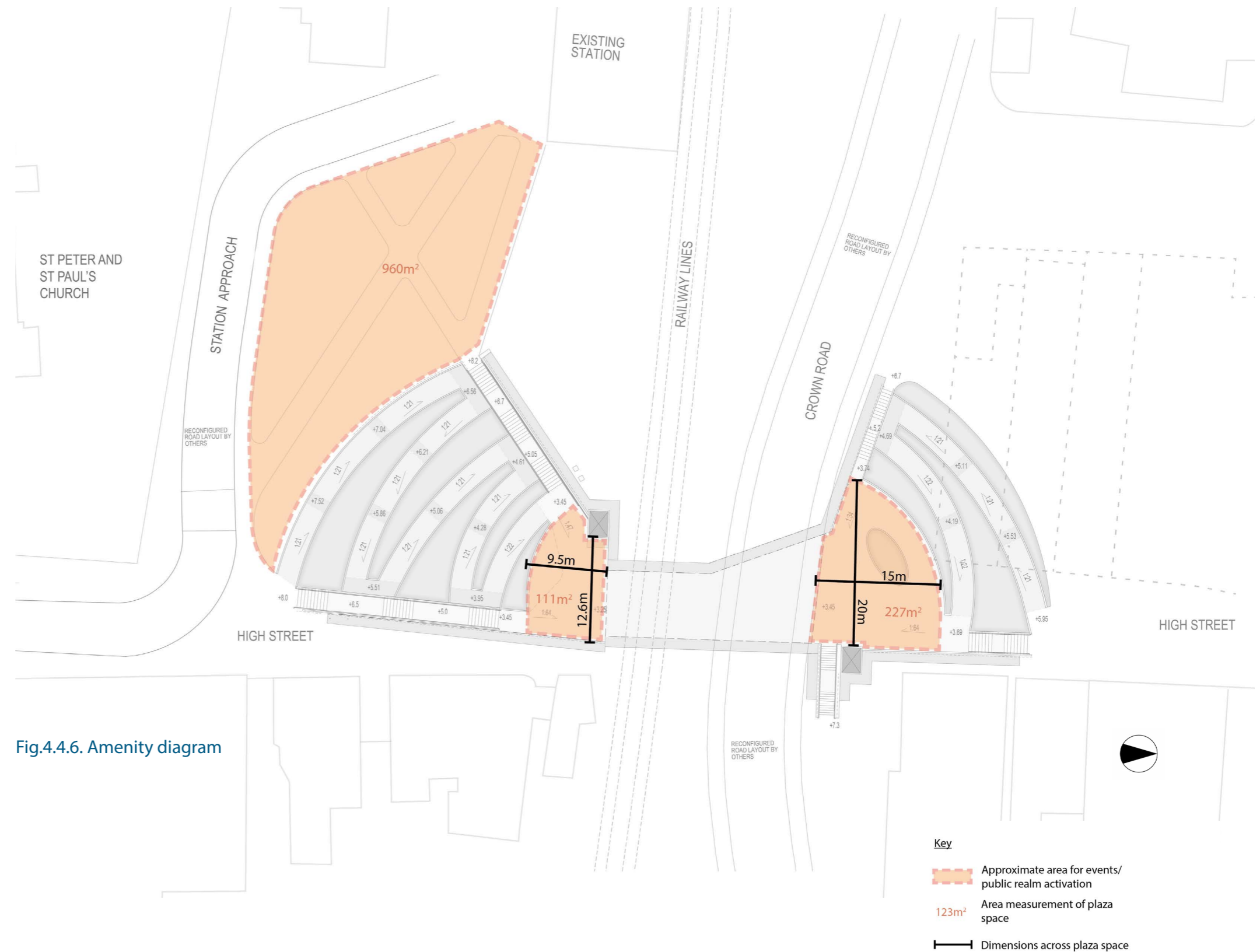


Fig.4.4.6. Amenity diagram

4.4. OPTION A - CRESCENT

11. Sight lines:

From the centre of the portal, people will see a small glimpse of St Peter and St Paul's Church. From the northern side of the underpass clear views to the High Street provided.

This option has the smallest footprint which means that people using the slope and steps have the clearest views down into the portal when descending.

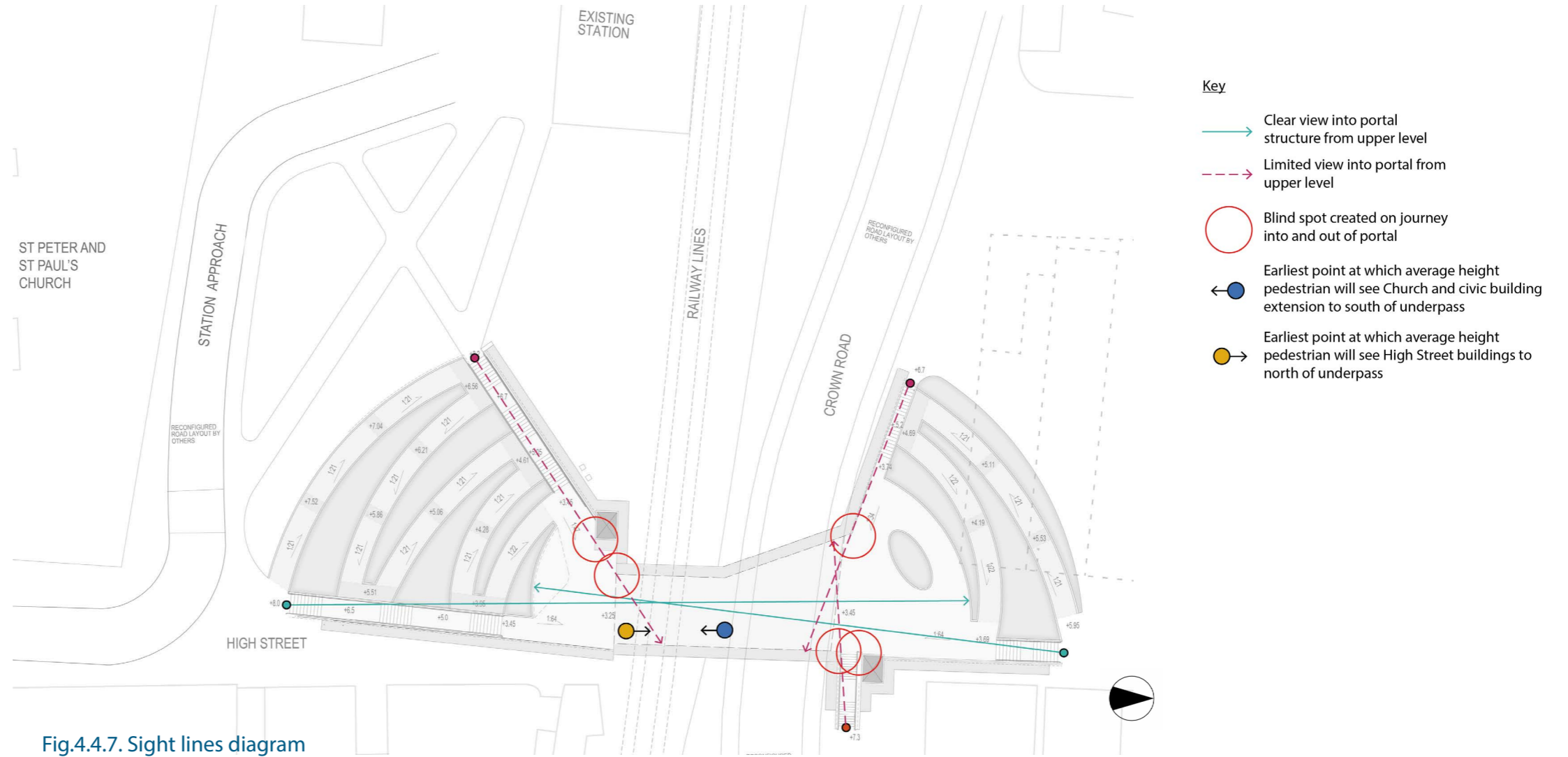




Fig.4.4.7. Sight lines diagram

Key:

-  View at average eye level (1.65m) of High Street and church from centre of underpass footway
-  View at average eye level (1.65m) of High Street and church from entrance to underpass footway

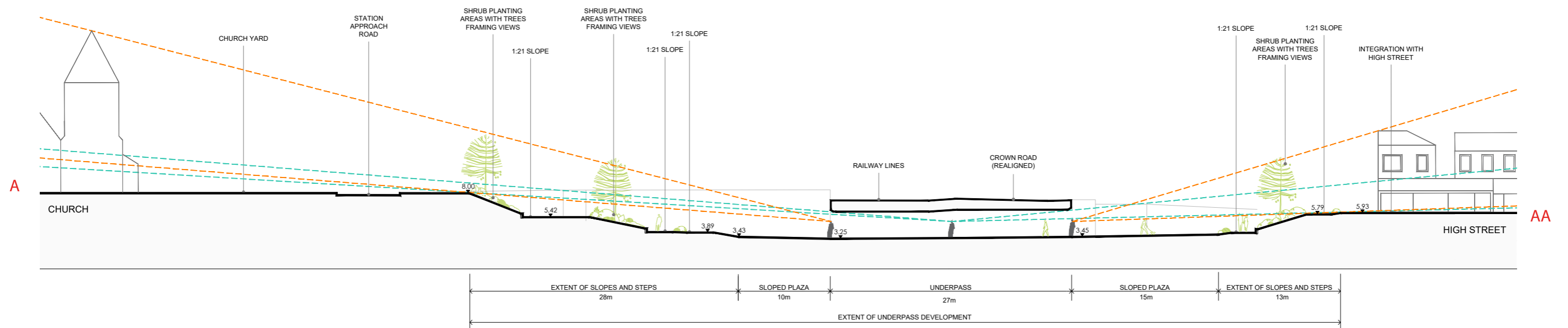


Fig.4.4.8. Cross Section A-AA

4.4. OPTION A - CRESCENT

12. Heritage:

All options have been designed to ensure the St Peter and St Paul's Church will be visible from the centre of the portal. From the southern entrance to the portal slightly less of the church is visible than other options due to the steeper gradient of the sloped access. This option provides a greater opportunity for enhancing the setting of the church at surface level due to the larger area of public realm to the top of the slope.

13. Accessibility:

Total slope length from the top of slope on both sides: **244m**

Number of switch backs south: **5**

Number of switch backs north: **2**

Slopes and stairs do converge towards same entry and exit points and reflect primary pedestrian flows.

14. Safety / Security / Fear of Crime / Anti-social Behaviour:

There are a **5** no. blind spots where people could hide. There is an opportunity to introduce transparent material to the lifts to reduce these. A further blind spot is created when on the north-eastern narrow stepped access by the lift. CCTV will be essential for crime mitigation in this area.

The maximum distance from an underpass access point into the portal is **38m**. This is the shortest of all options and increases surveillance from other underpass users. However, from the station to the west, views into the portal are limited due to the angle of the pile wall.

3D Sketch Visualisations

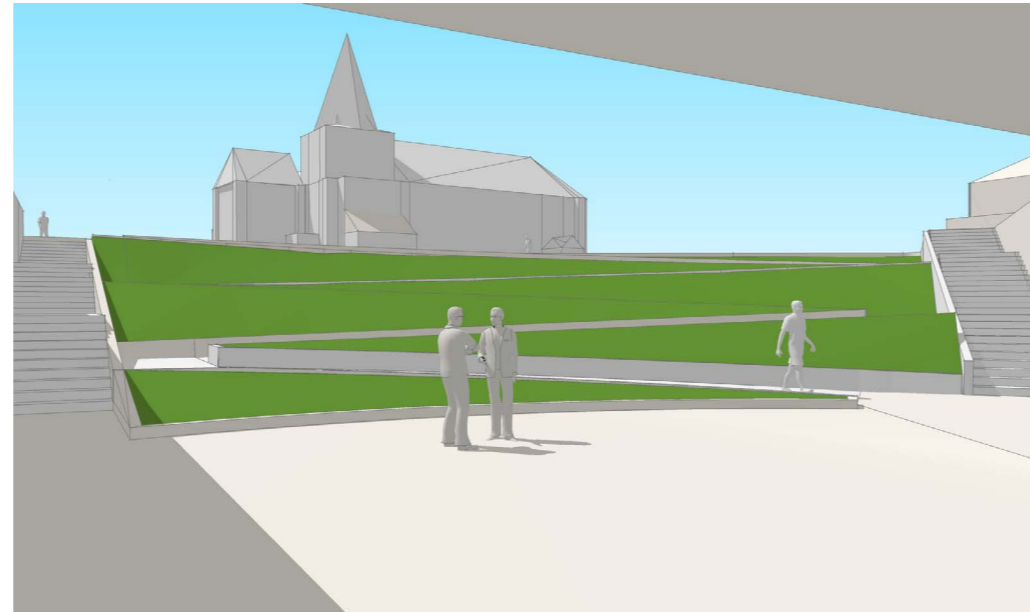


Fig.4.4.9. View looking south towards the Church from portal



Fig.4.4.10. View looking north from High Street towards underpass

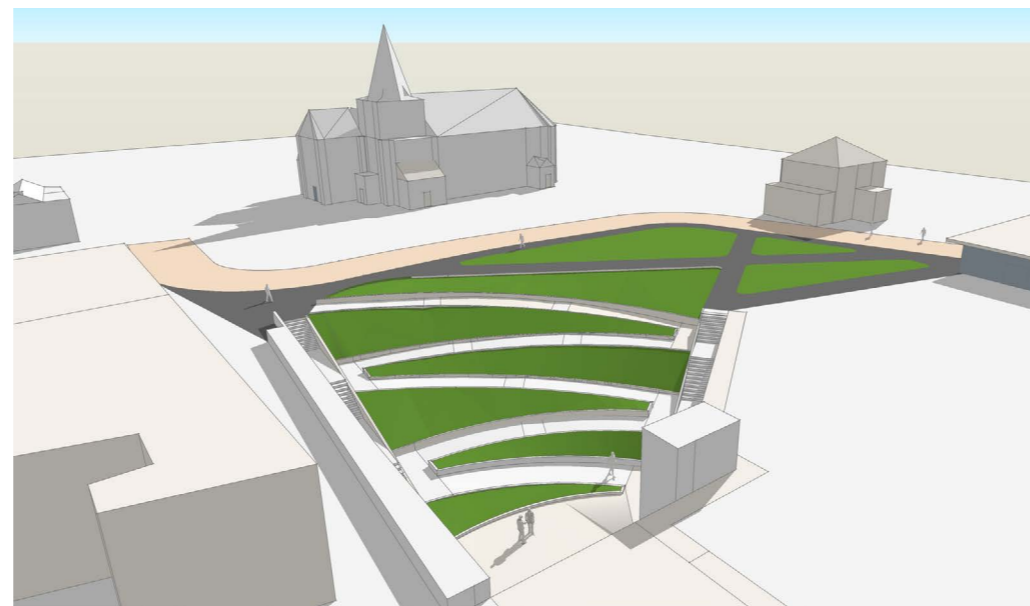


Fig.4.4.11. View looking south west (birds eye perspective)

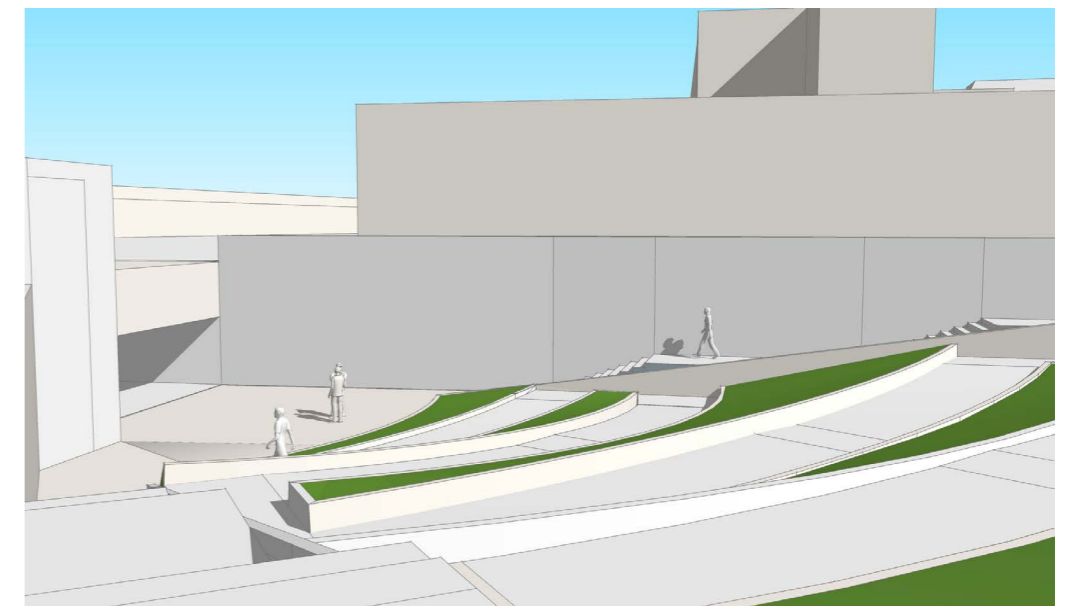
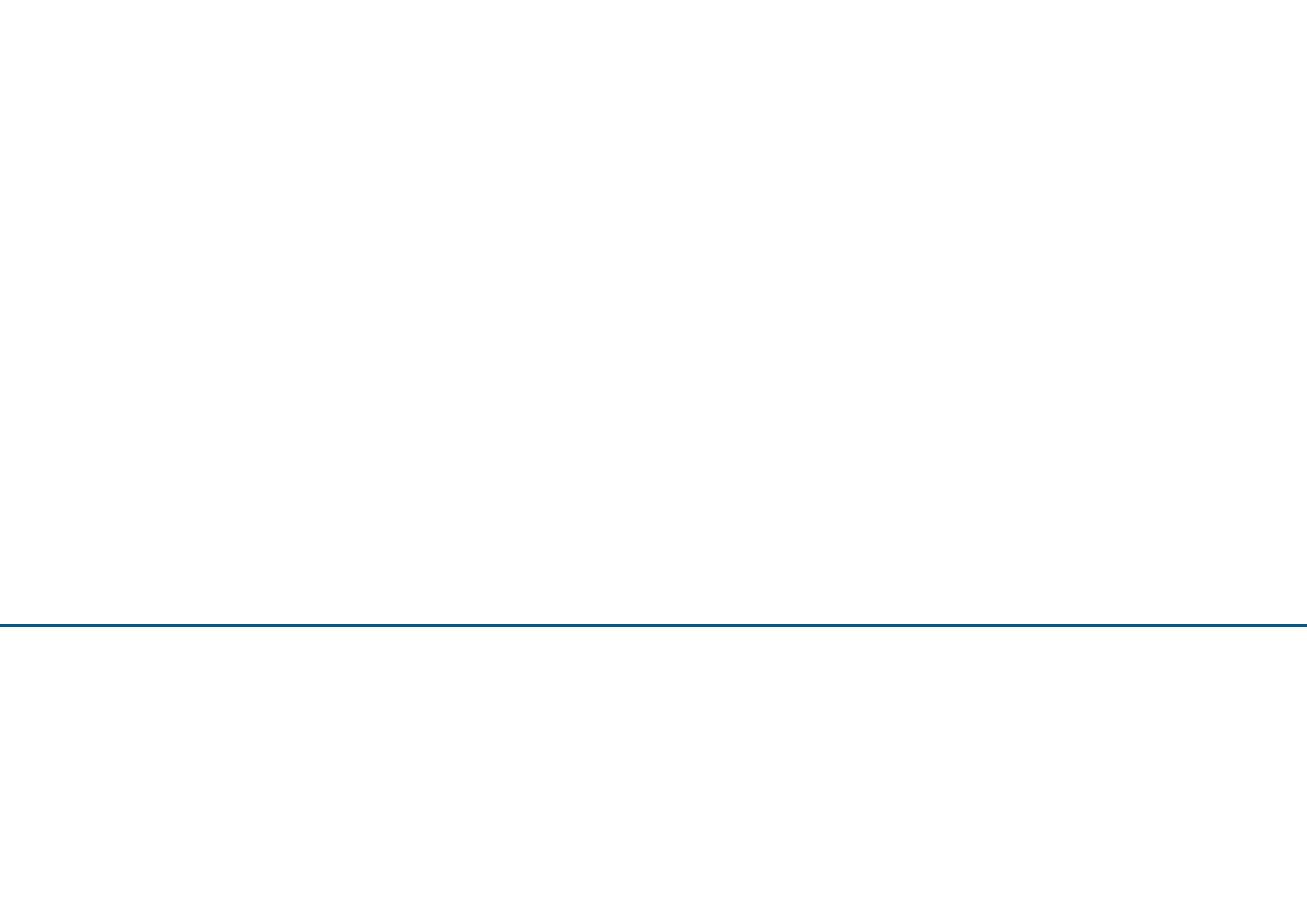


Fig.4.4.12. View looking towards underpass from station access point



OPTION B - DYNAMIC

4.5

4.5. OPTION B - DYNAMIC

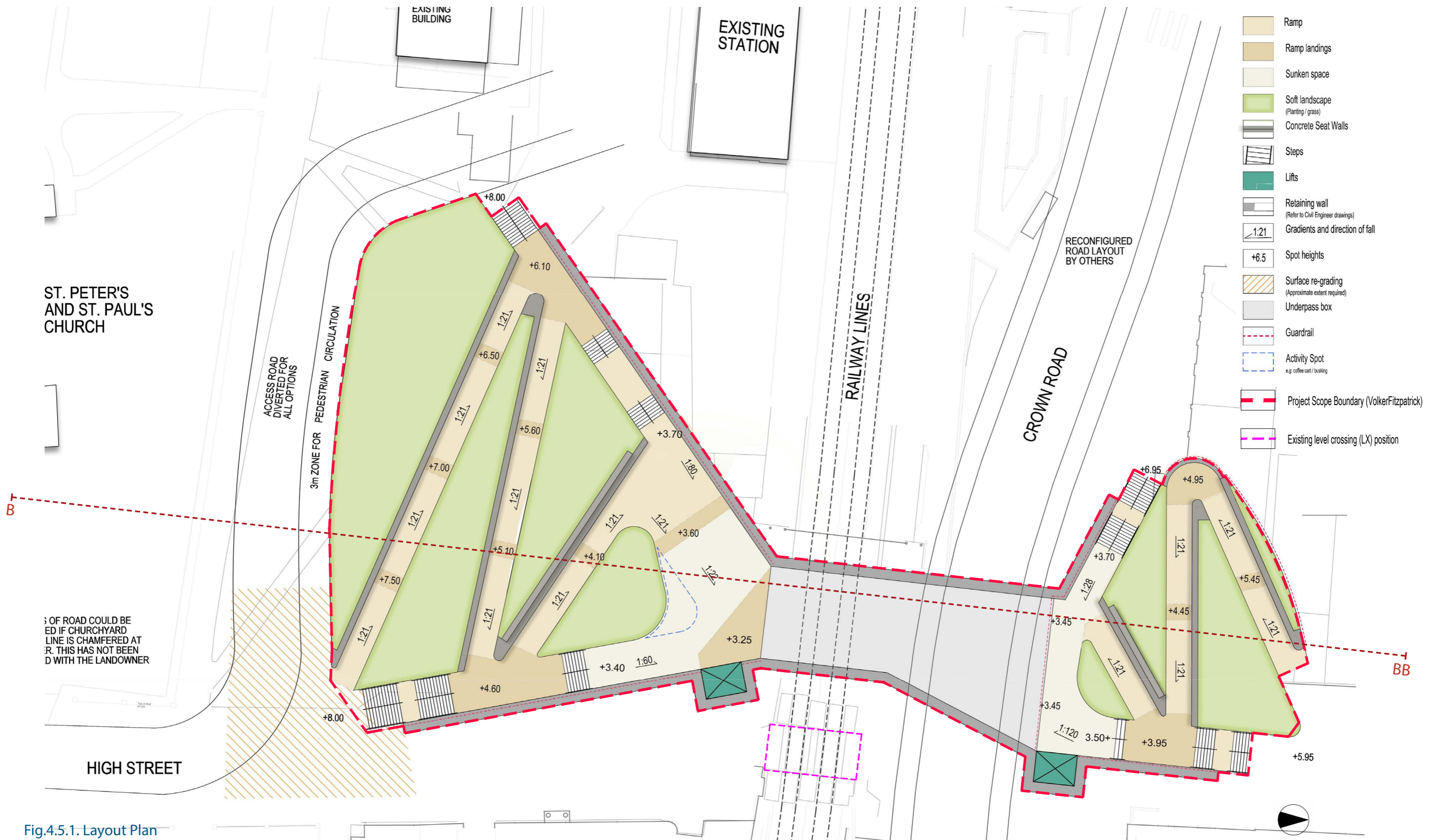


Fig.4.5.1. Layout Plan

4.5. OPTION B - DYNAMIC

1. Alignment:

Option B doesn't provide a direct alignment with the High Street. However, the start and end point of steps and slopes do convey a sense of continuation to the High Street.

2. Cut and Fill:

7,600m³

- Rounded to nearest 100m³
- Subject to pavement design
- Not including excavation and backfilling for PCC / brick retaining walls

3. Activation:

a) There is a short run of retaining wall of the south west that could potentially have an active frontage associated with a new development. There is **126m²** space at lower level at the south which is sufficient to enable small pop up retailers such as a coffee cart.

b) The required size and positioning of spaces for activation is dependant on the end user's judgement for their desired use.

4. Cost:

Refer to appendices for full cost report.

5. Integration with Surroundings:

The southern edge of Option B ties in to the edge of Station Approach, with limited opportunity for new public realm at surface level.

A small footprint on the northern edge ties in neatly to existing levels will minimal tie-in work required.

- **422m²** remains for potential commercial development between the underpass and station. However, the angular form of this plot creates an awkward constraint for new buildings.

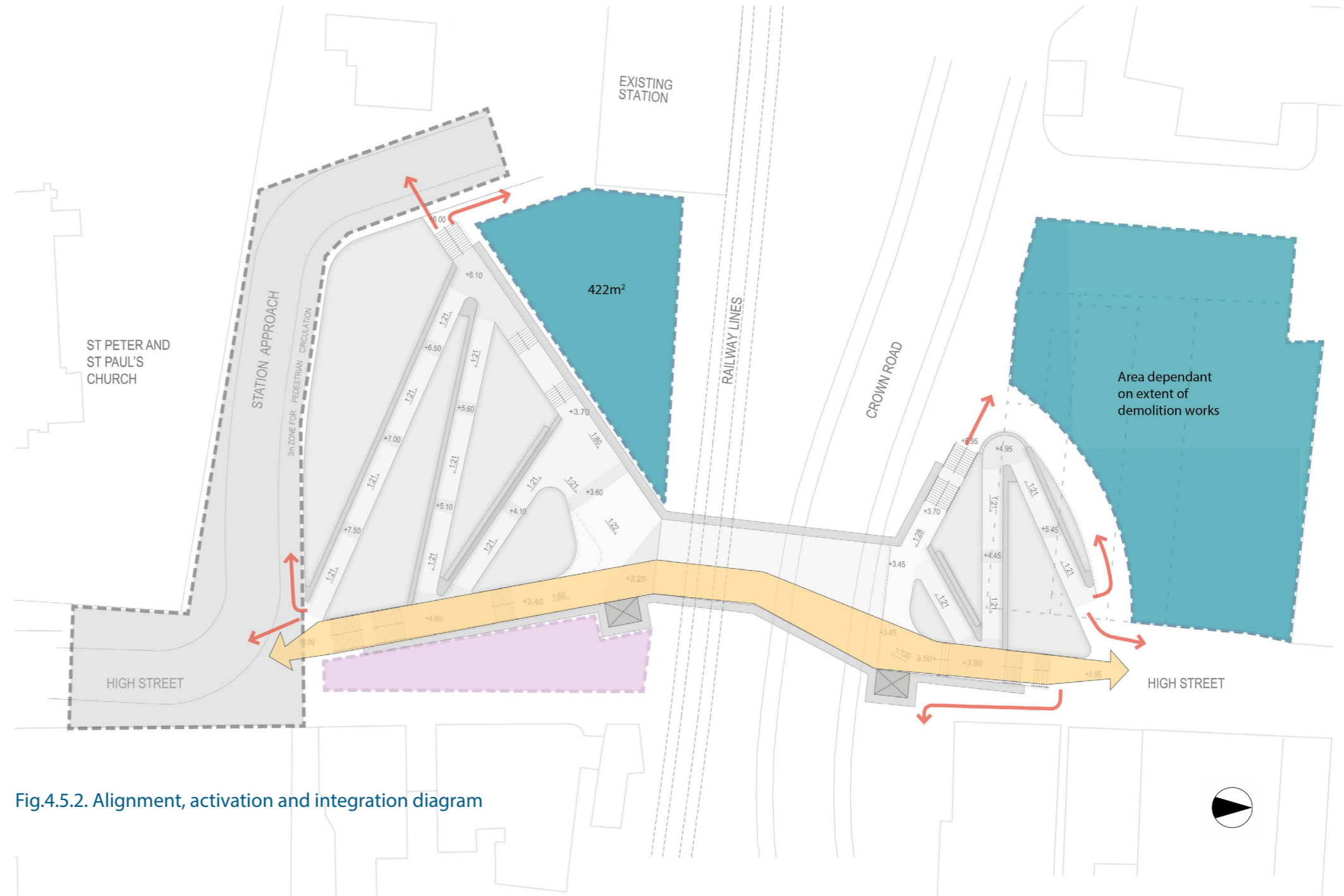


Fig.4.5.2. Alignment, activation and integration diagram

- Key**
- Approximate Area for Redevelopment
 - Area of regrading and realignment necessary to achieve option
 - Space requiring activation following permanent level crossing closure
 - North-south alignment relative to High Street
 - Direction of onward journey into Surrounding Public Realm

4.5. OPTION B - DYNAMIC

6. Microclimate:

- In winter the northern entrance remains in shadow through most of the day. The south brightens up around midday.
- In spring the eastern edges are overshadowed in the morning but in sun for the rest of the day.
- In summer there is minimal over shadowing.

7. Ease of Maintenance:

All slopes are designed to accommodate a standard street sweeper with a 5m radius turning circle (Thurrock Borough Council to provide details of exact vehicle specification for tracking).

The soft landscape has the potential to become either low maintenance planting, lawns or wild flower meadows. There is flexibility in the design for this to be decided at the next stage to achieve aesthetic, biodiversity and maintenance

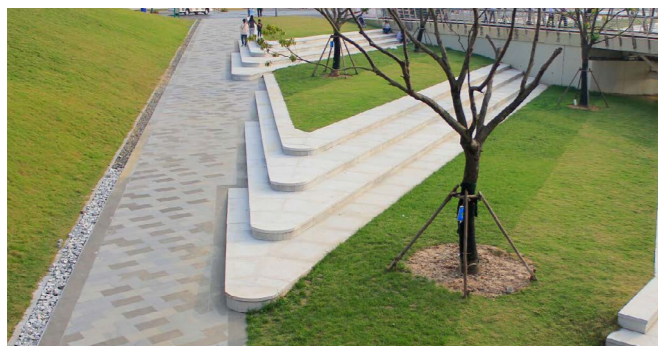


Fig.4.5.3. Placemaking precedents

requirements.

8. Placemaking:

- No guardrails are required within the sloped section.
- The layout of the slopes utilise the full length of space between the rail tracks and Station Approach to the south. This allows for much shallower gradient to soft landscape and creates a greater feeling of openness. To the north the shortest length of slope required is used to tie into existing ground levels.
- The contemporary and elegant design will set a precedent for Grays' ongoing regeneration.
- A geometric slope arrangement creates a contemporary design. Simple bands formed by seats to the back edge of the slope draw the eye up the slope, whilst also providing a functional resting / relaxing opportunity.
- The space has been designed primarily for movement, but also a space for relaxing and enjoying the surroundings.

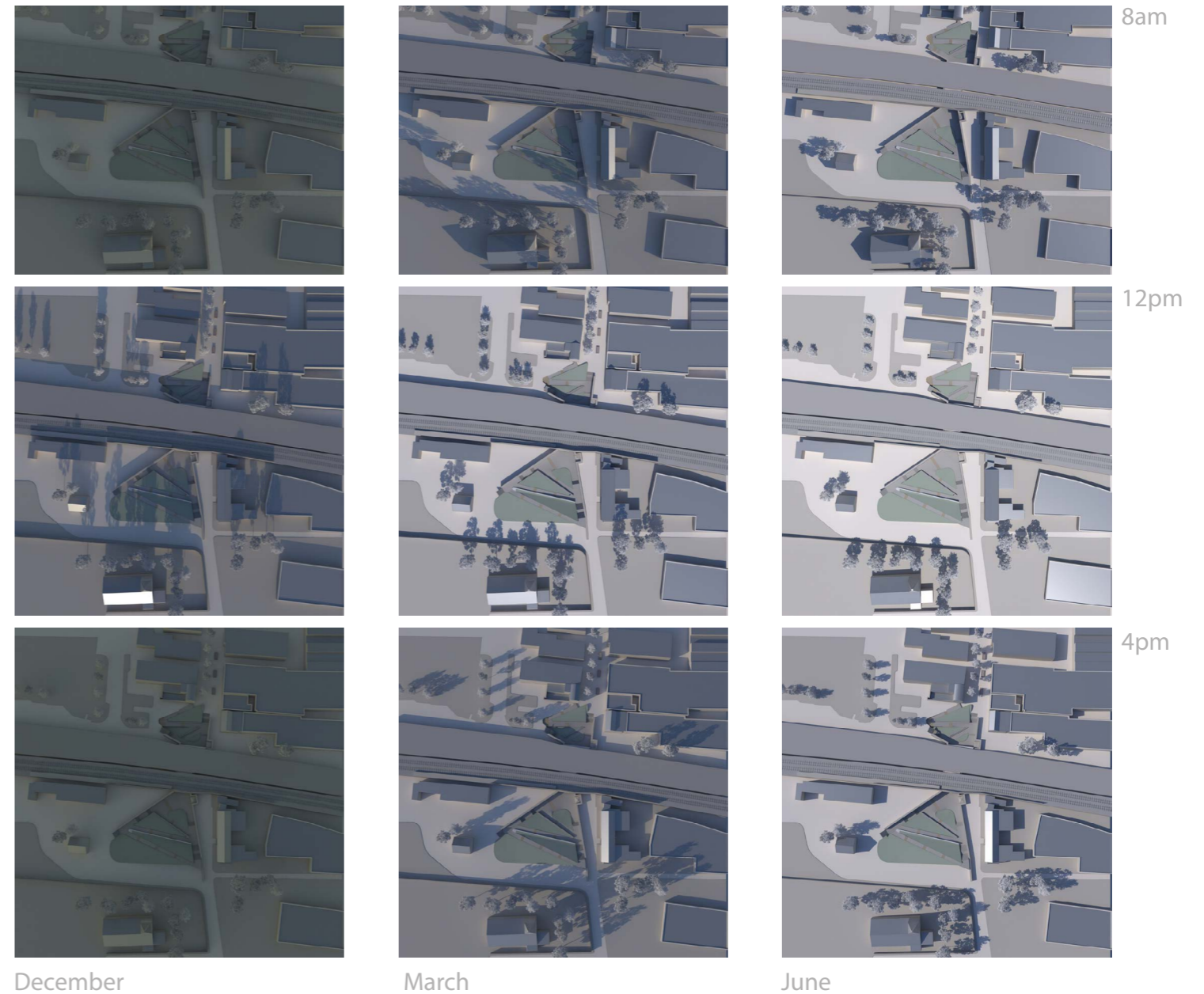


Fig.4.5.4. Sun path analysis diagrams

4.5. OPTION B - DYNAMIC

9. Disruption to the Public:

The underpass box has been positioned to enable the level crossing to remain open throughout the majority of the works, minimising disruption to the public.

10. Amenity:

There is limited space at the lower level for the extension of any events from the High Street such as markets as this would cause conflicts of movement. However, the lower spaces provides a good gently sloping platform for small pop-up retailers or busking / entertainment.

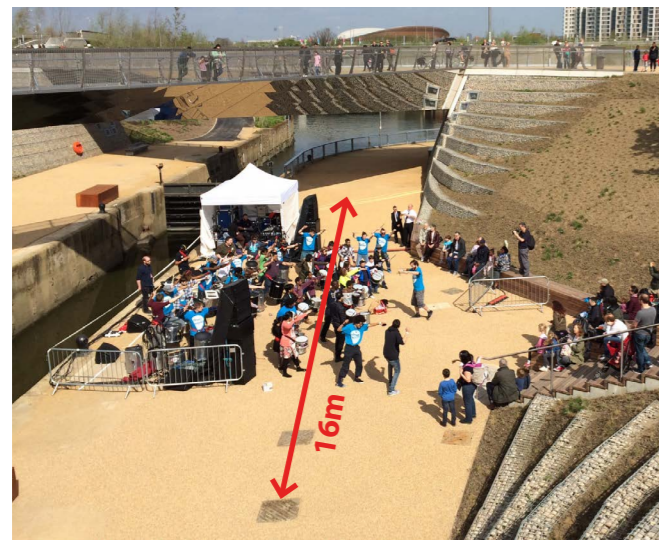


Fig.4.5.5. Space comparison precedent (Queen Elizabeth Olympic Park)

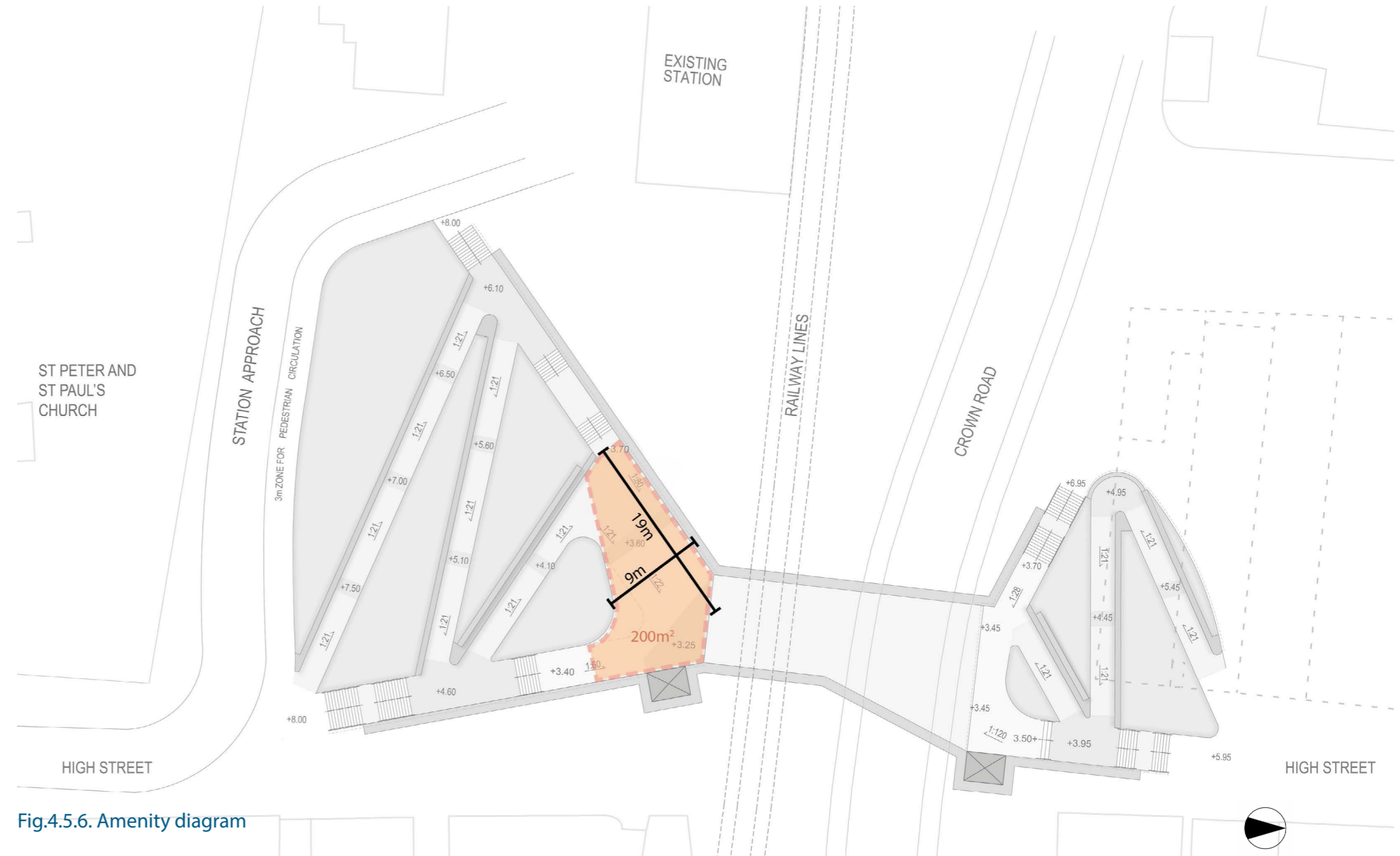


Fig.4.5.6. Amenity diagram

4.5. OPTION B - DYNAMIC

11. Sight lines:

From the southern entrance of the portal, people will clearly see St Peter and St Paul's Church.
From the northern side of the underpass clear views to the High Street are provided.

The spaced out arrangement of the slopes with large swathes of soft landscape provides good views both into and out of the portal on the northern and southern sides.

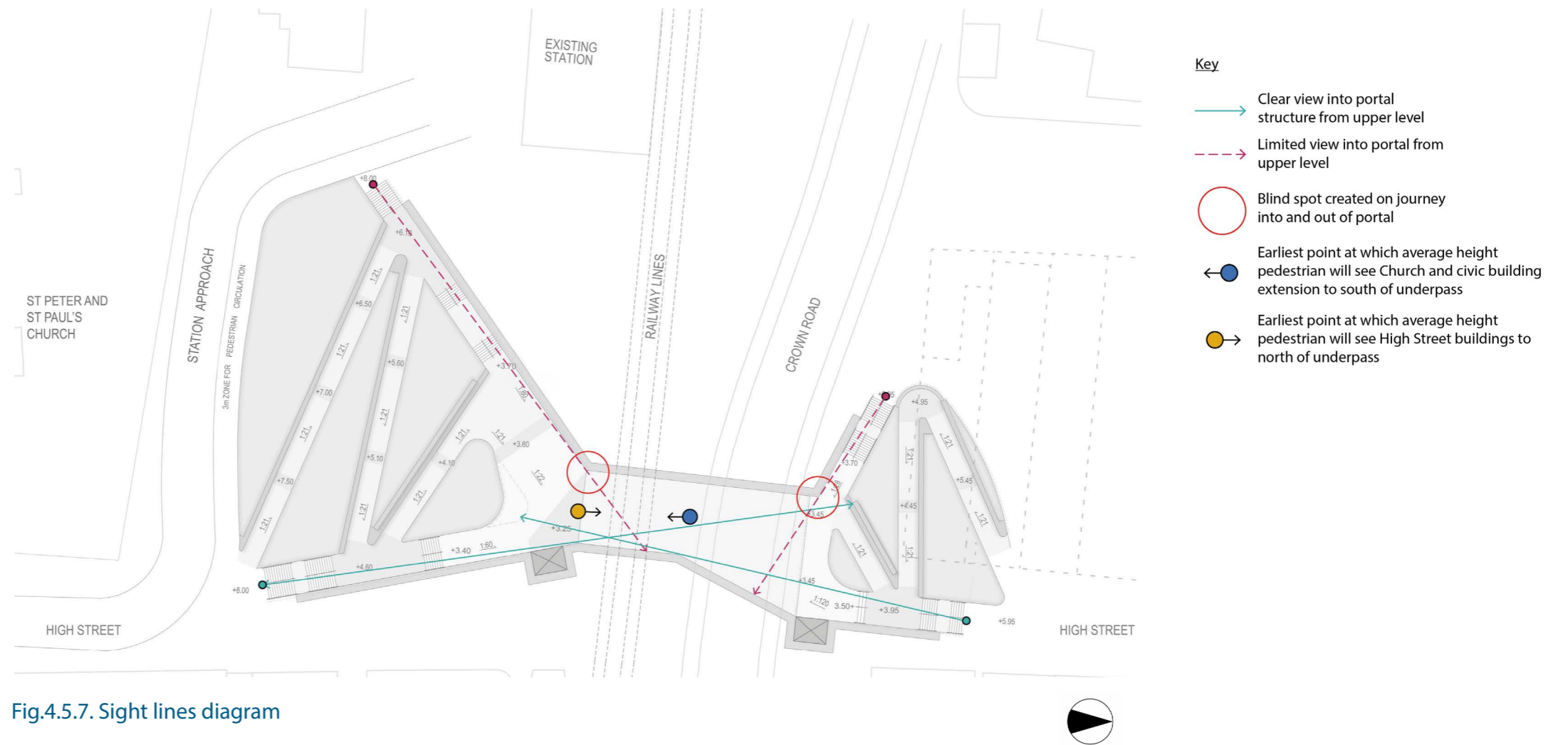


Fig.4.5.7. Sight lines diagram

Key:

- View at average eye level (1.65m) of High Street and church from centre of underpass footway
- View at average eye level (1.65m) of High Street and church from entrance to underpass footway

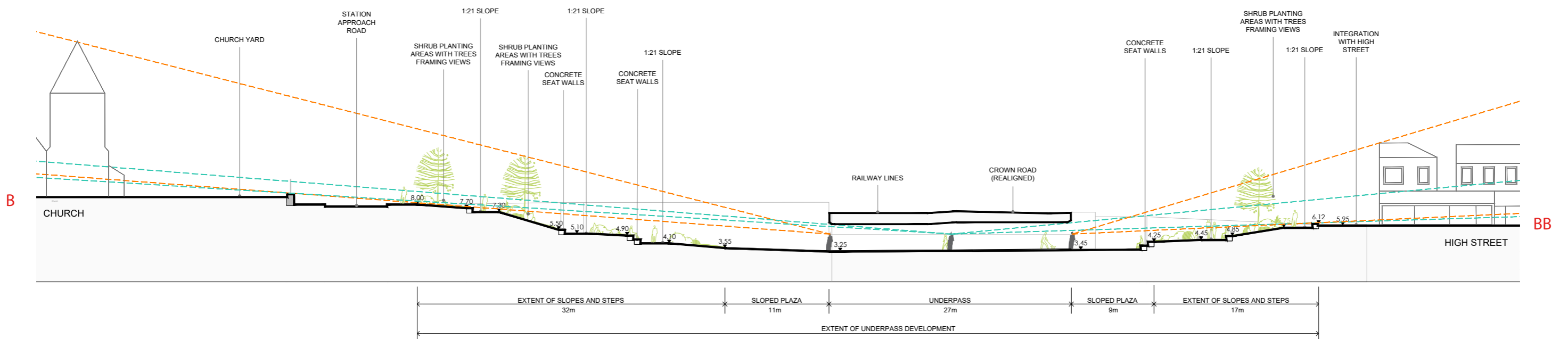


Fig.4.5.8. Cross Section B-BB

4.5. OPTION B - DYNAMIC

12. Heritage:

All options have been designed to ensure that St Peter and St Paul's Church will be visible from the centre of the portal. From the south portal entrance the simple lines created by the slope geometry draw the eye up towards the church, and the shallow sloped gradient provides good views of the church and its setting.

13. Accessibility:

Total slope length from the top of slope on both sides: **212m**

Number of switch backs south: **3**

Number of switch backs north: **2**

Slopes and stairs to converge towards same entry and exit points and reflect predominant pedestrian flows.

14. Safety / Security / Fear of Crime / Anti-social Behaviour:

On the north and south western portal entrance there are **2** no. blind spots where people could potentially hide. CCTV will be essential for crime mitigation in this area. This option has the least blind spots.

This maximum distance from an underpass access point into the portal is **41m**. This is the second shortest of all options and has a good level of surveillance from other underpass users. However, from the station to the west, views into the portal are limited due to the angle of the pile wall.

3D Sketch Visualisations

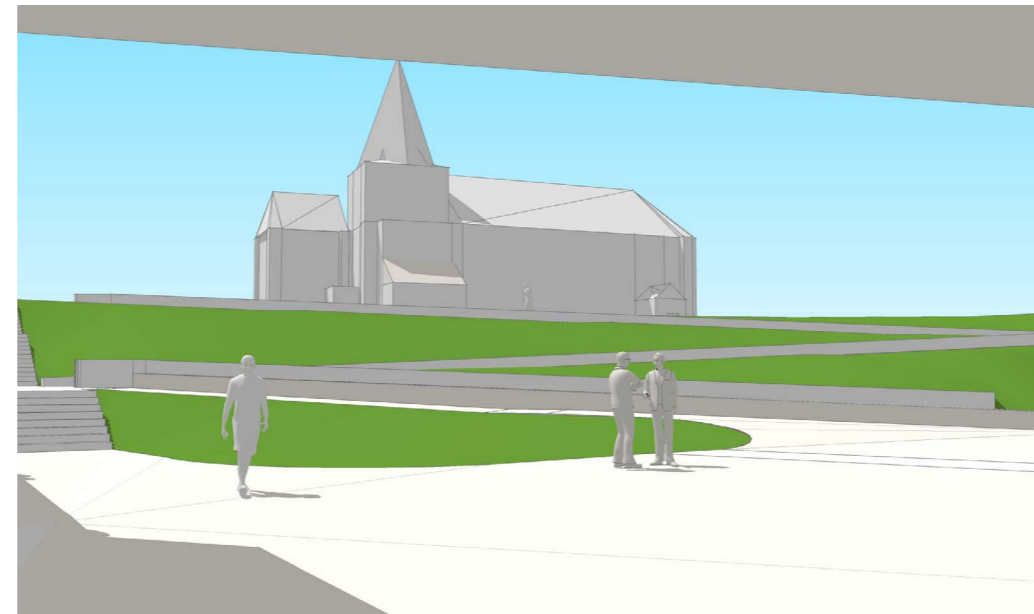


Fig.4.5.9. View looking south towards the Church from portal

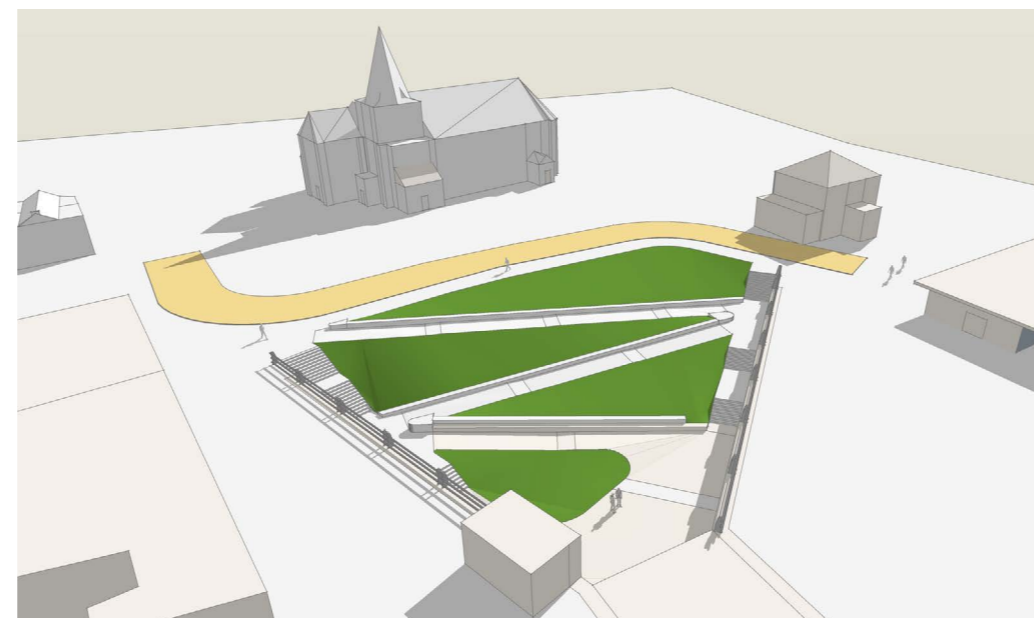


Fig.4.5.11. View looking south west (birds eye perspective)

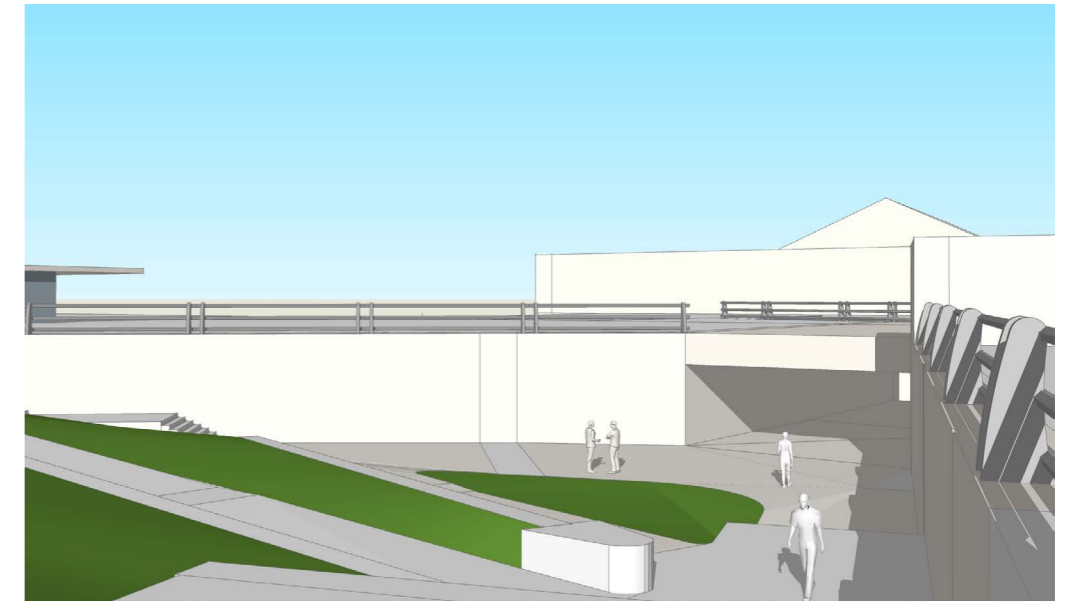


Fig.4.5.10. View looking north from High Street towards underpass

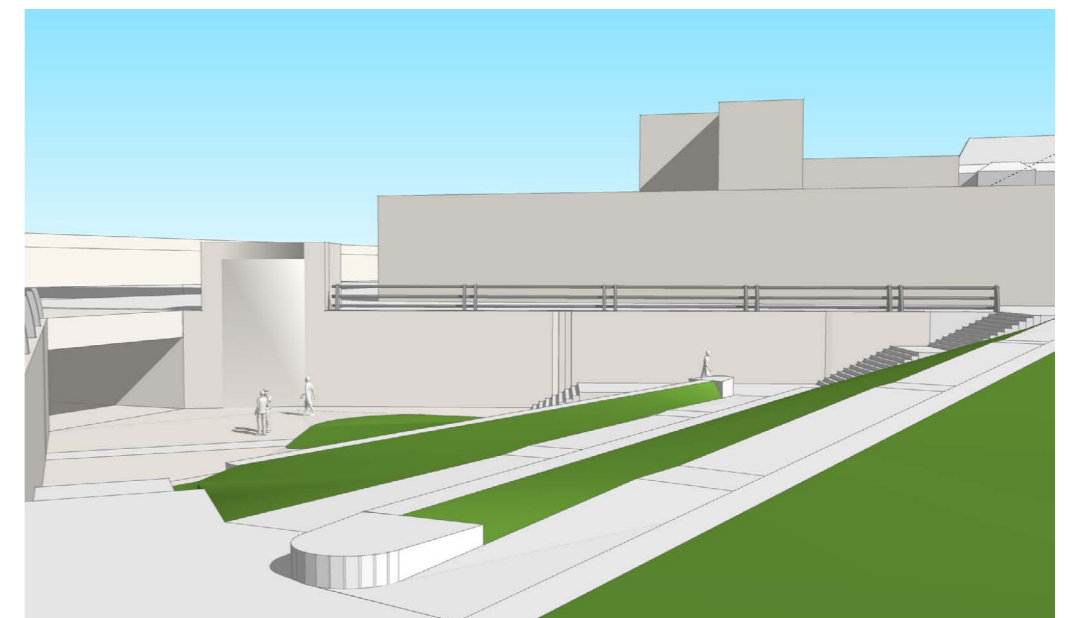
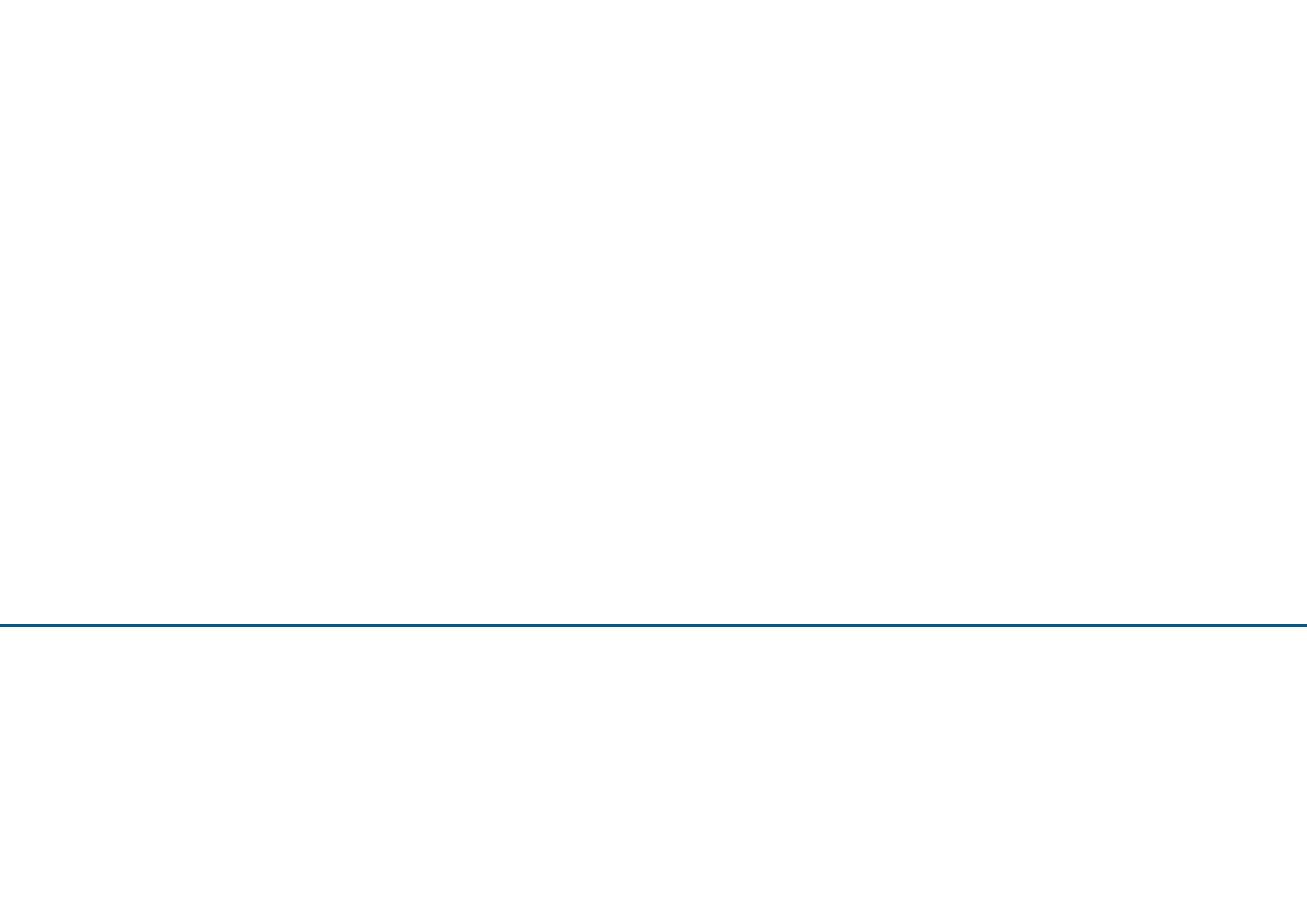


Fig.4.5.12. View looking towards underpass from station access point



OPTION C - PLAZA

4.6

4.6. OPTION C - PLAZA

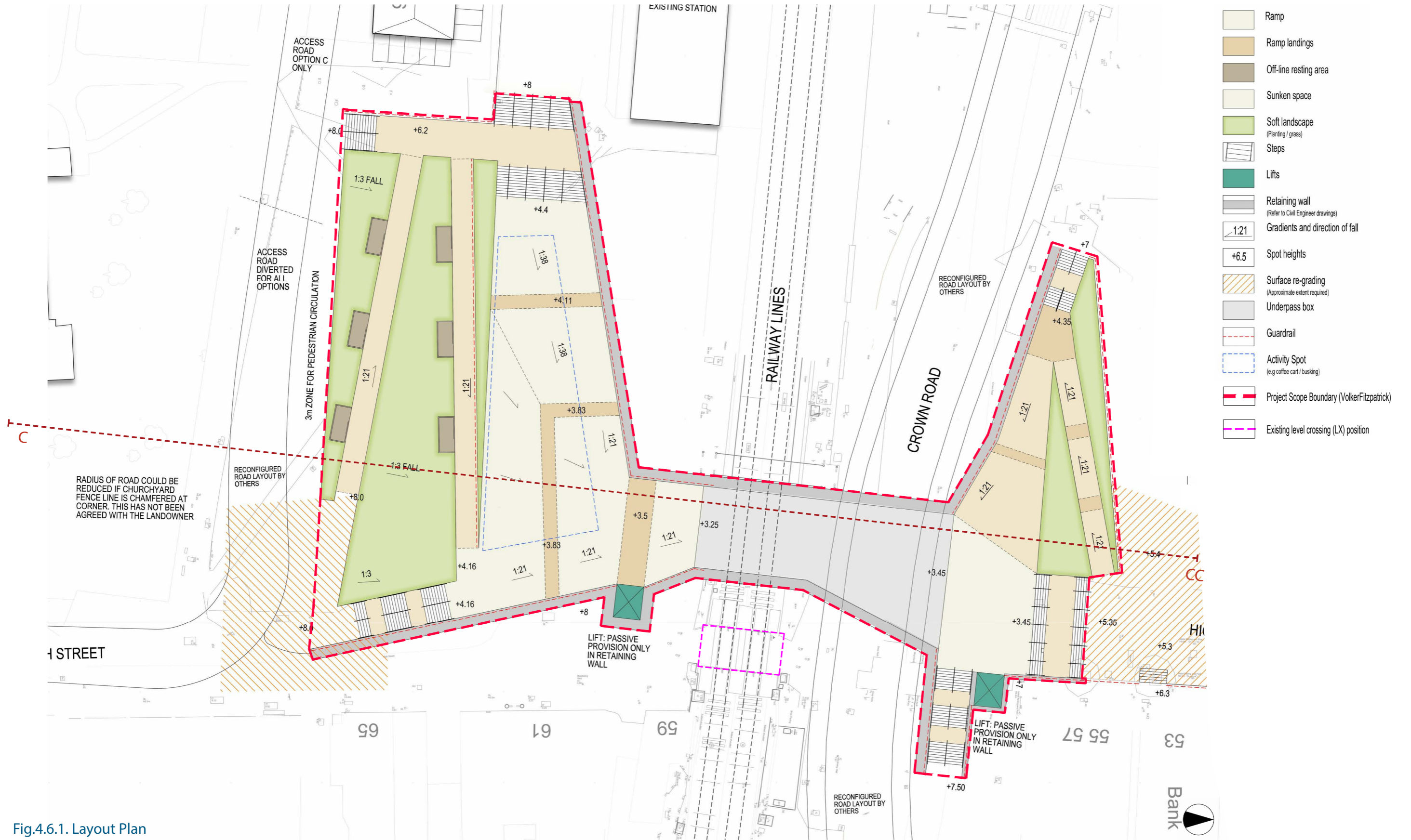


Fig.4.6.1. Layout Plan

4.6. OPTION C - PLAZA

1. Alignment:

Option C does not provide a direct alignment with the High Street. However, the start and end point of steps and slopes do convey a sense of continuation to the High Street.

2. Cut and Fill:

8,500m³

- Rounded to nearest 100m³
- Subject to pavement design
- Not including excavation and backfilling for PCC / brick retaining walls

3. Activation:

a) On the southern side, there is a long wall between the portal entrance and the station. This has the potential to be activated with a range of south facing retail and commercial frontages. A new large sunken plaza (**660m²**) links from the portal to the station.

b) The required size and positioning of spaces for activation is dependant on the end user's judgement for their desired use.

4. Cost:

Refer to appendices for full cost report.

Additional costs associated with this option are:

1. Large area of ground re-levelling required to northern side of High Street to tie into new level
2. Extending and realignment of Station Approach.

Note: VFL are not providing costs for these additional works as they are outside of the project boundary, however, they are a key consideration in the total cost required to deliver the scheme.

5. Integration with Surroundings:

The southern edge of Option C ties in to the edge of Station Approach, with limited opportunity for new public realm at surface level.

Option C requires the largest amount of tie-in works. At the south, Station Approach requires

additional extension to the west beyond the existing building (in comparison to the other options). A benefit of this additional work is a small new public space creating a more welcoming entrance to the station.

To the north the High Street will require re-levelling with a series of retaining walls along the eastern edge (these works are also outside of the project boundary so not included within project

costs).

364m² remains for potential commercial development between the underpass and station. However, the angular form of this plot creates an awkward constraint for new buildings and access to this area is very limited.

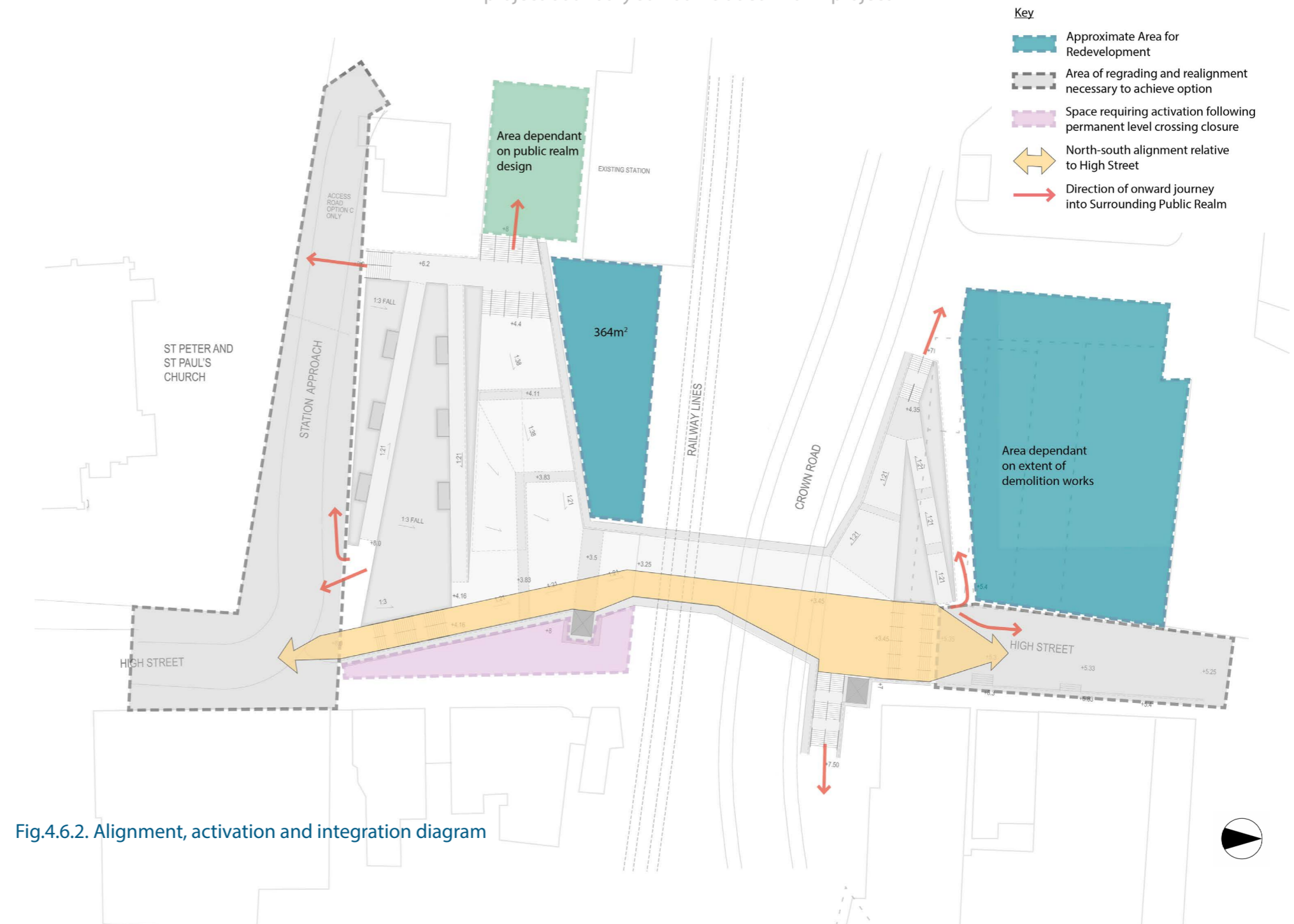


Fig.4.6.2. Alignment, activation and integration diagram

4.6. OPTION C - PLAZA

6. Microclimate:

- In winter the northern entrance remains in shadow through most of the day. The south brightens up around midday.
- In spring the eastern edges are overshadowed in the morning but in sun for the rest of the day.
- In summer there is minimal over shadowing.

7. Ease of Maintenance:

All slopes are designed to accommodate a standard street sweeper with a 5m radius turning circle (Thurrock Borough Council to provide details of exact vehicle specification for tracking).

The soft landscape has the potential to become either planting, lawns or wild flower meadows. There is flexibility in the design for this to be decided at the next stage to achieve aesthetic, biodiversity and maintenance requirements.



Fig.4.6.3. Placemaking precedents

8. Placemaking:

- A guardrail is required on the lowest slope on the south side, due to the height difference to the new plaza below.
- The southern plaza is similar in scale to Greengate Square in Manchester (Fig 4.6.3). The eventual size of the space will need careful evaluation depending on the range of activities intended.
- The new plaza provides the opportunity for clear south facing views up towards the Church.
- Simple linear slopes delineate a rectilinear new plaza to create a neat and organised space that sits comfortably in its surroundings.
- The new plaza creates a clear connection between the station, church and High Street, with the potential to enhance the character of all of these spaces. Large welcoming steps lead people in and out of the new spaces.

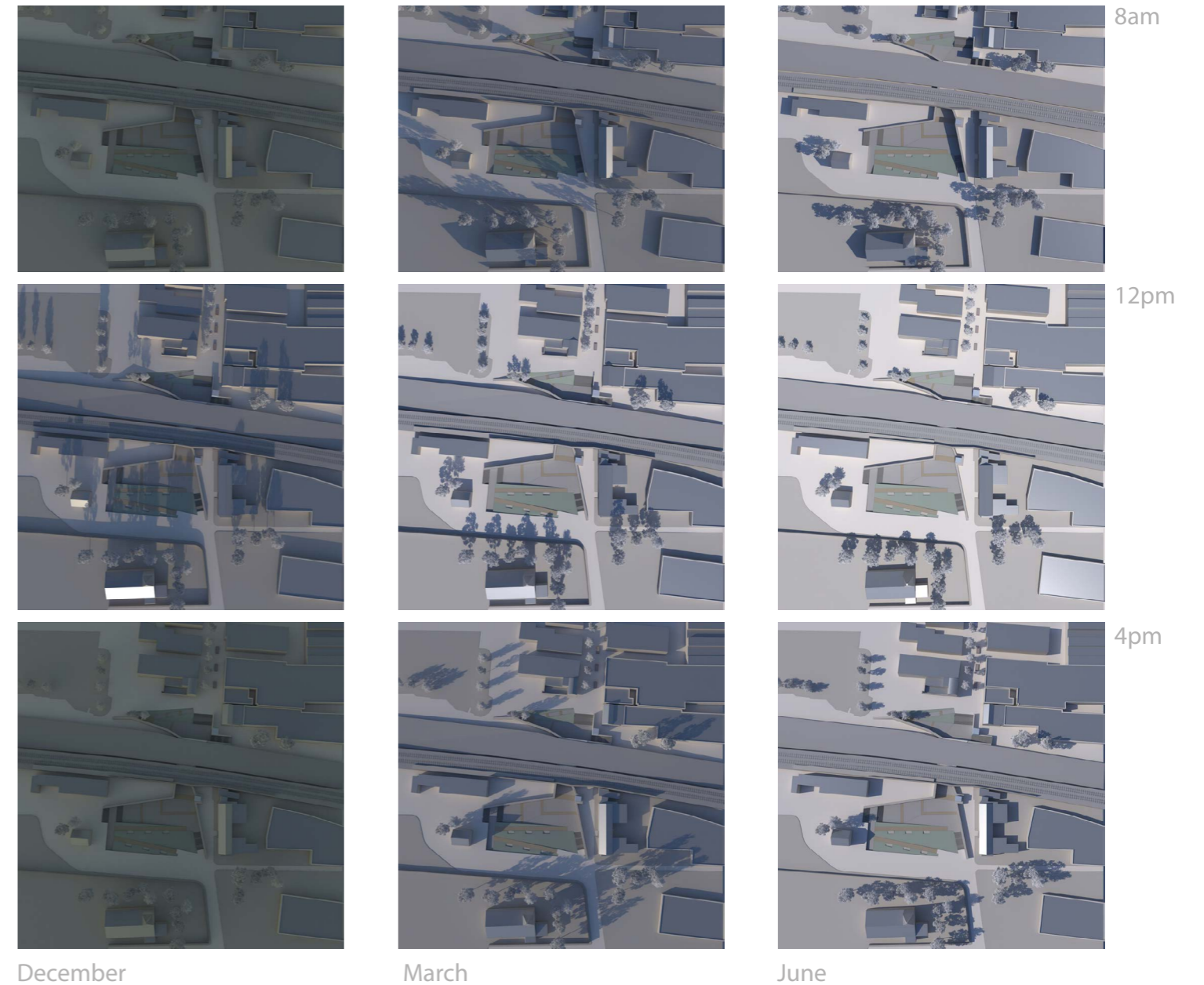


Fig.4.6.4. Sun path analysis diagrams

4.6. OPTION C - PLAZA

9. Disruption to the Public:

The underpass box has been positioned to enable the level crossing to remain open throughout the majority of the works, minimising disruption to the public.

10. Amenity:

Option C provides the best opportunity for extension of events from the High Street, within its sunken plaza. However, the plaza is on two fairly steep gradients dropping towards the underpass portal. This will make the space less comfortable to relax in and minimise the type of events that may be suitable.



Fig.4.6.5. Space comparison precedent (Greengate Square, Manchester)

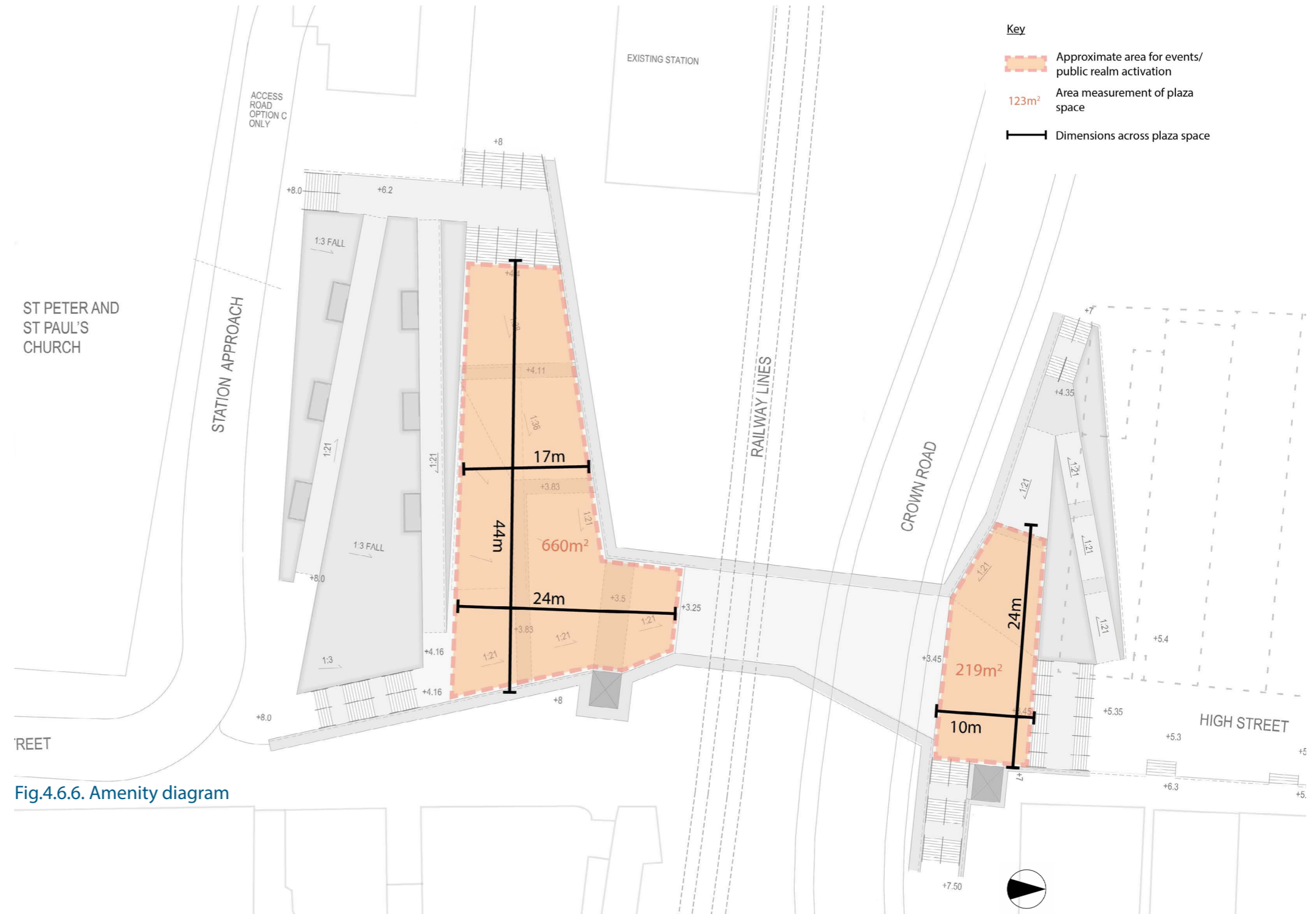


Fig.4.6.6. Amenity diagram

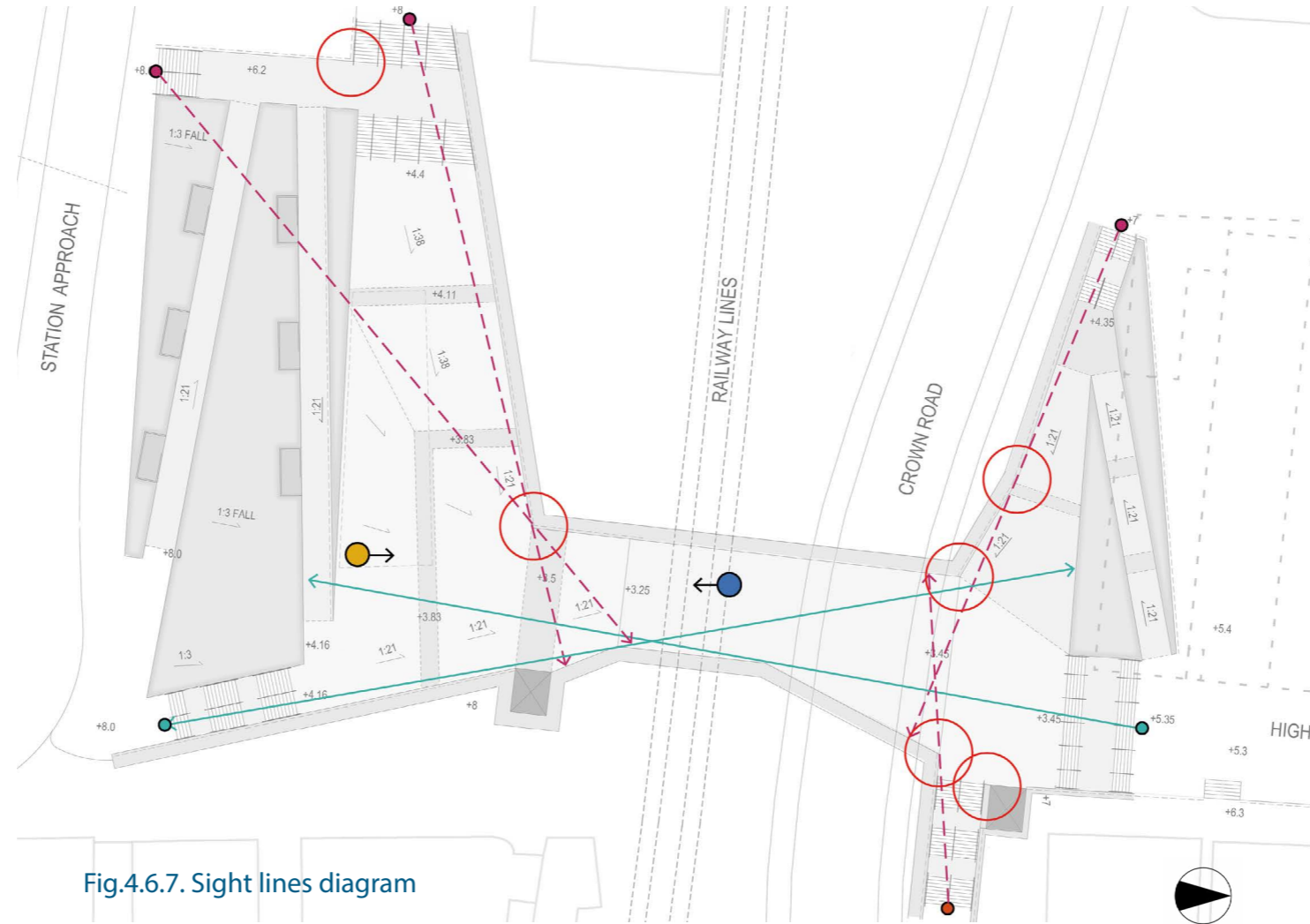
4.6. OPTION C - PLAZA

11. Sight lines:

On the southern side, the sloped access has been set back from the portal. This frames clear views of the St Peter and St Paul's Church.

From the station, views down into the plaza are clear, though restricted into the portal due to the angle of the wall.

On the northern entrance, clear views to and from the portal / High Street are provided by the generous wide set of steps linking the two spaces.



- Key**
- Clear view into portal structure from upper level
 - - - Limited view into portal from upper level
 - Blind spot created on journey into and out of portal
 - ← Earliest point at which average height pedestrian will see Church and civic building extension to south of underpass
 - Earliest point at which average height pedestrian will see High Street buildings to north of underpass

Fig.4.6.7. Sight lines diagram

Key:

- View at average eye level (1.65m) of High Street and church from centre of underpass footway
- View at average eye level (1.65m) of High Street and church from entrance to underpass footway

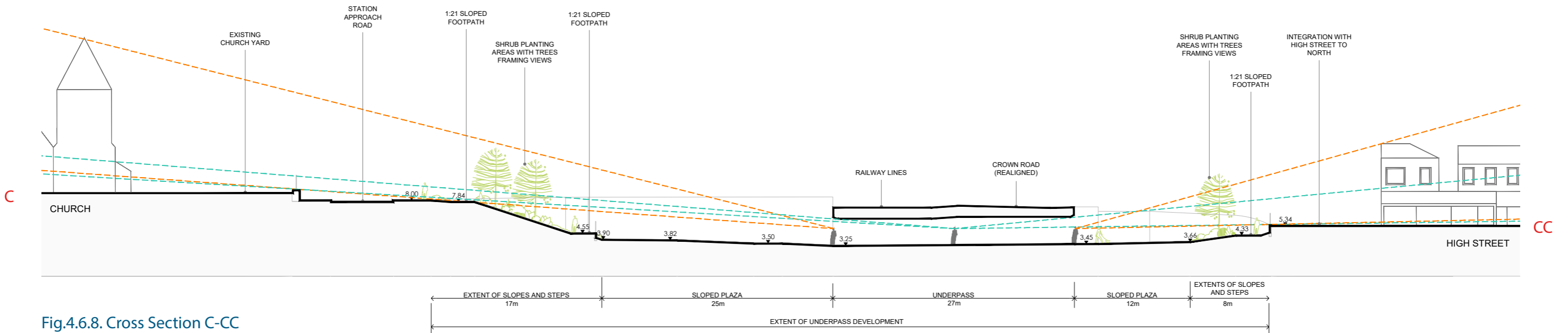


Fig.4.6.8. Cross Section C-CC

4.6. OPTION C - PLAZA

12. Heritage:

All options have been designed to ensure that St Peter and St Paul's Church will be visible from the centre of the portal. A clear visual connection is created between the Church and the new plaza, enhancing the setting of both spaces.

13. Accessibility:

Total slope length from the top of slope on both sides: **196m (+15m to reach High Street on south side)**

Number of switch backs south: **1**

Number of switch backs north: **1**

Slopes and stairs do converge towards same entry and exit points and reflect primary pedestrian flows.

14. Safety / Security / Fear of Crime / Anti-social Behaviour:

There are **5** no. locations on Option C that create blind spots where people could hide:

- The north and south west entrances to the portal
- the north eastern entrance to the portal and lift.
- The south west corner of steps

CCTV will be essential for crime mitigation in these areas.

The maximum distance from an underpass access point into the portal is **50m**. This is the longest of all options and therefore there will be slightly less surveillance from other underpass users. However, from the station to the west, views into lower level are more open which could mitigate the above. In general there is more of a sense of openness which provides an increase in perceived comfort level. Activating the lower level spaces could also increase natural surveillance (careful consideration to be given from the end user).

3D Sketch Visualisations



Fig.4.6.9. View looking south towards the Church from portal



Fig.4.6.11. View looking south west (birds eye perspective)

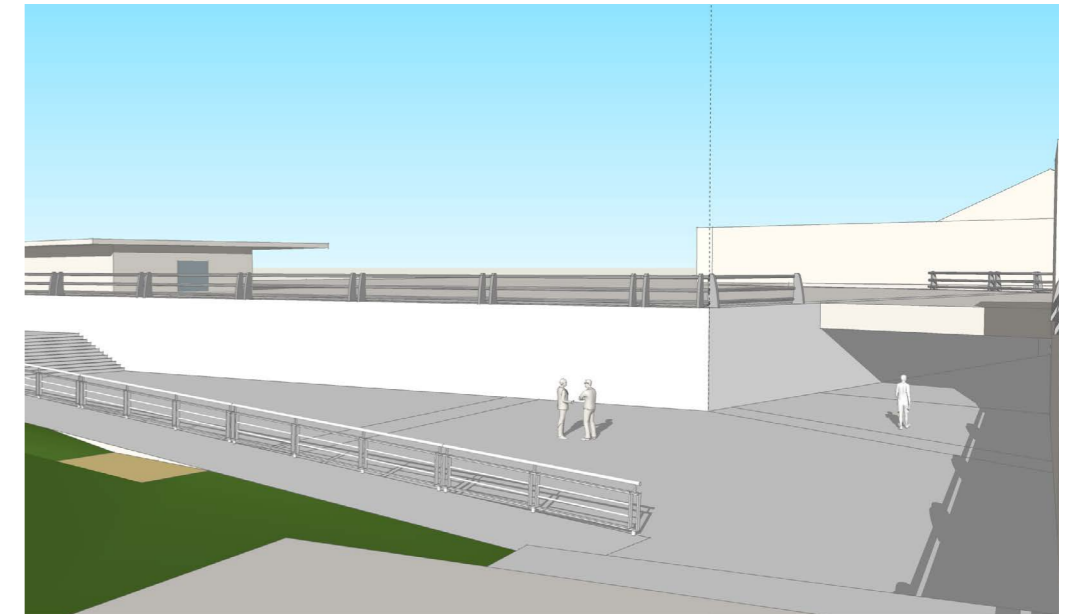


Fig.4.6.10. View looking north from High Street towards underpass

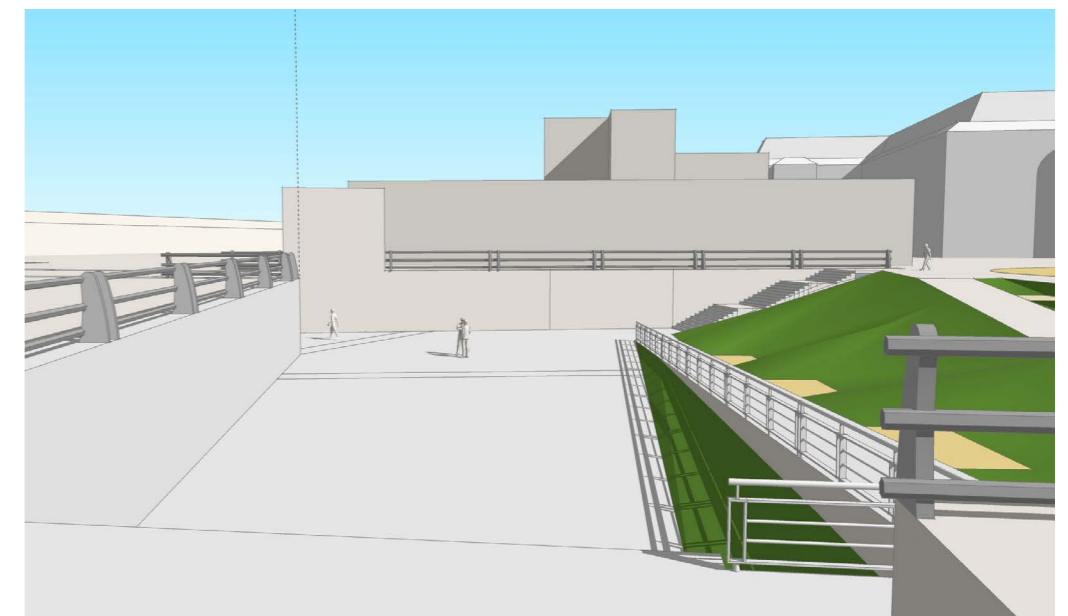


Fig.4.6.12. View looking towards underpass from station access point

4.7. OPTION EVALUATION MATRIX

Option Selection Workshop

The following two pages show the criteria weighting and option evaluation matrix that was completed between Thurrock Borough Council, Network Rail and VolkerFitzPatrick at the Option Selection Workshop on 13/03/2020.

	Option Selection Criteria	A	B	C	D	E	F	G	H	I
A	Alignment	A								
B	Placemaking		B							
C	Integration with Surroundings			C						
D	Constructability/disruption to public				D					
E	Cost					E				
F	Maintainability						F			
G	Accessibility and Ease of Navigation							G		
H	Safety and Security								H	
I	Sustainability									I

Rating	Rating No.
Very High	5
High	4
Medium	3
Low	2
Very Low	1

Option Selection Criteria	A	B	C	D	E	F	G	H	I
Criteria Rating	3	5	5	4	4	3	4	5	4
Criteria Weight	8%	14%	14%	11%	11%	8%	11%	14%	11%

Fig.4.7.1. Option Selection Workshop - Criteria Weighting

4.7. OPTION EVALUATION MATRIX

Option Selection Criteria		Sub-criteria	Weight	Option A	Total Score	Option B	Total Score	Option C	Total Score
A	Alignment	A sense of continuation for the High Street is conveyed	8%	3	0.243	1	0.081	1	0.081
B	Placemaking	Invasiveness of ramps and associated safety measures (e.g. minimisation of guard rails)	14%	1	0.135	2	0.270	3	0.405
		Dead space (area unlikely to be utilised. Wasted space) is minimised. Potential to provide active frontages.		0	0.000	2	0.270	3	0.405
		Quality and area of remaining space for further development or surface level public realm.		0	0.000	2	0.270	3	0.405
		Microclimate - using the sun path to maximise benefit of natural light (Passive Solar Design)		1	0.135	3	0.405	3	0.405
		Design concept and sense of place: Is the space the right scale?		1	0.135	2	0.270	3	0.405
		Consistent design language used, which complements and adds to the series of public spaces along the High St, from the War Memorial to the riverfront		1	0.135	2	0.270	3	0.405
C	Integration with Surroundings	Well-coordinated of tie-in with adjacent boundaries.	14%	1	0.135	2	0.270	2	0.270
		Suitability of public spaces to support a wide range of town centre events and activities which supports continuation of the high street. (Size, gradient, conflict of movement, floor level)		0	0.000	2	0.270	3	0.405
		Heritage - design should relate to the local area's character and history, framing views towards the St Peter & St Paul's Church, churchyard		1	0.135	3	0.405	3	0.405
D	Constructability and Planning	Construction programme: Minimal disruption to public during construction	11%	0	0.000	2	0.216	2	0.216
		Minimise Level Crossing disruption during construction stage		0	0.000	1	0.108	1	0.108
		Extent of enabling works and diversionary impacts to the public		0	0.000	2	0.216	1	0.108
E	Cost	Magnitude of cost associated with the options in relation to the AFC budget allocate	11%	0	0.000	0	0.000	0	0.000
F	Maintainability	Easy access for maintenance staff / vehicles to the portal and ramp area	8%	1	0.081	3	0.243	3	0.243
		Minimisation of landscape maintenance		1	0.081	2	0.162	3	0.243
G	Accessibility and Ease of Navigation	Simplify ramp navigation, total ramp length, journey time and number of switch backs (technical compliance is assumed).	11%	1	0.108	2	0.216	3	0.324
		Ramps and stairs to converge towards same entry and exit points and reflect predominant pedestrian flows.		1	0.108	3	0.324	3	0.324
		Providing clear views of key landmarks (High Street to the north, Church and proposed Civic Offices extension to the south) as well as sightlines into portal from a distance. Ensure clear views from access ramp into portal, train station, bus station and Crown Road		1	0.108	2	0.216	3	0.324
H	Safety and Security	Minimise hidden viewpoint(s) and blind corners	14%	0	0.000	2	0.270	1	0.135
		Optimise long-distance clear views (including for CCTV system) throughout the underpass		2	0.270	2	0.270	2	0.270
I	Sustainability	Amount of material (m ³) required to be excavated and disposed of during construction	11%	3	0.324	2	0.216	1	0.108
		'Urban Greening			0.000		0.000		0.000
TOTAL:					2.135		5.243		6.000

Rating	Description
3	Fully meets the criteria
2	Mostly meets the criteria
1	Somewhat meets the criteria
0	Does not meet the criteria

Fig.4.7.2. Option Selection Workshop - Evaluation Matrix