

Late medieval and Renaissance fortification 1350–1600 AD

Results

The presentation of the remains from the Late medieval and Renaissance fortification will be given from two perspectives. Firstly there will be an account of the different feature types – part of a bulwark and the Late medieval moat (Fig. 107). After the overall description the features are placed in a structural and historical context.

This time phase could have been presented together with either the eastern gate building and/or the Late medieval city wall, but is separated in the report due to the results and dates, interpretations and the general discussion on the changes that have been made on the overall fortification over time. This also goes for the backfilling and levelling of the Late medieval moat which actually should be placed under time Phase 6 (Post medieval fortification and other early 17th century activities), but are presented here due to the difficulties in distinguishing some of these deposits from the usage layers and the fact that these layers are necessary for the discussion about the moat's final destruction, etc.

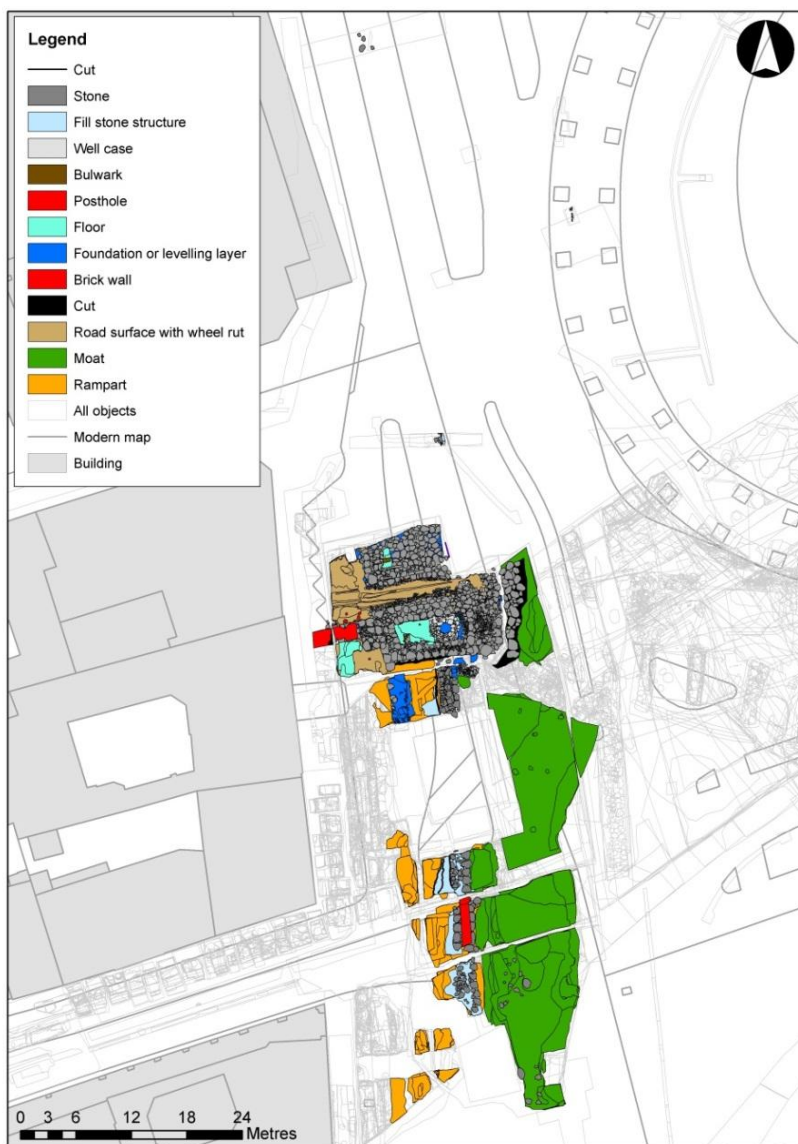


Fig. 107. Overview of Late medieval features at Kongens Nytorv.

Bulwark

A north-south orientated timber structure was investigated at Kongens Nytorv opposite the end of Strøget 31.0 m from the SE corner of Hotel d'Angleterre, consisting of 11 wooden posts (Fig. 108). The feature consisted of five larger mostly rectangular posts with six smaller, more rounded posts in between. All posts were vertically set, except at the north end of the structure where there was a horizontal plank that seemed to represent some planking behind the vertical posts.



Fig. 108. Bulwark from the mid 16th century at the SE corner of Hotel d'Angleterre.

There was an impression on site that the structure was curving slightly to the west, although the trench was too small to be certain. The posts seemed very well set and it is thought that they were driven into natural at the base of the moat, and that this structure was some kind of revetment since three contexts in subgroup 457 on the east side of the posts were interpreted as purposeful backfilling behind the posts. Peg holes in one of the saved timbers shows that this timber was a reused piece from a so-called "*vognkæp*" (English: rong) (Fig. 109). A sawed board made of spruce or pine was also recorded (Melin 2013:27).

Dendrochronological dating of the timber structure placed this between the mid 15th century and the mid 16th century. Some of the timber represented reused wood. The source of the oak wood was the Swedish west coast (Halland and Bohuslän) and for the pine this has been determined as Gotland (Linderson 2015).

Perhaps the best interpretation is that the revetment was for the purpose of lining the side of the moat to prevent erosion and that it was possibly lined here because erosion would have been greater on a sharp bend in the Late medieval moat.

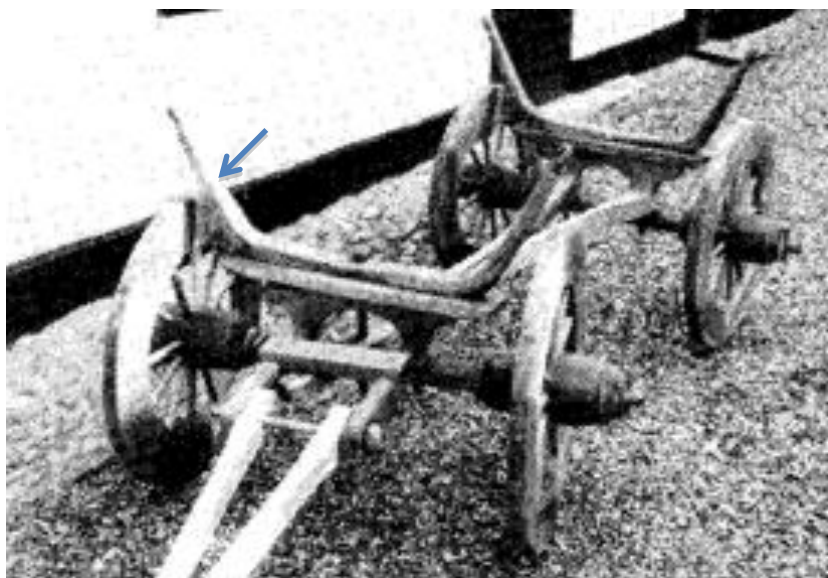


Fig. 109. The arrow points at a “vognkæp” re-used in the 16th century bulwark. Photo after Schovsbo 1987:137 and modified by Melin (2013:26).

The Late medieval moat – construction, usage and deconstruction

The Late medieval moat could not be separated from the earlier moat, but has been at least 10.5 m wide and was followed for a length of approximately 55.0 m running in a north-south direction (Fig. 110). The base was recorded between kote -1.0 and -0.5 m. The east side of the cut had a moderate slope (45 degrees) and had a moderate to gradual break of slope at the base. On the west side the edge was diffuse and was overcut during excavation and truncated by the Transformer Station and a modern concrete structure, which affected the exact shape and levels of the cut. The cut was steep (approximately 60 degrees to horizontal) and convex. The cut also flattened off towards the city wall foundation, leaving a very gently sloping “flattish” strip directly in front of the structure. The top of the construction cut varied from kote +0.65 to +0.10 m, the base between kote -0.45 to -0.70 m. These results can be compared with the medieval moat investigated in Vester Voldgade at Vartov, as a c. 15.0 m wide trench with the base at kote -2.0 (Jensen 1934).



Fig. 110. Excavated 16th century moat, facing SW. The timber belongs to a later bridge structure. Photo: Museum of Copenhagen.

The NE part of documented moat cut outside the eastern gate building (6.5 m) had the exact same layout and orientation as stone foundation (G-227), and was therefore first considered as part of a later addition to the gate building. Later, another interpretation was suggested, that this construction cut represented an older cut, which later had been truncated by the foundation, suggesting it as being part of the former 13th century moat.

No trace of the western side of the cut was observed in the north, mainly due to Østerport which had destroyed all traces of the original construction cut, though an estimated moat cut was measured in relation to the gate building.

The base of the Late medieval moat was approximately 0.10 m lower in the middle of the cut than at the west and east extremities. The flat nature of the moat base could perhaps indicate that the water was not fast flowing as there was no significant fall from the north to the south (towards the sea).

The Late medieval moat was most likely created during the construction of the brick and stone city wall. At that time a construction cut was made into the earlier rampart and the brick and stone wall was constructed within. As seen in the former Metro investigations the last phase of the embankment had been pushed approximately 4.0 m to 5.5 m beyond the High medieval moat (Kristiansen 1998:106). The exact construction order is not known as there was no clear stratigraphic relationship between moat cut and wall construction cut.

The geology consisted of a thin gravel layer sometimes on sandy lenses, all on top of glacial moraine material. As no clay lining was identified in the moat it is suggested that the water level in the moat did not exceed the level of the moraine deposits. The exact level was approximately +0.50 m over sea level. Therefore the moat was probably no

more than 1.1 m deep, although this maximum was probably significantly more than the actual depth of water in the moat.

The sedimentation in the moat varied from 0.1-0.5 m in thickness and consisted of lensed dark brown and black decomposed peat together with light and mid blue, grey and yellow clayish silt with different types of inclusions and a large amount of household waste and building material (Fig. 111). Lenses of silt indicate slow flowing water and no traces of peat rhizomes were registered. Of zoological remains, mussels and snails were documented. Some of the findings were probably connected to the later deconstruction phase and pressed into the underlying and soft deposits, but overall this assumption does not affect the dating and deconstruction phase of the moat.



Fig. 111. Sedimentation in the Late medieval moat south of the remains of a 17th century dam, facing north. Photo: Museum of Copenhagen.

The finds material dates the latest usage phase of the moat to the second part of the 16th century; 1550–1600 AD and still in use between 1550–1574 AD. This can be compared with the Late medieval moat at Rådhuspladsen, dated at earliest to 1371/1372 AD and used until the early 1600s (Lyne and Dahlström 2015:254). Among the finds collected from the Late medieval moat is a limestone lion head (Fig. 112) of Romanesque or Late medieval origin (cf. Reisnert 2012; Vedsø 2016a) and probably representing some sort of decoration on the medieval gate building. There is a parallel to the lion head in the form of a chalk console from c. 1250 AD in Karlstrup church between Copenhagen and Køge (Nyborg 2016).



Fig. 112. Romanesque lion head of limestone from one of the basal layers in the Late medieval moat. Photo: Museum of Copenhagen.

The lion head was analysed using X-ray fluorescence and a handheld digital microscope with and without UV fluorescence lighting (Rask og Christensen 2011). The sculpture fragment is made of limestone and there are no traces of paint. It seems that the limestone has been eroded by wind and weather, which also explains the many fossils exposed in the surface of the figure.

Work and modification on the fortification in the 16th century

We know that Copenhagen's fortifications in the 15th century consisted of a defensive wall with a number of round and some square towers and was equipped with brick bridges outside the gates, but whether this fortification was supplemented or replaced by newer embankments during the 1500s is unknown. There is knowledge of the expansion of the fortifications under Frederik the 1st (1523–1533 AD) and Frederik the 2nd (1559–1588 AD). In the 1520s it seems to have been built roundels in front of the gates, and in the 1580s reinforcement of the earthwork was carried out by Christoffer Valkendorf close to Østerport (Westerbeek Dahl in press).

When King Hans died in 1513, his son Christian the 2nd took over the throne, but his reign was uneasy. This is also reflected in Copenhagen's accounts, which show that the work on the reinforcement of the fortifications continued undaunted.

Working on the fortification's expansion and improvement are mentioned in Magistrates Vedtægtsbog from 1505–1532 AD (Thorsen 1926:227). In 1505 "*bolwerck, uden øtre port*" is mentioned and work on the eastern gate building is mentioned in both 1518 and 1523 (KD 1:255). Before 1523 two so-called trenches, i.e. fortification cuttings were dug – one by Peblingsøen and one at the beach between the two towers at Nørreport and Jarmers Gab. By Pentecost Day in the year 1530 Bishop Joachim Rønnow loaned 600 weights of silver to the city council and residents for the fortification and in 1534 the Vicars altars in Vor Frue Kirke provided 50 marks for work on the embankment (Thorsen 1926:235). In 1530 the rampart was made more massive on the inside by supporting the city wall with an

embankment that was 16 cubits wide, but this estimated width is uncertain for the Østervold area due to the location of the nearby rampart street, buildings, etc. (Lassen 1855:9; Thorsen 1926:234).

By the peace contingent on Christian III, he decided that he should be master of the city's fortifications. There are different opinions as to what extent the siege (1535–1536 AD) affected the city fortifications (Lassen 1855:10; Thorsen 1926:236), but in 1539 the sources cite that the king began to deal with the maintenance work. At almost the same time he started extensive renovations on Copenhagen Castle and he took the initiative that the dilapidated fortification should be strengthened. As he allowed the city magistrate to keep the customs charged on foreign beer and wine introduced to the city, he also ordered the city council to refurbish the ramparts and moats. It was left to the citizens to undertake the works, but it does not seem that the king's words were followed, due to repeated requests.

In 1543 Christian the 3rd writes to Eske Bilde "*...at man ikke skulle spare på innsatsene for å klargjøre vollen og befestningen mellom Østervold og Bremerholm*" (Thorsen 1926:238).

The accounts for the city relate the building of at least two towers, one described as lying at Østerport (Kringelen). Construction work on the eastern gate and the construction of dams is also mentioned, the latter probably the same dams that were built in the moat to prevent water from flowing out to the coast and to keep sufficiently high water levels in the individual and different moat sections.

According to a letter from Christian the 3rd to Magnus Gyldenstierne in 1558 the moat should be 100 shoes (feet) wide and 40 shoes deep from the upper edge of the rampart and there should be 6 or 7 feet of water in the moat (Lassen 1855:100). A series of redoubts outside the gates and in the towers are also mentioned. It is likely that this constitutes the semicircular fortified islands surrounded by the moat, placed in front of the gates to make access to these weak points in the fortifications as complicated as possible. Redoubts in front of the towers may well have been embankments designed to protect the walls against cannon fire from the enemy, as these weapons had become more effective and were now becoming a real threat.

Under the rule of Frederik the 2nd, the fortification again underwent major modernization along its alignment, headed by Christoffer Valkendorf in 1581–1583 AD (Fig. 113).



Fig. 113. Valkendorf's reinforcement of the fortification in the 1580s investigated at the Metro excavations in 1996–1998, facing west. Photo: Museum of Copenhagen.

Based on the written sources this work was conducted in the area from Nørreport to Østerport reinforcing the embankment with large boulders (Lassen 1855:18-19; Thorsen 1926:242), and the stones were probably collected from Amager. Valkendorf was reportedly also responsible for the redoubt north of Østerport, though there could have been a smaller embankment in place already in 1505 AD or under the reign of Christian the 3rd (Thorsen 1926:243).

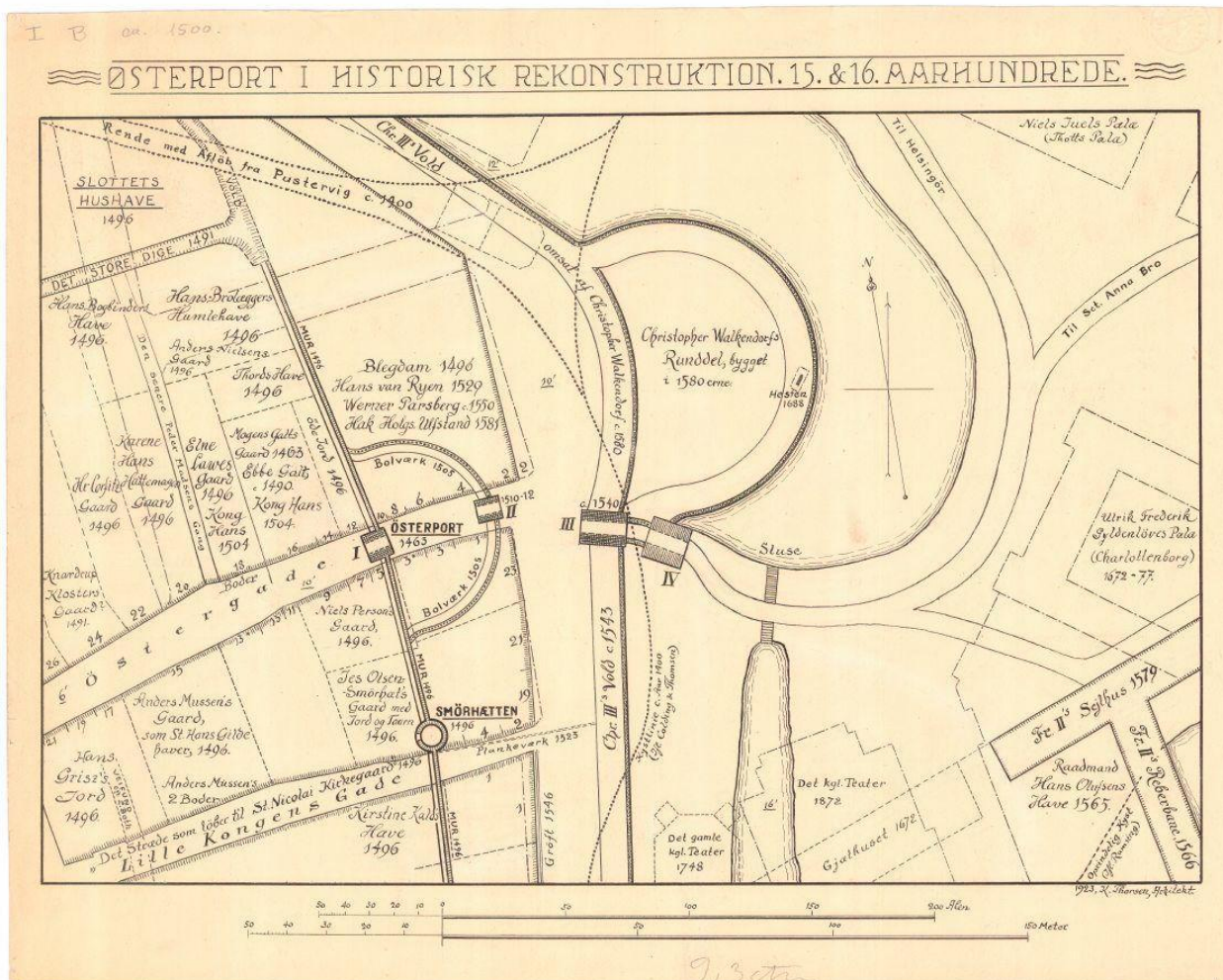


Fig. 114. Reconstruction proposal for the late 16th century fortification at Østervold with earthworks, moat, gate buildings and a suggested sluice. Drawing by K. Thorsen 1923 and printed in Thorsen 1926. From Copenhagen City Archives.

At the Metro investigations in 1996–1998 this rebuilding of the fortification in the 1580s could be seen as a substantial stone structure consisting of two to three courses immediately east of the foundation of the medieval city wall, although the relationship between this development phase and older features was unclear at several points within the excavation area. As part of the construction work the rampart partially had been made of peat (?) and made taller and wider, covering at least 1.4 m of the wall base (Kristiansen 1998:13, 98 et seq.; 1999c:185 et seq.).

Bulwark (G-502976) can be compared with a post dendrochronologically dated to after c. 1513 AD at the former Metro investigation, but has a different function since the latter was interpreted as part of a timber structure in Holmens Kanal (Kristiansen 1998:145).

South of Østerport the Late medieval moat had contact with the sea – though in which way is still unclear. It could have been in the form of a stream as seen on a map from c. 1590, or as a small sluice as seen on the reconstruction proposal by Thorsen 1923 (Fig. 114).

High and Late medieval settlement and activities 1200–1550 AD

Results

This time phase is based on all findings that can be placed in the High and Late medieval period 1200–1550 AD. The phase consists of different features and findings that represent the area behind the medieval fortification and an urban area with different kinds of activities. The remains from this period are spread over different subareas of the excavation, but at the time of the excavation it was clear that some areas were indeed affected by modern disturbances (Fig. 115).

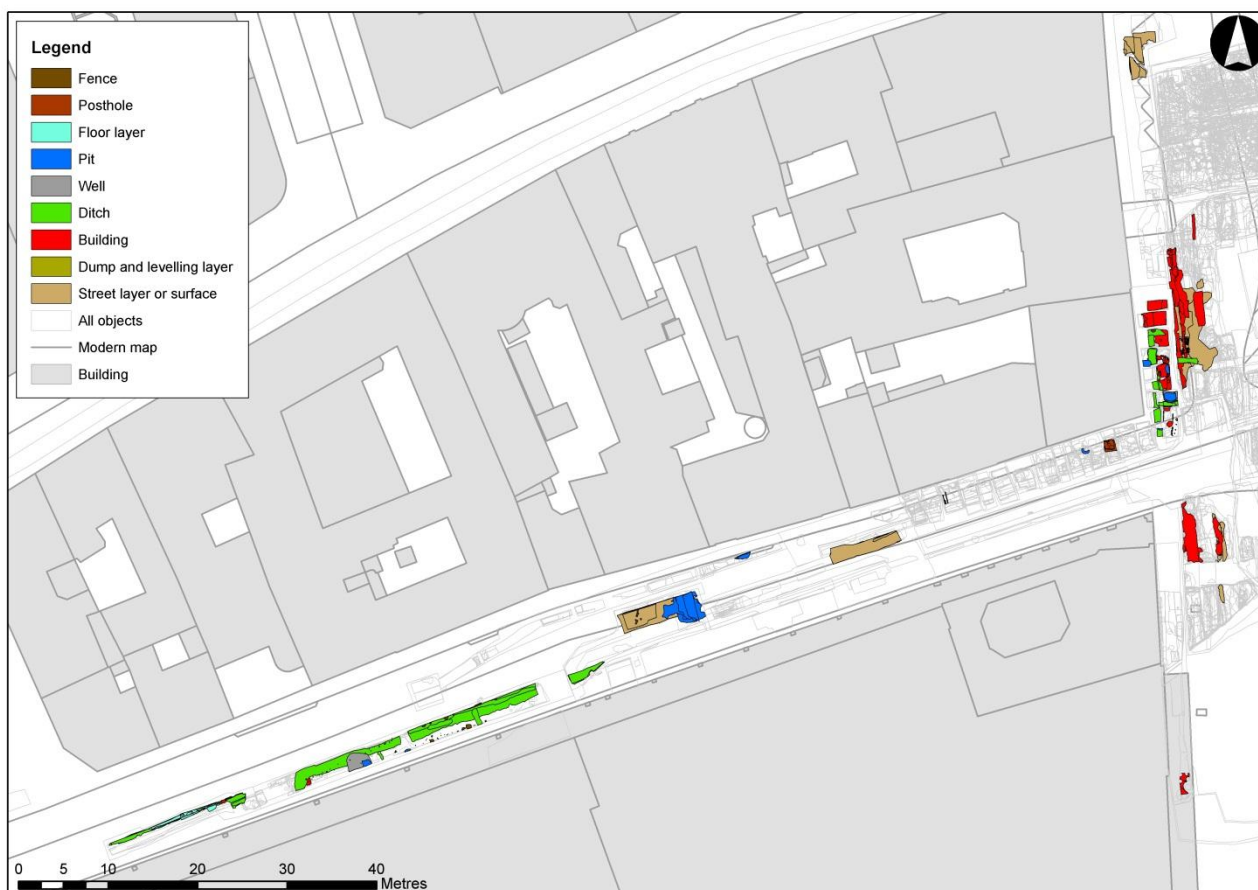


Fig. 115. The main features in the high and late medieval period at Kongens Nytorv.

To sum up the results the area seems to have been in use from the High medieval period with regulated plots, settlement, craft and production. Houses of domestic character are excavated behind the rampart south of the eastern gate and in the farthest end of current Lille Kongensgade. Plots or cadastrals are observed in most of the area which, together with the building remains, points to an urban area. Also signs of craft work in the shape of a forge was excavated. The findings from this period are not numerous and is not interpreted strictly being as result of the modern disturbances, but also because of the less dense character of the settlement. This is also obvious in the fairly modest amount of finds, which also have added to some difficulties in dating the features. For more discussion on this time period see Chapter Urbanity in the eastern part of Copenhagen/the area of Kongens Nytorv.

Buildings

The High and Late medieval period contained no less than the remains of up to 16 houses: cellars, a forge, buildings of unknown activity, single floor layers and wall remains. They are all located behind the medieval fortification. It was observed that the buildings placed just behind the rampart were of, what appeared to be, a more robust character. Farthest away from the fortification the remains of buildings, floors and cellar seem to derive from minor but at least two storey buildings. The state of preservation for all buildings was generally quite poor, and makes further interpretation difficult (Fig. 116). The illustration also shows that there is only a minor remnant of a possible building in the area between the major settlement behind the rampart and the remains at the western end of the Excavation area. This is probably mainly due to modern disturbances of the areas, but might also be a result of the use of the area (see paragraph on boundary ditches below). Only the best preserved and relevant houses are presented here below.



Fig. 116. All building remains from the High and Late medieval period.

Buildings placed up to the rampart

The buildings behind the rampart of the fortification are represented by two quite large buildings placed between the rampart and the house facades of today's Kongens Nytorv with the historic pub Hviids Vinstue (Fig. 116). The most northern building (G-580) had been quite an impressive building that was preserved at a length of approximately 12 metres. This is for medieval standards a large building, and it had been placed in a very central position in the area just south of Østerport and with a long axis facing the rampart with the possible rampart street in between. The building had traces of a sill beam over a length of 11 metres (Fig. 116 and 117). This point to the possibility it was a timber framed building, but no further remains support this. The sill beam might have been a partition within the big building since the same floor layers were registered over the sill beam and to both sides as well. Two floor layers were excavated belonging to this building. There are not many indications of use of this building, but the finds of animal

bones in floor layers does, with its variety, indicate normal household waste. Finds of ceramic suggest a date for the function of the building to 1200–1450 AD and indications that this building was demolished at the same time or before the Post medieval fortification was built around the 1600s.

Another building (G-222) was excavated just outside the current historic pub Hviids Vinstue and is interpreted as a predecessor to the current building which dates back to 1723 (Fig. 117). The remains were part of a north-south orientated building but the preservation was very fragmentary, especially to the south.

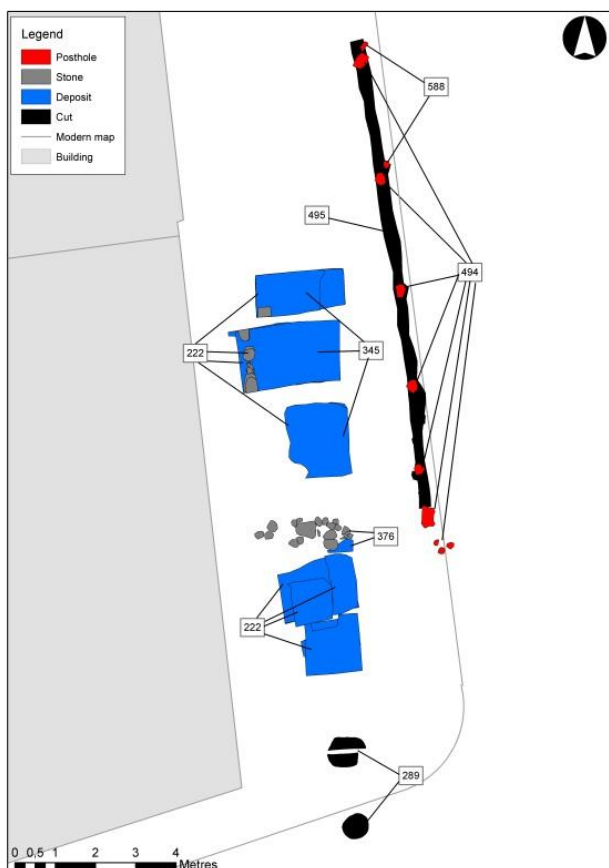


Fig. 117. Buildings G-222.

The building had a dry stone structure and carried evidence of at least one clay built wall, which was demolished some time during the function of the building. To the south of the building there was evidence of timbered construction. At least one floor layer was identified and interpreted as a wooden floor. This floor was placed at the north end of the building. Also a possible mortar floor was identified, though in a very poor condition. The usage consisted of floor layers and of a pad stone and some possible traces of smithing activities. Since no slag or iron waste etc. was collected the suggestion is tentative. The animal bone material is interpreted as leftovers from meals, and that in connection with the strong scent from hubs observed by archaeologists from the underlying layers, is in line with the thought of the building being a predecessor to nearby Hviids Vinstue. The finds connected to this building places it in the date range from 1200 AD till the Post medieval period.

In the southern area of the excavation another kind of building was excavated. The building (G-500871) structure had an E-W stone wall foundation which constitutes an external southern wall, a group of four internal postholes and a barrel in a pit which could constitute a storage feature (Fig. 118 and 119). These features were all cut into possible floor or activity layers.

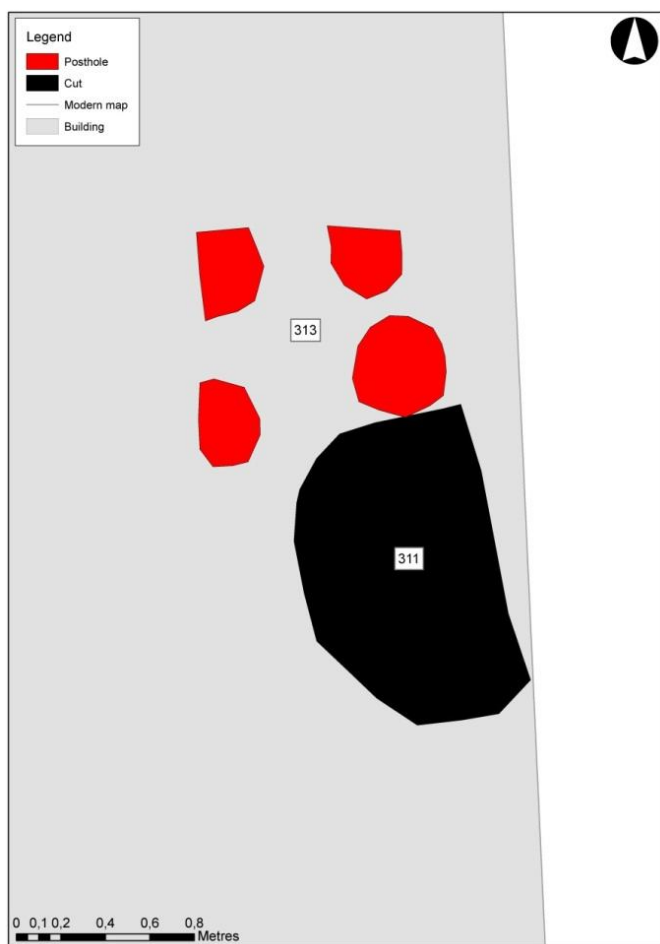


Fig. 118. The postholes and pit representing interpreted building G-500871.



Fig. 119. Exposed upper part of wooden barrel in building G-500871, facing west. Photo: Museum of Copenhagen.

The primary function of the barrel was unclear, but in its secondary use the barrel had been filled with waste. The cut was quite large compared to the barrel and probably was not established for placing the barrel but as part of a larger structure (Fig. 119).

These findings suggest some kind of activity in terms of a workshop with the four posts within the house and the big cut with a barrel and a post forming part of some kind of activity within this building. The excavation conditions didn't allow a full excavation of the feature, and therefore there are still some unanswered questions as to the function of this building.

The forge

A forge containing various internal elements were excavated, but very little of the external structure was seen to remain (Fig. 120). The forge was placed behind the rampart.

The surface in the forge consisted of a stony layer which was interpreted as a hard wearing floor surface upon which to construct the internal elements of the forge (Fig. 120). It showed signs of wear from significant human activity. The surface had various elements cut into it which have been interpreted as relating to the internal structure of the forge; stakeholes (green circles) were thought to represent part of a framework for equipment, while brick platforms and two sets of impressions (blue circle) which would have carried equipment within the forge. The brick platforms showed signs of wear, and so could have been supports for an anvil base or for a quenching bucket, imprints (red circle) was interpreted as the impression of bellows.



Fig. 120. Yellow-grey surface of the forge. Photo: Museum of Copenhagen.

At some point the surface was overlain by a floor layer which represents an episode of re-flooring and running repairs, thought to be a restructuring of the building because the floor cancelled out a series of earlier postholes, and had a

series of new postholes cut into it. However, there also appeared to have been a continuation of activity, as this flooring was laid around the brick platforms (blue circle; Fig. 120). It was thought by the archaeologists on the excavation to have been very clean and so could have been regularly swept whilst in use. It was also noted that the southern half of the western side was slightly depressed and more mixed which could indicate a trampled area. Cut through this floor was a posthole group (purple circle; Fig. 120), the main four postholes of which were thought to represent a structure within the forge – maybe a working platform, as the area to the south of it was very compacted and heavily used.



Fig. 121. Brick platform – maybe base for anvil in the forge. Photo: Museum of Copenhagen.

There were relatively few datable finds recovered from the forge, but ceramics were dated to the 13–15th centuries. This will most likely put the functioning of this forge in the time span of 1250 AD to no later than 1450 AD.

The analysis of slag indicated that the activities taking place within the forge were primary smithing. Also, a hammerscale sample shows that the only process performed in the workshop was primary smithing (Jouttijärvi 2013:3). The origin of the bloom iron points to Norway and Sweden, and slags found in other areas of the excavation were almost identical in composition to the slag material from the forge. This either indicates that the forge deposited its waste material over a large area, or it is a sign of more than one forge in the area that worked iron blooms from the same common source (Jouttijärvi 2013:1).



Fig. 122. Area with slag finds in connection to the forge. Photo: Museum of Copenhagen.



Fig. 123. A smith at work. Illustration from 1425 AD. From <https://da.wikipedia.org/wiki/Bl%C3%A6seb%C3%9F>.

Buildings in the western part of the excavation

Building farthest away from the rampart in the High and Late medieval period were concentrated in the western part of the excavation. This is most likely a result of modern disturbances in the area. Due to the limitations of the excavation area it was not possible to see the remains of the four building remains in a wider context, but at least two of these buildings had cellars which do suggest well built houses for permanent residence and storage.

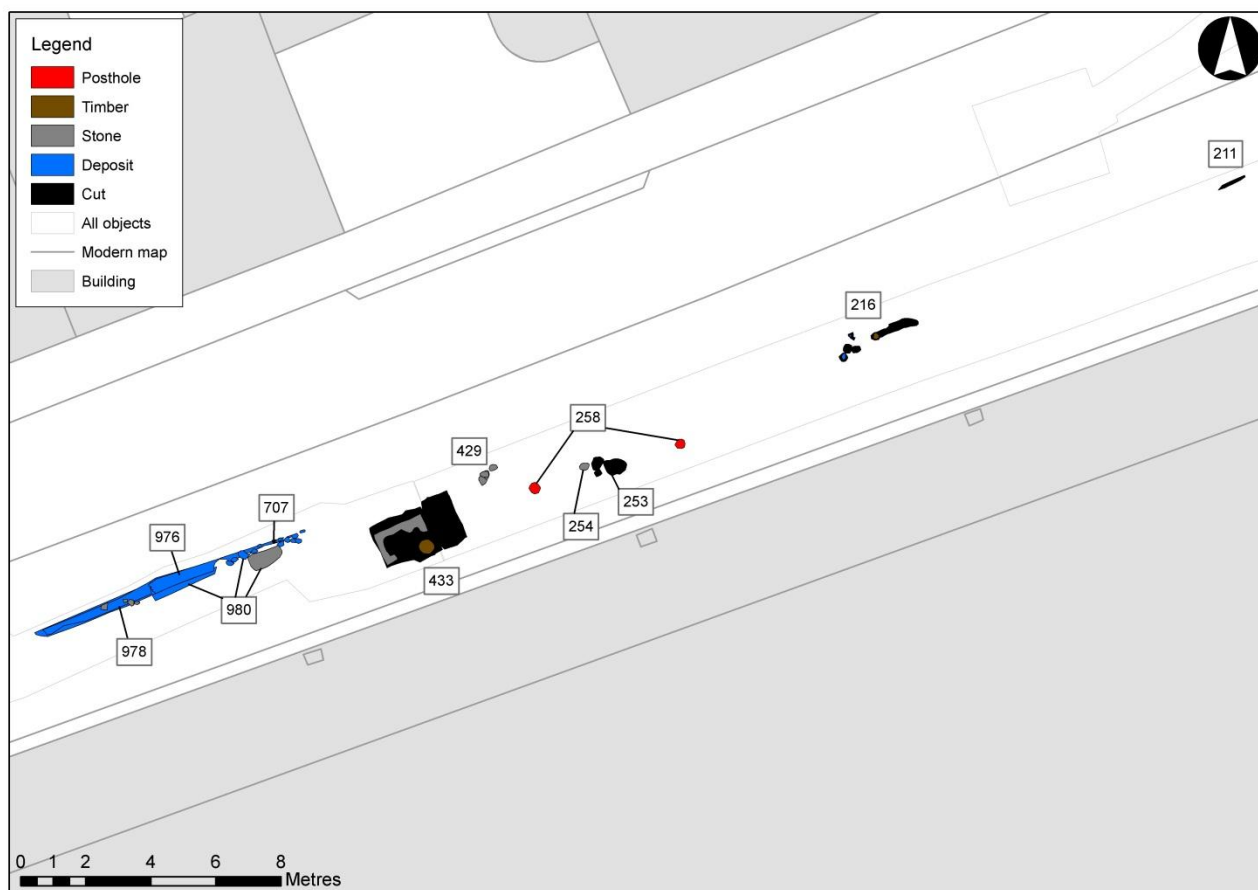


Fig. 124. Building remains in subarea phase 6. The numbers refer to context numbers from the excavation.

It is most likely that the buildings in this area are from around the same time period – which puts the function of the buildings in the date range of 1200–1450 AD. Renovation and multiple phases of floors and posts indicate a settlement that had a permanent character. The cellar constructions indicate storage for longer periods and floor layers that had traces of a domestic hearth also underlines the status of resident housing. In the SE corner in one of the cellars a wooden barrel was set in the ground. This barrel had traces of standing water and is interpreted as a sump. A sump was a construction to keep floor layers in cellars dry by leading water and moist away.

Boundaries, ditches and fences

These features are interpreted as cadastral boundaries and they mark ownership and legal boundaries in the area (Fig. 125). They are constructed as ditches with fillings of another character than the surrounding area and sometimes marked with a fence on top. This means that even if the fence disappeared, the ditch with the deviant filling could be found underneath. Boundary ditches are evidence of a regulated area with ownership and legal rules.

The boundaries, ditches and fences can in the High and Late medieval period be split into two major groups – one group of ditches in the eastern part of the excavation – outside Hviids Vinstue and one group in the western part of

the excavation. Both groups seem to be part of their same system respectively. For boundary ditches in an earlier period at Kongens Nytorv; see Chapter Early medieval activities 1050–1200 AD above.

The fences that will be described in the following are, as mentioned above, in most cases somewhat connected to the ditches and in many cases they most likely have the same function as boundary ditches. However quite a lot of stakes have been excavated without any clear connection to other findings and are difficult to put into the overall context.

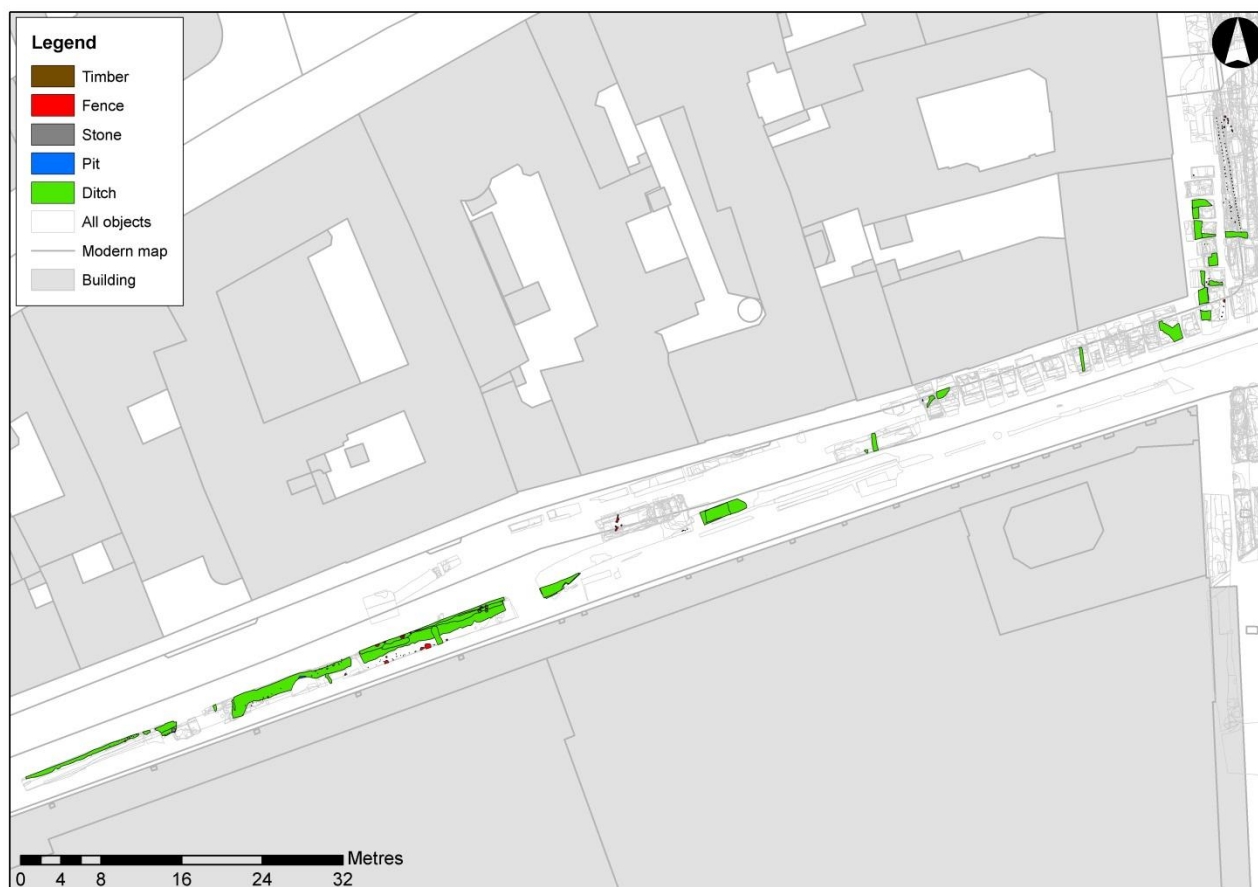


Fig. 125. All ditches and fences in the High and Late medieval periods at Kongens Nytorv.

Ditches in the eastern part of the excavation outside Hviids Vinstue

In this area there are several ditches that might be part of the same system though with adjustments. There are indications though that the ditches in this area are, if not from the same time phase, a sign of the use of the area in the High and Late medieval periods.

G-297 is an assumed boundary ditch orientated in an east-west direction, possibly related to an estate behind the rampart (Fig. 126). The ditch was 5 m long and had straight to concave sides and a concave base. G-536 represents two circular stakeholes with wood in the fills (Fig. 126). They were in a rough alignment with G-297, so these stakeholes could be the remnant of a fence line associated with a field or estate boundary. This boundary ditch was parallel with ditch G-310 which lay c. 4.2 m to the south. Together they could represent a change or phase in the boundary of a field or estate.

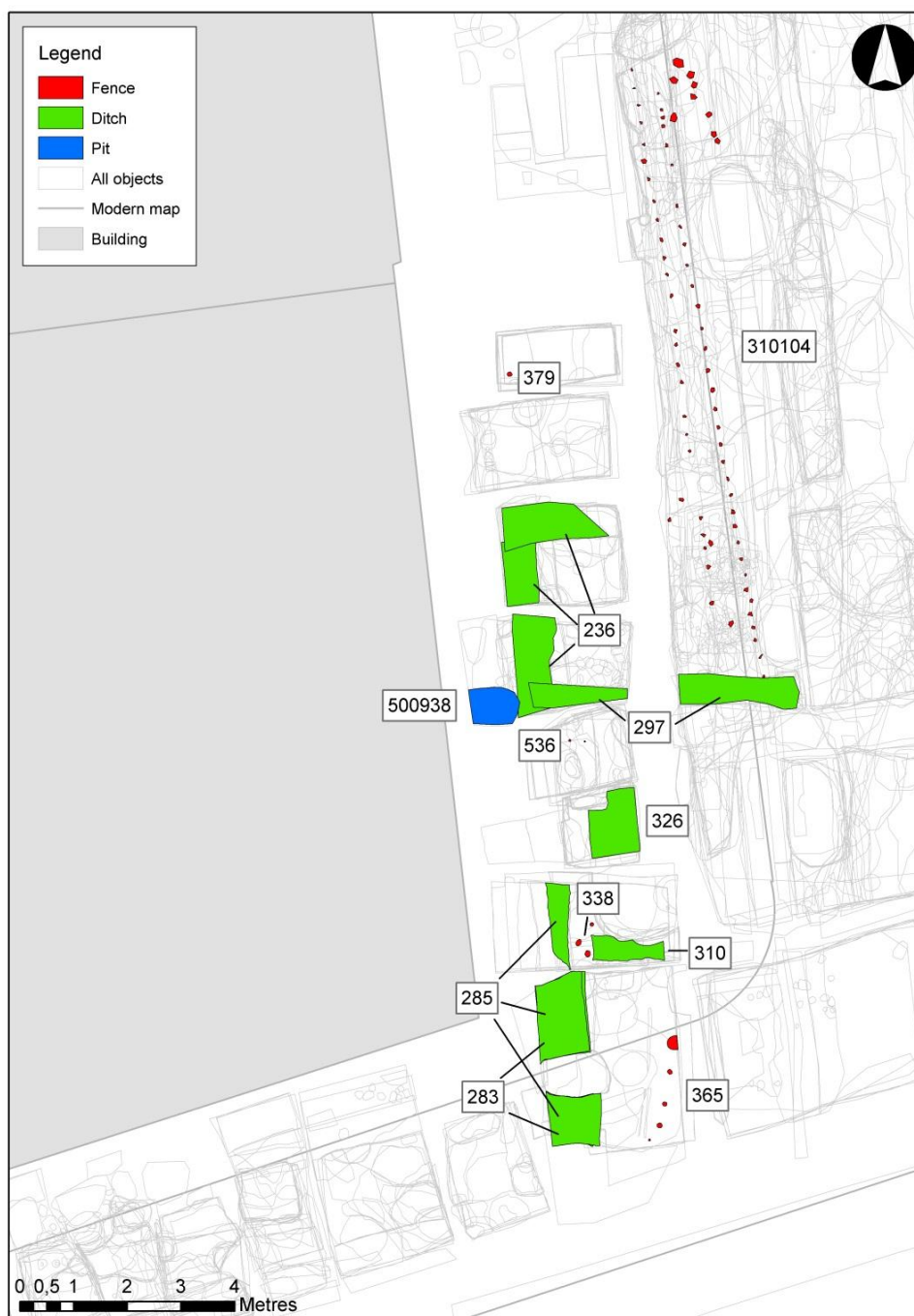


Fig. 126. Ditches in the eastern part of the excavation outside Hviids Vinstue, that probably represent the use of the area in the High and Late medieval periods.

G-236, an L-shaped, E-W and N-S running ditch could be a continuation of construction cut G-420 to the south. The L-shape suggests the enclosure of cadastral/estate boundary. South of G-420 was ditch G-283 which is most likely the continuation of the latter with the same recorded depths as G-236.

The most notable ditch or fence structure in this area was the fence line G- 310104. It showed evidence of 34 preserved stakeholes in the first stage of the structure and 31 stakeholes in the second stage (Fig. 127). The stakeholes consisted of circular and sub-circular cuts with a diameter of between 0.07-0.17 m.



Fig. 127. Part of fence line G-310104. Between the two rows of stakeholes is the cut for the sill beam belonging to building G-580 (the most northern building and the first building described in this chapter), facing north. Photo: Museum of Copenhagen.

Both lines of stakes are interpreted as being the earliest fence in this area, separating a rampart street from a possible cadastral. As there were two lines of stakeholes, these perhaps represent two different and separate stages or one more sturdy construction consisting of two rows of stakeholes. These appear to be contemporary or close in date. Building G-580 is younger than the fence line, and it appears that the building is replacing the stakes (Fig. 127) and therefore redefines the boundary of the cadastral.

Ditches in the western part of the excavation

G-210 consisted of a large boundary ditch following the route of the current Lille Kongensgade in a NE-SW direction. The ditch was investigated in three different places with a total length of 37.2 m. The cut was 1.4 m wide with gentle and moderate sides and a concave/flat/irregular base, 0.6 m deep at the most. The northern side of the ditch was not excavated due to limits of the excavation and the southern side/edge seemed highly affected by erosion, possibly by water. This might indicate that this ditch was open and filled with water or mud.

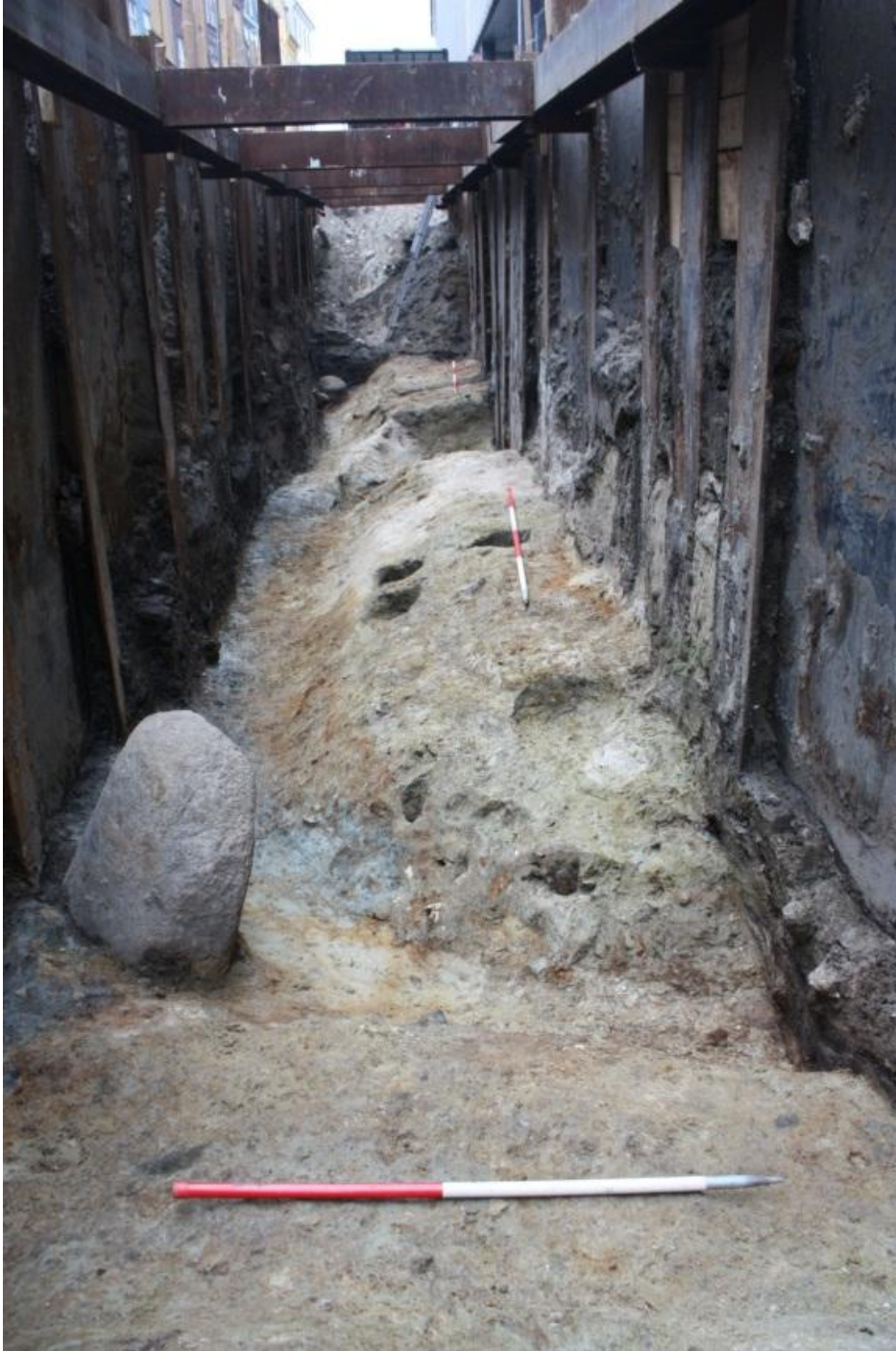


Fig. 128. Part of exposed boundary ditch (after emptying out the fill layers) G-210, facing NE turning to the south at the west end. See also figure 129 below. Photo: Museum of Copenhagen.

The fact that the truncation turned to the south at the west end suggests that the ditch was enclosing something – possibly a cadastral. The deposits mainly consisted of mixed alluvial layers deposited when the ditch was still in use.

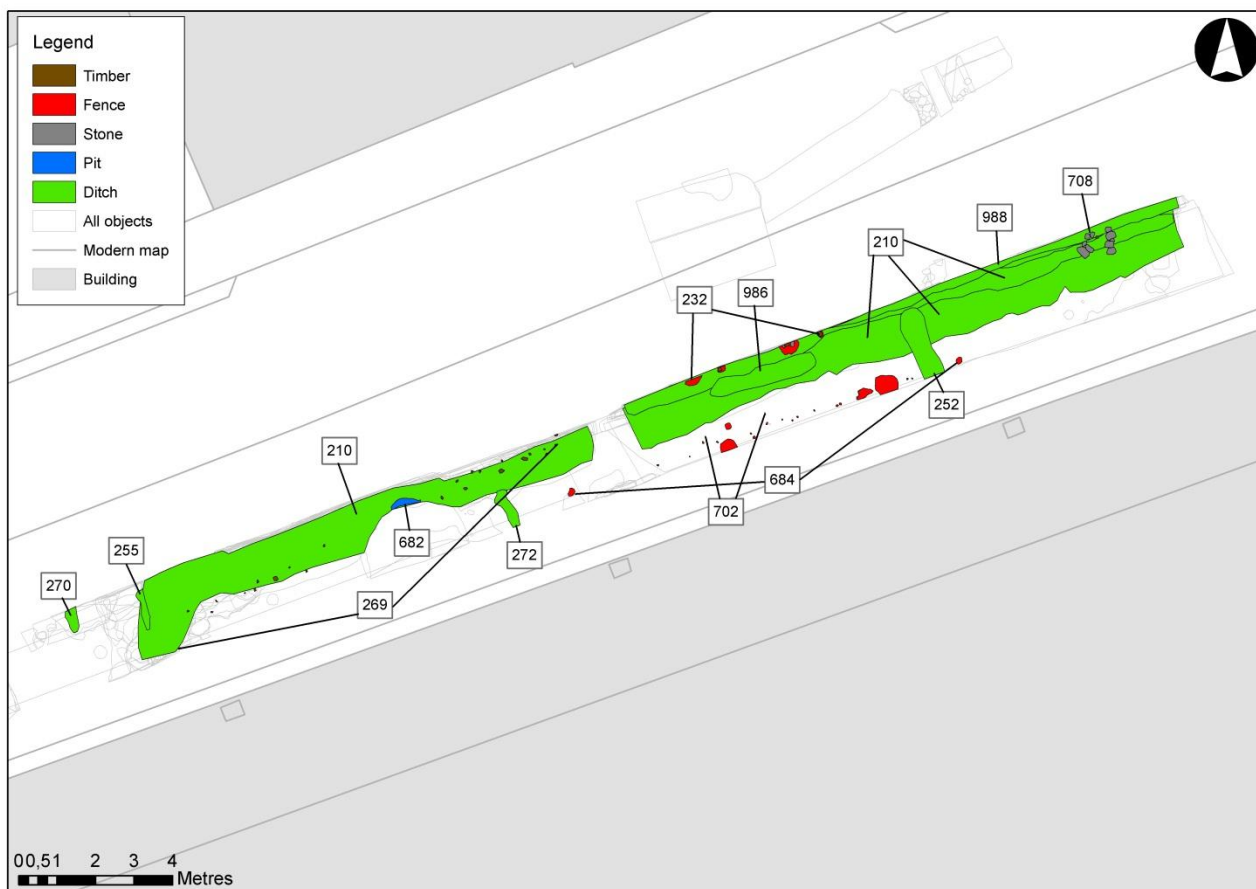


Fig. 129. The western part of ditch G-210 following the route of current Lille Kongensgade with gullies G-252 and G-272.

A concentration of ten stones and a vertical stake were registered within the alluvial fills of the ditch, and have been interpreted as a possible crossing structure or stepping stones over the water filled ditch (Fig. 129). They could also be a random dump of stones within the fills, or two separate structures. The secondary function of the ditch was that it also likely acted as a drainage for the cadastrals which it enclosed.

In addition to this, two smaller gullies could represent the later division of a large cadastral into smaller sub-cadastrals. The distance between the two gullies was 11 metres. The distance between G-252 and the L-shape at the western end of ditch G-210 was also 11 metres (Fig. 129). These are only two measurements but they do indicate that a cadastral south of G-210 at one point is being split up into minor plots – with a width of approx. 11 metres each. There were no other indications of a cadastral system, but it does indicate some sort of systematic subdivision of a larger area. Based on finds the main ditch G-210 could date back to the 12th century, but definitely in the 13th century (Fig. 132).



Fig. 130. Fragment of Late medieval bone comb case (FO203594) with incised ring and dot ornaments and butterfly terminal plates. Fixed with copper rivets. Find from boundary ditch G-986 which is a later phase of ditch G-210. Photo: Museum of Copenhagen.



Fig. 131. Medieval illustration of gardens but it shows the need for marking of ownership and plots also in the medieval period. From <https://www.pinterest.dk/pin/325736985525748515/>

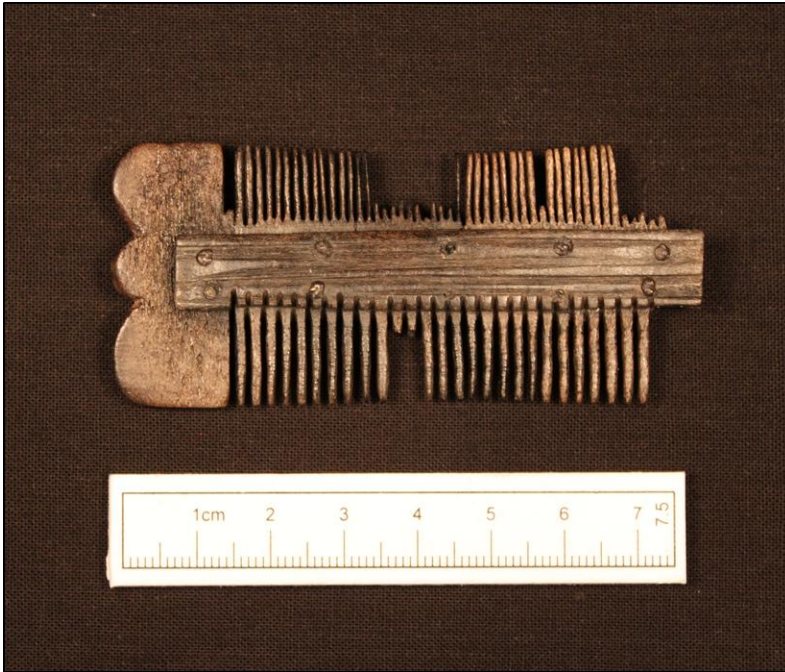


Fig. 132. High medieval bone comb found in ditch G-210 (FO203654). Double-sided with two false-ribbed connecting plates and butterfly terminals. The plates are fixed with a double row of rivets. Photo: Museum of Copenhagen.

Streets and getting around in the area

Buildings and boundary ditches can tell about how the area has been used but roads and street layers also carry evidence of how to get around in the area on a public level. The most significant road in the High and Late medieval period was the rampart street.



Fig. 133. All street layers in the high and late medieval period.

The rampart street which ran alongside the rampart on the inside of the fortification was seen in at least three areas of the excavation. The different finds of the rampart street were not made of the same materials but were varied. There might be many reasons for this, for instance repairs, different phases or it might be the case that different people were in charge of maintaining the street in different areas (Fig. 134 and 135).



Fig. 134. Part of stone surface in rampart street, facing south. Photo: Museum of Copenhagen.



Fig. 135. Stones and brick rubble surface rampart street, facing south. Photo: Museum of Copenhagen.



Fig. 136. Another example of a street layer in Lille Kongensgade with a cobbled surface of granite stones, facing NW. Photo: Museum of Copenhagen.

A well, possible wells and a bucket

A well was found just outside Hviids Vinstue constructed out of two barrels on top of each other (Fig. 137). The cut for the well had steep sides and declined to a depth of approx. 2 m with a concave base. There may have been other barrels higher up, but these would have been removed by later truncations.

The upper barrel consisted of nine vertical oak staves and 3 lines of wooden hoops. There was no lid or base, and no metal fixings. Marks had been etched into the upper part of the top barrel near the north facing side. One mark was an X, another was X with arms on the right hand side and the third was a circle with a dot in the centre. There were also tally marks. Damage on the south side may have occurred when the piling was driven through the barrel. The base of this barrel overlapped the top of the barrel below.

The lower barrel did not appear to have the same markings as the one above and the hoops were not as well preserved. Otherwise this barrel was very similar to the upper one and sat just above the natural substrate. The barrel consisted of 11 wooden staves and two hoops.

Using barrels for wells, latrines and dumps was widely used in the medieval period. It was a cheap way of constructing and old barrels could be reused with a purpose.



Fig. 137. Upper and lower barrels in situ, facing east. Photo: Museum of Copenhagen.

Another possible well or maybe pit with an unknown function was excavated outside the current entrance to Hviids Vinstue (Fig. 138). The shape of the western side of pit/well was straight while the eastern side seemed to be stepped. The base was irregular and difficult to separate from natural in the centre of the pit, probably because of water erosion as water was still seeping in from silty layers to the north. A barrel was found in the pit but it is uncertain whether it was part of the construction of the feature or part of dump material placed in the pit when it went out of use.



Fig. 138. Post-excavation. Exposed bucket in pit or possible well, facing SW. Photo: Museum of Copenhagen.

The bucket had a diameter of 0.24 m and was 0.23 m deep. The fills were thought to be part of the disuse of the bucket and pit and characterized as household waste.



Fig. 139. Intact medieval child's ankle boot found in bucket (FO2024845). Photo: Museum of Copenhagen.

Pits, postholes and different layers

There are pits spread over most of the area in this period, but most of them carry very little evidence of purpose or use. Pits have had multiple purposes like storage, dump etc., and some of the pits excavated at Kongens Nytorv might be individual remains of postholes or other structural remains.

An example is an oval-like pit (Fig. 140) which can most likely be interpreted as a garbage/disposal pit. However a primitive well could also be considered as the base extended down to the water level, although no evidence of a well constructed inside the pit was present. It should be noted that there were parts of wooden hoops and possibly a wooden lid/bottom to a barrel in the bottom of deposit, which might indicate usage as a well for the pit. The destruction process consisted of seven different and mixed deposits, some of them relatively rich in bone material.



Fig. 140. Section of pit (SC89178) with different backfills, facing south. Photo: Museum of Copenhagen.

G-500056 is a feature that represents a sub-rectangular Late medieval waste pit with a collapsed wattle lining (Fig. 141). The deposits within were quite peaty and organic, and may relate to the function of the pit. Much of the waste in the upper fill of the pit appeared to be domestic in origin (food waste).

Finds were ceramics (dating 1300–1800 AD), roof- and stove tiles, ceramic building material, window glass, a flint blade, slag, coal fragment, shell, hair, wool and bones (from cattle, pig, sheep/goat, sheep, mammals unspecified, domestic fowl and -goose and fish unspecified).



Fig. 141. Wattle in pit G-500056, facing NE. Photo: Museum of Copenhagen.

Postholes

Postholes from the High and Late medieval periods were concentrated mainly in the area in front of Hviids Vinstue and some in the western part of the excavation. Most of the postholes are without any clear connection to other excavated structures even though it cannot be ruled out that they eventually can be interpreted as part of a structure.



Fig. 142. G-363. Excavated postholes, facing west. Photo: Museum of Copenhagen.

Eastern gate building and Post medieval fortification 1600–1650 AD

Results

The types of features excavated dated to the Post medieval fortification include the new eastern gate building with associated roads and a larger part of the surrounding fortification. Overall the phase mostly consists of large scale structures associated with defence and communication. The eastern gate and defence related features (bastion, curtain, moat, bridge, dam with a barrier tower and part of an interpreted sluice) were established at about the same time, as they would have functioned in tandem (Fig. 143). Since the new gate building was established in the same place as its predecessor using the same type of building material (stones/boulders) – it has been difficult and sometimes impossible to separate later additions from the 16th century building, due to lack of datable finds (mainly ceramics dated 1550–1650 AD) and applicable material for dendrochronological analysis.

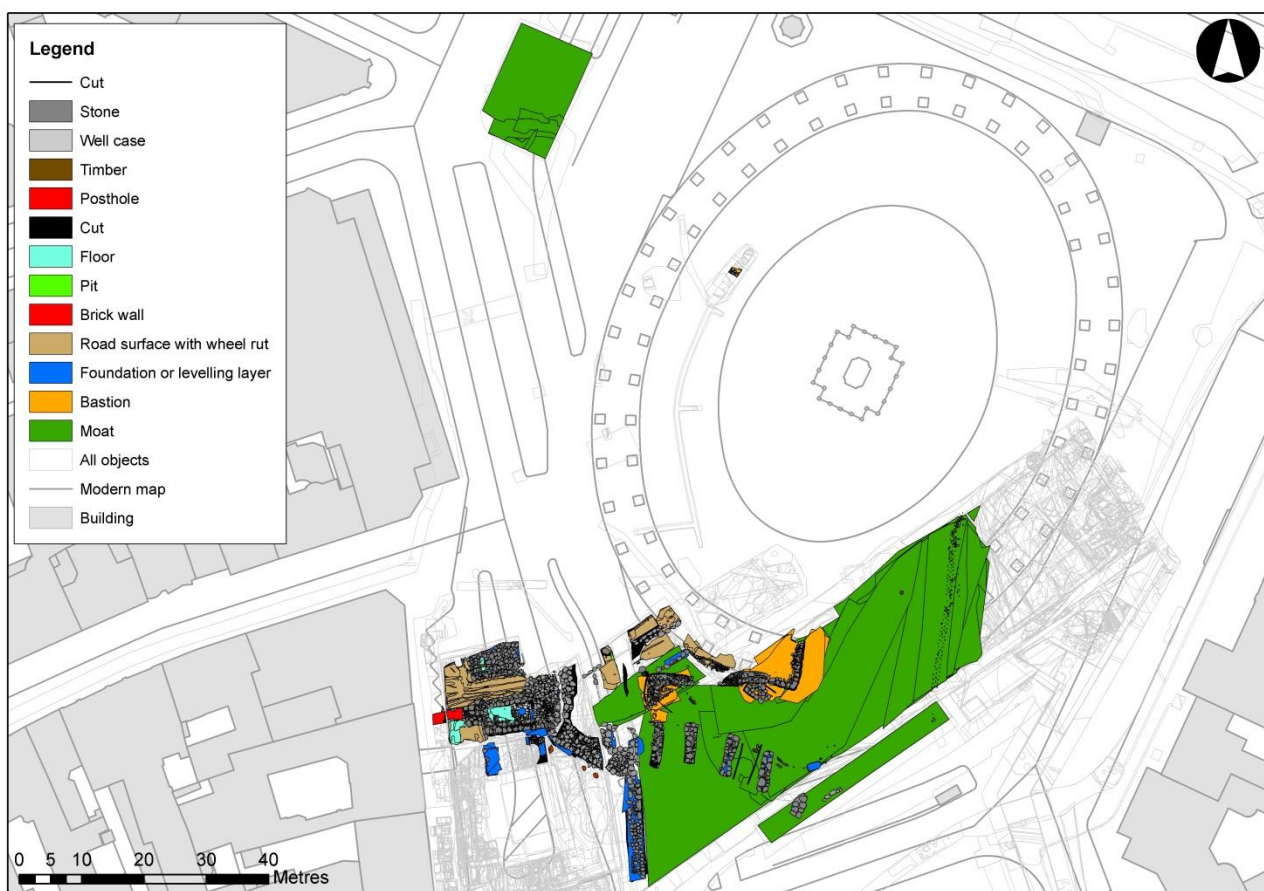


Fig. 143. The 17th century fortification and inner gate building at Østervold.

The wooden poles in structure G-279 constitute a border between the foundations in the 17th century gate building and demolition material backfilled in the Late medieval moat in the context of the destruction of the same building in the mid 1600s. The overlap that clearly occurs between the construction phase of Østerport and the later deconstruction of the building on figure 144 is due to the fact that the stones were measured as part of the same structure on site. The actual separation and grouping of the stones was made in conjunction with the report compilation creating a dividing line that approximately followed the edge of the Late medieval moat.

The large number of robber pits, etc. are incorporated in this time Phase 6 as part of the deconstruction of Østervold, the gate building and other stone structures in the mid 1650s. These activities will not be discussed further in this chapter, but it is obvious that the aim had been to reuse different types of building material for other purposes around the city (for more specific information see Appendix 15).

Østerport – additions, activities and deconstruction

In connection with the new fortification in the early 17th century Østerport was renovated and expanded further to the east. The foundation for the new gate building included large parts of the Late medieval moat which was filled with boulders and stones to stabilize the subsurface east of the new building (Fig. 144).



Fig. 144. The new gate building with revetments, road surfaces and bulwark. The expansion and reinforcement of the gate eastwards includes parts of the Late medieval moat and runs on an estimated north-south line about 2 metres east of the well. The void among the foundation stones is caused by modern shoring on the building site.

The outline of the new building was orientated in a NE-SW linear cut, with moderate/straight sides and an irregular base. The length was approximately 11.0 m, width varied from 1.1 m to 2.9 m and the depth was around 1.0 m. The construction cut was not recorded in its full extent and the base was not exposed to the north (outside the excavation area). The upper part of the construction cut was documented while building foundation was still in place.

Part of the new foundation covering approximately 63 m² consisted of a dry stone structure of light and mid grey unfinished stones and boulders of different size together with fill and bonding material consisting of smaller stones, light whitish and yellowish grey/brown mortar and silty sand and clay (approximately 40% of the context). Further down the fill became more brown and organic with some inclusions of red brick fragments and charcoal (Fig. 145 and 146).



Fig. 145. New additions to the eastern gate building. Boulders and stones in the background and east of the well in the middle, facing NE. Photo: Museum of Copenhagen.

The stones and boulders consisted mainly of granite, flint nodules and limestones. Some of the stones had traces of mortar, representing reused material. The fill between the stones consisted of different types of CBM and rubble. Many of the bricks and stones were laid deliberately flat, probably to achieve a more stable structure. This deposit had been “placed” in position rather than dumped.



Fig. 146. Additions and foundation layers in front of the original gate building – boulders and fill of smaller stones together with bonding material, facing south. Photo: Museum of Copenhagen.

Some of the contexts comprised 60-70% part red bricks with the remainder being white limestone and granite lumps. Limestone blocks were predominantly placed to the front while some were found randomly dispersed throughout. Red brick was mostly to the centre and at the back of the structure. Bigger boulders were placed to the east as a constructional fringe (Fig. 147).



Fig. 147. Row of larger boulders placed to the east as a constructional fringe, facing SW. To the left – part of dam structure (G-502973). Photo: Museum of Copenhagen.

The fills consisted mainly of brownish grey clay together with mixed rubble dumps of different colour, composition and compaction with varied inclusions of charcoal, medieval brick fragments (“munkesten” and rifled bricks), lime fragments, mortar, pebbles and stones. Clay had been worked as a mantle to hold the stone structure together and to avoid erosion into the moat.

No sedimentation or usage layers were recorded between the stones and natural substrate, but this lack of information is due to the excavation method (machining). Part of the structure was truncated by robber pits, wooden water pipes and modern truncations. Some of the stones were not measured due to time pressure and the number of courses is unknown.

Finds collected in connection with the foundation stones consist of ceramics (Late greyware; 1200–1400 AD and Late redware; 1500–1750 AD), so-called “munkesten”, a column or rib brick, a flint flake and bones.

An accumulation of larger stones and reclaimed medieval bricks was documented close to Østerport’s southern boundary and up against the city wall foundation. A linear construction cut was oriented in both NE-SW and NW-SE directions just to the south of the gate building and east of the former city wall (Fig. 148). It appeared to be “stepped” and became deeper towards the east, whereby kote 0 was reached and digging could not continue (instructions from the Metro Company). The measured width varied from 1.0 m to 2.5 m, depth to a maximum of 1.05 m. The break of the slope was both sharp (to the south) and moderate (to the west) and the base was flat (to the south) and sloping (to the west).



Fig. 148. Bricks and stones placed in position behind larger stones and against the city wall foundations, facing NE.
Photo: Museum of Copenhagen.

The function is somewhat unclear. The construction cut for the stone structure truncated part of the Late medieval rampart and is later than both the city wall and the dam structure to the east (see below). As a suggestion, it is therefore regarded as part of the general enhancement of the 17th century gate building similar to the extension to the east (see above).

Besides the well there was no clear evidence of indoor activities related to the new gate building presumably as a result of the later destruction and reuse of building materials. The foundation and levelling layers consisted of mixed mortar, CBM and clay including a brick pavement associated with the well (Fig. 149).



Fig. 149. Part of brick and limestone floor associated with the well, facing NE. Photo: Museum of Copenhagen.

Bulwark and the demolition of the gate building

As mentioned above part of a bulwark containing six wooden poles orientated in an E-W direction was exposed in the Late medieval moat when removing the upper stones and boulders in SG-227. Due to similarities in tool marks, stratigraphic relations and composition of species, the timbers have been interpreted as belonging to the same structure (G-279), together with two other nearby posts (G-500914). Two of the easternmost posts were later dendrochronologically dated to 1642–1652 AD.

With one exception all posts were covered by the stones and boulders in SG-227. The function is uncertain, but assuming two poles are missing (= not recorded on site or removed in the 17th century), the minimum length and width of the timber structure might have been 7.33 m respectively 2.85 m and based on the dendrochronological dates the feature likely represents an activity connected to the destruction of the gate building around 1650 – either representing some sort of bulwark or a temporary bridge, similar to bridge (G-446) excavated further to the south.

Roads and pathways along Østervold

Two surfaces recorded outside Østerport have been connected to the new fortification. Road surface or pathway (G-837) consisted of mixed bedding/foundation layers, surfaces of rubble, smaller and bigger stones, layers of large medieval brick fragments (“munkesten”) and granite cobbles, imprints and a dark brown sandy-silt usage layer (Fig. 150). The feature *could* be a continuation of the eastern parts of the older road surfaces in G-821 outside the eastern gate building, but has been placed in this time phase (Phase 6) due to its spatial relationship with G-832 (see below).



Fig. 150. Road surface with curb in G-837, facing NW. Photo: Museum of Copenhagen.

Road surface (G-832) approximately followed the same NE alignment as G-837 and is probably part of the same road. It consisted of mixed bedding layers of bigger stones, cobbles and brick-, roof- and stove tile fragments. The paving was of high quality with edge-lain stones, where some of the stones were standing upright/on edge with the narrow side facing up. The northern and southern edges consisted of bigger stones, with smaller stones in between. Ceramics (Jydepots, Late light fireware, Late redware and stoneware) argue that the feature could be part of a pathway along the bastion in the early 17th century.

Bastion, curtain, bridge and moat

In the early 1600s a totally new fortification was designed using the latest principles, comprising a main rampart of earth with bastions at regular intervals and curtains to flank the terrain. A bridge was connected to the gate building, as well as a dam to regulate the water level in the moat.

Bastion

Parts of the 17th century bastion were investigated at two places – in a small trench in the NW part of Krinsen and in the main Station Box further to the south (Fig. 151 and 153).

In the first watching brief trench the construction cut subsequently was packed with field stones (granite boulders) in a clay loam and mortar/brick-rubble matrix. The cut probably been had obliterated to the north either by a second cut for a north modern bunker wall or disturbance associated with the bunker construction. The southern margin of the cut was preserved and was consistent with a construction cut for a foundation trench. As the foundation trench/cut extended beneath the depth of the trench and beyond it to the north and south, most of the cut was not excavated and no details were available.



Fig. 151. The 17th century fortification in the NW part of Kongens Nytorv with parts of the moat and bastion line/foundation.

The foundation stones consisted of a dry stone structure of at least two courses of mid grey granite boulders and stones, ranging from 0.20-0.60 m in dimension (Fig. 152).



Fig. 152. Foundation stones with larger boulders moved to establish a 2nd World War bunker in the background, facing NE. Seen in the section – bedding of flint cobbles and part of the concrete floor. Photo: Museum of Copenhagen.

The foundation wall was about 0.9 m thick. Some of the boulders had lime mortar adhering to them suggesting that the course that lay above had been cemented in place or alternatively the stones had been reused from other structures. However, the stones were packed in mortar/brick rubble rather than actually set in mortar. The lower course was packed with yellow brown clay instead of rubble.

The other and major part of the new fortification was investigated in connection with Østerport and north of the Royal Theatre (Fig. 153).



Fig. 153. Overview. The 17th century fortification including the new gate building, bastion, curtain, bridge, dam with barrier tower and moat.

Subgroups SG-813 and SG-503400 represent a corner of the 17th century bastion close to the city gate investigated both in a smaller Guide Wall trench in 2012 and during the subsequent works in 2014 where parts of the build up of turf had survived later levelling activities and truncations. The uppermost build-up consisted of firm, mid blackish brown turf with grey lines of multiple layers following the extension of the underlying foundation stones. This part of the construction with bands of turf material with more sandy clay washed out on top of each band could also be seen in a section to the west (Fig. 154). Each band was approximately 0.85 m wide and 0.10 m thick. The turfs were laid length-ways along the top of the NE-SW orientated stone structure. In cross section the turf strings were trapezoid, horizontally laid with the longest side at the base. The divided layers had been placed directly on a rubble layer representing part of the bastion's core.



Fig. 154. Peat layer seen in a modern central heating trench, facing east. The context consisted of several turf and sand layers sloping slightly towards the south and covering the core of the 17th century bastion here seen as orange and grey clay at the base. Photo: Museum of Copenhagen.

The main stone structure below (SG-503400) consisted of an L- or triangular shaped structure (7.7 x 4.4 m) constructed from at least two courses of large rounded, granite boulders running E-W and some large to medium size boulders running N-S, and a core filled with large and small stones (Fig. 155). The lack of stones in some parts of the structure was partly due to machining. Rubble infill between the stones and between the construction cut and boulders consisted of smaller stones, red medieval bricks ("munkesten") and brick fragments.



Fig. 155. Stone structure (SG-503400) with big boulders and packing of smaller stones, red bricks and brick fragments exposed in 2014, facing east. In front – part of wooden post. Photo: Museum of Copenhagen.

Dry stone structure consisted of four courses of grey, cleaved boulders and rounded stones running in a NE-SW direction (Fig. 156). The lowermost stones in were lying more south-east-south and these must be connected to the bridge foundation stones, excavated to the south (see bridge structure below). Some of the stones were unworked, but others seemed cleft or roughly finished. It was noted that the structure was built from reused stones, since some stones had been worked and some had traces of mortar.



Fig. 156. Southern part of foundation stones in the bastion and sealing clay layer, investigated in 2012, facing NE. Above are multiple layers of peat used as building material in the fortification. Photo: Museum of Copenhagen.

One of the stones had a mason's mark consisting of the letter H (Fig. 157). In this case the letter probably represents a worker or builder signing the completed work.



Fig. 157. Signature on one of the western boulders in the bastion, facing NW. Can this be related to Johan Henriksen paid 250 riksdaler "*for det Stenhugger-Arbejde til Østerport*" and mentioned in a piece work from 1608? (cf. Thorsen 1926:244). Photo: Museum of Copenhagen.

All stones were partially sealed by different types of material. The construction cut was sub-rectangular, with steep sides, cut into a redeposited layer and could be followed to the edge of the 2012 Guide Wall trench.

Three vertical posts were documented in relation to the foundation stones: A single upright post, 1.35 m long, had rounded corners and a diameter of 0.18 m. The post was eroded at the top and had a pointy end with adze marks, which were 0.35 m and 0.20 m in size. Another beam was a box heated, vertically set post, placed below the rest of the stone structure. The interpretation for the post is probably a construction marker for the stones.

The continuation and the SE corner of the 17th century bastion was investigated c. 20 m to the west of the first recorded foundation stones represented by subgroup (SG-500887). Its outer edge was constructed from four courses of large rounded grey granite boulders and smaller stones forming an L-shape which was then backfilled with redeposited natural grey-yellow clay with some inclusions of CBM, mortar and pebbles (Fig. 158).



Fig. 158. Overview bastion line, facing NW taken from the former moat with dark and waterlogged sedimentation still on site. Photo: Museum of Copenhagen.

The construction cut was a linear cut into the natural substrate, running approximately 8.0 m N-S and E-W and continuing to the west for another 3.5 m, although originally most probably further in this direction, all the way to another cut registered at the west end of the bastion's foundation wall (Fig. 159). The cut had been opened from one side (east), after which big boulders were placed against the construction cut from the west. The part of the cut registered was relatively well defined, with moderate-straight sides, not too deep (approximately 0.3 m), just enough to give the boulders and stones a stable base.