Highland Archaeology Services Ltd

Bringing the past and future together

Cromarty East Church

Ross and Cromarty

Archaeological Evaluation

May 2007

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Summary

An archaeological evaluation was carried out at Cromarty East Church by Highland Archaeology Services Ltd in May 2007 on behalf of the Scottish Redundant Churches Trust (SRCT) to inform plans for repair and conservation works. Five small trenches were opened against the church wall, and one through the southern churchyard boundary, to establish presence and position of the existing drainage arrangements, as well as the nature of the building's foundations and the churchyard boundary wall. These trenches revealed fairly substantial modern drains running along the exterior of the church walls, which appeared to flow away from the building into a combined sewer; more extensive excavations would be necessary to locate the full extent of the present drainage system.

The drains had disturbed all stratigraphy alongside the church walls; while the churchyard wall appeared to have been largely destroyed by a landslide, probably associated with the floods that caused major damage to Cromarty in 1940. Otherwise no archaeological features or finds were noted.

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Acknowledgements

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Introduction

This archaeological evaluation was carried out at Cromarty East Church by Highland Archaeology Services Ltd in May 2007 on behalf of the Scottish Redundant Churches Trust (SRCT) to inform plans for repair and conservation works. Five small exploratory trenches were opened against the church wall and another through the southern churchyard boundary. The objective was to clarify current drainage arrangements as well as the nature of the building's foundations and the churchyard boundary wall. The sizes and locations of the trenches were chosen to minimise disruption. Three were located at down-pipes around the church walls and one on the church boundary to the west south west of the building. A fifth trench was opened briefly against the south wall of the church simply to confirm that the drain ran along its length. This required removal of the turf only.

Fieldwork was undertaken on 28th-29th May and 1st, 4th and 5th June 2007. The first day was sunny and dry, on day 2 there was steady rain throughout the day, which stopped work altogether on Wednesday 30th May. On 1st June the weather was sunny, although the ground was still quite wet. 4th and 5th were sunny and fairly dry, although some standing water remained in the churchyard boundary trench (Trench D).

A digital site archive has been prepared and can be supplied on CDROM. This includes a full set of photographs with an index, as well as digital plans and other material. The original field notes and drawings will be deposited with the RCAHMS in Edinburgh following usual current practice in Scotland.

Location

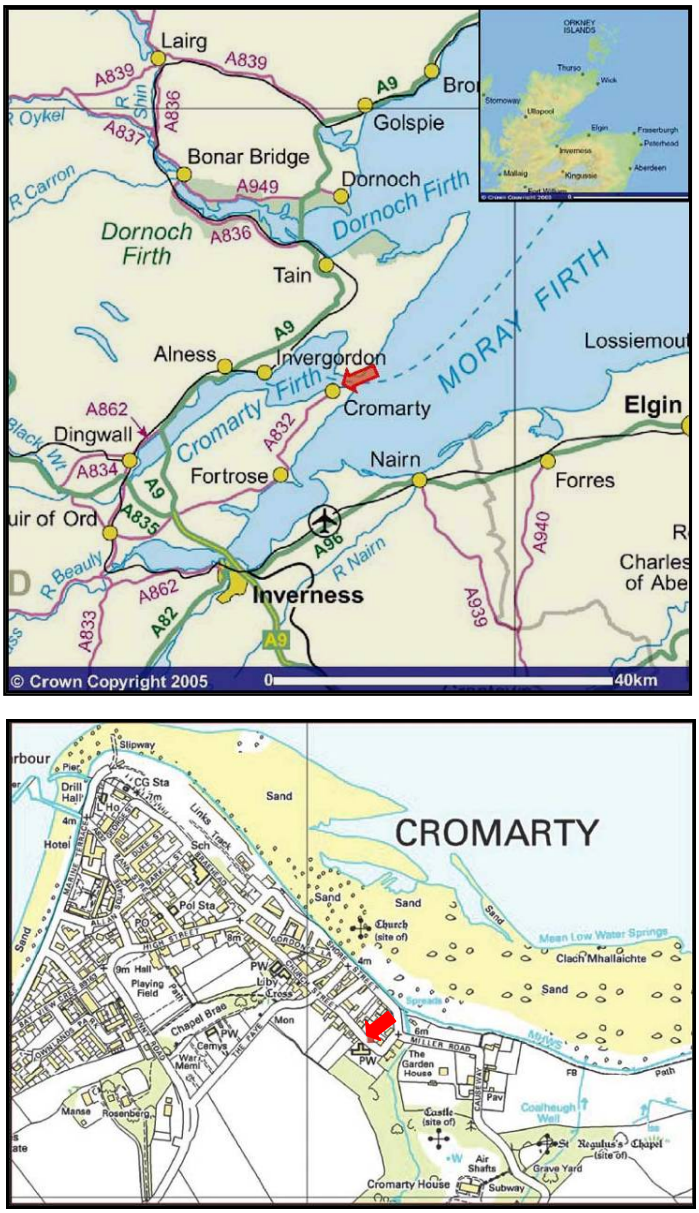
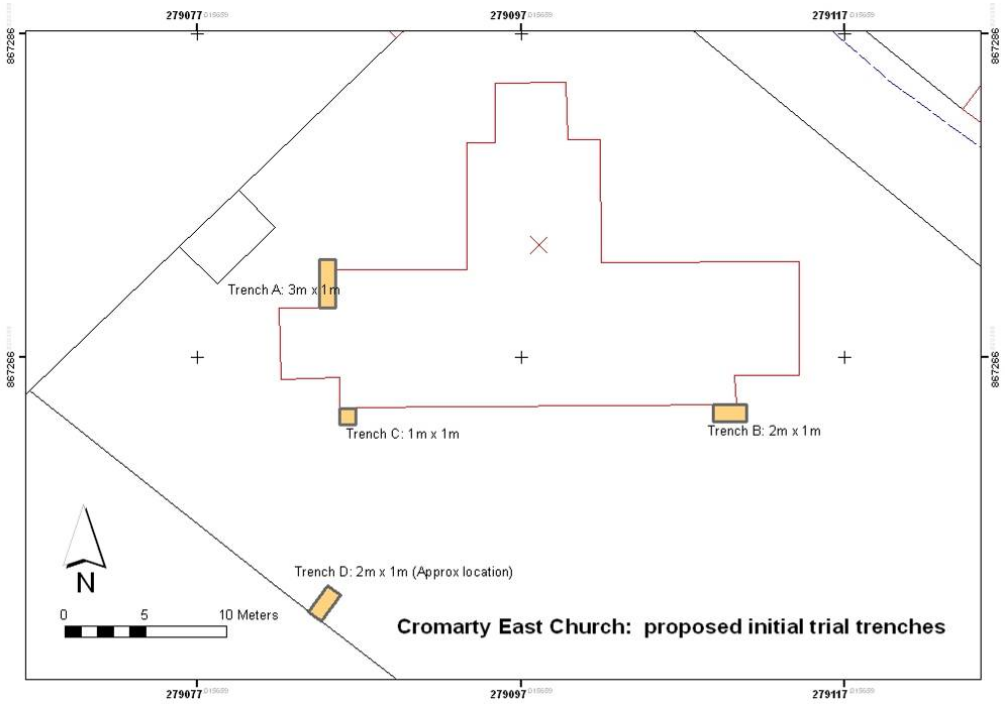


Figure 1 Location Map

Cromarty East Church is located at the East of the village of Cromarty on the Highland peninsular of the Black Isle. It is centred approximately at Ordnance Survey Grid Reference NH 7909 6726.



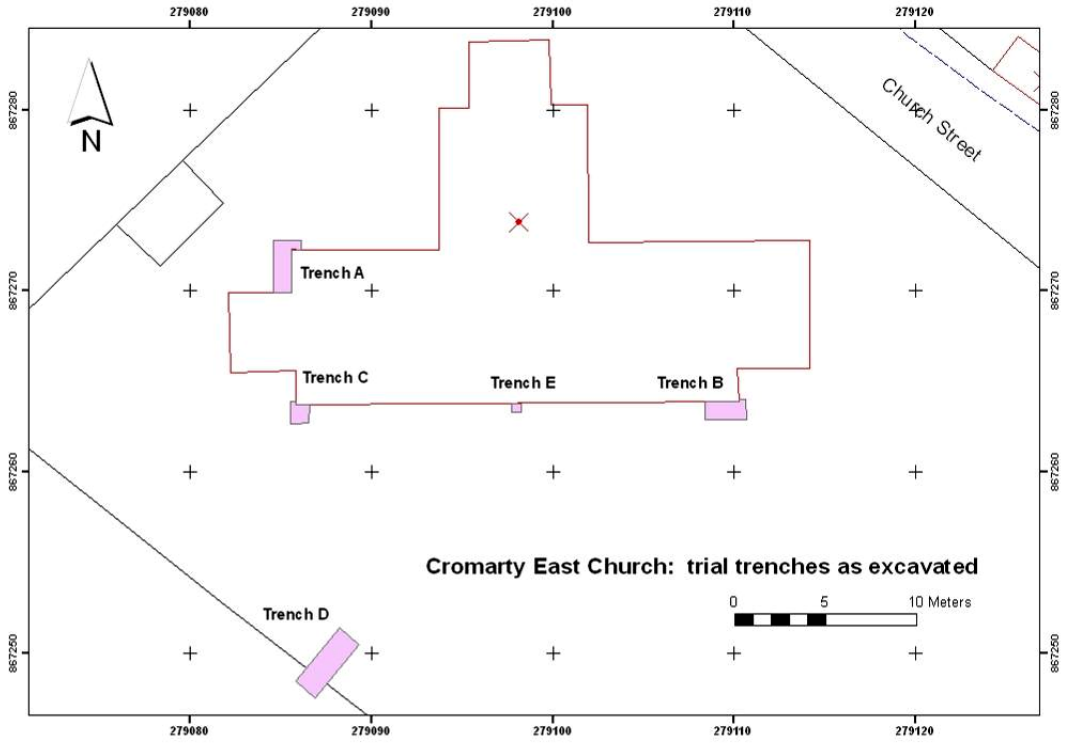


Figure 2 Trial trenches as proposed and as excavated

Method

On day 1, four trenches were opened. Trenches A-C were sited alongside the church walls, and were intended to discover the extent of disturbance to archaeological evidence, and clarify the nature of the church foundations and the direction and position of any drains; Trench D was situated on the steep slope of the churchyard boundary. Although set off from the modern fence, It appears the Ordnance Survey boundary still follows the line of the former wall about 1m to the north. In addition, a further trench (Trench E) was opened on Tuesday 29th May against the centre of the south wall. This simply lifted the turf to clarify whether the drain ran along the length of South wall of the church.

The trenches as excavated varied from the dimensions previously proposed, because of the ground conditions (See Fig 2 above). Trench A was opened out to 2.7m x 1.5m; Trench B, 2.4m x 1.1m; Trench C, 1.0m x 1.2m; Trench D, 4.1m x 1.5m; Trench E, 0.5m x 0.5m. Trench D encountered a great depth of soil and the extra size proved necessary to deal with this.

The topsoil was removed from each of the trenches using spades and shovels, and the turf was kept in order to re-cover the ground following excavation. The areas were then cleaned back using draw-hoes and trowels. Trench A-C were quickly found to contain a layer of polythene (some of this was visible through the ground surface in Trench A) running alongside the church wall over a layer of medium sized rounded pebbles c.500mm in diameter. In trenches A and B this polythene had deteriorated and was fragmentary, although in trenches C and E it was intact. Where possible this polythene was replaced after excavation.

Results

Trench A

A very thin layer of mid-brown topsoil [1] contained iron, bone, glazed tile/pot and slate fragments. Beneath this was a layer of polythene (not numbered) which overlay the fill of a French drain represented by [2] and [3]. [2] consisted of loose rounded stones in a matrix of gritty brown soil, around the south down-pipe, while [3] was more compact rounded stones alongside the church wall to a width of 0.7m - 0.82m. A lot of iron nails and fragments of slate were found in [2] and [3] and a few fragments of bone were found in [3]. The drain cut [25] through the upper churchyard soils [4], visible as a strip along the north of the trench. This resembled the topsoil, though with fewer stones.

The trench was not fully excavated to the bottom of the drainage trench as this was very deep in this area. Accordingly excavation ceased at about 1m depth. The drain construction having been clarified in trench B, it was felt that removing all of [3] within Trench A would be difficult and hazardous, and would cause additional and unnecessary disruption.

The church foundations were seen to be made of large sandstone blocks which have been concreted over and covered in a black waterproofing substance (see Fig 3).

Stratigraphic relationships for Trench A

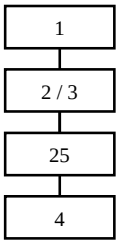


Figure 3 Trench A: excavated to c.1m below present ground level only

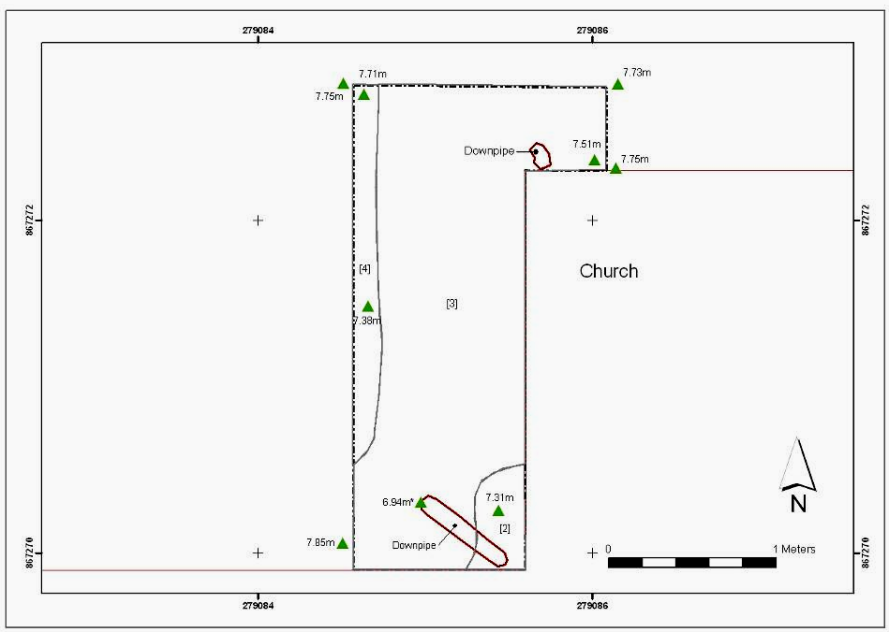


Figure 4 Trench A plan

Note: Asterisked level on downpipe is following excavation of [3] – this is as far as we traced this. Other levels are on surface of each context.

Trench B

The turf and topsoil [5] were removed here to reveal an area of angular and sub-angular stones and gravel [6], mixed with building rubble including harling, plaster and mortar. This was the fill of the latest disturbance, possibly associated with laying an electricity cable to the church, or subsequent to that event. A cut [26] contains this material and cuts through the cable trench proper, represented by [14]. This trench in turn cuts [27] the French drain, whose fill is represented by [7] and [13]. Beneath most of [6] and over most of [13] was a layer of polythene (not numbered). As [7] was cleaned down a cut [22] was seen to run through the north east corner for an electricity cable – the fill of this cable trench [14] contained gravel (up to 10mm) in a soil matrix. In the south east corner of the trench an area of fine gravel and soil [15] was found – perhaps a remnant of a gravel path.

As the stones and gravel of the above contexts were removed and the trench was further cleaned, a section of perforated drainage pipe was revealed at the base of the French drain. Beneath the upper churchyard soil [8] a lower level [23] contained building debris and some shattered human bones within the soil, which had clearly been re-deposited after some disturbance.

As in Trench A, the church foundations were found to consist of large sandstone boulders that have been concreted over and covered in a black waterproofing substance.

Stratigraphic relationships for Trench B

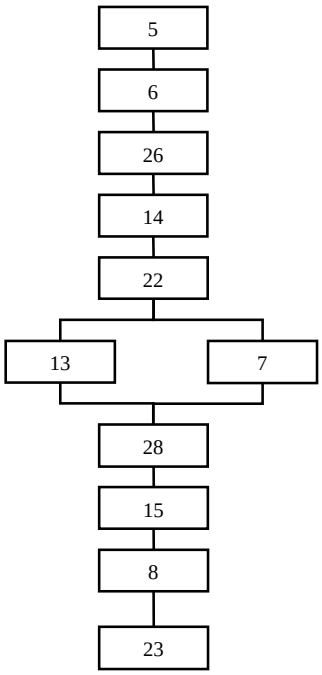


Figure 5 Trench B: downpipe running into perforated pipe and electricity cable

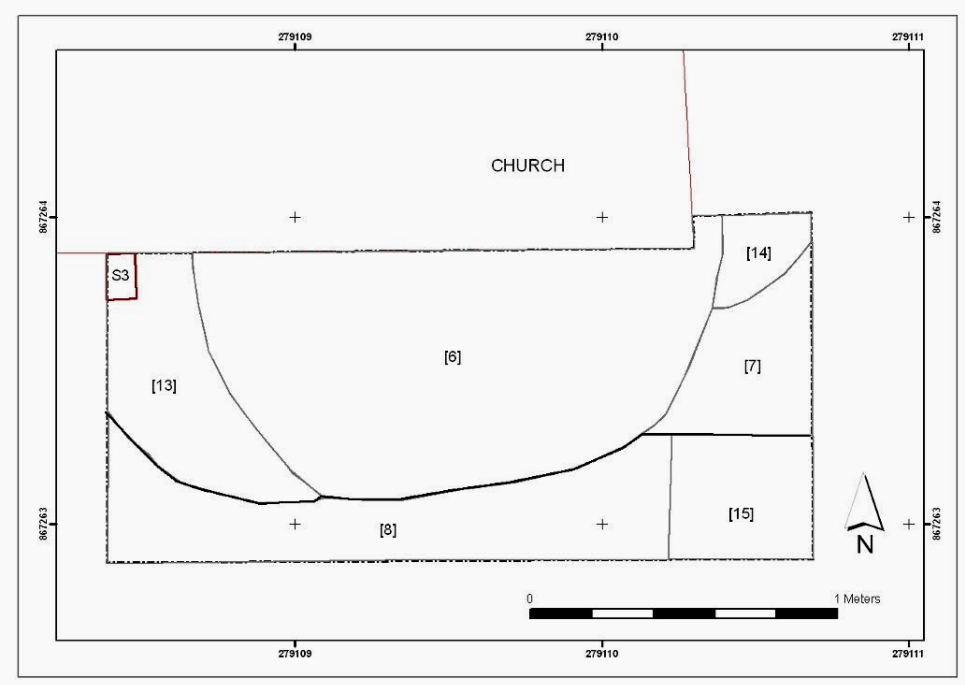


Figure 6 Trench B: plan (after removal of turf)

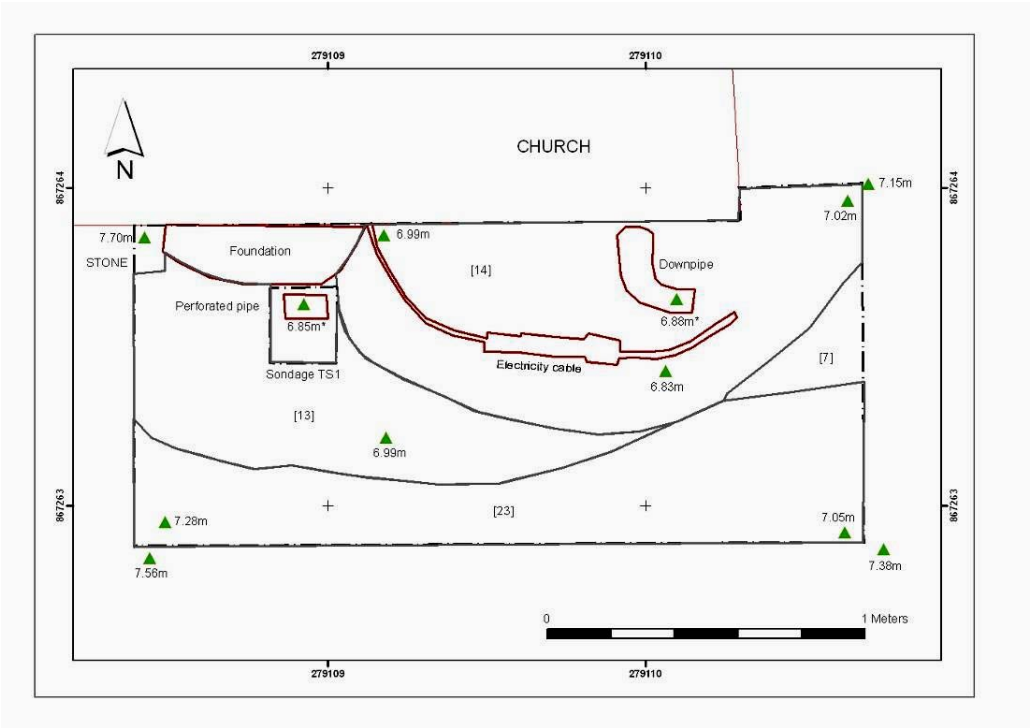


Figure 7 Trench B: plan (when excavation ceased)

Trench C

The turf and topsoil [9] here contained a lot of large fragments of bone, some metal and slate. They were removed to reveal an intact layer of polythene around the down-pipe and alongside the church wall. Beneath the polythene, the fill of the French drain was seen as medium stones [20] around the down-pipe. The French drain cut [26] through the surrounding disturbed churchyard soil [27], within which a fragment of human skull could be seen in the south west corner of the trench. The ground in this area was particularly disturbed. After concluding that the drainage design and make-up reflected that found in Trenches A and B, the finds from Trench C were photographed on site and replaced in the ground before backfilling and reinstating the turf.

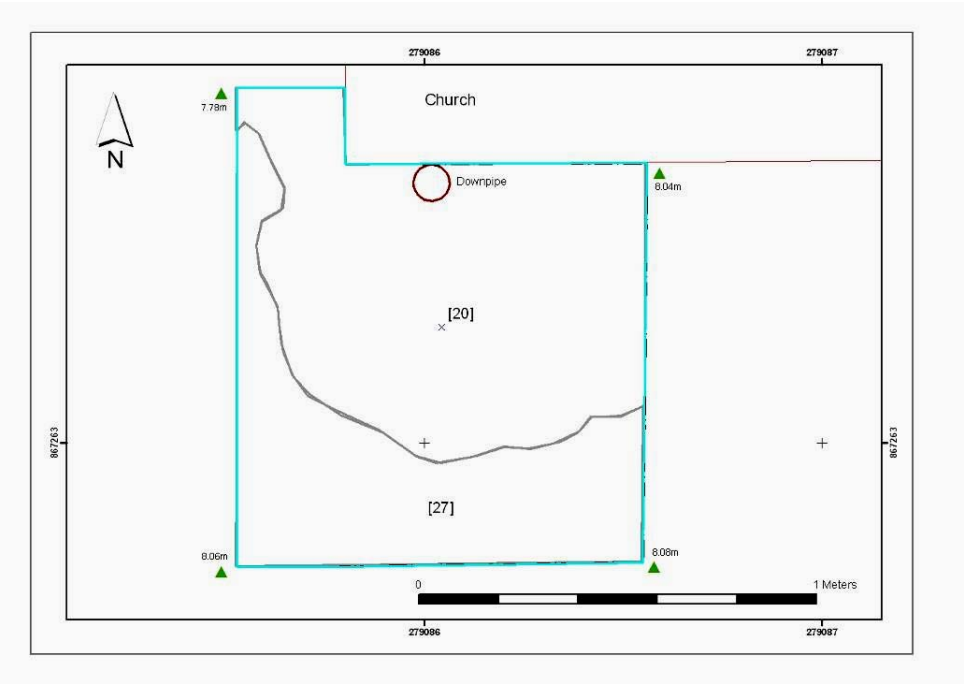
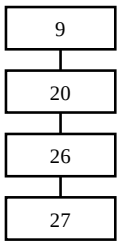


Figure 8 Trench C

Figure 9 Trench C

Stratigraphic relationships for Trench C



Trench D

The boundary area around the south west of the churchyard is on a steep slope which was mostly under long grass, nettles, and coarse vegetation. In some areas traces of a boundary wall can be seen, although in the area of Trench D it was not visible on the surface.

The topsoil [10] contained many roots, including small tree roots, throughout the mid-dark brown soil. Beneath this, at the top of the slope (to the WSW) was found a red/brown clay [11] containing fragments of sandstone. This was found on excavation to be very disturbed, with finds of pot and slate from this context near the very bottom of the trench. To the east of this area was a large heap of stones [12] which was identified as resulting from the collapse of the wall. As this was cleaned back, it was initially felt that [11] had been cut through to build a wall, but later this theory was abandoned.

Beneath the stones [12] were the foundation courses of wall [17]. This may be faced on the downhill side only (see Fig 11) – if this is correct perhaps the wall was built at least partly to revet the slope. It soon became clear, particularly when looking at the sections, that [11] had slumped onto and partially over the wall, probably causing its collapse [12]. Also beneath the wall tumble, to the east of [17], is a reddish coloured re-deposited soil [18], with some red/orange clay inclusions as well as charcoal, coal, pot, bone and slate fragments. To the west of the wall feature [17], in the north west corner of the trench is a small area of silty mid-brown soil [19] with some clay inclusions.

It should be noted that the area to the west of wall [17] was waterlogged during the excavations, with water actively seeping from the hillside, and the contexts here could be difficult to distinguish owing to the amount of moisture in the ground.

Figure 10 Trench D after removal of topsoil showing rubble spread [12]

Figure 11 Trench D as excavated, showing wall footings, rubble in section, and water seeping from slope and collecting behind wall

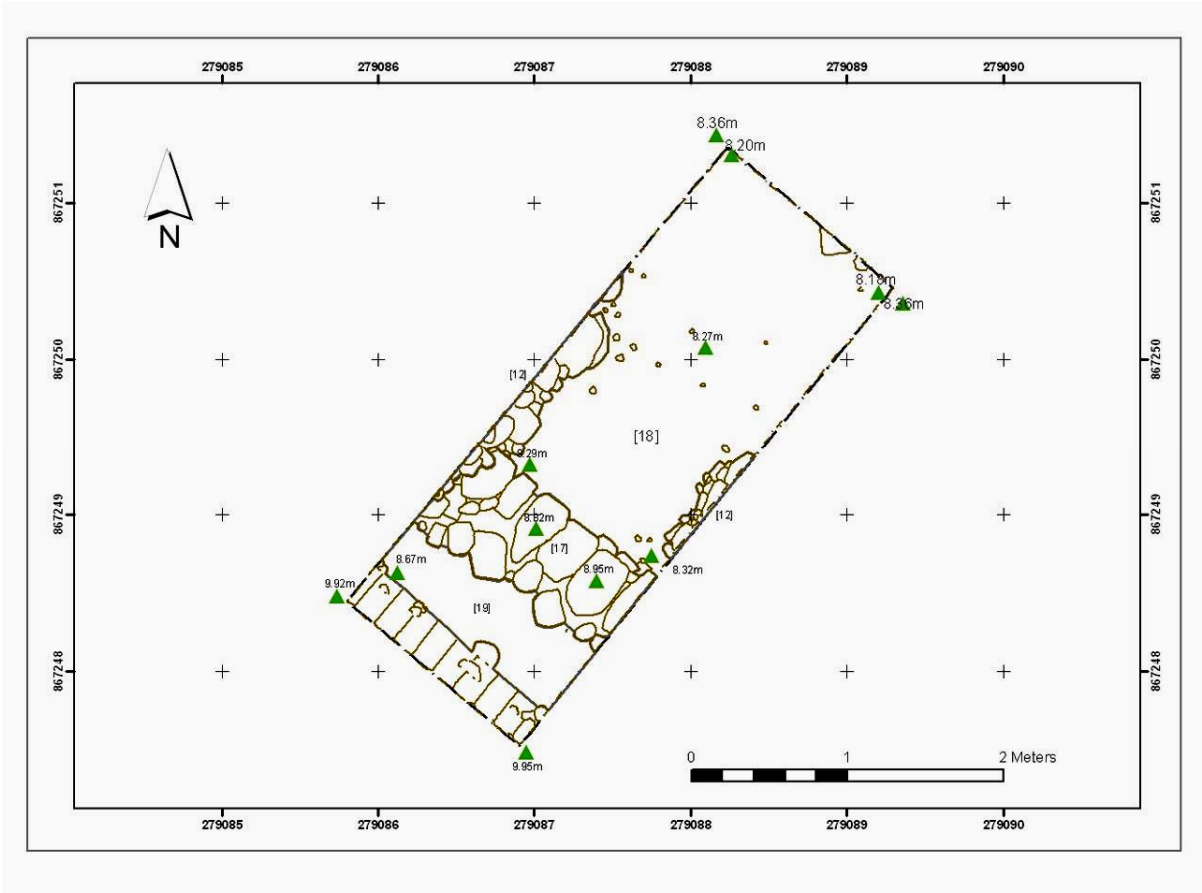
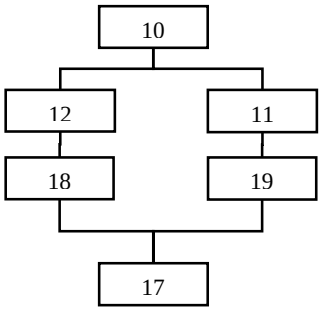


Figure 12 Trench D as excavated

Stratigraphic relationships for Trench D



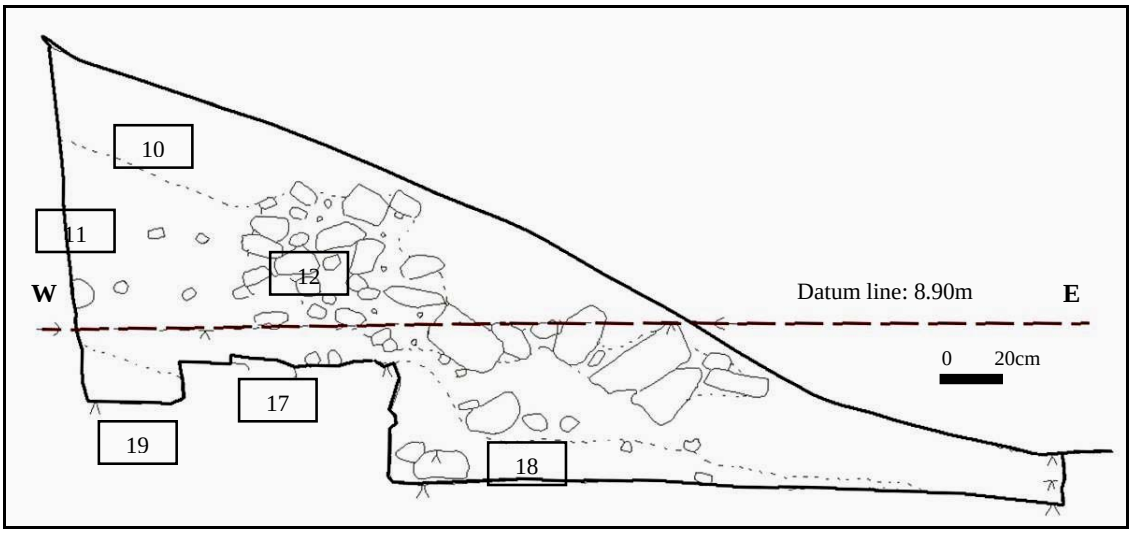


Figure 13 Trench D: N Section

Trench E

A small 0.5m x 0.5m trench was de-turfed [24]. The polythene and underlying stones of the drain were immediately apparent, overlying the surface of the French drain [28] in this trench. It was then backfilled.

Stratigraphic relationships for Trench E

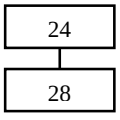


Figure 14 Trench 5

Other works

The inspection covers on the drain running along the footpath (east of the church) were lifted to check the drains. Water was found to be running, apparently from the downpipes and wall drains. The combined drain appears to follow broadly the line of the path to the churchyard gate.

Figure 15 Drain covers lifted outside E wall of church.

Estelle Quick of Highland Museum Services was commissioned to report on the medieval gravestone lying in the west porch. This appears as Appendix 2.

Figure 16 Medieval gravestone in west porch
Photo: G Shannahan

Conclusions and Recommendations

The excavations revealed that the large sandstone boulders making up the foundations of Cromarty East Church have been concreted over and painted with a black waterproofing substance. This seems to have been done around the entire church, which although keeping water out, must also be retaining moisture within the fabric of the building.

A trench c.0.8m wide has been cut against the outside of the church wall and filled with pebbles to provide drainage. This seems to runs the entire way around the building and to be cut down to the base of the foundations. At the bottom of this trench lies a perforated plastic pipe connected to the down-pipes. As far as could be established this runs into a combined drain. Although the connection itself was not found, during the rain water could be seen running in this combined drain when the inspection covers were lifted.

The boundary wall discovered to the south west of the church in Trench D measures approximately 0.65m in width and appears to continue along the boundary. It does not appear to be a particularly strong or substantial wall. There is little evidence of any binding material, although a small band of lime mortar [21] was seen in section 2 and a little in the trench. It appears that the wall may have been destroyed by a landslide following which rubble was heaped up to retain the rest of the slope. So far the date of this event is not clear but it may have occurred during the catastrophic Cromarty floods of 1940. Between the two World Wars the brae south of the church seems to have been terraced and cultivated, which may have contributed to its instability.

Trench 4 was excavated only far enough to clarify the nature and location of the churchyard boundary wall. It is possible that graves could exist below this level if slope material has come down over the centuries to cover former graveyard areas. Nevertheless a considerable amount of water could be seen in the trench seeping from the base of the slope and ponding back behind the remains of the wall foundations after a period of rain, and there are several known springs along this line at other places in Cromarty, so some form of intervention drain may be advisable. If this is decided on, an archaeological watching brief should be maintained to record any evidence that is uncovered.

Appendix 1: Contexts

Context Number	Trench	Description	Plans/Sections
1	A	Topsoil. Short grass and moss covers most of the surface, with stones visible around the edge of the Church walls. A layer of polythene lies just below the surface, which protrudes through the moss and grass in places. The topsoil is mid-dark brown disturbed soil, with 50% stones.	
2	A	Fill. Situated around the southern downpipe. Approximately 80% loose rounded stones in mid-dark brown gritty soil. Some small orange/brown sandy areas. (0.62m x 0.62m x 0.37m)	2
3	A	Fill. Hard, compact layer, made up of approximately 80% medium rounded stones in mid-dark brown gritty soil. Some small orange/brown sandy areas.	2
4	A	Mid-dark brown soil, like the topsoil but few stones and appears less disturbed. Interpretation: cut through by the drainage trench around the church.	2
5	B	Topsoil. Mid-dark brown grass-covered topsoil.	
6	B	Deposit. Angular and sub-angular stones and gravel with building rubble including fragments of harling, plaster and mortar. This overlies a polythene layer.	1
7	B	Deposit. Coarse yellow/grey sand and stones.	1
8	B	Mid-dark brown soil under the topsoil at the edge of the trench. Similar in makeup to the topsoil, but with very few stones. Interpretation (as with [4]): cut through by the drainage trench around the church.	1
9	C	Topsoil. Mid-dark brown grass-covered topsoil, containing many large and small fragments of bone.	
10	D	Topsoil. Mid-dark brown topsoil under thick, long grasses and nettles, situated on a slope, with uneven depth of topsoil.	3, S1, S2, S3
11	D	Deposit. Red-brown clay containing small fragments of sandstone. This context is quite disturbed, with pottery and slate fragments found near the bottom of the context.	3, S1, S2, S3
12	D	Deposit. Heap of stones beneath topsoil, to the east of [17]. Interpreted as wall tumble.	S1, S2
13	B	Fill. Angular and sub-angular stones beneath polythene layer, (and in some places immediately beneath topsoil), with less building rubble and soil than [6].	1
14	B	Fill. Gravel (up to 10mm) in a soil matrix within trench cut [22] for electric cable.	1
15	B	Deposit. Fine ‘harling’ gravel (up to 5mm) and soil.	1
16	D	Cut. Cut initially identified through [11] at west edge of [17]. Later [16] abandoned as [11] seen to continue over [17] in section.	
17	D	Feature. Foundations of a sandstone wall. The facing stones on the eastern side are shaped and slope outwards.	3, 4, S1
18	D	Deposit. Reddish re-deposited contaminated soil. Some small inclusions of red/orange clay and small fragments of charcoal, coal, pottery, bone and slate found throughout.	3, 4, S1

Context Number	Trench	Description	Plans/Sections
19	D	Deposit. Situated in north-west corner of trench, beneath [11]. Mid-brown silty soil with some clay inclusions.	S1, S3
20	C	Fill. Beneath topsoil and polythene layer is a context of medium stones around the downpipe along the church wall.	6
21	D	Deposit. Lime mortar seen clearly in section on south east side of Trench D, only a small amount was found within the trench, within [12].	S2
22	B	Cut. Through [7], at north east corner of Trench B, for an electricity cable and fill [14].	1
23	B	Deposit. Re-deposited soil containing building debris and shattered human bones.	1
24	E	Topsoil.	
25	A	cut	

Appendix 2: Report on Grave Slab at Cromarty Church

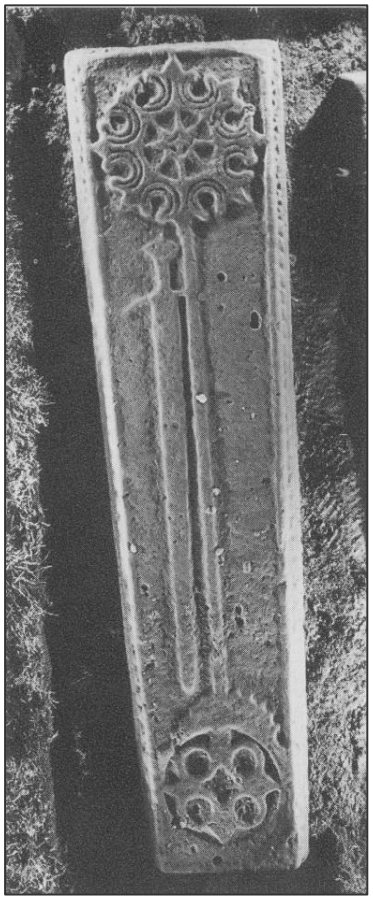
Estelle Quick, Highland Museums Services Ltd

Description and condition

The sandstone grave slab is lying on the floor in a corner of the west porch. The underside and left and top edges could therefore not be inspected. The slab measures 1750mm long, 950mm wide and 110mm thick, with an approximate weight of 420 kilos.

The carved surface is heavily weathered and decayed, but considerable detail is still visible even in poor light. The ornamental stepped cross and sword symbols are relatively rare for the eastern Highlands, but bear a marked resemblance to those on grave slabs from Cullicudden which have been dated to the 14th century, although the slab itself is quite different in size and shape.

Cromarty



Cullicudden

The sandstone is severely laminated, due to general weathering and frost damage. This has resulted in the loss of large areas of the top surface, in some places down to a depth of several centimetres. The worst areas are shown in red overleaf, but most of the surface has suffered some degree of flaking and consequent loss of detail.

Along the right edge there is an area where there has been a major loss of material below the surface, shown in green. Some edges of the damaged area are loose and there will be further loss unless the area is stabilised. The surface which projects over this area is very vulnerable to further damage. There may be similar areas of damage on the left and top edges which are hidden at present.

The location of the slab on the porch floor puts it at risk of further damage by being knocked or stepped on, and there is another gravestone resting on it at the top end. The stone is also very dirty. Dust, cobwebs, leaves, flakes of paint and other material are on and around it, making it more difficult to see, potentially causing further deterioration, and devaluing its significance to users of the church.

Recommendations

The slab is a rare, important and fragile object which needs to be treated with respect.

- It must be handled with due care and attention and under the supervision of someone with appropriate skills and experience.

- Materials that will be in long-term contact with it must be of a type that will not cause further damage.

Specialist advice
In view of the condition of the slab it would be desirable to commission a stone conservation specialist to carry out remedial conservation work and advise on moving and mounting it. This would be likely to cost between £2000 and £4000.

Moving the slab

The slab needs to be moved for its own protection and so that it can be properly seen and appreciated. This will be a difficult operation because of its size and weight, the fragile state of the edges, and its awkward corner position.

- Before moving the slab it will be necessary to lift it to inspect the underside. This needs to be done very carefully and as far as possible without putting any pressure on the edges. If there are any cracks or other evidence of structural weakness on the underside, I strongly recommend that a stone conservator is called in before any further work takes place.

- Once the slab has been partly lifted it should be possible to slide in some wooden supports underneath. The slab can then be lowered back down and framed on the front and edges, which should be protected with Plastazote or similar inert foam to avoid abrasion. The purpose of the framing is to protect weak areas, particularly the edges, and to strengthen the slab for lifting.

- The method of supporting the slab from below will vary depending on whether its eventual position will be horizontal or vertical. If it is to be mounted horizontally, it would be sensible to put in a support which can be left in place underneath the slab when it is in its final position. A sheet of low formaldehyde MDF padded with 30mm Plastazote would be suitable for this. If it is to be mounted vertically or near vertically, the rear support can be removed before the slab is tilted into position.

- The slab can be lifted by a winch or crane using nylon straps, but these must not press directly against the edges of the stone. It will probably need to be turned on to a long edge to get it through the door. Moving the slab about inside the church will be awkward and there may be a problem with access for lifting equipment. Further thought will need to be given to this when the slab's new location has been decided.

Mounting the slab

In its new position the slab could be mounted vertically or horizontally. Vertical mounting has several advantages. It takes up less space and would make the stone easier for visitors to view. However, it would require a more complicated setting and would depend on the structural integrity of the slab. If there are major weaknesses, vertical mounting may not be possible. Horizontal mounting is more straightforward and would put less stress on the slab. However, it would take up more floor space, would probably be more difficult to see and there would be a greater risk of people leaning on it or putting things on it.

- The slab will need some accompanying interpretation, probably in the form of a small panel with a line drawing of the symbols as they can be seen now and showing how they might have been when complete, together with an explanation of the slab's history and significance.

- Strong lighting coming at a shallow angle from the side will increase the contrast and visibility of the carving. This could be on a time switch so that it stays on for a couple of minutes at a time. If the slab is mounted horizontally, finding a position where the lighting gives the desired result but is not obstructed by the visitor might be difficult.

- If mounted horizontally, the slab would lie flat on a strong solid surface at a height of about 900mm. Ideally this would not be against a wall so as to give access right round the slab.

- If mounted vertically, the slab would slope back slightly to lean against a solid wooden backing built against an existing wall. If the back of the slab is very uneven, the backing might need to be padded with Plastazote to stop the slab rocking. A shallow lip would prevent the bottom edge of the slab sliding forwards. Stainless steel brackets would be mounted about two thirds of the way up the sides to stop the slab falling forwards. The brackets and the lip would be padded with Plastazote so that they were not in contact with the stone.
- An alternative to displaying the slab in the church would be to offer it to Cromarty Courthouse Museum, which might be in a better position to provide suitable conditions and care.

Vertically mounted grave slabs at Kiel Church, Lochaline

Cleaning the slab

Well-meaning efforts to improve the appearance of the slab could be extremely damaging. Any cleaning must be approached with caution.

- The surface of the slab can be carefully brushed with a soft brush to remove dust and loose debris such as leaves. Care should be taken to avoid detaching loose flakes of stone or discarding fragments which are already detached. Any fragments should be kept together in a labelled container: they may be used in future conservation work on the slab.

- No attempt should be made to scrub or scrape off deposits or stains. This could cause irreparable damage.

- No chemicals, including household cleaning materials, should be used.

- If any cleaning other than soft brushing is needed, the advice of a stone conservator must be sought.

Estelle Quick
Highland Museum Services Ltd
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