

## Map 17: ALCAIG TO DINGWALL

**Hinterland Geology and Coastal Geomorphology:** This section forms the macro-tidal head of the Cromarty Firth. The basement geology to Conon Bridge is Middle Old Red Sandstone. Drift lithologies are predominantly boulder clay and morainic drift. Towards Conon Bridge the three aforementioned marine incursions are represented and marine terraces are present at Dingwall. The Conon floodplain is comprised of alluvium and colonised with alder carr. Towards the outer basin of the river sinuous bends and mid channel shoals traverse extensive mud flats that dominate the intertidal area.

**Erosion class:** This section of the estuary is very sheltered. The upper reach of the River Conon is managed by a hydro-electrical company and the sediment load is likely to vary according to the requirements of the industry. At the time of the survey, flotsam was extensive on the outer shoals of the mudflats. Alteration to the configuration of the sinuous channels are impacting on the intertidal archaeology (see SMR NH 55 NE013 at NH 5619 5818 map sheet 17). Extensive accretion is evident up to the MHWL where mud meets the stable foreshore.

**Built Heritage and Archaeology:** The foreshore sites in this area include evidence of the 19<sup>th</sup> century Alcaig to Dingwall ferry, such as the ferry pier, causeway and wooden jetty posts. The multitude of sites indicate a dynamic environment in which sites are both damaged by coastal erosion and rendered unusable due to silting and accretion. On the northern shoreline four salmon bothies were recorded all in poor states of repair. This area of the firth was used as a ferry route prior to the construction of the railway to Dingwall in the late 19<sup>th</sup> century, consequently the area contains a number of sites pertinent to the ferry. The mid-channel features require future monitoring using a boat for access.

## Map 17: Hinterland Geology and Coastal Geomorphology

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### 1. URQUHART to TIGHNAHINCH

NH 570580

1.7km

Estuarine mud/tidal flats

Low edge (<10m)

*Raised beach and marine deposits*

Outer tidal reach of the River Conon. The foreshore consist of mud flats. The hinterland has a low irregular edge consisting of marine sand and gravel. A low raised sea cliff is present.

### 2. TIGHNAHINCH to south west of ALCAIG

NH 564 576

2.8km

Estuarine mud/tidal flats

Low edge (<10m)

*Raised beach and marine deposits*

Irregular coastline towards the head of the Cromarty Firth. Raised beach deposits dominate the hinterland.

### 3. West of ALCAIG to CONON BRIDGE

NH 553 565

1.3km

Saltmarsh/tidal creeks

Low edge (<10m)

*Raised beach and marine deposits*

Head of the Cromarty Firth with a foreshore dominated by saltmarsh and tidal creeks. Raised beach deposits are present within the hinterland. The land behind is low lying.

### 4. CONON BRIDGE to south of PITGLASSIE

NH 550 570

1.2km

Estuarine mud/saltmarsh/tidal creeks

Low edge (<10m)

*Carse clays over marine deposits*

The foreshore is colonised by salt marsh and estuarine mud. Tidal creeks present. Flood banks protect the hinterland.

### 5. South of PITGLASSIE to DINGWALL HARBOUR (disused)

NH 558 580

1.3

Estuarine tidal mud flats/tidal creeks

Low edge (<0m)

*Estuarine clay over marine sand and gravel*

North shore of head of Cromarty Firth forming the arm of a cusped triangular headland. Defended by flood banks the hinterland is low lying carse clay overlying marine sand and gravel. The foreshore consists of mud and shingle.

### 6. DINGWALL HARBOUR to north of

DINGWALL

NH 555 597

1.8km

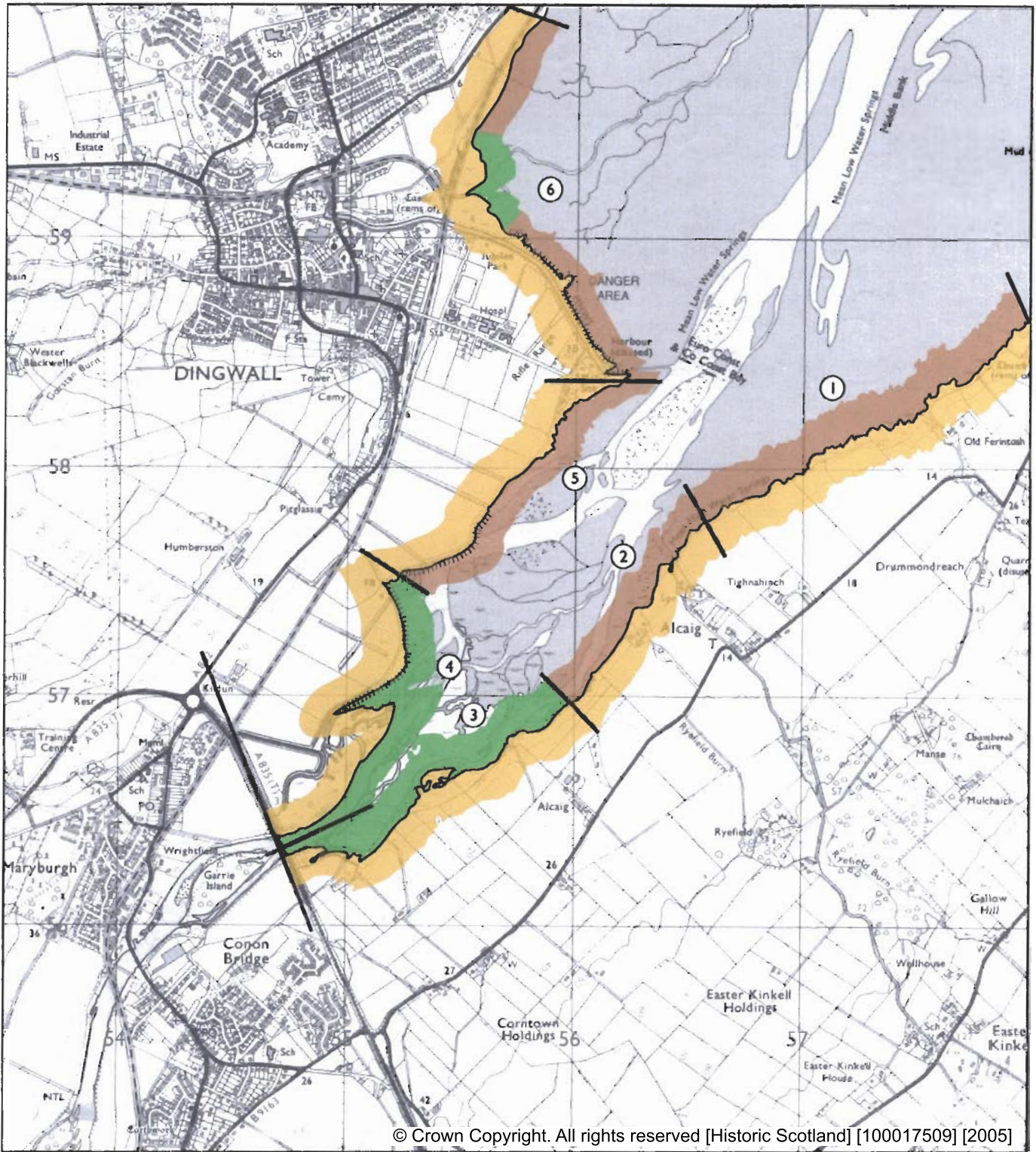
Tidal mud flats

Low edge (<10m)

*Marine deposits*

Marine sands and gravel underlie carse clays within the hinterland that is low lying and developed. This unit incorporates the canalised channel for the disused harbour with saltmarsh formation towards the town of Dingwall.

Estuarine mud flats continue.



**MAP 17: ALCAIG TO DINGWALL**  
 MORAY FIRTH SURVEY Grid ref: NH 54-58/55-60

1:25 000

Basemap: O.S. Pathfinder Series  
 Sheet 159  
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**HINTERLAND GEOLOGY  
 AND FORESHORE  
 GEOMORPHOLOGY**

Assessment date: 14 September 1998

**Hinterland:**

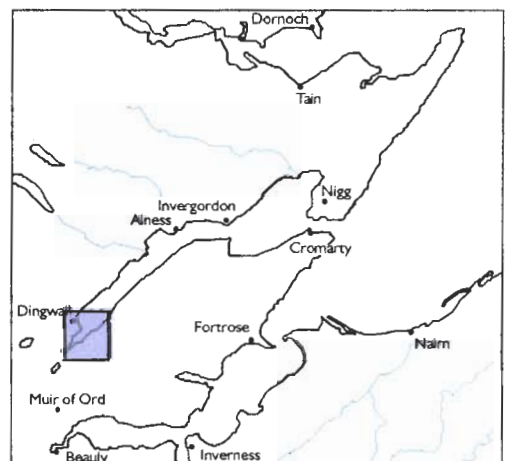
- Drift, boulder clay
- Drift, boulder clay over visible rock
- Raised beach and marine deposits
- Blown sand
- Glacial sand and gravel
- Alluvium

**Coast edge:**

- Low edge (< 5m tall)
- Cliff over 5m tall
- Man made barrier
- Shingle/storm bank
- Human disturbance

**Foreshore:**

- Mainly rock platform
- Mainly sand
- Mainly alluvial/marine mud
- Marsh



## MAP 17: EROSION

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**1. North east of URQUART**

NH 579 587

0.2km

Both Accreting and Eroding

This unit has exposed bedrock with accreting mud forming extensive mud flats. Sandstone is locally exposed and is being eroded by wave action albeit at a slow rate.

**2. URQUART to north of TIGHNAHINCH**

NH 576 584

1km

Definitely Accreting

Irregular unit of coastline with accreting mud flats. Shingle is banking up at the MHWL suggesting that conditions are relatively stable.

**3. North of TIGHNAHINCH to North of**

ALCAIG

NH 564 578

1.6km

Definitely Accreting

This unit shares the same characteristics as its neighbouring units with mud accretion on the expansive tidal flats. Conditions appear to be stable owing to the amount of shingle that is accumulating at the MHWL.

**4. ALCAIG**

NH 557 569

0.8km

Definitely Accreting

Mud and shingle is accreting with a trend towards increased alluvial deposition released from the River Conon where alluvial deposits. The large quantity of driftwood suggests that sediment loading is active along the tributaries leading from the main river channel. Saltmarsh vegetation lends increased stability at the HWM.

**5. South west of ALCAIG**

NH 554 566

0.1km

Definitely Eroding

Flood terrace formation effected by slope failure where coarse deposits is effected by wave action. Defoliation of saltmarsh vegetation appears to be a crucial factor in controlling in the speed of active erosion.

**6. South west of ALKAIG to south east of**

PITGLASSIE

NH 551 570

1.3km

Definitely Accreting

This unit consists of the mouth of the Conon River. The riverbanks are stabilised by saltmarsh vegetation and wooded with alder carr behind which lie earthwork flood banks. Channels are accreting with alluvium derived from further upstream.

**7. South east of PITGLASSIE to DINGWALL**

HARBOUR

NH 561 580

1.5km

Definitely accreting

As with unit 7 above mud deposition is at present accreting on the foreshore. The main river channel is at present c. 50m offshore and migrating northwards. This is leading to the loss of sediment by undercutting and effecting the remains of a fishtrap (See record \*\*\*\*). The shoreline is armoured for much of this unit, particularly towards the recreation area adjacent to the disused harbour.

**8. DINGWALL HARBOUR towards north east**

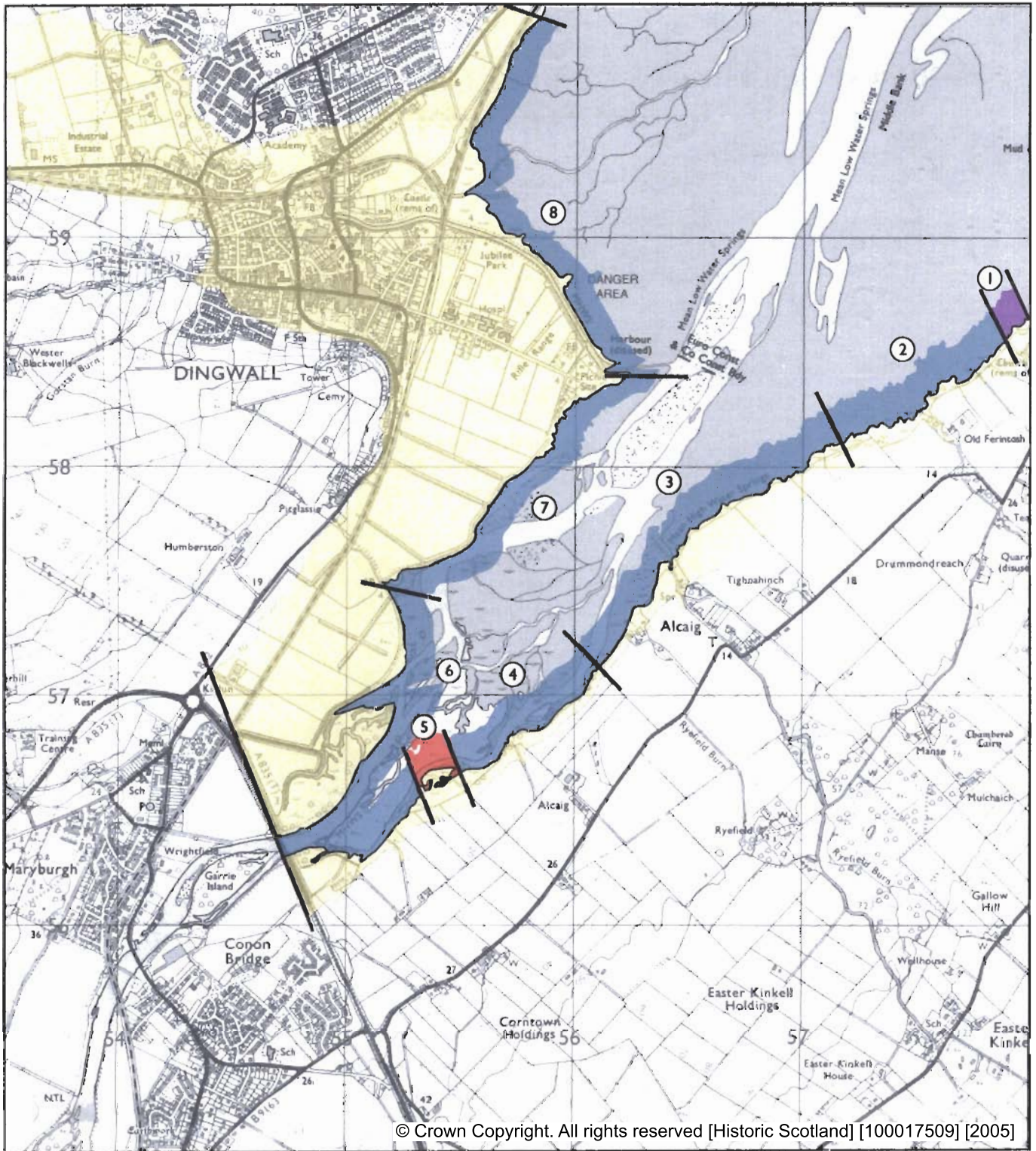
DINGWALL

NH 559 590

2km

Definitely accreting

Saltmarsh and flood defences traverse this unit of coastline. Mud is accreting on the foreshore.



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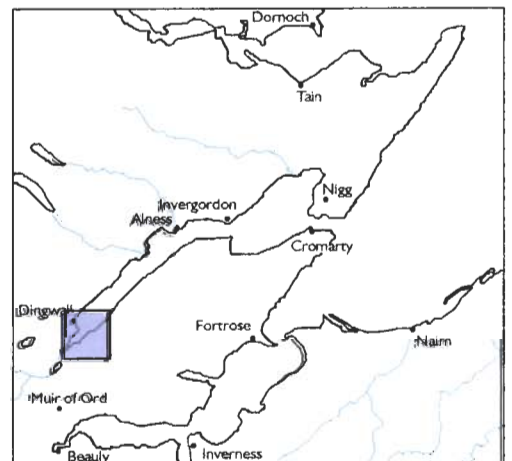
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**EROSION CLASS**

Assessment date: 14 September 1998

- Key:
- Definitely accreting
  - Accreting or stable
  - Stable
  - Eroding or stable
  - Definitely eroding
  - Both accreting and eroding
  - No access
  - Land below 10m



## MAP 17: BUILT HERITAGE AND ARCHAEOLOGY

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### Sites on the Coastal Edge & Foreshore

**NH55NE 27**  
 NH 5638 5762  
 ALCAIG  
 Pier for Alcaig-Dingwall ferry  
 19<sup>th</sup> century AD  
 Fair  
 Monitor

NH 5638 5745  
 ALCAIG  
 Stone causeway  
 Uncertain  
 Poor  
 Monitor

NH 5555 5768  
 PITGLASSIE  
 Wooden jetty posts  
 Uncertain  
 Poor  
 Monitor

NH 5574 5785  
 PITGLASSIE  
 Timber mooring posts  
 Uncertain  
 Poor  
 Monitor

NH 5722 5859  
 OLD FERINTOSH  
 Fish trap  
 Uncertain  
 Poor  
 Survey

NH 5582 5803  
 DINGWALL  
 Wooden pier  
 Uncertain  
 Poor  
 Monitor

NH 5580 5800  
 DINGWALL  
 Stone and timber jetty  
 Uncertain  
 Poor  
 Monitor

### Sites on the Coastal Edge & Foreshore

NH 5620 5765  
 DINGWALL  
 Stone mound, possible beacon stance  
 Uncertain  
 Poor  
 Monitor

NH 5587 5814  
 DINGWALL  
 Landing-place for Alcaig-Dingwall ferry  
 18<sup>th</sup>/19<sup>th</sup> century AD  
 Poor  
 Monitor

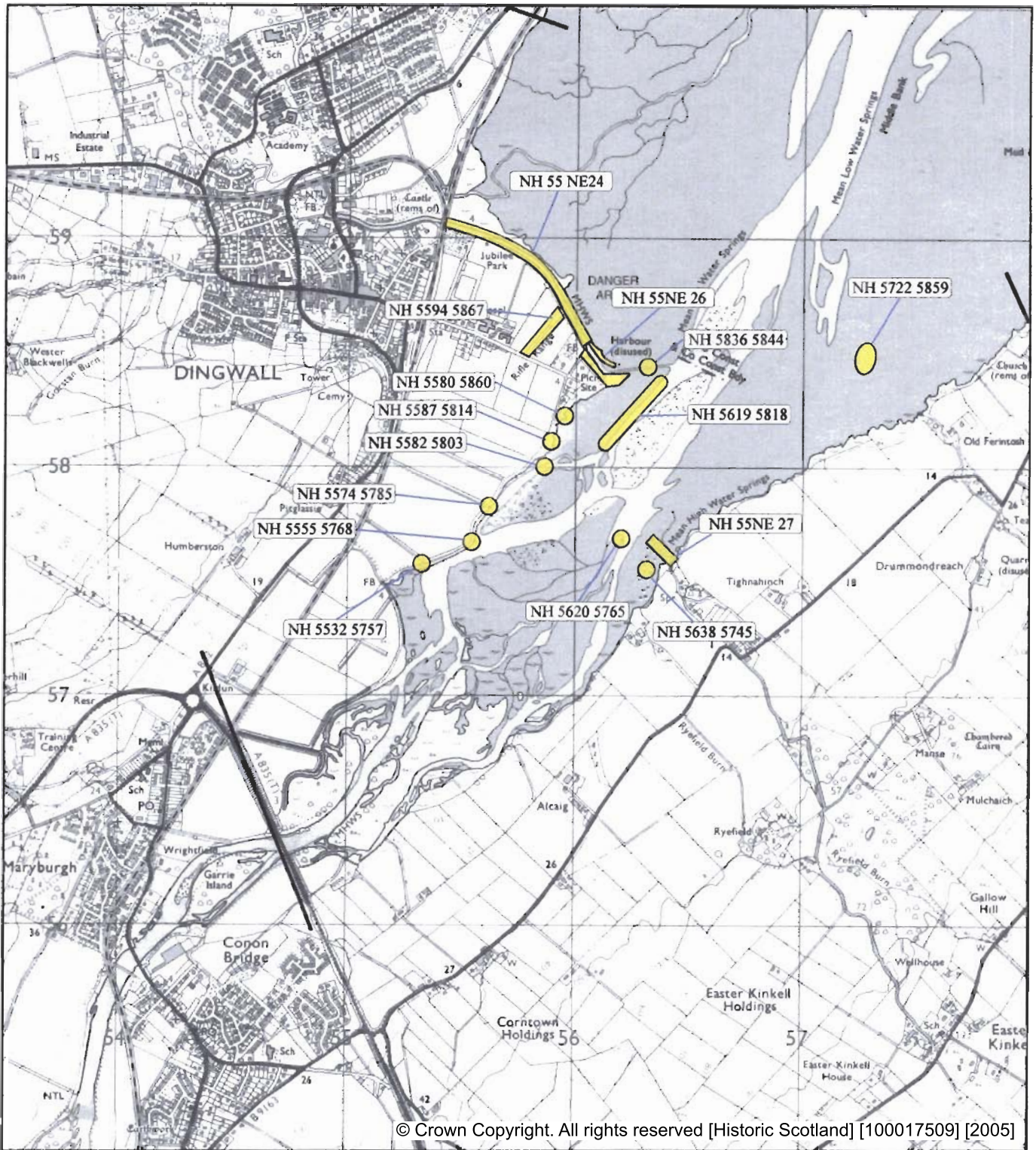
NH 5600 5827  
 DINGWALL  
 Timber jetty posts  
 Uncertain  
 Poor  
 Monitor

NH 5619 5818  
 DINGWALL  
 Fish trap  
 Uncertain  
 Fair  
 Survey and Monitor

NH 5636 5844  
 DINGWALL  
 Beacon stances  
 19<sup>th</sup> century AD  
 Poor  
 Monitor

### Sites in the Hinterland

NH 5532 5757  
 PITGLASSIE  
 Four salmon bothies  
 20<sup>th</sup> century AD  
 Poor  
 Monitor



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### BUILT HERITAGE AND ARCHAEOLOGY

Assessment period: September 1998

Key:

Protected Ancient Monument,  
or area of designated wreck

Listed Historic Building

Monument formally proposed by  
Historic Scotland for scheduling,  
or wreck for designation

Other known Ancient Monuments,  
or Undesignated wreck

Designated Landscape

Insufficient information;  
more work needed

Probably archaeologically sterile

1:25 000

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