

GLASGOW UNIVERSITY SUB-AQUA CLUB
MARINE NATURE CONSERVATION REVIEW
SEASEARCH SURVEY OF SKYE

9-19th MAY 1988

REPORT TO THE NATURE CONSERVANCY COUNCIL / MARINE CONSERVATION SOCIETY

BY

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ABSTRACT

The University of Glasgow Seasearch Expedition (9-19th May 1988) surveyed the following lochs around the coast of Skye : Lochs Brittle, Eynort, Harport, Bracadale, Dunvegan, Greshornish, Snizort Beag, Portree and Sligachan.

In all of these lochs, habitats range from soft sediments dominated by sea pens, bivalves and/or burrowing crustaceans to bedrock slopes and extensive kelp forest with a rich understory flora and fauna.

Lochs Brittle and Eynort are more typical of open bays rather than true sea lochs with relatively little fine-mud areas (especially in L.Brittle) except in the mouth of Loch Brittle and in the more sheltered areas of Loch Eynort.

Loch Harport and Bracadale form an interesting complex of a true sea loch and a large open bay with several islands. This provides a wide range of habitats including soft mud with sea pens and megafaunal burrows, clean rocky areas with a wide range of exposure with kelp, clean sand and mearl beds.

Loch Dunvegan is similar to Loch Bracadale in several aspects already mentioned above, also with soft muddy sediments near the head of the loch and exposed cliff faces and steep slopes in the outer bay region of the loch.

Lochs Greshornish and Snizort Beag are linear sea lochs, mainly dominated by fauna typical of soft substrates and boulder slopes. Both lochs have an appreciable freshwater input which seems to influence species diversity.

Loch Portree is a very short loch with a wide variety of habitats for its size. The head of the loch consists of a very shallow muddy lagoon-like area, whereas the outer loch has sand and steep boulder slopes.

Finally, Loch Sligachan consists of a single basin area, partially cut off from the Sound of Raasay by a sand and shingle bar. Consequently its mouth which is subject to strong tidal currents, is dominated by Modiolus, and its head to freshwater input from the River Sligachan.

GLASGOW UNIVERSITY SUB-AQUA CLUB

SEASEARCH SURVEY OF SKYE

GENERAL INTRODUCTION

The survey took place between the 9th and 19th of May 1988.

The expedition team comprised of postgraduate and undergraduate students, led by R. Holt, from the Department of Zoology, University of Glasgow, Glasgow G12 8QQ.

Itinerery

- 9/5/88. Left Oban on the "Jane R" and reached Canna harbour for the first night.
- 10/5/88. Surveys of Lochs Brittle and Eynort, stayed overnight in Carbost, Loch Harport.
- 11-12/5/88. Surveys of Lochs Harport and Bracadale, then travelled round the coast to Loch Dunvegan for overnight stop.
- 13-14/5/88. Survey of Loch Dunvegan, then travelled around the coast to Uig harbour.
- 15/4/88. Survey of Loch Greshornish, returning to Uig overnight.
- 16/4/88. Survey of Loch Snizort Beag, then travelled around the coast to Portree.
- 17/4/88. Survey of Lochs Portree and Sligachan, then travelled to Kyle of Loch Alsh for an overnight stop.
- 18/4/88. Travelled to Tobermorey for overnight stop.
- 19/4/88. Returned to Oban.

A synopsis of dive sites and dive details is given on tables 1 and 2 and on the map on page 4.

Throughout this report all depths are given as depth below chart datum unless otherwise stated.

The main body of the report is divided up into sections dealing with the diving surveys loch by loch. For each loch there is a general description and chart of the loch and its surroundings followed by a synopsis of how the dives were planned. There then follows a more detailed description of the loch, using the details gathered from the individual sites, giving information on habitats, substrate types and points of interest. This also includes some of the dominant species in the loch, areas with faunal beds and sightings of uncommon or unusual species. This information is summarised in table of habitat and species occurrence.

Finally the individual dive sites are described giving details of the site names, the divers involved and their findings, as recorded on the seasearch forms. Sites are numbered from 1 to 82 in chronological order, the first survey being numbered from Loch Brittle and the last in Loch Sligachan.

A species list for the whole expedition is given at the end of the survey information on page 52, and includes the particular lochs in which each species was found.

In addition some information is given on fish farms encountered around the areas surveyed.

AIMS AND METHODS OF SURVEY

The aims of the expedition were to conduct a Seasearch-type survey of the lochs around the west, north, and north east coast of Skye (as shown on the map on page 4). In particular it was the inner parts of the lochs which were to be included in the survey rather than the outer, more exposed coastline, which meant many of the sites were on soft sediments rather than on exposed rock.

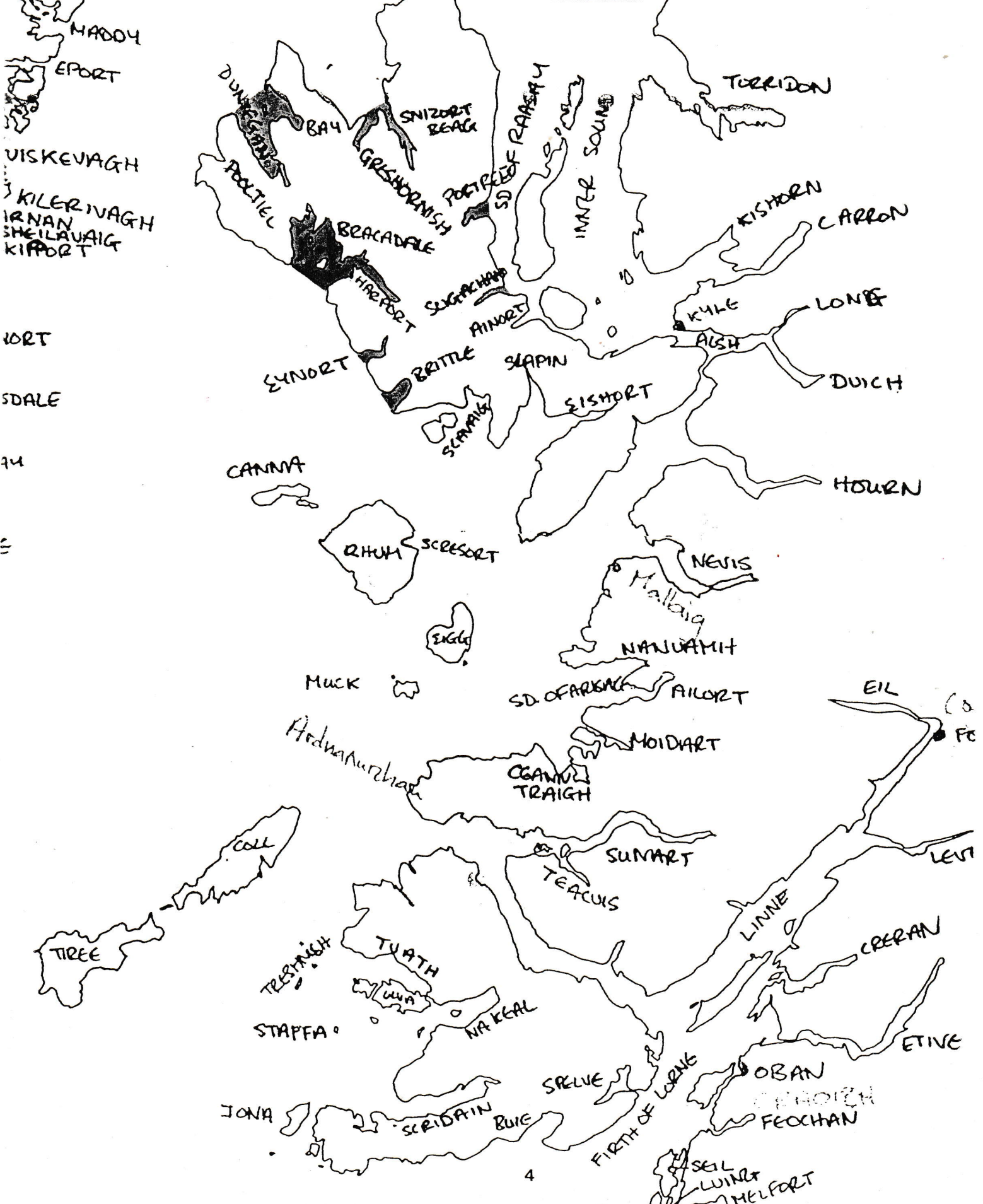
The expedition was based on board the MV. "Jane R", which provided a comfortable, mobile base for intensive diving and travelling around the many miles of the Skye coastline.

A typical days' surveying consisted of diving in the deeper areas of the loch, either from the "Jane R" or its inflatable tender, in the morning, concentrating on deeper sediments and steep slopes, followed by shallow dives in the early afternoon. Dives were restricted to a maximum depth of 35m and a duration of approximately 20 minutes. Some of the shallower areas were covered by multiple-spot-dives (ie. the head of Loch Dunvegan).

Time was always somewhat limited due to the great distances involved in travelling between different lochs.

S. HARALLS
L. TARBERT
GROSEBAY
STOCKNISH
FINSBAY
RODEL
GLASGOW UNIVERSITY - SKYE

SURVEY AREAS



PORT
SDALE
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TABLE 1 : DIVE SITE INFORMATION

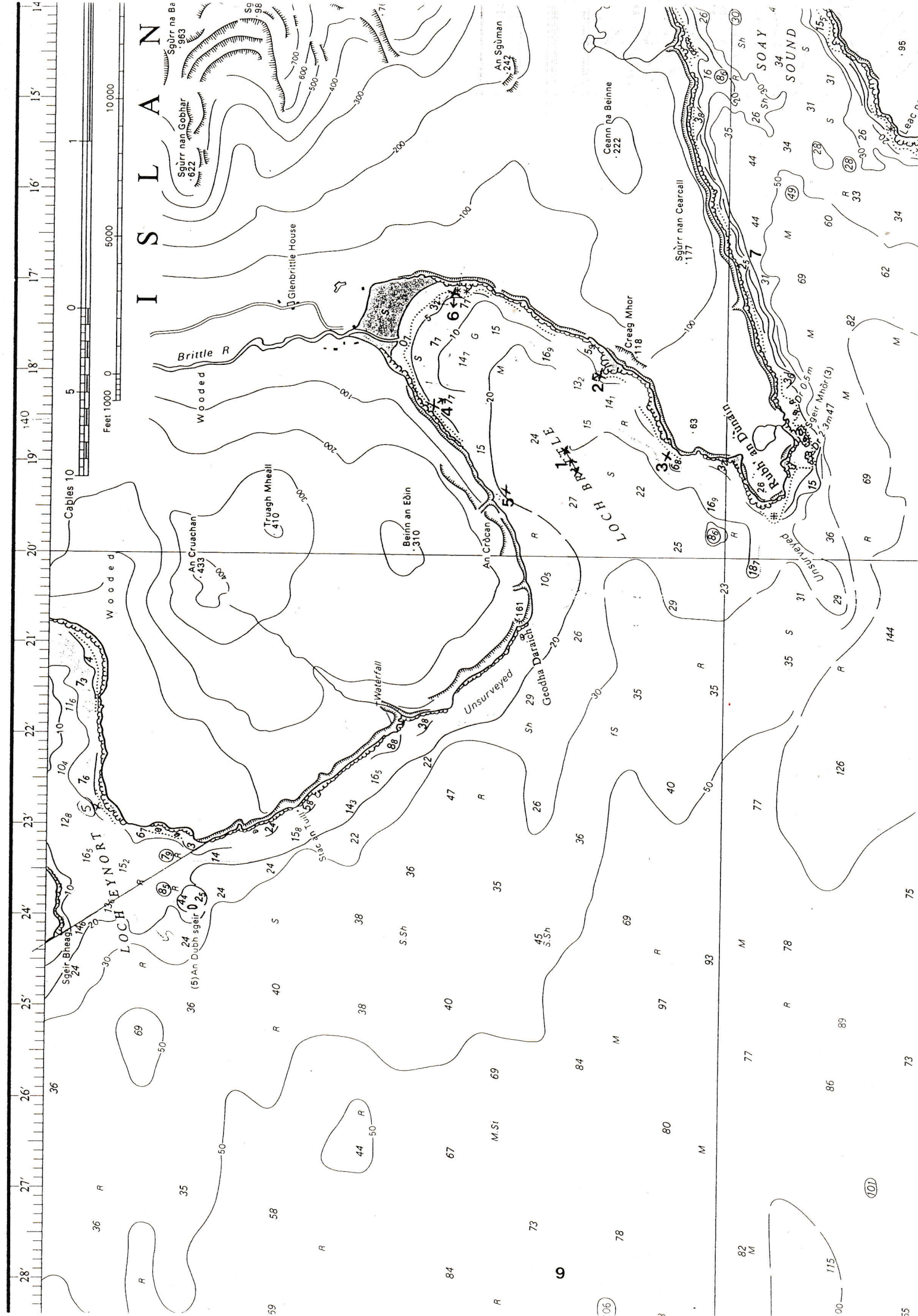
SITE DATE	SITE NO	SITE NAME	LAT/LONG
10/5/88	1	LOCH BRITTLE - mid loch	57°11.0'N 6°19.0'W
"	2	" " - S side, below Creag Mhor	57°10.7'N 6°18.0'W
"	3	" " - SW corner	57°10.3'N 6°18.9'W
"	4	" " - W side of head	57°11.5'N 6°18.0'W
"	5	" " - outer N coast	57°11.4'N 6°19.2'W
"	6	" " - E side of head	57°11.55'N 6°17.1'W
"	7	LOCH EYNORT - head	57°14.3'N 6°20.9'W
"	8	" " - SE part	57°13.83'N 6°21.35'W
"	9	" " - N side of mid region	57°14.1'N 6°22.2'W
"	10	" " - N side of outer loch	57°14.05'N 6°22.2'W
"	11	" " - S side	57°13.6'N 6°22.8'W
11/5/88	12	LOCH HARPORT - head	57°18.1'N 6°20.6'W
"	13	" " - middle	57°18.0'N 6°42.0'W
"	14	" " - point near 'Gesto B Ho'	57°20.5'N 6°24.1'W
"	15	" " - W side of Ardtreck Pt	57°20.2'N 6°26.0'W
"	16	" " - pt opposite Ardtreck Pt	57°20.65'N 6°25.7'W
"	17	" " - S seaward side	57°19.4'N 6°27.3'W
"	18	LOCH BRACADALE - SW tip of Oronsay	57°19.8'N 6°28.2'W
"	19	" " - SE of Ullnish Pt	57°20.5'N 6°27.0'W
"	20	" " - N end of Waiy Is	57°20.6'N 6°29.8'W
12/5/88	21	" " - btwn Waiy Is/Ullnish Pt	57°20.4'N 6°28.3'W
"	22	" " - N end of Sula Skerry	57°21.2'N 6°27.9'W
"	23	" " - btwn Colbost Pt/Tarner Is	57°21.9'N 6°29.2'W
"	24	" " - Loch Caroy inlet	57°23.5'N 6°30.1'W
"	25	" " - head of Loch Caroy	57°23.5'N 6°29.3'W
"	26	" " - E side of Harloch Pt	57°22.4'N 6°30.8'W
"	27	" " - S point of Harloch Is	57°21.2'N 6°31.7'W
"	28	" " - near Loch Vatten	57°23.1'N 6°32.4'W
"	29	" " - Loch Bharcasaig	57°23.1'N 6°33.5'W
"	30	" " - west cliffs	57°21.9'N 6°33.5'W
13/5/88	31	LOCH DUNVEGAN - shore west of Beinn Mhic Uilleim	57°28.9'N 6°37.6'W
"	32	" " - S end of Lampay Is	57°27.8'N 6°38.9'W
"	33	" " - Gob Na Hoe	57°29.5'N 6°41.3'W
"	34	" " - Leinish Bay	57°27.7'N 6°39.4'W
"	35	" " - Fiadhairt Pt	57°28.77'N 6°37.5'W
"	36	" " - NW tip of Bo Mor Is	57°27.2'N 6°37.6'W
"	37	" " - Loch More	57°38.0'N 6°26.5'W
"	38	" " - Loch More	57°26.7'N 6°38.2'W
"	39	" " - Loch Erghallan, SW head of Loch Dunvegan	57°26.4'N 6°37.2'W
"	40	" " - N side of Gairbh Eilein	57°27.2'N 6°36.7'W
"	41	" " - behind Fiadhairt Pen	57°29.5'N 6°36.4'W
"	42	" " - S of Sgeir a'Chuain, Isay Is	57°31.35'N 6°39.4'W
"	43	" " - N end of Isay Is	57°31.9'N 6°38.9'W
"	44	" " - Isay Is channel, Loch Bay	57°31.4'N 6°38.6'W
"	45	" " - NW tip of Lampay Is	57°30.2'N 6°38.9'W
"	46	" " - Sgeir Nam Biast, outer Loch Bay	57°30.95'N 6°36.82'W
"	47	" " - below Sgurr a'Bhagh	57°30.7'N 6°36.0'W
"	48	" " - Loch Bay	57°30.0'N 6°34.3'W
"	49	" " - Oans Pt, Loch Bay	57°31.1'N 6°35.1'W

DATE	NO	SITE NAME	LAT/LONG
14/5/88	50	LOCH DUNVEGAN - Mid loch, outer Loch Bay	57°31.5'N 6°36.5'W
"	51	" " - Ardmore Bay, Loch Bay	57°32.55'N 6°38.4'W
15/5/88	52	LOCH GRESHORNISH - channel btwn Eilean Beag and Lyndale Pt	57°31.87'N 6°24.2'W
"	53	" " - Eilean Mor	57°31.5'N 6°24.8'W
"	54	" " - Sgeir an Duin	57°30.9'N 6°25.4'W
"	55	" " - mid channel	57°30.0'N 6°25.7'W
"	56	" " - head, sandy area at end of Red Burn	57°29.03'N 6°26.6'W
"	57	" " - head, muddy area near Edinbane	57°28.94'N 6°26.19'W
"	58	" " - near head of loch	57°29.6'N 6°26.0'W
"	59	" " - below Rubha Nan Corr	57°30.1'N 6°25.9'W
"	60	" " - central location	57°30.4'N 6°25.3'W
"	61	" " - Lyndale Bay, W of Camas Mor	57°30.6'N 6°24.5'W
"	62	" " - Lyndale Bay, below Torr a'Chruidh	57°30.13'N 6°24.32'W
16/5/88	63	LOCH SNIZORT BEAG - Ard Nan Eireachd	57°32.5'N 6°23.4'W
"	64	" " - outlet of R Hinnisdal	57°31.95'N 6°22.5'W
"	65	" " - E of Lyndale Pt	57°31.75'N 6°23.3'W
"	66	" " - W side of lower loch	57°31.0'N 6°22.7'W
"	67	" " - mid loch	57°30.6'N 6°21.9'W
"	68	" " - Odhar Sgeir	57°29.9'N 6°20.9'W
"	69	" " - E of Sgeir Dhubh	57°29.56'N 6°20.05'W
"	70	" " - SSE of Kingsburgh	57°30.3'N 6°20.9'W
"	71	" " - Beatson Rock	57°30.7'N 6°21.8'W
"	72	" " - NE side of mid region	57°31.2'N 6°22.1'W
17/5/88	73	LOCH PORTREE - inner loch, W side	57°24.26'N 6°11.71'W
"	74	" " - inner loch, river outlet W of Penifiler	57°23.85'N 6°11.4'W
"	75	" " - point ESE of Portree	57°24.45'N 6°10.75'W
"	76	" " - inside of island	57°24.7'N 6°10.5'W
"	77	" " - N side of outer loch	57°25.3'N 6°9.3'W
"	78	" " - N side of outer loch	57°25.0'N 6°10.0'W
"	79	LOCH SLIGACHAN - near Sconser	57°18.8'N 6°7.1'W
"	80	" " - loch entrance	57°19.1'N 6°6.3'W
"	81	" " - NW side of loch basin	57°18.7'N 6°8.3'W
"	82	" " - head	57°18.4'N 6°8.3'W

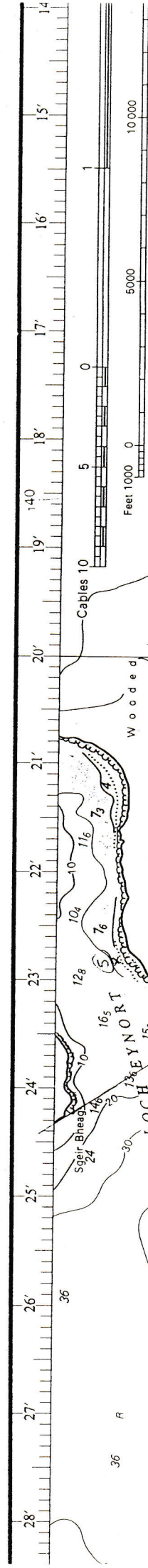
TABLE 2 : DIVE DETAILS

DATE	SITE NO	DIVERS	DIVE TIME:		DEPTH BELOW CD
			START	FINISH	
(LOCH BRITTLE)					
10/5/88	1	R Holt/J McAuley	1054	1111	28m
"	2	D Donnan/L Calder	1144	1206	1-16m
"	3	TD Nickell/G Miller	1216	1236	0-15m
"	4	M Perrott/A Oakman	1346	1405	0-7m
"	5	S Anderson/N Weir	1428	1450	4-13m
"	6	J McAuley/R Holt	1304	1312	0-4m
(LOCH EYNORT)					
"	7	R Holt/JMcAuley	1623	1644	0-0.4m
"	8	D Donnan/L Calder	1624	1653	8m
"	9	G Miller/TD Nickell	1720	1739	0-7m
"	10	A Oakman/M Perrott	1751	1813	3-11m
"	11	S Anderson/N Weir	1821	1841	2-7m
(LOCH HARPORT)					
11/5/88	12	M Perrott/A Oakman	0929	0949	8m
"	13	N Weir/S Anderson	1010	1030	3-22m
"	14	TD Nickell/G Miller	1050	1116	0-10m
"	15	L Calder/D Donnan	1230	1252	4-12m
"	16	R Holt/J McAuley	1306	1331	22m
"	17	A Oakman/M Perrott	1409	1432	15m
(LOCH BRACADALE)					
"	18	G Miller/TD Nickell	1422	1443	20m
"	19	S Anderson/N Weir	1515	1537	1-15m
"	20	D Donnan/L Calder	1702	1721	7-15m
12/5/88	21	R Holt/G Miller	0900	0916	31m
"	22	L Calder/S Anderson	0943	1005	6-12m
"	23	A Oakman/TD Nickell	1022	1043	13m
"	24	N Weir/D Donnan	1116	1140	7-17m
"	25	M Perrott/J McAuley	1200	1221	8-9m
"	26	R Holt/G Miller	1300	1324	6-14m
"	27	S Anderson/L Calder	1332	1352	5-18m
"	28	TD Nickell/A Oakman	1414	1422	14m
"	29	D Donnan/N Weir	1440	1459	11m
"	30	M Perrott/J McAuley	1515	1531	14-16m
(LOCH DUNVEGAN)					
13/5/88	31	R Holt/G Miller	0758	0824	31m
"	32	L Calder/S Anderson	0855	0816	16-29m
"	33	TD Nickell/A Oakman	0926	0947	18-29m
"	34	N Weir/D Donnan	1019	1037	14-29m
"	35	M Perrott/J McAuley	1057	1117	22-29m
"	36	R Holt/G Miller	1130	1150	18m
"	37	S Anderson/L Calder	1253	1344	2-5m
"	38	A Oakman/TD Nickell	1356	1510	9m
"	39	R Holt/G Miller	1505	1539	0-10m
"	40	M Perrott/J McAuley	1557	1646	2-9m
"	41	D Donnan/N Weir	1700	1730	3-9m
14/5/88	42	D Donnan/J McAuley	0745	0809	11-17m
"	43	L Calder/M Perrott	0822	0844	4-16m
"	44	N Weir/TD Nickell	0808	0823	0.5-12m
"	45	G Miller/S Anderson	0845	0859	20m
"	46	R Holt/A Oakman	0914	0935	22m
"	47	J McAuley/D Donnan	1001	1018	14-16.5m
"	48	N Weir/TD Nickell	1037	1054	19m
"	49	M Perrott/L Calder	1027	1048	6-19m

DATE	SITE NO	DIVERS	DIVE TIME:		DEPTH BELOW CD
			START	FINISH	
14/5/88	50	S Anderson/G Miller	1119	1126	32m
"	51	R Holt/A Oakman	1145	1206	18m
(LOCH GRESHORNISH)					
15/5/88	52	J McAuley/D Donnan	1030	1053	12-20m
"	53	L Calder/M Perrott	1108	1130	7-12m
"	54	N Weir/TD Nickell	1144	1202	19-31m
"	55	S Anderson/G Miller	1220	1240	28m
"	56	R Holt/A Oakman	1301	1315	9-9.4m
"	57	R Holt/A Oakman	1320	1331	4m
"	58	D Donnan/J McAuley	1417	1439	10-12m
"	59	L Calder/M Perrott	1453	1514	8-10m
"	60	N Weir/TD Nickell	1529	1540	13-19m
"	61	G Miller/S Anderson	1549	1559	15m
"	62	A Oakman/R Holt	1615	1640	20m
16/5/88	63	R Holt/N Weir	0705	0722	9-18m
"	64	S Anderson/A Oakman	0724	0744	8m
"	65	D Donnan/L Calder	0741	0803	27-31m
"	66	G Miller/M Perrott	0756	0817	19m
"	67	J McAuley/TD Nickell	0828	0841	27m
"	68	N Weir/R Holt	0856	0918	4-15m
"	69	D Donnan/L Calder	0932	0951	8m
"	70	S Anderson/A Oakman	1008	1027	12m
"	71	G Miller/M Perrott	1046	1103	14m
"	72	J McAuley/TD Nickell	1111	1129	4-14m
(LOCH PORTREE)					
17/5/88	73	R Holt/N Weir	0955	1008	1m
"	74	S Anderson/A Oakman	1021	1036	0m
"	75	L Calder/D Donnan	1108	1124	5-18m
"	76	M Perrott/G Miller	1141	1157	9m
"	77	J McAuley/TD Nickell	1253	1310	20-24m
"	78	R Holt/N Weir	1320	1343	9-26m
(LOCH SLIGACHAN)					
"	79	A Oakman/S Anderson	1614	1633	1-17m
"	80	D Donnan/L Calder	1648	1658	5-9m
"	81	M Perrott/G Miller	1740	1755	12m
"	82	TD Nickell/R Holt	1811	1824	0m



I S L A N



LOCH 1 : LOCH BRITTLE

GENERAL DESCRIPTION

Loch Brittle forms an open mouthed bay gradually deepening towards the mouth to a maximum of 30m below chart datum. It has no discrete basin areas and has generally complete exposure to south-west winds. The sides of the loch above water are steep, with rocky boulder slopes and cliffs and several small streams. At the head of the loch there is a small river running over clean sand and shingle (and there is evidence that the river has changed course over the beach). There are several areas which are shown as subtidal rock plains on the chart, occurring on the south side of the loch.

DIVE SITE PLANNING

Date of Survey : 10/5/88 . Loch Brittle was surveyed using six pairs of divers as shown on the section of chart. One survey was made at a central point in the bay onto the sediment plain there (dive 1), four around the sides of the loch and one near the head.

GENERAL HABITATS, SUBSTRATE TYPES AND POINTS OF INTEREST

Along both north and south shores the loch sides below water generally consist of large igneous boulder slopes or gently sloping bedrock plains with dense kelp forest, and in places a rich understory flora and fauna especially those on the south side (site 2), descending to coarse sand or gravel with a finer silt underlayer. The boulder slopes on the north side of the bay and the gravel beds supported large numbers of holothuroids, possibly Pawsonia saxicola and Neopentadactyla mixta respectively. The bed of the mid-loch area was found to be an almost flat, firm, muddy sand plain with megafaunal burrows. These include Nephrops, Callianassa burrows and Corystes cassivelaunus foraging on the surface of the substrate. The substrate at the head of the bay consisted mainly of clean fine sand with very few species present (only Lanice and a few Arenicola marina). At site 4 there are a few Zostera marina plants on the sediment.

INDIVIDUAL DIVE SITES

SITE NUMBER 1

SITE NAME. Mid loch, Loch Brittle

DIVERS. Rohan Holt, John McAuley

REASONS FOR / OBJECTIVES OF THE DIVE.

- charted as almost flat mud sediment plain at approximately 27m below chart datum.
- typicality of fauna/topography of deeper part of the loch.
- photography.

FINDINGS: DEPTH RANGE 28 m BELOW CHART DATUM.

Flat sediment plain is found over the dived area with burrows and holes present. The sediment consists of firm, muddy sand with small pockets of finer sediment and patches of decaying algae and heather roots. Visually dominant species are Virgularia mirabilis at approximately 3-4 per m², and Nephrops norvegicus with approximately one burrow every 3-4 m². Other burrows including those of Callianassa subterranea, are present. Ophiura texturata was also seen. Of interest are large numbers of Corystes cassivelaunus on the surface of the substrate. Several wide angle

photographs (35mm) were taken of general habitat and species present.

SITE NUMBER 2

SITE NAME. Under Creag Mhor, south side of Loch Brittle

DIVERS. David Donnan, Lois Calder

REASONS FOR / OBJECTIVES OF THE DIVE.

- transect from a charted rocky shelf near shore to deeper water.

FINDINGS: DEPTH RANGE 1-16 m BELOW CHART DATUM.

Substrate consists of a gradually sloping bedrock plain with a thin covering of shell gravel, becoming steep then gradual again at approximately 15m. This bedrock plain continues to a distance of approximately 100m offshore after which the bottom consisted of coarse sand and shell gravel with small boulders. Dominant species are Laminaria hyperborea and L. saccharina, present as dense kelp forest interspersed with Halidrys siliquosa to the limit of the dive and probably beyond, becoming less dense with depth. Echinus esculentus present at approximately one per m², also Antedon bifida and heavy growth of red algae associated with the kelp, including Delessaria sanguinea.

Comments. Good example of an extensive kelp forest.

SITE NUMBER 3

SITE NAME. South west corner at mouth, Loch Brittle

DIVERS. Thom Nickell, Garry Miller

REASONS FOR / OBJECTIVES OF THE DIVE.

- transect from near shore to deeper water as representative section of seaward limit of loch.
- to photograph habitat and fauna

FINDINGS: DEPTH RANGE 0-15 m BELOW CHART DATUM.

Substrate consists of gradually sloping bedrock leading down to small boulders at 6m, turning to coarse sand, shell gravel and large cobbles by 10m. Further out from shore is a reef of igneous rock at 10m with coarse sand and large cobbles at its seaward base. This sand and cobble continued as a gradual slope to the limit of the dive at 15m. Dominant species include laminaria digitata from 0-15m, L. hyperborea from 10m and L. saccharina from 12m continuing throughout the whole depth range as dense forest becoming sparser by 15m below chart datum. Visually dominant species also include Alcyonium digitatum, Antedon bifida, Echinus esculentus and tunicates (including Clavellina lepidiformis).

SITE NUMBER 4

SITE NAME. North west side of head of Loch Brittle

DIVERS. Mark Perrott, Alan Oakman

REASONS FOR / OBJECTIVES OF THE DIVE.

- charted as rocky substrate onto sand
- at the head of the loch near a river
- to examine typicality of the inner loch
- transect from shore to sand area

FINDINGS: DEPTH RANGE 0-7 m BELOW CHART DATUM.

Substrate to a distance of about 120m offshore is a gradual slope of large boulders on bedrock. There are pockets of coarse sand to approximately 50m offshore, followed by large and small boulders on coarse sand to 70m offshore (at approximately 6m below chart datum). This continues onto a nearly horizontal plain of coarse sand over dark firm mud. Visually dominant species are L. digitata forest in the shallowest section of the dive to approximately 2m below chart datum, then L. hyperborea forest

with red algal understorey species plus Echinus esculentus. Dominant species on the sandy plain are Arenicola marina, with approximately one cast per m², Cerianthus loydii (3-4 per m²), gravel sea cucumbers (possibly Neopentadactyla mixta) at 1 per 5m². Of interest are a few Zostera marina plants, Corystes cassivelaunus and very large Cancer pagarus.

SITE NUMBER 5

SITE NAME. Under An Crocan, outer north coast, Loch Brittle

DIVERS. Stuart Anderson, Nick Weir

REASONS FOR / OBJECTIVES OF THE DIVE.

- charted as relatively steeper section of outer loch, thus possible to get a transect with greatest depth range.
- transect from near shore directly outwards.

FINDINGS: DEPTH RANGE 4-13 m BELOW CHART DATUM.

Substrate consisted of steep bedrock and boulder slope to 7m below chart datum, followed by large and small boulders on a gradually sloping bed of gravel, and then a gravel plain with furrows. Visually dominant species were L. hyperborea on the steeper slope with abundant Echinus esculentus, and also a few L. saccharina. Kelp continued to the limit of the dive, but became sparser on boulders with depth. Holothurians, possibly Neopentadactyla mixta at 1 per m² on gravel but no burrows.

Comments. High diversity, typical of a "clean" site.

SITE NUMBER 6

SITE NAME. East side, head of Loch Brittle

DIVERS. John McAuley, Rohan Holt

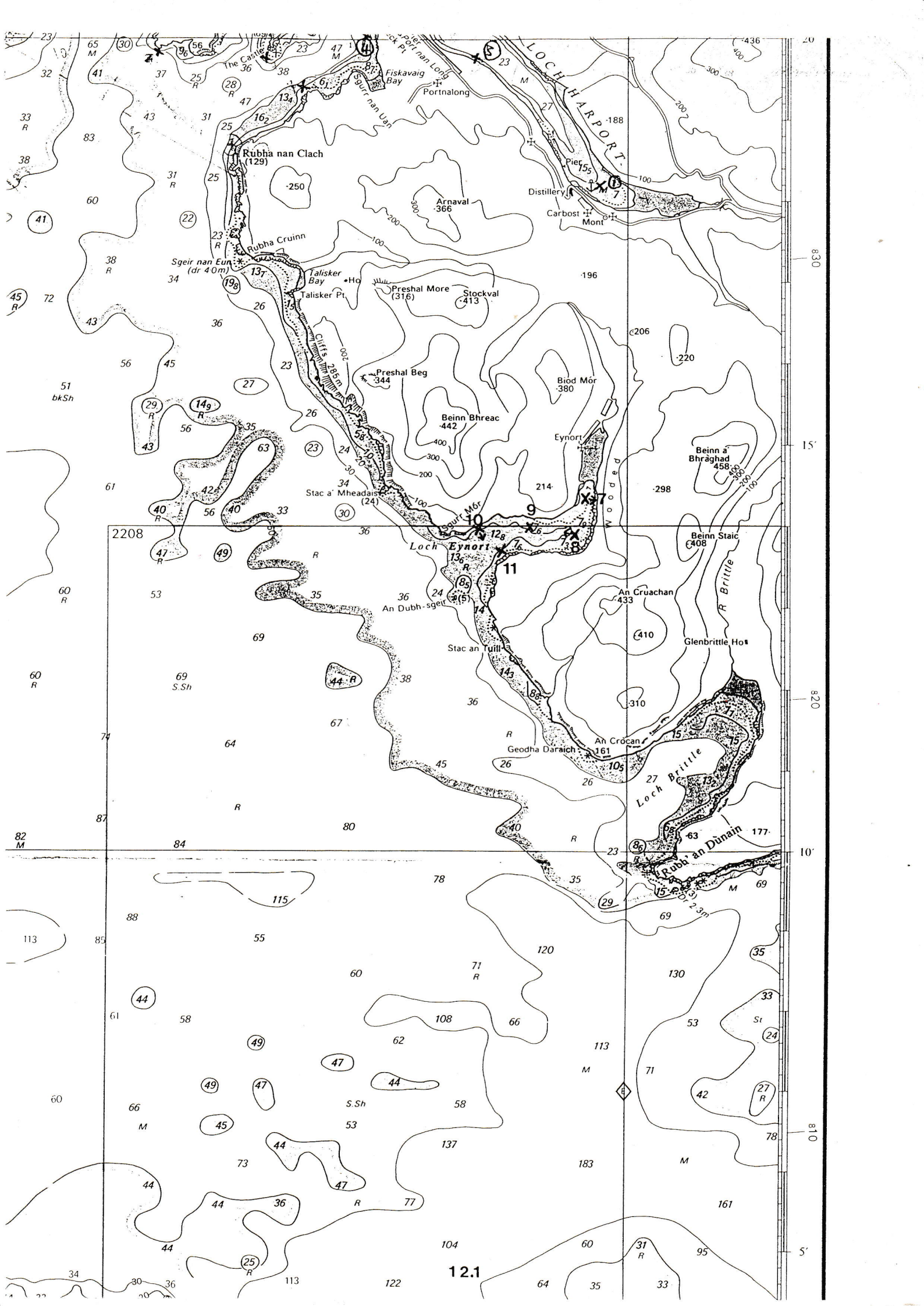
REASONS FOR / OBJECTIVES OF THE DIVE.

- site with freshwater influence near head of loch.
- charted as rocks onto sand in shallower water.
- transect near river

FINDINGS: DEPTH RANGE 0-3 m BELOW CHART DATUM.

Substrate - short, steep boulder slope from shore to 2m onto clean fine sand on a gradual slope. The sand shows wave ripples to 3m below chart datum, becoming coarser with distance from shore. Dominant species on boulders are typical of those which experience exposure at ELWS - Fucus serratus and a few L. digitata plus Semibalanus balanoides. On sand there are few Lanice conchilega with Arenicola marina at the furthest point from the shore (100m). Also present are balls of loose filamentous brown algae, presumably washed into the head of the loch.

Comments. Very little life on the sand, probably due to substrate mobility and wave action in shallower water and also proximity to the river.



LOCH 2 : LOCH EYNORT

GENERAL DESCRIPTION

Like Loch Brittle, Loch Eynort has its mouth exposed to south-west winds, but is generally narrower and shallower (maximum depth is 12m below chart datum). Because of its shape, the head of the loch is sheltered from prevailing winds by steep hills on both sides which are mainly covered by forestry and rough grazing land. The head of the loch consists of a flat sediment plain which will probably have resulted from the infilling of a shallower inner basin. As several rivers entering the loch were noted around the coast, these would probably contribute to a substantial lowering of salinity during heavy rainfall. The inner section of the head of the loch is partially restricted from the outer loch by a bank of small and large boulders, possibly man-made as part of a small harbour for Eynort, which influences topography and species present.

DIVE SITE PLANNING

Date of Survey : 10/5/88 Five dive sites were chosen in Loch Eynort, one at the very head of the loch over the flat sediment plain, two in the mid loch region over soft substrates at either sides of the loch and two more nearer the mouth of the loch over boulder slopes and small rocky cliff faces.

GENERAL HABITATS, SUBSTRATE TYPES, AND POINTS OF INTEREST

The substrates consist mainly of fine sediments, usually firm muddy gravel throughout with occasional igneous rocky outcrops and small cliff faces, especially nearer the mouth on the north side of the loch. At the head of the loch there is a wide expanse of firm sandy mud, only a few meters below chart datum dominated by very large numbers of Lanice conchilega and bivalves including Cerastoderma edule and Ensis silqua (site 7). The mid loch area has gradually sloping sides of firm muddy gravel and sand (as far as we could tell from the limits of diving), with few burrowing fauna other than bivalves. Near the mouth of the loch the fauna is replaced by more typical outer coast species, with boulder slopes with kelp forests and Alcyonium digitatum interspersed with coarse sandy pockets and plains with Echinocardium cordatum and more burrowing bivalves.

INDIVIDUAL DIVE SITES

SITE NUMBER 7

SITE NAME Head of Loch Eynort

DIVERS Rohan Holt, John McAuley

REASONS FOR/OBJECTIVES OF THE DIVE

- charted as flat area, no substrate type shown
- transect across shallowest part at head of loch
- to photograph substrate and associated fauna

FINDINGS: DEPTH RANGE 0-0.4 m BELOW CHART DATUM

Substrate type - from shore onto large cobbles as steep slope, then pebbles as the slope becomes gradual continuing to a horizontal flat sediment plain over much of this area. Sediment consists of a fine, firm, dark, muddy sand, not as easily disturbed as finer mud, with small cobbles (approximately 1 per 4m²) over the whole area. Dominant species - Lanice conchilega at very high densities of over 20 per m² on the flat sediment

plain. Also Cerastroderma edule on and just below the sediment surface, and Mya arenaria and Ensis ensis present; alive and as shell debris. Some Arenicola marina over the whole area, with areas of "woolly" filamentous brown algae. In the shallows near shore large Fucus vesiculosus and Ulva lactuca are present with littorinids associated.
Comments Lanice bed of unusually high density

SITE NUMBER 8

SITE NAME Below woods, South-east part of loch Eynort

DIVERS David Donnan, Lois Calder

REASONS FOR/OBJECTIVES OF THE DIVE

- depression shown by ship's echo sounder (not found by divers)
- to examine topography, species and habitat at inner end of mid loch

FINDINGS: DEPTH RANGE 8 m BELOW CHART DATUM

Sea bed consists of firm muddy gravel without any surface features other than holes made by burrowing bivalves. Some L. saccharina with holdfasts in the substrate but probably loose, and patches of filamentous brown algae, possibly Arthrocladia villosa. Dominant species - siphons of Ensis ensis and Mya sp present. Also few Cerianthus loydii (1 per 2m²) and Asterias rubens (1 per 3m²).

Comments No sign of crustacean burrows.

SITE NUMBER 9

SITE NAME North side of middle loch, Loch Eynort

DIVERS Garry Miller, Thom Nickell

REASONS FOR/OBJECTIVES OF THE DIVE

- mid point in loch
- to determine typicality of site
- transect from shore to deeper water
- to photograph habitat and fauna

FINDINGS: DEPTH RANGE 0-7 m BELOW CHART DATUM

Bottom from shore consists of gradually sloping igneous bedrock and boulders with sandy sediment pockets in between to about 20m offshore. Slope becomes horizontal with small and large boulders on shell sand at first, then onto clean sand further out. Dominant species - L. hyperborea to 3m as dense kelp forest on the bedrock and boulders, with L. saccharina at 6m on boulders on sand. Many fragments of Echinocardium cordatum shell on the sandy area in deeper water. Few burrowing bivalves - Ensis siliqua, plus some of the usual fauna associated with kelp forest.

Comments Fairly typical dense kelp forest without much life other than red algal growth. Sand largely clean.

SITE NUMBER 10

SITE NAME North side of outer loch, Loch Eynort

DIVERS Alan Oakman, Mark Perrott

REASONS FOR/OBJECTIVES OF THE DIVE

- chart gave rock formations with possibilities of cliff faces or steep slopes
- typicality of outer loch
- transect for comparison with inner loch

FINDINGS: DEPTH RANGE 3-11 m BELOW CHART DATUM

Bedrock and gradual large boulder slope to 4m, followed by short undercut cliff face to 7m. Gradual slope away from cliff with patches of sand, large and small boulders, pebbles then onto featureless sand 150m away from the cliff. Dominant species above cliff - L. hyperborea with E. esculentus on vertical face and less kelp. Overhang with sponges, including

Cliona celata, Antedon bifida, Alcyonium digitata and Urticina felina.
Coarse sand practically devoid of fauna but boulders with L. hyperborea and
E. esculentus. Occasional Crossaster papposus.

SITE NUMBER 11

SITE NAME Outer site on south side of Loch Eynort

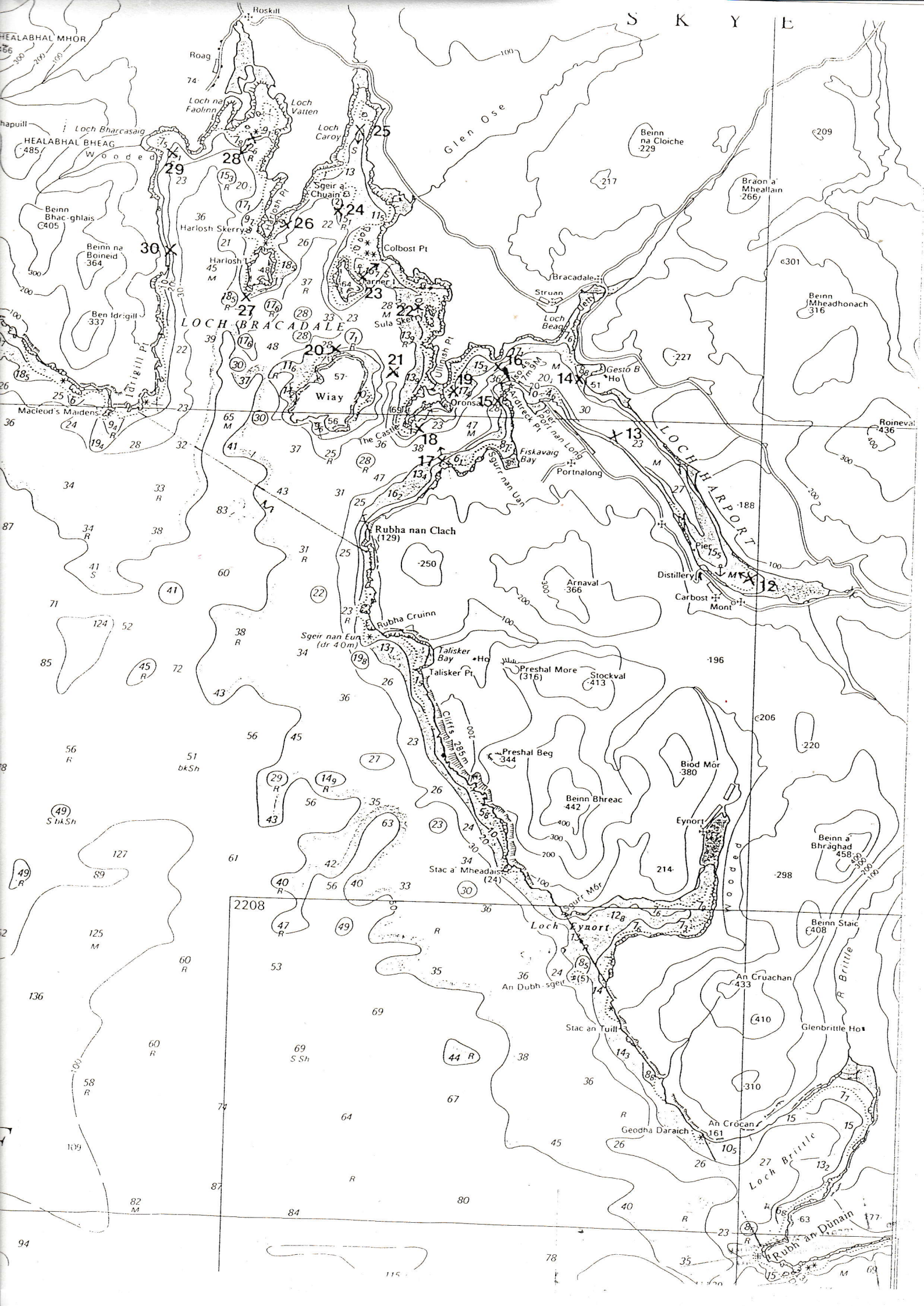
DIVERS Stuart Anderson, Nick Weir

REASONS FOR/OBJECTIVES OF THE DIVE

- possibility of deepest area from chart
- typicality of outer end of loch.

FINDINGS: DEPTH RANGE 2-7 m BELOW CHART DATUM

Substrate consists of gently sloping gravel patches with cobbles gradually giving way to flat sand (a line of lobster pots was noted at 6m). Dominant species - thin kelp forest, L. hyperborea, with red and brown algal undergrowth, on cobbles with large areas of Ulva lactuca. Sandy areas with few Sabella penicillus and Corystes cassivelaunus.



S K Y E

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HEALABHAL BHEAG
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Ben Idrigill
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LOCH BRACADALE

Wiaiy
Rubha nan Clach
(129)

Rubha Cruinn
Sgeir nan Euir
(dr 40m)

Talisker Bay
Talisker Pt
Preshal More
(316)

Preshal Beg
(344)

Loch Eynort
An Dubh-sgeit

Stac an Tuill
An Cruachan
433

Loch Brittle
An Crocan
161
Geodha Daraich
An Dùnain
Rubh an Dùnain

Loch Vatten
Loch Caroy
Sgeir a' Chuain
Colbost Pt
Struan
Loch Beag

Harlosh Skerry
Harlosh Pt
Sula Skerry
Oronsa
Fiskavaig Bay
Portnalong

Arnaval
366
Biod Mòr
380
Eynort
214

Beinn Bhreac
442
Beinn a' Bhràghad
458

Beinn Staic
408
Glenbrittle Ho

Beinn na Cloiche
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Braon a' Mheallan
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Beinn Mheadhonach
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LOCH 3 AND 4: LOCH BRACADALE AND HARPOT

GENERAL DESCRIPTION

Loch Bracadale and Harport form a loch/bay and island complex with a common wide mouth exposed to south-westerly weather.

Loch Harport is more typical of a linear, Fjord-like loch with one mid region basin and a sill across the narrow section of the mouth which leads out into the main part of Loch Bracadale. Its head has a small river creating a heavily silted mud plain, gradually sloping to a maximum of 30m below chart datum in the mid to outer loch region. Steep hills on both sides and the narrow shape of the loch protect much of the area from prevailing winds and consequently there are few exposed sites except at the exit into Loch Bracadale. The "narrows" around Ardtreck Point show little evidence of fast currents over a sill, and a deeper outer basin leads onto the main outer Loch Bracadale.

Loch Bracadale itself is a bay and island complex with three main arms, one of which leads into Loch Harport. The bottom topography within the loch is generally uniformly sloping, deeper towards the outer loch and shallower into the two other arms (Loch Caroy and Loch Vatten) and also around the two main islands in the loch (Waiy and Harlosh). There are two areas which form shallow depressions, almost basins, but the differences in depth between "sill" and "basin" are minimal (eg 45m rising to 38m before entering the open sea) and probably have little relation to the basin/sill topography of a "true loch".

DIVE SITE PLANNING

Date of Survey : 11 - 12/5/88 . 21 dives were planned for Lochs Harport and Bracadale, to cover the greatest range of site types and at the same time establish typicality of each area. Two dive sites were omitted due to poor weather conditions and lack of time (exposed side of Waiy Island and Idrigill Point).

1 dive survey was at the head of Loch Harport, 2 part way along and 5 were in the sill and outer basin area where Loch Harport becomes Loch Bracadale. In the main loch, 4 dives were made around some of the many islands and skerries, 1 dive onto a deep sediment plain and the remaining surveys on and around the rocky coastline and the two arms of the bay.

GENERAL HABITATS, SUBSTRATE TYPES AND POINTS OF INTEREST

The substrate along the extent of Loch Harport is mainly mud, being soft and organically rich at the head of the loch with crustaceans, sea pens and bivalve burrows, becoming firmer sandier mud nearer the mouth also with burrows. The sides of the loch are lined with small boulder slopes and exposed bedrock faces, mainly kelp covered to the limit of the start of the soft sediment. At the mouth of Loch Harport, over the sill area, the substrate is generally courser with a high shell fragment component, especially in shallow water. Bedrock outcrops (eg. at sites 15-19) support dense kelp forests and a rich understory flora and fauna.

The main loch has some sheltered sites, behind islands and at the extent of its arms, and also many exposed areas of coast which form the majority of sites in this area. Exposure is probably the greatest determining factor on substrate consistency around the loch, including the areas where igneous bedrock plains are present along the west side of the loch. Sites with boulder slopes covered by dense kelp forest were found in most areas, turning to shell sand, sandy mud or clean sand with Echinocardium and Natica

catena, and in addition, a mearl bed was found at the north end of Sula Skerry. Deeper areas, marked on the chart as mud, tended to be generally sea pen and Nephrops dominated, as found on site 17. Here there is an extensive Virgularia and Pennatula bed, also heavily burrowed by Callianassa, Calocaris and possibly Chaetopterus.

At site 27 at the southern tip of Harlosh Island an interesting large bowl-like structure was found in the bedrock at approximately 20m.

INDIVIDUAL DIVE SITES

SITE NUMBER 12

SITE NAME Head of Loch Harport

DIVERS Mark Perrott, Alan Oakman

REASONS FOR/OBJECTIVES OF DIVE

- charted as mud substrate
- possible freshwater influence
- to study fauna and topography at head of the most sheltered loch

FINDINGS: DEPTH RANGE 8 m BELOW CHART DATUM

Sea bed consists of a uniform horizontal "wobbly" mud plain with burrows and casts. Dominant species are Cerianthus loydii, up to 1 per m², with casts of possibly Arenicola marina. Burrows present appear typical of Callianassa subterranea and Calocaris macandreae but this was unconfirmed. Other dominant species include Arctica islandica at 1 per 2/3 m², Asciidiella aspera and Virgularia mirabilis. Of interest were also Pennatula phosphorea and many small Pecten maximus.

SITE NUMBER 13

SITE NAME Below Portnalong, Mid Loch Harport

DIVERS Nick Weir, Stuart Anderson

REASONS FOR/OBJECTIVES OF DIVE

- chart and echo sounder gave evidence of a steep slope possibly onto a mud plain
- typicality of mid loch into inner basin
- transect from shore into basin

FINDINGS: DEPTH RANGE 3-22 m BELOW CHART DATUM

From the shore the substrate descends almost vertically as a large boulder and bedrock wall to 4m, then steep sandy mud to 10m where there is a short "ledge" of the same substrate. This is followed by a further steep slope of large and small boulders on mud which becomes a gradual then horizontal mud plain by 22m. Dominant species include L. digitata as thin kelp forest to 4m, followed by Ascidia mentula on the first slope. On the upper sandy mud slope Cerianthus loydii are present, with Metridium senile on the boulders of the lower slope. The lower mud plain supports mainly Calocaris macandreae with Virgularia mirabilis, polychaete faecal mounds and few Nephrops norvegicus

SITE NUMBER 14

SITE NAME Point near "Gesto B Ho", north side of Loch Harport

DIVERS Thom Nickell, Garry Miller

REASONS FOR/OBJECTIVES OF DIVE

- near outer end of basin, on side of sill
- possible for increase in diversity
- photography

FINDINGS: DEPTH RANGE 0-10 m BELOW CHART DATUM

Steep sloping large and small boulder slope to approximately 5m followed by clean sand and shell gravel gradually sloping, becoming horizontal at 8m with burrows present. This is followed by a soft muddy sand plain with rocky outcrops eventually becoming horizontal. Upper boulder slope dominated by L. hyperborea, then L. saccharina to 3m with a dense algal mat on sand to 5m grazed by E. esculentus. Some L. saccharina present on deeper rocky outcrops. Dominant fauna also includes Ophiothrix fragilis on deeper rocks and Ophiura texturata on mud. Also Pecten maximus and Aquiptecten opercularis on lower sandy mud slopes.

SITE NUMBER 15

SITE NAME West side of Ardtreck Point, Loch Harport

DIVERS Lois Calder, David Donnan

REASONS FOR/OBJECTIVES OF DIVE

- comparison of outer edge of sill of main Loch Bracadale basin with inner side of sill into Loch Harport
- transect from cliff near shore to outer loch, possibly to the 20m contour
- to photograph fauna and habitats

FINDINGS: DEPTH RANGE 4-12 m BELOW CHART DATUM

Steep slope of igneous bedrock from near shore to 6m followed by a gradual slope of clean shell gravel along a gully to the top of a steep small boulder slope to 11m. This is followed by a gradual slope of muddy shell gravel to 12m at least 100m offshore. Dominant species on the upper bedrock slope are L. hyperborea and L. saccharina, becoming thinner as depth increases, with Antedon bifida and holothurians, possibly Aslia lefevrei, on the boulder slope. Cerianthus loydii (12 per m²) present on the lower muddy shell gravel slope, Ensis sp (15-20 m²) and Pecten maximus. Also noted were Lanice conchilega and terebellid sp. The lower slope had a light covering of filamentous red and brown algae.

Comments Not as steep as suggested by the chart.

SITE NUMBER 16

SITE NAME Point, opposite Ardtreck Point, north Loch Harport

DIVERS Rohan Holt, John McAuley

REASONS FOR/OBJECTIVES OF DIVE

- constriction in loch junction between Loch Harport and Loch Bracadale forming a sill
- transect from near shore to deeper water to detect any effects of possible currents
- photography

FINDINGS: DEPTH RANGE 0-22 m BELOW CHART DATUM

Outcrops of igneous bedrock forming vertical rock walls to 6m with scattered large boulders at the base and coarse sand and shell gravel pockets around boulders. There is an abrupt transition to a gradual slope of clean coarse sand with shell fragments which becomes muddier with depth. The deeper slope is mainly sandy mud with large shell fragments. Dominant species are L. hyperborea, with L. saccharina on shallow boulders and bedrock to 6m with E. esculentus and some Alcyonium digitatum. On the sandy mud and shell gravel slope there are some Cerianthus loydii, increasing in number with depth, and loose "woolly" algal mats. Ensis siliqua burrows throughout (3-5 per m²) and Asciidiella aspersa on deeper section. Virgularia mirabilis and Turitella communis present on the slope at the deepest point of the dive (22m).

Comments Slope not as steep as anticipated from chart. A good variety of habitat.

SITE NUMBER 17

SITE NAME South seaward end of Loch Harport, into Loch Bracadale

DIVERS Alan Oakman, Mark Perrott

REASONS FOR/OBJECTIVES OF DIVE

- charted as relatively steep incline into the outer bay area of Loch Bracadale
- transect for typicality of outer loch site

FINDINGS: DEPTH RANGE 15 m BELOW CHART DATUM

A steep igneous bedrock slope leads to a gradual slope of clean sand 20m offshore. This continues, becoming steeper approximately 250m offshore at 14m below chart datum. Dominant species - L. hyperborea forest on upper slopes together with E. esculentus. On the sand slopes, Echinocardium cordatum and Ensis sp are present, with Cerianthus loydii and Corystes cassivelaunus.

Comments Generally poor habitat variety. Interesting spp - Natica catena.

SITE NUMBER 18

SITE NAME South west tip of Oronsat, Loch Bracadale

DIVERS Garry Miller, Thom Nickell

REASONS FOR/OBJECTIVES OF DIVE

- one of the most exposed sites in Loch Bracadale without being on open coast
- transect from the near shore outwards
- to photograph typical habitats

FINDINGS: DEPTH RANGE 20 m BELOW CHART DATUM

Igneous bedrock is present near the shore, first as a steep slope to 12m ending on a rock shelf which continues to approximately 100m offshore (with no reported sediment cover of any kind). At the edge of this shelf a steep bedrock step to 19m is present with small boulders, finally reaching 20m as a gradual slope of large cobbles on firm shell gravel. Visually dominant species are L. digitata amongst L. hyperborea forest with red algal understorey on all bedrock areas. Typical kelp forest species are present, including Antedon bifida, Alcyonium digitatum and sponges. The deeper slope had these plus Metridium senile.

Comments Interesting series of bedrock steps with kelp forest. Good scenery.

SITE NUMBER 19

SITE NAME South-east of Ullnish Point, Loch Bracadale

REASONS FOR/OBJECTIVES OF DIVE

- relatively sheltered site for comparison with exposed side of Oronsay
- possible current influence
- transect from shore to deep water

FINDINGS: DEPTH RANGE 1-15 m BELOW CHART DATUM

A steep large boulder slope to 10m, becoming gradual with small boulders on shell gravel. Further out from shore the sediment becomes clean sand, gradually sloping, with ripples and occasional small boulders. Dominant species are L. hyperborea on the steep boulder slope with very many E. esculentus, decreasing in number with depth. On the sand slope Ensis burrows and Sabella penicillus (5-7 per m²) are present with some Cerianthus loydii. Also noted were sand gobies and Aplysia punctata.

SITE NUMBER 20

SITE NAME North side of Waiy Island, Loch Bracadale

DIVERS Lois Calder, David Donnan

REASONS FOR/OBJECTIVES OF DIVE

- charted as rocks and mud, locally known as a good scallop bed
- sheltered site typical of inner bay area of Loch Bracadale
- transect from boat to shore

FINDINGS: DEPTH RANGE 7-15 m BELOW CHART DATUM

A gradually sloping small boulder slope to 11m followed by a shallower slope of muddy shell gravel to the limit of the dive at 15m. Dominant species are L. hyperborea on the boulder slope, changing to L. saccharina with increasing depth, and with Antedon bifida on boulders. On the muddy shell gravel much filamentous red and brown algae is present (possibly Desmarestia sp, Griffithsia sp and Arthrocladia sp) with dominant fauna being Ensis ensis and E. siliqua at approximately 10 per m² and Cerianthus loydii at 10 per m².

Comments Pecten maximus were found in small numbers. Possibly more numerous further offshore.

SITE NUMBER 21

SITE NAME Between Waiy Island and Ullnish Point, Loch Bracadale

DIVERS Rohan Holt, Garry Miller

REASONS FOR/OBJECTIVES OF DIVE

- chart and echo sounder showed site to be deep, possibly onto mud in the inner loch area
- Nephrops creels nearby
- photography

FINDINGS: DEPTH RANGE 31 m BELOW CHART DATUM

Horizontal sediment plain consisting of heavy dark mud without exposed boulders or stones. Many crustacean burrows over the whole area with small patches of decaying Laminaria sp and filamentous algae. Dominant species include a large Virgularia mirabilis bed (no Funiculina), 1 per m², with Pennatula phosphorea, 1 per 2m². Many Nephrops norvegicus burrows (8 holes per m²) with smaller Callionassa subterranea burrows (3-4 per m²) inbetween. Also noted the tips of parchment tubes 8 mm across, not Cerianthus but possibly Chaetopterus, at 2-3 per m².

SITE NUMBER 22

SITE NAME North end of Sula Skerry, Loch Bracadale.

DIVERS Lois Calder, Stuart Anderson

REASONS FOR/OBJECTIVES OF DIVE

- charted area shallow, possibly with currents.
- transect from skerry into deeper water
- photography

FINDINGS : DEPTH RANGE 6-12m BELOW CHART DATUM

A bedrock ridge at the end of the skerry, with steep slopes, descends onto a gradual slope of clean coarse shell sand at 10m with ripples. Dominant species on the bedrock ridge include L.hyperborea and L.saccharina which continues out onto the sand and shell gravel. Here Neopentadactyla mixta and Chaetopterus occur in patches with many galatheids. At each side of the skerry there is a mearl bed in deeper water.

SITE NUMBER 23

SITE NAME Between Tarner Island and Colbost Point, Loch Bracadale.

DIVERS Alan Oakman, Thom Nikell.

REASONS FOR/OBJECTIVES OF DIVE

- charted area shallow possibly with currents
- typicality of the sheltered area of the loch
- transect across the channel

FINDINGS: DEPTH RANGE 11-13m BELOW CHART DATUM

Near horizontal sandy mud slopes with shell fragments and occasional small boulders over the whole area. Dominant species include burrowing bivalves, Cerastroderma edule and Mya truncata. Also on the sediment surfaces were Pecten, Philine aperta, Ophiura texturata and a brown algal mat. This site did not seem effected by currents.

SITE NUMBER 24

SITE NAME Mouth of Loch Caroy, Sgeir a Chuain, Loch Bracadale.

DIVERS Nick Weir, Dave Donnan

REASONS FOR/OBJECTIVES OF DIVE

- charted as steep slope
- representative of inner loch area
- transect from skerry into deeper water

FINDINGS: DEPTH RANGE 7-17m BELOW CHART DATUM

The sides of the skerry form a steep slope with a shelf at 10m with large and small boulders with shell gravel inbetween. The slope becomes more gradual with a gully system running down to 15m. The floor of these gulleys is composed of clean shell gravel. Beyond the gulleys the bottom consists of a gradually sloping mud and sand slope with a few small boulders. There is a dense kelp forest on the bedrock slopes of L. digitata, L. saccharina and L. hyperborea, thinning out to a maximum depth of 12m. Species associated with the kelp include Antedon bifida and a rich understory of red algae. There are also large numbers of holothuroids under the boulders (Pawsonia saxicola) Cancer, and Munida rugosa, and Carophyllia smithii on their upper surfaces. Finally on the lower sediment the dominant species include Virgularia, Pecten and Cerianthus.

SITE NUMBER 25

SITE NAME Head of Loch Caroy, Loch Bracadale

DIVERS Mark Perrott, John McAuley

REASONS FOR/OBJECTIVES OF DIVE

- survey of head of loch
- transect over sediment

FINDINGS: DEPTH RANGE 8-9m BELOW CHART DATUM

Horizontal firm coarse sand with shell fragments over the whole area surveyed, with very few features except for small wave ripples and scattered small boulders. Dominant species include burrowing bivalves, Arctica islandica, Ensis siliqua and also a few Echinus on sparse L. saccharina growing on the small boulders

Comment This area possibly has some freshwater influence .

SITE NUMBER 26

SITE NAME East side of Harlosh Point, Loch Bracadale.

DIVERS Rohan Holt, Garry Miller

REASONS FOR/OBJECTIVES OF DIVE

- site typical of rocky area in mid loch region
- transect from rock area onto sediment
- photography, including close-ups of holothuroids.

FINDINGS: DEPTH RANGE 6-14m BELOW CHART DATUM

Gradual sloping igneous bedrock with small hollows and large gulleys containing coarse clean shell gravel. The bedrock descends as a series of steps (1-2m per step) down to the sediment at 14m with large boulders

forming crevices and holes. Dense kelp forest of L.hyperborea and L.digitata cover the bedrock areas except for the vertical walls of some of the gulleys. These are covered with a few Cliona celata and many Pomatocerus triqueter. The areas with boulders on the lower slope are dominated by Pawsonia saxicola and Antedon petasus.

SITE NUMBER 27

SITE NAME South point of Harlosh Island, Loch Bracadale.

DIVERS Stuart Anderson, Lois Calder

REASONS FOR/OBJECTIVES OF DIVE

- exposed site, charted as steep slope
- transect from shallow to deep water
- photography

FINDINGS: DEPTH RANGE 5-18m BELOW CHART DATUM

Interesting rock formation consisting of an igneous bedrock slope becoming steep with a 2m step at 12m. The rock continues into a large bowl 25m across carved into stratified rock with small amounts of broken cobbles and pebbles at the bottom. Dominant species area dense kelp forest of L.hyperborea on much of the bedrock in shallow water with Alcyonium digitatum on the stypes. Also a notable carpet of Antedon bifida on the exposed bedrock and Cliona, Clavellina, Carophyllia and encrusting red algae on the short vertical walls. In the bowl area there are patches of Ophiothrix fragilis and Ophiocomina nigra.

Comments - A very exposed site in the loch with interesting rock formations.

SITE NUMBER 28

SITE NAME Mid point of Loch Vatten, Loch Bracadale

DIVERS Thom Nickell, Alan Oakman

REASONS FOR/OBJECTIVES OF DIVE

- representative of head of the loch
- comparison with Loch Caroy
- transect in shallow water

FINDINGS: DEPTH RANGE 5-14m BELOW CHART DATUM

There is a bedrock plain with a gradual slope and sparse pockets of coarse sand leading to muddy sand at 14m. Dominant species - bedrock with L.hyperborea, reducing in density with depth (1.5m tall at 5m and only 0.5m tall at 14m). Species associated with the kelp include Alcyonium digitatum, Echinus, and Antedon. However, general impression of the site was that the variety of life is poor.

SITE NUMBER 29

SITE NAME Loch Bharcasaig, West arm of Loch Bracadale

DIVERS Dave Donnan, Nick Weir

REASONS FOR/OBJECTIVES OF DIVE

- typicality of the inner part of the loch
- possible freshwater influence

FINDINGS: DEPTH RANGE 11m BELOW CHART DATUM

Near the shore there is a muddy sand plain with lots of shell debris, with slabs of igneous rock protruding from the substrate further out from shore. The sediment becomes sandier with wave ripples towards the outer part of the bay. Dominant species - mainly bivalves, including Mya truncata, Arctica islandica, and Ensis sp. Also there are many Cerianthus (approximately 10-15 per m²) in the softer sediment and L.hyperborea and L.saccharina on the bedrock slabs. The sandy substrate was dominated by Lanice conchilega.

SITE NUMBER 30

SITE NAME West cliffs of Loch Bracadale, under Beinn na Boineid.

DIVERS Mark Perrott, John McAuley

REASONS FOR/OBJECTIVES OF DIVE

-typical of site on west side of the loch

-charted as steepest slope on this side

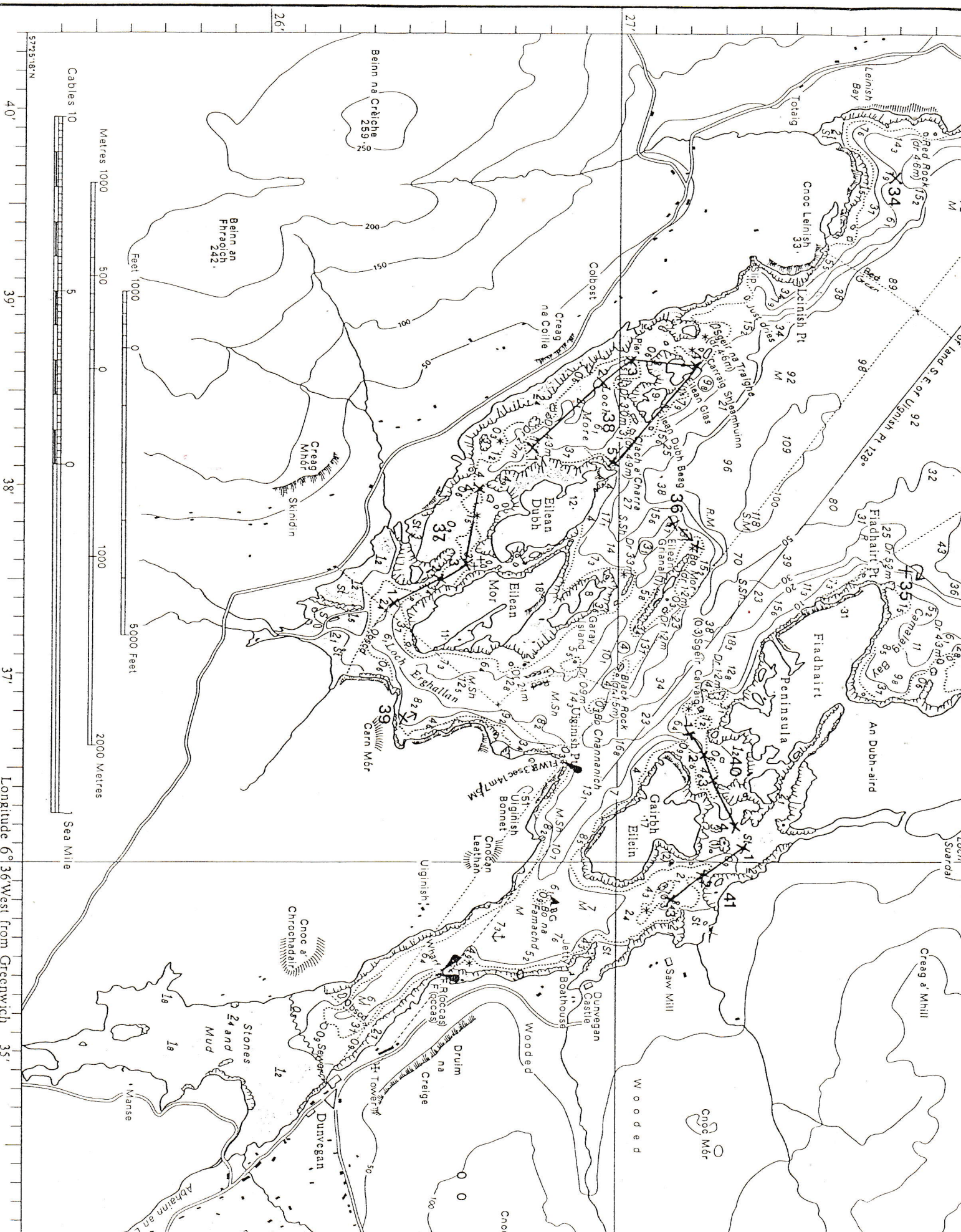
FINDINGS: DEPTH RANGE 14-16m BELOW CHART DATUM

Gradual slope from the shore over exposed bedrock onto shell gravel. The bedrock features include massive igneous slabs, well jointed with large and small fissures containing pockets of shell gravel. The shell gravel area has pebbles, occasional small angular boulders and an underlayer of firm mud. Dominant species include a L.hyperborea kelp forest on the bedrock with Echinus and Antedon bifida associated. Also Munida rugosa and galatheids are found under boulders and Lanice on the shell gravel areas.

Comments - Habitat diversity good.

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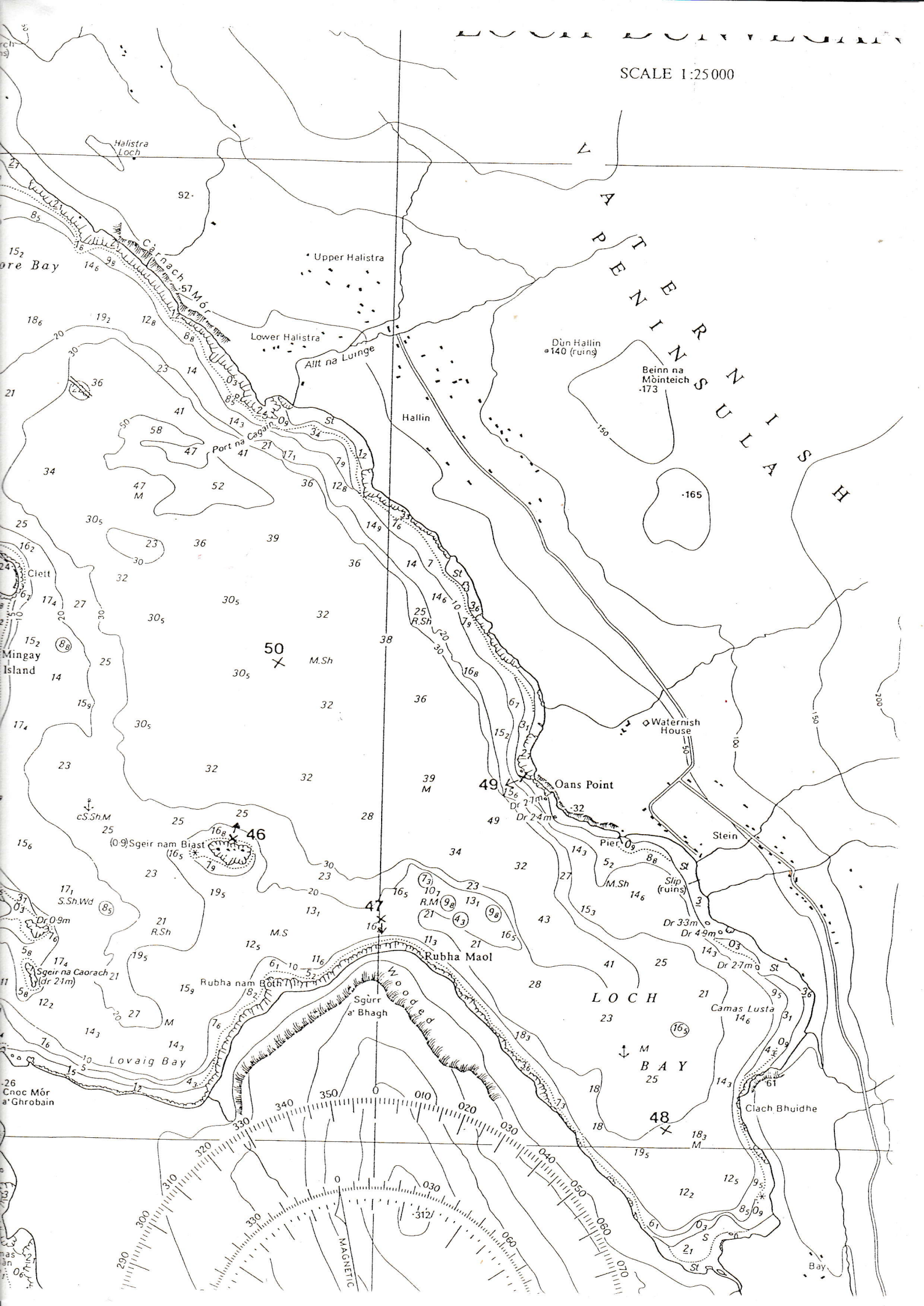
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LOCH 5 : LOCH DUNVEGAN

GENERAL INTRODUCTION

Loch Dunvegan can be considered as a large open bay divided into two areas forming the two main arms of the loch. The larger southern arm consists of a deep (90m) bay surrounded by exposed cliffs on either side. Towards the head of the loch there is a more sheltered region of shallower (<35m) water with several small islands. Some islands are in the transition between the deeper outer and shallower head of the loch (eg. Bo Mor) and others are well into the shallower areas surrounded by soft sediments (eg. Gairbh Eilean, Eilean Dubh and Eilean Mor). The surrounding countryside is generally lower and more rolling in the head region of the loch.

The northern arm of the loch, Loch Bay, is partially cut off from the main loch by Isay and Mingay Islands and Ard Mor point to the north. The coastline of the loch is generally gentle sloping without the small island complex as in the other arm of Loch Dunvegan. There are however several small pinnacles just off Rubha Maol and a skerry, Sgeir nam Biast, which dries at low tide. The head of the loch is reasonably sheltered except from north westerly weather. The whole Loch Bay area is relatively shallow, with the deepest area in the inner bay (49m) forming a single large basin. This basin is bordered by the above islands and a sill which runs from their north and south to the mainland.

Freshwater influence in both arms of the loch is minimal in relation to the total area of the loch. However there are several areas where freshwater has a locally noticeable effect, mainly in the head of the southern arm of the loch.

DIVE SITE PLANNING

Dive sites were chosen, considering the limitations of time and numbers of divers, to obtain as much information as possible from the whole of Loch Dunvegan.

During the 13/5/88, 11 diving surveys were made of the southern arm of the loch, 4 in the outer loch, 2 in the transition zone between outer and head region and 5 around the small islands in the head of the loch. Of these 5, 4 comprised of multiple spot dives attempting to find localised habitats such as mearl or faunal beds in areas with possible currents or freshwater influence.

On the 14/5/88, 10 more sites were covered around the whole of the Loch Bay area. 3 on the outer west side of the bay including the west side of Isay Island, 1 in the channel between Isay and Mingay Island, 1 off Sgeir nam Biast and 3 in the head of the loch. 1 dive was made into the deepest diveable area of the inner basin and finally 1 inside the area bordered by Ard Mor, ie. Ardmore Bay.

GENERAL HABITATS, SUBSTRATE TYPES, AND POINTS OF INTEREST

The sites surveyed in the outer part of the southern arm of Loch Dunvegan tended to show several similarities. Steep coarse sand and sandy mud with bedrock and boulder slopes support species typical of an exposed coastline; and it is probably levels of exposure along with the depth to which the bedrock runs which determine the differences between sites (see sites 31,32,33 and 34)

There are areas of gentler sloping coastline in the outer loch, providing shallow bedrock and boulder areas to form extensive kelp forest such as sites 42,43 and 45. Site 42, west Isay Island, was particularly interesting because of gully formations and a wide variety of habitats from bedrock to

shell gravel.

At the transition zone between the deep outer and shallower inner parts of the southern arm of Loch Dunvegan (sites 35 and 36) the habitats showed characteristics of both typical inner and outer loch. This was also the case for site 46 in the Loch Bay area. Here, kelp dominated rock walls give way to deeper softer sediment slopes with variable amounts of mud and cleaner shell gravel. Site 36 was found to be of interest, again because of the variety of habitats ie. coarse sand, clean bedrock cliff and muddy areas supporting a wide variety of species. Peachia cylindrica was found here.

The head areas of both arms of the loch were predominantly muddy; megafaunal burrows being found on sites 37,38,39,41, and 48 including Nephrops norvegicus, Calocaris macandreae and Calliannassa subterranea. The sites where these species were found to be most prolific were numbers 37,39 and 48. Site 48 also with a dense bed of Virgularia and Pennatula.

The spot dives around the small islands and dives between Isay and Mingay island failed to reveal any presence of mearl nor faunal beds typical of areas with more rapid currents.

Site 51 inside Ardmore Bay was considered of special interest for its high species diversity on a coarse sediment plain and large numbers of Aplysia punctata. Also Peachia cylindrica was found at this site.

The deepest sediment plain surveyed at site 50, in the deep basin in Loch Bay, was of particular interest for its megafaunal burrows, Virgularia and Pennatula bed, and especially for its bed of Funiculina quadrangularis.

INDIVIDUAL DIVE SITES

SITE NUMBER 31

SITE NAME West of Beinn Mhic Uilleim, Loch Dunvegan

DIVERS Rohan Holt, Garry Miller

REASONS FOR / OBJECTIVES OF THE DIVE

-chart and echo sounder show steep slope

-transect from shallow to deep in outer loch

FINDINGS: DEPTH RANGE 0-13m BELOW CHART DATUM

Steep igneous boulder slope with large and small boulders to 8-10m, followed by gradual coarse sandy slope, becoming steeper after 15m until very steep after 30m. Large and small boulders are scattered over the whole of the slope with a bedrock reef between 20-25 m. Deepest sediment area with underlying sandy mud. Dominant species - L.saccharina and Saccorhiza polischides on all rocky areas at less than 15m. Cerianthus lloydii above 20m and Munida rugosa, ascidians and Antedon petasus below 20m.

Comments - many female Cancer pagurus in sediment at 15m, also large scrapes in the sand without presence of large animals.

SITE NUMBER 32

SITE NAME South end of Lampay Island, Loch Dunvegan

DIVERS Lois Calder, Stuart Anderson

REASONS FOR / OBJECTIVES OF THE DIVE

-steep slope from chart and echo sounder

-transect from shallow to deep area in outer loch region

FINDINGS: DEPTH RANGE 16-29m BELOW CHART DATUM

There is an igneous bedrock reef protruding from muddy sand at 19-17m, followed by a steep slope of slightly muddy sand descending deeper than the limit of the dive. Scattered small boulders on the sand slope at 30m. Dominant species include stunted L.hyperborica on rocky slopes with Cerianthus on muddy sand. Munida, ascidians and Swiftia pallida also on and around the small boulders at depth.

SITE NUMBER 33

SITE NAME Gob na Hoe, west side of Loch Dunvegan

DIVERS Thom Nickell, Alan Oakman

REASONS FOR / OBJECTIVES OF THE DIVE

- second example of west side of loch
- survey base of cliff

FINDINGS: DEPTH RANGE 14-29m BELOW CHART DATUM

Survey from 18m, starting on muddy sand and shell with gradual slope and outcrops of igneous rock. Gradual slope continues to 22m, becoming steeper with many outcrops of igneous bedrock and large boulders. Steep slope finishes at 28m, continuing as a gradual slope of muddy sand and broken shells. Dominant species include Antedon bifida, dense growth of Carophyllia smithii var clavus and sponges and tunicates. There were also sea pens on the deeper sediment slope.

Comments - very good visibility with prolific life on boulders.

SITE NUMBER 34

SITE NAME Leinish Bay, west Loch Dunvegan

DIVERS Nick Weir, Dave Donnan

REASONS FOR / OBJECTIVES OF THE DIVE

- second example of west side of outer loch
- small bay area providing shelter for boat during diver pickup
- transect into deep water

FINDINGS: DEPTH RANGE 14-29m BELOW CHART DATUM

Gradual slope at 14m with small boulders on muddy shell gravel to 16m. Slope becomes steep to vertical with large and small boulders. Dominant species include Echinus throughout dive, Ciona intestinalis, Carophyllia and Sabella penicillus on the shallow and steep slopes. Steep slope also with Munida under boulders and Eledone cirrhosa

SITE NUMBER 35

SITE NAME N.Fiadhairt Point, Loch Dunvegan

DIVERS Mark Perrott, John McAuley

REASONS FOR / OBJECTIVES OF THE DIVE

- site bordering inner and outer loch areas
- charted as a steep slope
- survey substrate at base of point

FINDINGS: DEPTH RANGE 22-29m BELOW CHART DATUM

Steep large boulder slope to 22m at base of the point onto muddy shell gravel gradual slope easily disturbed reducing visibility. Many disturbed areas forming large craters (up to 60cm diam.) and mounds without apparent faunal burrows nor large crustaceans. Few small angular cobbles and boulders over this area. Dominant species - Ascidiaceans on rocks including Asciella aspersa, also Carophyllia and Munida. Muddy sand with Cerianthus lloydii, Ophiura texturata and Virgularia (up to 5 per m²)

Comments - one angler fish seen, Lophius piscatorius, and also many common seals which may be responsible for the craters in the sediment.

SITE NUMBER 36

SITE NAME North west tip of Bo-Mor Island

DIVERS Rohan Holt, Garry Miller

REASONS FOR / OBJECTIVES OF THE DIVE

- in region between outer and inner loch
- transect over ridge at end of island
- photography

FINDINGS: DEPTH RANGE 13-18m BELOW CHART DATUM

Horizontal sand plain at 13m on south west side of island at first with shell fragments and silty underlayer. Heading east there is a sudden transition to a vertical cliff face of igneous bedrock rising to 6m. This is followed by a plateau of igneous rock with large boulders running for 20m. The bedrock then slopes as series of steps and steep rock faces with pockets of shell sand to 18m then onto a muddy sand plain. Dominant species include Cerianthus lloydii on the first sand plain, then rocky areas with Cliona, Ascidia mentula, Antedon bifida and Carophyllia smithii on deeper sections. Dense L.saccharina forest with red algal understory on the plateau, decreasing to a few small individuals at 16m on the eastward side of the ridge. Munida rugosa under boulders on this side. Comments - Dive profile involved crossing several distinct habitats. Peachia cylindrica found on the east slope at 17m.

SITE NUMBER 37

SITE NAME Area around west side of Eilean Mor, Eilean Dubh and Loch More, Loch Dunvegan.

DIVERS Stuart Anderson, Lois Calder

REASONS FOR / OBJECTIVES OF THE DIVE

-sheltered area around islands representative of head of the loch

-short transect as a series of shallow spot dives

FINDINGS: DEPTH RANGE SITE 1, 4m BELOW CHART DATUM

Near to river.

Horizontal flat soft mud with shell fragments and diatomaceous surface ooze. Dominant species including Cerianthus lloydii, Pagurus sp, Liocarcinus depurator and Asterias rubens

FINDINGS AT SITE 2, 3m BELOW CHART DATUM

S.W. side of Eilean Mor

Horizontal soft mud plain with scattered small boulders. L.hyperborea on boulders with Halichondria sp., Ascidiella aspersa, Suberites carnosa and Aphereusa (amphipod).

FINDINGS AT SITE 3, 3m BELOW CHART DATUM

Channel between Eilean Dubh and Elean Mor

Horizontal mud plain, heavily burrowed by Calocaris macandreae, Nephrops norvegicus, and Calliannassa subterranea. Also a few small boulders and unidentified terebellid species in the mud. Large craters found in the sediment.

FINDINGS AT SITE 4, 2m BELOW CHART DATUM

S.W. side of Eilean Dubh

Horizontal mud plain, heavily burrowed by Nephrops, numerous Philine aperta and terabellids.

Comments - Marine life relatively poor except for burrowing crustaceans. NB these are exceptionally shallow sites to find this community type.

SITE NUMBER 38

SITE NAME Around Loch More

DIVERS Alan Oakman, Thom Nickell

REASONS FOR / OBJECTIVES OF THE DIVE

-continuation of site 37, looking for "patchy" habitats

-short transects as a series of shallow spot dives

FINDINGS AT SITE 1, 4m BELOW CHART DATUM

S.W. of Eilean Dubh

Horizontal soft mud plain with filamentous brown algae and diatomaceous mat. Occasional small boulders with L.hyperborea. Some burrows of Callianassa and Cerianthus lloydii

FINDINGS AT SITE 2, 8m BELOW CHART DATUM

Centre of Loch More

Again a horizontal soft mud plain with a diatomaceous mat. Also occasional small boulders with L.hyperborea. Other species include Echinus, Asterias, Cerianthus, Pecten and vary large worm casts similar to Arenicola

FINDINGS AT SITE 3, 6m BELOW CHART DATUM

Inside Eilean Dubh Beag

Gradual slope from 1-6m of soft mud with 50% cover of diatomaceous mat and a few burrows. Igneous bedrock in shallow water with dense L.hyperborea near the shore line. Dominant species as site 1 with Anemonia viridis.

FINDINGS AT SITE 4, 7m BELOW CHART DATUM

Outside Eilean Glas

Vertical bedrock face to 6m followed by a gradual slope of muddy sand and shell fragments to 7m, then sloping back up towards surface with more kelp. Dominant species - L.hyperborea and Saccorhiza polyschides on rocks, with Echinus, Asterias and Antedon bifida.

FINDINGS AT SITE 5, 9m BELOW CHART DATUM

N.end of Eilean Dubh

Short vertical bedrock face to 1m then a gradual slope of bedrock and boulders onto a sandy mud and shell plain at 9m. Dominant species include those on site 4 with Ascidia mentula and Anemonia viridis

Comments - transition from sheltered to more exposed sites. Many seals and two otters were seen in this area.

SITE NUMBER 39

SITE NAME Loch Erghallan (N. of Carn Mor) Loch Dunvegan

DIVERS Rohan Holt, Garry Miller

REASONS FOR / OBJECTIVES OF THE DIVE

- typicality of inner loch
- opportunistic site while at anchor
- transect from shore to deeper water

FINDINGS: DEPTH RANGE 8m BELOW CHART DATUM

From shore, short steep large and small boulder slope to 6m then fine silty mud. Inshore the mud is covered in a diatomaceous mat, later being replaced with occasional L.saccharina and many Nephrops burrows. Also occasional Sabella penicillus and Calliannassa. Boulder slopes with L.digitata and L.saccharina with many Anemonia viridis on the shallower parts of the algae. Also Eledone cirrhosa.

SITE NUMBER 40

SITE NAME Between Gairbh Eilean and Fiadhairt Peninsula

DIVERS Mark Perrott, John McAuley

REASONS FOR / OBJECTIVES OF THE DIVE

- comparison of sheltered east side with west side of loch
- transect by 4 spot dives

FINDINGS: AT SITE 1, 4m BELOW CHART DATUM

Shoreward site with gradual mud slope with Nephrops burrows and large cratered areas. A diatomaceous mat runs to about 4m with large Arenicola-like casts.

FINDINGS AT SITE 2, 5m BELOW CHART DATUM

Further out from shore, large boulders with Ascophyllum nodosum and sponges and patches of coarse shell gravel with pockets of mud. This area with Cerianthus, Pecten and Pagurus bernhardus.

FINDINGS AT SITE 3, 7m BELOW CHART DATUM

Continuing on mud and coarse shell gravel with occasional large boulders covered with sponges, tunicates and L. digitata.

FINDINGS AT SITE 4, 9m BELOW CHART DATUM

Deepest section of transect with slightly steeper but still gradual slope, with occasional boulders.

SITE NUMBER 41

SITE NAME Landward side of Gairbh Eilean

DIVERS Dave Donnan, Nick Weir

REASONS FOR / OBJECTIVES OF THE DIVE

- charted as narrow channel
- transect as a line of 3 spot dives

FINDINGS: DEPTH RANGE 0-6m BELOW CHART DATUM

The overall view from the four spot dives show a sediment area of very soft "wobbly" mud with Nephrops burrows and large Arenicola-like casts. On the deepest site on firmer mud there is a small Virgularia bed and occasional Cerianthus.

SITE NUMBER 42

SITE NAME West side of Isay Island, Loch Dunvegan

DIVERS Dave Donnan, John McAuley

REASONS FOR / OBJECTIVES OF THE DIVE

- charted area has shallow shelf
- transect from near shore into deep water

FINDINGS: DEPTH RANGE 11-17m BELOW CHART DATUM

Gulleys formed in igneous bedrock, bottoms of which are covered in coarse sand and shell fragments. Bedrock finishes at 17m leaving a bed of rippled clean shell gravel with occasional small boulders. Dominant species include a dense kelp forest on the shallower bedrock ridges with L. hyperborea, L. digitata and L. saccharina to 14m. Associated species including Antedon bifida, Crossaster, Marthasterias and Luidia. Also Pawsonia saxicola in crevices. Rock walls of gulleys predominantly bare. Lower sand slopes with occasional Neopentadactyla mixta.

Comments - interesting dive site with several habitats.

SITE NUMBER 43

SITE NAME North tip of Isay Island, Loch Dunvegan

DIVERS Lois Calder, Mark Perrott

REASONS FOR / OBJECTIVES OF THE DIVE

- survey charted sill area
- attempt crossing of end of island ridge
- transect survey

FINDINGS: DEPTH RANGE 4-16m BELOW CHART DATUM

An igneous bedrock ridge forms the tip of the island with a short vertical step from 4-8 m. Sea bed continues as a gradual boulder slope on bedrock to 10m followed by a clean shell gravel gradual slope to the extent of the dive. Upper bedrock ridge dominated by kelp forest, L.saccharina and L.hyperborea, which were found at all depths. Associated species including red algae, Antedon bifida, Marthasterias and Echinus. The short vertical rock wall is dominated by Metridium senile, then boulder slopes with more kelp, Carophyllia, Pawsonia saxicola and Munida. The lower sediment slopes with occasional Laminaria with Antedon

SITE NUMBER 44

SITE NAME Isay Island channel, Loch Dunvegan

DIVERS Nick Weir, Thom Nickell

REASONS FOR / OBJECTIVES OF THE DIVE

- area with current
- survey, possibly by drift diving

FINDINGS: DEPTH RANGE 0.5-12m BELOW CHART DATUM

Shallow water with large cobbles and pebbles; small boulders slightly deeper. Slope becomes steeper by 4m, onto muddy shell gravel then mud at the extent of the dive. Shallows dominated by fucoids and Ascophyllum nodosum on pebbles, then L.digitata on boulders. Also Chorda filum and Ulva on muddy shell gravel. Below 8m, slope with Cerianthus lloydii with a few Pecten and L.depurator.

Comments - habitat not particularly diverse, current increases towards centre of channel.

SITE NUMBER 45

SITE NAME North west tip of Lampay Island, Loch Dunvegan

DIVERS Garry Miller, Stuart Anderson

REASONS FOR / OBJECTIVES OF THE DIVE

- deep area on outer side of islands
- transect survey

FINDINGS: DEPTH RANGE 0-20m BELOW CHART DATUM

Steep slope from surface with large boulders, slope becoming more gradual with depth. Lower slope with fewer boulders and more coarse sand. The shallows are dominated by fucoids and Chorda filum; large boulders with dense kelp, L.digitata and L.hyperborea, with associated species including Ciona, Ascidia mentula, Echinus and Antedon. Also Cliona celata on lower boulders with Munida in the small holes under them.

SITE NUMBER 46

SITE NAME Sgeir nam Biast

DIVERS Rohan Holt, Alan Oakman

REASONS FOR / OBJECTIVES OF THE DIVE

- survey of slope into inner basin
- typicality of sheltered site
- photography

FINDINGS: DEPTH RANGE 2-22m BELOW CHART DATUM

Large boulders on bedrock form a steep slope to 8m followed by an abrupt change to coarse sand and shell gravel becoming muddier and more gradual with depth. There is a general scatter of small angular boulders over the whole site with a small boulder reef at 20m. Upper boulder slope dominated by L.digitata and L.saccharina with many Echinus. Sediment has an overall cover of Cerianthus, small areas with Pecten and L.saccharina attached to small boulders. Reef at 20m densely covered in Ophiocolina nigra and

Ophiothrix fragilis with Metridium attached to the boulders.
Comments - large craters on this site in shallower water, possibly made by seals.

SITE NUMBER 47

SITE NAME Offshore from Sgurr a' Bhag, Loch Bay, Loch Dunvegan

DIVERS John McAuley, Dave Donnan

REASONS FOR / OBJECTIVES OF THE DIVE

-typicality of inner loch

-transect on substrate charted as mud

FINDINGS: DEPTH RANGE 14-17m BELOW CHART DATUM

Near horizontal mud plain with large shell fragments and patches of small angular cobbles. No megafaunal burrows but dominant species include Ophiura texturata, Antedon bifida, Virgularia, Cerianthus lloydii and Sagartiogeton laceratus.

SITE NUMBER 48

SITE NAME Head of Loch Bay, Loch Dunvegan

DIVERS Thom Nickell, Nick Weir

REASONS FOR / OBJECTIVES OF THE DIVE

-transect over mud at head of loch

FINDINGS: DEPTH RANGE 19m BELOW CHART DATUM

Near horizontal plain of jelly-like mud with Pennatula and Virgularia over the whole area. Also Nephrops burrows in mud with Philine aperta, Cerianthus, Sagartiogeton, and Ophiura texturata over much of the surface. One isolated boulder with Echinus and Metridium.

Comments - well burrowed dense mud dwelling community

SITE NUMBER 49

SITE NAME Oans Point, Loch Bay, Loch Dunvegan

DIVERS Mark Perrott, Lois Calder

REASONS FOR / OBJECTIVES OF THE DIVE

-typicality of inner loch area

-transect down charted sediment slope

FINDINGS: DEPTH RANGE 6-19m BELOW CHART DATUM

Gradual sediment slope becoming steeper with depth. Initially small boulders on muddy shell gravel, becoming muddier with fewer boulders at depth. Algal debris present in shallower water. Dominant species including Pagurus bernhardus, Cerianthus and Liocarcinus puber and L.depurator

Comments - low diversity and abundance

SITE NUMBER 50

SITE NAME Mid basin area, Loch Bay, Loch Dunvegan

DIVERS Stuart Anderson, Garry Miller

REASONS FOR / OBJECTIVES OF THE DIVE

-chart and echo sounder give horizontal plain at diveable limit

-spot dive to assess benthic community

FINDINGS: DEPTH RANGE 32m BELOW CHART DATUM

Horizontal soft mud plain, heavily burrowed by crustaceans. Dominant species include Calliannassa subterranea, Calocaris macandreae, Virgularia, Pennatula, and large Funiculina quadrangularis.

Comments - good example of Calocaris and Funiculina bed.

SITE NUMBER 51

SITE NAME Ardmore Bay, Loch Dunvegan

DIVERS Rohan Holt, Alan Oakman

REASONS FOR / OBJECTIVES OF THE DIVE

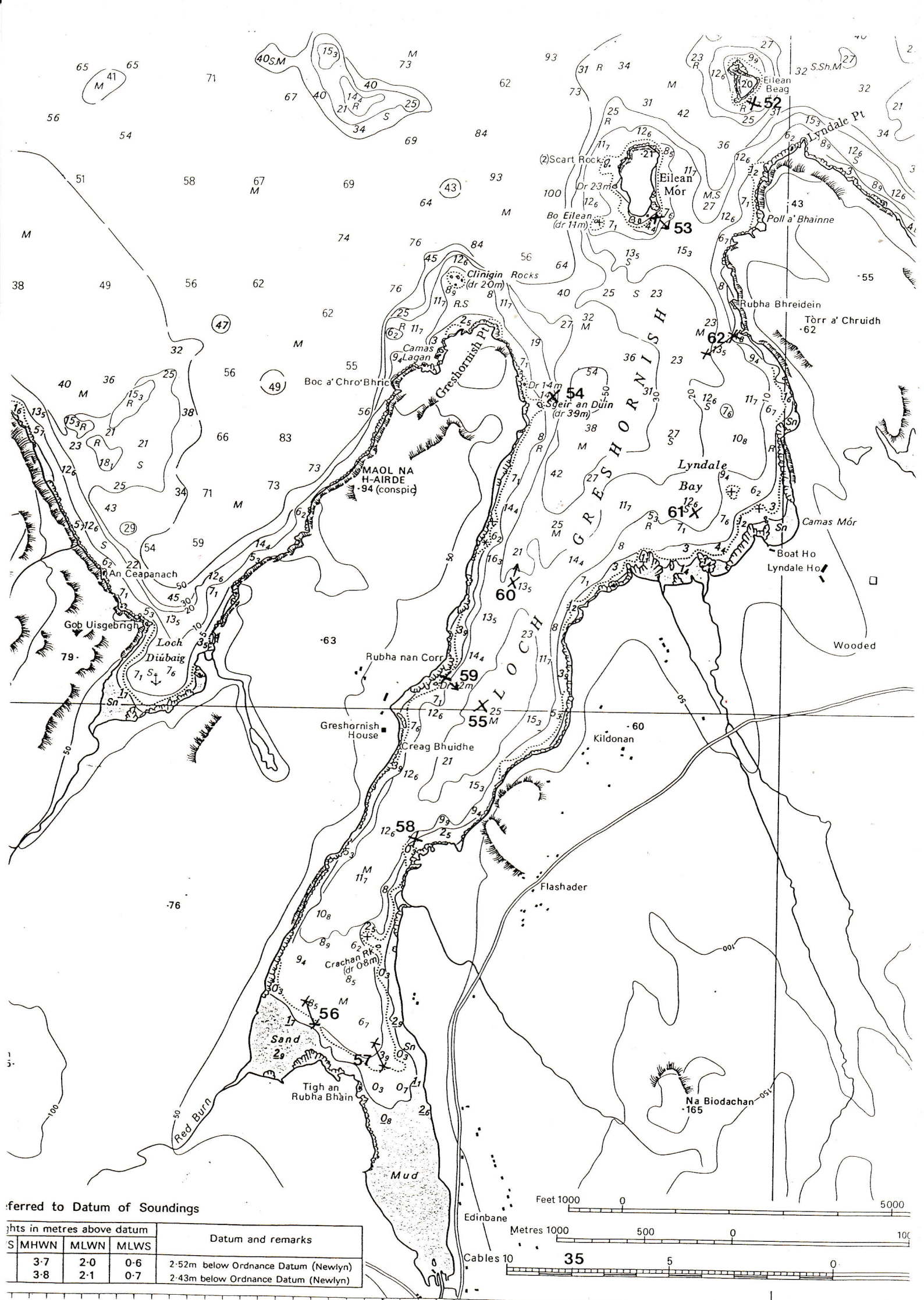
-sheltered area in outer part of bay

-charted as very wide, shallow sediment area

FINDINGS: DEPTH RANGE 18m BELOW CHART DATUM

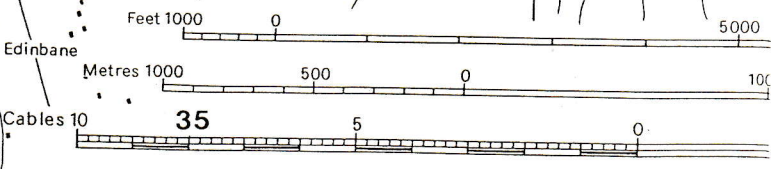
Gradual to horizontal slope, up towards shore consisting of coarse sand with shell fragments and underlying silt. Also occasional large and small boulders. Dominant species include Ascidiella aspersa, with Virgularia and L.saccharina on the sediment and Nemartesia on the boulders. Also Aplysia punctata in large numbers.

Comments - overall species diversity very good. Peachia cylindrica, Sygnathus acus and small Funiculina also noted.



referred to Datum of Soundings

Heights in metres above datum			Datum and remarks
S	MHWN	MLWN	
	3.7	2.0	2.52m below Ordnance Datum (Newlyn)
	3.8	2.1	2.43m below Ordnance Datum (Newlyn)



LOCH 6 AND 7: LOCH GRESHORNISH AND LOCH SNIZORT BEAG

GENERAL DESCRIPTION

Loch Greshornish and Loch Snizort Beag form two long typical sea lochs with a common mouth facing north-west. This leads into Loch Snizort itself which is a large open bay with depths up to 100m just beyond the entrance to Lochs Greshornish and Snizort Beag. Shallower depths are charted further into the centre of this loch (20-40m) with the Ascrib islands lying near the south-west end of the loch mouth. There are hills all around this area, these being highest to the north and east, exposing the site primarily to north-westerly weather. The outer Loch Snizort was not surveyed during this expedition.

Loch Greshornish has two basins, a shallower smaller one near the head of the loch (25m below chart datum) with a sill about mid-way along the length of the loch and a deeper outer basin (over 50m below chart datum) rising to a sill between Greshornish Point and Eilean Mor. Eilean Mor is one of only 2 islands associated with these lochs. The other island, Eilean Beag, is situated off Lyndale Point, between the two lochs with a deep channel between it and Eilean Mor. The head of Loch Greshornish is split into 2 areas, both fed by small rivers.

DIVE SITE PLANNING FOR LOCH GRESHORNISH

Date of survey 15/5/88. 11 sites were planned for Loch Greshornish in an order which allowed for deepest surveys first with shallower dives to take place later in the afternoon. 2 sites were off the islands at the mouth of the loch, 2 in the outer basin, 2 in the inner basin, 1 on the sill between these basins, 2 at the loch head and 2 in Lyndale Bay in the outer part of the loch.

GENERAL HABITATS, SUBSTRATE TYPES AND POINTS OF INTEREST

Around the islands, Eilean Beag and Eilean Mor (sites 52 and 53) the boulder slopes typically support laminarians with red algae, Antedon bifida and several ascidian species. There are fine sediments extending around the edges of the deep basin and extending into it which support mainly Cerianthus lloydii and sea pens on the deeper areas. This includes a Pennatula phosphorea bed found at site 54 on the west side of the basin. Lyndale Bay on the east side of the outer basin is found to be very similar to the outer shallow areas around the islands. Here there is kelp on boulder slopes and again Cerianthus lloydii on the finer sediment slopes below. The sill area substrate consisted of sandy mud with shell fragments and occasional boulders supporting Laminaria and Antedon with a few Echinus. Sites 55, 58 and 59 around the inner basin show an overall homogeneous mud with scattered cobbles and boulders on which Metridium senile is found. On the sediment Cerianthus is common, especially at site 58, as is Turritella, reaching highest densities at site 59. Here burrowing bivalves are present but there is a general lack of crustacean burrows. At the head of the loch (at sites 56 and 57) there are a few Callianassaburrows in the soft mud. L.saccharina and Metridium were the dominant species at the head of the loch even though there were only a few individuals. Some of these occurred in very shallow water with an obvious freshwater influence (ie. the water actually tasted brackish).

INDIVIDUAL DIVE SITES

SITE NUMBER 52

SITE NAME Channel between Lyndale Point and Eilean Beag, Loch Greshornish

DIVERS John McAuley, Dave Donnan

REASONS FOR / OBJECTIVES OF THE DIVE

- charted as channel with possible currents
- transect from Eilean Beag into channel

FINDINGS: DEPTH RANGE 12-20m BELOW CHART DATUM

The substrate above 15m appears to be gradually sloping bedrock with extensive areas of soft sandy mud. Below 15m a steep boulder slope runs down to 20m and beyond. The boulders are small with muddy sand inbetween. Dominant species on the bedrock areas are L.saccharina which extends onto the top of the boulder slope, with a region of red algal growth below this. Antedon bifida on bedrock, Munida rugosa between boulders with Echinus (at 1 per m²) and Ascidia mentula on boulders. On the surface of the sandy mud Pawsonia saxicola and Cerianthus lloydii are dominant.

Comments - a wide variety of habitats in this area

SITE NUMBER 53

SITE NAME Eilean Mor, Loch Greshornish

DIVERS Lois Calder, Mark Perrott

REASONS FOR / OBJECTIVES OF THE DIVE

- sheltered site in outer loch on sill area
- transect and photographs

FINDINGS: DEPTH RANGE 7-12m BELOW CHART DATUM

Substrate is clean shell gravel gradually sloping to an area of large and small boulders on bedrock at 8-10m with a similar gravel slope below. Dominant species include L.saccharina, rich on the boulder slopes but sparse on gravel with small specimens of L.hyperborea and L.digitata. Gravel slopes covered in red and brown filamentous algae and Cerianthus at 1 per m². In the boulder region Antedon bifida is present, with ascidians A.mentuala, Ciona, and small Clavellina, and also some specimens of Suberites carnosus

SITE NUMBER 54

SITE NAME Sgeir an Duin, Loch Greshornish

DIVERS Nick Weir, Thom Nickell

REASONS FOR / OBJECTIVES OF THE DIVE

- at the edge of the deepest part of the outer basin
- transect survey into deep water

FINDINGS: DEPTH RANGE 19-31m BELOW CHART DATUM

Substrate, muddy sand with shell fragments on a gradual slope which becomes increasingly steep continuing down beyond the limit of the dive at 30m. Pennatula phosphorea dominate with large numbers of Pandalus montagui at depth.

Comments - poor habitat variety

SITE NUMBER 55

SITE NAME Mid channel, Loch Greshornish

DIVERS Stuart Anderson, Garry Miller

REASONS FOR / OBJECTIVES OF THE DIVE

- centre of inner basin of Loch Greshornish
- transect east from entry point

FINDINGS: DEPTH RANGE 28m BELOW CHART DATUM

The floor of the inner basin comprises of a flat plain of mud and shell fragments with scattered large cobbles and small boulders. Dominant species include small Virgularia with occasional Pennatula on the sediment. Large boulders support Metridium and some tunicates (Corella parallelograma and A.aspersa) with Munida in the holes beneath. Scallops, Pecten and Aequipecten opercularis also on the sediment but no evidence of burrowing crustaceans.

SITE NUMBER 56

SITE NAME Head of loch, near Red Burn, Loch Greshornish

DIVERS Rohan Holt, Alan Oakman

REASONS FOR / OBJECTIVES OF THE DIVE

- survey head of loch with freshwater input nearby
- comparison of substrate types
- photography

FINDINGS: DEPTH RANGE 9-9.5m BELOW CHART DATUM

Slightly rippled sediment composed of mobile mud with whole and fragmented shells. Callianassa burrows are present and small cobbles on the surface of the sediment support Metridium and L.saccharina. Ulva lactuca on the surface of the sediment together with a thin diatomaceous covering.

Comments - water tasted slightly brackish

SITE NUMBER 57

SITE NAME Head of loch, mud plain near Edinbane, Loch Greshornish

DIVERS Rohan Holt, Alan Oakman

REASONS FOR / OBJECTIVES OF THE DIVE

- same as site 56

FINDINGS: DEPTH RANGE 4m BELOW CHART DATUM

Sediment plain composed of very soft mobile mud with a thin diatomaceous covering. No crustaceans present except for Pagurus bernhardus. Dominant species also include a few large L.saccharina on loose small stones and Ulva lactuca, also a few terabellid worms.

SITE NUMBER 58

SITE NAME Near head of loch, Loch Greshornish

DIVERS Dave Donnan, John McAuley

REASONS FOR / OBJECTIVES OF THE DIVE

- shallowest part of inner basin
- narrowest part of loch
- transect from near shore into basin

FINDINGS: DEPTH RANGE 10-12m BELOW SEA LEVEL

Flat mud plain with shell fragments and occasional small boulders and pebbles. Dominant species are Cerianthus on the sediment and Metridium on the boulders with Alcyonium digitatum on smaller rocks.

SITE NUMBER 59

SITE NAME Below Rubh nan Corr, Loch Greshornish

DIVERS Lois Calder, Mark Perrott

REASONS FOR / OBJECTIVES OF THE DIVE

- slope into deepest part of inner basin
- transect from near shore into basin
- photography and transect

FINDINGS: DEPTH RANGE 8-10m BELOW CHART DATUM

Gradual slope comprised of silty mud and shell gravel with occasional

small boulders and large cobbles especially at and above 10-11m. Dominant species include a few small L.saccharina on rocks with filamentous brown algae over the sediment surface. Many Turitella and Ensis sp. Also Liocarcinus puber and chitons common on and around cobbles.

SITE NUMBER 60

SITE NAME Central loch over sill, Loch Greshornish

DIVERS Nick Weir, Thom Nickell

REASONS FOR / OBJECTIVES OF THE DIVE

- survey of charted and echo sounded sill
- transect from sill towards outer basin

FINDINGS: DEPTH RANGE 13-19m BELOW CHART DATUM

Gradually sloping muddy sand with shell fragments to about 20m where the slope becomes steep scattered with small cobbles and L.digitata attached. Also red and brown algae attached to small pebbles in the substrate. Dominant species include L.depurator, Pecten, Echinus, and Antedon bifida associated with the rocks.

SITE NUMBER 61

SITE NAME Lyndale Bay, west of Camas Mor, Loch Greshornish

DIVERS Garry Miller, Stuart Anderson

REASONS FOR / OBJECTIVES OF THE DIVE

- edge of outer deep basin
- transect

FINDINGS: DEPTH RANGE 13m BELOW CHART DATUM

Very gradually sloping muddy sand with shell fragments and scattered small round cobbles. Kelp associated with rocks and Cerianthus dominant on the sediment. Some areas covered by filamentous brown algae.

Comments - poor diversity, dominated by algae.

SITE NUMBER 62

SITE NAME Lyndale Bay, below Torr a Chruidh, Loch Greshornish

DIVERS Alan Oakman, Rohan Holt

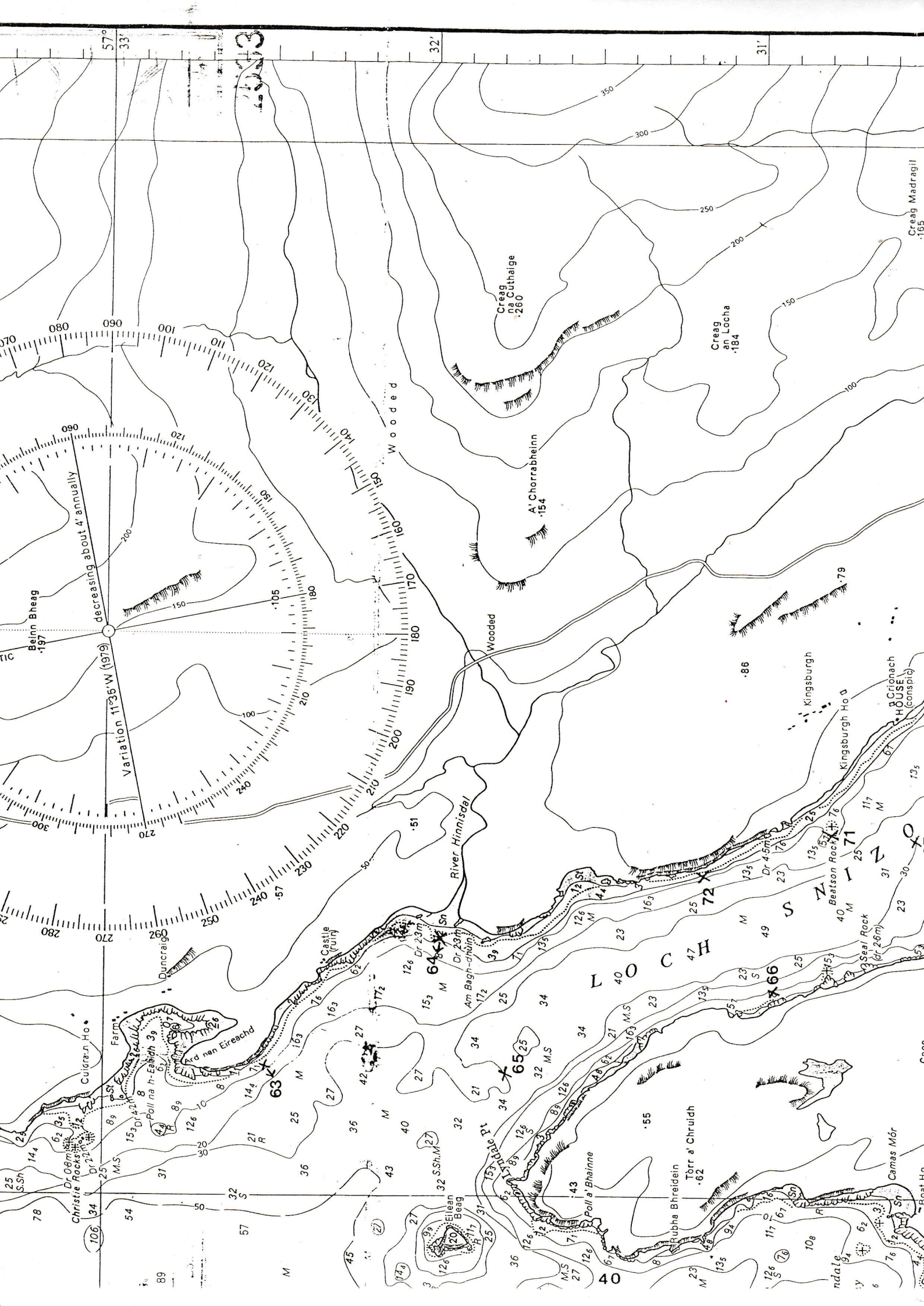
REASONS FOR / OBJECTIVES OF THE DIVE

- charted at edge of shallow bay into outer deep basin
- transect from near shore into bay
- photography

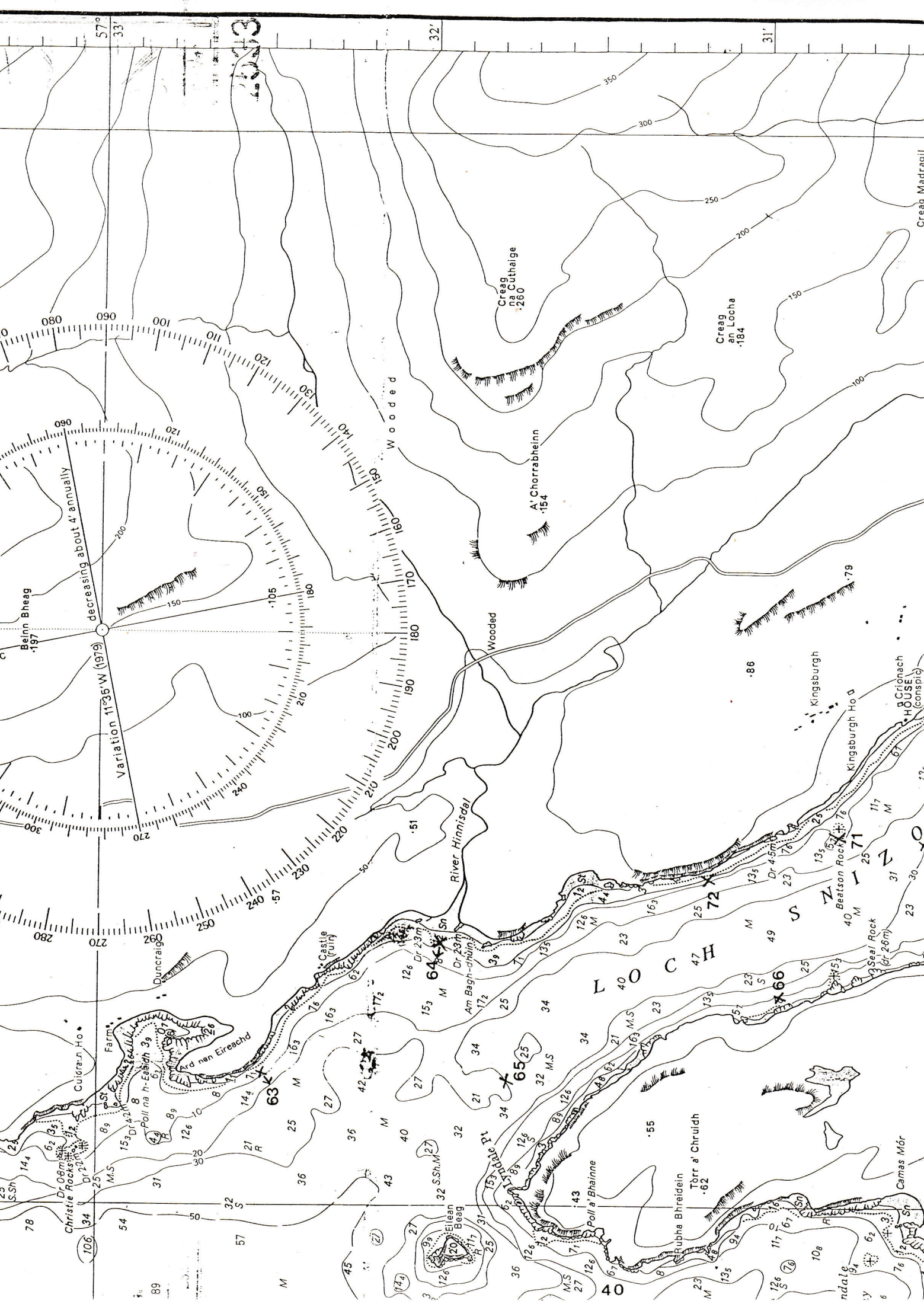
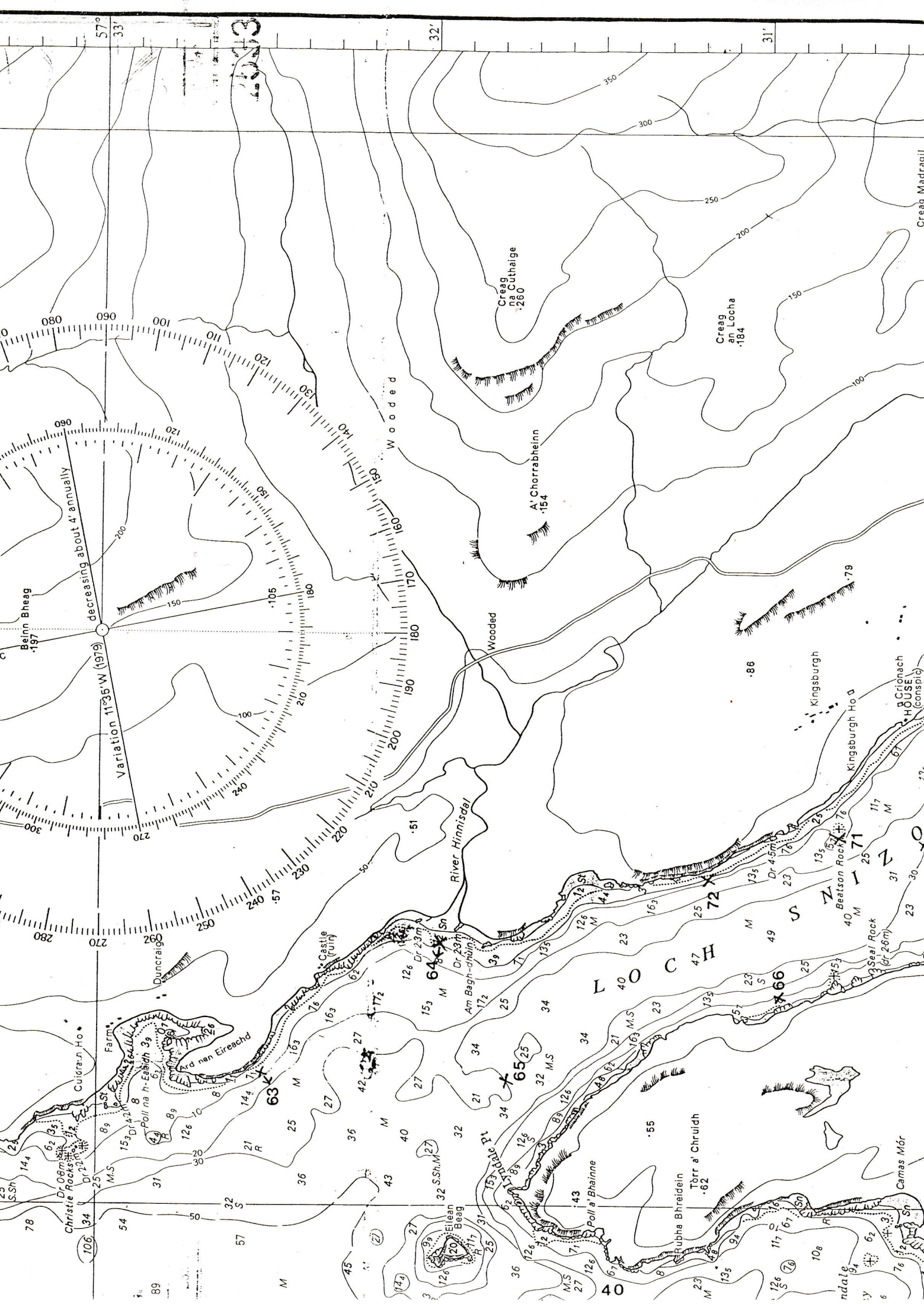
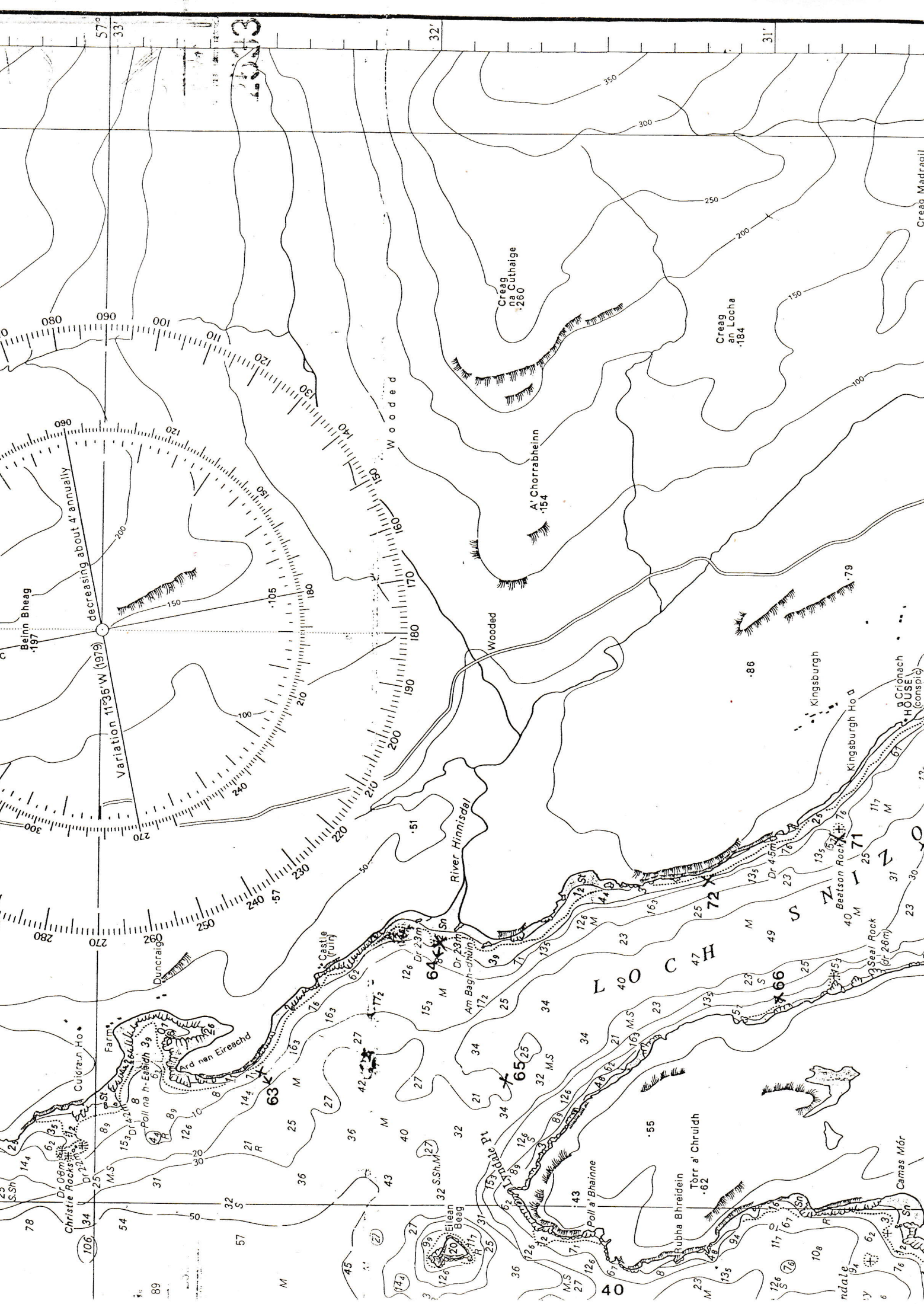
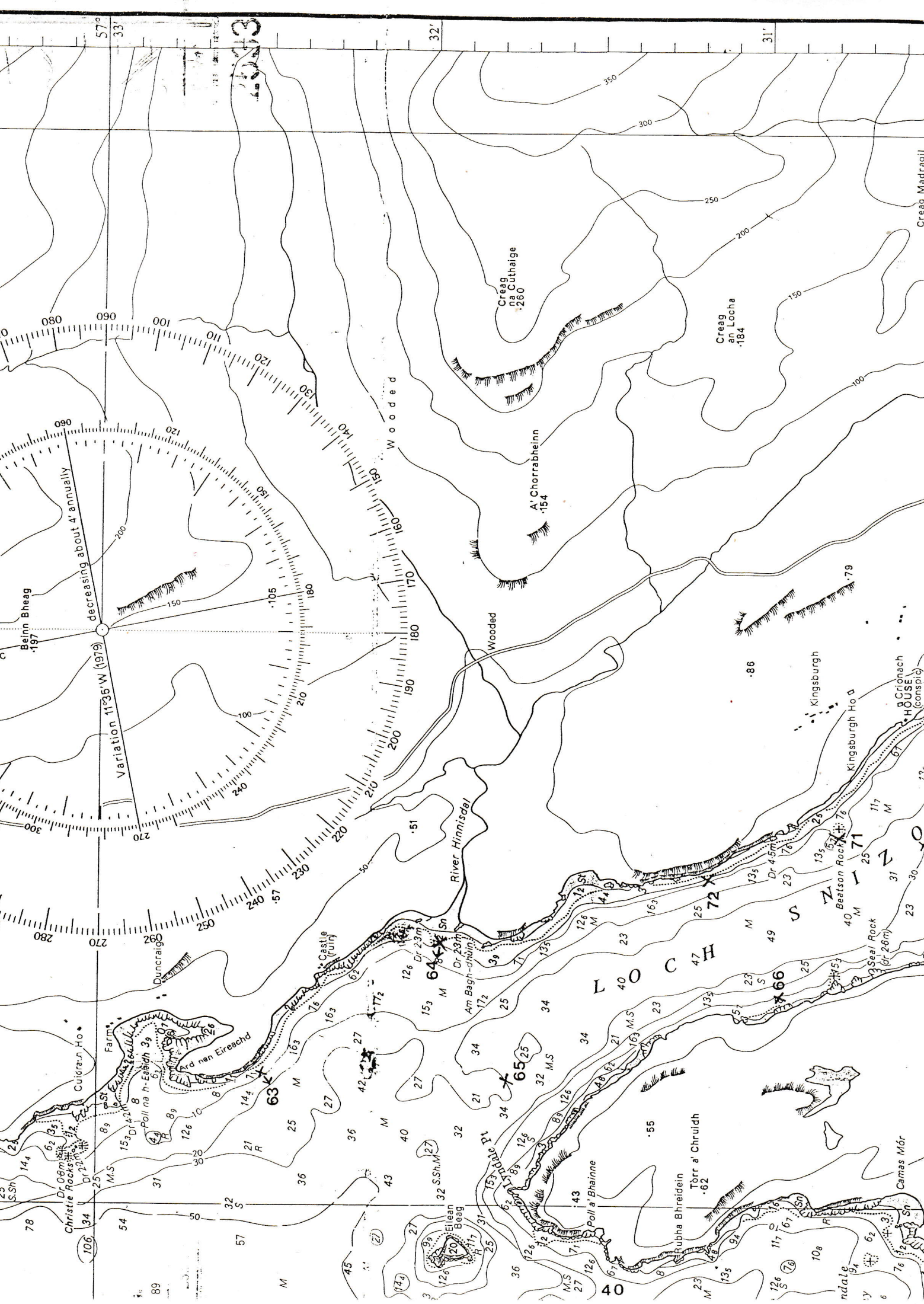
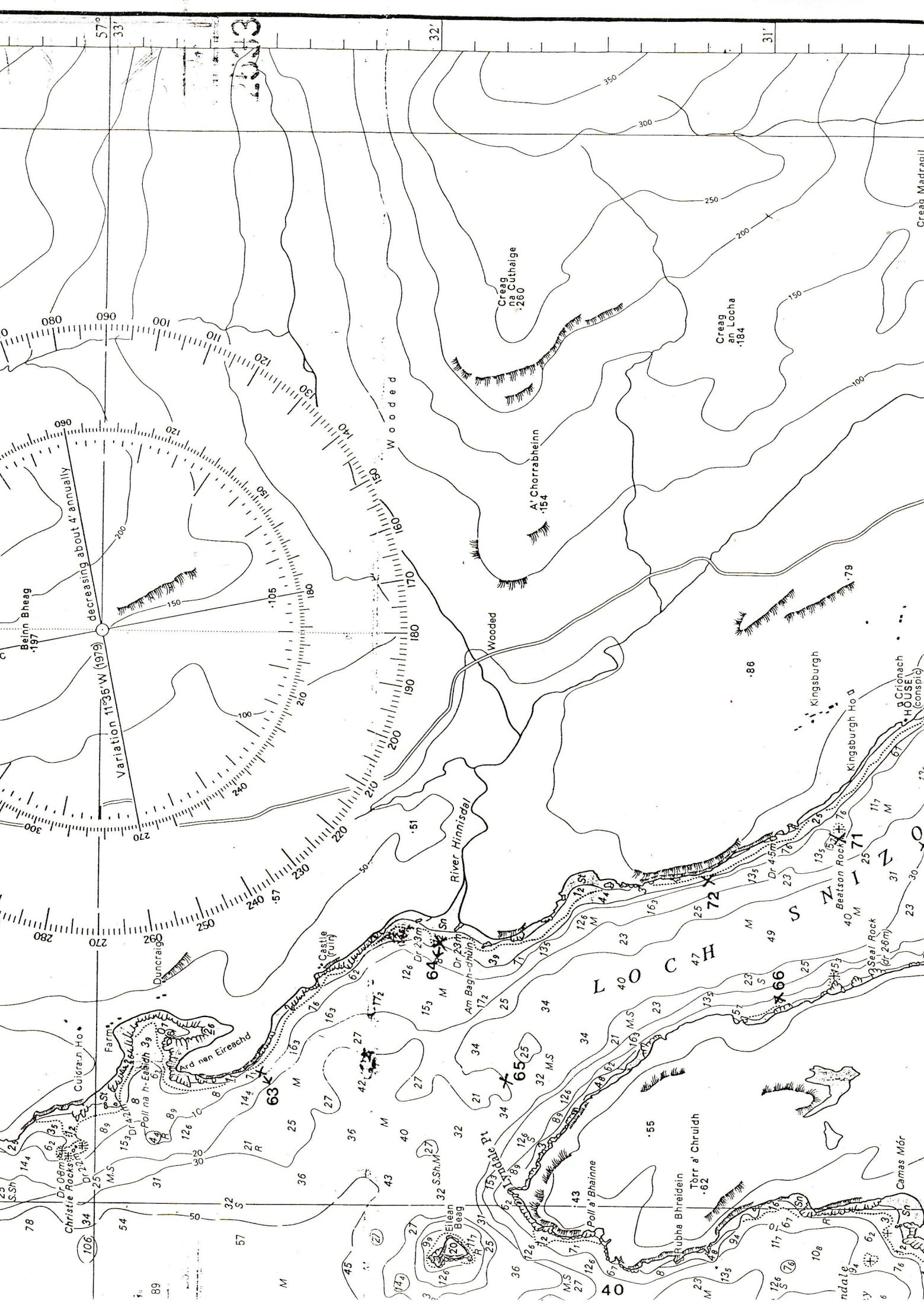
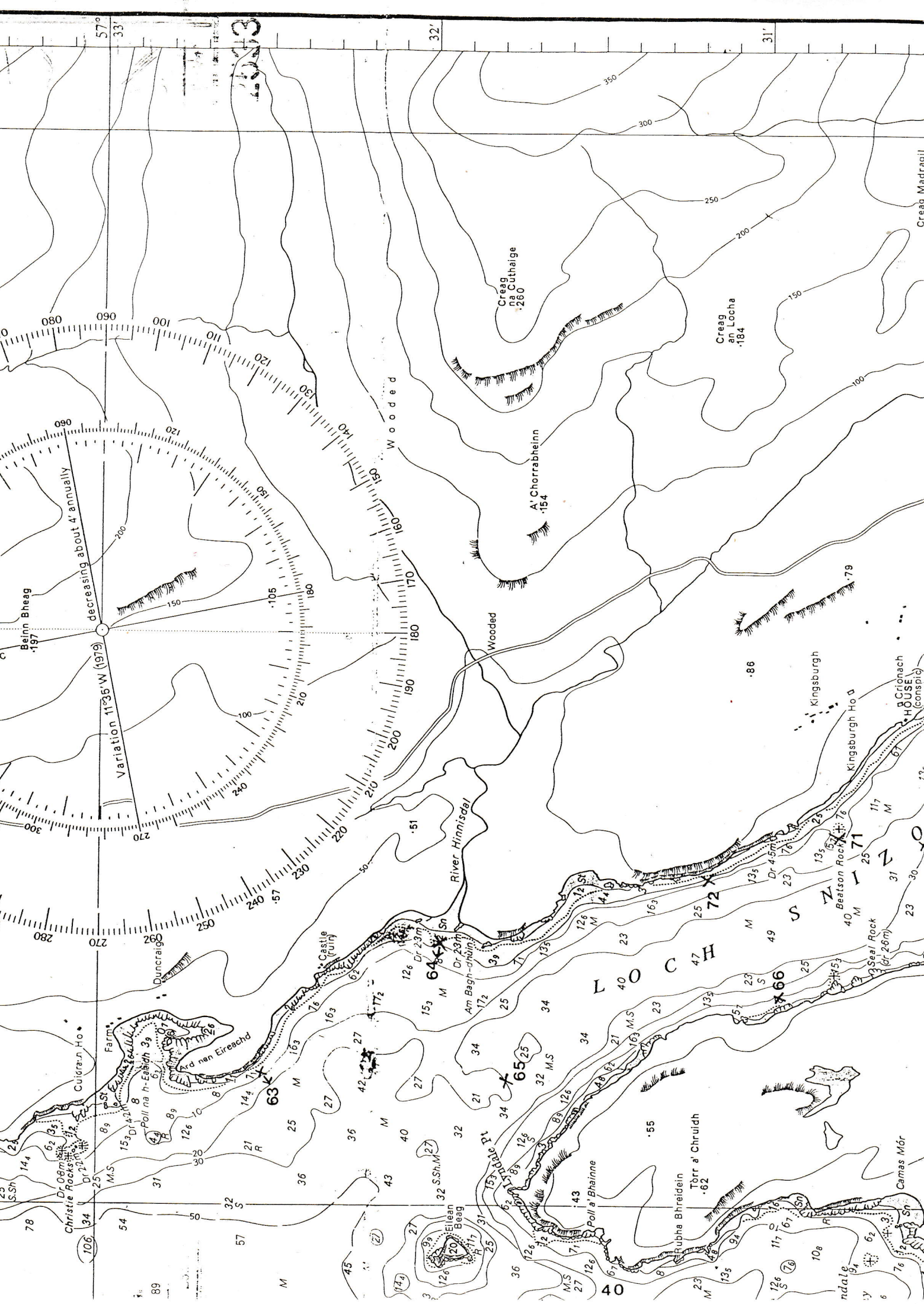
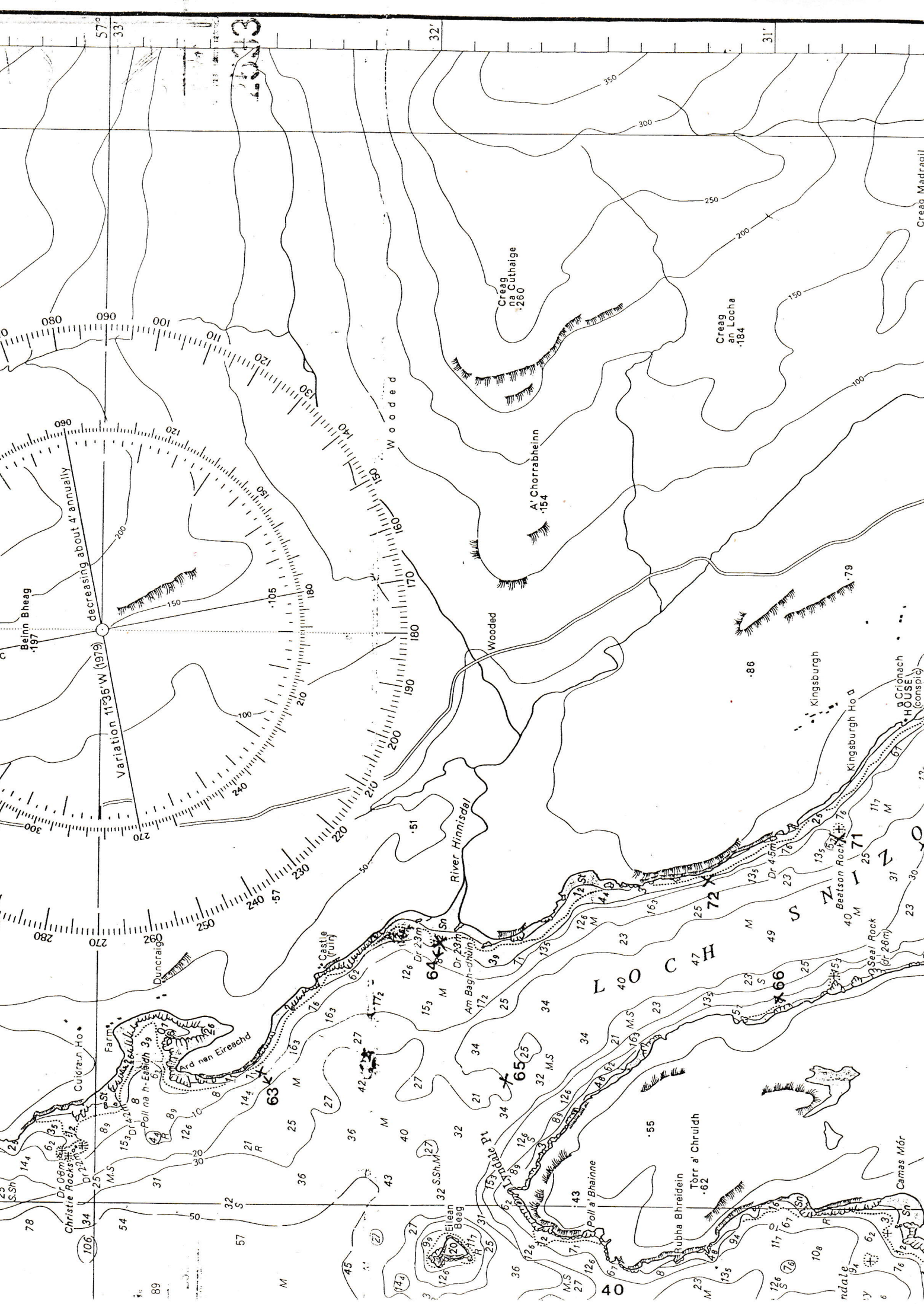
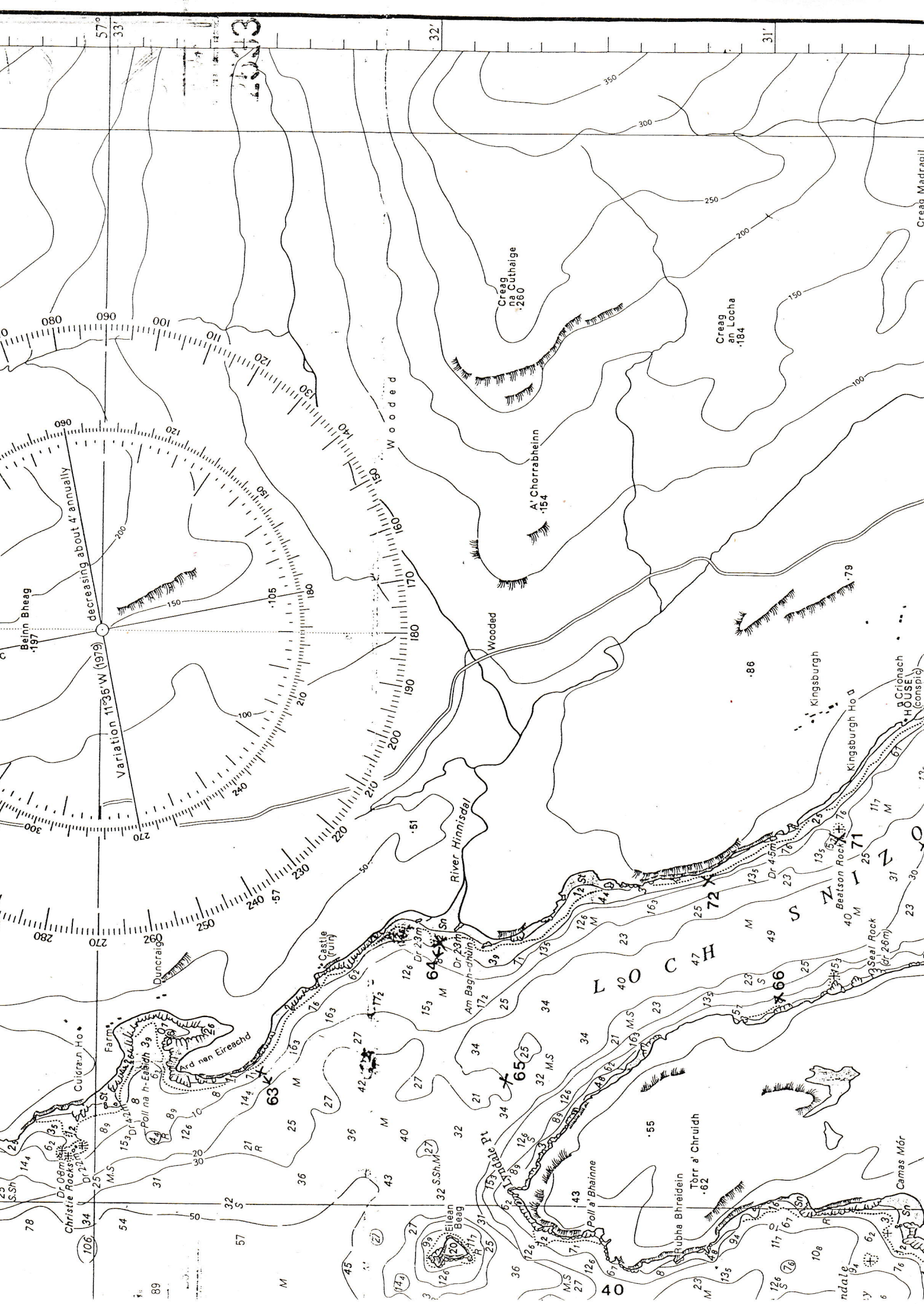
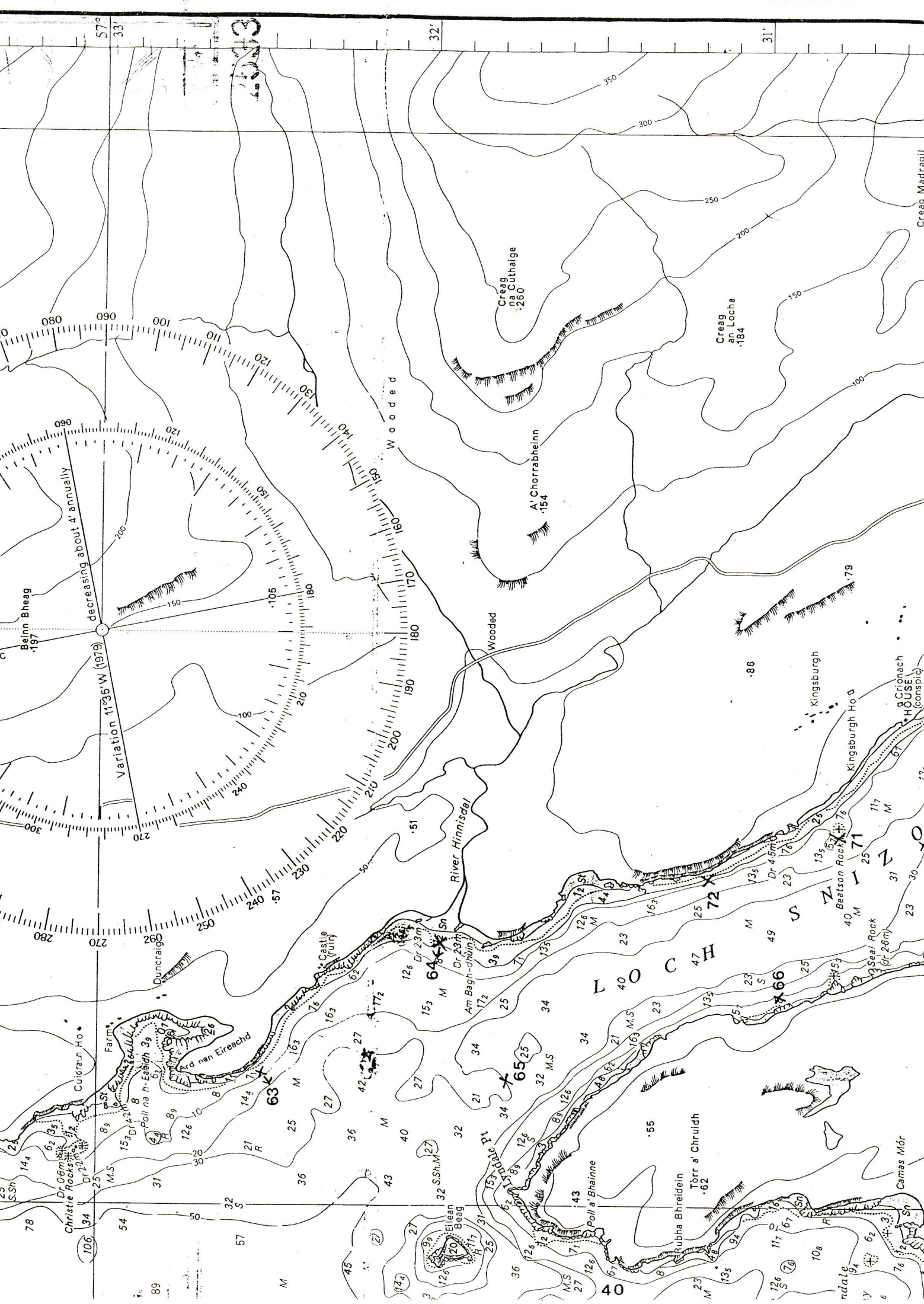
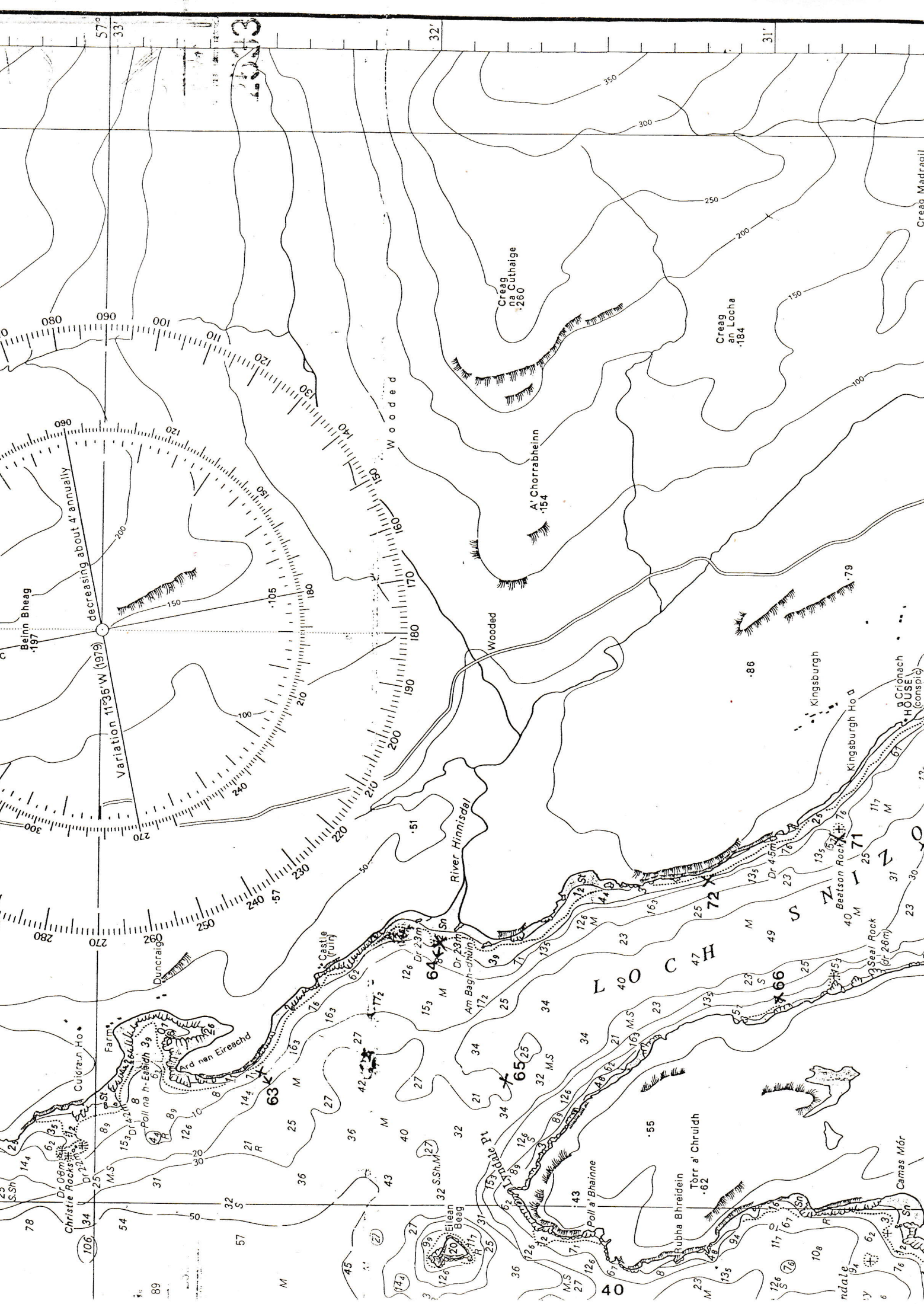
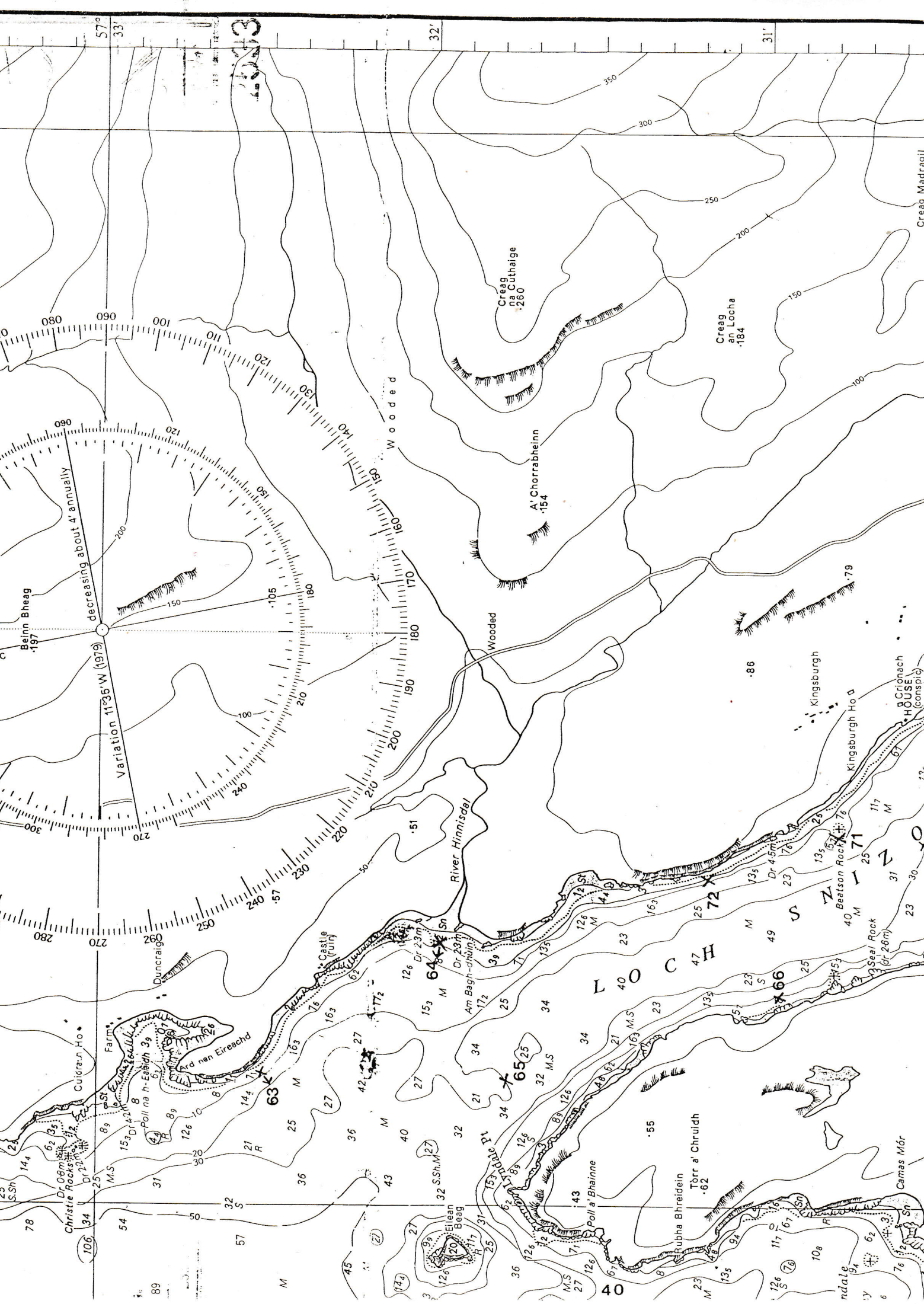
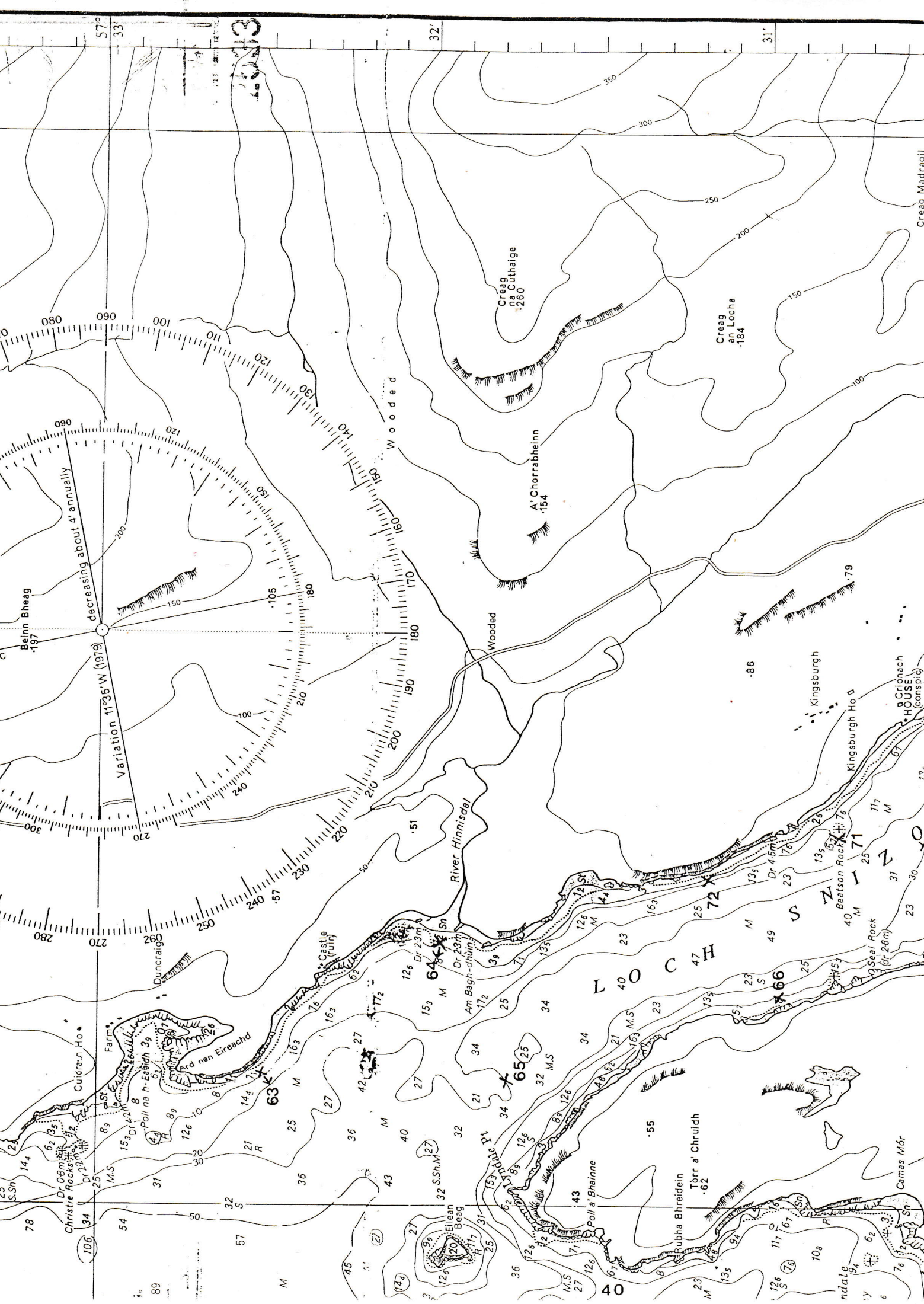
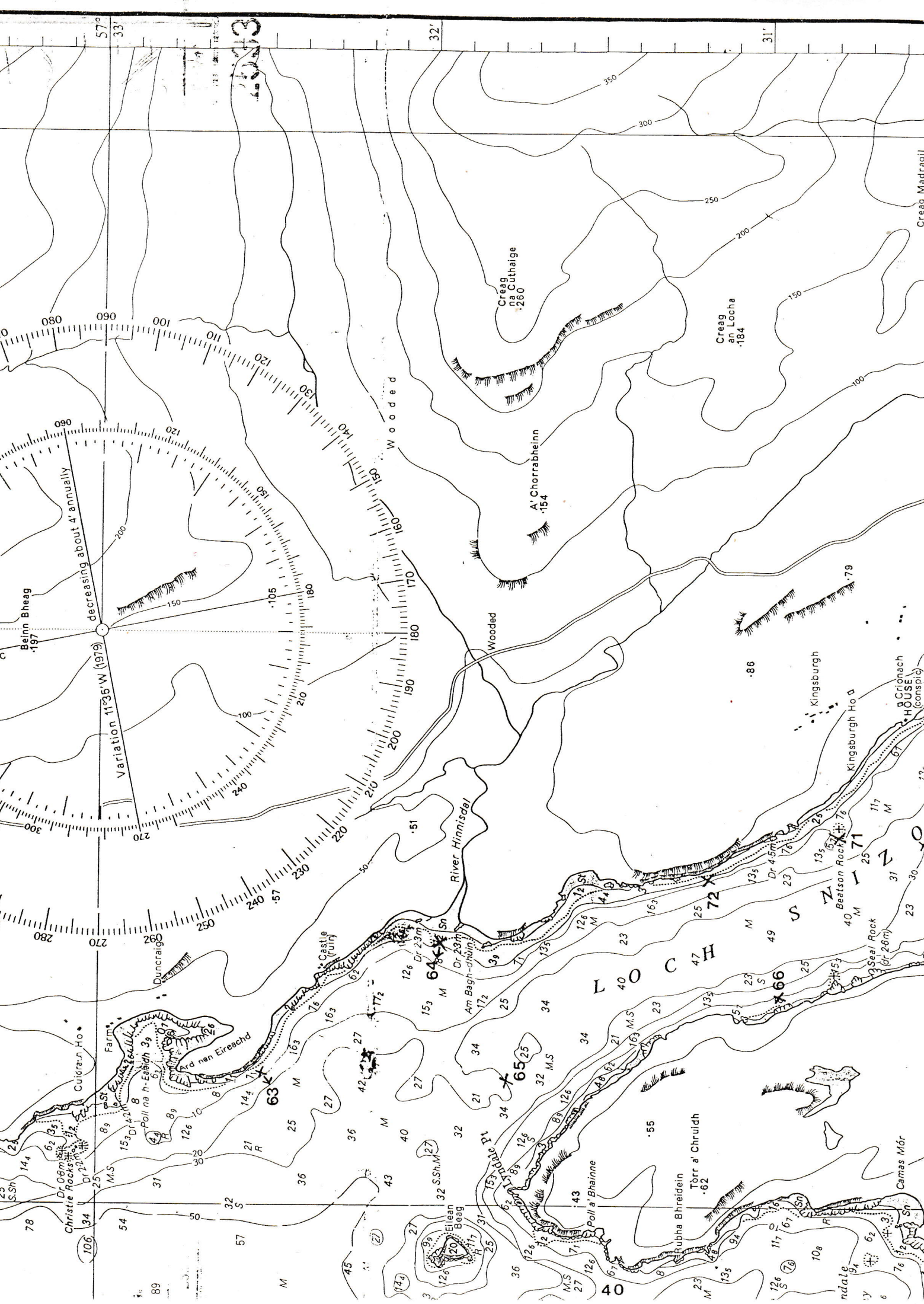
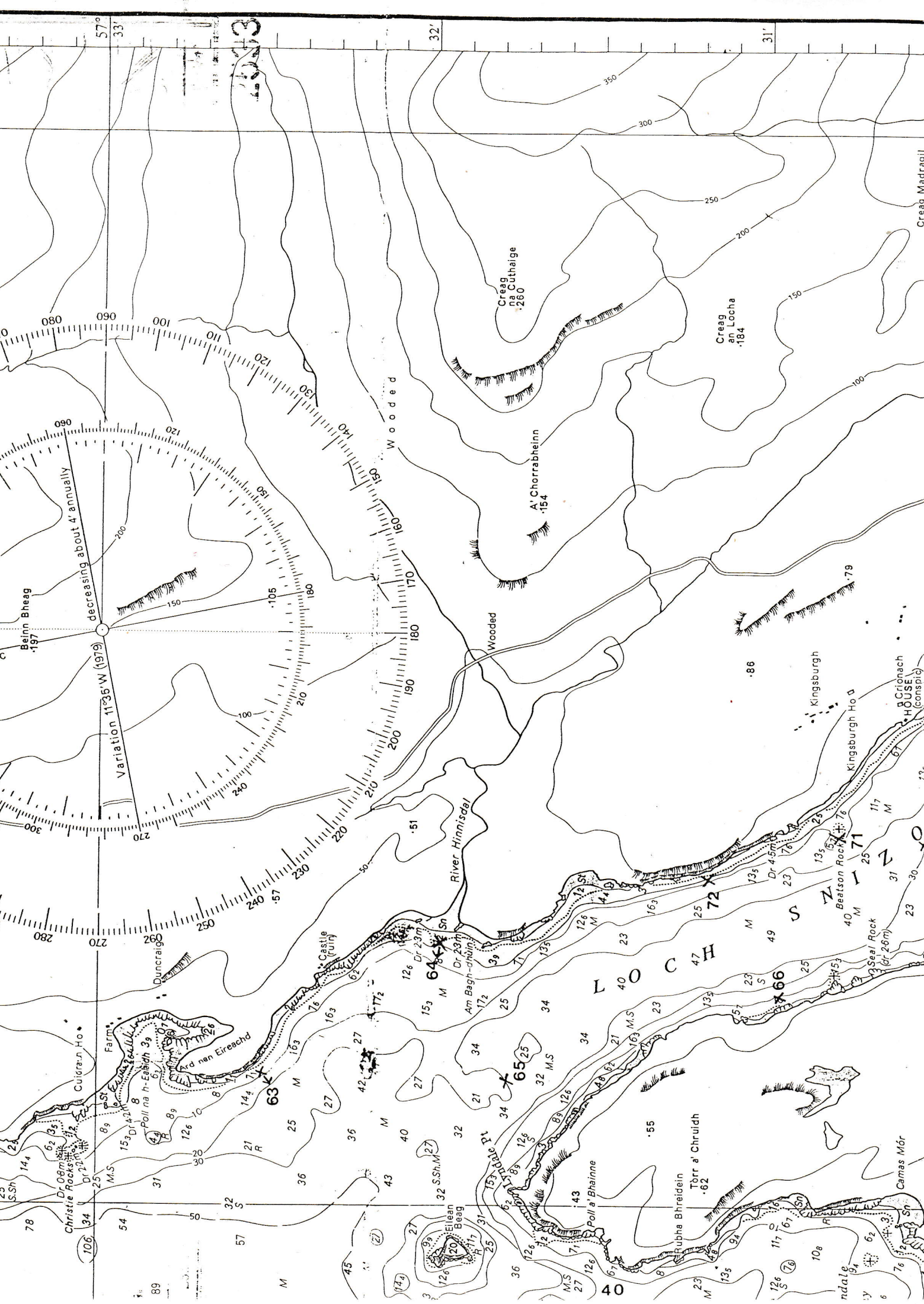
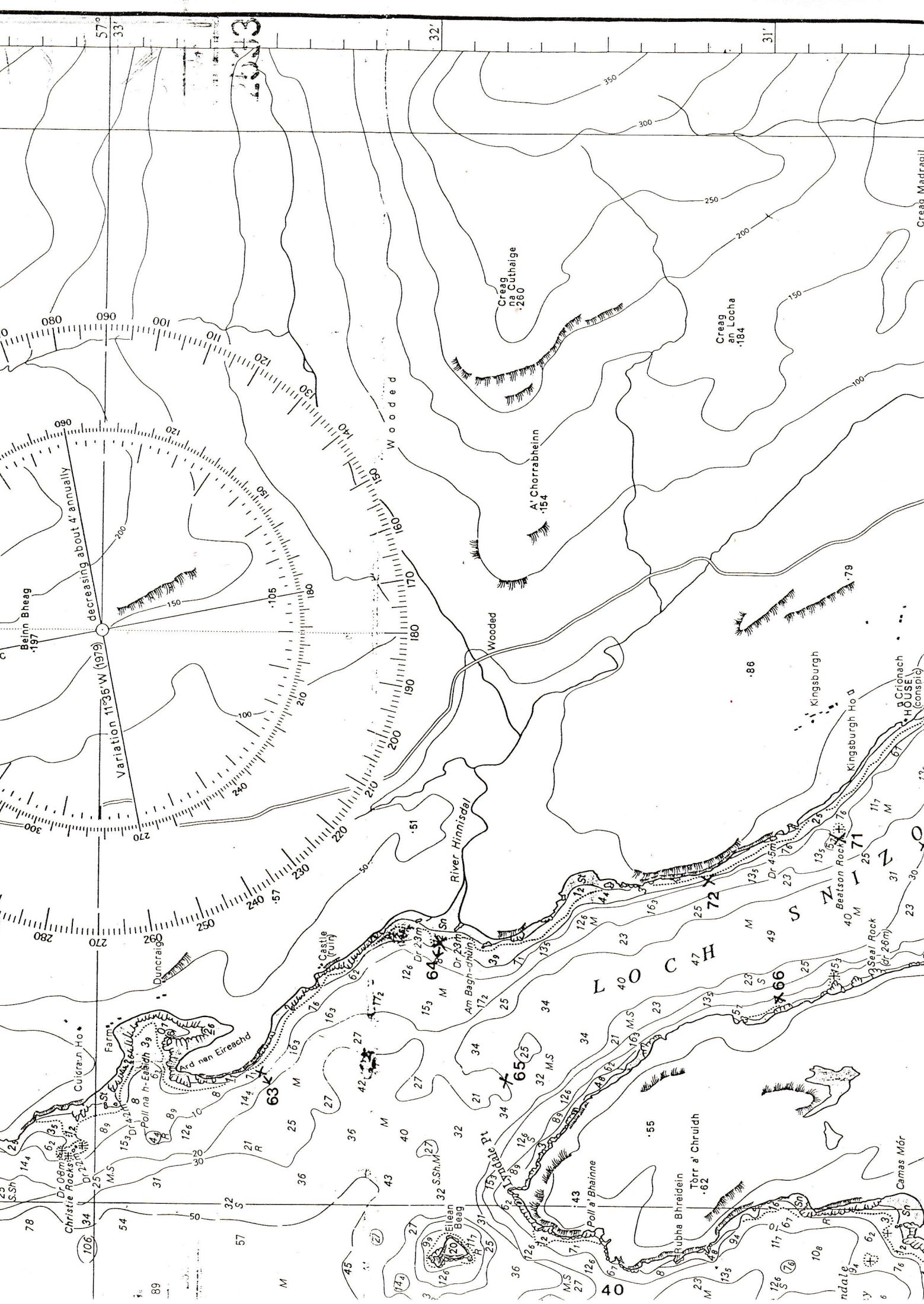
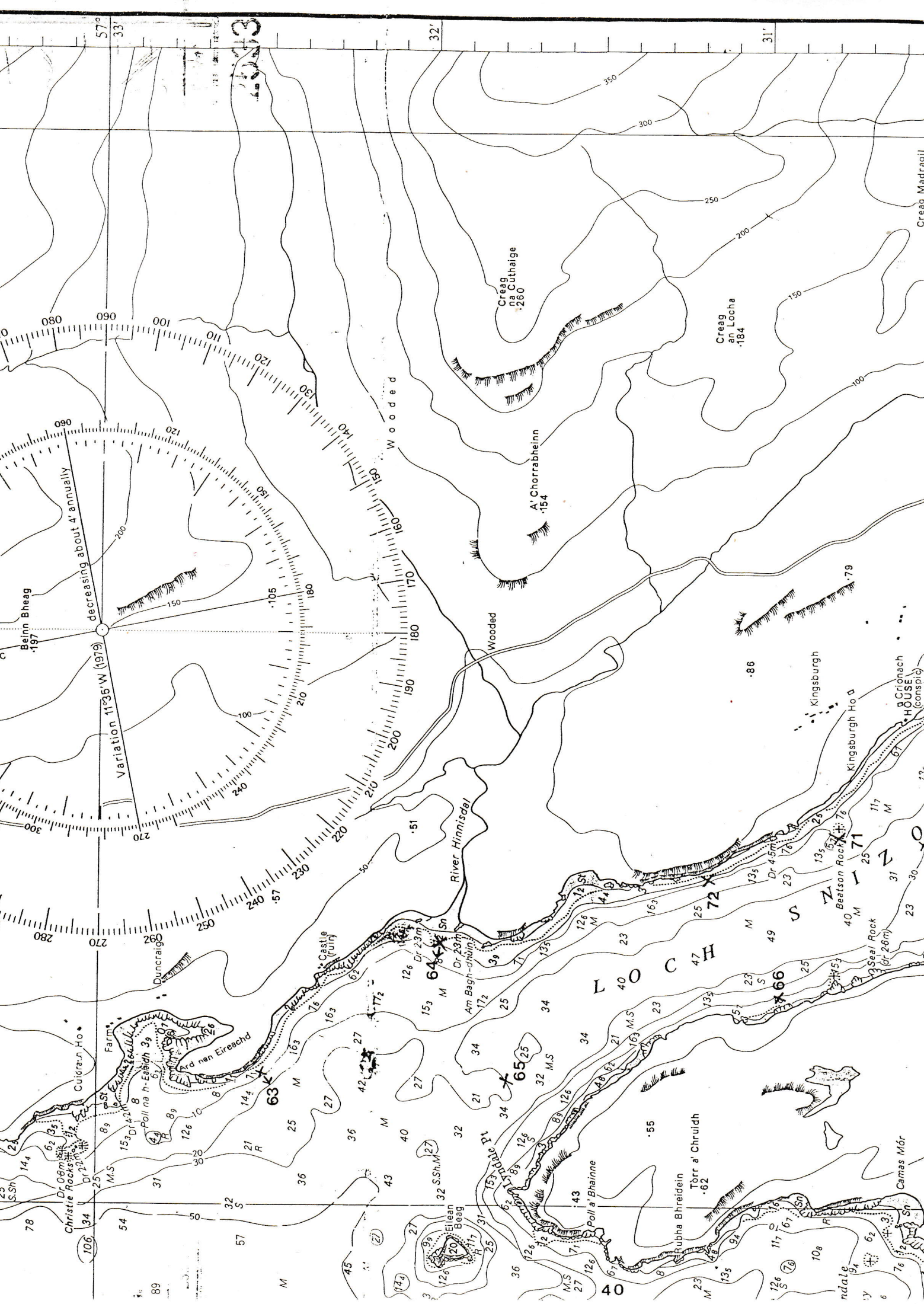
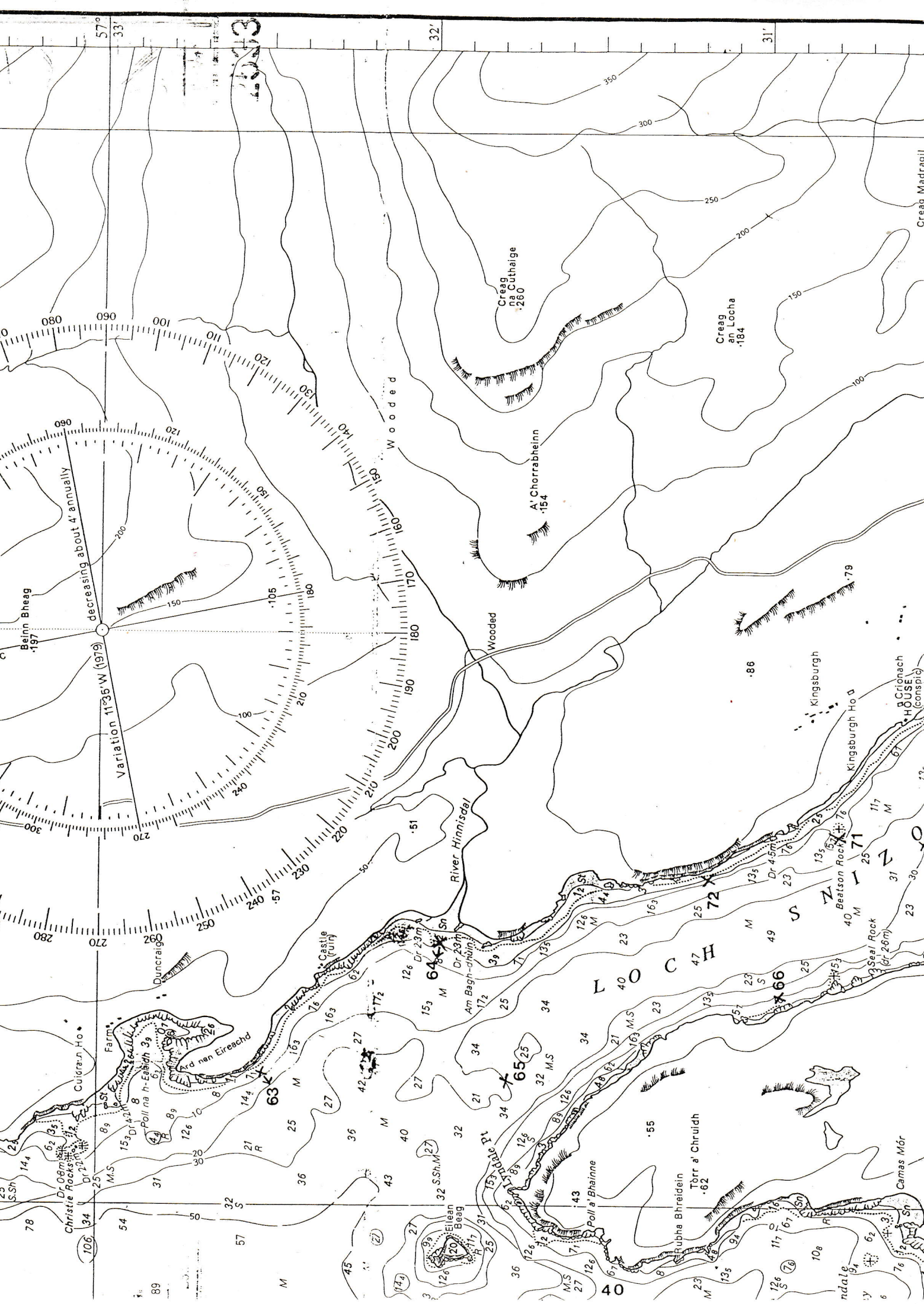
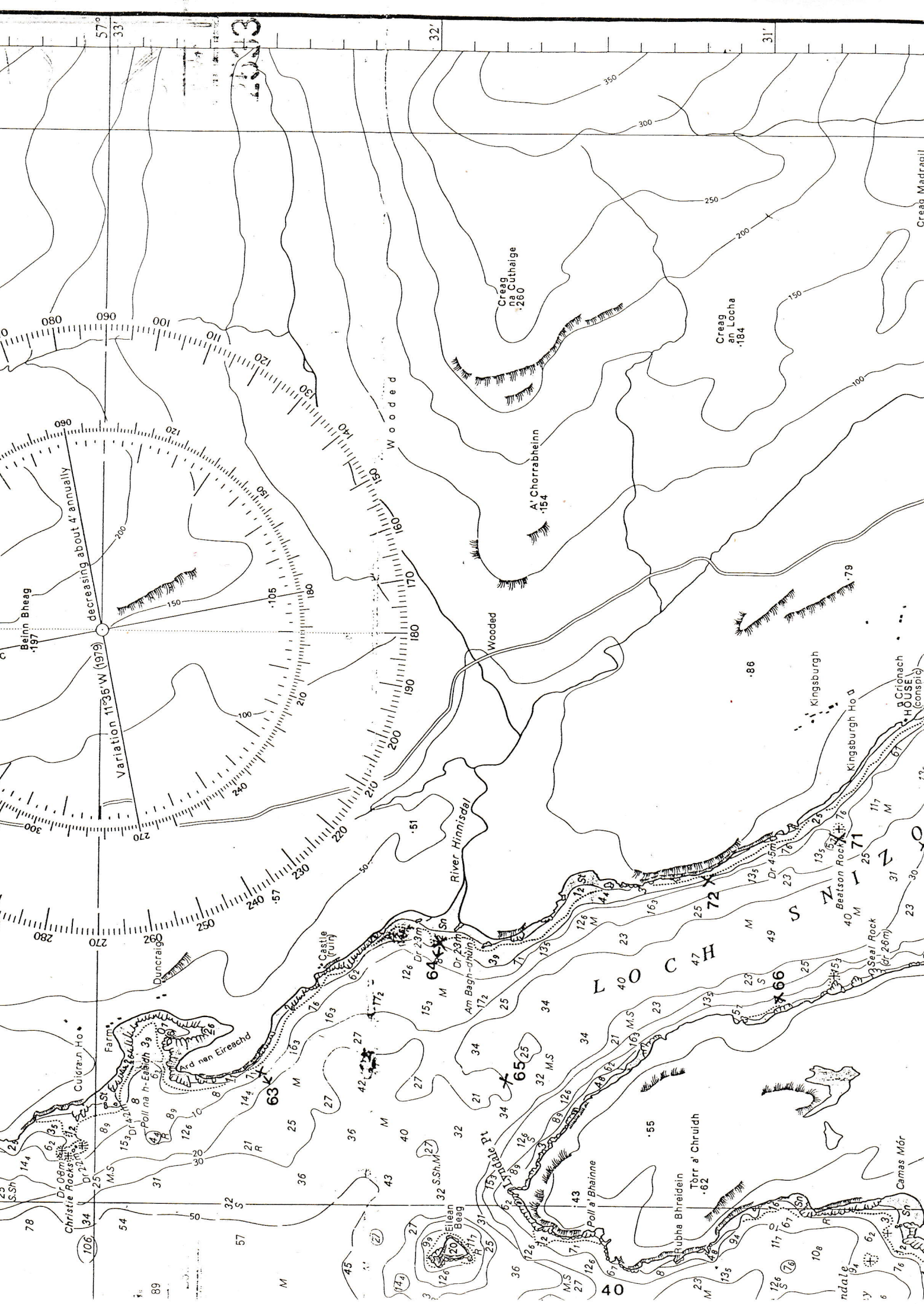
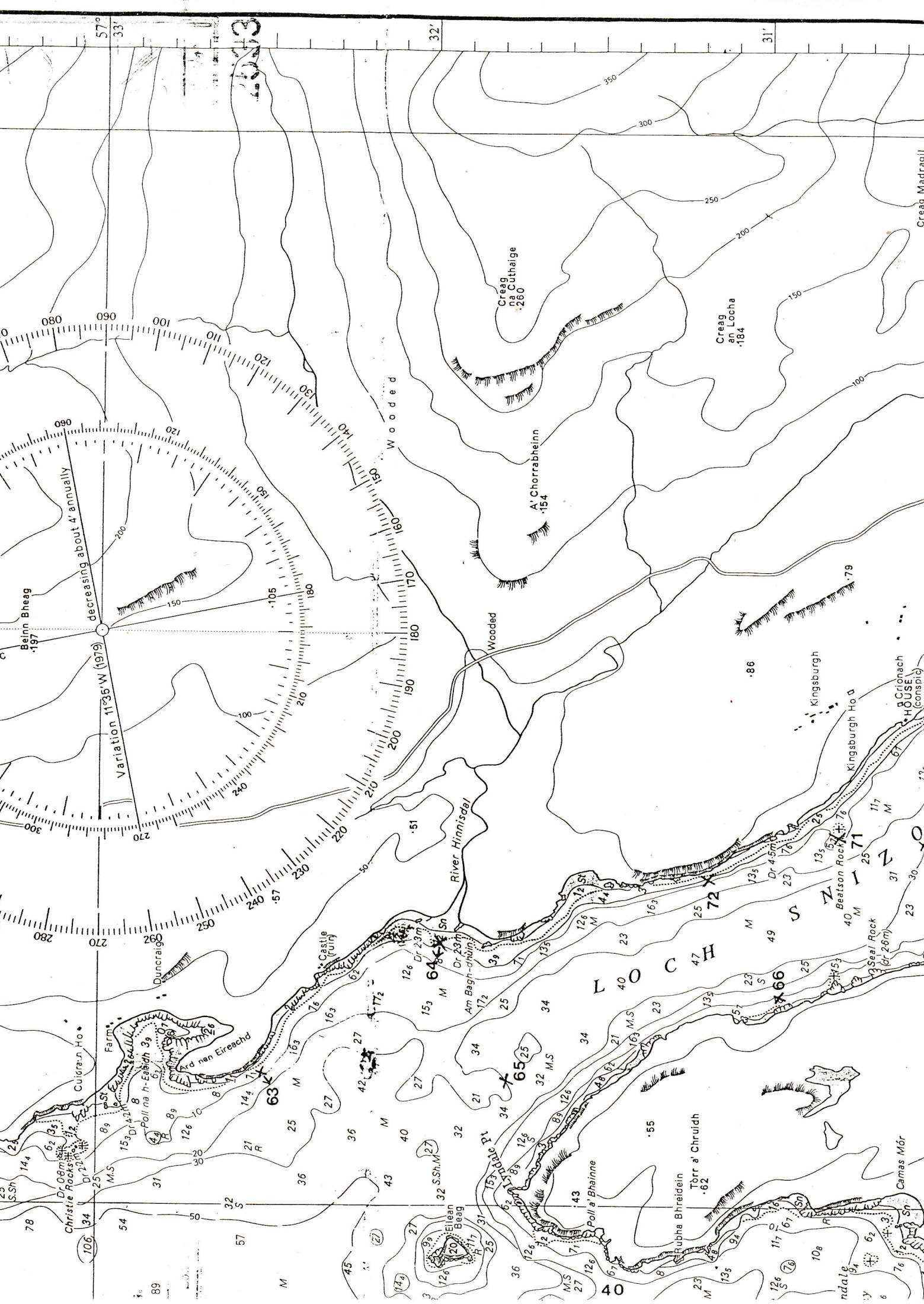
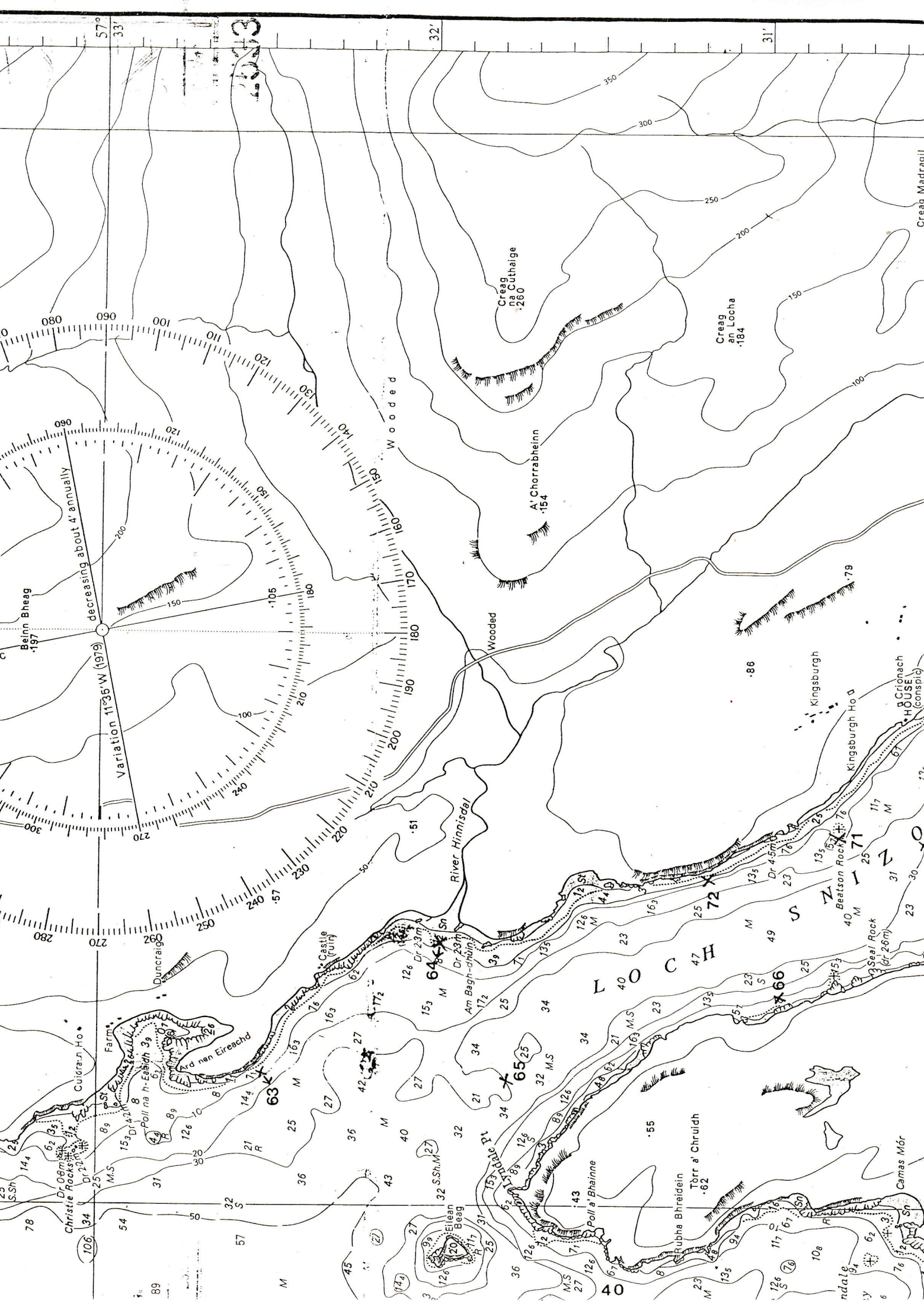
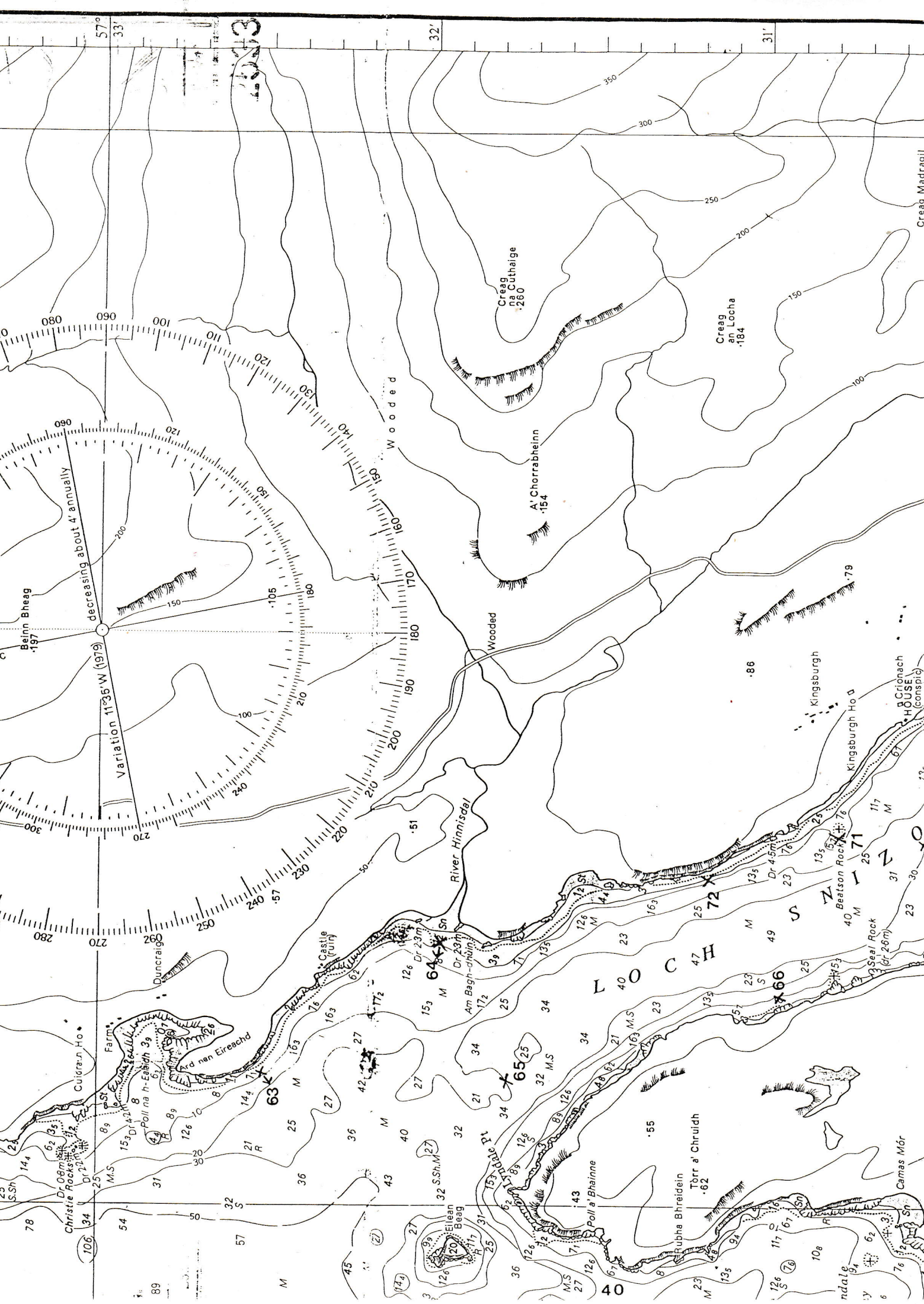
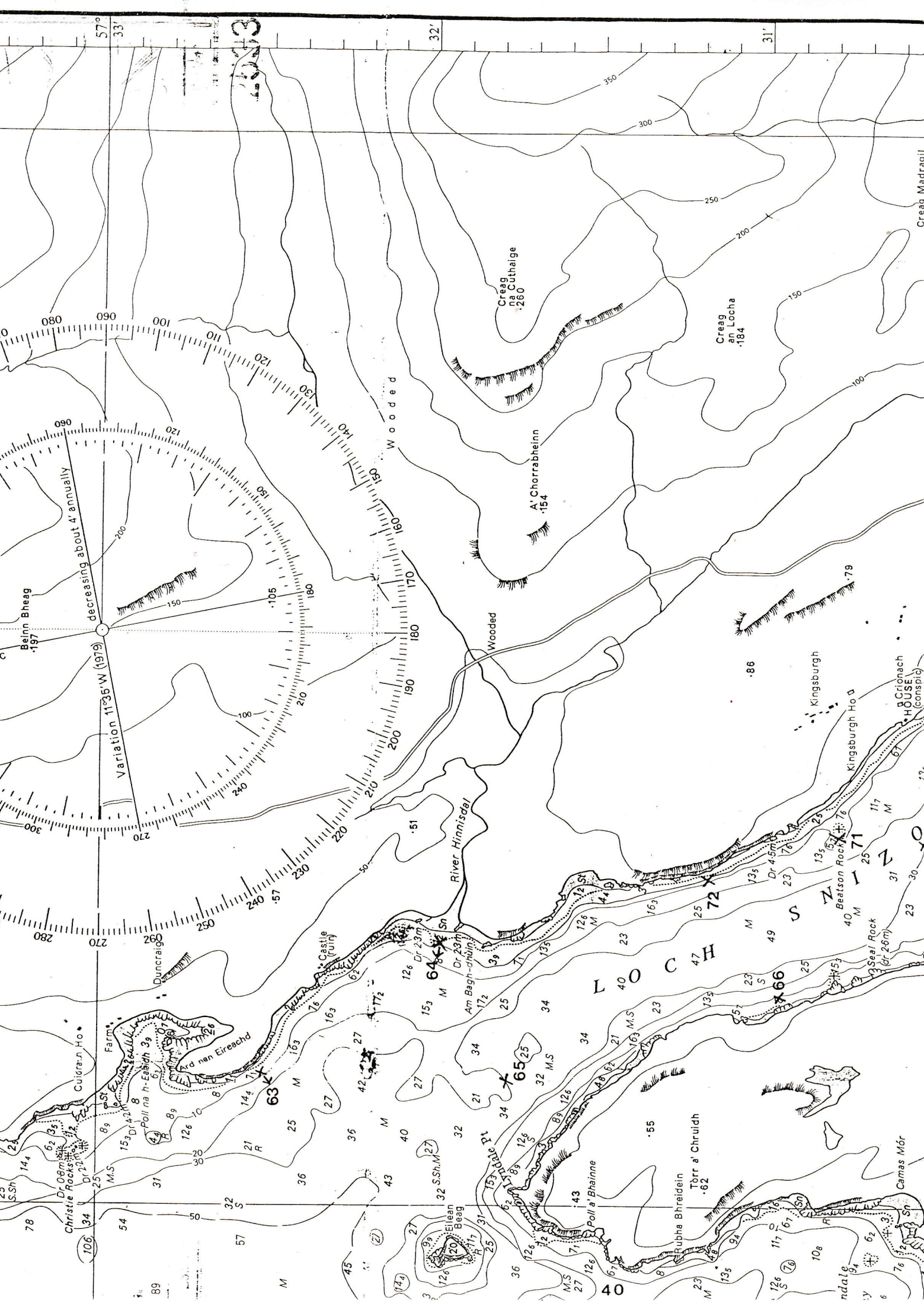
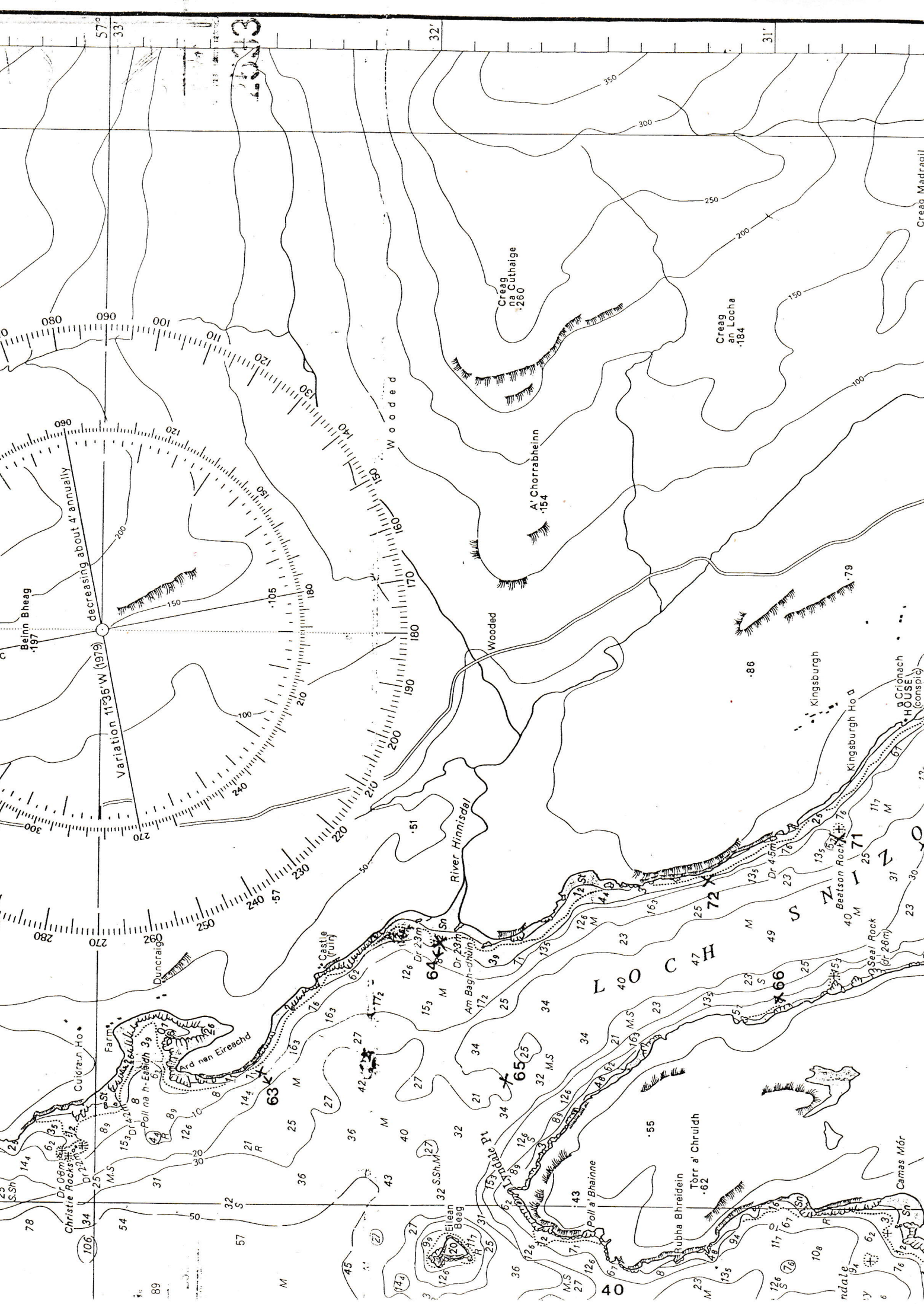
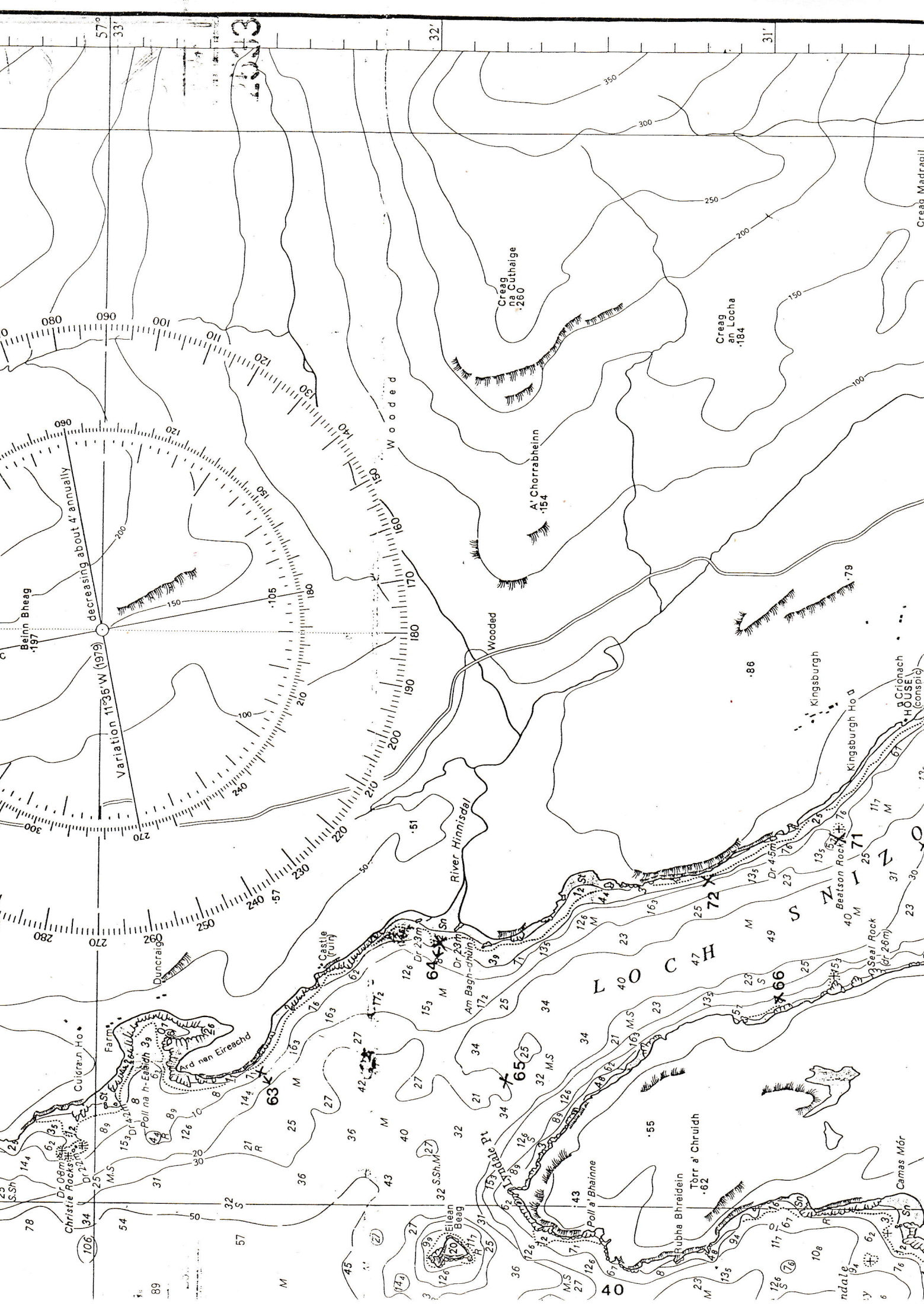
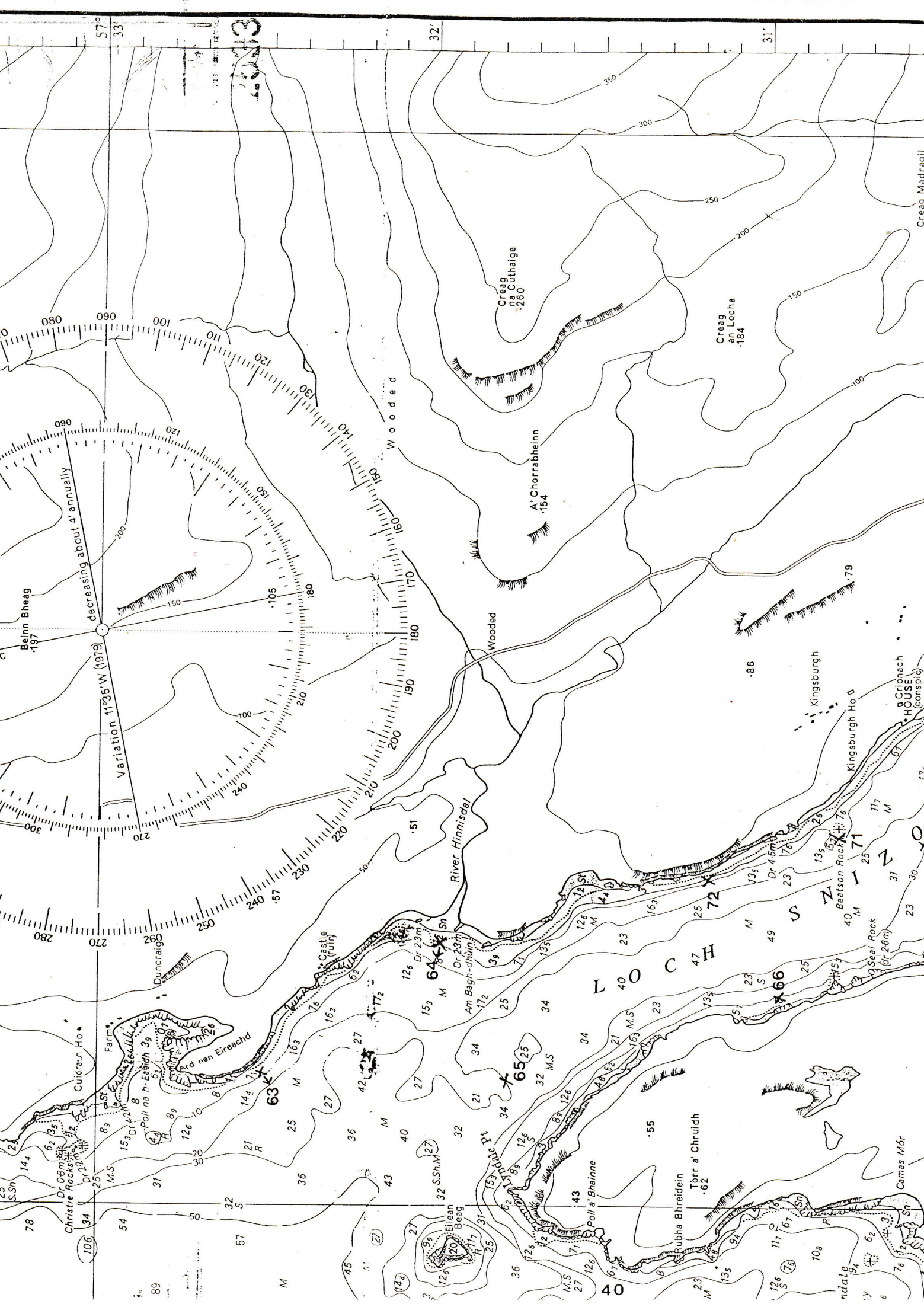
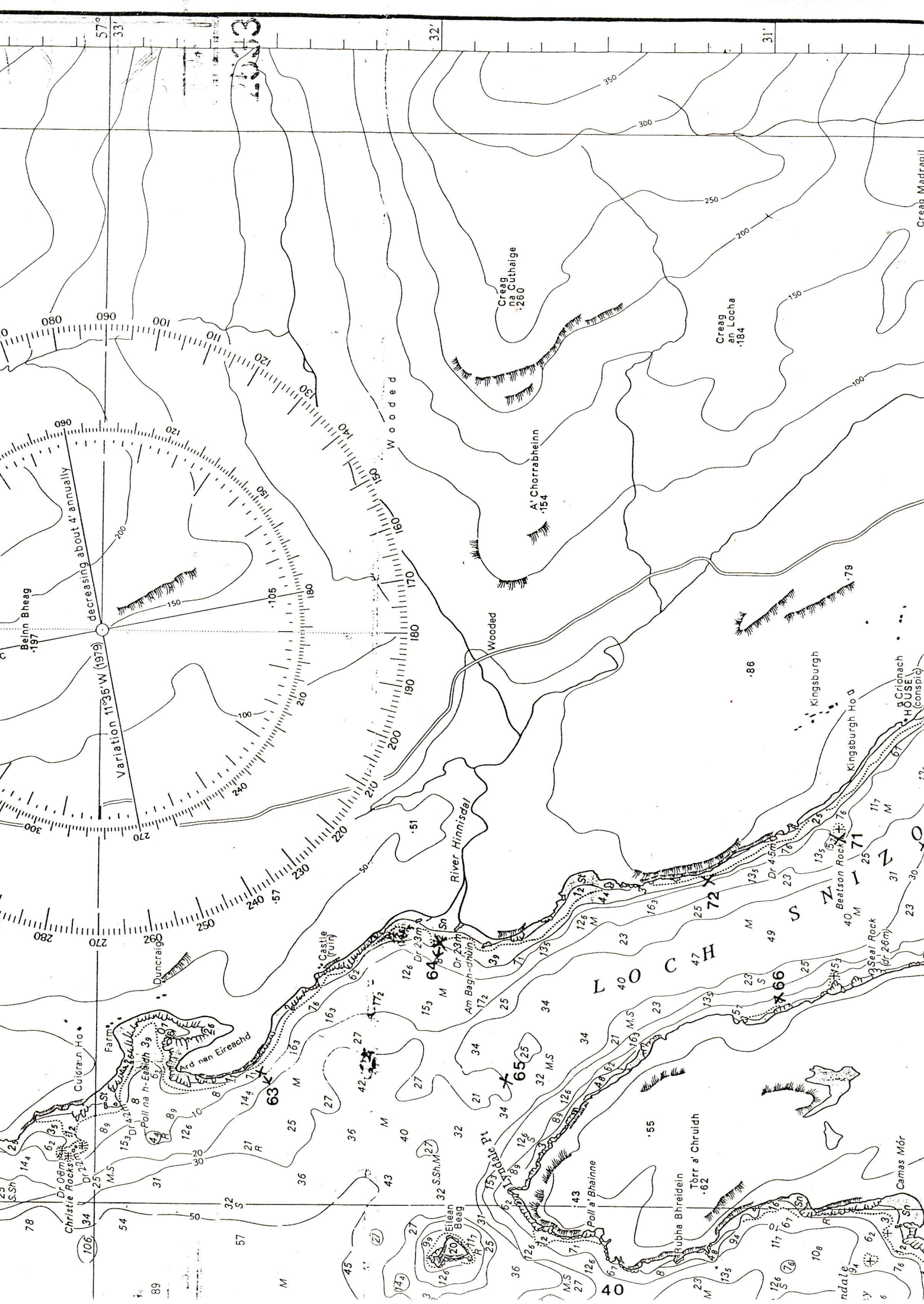
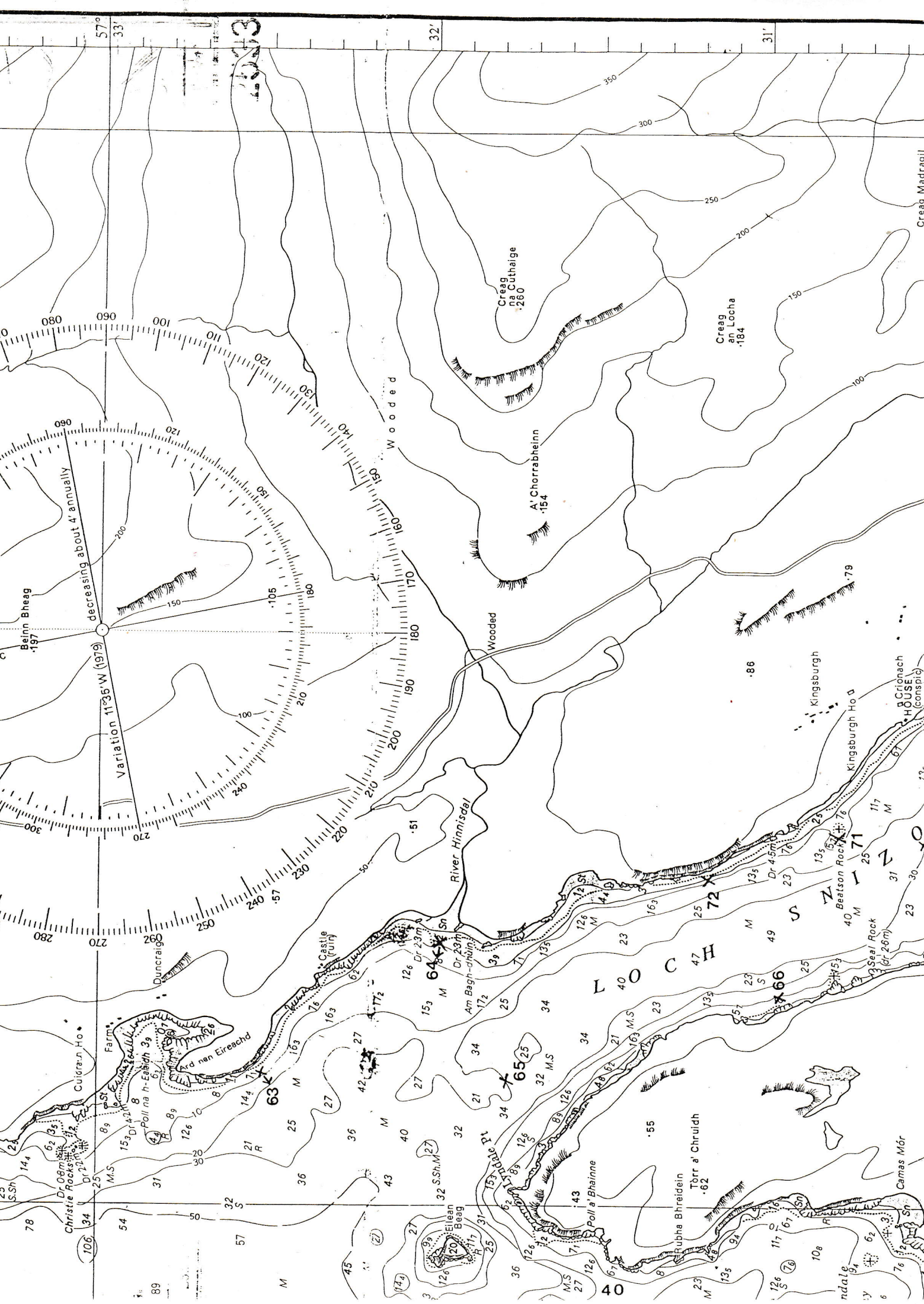
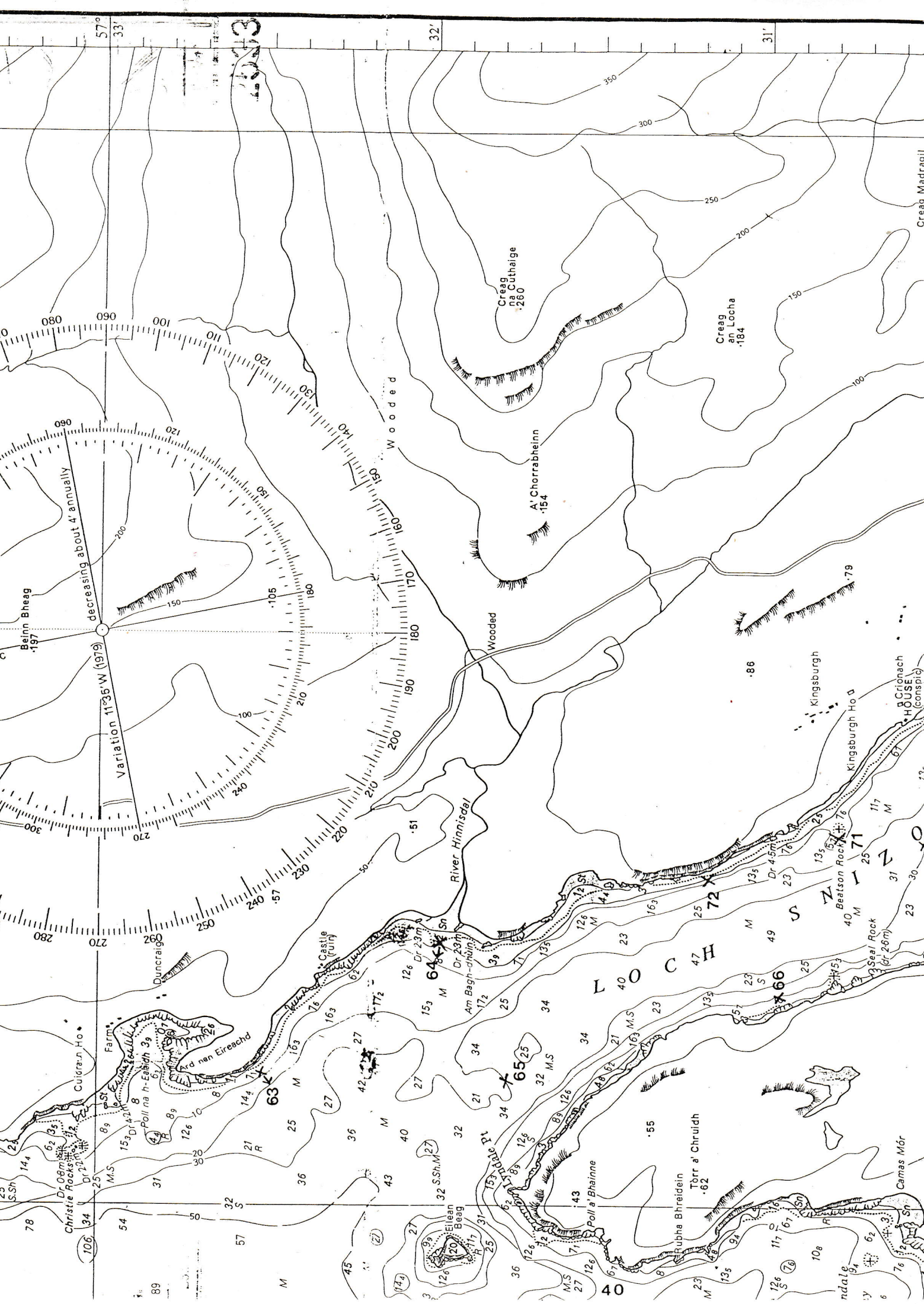
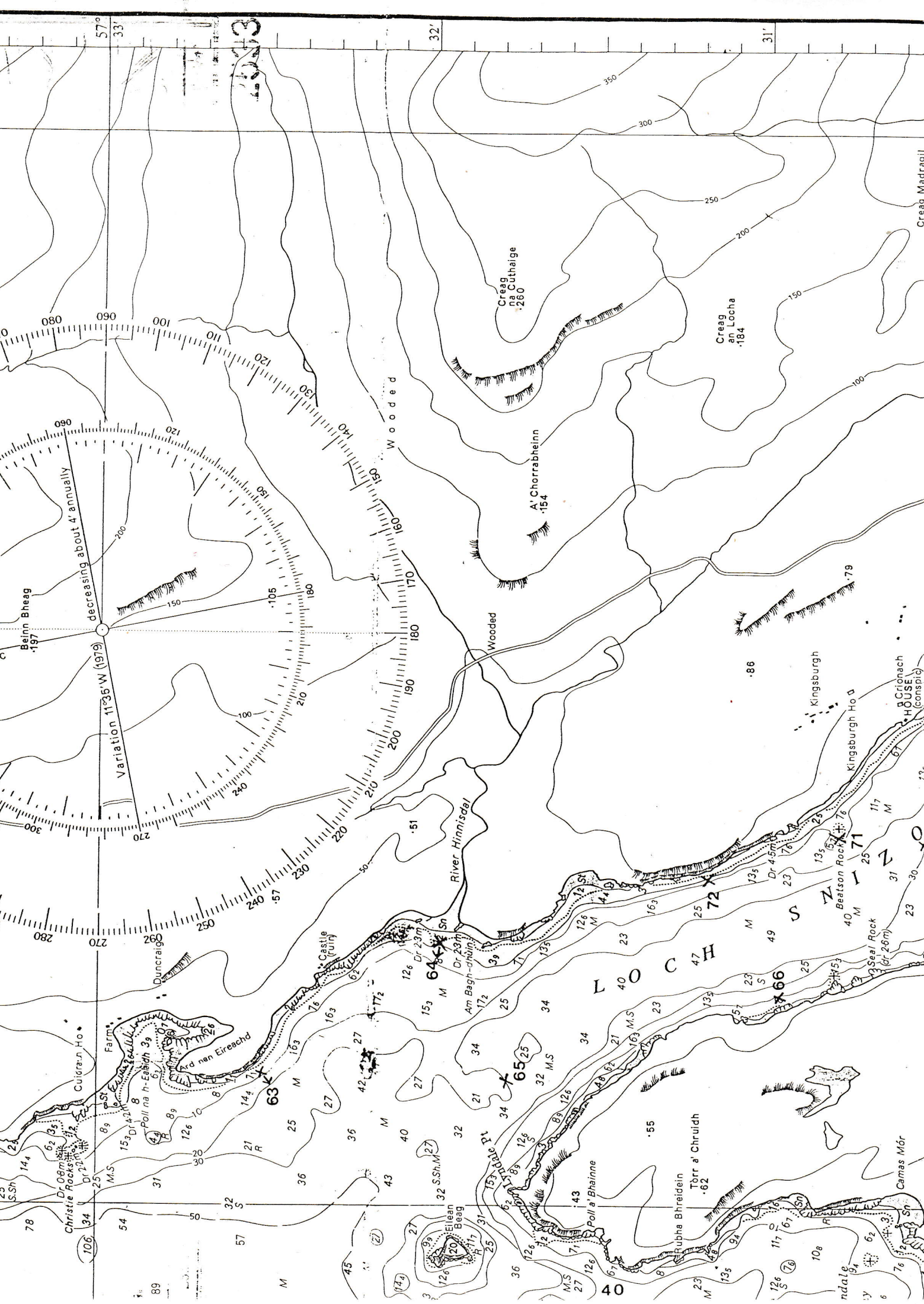
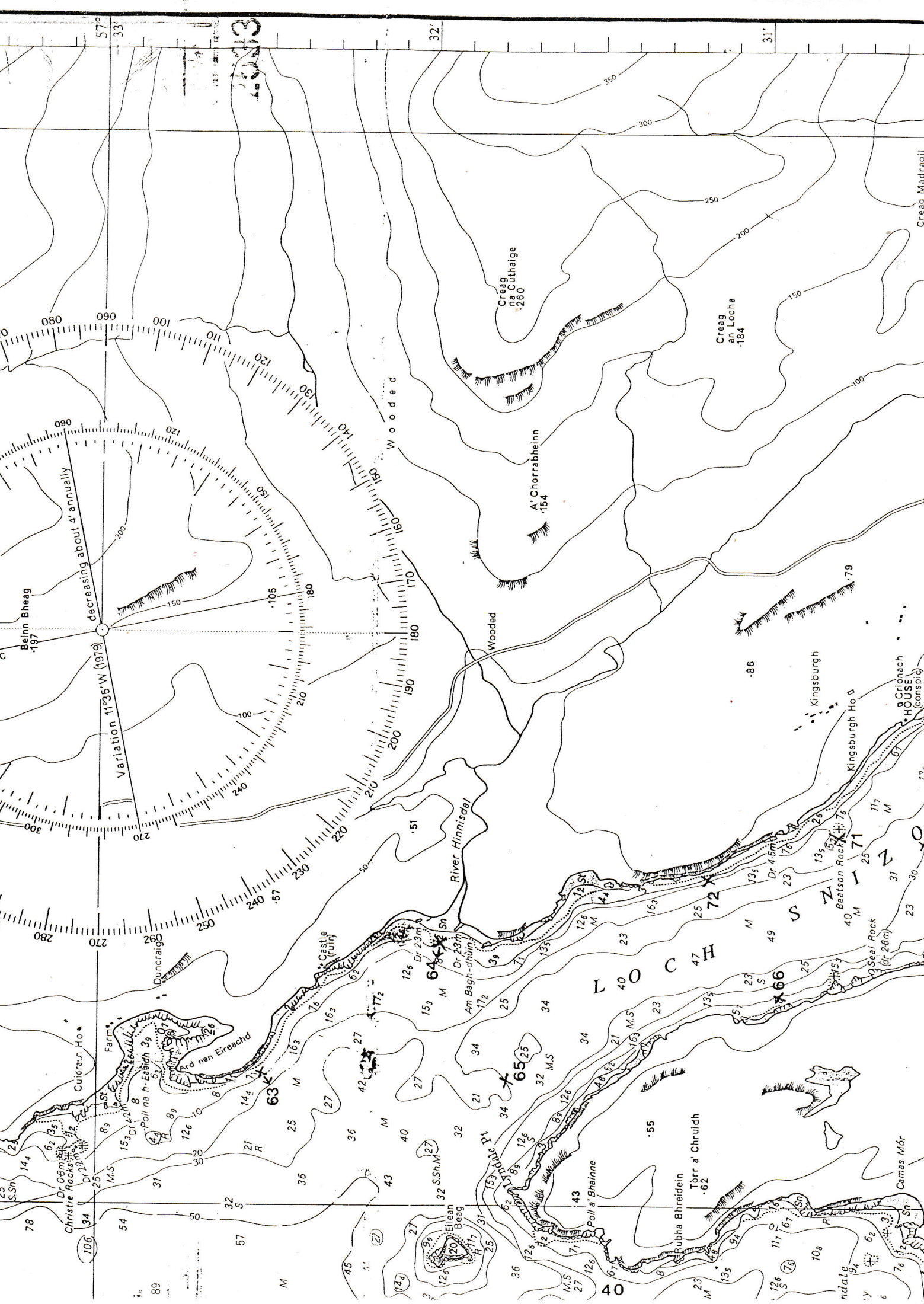
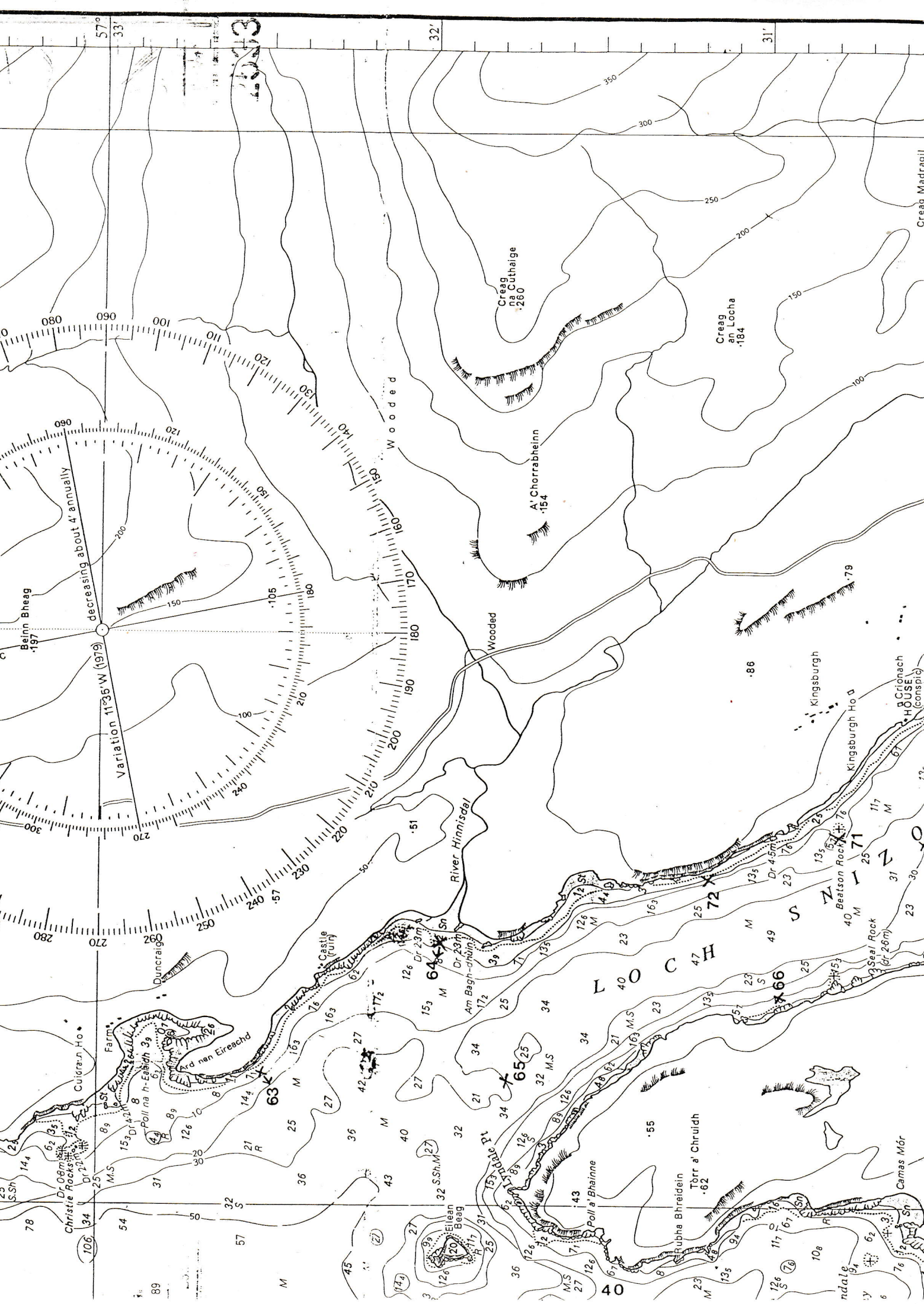
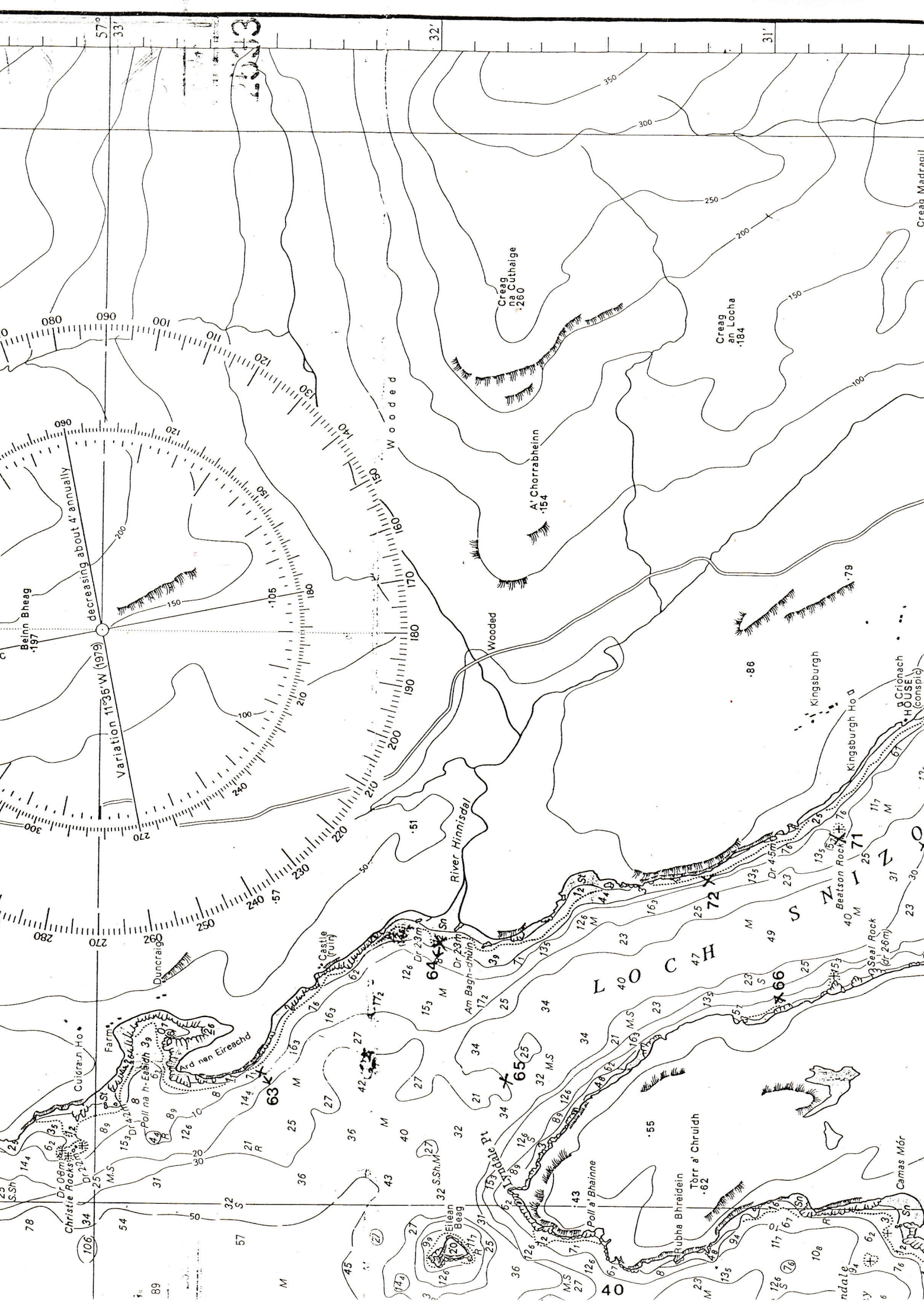
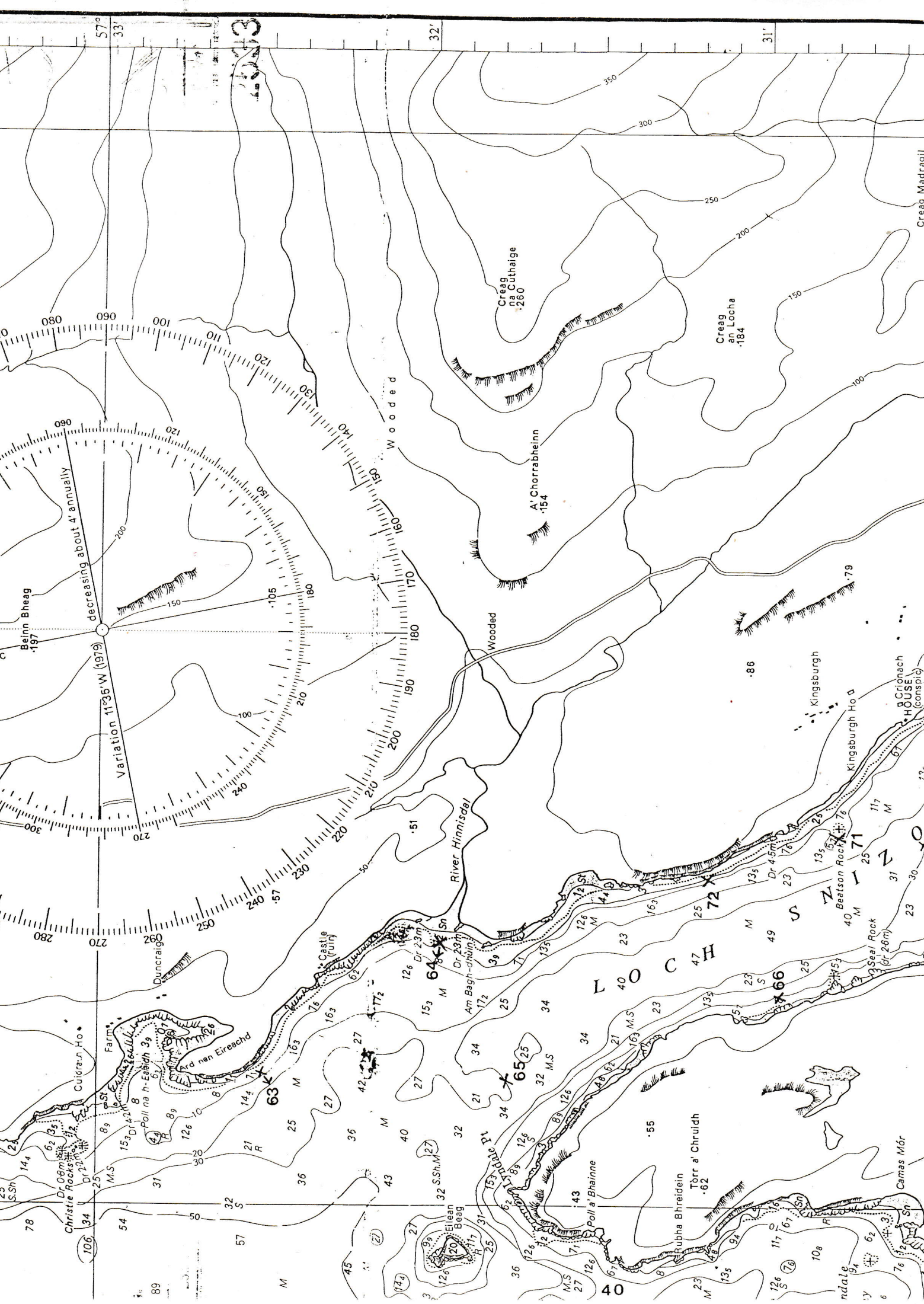
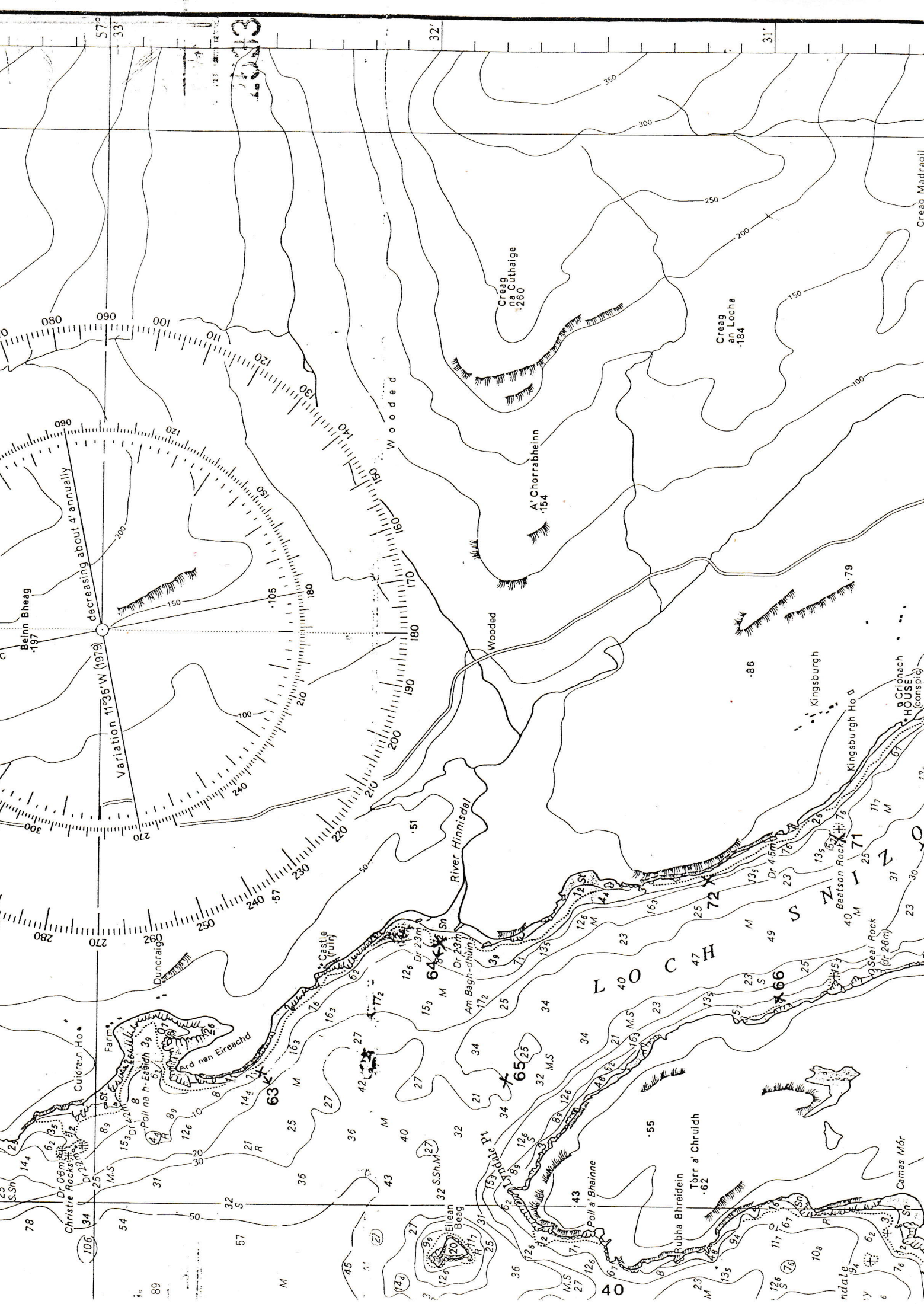
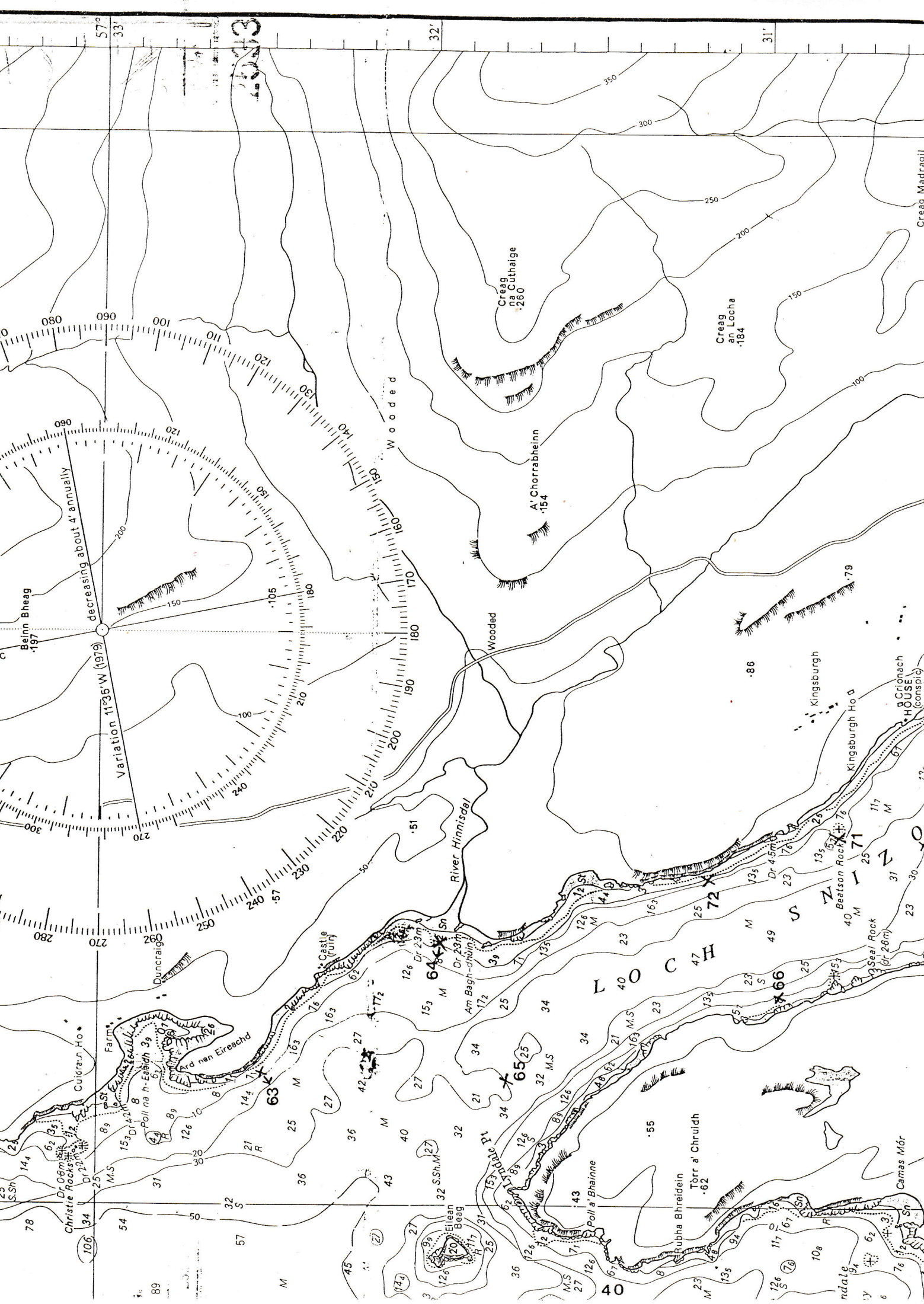
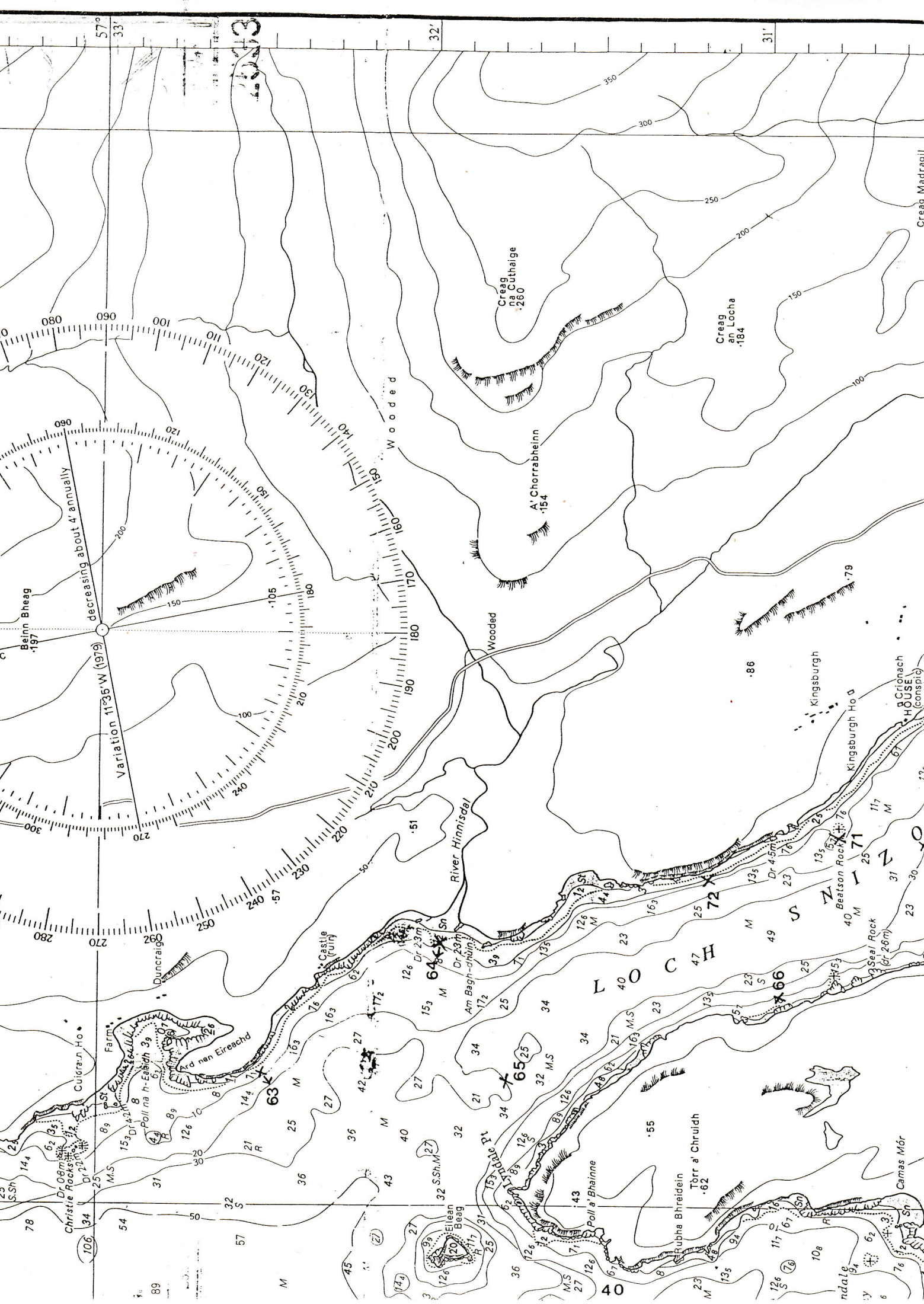
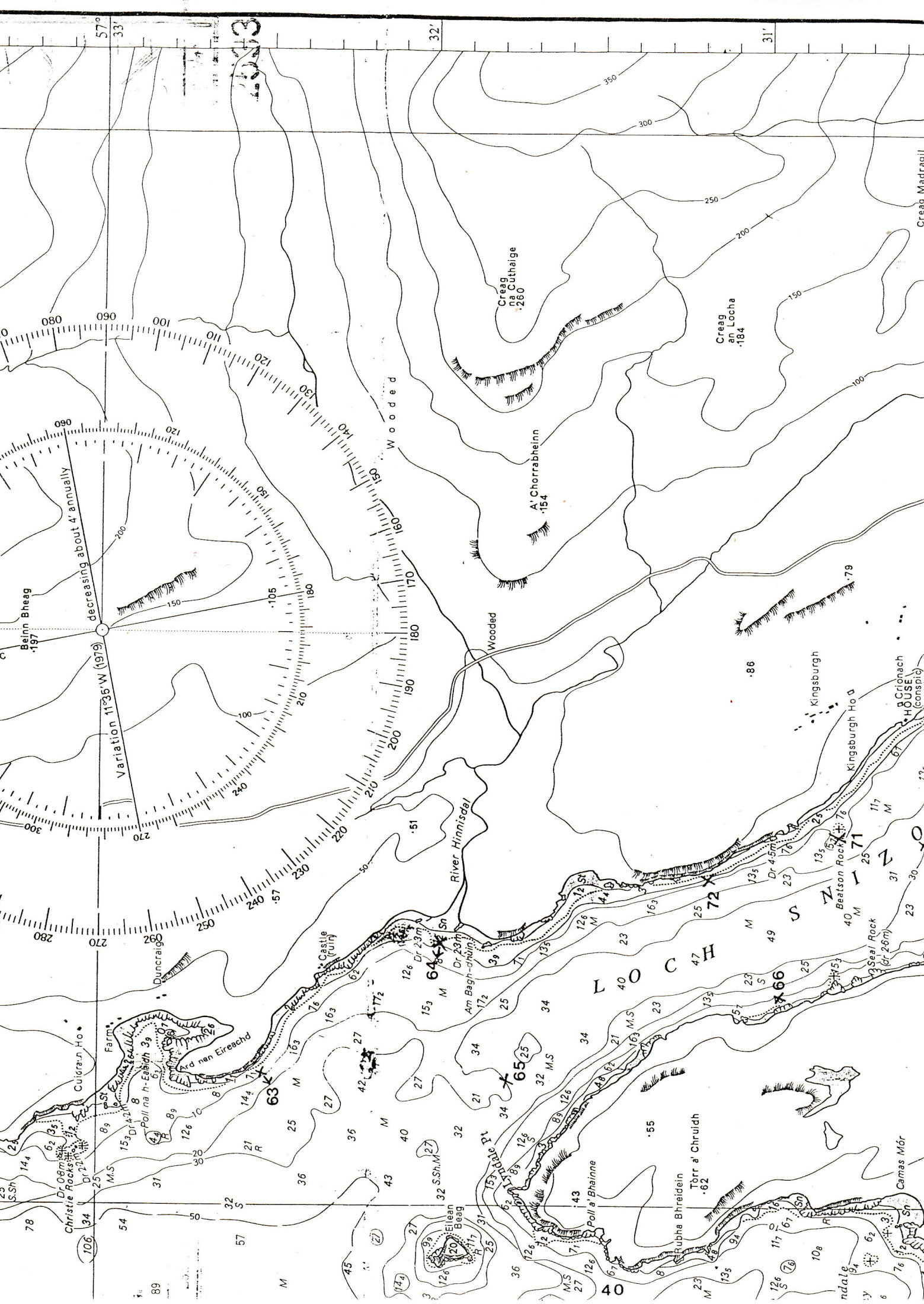
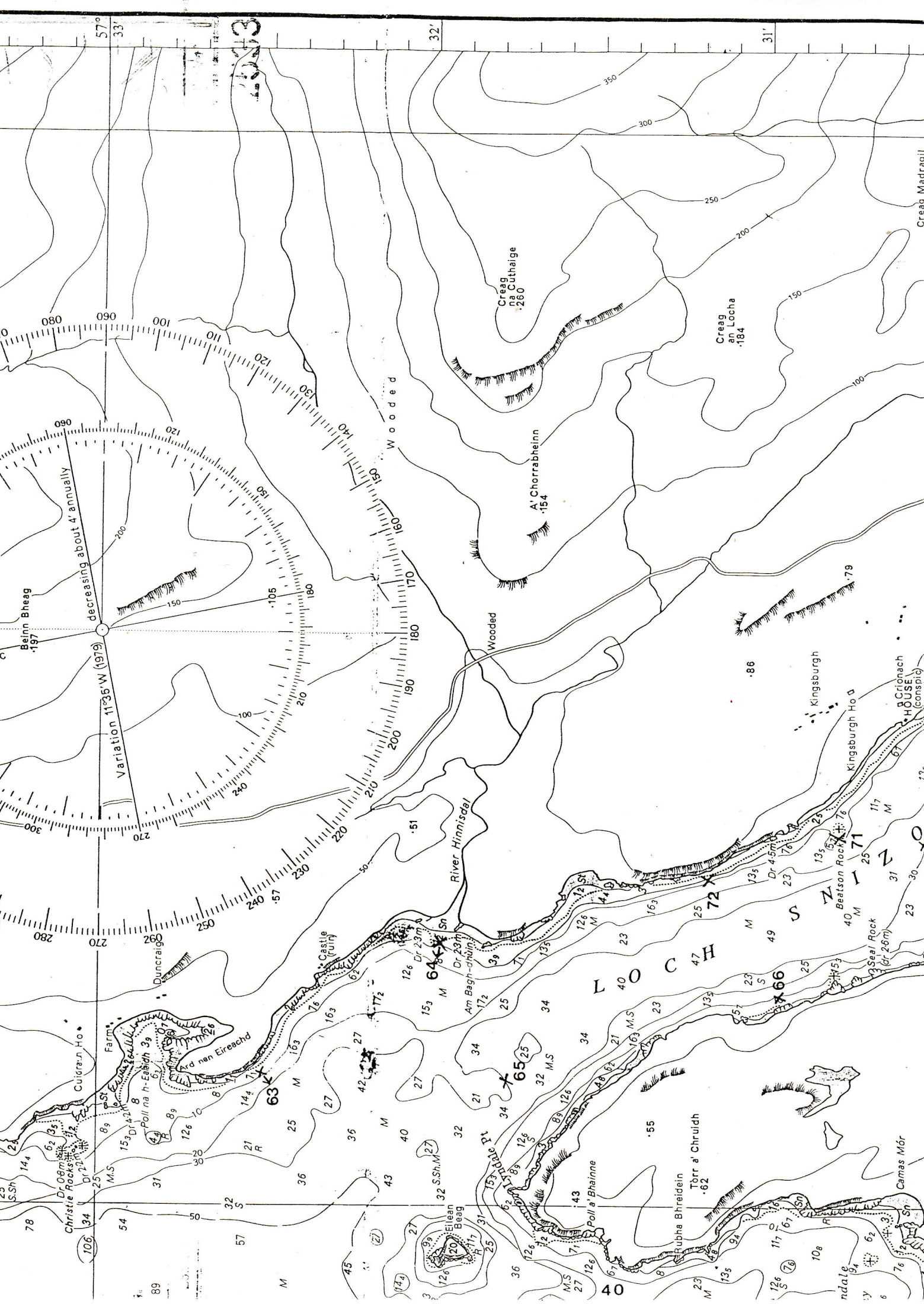
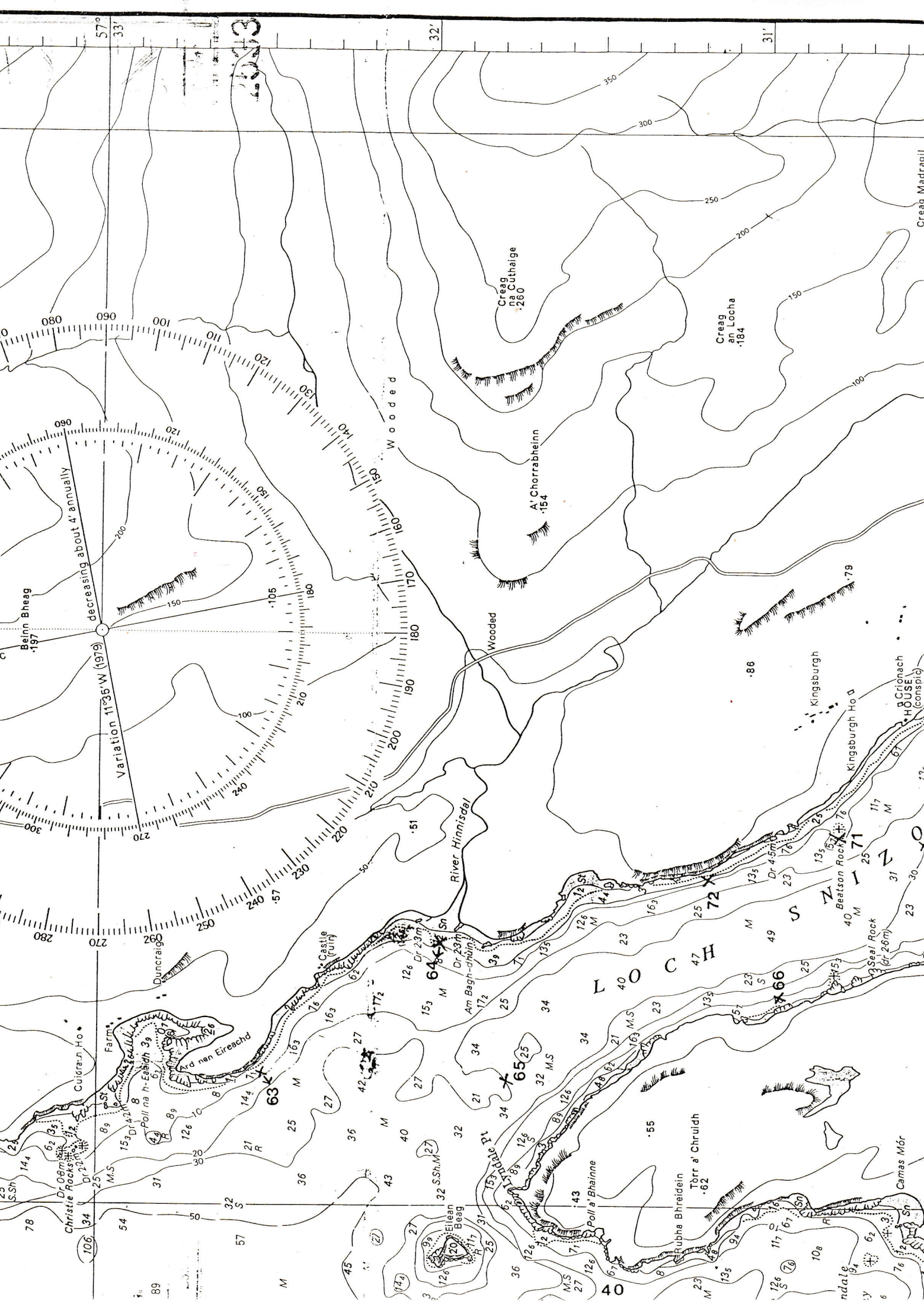
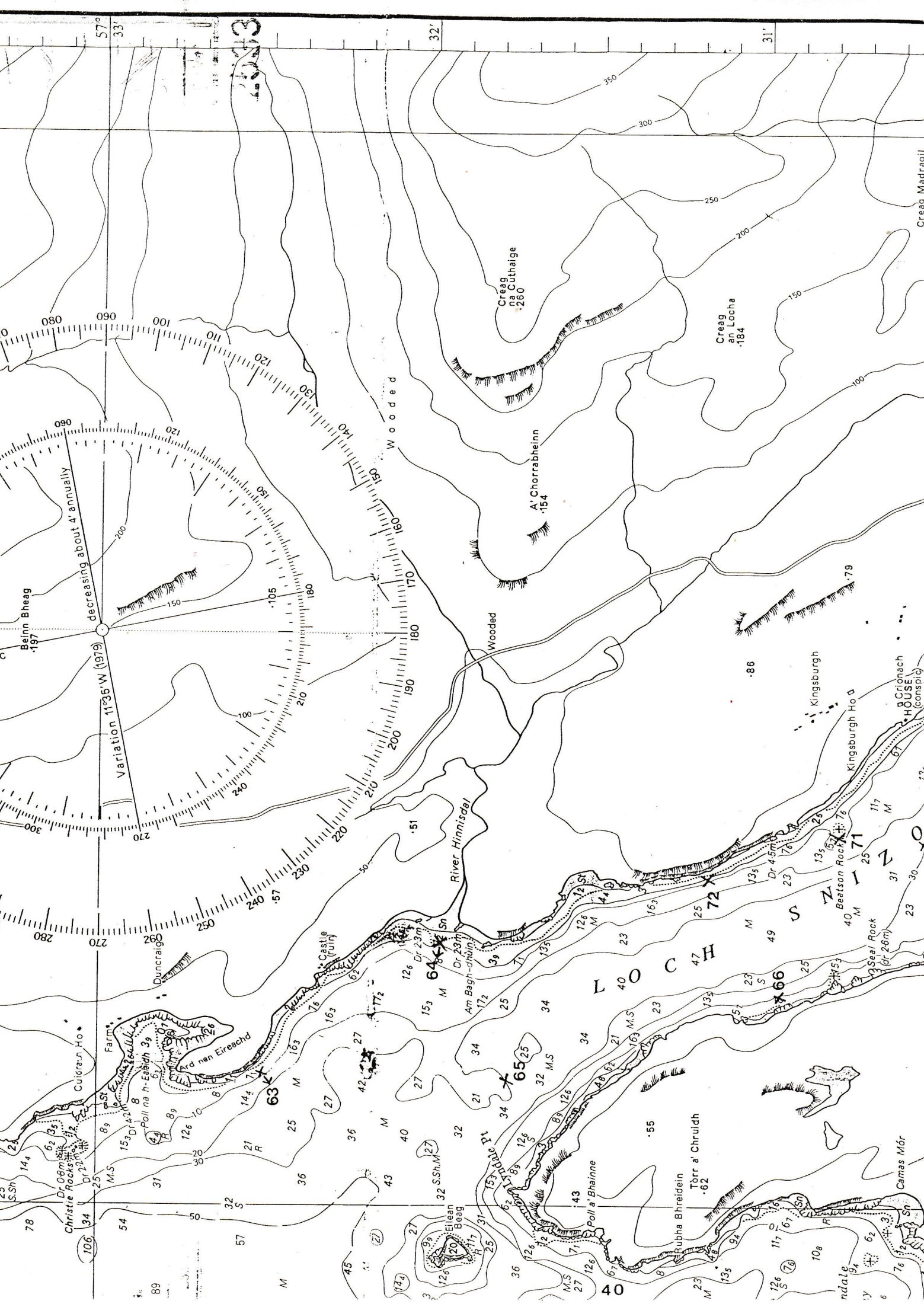
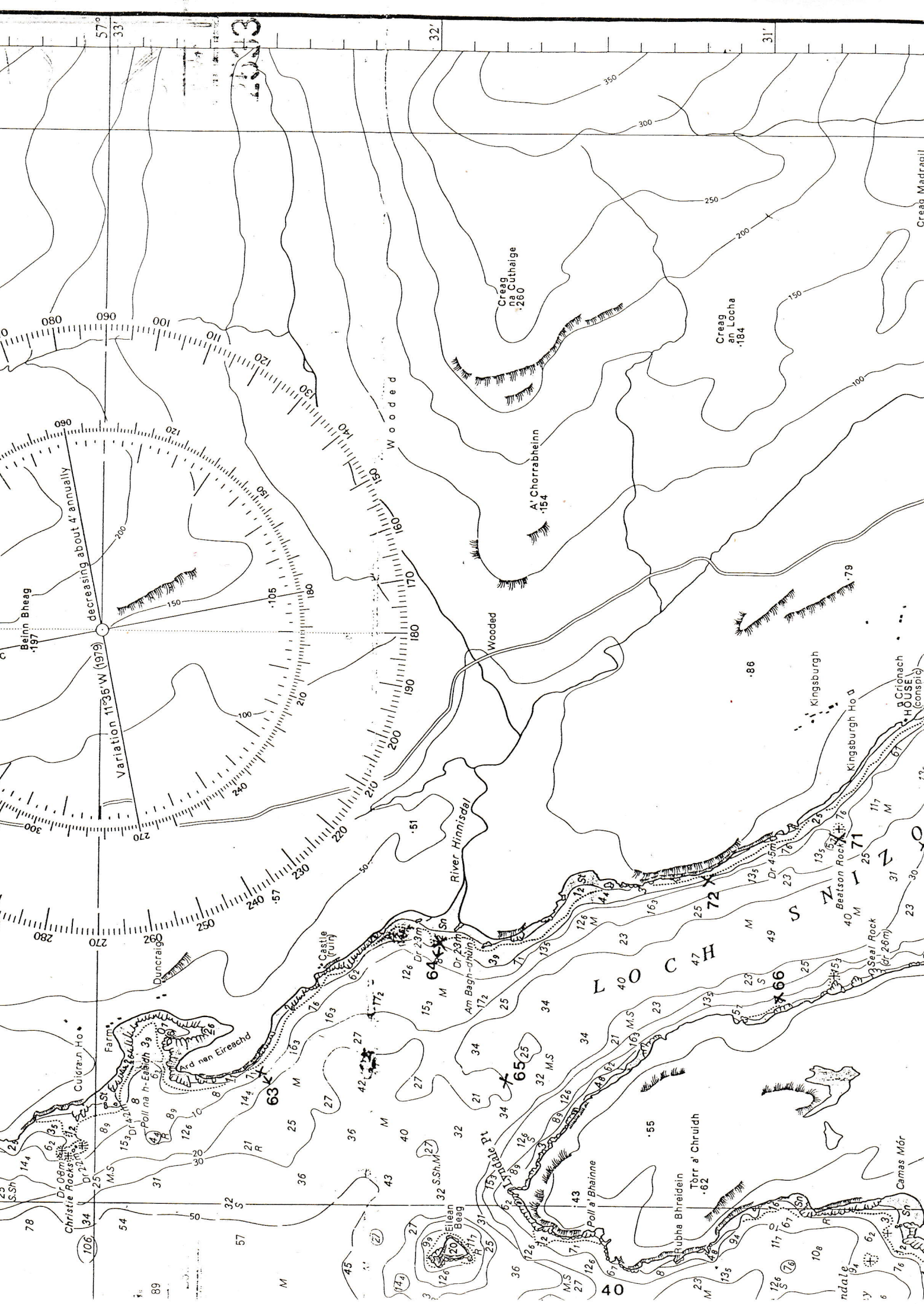
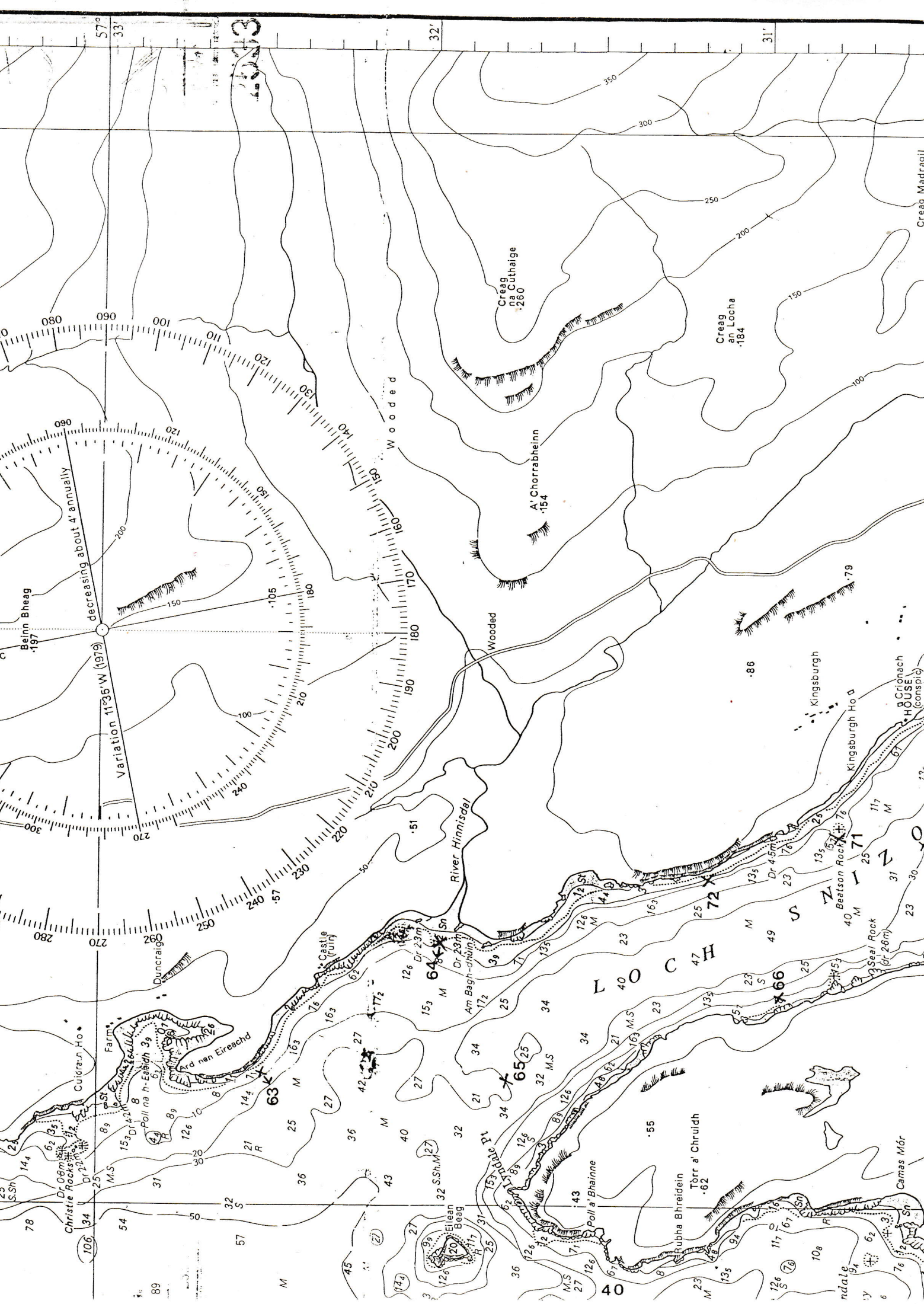
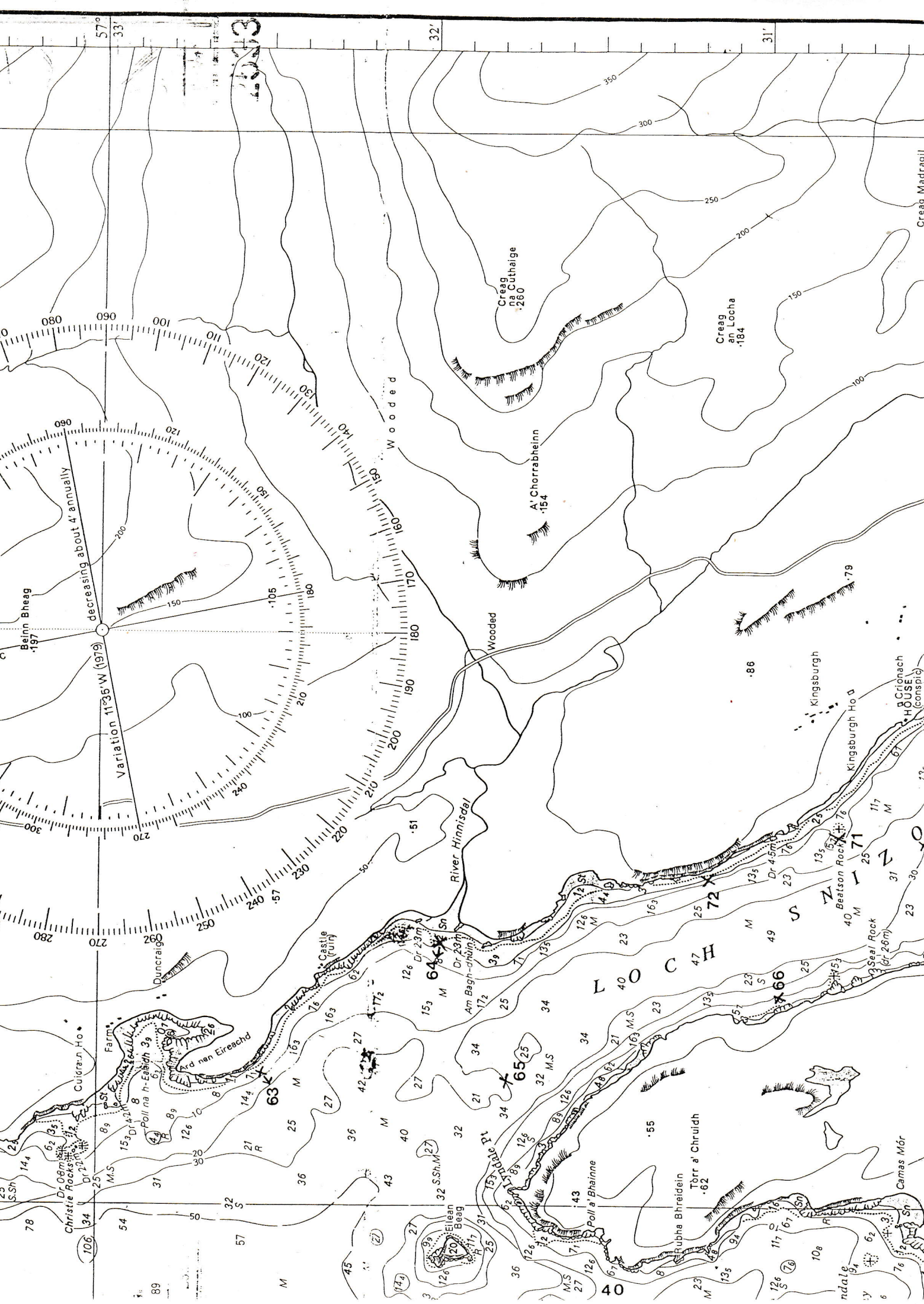
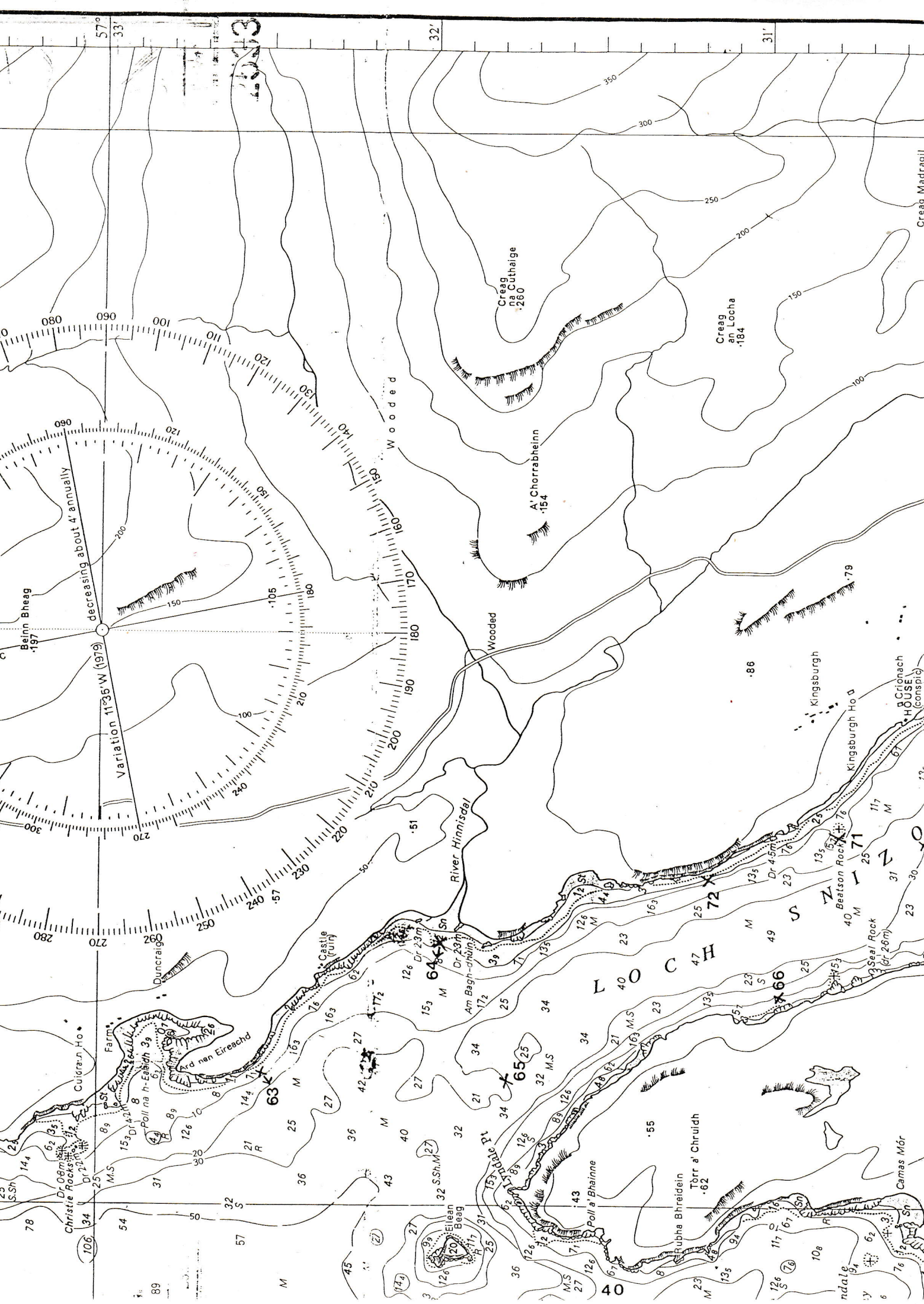
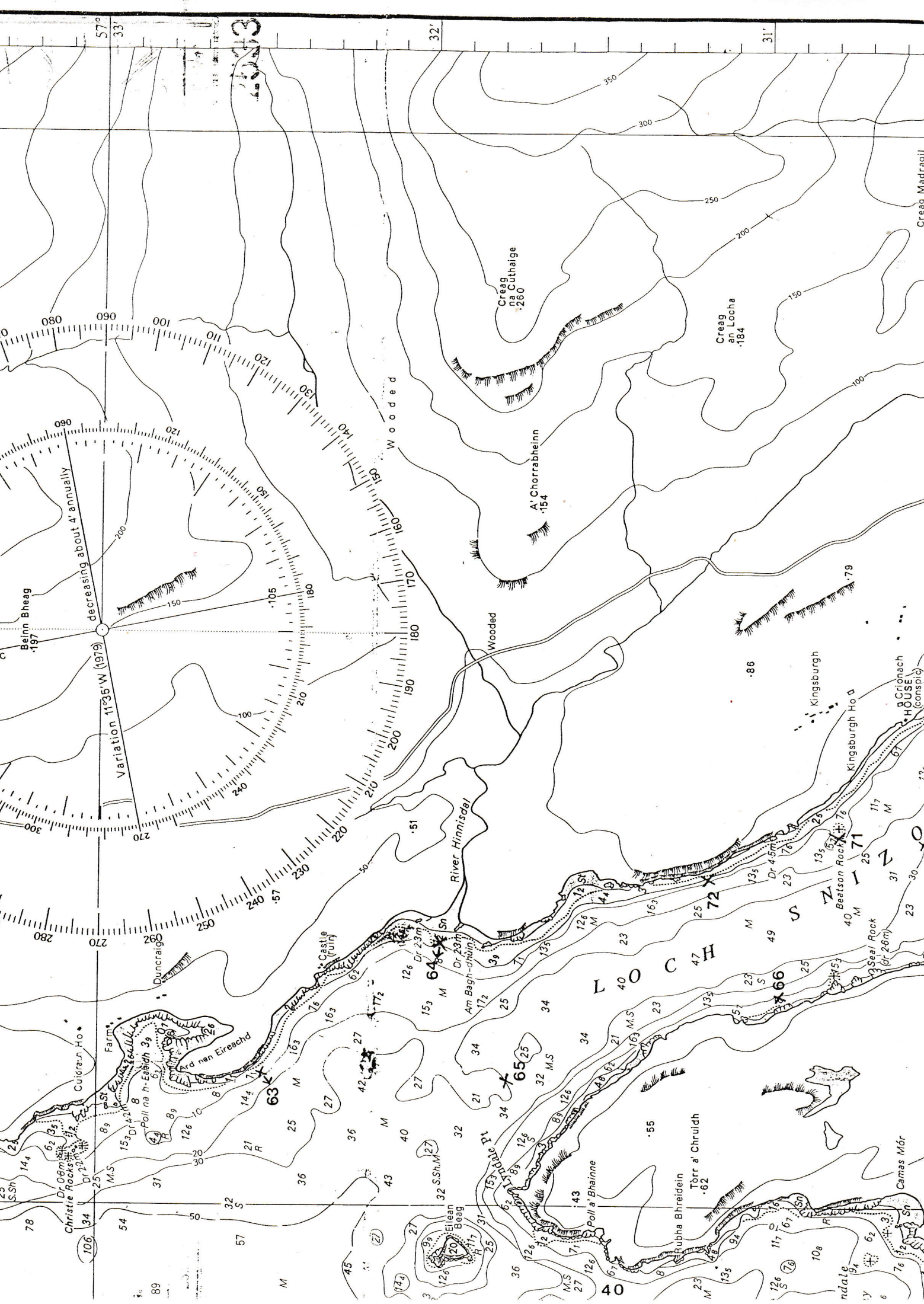
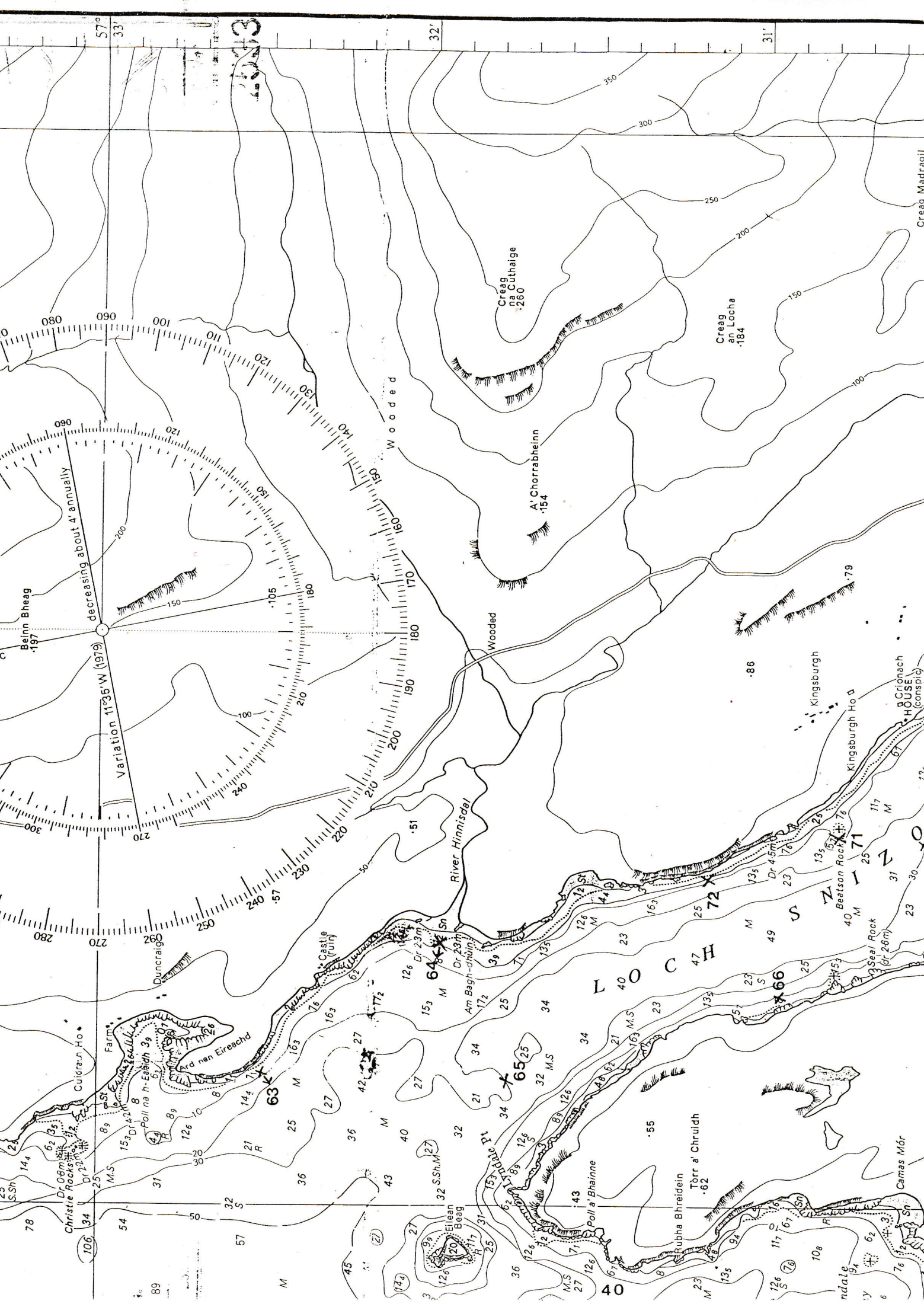
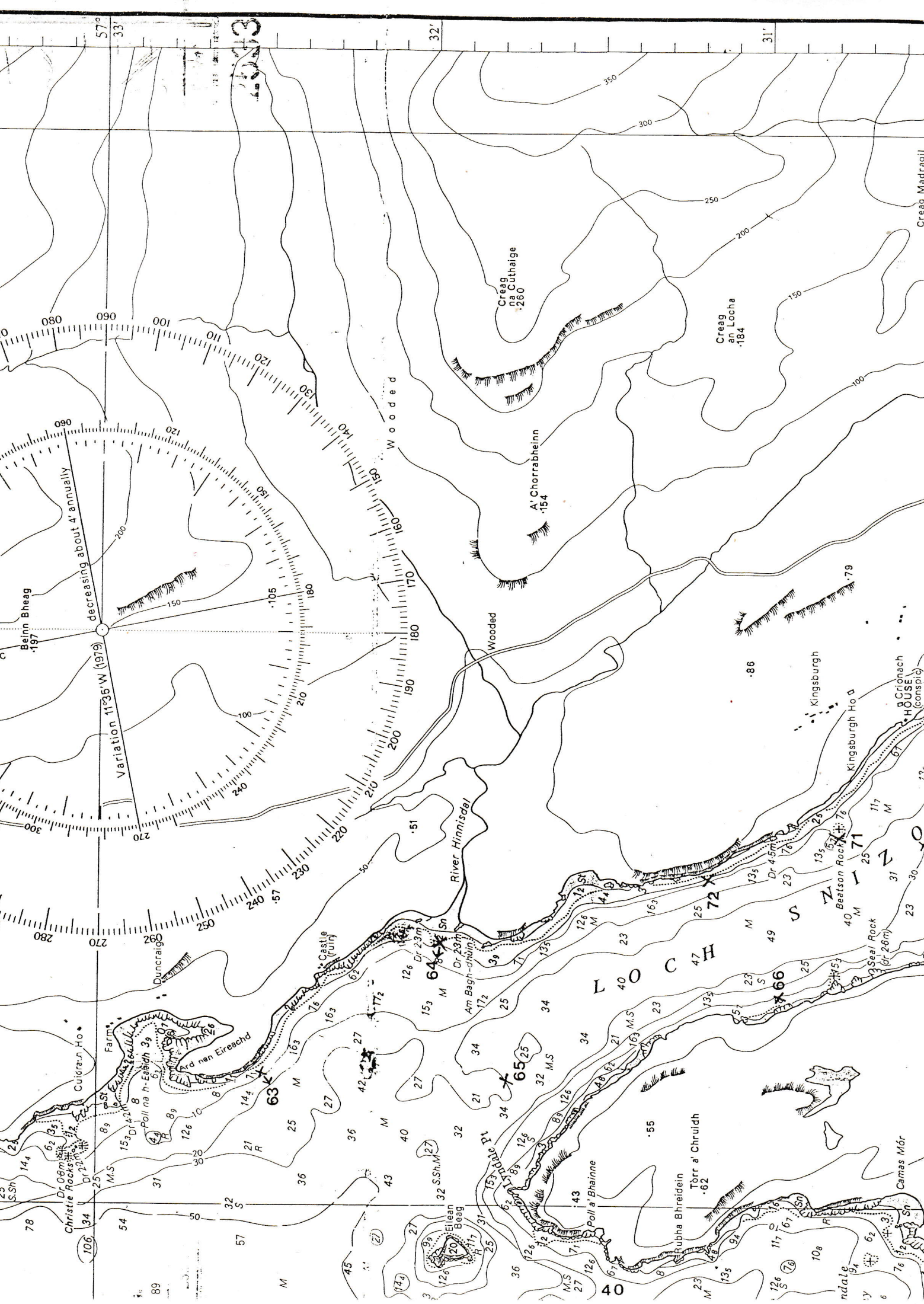
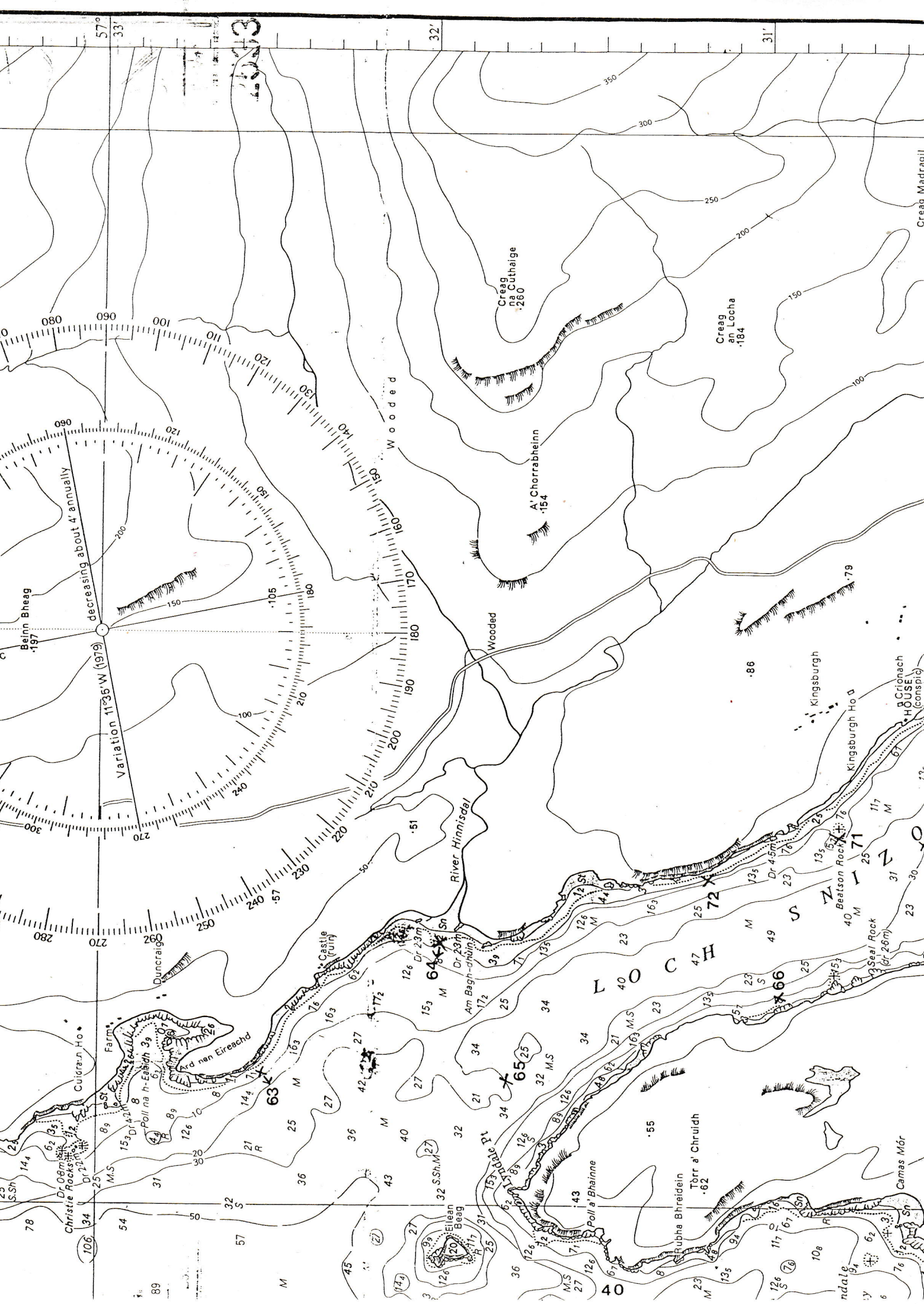
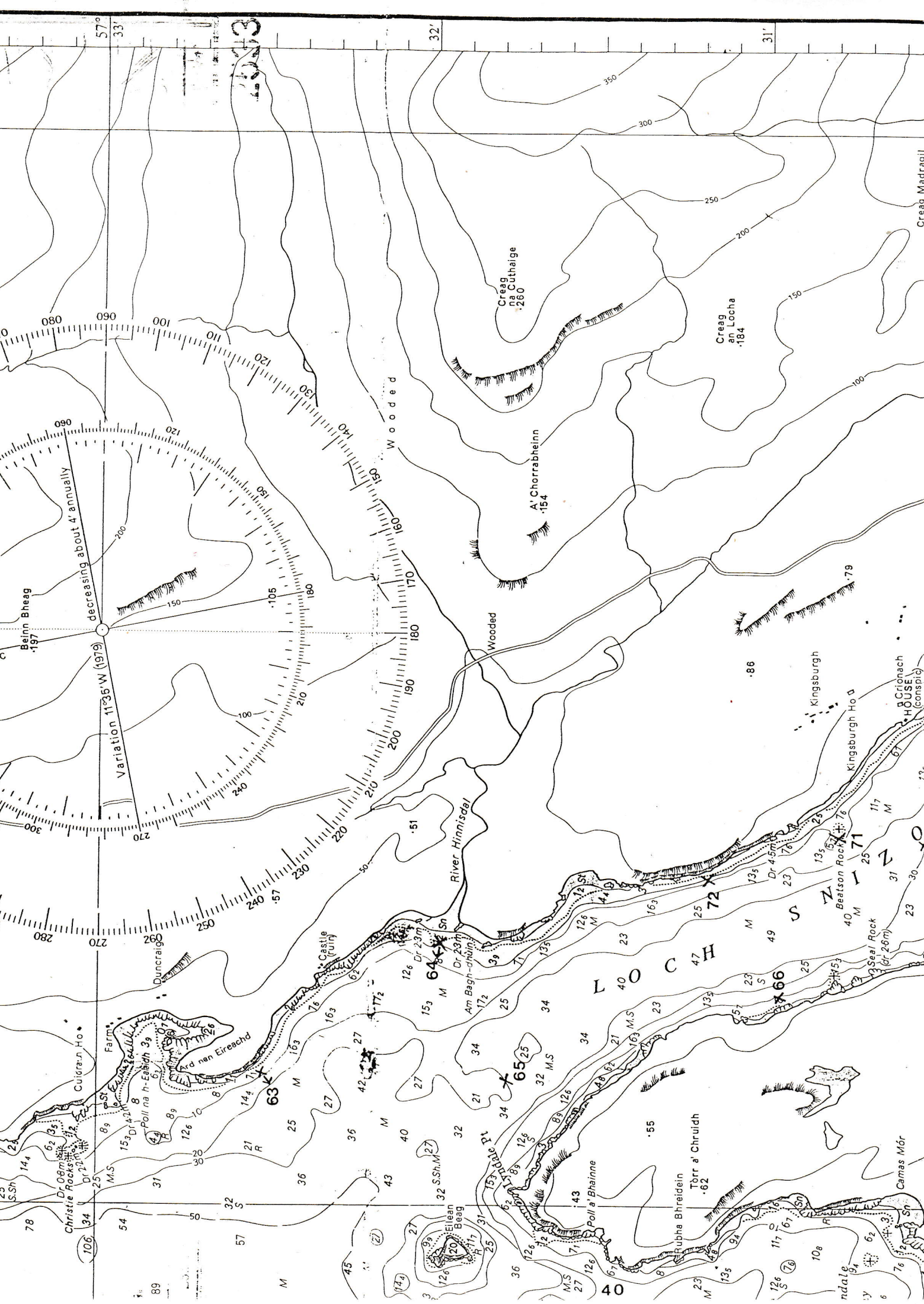
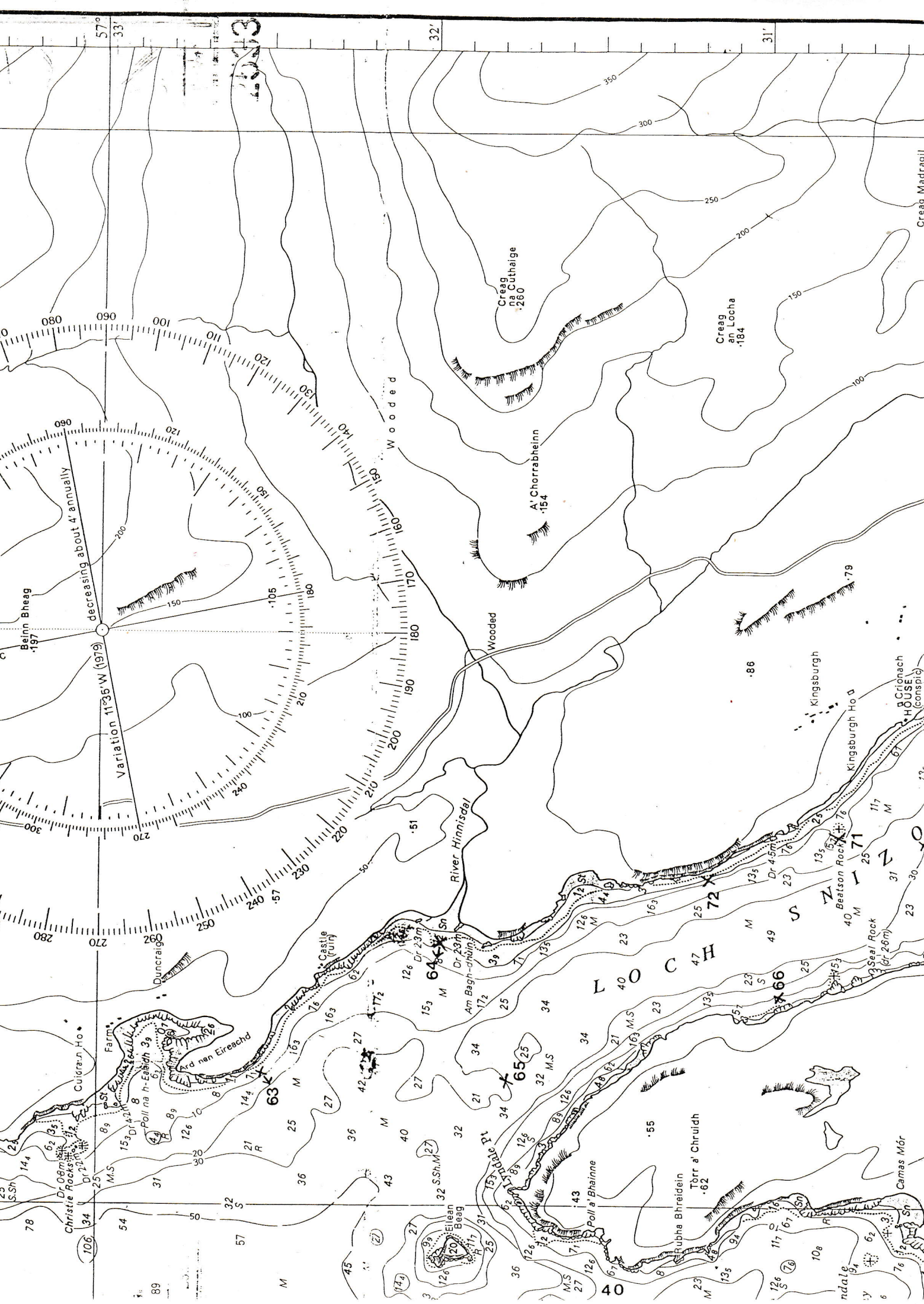
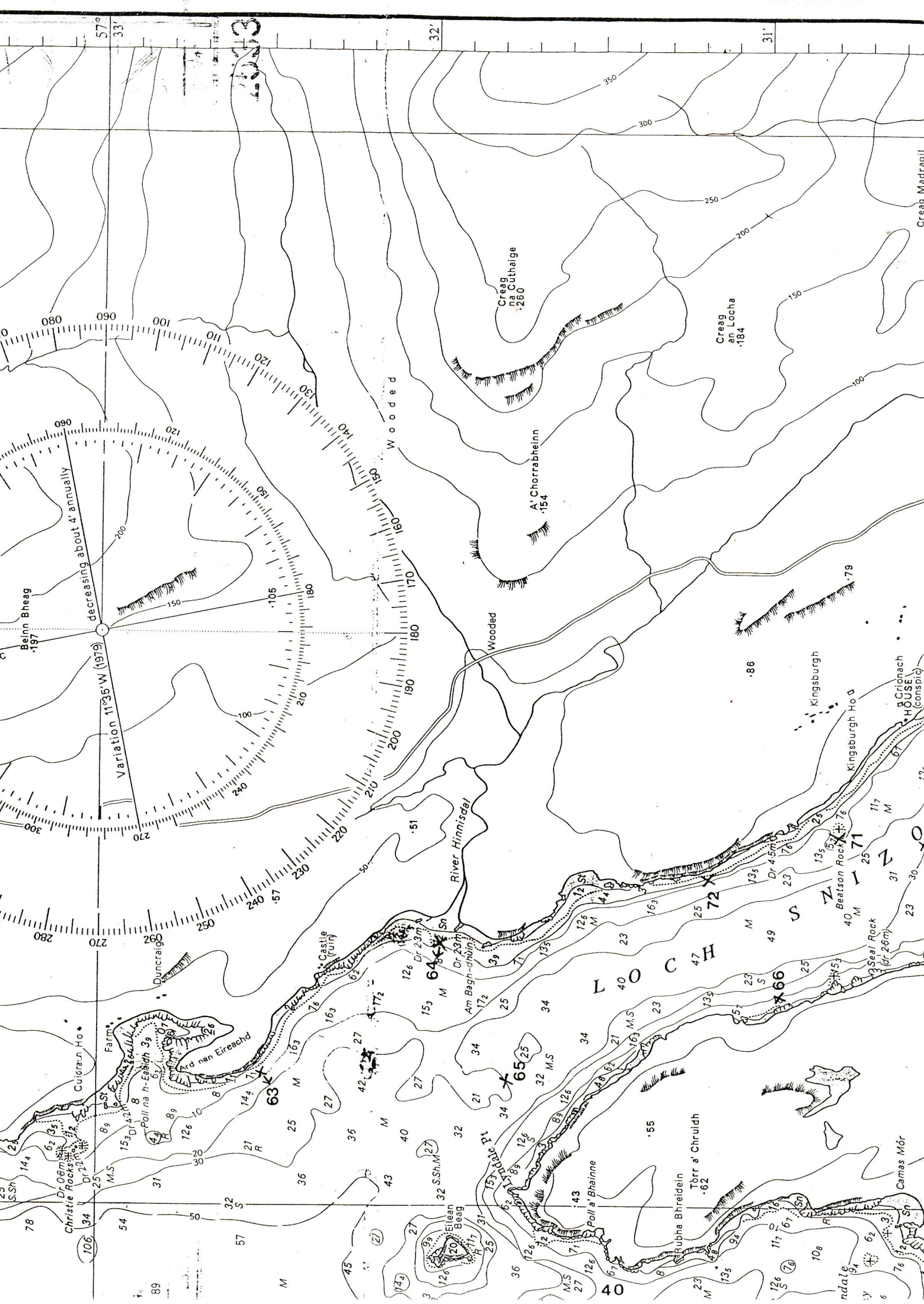
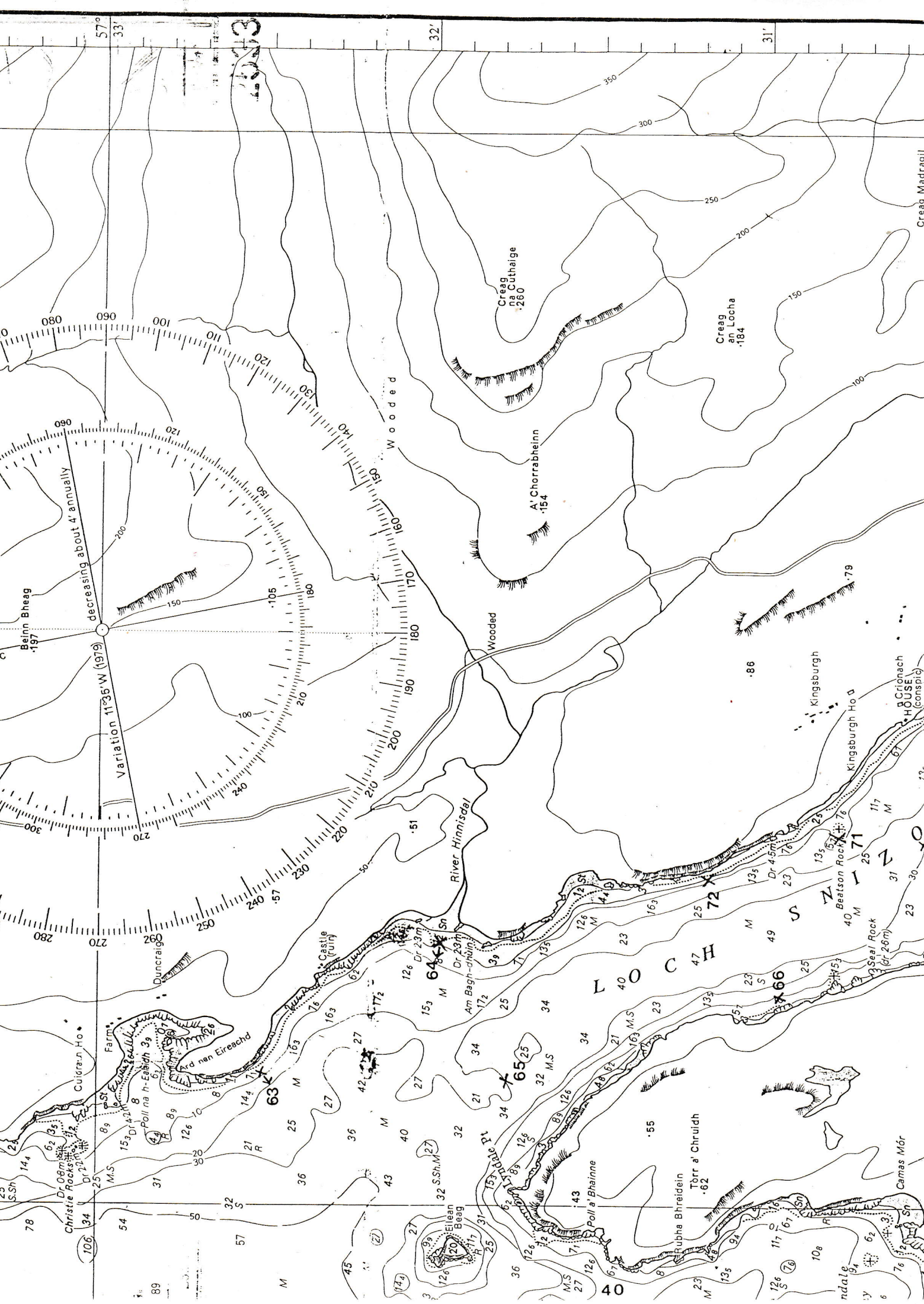
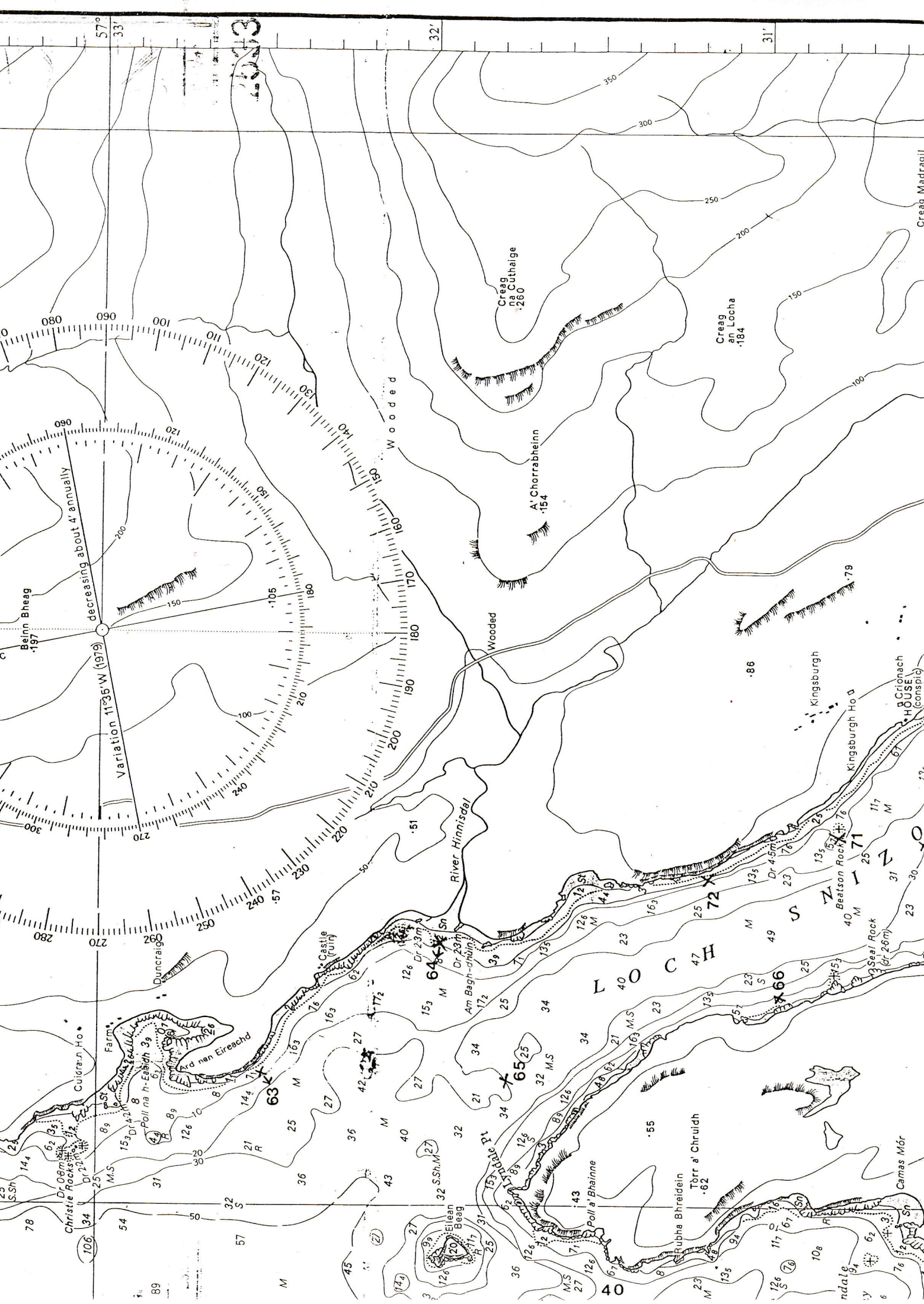
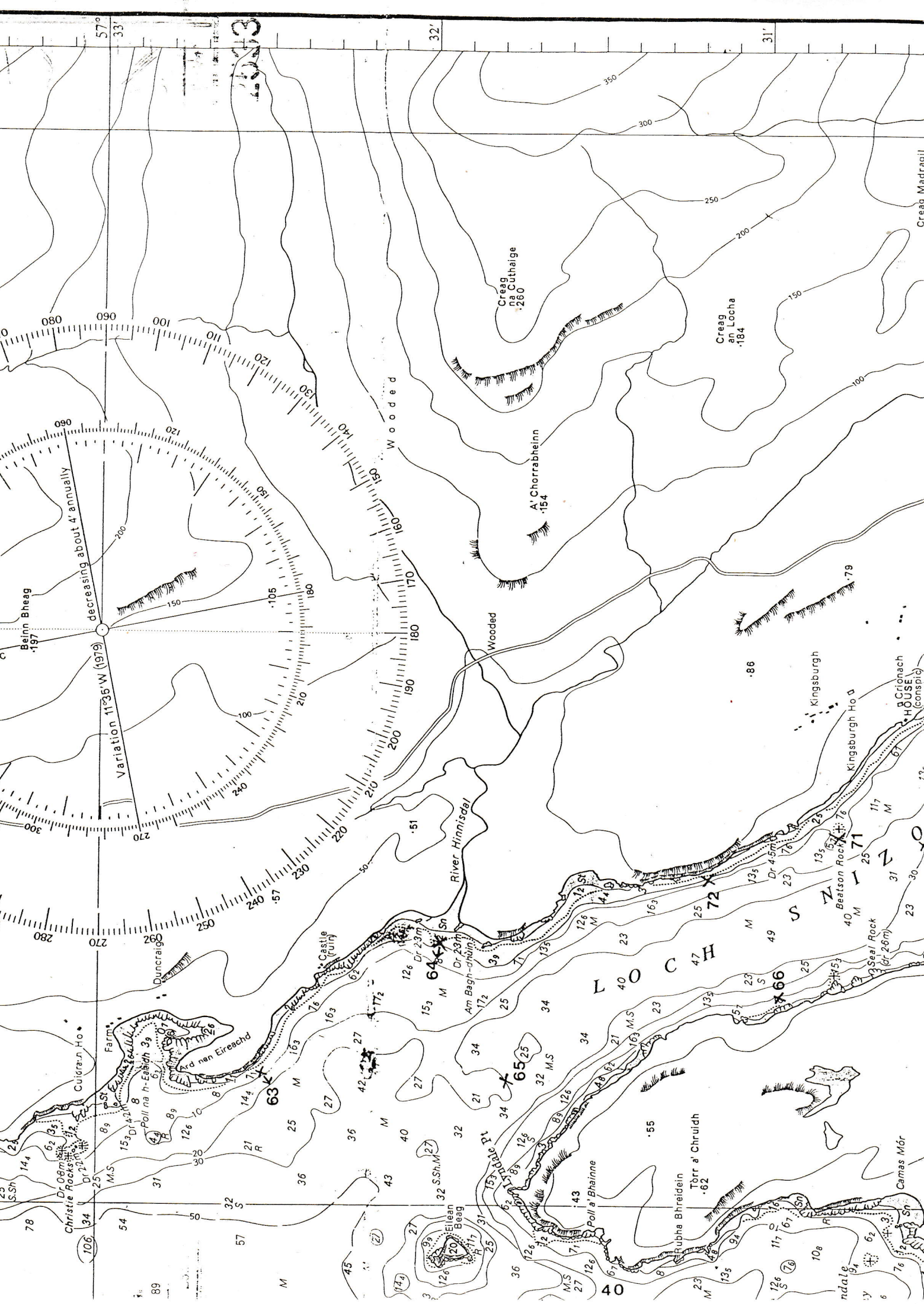
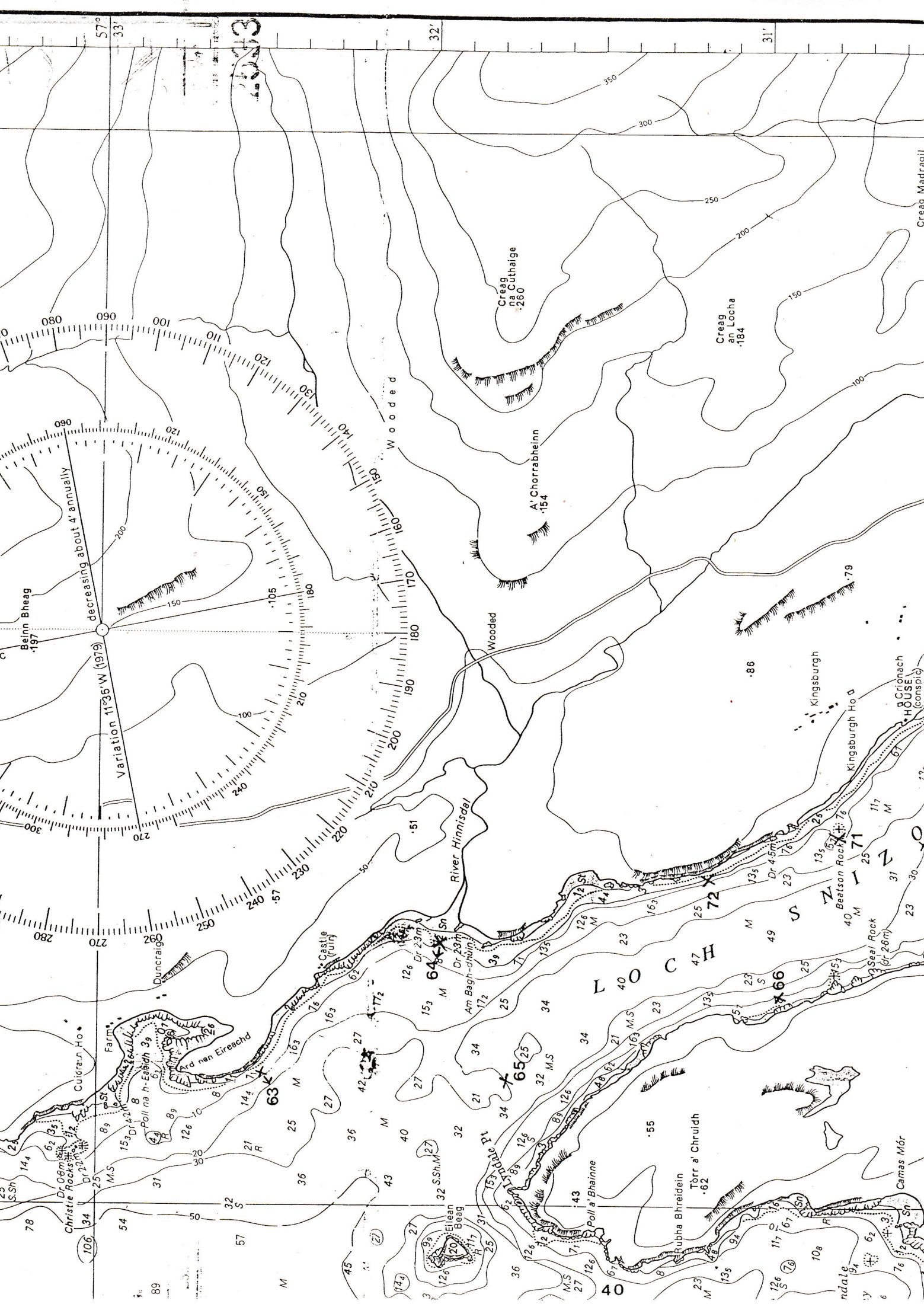
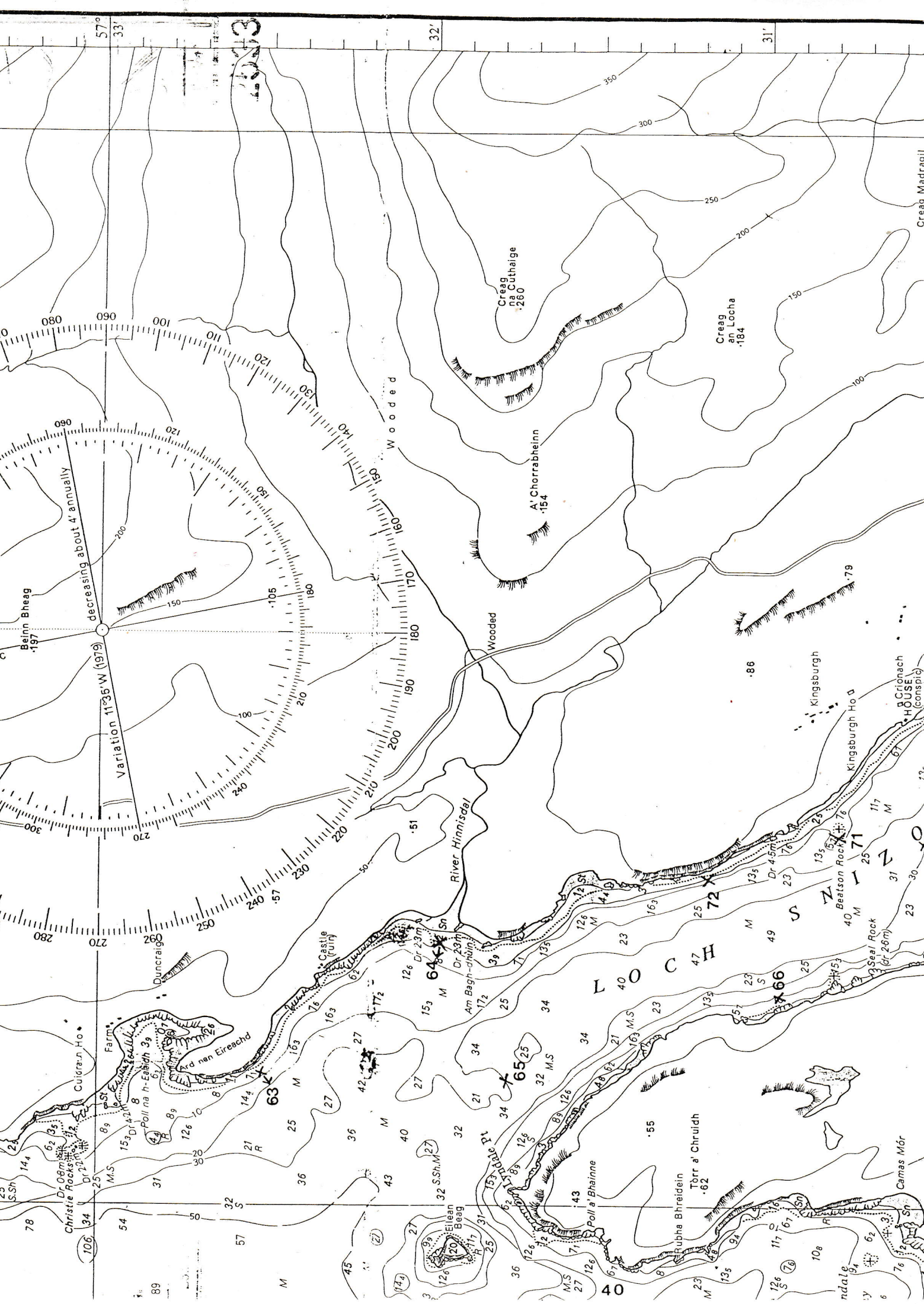
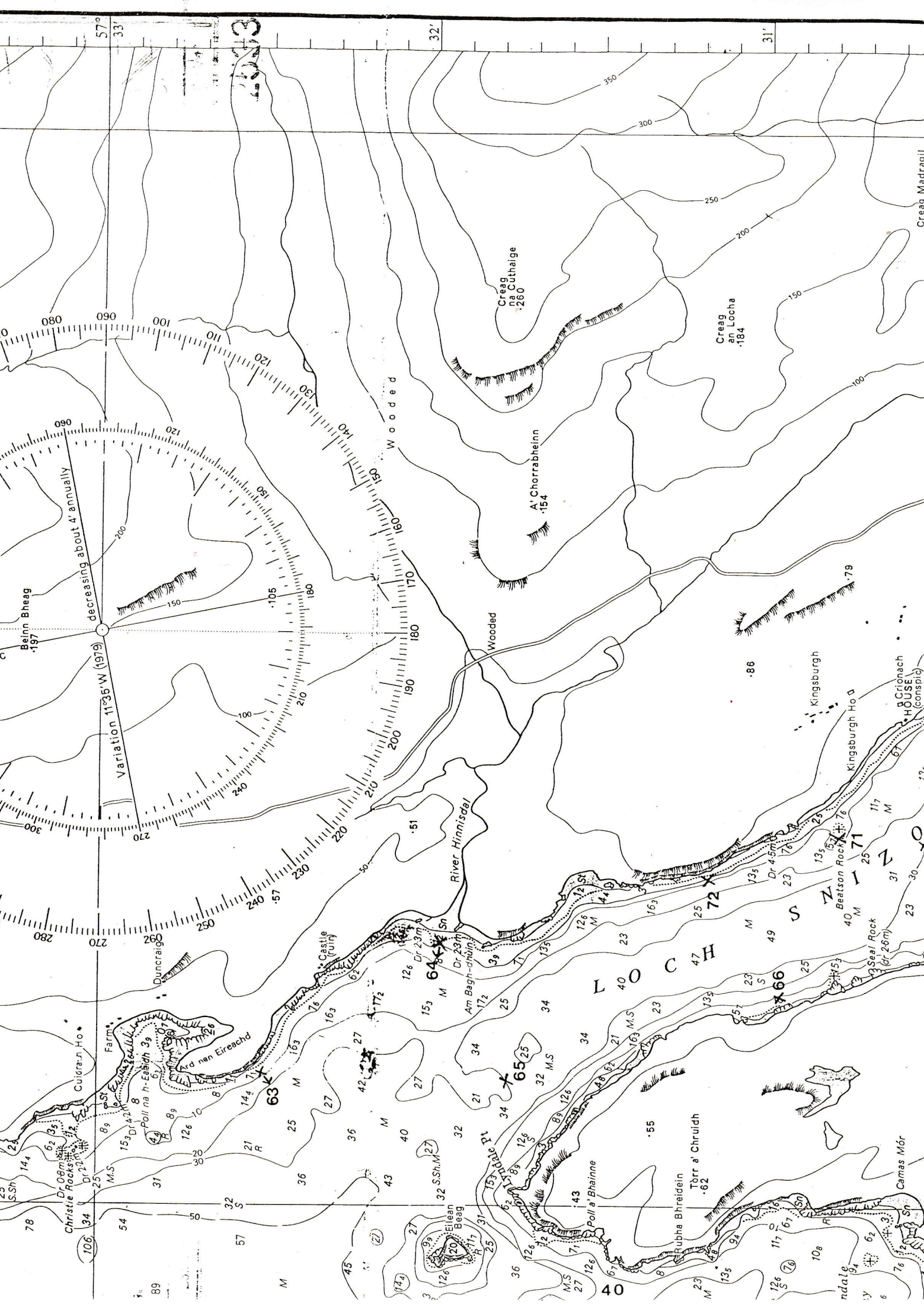
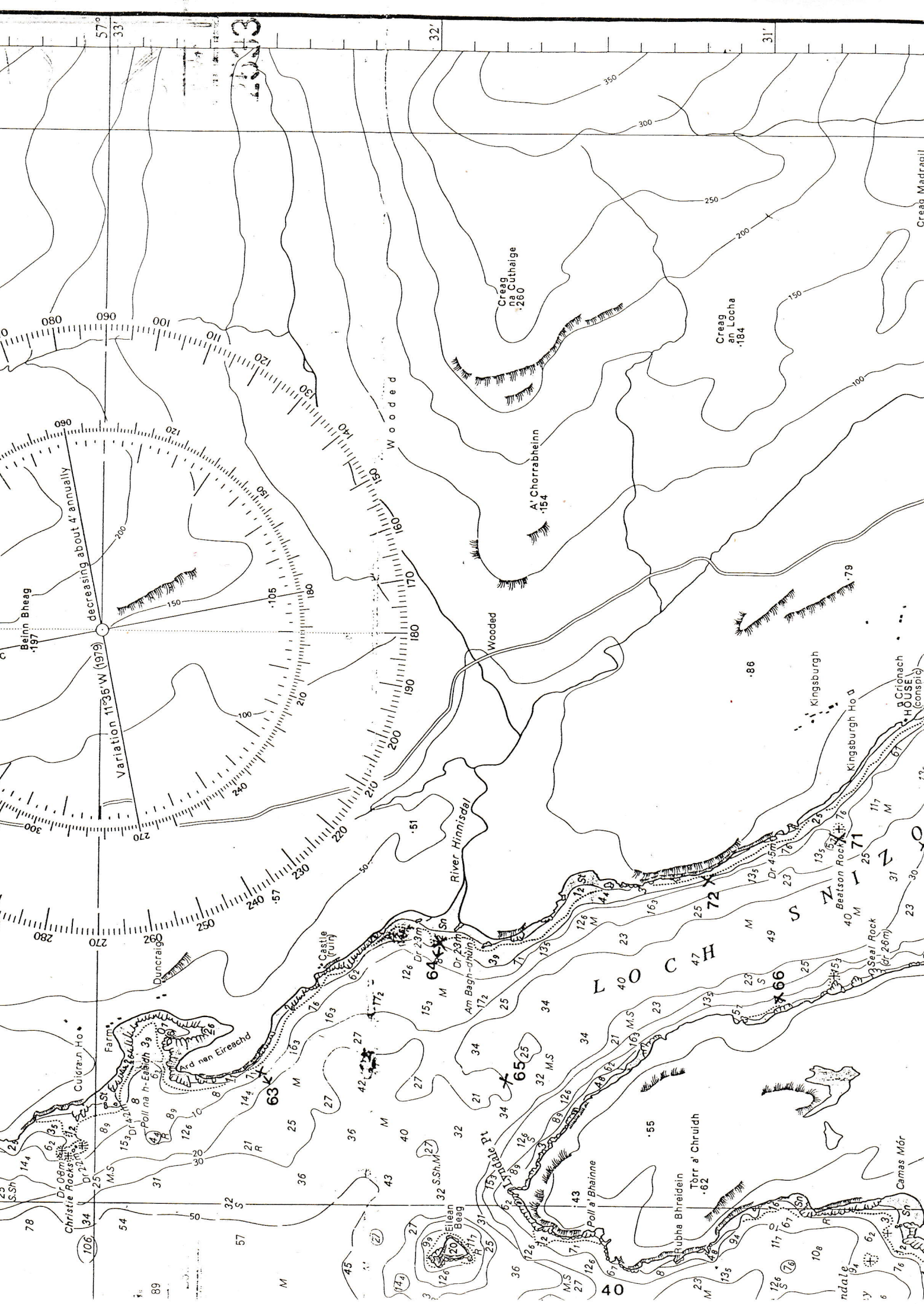
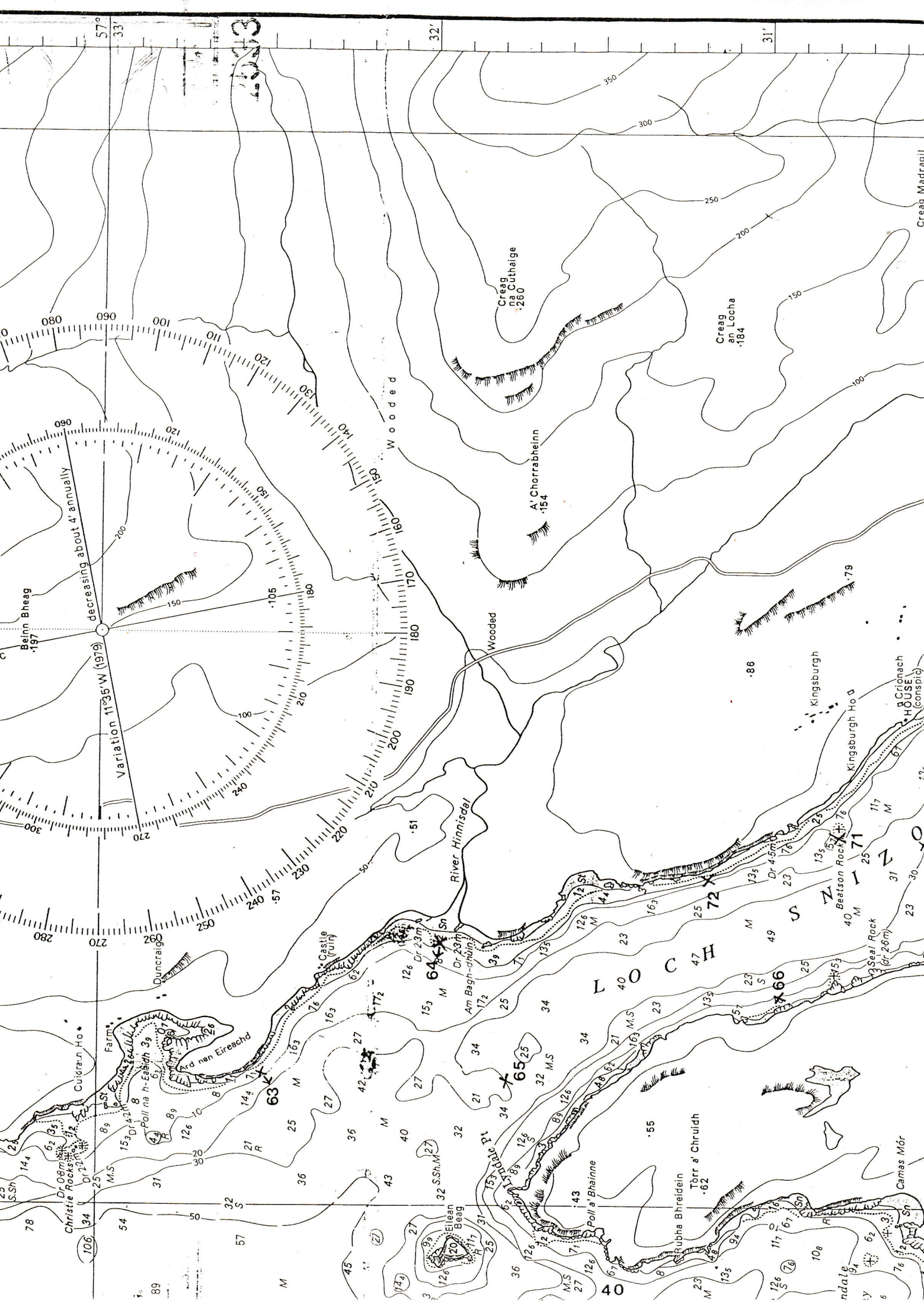
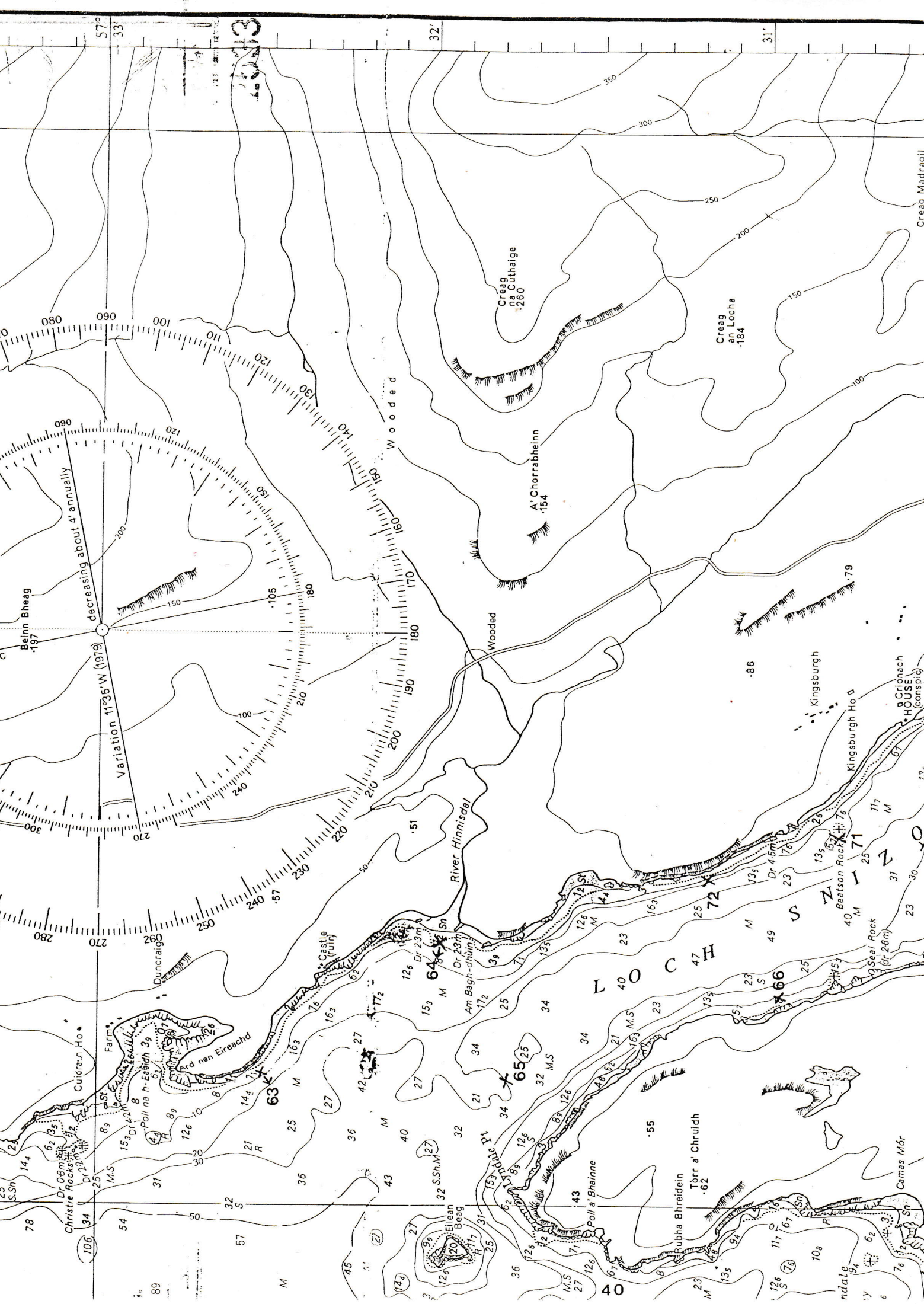
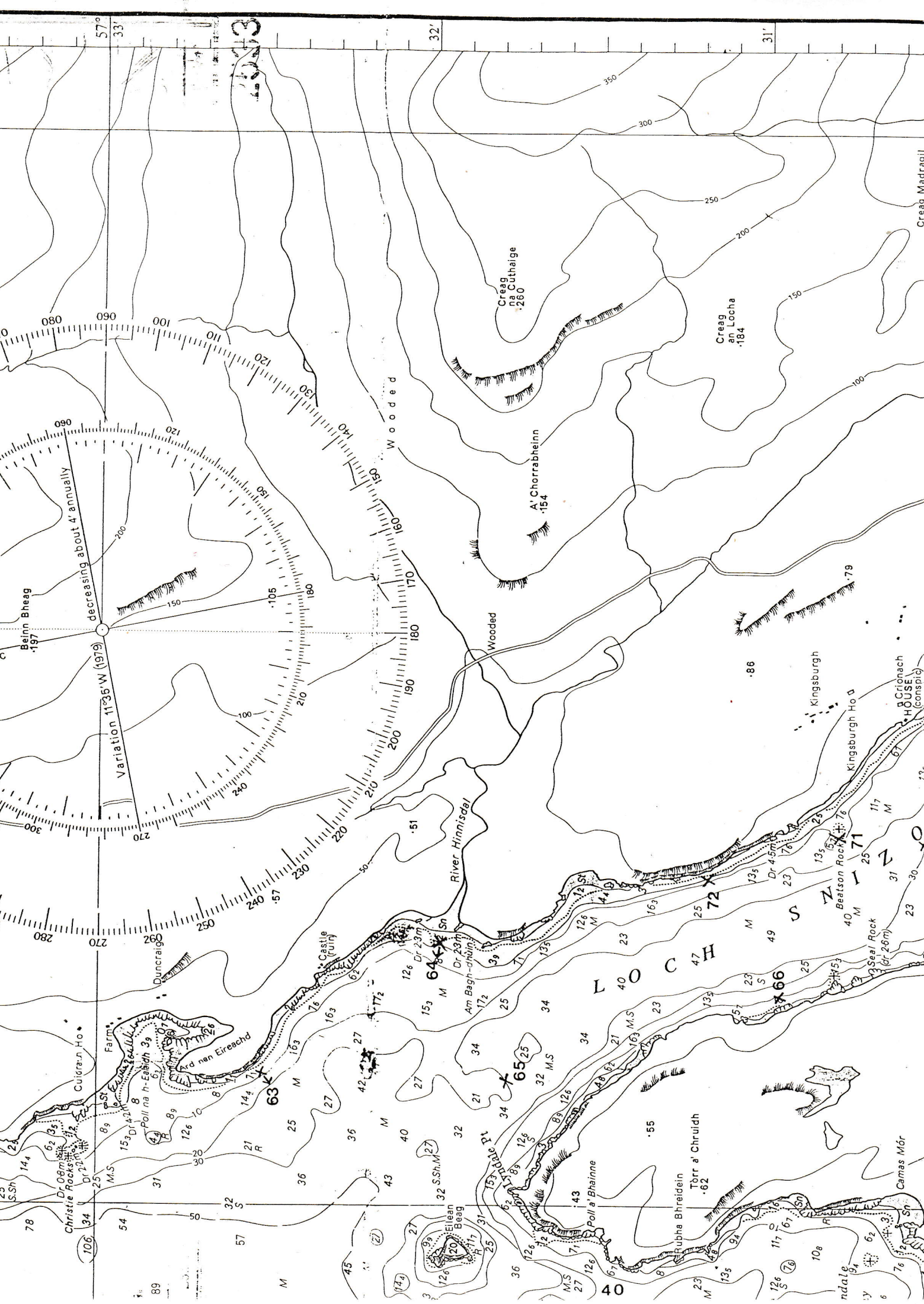
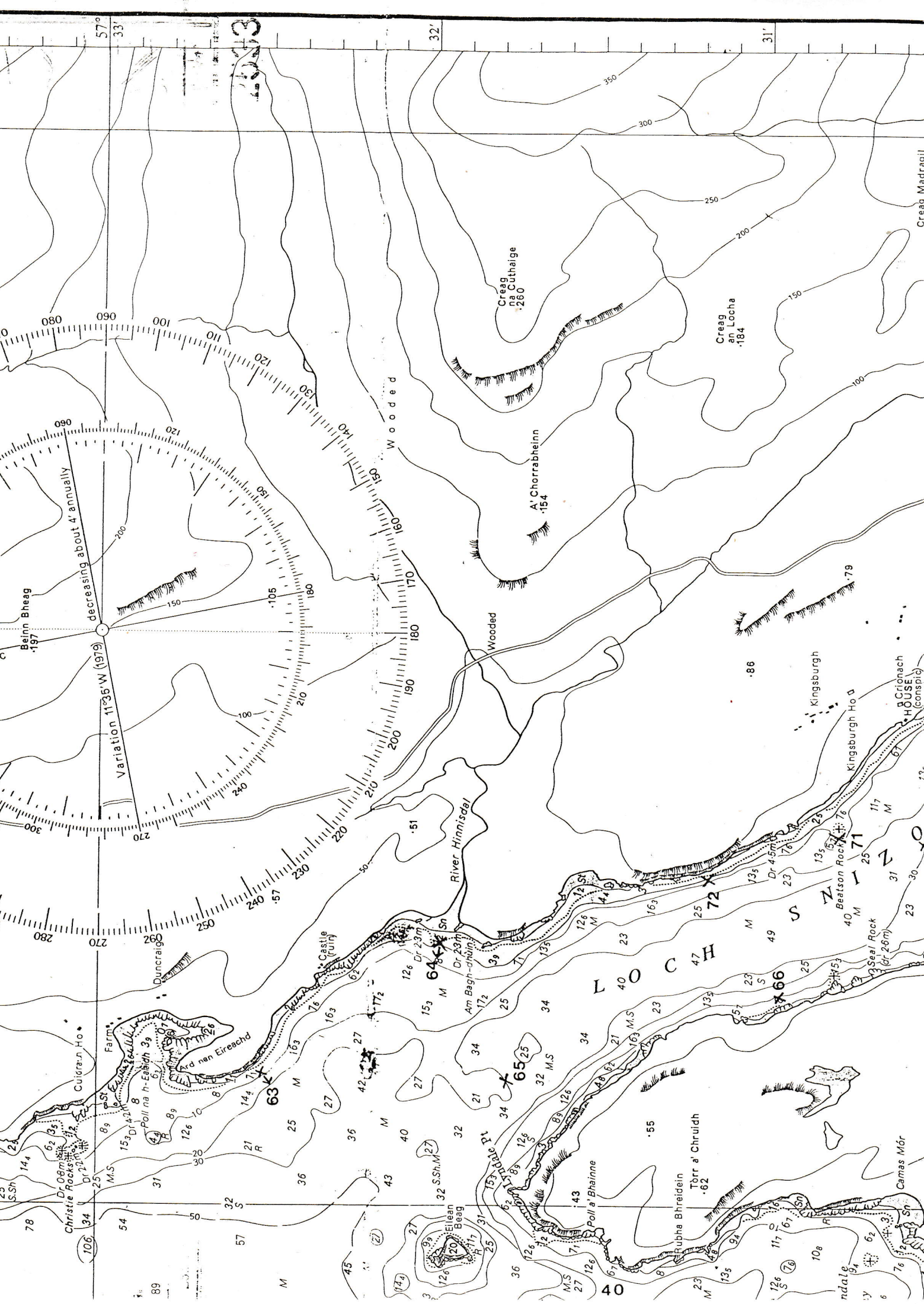
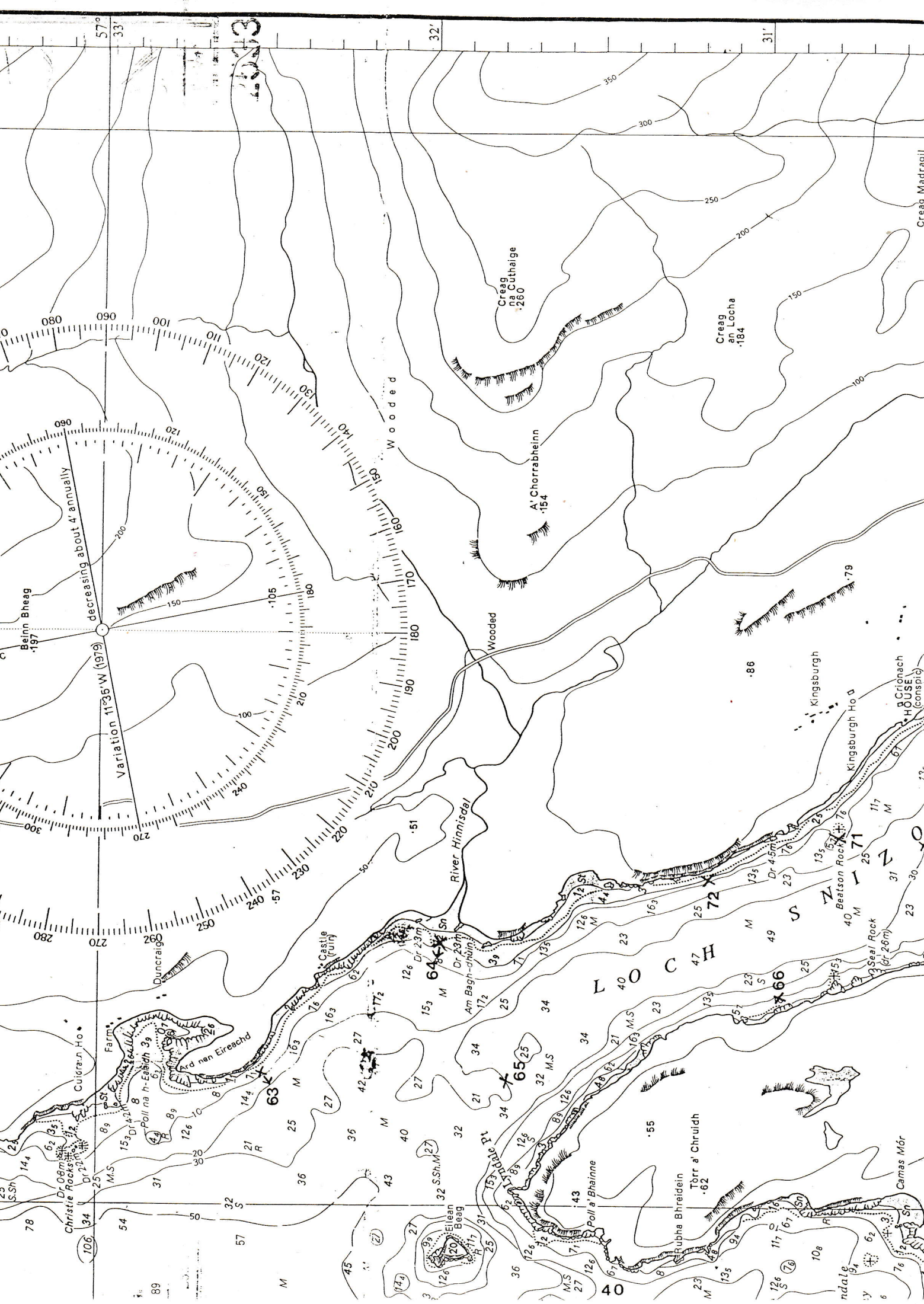
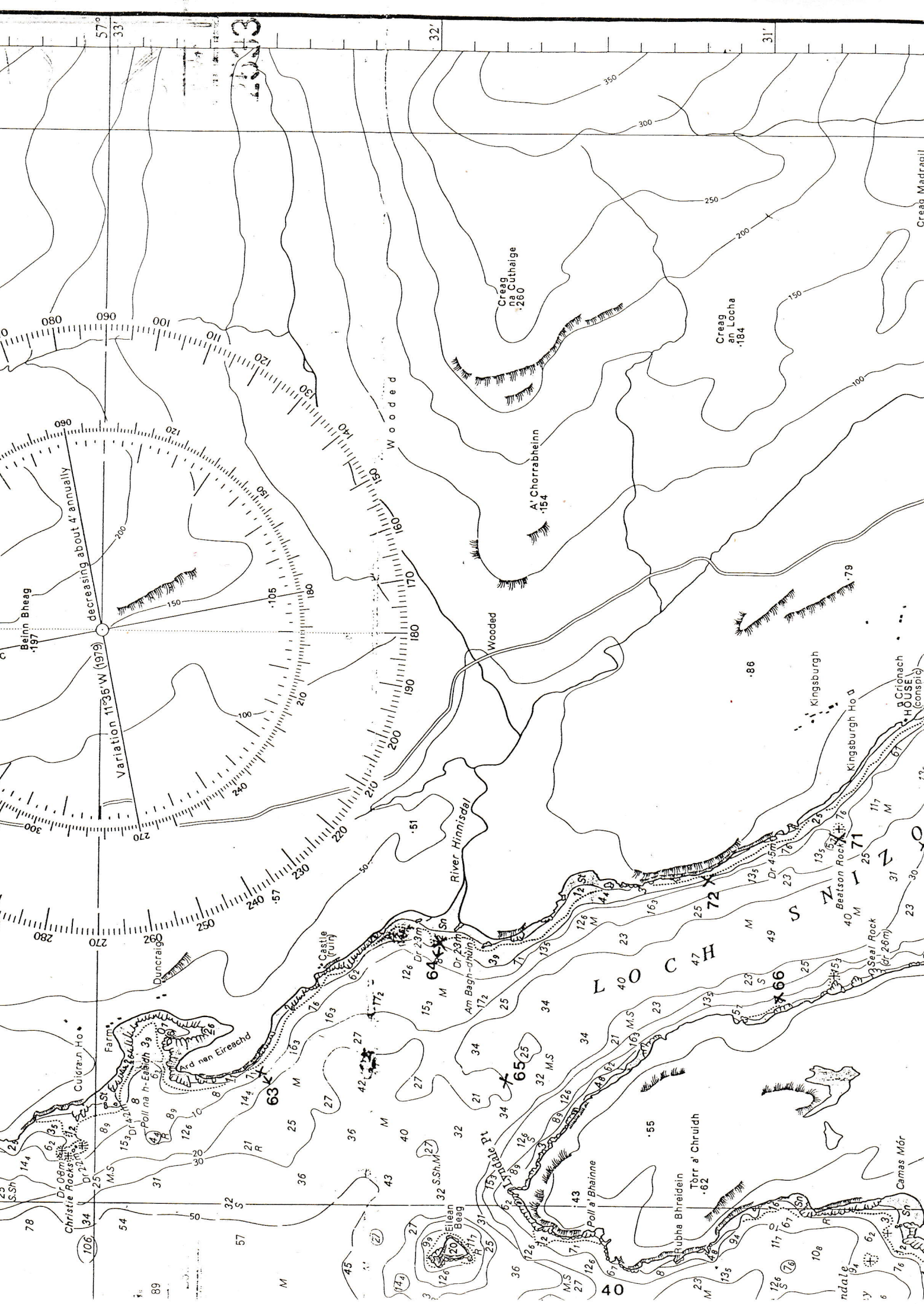
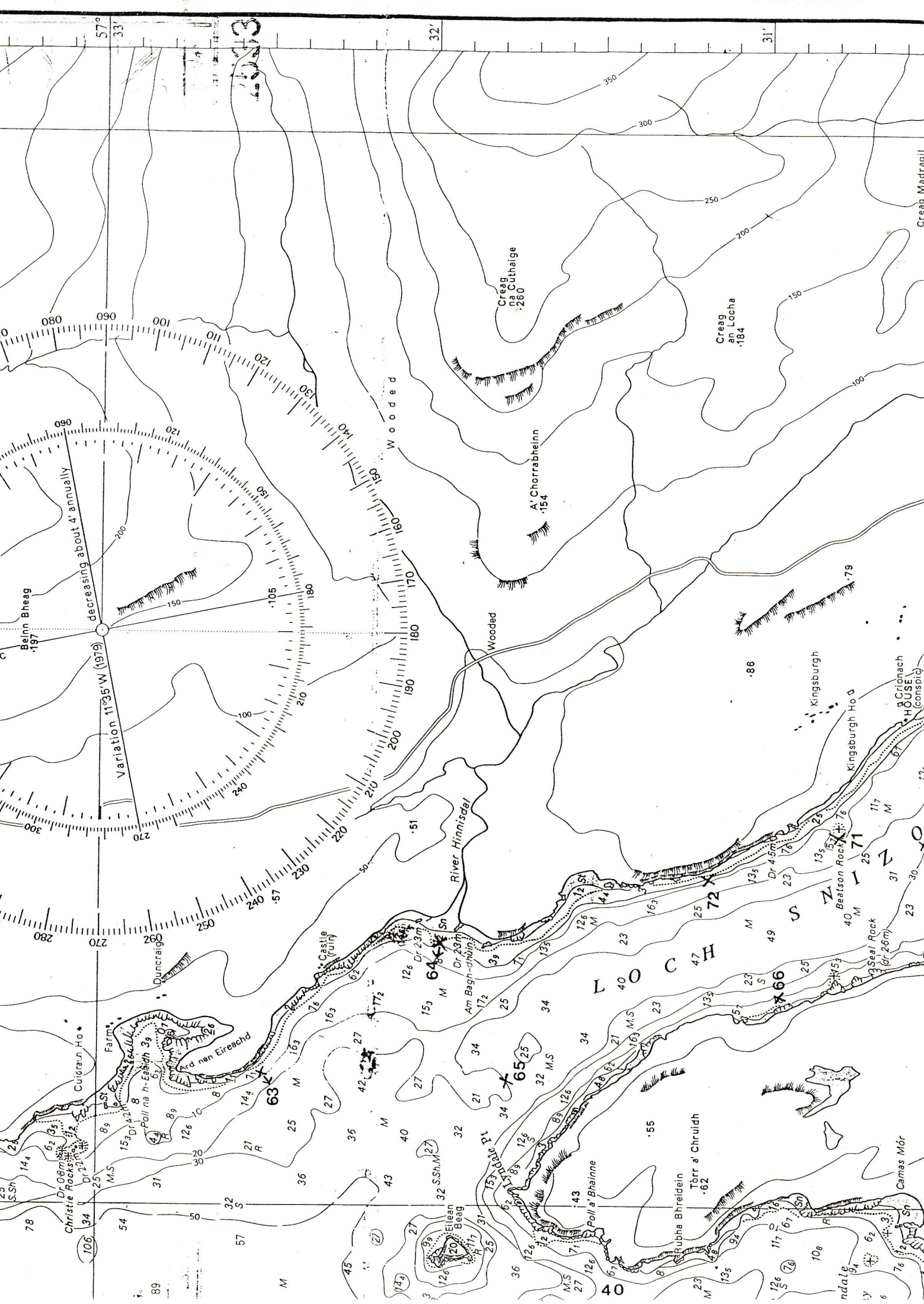
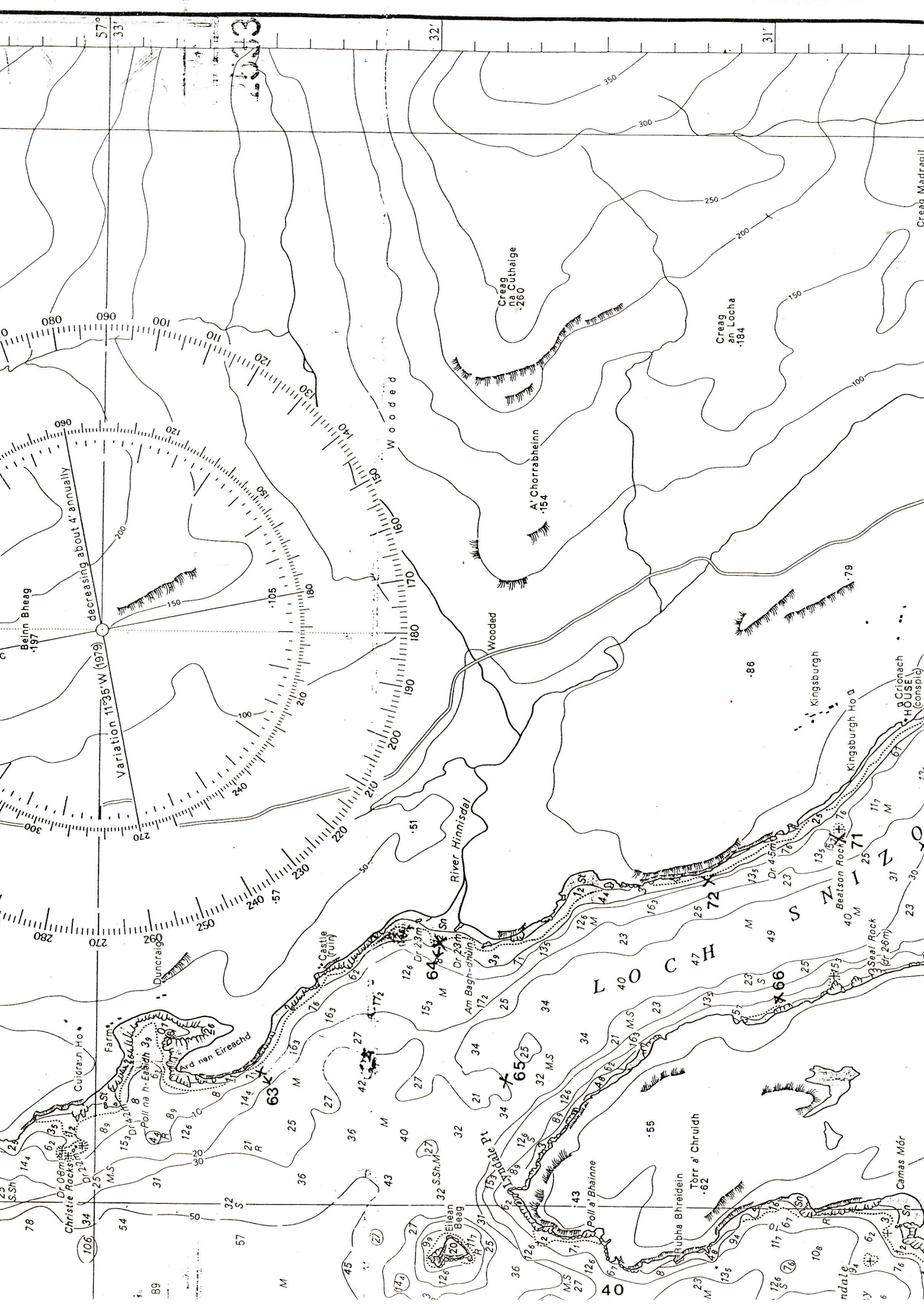
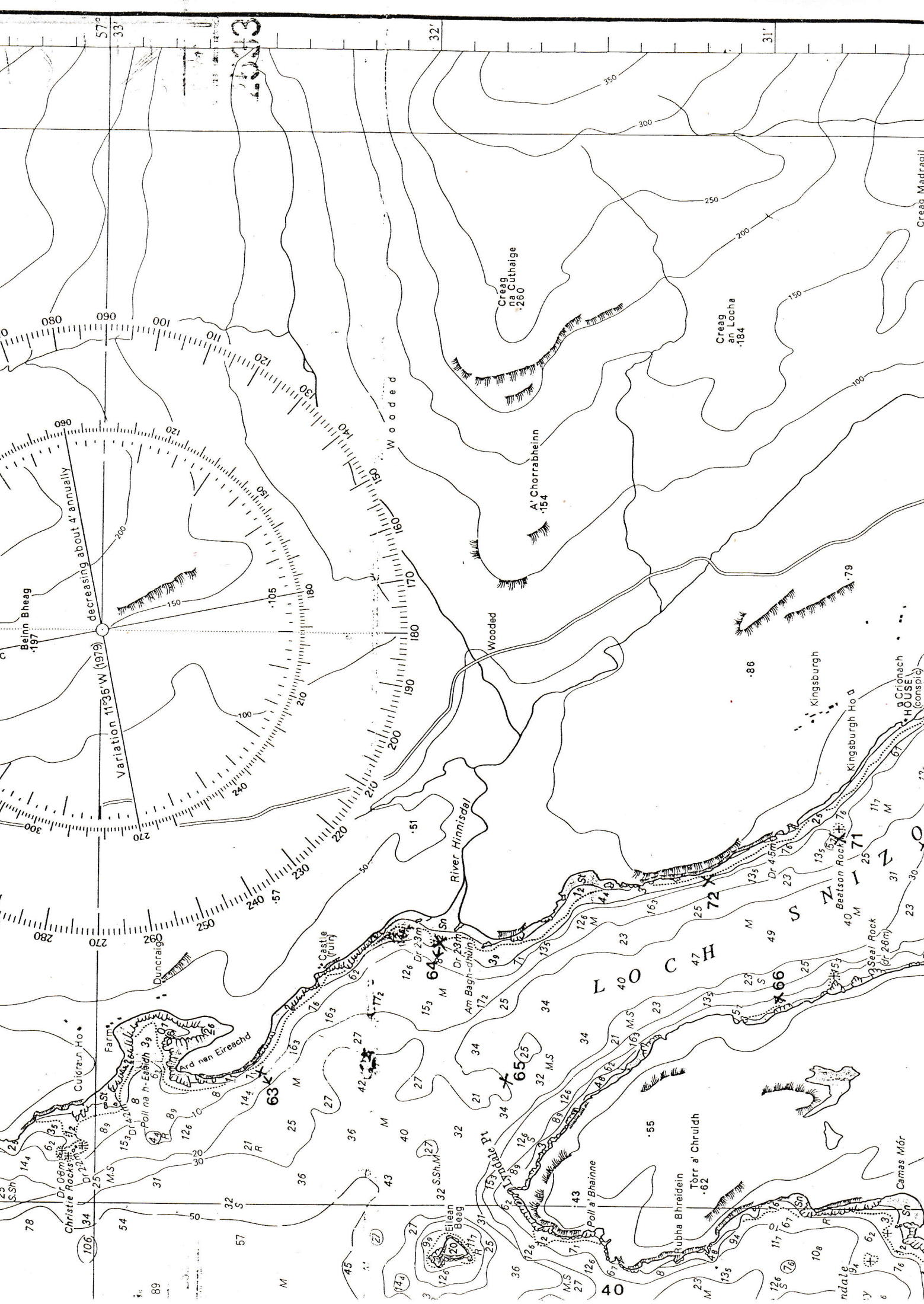
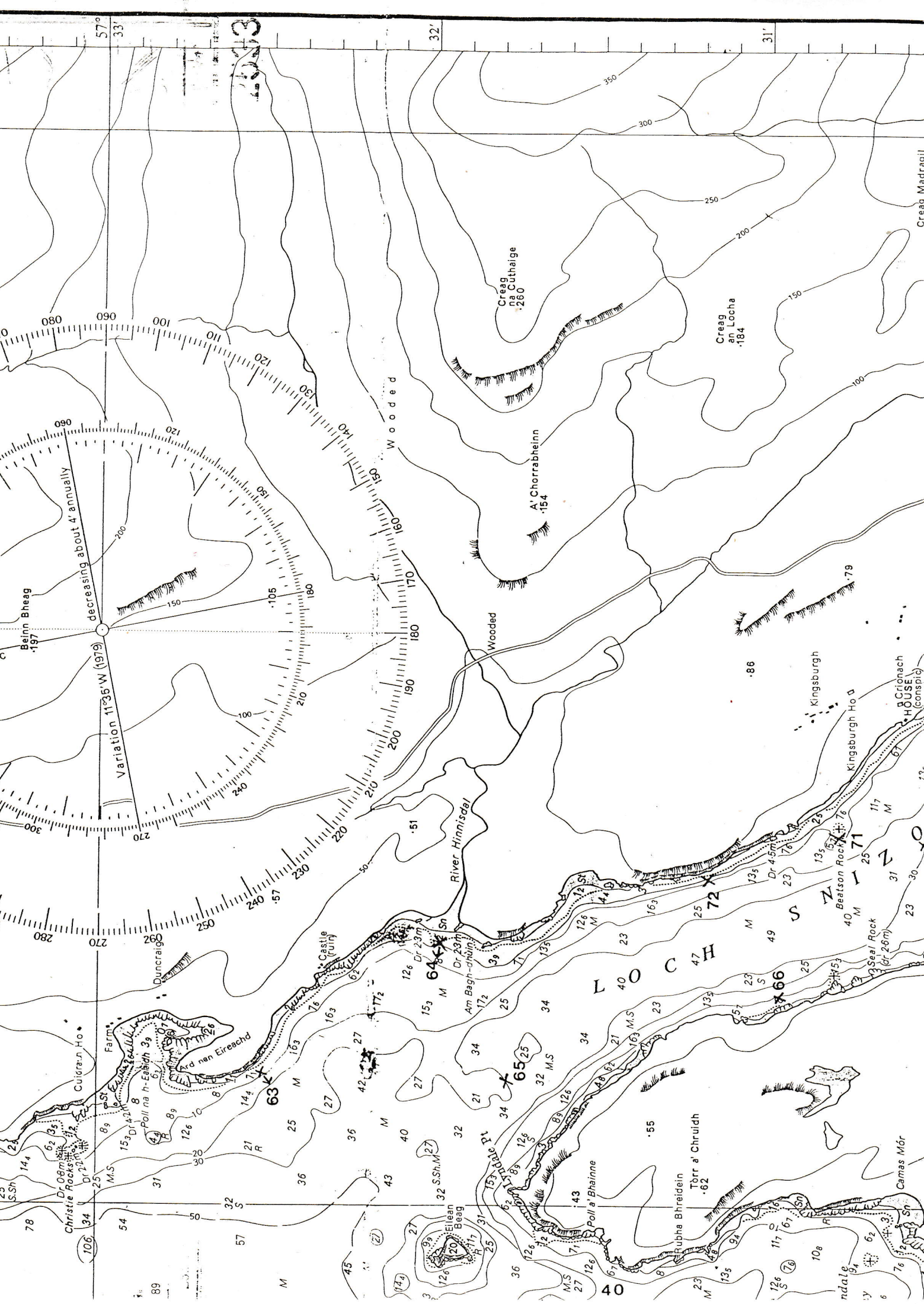
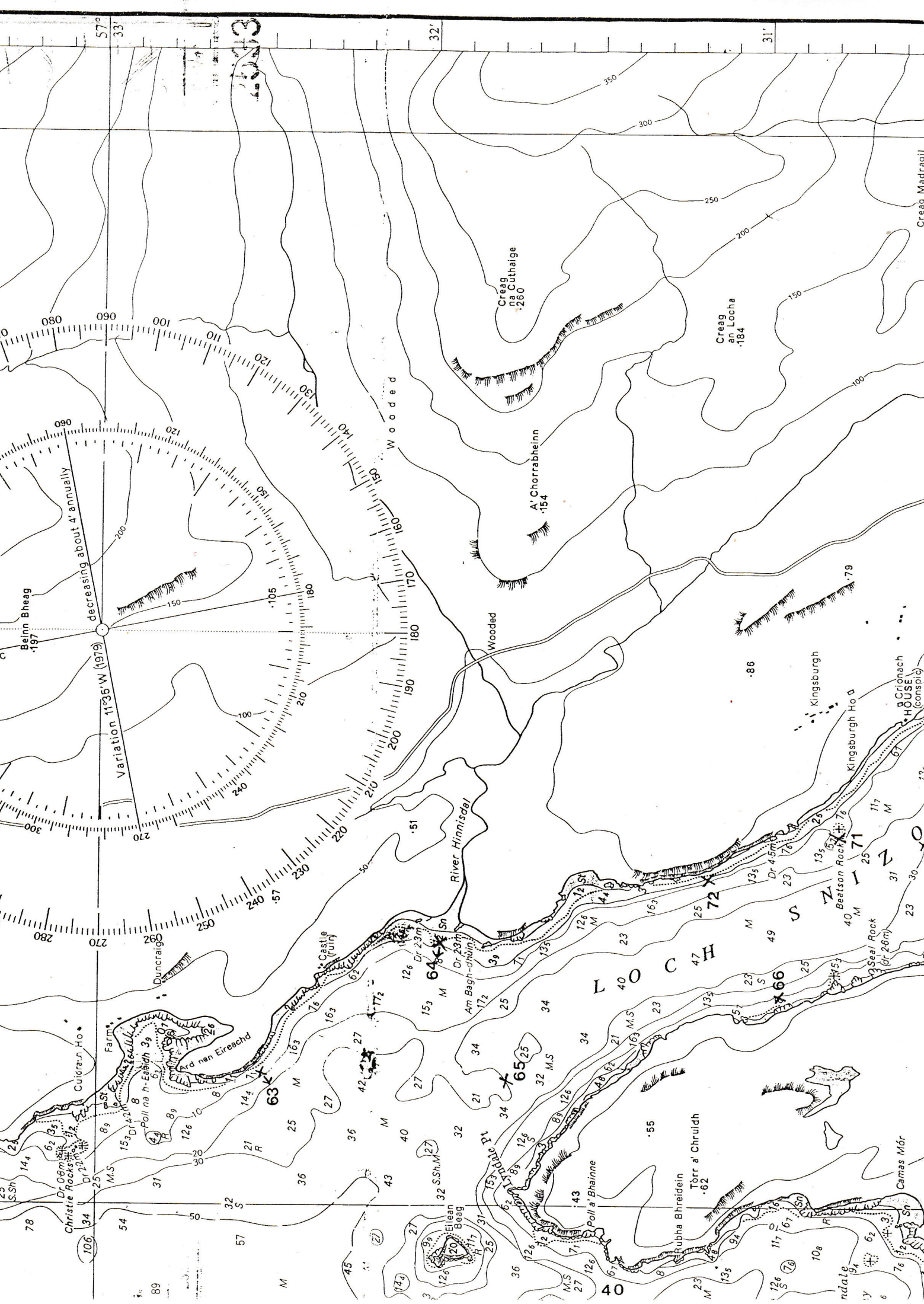
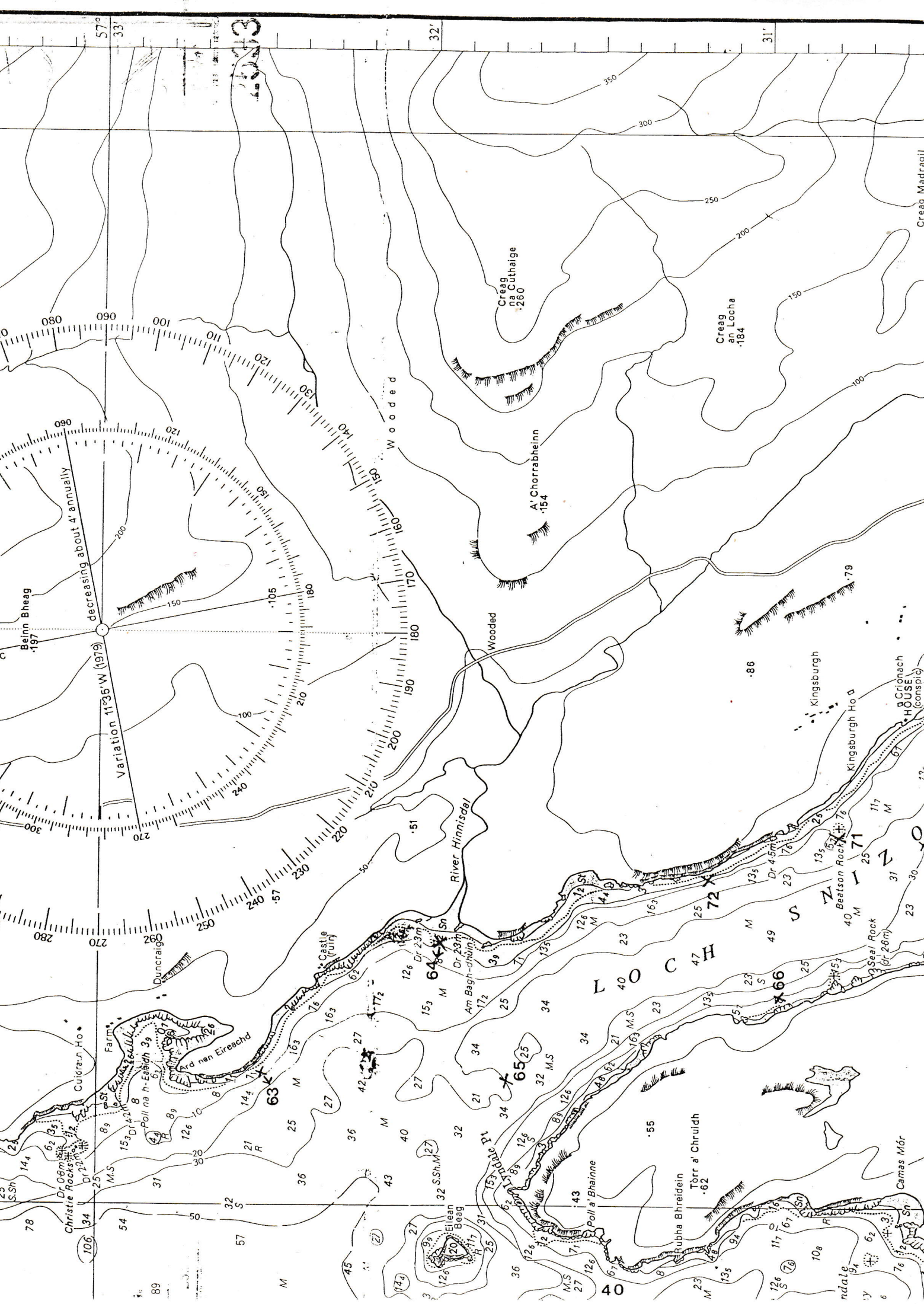
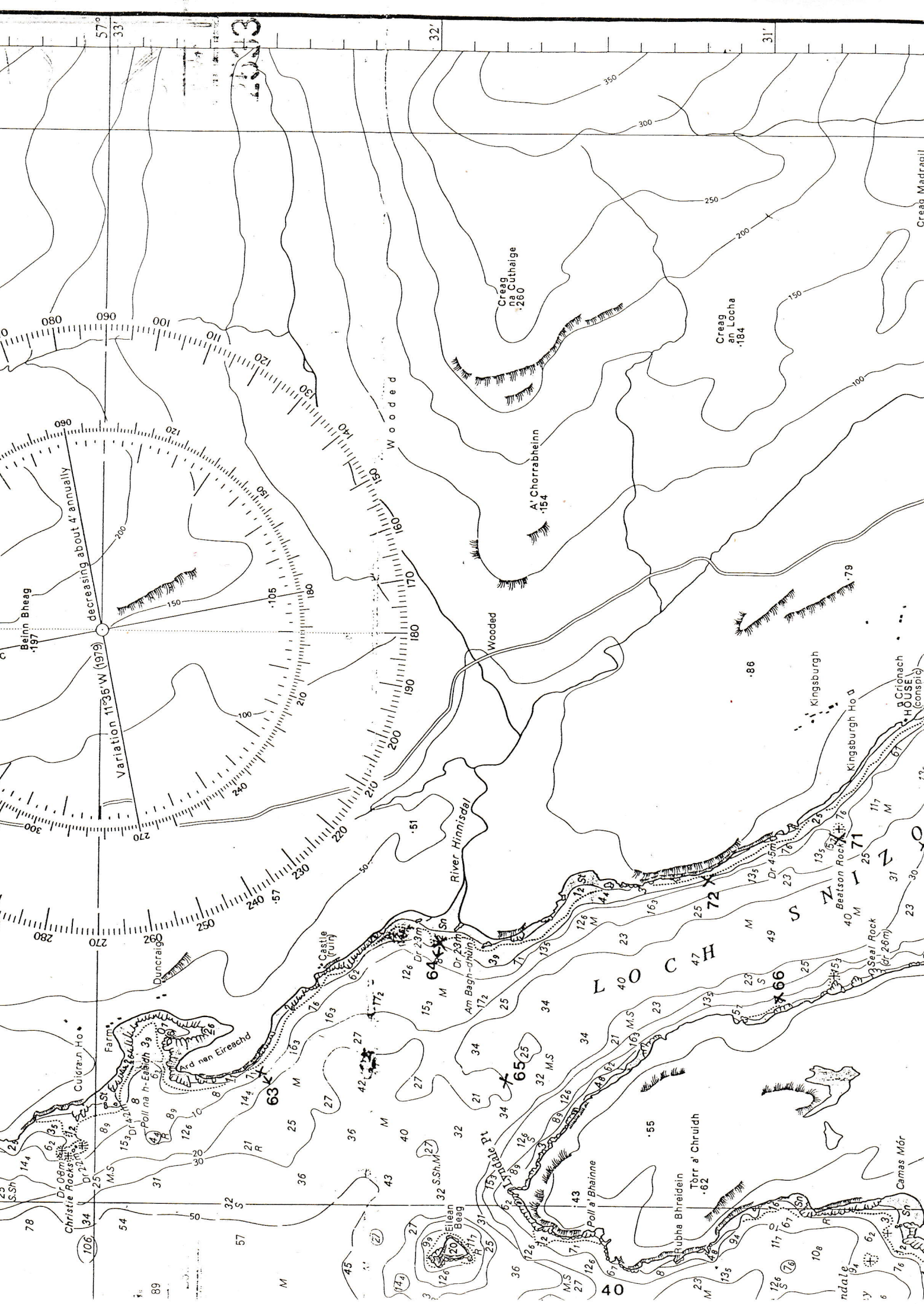
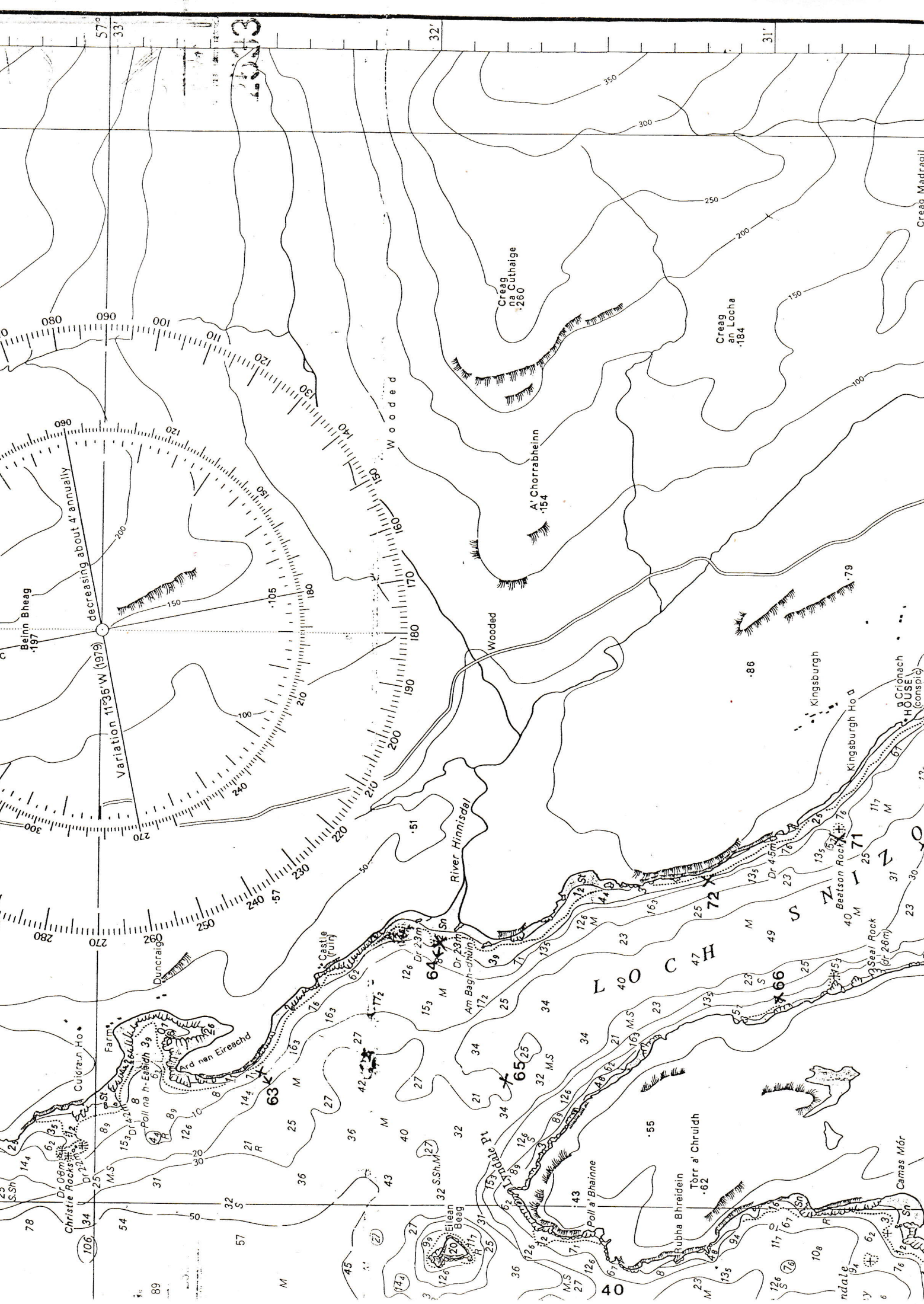
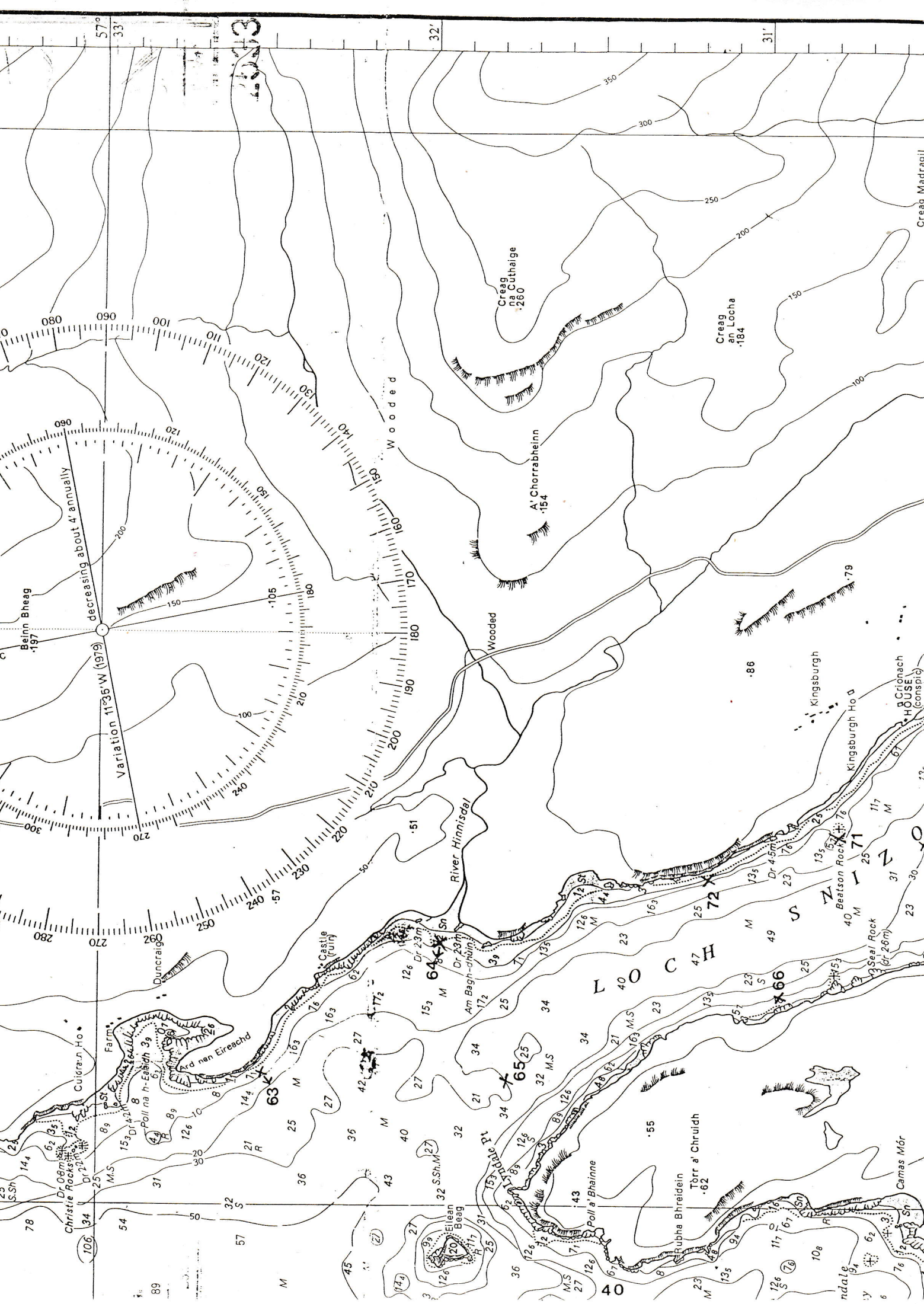
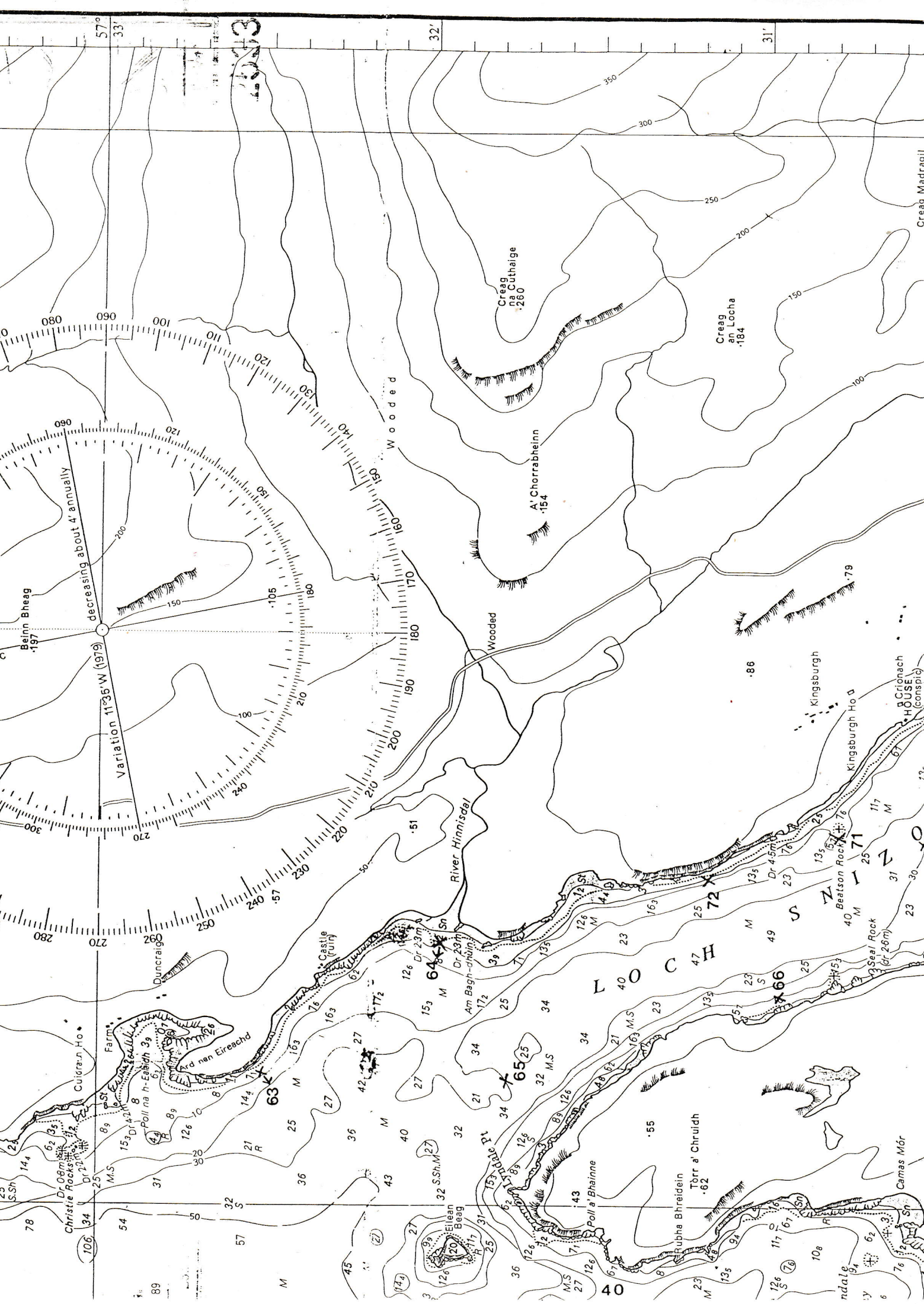
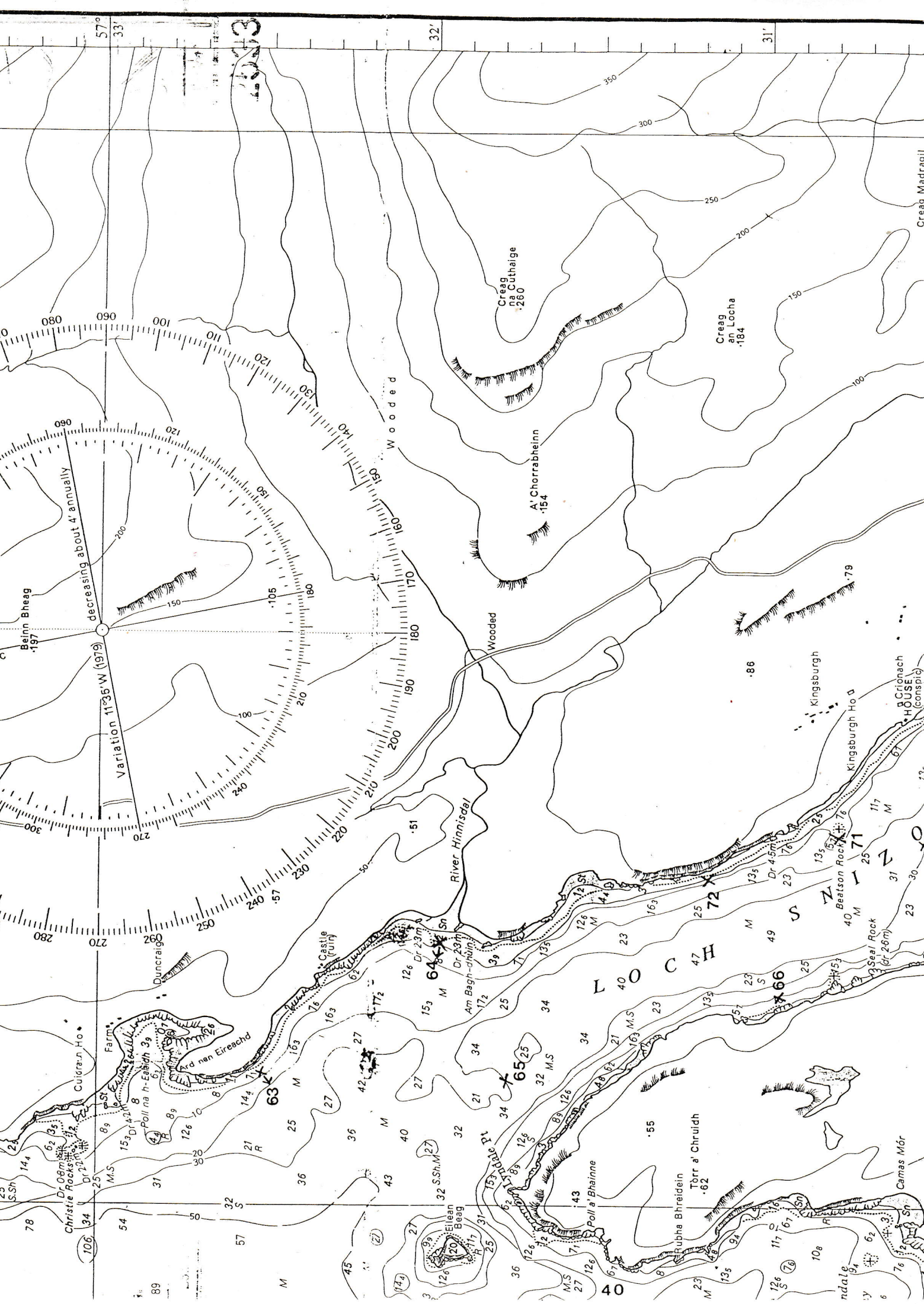
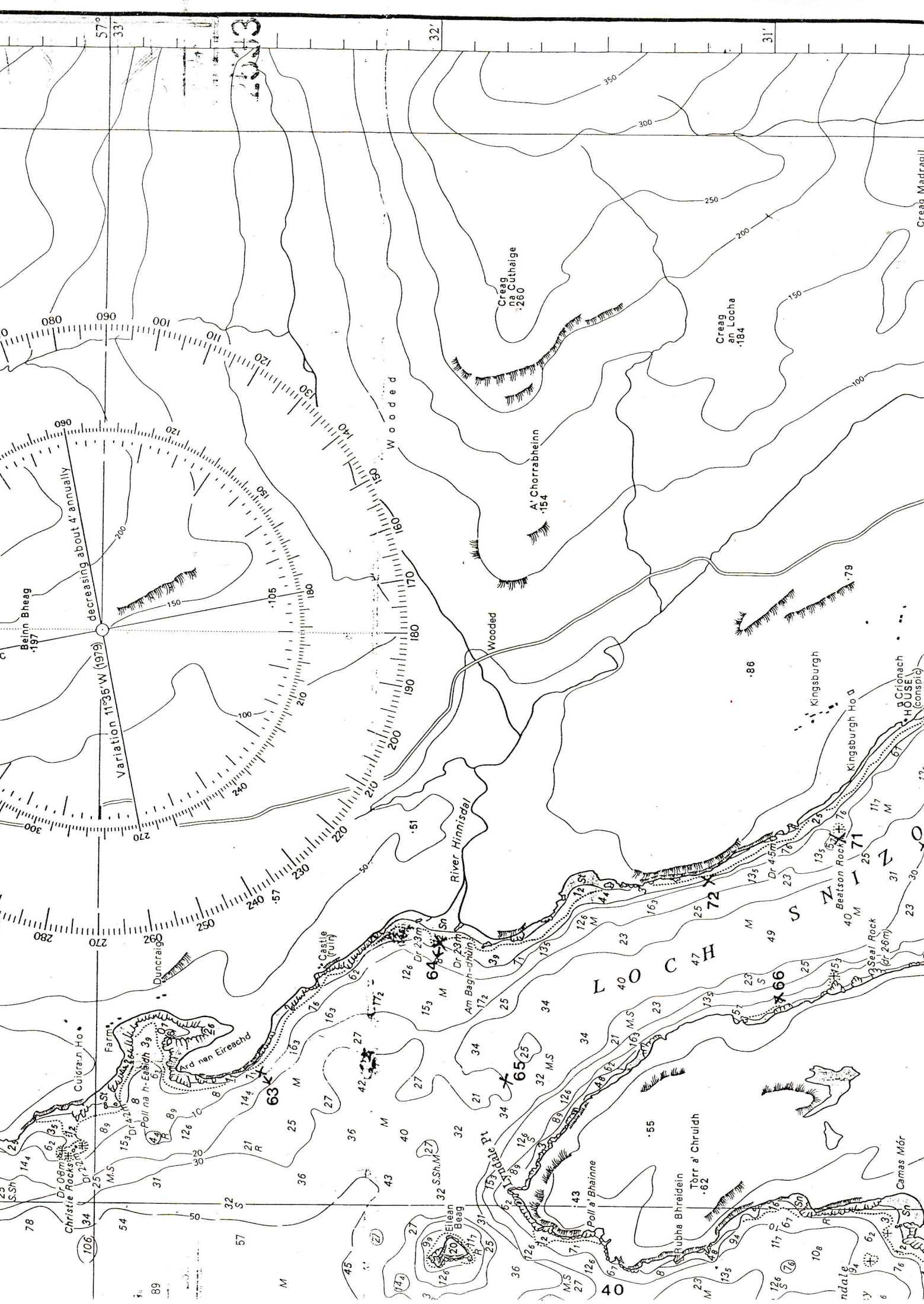
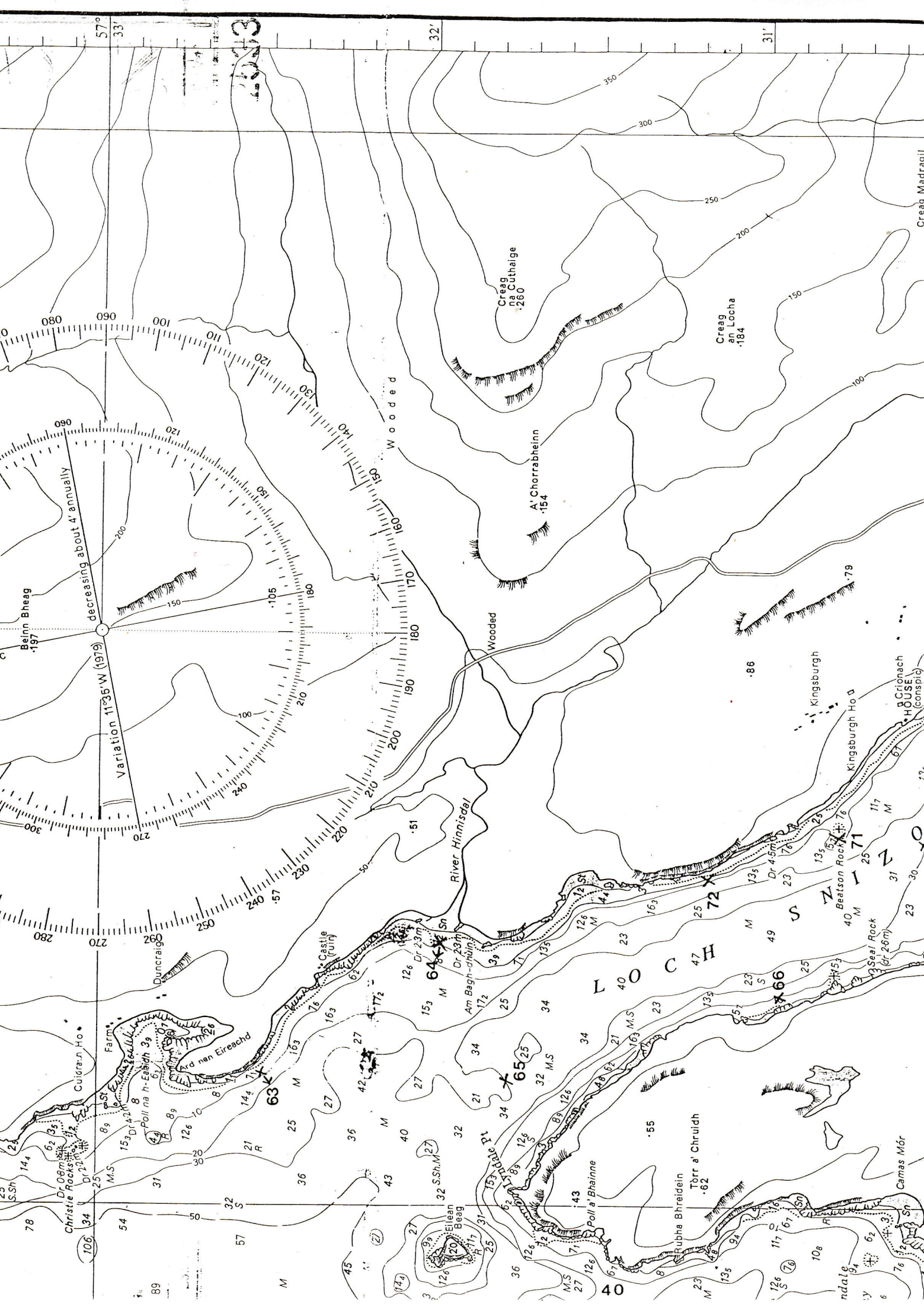
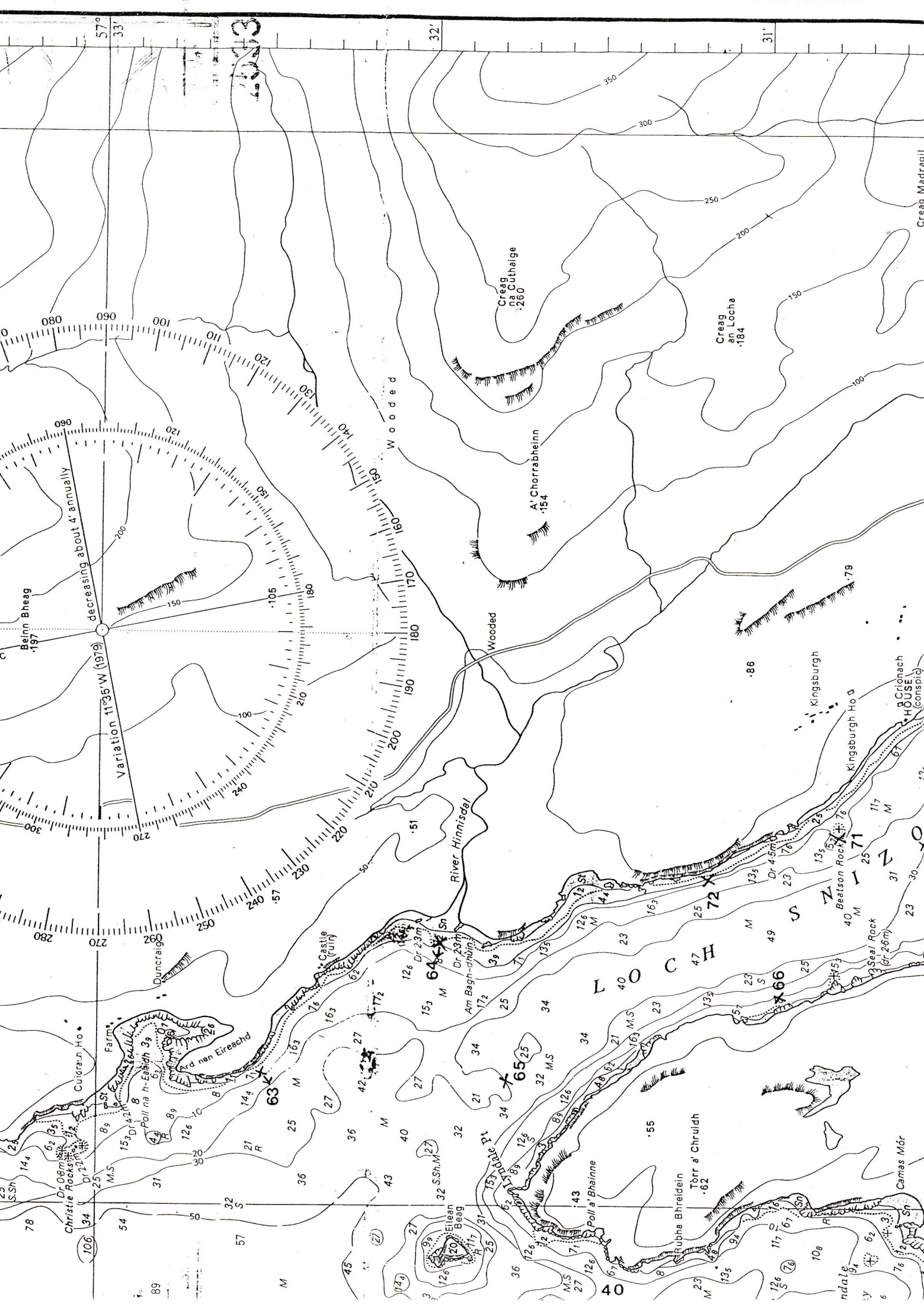
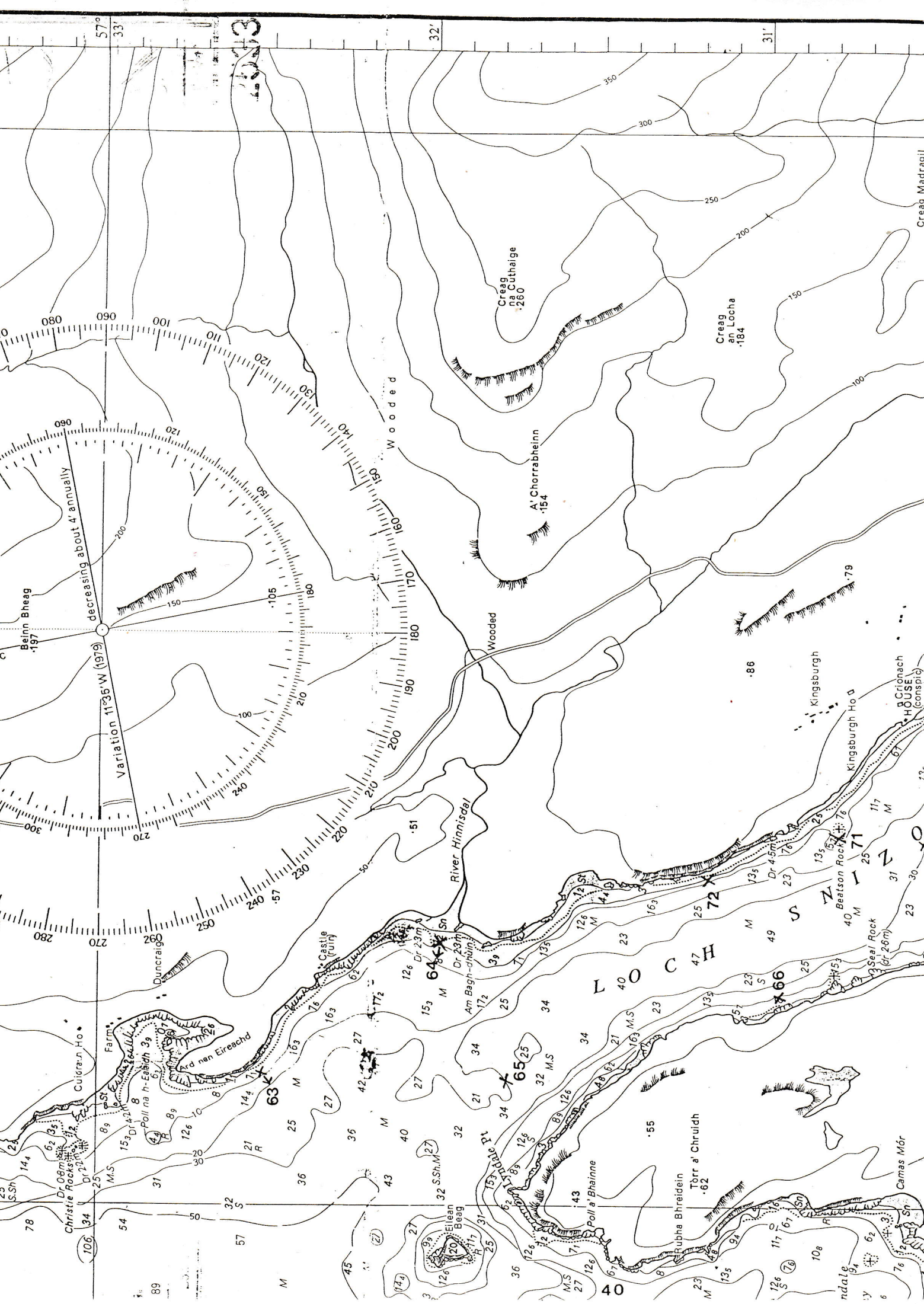
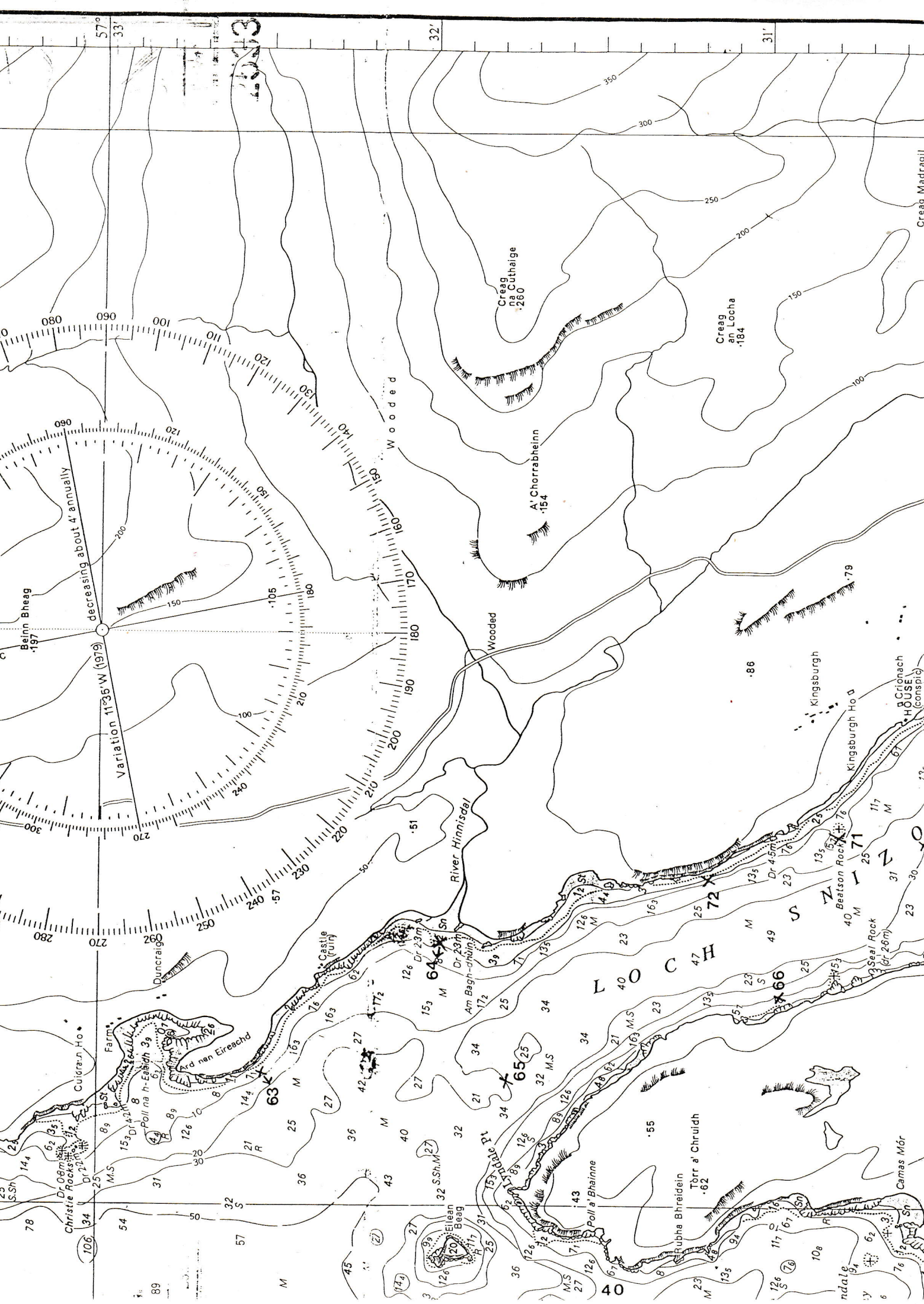
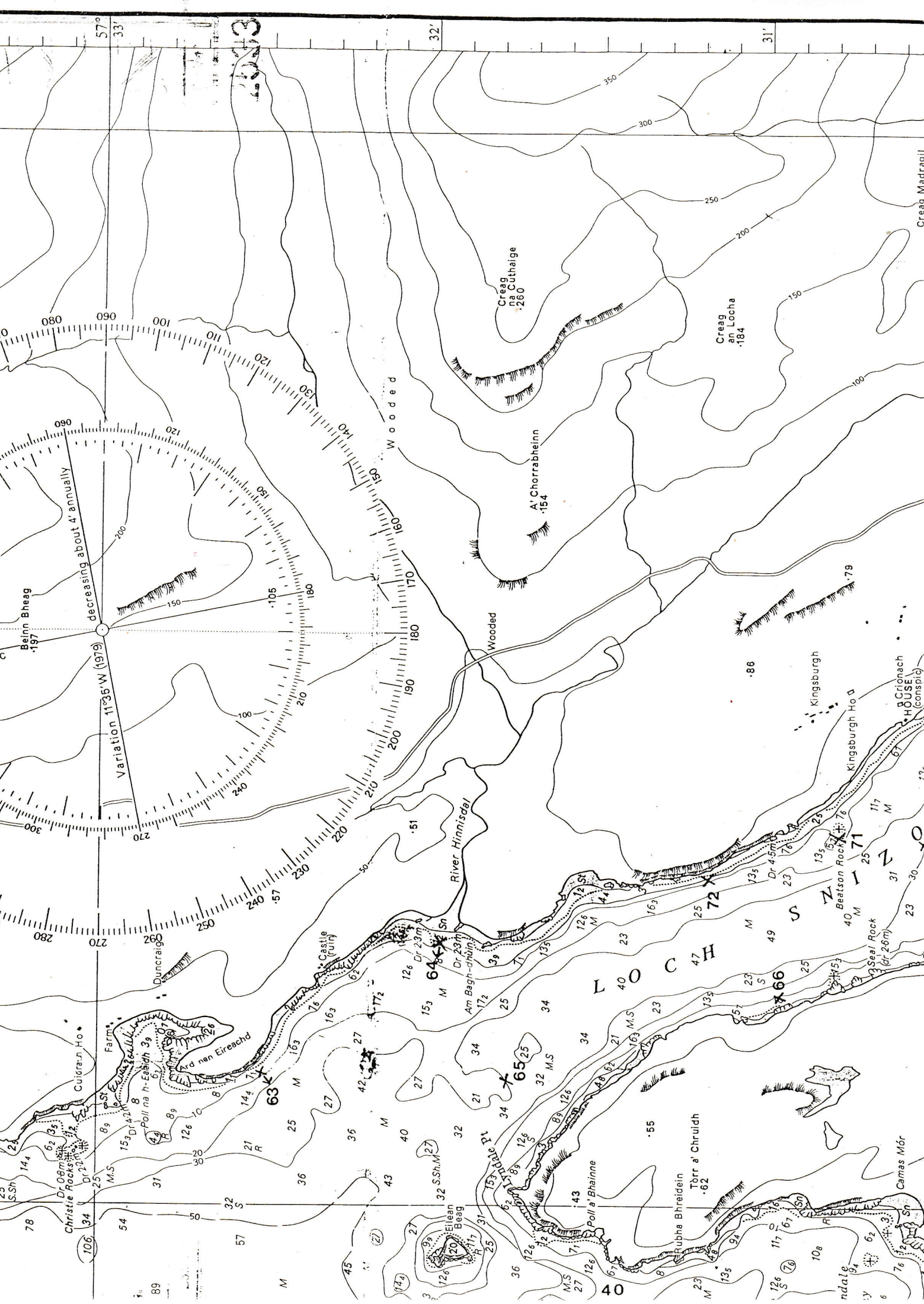
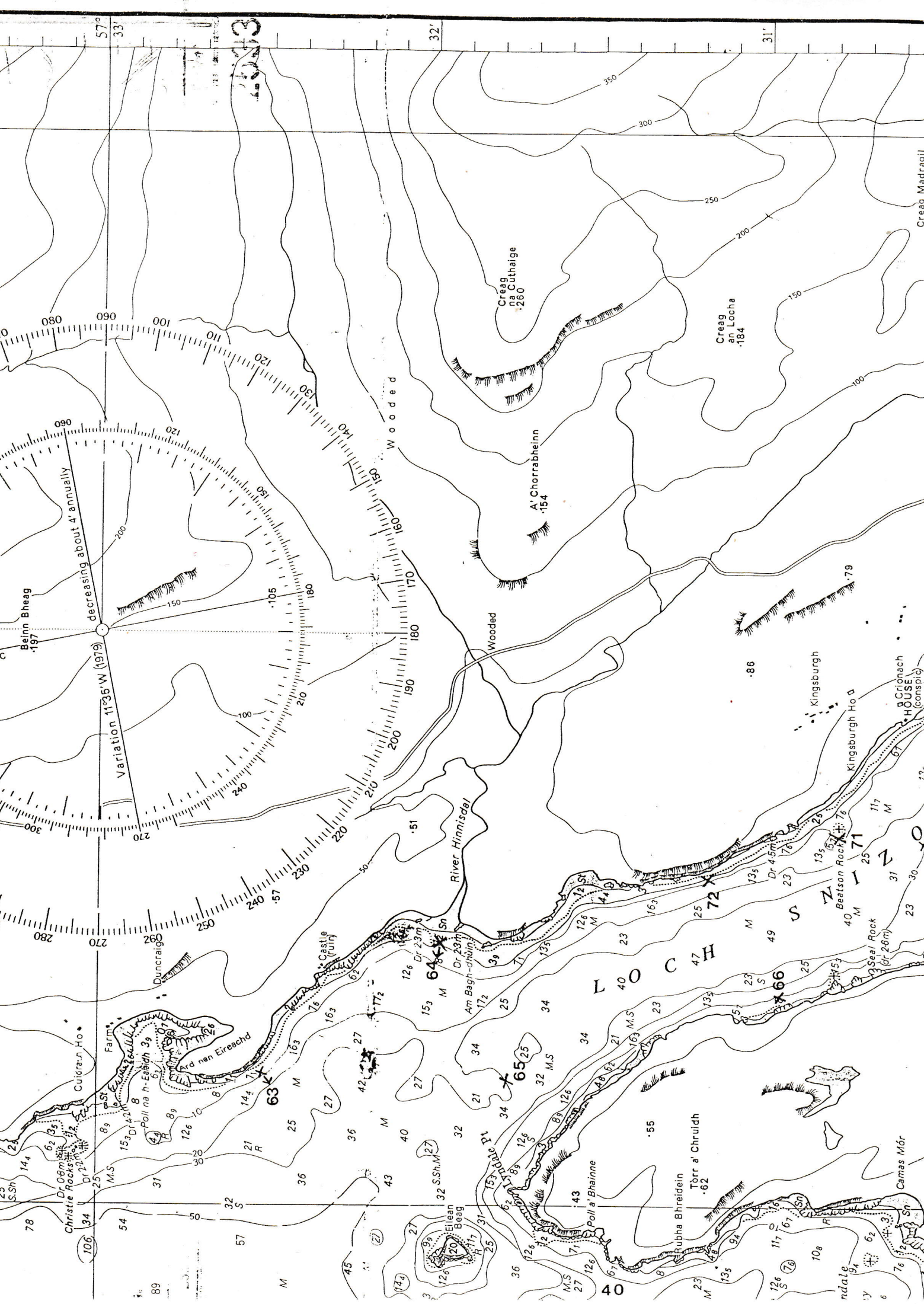
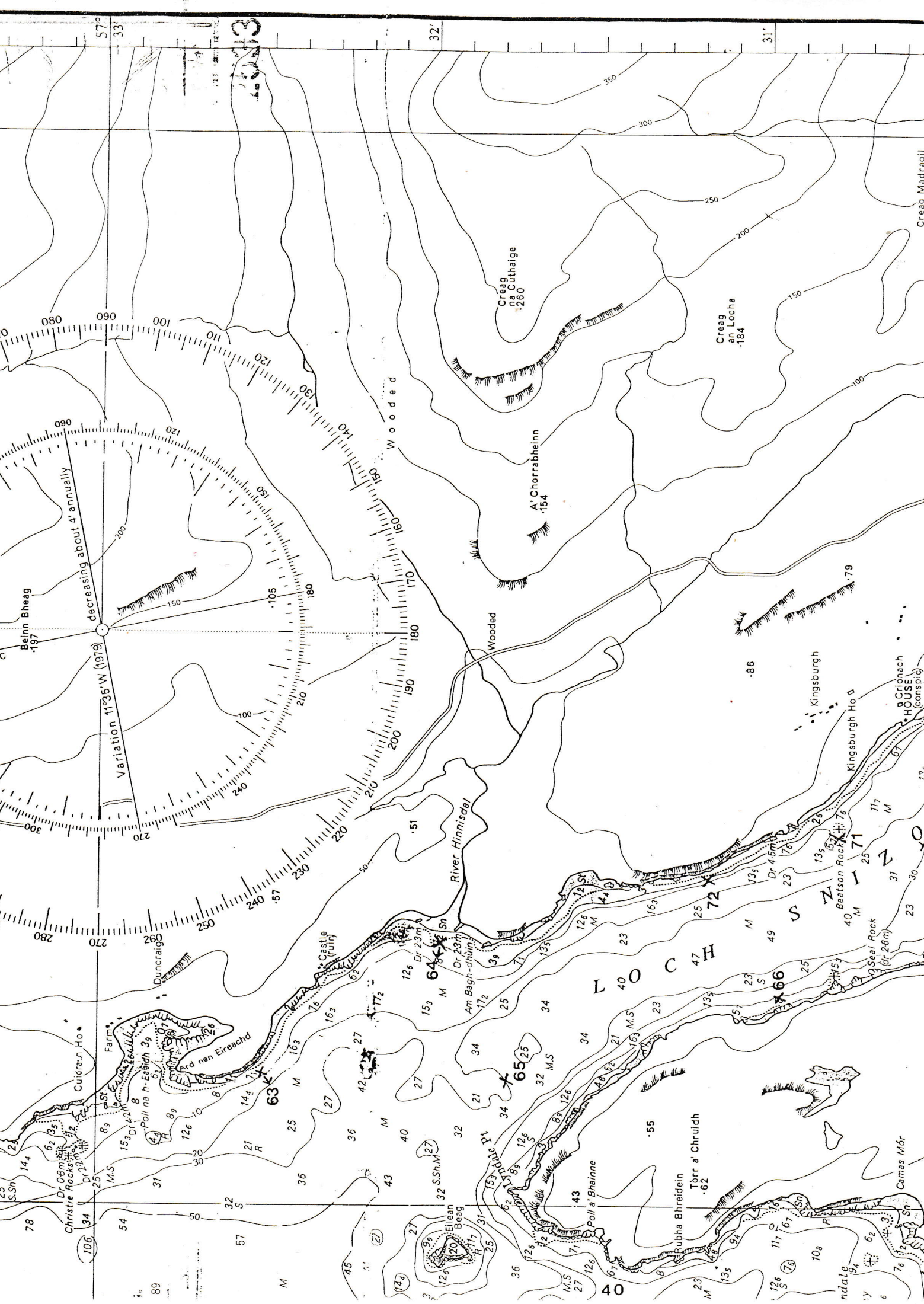
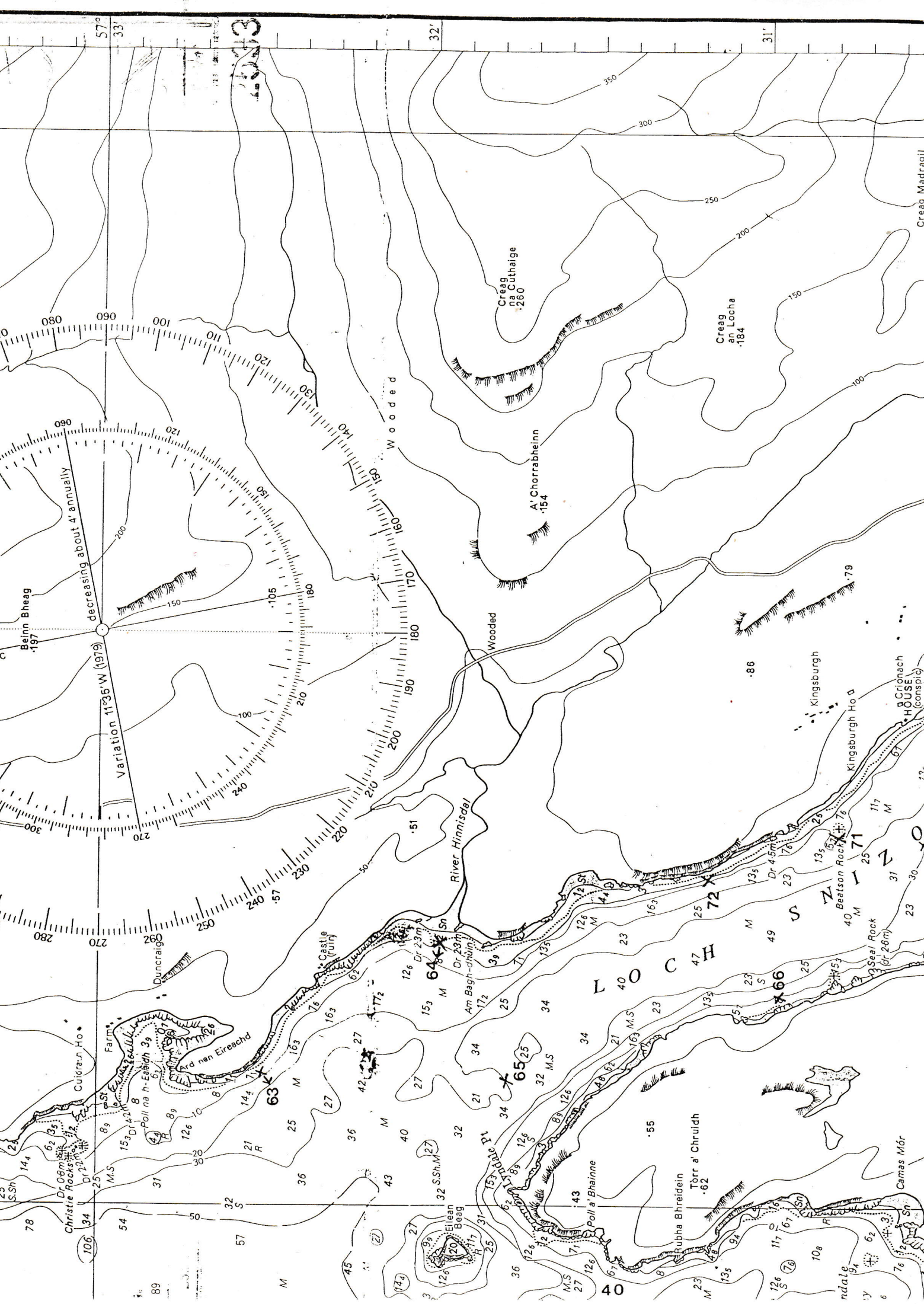
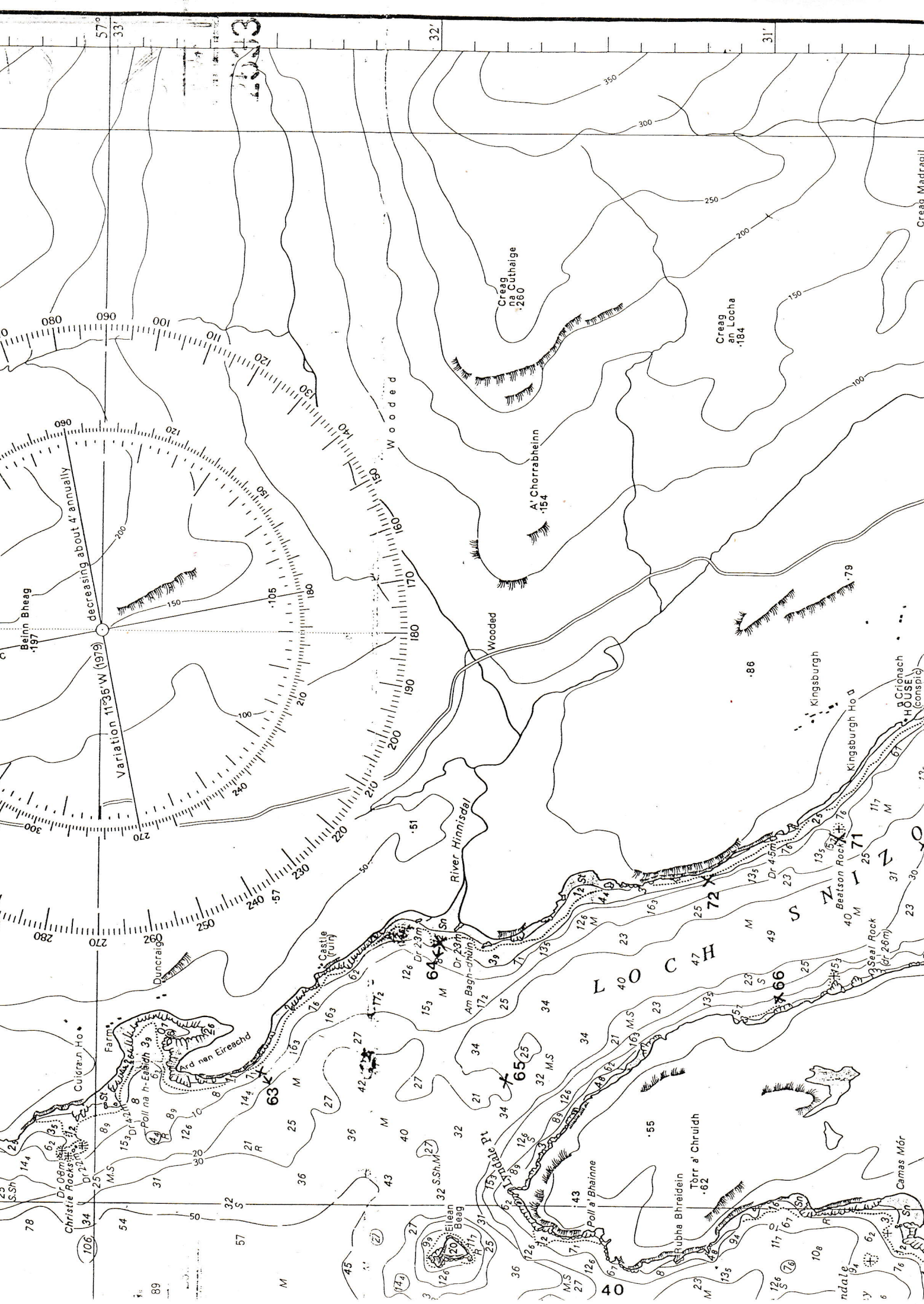
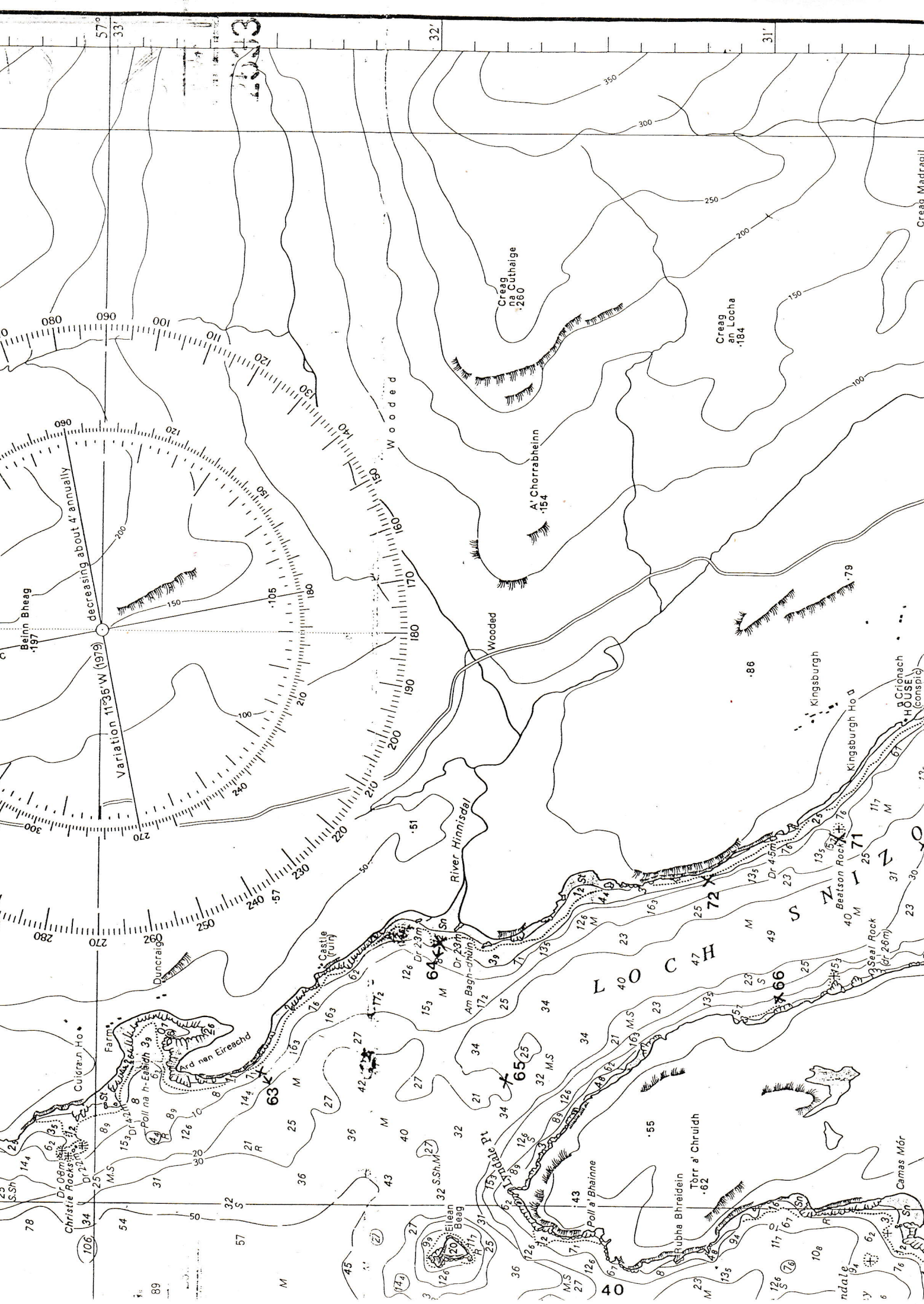
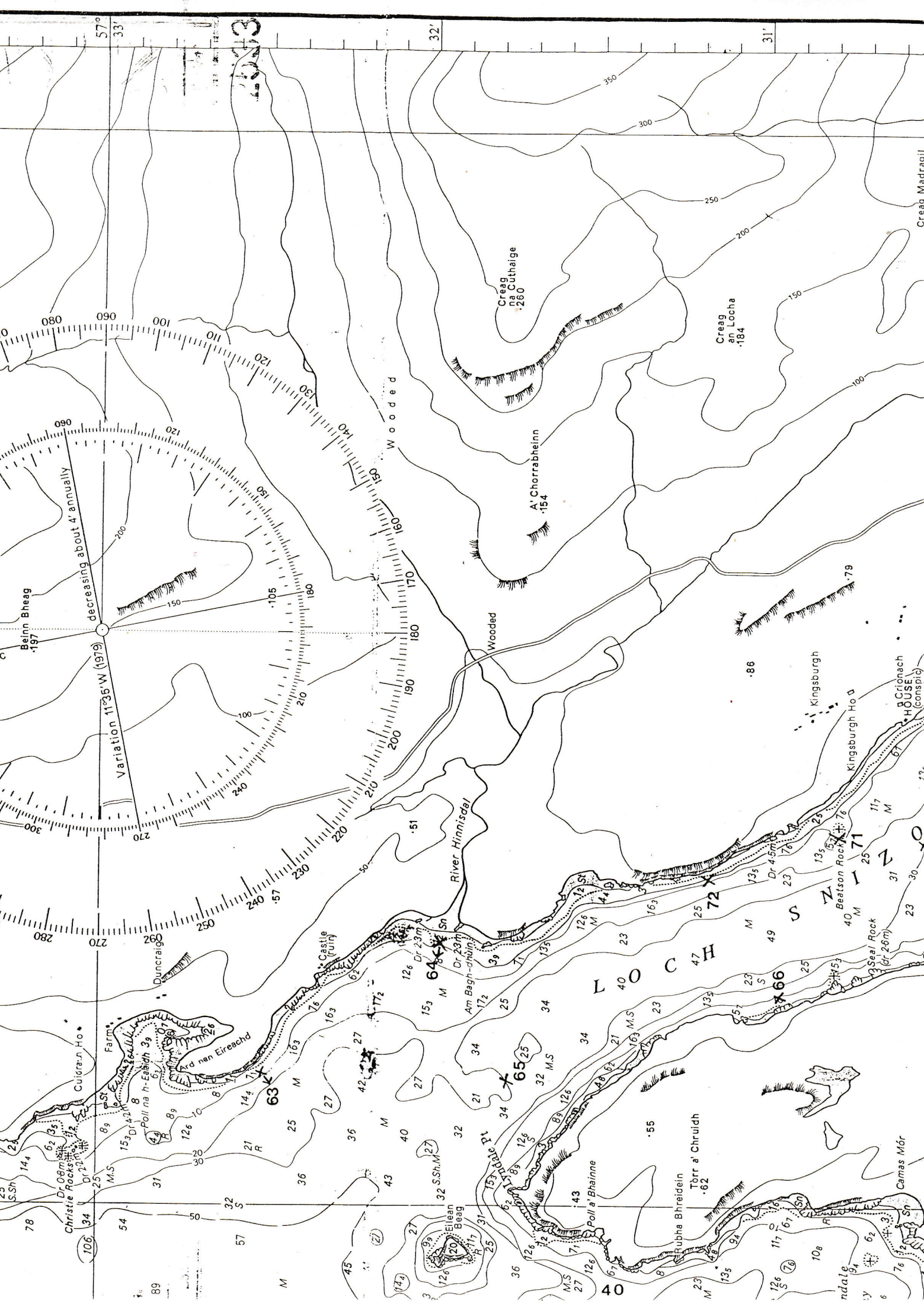
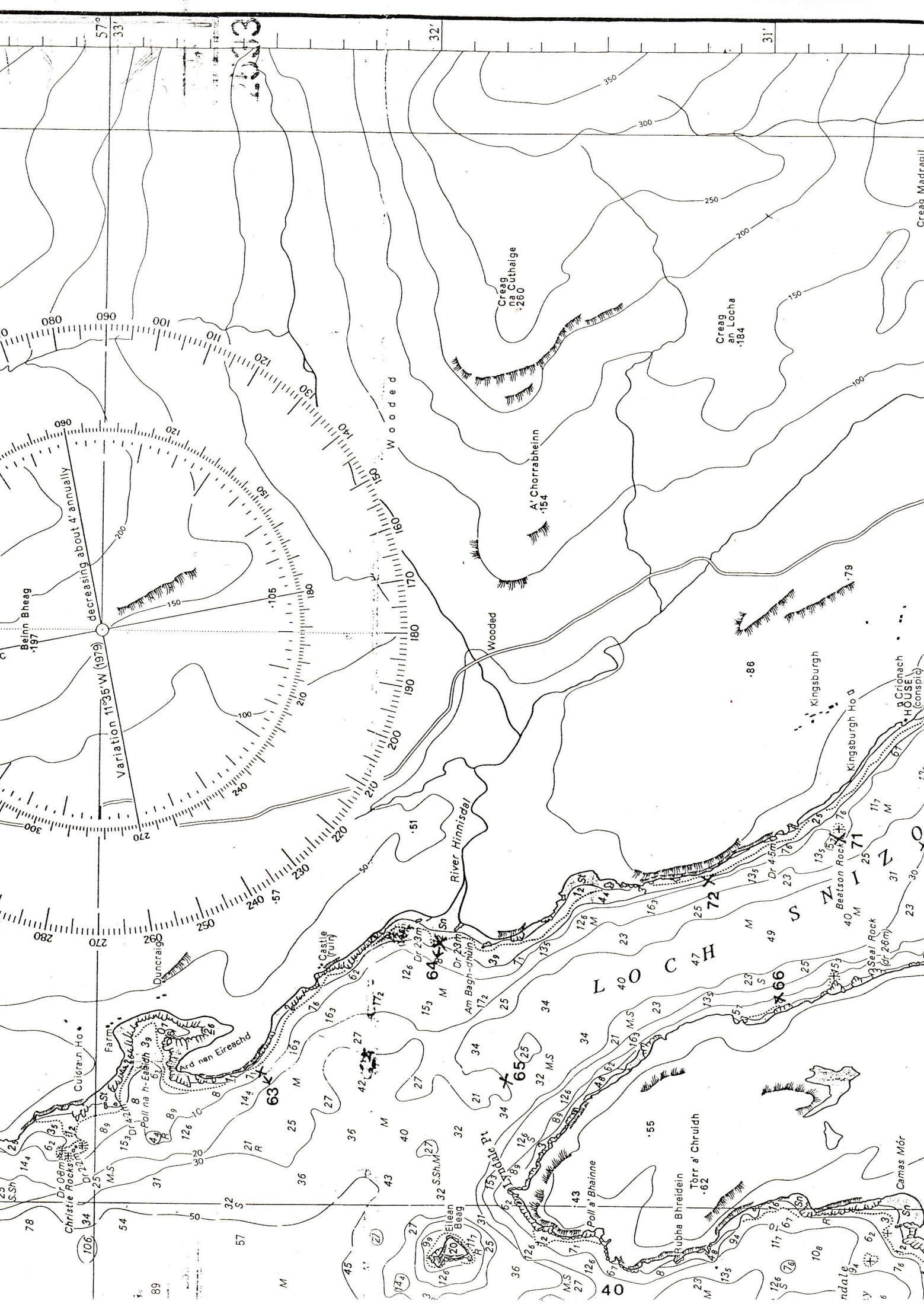
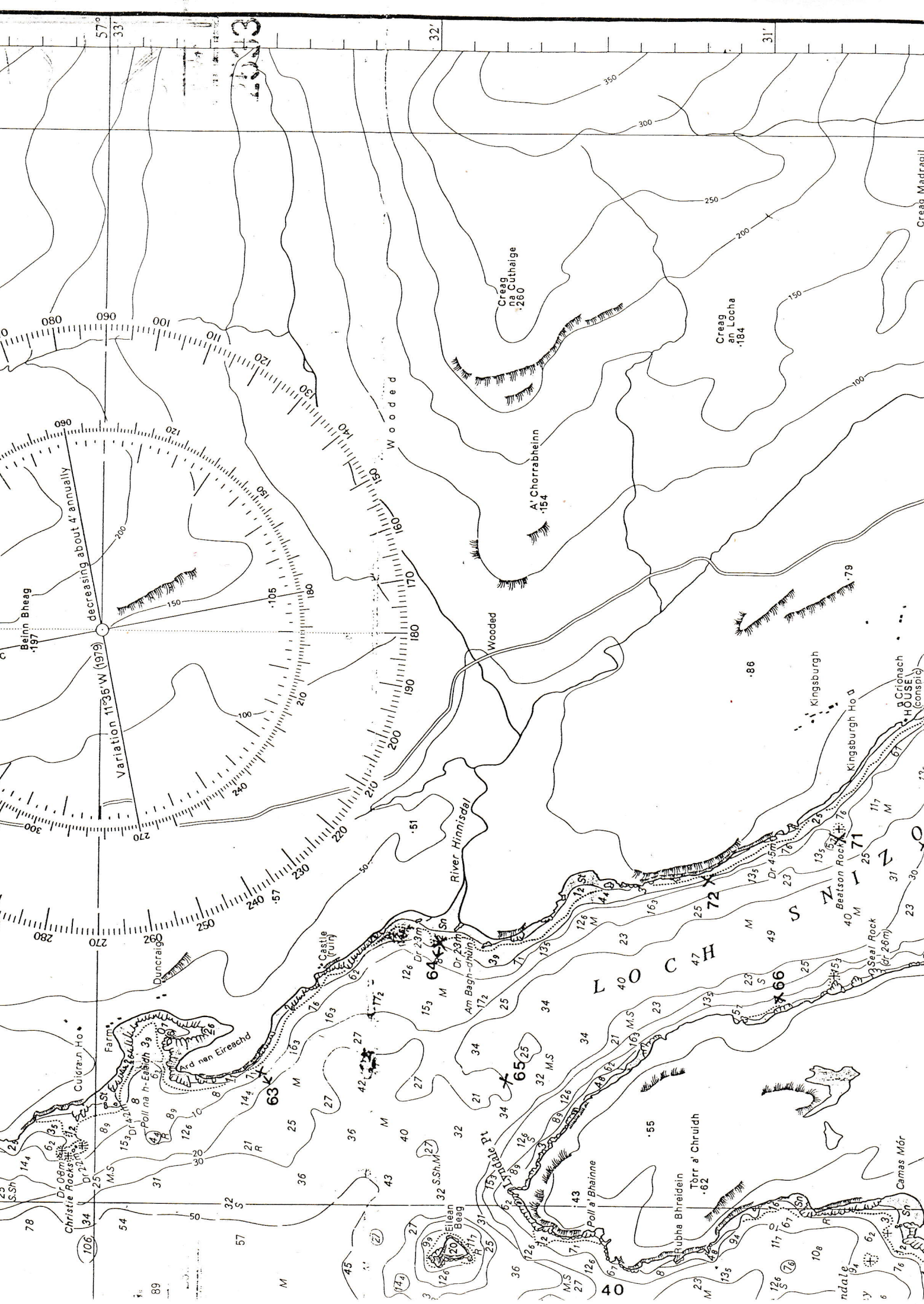
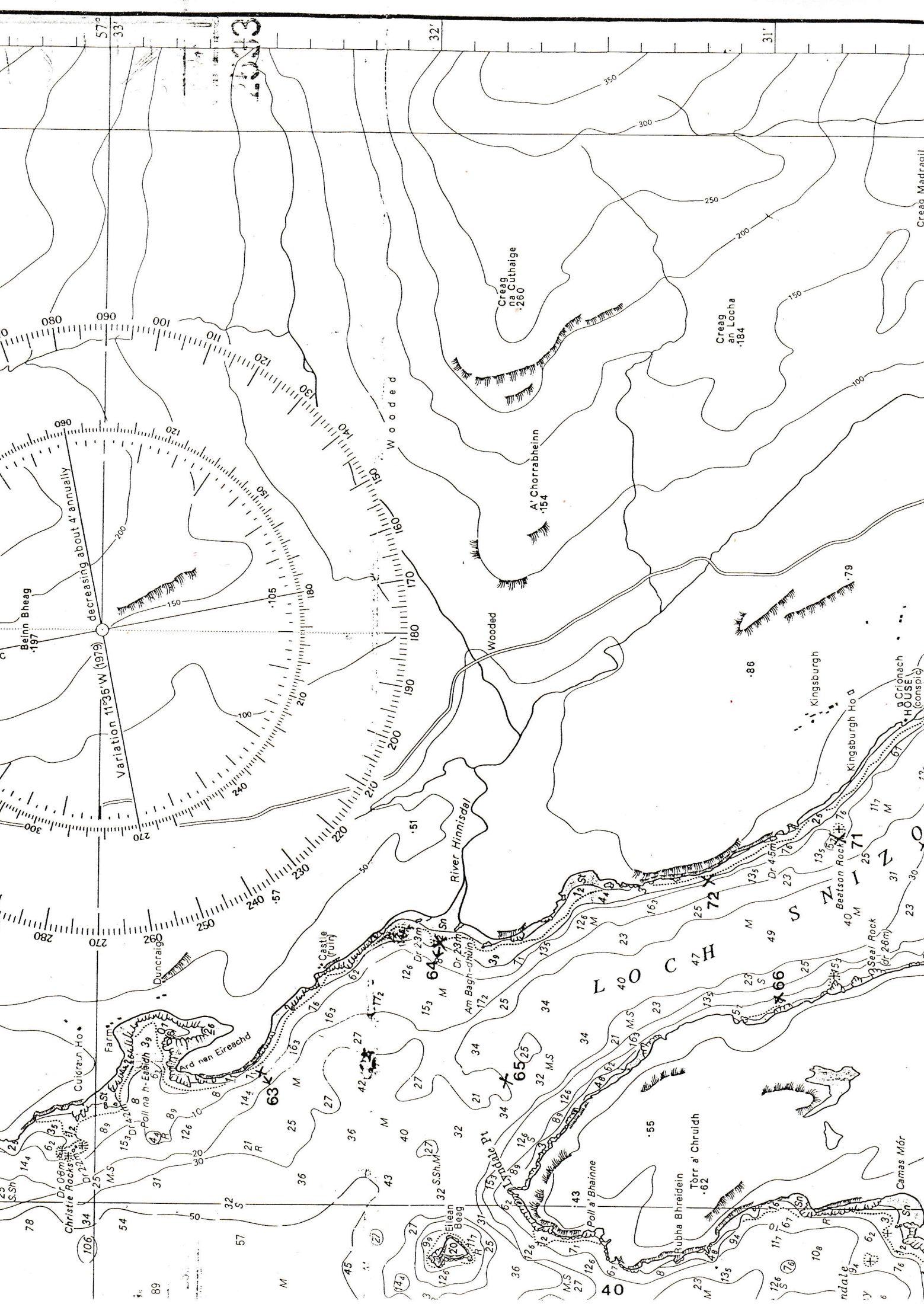
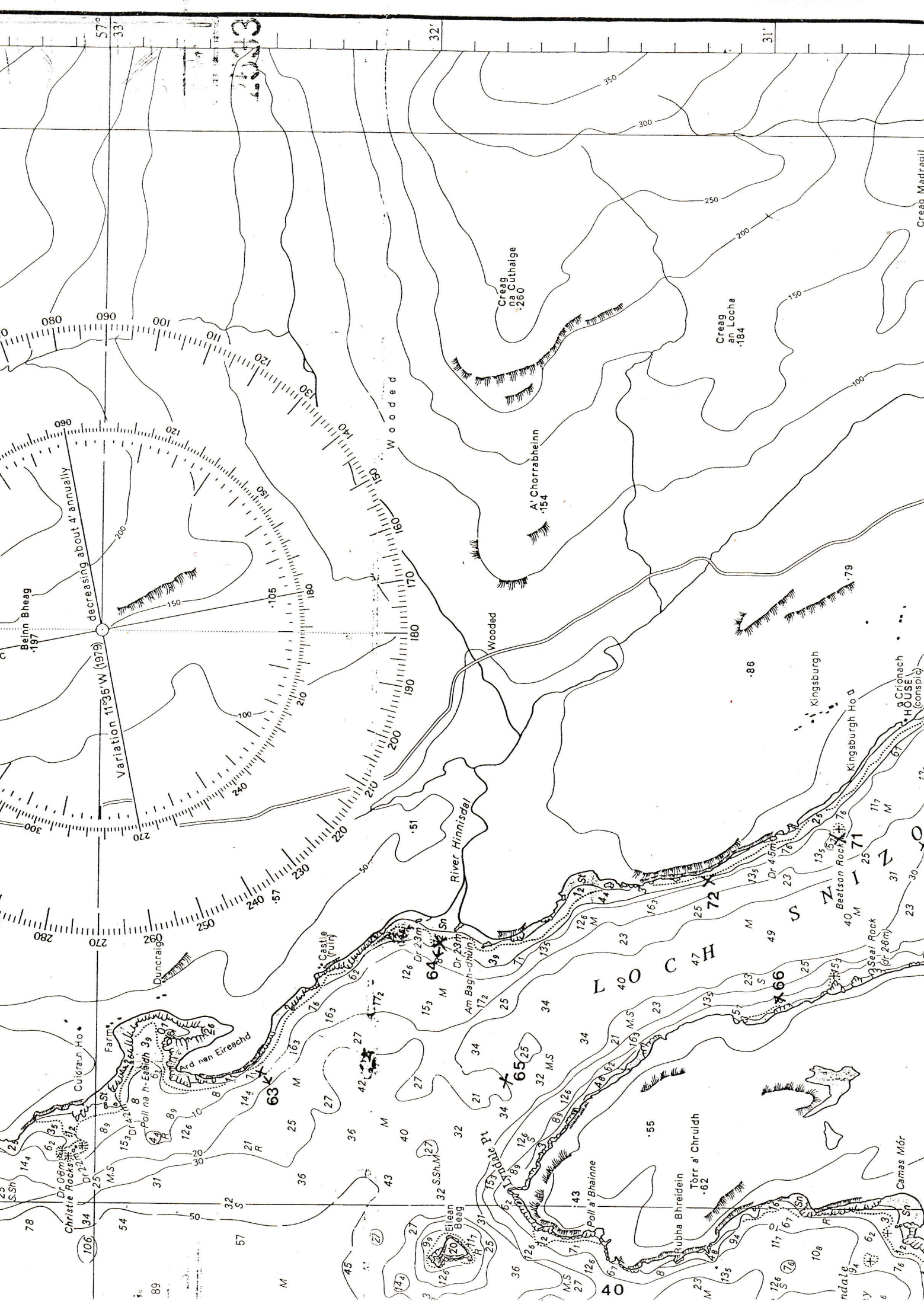
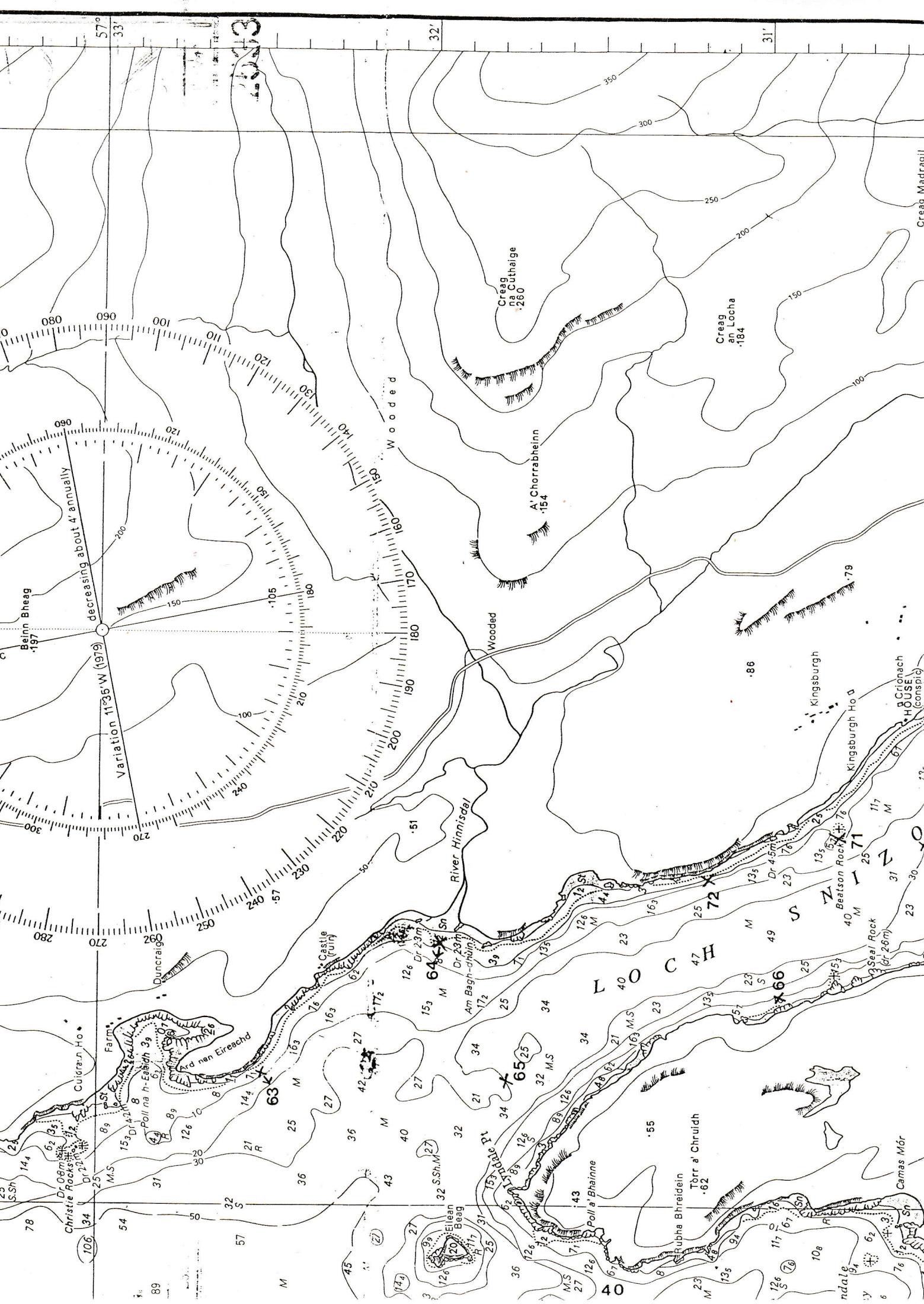
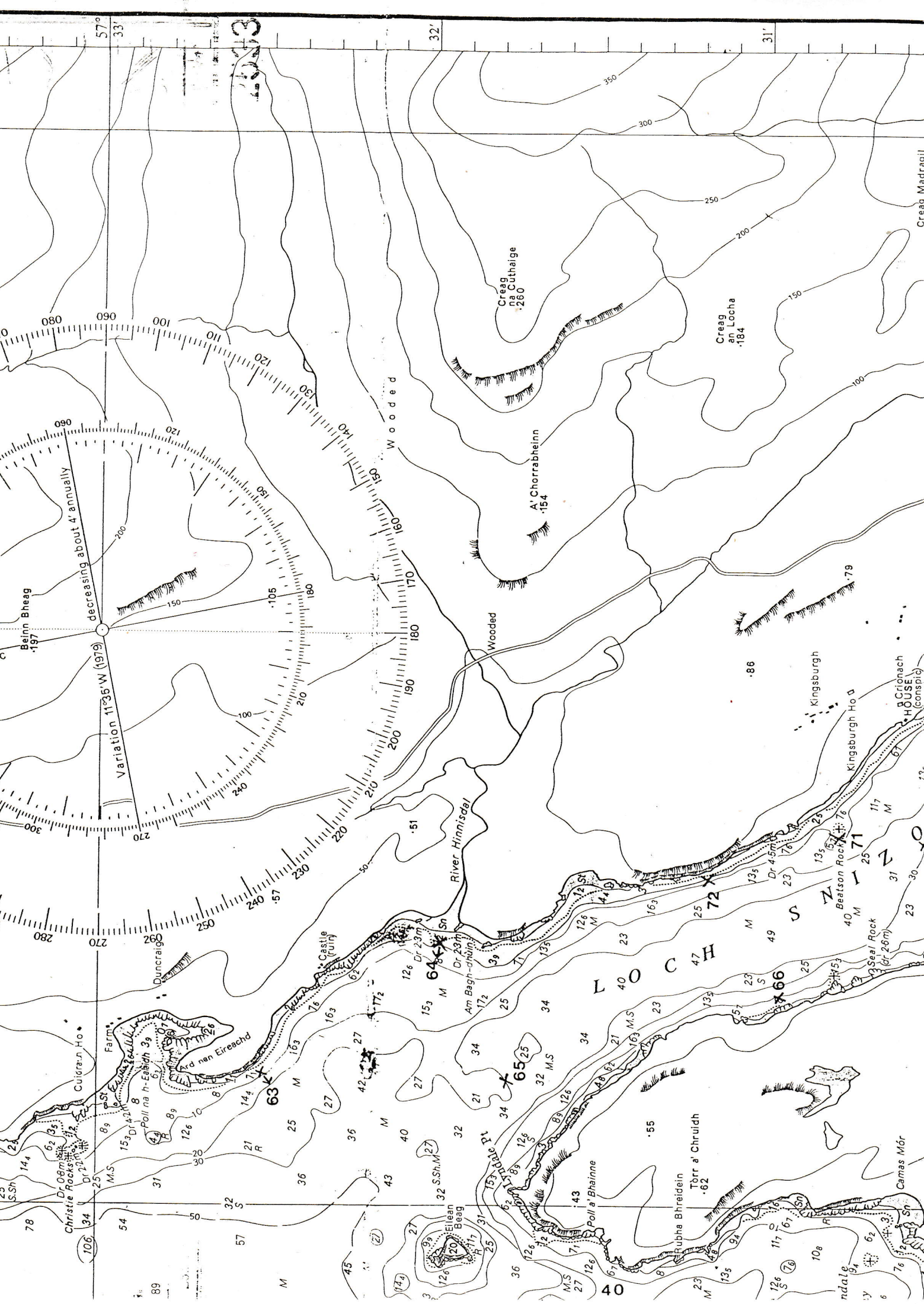
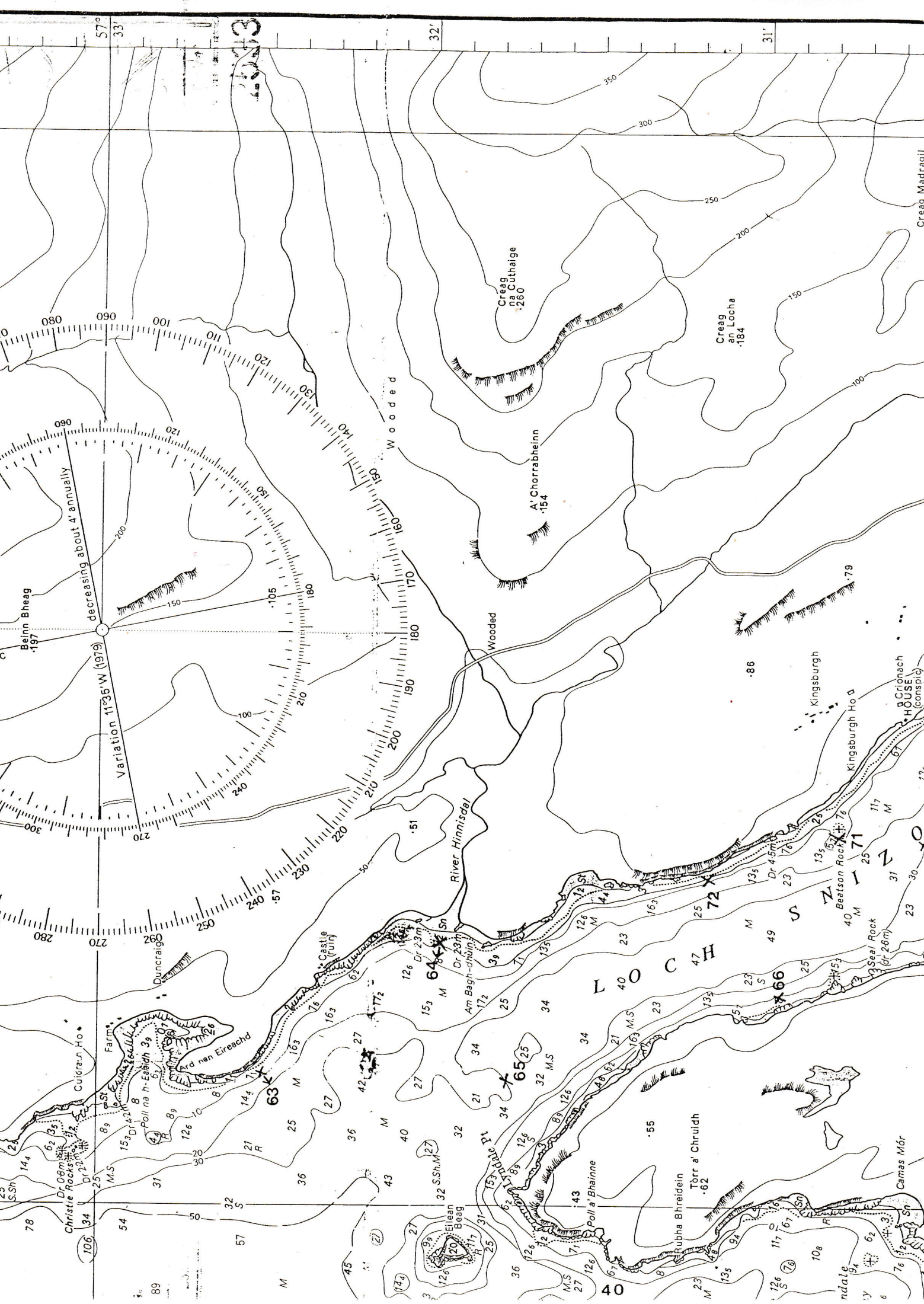
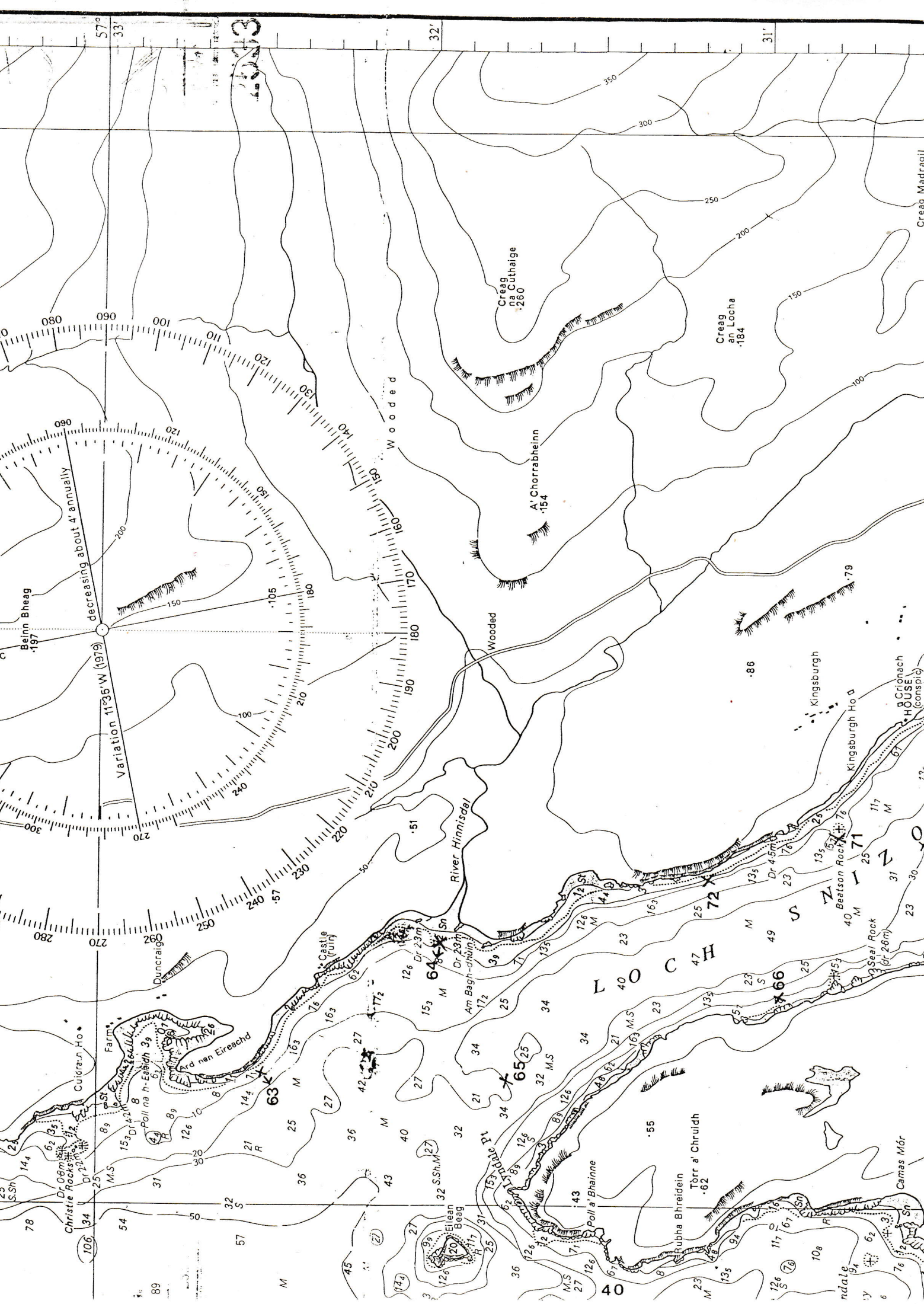
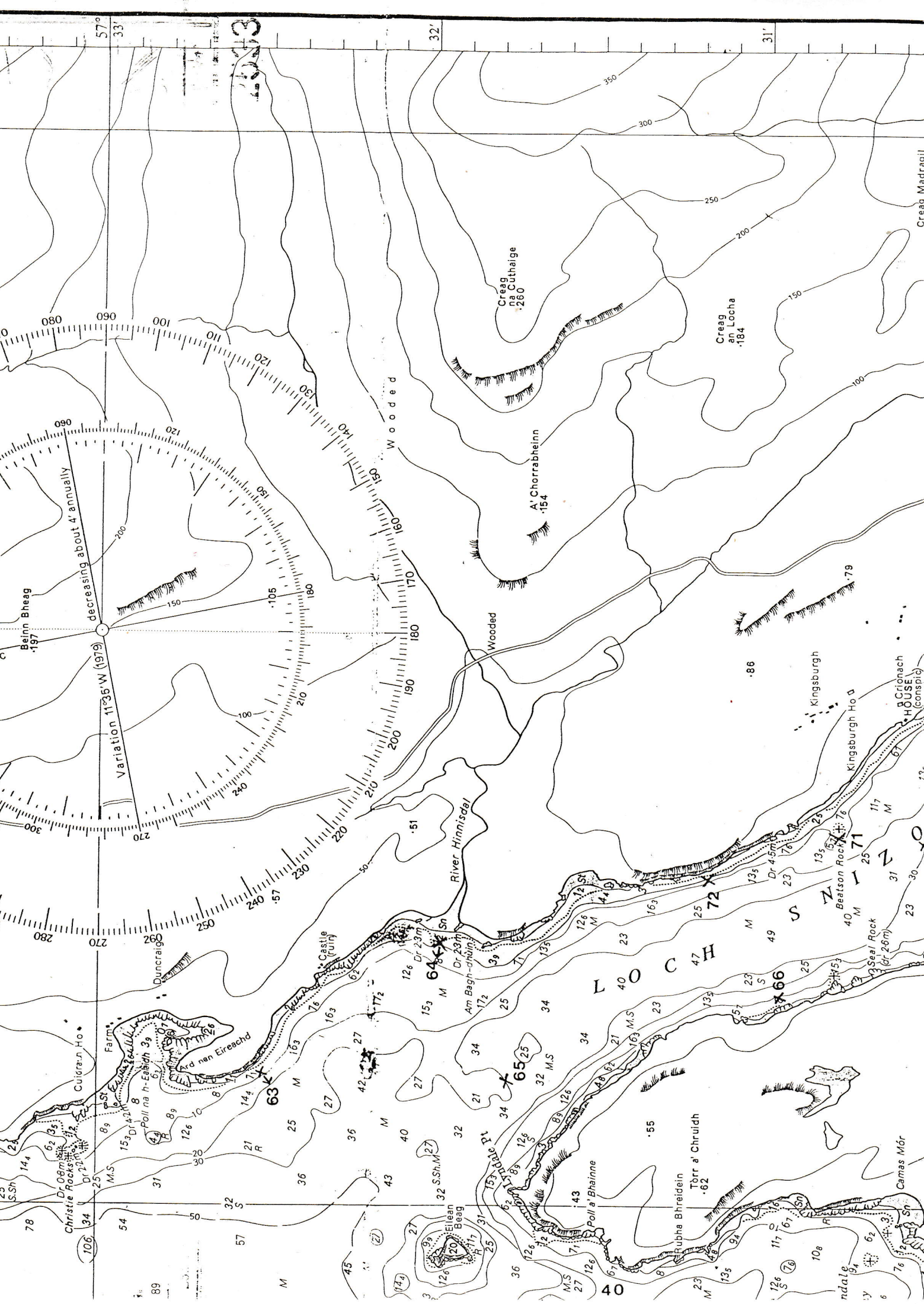
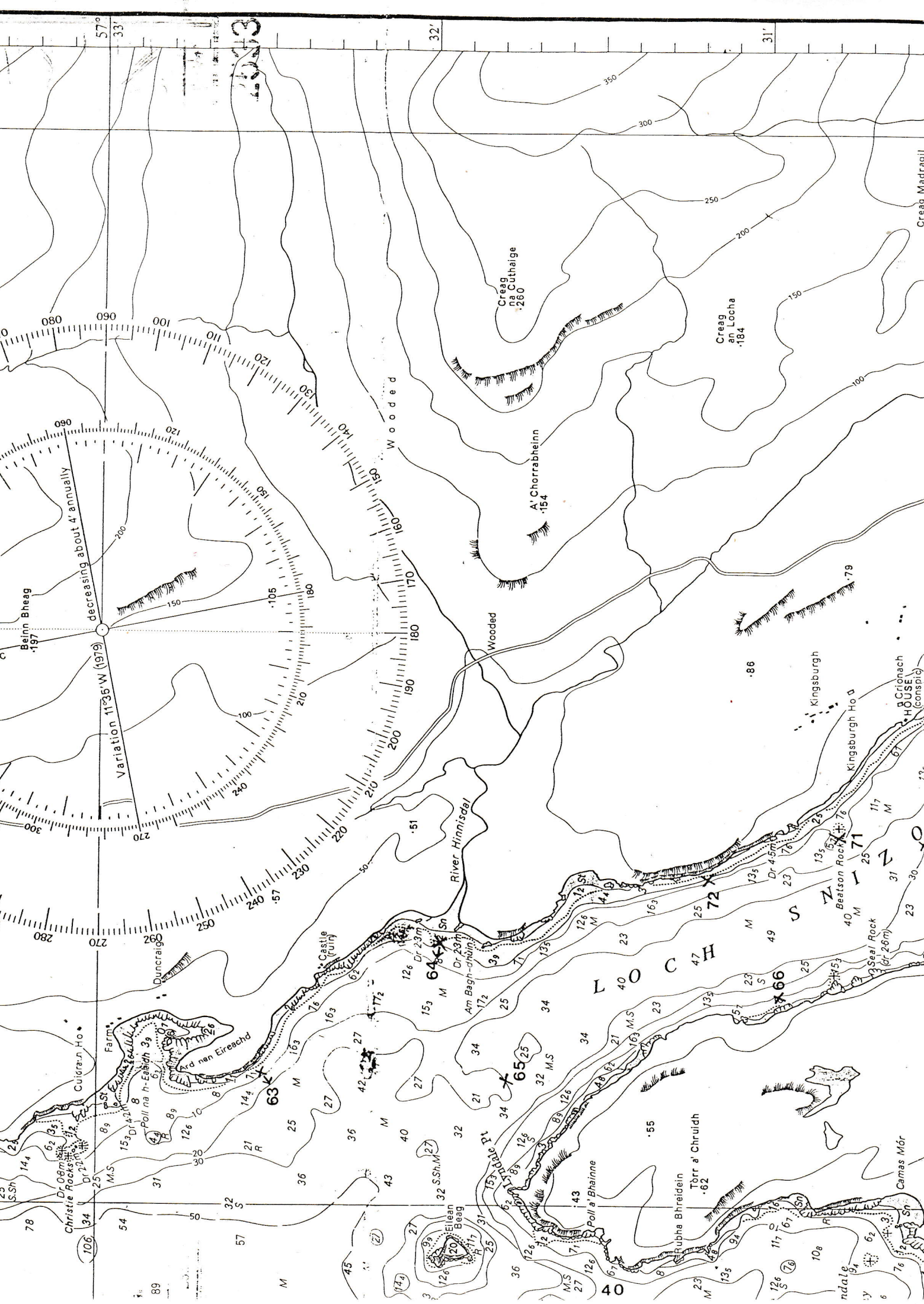
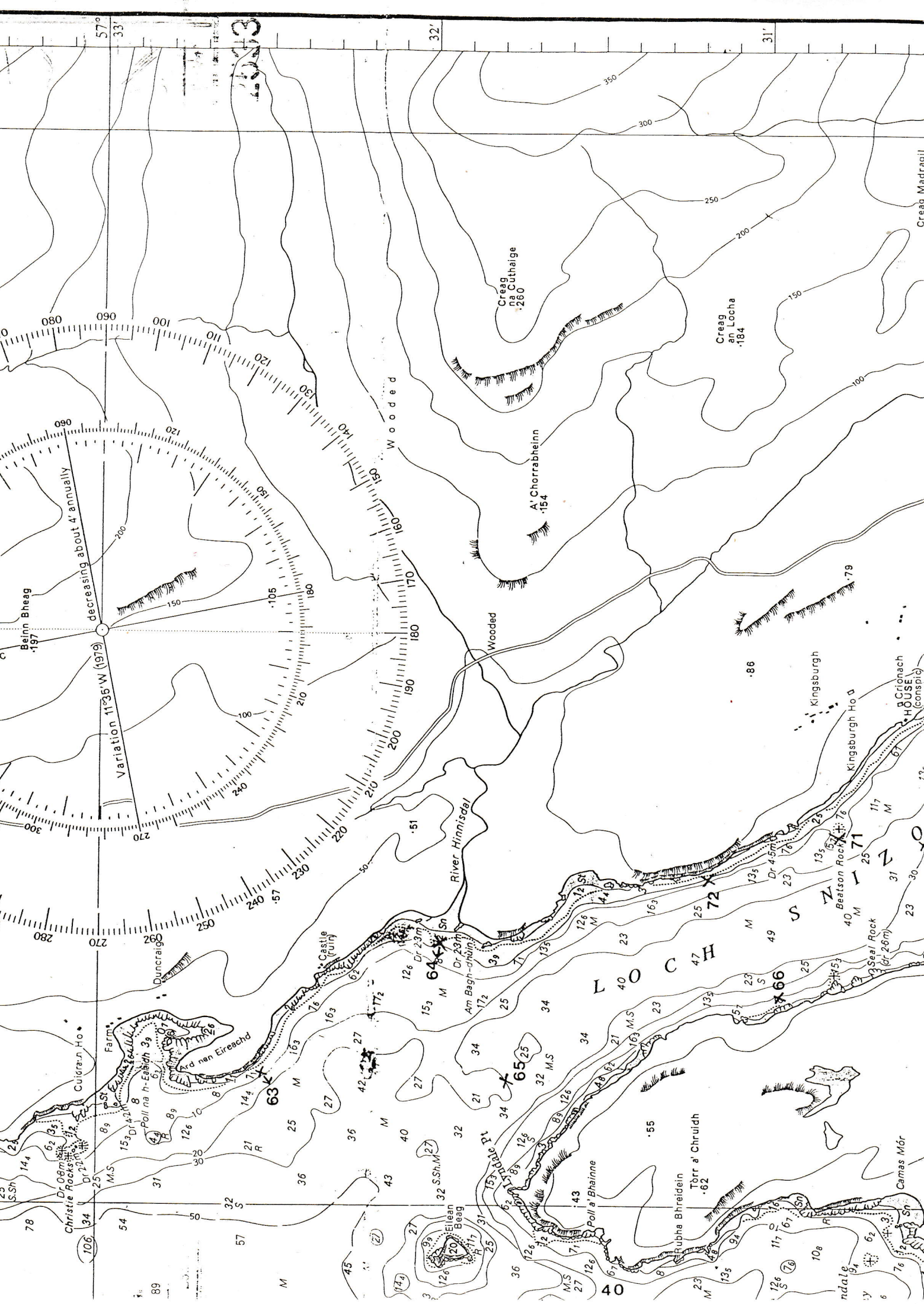
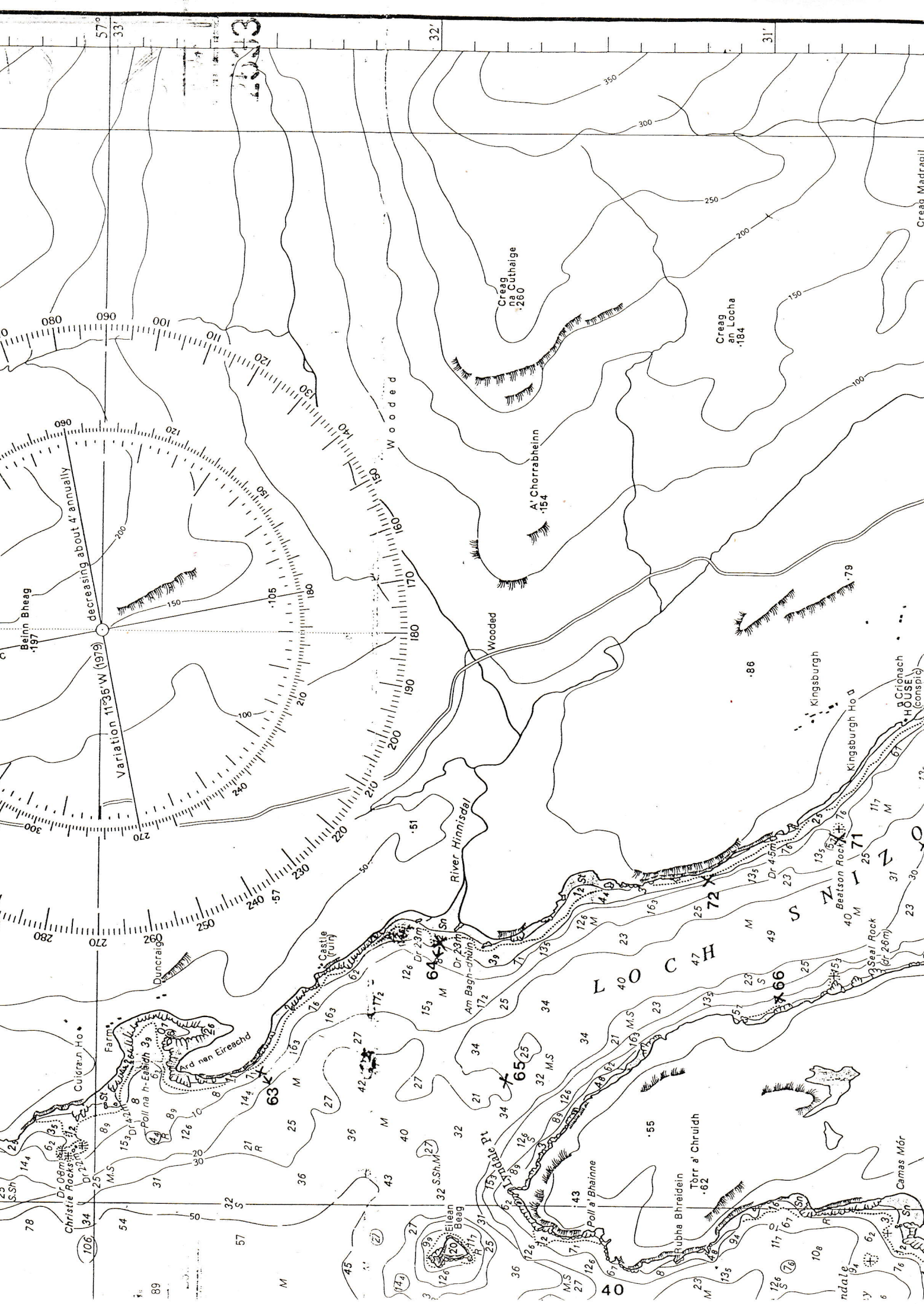
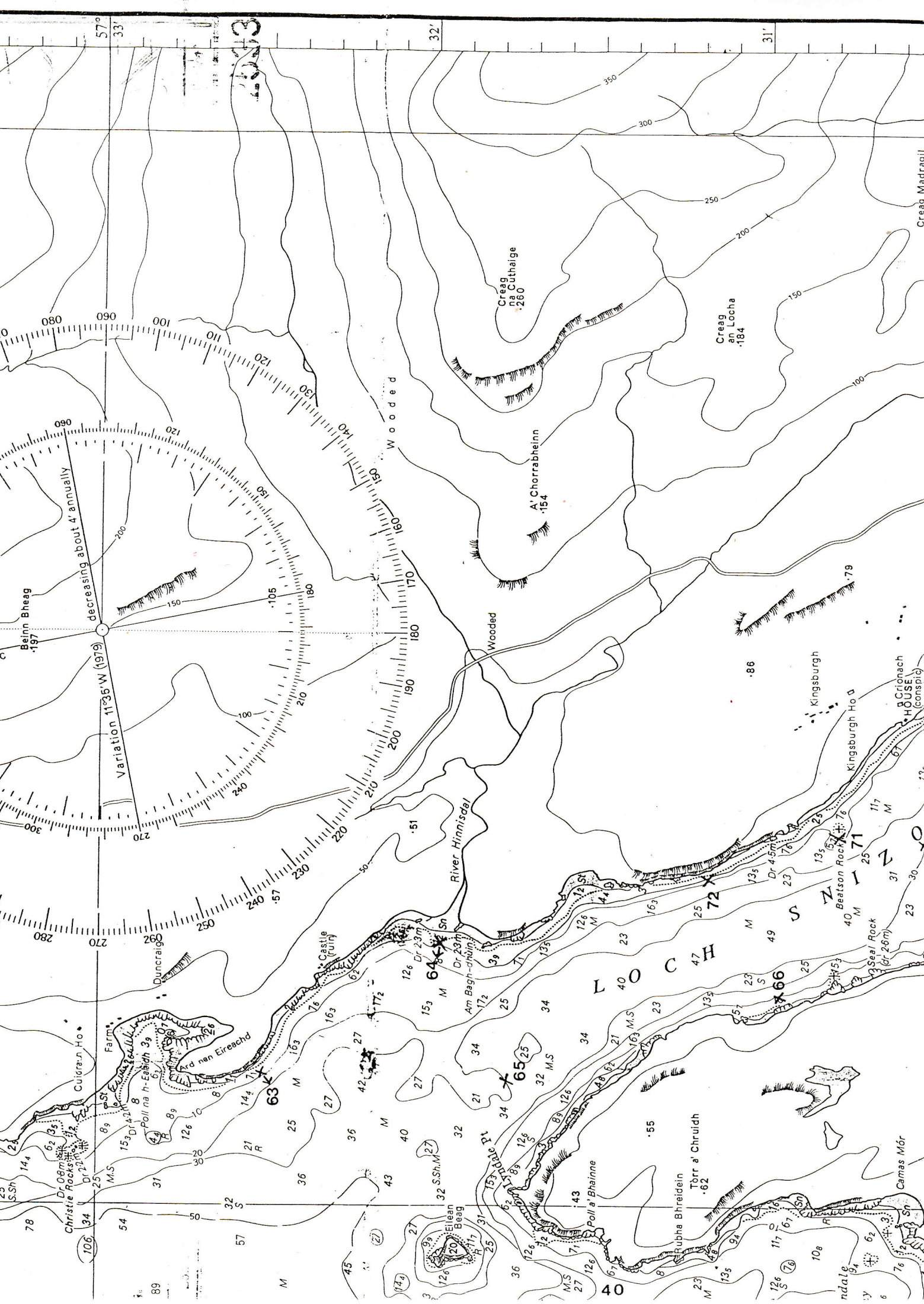
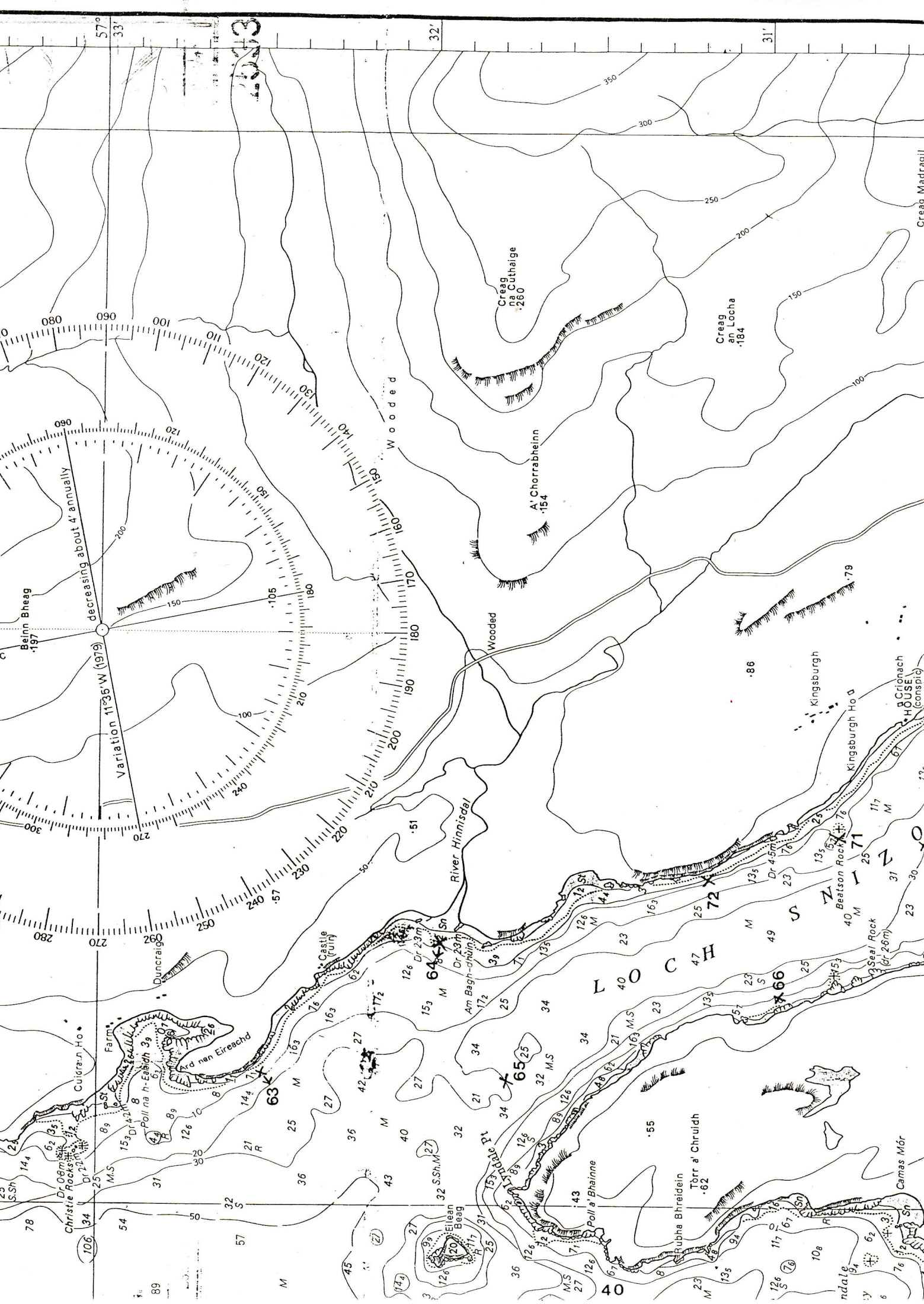
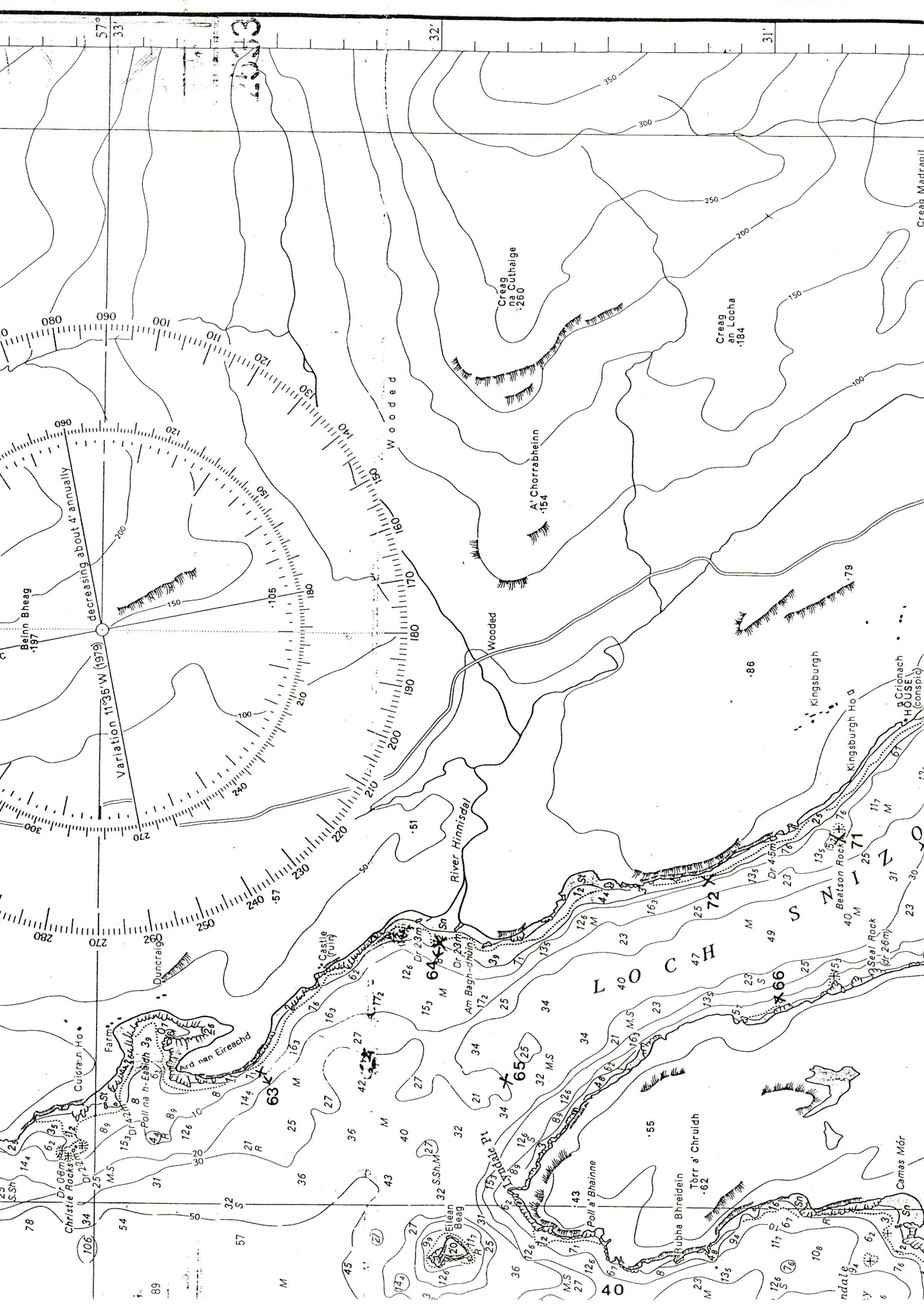
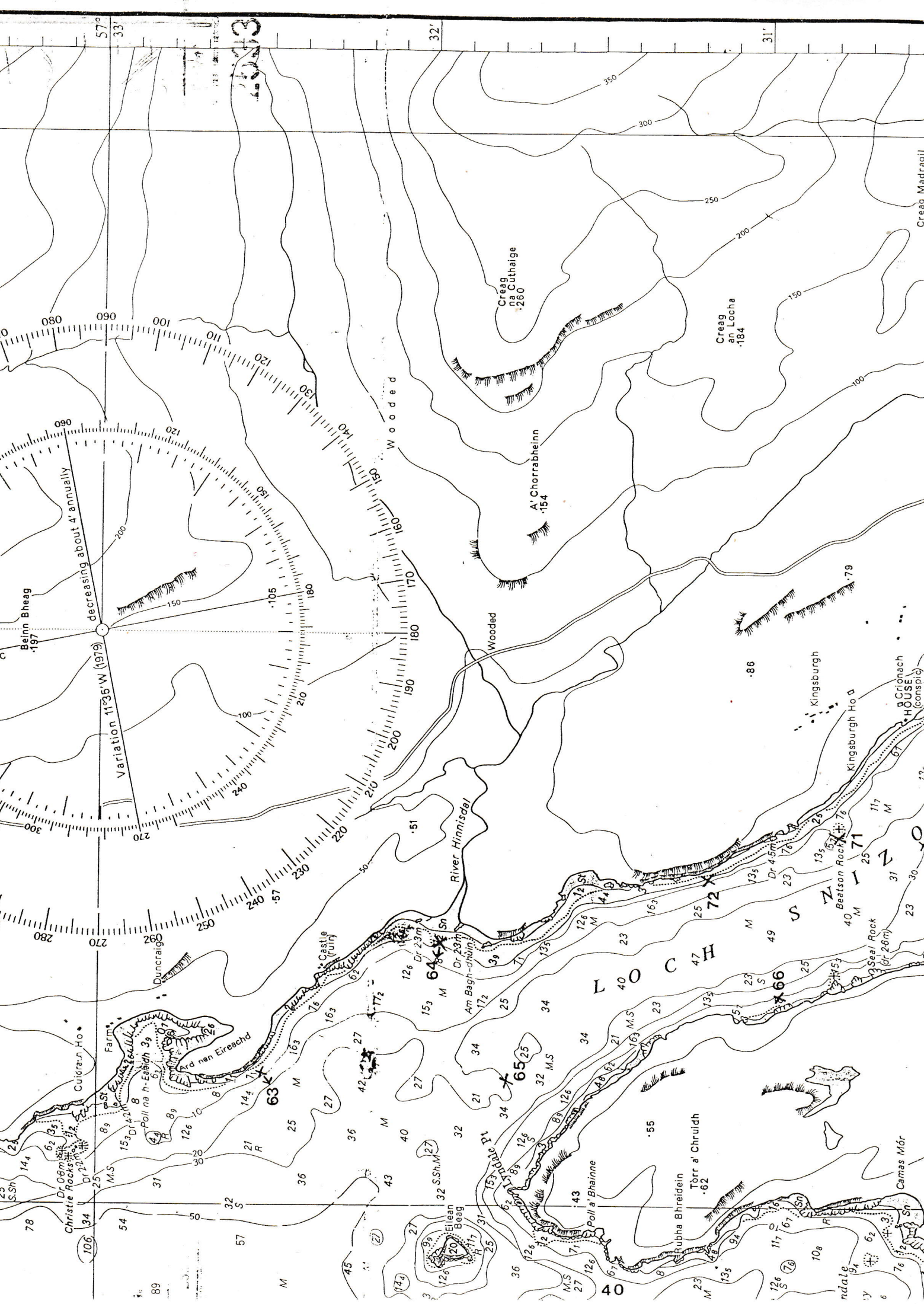
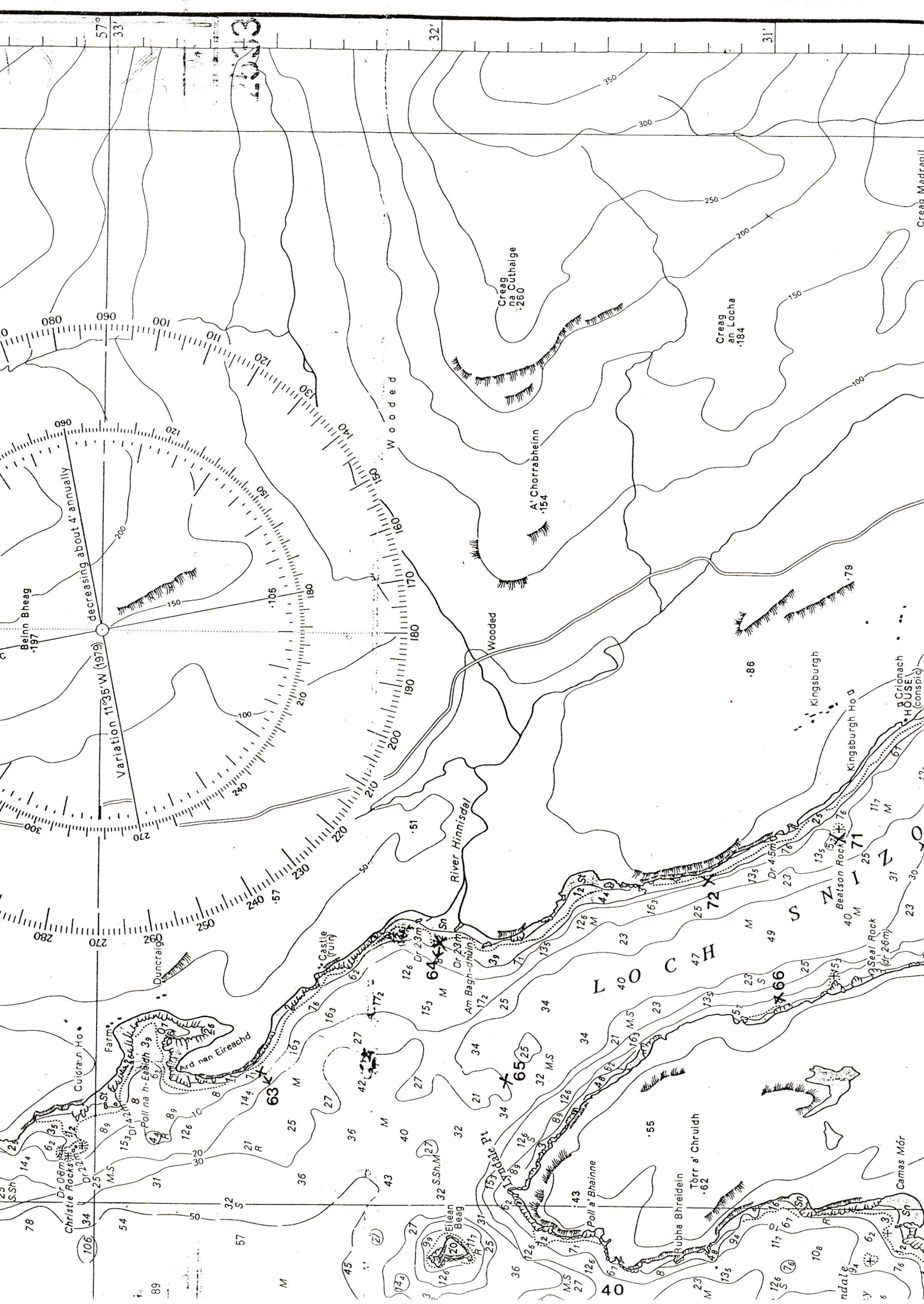
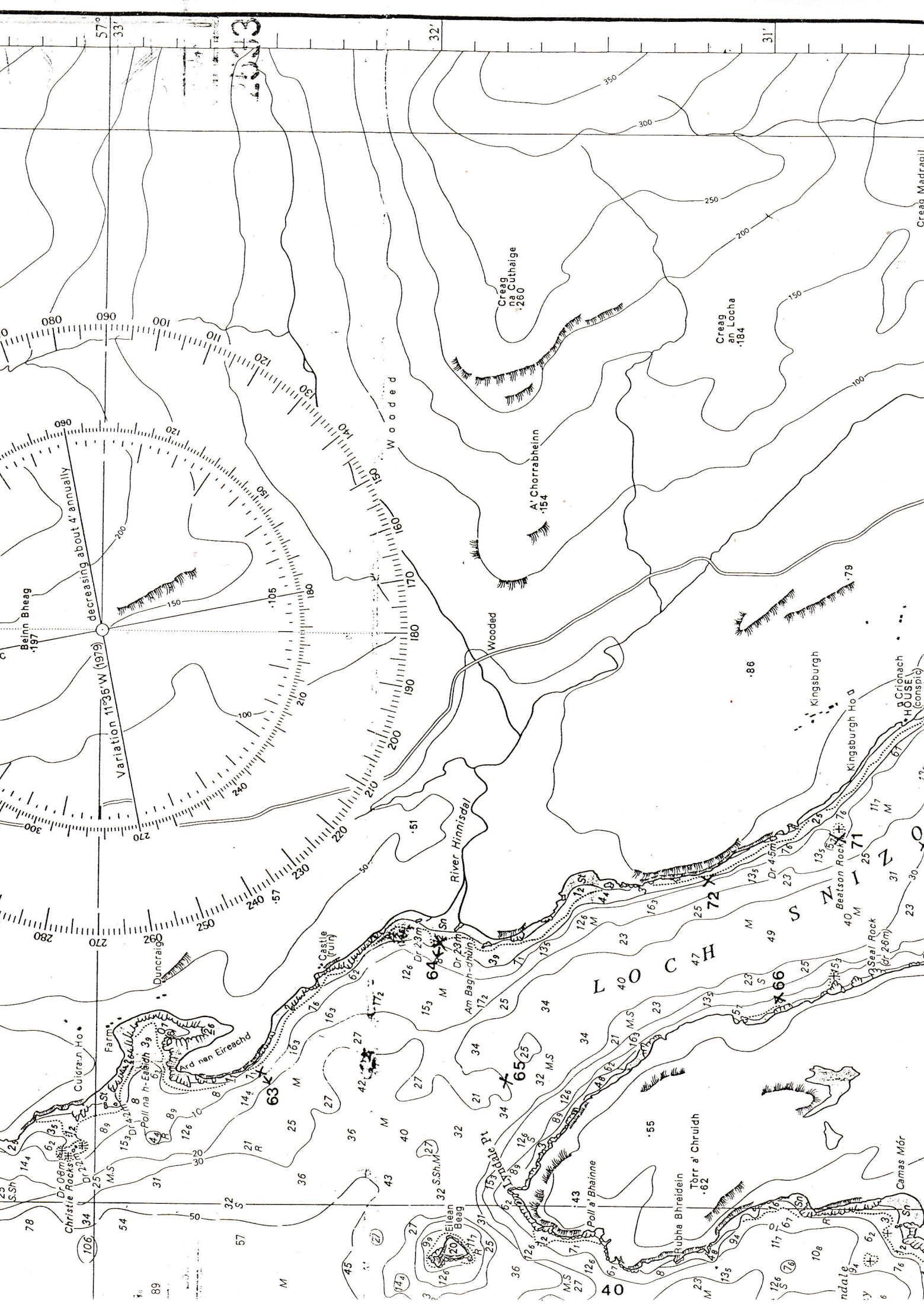
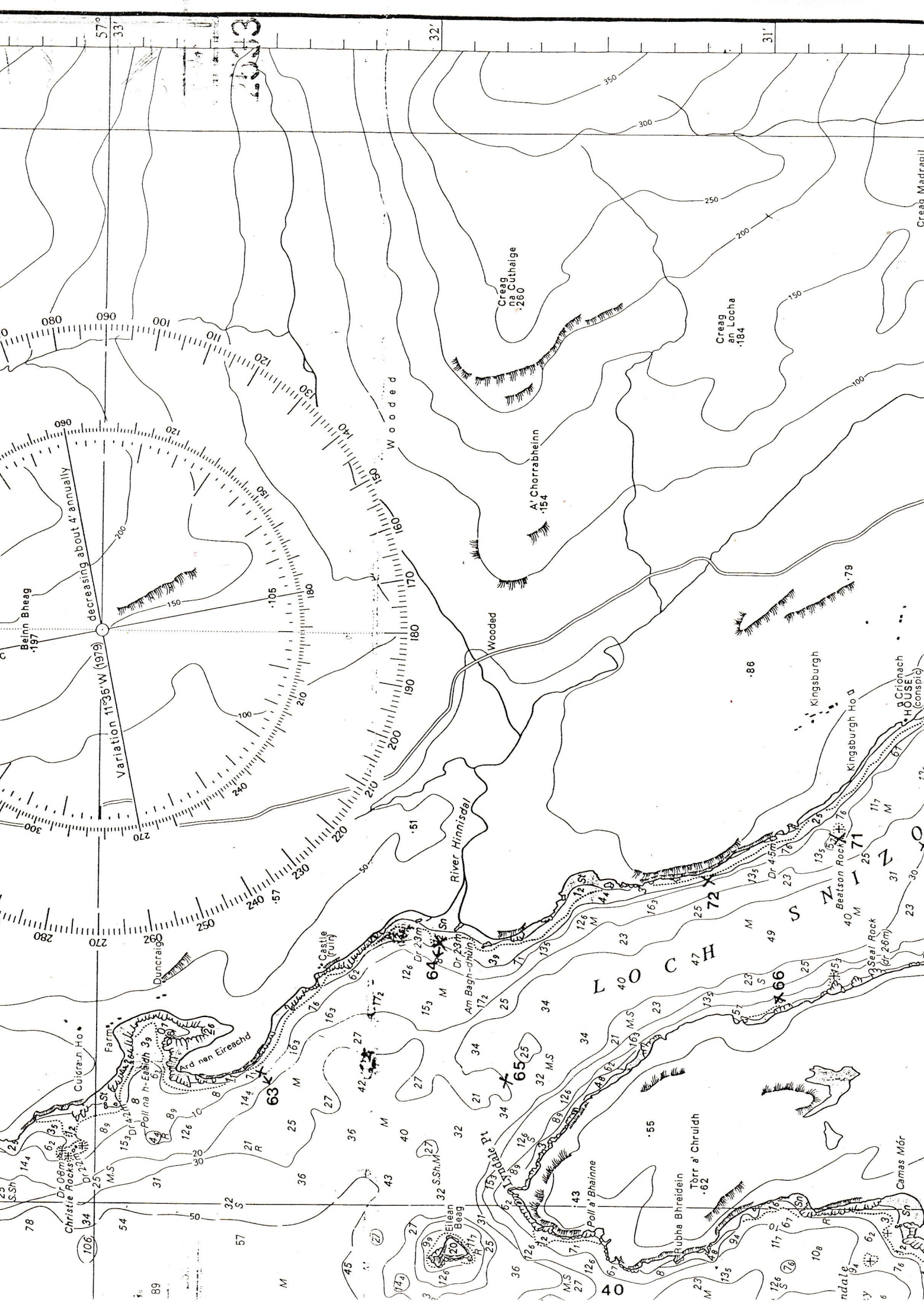
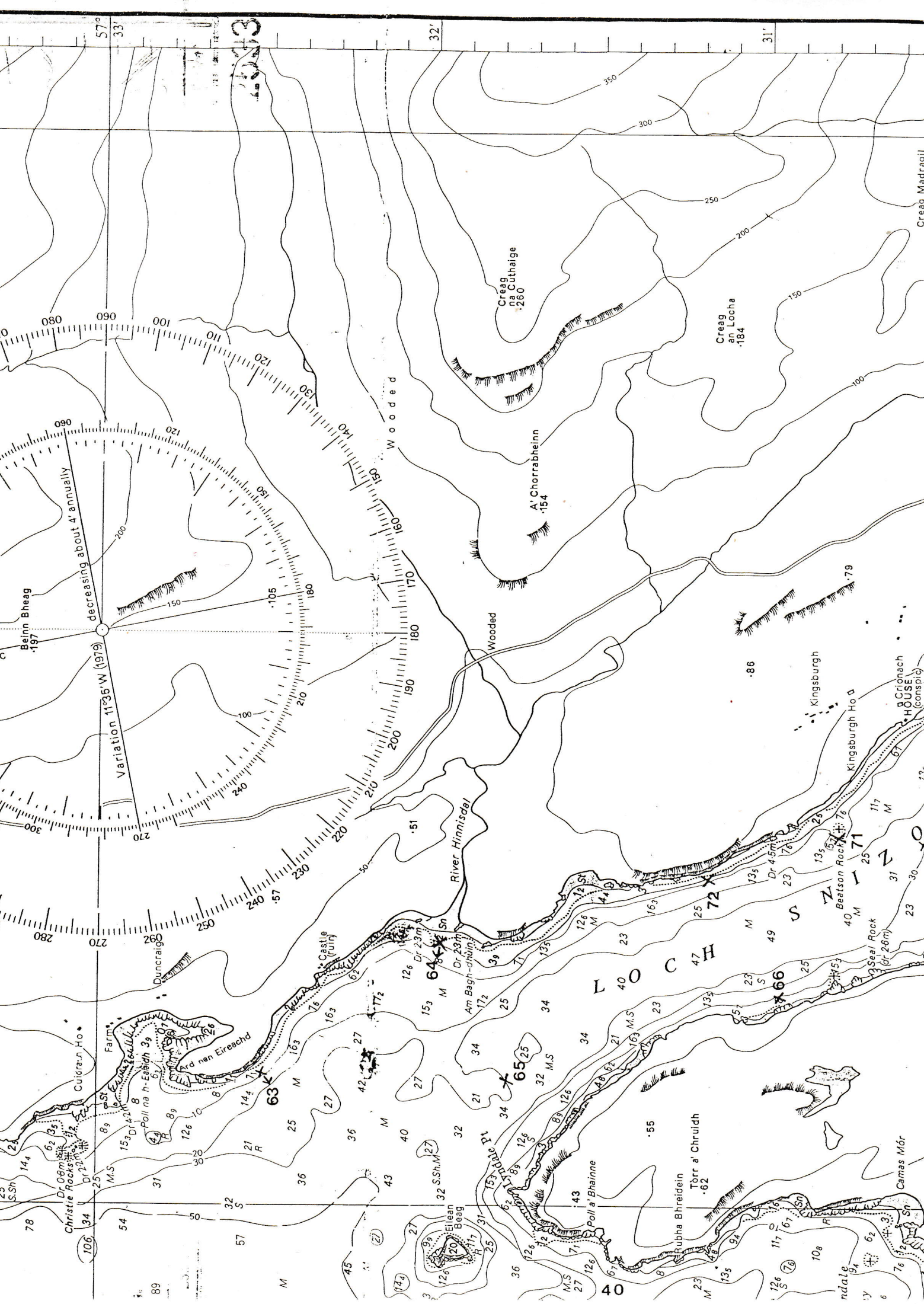
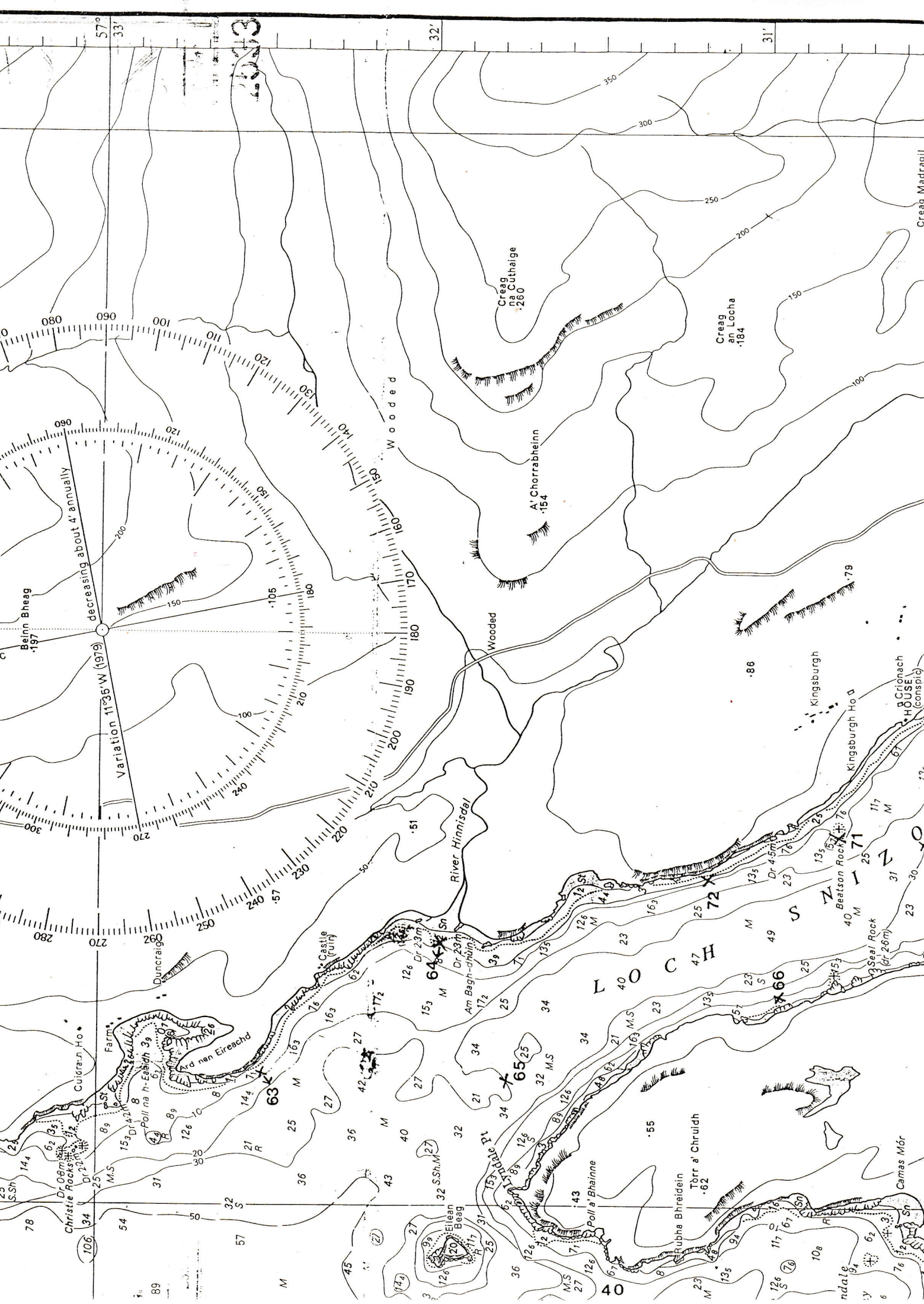
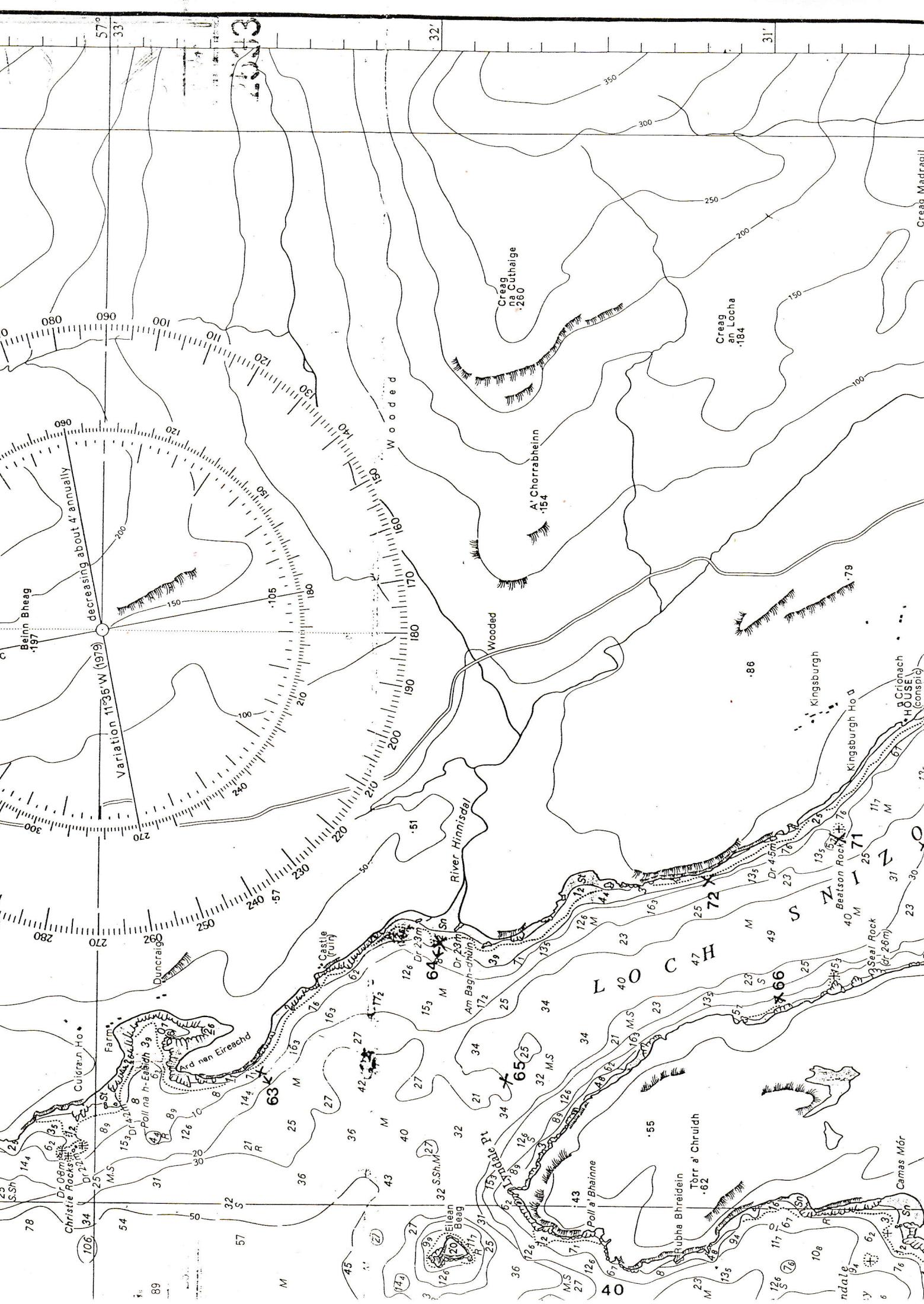
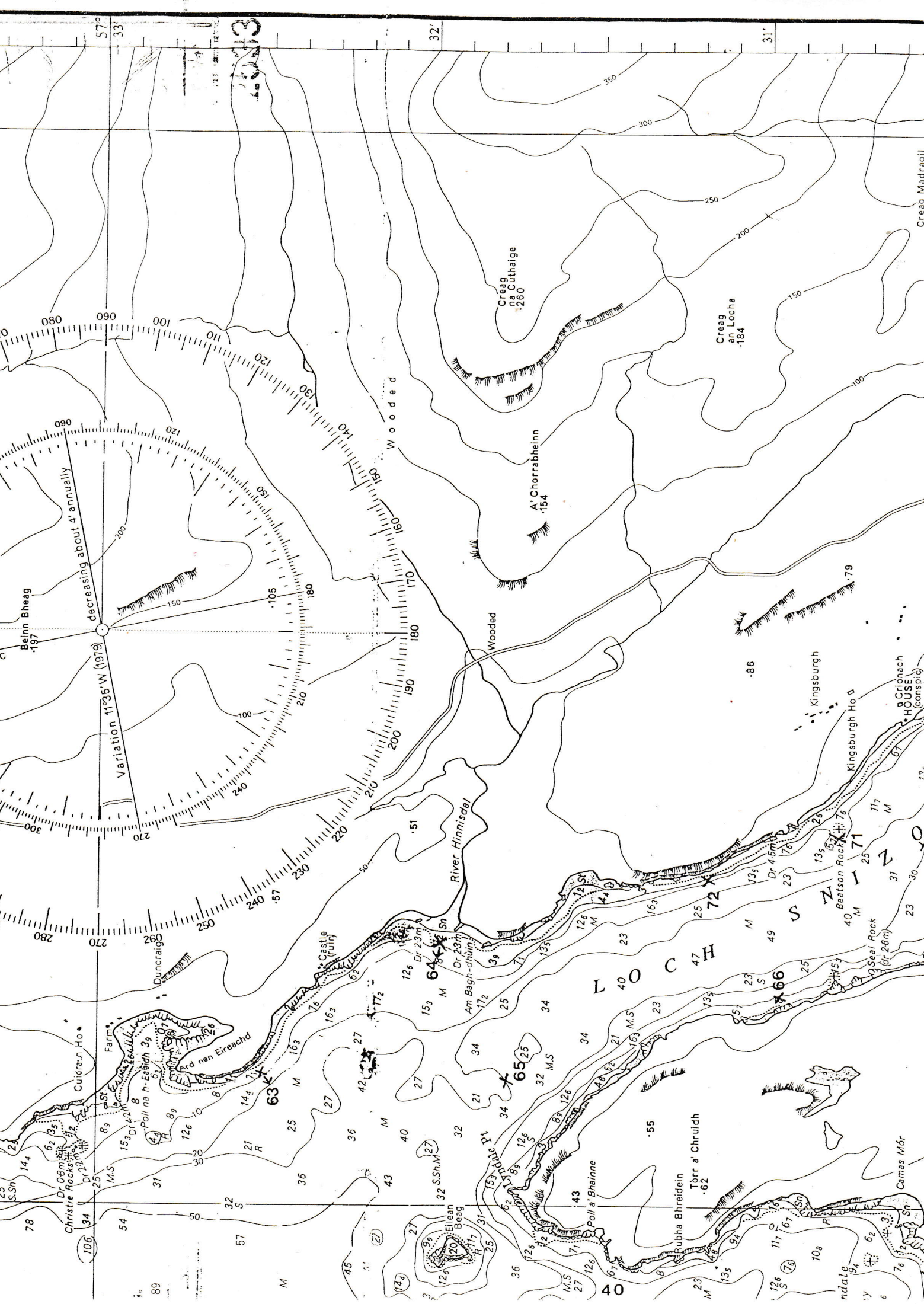
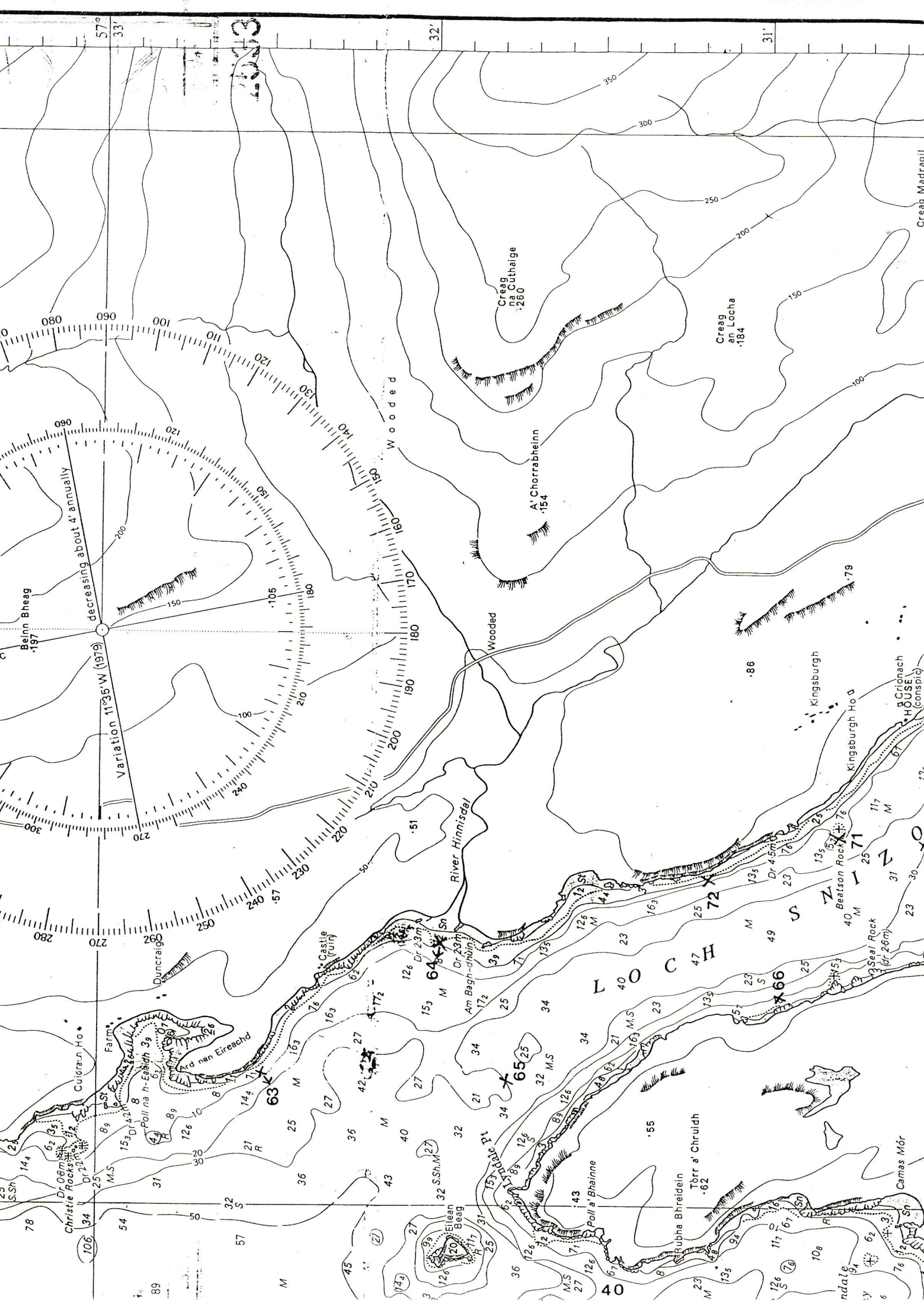
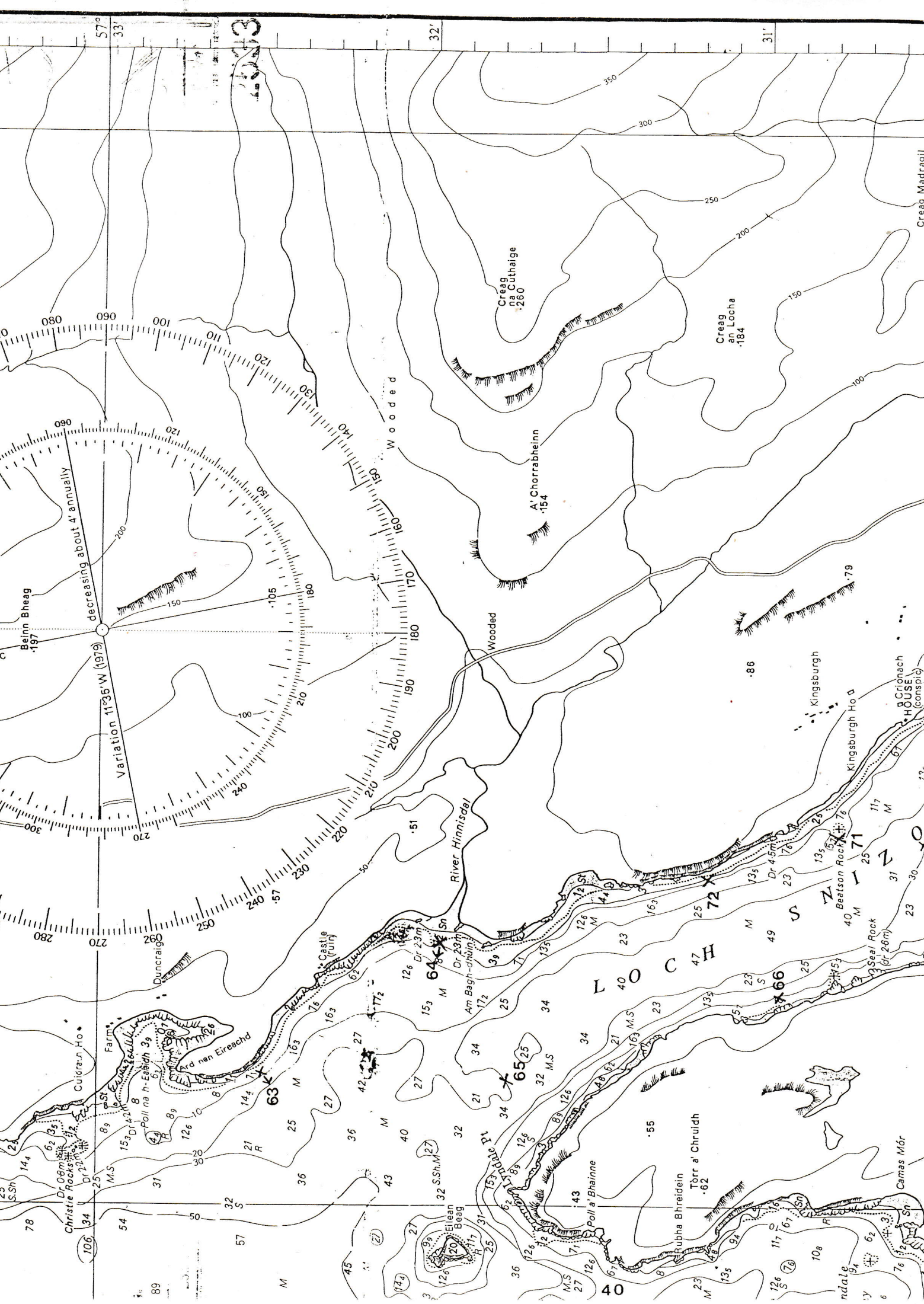
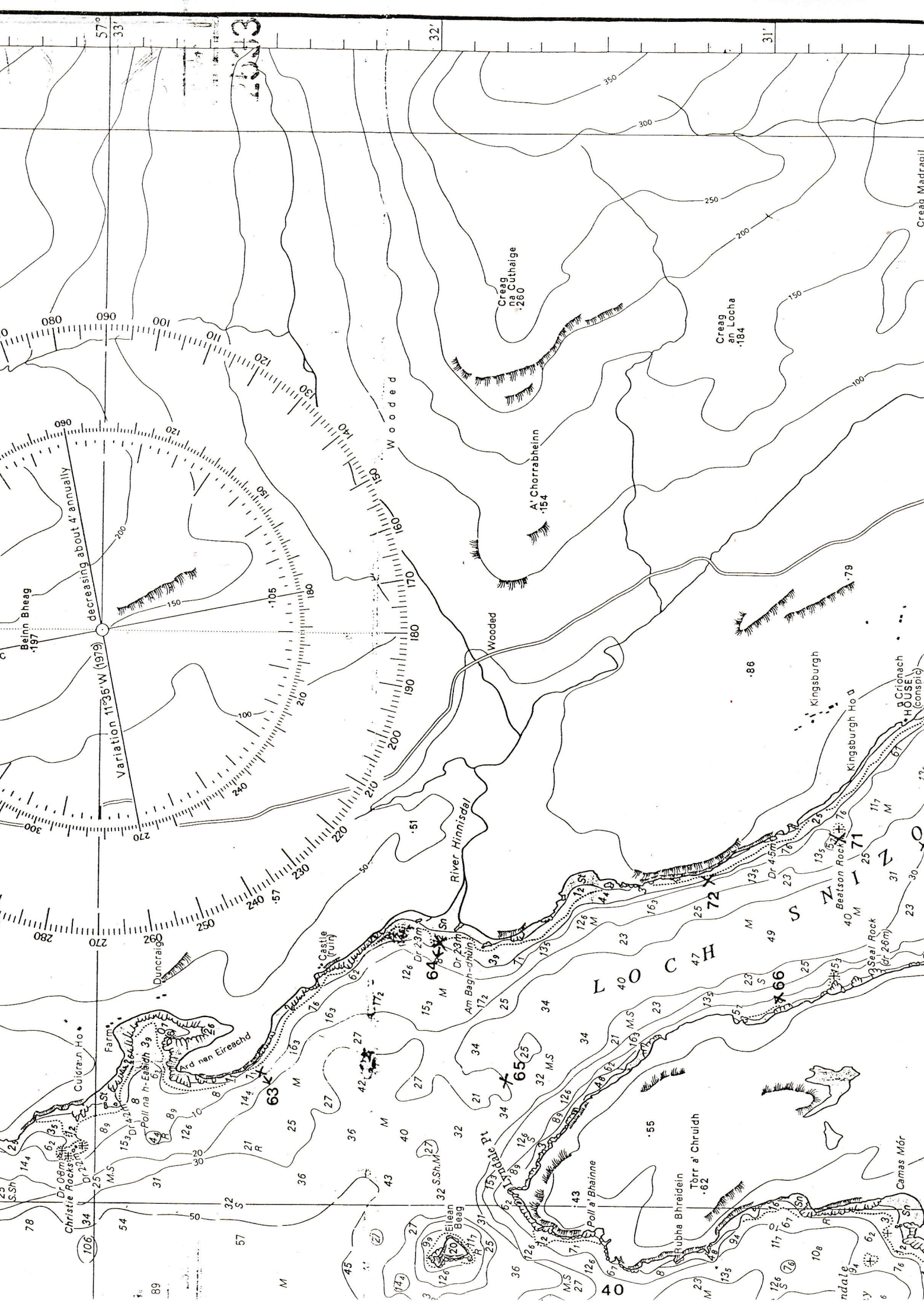
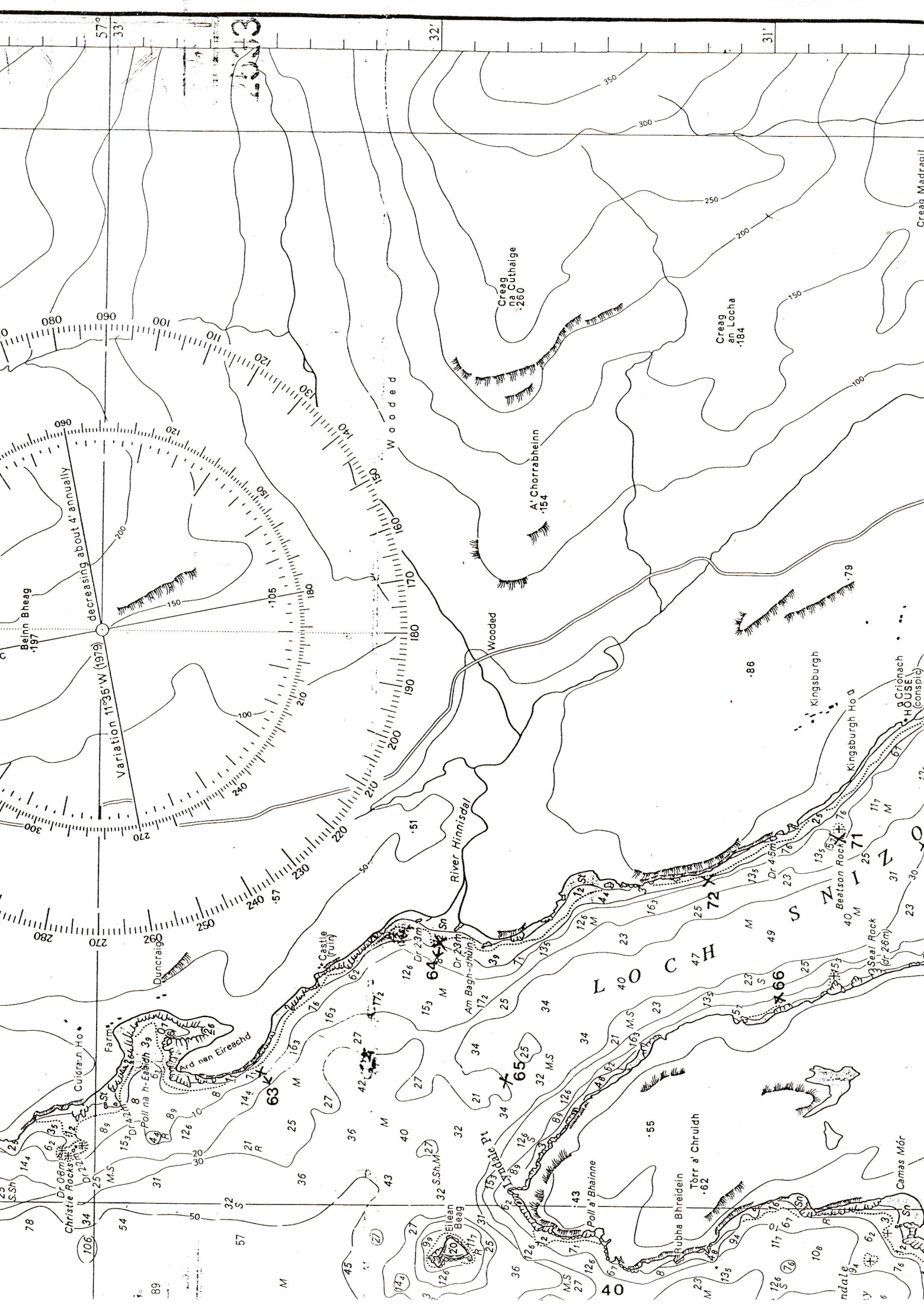
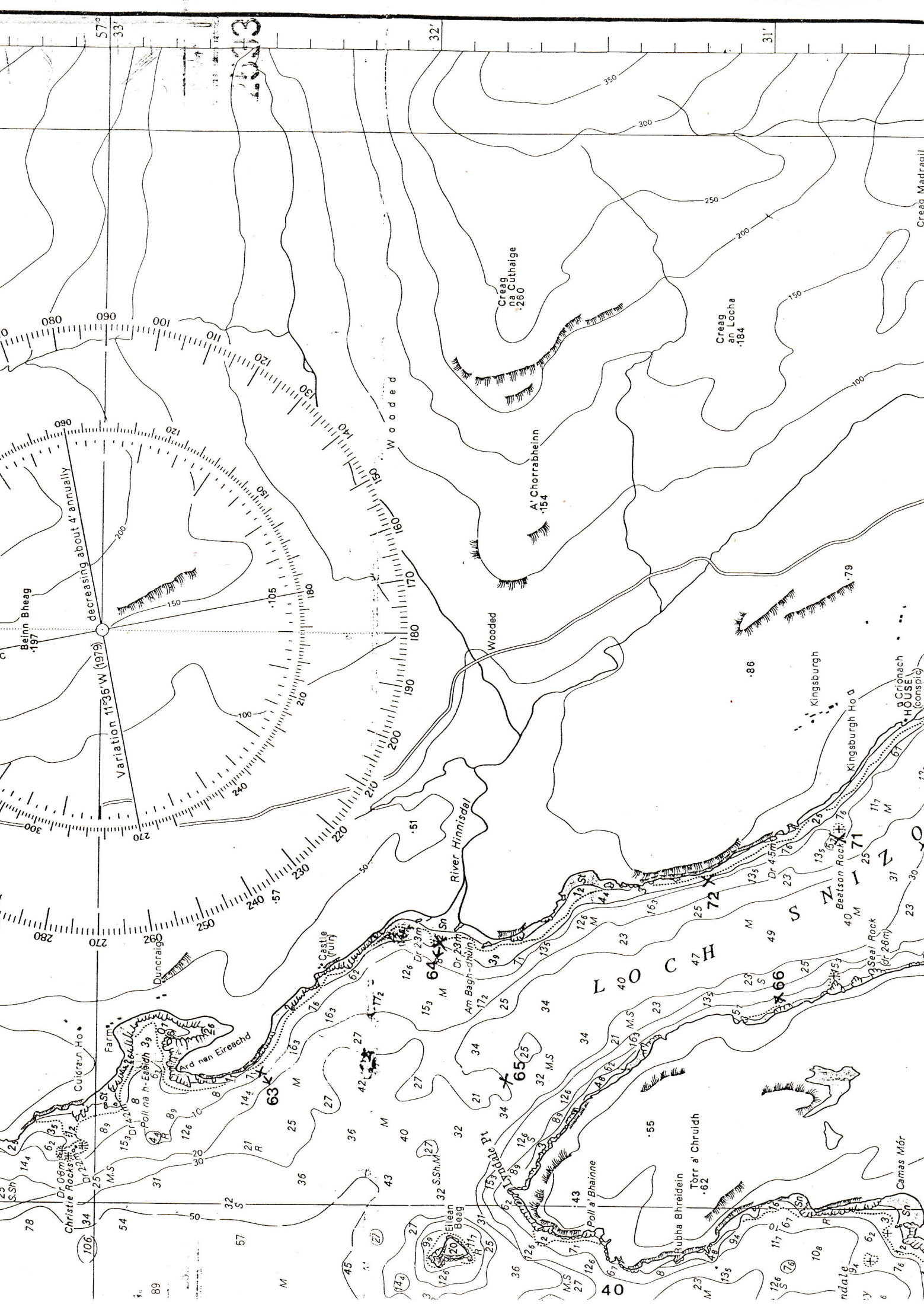
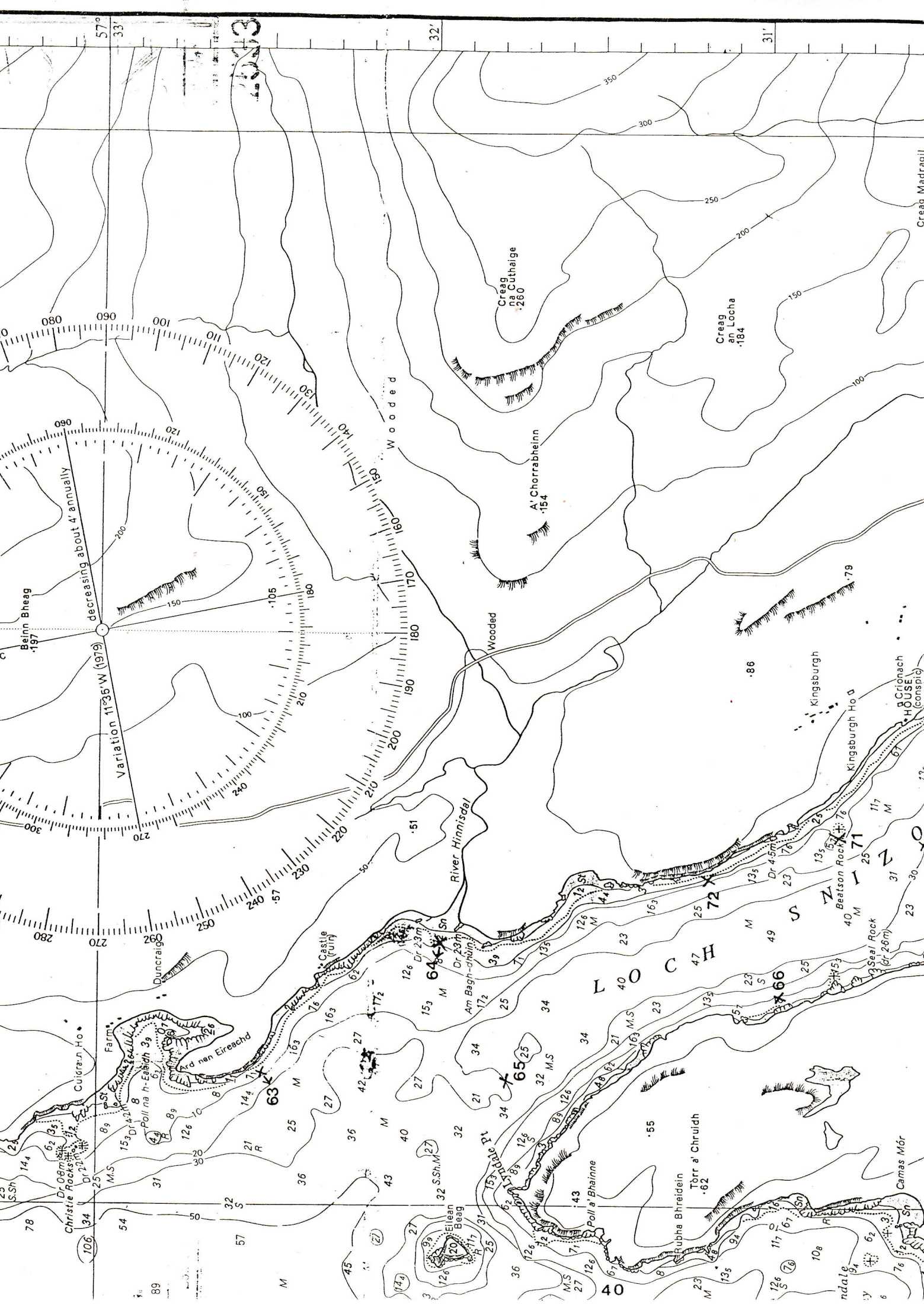
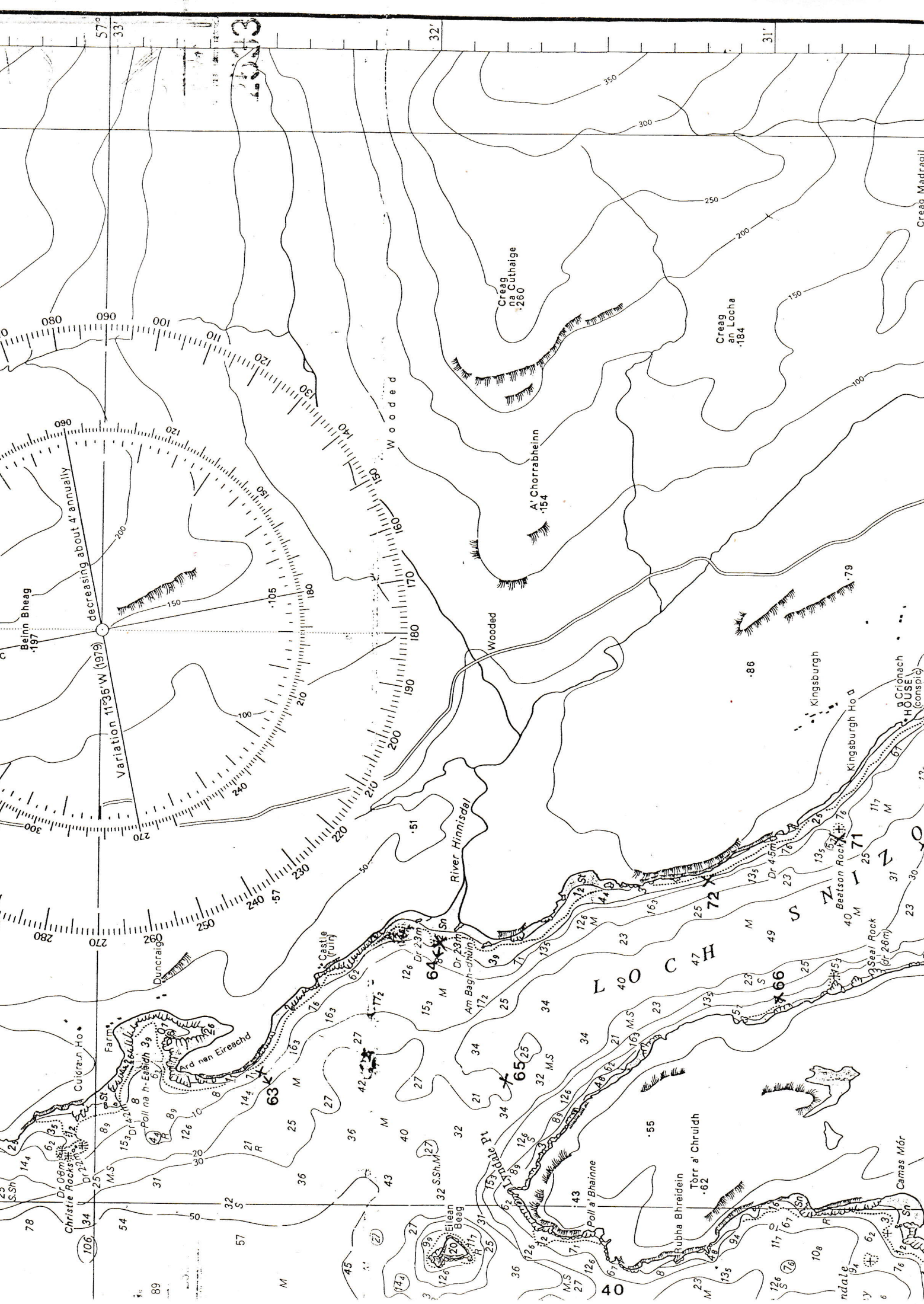
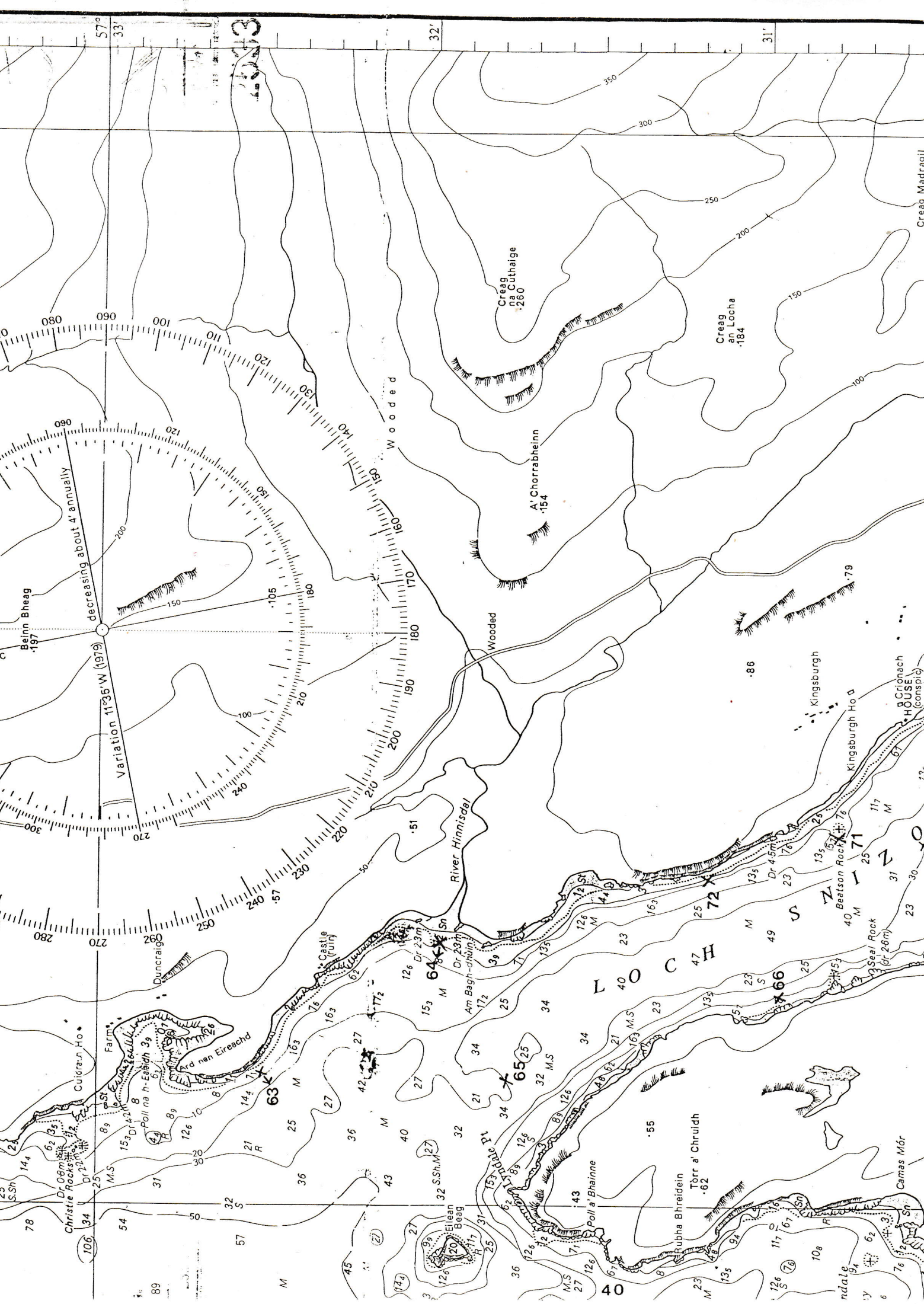
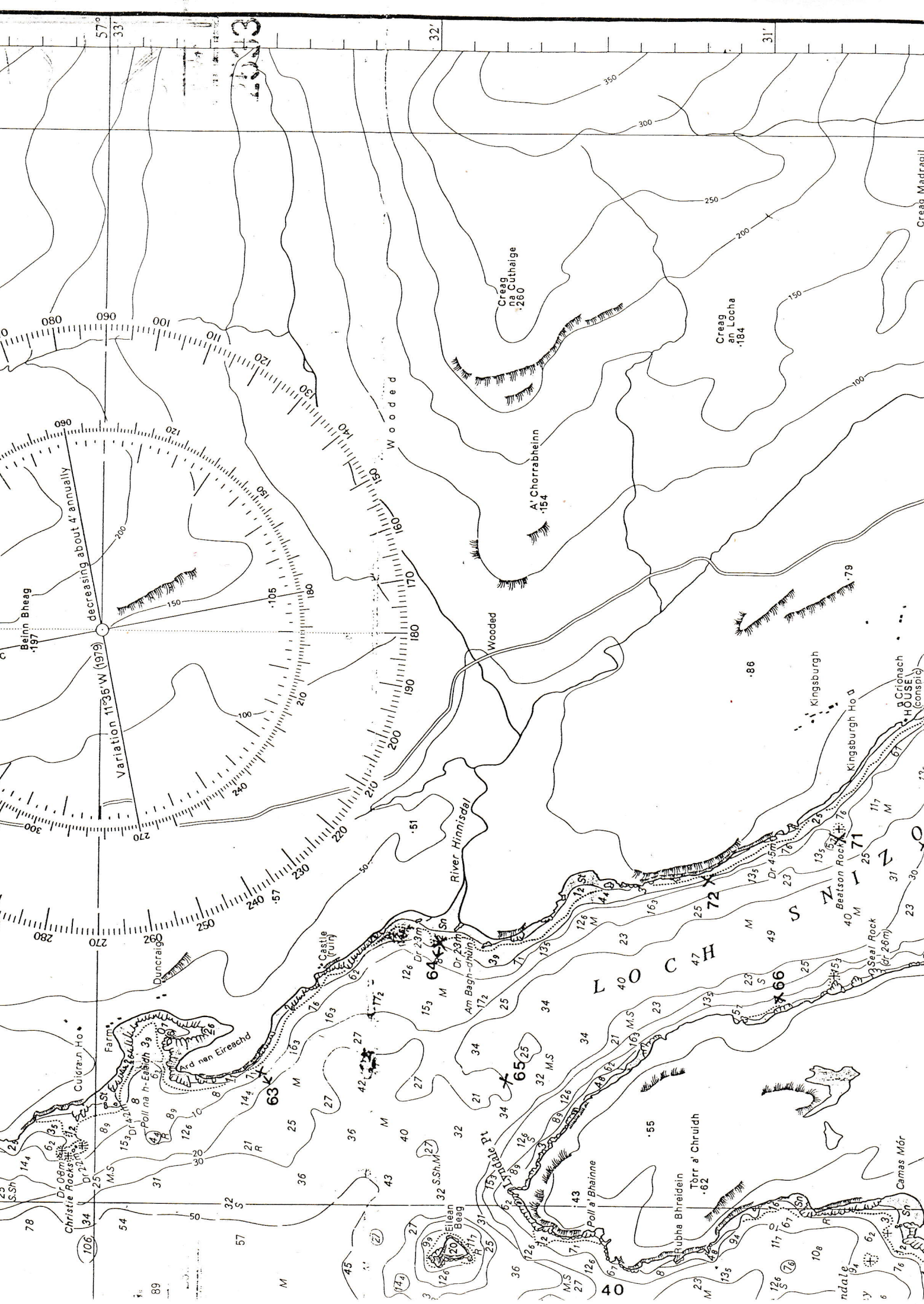
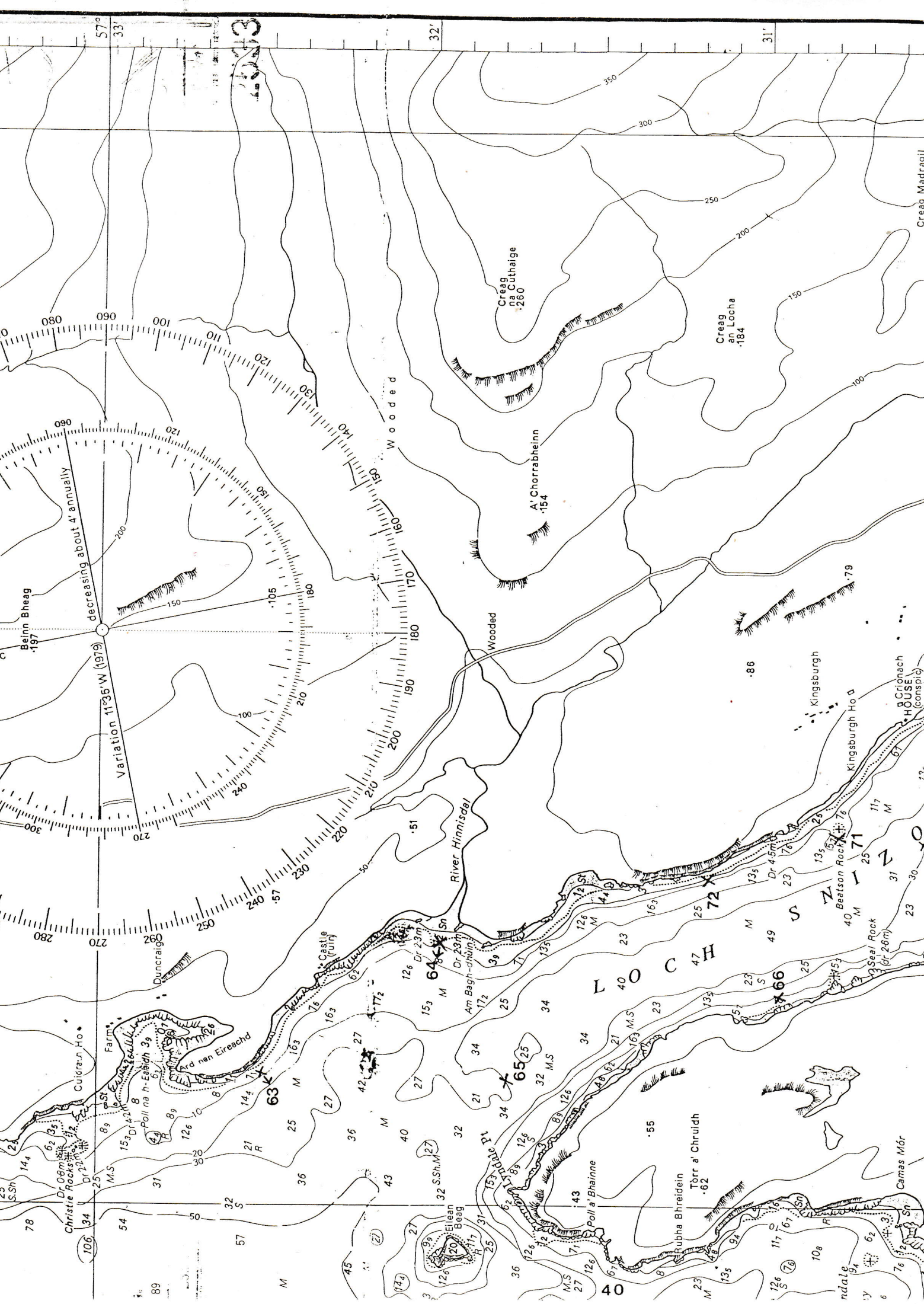
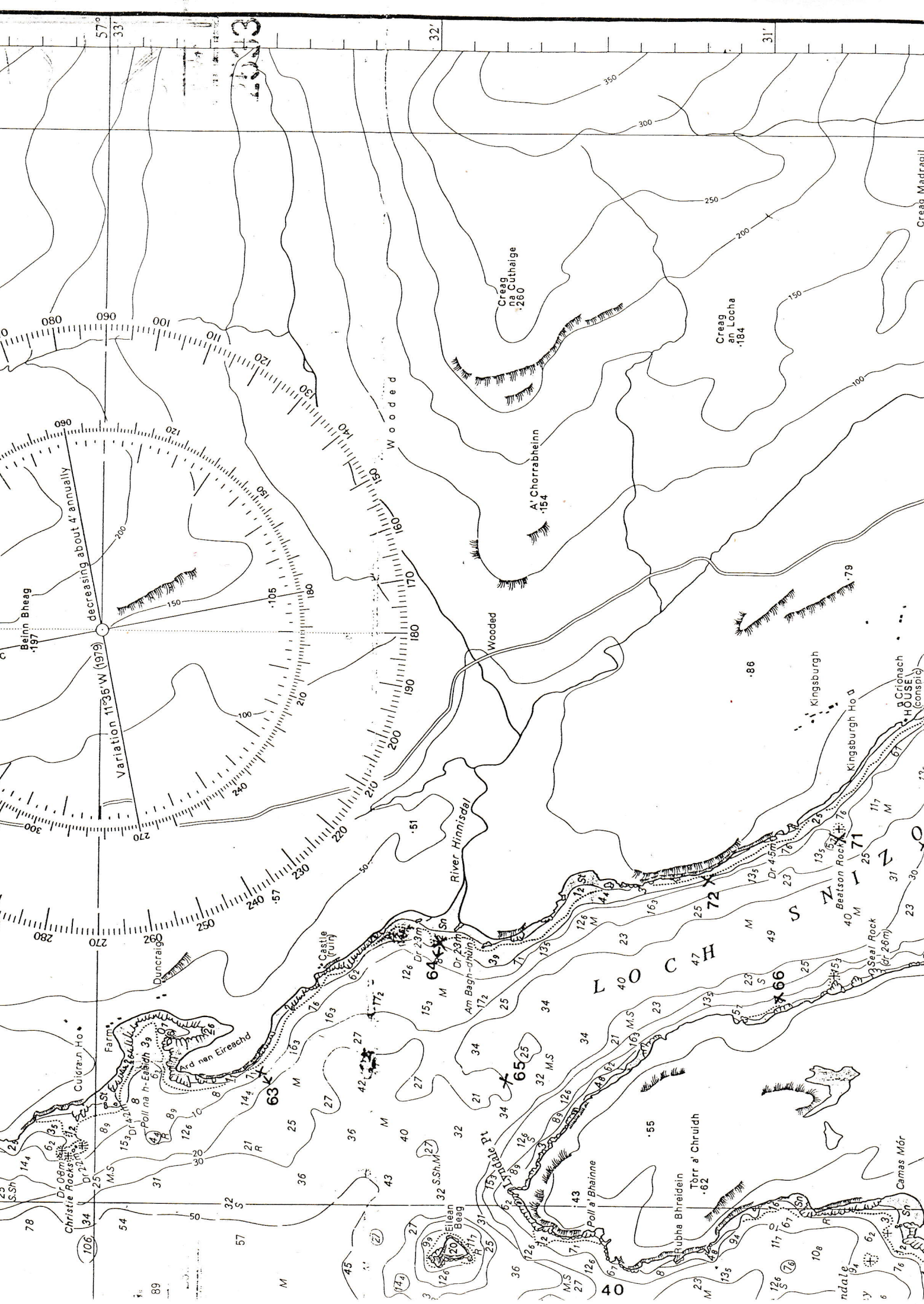
FINDINGS: DEPTH RANGE 0-20m BELOW CHART DATUM

Steep slope with large boulders descends to 10m, followed by a gradual slope of coarse sand, pebbles and shell fragments with occasional large and small boulders down to 18m. Sediment here is finer sand lying on a fine silt underlayer with medium and small pebbles on the surface. Below 20m the sediment becomes finer still with patches of sand. Dominant species include L.saccharina on rocky slopes and lower boulders, Antedon bifida, Crossaster paposus and Asterias rubens.

Comments - reasonably diverse site without one particularly dominant faunal species.



Variation 11°35' W (1919) decreasing about 4' annually



LOCH 7: LOCH SNIZORT BEAG

GENERAL DESCRIPTION

Loch Snizort Beag forms one of the two long arms at the inner end of Loch Snizort and has several true sea loch type features. There is a sill running across the inside of the loch mouth with a deep channel running through it just below Lyndale Point. This channel leads into a deeper region at the mouth before finally dropping off into the much deeper water of Loch Snizort itself. On the inner side of the sill there is a single long deep basin (50m max) which runs all the way to the head of the loch, unlike Loch Greshornish which has two basins. The head of the loch is divided into 3 regions, Loch Treaslane, Loch Eyre and a third un-named region; each with a small stream at their head. A large proportion of these areas dry at low tide leaving a large expanse of mud-flat.

DIVE SITE PLANNING

Date of survey 16/5/88. Ten sites were planned for Loch Snizort Beag, considering topography ranges and overall time availability. One on the north coast at the very mouth of the loch, two just inside the mouth; at a river mouth and part of the sill, three mid way along on the sides of the deep basin, one centrally where the basin floor rises into shallow water, two on the shallow plain near the loch head and one at the head of the loch itself.

GENERAL SUBSTRATE TYPES, HABITATS, AND POINTS OF INTEREST

The area at the mouth of the loch is comprised mainly of boulder slopes near the shore, dropping down onto sandy mud sediments with loose stones and small boulders. Kelp, usually L.saccharina and L.hyperborea, is found on suitably firm substrates down to about 15m in these areas.

The River Hinnisdal running into the loch near its mouth seems to have some influence on the species present (site 64), possibly because the shallow area over the sediment plain on the outer sill around this area does not allow effective water mixing, therefore causing a drop in salinity.

The inner side of the outer sill is composed of fine silty mud and sand with scattered boulders which probably extend onto the basin floor providing suitable substrates for Carophyllia smithii and Munida rugosa (site 65). Similarly the margins of the main basin are also comprised of boulder slopes with finer mud and fewer boulders at depth, making suitable habitats for Cerianthus lloydii and sea pens (sites 66, 67 and 71). Towards the head of the loch species diversity seems to drop, and "clean" boulder areas are very limited, those present usually with a few Metridium senile and L.saccharina attached (see sites 68 and 70). At the head of the loch itself there is an extensive mud plain, without megafaunal burrows and an obviously variable freshwater input.

INDIVIDUAL DIVE SITES

SITE NUMBER 63

SITE NAME Ard nan Eireachd, Loch Snizort Beag

DIVERS Rohan Holt, Nick Weir

REASONS FOR / OBJECTIVES OF THE DIVE

- typicality of the exposed mouth of the loch
- transect from near shore into deeper water
- photography

FINDINGS: DEPTH RANGE 9-18m BELOW CHART DATUM

A steep boulder slope runs down to 13m, after which it becomes gradually less steep and predominantly coarse sand covered. With increase in depth the substrate becomes increasingly muddy with shell fragments. Dominant species include encrusting red algae, together with L.saccharina, L.hyperborea and Saccorhiza polyschides on boulder slope and shallow boulders. A filamentous algal mat covers much of the sediment with some Enteromorpha present. Dominant species include Ascidiella aspersa on the upper slopes and Cerianthus and Ensis sp. on the lower more muddy slope.

SITE NUMBER 64

SITE NAME Mouth of River Hinnisdale, Loch Snizort Beag

DIVERS Stuart Anderson, Alan Oakman

REASONS FOR / OBJECTIVES OF THE DIVE

- survey of areas around river mouth
- transect from near shore into deeper water

Gradual slope of large round pebbles becoming smaller and running onto muddy slope by 8m. Some scattered small boulders also present. Upper slope dominated by fucoids, Chorda filum and Ulva lactuca with L.hyperborea becoming more common as the depth increases.

Comments - very poor species diversity, possibly due to localised reduction in salinity.

SITE NUMBER 65

SITE NAME East of Lyndale Point, Loch Snizort Beag

DIVERS Dave Donnan, Lois Calder

REASONS FOR / OBJECTIVES OF THE DIVE

- survey of sill area at exposed end of loch
- drop to 30m then follow slope upwards
- photography

Gradual slope of fine silty mud with scattered rocks ranging in size from large boulders to small angular cobbles. Dominant species include Carophyllia smithii and Ascidia spp on rocks with Munida rugosa under and between them. One individual specimen of an erect coralline bryozoan, possibly Pentapora spp, was seen but not collected.

SITE NUMBER 66

SITE NAME West side of lower loch, Loch Snizort Beag

DIVERS Garry Miller, Mark Perrott

REASONS FOR / OBJECTIVES OF THE DIVE

- survey of side of deep basin
- transect from shore into deeper water

Short bedrock cliff drops onto a gradual slope covered by large boulders. This continues to 9m where it changes to coarse muddy shell gravel becoming steeper at around 20m. The sediment is generally more muddy at depth and scattered large boulders are found around 15m onwards. Dominant species are L.saccharina and L.digitata on the bedrocks and boulders with Metridium

on the deeper boulders. Cerianthus is present on the sediment slopes and also a bed of Virgularia from 11m down.

SITE NUMBER 67

SITE NAME Centre of the loch, Loch Snizort Beag

DIVERS John McAuley, Thom Nickell

REASONS FOR / OBJECTIVES OF THE DIVE

- region where the deep basin starts to become shallower
- transect in south-easterly direction

FINDINGS: DEPTH RANGE 27m BELOW CHART DATUM

Soft mud plain with main features being Nephrops, Calocaris, and Callianassa burrows. Other dominant species are Funiculina quadrangularis and Pennatula phosphorea

SITE NUMBER 68

SITE NAME Odhar Sgeir, Loch Snizort Beag

DIVERS Rohan Holt, Nick Weir

REASONS FOR / OBJECTIVES OF THE DIVE

- basalt columns on shore could possibly extend underwater
- typicality of sediment in inner loch

FINDINGS: DEPTH RANGE 4-15m BELOW CHART DATUM

Steep boulder slope to 10m (no columns) followed by muddy sand with shell fragments on a slope which becomes increasingly more gradual. A rocky outcrop occurs at 15m and below this the sediment becomes almost horizontal mobile dark mud. L.hyperborea and L.saccharina present on the rock with Desmarestia on the upper sediment slope. Dominant fauna include Echinus, Asterias on the upper boulder slope with Metridium on the lower rock outcrop. Large numbers of Cerianthus and Mya spp present in the sediment. Also mud burrowing brittle stars and a single Trachythyone elongata found at this site.

Comments - noticeable current

SITE NUMBER 69

SITE NAME Head of Loch Snizort Beag

DIVERS Dave Donnan, Lois Calder

REASONS FOR / OBJECTIVES OF THE DIVE

- survey shallow area at head of loch
- transect towards shore
- photography

Extensive plain of soft mobile mud is present with occasional unidentified crustacean burrows. Dominant species are Cerianthus in patches up to 10 per m², and many Pagurus bernhardus. Some laminaria debris is also present with Metridium senile attached.

Comments - poor diversity of species

SITE NUMBER 70

SITE NAME Beatson Rock, Loch Snizort Beag

DIVERS Mark Perrott, Garry Miller

REASONS FOR / OBJECTIVES OF THE DIVE

- survey small pinnacle at the edge of the deep loch basin
- transect from below pinnacle into basin

A boulder slope runs from 4-10m dropping onto a gradual firm mud slope with occasional small boulders and large shell fragments. Dominant species are L.hyperborea on the boulder slope with Clavellina and Carophyllia smithii on the rocks; Pawsonia saxicola beneath. Unidentified crustacean

mounds and burrows are present in the sediment together with Mya truncata and Myxicola infundibulum. Few Pecten also seen.

SITE NUMBER 72

SITE NAME North-east side of mid-loch area, Loch Snizort Beag

DIVERS John McAuley, Thom Nickell

REASONS FOR / OBJECTIVES OF THE DIVE

-representative of outer loch on side of basin

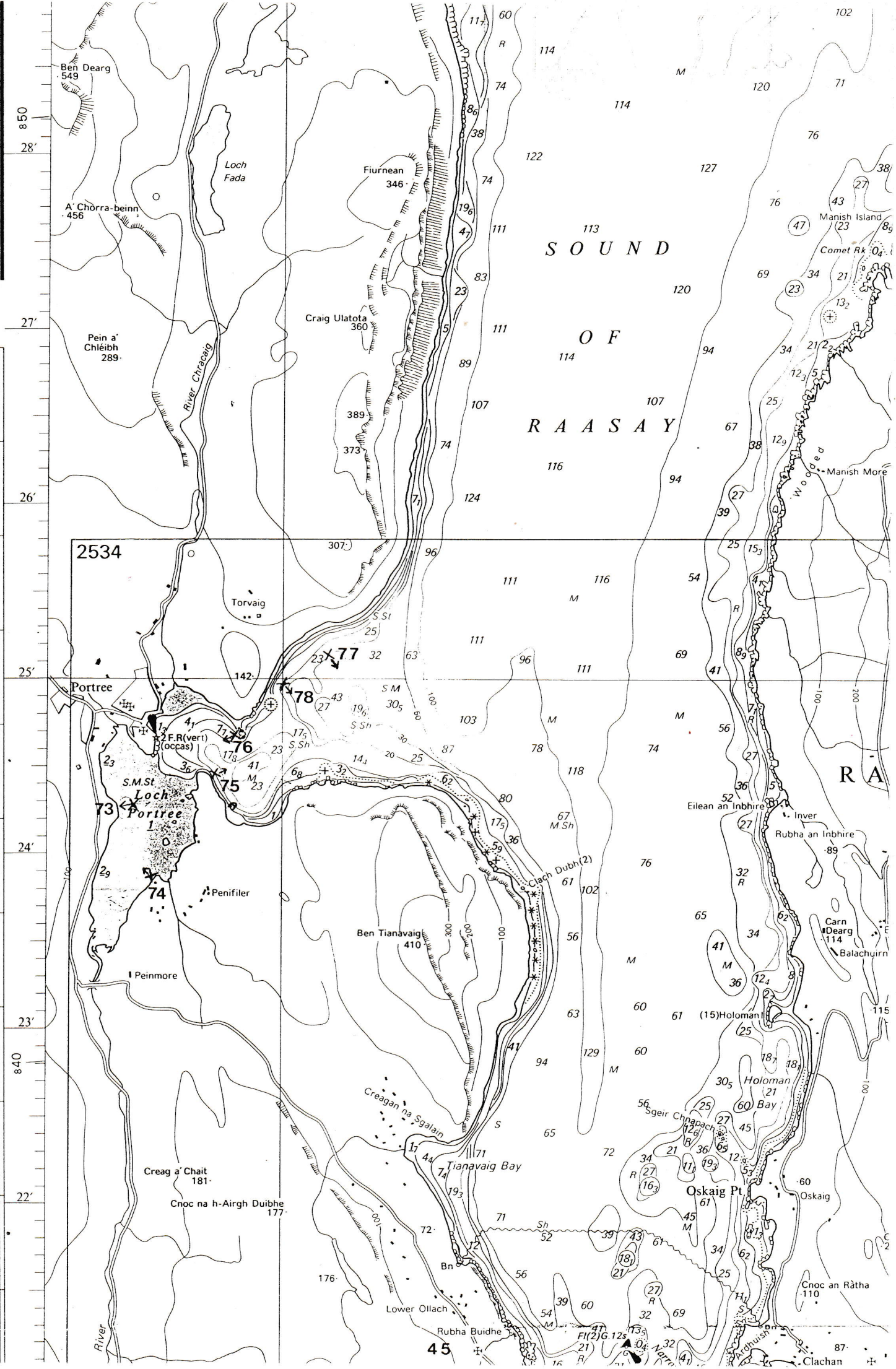
-transect towards shore

FINDINGS: DEPTH RANGE 4-14m BELOW CHART DATUM

Firm slope of homogeneous mud, becoming steeper with depth. Surface of sediment littered with large round pebbles. Occasional L.saccharina on some of the pebbles in shallow water. Brittle stars, Amphiura spp and Ophiura texturata, and also burrowing bivalves Dosina, Arctica islandica and Mya spp present in the sediment.

Comments - Pebble areas provides some habitat diversity, however the marine life is not very prolific, lacking any particularly dominant species.

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10 000



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Penimore

Creag a' Chait
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Cnoc na h-Airgh Duibhe
177

176

Lower Ollach

Rubha Buidhe

Loch Fada

Pein a' Chléibh
289

River Chrocaig

Torvaig

77

78

76

75

Penifiler

Ben Tianavaig
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Creagan na Sgalain

Tianavaig Bay

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71

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Fiurnean
346

Craig Ulatota
360

389

373

307

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Ben Tianavaig
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Creagan na Sgalain

Tianavaig Bay

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107

74

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Manish Island
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Manish Island
(23)

Comet Rk
(04)

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Manish Island
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Comet Rk
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Manish Island
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Comet Rk
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LOCH 8: LOCH PORTREE

GENERAL DESCRIPTION

In general terms Loch Portree is a short sea loch, surrounded by steeply sloping cliffs and hills, and can be divided up into three regions related to exposure, overall sill and basin topography and substrate type.

The outer region at the mouth of the loch, forms an open bay with exposure to the weather from any easterly direction. The bottom slopes steeply upwards from 100m just outside this region to 20m, about 1/2 a nautical mile in from the mouth. This area is surrounded by high ground with steeply sloping hills and boulder slopes to the north and cliffs and steep slopes to the south.

The second region consists of a middle basin (41m deep) between a shallow sill to the seaward side (17m deep) and a mud-flat lagoon-like region towards the head of the loch. This middle basin has a rocky promontory running from its north shore towards the centre of the basin providing shelter for Portree harbour. Again the surrounding land is generally steep sided, although lower than that around the outer basin. There is some freshwater input to this area from the River Chracaig, and also a "human element" to be considered from the boats in the busy harbour and from the town.

DIVE SITE PLANNING

During the 17/5/88 six dive sites were chosen in an order running from the head end of the loch outwards. Two surveys were made in the inner Loch Portree over the mud-flats, one of which was near the mouth of a small river. Diving activities in the outer and mid-loch region was somewhat limited by strong north-easterly winds making conditions unsuitable for the intended sites on the outer south side and outer middle of the loch. However the information gathered from the remaining four surveys should give sufficient information about the typicality of the outer two parts of the loch.

Two surveys were made on either side of the middle basin, one on the inside of the rocky promontory and one heading eastwards from the headland opposite this feature. The last two surveys were made in a sheltered region on the north side of the outer part of the bay.

GENERAL HABITATS, SUBSTRATE TYPES AND POINTS OF INTEREST

Sites 1 and 2 in the head region of the loch were over flat sandy mud and small boulders in very shallow water. This whole area has several rivers entering it and consequently reflects this freshwater input by the species present and the amount of fine silt forming a flat plain. Species include Cerianthus lloydii, Arenicola marina, Lanice conchilega, fucoids and green algae.

The middle basin has rocky outcrops on the north side leading down onto soft mud plains with some megafaunal burrows and Virgularia mirabilis beds, whereas the south side of the same region consists of only soft substrate becoming steeper with depth, possibly with richer faunal beds in deeper water.

Towards the mouth of the loch, diversity seems to increase, again the substrates consist of short boulder slopes then soft sediment, but here there are kelp forests and also many megafaunal burrows in the deeper soft sediments.

The next to last dive survey nearest the mouth of the loch, disclosed a boulder slope starting at 18m, steeply descending out of diveable range. Here there was a marked increase in species diversity, more typical of the open coast.

INDIVIDUAL DIVE SITES

SITE NUMBER 73

SITE NAME West side of inner Loch Portree

DIVERS Rohan Holt, Nick Weir

REASONS FOR / OBJECTIVES OF THE DIVE

-survey of inner loch over shallow sediment

-transect across part of the loch

FINDINGS : DEPTH RANGE -1m BELOW CHART DATUM

From the shore at sea level there is a short steep boulder slope surrounding much of the loch which drops to a sediment plain at approximately -0.5m. Dominant species include green filamentous algae, Fucus serratus and Fucus vesiculosus growing on small boulders also with Semibalanus balanoides. Other species in the sediment include Cerianthus lloydii, Arenicola marina and a terebellid species.

SITE NUMBER 74

SITE NAME South-east side of inner Loch Portree

DIVERS Stuart Anderson, Alan Oakman

REASONS FOR / OBJECTIVES OF THE DIVE

-survey in inner loch near river mouth

-transect from shore over substrate

FINDINGS : DEPTH RANGE 0m BELOW CHART DATUM

As at site 73, a short boulder slope onto sediment consisting of horizontal muddy gravel, bound together by Sabellaria tubes. Other species including numerous Carcinus maenas, littorinids, Lanice conchilega, Mytilus edulis, Ascophyllum nodosum, and Ulva lactuca.

SITE NUMBER 75

SITE NAME Point east-southeast of Portree, Loch Portree

DIVERS Lois Calder, Dave Donnan

REASONS FOR / OBJECTIVES OF THE DIVE

-charted as slope into middle basin of loch

-transect from near shore into deeper water

FINDINGS : DEPTH RANGE 5-18m BELOW CHART DATUM

Gradual slope of firm sandy mud, becoming muddier with depth with large shell fragments. Slope becomes steeper after 18m. Dominant species on shallower slope are Desmarestia and filamentous green algae, thinning out at 11m and disappearing by 14m. Deeper soft sediment with Cerianthus.

Comments - diversity and abundance of animals low.

SITE NUMBER 76

SITE NAME Inside of skerry, Portree harbour, Loch Portree

DIVERS Mark Perrott, Garry Miller

REASONS FOR / OBJECTIVES OF THE DIVE

-sheltered location from strong north-easterly wind

-transect towards Portree

-typicality of mid loch rock and sediment areas

FINDINGS : DEPTH RANGE 3-9m BELOW CHART DATUM

An igneous bedrock wall descends from sea level onto a shell gravel and mud substrate starting at 4m. This slopes gradually to 9m becoming near horizontal plain with occasional small boulders. Dominant species on the bedrock wall include L.saccharina, with a few also on the deeper boulders. Filamentous green and brown algae throughout the dive. Infauna include Cerianthus on much of the sediment with an increasing number of Virgularia with depth. Other species including Liocarcinus puber and L.depurator, Neopentadactyla mixta (?) and terabellid species.

SITE NUMBER 77

SITE NAME North side of outer loch, Loch Portree

DIVERS John McAuley, Thom Nickell

REASONS FOR / OBJECTIVES OF THE DIVE

- charted as steepest part of loch in outer area
- site at limit of loch on north side
- transect perpendicular to shore

FINDINGS : DEPTH RANGE 18-22m BELOW CHART DATUM

Near horizontal sandy mud plain at 18m with very few features. Further out from shore there is a boulder slope with patches of muddy sand inbetween giving a variety of habitats. The sandy mud plain was notably devoid of much life, there being a few Ophiura texturata, terebellids and Aphrodite. However on the boulder slope there were many species including Ascidia mentula, Antedon bifida, Carophyllia, Ophiothrix fragilis and Munida rugosa under the boulders.

Comments - surveyed area showed two distinct habitat types.

SITE NUMBER 78

SITE NAME North side of outer loch, west of site 77, Loch Portree

DIVERS Rohan Holt, Nick Weir

REASONS FOR / OBJECTIVES OF THE DIVE

- survey on outer part of sill
- transect out from near shore
- photography

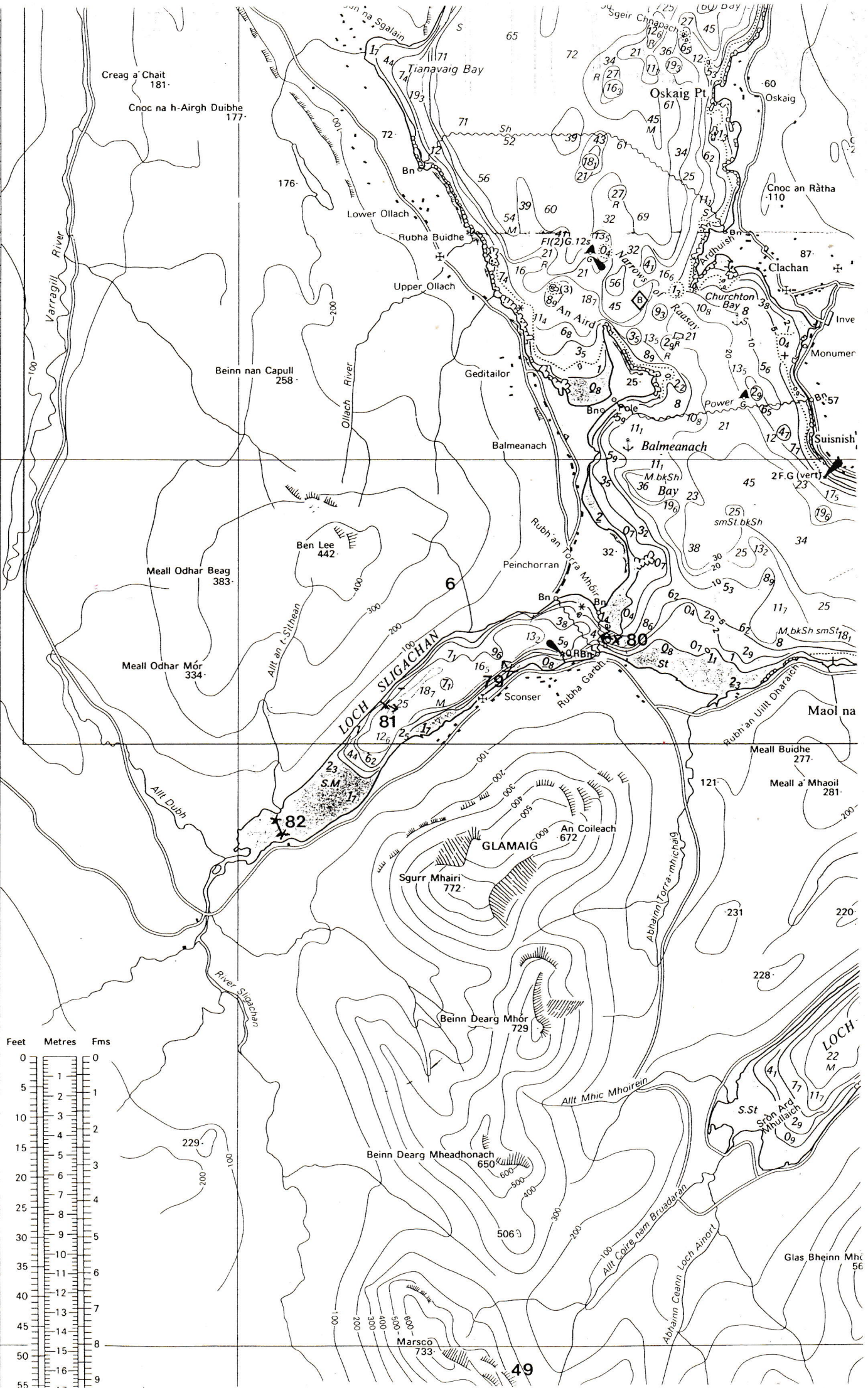
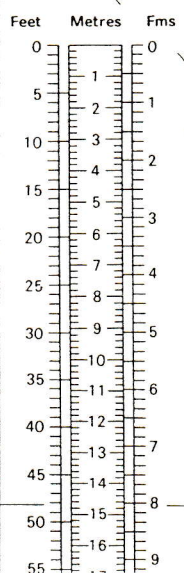
FINDINGS : DEPTH RANGE 7-24m BELOW CHART DATUM

From near the shore there is a steep sandy and shell fragment slope with occasional small boulders, the sediment becoming more gradually sloping and muddy with depth. The sediment is much coarser in the shallow water than at depth, the deeper sediment being very clay-like and less prone to diver disturbance than on other fine silt bottoms. Dominant species in shallow sand / boulder areas including L.saccharina and Desmarestia with Cerianthus becoming numerous at 12m. On the more gradual slope there are large patches of loose L.saccharina providing cover for dogfish and Echinus. Finally, on the sandy mud slope, there are many large Callianassa burrows and patches of Nephrops burrows.

Comments - large craters scraped in sand at 10-20m as seen on other sites.

10 000
5000
830
500
1000
Metres

22'
21'
57°
20'
19'
18'
17'
16'
15'



LOCH 9:LOCH SLIGACHAN

GENERAL INTRODUCTION

Loch Sligachan is a relatively small sea loch, well enclosed by steep hills on all sides. It is narrow and elongate with its mouth facing north-east where there is a very shallow sill over which tidal currents flow. This sill has a single channel running through it on the south side, which tends to be difficult to navigate, especially at high tide. There is a single inner basin about 25m deep which rises relatively steeply onto an extensive sediment plain up to the head of the loch. At the head of the loch there is a river bringing water down from the Cullins, which can fluctuate in level very rapidly after rain. The loch margins appear to be a mixture of boulders, cobbles and pebbles descending onto a muddy gravel plain which becomes much finer and muddier at depth losing its surface gravel content (sites 79 and 81). The head of the loch (site 82) is an extensive area of underlying fine sandy sediment covered by small pebbles with occasional pockets of sand. The river was noted to have a considerable effect on salinity at the head of the loch.

DIVE SITE PLANNING

Date of survey 17/5/88. Four dive sites were planned around Loch Sligachan, one at the mouth over the sill area, two along the sides of the loch into the deep inner basin and one at the head of the loch near the mouth of the river.

GENERAL HABITATS, SUBSTRATE TYPES AND POINTS OF INTEREST

The shallow sill at the mouth of the loch dries at low tide to reveal a bar stretching across half the entrance. This area is swept by tidal currents creating an area of clean gravel and rounded cobbles (site 80) where an extensive Modiolus bed was found in shallow water.

The inner basin sites are generally found to comprise of gentle boulder slopes onto soft sediments with shallow communities of burrowing bivalves and crustaceans (sites 79 and 81).

The head of the loch at the mouth of the River Sligachan is also found to be effected by currents, from the inflow of large amounts of freshwater when the river is in spate (site 82). Dominant species here include fucoids and filamentous green algae with an extensive Mytilus bed on the firmer areas of pebble and sand substrate.

INDIVIDUAL DIVE SITES

SITE NUMBER 79

SITE NAME Below Sconser, Loch Sligachan

DIVERS Stuart Anderson, Alan Oakman

REASONS FOR / OBJECTIVES OF THE DIVE

-typicality of the inner loch basin

-transect from shore into basin

FINDINGS: DEPTH RANGE 1-17m BELOW CHART DATUM

From the shore there is a gentle sloping muddy gravel substrate with small round cobbles leading onto a steeper slope without cobbles. The slope then becomes gradual by 16m forming a flat plain of sediment at 17m. Dominant species include Laminaria spp on the upper slope with Modiolus modiolus, Mya spp, Philine aperta, and an unidentified echiuroid on the sediment plain.

SITE NUMBER 80

SITE NAME Entrance to Loch Sligachan

DIVERS Lois Calder, Dave Donnan

REASONS FOR / OBJECTIVES OF THE DIVE

- survey on sill at entrance to loch
- possible current effects
- drift dive transect

FINDINGS: DEPTH RANGE 4-8m BELOW CHART DATUM

Maximum depth about 8m with a gradual slope up towards the shore composed of pebbles and small cobbles with shell gravel inbetween. There is also large amounts of whole shell debris. An extensive Modiolus bed runs to approximately 5m amongst L.hyperborea and occasional L.saccharina with Echinus and Calliostoma zizyphinum associated.

Comments - good example of a Modiolus bed.

SITE NUMBER 81

SITE NAME North-west shore of Loch Sligachan

DIVERS Garry Miller, Mark Perrott

REASONS FOR / OBJECTIVES OF THE DIVE

- typicality of the inner basin
- transect from shore into basin

FINDINGS: DEPTH RANGE 3-12m BELOW CHART DATUM

A gradual slope of large boulders extends to 4m followed by large and small pebbles on muddy shell gravel which becomes increasingly muddy and "jelly-like" with depth. L.digitata dominates the upper boulder slope along with Ascidiella aspersa (at 10 per m²) and a goby spp. As the slope becomes muddier Philine predominates with increasing numbers of Nephrops at depth.

SITE NUMBER 82

SITE NAME Head of Loch Sligachan

DIVERS Thom Nickell, Rohan Holt

REASONS FOR / OBJECTIVES OF THE DIVE

- typicality of the head of the loch
- survey over substrate influenced by freshwater input

FINDINGS: DEPTH RANGE 0m BELOW CHART DATUM

Substrate plain extending from the river into the head of the loch comprised of small angular cobbles and pebbles on an underlying coarse and fine sand and mud mixture. Fucoids found along with filamentous green algae, L.saccharina attached to the larger cobbles and also concentrated patches of Mytilus edulis.

Comments - Primarily a littoral site, but it is likely these features extend further into the loch.

TABLE 3 : SPECIES LIST

SPECIES NAME	LOCALITY *								
	B	E	H	Bc	D	G	SB	P	S
Suberites carnosus	-	-	+	+	+	+	-	-	-
Polymastia boletiformis	-	-	-	-	+	-	-	-	-
Cliona celata	-	+	-	+	+	+	-	-	-
Axinella infundibuliformis	-	-	-	-	+	-	-	-	-
Halicondria sp	-	-	-	-	+	-	-	-	-
Myxilla incrustans	-	-	-	-	+	-	-	-	-
Mycale macilenta	-	-	+	-	-	+	+	-	-
Mycale sp	-	-	-	-	+	-	-	-	-
Hydractinia echinata	-	-	-	-	-	+	-	-	-
Halecium halecinum	-	-	-	-	-	+	-	-	-
Nemertesia sp	-	+	+	-	+	+	-	-	-
Obelia geniculata	-	-	-	+	-	-	-	-	-
Obelia sp	+	+	-	+	+	+	+	+	-
Alcyonium digitatum	+	+	+	+	+	+	-	-	+
Swiftia pallida	-	-	-	-	+	-	-	-	-
Funiculina quadrangularis	-	-	-	-	+	-	+	-	-
Virgularia mirabilis	+	-	+	+	+	+	+	+	-
Pennatula phosphorea	-	-	+	+	+	+	+	-	-
Cerianthus lloydii	+	+	+	+	+	+	+	+	+
Anemonia viridis	-	-	-	-	+	-	+	-	-
Urticina felina	+	+	-	+	+	-	+	-	-
Metridium senile	+	-	+	+	+	+	+	-	-
Sagartia elegans	-	-	+	+	-	+	-	-	-
Cereus pedunculatus	-	+	-	-	-	-	-	-	-
Actinothoe sphyrodeta	-	+	-	-	-	-	-	-	-
Sagartiogeton laceratus	-	-	-	+	+	-	-	-	-
Sagartiogeton sp	-	-	-	-	+	-	+	-	-
Peachia cylindrica	-	-	-	-	+	-	-	-	-
Caryophyllia smithii	-	-	-	+	+	-	+	+	-
Adamsia maculata	+	-	+	+	+	-	-	-	-
Actinia equina	-	-	-	-	-	-	-	+	-
Lineus ruber	-	-	-	-	+	-	-	+	-
"Bonellia viridis"	-	-	-	-	+	-	-	-	-
Aphrodite aculeata	+	-	-	-	+	-	-	+	-
Chaetopterus variopedatus	-	-	+	+	-	+	-	+	-
Arenicola marina	+	-	-	-	+	-	-	+	-
Terebellidae	+	-	+	-	+	+	+	+	+
Eupolymnia nebulosa	-	-	-	+	+	+	-	-	-
Lanice conchilega	+	+	+	+	+	+	-	+	-
Myxicola infundibulum	-	-	+	-	-	-	+	-	-
Sabella penicillus	-	+	+	+	+	+	-	-	-
Pomatoceros triqueter	-	-	-	+	-	-	+	-	-
Serpula vermicularis	-	-	-	-	+	-	-	-	-
Protula turbelaria	-	-	-	-	+	+	-	-	-
Phyllodoce sp	-	+	-	+	-	-	-	-	-
Sabellaria	-	-	-	-	-	-	-	+	-
Balanus crenatus	-	-	-	+	+	+	-	-	-
Semibalanus balanoides	+	-	-	-	+	-	-	+	+

SPECIES NAME	LOCH								
	B	E	H	Bc	D	G	SB	P	S
<i>Praunus flexuosus</i>	-	-	-	-	+	-	-	-	-
<i>Aphereusa</i> sp	-	-	-	-	+	-	-	-	-
<i>Idotea granulosa</i>	-	-	-	-	+	-	-	-	-
<i>Palaemon elegans</i>	-	-	-	-	-	-	-	+	-
<i>Pandalus montagui</i>	-	-	-	-	-	+	-	+	-
<i>Crangon crangon</i>	-	+	-	-	-	+	+	-	+
<i>Nephrops norvegicus</i>	+	-	+	+	+	-	+	+	+
<i>Pagarus bernhardus</i>	-	+	+	+	+	+	+	+	+
<i>Pagarus prideauxi</i>	-	-	+	+	+	-	-	+	-
<i>Pagarus pubescens</i>	-	-	-	-	-	-	-	+	-
<i>Pagarus</i> sp	-	-	-	-	-	-	+	-	+
<i>Anapagarus laevis</i>	-	-	-	+	-	-	-	-	-
<i>Galathea intermedia</i>	-	-	-	-	+	-	-	-	-
<i>Galathea squamifera</i>	-	-	-	-	+	-	-	-	-
<i>Galathea strigosa</i>	-	-	-	+	-	-	-	-	-
<i>Galathea dispersa</i>	-	-	-	-	+	-	-	-	-
<i>Galathea</i> sp (juv)	-	-	-	+	-	-	-	-	-
<i>Munida rugosa</i>	-	-	+	+	+	+	+	+	-
<i>Ebalia tuberosa</i>	-	-	-	+	-	-	-	-	-
<i>Hyas araneus</i>	+	-	+	+	-	+	+	-	+
<i>Hyas coarctatus</i>	-	-	-	-	+	+	-	+	-
<i>Inachus dorsettensis</i>	-	-	-	-	-	+	-	-	-
<i>Inachus</i> sp	-	-	-	-	+	-	-	-	-
<i>Macropodia rostrata</i>	-	-	-	+	+	+	+	-	-
<i>Macropodia tenuirostris</i>	-	-	-	-	+	-	-	-	-
<i>Macropodia</i> sp	-	-	+	+	+	+	+	+	-
<i>Corystes cassivelaunus</i>	+	+	+	-	-	-	-	-	-
<i>Cancer pagarus</i>	+	+	-	+	+	+	+	-	+
<i>Liocarcinus depurator</i>	-	+	+	+	+	+	+	+	-
<i>Liocarcinus puber</i>	-	+	-	-	+	+	+	+	+
<i>Liocarcinus holsatus</i>	-	-	-	-	-	-	+	-	-
<i>Carcinus maenas</i>	+	+	+	+	+	+	+	+	+
<i>Callionassa subterranea</i>	+	-	-	-	+	+	+	+	-
<i>Calocaris macandreae</i>	-	-	+	-	+	-	+	-	-
<i>Tonicella marmorea</i>	-	-	-	+	-	+	-	+	-
<i>Tonicella</i> sp	-	-	-	-	-	+	-	-	-
<i>Chiton</i> sp	-	-	-	-	-	-	+	+	-
<i>Gibbula magus</i>	-	-	+	-	+	+	+	-	-
<i>Gibbula cineraria</i>	+	-	-	+	+	+	-	-	+
<i>Gibbula</i> sp	+	-	-	-	-	+	+	-	+
<i>Calliostoma zizyphinum</i>	-	-	+	+	+	+	+	-	+
<i>Lacuna vincta</i>	-	-	-	-	-	-	-	-	+
<i>Turritella communis</i>	-	-	+	+	+	+	-	+	+
<i>Aporrhais pespelecani</i>	-	-	-	-	+	-	-	-	+
<i>Trivia arctica</i>	-	-	-	+	+	-	+	-	-
<i>Trivia monacha</i>	-	-	-	-	+	+	-	-	-
<i>Buccinum undatum</i>	+	+	+	+	+	-	-	-	-
<i>Neptunea antiqua</i>	-	-	+	+	-	+	-	-	-
<i>Littorina littorea</i>	-	+	-	-	+	-	-	+	+
<i>Littorina littoralis</i>	-	-	-	-	-	-	-	+	-
<i>Patina pellucida</i>	+	-	-	+	-	-	-	-	-

SPECIES NAME	LOCH								
	B	E	H	Bc	D	G	SB	P	S
<i>Natica catena</i>	-	-	+	-	-	-	-	-	-
<i>Patella vulgata</i>	-	-	-	-	-	-	-	+	-
<i>Philine aperta</i>	-	-	-	+	+	+	+	+	+
<i>Elysia viridis</i>	-	-	-	-	+	-	-	-	-
<i>Aplysia punctata</i>	-	-	-	+	+	-	-	-	-
<i>Pleurobranchus membranaceus</i>	-	-	+	-	-	-	-	-	-
<i>Limacia clavigera</i>	-	-	-	-	-	+	-	-	+
<i>Cadlina laevis</i>	-	-	-	+	-	-	-	-	-
<i>Archidoris pseudoargus</i>	-	-	-	-	+	-	-	-	-
<i>Eubbranchus tricolor</i>	-	-	-	-	-	+	-	-	-
<i>Onchidoris bilamellata</i>	-	-	-	-	-	+	-	-	-
<i>Mytilus edulis</i>	-	-	-	-	-	-	-	+	+
<i>Modiolus modiolus</i>	-	-	-	-	-	+	-	-	+
<i>Aqueipecten opercularis</i>	-	-	+	-	+	+	+	+	+
<i>Pecten maximus</i>	-	-	+	+	+	+	+	+	+
<i>Cerastroderma edule</i>	-	+	-	+	+	-	-	-	-
<i>Ensis ensis</i>	-	+	-	+	+	-	+	-	+
<i>Ensis siliqua</i>	-	+	+	+	-	-	-	-	+
<i>Ensis sp</i>	-	-	+	-	-	+	-	-	-
<i>Arctica islandica</i>	-	-	+	+	-	-	+	-	-
<i>Mya truncata</i>	-	+	-	+	-	+	+	-	+
<i>Mya arenaria</i>	-	+	-	-	-	+	-	-	-
<i>Mya sp</i>	-	-	-	-	-	-	+	-	-
<i>Venus striatula</i>	-	+	-	-	-	-	-	-	-
<i>Dosina sp</i>	-	-	-	+	-	-	+	-	-
<i>Abra alba</i>	-	-	-	-	+	-	-	-	-
<i>Eledone cirrhosa</i>	-	-	-	-	+	-	-	-	-
<i>Alcyonidium diaphanum</i>	-	-	-	-	-	-	-	+	-
orange calcareous bryozoan	-	-	-	-	-	-	+	-	-
<i>Antedon bifida</i>	+	+	+	+	+	+	+	+	-
<i>Antedon petasus</i>	-	-	-	-	+	+	-	-	-
<i>Astropecten irregularis</i>	-	-	+	-	+	-	-	-	-
<i>Luidia ciliaris</i>	+	-	+	+	+	+	+	-	-
<i>Porania pulvillus</i>	-	-	-	+	+	+	+	-	-
<i>Solaster endeca</i>	-	-	+	+	-	+	+	-	+
<i>Crossaster papposus</i>	+	+	-	+	+	+	-	+	-
<i>Henricia sp</i>	-	-	-	-	-	+	-	-	-
<i>Henricia oculata</i>	-	-	-	+	+	-	-	-	-
<i>Asterias rubens</i>	+	+	+	+	+	+	+	+	+
<i>Marthasterias glacialis</i>	+	+	+	+	+	+	-	-	-
<i>Ophiothrix fragilis</i>	-	-	-	-	+	+	-	+	-
<i>Ophiocomina nigra</i>	-	-	-	+	-	-	-	-	-
<i>Ophiopholis aculeata</i>	-	-	-	-	+	+	-	-	-
<i>Amphiura filiformis</i>	-	-	-	-	-	-	-	+	-
<i>Amphiura sp</i>	-	-	-	-	-	-	+	-	-
<i>Amphifolis squamata</i>	-	-	-	-	+	-	+	-	-
<i>Ophiura albida</i>	-	-	+	+	+	-	+	+	-
<i>Ophiura texturata</i>	+	-	+	+	+	+	+	+	-
<i>Acrocnida brachiata</i>	-	-	-	-	-	-	+	-	-

SPECIES NAME	LOCH									
	B	E	H	Bc	D	G	SB	P	S	
<i>Echinus esculentus</i>	+	+	+	+	+	+	+	+	+	
<i>Echinocardium cordatum</i>	-	+	+	+	-	-	-	-	-	
<i>Pawsonia saxicola</i>	-	-	-	+	+	+	+	+	-	
<i>Aslia lefevrei</i>	-	-	+	+	-	-	-	-	-	
<i>Thyone fusus</i>	-	-	-	-	-	-	-	-	+	
<i>Neopentadactyla mixta</i>	+	-	-	+	-	-	-	-	-	
<i>Cucumaria elongata</i>	-	-	-	-	-	-	+	-	-	
<i>Clavelina lepadiformis</i>	+	-	-	+	+	+	+	+	-	
<i>Ciona intestinalis</i>	-	-	-	+	+	+	+	-	-	
<i>Diazona violacea</i>	-	-	-	-	+	-	-	-	-	
<i>Corella parallelogramma</i>	-	-	-	-	-	+	-	-	-	
<i>Ascidiella aspersa</i>	-	-	+	+	+	+	+	-	+	
<i>Ascidiella scabra</i>	-	-	-	-	-	-	+	-	-	
<i>Ascidia mentula</i>	-	-	+	+	+	+	+	+	+	
<i>Ascidia virginea</i>	-	-	-	-	+	-	+	-	-	
<i>Botryllus schlosseri</i>	-	-	-	+	-	-	-	+	-	
<i>Scyliorhinus canicula</i>	-	-	-	-	-	-	-	+	-	
<i>Lophius piscatorus</i>	-	-	-	-	+	+	-	-	-	
<i>Pollachius pollachius</i>	+	-	-	-	-	-	-	-	-	
<i>Pollachius virens</i>	-	-	-	+	-	-	-	-	-	
<i>Sygnathus acus</i>	-	-	-	-	+	-	-	-	-	
<i>Myoxocephalus scorpius</i>	-	-	-	-	-	-	-	+	-	
<i>Taurulus bubalis</i>	-	-	-	-	-	+	-	-	-	
<i>Agonus cataphractus</i>	-	-	-	-	-	-	+	-	-	
<i>Zoarces viviparus</i>	-	-	-	-	-	-	-	+	-	
<i>Pholis gunnellus</i>	+	-	+	-	+	-	-	+	-	
<i>Callionymus lyra</i>	+	-	+	-	-	+	-	+	-	
<i>Gobiusculus flavescens</i>	+	-	+	-	+	-	+	+	-	
<i>Pomatoschistus minutus</i>	-	-	-	-	+	+	+	+	-	
<i>Pomatoschistus sp</i>	-	-	+	-	+	+	-	-	-	
<i>Thorogobius ephippiatus</i>	-	-	-	-	+	-	-	-	-	
<i>Lesueurigobius friesii</i>	-	-	-	-	+	-	+	-	-	
<i>Gobius paganellus</i>	-	-	-	-	-	-	-	+	-	
<i>Agonus cataphractus</i>	-	-	-	-	+	-	-	-	-	
<i>Pleuronectes platessa</i>	+	+	-	+	-	-	-	-	-	
<i>Platichthys flesus</i>	-	-	-	-	+	-	-	+	-	
<i>Gasterosteus aculeatus</i>	-	-	-	-	+	-	-	-	-	
<i>Lepadogaster lepadogaster</i>	-	-	-	-	-	-	+	-	-	
<i>Porphyra sp</i>	-	-	-	-	-	+	-	-	+	
<i>Palmaria palmata</i>	+	+	-	+	+	+	+	-	-	
<i>Dilsea carnosa</i>	-	-	-	-	+	-	-	-	-	
<i>Kallymenia reniformis</i>	-	-	-	-	-	+	-	-	-	
Corallinaceae	-	-	-	+	-	-	+	+	-	
<i>Lithothamnion sp</i>	-	-	-	-	+	-	-	-	-	
<i>Griffithsia sp</i>	-	-	+	+	-	-	-	-	-	
<i>Delesseria sanguinea</i>	+	-	-	-	+	-	-	-	-	
<i>Chordaria flagelliformis</i>	-	-	-	-	+	-	-	-	-	

SPECIES NAME	LOCH								
	B	E	H	Bc	D	G	SB	P	S
<i>Desmarestia aculeata</i>	-	-	+	-	-	-	-	-	-
<i>Desmarestia</i> sp	-	-	+	+	-	-	-	-	-
<i>Fucus vesiculosus</i>	+	+	+	-	-	-	+	+	+
<i>F.serratus</i>	-	-	-	-	+	+	+	+	+
<i>F.spiralis</i>	-	-	-	-	-	-	-	-	+
<i>Arthrocladia villosa</i>	-	+	-	+	-	-	-	-	-
<i>Ascophyllum nodosum</i>	+	-	-	-	+	-	-	+	-
<i>Chorda filum</i>	-	-	-	-	+	-	+	-	-
<i>Laminaria hyperborea</i>	+	+	+	+	+	+	+	-	+
<i>Laminaria saccharina</i>	+	+	+	+	+	+	+	+	+
<i>Laminaria digitata</i>	+	-	+	+	-	-	+	-	-
<i>Sacchoriza polyschides</i>	-	-	-	-	+	-	+	-	-
<i>Alaria esculenta</i>	-	+	-	-	+	-	+	-	-
<i>Halidrys siliquosa</i>	+	+	-	-	-	-	+	-	-
<i>Enteromorpha</i> sp	-	-	-	-	-	-	+	-	-
<i>Ulva lactuca</i>	-	+	+	-	+	+	-	+	-
<i>Zostera marina</i>	+	-	-	-	-	-	-	-	-

* Loch name abbreviations :-

B = Brittle
E = Eynort
H = Harport
Bc = Bracadale
D = Dunvegan
G = Greshornish
SB = Snizort Beag
P = Portree
S = Sligachan

This table shows the species names recorded during the expedition. It is not meant to be a fully comprehensive list of all the species in the lochs as this was not the prime objective of this seasearch survey.

TABLE 4: HABITATS AND SPECIES OCCURRENCE

The following table summarises some of the categories of substrate, topography and "key" species for the individual sites over the whole of the survey.

The categories include many of those listed on the seasearch guidance notes, concentrating on those terms relating to soft sediments as encountered around the Skye lochs. Some of the categories are new to this survey, such as "rich understory", relating to kelp forest and burrowing bivalves and crustaceans.

The species were chosen to represent the groups typically found on different types of substratum. For example Carophyllia smithii is only found on clean boulders and bedrock without sediment, whereas sea pens, bivalves and burrowing crustacea form much of the dominant fauna found on soft sediments.

This tabulated information can be used to pick out the different habitats at each site. For further information see the main report or the seasearch forms.

CATAGORIES.

	SITE NO																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Bedrock	-	-	-	+	+	-	-	-	-	+	-	-	-	-	+	+	+	+	-	-	-
Boulders	-	-	-	+	+	-	-	-	+	+	-	-	+	-	+	+	-	-	+	+	-
Cobbles	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Pebbles	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
Gravel	-	-	-	-	+	-	-	-	-	-	+	-	+	+	+	-	-	+	+	-	-
Sand	-	-	-	+	-	+	-	-	+	+	+	-	-	+	-	+	+	-	+	-	-
Sandy mud	+	-	-	+	-	-	+	-	-	-	-	-	+	+	-	+	-	-	-	-	-
Muddy gravel	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	+	-
Soft mud	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	+
Firm mud	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Horizontal	+	-	-	+	-	+	-	+	-	-	+	+	-	-	-	-	-	-	-	-	+
Gradual	-	+	+	+	+	-	+	-	+	-	+	-	-	-	+	+	+	+	+	+	-
Steep	-	-	-	-	+	-	-	-	+	-	-	-	-	-	+	+	+	-	+	-	-
V.steep	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	+	+	-	-
Vertical	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-
Fresh water	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kelp fst dense	-	+	+	+	+	-	-	-	+	+	-	-	-	+	+	+	-	+	+	-	-
Kelp fst poor	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-
Rich underst	-	+	+	+	+	-	-	-	-	-	+	-	-	+	+	+	-	+	+	-	-
Poor underst	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-
Sponges	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-
Alcyonium	-	-	+	-	+	-	-	-	-	+	-	-	-	-	-	+	-	+	-	-	-
Virgularia	+	-	-	-	-	-	-	-	-	-	-	+	+	-	-	+	-	-	-	-	+
Pennatula	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Funiculina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cerianthus	-	-	-	+	-	-	-	+	-	-	-	+	+	+	+	+	+	-	+	+	+
Metridium	-	-	-	-	+	-	-	-	-	-	-	+	+	+	-	-	-	+	+	-	-
Carophyllia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arenicola	-	-	-	+	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Terebellidae	-	-	-	+	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-
Lanice	-	-	-	-	-	+	+	-	-	-	-	-	-	-	+	+	-	-	-	+	-
Burrow' crust	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+
Nephrops	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+
Callianassa	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calocaris	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
Munida	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
Mytilus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modiolus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pecten	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	+	-
Burrow bivalve-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	+	+	+	-	+	+	-
Ensis	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	+	+	-	+	+	-
Mya	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Antedon	+	+	+	-	+	-	-	-	-	+	-	-	+	+	+	+	-	-	+	+	-
Asterias	-	-	-	-	+	-	-	-	+	+	-	+	-	+	+	+	-	-	-	-	-
Ophioth' frag	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Echinus	-	+	+	+	+	-	-	-	+	+	-	-	-	+	+	+	+	+	+	+	-
Echinocardium	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	+	+	-	+	-	-
Pawsonia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neopent'tyla	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ciona	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ascid'aspersa	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	+	-	-	-	-	-
Mearl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L.hyperborea	-	+	+	+	+	-	-	-	+	+	+	-	-	+	+	+	+	+	+	+	-
L.saccharina	-	+	+	-	+	-	-	+	+	-	+	-	-	+	+	+	-	-	-	+	-
L.digitata	-	-	+	+	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Fucoids	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CATAGORIES.

	SITE NO																				
	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Bedrock	+	-	+	-	+	+	+	-	+	-	+	-	-	-	+	-	+	-	-	-	-
Boulder	-	+	+	-	-	-	-	-	-	-	+	+	+	+	-	+	+	+	+	-	+
Cobbles	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Pebbles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gravel	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+
Sand	+	-	+	+	+	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	+
Sandy mud	-	+	+	-	-	-	+	+	-	+	+	+	-	-	+	-	-	-	+	-	-
Muddy gravel	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	+	-	-
Soft mud	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	-
Firm mud	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Horizontal	-	+	-	+	-	-	-	+	-	-	-	-	-	-	-	+	+	-	+	+	-
Gradual	+	-	+	-	+	+	+	-	+	+	-	+	+	+	+	-	+	+	+	+	+
Steep	+	-	-	-	-	+	-	-	-	+	+	+	-	+	+	-	-	+	-	-	+
V.steep	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	+	-	-	-	-
Vertical	-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-
Fresh water	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kelp fst dense	-	-	+	-	+	+	+	-	-	+	-	-	-	-	-	-	+	+	-	-	+
Kelp fst poor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rich underst	-	-	+	-	+	+	+	-	-	+	-	-	-	-	-	-	+	+	-	-	+
Poor underst	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sponges	-	+	-	-	+	+	-	-	-	+	-	+	+	-	+	+	+	+	+	-	-
Alcyonium	-	-	-	-	+	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Virgularia	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	+	-
Pennatula	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Funiculina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cerianthus	-	+	+	-	+	-	-	+	-	+	+	+	-	+	+	+	+	+	+	+	-
Metridium	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+
Carophyllia	-	-	+	-	+	+	-	-	-	+	-	+	-	+	+	-	-	-	-	-	+
Arenicola	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-
Terebellidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Lanice	-	-	-	-	-	-	-	+	+	-	+	-	-	+	+	-	-	-	-	-	-
Burrow' crust	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	-
Nephrops	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	-
Callianassa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-	-
Calocaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Munida	-	-	+	-	-	-	-	-	+	+	+	+	+	+	-	-	-	-	-	-	+
Mytilus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modiolus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pecten	-	+	+	-	+	-	-	-	-	+	+	+	-	+	-	-	+	+	+	-	-
Burrow bivalve-	-	+	-	+	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-
Ensis	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Mya	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Antedon	+	+	+	-	-	+	+	+	+	+	+	+	+	+	+	-	+	-	-	-	+
Asterias	+	+	-	-	+	-	+	-	+	+	+	-	-	+	+	+	+	+	+	-	+
Ophioth' frag	-	-	-	-	-	+	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-
Echinus	+	+	+	+	+	+	+	-	-	+	-	+	+	+	-	-	+	-	+	-	+
Echinocardium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pawsonia	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neopent'tyla	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Ciona	-	-	+	-	-	-	-	-	-	-	+	+	+	+	-	-	-	+	-	-	+
Ascid'aspersa	-	+	-	-	-	-	-	-	-	+	-	-	-	+	+	+	-	-	-	-	-
Mearl	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L.hyperborea	+	+	+	-	+	+	+	+	+	-	+	-	-	-	-	+	+	-	-	-	+
L.saccharina	+	-	+	-	-	+	-	+	-	+	-	-	-	-	-	-	-	+	+	-	+
L.digitata	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	+
Fucoids	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-

CATAGORIES.

	SITE NO																				
	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Bedrock	+	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-
Boulders	+	+	+	+	-	-	+	-	+	+	+	-	+	-	-	+	+	+	-	+	+
Cobbles	-	+	-	-	+	-	-	-	-	-	-	+	+	-	-	+	+	+	+	+	-
Pebbles	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Gravel	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-
Sand	-	-	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Sandy mud	-	-	-	+	-	-	-	-	-	-	-	+	-	+	-	+	-	+	-	+	+
Muddy gravel	-	+	-	-	-	-	+	-	-	+	-	-	-	-	-	-	+	+	+	+	+
Soft mud	-	+	-	-	+	+	-	+	+	-	-	-	+	+	+	+	-	-	+	-	+
Firm mud	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Horizontal	-	-	-	-	+	+	-	+	-	-	-	-	+	+	+	+	-	+	+	-	+
Gradual	+	+	+	+	-	-	+	-	+	-	+	-	-	-	-	-	+	+	-	+	+
Steep	-	+	+	+	-	-	+	-	-	+	-	+	-	-	-	-	-	-	-	+	-
V.steep	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vertical	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fresh water	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-
Kelp fst dense	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-
Kelp fst poor	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
Rich underst	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poor underst	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	+
Sponges	-	-	+	-	-	-	-	-	+	+	+	-	+	-	-	-	+	-	-	-	-
Alcyonium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Virgularia	-	-	-	-	+	+	-	+	-	-	-	+	-	-	+	-	-	-	-	-	-
Pennatula	-	-	-	-	-	+	-	+	-	-	-	+	+	-	-	-	-	-	-	-	-
Funiculina	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Cerianthus	-	+	-	+	+	+	+	-	-	-	+	+	-	+	-	+	+	-	+	-	+
Metridium	+	-	-	+	-	+	-	-	-	-	-	-	+	+	-	+	-	-	-	-	-
Carophyllia	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arenicola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Terebellidae	-	-	-	-	-	+	-	-	-	-	+	-	+	+	+	-	-	-	-	+	-
Lanice	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	+	-
Burrow'crust	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Nephrops	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Callianassa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calocaris	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Munida	+	-	+	-	-	-	-	-	-	+	-	+	+	-	-	-	-	-	-	-	-
Mytilus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modiolus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pecten	-	+	-	+	-	-	-	-	-	+	-	+	+	-	-	+	-	-	-	+	+
Burrow bivalve-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-	+	-	+	-	+
Ensis	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	+
Mya	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Antedon	+	-	+	+	+	-	-	-	+	+	-	+	+	-	-	-	-	+	-	+	-
Asterias	+	+	+	-	+	+	+	-	-	+	+	+	-	+	+	+	+	-	+	+	-
Ophioth' frag	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
Echinus	+	-	+	-	+	-	+	-	-	+	-	-	+	+	-	+	+	+	-	+	+
Echinocardium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pawsonia	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-
Neopent'tyla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ciona	-	-	+	-	+	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-
Ascid'aspersa	-	-	-	+	-	-	-	-	+	+	-	-	+	-	-	-	-	-	-	-	+
Mearl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L.hyperborea	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-
L.saccharina	+	+	-	+	-	-	+	-	+	+	+	-	-	+	+	-	+	-	-	+	+
L.digitata	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fucoids	-	+	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-

CATAGORIES.

SITE NO

64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82

	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82
Bedrock	-	-	+	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Boulders	-	+	+	-	+	-	-	+	-	+	+	-	+	+	+	-	-	+	+
Cobbles	-	+	-	-	-	-	+	-	-	+	-	-	-	+	+	+	-	-	+
Pebbles	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	+
Gravel	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	+
Sand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sandy mud	-	-	-	-	+	-	-	-	+	+	-	+	-	+	+	-	-	-	+
Muddy gravel	+	+	+	-	-	-	+	+	-	-	+	-	+	-	+	+	-	+	-
Soft mud	-	-	-	+	+	+	+	-	-	-	-	+	-	-	-	-	-	+	-
Firm mud	-	+	-	-	-	-	-	+	+	+	-	-	-	-	+	-	-	-	-
Horizontal	-	-	-	+	+	+	-	+	+	+	+	-	-	+	-	+	-	-	+
Gradual	+	+	-	-	+	-	+	+	+	+	-	+	-	+	+	+	-	+	+
Steep	-	-	-	-	-	-	-	+	+	-	-	+	-	-	+	+	-	-	-
V.steep	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Vertical	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Fresh water	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+
Kelp fst dense	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Kelp fst poor	+	-	+	-	+	-	-	+	-	-	-	-	-	-	+	-	-	-	-
Rich underst	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poor underst	+	-	+	-	+	-	-	+	-	-	-	-	-	-	+	-	-	+	-
Sponges	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alcyonium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Virgularia	-	+	+	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Pennatula	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Funiculina	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cerianthus	-	-	-	-	+	+	+	-	+	+	-	+	+	-	-	+	-	+	-
Metridium	-	-	+	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
Carophyllia	-	+	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-
Arenicola	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Terebellidae	-	-	+	-	-	+	+	-	-	+	-	+	+	+	-	-	-	+	-
Lanice	-	-	-	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-
Burrow'crust	-	-	-	+	+	-	-	-	-	-	-	-	+	-	+	-	-	+	-
Nephrops	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
Callianassa	-	-	-	+	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Calocaris	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Munida	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-
Mytilus	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	+
Modiolus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Pecten	-	-	-	-	+	-	-	+	-	-	-	-	-	-	+	-	-	+	-
Burrow bivalve+	-	-	+	-	+	-	+	+	+	-	-	+	-	-	-	+	+	-	-
Ensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Mya	+	-	+	-	+	-	+	+	+	-	-	-	-	-	-	+	-	-	-
Antedon	-	+	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Asterias	+	+	+	-	+	+	+	-	+	-	-	+	+	+	-	+	+	+	-
Ophioth' frag	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Echinus	+	+	+	-	+	-	+	-	-	-	-	+	-	+	+	+	+	-	-
Echinocardium	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Pawsonia	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Neopent'tyla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ciona	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Ascid'aspersa	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	+	-
Mearl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L.hyperborea	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	+	-	-
L.saccharina	-	-	+	-	+	+	+	+	+	-	-	+	+	-	+	-	+	+	+
L.digitata	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-
Fucoids	+	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	+

FISH FARMS AROUND SKYE

A note was made of the whereabouts of any fish farms or fish pens sighted around the Skye coastline.

- Loch Harport : approx 24 cages in 3 blocks.
 Portnalong and S.E. of Portnalong
 Owner, Marine Harvest Limited.
- Loch Greshornish : 8 cages in one block plus 2 mussel cages
 Near Sgeir an Duin
 Owner unknown
- Loch Portree : 4 small cages in two blocks
 North side of outer loch
 Owner unknown
- Loch Sligachan : 8 cages plus 2 smaller cages
 Balmeanach Bay, North of Loch Sligachan
 Owner unknown.

Cetacean sightings

A large school of approximately 50-80 common dolphins (Delphinus delphis) were sighted 4 nautical miles off the west coast of Rhum on the 9/5/88, seen leaping and heading generally northwards.

ACKNOWLEDGEMENTS

I would like to thank Eric and Jane Reid of the "Jane R" for all the time and energy spent towards making the expedition successful. Also Dave, their crew, for his local knowledge and diving support, and all the members of the expedition for their many hours of hard work, spent both in diving and filling in seasearch forms. Also a special thanks to Lois for her help and guidance in preparing this report.