# Wild Animal Control Huts

## Historic Heritage Assessment

Michael Kelly

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Cover images:

Front:

Carkeek Hut, Tararua Forest Park, c. 1964. Left to right: Athol Geddes, Colin McIntyre, Ross Lockyer, Russell Hulme and Aubrey Hohua in doorway, Dick Hetherington, Tony Newton, and Jim Taylor. Carkeek Hut, originally a WAC hut, is still being maintained and used by trampers. (Athol Geddes collection)

Back:

Top row left to right: Stonewall Biv, DOC; Cheviot Downs 1969, J Von Tunzelman; Tataweka, DOC.

2nd row left to right: Mid Waiohine, DOC; Prices Flat, DOC; Noel Fraser & Jim Henry at White Rock, 1963-64, DOC.

3rd row left to right: State Forest Service, Shooting Prohibited sign, ATL-F1353¼. Caswell Sound, DOC; Goat Creek, DOC

4th row left to right: Slaty Creek, DOC; Evangeline 1964, DOC; Top Crawford Biv, 2003, B. Dobbie.

5th row left to right: Gerhardt Spur, DOC; Ruahine, Masters; Whare Creek Biv 1964, J Von Tunzelman.



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With the exception of Appendix 1, the various tables included in the report were prepared by Francesca Begley, (then) Central Regional Office, Department of Conservation

# Introduction

## COMMISSION DETAILS

This publication is based on a report written by Michael Kelly, heritage consultant, and commissioned by Tony Nightingale, then Historian, Science and Research Unit, Department of Conservation, from unprogrammed science funding. The first draft of this report was completed in 2003 and has since been edited and updated.

Advice and overview was provided by Paul Mahoney, Heritage Appreciation Unit, Research Development & Improvement Division, DOC.

## PURPOSE

DOC manages a large number of back country huts, a great many of which were built as part of wild animal control operations by the New Zealand Forest Service and, to a lesser extent, by its predecessor, the Deer Division of the Department of Internal Affairs and the Wildlife Service. It is intended that this extensive stock of huts, built for intensive foot hunting, be rationalised to take account of changing recreational and hunting needs.

This report has been prepared to identify important and key representative huts built during the era of wild animal control operations as well as solicit nominations for other huts to be identified, (see part 4). This list will form the basis of a collection of huts that will eventually be added to the portfolio of actively managed historic resources and remain in use as part of the stock of recreational huts.

This report provides an historical context, a general assessment of significance, an inventory of huts, and some general recommendations.

## PHILOSOPHICAL BASIS

### Thematic approach

The selection and analysis of this group of buildings is based on a thematic approach to heritage identification and assessment. DOC is responsible for managing heritage places ‘on the ground’, so in order to determine where a group of like places, such as wild animal control huts, might fit within a thematic framework, it is necessary to follow a hierarchy of themes to its logical conclusion.

In the case of huts, that progression is as follows:

Holistic New Zealand —
Evolution of environment —
Natural environment —
Introduced pests —
Pest control programmes —
Animal control programmes (WAC) —
WAC huts[1]

In the above structure the overarching theme therefore is 'Evolution of the Environment' and the bottom line outcome is wild animal control huts. For a broader analysis see Appendix 2.

In following this approach, various decisions have to be made about including or excluding closely related themes and associated heritage. This is also known as 'managing boundary effects' and in the case of wild animal control this approach acknowledges that other places and activities related to the construction of huts for wild animal control, such as track and bridge building, helicopter and fixed wing operations, sawmill operations, scientific research etc. exist, but draws limits on how much that associated heritage will be incorporated into a study of WAC huts. For the purposes of this report, only huts, and very closely associated features such as toilets, have been assessed.

## ASSESSING SIGNIFICANCE

The New Zealand Historic Places Trust (NZHPT) has a statutory role under the Historic Places Act 1993 to assess historic significance, and this makes it the New Zealand authority in this matter. The current Trust assessment criteria, form s.23 (I) of the Act, have been adopted by DOC for use in its management of heritage. They are:

*Historical, cultural, aesthetic, archaeological, architectural, scientific, social, spiritual, technological and traditional significance or value.*

For the purposes of this document these criteria are assessed under three broad categories – historical, physical and social/cultural (or community engagement).

1 See the Australia Heritage Commission's thematic framework for Australia.

# Part 1: A General History

## THE GENIE OUT OF THE BOTTLE

Wild animal control, for the want of an all–encompassing description, had its origins in the decision to introduce exotic fauna to New Zealand. At first, these introductions were an attempt to make the country seem more familiar to European colonists and most early releases were birds and insects, with the odd mammal. The first successful liberation of possums, for instance, took place possibly even before the Treaty of Waitangi was signed.[2]

As the colony developed, pressure gathered to include animals to stock the forests, primarily for sporting purposes. Many of the colonists had never been able to hunt at 'home', as so many of the forests were locked up by large landowners. The first attempt to introduce red deer into New Zealand came in 1851 with the gift of a stag and hind from New Zealand Company director Lord Petre of Thorndon Park in Essex, England. The hind died just before arrival. In 1853 a stag and hind were sent from Richmond Park, and again the hind died just before arrival.

In 1860, Lord Petre again sent three red deer to Nelson. This time they arrived safe and well and were successfully liberated in the Matai Valley, Nelson. The first acclimatisation societies began in New Zealand in the early 1860s and they were responsible for many of the liberations.

The first deer liberated in northwest Nelson, 1860. *AAQA6506,156,1–3–G–1DEER, ANZ*

2. McKelvey P. 1994, *Steepland Forests: A historical perspective of protection forestry in New Zealand*, Canterbury University Press, Christchurch p. 131

Official recognition for their efforts was given by the Government with the passing of a succession of animals protection acts, starting in 1867, which protected European game animals and gave statutory recognition to the acclimatisation societies.

Many species did particularly well in New Zealand, albeit that some needed several releases before they eventually took off. Among the first of these to attract attention was the rabbit. It multiplied in such numbers and so quickly that it was decided to introduce another alien species – mustelids (stoats, weasels and ferrets) – to control the pest. This proved to be disastrous for New Zealand's flightless native birds and soon they were under threat themselves. Eventually, with forests under pressure and native birds in decline, it was decided to protect native fauna as well and they were brought under the Animal Protection Act in the 1890s.

The first recorded public concern about the impact of deer on native forests came in 1892 when the Rev. Philip Walsh voiced fears about the affect hoofed animals were having on undergrowth, but little attention was paid and releases went on until 1920, despite gathering evidence of the harm deer were doing. Other game animals such as chamois and thar, as well as goats and possums, also continued to be enthusiastically liberated. On the other hand, protection of forests had begun in earnest, with national parks established in Tongariro (in 1894) and Egmont (in 1900). Special reserves were set aside by the Department of Lands for the preservation of native fauna at Resolution, Little Barrier and Kapiti Islands under the Land Act 1892. The Scenery Preservation Act was passed in 1903 and under this legislation a great deal of forested land was protected for scenic purposes.

## LATE RELEASES AND EARLY CULLING

The first culling of deer began in the early 1900s, as acclimatisation societies finally started to realise the impact deer were having. Between 1910 and 1913, for instance, the Otago Acclimatisation Society let several contracts to kill deer in the Hawea District.[3] By 1922 the society had spent £1557 on culling.

Possums had been busy also and were starting to cause considerable damage but, despite a wealth of evidence confirming this (and the profitability of their skins), acclimatisation societies succeeded in persuading the Government, in 1911, that possums should be protected under the Animals Protection Act 1908. Settlers in bush districts managed to have the restrictions lifted the following year, but in 1913 more acclimatisation society protests led to the reintroduction of widespread protection for the possum.[4] It took another 30 or more years before the

3. The total was 1100 deer at 2s 3d a head. See McKelvey p. 93

4. McKinnon A.D. and Coughlan L. 1960, "Data on the establishment of some introduced animals in New Zealand forests, Vol. II", (unpublished report), New Zealand Forest Service p. 7

real menace posed by possums was properly understood and acted on.

In 1914 Internal Affairs designated its first mainland reserve, at Gouland Downs in Nelson, and appointed a caretaker. In 1916 farmers in Otago were temporarily allowed to kill fallow deer as pests.[5] Still, by 1919, over 1000 deer had been separately imported and liberated at different places by private individuals, Government and acclimatisation societies.

In 1921 protection over possums was lifted to allow some trapping for the fur trade. The liberation and protection of New Zealand–bred deer continued until 1923. Then, following a conference of various departmental officers and acclimatisation society representatives, protection over deer was lifted in the worst affected areas. Bounties, subsidised by Internal Affairs, were paid by local acclimatisation societies for deer tails. The Native Bird Protection Society was formed in 1923, later becoming the Forest and Bird Protection Society, after taking the name of Harry Ell's moribund organisation.

Most breeds flourished, especially red deer. Once numbers reached a certain level it became evident that gradual over–grazing of forests by deer and other introduced species, including possums, had started opening up forests and causing erosion, although it was not the only cause. Newspapers started to target the Government over what it called the "deer menace".[6] The divided management of the country's flora and fauna – three government departments (Internal Affairs, Lands and Survey and NZ Forest Service) and the acclimatisation societies – came in for criticism and this ultimately led to the formation of a single deer control organisation. In the meantime Internal Affairs made bounty payments for 47,000 deer shot between 1927 and 1929.[7]

Soon after its establishment in 1919 the Forest Service attempted to gain control over forests on all reserves, parks and Maori land, as well as all fish and game. Internal Affairs held sway but was pressured on all sides for its perceived failure in the face of the deer menace. It did however begin to survey land under its management to determine the extent of the deer problem.

## GOVERNMENT CULLING UNDER INTERNAL AFFAIRS

In May 1930 a Deer Menace Conference was held in Christchurch, attended by Internal Affairs, the Forest Service and other government departments, as well as acclimatisation societies, the Forest and Bird Protection Society and many other interested parties. The conference did not resolve who would administer deer eradication but remaining protection over deer,

5. Galbreath R. 1993, *Working for Wildlife, A History of the New Zealand Wildlife Service*, Bridget Williams Books and Historical Branch, Department of Internal Affairs p. 17

6. Galbreath p. 16

7. McKelvey p. 94

chamois and thar was removed.[8] Both the Department and Forest Service began operations against deer later that year on their respective lands but in the midst of the Depression two complementary operations could not be sustained. In April 1931 the Department of Internal Affairs was made responsible for the control of deer operations nationally.[9] It kept this role for the following 25 years.

A typical tent camp, under snow.
*ATL (Alexander Turnbull Library) 0_PAColl–6208–4*

Joff Thomson (right) and partner carrying out deer skins c.1946.
*ATL F61636½*

The Department of Internal Affairs' attempts to control the spread of deer began with limited resources in men and money. The operation was placed in the hands of Graham ("Skipper") Yerex, who ran the operation, in one guise or another, for 25 years. He became a legendary figure in his own right and, with few exceptions, was revered by his employees. Government hunters were paid a wage and a bonus; the latter a bounty on skins or, if a skin could not be retrieved, simply the tail (for a lesser amount). The Government hoped the skins would partially finance the cost of control. Later this approach was abandoned when it was realised that skinning animals was holding up killing.[10] Thereafter payment was based exclusively on the number of animals killed.

By 1937 the Department had 50 hunters in the field[11] and a campaign that was supposed to have taken a few years had turned into a permanent operation, with Yerex designated "Director of Deer Operations". By 1938 100,000 animals had been killed.[12] Initially hunting was based on deer drives made by teams of six hunters, a seemingly effective method in the valleys where operations commenced. At least the sheer number

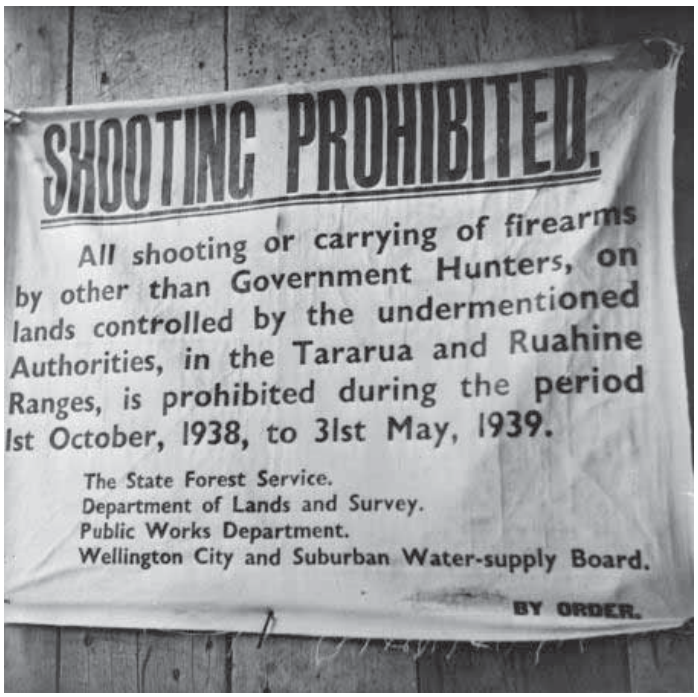
8. Ibid. p. 20
9. McKelvey p. 21
10. McKinnon and Coughlan p. 18
11. Galbreath p. 27
12. Ibid. p. 28

A rock bivouac in Westland. *J.S. Johns, NZFS–AAQA6506, 12–22,96,M8599, ANZ*

of deer shot seemed to suggest this. As the work progressed attention turned to more difficult country and in general these areas were divided into blocks and worked by two-man teams, although men often worked alone and, remarkably, did so largely without serious incident or accident. At the very least no one was killed by a bullet. Many operations took place in country never visited by humans before and the cullers became expert in navigating themselves through the areas they hunted in.

In the absence of many huts, hunters were based in tent camps and in the field lived in fly camps. The tent camps in particular were elaborate affairs, with one common design incorporating a canvas fly draped over a frame, split slab walls, and a detached chimney, at the front, for cooking and heat. And tents were not the only option. Some hunters simply used the natural cover around them, as it kept their loads down. On the West Coast, for instance, hunters often used the same rocks or caves for shelter over a period of many years.[13]

Private hunters were not generally welcome in State forests after hunting programmes were instituted. *ATL MNZ–F1353¼*




On the whole Internal Affairs did not train its hunters, at least not until its period of management was nearly at an end. However, there were training camps at Makarora during the 1940s.[14] New recruits were generally asked to describe what kind of hunting experience they had and, depending on the reply, were then sent out into the bush. Later, training camps were built; for instance one was set up at Lake Waikaremoana.

The style of hunting was very time consuming. Packing in supplies, inadequate shelter and long tramps to camps meant that the hunting was often inefficient, especially on the tops, where men lived in fly camps and could only last as long as their food supplies. Yerex realised this and before World War II he and his staff had started to explore the idea of airdropping food, equipment, and most importantly, huts. It was an entirely achievable concept but the intervention of the war put an end to the idea, at least for the meantime. However, some huts were built – mainly

13. Pers. comm. Alan Farmer (former Internal Affairs and NZFS hunter) to author, 8 July 2002

14. IAD 48/26 Part 2, A.P. & Game Act – Deer Destruction – Conference of Field Staff Head Office, Archives New Zealand, Wellington

one–offs – and during the 1940s there was a programme of hut building in South Westland and Makarora, using ex–PWD roadbuilders' huts.[15] Today just two huts survive intact from that programme — Roaring Billy and Landsborough, both in South Westland.

During World War II Yerex's operation was turned over to the war effort but deer killing went on, partly as training for soldiers, and also by men who were not required for service. Inevitably the war effort made it difficult to match earlier killing tallies and the deer continued to flourish.

At the end of the war the Wild Life Division (soon the Wildlife Branch) of Internal Affairs was created, broadening the department's range of activities to include the control of an expanded range of fauna, but its main focus remained deer. Yerex remained in charge, with the title Controller, and a Deer Control Section was formed. Complementing the work of the government were many amateur hunters, and the occasional professional hunter, who sold meat and skins to earn a living.

Internal Affairs ran the Deer Control Section in a linear, hierarchical structure. Head office (Yerex and his staff) issued their orders, which were carried out by a Senior Field Officer who was in overall charge of a region. He had a number of Field Officers working for him and they did the hiring and firing in a district, assigned ammunition and ordered and distributed stores. Each Field Officer had Area Supervisors (and Sub–Area Supervisors) whose responsibility it was to check the work of hunters in an area and report back to the Field Officer. In the field the 'Head Man' was the leader of a hunting party, 'Hunter First Grade' was a hunter with some experience, while a 'Second Grade Hunter' was the junior.[16] It appears that, in the field at least, that structure did not greatly change when the operation was later taken over by the NZFS,[17] although other changes were more noticeable.

## THE FIRST HUT BUILDING PROGRAMME

With Yerex back in charge after the war, the Wild Life Section revived the idea of air dropping huts. When it became known what was being considered, the Canterbury Mountaineering Club offered their expertise and designs, honed through years of carrying hut materials in on people's backs. There is no evidence Yerex was interested in their offer. Instead he planned a two–pronged programme, dependent on the co–operation of Aerodrome Services and the Architectural Branch of Public Works. The former were asked for the use of their planes and pilots to "put in, by air, material for huts and also to provision them".[18] From Public Works'

15. Breen J. 2006, 'Landsborough Ranger's Hut: Historic Assessment', prepared for South Westland / Weheka Area Office, West Coast Conservancy pp. 11–12, 20–21

16. Farmer A. (with Graydon J.) 1994, *The best job ever (a life of hunting)*, Halcyon Press, Auckland pp. 61

17. Pers. comm. Alan Farmer

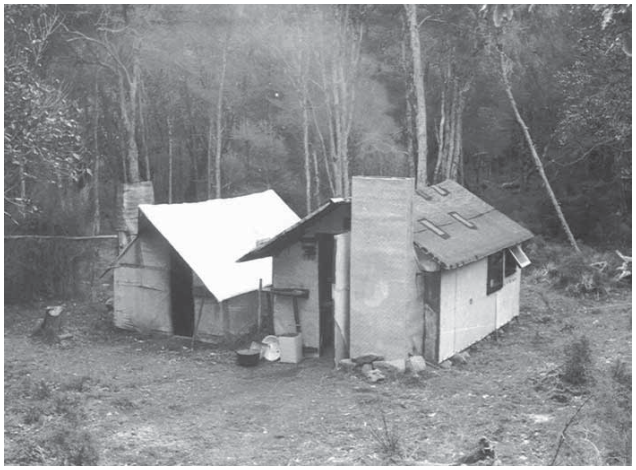
18. Letter from Major Yerex to staff n.d. 1945; file 48/51/2 Pt.1, Deer Destruction – erection of high level huts, Department of Internal Affairs (Archives New Zealand)

architects he asked for help in designing and constructing a hut that could be transported by air. Depending on who was writing the instructions, an estimated 50 or 80 huts was the number required nationally. This was based on a perceived need for huts spaced at eight hour intervals, so a hunter would not have more than four hours to return to a hut.

It was decided to begin by trialling the air–dropping of a hut in the Tararua Ranges. The materials for the hut were landed in January 1946 and it was built between 17 and 20 January. The hut was later named Anderson's Memorial Hut, after pilot Oliver Anderson who died while airdropping provisions in Fiordland in January 1947. The hut, with its distinctive arched roof, was in use until 1979, when it was replaced. As far as Yerex was concerned the hut was an unqualified success, even though it cost £250, a significant sum then. After the hut was built, two hunters using it as a base made 2.6 kills per day, which was the "highest average kills per day ever secured by our men operating in the Tararua Ranges".[19] It was a lesson not lost on the NZFS when they took over.

Yerex thought that the system of huts would also encourage professional hunters to do more work in remote areas and complement the work of the government. The Wild Life Section began to purchase supplies for the new huts, including, for example, a large load of perspex for windows, left over from the war and acquired from the army. Twenty huts were proposed for construction in the summer of 1947–48 and in October 1947 Yerex got approval from the building controller at Ministry of Works, as Public Words was by then known, for the carrying out of the work. Timber was ordered by the Government Architect and Yerex ordered two huts be constructed immediately.

Unfortunately, the absence of subsequent correspondence leaves what happened next something of mystery. Price's Flat on the West Coast was rebuilt in 1949, partly with airdropped materials, but whether this is one of those two huts ordered by Yerex is not known. It would seem that, although funding was set aside, the project hit the doledrums. Initially this was attributed to a delay in the preparation of plans.[20]



Les Pracy's possum research camp, in the Orongorongo, left 1966, right 1983. The camp is undetectable today. *J. Hansen, DOC*

19. Op. cit. Yerex to staff, 5/9/1947.

20. Annual Report Wildlife Section 1948, 48/82 Pt.1 Wildlife Section Annual Reports (Archives New Zealand)

By 1951, the lack of progress was put down to a lack of men and materials, but that work would begin 'as soon as circumstances permit'.[21] A lack of suitable aircraft did not help. All this suggests that, although some huts were built and aerial supply dropping continued, a national programme of "high–level" hut construction did not properly begin until 1954.

The evidence on the ground tells a somewhat different story. For instance, on the West Coast, hut building was making steady progress. Two huts were built in 1951, five in 1952, three in 1953, five in 1954, four in 1955 and in 1956,[22] the year operations transferred to the NZFS, four were built. The West Coast was a place where hut building was strongly supported regardless of the authority in charge. In the Southern Lakes District, a standard hut design was proposed for widespread use but was rejected because its deployment in those areas was not a priority. Other regions, such as the East Coast, got on with their own hut building where they could. To what extent this local activity was mirrored elsewhere in the country is not fully known.

The introduction of aerial supply dropping also made a great difference to the life of the hunters. Not only did it dramatically reduce the amount of horse and back packing but it also meant mail drops, and a wider variety of food, some of it fresh. Apart from smaller planes such as Proctors and Austers, the department used old Vildebeest bombers and RNZAF Dakotas, which, because of their size, meant parachutes fell from a greater height and there was sometimes considerable loss of material.

While deer occupied much of the division's time, possums were becoming a major priority. In 1946 the first detailed research was conducted into possums, with Les Pracy's appointment as a field officer in the Orongorongo Range, near Wellington. The following year protection over possums was relaxed further. It was finally removed in 1951, with a bounty offered for skins.

The zeal with which the deer cullers approached their work continued throughout the period of Internal Affairs' management. Cullers were told that they were 'saving the land'[23]; even when it became apparent that eradication was not going to happen, the hunters never lost their *esprit d'corps*. Later Internal Affairs and early NZFS hunters were inspired by Joff Thomson's *Deer Hunter* (1952), the first book to chronicle the life of the government deer hunter, and it gave recruiting an impetus.[24]

21. Ibid. 1951

22. Table of West Coast hut construction 1941–58 – from research conducted by Jackie Breen on Internal Affairs and NZFS regional files.

23. Pers. comm. P.C. Logan (former director of Environmental Forestry, NZFS) to author, 4 July 2002

24. Pers. comm. Jack Lasenby (former Internal Affairs and NZFS hunter) to author, 24 July 2002

## NEW ZEALAND FOREST SERVICE TAKES OVER

Great change was soon to come over management of deer control and one of the catalysts for change was American ecologist Thane Riney, who was appointed by Internal Affairs to investigate the deer situation in 1951. Riney's investigations concluded that the campaign had not been as effective as was thought. He showed that, in general terms, deer were able to avoid hunters in the bush and the deer being shot on the tops were simply the easier to hunt and only part of the problem. McKelvey suggested that hunters were only 'creaming the herds'[25] and could have left as many as 90% of the deer behind. High infestations of deer were always thought to have coincided with areas of high erosion but Riney showed this too was not necessarily so. It was the beginning of the end for the Wildlife Branch's management of deer control.

Below: Hunters receiving blackboard instructions outside the Hunter Training Scheme, Golden Downs camp, August 1958. *J. Johns, NZFS–AAQA6506,12–19,945.3,3007, ANZ*

Right: The hunter training camp at Dip Flat, Wairau Valley, under snow, July 1961. *L. Harris, NZFS–AAQA6506,12–19,945.3,M8843, ANZ*

By 1954 disquiet about the effectiveness of the Wildlife Branch's culling operations began a round of discussions over the future of the Deer Control Section, involving the Public Service Commission, Forest Service, Internal Affairs and Lands and Survey. The Branch's cause was not helped by the fact that it had little else in the way of field operations outside its deer control, a considerable contrast with the resources at the disposal of its main rival, the Forest Service.

Eventually, in 1956, it was decided to move noxious animal destruction, including the Deer Control Section en masse, to the Forest Service. This was the single biggest change in management in the history of wild animal control. The Noxious Animals Act 1956 was passed and permitted the hunting and killing of axis, fallow, sika, moose, red, sambar, Virginian and Wapiti deer, chamois, goat, possum, pig, thar and wallaby. The departure of Yerex and his operation was welcomed by the New Zealand Deerstalker's Association who blamed it for excluding recreational hunters from contributing to the campaign and from hunting in operational areas. Ironically, although he had much to lose, Yerex himself favoured the move, according to McKelvey.[26]

25. McKelvey p. 97

26. Ibid. p. 98

Squid Creek camp site from the air. The platform was used by helicopters bringing in supplies, May 1959. *J. Johns, NZFS–AAQA6506,12–22,96,M3258C, ANZ*

A helicopter landing at Styx River base, West Coast. May 1959. *J. Johns, NZFS–AAQA6506, 12–22,96,M3264, ANZ*

Upon assuming control of operations the NZFS established the Noxious Animals Division and largely devolved management to conservancy level. It identified a shortage of hunters as its biggest priority, as it was thought that the Deer Control Section had been able to do little more than halt the natural increase of herds. Some areas had never been hunted in and the effects that deer had had on those areas were unknown. Research was instituted and priority areas identified on an economic basis i.e. where farming lands or "watershed values"[27] were badly affected. The bounty system was abandoned and payment was based on wages alone, but with closer supervision to ensure that work was being carried out according to instructions. Training was introduced and made largely compulsory, to the chagrin of old Internal Affairs hands.

As a postscript to the changeover, the 92,000 deer killed in 1956 represented far and away the best year of any in terms of sheer numbers. In 1957 the figure was down to 62,500 and ground hunting would never again reach those heights.[28]

In 1958–59 a survey of the extent of the deer problem in the Tararua Ranges was undertaken. This helped add weight to the need for a new campaign devised on an understanding of ecology and seasonal migrations of deer.[29] With the resources at its disposal the NZFS was already providing better operational support, including more air drops, and building huts and tracks. Based on its research it then decided to build a great deal more infrastructure – huts, as well as tracks, bridges, wires, cages etc. All this was intended to lead to greater and better targeted deer eradication, mainly through the efficiency with which hunters could organise themselves and the consequent length of time they could stay in the field.

Under the new regime progress was finally made in targeting the deer threat. Some hunters actually resented the large number of huts being built and complained that there were too many in particular areas.[30] This may have been because the proliferation of huts was intended to encourage private hunters into previously remote areas and in doing so threatened

27. McKinnon and Coughlan p. 21

28. The figures come from Yerex p. 86, but McKelvey (p. 96) suggests a figure of 56,208 for the fiscal year ending March 1956.

29. Maclean C. 1994, *Tararua – the story of a mountain range*, Whitcombe Press, Wellington p. 220

30. Bennett M. 1979, *The Venison Hunters*, A.H. and A.W. Reed, Wellington p. 19. Bennett's views may have reflected the attitudes of a certain number of professional hunters.

the government hunter's tallies. Less predictably, some tramping clubs were also critical, such as the Wellington Associated Mountain Clubs, who objected to the flurry of hut building in the Tararua Ranges in the early 1960s on the grounds that it was compromising efforts to "keep the central areas in as near a wilderness condition as practicable".[31] While that criticism conveniently ignored the effect introduced pests were having on flora, it was probably true that the network of tracks, bridges and huts removed the need for many young people to learn basic bush skills e.g. river crossing, camping, route finding.

For its part the Forest Service definitely wanted the huts used by private hunters, in the hope that they would be "encouraged to work the areas after the Government hunters have been withdrawn from them."[32] McKelvey goes so far as to suggest that 80% of the deer range was largely left to the private hunter, thus making the huts a necessary incentive.[33]

A loaded Dominie flying in the Southern Alps in 1960.
*J. Von Tunzelman*

A timber airdrop near Forbes Hut in the upper Hunter Valley, 1959.
*J. Von Tunzelman*

31. Maclean. p. 224
32. Ibid.
33. McKelvey p. 105

Loading a helicopter with construction materials in the Hunter Valley, December 1959. The load was destined for Mill Basin hut in the lower Hunter Valley.
*J. Von Tunzelman*

While the NZFS targeted culling was much more effective, it also became clear to many on the ground that total eradication was never going to be achievable. It took some time though for this message to be accepted in all areas of animal control management. Eradication remained the stated goal but it was becoming evident that control had become the aim.

## DIP FLAT

Dip Flat was situated in the Wairau Valley, Nelson, and was so named because high country sheep used to be mustered down from Rainbow Station and dipped there for lice etc. The NZFS built a complex there to train intakes of hunters in six–week courses and hundreds of entrants went through the place. The complex included a kitchen, dining room–lecture hall and ablution block, plus tent camp. The school was run by Peter Logan and entrants were taught, among other things, bushcraft and survival skills, open fire cooking, use of an axe and accurate shooting.

The dropout rate was considerable. As entrants passed each stage of the course they were faced with yet more challenges before being offered a job. The course culminated in a long hunting expedition, the final initiation. Such was the turnover of hunters that the camp was forced to close in 1963 when it became too expensive to train the number of men required. Thereafter training was done in conservancies. Despite the difficulty the course posed, many ex–NZFS hunters express considerable affection and nostalgia for their training at Dip Flat[34] and there is no doubt it played a key part in many young New Zealanders' lives. Dip Flat is part of the Rainbow Station and not on DOC managed land.

## HELICOPTER HUNTING AND THE DEMISE OF THE GOVERNMENT HUNTER

The system of huts, bivouacs, tracks and bridges served the NZFS well while hunting continued to be an operational priority. Over the period 1956–1972 a huge infrastructure was established. According to several sources, by 1972 '644 huts, 36 shelters, 26 vehicle bridges, 42 foot bridges, 22 cableways, 29 vehicle fords, 2900 kilometres of road, 1400 kilometres of 4–wheel drive tracks [and] 400 kilometres of walking tracks' had been built.[35] But the scene began to change during the 1960s.

In the late 1950s a few pioneers began sending wild venison overseas and discovered a ready market. Very quickly a venison recovery industry got underway and, with the use of fixed wing aircraft, some remarkably ingenious ways were found to get the deer out of the bush. Jet boats, tractors, trolleys and of course humans, were all used in the bush or in inaccessible areas to get the carcasses to airstrips, which were often built in rugged country on any available flat area. Generator–driven freezers were installed near airstrips. The inevitable downside was the number of fatalities in what was a very dangerous occupation.

34. Burdon B. 1993, *Of Mountains, Men and Deer*, The Halcyon Press, Auckland pp. 12–18

35. Yerex D. 2002, *Deer – the New Zealand Story*, Canterbury University Press, Christchurch p. 66 and McKelvey p. 105

This new industry increased the number of deer killed, but not dramatically, because it was largely making money out of the kind of kills that had previously been wasted, or at least poorly exploited. It did bring more hunters into the mountains, but it also encouraged government hunters to go private, which had the effect of making it difficult for the NZFS to recruit replacements.

The advent of the helicopter added a whole new dimension, but not with immediate affect. The first helicopters started operating in New Zealand in the late 1950s and the NZFS appears to have first used one to build a hut – Luna Hut – near Karamea, in 1958,[36] one of five built at the same time in Nelson.

It soon became apparent how useful they would be in remote areas, as they were put to use ferrying supplies for hunters and materials for huts and other infrastructure. Helicopters were far more consistent than planes in ensuring accurate placement of materials, and of course they could also pick things up without landing. There were no breakages, so extra materials were not needed as contingencies. There was less pre–packing and bundling and no parachutes to bring out on men's backs. It meant that fittings such as doors and window sashes could be pre–fabricated and flown in, thereby saving time and improving a hut's finish and appearance. There were also general savings because helicopters could fly in conditions that fixed winged aircraft could not, which meant that men would not have to wait at hut sites for days waiting for air drops.

Two hunters leaving Dorset Ridge hut in the Tararua Ranges, 1975. *Gordon Roberts, NZFS–AAQA6506, 12–22,96,M12159, ANZ*

Nevertheless it took a surprisingly long time for helicopters to be used for hunting and longer again for the industry to really take off. It was not until 1963 that helicopters were used for hunting. On that first day of use, in the mountains near Wanaka, 210 deer were killed.[37] It seemed to be the beginning of another boom, but it was a false dawn. Early enterprises shot many deer but struggled to make money. Efficient recovery and processing took time to develop, as did offshore markets. Again, it was dangerous work and many helicopters and hunters perished while safety margins were established.

Eventually, towards the end of the 1960s, the industry became more profitable and by the early 1970s it was in full swing. The year 1971

36. Yerex p. 71. Luna Hut has since been removed from its site and now sits on a farm.

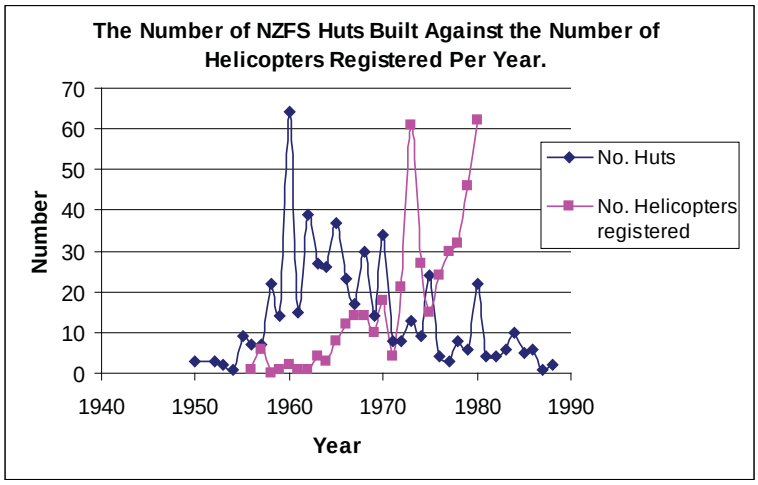
37. It may have been much earlier. Ash Cunningham states that W. Chisholm experimented with helicopter hunting on Molesworth Station in 1958, as did Morrie Robson in the Kaweka in 1962. See Cunningham A. "The Role of Engineering in New Zealand Protection Forest Management" in *New Zealand Journal of Forestry*, Vol.2 No.2 1967 pp. 91–102

was the peak for killing when 131,000 carcasses were exported and many more shot.[38] The impact on deer was remarkable; firstly animals were shot in the sub–alpine areas and then, after numbers declined there, attention moved to gaps in forest canopies, such as slips. McKelvey cites figures that show that deer numbers in Arawata, South Westland declined 85% between 1966 and 1983.[39] This was probably typical of the rest of the country. Joe Hansen recalls the final season of full hunting in the Aorangi in 1971 yielded 58 deer, 56 goats and 34 pigs.[40] By comparison Internal Affairs figures for 1949 showed 251 deer, 3038 goats, 235 wild sheep and 351 pigs were killed. The decline in deer numbers was such that the NZFS had to drop the tally system of payment and move to wages. The cost in lives and machinery also remained high. In 1980 an extraordinary 62 helicopter licences were issued, but at the same time there were 44 accidents. In all, in the period from 1976 to 1982, 208 helicopters crashed while hunting, with 72 destroyed and 136 badly damaged, 17 pilots and shooters were killed, and 40 pilots and shooters were seriously injured.[41]

Interestingly, the NZFS hardly used helicopters for hunting and recovery itself. It took a long time to be convinced of the value of helicopters but, once it was, it rarely had to use them anyway because the industry shot and recovered deer for it. The NZFS managed its ground operations accordingly. Helicopters removed many deer but they couldn't get all of them. The problem for the NZFS was flushing out all the deer in priority areas. Hunters were sent in to kill those last few deer, but it was laborious, unsatisfying work and it made recruiting hunters more difficult, given the money they could make in the risky but profitable commercial operations. The impact of the helicopter can be seen in NZFS kill rates. In 1966 the annual kill was 20,000; by 1976 it was down to 7,600.[42]

Nevertheless a field force of about 100 hunters was still operating in the mid–1980s, partly because the fickle commercial operation ebbed and

Graph shows the impact of the helicopter and aerial hunting on hut building was obvious without being immediately dramatic.




*Fran Begley, DOC*

38. McKelvey p. 112
39. Ibid. p. 113
40. Pers. comm. Joe Hansen to the author, 4 October 2002.
41. Forrester R. 1983, *The Chopper Boys*, Whitcoulls Publishers, Christchurch p. 6
42. Yerex p. 86

flowed depending on the supply of deer. NZFS always had to maintain a delicate balance between the commercial hunters, who were doing most of the killing, and recreational hunters, who were, hopefully, operating in areas helicopters were not reaching. The recreational hunters, led by the NZDA (New Zealand Deerstalkers Association), were always concerned that the NZFS would opt for extermination and remove their sport. And of course the NZFS had to be wary of commercial operators who were content to 'cream' herds. The NZFS kept building huts simply because it did not want to have to rely on the inconstant helicopter industry.

Mid–Waiohine, soon after its completion in 1962. *J. Hansen*

The Wild Animal Control Act – the first official use of the term – was passed in 1977, and it retained NZFS as the overall manager of pests and gave it the right to step in and kill deer in areas where numbers became excessive. At the same time though it did move management from the principle of extermination to one of control, to the relief of the NZDA.

Commercial helicopter operations had such an impact on deer numbers that, to survive and thrive, the venison export industry had to find new sources. The answer was farming. Capture of wild deer gave the industry some of its breeding stock (some came from overseas) – and the helicopter industry yet more business – and deer farming became a new primary industry. The Noxious Animals Amendment Act 1967 and Deer Farming Regulations 1969 paved its way but the uptake was slow. From 1967, when 20 farms began, until 1979 only 850 farms were established. It was not until 1977 that the first live deer auction was held and the $1000 plus prices the deer fetched showed the industry their remarkable value. It was only then that live capture became a really important part of the helicopter hunter's business. By 1982 there were 2000 farms holding 180,000 stock.

Mid–Waiohine in 2002. One of a number of cullers huts in the Tararua converted to recreational use. *B. Dobbie, DOC*

Today wild and farmed venison compete in the market, although there is vastly more of the latter.

Helicopter hunting continues to be seen by DOC as the main weapon against deer. As its own analysis shows, commercial helicopter hunting achieves "effective control in grassland and open–canopy forest, which includes large areas of the South Island."

## RECREATION

With Government hunting on the wane the huts were made available to trampers and recreational hunters. Tramping began in earnest in the early part of the 20th century and some parks contained recreational huts dating from the early 20th century, mainly built by clubs. The origins of widespread recreational use of forests began with the trial of a forest park system in the Tararua Ranges between 1954 and 1964. This mountain range had been the cradle of tramping earlier in the century and the Tararua Tramping Club (est. 1919) is still the country's oldest. After unsuccessful attempts to make it a national park at the time of the country's centenary in 1940, it had been decided to make the Tararua Ranges an experiment in multiple–use management. Recreation – through free public access – was to be one of those uses. Previously forests had largely been off limits to the public, officially anyway, with the exception of recreational hunters and trampers with a permit.

The success of the trial, and the public appreciation of the concept, saw recreational use of New Zealand's mountains grow enormously during the 1960s and eventually 18 forest parks were created and thrown open to the public. Trampers in particular appreciated the regular spacing of hunting huts and tracks, which offered a great range of route options. It seems probable that, with the success of the Tararua Ranges trial, some recreational use had been envisioned by the NZFS and, later, huts were built with multiple uses in mind. Eventually most huts were built primarily for recreational purposes.

The boom in mountain recreation continued through the 1970s, and that use only increased when tourism really took off the following decade. New Zealand's great infrastructure of huts – internationally an unrivalled asset – offered backpackers the appeal of a tramping experience in New Zealand's magnificent back country. The irony is that many of the more remote NZFS huts are generally not visited by tourists, only by the very keen local tramper and hunter.

## THE MYTHOLOGY OF THE DEER CULLER

Few pastimes or occupations in New Zealand have given rise to the level of literary output that hunting has. Since Joff Thomson's book *Deer Hunter*,[43] 50 years ago, hundreds of books have been written by professional and amateur hunters in New Zealand, many of them mythologising the pastime and all of them adding to an iconic image of a man alone, or with his mates, hunting the four–legged pest.

The reasons for this are two–fold. One was the life of the hunter. It was essentially solitary, with the only company a dog or the occasional hunting partner, and it was very hard, especially in the days before air

43. Joffre Aristide Thomson was one of seven brothers who shot for Internal Affairs and made a living out of hunting.

drops. So hunting was really only suitable for a certain type of man who enjoyed his own company and was very resourceful. This ultimately encouraged the development of a stereotype who could be eulogised, parodied and iconicised. There were of course no women apart from Coral Robson, Kuripapango — a crack shot who out-shot many of the men.




The second reason was the most famous and influential of all hunter/writers, Barry Crump (1935–1996), who embellished real events or took the largely fictitious stories other hunters told him and turned them into *A Good Keen Man* (1960). It sold in the tens of thousands, as did the follow–up *Hang on a Minute Mate* (1961). They were very appealing to a post–war urban society that had somehow lost touch with its rural frontier past, and of course, the humour and the nostalgia evoked were key components in their success.

A host of Crump–authored books followed, although none quite as good as the first two, with most of the content based around the life of the hunter. One significant source for Crump's 'yarns' was Ted Ray, aka the 'Grey Ghost', who was one of 'Skipper' Yerex's area supervisors and a legendary culler in the eastern Bay of Plenty. Ray was famous for his yarns, which were frequently the same story told many different ways, with the line between reality and fiction constantly blurred.[44] The campfire story was a stock–in–trade of cullers and Ray's stories were a source of the kind of fiction that so epitomised Crump's work. Some of his fellow hunters, who thought Crump's work should contain more faithful accounts, were outraged by some of the stories.

Many ex–Internal Affairs, NZFS and DOC cullers ended up writing their memoirs and, although none captured the public imagination the way Crump did, they still sold plenty of books in a ready market. The sheer volume of hunting books demonstrates that, while hunting is not for everyone, it is an extremely popular pastime for many New Zealanders – almost an obsession for some. It has had a powerful pull on the public imagination.

Few of these books ever commented on huts with the kind of reverence and respect that perhaps might have been expected, especially considering that many of them were built by the hunters themselves. Instead huts were treated as a place to sleep the night or shelter during bad weather; places for after–work activities but rarely gushed over. That does not reduce the value of the huts but merely shows them for what they were intended – as practical, useful buildings. It is instructive however that Joff Thomson's second book *Deer Shooting Days* (1964), contains a whole chapter on tent camps, but not huts. He of course hunted in the days before there were many huts available but perhaps tent camps held a greater romance for the professional hunter.

44. Pers. comm. Jack Lasenby

# Part 2: The heritage value of wild animal control huts

## HISTORICAL

The historic value of mountain or back country huts is now well accepted in heritage management. The New Zealand Historic Places Trust has acknowledged the heritage value of some of the country's most important huts through their registration under the Historic Places Act 1993. The Department of Conservation actively manages many huts, and approximately 70 of these are listed on the Department's website, where most have a web-page devoted to them.

Although huts are modest in size the special circumstances in which they have been erected, their isolation, exposure to extreme weather conditions and enormous value as shelter for trampers, hunters and mountaineers allows them to be assessed in a different context from the typical heritage building. It gives them a patina of age far earlier than many other buildings. Seen in that light, a slab hut built in the Urewera in the early 1950s, for instance, cannot be readily equated with a building constructed in downtown Auckland at the same time.

In assessing those huts that have already been registered or conserved by DOC, the distinguishing feature of most of them is that they were carried in on men's backs, or built from materials at hand. On a very loose scale of significance, the greater the effort required to build a hut, the greater the heritage value of the hut.

Huts have been constructed for wild animal control purposes for 70 years. Few of the huts built during the early part of Internal Affairs' operations have survived and those that have are mainly already protected. Of those that remain from the rest of Internal Affairs' management, many have been identified during this study and those that were built without the use of airdrops can be considered particularly significant for their rarity value.

The vast bulk of the NZFS huts were built with the aid of airdrops or, later, helicopters. They were almost all standardised and all had a largely similar history, initially at least. Some special candidates stand out from an historical point of view e.g. huts where important animal control research was undertaken, huts associated with particularly successful operations, the first helicopter–dropped hut (Luna Hut in Karamea), huts with an interesting social history associated with the hunting era, huts built by significant New Zealanders, etc.

## PHYSICAL

No strong architectural value has been accorded to back country huts, so their physical significance relies on other values. Huts have been a bastion of a basic, almost old–fashioned design and structure. As noted above, even as glass 'skyscrapers' were being built in our cities, slab huts were still being built in New Zealand's mountains. Many of the early Internal Affairs huts represent examples of rare hut types. Oddly, the first of the Internal Affairs air–dropped huts – the experimental Anderson Memorial Hut – showed an innovation in design that was later spurned by the NZFS.

For its part the standard NZFS hut was functional, basic, almost backward looking, in its solid, gabled form. The huts that were built in the period after air–dropping began are significant for their representative value best displayed by authentic examples of typical styles. Also noteworthy are unusual variations built as a response to local conditions. Examples are still to be identified.

Some huts have close associations with a range of other heritage places, including tracks and bridges. The extent of these associations has not yet been properly investigated but could be examined as part of future work.

## SOCIAL/CULTURAL

The deer culler or hunter occupies a special, iconic place in the history of wilderness land management. Hunters were mythic figures in the New Zealand landscape and much admired for the difficult job they did. Hunting also offered employment to young New Zealanders keen to work in the great outdoors. But deer culling attracted all sorts of people; it was certainly not an occupation dominated by men from the land, or by recreational hunters. It became a rite of passage for many university leavers. The erudition of many hunters reveals just how intelligent and perceptive many of them were.

The hunters left their mark on the communities they frequented. The towns and settlements around New Zealand's forest and national parks were the places where hunters were reintroduced to the social lives they left behind each summer, spent their earnings – often in hotels – and recounted their experiences.

The commentary on the mythology of the hunter in Part 1 shows how the iconic status of the government hunter was inspired by the writing of Barry Crump and others. The role of the hut in all this is not often explicitly acknowledged but it certainly provided one of the 'settings' for the books. The hut was an ever–present stage or prop in such books.

Some hunters remember particular huts with fondness, either for particular events, or for the scenery surrounding them, or the length of their association with them. Huts were particularly important as bases for hunting work and more will be gleaned on these activities in future. Huts are therefore our

abiding, tangible heritage of decades of wild animal control.

More recently, recreational users of huts have become more interested in huts as heritage. This is exemplified by the FMC Bulletin published by the Federated Mountain Clubs of New Zealand. Their current, regular 'Huts as Heritage' feature recognises the increasing role that heritage values are playing in the appreciation of our wilderness accommodation.

# Part 3: Hut building 1946–1985

## INTERNAL AFFAIRS 1946–1956

Internal Affairs built huts from the commencement of operations early in the 1930s, but these were only occasional projects and the vast majority of hunters lived in tent and fly camps for much of the period of the department's management.

During the late 1940s and early 1950s activity increased. With the cessation of deer culling during winter some hunters were assigned other duties, among them track cutting and hut building. The beginning of air–drops in 1946 offered the Wildlife Branch the opportunity to build many more huts and after the experimental prefabricated Anderson's Memorial Hut was successfully dropped and constructed in Tararua that year, it was decided to begin a programme of hut building. For one reason or another – incomplete plans and men and resources unavailable were among the reasons cited – the project stalled in some parts of the country. It was only revived in earnest in 1954, although hut building as such never stopped, particularly in the West Coast.

Internal Affairs hunter Allan Farmer recalled progress in hut building:

> You couldn't beat a hut. Huts came in all shapes and sizes and for a start were usually buildings left over from another purpose. Even the huts the Department was putting in retained their individuality. Much of the timber would be felled on the spot and at that stage there didn't seem any good reason to settle for anything but the best. Some of those huts of heart totara still stand today.
>
> Normally hunters were sent in during the winter season to work on the construction and there is nothing that says a good hunter will be a competent builder. A Field Officer was in charge but he was probably no better. The best you could say about the results was that his second hut was usually better than his first and the third might end up much as it was supposed to be. With the advent of the Forest Service and the use of planes big enough to carry properly prefabricated buildings the patterns of huts standardised around two or three basic models. They were comfortable and effective but somehow lacked the character of the older shelters.[45]

In the period prior to the takeover by NZFS, the Wildlife Branch was in close consultation with the Ministry of Works. The Ministry's Aerodrome Services branch not only dropped supplies to hunters, it helped design huts and deliver them too.

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45. Farmer p. 106

When air–dropping began the first planes were too small to take large loads and timber was cut to 3' (feet) lengths. Two of these planks spliced together formed a four by two. These, along with the tightly bound roll of flat iron (in 8' lengths x 3' widths), formed the basis of any air–dropped hut.[46] They were built to a standard design, but timber had to be sawn and iron cut on site to the desired length. With the introduction of larger planes, like the Cessna, hut timbers became bigger and each hut was pre–cut off–site at a builder's yard, and assembled on site by hunters.[47]

There were still huts of a more traditional kind built for wild animal control. Internal Affairs built two huts in the Urewera in 1952 that were constructed of slabs of totara. Two more were added after the changeover to NZFS (one – Central Te Hoe – has since been demolished), but were still built of totara slabs, complete with an earth floor. Each hut was built using pack horses and hunter's backs to get materials to the site. The only concession to modernity was the use of airdrops from 1956 onwards. In the case of the Urewera slab huts there is also considerable evidence that they were built largely to a standard design, although subsequent changes have made that less apparent.[48] There were other examples of some level of standardisation, such as the construction of a series of three–bunk huts in the North Canterbury area in the mid–1950s. One of their common characteristics was a concrete floor.

Interior of slab built Te Waiotikapiti
*M Kelly*

With the exception of such examples, which were unusual rather than typical and small in number, it appears that Internal Affairs experimented with standardised huts but mostly on a regional level. It certainly asked the Public Works Department to design huts, but apart from Anderson Memorial Hut, no other PWD designed hut has been accurately identified at this time. On the West Coast, huts were built to various 'standard' designs, which were simply variations on a common theme, and this work continued after 1956.

## NEW ZEALAND FOREST SERVICE 1956–1985

Under the NZFS, hut design, like everything else, became a great deal more organised as budgets rose and greater expertise was required.

With NZFS's decentralised structure, the business of building huts fell to the various conservancies. Most huts were constructed by local staff,

46. Pers. comm. Alan Farmer to author, 8 July 2002

47. Ibid

48. Kelly M. 1996, "Te Urewera Slab Huts Conservation Report", East Coast and Bay of Plenty Conservancies, DOC pp. 7–8

including cullers. Initially there was no standard national design and the first huts were often thrown together by local staff using whatever materials were at hand and, if carpenters were involved, they had a considerable say in proceedings. As with the DIA a generation earlier, the NZFS thought it would win the deer war in short order, so many huts had a limited design life and the earliest huts were often built with untreated timber. Frequently bearers rested on concrete piles without the benefit of a damp proof course.

On the West Coast, Stan Fokerd designed the bivouac B49. Conceived in 1955 and first erected in 1957, the two–person bivouac was based on the design of the F–tent, and was totally prefabricated. This type of hut was developed to 'solve the problem of deer build up in the subalpine scrub levels' and it was claimed that if enough were built they would be 'as great an advancement to this job as the aeroplane was'.[49] This design, which became the NZFS standard S86, was adopted elsewhere in New Zealand.

In 1957 the NZFS designed a 4–bunk hut made from steel framing and aluminium sheets, known as Dexion huts. Several of these huts were built in several locations in the Kaweka, and possibly Ruahine, Ranges. They were uncomfortably cold in winter and in 1960 a carpentry team went around and lined them with plywood.[50] Moss was even stuffed down the walls of the Makahu Saddle Hut.[51]

The frame of Lake Te Au Hut, Murchison Mountains 1963. Max Evans, local field officer pictured. This hut was later moved after the site was found to be flood prone.
*J. Von Tunzelman*

Dates on plans reveal that the earliest 4–bunk timber hut plan was drawn up in 1957 and was by no means a settled design. Further plans were produced the following year as the NZFS grappled with producing the best design. A principal figure attributed with the production of the hut designs was Max Cone, senior civil engineer of the engineering division

49. Annual Report of Noxious Animal Division 156–57 to the Conservator of Forests, Westland, by S.E. Fokerd, dated 4/4/57, p. 9.

50. Pers. comm. Ashley Cunningham to Arnold Heine, 16 February 2003

51. Ibid.

of NZFS. Standard designs for two, four and six bunk huts were planned, with later variations to accommodate three, five and seven bunks (even eight at times).

The designs were settled on by 1958 and introduced in the field that year. Initially the timbers were partly pre–cut or cut on–site,[52] although full prefabrication had been in operation in the West Coast since the mid–1950s. Inevitably, minor variations ensued, especially as conservancies were given considerable latitude to do their own thing. Full prefabrication of standard designs was still some time off. In Southland for instance, it was not until 1964 that uniform, prefabricated huts were erected in the conservancy.[53] The NZFS had its own sawmill, at Conical Hill, near Tapanui, and loads were bundled and loaded at this point. Once full prefabrication was in place, hut timbers were cut off–site, timbers and iron numbered, bundles weighed to ensure they met payload limits, and flown to the site.

Later some huts were built by teams which roamed the country building all manner of structures (huts, bridges and other facilities), as well as inspecting the worthiness of structures already built.[54]

Two man bivouac at the head of the Havelock branch of the Rangitata River, Canterbury, 1963. *J.H. Johns, NZFS–AAQA6506, 12–22,96,M8743, ANZ*

Initially, planes were used to ferry materials; a variety of planes was used. The Auster was among the first used but its small payload was a problem, as it was with the Beaver. The Cessna 180 was probably the plane employed the most and its much heavier payload certainly helped facilitate hut construction. Another common plane was the DeHavilland

52. Plans and specifications S 81, NZFS, Wellington (DOC Hawkes Bay Area Office Microfiche Collection). See Appendix 3

53. Pers. comm. John Von Tunzelman to the author 7 August 2002

54. Pers. comm. P. McKelvey to A. Heine, 4 June 2002

Dominie. It flew very slowly, which was particularly useful for accurate parachute dropping. They were operated by Southern Scenic Airways and West Coast Airways (allied companies). For timber drops large silk parachutes were used, but for food supplies smaller 120cm$^2$ drag chutes were used.[55] On the West Coast in the early 1950s, materials were even free–dropped.[56]

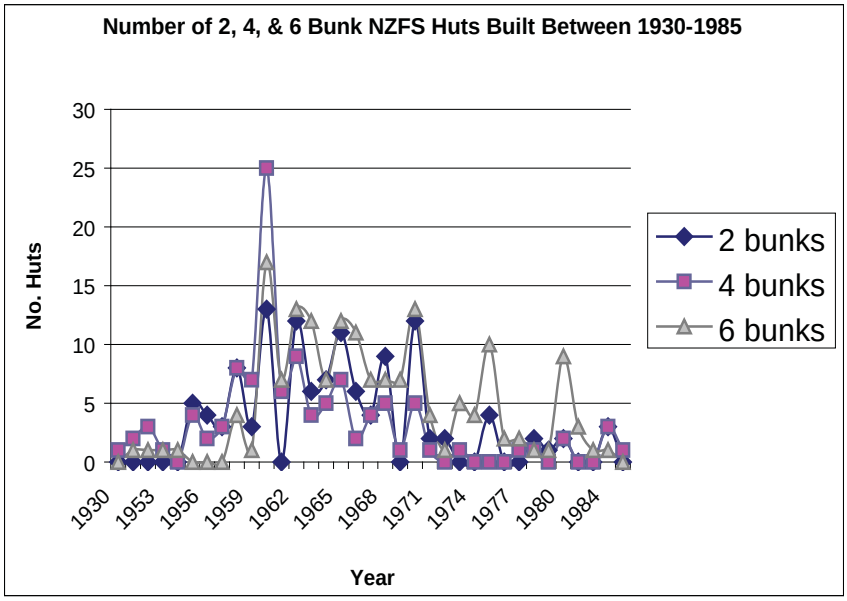
Various hut parts could be placed in the four bomb racks underneath the wings, with iron on one side and timber on the other. Some pilots were able to land materials close to a hut site with considerable accuracy but they had to drop above a minimum height – about 90 metres above the ground – so that the parachutes could open properly.

While planes were a great boon, helicopters made that much more difference to hut building.[57] They could more easily drop people, accurately place loads and return with anything left out or forgotten, supply food when needed, and deliver or remove larger machinery or tools. Helicopters first transported hut construction materials in 1958, for Luna Hut in Nelson. A few days later, materials for Kakapo Hut, Buller, were flown in from Karamea by helicopter.[58] With Luna Hut's removal off–site in 2004, this is almost certainly the oldest helicopter–carried, prefabricated hut still standing on its original site. The success of the helicopter meant that it was in big demand thereafter, although there were not many in the country in the 1950s.

Table 1:
Hut constructions
1930–1985

| No. of Bunks | No. Built |
|---|---|
| 2 | 128 |
| 4 | 131 |
| 6 | 185 |

Table 2: 2, 4 and 6-bunk huts built 1930–1985




*Fran Begley, DOC*

55. Pers. comm. John Von Tunzelman to the author 21 October 2002

56. IAD 48/10/2 pt 2 Animals Protection and Game Act – Deer destruction – Air transport – General file re: 10/1/48 to13/1/49. Head Office Archives New Zealand, Wellington

57. Ibid.

58. Memo for the Conservator of Forests, NZFS Nelson 'Transporting of huts and food by helicopter' from J. D. Corboy (field Officer). Dated 17/9/1958

Generally speaking, after the initial flurry of hut building in the late 1950s and early 1960s, most conservancies built huts or bivouacs as funding allowed, perhaps one or two huts annually in a large area e.g. a forest park or conservation area. As time wore on, the NZFS had half an eye on the anticipated influx of recreational users and so built more 6–bunk huts, even though that capacity was not really required for hunting alone.[59]

In establishing a hut site it was essential to meet certain criteria. Obviously the hut had to be built where there were lots of deer and this decision was made largely by local staff. It had to be a decent interval (at least a couple of hours) from the nearest hut, off the river to avoid flooding, with good access to water, the maximum sun possible, and good firewood. It was often sensible to consult with hunters; they knew better than anyone the best places to build huts. For instance, it would not have made sense to build a hut on a clearing where deer fed. Established camp sites were often the most obvious places to build.

With the reliance on local staff to draw up plans or build huts, local variations on standard plans were entirely predictable. The 4–bunk hut only contained one window, so frequently another was added. Four and 6–bunks had a hearth – in the form of a slab of concrete – in front of the fire. It was only 10 cm thick and if it cracked and allowed embers to fall through it could start a fire. In some parts of the country the slab was poured to ground level. Some huts were fitted with features to enhance the hunter's comfort, perfectly understandable given how long they were to live in them.

59. Pers. comm. John Von Tunzelman to the author 7 August 2002

# Part 4: Wild Animal Control Huts – a template for assessment

## INTRODUCTION

The inventory in Appendix I was compiled primarily from nominations of significant huts by DOC staff and other interested persons. From these nominations approximately 30–40 huts will be chosen to be managed for their heritage values. The final list will not be a static one and can be changed if new information comes to light. It must be noted that the inventory, by necessity, must be a limited one, so some huts with heritage significance will not make the final cut.

## CRITERIA

Nominated huts will be assessed using the following criteria:

1) Significant history

   Does the hut have a significant social history? Was it built, or used for a period, by a significant New Zealander or did something important or unusual happen at the hut?

2) Architectural/physical – authenticity

   Does the hut exhibit most or all of its original structure and fabric, or if altered, have the changes been minimal?

3) Landscape associations

   Is the hut part of a larger complex or infrastructure e.g. associated with a track or road or with a bridge or wire or another nearby amenity?

4) Historic records

   Does the hut have an outstanding, historic record?

5) Rarity

   Is the hut an early WAC hut, such as an early Internal Affairs hut, or is it an early example of a standard hut, a purpose–designed hut or a rare, special design.

6) Representativeness

   Does the hut retain characteristics that make it a good representative of a particular type?

7) Community association

   Is the hut highly regarded by the general public or by key stakeholders – both the hunting and tramping communities?

## National requirements

DOC is seeking to protect a selection of huts that meet as many of the above criteria as possible, or are strongly represented in some of them.

Your nomination must contain:

1) The AMIS reference (please print out and attach the relevant sheet).
2) Date of construction
3) Organisation which constructed it (Internal Affairs or NZFS)
4) Style of hut (if standard design) and/or any unusual variations on that design
5) Level of authenticity (original fabric remaining)
6) Any history associated with the hut
7) Evidence of records – file on hut, hut books, names of persons still living with information on the huts
8) An assessment of heritage value based on the above criteria

# Part 5: Further work

Although much work has been done on researching and analysing hut design and development there are still matters that would benefit from further analysis. Some have been resolved in part, but more information would still be beneficial in improving understanding of wild animal control hut design, construction and development.

### Hut design

1) The extent to which specific Internal Affairs hut designs, standardised or otherwise, influenced NZFS designs.

2) The role of Max Cone and other individuals responsible for the various hut designs, in particular the NZFS standard designs.

3) The extent to which the 2, 4 and 6-bunk designs were adapted to produce 3, 5 and 7 bunk variations.

4) The extent of regional variations.

### Influences on hut construction and distribution

1) How and to what extent did the relative payloads of the Auster and the larger Cessna influence hut design, planning and construction?

2) Why did hut building not slow down in the 1960s given the number of deer being killed via helicopter operations?

3) What influence did infestations of deer in specific areas have on hut distribution or did a long–term view of control measures take greater precedence?

Specific huts, hut types or plans to be located

1) A prototype, for any standardised hut, that might still be standing.

2) Standard designs for all huts and variations.

### Landscape associations

The relationship between huts and other infrastructure, including bridges, wires, tracks, airstrips, toilets, ladders etc. Key examples need to be located from within the pool of proposed candidates

## FURTHER SOURCES OF INFORMATION

1) Protection Forestry Newsletter – the NZFS newsletter published 3–4 times per annum for a number of years.
2) Internal Affairs files, Archives New Zealand
3) Conservancy correspondence files on individual huts (contingent on availability)

# Part 6: Sources

## PRIMARY

### Archives New Zealand

File 48/51/2 Pt.1, Deer Destruction – erection of high level huts, Department of Internal Affairs

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### Newsletters, bulletins, pamphlets

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McKinnon A.D. and Coughlan L. 1960, "Data on the establishment of some introduced animals in New Zealand forests, Vol. II", New Zealand Forest Service

Kelly M. 1996, "Te Urewera Slab Huts Conservation Report", East Coast and Bay of Plenty Conservancies

### Plans

Plans and specifications, NZFS huts, Wellington Conservancy (DOC Hawkes Bay Area Office Microfiche Collection), courtesy of Dick Clark, Napier Area Office, East Coast Hawkes Bay Conservancy

### Oral Sources

John von Tunzelman, ex–NZFS and DOC, Southland

Jack Lasenby, former DIA hunter, teacher and author

Alan Farmer, ex– DIA, NZFS and DOC hunter

Arnold Heine, former editor, Federated Mountain Clubs bulletin, FMC foundation member, New Zealand Alpine Club member

Peter Logan, former director, Environmental Forestry, NZFS

Ash Cunningham, ex–NZFS

### Present DOC staff members:

Glenn Mitchell, Aniwaniwa Area Office, Wairoa

Pat Sheridan, Hawke's Bay Area office, Napier

Dick Clark, Hawke's Bay Area office, Napier

Eddie Te Kahika, Puketitiri Field Centre, RD 4 Napier

Joe Hansen, Wairarapa Area Office, Masterton

Mark Townsend, Motueka Area Office, Motueka

Shane Hall, Greymouth / Mawheranui Area Office, Greymouth

Jim Staton, Hokitika Area Office, Hokitika

Richard McNamara, Twizel Area Office, Twizel

Ross Kerr, Te Anau Area Office, Te Anau

### Conservancy Historic Technical Support Officers

Neville Ritchie, Waikato

Pam Bain, East Coast / Hawkes Bay

Jonathan Welch, Wanganui

Richard Nester, Wellington

Steve Bagley, Nelson

Jackie Breen, West Coast

Ian Hill, Canterbury

Rachael Egerton, Southland

Also:

Elizabeth Pishief, Opus International, Wellington

# Appendix 1: Candidates for historic status

This is a general list of candidates and in no way reflects the final number of huts chosen for permanent retention. Shaded rows indicate huts which have historic status in AMIS.

Note that some of the construction dates provided below may have been taken from the Visitor Asset Management System and cannot be relied upon for absolute accuracy.

| CONSERVANCY & LOCATION | HUT NAME<br>YEAR BUILT<br>NO. OF BUNKS<br>AMIS TECH ID# & STATUS | | COMMENTS |
|---|---|---|---|
| NORTHLAND | | | No WAC huts constructed in the conservancy |
| AUCKLAND | | | No WAC huts constructed in the conservancy |
| WAIKATO<br>**Maniapoto**<br>Cowan WR Reserve | **Wildlife Green**<br>1960<br>4 bunk, but atypical<br>**Tech ID 73121**<br>Basic hut / bivouac<br>Maintain |  | Not purpose–built for WAC use but used in the past as an animal control hut and by biodiversity monitoring teams. Made up of two single men's logging huts joined together, one used for sleeping and the other as a kitchen. The last example in the area of this type of logging hut. |
| BAY OF PLENTY<br>**Rangitaiki**<br>Whirinaki Forest Park | **Rogers**<br>1952<br>6 bunk<br>**Tech ID 32668**<br>Standard hut<br>Maintain |  | Totara slab hut constructed by Rex Forrester and others for Internal Affairs. Much altered. For more information see:<br><br>www.doc.govt.nz/Conservation/Historic/ |
| EAST COAST / HAWKES BAY<br>**Aniwaniwa**<br>Te Urewera National Park | **Te Waiotikapiti**<br>1958<br>6 bunk<br>**Tech ID 39570**<br>Standard Hut<br>Maintain |  | Totara slab hut. Very similar to Rogers and Te Totara but erected with the help of air drops.<br><br>www.doc.govt.nz/Conservation/Historic/ |
| **Aniwaniwa**<br>Te Urewera National Park | **Te Totara**<br>1952<br>6 bunk<br>**Tech ID 39561**<br>Standard hut<br>Maintain |  | Totara slab hut constructed by Rex Forrester and others for Internal Affairs. Materials brought in by packhorse, otherwise constructed from timber felled at the spot. |

| CONSERVANCY & LOCATION | HUT NAME<br>YEAR BUILT<br>NO. OF BUNKS<br>AMIS TECH ID# & STATUS | | COMMENTS |
|---|---|---|---|
| **EAST COAST / HAWKES BAY CONTINUED**<br>**Opotiki**<br>Te Urewera National Park | **Duckville biv**<br>1968<br>4 bunk<br><br>Tech ID 40207<br>Basic<br>Hut / Bivouac<br>Maintain |  | This hut is virtually intact, authentic example of the smaller NZFS 4–bunk hut/bivouac. It retains some interesting features, borne of the need to save space, including the cupboards under the bunks. The hut is a modest but important hut type to have survived intact. |
| **Opotiki**<br>Te Urewera National Park | **Waikokopu**<br>1968<br>4 bunk<br><br>**Tech ID 40203**<br>Basic<br>Hut / Bivouac<br>Minimal maintenance |  | This hut is a largely authentic example of a smaller 3/4–bunk hut/bivouac. Windows have been changed and a porch added but in most respects the hut retains its original fabric. The Dexion cladding, while not unique, is unusual in Te Urewera and, nationally, it remains rare. |
| **Opotiki**<br>Te Urewera National Park | **Casino**<br>1968<br>3 bunk<br><br>**Tech ID 40195**<br>Basic<br>hut / bivouac<br>Maintain |  | This hut is virtually intact, authentic example of a smaller 4–bunk hut / bivouac. The uniqueness or rarity of this design is not yet known although it is virtually identical to Duckville. It retains some interesting features, such as the cupboards under the bunks, borne of the need to save space. The hut is a modest but important type to have survived intact. |
| **Opotoki**<br>Te Urewera National Park | **Tataweka**<br>1963<br>6 bunk<br><br>**Tech ID 39264**<br>Standard Hut<br>Maintain |  | This is among the better preserved SF70 in New Zealand. It has benefited from sympathetic management over the years which, coupled with the hut's remote location, has also encouraged users to care for the hut. Its recent restoration was sensitively handled. It retains most of its original features and any missing have been carefully replaced. Most significantly, it retains minor features, such as the gun and magazine racks that are today, very rare. |
| **Gisborne**<br>Waioeka Conservation Area | **Kahunui**<br>1965<br>6 bunk<br><br>**Tech ID 38720**<br>Standard Hut<br>Maintain |  | This hut largely retains its authenticity as a standard SF70. It has been relatively little changed, and its recent restoration has been well handled. Its remote location has helped reduce visitor impact. It contains a hinged middle bunk, a rare and interesting feature. |

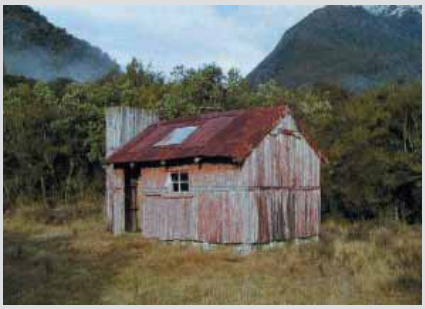
| CONSERVANCY & LOCATION | HUT NAME<br>YEAR BUILT<br>NO. OF BUNKS<br>AMIS TECH ID# & STATUS | | COMMENTS |
|---|---|---|---|
| **EAST COAST / HAWKES BAY CONTINUED**<br><br>**Hawkes Bay**<br>Kaweka Forest Park | **Makahu Saddle**<br>c.1957<br>4 bunk |  | This is a very rare survivor of the period prior to the adoption of the standard SF70 style of hut in 1958. As an example of an experimental Dexion-formed hut tested before the final designs were completed, it is significant for having survived and in relatively original condition. The addition of the moss lining so soon after the hut's construction adds an interesting element to the hut's significance; this may be the only example in New Zealand. This was one of the first Forest Service erected huts in the Kaweka and has had unusual history in that it was a typical hunting and recreational hut for an 11 year period and, since the construction of the Makahu Road, has been a road end hut. Seen in that light, its survival is quite surprising. Its significance for wild animal control operations is not yet known. |
| | **Tech ID 42206**<br>Standard Hut<br>Minimal maintenance |  | |
| **Hawkes Bay**<br>Kaweka Forest Park | **Back Ridge**<br>c.1957<br>4 bunk |  | This is a very rare survivor of the period prior to the adoption of the standard SF70 style of hut in 1958. This aluminium Dexion hut is an example of an experimental design tested before the final designs were settled on. The addition of the lining so soon after the hut's construction adds an interesting element to the hut's significance. For all that, it lacks the true authenticity and originality of Makahu Saddle; its recent renovation having removed, among other things, its fireplace. This was one of the first Forest Service erected huts in the Kaweka and has some significance for that. The hut's significance for wild animal control operations is not yet known. |
| | **Tech ID 42363**<br>Standard hut<br>Maintain |  | |

| CONSERVANCY & LOCATION | HUT NAME<br>YEAR BUILT<br>NO. OF BUNKS<br>AMIS TECH ID# & STATUS | | COMMENTS |
|---|---|---|---|
| **EAST COAST / HAWKES BAY CONTINUED**<br>**Hawkes Bay**<br>Ruahine Forest Park | **Sentry Box**<br>1960<br>4 bunk<br><br>**Tech ID 43448**<br>Standard hut<br>Remove (and not replace) |  | This is a relatively intact and authentic SF81, although it has suffered from its proximity to the road end and neglect, which has reduced its value somewhat. The historic significance of this hut rests partly on its early role in wild animal control, a role that ended when the hut lost its remoteness. The hut may have some association, at least nominally, with the earlier Sentry Box Hut and Poporangi Station. |
| **Hawkes Bay**<br>Ruahine Forest Park | **Smiths Stream**<br>1958<br>4 bunk<br><br>**Tech ID 42566**<br>Standard hut<br>Maintain |  <br>  | This is a relatively intact 4–bunk SF70, possibly the best preserved of all SF70s in the Ruahine. The hut has been well cared for and has also benefited from relatively little use. The respect hut users have shown reflects the value placed on the building. While this has no doubt been assisted by the hut's remoteness it is still a significant factor in its authenticity. The hut has a most attractive situation. |
| **HAWKES BAY** | Note that DOC has repainted many old NZFS huts in the Kaweka in their original orange colour | | |
| **TONGARIRO / TAUPO** | | | No historic WAC huts identified in the conservancy. |
| **WANGANUI**<br>**Palmerston North**<br>Ruahine Forest Park | **Waterfall**<br>1961<br>6 bunk<br><br>**Tech ID 42599**<br>Standard hut<br>Maintain |  | Along with Top Maropea this is one of two still largely unmodified huts in the Ruahine Forest Park. Original fireplace was retained and upgraded to current [2006] fire safety standards. |

| CONSERVANCY & LOCATION | HUT NAME<br>YEAR BUILT<br>NO. OF BUNKS<br>AMIS TECH ID# & STATUS | | COMMENTS |
|---|---|---|---|
| **Palmerston North**<br>Ruahine Forest Park | **McKinnon**<br>1960<br>6 bunk<br><br>**Tech ID 42588**<br>Standard Hut<br>Maintain |  | Relatively unchanged SF70. It has new interior linings and a new solid fuel heater has replaced the open fire. (See FMC Bulletin 150, Nov. 2002) |
| **Palmerston North**<br>Ruahine Forest Park | **Top Maropea**<br>1958<br>4 bunk<br><br>**Tech ID 42651**<br>Basic<br>hut / bivouac<br>Maintain |  | Along with Waterfall this is one of two huts still largely unmodified in the Ruahine Forest Park. An SF40 or S81 hut with the addition of a lean–to, it's original fireplace was retained and upgraded to current [2006] fire safety standards. |
| **WELLINGTON**<br><br>**Wairarapa**<br>Tararua Forest Park | **Mid–Waiohine**<br>1962<br>6 bunk<br><br>**Tech ID 9613**<br>Standard hut<br>Maintain |  <br>  | Built in 1962 by Noel Fraser, NZFS Ranger, for animal control purposes. Used extensively during summer for deer and goat control by cullers up until about 1987, and still used to this day by DOC for goat control. Hut (SF70) is still largely in original state with open fireplaces, some original bunks, etc. Only change is a new ceiling. Source: Joe Hansen, Wairarapa AO.<br>**Associated features:**<br>NZFS swingbridge 30 mins. downstream; gives access to Main Range side of Waiohine River & Aokaparangi Bivouac on bush edge. |

| CONSERVANCY & LOCATION | HUT NAME<br>YEAR BUILT<br>NO. OF BUNKS<br>AMIS TECH ID# & STATUS | | COMMENTS |
|---|---|---|---|
| **WELLINGTON CONTINUED**<br><br>**Kapiti**<br>Tararua Forest Park | **Maungahuka c.1962**<br>6 bunk |  | Built in 1961 by Noel Fraser and used extensively by NZFS cullers for deer and goat control up until about 1980 when aerial operations took control. The highest altitude hut in the range, it is now mainly used by trampers en–route along the main range. The hut affords spectacular views east and west. NZFS/DOC culler John McCann was married in this hut in 1994. An SF70 in near original condition but now without a fireplace as it's above the bushline. Ceiling is now lined. Managed with WT&MC.<br>**Associated features:**<br>The famous Tararua Peaks ladder is just south of the hut. |
| | **Tech ID 8590**<br>Standard hut<br>Replace – bigger size |  | |
| **Wairarapa**<br>Aorangi Forest Park | **Pararaki**<br>1964<br>6 bunk |  | The Aorangi was first hunted for animal control in 1927 by runholders and the Acclimatisation Society. In 1939 the DIA started operations and these continued under NZFS until 1971. Pararaki Hut was built in 1966 by Noel Fraser, Jim Henry and Athol Geddes, NZFS Rangers based in Masterton. Prior to this, possum researcher Les Pracy's camp / hut was 500 metres upstream. The hut is still the base for possum research work. It is an S70 in near original condition, with open fireplaces, some original bunks, etc. Only change is a new ceiling. |
| | **Tech ID 5511**<br>Standard hut<br>Maintain |  | |
| **NELSON/ MARLBOROUGH**<br><br>**South Marlborough**<br>Mount Richmond Forest Park | **Mt Fell**<br>1964<br>6 bunk |  | Little altered SF70 at the head of Timms Creek. Mt Fell is named for a passenger who died in a plane crash near the hut in 1942. |
| | **Tech ID 2814**<br>Standard Hut<br>Maintain | | |

| CONSERVANCY & LOCATION | HUT NAME<br>YEAR BUILT<br>NO. OF BUNKS<br>AMIS TECH ID# & STATUS | | COMMENTS |
|---|---|---|---|
| **NELSON / MARLBOROUGH CONTINUED**<br><br>**St Arnaud**<br>Mount Richmond Forest Park | **Cupola**<br>1962<br>8 bunk<br><br>**Tech ID 1528**<br>Standard hut<br>Maintain |  | Built for use as a Forest and Range Experiment Station of NZFS to gather data on chamois. It was modified to include windows alongside bunks so that staff could lie and observe chamois through binoculars. |
| **Motueka**<br>Richmond Forest Park | **Right Branch Wairoa**<br>1965<br>6 bunk<br><br>**Tech ID 852**<br>Standard<br>Maintain |  | NZFS SF70 in near original condition with original paint and number on roof. |
| **WEST COAST**<br><br>**Buller**<br>Stewardship Land | **Goat Creek**<br>1957<br>4 bunk<br><br>**Tech ID 13375**<br>Basic<br>hut / bivouac<br>Move to another location |  | An early (pre–NZFS standard) design, relatively unmodified, from Nelson Conservancy. Listed as built in 1960 on Tech ID but built in 1957. Materials dropped by Beaver plane. Hut not built to original specs (only built to 12' x 8' instead of 12' x 10') because dropped timbers were damaged. Timber from the bush was used to compensate. (Snow Corboy was in charge at the time.) |
| **Buller**<br>Stewardship Land | **Johnston 1957**<br>4 bunk<br><br>**Tech ID 9000**<br>Basic<br>hut / bivouac<br>Minimal<br>Maintenance |  | Like Goat Creek, an early (pre–NZFS standard) design, relatively unmodified, from Nelson Conservancy. Listed as built in 1960 on Tech ID but built in 1957. Materials dropped by Beaver plane. |
| **Buller**<br>Kahurangi National Park | **Kakapo**<br>1958<br>4 bunk<br><br>**Tech ID 48698**<br>Basic<br>hut / bivouac<br>Minimal<br>maintenance |  | A later example of a pre–NZFS standard design, relatively unmodified, from Nelson Conservancy. The materials for this hut were flown in by helicopter, a couple of days after those for Luna Hut, and it is probably NZ's oldest helicopter flown hut still on its original site. |

| CONSERVANCY & LOCATION | HUT NAME<br>YEAR BUILT<br>NO. OF BUNKS<br>AMIS TECH ID# & STATUS | | COMMENTS |
|---|---|---|---|
| **WEST COAST CONTINUED**<br>**Buller**<br>Stewardship Land | **Mokihinui Forks**<br>1960<br>6 bunk<br>**Tech ID 13377**<br>Basic hut / bivouac<br>Maintain |  | Original 6-bunk design. |
| **Hokitika**<br>Stewardship Land | **Old Cedar Flat**<br>1957<br>4 bunk<br>**Tech ID 48182**<br>Basic hut / bivouac<br>Minimal maintenance |  | The Old Cedar Flat Hut is the older of two huts at the site (built in 1957), the later one being a standard 6–bunk built in 1968. This is a rare example of NZFS design, built at a time when NZFS conservancies were trialling their own designs. It is the best representative of this type left on the West Coast. |
| **Hokitika**<br>Whitcombe Pass<br>Stewardship Land | **Prices Flat**<br>1949<br>4 bunk<br>**Tech ID 12993**<br>Basic hut / bivouac<br>Maintain |  <br>  <br>  | This slab hut was built in 1949 by Tom Lyes and Noel Bonnington. It was built partially from materials taken from an old hut sited at Vincent Creek. Iron was rolled up and packed in to Prices. Some timber was cut from the bush, and some hut materials were air dropped – "Malthoid and netting in 4ft lengths was well packed in straw and dropped without chutes on a rough shingle bed at Price Flat & were received undamaged. In the same way tools, nails etc were packed & free dropped & received undamaged".[1] Concrete floor dates from 1957. The hut was upgraded by the NZFS in 1983. There are some unusual construction features, e.g. the framing. It is a well preserved link with early deer culling. www.doc.govt.nz/Conservation/Historic/ |
| **Hokitika**<br>Stewardship Land | **Mungo**<br>**1971**<br>4 bunk<br>**Tech ID 12985**<br>Basic hut / bivouac<br>Minimal maintenance |  | Good authentic example of a 4-bunk hut. |

[1] Internal Affairs file 48/10/2 pt2, report from E. R. Rye

| CONSERVANCY & LOCATION | HUT NAME<br>YEAR BUILT<br>NO. OF BUNKS<br>AMIS TECH ID# & STATUS | | COMMENTS |
|---|---|---|---|
| **WEST COAST CONTINUED**<br><br>**Hokitika**<br>Stewardship Land | **Browning Range Biv**<br>1960<br>4 bunk<br><br>**Tech ID 45711**<br>Basic hut / bivouac<br>Maintain |  | A small culler's bivouac located at the treeline (1080 m). This is a good example of a B49 bivouac, built two years after the design was introduced. In largely original condition with original culler's kerosene lamps and a small library of books. (See FMC Bulletin, Nov 2002) |
| **Hokitika**<br>Stewardship Land | **Rocky Creek**<br>1970<br>2-bunk<br><br>**Tech ID 48781**<br>Basic hut / bivouac<br>Minimal maintenance |   | New hut design B143. High alpine hut of West Coast design. |
| **Hokitika**<br>Stewardship Land | **Moonbeam**<br>1964<br>6 bunk<br><br>**Tech ID 46268**<br>Basic hut / bivouac<br>Maintain |   | Good example of a 6–bunk hut. |
| **Hokitika**<br>Stewardship Land | **Griffin**<br>1964<br>5 bunk<br><br>**Tech ID 48787**<br>Basic hut / bivouac<br>Maintain |   | A rare 5-bunker, with a bath. |
| **Hokitika**<br>Stewardship Land | **Frew Saddle**<br>1957<br>2 bunk<br><br>**Tech ID 48661**<br>Basic hut / bivouac<br>Maintain |   | A largely intact B49 bivouac erected the first year bivvies were built on the West Coast. Constructed to help with the subalpine deer problem. |
| **Hokitika** | **Old Julia**<br>1958<br>4 bunk<br><br>**Tech ID 14828**<br>Basic hut / bivouac<br>Maintain |  | Different (non–standard) design from other 1958 huts. Timbers cut from bush. |

| CONSERVANCY & LOCATION | HUT NAME<br>YEAR BUILT<br>NO. OF BUNKS<br>AMIS TECH ID# & STATUS | | COMMENTS |
|---|---|---|---|
| **WEST COAST CONTINUED**<br>**Hokitika**<br>Stewardship land | **Top Kokatahi**<br>1957<br>2 bunk<br>**Tech ID 45719**<br>Basic<br>hut / bivouac<br>Minimal<br>maintenance |   | A largely intact B49 bivouac erected the first year bivvies were built on the West Coast. Constructed to help with the subalpine deer problem. |
| **Hokitika**<br>Stewardship land | **Top Crawford**<br>1957<br>2 bunk<br>**Tech ID 45858**<br>Basic<br>hut / bivouac<br>Minimal<br>maintenance |  | A largely intact B49 bivouac erected the first year bivvies were built on the West Coast. Constructed to help with the subalpine deer problem. |
| **Hokitika**<br>Stewardship land | **Mikonui Spur**<br>**1967**<br>2 bunk<br>**Tech ID 45720**<br>Basic<br>hut / bivouac<br>Maintain |   | A good example of a later bivouac design – B55 – built in the late 1960s. Left: tie down anchor |
| **Hokitika**<br>Stewardship land | **Gerhardt Spur**<br>1972<br>2 bunk<br>**Tech ID 48580**<br>Basic<br>hut / bivouac<br>Maintain |  | B142 bivouac – one of two built (the other is Top Olderorg) – similar layout design to B143 High Alpine Hut. This was the last innovation in West Coast bivouacdesign. |
| Hokitika<br>Stewardship land | **Pollock Creek**<br>1962<br>6 bunk<br>**Tech ID 45852**<br>Basic<br>hut / bivouac<br>Minimal<br>maintenance |  | Good example of a 6–bunk hut. |

| CONSERVANCY & LOCATION | HUT NAME<br>YEAR BUILT<br>NO. OF BUNKS<br>AMIS TECH ID# & STATUS | | COMMENTS |
|---|---|---|---|
| **WEST COAST CONTINUED**<br>**Franz Joseph**<br>Stewardship land | **Butler Junction**<br>1964<br>8 bunk<br>**Tech ID 15145**<br>Standard hut<br>Maintain |  | Good condition, needs some repiling, stoves and polythene water tank are recent additions. Originally a 4 bunk, later expanded with the addition of another 4-bunk hut<br>**Associated features:**<br>Swing bridge & tracks |
| **Greymouth**<br>Waiheke River Track<br>Stewardship Land | **Slaty Creek**<br>1952<br>6 bunk<br>**Tech ID 13844**<br>Basic hut / bivouac<br>Non–Visitor DOC Management |  | Significant for its now rare beech slab construction and as an early example of an Internal Affairs WAC hut built by cullers.<br>www.doc.govt.nz/Conservation/Historic/ |
| **Greymouth**<br>Victoria Forest Park | **Lake Stream**<br>1968<br>2 bunk<br>**Tech ID 14777**<br>Basic hut / bivouac<br>Maintain |   | This is a 2–bunk hut – one of two in West Coast of this design, (the other is Top Hut). |
| **Greymouth**<br>Victoria Forest Park | **Mid Robinson**<br>1969<br>6 bunk<br>**Tech ID 13654**<br>Standard hut<br>Maintain |  | Good example of a 6–bunk hut.<br>**Associated features:**<br>Swing bridge & tracks |
| **South Westland**<br>Stewardship land | **Tunnel Creek**<br>1965<br>6 bunk<br>**Tech ID 15661**<br>Basic hut / bivouac<br>Minimal maintenance |  | Good example of a 6-bunk hut.<br>**Associated features:**<br>Tracks |

| CONSERVANCY & LOCATION | HUT NAME<br>YEAR BUILT<br>NO. OF BUNKS<br>AMIS TECH ID# & STATUS | | COMMENTS |
|---|---|---|---|
| **WEST COAST CONTINUED**<br>**South Westland**<br>Stewardship land | **Lansborough Rangers**<br>1941<br>**Tech ID 15770**<br>Basic hut |  | Two ex–Public Works Department tent frame huts joined with a porch. Contains interesting historic graffiti on framing recording DIA deer cullers and their work history.<br>**Associated features:**<br>Horse paddock, airstrip, track, exotic plantings (trees) |
| **CANTERBURY**<br>**Waimakariri**<br>Mt White Station Pastoral Lease | **Nigger**<br>1959<br>2 bunk<br>**Tech ID 10873**<br>Basic hut / bivouac<br>Dilapidated.<br>Remove |  | Used for NZFS deer control, and by the New Zealand Wildlife Service for a Canada Goose study in the Canterbury high country c.1964–1972. |
| **Waimakariri**<br>Arthur's Pass National Park | **Minchin Biv**<br>1958<br>2 bunk<br>**Tech ID 10803**<br>Basic hut / bivouac<br>Maintain |  | Used for NZFS deer control; later used by trampers on a classic main divide tramp. Can be regarded as the simplest type of biv, with no fireplace and overlapping bunks. (See FMC Bulletin 150, Nov. 2002) |
| **Waimakariri**<br>Lake Sumner Conservation Park | **Doubtless**<br>1966<br>6 bunk<br>**Tech ID 11214**<br>Standard hut<br>Maintain |  | In near original condition. Flat iron exterior, corrugated iron roof, building paper and plywood interior lining and tongue and groove (T&G) timber floor. |
| **Waimakariri**<br>Pastoral Lease | **Lake Guyon**<br>1964<br>4 bunk<br>**Tech ID 11200**<br>Standard hut<br>Maintain |  | Built with porch, fireplace and chimney. In near original condition. Flat iron exterior, corrugated iron roof, hardboard interior lining and T&G timber floor. Wood stove in old fireplace. |

| CONSERVANCY & LOCATION | HUT NAME<br>YEAR BUILT<br>NO. OF BUNKS<br>AMIS TECH ID# & STATUS | | COMMENTS |
|---|---|---|---|
| **CANTERBURY CONTINUED**<br>**Waimakariri**<br>St James Station/Lake Sumner Conservation Park | **Rokeby**<br>**1955**<br>3 bunk<br>**Tech ID 11063**<br>Basic hut / bivouac<br>Minimal maintenance |  | In largely original condition, flat iron exterior cladding, corrugated iron roof and concrete floor. (Bunks arranged 2 along side wall and 1 across the end) |
| **Waimakariri**<br>Pastoral lease | **Jervois**<br>**1955**<br>3 bunk<br>**Tech ID 11205**<br>Basic hut / bivouac<br>Minimal maintenance |  | In largely original condition, flat iron exterior cladding, corrugated iron roof and concrete floor. (Bunks arranged 2 along side wall and 1 across the end) |
| **Waimakariri**<br>Lake Sumner Conservation Park | **Evangaline**<br>1964<br>2 bunk<br>**Tech ID 11217**<br>Basic hut / bivouac<br>Maintain |   <br>Above: in snow 2004.<br>Right: in spring 2002. | Built with a fireplace and chimney. In original condition. Flat iron exterior, corrugated iron roof, building paper and plywood lining and T&G timber floor. |
| **Twizel**<br>Hopkins Conservation Area | **Dasler Biv**<br>1966<br>2 bunk<br>**Tech ID 12725**<br>Basic hut / bivouac<br>Maintain |  | Retains original form and materials and is a very good example of a 2-bunk WAC hut. At 1220 metres above sea level it is the highest such bivouac in the Twizel area and possibly Canterbury. www.doc.govt.nz/Conservation/Historic/ |
| **Twizel**<br>Ohau Conservation Area | **Erceg**<br>1966<br>(1970 in AMIS)<br>4 bunk<br>**Tech ID 12731**<br>Basic hut / bivouac<br>Maintain |  | Built with porch and without a fireplace and chimney. In near original condition, with flat iron exterior, corrugated iron roof and T&G timber floor. One change – building paper lining replaced with hardboard. |

| CONSERVANCY & LOCATION | HUT NAME<br>YEAR BUILT<br>NO. OF BUNKS<br>AMIS TECH ID# & STATUS | | COMMENTS |
|---|---|---|---|
| **CANTERBURY CONTINUED**<br><br>**Twizel**<br>Dobson Valley<br>Ohau Conservation Area | **Reardon Bivouac**<br>1967<br>2 bunk bivouac<br><br>**Tech ID 12490**<br>Basic<br>hut / bivouac<br>Maintain |  | Named after Forest Service deer culler Johnny Reardon (still alive and living in Napier). He provided details of the tragic death of Jim Kennedy, killed by an avalanche in the Dobson while hunting at high–level on 4 August 1955. There is a monument plaque to him in the Dobson, and Kennedy Memorial Hut (built in 1970) is named after him. Built with a fireplace and chimney. In original condition. Flat iron exterior, corrugated iron roof, building paper lining and T&G wooden floor. |
| **Twizel**<br>South Huxley River | **South Huxley Biv**<br>1962<br>2 bunk<br><br>**Tech ID 12479**<br>Basic<br>hut / bivouac<br>Maintain |  | 'Crawl–in' or 'food store type' bivouac with fire place. In original condition. Flat iron walls, corrugated iron roof, building paper lining and T&G timber floor. No bunks. |
| **Raukapuka**<br>Clyde Forest | **McCoy**<br>1961<br>6 bunk<br><br>**Tech ID 11666**<br>Standard hut<br>Maintain |  | In original condition. Flat iron exterior, corrugated iron roof, building paper and hardboard interior lining, and T&G wooden floor. Open fire and standard chimney. |
| **Raukapuka**<br>Lawrence River | **Lawrence Bivouac**<br>1965<br>2 bunk<br><br>**Tech ID 11661**<br>Basic hut/<br>bivouac<br>Maintain |  | A 'crawl–in' or 'food store type' of bivouac – no fireplace, but in largely original condition. Flat iron walls, corrugated iron roof, lined with building paper (malthoid) and plywood floor. No bunks. |

| CONSERVANCY & LOCATION | HUT NAME<br>YEAR BUILT<br>NO. OF BUNKS<br>AMIS TECH ID# & STATUS | | COMMENTS |
|---|---|---|---|
| **SOUTHLAND**<br><br>**Te Anau**<br>**Grebe Valley**<br>Fiordland National Park | **Clark**<br>1940<br>4 bunk<br><br>**Tech ID 19352**<br>Basic<br>hut / bivouac<br>Maintain |  | Built by Archie Clark for Internal Affairs' hunters. Last remaining split beech log hut, and the last remaining deer culler's hut in Fiordland National Park. Representative of the type of building constructed and used by deer cullers in back country. Strongly associated with the Yerex era of deer culling, it provides the visitor with an insight into the work, living conditions and lifestyle of the Internal Affairs deer culler.<br>www.doc.govt.nz/Conservation/Historic/ |
| **Murihiku**<br>Fiordland National Park | **Aparima**<br>1962<br>3 or 4 bunk<br><br>**Tech ID 45474**<br>Basic<br>hut / bivouac<br>Move to Another Location |  | Base hut for Takatimu deer culling operations. In largely original condition and not lined out in hardboard. Built by deerstalkers hired by NZFS. Source: John Van Tunzleman |
| **Murihiku**<br>Rodger Inlet<br>Fiordland National Park | **Rodger Inlet (Hut 5)**<br>1940s<br>2 bunk<br><br>**Tech ID 19420**<br>Basic<br>hut / bivouac<br>Maintain |  | Small, weatherboard hut with two bunks and open fire. Of significance as a surviving Internal Affairs hut built for deer control work in the 1940s. The only weatherboard hut in Fiordland National Park. Still used by school parties, fishermen, boaties, hunters and trampers.<br>**Associated features**: 'A' (A–frame) built nearby for hydro–electric works in 1970 |
| **Te Anau**<br>Fiordland National Park | **Caswell Sound**<br>1949<br>4 bunk<br><br>**Tech ID 47032**<br>Basic<br>hut / bivouac<br>Maintain |  <br>  | Built as a base/store for 1949 New Zealand–American Fiordland Expedition studying wapiti, originally released in 1905 for hunting. This hut is the only structure remaining from the expedition. Built of rimu framing covered with wire mesh, malthoid and corrugated iron. A large fireplace is at one end, with a door in the front wall and two 4–pane windows. Over years there have been minor modifications to keep it weatherproof and repaired. From 1954 to the mid–1960s the hut was used as an emergency supply base for amphibian aircraft. It has largely been used as a hunting hut since then.<br>www.doc.govt.nz/Conservation/Historic/ |

# Appendix 2: Philosophical basis

Prepared by Paul Mahoney, Research, Development and Improvement, Department of Conservation

## HIERARCHY OF THEMES FOR RESEARCH AND ANALYSIS:

Over–arching theme: Evolution of the Environment
Bottom line outcome: Huts

**1. Holistic New Zealand** ☑

Evolution of Environment

Peopling New Zealand

Developing Economies

Building Settlements

Working

Educating

Governing

Cultural Life

Phases of Life

The 2001 Australian Heritage Commission Framework of nine lead themes is used as the starting point. A NZ national framework may in future be developed at this level.

**2. Evolution of Environment** ☑

Natural environment

Historic environment

Land and townscapes ... perhaps more

Moderate the boundary effects

The effects of separating total environment out from holistic New Zealand.

**3. Natural Environment** ☑

Natural ecosystems

Natural change processes

Pollution

Introduced pests

Legal protection systems ... obviously more

Moderate the boundary effects

The effects of separating natural environment from total environment.

**4. Introduced Pests** ☑

Pre–pest snapshot

Introduction of pests (animals, plants, etc)

Impacts and political realisation

Pest control programmes ... perhaps more

Moderate the boundary effects

The effects of separating introduced pests out from the natural environment.

**5. Pest Control Programmes** ☑

Rabbits

Animal control programmes

Weeds

Other pests (marine, insects etc) ... perhaps more

Moderate the boundary effects

The effects of separating pest control programmes out from introduced pests

**Example of moderating a boundary effect.**

The animals that became pests were deliberately introduced with great enthusiasm and were foreseen to become valuable assets, not pests. Some of the positive values cited were:

- Tourist potential of hunting & fishing
- Cultural identity with the outdoors at 'home'
- Free public access to forests
- Hunting & fishing as a recreation for all
- Valuable resource for industry e.g. possum fur

These need to be taken into account and may give rise to a heritage arising from the positive values.

**6. Animal Control Programmes (WAC)** ☑

- Detailed history overview of all animals.
- Detailed account of what happened on the ground and the types of place–based heritage created. [routes, airstrips, camp sites, huts, etc].
- Broader view of other aspects of this heritage. [armaments, folklore, trophies, etc]
- Overview of what types of heritage survive.
- Analysis of the historic, fabric, and cultural significance of the programmes.
- Broad recommendations on conservation and interpretation priorities for place–based heritage of animal control programmes.
- Some indicative key heritage places.
- A template for evaluating WAC heritage ... perhaps more

- Moderate the boundary effects

  The effects of separating animal control programmes from [1] pest control programmes, [2] from animal recovery programmes, and [3] from sport hunting. May set some time limits say 1923 to 1973, to avoid effects of animal recovery programmes.

**7. WAC Huts** ☑

- History overview of huts; role, use etc.
- Fabric and design of huts built.
- Full inventory of huts constructed.
- Full inventory of surviving huts, including their condition and future use.
- Some key huts identified
- A template for evaluating WAC huts ... perhaps more topics
- Moderate the boundary effects

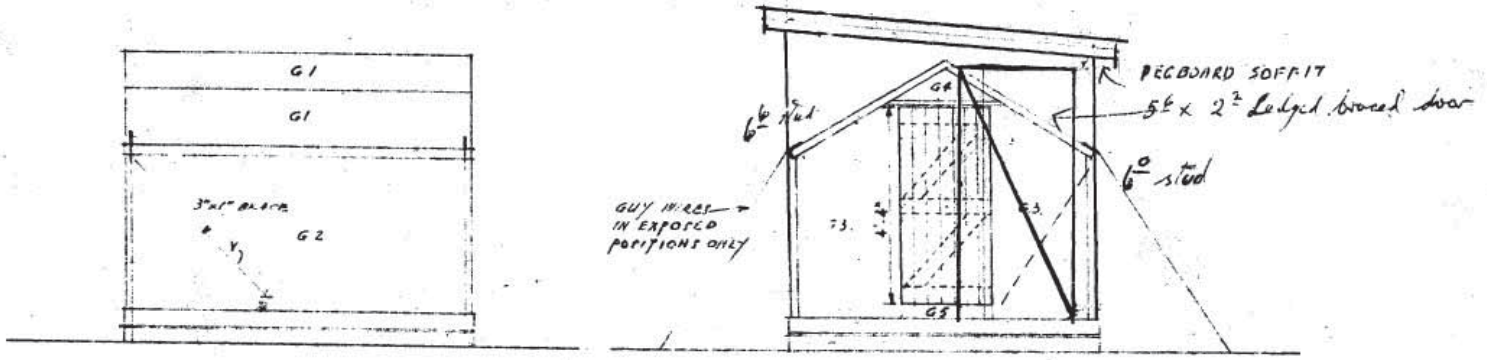
The effects of separating huts out from the broader heritage of animal control programmes.

# Appendix 3: NZFS Hut plans

Sources:

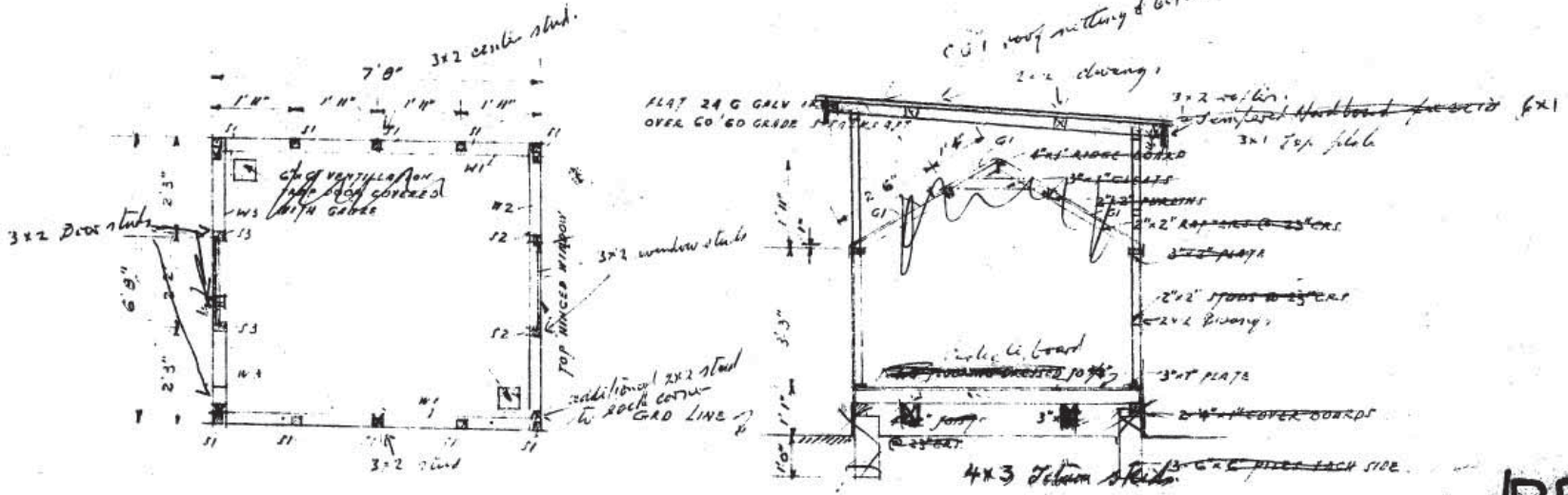
DOC Hawkes Bay Area Office Microfiche Collection, courtesy of Dick Clark, Napier Area Office, East Coast Hawkes Bay Conservancy and DOC West Coast Conservancy courtesy of Jackie Breen.

Index:




SIDE ELEVATION

END ELEVATION



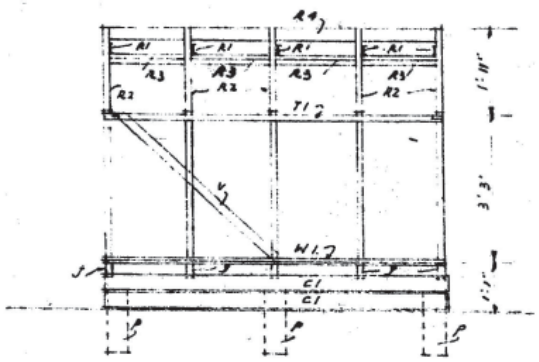

PLAN

Collapsible

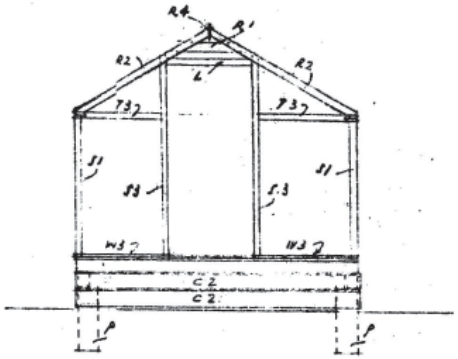
SECTION

E PF 4

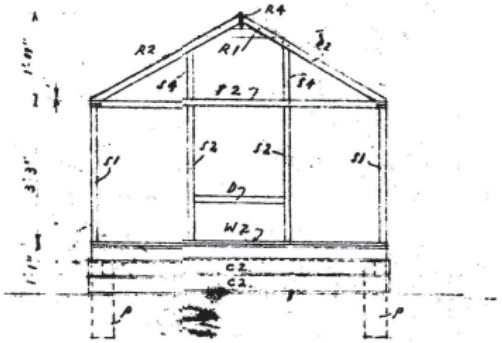
| | | | |
|---|---|---|---|
| DRAWN R.A.H | BIVOUAC FOR D.P.F. 6'8" x 7'9" | FILE No. 4/10/5 N.A. | S. 86 |
| CHECKED CM | PLAN ELEVATIONS & CROSS SECTION | SCALE - 3/8"=1'0" | SHEET 1 OF 4 SH |
| APPROVED | N.Z. FOREST SERVICE WELLINGTON | DATE 15:8:1957 | |



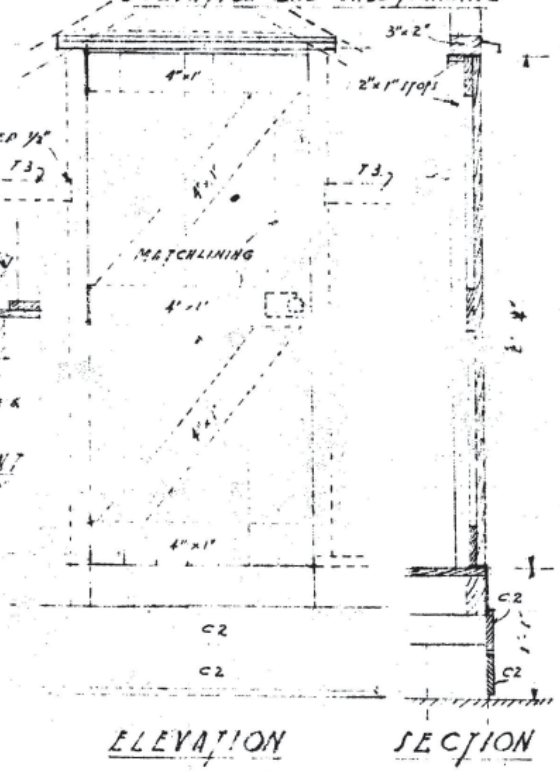
ELEVATION - SIDE WALL FRAMING



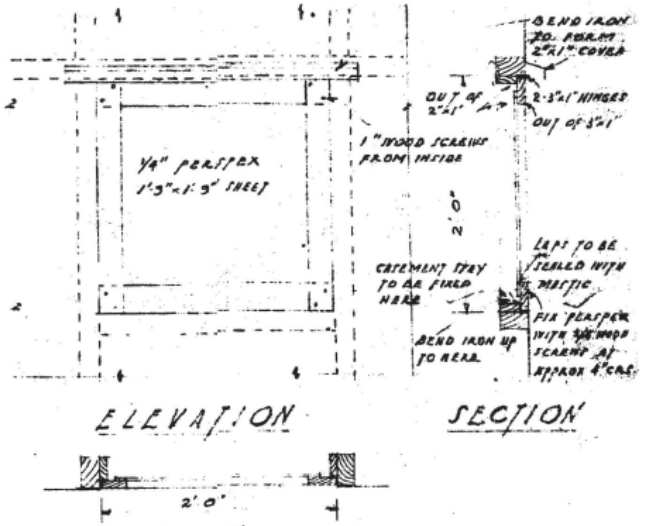
ELEVATION - END WALL FRAMING



ELEVATION END WALL FRAMING


ELEVATION SECTION




DETAILS - "O" HUNG WINDOW

— SCALE - 1" = 1'0" —

## FOUNDATION & FLOOR

SCHEDULE OF QUANTITIES - DOOR, WINDOW, FLOOR, TRAPS

DOOR - (APPROX 110 lbs)

1 ENTRANCE DOOR COMPLETE WITH HINGES AND LATCH AS SHOWN

2 BATTENS 4'4" LONG AND 1-2'6" LONG DRESSED OUT OF 2"x1" FOR DOOR STOPS

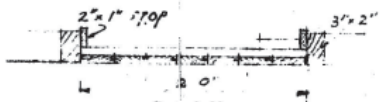
WINDOW - (APPROX 15 lbs)

1 FRAMED PERSPEX WINDOW AS SHOWN COMPLETE WITH HINGES & CASEMENT STAY

4 WINDOW STOPS DRESSED OUT OF 2"x1" - 2'0" LONG

FLOOR TRAPS

TWO FLOOR TRAP VENTILATORS COMPLETE WITH HINGES, SCREW-IN PULLS, PLYPROOF COPPER GAUZE AND 8 - 1 1/2"x1/2" x 6' LONG BEADINGS AS SHOWN




DETAILS OF DOOR

— SCALE - 1" = 1'0" —

SPECIFICATION - DOOR & WINDOW

TIMBER TO BE PRESSURE TREATED DRESSING GRADE RADIATA PINE OR EQUIVALENT, WELL SEASONED & DRESSED. EACH ITEM TO BE MADE UP COMPLETE BEFORE TRANSPORTING TO SITE.

SHEET 2 OF 4 SHEETS

| | | | | |
|---|---|---|---|---|
| DRAWN | RAH | 2/2/57 | BIVOUAC FOR D.P.F. 6'8"-7'8" | 5 / 86 |
| TRACED | | | DETAILS OF FOUNDATIONS, WALL & ROOF FRAMING. WINDOW & DOOR. | SCALE 3/8" & 1" = 1'0" |
| CHECKED | [illegible] | 7/2/57 | | |
| APPROVED | | | | |

N.Z. FOREST SERVICE, WELLINGTON.

| NUMBER | TIMBER SIZE | LENGTH | DESCRIPTION | MARK | INSTRUCTIONS | QUANTITY |
|---|---|---|---|---|---|---|
| | 6"x6" | 8'6" | 6/1'5" PILES | P | CUT ON SITE | 22·5 |
| 2 | 3"x3" | [illegible] | OUTSIDE SLEEPER PLATES | Z. | PRECUT | 11·5 |
| 5 | 4"x2" | [illegible] | FLOOR JOISTS | J | " | 22·1 |
| 4 | 4"x1" | 7'8" | COVER BOARDS AT SIDES | C1. | " | 10·1 |
| 4 | 4"x1" | 6'10 | " " " " ENDS | C2 | " | 9·1 |
| 2 | 3"x1" | 7'2" | BOTTOM WALL PLATES AT SIDES | W1. | " | 3·6 |
| 1 | 3"x1" | 6'8" | " " " " ENDS | W2 | " | 1·66 |
| 2 | 3"x1" | 2'4" | " " " " " | W3. | " | 1·17 |
| 2 | 3"x2" | 7'8" | TOP " " SIDES | T1. | " HALV. JOINTS AT ENDS | 7·7. |
| 1. | 3"x2" | 6'8" | TOP " " END. | T2 | " " " " " | 3·33 |
| 1. | 3"x2" | 4'5" | 2/2'2½" " " " | T3 | " " " " 1 END & CHECK ½" INTO DOOR STUD | 2·3 |
| 1 | 3"x2" | 2'0" | BELOW WINDOW OPENING | D | PRECUT | 1·00 |
| 1 | 3"x2" | 2'0" | LINTEL OVER DOOR | L | " | 1·00 |
| 2 | 3"x1" | 5'0" | WALL BRACING | V | CUT ON SITE, CHECKED INTO PLATES & NAILED INSIDE FACE OF STUDS | 2·5 |
| 10 | 2"x2" | 3'0" | STUDS | S1. | PRECUT | 10·0 |
| 2 | 3"x2" | 8'0" | WINDOW STUDS | S2. | " | 3·0 |
| 2 | 3"x2" | 4'7" | DOOR STUDS | S3 | CUT & CHK ON SITE | 4·56 |
| 1 | 3"x2" | 2'8" | 2/1'4" END WALL JACK STUDS | S4 | " " " " | 1·33 |
| 5. | 3"x1" | 2·0" | CLEATS | R1. | CUT ON SITE | 2·5 |
| 10 | 2"x2" | 3'10" | RAFTERS | R2 | PRECUT SHAPE FROM A TEMPLATE | 12·8 |
| 2 | 2"x2" | 7'0" | 4/1'3", 4/1'8" PURLINS | R3. | CUT ON SITE | 4·66 |
| 1 | 4"x1" | 7'8" | RIDGE BOARD | R4 | PRECUT | 2·5 |
| 2 | 4"x2" | 4'4" | 4/1'8", 4/6 FLOOR TRAP TRIMMERS | X | CUT ON SITE | 5·77 |
| 52 SQ FT | OUT OF 6"x1" | 7'8" | T. & G. FLOORING | Y | PRECUT | 52·00 |
| | | | ALLOWING 35 LBS. PER CUB FT - WEIGHT OF TIMBER = 5[illegible] LBS | | | 201·68 BF |

## MISCELLANEOUS

CO. LIN FT. GO/GO GRADE "SISALKRAFT" 3'0" WIDE
1 QUART "CARBOLASTIC" FOR PRINTING INSIDE OF SHEATHING & [illegible]
1 QUART TIN PRIMER FOR PRINTING OUTSIDE OF SHEATHING
1 QUART TIN TANGERINE PAINT FOR FOR OUTSIDE OF SHEATHIN
1 LB 1¼"x 16G GALVD CLOUTS FOR FIXING SHEATHING
1 PKT TACKS TO HOLD "SISALKRAFT" IN PLACE WHILE FIXING SHEATHING
3 LBS - 4" NAILS FOR FRAMING (ROSEHEADS)
1 LB - 2½" NAILS FOR FRAMING (ROSEHEADS)
3 LBS 3" NAILS FOR FRAMING (ROSEHEADS)
1 LB - 2" FLOOR BRADS

WEIGHT APPROX 24 LBS.

24 GAUGE FLAT GALVD. IRON

| NUMBER | SIZE | POSITION | MARK | INSTRUCTIONS |
|---|---|---|---|---|
| 3 | 8'0"x3'0" | ROOF | G1 | STANDARD SHEETS |
| 2 | 8'0"x4'0" | SIDE WALLS | G2 | |
| 4 | 5'0"x3'0" | END WALLS | G3 | CUT TO SHAPE ON SITE |
| 1 | 2'6"x1'0" | GABLE OVER DOOR | G4 | |
| 1 | 2'6"x6" | BELOW DOOR | G5 | PRECUT |
| 1 | 2'6"x2'0" | GABLE OVER WINDOW | | CUT TO SHAPE ON SITE |
| 1 | 2'6"x1'6" | BELOW WINDOW | | PRECUT |

AREA OF SHEATHING 203 SQ FT @ 18½ OZS PER SQ FT = 242 LBS

APPROX. TOTAL WEIGHT OF MATERIALS 856 LBS

## SPECIFICATION

TIMBER - TIMBER TO BE AS SPECIFIED BELOW OR EQUIVALENT. FLOORING JEG 1ST GRADE TREATED RADIATA PINE. SUB-FLOOR TIMBER PRESSURE TREATED NO 1. FRAMING GRADE RADIATA PINE. FRAMING TIMBER TREATED NO 1. FRAMING GRADE RADIATA PINE. ALL TIMBER TO BE WELL SEASONED

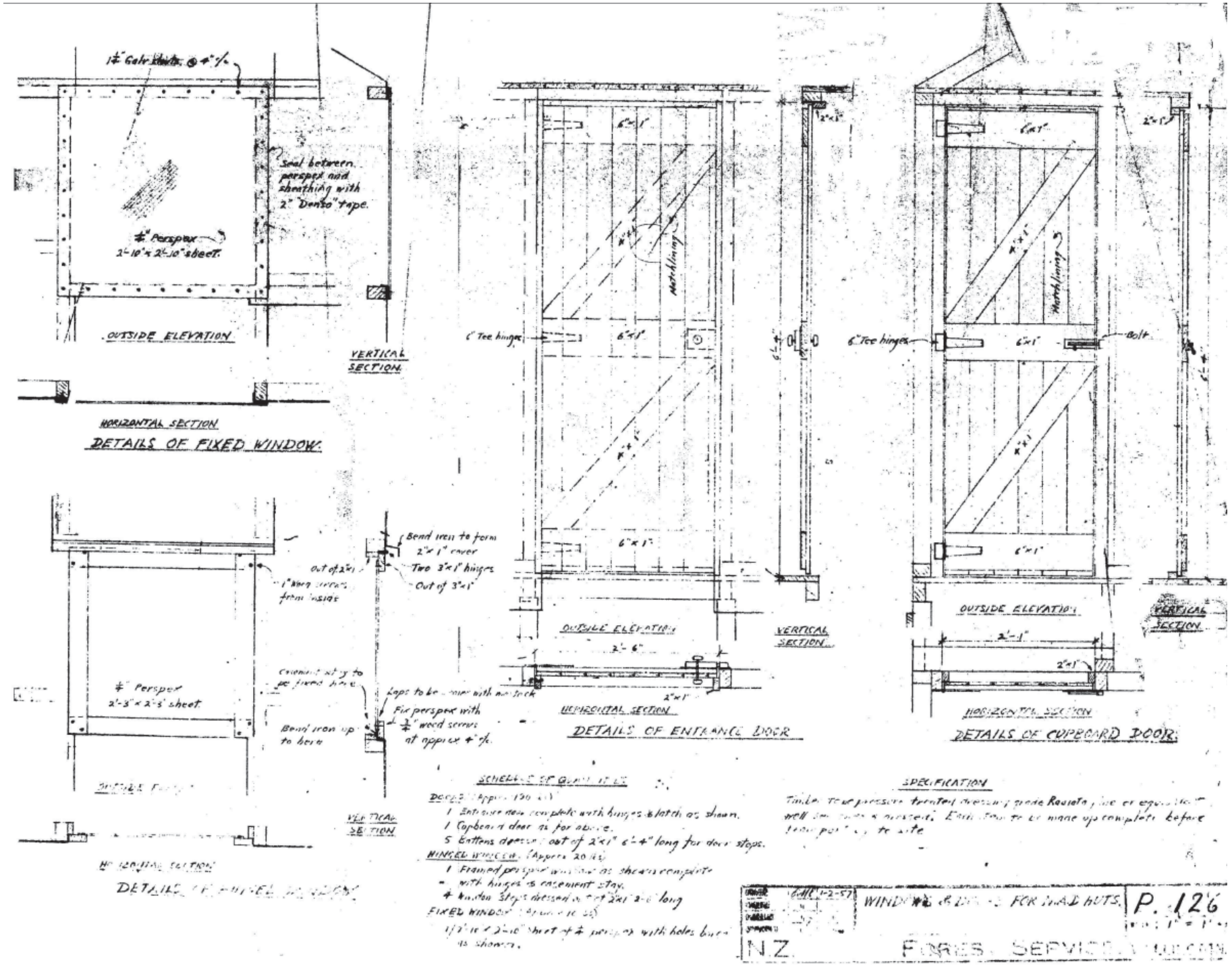
AIR DROPPING: ALL MATERIALS TO BE PARACHUTED TO SITE

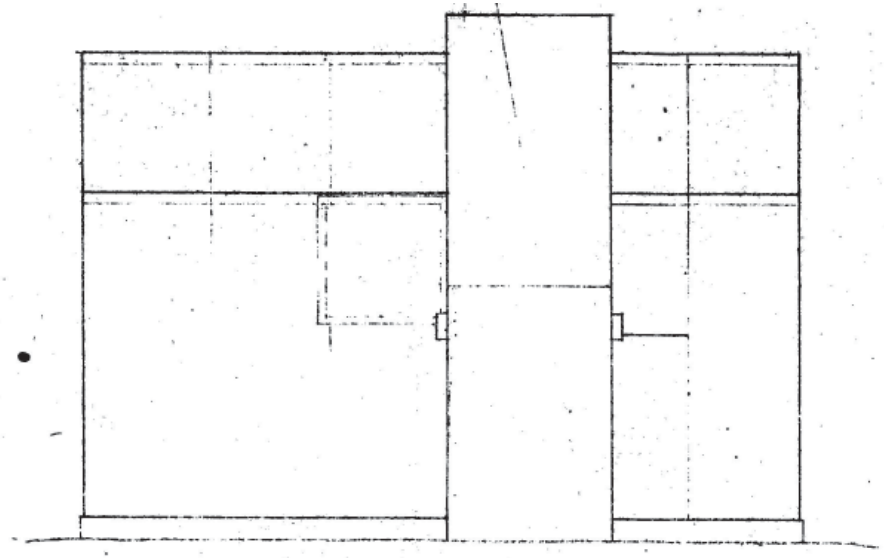
SHEATHING - THE OUTSIDE OF WALL ~~FRAMING~~ FRAMING TO BE COVERED WITH GO/GO GRADE "SISALKRAFT" TACKED IN PLACE. FLAT IRON SHEETS TO BE PRINTED ON THE INSIDE AND UNDER LAPS WITH "CARBOLASTIC" JUST BEFORE PLACING IN POSITION TO ENABLE "SISALKRAFT TO ADHERE TO SAME. SHEATHING TO BE FIXED WITH GALVD. CLOUTS ~~SHEATHING TO BE FIXED WITH CLOUTS~~ AT 6" CRS. ALONG ALL LAPS, FRAMES AND PURLINS. OUTSIDE OF SHEATHING TO BE PRIMED AND PAINTED TANGERINE. EACH HUT WILL BE ALLOCATED A NUMBER TO BE PAINTED ON ONE SIDE OF ROOF WITH BLACK PAINT. FIGURES TO BE 3'0" HIGH WITH STROKES 4" WIDE

GUY WIRES THESE MAY BE OMITTED WHEN HUT IS BUILT ON A SHELTERED SITE

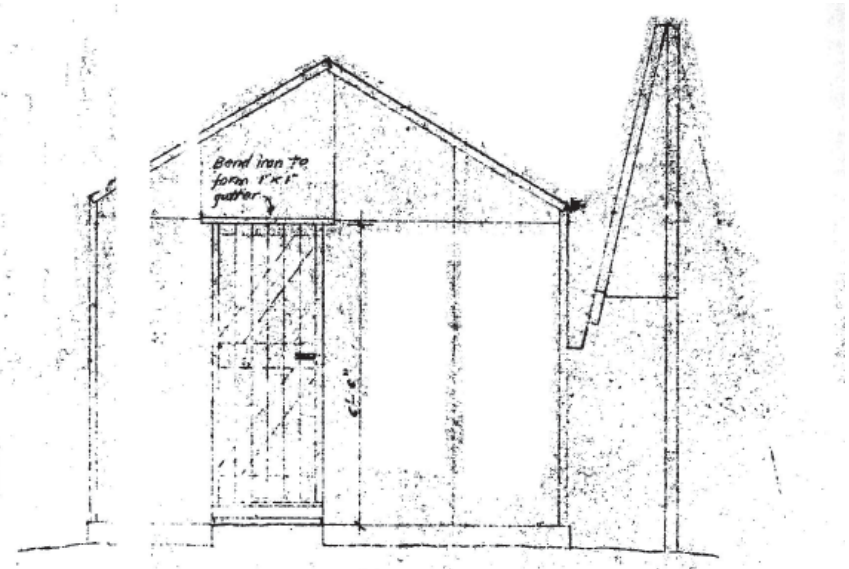
SHEET 4 OF 4 SHEETS

| | | | | |
|---|---|---|---|---|
| DRAWN | RAH | 3/2 | BIVOUAC FOR D.P.F. 6'8"x7'8" | S 86 |
| TRACED | | | SCHEDULE OF QUANTITIES & SPECIFICATION | |
| CHECKED | [illegible] | " | | SCALE |
| APPROVED | | | N.Z. FOREST SERVICE, WELLINGTON | |

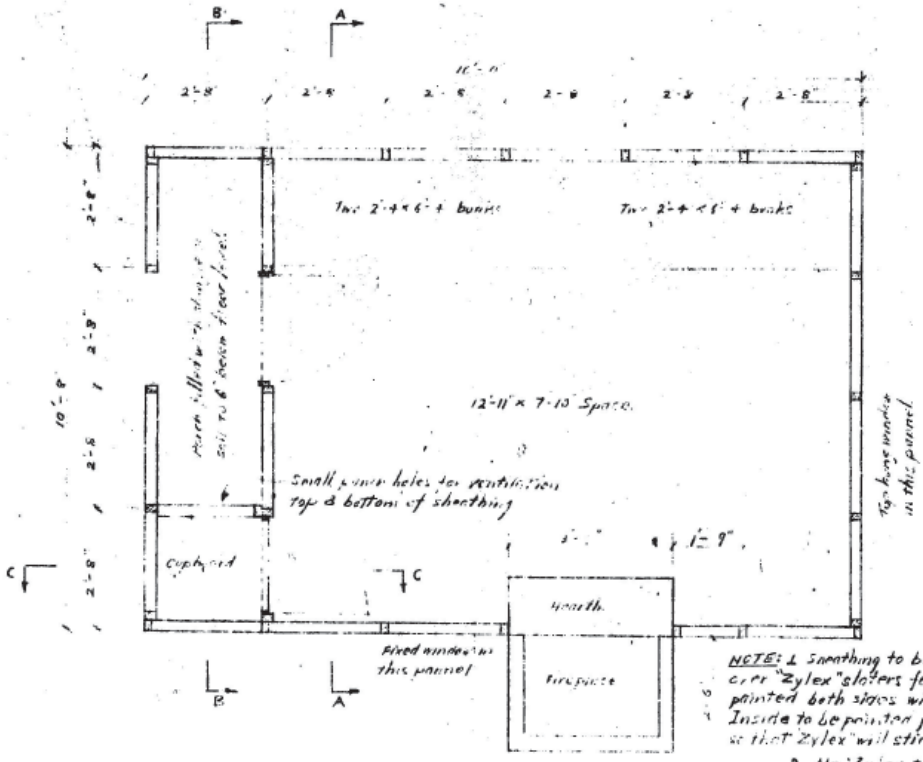

Seal between perspex and sheathing with 2" "Denso" tape.
OUTSIDE ELEVATION
VERTICAL SECTION
HORIZONTAL SECTION
DETAILS OF FIXED WINDOW.
Bend iron to form 2"x1" cover
Two 3"x1" hinges
Out of 3"x1"
Out of 2"x1"
1" long screws from inside
Bend iron up to here
Fix perspex with ½" wood screws at approx 4" c/c.
DETAILS OF [illegible] WINDOW
6" Tee hinge
Notching
OUTSIDE ELEVATION
VERTICAL SECTION
HORIZONTAL SECTION
DETAILS OF ENTRANCE DOOR
Bolt
DETAILS OF CUPBOARD DOOR.
SCHEDULE OF QUANTITIES
SPECIFICATION
WINDOWS & DOORS FOR WILD ANIMAL HUTS.
P. 126
N.Z. FOREST SERVICE

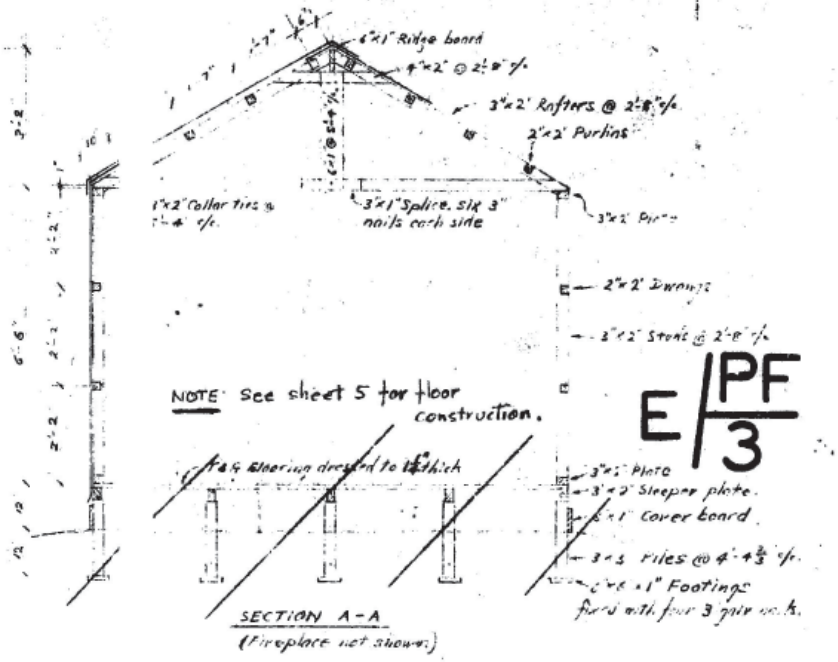


SIDE ELEVATION




END ELEVATION




SECTION A-A
(Fireplace not shown)

NOTE: 1 Sheathing to be 24 g flat galv iron over "Zylex" sloters felt. Iron to be painted both sides with "Carbolastic." Inside to be painted just before fixing so that Zylex will stick.
2 No Zylex to be fixed to wall

E/PF 3

SHEET 1 OF 5 SHEETS.

N.A.D. HUT - 16'x 10'-8".
TIMBER & FLAT IRON CONSTRUCTION
PLAN, ELEVATIONS & CROSS SECTION

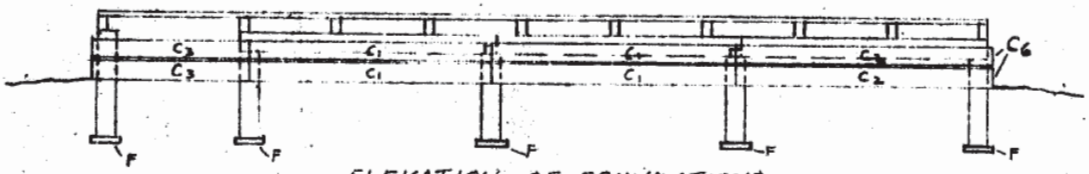
S. 77.

SCALE ⅜" = 1'

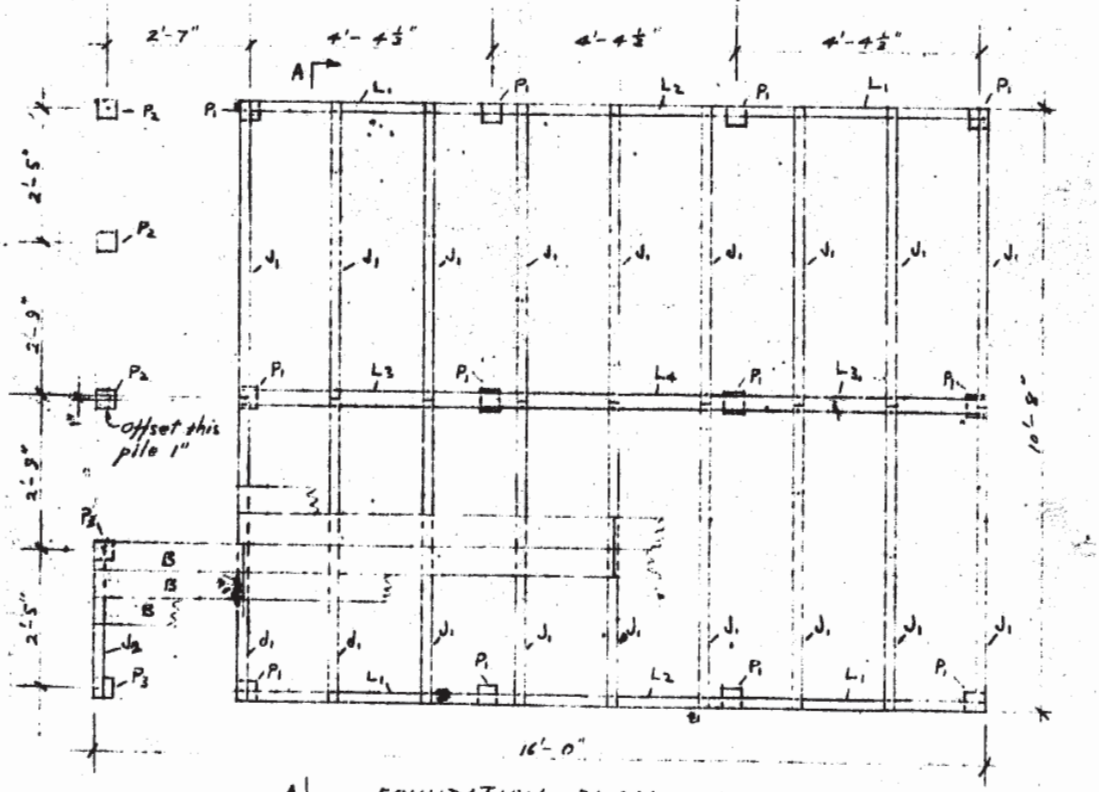
FOREST SERVICE WELLINGTON

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | " | 1'-6" | 2/6"×6"×1" | F | Cut on site | 3·5 |
| 3 | 4"×4" | 8'-2" | 12/1'-6½" Piles | F | " " " | 8 |
| 1 | " | 4'-5" | 3/2'-2½" " | $P_1$ | " " " | 25·6 |
| 1 | " | 3'-9" | 2/1'-10½" " | $P_2$ | " " " | 6·0 |
| 4 | 4"×2" | 4'-8" | Sleeper plates | $P_3$ | " " " | 5·0 |
| 2 | " | 4'-7⅓" | " " | $L_1$ | Precut thus. 3"×2" | 12·4 |
| 2 | 4"×3" | 4'-8" | " " | $L_2$ | " " 3"×2" | 6·1 |
| 1 | " | 4'-7⅓" | " " | $L_3$ | " " 3"×2" | 9·3 |
| 18 | 4"×2" | 5'-4" | Joists | $L_4$ | " " 3"×2" | 4·6 |
| 1 | " | 2'-9" | " | $J_1$ | | 64·0 |
| 28 | 4"×1" | 4'-4½" | Cover boards | $J_2$ | | 1·4 |
| 4 | " | 4'-7½" | " " | $C_1$ | | 11·7 |
| 2 | " | 5'-8" | 4/2'-10" cover boards | $C_2$ | | 6·1 |
| 11 | " | 5'-6" | 2/2'-9" " " | $C_3$ | Cut on site. | 3·8 |
| 2 | " | 5'-5" | " " | $C_4$ | " " " | 1·8 |
| 4 | " | 5'-4" | " " | $C_5$ | | 3·6 |
| [illegible] | SAWED TO SUIT TAPER | 6'-8½" | T&G Flooring | $C_6$ NOT MARKED | | 7·1 |
| 8 | " | 5'-4" | 2'-8" T&G Flooring in cupboard | B. | Cut on site. | |

Total B.F. 171·8
Super ft of T&G 152.
Total weight 787 lbs.



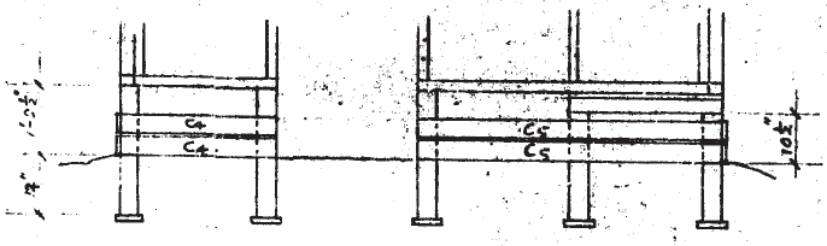

ELEVATION OF FOUNDATIONS



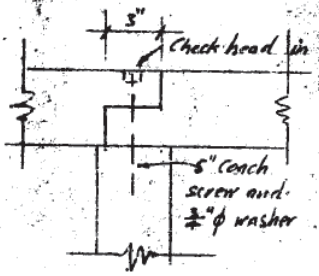

A FOUNDATION PLAN

Flooring to be dressed T&G. 1st grade pressure treated radiata pine flooring or equivalent. Other timber to be No 1 framing grade pressure treated radiata pine or equivalent. All timber to be well seasoned air dried.

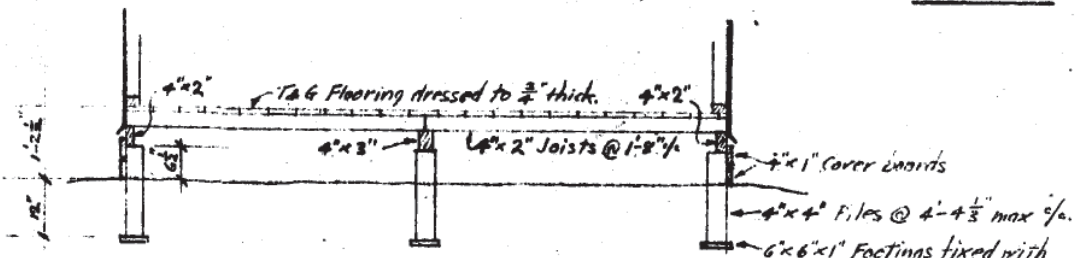
NOTE.
When this alternative is used order 17/6" coach screws with ¾" ϕ washers and delete the 5" coach screws listed under miscellaneous on sheet 4.




ELEVATION OF FOUNDATIONS AT ENTRANCE END OF BUILDING.




DETAIL AT TOP OF PILES




SECTION A-A.

NOTES: 1 This alternative is better for use on rocky sites where there is likely to be difficulty in excavating for foundations.

2 If larger aircraft available precut timber in longer lengths and revise marks & joints in red ink.

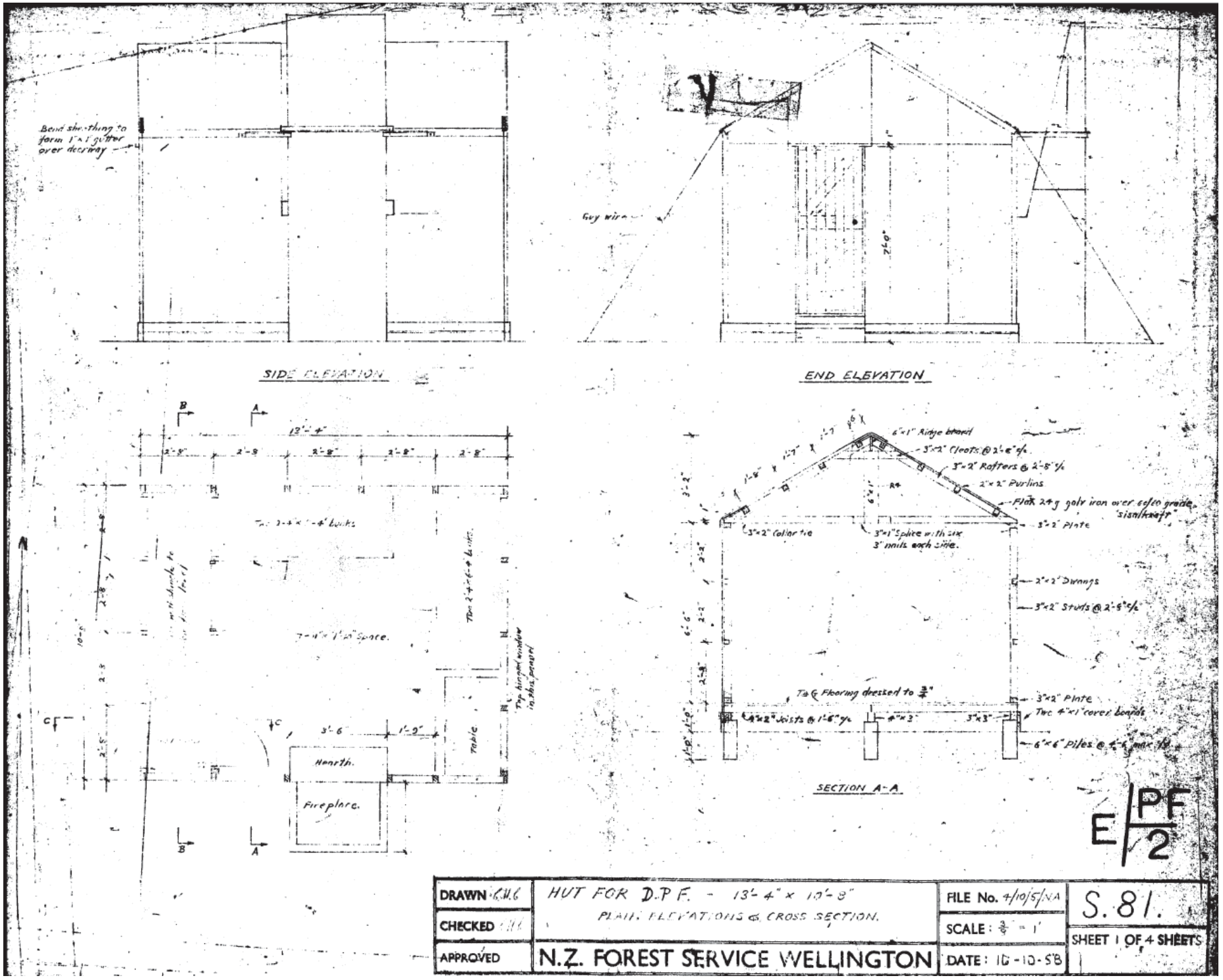
4 Concrete piles may be used in place of timber. In this case use either precast pumice concrete piles 6"×6" at bottom tapering to 4"×4" at top with holding down bolts or wire ties imbedded in concrete, or cast in place piles. Omit coach screws from schedule.

SHEET 5 OF 5 SHEETS.

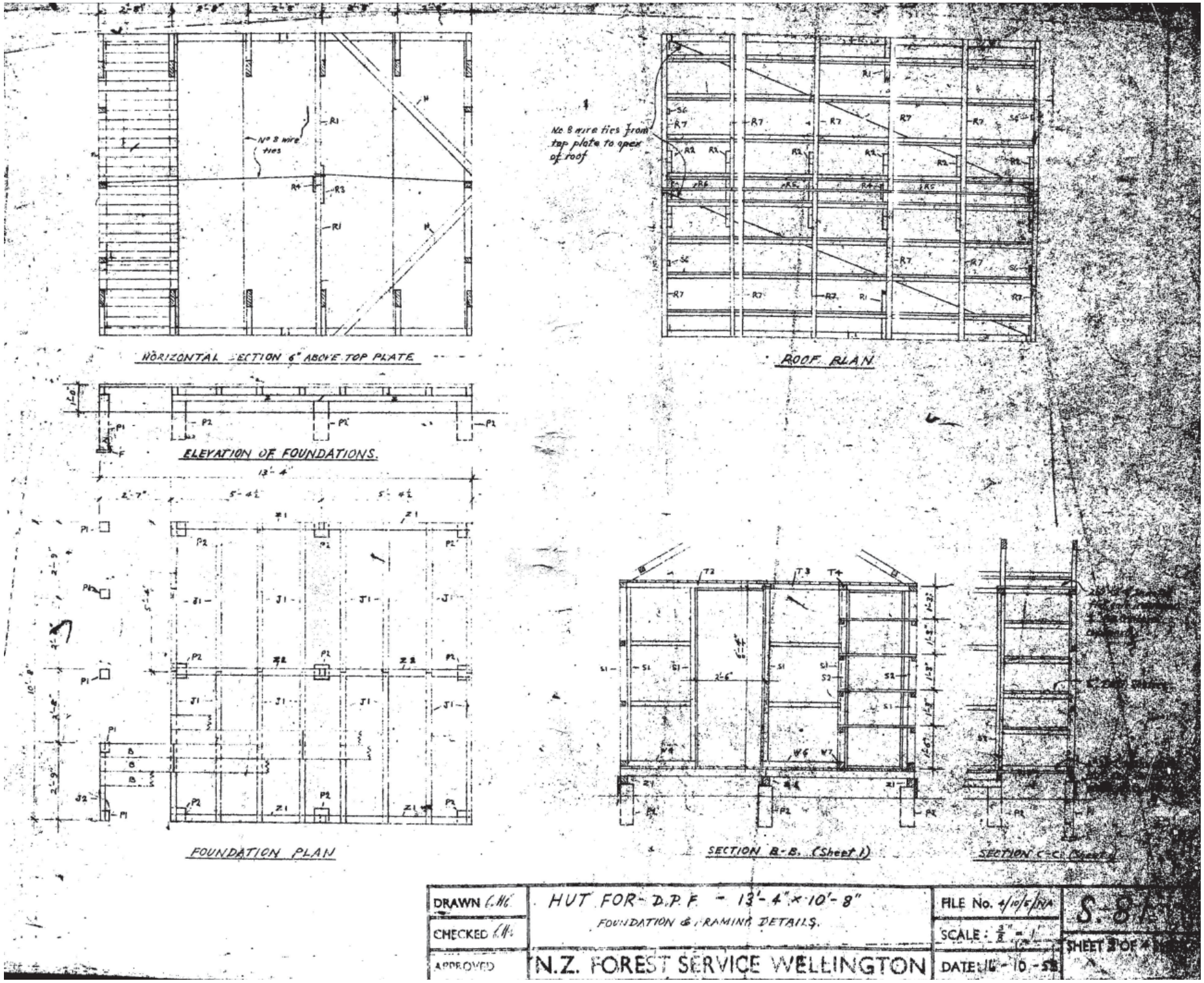
| | | | |
|---|---|---|---|
| DRAWN | G.R. | 16-10-58 | N.A.D. HUT - 16' × 10'-8" TIMBER & FLAT IRON CONSTRUCTION. ALTERNATIVE FOUNDATIONS. 7 FT MAX LENGTHS. |
| TRACED | " | " | |
| CHECKED | " | " | |
| APPROVED | " | " | |

S 77
Scale: ¾", 1½" = 1'

N.Z. FOREST SERVICE. WELLINGTON.




| | | | |
|---|---|---|---|
| DRAWN C.W.G | HUT FOR D.P.F. - 13'-4" x 10'-8" | FILE No. 4/10/5/NA | S.81. |
| CHECKED | PLAN, ELEVATIONS & CROSS SECTION. | SCALE: 3/8" = 1' | SHEET 1 OF 4 SHEETS |
| APPROVED | N.Z. FOREST SERVICE WELLINGTON | DATE: 10-10-58 | |


No 8 wire ties
No 8 wire ties from top plate to apex of roof
HORIZONTAL SECTION 6" ABOVE TOP PLATE
ROOF PLAN
ELEVATION OF FOUNDATIONS.
FOUNDATION PLAN
SECTION B-B. (Sheet 1)
SECTION C-C (Sheet 1)
DRAWN C.M.C
CHECKED C.M.
APPROVED
HUT FOR D.P.F - 13'-4" x 10'-8"
FOUNDATION & FRAMING DETAILS.
N.Z. FOREST SERVICE WELLINGTON
FILE No. 4/10/5/1M
SCALE: 3/8" = 1'
DATE 16-10-58
S. 8/1
SHEET 1 OF 4

## SCHEDULE OF QUANTITIES

### TIMBER

| Number | Size | Length | Description | Mark | Instructions | Quantity |
|---|---|---|---|---|---|---|
| 1 | 6"x1" | 2'-6" | 5/6"x6"x1" Footings | F | Cut on site | 1.3 |
| 1 | 4"x4" | 6'-0" | 3/2'-3" Piles | P1 | " " " | 8.0 |
| 1 | 4"x4" | 4'-0" | 2/2'-0" | P1 | " " " | 5.4 |
| 9 | 6"x6" | 1'-5" | Piles | P2 | Precut | 38.3 |
| 4 | 3"x3" | 5'-6" | Outside sleeper plates | Z1 | " (Cut one end @ 45° as shown) | 16.5 |
| 2 | 4"x3" | 5'-6½" | Inside sleeper plates | Z2 | " " " " " " " | 11.1 |
| 16 | 4"x2" | 5'-4" | Joists | J1 | " | 56.9 |
| 1 | 4"x2" | 2'-9" | Joist under cupboard | J2 | " | 1.9 |
| 2 | 4"x1" | 5'-10" | 4/2'-11" cover boards at sides | C1 | Cut on site | 3.9 |
| 4 | 4"x1" | 5'-1½" | Cover boards at sides | C2 | Precut | 6.8 |
| 4 | 4"x1" | 5'-5" | " " " " | C3 | " | 7.3 |
| 4 | 4"x1" | 5'-4" | " " at ends | C4 | " | 7.1 |
| 2 | 4"x1" | 5'-5" | " " " " | C5 | " | 3.6 |
| 1 | 4"x1" | 5'-6" | 2/2'-9" cover boards at ends | C6 | Cut on site | 1.9 |
| | | | | | (453 lbs) | 170.0 B.F |
| 2 | 3"x2" | 6'-9½" | Wall plates at side | W1 | Precut and check at one end | 6.8 |
| 1 | 3"x2" | 5'-5" | " " " " | W2 | Precut | 2.7 |
| 1 | 3"x2" | 4'-5" | " " " " | W3 | " | 2.2 |
| 2 | 3"x2" | 5'-2½" | " " " end | W3 | " and check at one end | 5.2 |
| 1 | 3"x2" | 5'-3" | 2/2'-6" plates at end and partition | W4 | " | 2.5 |
| 1 | 3"x2" | 5'-4" | Wall plate at end | W5 | " | 2.6 |
| 1 | 3"x2" | 5'-1" | 1/2'-9" plate at partition | W6 | " | 2.6 |
| | | | 1/2'-4" plate at cupboard | W7 | " | |
| 4 | 3"x2" | 6'-9½" | Top plates at sides | T1 | " and check ends from drgs | 7.6 |
| 4 | 3"x2" | 5'-5½" | " " " ends | T2 | " " " " " " | 10.9 |
| 2 | 3"x2" | 5'-2½" | " " " partition | T3 | " " " end " " | 5.2 |
| 1 | 3"x2" | 2'-4" | " " " cupboard | T4 | " | 1.1 |
| 1 | 3"x2" | 4'-3" | Below window opening | D | Precut | 1.3 |
| 1 | 3"x2" | 5'-2" | Lintel over fireplace | L | " | 2.6 |
| 4 | 4"x1" | 4'-3" | Wall bracing | V | Cut on site and check into studs | 7.0 |
| 25 | 3"x2" | 8'-2" | Studs | S1 | Repeat | 76.5 |
| 2 | 3"x2" | 8'-4" | Stud at cupboard door | S2 | " | 6.3 |
| 1 | 3"x2" | 6'-3" | 1/3'-6" stud at fireplace | S3 | Cut on site | 3.0 |
| | | | 1/2'-4" " above " | S4 | " " " | |
| 1 | 3"x2" | 5'-4" | 2/2'-6" endwall jack studs | S5 | Cut to length on site | 2.7 |
| 1 | 3"x2" | 4'-3" | Four end wall jack studs | S6 | Cut and check on site | 3.5 |
| 2 | 3"x2" | 3'-3" | Trimmer to corner braces | H | Trim corners on site | 7.0 |
| 2 | 3"x2" | 5'-4" | Door Tie | M1 | " " " " | 5.3 |
| 3 | 3"x2" | 5'-9" | 6/2'-10" cleats | T2 | Cut on site | 8.5 |
| 1 | 3"x2" | 1'-6" | Stud to tie sill/oe | S3 | Precut | .4 |
| 1 | 6"x1" | 2'-6" | " " support | P4 | Precut | 1.4 |
| 1 | 6"x1" | 3'-4" | Ridge board | R5 | Precut | 5.3 |
| 1 | 6"x1" | 2'-6" | " " | R6 | Precut | 1.3 |
| 12 | 3"x2" | 6'-3" | Storm | S7 | Precut and shape from a template | 37.5 |
| 40 | 4"x2" | 5'-0" | Wedges and purlins | Not marked | Cut on site | 67.0 |
| 2 | 2'x2" | 6'-3" | Spares | X | | 4.7 |
| 1 | 3"x2" | 7'-3" | Spares | X | | 7.5 |
| | | | | | (868 lbs) | 297.7 B.F |
| 59sq.ft | Out of | 5'-0" | T & G for cupboard and porch | Not marked | Cut on site | 99 |
| 49 " " | " " | 1" 4'-9" | T & G flooring | Not marked | Cut on site where necessary | 49 |
| 66 " " | " " | 1" 5'-9" | " " " " | " | Precut | 33 |
| 8 " " | " " | 1" 5'-4" | " " " " in cupboard | B | Cut on site | 8 |
| | | | | | (490 lbs) | 182 super ft |

1 REFERENCE LIST ALTERED 15-8-60 C.M.
3/4-GAL [illegible] 14-8-62 [illegible]

| | |
|---|---|
| DRAWN | HUT FO |
| CHECKED | |
| APPROVED | N.Z. FO |

HEATHING

10/7'x3' Sheets. 24g. flat galv.iron for roof
8/8'x3' " for side walls
2/3'-11"x3' " for above fireplace
1/4'-6"x2' sheet to side of fireplace
9/7'x3' sheets for end walls and partitions
4/5'x3' sheets for end gables (cut to shape at site)
2/2'-9"x2'-8" sheets for above and below cupboard
200 lin.ft. of 60/60 grade sisalkraft 3 ft. wide
3/4 gal. tins of Carbolastic for painting inside of sheathing and laps
1/2 gal. tin of primer for outside of sheathing
1/2 gal. tin of tangerine paint for outside of sheathing
3 lbs. of 1¼" x 14g galv.flat headed clouts for sheathing
1 Packet of tacks to hold sisalkraft in place while fixing sheathing

approx. 1,150 lbs

MISCELLANEOUS

6 lb. of 2½" floor brads
1 lb. of 2" nails
1 lb. of 3" galv.nails for footings
13 lb. of 4" nails for framing
165 ft. of No.8 galv wire

approx. 60 lbs
Total 3,211 lbs

SPECIFICATION

TIMBER. Timber to be as specified below or equivalent. Flooring T & G 1st grade treated radiata pine. Sub-floor timber pressure treated No.1 framing grade radiata pine. Framing timber treated No.1 framing grade radiata pine. All timber to be well seasoned.

AIR DROPPING. All material to be parachuted to the site. If larger aircraft are available precut the joists, cover boards and plates in longer lengths and revise the schedule and position of joints accordingly.

SHEATHING. The outside of all walls except between the cupboard and porch to be covered with 60/60 grade "sisalkraft" tacked in place. Flat iron sheets to be painted on the inside and under all laps with "carbolastic" just before placing in position so that Sisalkraft will stick to it. Sheathing to be fixed with clouts at 6" centres along all laps, dwangs and purlins. Sheet between cupboard and porch to be perforated top and bottom with small punch holes for ventilation. Outside of sheathing to be primed and painted tangerine. Each hut will be allocated a number and this is to be painted on one side of the roof with carbolastic, the figures to be 4 ft. high with strokes 6" wide.

ALTERNATIVE METHODS OF CONSTRUCTION. 1. In sheltered sites corrugated iron may be used on the roof instead of flat sheets. Delete the 10/7'x3' flat sheets and substitute 16/7'x2' corrugated sheets and 2/7' lengths of ridging. "Sisalation" single sided aluminium foil insulation may be used under the corrugated iron instead of Sisalkraft. The foil side should be facing upwards. The corrugated iron should be painted both sides as described previously. Use Sisalkraft under all flat sheathing.

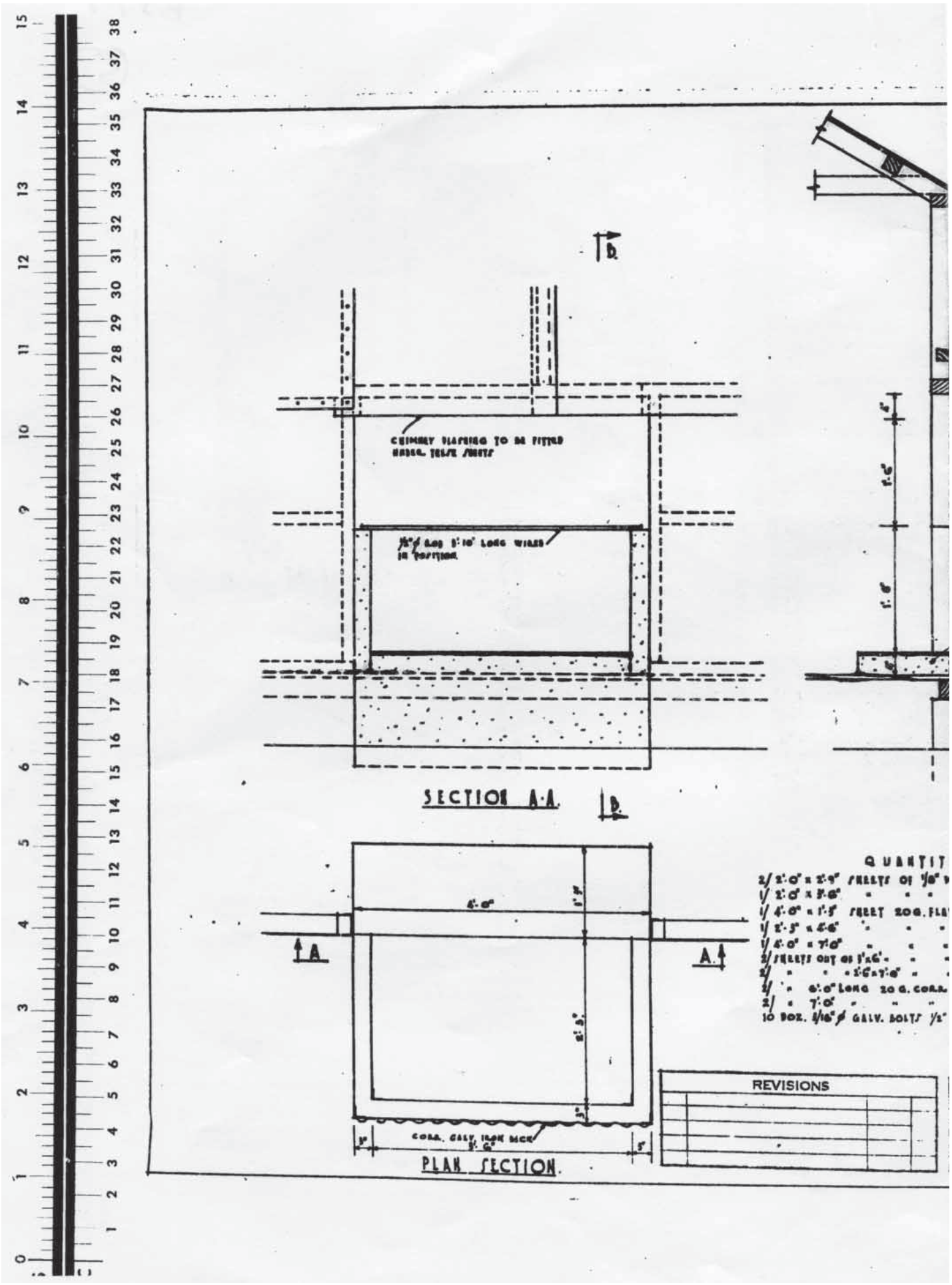
2. When lining is justified use horizontal T & G matchlining and fix a 1"x2" nailing strip 6'-2" long in each corner. Use single sided Sisalation instead of sisalkraft and place it with the foil side facing the lining.

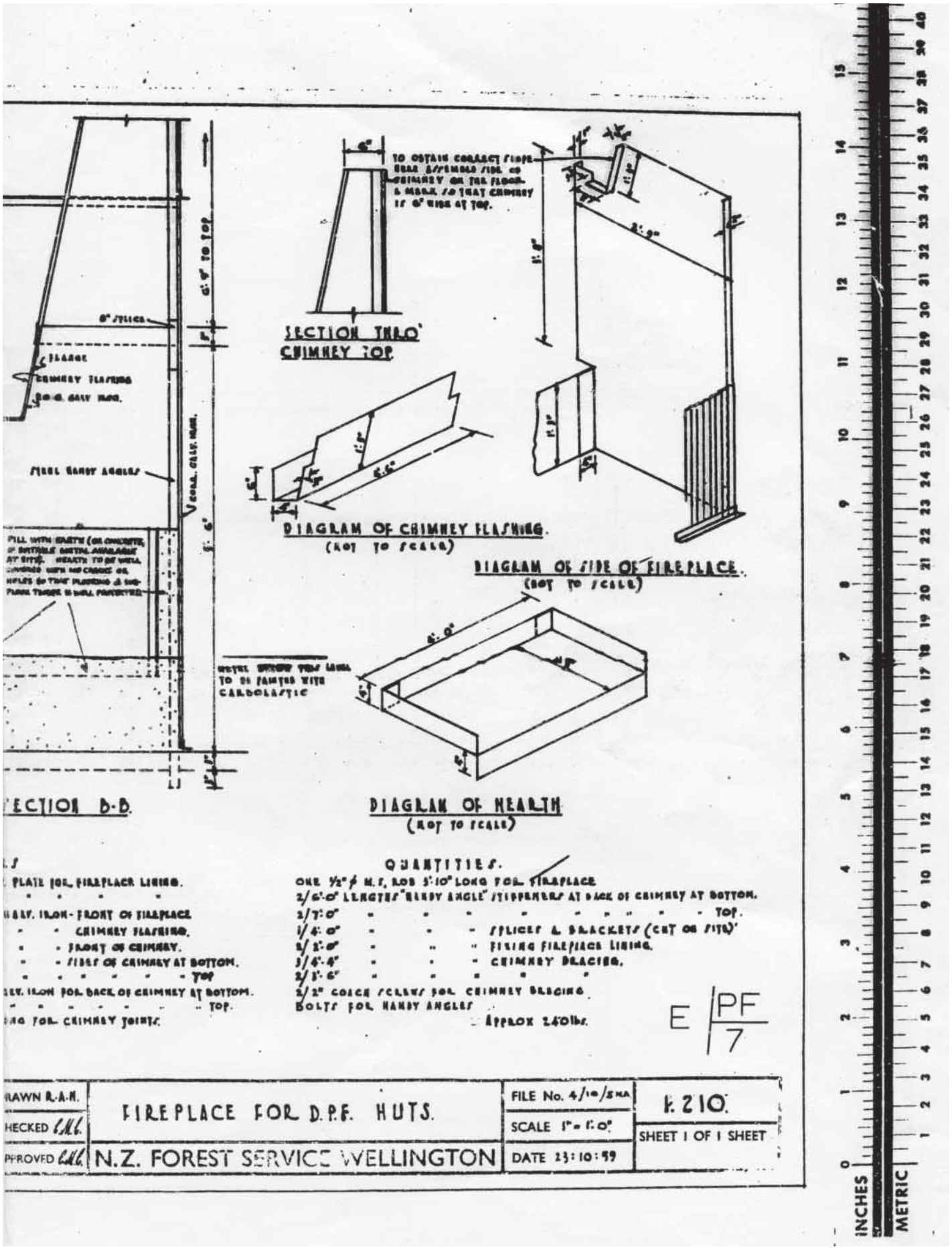
Guy Wires. These may be omitted when the hut is to be built on a sheltered site.

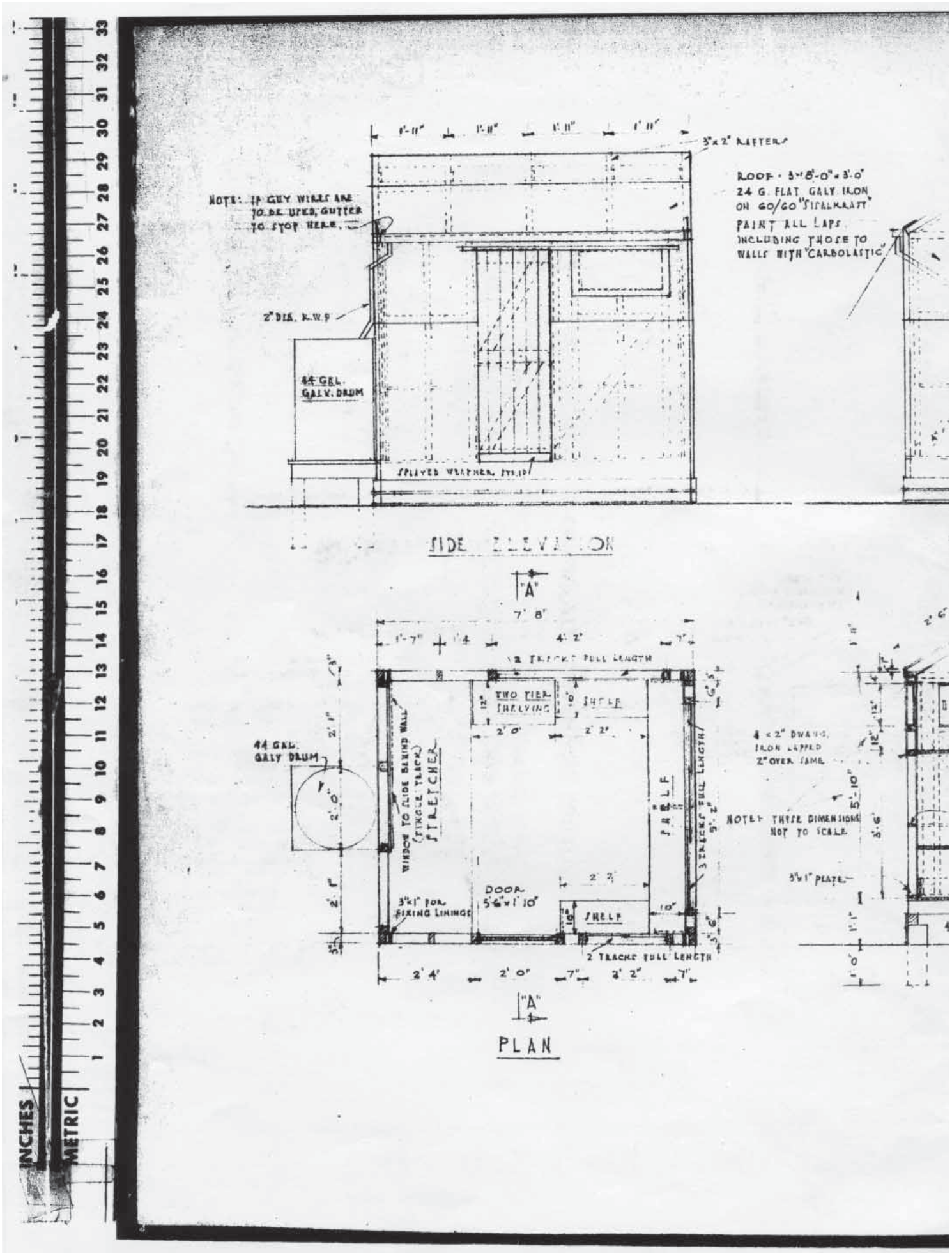
Reference. See the following drawings for further details:-

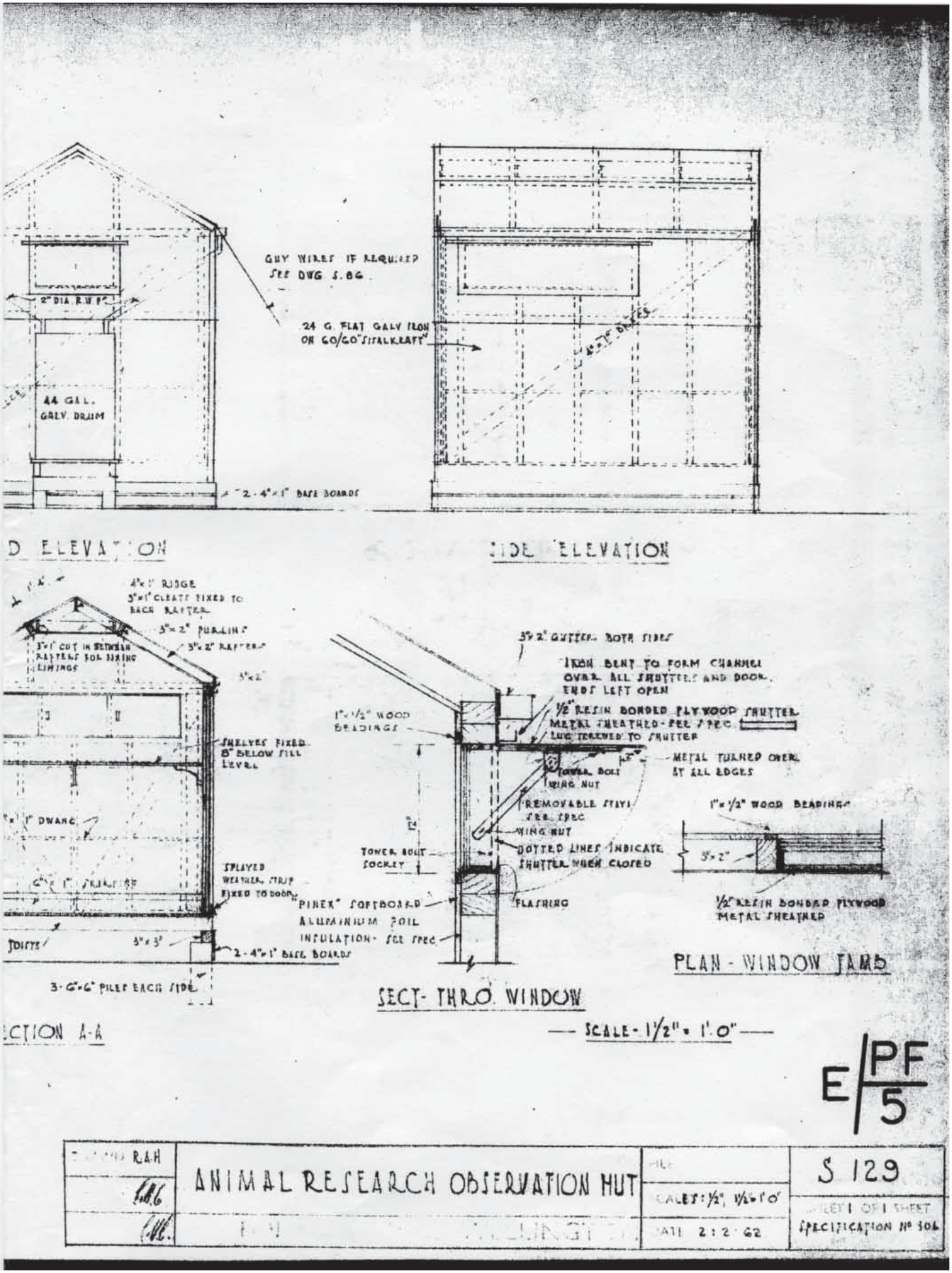
P.127 Bunks and Tables
P.212 Windows and doors
P.210 Fireplace
P.211 Guy wires

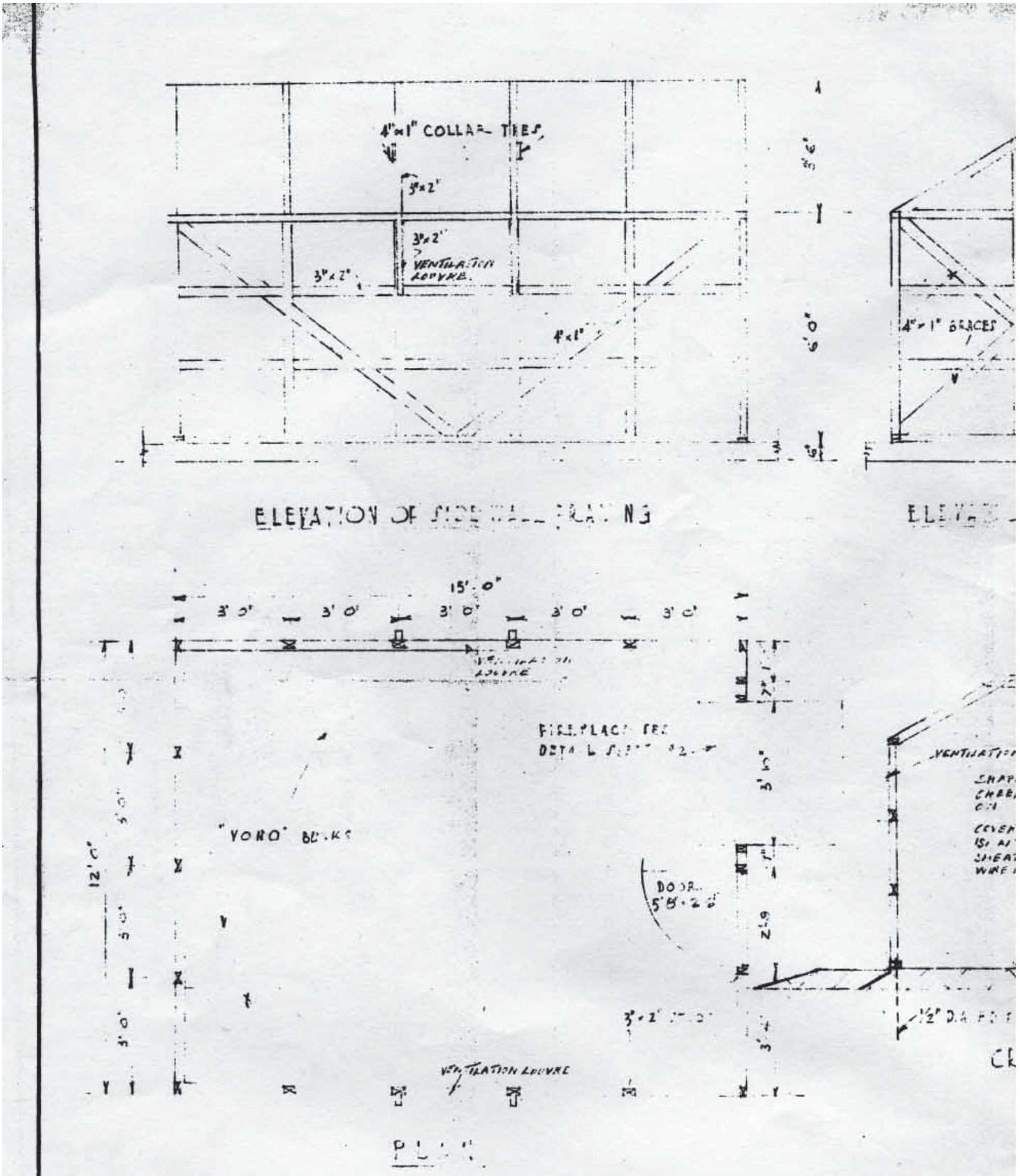
| | | |
|---|---|---|
| D.P.F. 13'-4" x 10'-8" QUANTITIES & SPECIFICATIONS | FILE No. 4/10/5/N.A. | S. 81. |
| | SCALE : 3/8" - 1'-0" | SHEET 4 OF 4 SHEETS |
| FOREST SERVICE WELLINGTON | DATE: 6-12-48 | |


CEMENT PLASTERING TO BE FITTED
SECTION A-A
PLAN SECTION
REVISIONS


TO OBTAIN CORRECT SLOPE
SECTION THRO' CHIMNEY TOP
DIAGRAM OF CHIMNEY FLASHING.
(NOT TO SCALE)
DIAGRAM OF SIDE OF FIREPLACE.
(NOT TO SCALE)
DIAGRAM OF HEARTH
(NOT TO SCALE)
QUANTITIES.
ONE ½" ϕ M.S. ROD 5'-10" LONG FOR FIREPLACE
2/6'-0" LENGTHS "HANDY ANGLE" STIFFENERS AT BACK OF CHIMNEY AT BOTTOM.
2/7'-0" - - - - - - - - - TOP.
1/4'-0" - - - SPLICES & BRACKETS (CUT ON SITE)
2/2'-0" - - - FIXING FIREPLACE LINING.
3/4'-4" - - - CHIMNEY BRACING.
2/3'-6" - - - - - -
2/2" COACH SCREWS FOR CHIMNEY BRACING
BOLTS FOR HANDY ANGLES
APPROX 240lbs.
E PF 7
DRAWN R.A.H.
CHECKED C.M.G.
APPROVED C.M.G.
FIREPLACE FOR D.P.F. HUTS.
N.Z. FOREST SERVICE WELLINGTON
FILE No. 4/10/5 HA
SCALE 1" = 1'-0"
DATE 23:10:59
F. 210.
SHEET 1 OF 1 SHEET


3"x 2" RAFTERS
ROOF - 3'-8"-0" x 3'-0"
24 G. FLAT GALV. IRON
ON 60/60 "SISALKRAFT"
PAINT ALL LAPS
INCLUDING THOSE TO
WALLS WITH "CARBOLASTIC"
NOTE: IF GUY WIRES ARE
TO BE USED, GUTTER
TO STOP HERE.
2" DIA. R.W.P.
44 GEL.
GALV. DRUM
SPLAYED WEATHER BOARD
SIDE ELEVATION
"A"
7' 8"
4' 2"
2 TRACKS FULL LENGTH
TWO TIER
SHELVING
SHELF
2' 0"
2' 2"
44 GAL.
GALV DRUM
WINDOW TO SLIDE BEHIND WALL
(SINGLE TRACK)
STRETCHER
3 TRACKS FULL LENGTH
DOOR
5'-6" x 1' 10"
3"x 1" FOR
FIXING LININGS
SHELF
2 TRACKS FULL LENGTH
2' 4"
2' 0"
3' 2"
4 x 2" DWANG
IRON LAPPED
2" OVER FAME
NOTE: THESE DIMENSIONS
NOT TO SCALE
5'-10"
3"x 1" PLATE
"A"
PLAN
INCHES
METRIC


GUY WIRES IF REQUIRED SEE DWG S.86
24 G. FLAT GALV IRON OR 60/60 "SISALKRAFT"
44 GAL. GALV. DRUM
2 - 4" x 1" BASE BOARDS
SIDE ELEVATION
4" x 1" RIDGE
3" x 1" CLEAT FIXED TO BACK RAFTER
3" x 2" PURLINS
3" x 2" RAFTERS
3" x 1" CUT IN BETWEEN RAFTERS FOR BRACING LININGS
SHELVES FIXED 8" BELOW FILL LEVEL
SPLAYED WEATHER STRIP FIXED TO DOOR
JOISTS
3" x 3"
2 - 4" x 1" BASE BOARDS
3 - 6" x 6" PILES EACH SIDE
3" x 2" GUTTER - BOTH SIDES
IRON BENT TO FORM CHANNEL OVER ALL SHUTTERS AND DOOR. ENDS LEFT OPEN
1" x 1/2" WOOD BEARINGS
1/2" RESIN BONDED PLYWOOD SHUTTER METAL SHEATHED - SEE SPEC
LUG SCREWED TO SHUTTER
METAL TURNED OVER AT ALL EDGES
TOWER BOLT WING NUT
REMOVABLE STAY SEE SPEC
WING NUT
DOTTED LINES INDICATE SHUTTER WHEN CLOSED
TOWER BOLT SOCKET
FLASHING
"PINEX" SOFTBOARD
ALUMINIUM FOIL
INSULATION - SEE SPEC
1" x 1/2" WOOD BEARING
3" x 2"
1/2" RESIN BONDED PLYWOOD METAL SHEATHED
PLAN - WINDOW JAMB
SECT - THRO WINDOW
SCALE - 1 1/2" = 1' 0"
E/PF/5
R.A.H.
ANIMAL RESEARCH OBSERVATION HUT
SCALES: 1/2", 1 1/2" = 1' 0"
DATE 2 : 2 : 62
S 129
SHEET 1 OF 1 SHEET
SPECIFICATION No 501

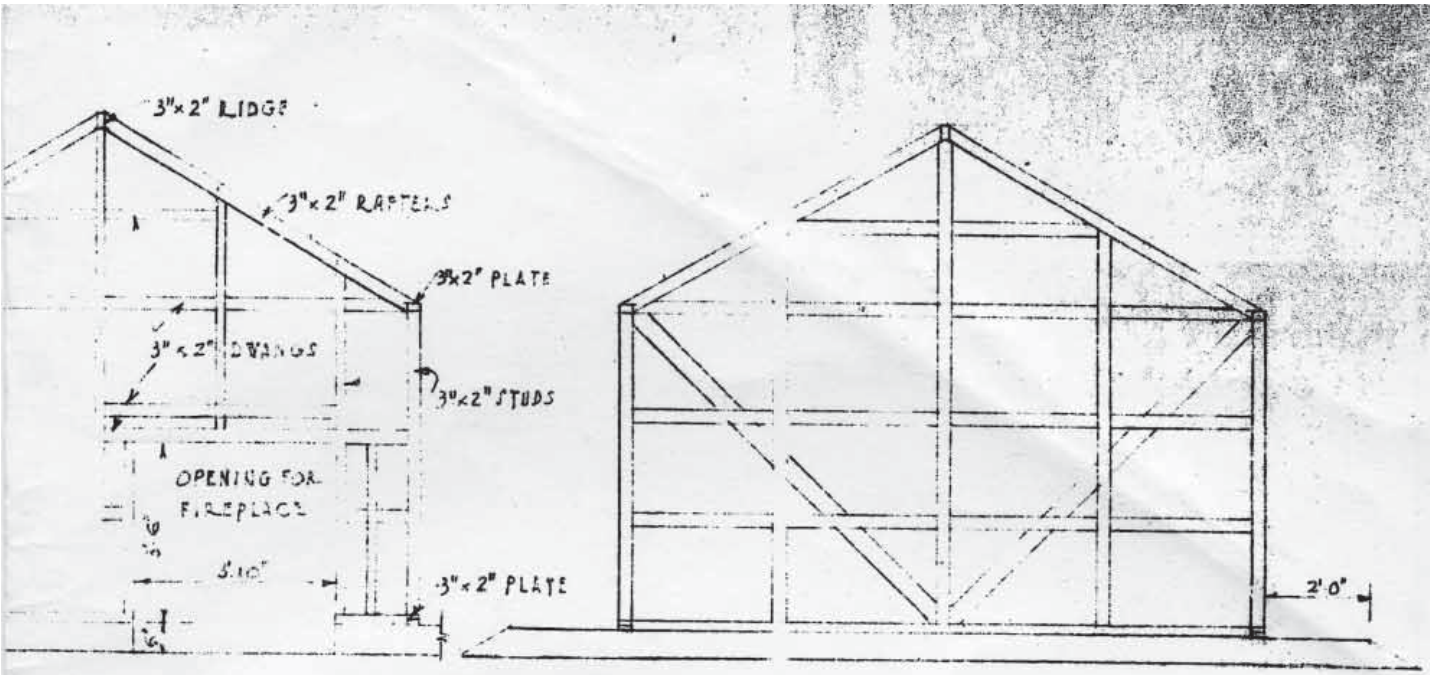



FS-H·25

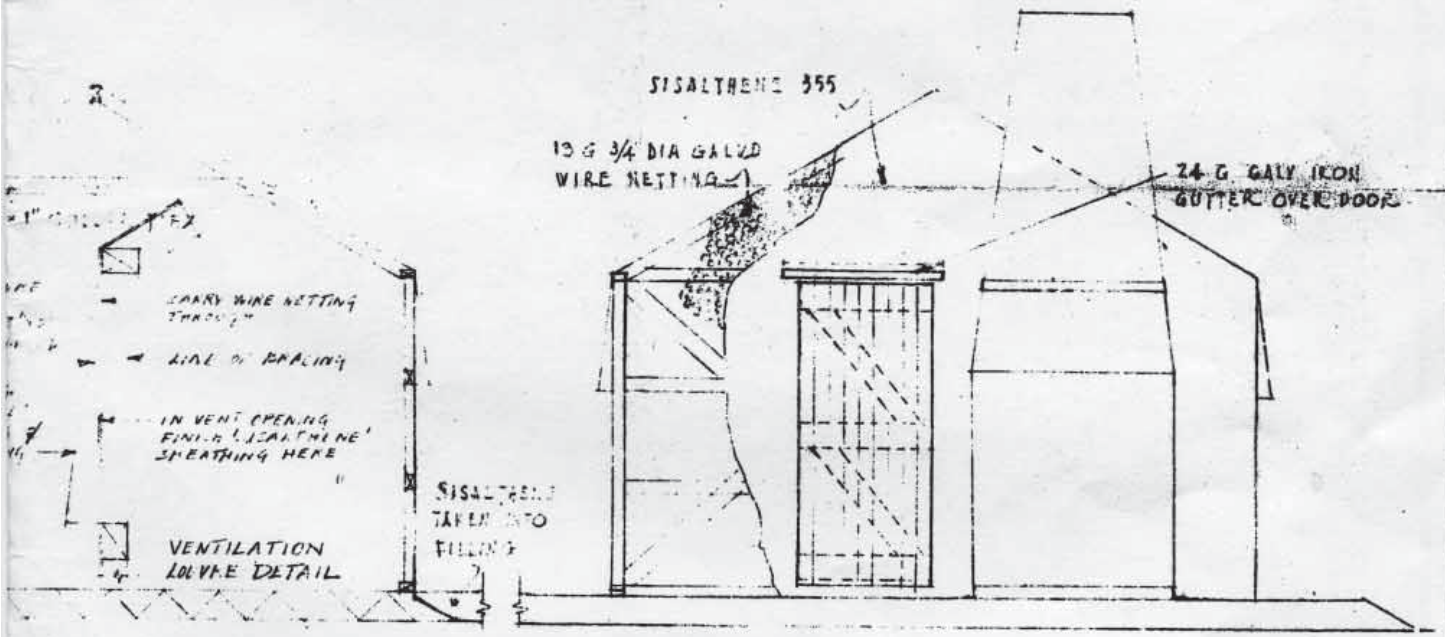
| AMENDMENTS | BY | APP'D | DATE |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

GRAPHIC SCALE:

DESIGNED
DRAWN R A H
DR CHECKED
RECOMM'D
APPROVED:



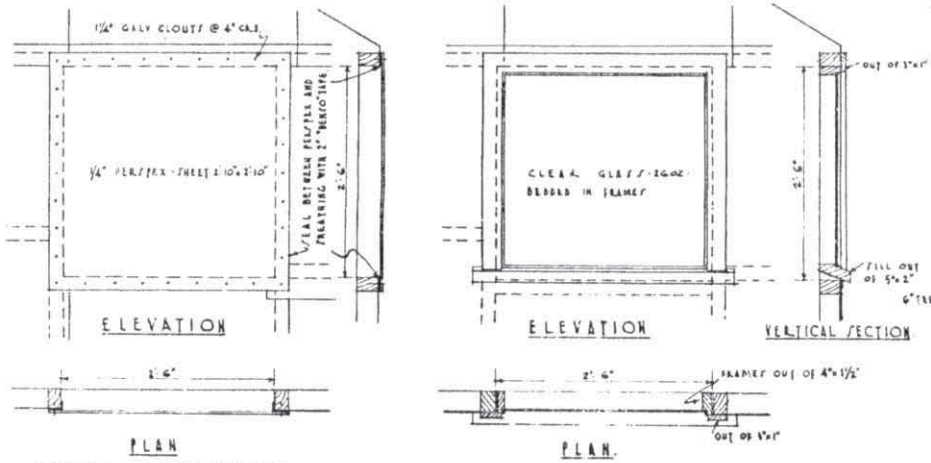

ELEVATION OF END WALL FRAMING




END ELEVATION

E/PF/17

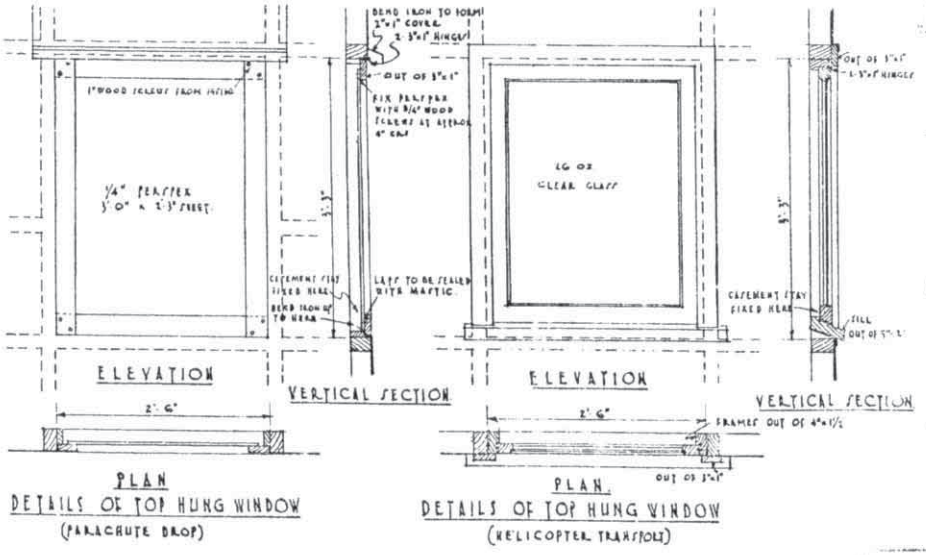
| | | |
|---|---|---|
| TEMPORARY HUTS FOR THE D.P.F. | SCALE: 3/8" = 1' 0" | DRG. NO. S. 185 |
| | SPEC. REFS: 551 | |
| | FILE: 4/10/0/NA. | SHEET No 1 OF 2 SHEETS |
| | JAN 1968 | |




DETAILS OF FIXED WINDOW
(PARACHUTE DROP)

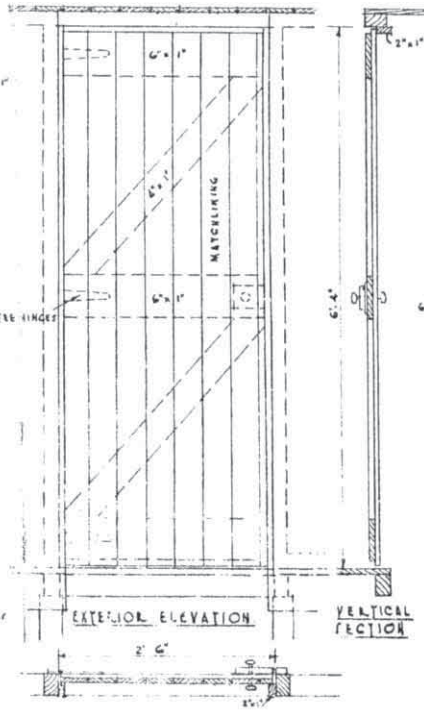



DETAILS OF FIXED WINDOW.
(HELICOPTER TRANSPORT)




DETAILS OF TOP HUNG WINDOW
(PARACHUTE DROP)

DETAILS OF TOP HUNG WINDOW.
(HELICOPTER TRANSPORT)




DETAILS OF ENTRANCE DOOR

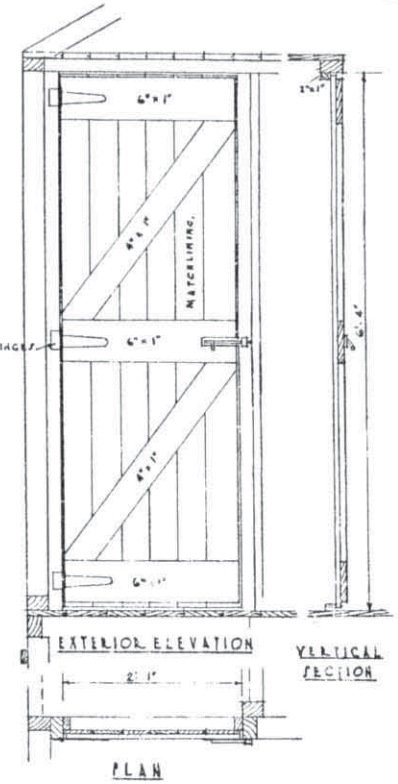
SCHEDULE OF QUANTITIES

FIXED WINDOW - (PARACHUTE DROP) APPROX 10 lbs.
1/2'-10" x 2'10 SHEET OF PERSPEX WITH HOLES DRILLED AS SHOWN.

TOP HUNG WINDOW (PARACHUTE DROP) APPROX 25 lbs.
1 FRAMED PERSPEX WINDOW AS SHOWN COMPLETE WITH HINGES AND CASEMENT STAY. WINDOW STOPS OUT OF 2"x1" DRESSED - 2/ 3'-1" LENGTHS AND 2/ 2'-6" LENGTHS.

FIXED WINDOW (HELICOPTER TRANSPORT) APPROX 20lbs.
1 FRAMED GLAZED WINDOW AS SHOWN GLASS 26 OZ BEDDED IN FRAME.

TOP HUNG WINDOW (HELICOPTER TRANSPORT) APPROX 15lbs.
GLAZED SASH AND FRAME AS SHOWN WITH HINGES AND CASEMENT STAY.




DETAILS OF CUPBOARD DOOR

SCHEDULE OF QUANTITIES

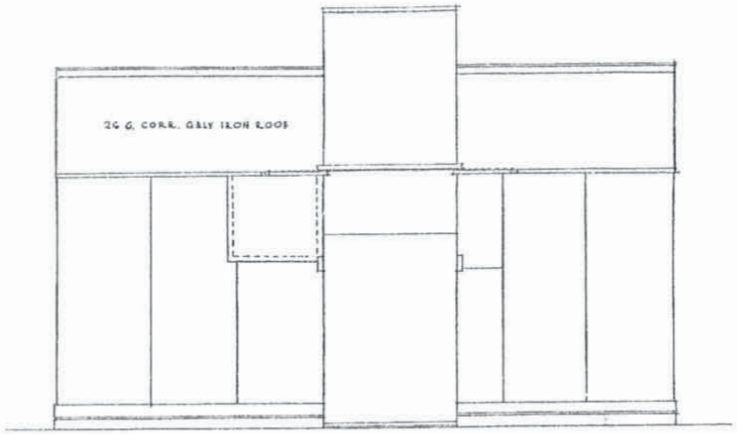
COOPER LOUVRES - AS AN ALTERNATIVE TO TOP HUNG SASH - HELICOPTER TRANSPORT - COOPER LOUVRES SET IN WOOD FRAMES MAY BE USED.

DOORS (APPROX. 190 lbs.)
1 ENTRANCE DOOR COMPLETE WITH HINGES AND LATCH AS SHOWN
1 CUPBOARD DOOR AS FOR ABOVE.
5 BATTENS DRESSED OUT OF 2"x1" 6'-4" LONG FOR DOOR STOPS

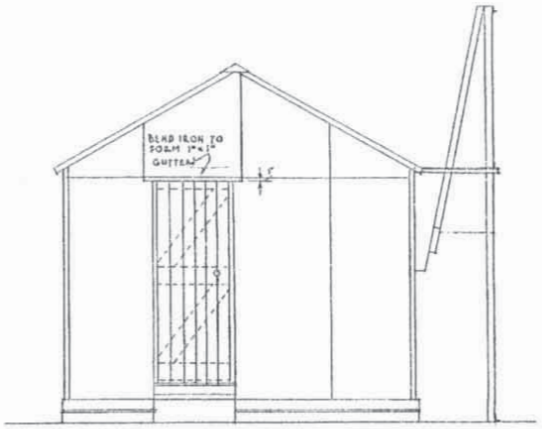
SPECIFICATION

TIMBER TO BE PRESSURE TREATED DRESSING GRADE RADIATA PINE OR EQUIVALENT WELL SEASONED AND DRESSED. EACH ITEM TO BE MADE UP COMPLETE BEFORE TRANSPORTING TO SITE.

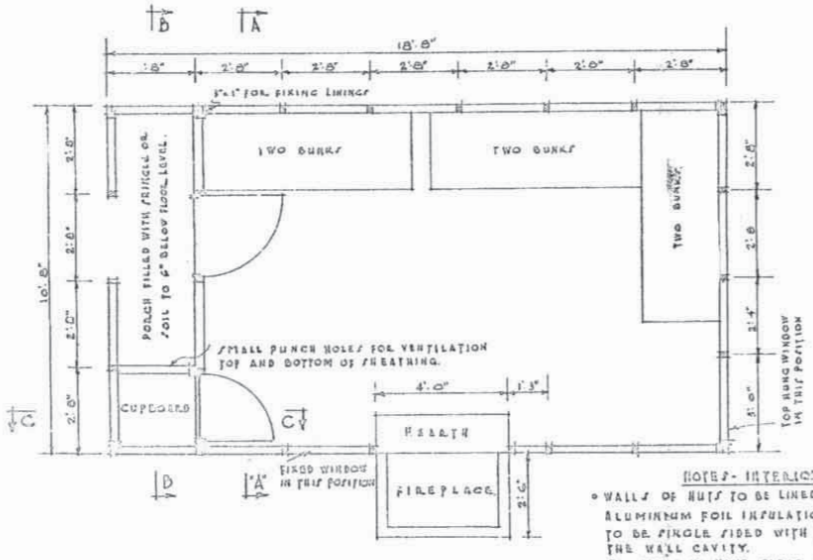
| | | | |
|---|---|---|---|
| DRAWN R.A.H. | WINDOWS & DOORS FOR D.P.F. HUTS. | FILE No. 4/10/5 HA | P. 212. |
| CHECKED [illegible] | | SCALE: 1" = 1'-0" | SHEET 1 OF 1 SHEET |
| APPROVED [illegible] | N.Z. FOREST SERVICE, WELLINGTON | DATE 27:11:59 | |

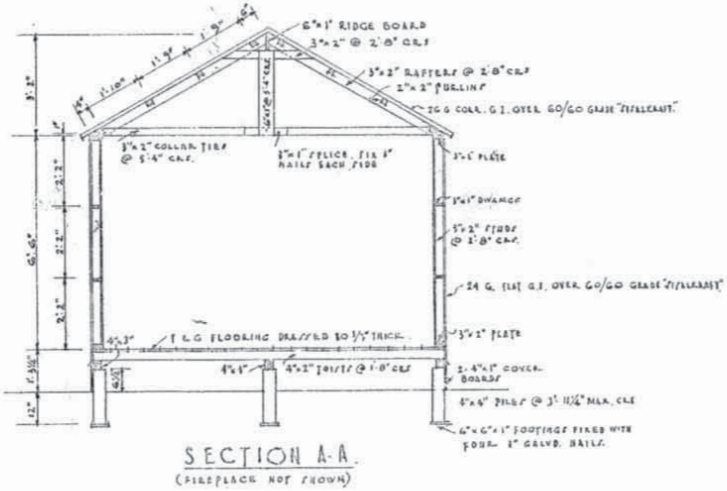



SIDE ELEVATION




END ELEVATION



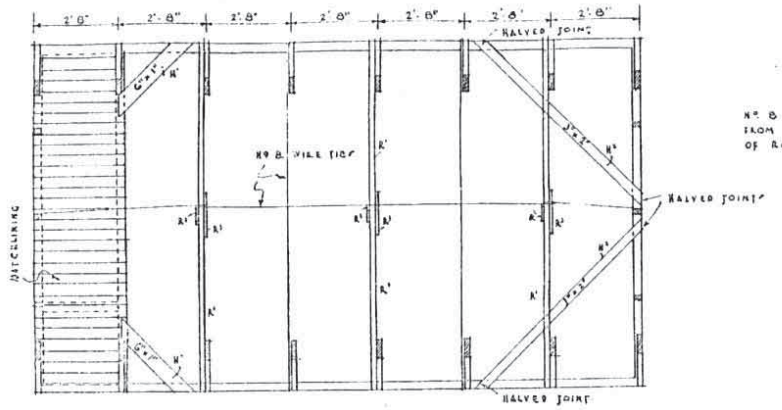




SECTION A-A.
(FIREPLACE NOT SHOWN)

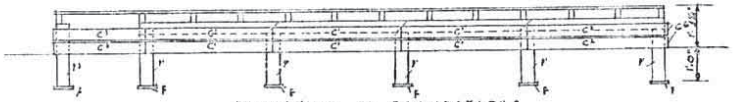
NOTES - INTERIOR LINING.

- WALLS OF HUTS TO BE LINED WITH PLYWOOD OVER ALUMINIUM FOIL INSULATION. THE INSULATION TO BE SINGLE SIDED WITH THE FOIL FACING INTO THE WALL CAVITY.
- PLYWOOD TO HAVE CLEAR VARNISH FINISH.

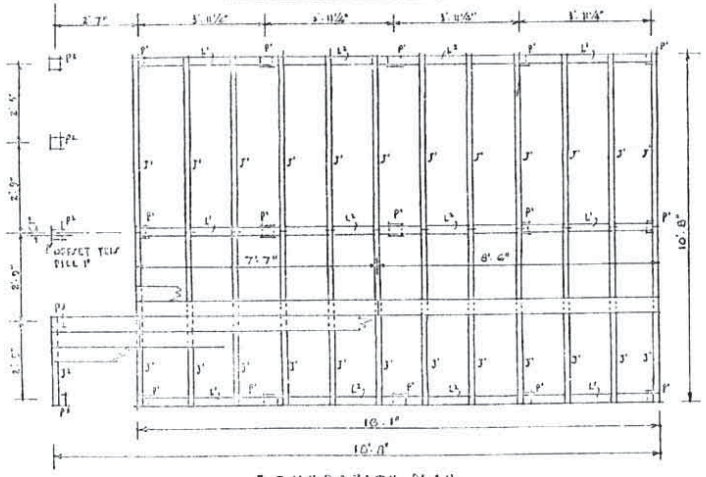
| | | | |
|---|---|---|---|
| DRAWN R.E.H. | D.P.F. HUT 18'-8" x 10'-8" TIMBER AND FLAT IRON CONSTRUCTION - CORR IRON ROOF | FILE No. 4/10/5 N.A. | S 70 |
| CHECKED [illegible] | | SCALE 3/8" = 1'-0" | SHEET 1 OF 4 SHEETS |
| APPROVED [illegible] | N.Z. FOREST SERVICE WELLINGTON | DATE 12/1/60 | |



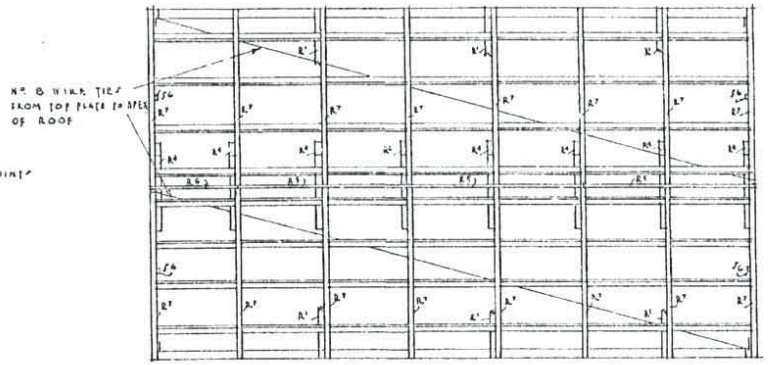

HORIZONTAL SECTION 6" ABOVE TOP PLATE



ELEVATION OF FOUNDATIONS

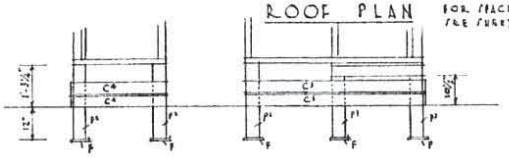



FOUNDATION PLAN

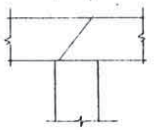



ROOF PLAN

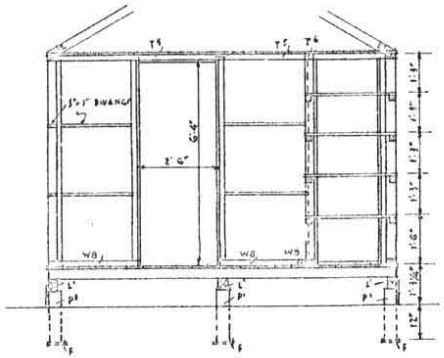
FOR SPACING OF PURLINS SEE SHEET No 1.



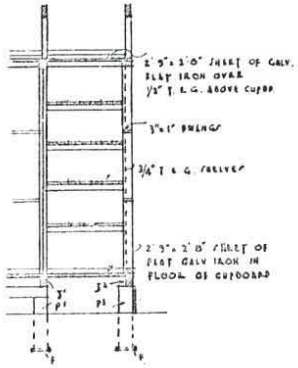
ELEVATION OF FOUNDATIONS AT ENTRANCE END OF BUILDING



DETAIL AT TOP OF PILES

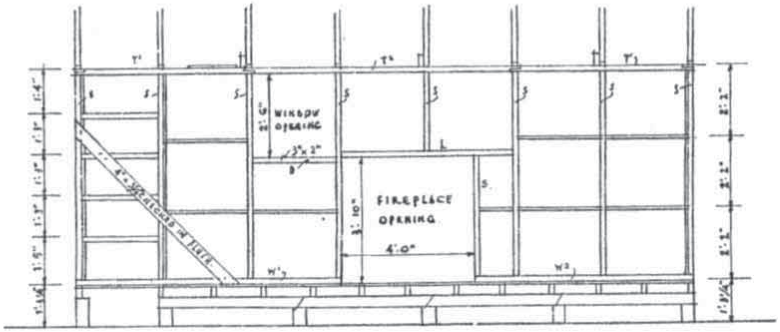



SECTION B-B
(SHEET 1)

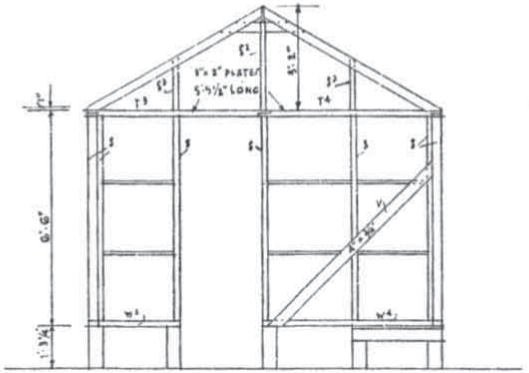



SECTION C-C
(SHEET 1)

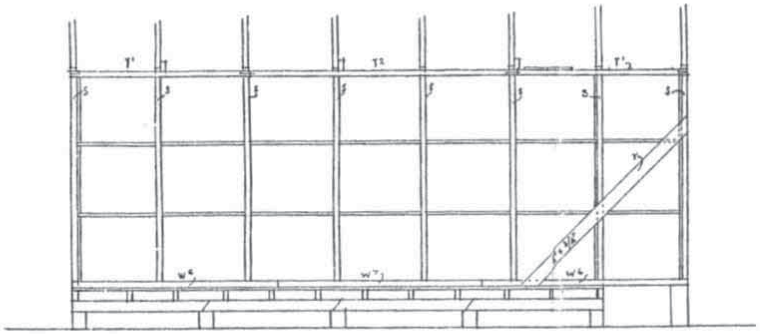
| REVISIONS | | | | |
|---|---|---|---|---|
| | | | | |
| DRAWN R.A.H | D.P.F. HUT 18'8" x 10'8" TIMBER AND FLAT IRON CONSTRUCTION - CORR. IRON ROOF | | FILE No. 4/10/5 NA. | S.70. |
| CHECKED C.M.L. | | | SCALE 3/8" = 1'0" | SHEET 2 OF 4 SHEET |
| APPROVED C.M.L. | N.Z. FOREST SERVICE WELLINGTON | | DATE 12/1/60 | |



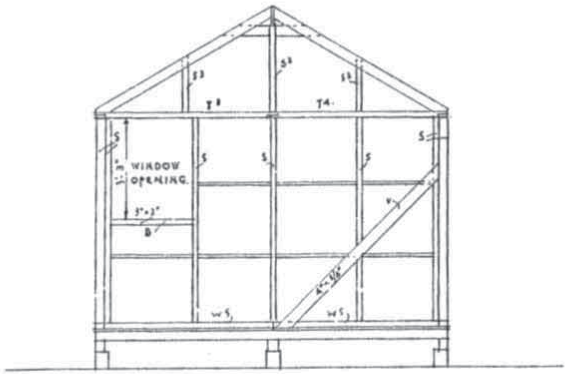

ELEVATION OF SIDE WALL FRAMING




ELEVATION OF END WALL FRAMING



ELEVATION OF SIDE WALL FRAMING.




ELEVATION OF END WALL FRAMING.

| REVISIONS | | | |
|---|---|---|---|
| R | | | |
| R | | | |
| R | | | |
| R | | | |
| R | | | |

| | | | |
|---|---|---|---|
| DRAWN R.A.H. | D.P.F. HUT 18'-8" × 10'-8" TIMBER AND FLAT IRON CONSTRUCTION - CORR. IRON ROOF. | FILE No. 4/10/5 MA | S 70. |
| CHECKED C.W.C. | | SCALE: 1/8"=1'-0" | SHEET 3 OF 4 SHEET |
| APPROVED C.W.C. | N.Z. FOREST SERVICE WELLINGTON | DATE 12/1/60 | |

## SCHEDULE OF QUANTITIES - TIMBER.

| NUMBER | SIZE | LENGTH | TIMBER DESCRIPTION | MARK | INSTRUCTIONS | BOARD FEET |
|---|---|---|---|---|---|---|
| 1 | 6" x 1" | 7'. 0" | 14/6"x6"x1" FOOTINGS | F | CUT ON SITE | 3·5 |
| 1 | 6" x 1" | 31'. 0" | 6/6"x6"x1" " | F | " " " | 1·5 |
| 3 | 4" x 4" | 6'. 2" | 12/1'. 6½" PILES | P' | " " " | 24·6 |
| 1 | 4" x 4" | 4'. 8" | 3/1'. 6½" " | P' | " " " | 6·3 |
| 1 | 4" x 4" | 4'. 5" | 3/2'. 2½" " | P² | " " " | 6·0 |
| 1 | 4" x 4" | 3'. 3" | 2/1'. 10½" " | P³ | " " " | 5·0 |
| 6 | 4" x 3" | 4'. 2¼" | SLEEPERS | L' | PRECUT. 3" SPLAY ONE END. | 25·5 |
| 6 | 4" x 3" | 4'. 2¼" | " | L² | PRECUT 3" SPLAY BOTH ENDS | 25·5 |
| 24 | 4" x 2" | 5'. 4" | JOISTS | J' | PRECUT | 85·3 |
| 1 | 4" x 2" | 2'. 9" | " | J² | " | 1·8 |
| 12 | 4" x 1" | 3'. 11¼" | COVER BOARDS | C' | " | 1·4 |
| 4 | 4" x 1" | 4'. 2¼" | " " | C² | " | 5·7 |
| 2 | 4" x 1" | 5'. 8" | 4/2'. 10" COVER BOARDS | C³ | CUT ON SITE | 3·8 |
| 1 | 4" x 1" | 5'. 6" | 2/2'. 9" " " | C⁴ | " " " | 1·8 |
| 2 | 4" x 1" | 5'. 5" | " " | C⁵ | PRECUT | 1·6 |
| 4 | 4" x 1" | 5'. 4" | " " | C⁶ | " | 7·1 |
| | | | | | | 246·4 B.F. |
| 1 | 3" x 2" | 8'. 1" | WALL PLATE AT SIDE WALL | W' | PRECUT | 4·1 |
| 1 | 3" x 2" | 6'. 7" | " " " " " | W² | " | 3·4 |
| 1 | 3" x 2" | 5'. 0" | 2/2'. 6" WALL PLATE AT END WALL AND TO PARTITION | W³ | CUT ON SITE | 2·5 |
| 1 | 3" x 2" | 5'. 5" | WALL PLATE TO PARTITION | W⁴ | PRECUT | 2·9 |
| 2 | 3" x 2" | 5'. 4" | " " " END WALL | W⁵ | " | 5·33 |
| 2 | 3" x 2" | 6'. 3" | " " " SIDE WALL | W⁶ | " | 6·25 |
| 1 | 3" x 2" | 6'. 2" | " " " " " | W⁷ | " | 6·17 |
| 1 | 3" x 2" | 5'. 1" | 1/2'. 9" PLATE TO PARTITION<br>1/2'. 4" " " CUPBOARD | W⁸<br>W⁹ | CUT ON SITE | 2·6 |
| 4 | 3" x 2" | 5'. 5½" | TOP PLATE AT SIDE | T' | PRECUT & SCALED AT DRG. | 11·0 |
| 2 | 3" x 2" | 8'. 3" | " " " " | T² | " " " " " " | 8·25 |
| 2 | 3" x 2" | 5'. 5½" | " " " END | T³ | " " " " " " | 5·5 |
| 2 | 3" x 2" | 5'. 5½" | " " " " | T⁴ | " " " " " " | 5·5 |
| 2 | 3" x 2" | 5'. 2½" | " " " PARTITION | T⁵ | " " " " " " | 5·2 |
| 1 | 3" x 2" | 2'. 4" | " " " CUPBOARD | T⁶ | " | 1·1 |
| 1 | 3" x 2" | 5'. 0" | 2/2'. 6" BELOW WINDOW OPENINGS | D | CUT TO LENGTH ON SITE | 2·5 |
| 1 | 3" x 2" | 5'. 2" | LINTEL OVER FIREPLACE | L | PRECUT | 2·6 |
| 30 | 3" x 2" | 6'. 2" | STUDS | S | " | 92·5 |
| 2 | 3" x 2" | 6'. 4" | " AT CUPBOARD | S' | " | 6·3 |
| 1 | 3" x 2" | 5'. 4" | 2/2'. 8" END WALL JACK STUDS | S² | CUT TO LENGTH ON SITE | 2·7 |
| 1 | 3" x 2" | 7'. 0" | FOUR END WALL JACK STUDS | S³ | CUT AND CHECK ON SITE | 3·5 |
| 4 | 4" x ¾" | 7'. 0" | WALL BRACING | V | CUT ON SITE & CHECK INTO STUDS | 7·0 |
| 1 | 6" x 1" | 6'. 6" | HORIZONTAL CORNER BRACING | H' | CUT ON SITE | 3·2 |
| 2 | 3" x 2" | 7'. 0" | " " " | H² | " " " HALVED JOINTS | 7·0 |
| 6 | 3" x 3" | 5'. 4" | COLLAR TIES | R' | TRIM CORNERS OFF ON SITE | 16·0 |
| 1 | 6" x 1" | 8'. 0" | 3/2'. 8" COLLAR TIE SUPPORTS | R² | CUT ON SITE | 4·0 |
| 1 | 3" x 1" | 4'. 6" | 3/1'. 6" COLLAR TIE SPLICES | R³ | " " " | 1·1 |
| 4 | 3" x 2" | 5'. 4" | 8/2'. 8" TIES | R⁴ | CUT ON SITE | 10·7 |
| 3 | 6" x 1" | 5'. 4" | RIDGE ROLLS | R⁵ | PRECUT | 7·9 |
| 1 | 6" x 1" | 2'. 8" | " " | R⁶ | " | 1·3 |
| 14 | 3" x 2" | 6'. 5" APRON | RAFTERS | R' | PRECUT & SHAPE FROM A TEMPLATE | 50·0 |
| 13 | 3" x 1" | 7'. 6" | 39/2'. 6" DWANGS | NOT MARKED | CUT ON SITE | 14·4 |
| 4 | 3" x 1" | 6'. 2" | VERTICAL FIXINGS FOR LININGS | " | PRECUT | 6·2 |
| 28 | 2" x 2" | 5'. 0" | PURLINS | " | CUT ON SITE | 47·0. |
| 3 | 3" x 2" | 7'. 0" | SPARES | " | PRECUT | 10·5 |
| | | | | | WEIGHT lbs. | 502·6 TOTAL |
| | | | | | | SUPER FT. |
| 22 | OUT OF 6"x1" | 7'. 7" | T & G. FLOORING | NOT MARKED | PRECUT | 83·6 |
| 22 | " " " | 6'. 6" | " " | " | " | 53·5 |
| 2 | " " " | 8'. 0" | 6/2'. 8" T & G. FLOORING TO CUPBD. | " | CUT ON SITE | 8·0 |
| 59 SQ FT. | " " " | 5'. 8" | T & G. FOR CUPBD. AND PORCH. | " | " " " | 59·0 |
| | | | | | WEIGHT lbs. | 244·1 TOTAL |

## EXTERIOR SHEATHING - MATERIALS & QUANTITIES.

10/7'.0"x 2'.6 SHEETS 26 G. CORR GALV. IRON FOR ROOF.
3/ 7'.0" LENGTHS 26 G. GALV. IRON RIDGING.
12/ 8'.0"x3'.0" 26G GALV FLAT IRON FOR SIDE WALLS - SEE NOTE SHEET No 1.
1/ 4'.6"x3'.0" " " " " UNDER SIDE WINDOW.
1/ 3'.9"x3'.0" " " " " END "
2/ 3'.11"x3'.0" " " " " ABOVE FIREPLACE.
1/ 4'.6"x2'.0" " " " " TO ONE SIDE OF FIREPLACE.
9/ 7'.0"x3'.0" " " " " FOR END WALLS AND PARTITIONS.
4/ 5'.0"x3'.0" " " " " " GABLES - CUT TO SHAPE ON SITE.
2/ 2'.9"x2'.6" " " " " " ABOVE AND BELOW CUPBOARD.
1 ROLL OF 3'.0" WIDE 60/60 SISALKRAFT TO GO UNDER IRON
4/4 GAL. TINS OF "CARBOLASTIC" FOR PAINTING INSIDE OF SHEATHING AND LAPS
1/2 " " " PRIMING PAINT FOR OUTSIDE OF SHEATHING
1/ 2 " " " TANGERINE " " " " "
15 lbs OF 1½" x 14 G. GALV. CLOUTS FOR SHEATHING - CLOUTS SPACED AT 6" CRS.
1 PKT. OF TACKS FOR HOLDING SISALKRAFT IN PLACE WHILE FIXING SHEATHING.

WEIGHT lbs.

## INSIDE LININGS - MATERIALS & QUANTITIES

INSIDE WALLS TO BE LINED WITH 3/16" THICK plywood AS FOLLOWS:
6/ 6'.6" x 2'.9" FOR SIDE AND END WALLS NEAR CORNERS.
7/ 6'.6" x 2'.0" " " " " "
1/ 6'.6" x 2'.4" " END WALL.
1/ 3'.10" x 2'.9" BELOW SIDE WINDOW
1/ 5'.1" x 2'.9" " END "
1/ 5'.4" x 2'.8" ABOVE FIREPLACE
1/ 3'.11" x 1'.3" AT SIDE OF FIREPLACE.
1 ROLL SINGLE SIDED ALUMINIUM FOIL INSULATION - SEE NOTE SHEET 1.
1 PKT OF SMALL BARBS FOR FIXING PLYWOOD.
1/ ½ GAL. TIN OF CLEAR VARNISH FOR PLYWOOD.

WEIGHT lbs.

## MISCELLANEOUS QUANTITIES

7 lbs 2½" FLOOR BRADS
1 lb OF 2" NAILS
2 lbs OF 3" GALVD. NAILS FOR FOOTINGS
16 lbs OF 4" NAILS FOR FRAMING
1 ROLL OF 2" WIDE "DENSO" TAPE.
100 FT. No 8 GALV. WIRE
10 lbs OF LEAD HEADED NAILS FOR CORR. IRON.

WEIGHT lbs

REFERENCE: SEE THE FOLLOWING DRAWINGS FOR FURTHER DETAILS.

P. 210 FIREPLACE.
P. 211 GUY WIRES.
P 212 WINDOWS & DOORS.
P 127 BUNKS & TABLE.

1 REFERENCE LIST EXTENDED. 15-8-60 C.M.C.
2 SCHEDULE CORRECTED RE LINING 21-9-64 M.W.

## SPECIFICATION

TIMBER. TIMBER TO BE AS SPECIFIED BELOW OR EQUIVALENT. FLOORING T. & G. 1ST GRADE TREATED. EXOTIC TIMBER. SUB FLOOR TIMBER SHALL BE TREATED No 1. FRAMING GRADE RADIATA PINE. FRAMING TIMBER No 1. FRAMING GRADE RADIATA PINE-TREATED. ALL TIMBER TO BE WELL SEASONED DRESSED AND GAUGED.

PAINTING - INSIDE OF SHEATHING AND LAPS TO BE PAINTED WITH "CARBOLASTIC." OUTSIDE OF SHEATHING TO BE PRIMED AND PAINTED TANGERINE. EACH HUT WILL BE ALLOCATED A NUMBER WHICH WILL BE PAINTED ON ONE SIDE OF THE ROOF WITH "CARBOLASTIC." THE FIGURES TO BE 4'.0" HIGH WITH 6" WIDE STROKES. INSIDE SURFACE OF IRON TO BE PAINTED JUST BEFORE FIXING TO ENSURE THAT "SISALKRAFT" WILL STICK TO SAME. PLYWOOD LININGS TO HAVE CLEAR VARNISH FINISH.

GUY WIRES: THESE MAY BE OMITTED WHEN HUT IS TO BE BUILT ON A SHELTERED SITE.

SHEATHING: THE OUTSIDE OF WALLS AND ROOF FRAMING TO BE COVERED WITH 60/60 GRADE "SISALKRAFT" TACKED IN PLACE BEFORE FIXING IRON. FLAT IRON TO BE FIXED WITH GALV. CLOUTS AT 6" CRS. ALONG ALL LAPS AND DWANGS. CORRUGATED IRON TO BE FIXED WITH LEAD HEADED NAILS.

LINING: WALLS TO BE LINED WITH PLYWOOD 3/16" THICK OVER ALUMINIUM FOIL INSULATION. THE INSULATION TO BE SINGLE SIDED AND FIXED WITH THE FOIL FACING THE WALL CAVITY.

DRAWN R.A.H.
CHECKED E.M.C.
APPROVED E.M.C.

# D.P.E HUT 18'.8"x 10'.8"
# SCHEDULE OF QUANTITIES.

N.Z. FOREST SERVICE, WELLINGTON

FILE No. 4/10/5 NA. S.73
SCALE
DATE 9 - 3 - 60
SHEET 4 OF 4 SHEET