

HUT PROCUREMENT MANUAL

PART C

FOR BACKCOUNTRY HUTS LARGER THAN 12 BUNKS

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Department of Conservation
Te Papa Atawhai

CONTENTS

	PAGE
Section C1: The Process	1
1.1 Purpose	1
1.2 Pre- Process decisions and information gathering	3
1.3 Briefing decisions and information gathering	6
1.4 Preliminary Design	11
1.5 Site Visit	13
1.6 Developed Design	14
1.7 Resource Consent	16
1.8 Tender and Building Consent Documents	17
1.9 Building Consent and Tender and Contract:	18
1.10 Construction observation and Contract administration	20
1.11 Feedback	22
Section C2: Technical Information	23
2.1 Purpose	23
2.2 Document Sets	23
2.3 Preliminary Design documents	24
2.4 Developed Design documents	26
2.5 Tender and Building Consent documents	27

Section C1: The Process

1.1 Purpose

To provide a consistent national process by which the Department procures a completed backcountry hut with a sleeping capacity of more than 12 or including staff quarters, including outbuildings and departmental supplied items, in an efficient and effective manner. This process is mandatory for all serviced, standard and basic huts.

This manual is not and can not be prescriptive for the requirements of all backcountry visitor huts. A balance must be maintained between addressing the majority of huts in the majority of situations while keeping document size to a minimum.

Other parts of this manual provide prescriptive solutions for huts with a sleeping capacity of 12 or less. These huts are small, with low visitor numbers, represent the majority of huts provided, and applying a standard solution can meet both the needs of visitors and building code compliance.

Huts with a sleeping capacity of more than 12 are relatively few in number and have differing requirements in terms of size and user needs (either visitor or staff). Their relative size and cost enables specific design that addresses these aspects to be a feasible option. However, that specific design is usually more related to the functional layout of the hut and little with respect to matters of code compliance. Therefore, much of the technical information included in this manual for smaller huts can and should provide a starting point, if not the construction detail, for the design of these huts.

Similarly, the process for these huts can be essentially the same, with only minor modification to suit the circumstances.

In order to achieve this purpose, the necessary stages and actions are noted, and the appropriate parties that are responsible for carrying out those actions identified.

DOC Process: Use of the Manual

The first few sections of Parts A, B and C identify the task involved at each stage, the party responsible for that task and the actions to be undertaken as part of that task.

There are five parties involved in the Process:

- DOC project manager: This may be Area, Conservancy or Regional staff as identified and applicable. They are responsible for overall project co-ordination, management and programming to meet the project needs of DOC. It is expected that the nominated DOC project manager will have the requisite skills but, due to either time, resource or skill issues, they may chose to engage outside consultants to assist with some aspects of their tasks and actions.*

- *Architect: Pynenburg and Collins Architects Ltd, providing the design and documentation tasks, including co-ordination of consultants and co-operation with the complex toilets consultant.*
- *Contract Administrator: Providing the services that would have been provided by the architect if they had been local. They receive the completed tender and building consent documents and carry out the building consent, tendering, construction observation and contract administration tasks.*
- *Consultants: Surveyor, structural engineer, foundation engineer, environmental engineer (for minor works such as sullage and soakage pits only), where such consultants will be providing input into the design and documentation of items required to be part of the hut itself. Such consultants will work under the direction of the architect and the Contract Administrator.*
- *Environmental Engineer: Occasionally an Environmental Engineer will be engaged by DOC to design and document a stand-alone complex toilet system (anything other than a VIP toilet) that will be part of the project. With the need to manage the design and documentation effectively and efficiently, the Environmental Engineer will act separately under the direction of DOC staff and co-ordinate with the architect and Contract Administrator.*

DOC Process: Examples of large huts – plans and photos

Examples of huts larger than 12 bunks that have been built using the Hut Procurement Manual can be found on the Asset Management Information System. The final plans for, and photos of these huts can be viewed by going to the hut equipment in AMIS. These provide good illustrations of the possible designs for the larger huts.

The following huts are examples of large huts built in recent years using the Hut Procurement Manual:

Hut	Technical ID	Sleeping capacity	Details
Hawdon	27405	20 (+ 2 wardens)	Plans – documents 234612, 234613 Photos – inside and out
Lake Alabaster	27341	26 (+3 wardens)	Photos inside and out
Young	47581	20 (+ 3 wardens)	Full set of plans and specs Photos inside and out
Woolshed Creek	11740	26 (+ 2 wardens)	Plans – documents 212597 to 212604 Photos
Upper Travers	24847	24 (+ 2 wardens)	Photos only (no plans)
Dart	17853	32 bunks	Photos and some plans

1.2 Pre- Process decisions and information gathering

Responsibility:

DOC Project Manager:

- To follow the associated procedures as identified in other manuals or documents.
- To compile the necessary information and to make the required decisions in order to commence the Process as identified in this manual.

Actions:

1.2.1: Strategic planning

By reference to CMS and other DOC strategic planning documents, public consultation and the like, confirm the long-term need for the new hut, its most desirable location, visitor group, required bunk size and the inclusion of staff quarters. Carry out the assessment of geological and other hazards for the preferred site and determine the suitability of the preferred site.

1.2.2: Identify name:

Determine hut name and asset numbers for consistency in all project documents and departmental files.

1.2.3: Service Standard category:

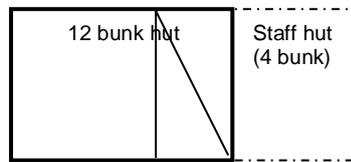
Identify whether the new hut will be a Serviced, Standard or Basic hut and any proposed variations to the Service Standards. If any variations from the Service Standards requirements are desired these will require approval from the General Manager Research and Development at this stage in the Process.

1.2.4: Service Standard category:

When determining hut bunk capacity, staff huts are additional to the building footprint for 10 and 12 bunk huts. For huts larger than 12 bunks, they are included within the building footprint, thereby reducing the available visitor bunks. Where staff huts will be separate buildings then these guidelines do not apply, and the bunk capacity equates to the nominal hut size.

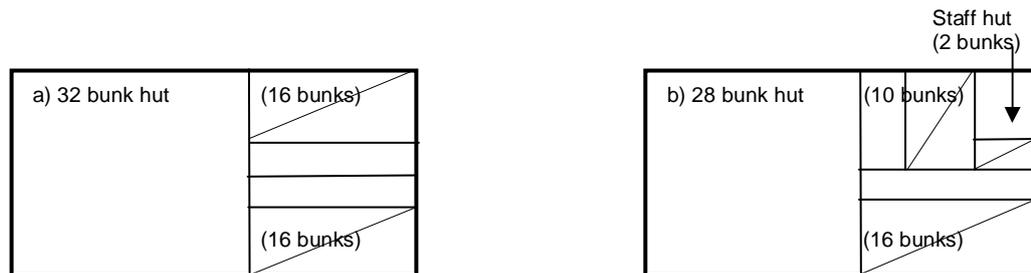
Therefore, if you want 12 bunks for visitors and four bunks for staff, the building's bunk capacity will be 16 bunks – 12 visitor bunks provided in a nominal 12 bunk hut and four staff bunks provided in a staff hut addition (e.g. Trevor Carter hut). If you want around 32 bunks for visitors and two bunks for staff, then the staff bunks will be provided in a room contained within the footprint of the 32 bunk hut. This reduces the actual hut visitor bunk capacity (e.g. Totara Flats with 26 visitor bunks and two staff bunks) to less than the nominal hut capacity.

Figure 3: Calculating bunk capacity examples



10 and 12 bunk huts:

Nominal hut size = 12 bunks,
Bunk Capacity = 12+4 = 16 bunks



20 and 32 bunk huts:

- a) Nominal hut size = 32 bunks, Bunk Capacity = 32 bunks
- b) Nominal hut size = 32 bunks, Bunk Capacity = 16+10+2 = 28 bunks.

Given the gap between 12 and 20 bunks, between 20 and 32 bunks, and the myriad of local requirements, there will be situations where these guidelines do not result in the best solution for either hut visitors or DOC staff. Where a different bunk capacity is required, and particularly if it is a greater capacity than has been approved in principle, this will require approval from the General Manager, Operations at this stage in the process.

1.2.5: Assessment of Environmental Effects:

Prepare an Assessment of Environmental Effects; a full one using wgnco-28273 for huts that will be built on a new site and a checklist (using the headings in that document) for huts that will be replacing buildings on the same site.

Note there is no external requirement to prepare an AEE. The reason for requiring an AEE for this work is to ensure that the effects of the hut building proposal are acceptable within the department and to interested outside parties. It will also compile in one place the information you have to provide to a local authority for resource consent. The AEE or checklist is filed and made available internally or outside DOC as required.

1.2.6: Resource Consents:

Identify for what aspects of the project a Resource Consent may be required and the governing Territorial Authority.

1.2.7: Financial control

Set up and follow the financial control procedures for capital projects and obtain financial approval in principle.

DOC Process: The Process

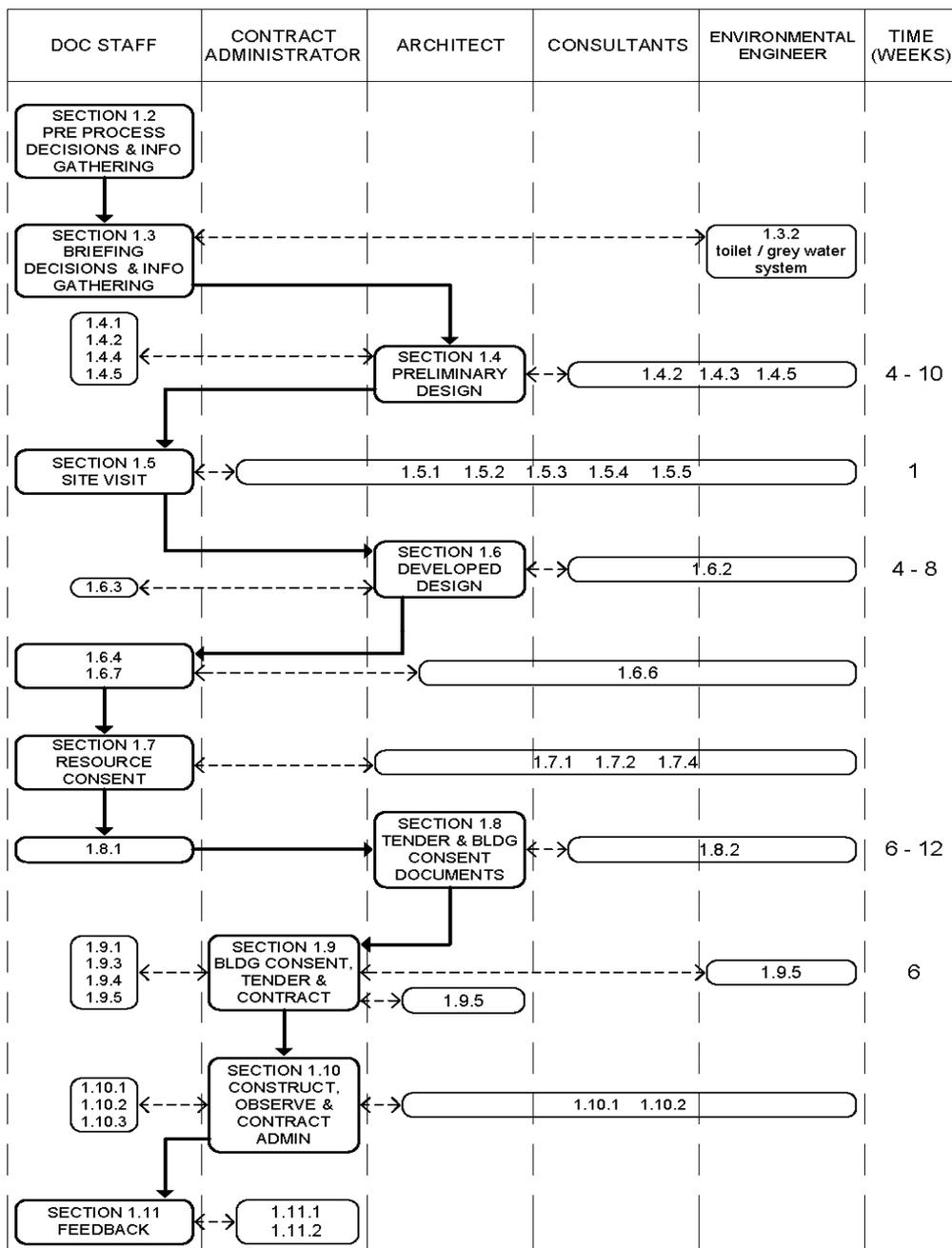


Figure 1: Large hut Process

Across the top are the five parties involved. The heavily outlined boxes identify the tasks included in the Process and these line up underneath the party responsible for that task. The heavy arrow identifies the Process itself and how it moves from party to party. The lightly outlined boxes identify the actions other parties are involved in for each task, and these also line up under the parties involved.

Down the right hand side are time periods, identifying the expected duration of each task. As each large hut is unique, the time taken to procure a hut is variable, dependent upon many factors. For each hut, a project specific timeline should be developed.

1.3 Briefing decisions and information gathering

Responsibility:

DOC Project Manager:

- To set up the project structure and key personnel,
- To compile and provide the necessary brief (or information and requirements) to enable the architect to produce the Preliminary Design.

Actions:

1.3.1: Appoint Contract Administrator.

Usually the architect will not be local. A local Contract Administrator is required who will receive the tender and building consent documents from the architect and carry out the building consent, tendering, construction observation and contract administration tasks that otherwise the architect would perform. The Contract Administrator could be a staff member (perhaps the Project Manager) or an external consultant (the Architect, Engineer or another consultant). They must be local to effectively attend to any site, construction or contractual issues, and must be included in the site visit (refer section 1.5 below).

1.3.2: Scope of Project:

Identify the scope of the total project that will be included in the contract involving the construction of the hut. Identify which, if any, of the following work is to be included in the scope of work and whether DOC or the Contractor will undertake it:

- existing features to be retained, removed or reused, such as a hut, track, accessory buildings, and the like.
- vegetation clearance and tree cutting,
- track work
- hut platform excavation,
- toilet and grey water systems (refer also 1.3.13 below)

- outbuildings (woodsheds and the like)

Note that, if the intention is to have a separate contract to carry out other work on the site (e.g. a toilet block and effluent field, or vegetation clearing, or track work) and this work would be carried out at a different time to the hut contract, you need only advise of the intention to do such work and the likely area involved in such work. The purpose of this is to ensure that the hut project (and its related work) does not compromise or conflict with other work to be carried out separately on site.

1.3.3: Visitor Group and Use:

As well as identifying the visitor group describe expected use and the pattern of use and note all matters that will influence the use and capacity of the hut. For instance, is this a hut that visitors will generally stay at for more than one night, treat as a destination hut where they would spend a reasonable part of the day, or a hut on a circuit where they arrive, stay the night and move on? Will there be a significant difference between winter and summer use? Is there significant day use of the hut, or some special site specific attraction?

1.3.4: Resource Consents:

Identify for what aspects of the project a Resource Consent may be required and the governing Territorial Authority.

1.3.5: Site Location and Information

Obtain 1:50,000 map number, grid reference, altitude and 5km x 5km extract from NZMS 260 series.

If there is no site plan and/or aerial/ground photos of the site, then prepare a site plan and/or obtain aerial/ground photos. The site plan should be to scale (no smaller than 1:200) and include information on contours and ground slopes/falls, water courses, water bodies, limitations (such as minimum distance from bluffs or levels above rivers/lakes, etc), vegetation, tracks, and any existing buildings.

Obtain a series of photos of the site including an aerial photo of the whole site, ground views across the site from at least two directions, views from the hut site towards the main compass points and specific photos of any particular views required/desired and as required to fully explain the site.

If required, the architect can be engaged to carry out the site visit and produce both the site plan and the photographs. Other issues that would otherwise be addressed under 1.5 Site Visit can also be discussed.

1.3.6: Special Environments

A hut in either an alpine environment or a harsh environment requires specific materials and/or construction details to be incorporated.

An Alpine environment is where design is dictated by extremes of wind and snow loading. Generally these huts are sited at altitudes above 1,200m and/or are subject to snow loads of 2kPa or more. In the South Island keas may also be present. Occasionally it would be extended to include huts below 1,200m where similar conditions are experienced. Further guidance is included in Part E4 of this manual.

A Harsh environment is where design is dictated by a higher risk of corrosion and will either be coastal or geothermal. Generally these huts are sited within 500m of the coast or within the Central volcanic plateau of the North Island. Figure 4.1 of NZS 3604 identifies these areas as the sea spray zone and zone 4 respectively. Further guidance is included in Part E5 of this manual.

Identify if the hut is in either of these environments, or collect sufficient data for the architect to make this decision.

1.3.7: Ground material/condition

Provide copy of any geological or avalanche hazard assessment, describe soils on site including known conditions such as soft or fragile ground geotechnical problems, and limitations (such as minimum distance from bluffs or levels above rivers/lakes, etc) that would restrict or affect location on site, orientation, or require specific design.

1.3.8: Climatic and local conditions

Describe or quantify as much as possible prevailing wind direction, temperature range, snow fall, rain fall, sunshine hours, significant shading from vegetation and/or landforms, and other conditions that the hut and visitors will be subject to.

1.3.9: Structural loads

Have local DOC Engineer identify relevant zone and calculate and provide applicable design loads or factors for the following:

- earthquake zone (by reference to figure 5.4 of NZS 3604),
- wind zone (L, M, H, VH, or specific design). For specific design provide speed (in m/s) and wind load (in kPa) for north, south, east and west elevations of the hut.
- snow load, including any drift allowance onto verandahs (by reference to figure 15.1 of NZS 3604 or specific design). For specific design provide snow loads in kPa.

The standard design loads for a larger huts are

- floor: 3.0kPa
- deck: 2.0kPa

1.3.10: Cladding

Identify which cladding is required. Note that generally ply and batten should only be selected for sheltered sites below the bushline.

- Colorsteel
- Ply and batten

If the hut is located in a harsh environment (i.e. coastal or geothermal) refer to part E5 of this manual for guidance.

1.3.11: Hut feature, fittings and fixtures options

Identify which, if any, of the following features, fittings and fixtures are required due to local conditions or needs:

- Water tank/water supply (refer also Part E3):
 - Desired tank capacity. No guidance is provided in Part E3, as local knowledge will provide a far better indication of storage needs.
 - Water supply system, if roof-fed tanks not adequate.
- Internal and/or external sinks (Note that when a sink is chosen, a grey water system is required for disposal of waste water. Refer to part F2 of this manual for guidance.)
- Space heating (if not a multi-fuel burner, advise preferred type)
- Insect proofing (sandflies, mosquitoes and the like a problem)
- Provision of decks

1.3.12: Staff Quarters

Identify number of staff to be accommodated (a maximum of four is permitted), and describe the expected use including tasks performed and average duration of stay. Note particular facilities and fixtures to be incorporated, including –

- Gas appliances
- 12V electrical appliances
- Plumbing fixtures
- Joinery (any in addition to that provided in a small hut)

1.3.13: Toilet and Grey Water

Where a toilet is required refer to part F1 of this manual for guidance to establish whether a pit toilet can be utilised or if specific design is required. If a pit toilet can be used, then part F1 provides compliant solutions.

Where a Grey Water disposal system is required refer to part F2 of this manual for guidance to establish whether the standard solutions in F2 can be utilised or if specific design is required.

If specific design for either toilet or grey water is required identify Environmental Engineer who will be advising the department on selection, and carrying out the design and documentation of the toilet and/or grey water disposal system. This consultant will be engaged in a parallel process of advice, design and documentation.

Where the toilet or grey water system will be built under the hut Contract the Environmental Engineer will co-operate as required with the architect, be included in the site visit (refer section 1.5 below), and provide their completed documents to the architect for co-ordination and integration into the document set at the Developed Design and Tender/Building consent stages.

1.3.14: Other site specific issues or hazards

Record anything else that is relevant.

1.3.15: AMIS:

Where an existing hut is to be replaced, obtain a copy of all AMIS information on the site, including baseline inspections, scaled site plan, aerial and ground photographs, geotechnical reports, construction documents, toilet/waste disposal systems and the like.

1.3.16: Forward information:

Compile the above information and forward it to Pynenburg and Collins Architects Ltd, PO Box 2115, Wellington, Attention Ron Pynenburg. Electronic copy is acceptable (email ron@pc-architects.co.nz). Scanned documents are only acceptable if they are scanned to a resolution that maintains clarity and the scale is clearly identified on the documents. As scale and clarity is important, if this is not possible, rather than scan documents, post photocopies – a few days will not affect the programme.

To discuss any of the necessary detail while compiling the information contact Ron Pynenburg via email or phone (DDI 04 916 2201).

1.4 Preliminary Design

Responsibility:

Pynenburg and Collins Architects Ltd:

- Produce a Preliminary Design that enables input from, and review/comment and resolution with Area staff on the local requirements for the hut, and forms a check document for use during the site visit.
- This task may include the input of other consultants required to be involved in the design and documentation.

Actions:

1.4.1: Review information:

Receive above information from DOC Project Manager and review for completeness. In particular review information regarding:

- location in either an alpine or harsh environment (refer Parts E4 and E5 of the manual).
- Suitability for pit toilet or need for specific design (refer Part F1 of the manual)
- Suitability for standard grey water disposal or need for specific design if sinks required (refer Part F2)

Follow up on any errors or omissions, seek clarification as required from DOC Project Manager before proceeding.

1.4.2: Consultants:

Considering the whole project ascertain if consultants (those not already advised as being engaged by DOC) are required to provide design and documentation for the project from the following list:

- Surveyor (if steep or confined site),
- Structural Engineer (if hut outside parameters of NZS 3604),
- Foundation Engineer (for Conqra Ezi-Yaka or specific design foundation system),
- Environmental Engineer (if toilet, grey water and/or stormwater disposal systems required,
- Any other specialist consultant (provide reason).

Advise DOC staff of the need for such consultants and the timing and extent of their involvement. Request the engagement of suitable consultants to enable the proper completion of the design and documentation of these aspects of the project. Upon receiving approval to engage such consultants (or being advised of the consultants DOC has engaged) forward the necessary information to such consultants to enable them to carry out their services, and advise them of what is required of them as part of the pre-site visit preliminary design.

The architect is responsible for the co-ordination of these consultant's design and documentation of work that that will form part of the building contract. For minor work, these consultants will provide sketches and notes for drawing up by the architect. For major works, these consultants will provide their own drawings and specifications for inclusion in the document set.

1.4.3: Preliminary Design:

Following the more detailed notes in section 2.2 prepare Preliminary Design documents, comprising site plan, floor plan, four elevations and cross section, and preliminary Outline Specification for the hut.

If required, receive, review and provide comment on preliminary design documents received from other consultants. Manage the amendment of such documents by these consultants as required. Co-ordinate and incorporate documents and outline specifications received to form a complete and coherent project set of Preliminary Design documents.

It may well be that some of the consultants cannot provide much, if any, documentation at this stage as they first require further information that can only be obtained from the site visit. Such information requirements are to be noted on the Preliminary Design documents.

1.4.4: Review/Comment:

Forward Preliminary Design documents to DOC Project Manager for review/comment/agreement. If, as a result of the response, variations from the Briefing information and decisions arise that relate to service standard, bunk capacity, or other departmental policy matters, then this will require approval from the General Manager Research and Development prior to the project proceeding further.

The DOC Project Manager is responsible for forwarding the required information and obtaining the necessary approvals from the General Manager Research and Development.

Otherwise undertake a process of review and amendment as required to resolve the Preliminary Design.

1.4.5: Agreed Preliminary Design:

Based on feedback, and General Manager Research and Development approvals (if required), finalise Preliminary Design documents, including all necessary documentation from other consultants.

1.4.6: Forward documents:

Forward Customised Base Design drawings and Outline Specification to DOC Project Manager.

1.5 Site Visit

Responsibility:

DOC Project Manager:

- To arrange a site visit by all necessary personnel to confirm (or amend as necessary) aspects of the Preliminary Design documents as being appropriate to the site prior to the production of Developed Design documents,
- To ascertain if a Resource Consent is required,
- To collect and confirm site information; and to peg out on site the location of the hut and all accessory buildings.

Actions:

1.5.1: Required personnel:

Discuss with the architect which consultants would be required on a site visit. Generally it will be the architect and those consultants required to undertake specific design that is dependent on site specific conditions that can only be determined from the site visit. Where DOC Area staff will not be the Contract Administrator, ensure the appointed Administrator attends the site visit.

Co-ordinate amongst all the required consultants at least two weeks in advance to arrange a suitable date for a site visit. Those from out of town will arrange their own transport to the nearest airport, and will bring their own gear other than that noted below.

1.5.2: Transport and equipment:

From the airport arrange all local transport to the proposed hut site, including any Health and Safety briefings and gear. Arrange all necessary equipment (e.g. shovels, heavy bar, sledge hammer, and sufficient pegs) to carry out site investigations and to peg out buildings. Contact and co-ordinate with all required consultants to ensure the provision of all necessary equipment (either by DOC or consultant) for the obtaining of all required information during the site visit to enable the resolution of all issues and production of tender and building consent documents.

1.5.3: Resource Consent:

Confirm the aspects of the project for which a Resource Consent may be required with the relevant Territorial Authorities. Identify complying parameters or requirements and extent of site information required if an application is necessary. Determine what on-site investigation is required to confirm the need or otherwise for a Resource Consent and organise the necessary equipment.

1.5.4: Site Visit:

Visit the site and carry out the following actions as required:

- i) Survey site to provide accurate site plan, datum level, site extent and features, and ground levels
- ii) Survey horizon lines to determine extent of available sunlight and views.
- iii) Agree on and peg out hut and accessory building locations,
- iv) Review preliminary design for fit to site in terms of view, access, deck areas and any other specific requirements
- v) Assess and confirm soil condition/profiles for foundation design,
- vi) Select location for toilet, measure distances to waterways and water bodies, assess soil conditions/profile for pit toilet or effluent field.
- vii) Select location for septic tank and/or soakage pit, measure distances to waterways and water bodies, assess soil conditions/profile for grey water system .
- viii) Confirm extent of any excavation and site works (especially vegetation clearance)
- ix) Investigate Resource Consent parameters and information,
- x) Obtain any other information identified as being required to complete design and construction documents.

1.5.5: Summary:

During the site visit the architect and/or DOC engineer will record the required information, and provide it to all who will require it for the production of tender and building consent documents.

1.6 Developed Design

Responsibility:

Pynenburg and Collins Architects Ltd:

- To produce a Developed Design that enables confirmation from DOC Area staff that the intended scope of work is recorded.
- To co-ordinate with the various consultants where specific design is required.
- To produce documentation can form part of a Resource Consent application if necessary.

Actions:

1.6.1: Developed Design Documents:

Based on discussions, notes and information from site visit and following the more detailed notes in section 2.2 prepare Developed Design documents, comprising site plan, floor plan, four elevations, cross and long sections, foundation plan, bracing plan, door & window schedule and Developed Design Specification for hut.

1.6.2: Consultants:

Receive, review and provide comment on Developed Design documents received from other consultants. Manage the amendment of such documents by these consultants as required. Co-ordinate and incorporate documents and outline specifications received to form a complete and coherent project set of Developed Design documents.

For minor work, these consultants will provide sketches and notes for drawing up by the architect. For major works, these consultants will provide their own drawings and specifications for inclusion in the tender and building consent document set.

1.6.3: DOC sign-off:

Forward Developed Design documents to DOC Project Manager for review/comment/agreement and to obtain the sign-off of the Area Manager responsible for the project.

Note that this stage is to be a confirmation that the developed design meets the brief (refer section 1.3 above), not an opportunity for the design or Area requirements to be revisited.

If the response involves variations from the Briefing information that relate to service standard, bunk capacity, or other departmental policy matters, this will require approval from the General Manager Research and Development prior to the project proceeding further.

DOC Area staff are responsible for forwarding the required information and obtaining the necessary approvals from the General Manager Research and Development.

1.6.4: Service Standards sign-off:

Forward Developed Design documents to General Manager Research, and Development (Attention Brian Dobbie) for the scope of work to be checked against the Service Standards.

The hut project will not proceed to tender and building consent documents, and/or to Resource Consent application (if required), without this sign-off. Sign-off is contingent upon approval of the final scope of work (i.e. confirming that the project hasn't deviated from the service standards).

1.6.5: NO CHANGES:

UPON RECEIPT OF SIGN-OFF NO FURTHER CHANGES TO DESIGN OR SCOPE OF WORK SHALL OCCUR IN THE TENDER AND BUILDING CONSENT DOCUMENTS.

1.6.6: Advice:

Advise all consultants that approval has been obtained, including any amendments required or comments received, and instruct them to proceed with tender and building consent documentation.

If Resource Consent is required and approval is not reasonably certain, instruct consultants to wait until consent has been granted before proceeding with tender and building consent documentation.

1.6.7: AMIS:

Set up Proposed Hut Asset in AMIS.

1.7 Resource Consent

Responsibility:

DOC Project Manager:

- To apply for and obtain Resource Consents, when required.

Actions:

1.7.1: Tender and Building Consent documents:

If Resource Consent is not required, or if it is required but approval is certain, instruct the architect to proceed with tender and building consent documentation.

If Resource Consent is required and approval is not reasonably certain, instruct architect to wait until consent has been granted before proceeding with tender and building consent documentation.

1.7.2: Application documents:

In addition to the Developed Design documents compile or obtain from other consultants (if necessary) further documentation as required. Compile and complete Resource Consent application documents.

1.7.3: Application:

Apply for and obtain Resource Consent.

1.7.4: Advice

Advise the architect that Resource Consent has been obtained. When proceeding with tender and building consent documents have been on hold advise architect to proceed.

1.8 Tender and Building Consent Documents

Responsibility:

Pynenburg and Collins Architects Ltd:

- To co-ordinate all consultants to produce a complete and coherent set of tender and building consent documents.

Actions:

1.8.1: Instructions:

Receive sign-off documents and instructions to proceed from DOC Project Manager, including any notes on amendments.

1.8.2: Structural Design loads:

Earthquake, wind and snow loads shall be determined and provided by the DOC engineer in accordance with section 1.3.9. The standard design loads for larger huts are

- floor: 3.0kPa
- deck: 2.0kPa

1.8.3: Documents:

Prepare a set of project specific tender and building consent drawings and specification, as outlined in Section 2.2.

Co-ordinate with the following consultants as required:

- DOC engineer for specific structural design, including tie-downs,
- MiTek New Zealand Ltd for specific roof truss design,
- Lapish Enterprises Ltd for specific foundation design.
- Environmental Engineer for toilets and grey water
- Other consultants as identified

From engineers, receive full sets of calculations and Producer Statement PS1 Design forms.

Receive, review and provide comment on tender and building consent documents received from these consultants. Manage the amendment of such documents as required. Co-ordinate and incorporate documents and outline specifications received to form a complete and coherent project set of tender and building consent documents.

For minor work, these consultants will provide sketches and notes for drawing up by the architect. For major works, these consultants will provide their own drawings and specifications for inclusion in the tender and building consent document set.

The architect's site plan shall show the location of all work and shall act as the co-ordination drawing for the project.

1.8.4: Forward documents:

Provide an electronic set of the tender and building consent documents in pdf file format to the DOC Project Administrator. As all pages are either A3 or A4 format the Contract Administrator will arrange the photocopying of the number of sets required for building consent application and tender.

1.9 Building Consent and Tender and Contract:

Responsibility:

Contract Administrator:

- To manage the obtaining of a building consent,
- To call tenders and to complete a Contract between DOC and the Contractor for the project.

Actions:

1.9.1: Receive documents:

Receive hut documents from the DOC Project Manager. Review all documents received for completeness and compatibility. Follow up on any errors, omissions or conflicts, and seek clarifications and/or corrections and/or further documentation as required before proceeding. Advise DOC Area staff of any such actions.

1.9.2: Building Consent:

Complete all necessary forms, compile all required documentation and make the building consent application. If there are any technical queries or concerns from the Territorial Authority regarding building code compliance, they are to be referred to the architect and/or the relevant consultant as appropriate for a response. This is necessary to ensure national consistency in what is required for code compliance in huts and hut related work.

Once building consent has been obtained, seek advice from architect and/or relevant consultant as required regarding any conditions imposed by the Territorial Authority. Again, this is necessary to ensure national consistency in what is required for code compliance in huts and hut related work.

Note that the obtaining of a building consent can and shall run concurrently with the calling of tenders, but that choosing a contractor must not proceed until building consent has been obtained.

1.9.3: Calling tenders:

In accordance with DOC's 'General Conditions of Construction Works Contract' (wgnho-121411) call tenders. For guidance on the tendering process follow "Instructions for preparing and tendering contracts" (docdm-304896). In consultation with DOC staff, determine a short list of likely tenderers and any specific local issues or requirements that need to be addressed within the tender process or noted as special conditions of Contract.

Note that the calling of tenders shall run concurrently with the obtaining of a building consent.

To ensure transparency and ease of evaluation of tenders received, and to enable DOC to build up a nation-wide data base of costs, all tenderers shall be required to provide a breakdown of their bid using the following sections:

1. Preliminary & General, and margins
2. Carpentry material
3. Carpentry labour
4. Joinery (doors and windows) supply
5. Plumbing & Drainage
6. Painting
7. Transportation
8. Project specific work (demolition and the like) if applicable
9. Contingency Sum (if applicable)
10. Toilets and ancillary buildings (if applicable) noted separately as a single sum item.

To ensure that the public can be adequately notified of the impact of this work on recreational activities and to enable better management of the building programme request earliest possible start date and planned duration of Contract.

Review tenders received (in particular any tags), including discussions with architect and/or environmental engineer, and report to DOC staff on results including recommendation regarding most appropriate Contractor for the project.

1.9.4: Contract:

Upon receiving instructions as to successful Contractor from DOC staff, complete Contract and arrange signing by both parties.

1.9.5: Construction issue documents:

Review tenders tags, responses from Contractors and conditions of building consent in consultation with DOC staff, the architect and/or the environmental engineer. Advise DOC staff of errors or omissions in the documents, or recommended amendments to the documents (if any). Such amendments shall only be of a technical construction nature and shall not compromise the Service Standard, bunk capacity, other departmental policy matters, or any decisions made earlier. Further to the decision of DOC staff, instruct the architect to revise the documents and provide a Construction Issue set of documents.

Receive Construction Issue documents from the architect and issue to the Contractor.

It may be that there is no need to revise the tender and building consent documents, or the revisions are of such a minor nature they can be managed by way of an Instruction or Variation instead of document alteration or revision. If so, advise the Contractor, architect and Environmental Engineer (if applicable) that the tender and building consent documents shall be the Construction Issue set.

1.10 Construction observation and Contract administration

Responsibility:

Contract Administrator:

- To carry out Contract administration and construction observation tasks as required by the Contract and contract documents, and to ensure that the design intent of the architect is achieved.

Actions:

1.10.1: Observation:

Determine extent and manner of construction observation. Carry out site visits and observation as necessary to be satisfied that the Contractor constructs the hut in accordance with the contract documents.

For any technical queries or issues, which may result in a change of material or detail, refer back to the architect and/or other consultants for advice before instructing the Contractor. Do not instruct any changes, nor accept any errors or omissions by the Contractor without prior discussion with the architect and/or other consultants to ensure that the design intent is not compromised to the detriment of DOC and/or hut users. Advise DOC Project Manager of intended instructions prior to issuing them to the Contractor.

1.10.2: Contract:

Administer the Contract in accordance with DOC's General Conditions of Construction Works Contract. Ensure that all Instructions and Variations are in writing and copied to DOC Project Manager and the architect. Ensure that after Practical Completion is achieved, that all of the Maintenance provisions are followed.

1.10.3: DOC supplied items:

Arrange the delivery and supply of the DOC supplied items as identified in the Contract documents.

1.10.4: Code Compliance Certificate:

Apply for and obtain code compliance certificate.

1.10.5: Completion records:

At the time of the last inspection, after which the Maintenance Certificate can be signed off, obtain the following photographic record:

- aerial view of hut and the site,
- ground perspective view of front of hut,
- each elevation,
- two opposing internal views of the hut,
- where other separate rooms, one internal view of each separate room,
- where staff hut, two opposing internal views of the staff hut, and
- where other buildings, one external photo of each.

Provide DOC Area staff with the following documents, if they do not already hold them:

- Building consent
- Code compliance certificate
- All Instructions and Variations
- Copies of Practical Completion and Maintenance Certificates
- Contractor guarantees and Producer Statement (refer 10.5 of the General Conditions of Construction Works Contract)
- Completion photographic record in electronic (.jpg) format

1.11 Feedback

Responsibility:

DOC Project Manager:

- To monitor, receive and record information and feedback on improvements to the Process and hut designs.

Actions:

1.11.1: AMIS:

Receive the information from the Contract Administrator as identified under section 1.10.5 and place in AMIS under the new hut asset.

1.11.2: Hut Manual:

Obtain and compile comments and feedback from the Contractor, Contract Administrator, DOC Area staff, public, log book and other sources. Send the first compilation to General Manager Research and Development (Attention Brian Dobbie) within one month of receiving the Maintenance Certificate. Send further compilations as and when new comments or feedback are received.

Section C2: Technical Information

2.1 Purpose

To record and provide for the design and construction of DOC's backcountry huts with a sleeping capacity larger than 12 or incorporating staff quarters as required by the Process in Section C1; to optimise the time and reduce the cost involved in the design and documentation of each hut; to enable the design and documentation to be relevant and specific to each hut; and to enable nation-wide consistency in statutory compliance (ie building, fire safety, and health and safety).

In order to achieve this Purpose, this section is structured for the use of the architect in preparing the documents required by the Process. It is not intended that other parties involved in the Process use this section, neither can it be considered to be a 'cookbook' for hut design. The information recorded in this section forms the base information from which the architect completes the documents required at different stages of the Process.

2.2 Document Sets

From the Process there are three key document sets

- Preliminary Design (refer section 1.4 above)

Commencing from the information received from the DOC Project Manager a Preliminary Design is produced, which determines the functional design of the hut including the siting and orientation, extent and layout of fittings and fixtures within the hut, and any site specific design issues.

As required the following Parts of this manual are to be referred to:

Part D for Fire Safety

Part E4 for Alpine environments

Part E5 for coastal or geothermal environments

Part F1 for Pit toilets

Part F2 for grey water systems

- Developed Design (refer section 1.6 above)

Commencing from the Preliminary Design documents and the site visit the Developed Design is produced. The Developed Design fixes the location, project scope, design options, features, fittings and fixtures options, and cladding selection for the hut as well as identifying specific design issues. As required the following Parts of this manual are to be referred to:

Part D for Fire Safety

Part E4 for Alpine environments

Part E5 for coastal or geothermal environments

Part F1 for Pit toilets

Part F2 for grey water systems

The Developed Design is forwarded to both the DOC Project Manager and the General Manager Research and Development for approval and sign-off prior to the commencement of tender and building consent documentation.

- Tender and Building Consent (refer section 1.8 above)

Commencing with the signed-off Developed Design, provision of the technical building information required to enable the construction of the hut to the design and scope as determined by the Developed Design documents. There are no changes made at this time relating to any design decisions made during Developed Design. These documents become the Construction Issue documents unless the tender and building consent process identifies some issues which require amendment of these documents. In that situation amendments are carried out and the revised documents issued as a Construction set.

2.3 Preliminary Design documents

2.3.1: Design Procedure:

In addition to the information provided by the DOC Project Manager, refer to the following documents and parts of this manual for guidance and apply then to produce a compliant design for the hut:

DOC Hut Service Standards (wgnro-19735) –

Follow the instructions and requirements for the applicable visitor group and service standard. The critical parameters that are applied to determine the functional layout of the hut are:

- living area per person – 2m²
- Sleeping space per person – 750mm on a platform
- Cooking bench length per person – 0.3m for huts with a sleeping capacity of 32 or less; 0.24m for larger huts (excluding sinks)
- Seats and tables per person – 300 – 500mm length (not required for huts with a sleeping capacity of 4 or less)
- for sinks, refer to F2

Part D for Fire Safety

Part E4 for Alpine environments

Part E5 for coastal or geothermal environments

Part F1 for Pit toilets

Part F2 for grey water systems

Where staff quarters are included design the quarters to meet the brief as provided. Staff quarters may have gas appliances, 12V electrical systems, plumbing fixtures or specific joinery. Ensure adequate space is provided for the required appliances, fittings and fixtures.

In general the style, material, fixtures and fittings and construction detailing shall be the same as that provided in the 4-12 bunk huts. Refer as necessary to Parts B, E1, E2, and E3 for further information.

2.3.2: Drawings required:

No base drawings are provided as each hut will be a specific design. However, Preliminary Design drawings are expected to be completed to the same level of detail as the Developed Design drawings for the 4-12 bunk huts contained in Part B. Drawings to be produced are:

- Sheet 1 Site Plan 1:200
- Sheet 2 Floor Plan 1:100 or 1:50
- Sheet 3 Four Elevations 1:100
- Sheet 4 Cross Section 1:50
- Sheet 10 (with additional sheets as required) Project Specific - as required to describe complex or particular items that will require project specific documentation for the tender and building consent stage).

2.3.3: Outline Specification:

No base specification is provided as each hut will be a specific design. However, the Outline Specification should follow the same format as the Developed Design specification for the 4-12 bunk huts contained in Part G to enable a Developed Design specification to be subsequently produced.

Commence with the Base Developed Design Specification included in Part G and by following the associated guidelines create a project specific Outline Specification. Paragraphs are not required – bullet points recording the key design decisions only are required. For any hut specific items not included in the base outline specification, add the necessary paragraphs and or sections. For items not already covered by sections add specific sections at the end of the specification to avoid disrupting the numbering system. Most likely additional sections will cover:

- Staff quarters inclusion and fire separation,
- gas appliances,
- 12V electrical systems and solar panels
- staff quarters additional joinery,
- staff quarters plumbing fittings (e.g. showers).

2.3.4: Other Consultants

If input by other consultants is required at this stage, direct and co-ordinate the provision and inclusion of their designs, documentation and information requirements into the Preliminary Design documents.

2.3.5: Amendment:

As noted in Section 1.4.4, a process of review and amendment may be required to resolve the Preliminary Design.

2.4 Developed Design documents

2.4.1: Drawings required:

No base drawings are provided as each hut will be a specific design. However, Developed Design drawings are expected to be completed to the same level of detail as the Developed Design drawings for the 4-12 bunk huts contained in Part B. Drawings to be produced are:

- Sheet 1 Site Plan 1:200
- Sheet 2 Floor Plan 1:50
- Sheet 3 Four Elevations 1:100
- Sheet 4 Cross Section A 1:50
- Sheet 5 Cross Section B 1:50
- Sheet 6 Foundation Plan 1:50
- Sheet 7 Bracing Plan 1:50
- Sheet 8 Window & Door Schedule 1:50
- Sheet 10 (with additional sheets as required) Project Specific - as required to describe complex or particular items that will require project specific documentation for the tender and building consent stage).

2.4.2: Drawing Procedure:

Sheets 1 - 4

Commence with the Preliminary Design sheet, and incorporate further information as required.

Sheets 5 – 7

These drawings are expected to be completed to the same level of detail as the Developed Design drawings for the 4-12 bunk huts contained in Part B.

Sheet 8

If beneficial, commence with the base sheet for the 4-12 bunk huts contained in Part B and amend as required to suit.

Sheet 10 (with additional sheets as required) Project Specific

Commence with the Preliminary Design sheet or sheets, and incorporate further information as required.

2.4.3: Developed Design Specification:

Commence with the base Developed Design specification for 10 and 12 bunk huts (Appendix G1.2) and by following the associated guidelines create a project specific Developed Design Specification. As the default specification is for a small hut, all sizes, spacings, fixings and the like shall be checked to ensure they are appropriate to the larger hut.

Other aspects that are universal across huts (e.g. cooking benches, sleeping platforms, joinery, stairs, barriers and the like) are to be the same as for the smaller huts.

If the hut is in an Alpine or harsh environment refer also to Parts E4 and E5 for additional annotations and amendments.

If a pit toilet or a grey water disposal system is required refer to either Part F1 or F2 for additional annotations and amendments.

For any hut specific items not included in the base Developed Design specification, add the necessary paragraphs and or sections expanding on the information contained in the Preliminary Design specification. For items not already covered by sections add specific sections at the end of the specification to avoid disrupting the numbering system. Most likely additional sections will cover:

- Staff quarters inclusion and fire separation,
- gas appliances,
- 12V electrical systems and solar panels
- staff quarters additional joinery,
- staff quarters plumbing fittings (e.g. showers).

2.4.4: Other Consultants

If input by other consultants is required at this stage, direct and co-ordinate the provision and inclusion of their designs, documentation and information requirements into the Developed Design documents.

2.5 Tender and Building Consent documents

2.5.1: Drawings required:

Drawings to be produced are provided in six sections:

- | | |
|--------------------------|----------------|
| • Project specific | various scales |
| • Construction details | 1:10 or 1:5 |
| • Toilets and Grey Water | various scales |
| • Other consultants | various scales |

2.5.2: Drawing Procedure:

Project Specific

Commence with the signed off Developed Design sheets 1 – 8 and any project specific sheets. Amend or annotate as required to provide the information required for tender and building consent. Prepare any sheets required that are additional to those prepared for Developed Design.

Where other consultants (eg Environmental Engineer) are providing separate documentation, the site plan identifies all such work and is the co-ordination sheet for the project.

Construction Details

By reference to Part E compile the necessary sheets utilising as much as possible the standard detail sheets that are provided for the smaller huts. Amendments are likely to be made to reflect different structural requirements or specific design aspects that have been identified earlier in the process and within the Developed Design Documents. Prepare additional construction detail sheets as required, including:

- Fire separations for staff quarters
- Schematics for gas systems
- Schematics for electrical systems
- Specific joinery for staff quarters,
- Installation of specific plumbing fittings.

Toilets and Grey Water

If an Environmental Engineer is not providing specific design, by reference to Part F compile the required detail sheets for inclusion on the document set.

Any additional sheets, which may or may not be based on standard sheets, that are required to provide the necessary construction information do not become part of the base information included in the Hut Manual. They are saved as project specific documents only.

2.5.3: Specification:

Commence with the base tender and building consent specification (Appendix G2) and by following the associated guidelines create a project specific specification. As the default specification is for a small hut, all sizes, spacings, fixings and the like shall be checked to ensure they are appropriate to the larger hut.

Other aspects that are universal across huts (e.g. cooking benches, sleeping platforms, joinery, stairs, barriers and the like) are to be the same as for the smaller huts.

If the hut is in an Alpine or harsh environment refer also to Parts E4 and E5 for additional annotations and amendments.

If a pit toilet or a grey water disposal system is required refer to either Part F1 or F2 for additional annotations and amendments.

For any hut specific items not included in the base tender and building consent specification, add the necessary paragraphs and or sections expanding on the information contained in the Developed Design specification. For items not already covered by sections add specific sections at the end of the specification to avoid disrupting the numbering system. Do not renumber the standard sections. Most likely additional sections will cover:

- Staff quarters inclusion and fire separation,
- gas appliances,
- 12V electrical systems and solar panels
- staff quarters additional joinery,
- staff quarters plumbing fittings (e.g. showers).

2.5.4: Other Consultants

Direct and co-ordinate the provision and inclusion of their designs, documentation and information requirements into the Tender and Building Consent documents.

Where the design of minor works is to be done by other consultants, the architect is to receive sketches and notes as necessary and incorporate them into the architect's documents. When complete, the necessary sheets are provided to the consultant for review and approval.

For major works, these consultants will provide their own drawings and specifications for inclusion in the tender and building consent document set. The architect is to co-ordinate and review all consultant's information to ensure the document set is complete and co-ordinated.

Calculations, Producer Statements PS1 Design, and other documents necessary for building consent shall be compiled and included with the document set.

2.8.5: Amendment:

As noted in Section 1, the Tender and Building Consent documents may go through two iterations:

- Tender and Building Consent, and
- Construction Issue.

These iterations are expected to consist of minor changes relating to the correction of technical errors and omissions. At all times the documentation is to be checked against, and must be consistent with, the criteria established by the signed off Developed Design documents.