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Aerodrome Development Projects

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GENERAL

Overseas Territories Aviation Circulars are issued to provide advice, guidance and information on standards, practices and procedures necessary to support Overseas Territory Aviation Requirements. They are not in themselves law but may amplify a provision of the Air Navigation (Overseas Territories) Order or provide practical guidance on meeting a requirement contained in the Overseas Territories Aviation Requirements.

PURPOSE

This Circular contains guidance to aerodrome certificate holders to assist with the planning and management of infrastructure development or major maintenance work. It describes a way of assessing and managing a project to help with co-ordination and communication with the regulator.

RELATED REQUIREMENTS

This Circular relates to OTAR Part 139 and, where applicable, OTARs Part 140, 171, 172 and 178.

CHANGE INFORMATION

Incorporation of Av Sec review plus additions regarding promulgation of aeronautical information (e.g. NOTAMs, Supplements to the Aeronautical Information Publication (AIP), local briefing notices/bulletins etc.).

ENQUIRIES

Enquiries regarding the content of this Circular should be addressed to Air Safety Support International at the address on the regulator website www.airsafety.aero or to the appropriate Overseas Territory Aviation Authority.

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1 Introduction

OTAR 139 requires an aerodrome certificate holder to give prior notification to the Governor for acceptance of any proposed change of any aspect of aerodrome that may affect aerodrome operation or its physical characteristics.

The change of any aspect of an aerodrome's infrastructure may have safety and/or security implications during any or all of the planning, construction and the transfer to operations phases (sometimes referred to as ORAT – Operational Readiness and Airport Transfer).

This guidance is intended to provide advice to aerodrome certificate holders who are planning to undertake a significant aerodrome project or major maintenance. The guidance is based on project management concepts.

As a general rule, the requirement applies (but is not limited) to:

- any project taking place on or in the immediate vicinity of the airfield; or
- major airfield maintenance work, e.g. runway resurfacing, ground works; or
- the construction of new facilities or buildings within or close to the airfield boundary; or
- changes to the airside/landside boundaries, access or (passenger/staff/baggage/cargo) flows within a terminal; or
- other building which is likely to have operational safety or security implications; or
- installation or alteration to existing buildings or to visual aids; or
- any material changes in the surface of the landing area, or in the obstruction characteristics of the approach, take-off or circuit in relation to the aerodrome.

A key part of the process is to consult the regulator at an early stage of planning. This will allow any particular requirements to be identified at an early stage before any design or construction commitments are made, avoiding wasted time, money and resource. Ideally, this consultation should start at the concept stage of the project.

In partnership with industry, the primary objective of the regulator is to improve safety, and ensure that the safety hazards and consequent risks do not increase.

Additional guidance is available in ICAO Document 9137 Part 8 – Airport Operational Services.

2 Aerodrome maintenance projects

The scope of this document excludes routine maintenance projects. Notification of such maintenance works should be made directly to the regulator's aerodrome inspector, who will maintain regulatory oversight of the project.

3 Management of the project process

Aerodrome projects should involve improving existing safety standards where possible, or maintaining them where such improvement cannot be achieved.

An aerodrome is a complex organisation with many interactive disciplines and functions. Therefore, it is possible that even the simplest of projects may need multi-disciplinary co-ordination with both internal and external stakeholders.

The process consists of 3 separate parts:

- Part 1: Compliance
- Part 2: Control
- Part 3: Completion

This process, or something similar, may be used for many types of changes. Appendix A illustrates this process.

4 Initial actions

To initiate the development project, the certificate holder should appoint a project co-ordinator to liaise with the regulator.

For a major project, an initial meeting or discussion to brief the regulator should take place. It is important that all areas affected by the project are covered and that all necessary disciplines within the regulator's organisation participate. Also, it is recommended that written briefs and minutes are kept.

In order to achieve adequate notification, the initial meeting or discussion should take place well before the date at which the works are planned to start. The regulator must be allowed adequate time to consider project/work proposals.

Although consultants may attend project meetings, the regulator will only deal directly with the aerodrome certificate holder (project co-ordinator) or their management representatives, at least one of whom should always be in attendance.

Major projects will require extensive planning. The example checklist at Appendix B provides some guidance.

Project meetings will be arranged between the regulator and the aerodrome's project co-ordinator as and when they are deemed necessary by either party.

5 Management plan

In support of a project, the regulator will wish to see a management plan which may include any or all of the following:

Operational Requirement and Safety Statement. This statement should include:

- A clear statement of the supervision structure for the safety management and monitoring of works, including contact details of key duty personnel concerned, for both project and aerodrome management.
- Identification of manager with overall responsibility.
- Method of working.
- Project plan, including milestones (see example Appendix C)
- Site safeguarding and marking.
- Site access plan.
- Airfield Operating Procedures during the project.
- Operations affecting the Obstacle Limitation Surfaces (OLS), see OTAC – Cranes and Other Temporary Obstacles.
- Weather minima that will affect the works.

- Procedures in adverse weather (inc. Low Visibility).
- Emergency Procedures.
- Day and night start, control and completion of work procedures.
- Communications plan to ensure those affected by the project are kept informed of works and changes that affect the safety and regularity of operations.
- Promulgation of aeronautical information (e.g. NOTAMs, Supplements to the Aeronautical Information Publication (AIP), local briefing notices/bulletins etc.) as necessary within the defined AIRAC¹ cycle.
- Points of contact - aerodrome management and contractor.
- Arrangements for Liaison Meetings/Briefings between the aerodrome management and the contractor.
- Plans of site and diagrams of Works.

Signage Plan. The signage plan should include colour drawings of all the proposed signs and their location - preferably on a single sheet showing the whole airfield, provided the scale does not preclude clarity. Should this occur a single sheet aerodrome plan should be accompanied by larger scale sheets. The signs indicated should be shown on the plan as they would be installed, orientated as they would be seen from an aircraft flight-deck.

Lighting Plan. The lighting plan, including illuminated signage, should conform to the requirements of Annex 14 Vol I or II. Enough information should be provided to the regulator to enable an operational assessment to be made.

Approach and Departure Procedures. Should the proposed project have any effect on any flight procedures (e.g. the Instrument Approach, Missed Approach, and Visual Manoeuvring (Circling) Procedures, including SIDS and STARS), details should be submitted to the regulator. Survey information in compliance with Annex 14 and Annex 15 must be provided if procedures need to be modified or changed.

Aerodrome emergency procedures. Response times should not be compromised during periods of work. Therefore, arrangements should be made to ensure response times are maintained (e.g. access routes, relocation of RFFS and emergency responders etc.). Also, arrangements to ensure depletion/deactivation of fire main or fire hydrants due to work in progress are avoided or mitigated.

Appendix D provides some additional guidance.

6 Assessment of risk

All projects are expected to at least comply with the criteria detailed in the relevant ICAO Annex which are minimum standards. As part of the aerodrome's safety management systems, and during the planning process existing non-compliances on the aerodrome certificate should be examined to determine whether they can be removed or improved as part of the project.

However, there may be circumstances when a safety significant project is deemed essential but:

- it falls outside the scope of the Annex or;

¹ AIRAC (aeronautical information regulation and control) is the system of advance notification, based on common effective dates, of circumstances that necessitate significant changes in operating practices [Ref ICAO Annex 15]. Information regarding AIRAC deadline dates is available in the AIP.

- the Annex requirements cannot be met; or
- an existing non-compliance cannot be corrected.

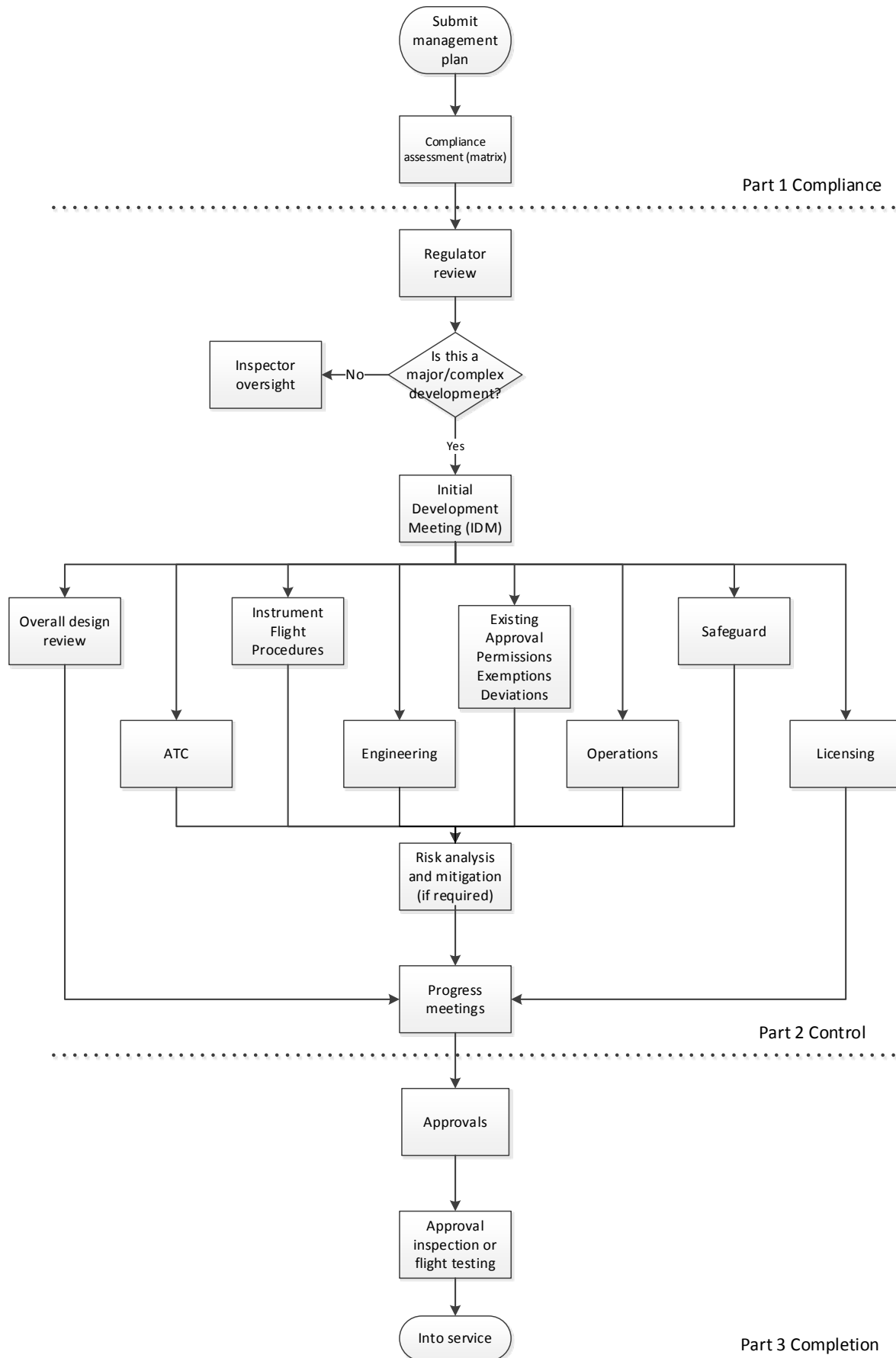
In these circumstances an assessment of risk, showing clearly that the risk is at a level acceptable to both the aerodrome management and the regulator, will be necessary. Provision and funding of the assessment is the aerodrome's responsibility.

The type of risk assessment undertaken will vary depending upon the safety impact of the project. If the possible consequences are a serious accident to an aircraft (significant damage or worse), a full quantitative analysis by risk assessment specialists might be required. However, in many circumstances where the severity of the potential hazards is not great or can be easily mitigated, the risk assessment can be carried out by a small group of local managers using their own experience and specialist knowledge. The regulator can advise which of the two options may be the most appropriate.

It should be noted that the submission of a risk or safety assessment does not automatically guarantee approval of a project.

Additional guidance is available in the OTAC – Safety Assessments.

Appendix A Project process flowchart



Appendix B Example compliance checklist

The following list is neither mandatory nor exhaustive:

Ref.	Issue	Yes	No	Reference/Explanation
1.	Compliance matrix (against the relevant ICAO Annexes)			
2.	Reduction of existing non-compliances			
3.	Focal point contact for project			
4.	Scope of the project (including phases)			
5.	Appropriate plans and diagrams relating to the construction process			
6.	If infringement discovered, assessed as acceptable to aerodrome			
7.	Contractors involved (if known)			
8.	Proposed timescale(s)			
9.	Project Safety Management Procedures			
10.	Arrangements for liaison meetings/briefings between the aerodrome management and the contractors			
11.	Site access control plan (inc. security if required) The general layout of the aerodrome including airside access points The location and limits of works areas; Methods of control and access for works sites within the Apron and Manoeuvring Area including arrangements for crossing taxiways and runways (if applicable);			
12.	Communications procedures between the aerodrome operating units (e.g. ATC, Airfield Operations) and construction teams			
13.	Arrangements for the special control of 'hot works' and the operation of cranes and other tall structures			
14.	Temporary airfield operating and Air Traffic Control (ATC) Procedures during the project			
15.	Type of aeronautical information required and lead-time for publication (NOTAM, Supplement etc.)			
16.	ATC line of sight requirements			
17.	Air Traffic Procedures post-project			
18.	Site safeguarding and marking			
19.	Temporary Operational Procedures during project			

Ref.	Issue	Yes	No	Reference/Explanation
20.	Aerodrome Ground Lighting briefing			
21.	Visual aids			
22.	Adverse weather and Low Visibility Procedures (inc. Weather minima that will affect the works), high winds etc.			
23.	Information on the safety implications for the site and staff of special aircraft hazards including blast, vibration, fumes and noise;			
24.	Emergency procedures, including response times during periods of WIP, should not be compromised. This extends to ensuring compensatory arrangements are in place to cover depletions of fire main or fire hydrants when the fire main has been deactivated due to work in progress.			
25.	Grid Co-ordinates (WGS-84) of Structure			
26.	Ground height Above Mean Sea Level (AMSL) at site location			
27.	Maximum height of Structure			
28.	Height of relevant OLS at Site Location (AMSL)			
29.	Any impact(s) on runway availability/declared distances			
30.	Instrument Approach and Departure Procedures and Minima			
31.	The effect of plant, equipment and cranes on electronic, approach aid and AGA surfaces			
32.	Arrangements for cleanliness, the control of FOD and disposal of waste			
33.	Bird Hazard implications			
34.	Environment impact			
35.	Any special safety measures inc. information on the safety implications for the site and staff of special aircraft hazards including blast, vibration, fumes and noise			
36.	If relevant, calculation and communication of amended runway declared distances and pavement friction characteristics			
37.	Outline plans			
38.	Aerodrome Manual amendments			
39.	Airspace issues			
40.	Hazard Appraisal(s) and Risk Assessment(s)			

Any additional information in support of the project

Empty rectangular box for providing additional information in support of the project.

Appendix C Example project plan

This is only an illustrative example. However, it endeavours to show the key elements of a project plan. A complex project will have more elements than those illustrated here.

Every project should be assessed and developed individually.

SAMPLE INTERNATIONAL AIRPORT Terminal 2 and Taxiway Project														
Terminal Project														
Project Issues	Apr YY	May YY	Jun YY	Jul YY	Aug YY	Sep YY	Oct YY	Nov YY	Dec YY	Jan YY	Feb YY	Mar YY	Apr YY	May YY
Feasibility Study														
Architects' Contracts														
Construction														
Operational Statement														
Risk Assessment														
Regulatory Approval														
Lighting Plan														
Signage														
Construction Terminal														
ATC														
RFFS														
Landscape Contract														
Promulgation														

Appendix D Example Operational Requirement and Safety Statement

This Appendix is intended to provide a guide to the compilation of an Operational Requirement and Safety Statement. It includes suggestions on what issues an aerodrome might consider when initially planning a project. The circumstances that apply to a particular project may obviate the need for some of the information listed below. Equally, there may be a necessity for additional information not shown below to be provided. The emphasis is on the responsibility of the aerodrome certificate holder to ensure that the project will be safely managed, and to indicate this to the regulator.

Where applicable the Appendix refers to an imagined mixed project, in order to include as many project issues as practicable. Some items suggested, that are seemingly unrelated to a particular project, should not be disregarded at the initial planning stages. For example, a project at one end of a runway may not affect its Instrument Approach Procedures but may affect those of the other end.

Operational Requirement and Safety Statement Document

1) Scope

This paragraph should provide a brief outline of the scope of the works involved in this project, the purpose being to present an overall picture of the extent of the proposal. Should the project comprise several phases, a summary of each phase would be appropriate.

2) Work Schedule

A list is required, detailing the planned start and finish dates of each phase, and the planned hours of operation preferably in UTC. However, it should be made clear where local times are chosen, and whether the times listed refer to Summer or Winter time. For example:

Terminal Building Works	Commence	23 April 2017	Finish	November 2017?
Terminal day working only	0730-1900	Mon-Fri	All times UTC	
	0800-1800	Sat-Sun		
Taxiway Works	Commence	18 May 2017	Finish	April 2017?
Taxiway Night working only	2100-0600	Mon-Fri nights inclusive	All times UTC	

3) Safety Management Procedures

This paragraph should show that those responsible for the planning of the project have taken into consideration the impact the construction will have on the daily operation of the aerodrome. It might include details of:

- Who holds overall responsibility for the project, and who makes the final decision should a conflict of interests occur.
- How the works will be carried out, e.g. any phasing or prioritising of the process.

- How the daily operation of the aerodrome will be safely separated from the works and construction vehicles.
- How the various safeguarded AGA surfaces, and those of the navigation and electronic equipment, will be protected from the Works, vehicles and the storage areas.
- What temporary Operating, ATC and Engineering procedures need to be established.
- The daily/nightly start, control and completion of work procedures. These should include:
- Reference to an inspection of the works prior to return to operations if applicable, and who is to be responsible on behalf of the certificate holder for ensuring this is carried out.
- The chosen method of communication between ATC Tower and the site.
- How long after the last departure and before the first arrival will the work commence and cease respectively.
- What procedures will be adopted should the weather deteriorate, and what actions need to be considered prior to the onset of Low Visibility Procedures.
- What actions will be taken should an emergency occur.
- What arrangements for liaison meetings and briefings are planned?
- Any appropriate Plans, Drawings and Diagrams relating to the construction process.
- How and when the details of the Works will be promulgated to pilots and the industry (including any NOTAMs, Supplements etc.)

Each project has its own unique characteristics, and the regulator will consider each application on its own merits. The above comments are intended only to offer guidance in the preparation of a Safety Management plan, and aerodrome project managers should freely adapt them to suit their own requirements.

4) Outline Plans and Drawings

Outline plans should be made available to the regulator before the IDM, in sufficient time to allow the various departments to consider the impact the project may have on their particular disciplines. This will help to ensure the IDM and subsequent meetings achieve the maximum benefit.

The plans should include the means to determine that the requirements of the applicable OTARs have been complied with.

Should the project include alterations to, or the installation of, the aerodrome's signage, colour drawings of all the proposed signs and their locations should be included, preferably on a single sheet showing the whole airfield, displaying the signs as they would be read, and orientated relative to the appropriate taxiway/runway as they would be installed.

Any lighting plan, including illuminated signage, should conform to the requirements of Annex 14 and be included. Sufficient information should be provided to enable an operational assessment to be made.

5) **Airspace Issues**

Some projects will have an impact on Airspace, Arrival and Departure, Circling, and Missed approach procedures. It is essential that the regulator be advised of such project proposals as early as possible. The regulator would wish to see that the project team has considered such implications, together with any effect the project may have on aerodrome equipment, e.g. Approach Lighting, PAPI positioning and Navigation Aids.

6) **Air Traffic Services**

Consideration should be given to the fact that Projects frequently affect the ability of air traffic control providers to maintain the required levels of safety, both during and after the process. In addition, project teams should consider:

- The Line-of-Sight implications from the ATC tower to the project area, in good and reduced visibility conditions.
- Any tendency for reflective surfaces to distract or dazzle Controllers.
- Any potential increase in ATC workload either temporary or permanent.
- Any effect the project may have on Lighting Control and ATC procedures.

The project plan should indicate that consultation with the aerodrome's air traffic services provider has taken place, and a representative of the provider should be invited to attend the project meetings where appropriate.

7) **Low Visibility Procedures**

Consideration should be given to what effect the project, both during and after completion, will have in Low Visibility conditions. Additionally, it may be necessary to amend Rescue and Fire Fighting procedures and the Emergency Plan.

8) **Bird Hazard Risk and Environmental Statement**

Projects that include landscaping schemes should be assessed for their impact on the Bird Hazard risk to the aerodrome.

Environmental Statements presented to planning authorities should emphasise the necessity for minimising the attraction to birds presented by the project, and should be copied to the regulator.

9) **Any Special Safety Measures**

Each project is unique. The project team should show that the project has been assessed to determine what special safety measures may be required, and what actions are planned that is deemed to be appropriate.

10) **Manuals**

The proposal should indicate that the project team has considered what alterations should be made to the Aerodrome Manual, MATS, AIP and other documents, at the various phases of, and at the completion of the project.

11) Hazard Appraisal and Risk Assessment

The Plan should show the method used to assess the risks and hazards associated with the project. The conclusions should be clearly stated and preferably summarised, and copies of supporting documents and statements should be included.

12) Responsibilities

The plan should list the name, position and contact telephone number of the person who holds overall responsibility for the project. Additionally, the following should be listed:

- The name of the person within the aerodrome's management who would be the focal point of contact for the project. (The focal point of contact within the regulator is the aerodrome inspector).
- All those who hold positions of responsibility within the project programme.
- The Contractors involved.

For example:

Overall responsibility for the project	Paul Wilson 01935 nnnn
SI plc Project Manager (focal point) SI plc	Sue Brough 01935 nnnn
SI plc operations	Jack Moore 01935 nnnn
Hindenburg Construction Terminal 2 Project Manager	Jan Solbeljorn +0033 25 87 nn or 01723 nnnn
GreenGrow Landscaping Project Manager	Paul Holland 01675 nnnn

This paragraph should include list of attachments, drawings and appendices.