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Braye Park Community Garden

Project Management Plan

ENGG3500 – Major Assessment B
Tutorial Group #04
Project Management Group #02

Table of Contents

1. Introduction

The following Project management plan, will clearly and comprehensively outline the intention of installing a community garden planned for Braye Park. The management roles and responsibilities that will address this operation will be examined and highlighted through the following project charter, outlining of the approach to the methodology and strategies used, a scope management plan, a requirements management plan, a stakeholder analysis and management plan, a schedule management plan and lastly a risk management plan. Mitigation, monitoring, controlling and reporting procedures will all be clearly defined within this document to fulfil all stakeholders' needs and objectives.

2. Project Charter

2.1. Project background and business need

Green Scope Solutions has been contracted by the Newcastle City Council to design and construct a community garden. Other community garden projects currently operating within the area are limited in available spaces for new members and it has been determined that a larger, more accessible development would be beneficial to the local community. Land has been allocated for the development within the grounds of Braye Park, Waratah.

Community gardens can be instrumental in building a strong community; enabling all cultural groups within the area to coalesce and encouraging social equity within the populace. They provide community members with an opportunity to enjoy the health and nutritional benefits of fresh, home-grown produce and have the added environmental benefit in reducing food miles by producing food close to home.

2.2. Project goals/objectives

The Green Scope Project Solutions project management team and relevant stakeholders have used the SMART goals system to determine the following objectives for the project:

Design and construct a community garden space in Braye Park that is capable of accommodating at least 200 regular gardeners. Features must include all necessary facilities to operate a community garden, including an innovative multi-purpose building and the installation of security fencing.

The project must be completed within a budget of $140,000 and has a timeframe of twenty-two weeks allocated to it.

The garden space must be designed with safety of the highest concern, followed by any innovation that may enable community engagement.

The design should be such that post project completion, the garden is completely self-sustainable; the council intends to have only a small budget allocated for maintaining the garden itself.

2.3. Project scope

Green Scope Solutions is responsible for the design and construction of a community garden within Braye Park, situated in the suburb of Waratah. The design must fulfil all council requirements and is within the allocated budget of $140,000.

2.3.1. Requirements

The council has stipulated Green Scope Solutions design must have include a capacity of at least 200 subplots, feature an innovative multi-purpose building and be wheelchair accessible. A fence must be installed around the perimeter for security reasons and gravel paths incorporated within the grounds to minimise trip hazards. All safety risks must be anticipated and procedures put in place to negate their impact.

2.3.2. Deliverables

Upon completion, the Braye Park Community Garden will include 206 subplots spread between 34 garden beds throughout a half acre portion of *Braye Park, Waratah*. The garden beds will surround a single story, multi-purpose building, surfaced in trellis for the growing of vines. The project includes the installation of a fence around the perimeter, gravel path systems situated throughout the grounds, as well as the individual facilities to enable gardening; fourteen taps, three wash stations, two composting areas, three water catchment tanks and eight work benches. All equipment must be strategically positioned in a convenient manor for all gardeners. A basic floorplan of the project can be found in the appendices as 13.1, figure 3.

2.3.3. Inclusions

This project incorporates the sourcing of relevant materials, tradespeople and the management of the project. Constructions include a pre-fabricated, “kit home” building, 34 garden beds, pathways and fencing around the perimeter as well as the installation of all necessary facilities. This project also includes the design of the garden in its entirety, from floorplan to garden bed design, as well as all necessary development approval documentation. The design must fall within the allocated budget and aims to achieve the greatest possible outcomes for the community.

2.3.4. Exclusions

Green Scope Solutions note the following exclusions from the scope of the Braye Park Community Garden Project: the management of the garden post construction, acquirement of legal or land use documentation and the raising of funds required for construction.

2.3.5. Assumptions

It is assumed that weather delays will be of considerable risk to the project schedule and possibly to the health and safety of workers. A four-week buffer has been added to the project schedule to negate necessary delays, additionally the interior work on the building is left in an “open construction” phase, which implies it is scheduled to be performed at any stage. In poor weather conditions, internal work may be performed, negating many possible health and safety risks. The project schedule also assumes the approval of the final design arrives within two weeks of submission.

2.3.6. Constraints

The design is constrained to fall within a budget of $140,000 and is to be constructed and finalised within twenty-two weeks of project initiation. Construction may not commence

within the first three weeks of the project lifespan, enabling time for the council to sign off on finalised design plans and for Green Scope Solutions to initiate necessary safety procedures throughout the park in its entirety.

Construction is constrained to the hours between 7:00am and 3:00pm only, and during construction the number of trees removed should be minimised. These two final constraints aim to minimise the effects to the local residents and wildlife within the area.

2.4. Significant milestones

The significant milestones of the project are as stated below in bold followed by the major tasks required to achieve that milestone and the week the objective is expected to be met, as dictated by the project schedule.

- Design completion and submission; includes the design of the building, garden beds/grounds, the submission of said plans, contracting of appropriate tradespeople and the sourcing of materials – week 2
- Completion of building exterior; includes the construction of temporary fencing at the worksite perimeter, delivery of materials and the construction of the frame and building exterior - week 8
- Completion of paths and garden beds; includes the installation of garden beds and subplot segregators, the running of pipes/wires for water and electricity throughout the grounds and the gravel path system connecting elements of the garden. Some work on the building interior must also be completed – week 12
- Installation of permanent fencing; includes the installation of the perimeter fencing, some work must be completed on the interior of the building in this phase also – week 14
- Final installations; incorporates final constructions to the building interior, planting of fruits trees/vines and the laying of turf within the grounds, the installation of taps, power points, water tanks, composting bins and the adding of soil to the gardens. Removal of construction machinery and temporary fencing is performed in this stage – week 18

2.5. Project budget summary

The total budget available for this project is $140,000 AUD. The breakdown of the budget can be found as table 1 in the appendices of this document.

2.6. Key stakeholders

Key stakeholders include the community who will benefit from the garden, the council who are funding and facilitating the project, Green Scope Solutions who will design and construct the garden and the residential neighbourhood who may be effected by the project from increased noise and traffic.

3. Project management approach

3.1. Project management methodology

Green Scope Solutions have decided to apply a waterfall management methodology for the Braye Park Community Garden Project. This methodology requires the project to be separated into different phases, including *initiation, planning and design, execution, monitoring/controlling* and *closing.*

- **Initiation;** includes the submission of documentation such as the scope of works, budgets and licensing credentials. This will allow stakeholders to assess the proposed work and make and necessary adjustments prior to the employment of subcontractors and the physical construction of the project.
- **Planning and design;** includes the submission of a project program to the council. This document will include a work breakdown schedule of the project, allowing interested stakeholders to check progress regularly. This results in all stakeholders being on the same page with regard to actions taking place within the project.
- **Execution;** the physical construction of the community garden within Braye Park. The employment of licenced subcontractors will be implemented to ensure the correct installation of services that will guarantee the project will satisfy the scope of work.
- **Monitoring and controlling;** the community garden will be closely monitored by all stakeholders during a three-month cooling off period, after the handover of the project. Open lines of communication between the council and Green Scope Solutions is paramount during this time, Green Scope Solutions will be held responsible for maintenance of the gardens as well as rectifying and defects during the project liability period of three years, post-handover.
- **Closing;** the completion of the project's defects list, its cooling off period and the project liability period. This phase will include the submission of final payments that will be paid in full after the three-month cooling off period. Green Scope Solutions will be held liable for any maintenance on the project for the three-year project liability period.

3.2. Strategy and procedures to achieve project goals/objectives

The application of the waterfall management methodology allows for management teams to identify strategies that will allow the project scope to be satisfied. The design and planning phase will allow Green Scope Solutions managers to expand design constraints and satisfy the criterion, allowing for a minimum of 200 gardeners as well as a multi-community building that can be incorporated into the garden design.

The use of alternative construction materials will assist Green Scope Solutions in overcoming the constraints outlined by the budgets and schedule. Cheaper or more durable materials will be favoured within the design where applicable, with the intention of lowering the initial capital cost as well as the cost of maintenance. The application of alternative materials deemed satisfactory additionally achieves the objective of a self-sustainable completed project.

Safety within the project will be controlled by Green Scope Solutions and the employment of correct WHS strategies as outlined by WorkCover and the NSW government. Every person who enters the construction site will be properly inducted by Green Scope Solutions and the Newcastle City Council. All safety documentation such as safe work method statements, material safety data sheets, hot/cold work permits and trade licenses will be supplied by all applicable subcontractors prior to commencing work on the Braye Park Community Garden Project.

4. Scope management

4.1. Project scope statement

This project scope statement provides a baseline document for defining the scope of the Braye Park Community Garden Project, project deliverables, work required to achieve those deliverables and ensures that all stakeholders have a common understanding of the project scope.

Scope description and acceptance criteria. The scope of the project is to design and construct a community garden, within the allocated space of one acre of Braye Park, Waratah. This design will meet all council requirements and is within the allocated budget of $140,000.

The criteria necessary for the design to be considered acceptable include;

- The community garden must be located on land under public ownership
- The final design must have addressed all safety concerns and have incorporated crime prevention through environmental design principles
- The chosen location of the community garden must receive 5-6 hours of sun exposure per day
- The space must be enough to accommodate a community of 200 gardeners
- The site must have access to water and waste removal facilities
- The site must be tested to ensure the soil is not contaminated within the grounds
- Final design plans must fulfil all council guidelines and policies

Project deliverables. For the project to be considered a success after completion, it must include 34 garden beds divided into subplots, a single-story building, secure fencing around the perimeter of the site, level pathways, taps, wash stations, composting areas, water catchment tanks and workbenches situated throughout the designated acre of land.

Assumptions and constraints. It is assumed that weather may cause considerable delays throughout this project, due to its outdoor nature. It is also assumed that approval of the final design of the project arrives within two weeks of submission. Any considerable delays will affect the budget and time frame constraints, set at $140,000 and twenty-two weeks. Construction must be kept within restricted hours and tree removal is to be limited on site, minimising the impact on local wildlife.

4.2. Work Breakdown Structure

The work required for the Braye Park Community Garden Project is detailed within the work breakdown structure, found in the appendices as figure 4. It features each phase of the project followed by the components that must be executed in order to complete that phase.

4.3. Scope control plan

The Green Scope Solutions project management team will work together to monitor the scope of the project and manage any changes to the scope baseline. The project management team will make sure that only the work defined in the work breakdown structure is performed and create the defined project deliverables. The project manager will supervise the progression of the project and project team, ensuring that this scope control plan is followed.

The process for recommending changes to the scope of the project must be adhered to if alterations are required. Any change to the project can be requested by any stakeholder and must be completed in the form of a project change request document, then submitted to the project manager. Upon review, the Project Manager will either deny the change request if it is irrelevant to the purpose of the project or hold a control meeting to review the change request further. After acceptance of the change request by the change control board and project sponsor, the project manager will update all project documents.

5. Requirements management

5.1. Requirements management plan

Identification and analysis. The Green Scope Solutions management team will use a variety of methods to identify and collect stakeholder requirements which include: social media outreach campaign, surveys and questionnaires, group forums in which the community can express their needs, and analysing previous projects related to this project.

The council requires that each stakeholder adhere to the guidelines and policies for community gardens and upon completion the project must be almost completely financially self-sustaining, be environmentally self-sustaining and have safe agricultural practices in place

Community requirements need to considered when designing and managing the deliverables of the community garden. The community requirements regulations such as safe food, soil and fertiliser handling practices, secure fencing, be located in an easily accessible area, access to utilities, composting equipment and storage facilities, and be inclusive of all ages and large enough to support 200+ regular gardeners.

The requirements of the Green Scope Solutions management team must address the requirements of other stakeholders in their stakeholder management plan to satisfy the needs of the stakeholders. Green Scope Solutions management requires approval for land use and construction by the council, the design of a safe community garden that fulfils the local people’s requirements, the construction of the designed garden using licenced contractors. and project management throughout the construction phase.

Prioritisation. The council requirements are of the highest priority as the requirements need to be followed through by all stakeholders before the construction of the community garden can begin. These requirements will be part of the initiation phase of the breakdown work

structure.

The Community requirements will have the second highest priority as they have high interest in the project. These requirements will be part of the designing and construction phase of the work breakdown structure. The Green Scope management team has the third highest priority as the team management's requirements must address those of the stakeholders. The team management requirements will be part of all the three phases of work break down structure.

5.2. Requirements traceability matrix

The requirements traceability matrix for the Braye Park Community Garden Project can be found in the appendices as table 2. The purpose of the requirements traceability matrix for the project is to make sure that all the product requirements are completed in accordance with the project charter. It features requirements description and the associated work break down structure phases, sources, responsible stakeholders and deliverables which must be achieved to for a successful completion of the project.

6. Stakeholder management

6.1. Stakeholder analysis

The following stakeholder analysis will represent all parties who are likely to affect or be affected by the Braye Park Community Gardens. The subsequent outline will denote potential interrelationships, interests and problems within the project and further highlight the key actors/stakeholders in the project.

Stakeholders include;

- Local Council
- Community users
- Subcontractors
- Green Scope Solutions
- Management Team
- Other Financiers/Project Sponsors

Using a quantitative analysis Green Scope Solutions has prioritised each individual stakeholder depending upon the level of interest and influence they possess within the project. A stakeholder analysis matrix is depicted below in figure 1, showing where each stakeholder sits and the actions required for that particular stakeholder.

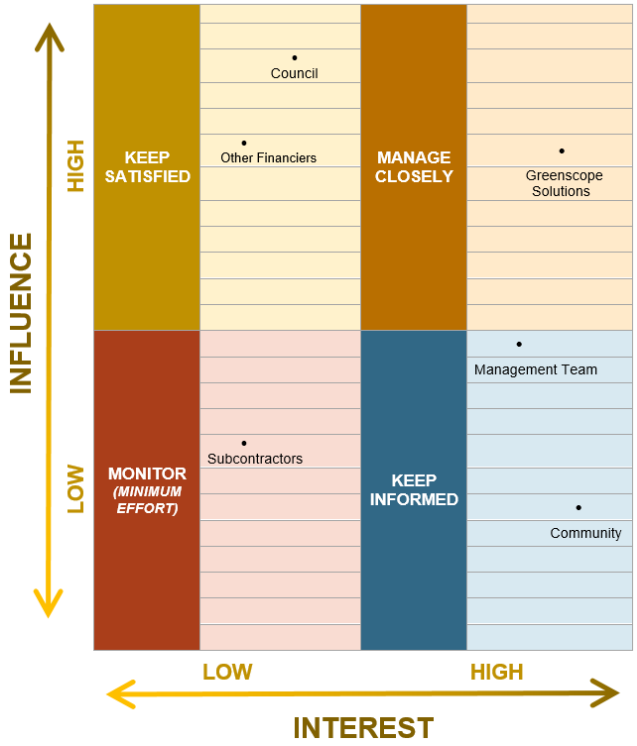

Figure 1. Stakeholder analysis matrix for Braye Park Community Gardens Project

6.2. Stakeholder management plan

The stakeholder management plan has utilised the information from the analysis to register a tailored list of objectives of each stakeholder and a rostered schedule to keep each party relevant to ongoing developments within the project dependant on their position in the matrix as illustrated in table 4. A communication management plan has also been implemented to designate a time and deliverables schedule to complement the stakeholder management plan as presented in table 3.

7. Schedule management

7.1. Schedule management methodology/approach

Activities required for scheduling will be sourced from the determined deliverables and work breakdown structure. Activity dependencies will be identified and used to determine the order of activity execution. Duration estimates for each activity will be used to calculate the number of weeks required to complete each phase of the project.

As a preliminary schedule is developed, it will be reviewed by the project team and any resources assigned to project activities. The project team must agree to the proposed activities, durations, and schedule.

Roles and responsibilities for schedule development are as follows:

The project manager will:

- facilitate activity definition
- determine activity sequencing
- estimate activity duration
- allocate resources with the project team.
- create the project schedule
- validate the schedule with the project team and stakeholders

The project team will:

- participate in activity definitions
- review and validate the proposed schedule
- perform assigned activities once the schedule is approved.

The project stakeholders will participate in reviews of the proposed schedule and assist in its validation

7.1.1. Software

Project schedules will be created using Microsoft Excel from deliverables identified in the Work Breakdown Structure. Documents will be made available to the relevant team members via a cloud sharing service.

7.2. Schedule monitoring and control plan

The project schedule will be reviewed and updated on a weekly basis. Team members will report the progress of ongoing tasks and duration of completed tasks at the end of each week.

The project manager will:

- hold weekly schedule updates
- determine the impacts of schedule changes
- submit schedule change requests

The project team will:

- participate in weekly schedule updates
- communicate any scheduling changes to the project manager

7.3. The critical path

The critical path was determined by first creating a sequenced activities list featuring duration estimates for all activities. The information presented in the activity list was then transposed to a precedence diagram. The longest path in this diagram represents the critical path of the project. The critical path diagram is presented in the appendix in figure 5.

7.4. Activity list, sequencing and duration estimates

Appendices section 13.7 details a comprehensive activities list drawn from the work breakdown structure. The key activity categories are presented in table 5 that details the sequencing relationships between activities as well as duration estimates.

7.5. Milestones

The milestones presented in this section represent significant activities in the schedule as identified by the critical path. These milestones represent the stages in the project where multiple paths converge and must be achieved for the project to move forward overall.

- Project commences
- Project Documentation submitted
- Final design submitted
- Construction site prepared and established
- Construction phase completed
- Project outcome monitoring completed
- Projected completed

7.6. Gantt chart

The Gantt chart was generated from data presented in the activity list and precedence diagram. It is expected that this will be updated as the project progresses to measure and control changes to the schedule. This is presented in the appendix under figure 6.

8. Risk management

8.1. Risk management plan

This risk management plan identifies the risks associated with the Braye Park Community Garden Project and defines the strategies to be implemented should they or any new risks arise.

Management approach. The management approach designated for this project is that of a top-down, multi-pass. The risks were identified, measured and prioritised. The top priority risks were added to the project schedule to immediately mitigate these possibilities. Weekly status updates will keep the steering committee and project sponsor informed of any modifications to the register and scope. These status updates also enable key stakeholders to be informed on the risks associated with the current phase of the project, allowing those involved to monitor the progress and address previously unconsidered risks as they arise.

Roles and responsibilities. Those immediately responsible for the control and implementation of the risk management plan include the project manager, management team and steering committee. Throughout the duration of the project the project manager, with assistance from the project team, will identify where the approach can be modified to improve the overall risk minimisation. This will be completed through the development of mitigation strategies, monitoring of primary risks as well as the continual development of the project management plan.

Monitoring and controlling risks. Throughout the project lifecycle, the level of risk associated with the Braye Park Community Garden Project will be monitored by the project team via fortnightly risk audits, reassessment and reserve analysis. These will be conducted during routinely held project review meetings; ensuring only current risks are documented on

the risk register, as well as the regular analysis of the effectiveness of responses to currently identified risks.

Unanticipated risks that cannot be avoided will require a contingency plan to be implemented; any person who perceives an unanticipated risk is to report their findings immediately to the project manager. Recommended preventative or corrective measures that affect the scope of the project require a change of request to be submitted to the project manager and steering committee. All project change requests must be thoroughly analysed for their possible impact to the project risks, and the risk register/project management plan updated before any confirmation is given to the request.

Stakeholders will be notified of important changes to risk status and reserves by way of email. A “top 10 risk list” will be maintained throughout the project and monthly technical performance measurement values will be documented to display project schedule against actual project progress.

Any staff members found to be engaging in risk prone behaviours will be disciplined using the “hot stove” approach, as dictated in the code of conduct within this document.

8.2. Risk register

Risk identification. The Green Scope Solutions project team has engaged in a risk identification process; including brainstorming, consultation of experts and analysis of previous project participants before conducting a risk assessment meeting. All risks identified have been assessed to discern the probability of the threat occurring and the threat’s possible impact upon project outcomes. Qualitative and quantitative methods, including sensitivity analysis, have been used in the consideration of each threat before assigning a risk factor based upon these inputs.

During the risk identification and prioritisation process, it was found that the Braye Park Community Garden Project faces three leading risks:

- **Delay of resources and services**; capable of significantly increasing costs and stalling tasks that may be a prerequisite for follow on tasks. This will be mitigated by having realistic deadlines, strategic scheduling and a strong line of communication with stakeholders. Risk identification and evaluation will continue throughout the construction process to anticipate possible upcoming delays.
- **Weather**; capable of causing complications such as delays, damage to materials/machinery or possible ill health/injuries to team members.
- **Changes in project scope**; the Braye Park Community Garden Project has a limited funding allocation and therefore has a set project scope and projected deliverables.

Other risks identified for this project included possible injuries to construction crew due to poor practices or faulty equipment, and the effect of construction on the local ecosystem. These have been incorporated into the risk register.

Risk mitigation. As the contributing causes of these risks are predominantly non-human error, mitigation techniques are difficult to implement. However, Green Scope Solutions has assigned each risk to one of four categories: *avoidance, mitigation, transference* or *acceptance*.

Categorising each risk assists in reducing the effect they will have on the project.

- D**elays due to weather** were assigned to the *avoidance* category; careful planning in conjunction with regular meteorological updates should allow those on site to avoid poor conditions as much as possible.
- D**elay of resources** will be considered a risk that can be *mitigated* by setting realistic challenges for contractors and suppliers, allowing for realistic project deliverable schedules.

- **Changes in scope of the project** have been designated as *transference* group risks; every contractor must be notified of their scope of work and is to be held accountable for delivering products within the stipulated schedule. Limited funding is available for this project, so it is imperative that this risk be treated carefully and every stakeholder is certain of their liability on the project.

The completed risk register can be found in the appendices as table 6 and further outlines the current risks associated with the project as well as mitigation strategies to be implemented for each risk should it occur.

9. Human resources management

9.1 Human resource plan

Human resources management is a significant part of the Braye Park Community Garden project. The human resources management plan is a tool which will help the Green Scope Solutions management team in the management of this project's human resource activities throughout the project until finish.

The human resources management plan includes:

- Project team development
- Roles and responsibilities
- Project team management

At Green Scope Solutions, the purpose of the human resources management plan is to accomplish project success by making sure the appropriate human resources are attained with the necessary skills, resources are trained if any absence in skills are recognised, team building strategies are clearly defines, and team activities are efficiently managed.

9.2 Project team roles and responsibilities

Project manager; held accountable for the ultimate success or failure of the project. The PM will be responsible for authorizing all payments in and out of the project as well as assessing the performance of all personnel on the project. He/she will also be responsible for presenting the performance of the management team along with the progress of the project to the council.

Implementation manager; The IM is responsible for the quality of work completed on the project, will ensure all products are installed and maintained to the appropriate standards and codes. The IM also manages contracts on the project, when a suitable contract has been

written it will be submitted to the project manager for submission and acceptance. Implementation managers will be accountable for the coordination of the sub-contractors and the scheduling of each of the specialists that will be employed by Green Scope Solutions.

Team leaders; will be accountable for each specific sub-contractor employed on the project. They possess an exceeding technical knowledge in each of their chosen fields and will apply these skills effectively and efficiently.

Functional managers; in charge of determining the skills required for each task on the project that will require specialist knowledge.

9.3 Team management and development plan

An effective way of managing technical knowledge and skills on any project can be difficult and time consuming for any management team. Green Scope Solutions aim to address all issues surrounding human resources by creating a comfortable environment for workers to collaborate. A few techniques employed by Green Scope Solutions in order to reach this working environment include training personnel to the required level, this can be informal by the means of pairing experience with talent, or formal training including certificates and documents that will upskill labour on the project and assist management in the control of quality on the project.

Team building exercises are also employed by Green Scope Solutions to help individual team members work together effectively. These exercises include tool box talks and other open aired communication mediums and are designed to enhance performance. Green Scope Solutions employs the Tuckman ladder model which includes five stages of development that teams may go through, these development stages include; forming, storming, norming, performing and adjourning.

9.4 Project team management

A large part of team management for any project comes under the heading of conflict resolution and management. Green Scope Solutions employs a collaborative approach to managing conflict. This means that when conflict arises all involved parties will strive to act in a cooperative way and seek to keep all involved parties satisfied in our end goal to reach resolution. Green Scope Solutions management employed this resolution technique after consulting the Thomas- Kilmann conflict model matrix.

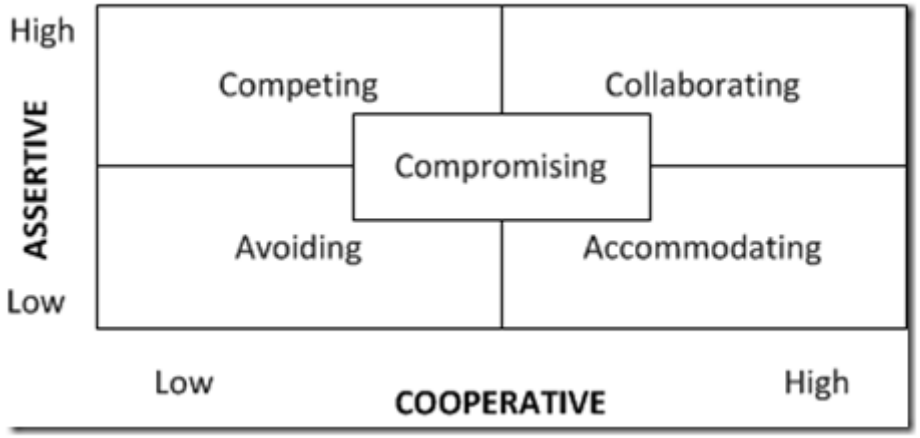

Figure 2. Thomas- Kilmann conflict resolution matrix.

Green Scope Solutions vows to reach for the top right corner of this matrix, meaning that each involved party will need to employ a large amount of cooperation when resolving conflicts, this will at times be difficult and will sometimes mean that re-modelling the problem to suit everybody's needs is appropriate.

10. Communication management plan

10.1 Communication management Approach

The project manager will ensure that effective communication techniques are efficiently put to use during the lifecycle of this project. The documents contained in the following management approach will outline channels of communication, operation procedures when scope is challenged or issues arise. These outlines will streamline the effectiveness of the mitigation strategies put in place to minimise risk and problems that can arise due to poor communications. This project methodology will ensure that with any changes, the correct stakeholders are either consulted or notified and will proper implementation of this plan will ensure the success of this project.

10.2 Requirements and Constraints

As shown in the communication matrix, each stakeholder will be approached and a deliverable, frequency and format for methods or communications will be organised and implemented in the matrix. At Green Scope Solutions we recognise that communication is critical to project success and from the matrix above you can see that each deliverable, whether that be meeting or information distributed to a stakeholder, each communication has been explicitly tailored to that stakeholders needs.

Directly affected by the communications roster is the four critical constraints of resource allocation, scope, budget and scheduling. The project manager is directly responsible for mitigating these constraints through ensuring that the roster is effective and internally sourced so that external costs are not added to the project. With keeping communications within the matrix shown on screen it will minimise scheduled days lost due to missed communications and resultant excessive costs. These constraints must be held as a priority throughout the project life cycle.

10.3 Roles

Having clearly and comprehensively defined roles within a project is key to success because it allows the workload to be divided in a manner that allows all aspects of the project to be completed to the highest level of quality. For contact details of project roles refer to appendix 13.2.

Project Manager;

- Overall responsibility
- Controls resource allocation and float
- Project guidance team
- Primary communicator - matrix

The Project Manager has overall responsibility for the execution of the project and is the primary communicator for the project distributing information according to the Communications Management Plan.

Project Team;

- Project outline creation
- Work packages
- Schedule development

The Project Team play a key role in creating the Project Plan including defining its schedule and work packages. They requires a detailed level of communications which is achieved through day to day interactions with the Project Manager and other team members along with weekly team meetings outlined in the communication plan.

Steering Committee;

- Strategic oversight
- Includes high influence stakeholders and client

The steering committee represents the high influence stakeholders marked in the power matrix. In this case we have chosen to combine the customer role and stakeholder role into the steering committee. The Steering Committee provides strategic input for review and can directly communicate with the project manager.

Technical Lead. The Technical Lead is a person on the Project Team who is designated to be responsible for all the technical aspects of the project. They also oversee the implementation of the design and developing build documentation. The technical lead requires close communications with the project manager and the project team

10.4 Communication methods and technologies

Because of the broad nature of the stakeholder group, the methods of distribution of information had to be targeted individually to each stakeholder. For the low influence stakeholders, a website will be set up for general information but the main form of communication in house and between medium and high influence stakeholders will be email and personal phone calls and face to face meetings. Being a small project his is very feasible. The only exception here is the communication with the contractors will have the same communication roster as medium and high influence stakeholders.

11. Cost management plan

11.1 Cost management approach

The cost management approach for Braye Park will be managed at the third level of the work breakdown structure (WBS). This level of depth will present a full analysis while negating the workload required to manage at a higher level for a slightly more accurate analysis. Using PERT (three-point analysis) and bottom-up evaluation allows the pre-tender costs to be accurately accounted for and further promotes the choice of a third level evaluation in favour of efficiency.

Throughout the project the resources will be measured through the implementation of control accounts (CA) of which the variation controls can also be continually measured throughout the project. This financial performance will be measurable through an earned value calculation of the CA.

Despite the individual work packages outlining activity cost estimates, the accuracy level will continue to follow the aforementioned level of the WBS in detail. Each work package will be credited with 40% on work initiated and a further 60% on completion. Assigning credit on the work package level, enables a degree of control management and promotes external risk reduction from outsourced work applications. Earned value will also be tracked through the work packages allocated to each individual job.

11.2 Activity cost estimates

When discussing the costs associated with the community garden at Braye Park, two different cost estimate approaches were considered. For each section of the work breakdown structure (figure 4), a project evaluation and review technique (PERT, or three-point estimate) was completed to give us a figure regarding the time taken to complete each section of the project.

The PERT calculations were completed at the fourth level of the work breakdown structure. The philosophy behind completing the analysis at this level is that it will compute a complete estimate of the entire project that is more accurate than a lower level analysis.

Once a timeframe was outlined for each step of the project via PERT calculation, bottom -up estimation was used to allocate each step with a dollar value per unit time ($/hour, $/day, $/week, etc.). The bottom-up estimating technique which is also known as the “definitive technique” is considered the most accurate, time-consuming, and costly technique for estimating cost. In this technique, the cost of each single activity is determined with the greatest level of detail at the bottom level and then rolls up to calculate the total project cost. Here, the total project work is broken down into the smallest work components. Each component cost is estimated and then, finally, it is aggregated to get the project’s cost estimate.

The synthesis of these techniques has the advantage of allowing the project management team to make meaningful project budgeting forecasts and coordinate funding allocation across the various project departments. It’s also pertinent to note that this method demands a significant investment of time and research ahead of executing the project. Additionally, the nature of such a subjective analysis may lead to fatal inaccuracies in the budgeting forecast. This is to be addressed by regular reviews by the project manager in collaboration with the project management team and any contractors or stakeholders with relevant insight to any particular aspect of the budget.

Although our cost estimates may contain errors, after completing the steps outlined above for each section of the work breakdown structure a pre-tender budget was produced for the Community Garden Project at Braye Park which was outlined as $140,000.

11.3 Contingencies

Embedded in our PERT analysis is the allowable variance given by our pessimistic estimates. These will be used to guide the upper levels of variance that have been determined to be allowable. The aim is to eliminate or mitigate potential losses by developing a budgeting strategy that is comprehensive, yet flexible enough to allow for the application of necessary contingencies. The project manager will be primarily responsible for reporting the project's variations in cost and any changes made to adjust the budget, dictated by severity. The steering committee has the authority to push for a direct allocation of funds.

Variances that occur during the project will be measured at the work package level. If unmonitored it can affect the control accounts. The cost and schedule performance indexes will change colour dependant on the severity of the variance. A cost variance of plus or minus ten percent will result in that package being flagged light blue for a positive and yellow for a negative. The resulting control account will be reviewed at end of week. In the case of a cost variance of twenty percent the resulting packages will be designated green and red respectively and reviewed immediately. Corrective actions will be immediately taken by the project manager. According to the stakeholder power matrix the steering committee and other high influence parties will be notified of any change.

As further risk reduction management the budget has been over accommodated by ten per cent. This allows for a buffer zone in the case of a cash flow or liquidity issue within the project brought on by unforeseen or uncontrollable influences (see table 15 in the appendix for uncontrollable risks). Risk controls will be implemented between five and twenty per cent. The appropriate action for the severity of budget variance can be seen in table 13 within the appendix.

Green Scope Solution's budget forecasting has shown to already be under budget by ten per cent or $14,000 (see table 12 in the appendix) and have implemented a seven percent risk reduction buffer in accordance with this.

12. Code of conduct

At Green Scope Solutions, the code of conduct has been based around the tenants of professionalism, honesty and integrity. It is understood that our actions can have a direct and vital impact on the quality of the lives of those around us and we are dedicated to the protection of the health, safety and welfare of all people within the community. Objectivity and truthfulness are ingrained into the culture at Green Scope Solutions and open communication is encouraged based upon these attributes.

Fundamental canons of ethical practice for Green Scope Solutions include:

- Integrity
- Competency
- Leadership
- Engagement
- Health, safety and wellbeing
- Present & future needs

Rules of practice for Green Scope Solutions team members:

Team members act in an ethical manner, maintaining the integrity of the company:

- Team members shall disclose any conflicts of interest that should influence judgements related to the project.
- Team members shall not accept compensation, financial or otherwise from outside agents for responsibilities related to the project.
- Strive to achieve the greatest possible outcomes for the community without compromising on quality.
- Team members will acknowledge any errors they have made and advise the project manager/clients if a complication may arise as a consequence
- Employees shall not disclose any confidential information pertaining to business affairs.

Team members will perform services only within areas of their competency:

- If an activity requires a level of knowledge attained through education and experience, only those qualified may perform the task.
- Only those qualified to perform an activity may sign documentation of its completion.
- External authorities must be contracted to fill competency gaps within the project team.

Green Scope Solutions practices ethical management:

- Provide opportunities to local businesses.
- Supporting and encouraging diversity within the company and community.
- Team members will not commit any deceptive acts, misrepresentation or exaggeration of responsibilities will be harshly punished.

Communicate honestly and effectively:

- Team members acknowledge the reliance of stakeholders on accurate information.
- Engage with all community members to ensure that their requirements are fulfilled.
- Ensure all agreements are made with integrity and consideration of the best possible outcomes for all parties involved.

Consideration of the health, safety & wellbeing of all peoples:

- Team members practice under all relevant requirements, standards and codes as dictated by the National Construction Code and the Australian & New Zealand Standard 3012:2010 (Electrical installations and construction sites).
- Site inductions and PPE are required on all project construction sites.
- Any risks identified by a team member must be submitted to the project manager for evaluation and added to the risk register.
- Any physical or mental concerns that may affect the ability of a team member to perform their responsibilities should immediately be reported to the project manager.

- The use of illegal substances by team members is strictly forbidden.

Balance the needs of present and future generations:

- Engage with community members of all ages to gauge the needs of current and future generations as time passes.
- Deliver outcomes that improve the environment for users.
- Deliver outcomes that improve the infrastructure of the local community.
- Materials used should be procured from ecologically sustainable sources.

The morality of the company (dictated by the behavioural expectations of employees, as stated above) is ingrained into our culture; posters outlining the code of conduct are situated throughout work sites and offices to remind staff what it is that we stand for, one of these posters can be found in the appendices as 13.21, figure 8.

Breaches of these policies will result in tangible immediate consequences. The framework of reprimands to be actioned are under a progressive discipline plan, tying reprimands to the frequency and severity of the employee's infractions; similar to the "hot stove" approach.

A first offence will be given a written warning, a second offence will initiate a managerial intervention and appropriate disciplinary action and/or offence rectification implemented.

A third offence will initiate the termination pending appeal process and a fourth offence will result in termination without a chance to appeal.

These processes are a guide to be used in most circumstances, although in situations wherein a policy breach results in serious damage, injury, death or criminal offences, management reserves the right to terminate without appeal.

13. Appendices

13.1 Design floorplan

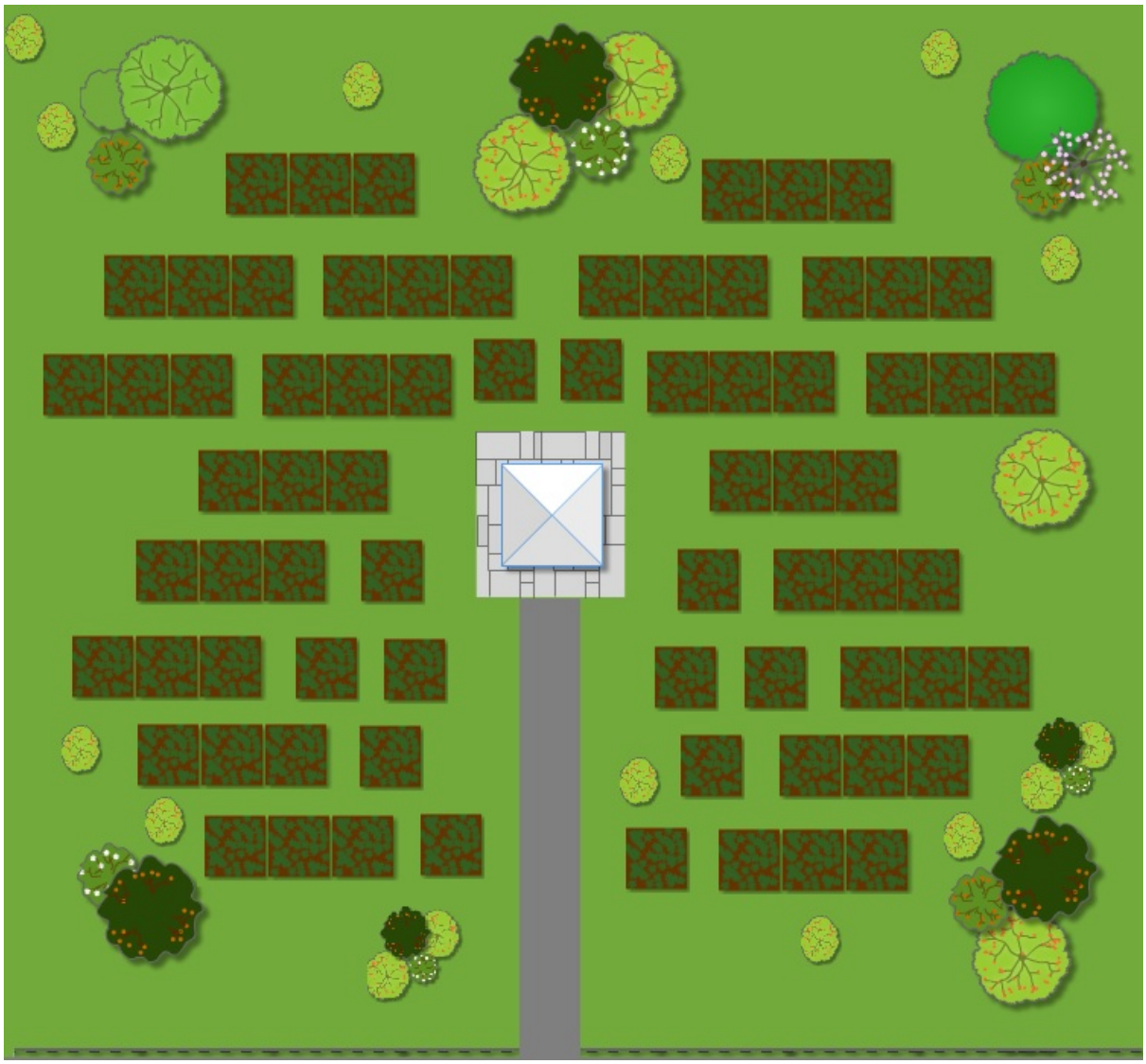

Figure 3. Basic design floorplan

13.2 Budget summary

Table 1. Budget summary for the project entailed in this document

Braye Park Community Garden Project Budget Summary

#	Budget Category and Description	Minimum Cost	Maximum Cost
1	*Materials*		
	Soil	$500	$1,500
	Wood sleepers for garden beds	$200	$500
	Prefabricated building	$10,000	$15,000
	Timber	$5,000	$10,000
	Trellis	$200	$500
	Fruit trees	$500	$1,000
	Gravel	$100	$500
	Turf	$500	$1,000
	Sub-total	$17,000	$30,000
2	*Tradespeople*		
	Electricians	$3,000	$5,000
	Builders	$5,000	$10,000
	Plumbers	$2,000	$5,000
	Labourers	$10,000	$15,000
	Excavators	$3,000	$5,000
	Carpenters	$5,000	$10,000
	Sub-total	$28,000	$50,000
3	*Hiring/machinery*		
	Earth movers	$15,000	$30,000
	Tipper trucks	$15,000	$30,000
	Sub-total	$30,000	$60,000
	TOTAL	$75,000	$140,000

13.3 Work breakdown structure

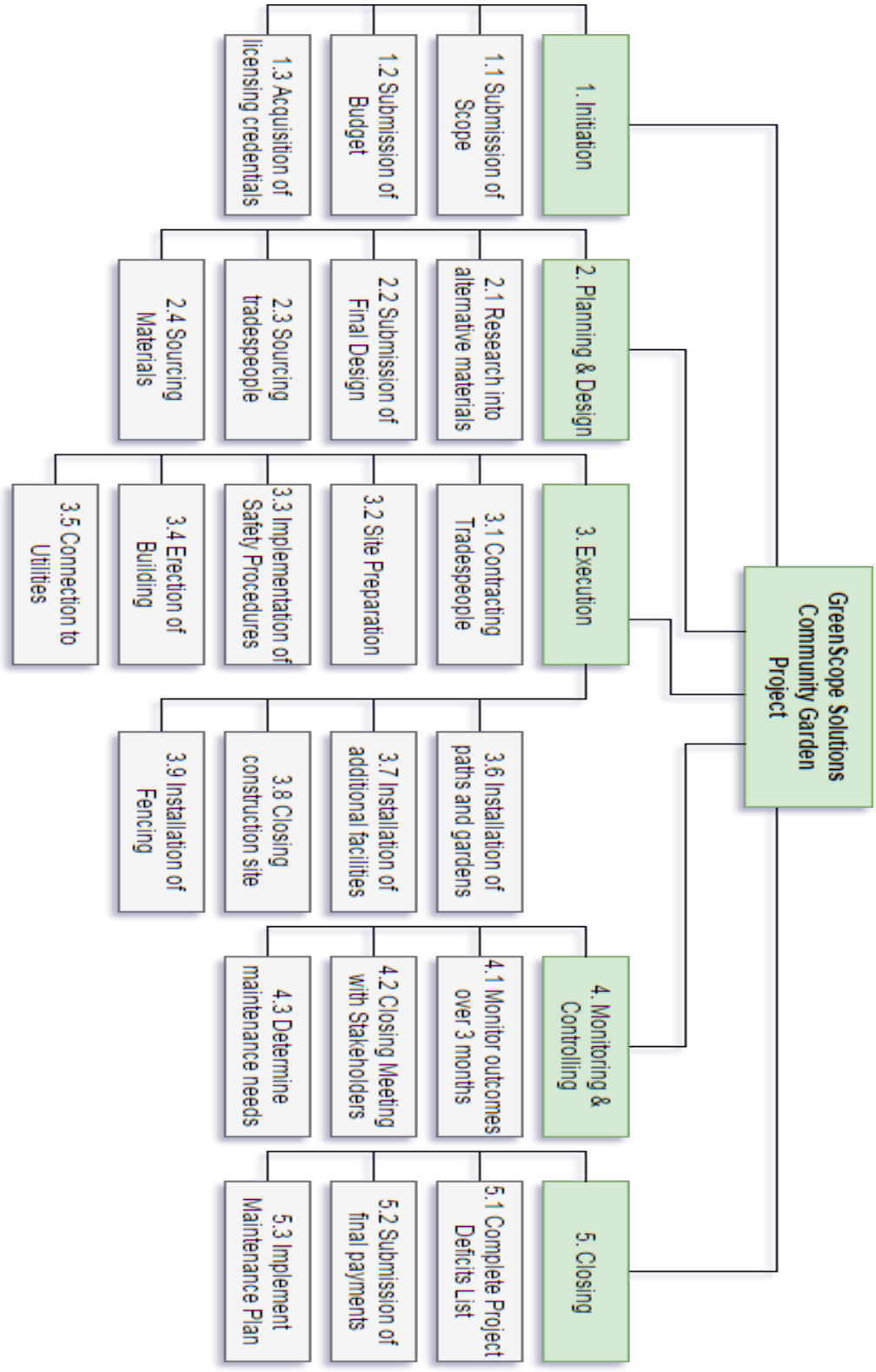

Figure 4. Work breakdown structure for the project entailed within this document

13.4 Requirements traceability matrix

Table 2. Requirements traceability matrix for Braye Park community garden project

Requirements Traceability Matrix for Braye Park Community Garden Project

WBS	Requirements Description	Source	Responsible	Deliverables
1.1 5.3	Financially Self Sustaining	Council	Finances Officer at Green Scope Solutions	Membership fees
1.1 5.3	Environmentally Self Sustaining	Council	Environmental Officer at Green Scope Solutions'	Design that is integrated with the natural flora and fauna
1.1 5.3	Safe Agricultural Practices	Council/ Community	Health & Safety Officer at Green Scope Solutions	Appropriate design and signage included
3.3.3 3.3.4 3.3.6 3.3.8	Design of a safe community garden and ease of access to facilities	Community/ Management Team	Design Team at Green Scope Solutions	Installation of Secure fencing, CPTED, construction of pathways (including pathways for disabled)
3.3.2.1 3.3.2.2 3.3.2.2 3.3.2.3 3.3.5	Water, storage, composting and power supply	Community	Design Team at Green Scope Solutions/ Contractors	Installation of 14 taps, 3 wash stations, 2 composting areas, 3 water catchments tanks and 8 work benches. Connection of water drain ways, connection to main water, installation of water tanks and connection to electrical mains.
3.3.3 3.3.4 3.3.6	Be inclusive of all ages and support 200+ gardeners	Community	Design Team at Green Scope Solutions	Installation of 206 subplots spread between 34 gardens throughout half acre portion of Braye Park, Waratah.
3.2.1 3.2.2 3.2.3 3.2.4	Safe and workable construction site	Council/ Team Management	Health & Safety Officer at Green Scope Solutions	Installation of safety signage, implementation of safety procedures, temporary construction fencing, site clearing and site levelling.

13.5 Stakeholder communication plan

Table 3. Stakeholder communication plan

Communication Task	Description	Frequency	Format	Participants/ Distribution	Deliverable
Weekly Status Report	Documented summary of project status	Weekly	Email	Green Scope Solutions, Project Management Team	Progress Report
Weekly Project Team Meeting	Actions are registered and status's reviewed	Weekly	In person	Project management team	Reviewed action register
Project Phase Review	Timeline/progress review for the larger scope of each implementation phase	A week before and after phase 1, 2 and 3	In person and documentation of issues to be address in weekly project meeting	Council, other Financiers, Green Scope Solutions, Community	Reviewed long term scope and objectives
Technical Design Review	Reviewing subcontractors	Bi weekly	Email, site visit	Subcontractor Management team	Subcontractor progress reviewed
Stakeholder Interrelationship Review	offering of a platform for dialogue	Phase 1, 2 and 3	In person	Council, Green Scope solutions, community	Issues generated to be addressed
Stakeholder Maintenance Review	Individual stakeholder maintenance	Anytime throughout the project	Email, phone	Any stakeholder to the Project Management team	Any concerns

13.6 Stakeholder management plan

Table 4. Stakeholder management plan

Stakeholder	Interest	Influence	Stakeholders goals	Best way to manage
Local council	Medium – low	Very high	Project is within regulations and benefits seen	Project Phase Reviews and a direct line for any issues that may arise
Community Users	Very High	Low	Completion of project	Phase implementation reports
Subcontractors	Low	Low	Complete project within time scope and budget	Technical design reviews and a direct line of communication for any issues that may arise
Green Scope Solutions	Medium - high	Medium – high	Manage the progress and completion of the project and stakeholders.	Weekly status reports, phase implementation reports and relationship reviews.
Project management team	Medium – high	Medium	Manage the project to scope and any arising issues.	Weekly Status Report, Weekly Project Team Meeting
Other Financiers/Project Sponsors	Low	High	Project completed within budget and tie constraints.	Project phase reviews and through direct stakeholder maintenance.

13.7 Project activity list

1. Initiation
    1.1 Documentation Submission
        1.1.1 Submission of Management Plan
        1.1.2 Submission of Scope of Work
        1.1.3 Submission of Budget
    1.2 Acquisition of licensing credentials
2. Planning/Design
    2.1 Research into alternative materials
    2.2 Submission of final design
    2.3 Sourcing Tradespeople
    2.4 Sourcing materials
        2.4.1 Sourcing construction materials
        2.4.2 Sourcing construction equipment
        2.4.3 Sourcing soil and permanent plants
        2.4.4 Sourcing gardening materials
3. Execution
    3.1 Contracting Tradespeople
    3.2 Site preparation
        3.2.1 Implementation of safety procedures
        3.2.2 Erection of temporary fences
        3.2.3 Site clearing
        3.2.4 Site levelling
    3.3 Construction
        3.3.1 Erection of building
        3.3.2 Connection of utilities
            3.3.2.1 Connection of water drain ways
            3.3.2.2 Connection to main water
            3.3.2.3 Installation of water tanks
            3.3.2.4 Connection to electrical mains
        3.3.3 Construction of pathways
        3.3.4 Construction of garden beds
        3.3.5 Installation of gardening facilities (taps, workbenches, etc.)
        3.3.6 Preparing garden beds and planting permanent flora
        3.3.7 Removal of temporary fencing and worksite signage
        3.3.8 Installation of permanent fencing
4. Monitoring/Controlling
    4.1 Monitoring project outcomes over 3 months
    4.2 Stakeholder meeting held for project closure
    4.3 Establishing maintenance protocols/schedule
5. Closing
    5.1 Completion of projects deficits list
    5.2 Finalisation of payments
    5.3 Implementation of maintenance schedule

13.8 Sequencing and duration of project activities

Table 5. Sequencing and duration of activities table

Activity	Predecessor	Same time	Successor	Duration Estimate (weeks)
1.1 Documentation Submission	Start	None	1.2, 2.1	1
1.2 Licensing Acquision	1.1	2.1	2.2	2
2.1 Research into alternative materials	1.1	1.2	2.2	1
2.2 Submission of final design	1.2, 2.1	None	2.3, 2.4	1
2.3 Sourcing Tradespeople	2.2	2.4	3.1	1
2.4 Sourcing materials	2.2	2.3, 3.1	3.2	1
3.1 Contracting Tradespeople	2.3	2.4	3.2	1
3.2 Site preparation	2.4, 3.1	None	3.3.1, 3.3.3, 3.3.4	2
3.3.1 Erection of Building	3.2	3.3.3, 3.3.4, 3.3.6	3.3.2	4
3.3.2 Connection of utilities	3.3.1	3.3.3, 3.3.4, 3.3.6	3.3.5	2
3.3.3 Construction of pathways	3.2	3.3.1, 3.3.2, 3.3.4, 3.3.5	3.3.7	2
3.3.4 Construction of garden beds	3.2	3.3.1, 3.3.2, 3.3.4, 3.3.5	3.3.6	2
3.3.5 Installation of gardening facilities	3.3.2	3.3.3, 3.3.4, 3.3.6	3.3.7	3
3.3.6 Preparing garden beds and planting permanent flora	3.3.4	3.3.1, 3.3.2, 3.3.4, 3.3.5	3.3.7	3
3.3.7 Removal of temporary fencing and worksite signage	3.3.3, 3.3.5, 3.3.6	None	3.3.8	1
3.3.8 Installation of permanent fencing	3.3.7	None	4.1	1
4.1 Monitoring project outcomes	3.3.8	None	4.2, 4.3	12
4.2 Stakeholder meeting	4.1	4.3, 5.3	5.1, 5.2	1
4.3 Establishing maintenance protocols	4.1	4.2	5.3	1
5.1 Completion of projects deficits list	4.2	5.2	End	1
5.2 Finalisation of payments	4.2	4.3, 5.3	End	2
5.3 Implementation of maintenance schedule	4.3	5.2	End	1

13.9 Critical path method

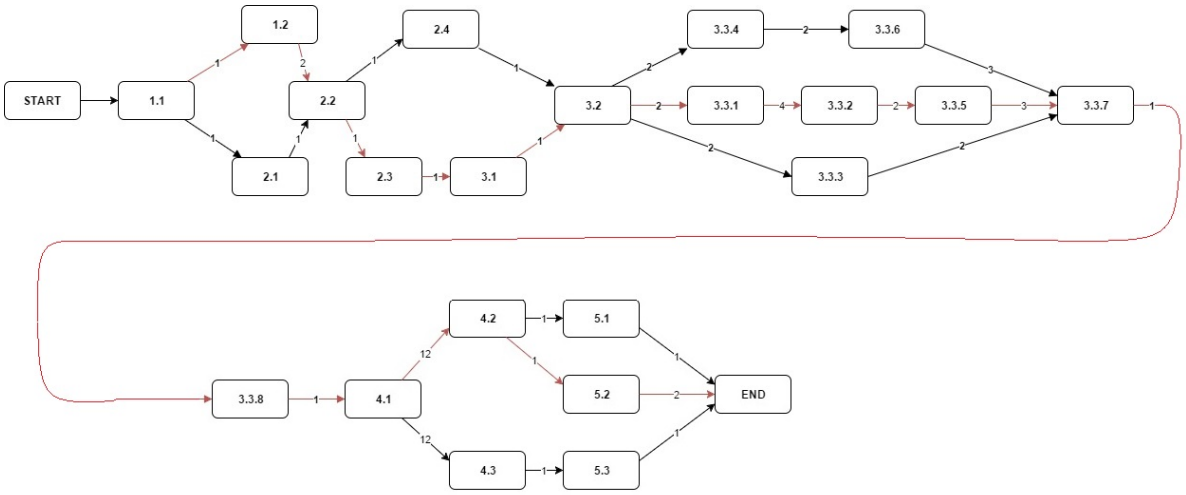

Figure 5. Precedence diagram for the critical path

13.10 Gantt Chart

ACTIVITY	PLAN START	PLAN DURATION	ACTUAL START	ACTUAL DURATION	PERCENT COMPLETE
1.1 Documentation Submission	1	1			0%
2.1 Research into alternative materials	2	1			0%
1.2 Licensing Acquision	2	2			0%
2.2 Submission of final design	4	1			0%
2.3 Sourcing Tradespeople	5	1			0%
2.4 Sourcing materials	5	1			0%
3.1 Contracting Tradespeople	6	1			0%
3.2 Site preparation	7	2			0%
3.3.1 Erection of building	9	4			0%
3.3.3 Construction of pathways	9	2			0%
3.3.4 Construction of garden beds	9	2			0%
3.3.6 Preparing garden beds and planting permanent flora	11	3			0%
3.3.2 Connection of utilities	13	2			0%
3.3.5 Installation of gardening facilities	15	3			0%
3.3.7 Removal of temporary fencing and worksite signage	18	1			0%
3.3.8 Installation of permanent fencing	19	1			0%
4.1 Monitoring project outcomes	20	12			0%
4.2 Stakeholder meeting	32	1			0%
4.3 Establishing maintenance protocols	32	1			0%
5.1 Completion of projects deficits list	33	1			0%
5.3 Implementation of maintenance schedule	33	1			0%
5.2 Finalisation of payments	33	2			0%

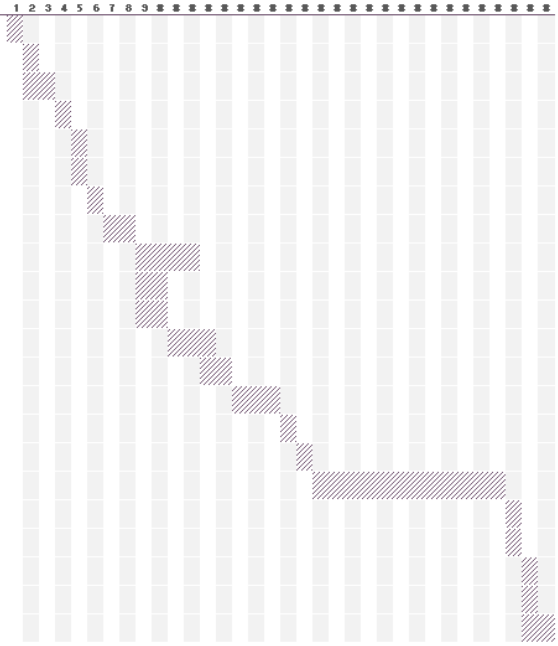

Figure 6. Gantt chart for the project duration

13.11 Risk register

Table 6. Risk register table - Communication Matrix

Risk Register for the Braye Park Community Garden Project

Risk Identification		Qualitative Rating			Risk Response			
Risk	Risk Category	Probability	Impact	Risk Score	Risk Ranking	Risk Response	Trigger	Risk Owner
Construction delays due to weather	Schedule Budget Deliverables	8.4	7.4	62.2	1	Avoidance through meteorological updates in conjunction with careful planning. The possible erection of	Meteorological data	Project manager Individual team member designated to monitor
Consturction delays due to delay in receipt of resources	Schedule	5.8	7.9	45.8	2	Mitigation through a resource scheduling system, sourcing materials from elsewhere is an option for prolonged delays.	Notification from supplier Resources not being delivered	Project team member (Resource Manager)
Changes in project scope	Deliverables Budget	3.9	0.39	27.7	3	Evaluation by the project manager and steering committee	Notification from any stakeholder	Project manager Steering committee
Shedule adversely affected by contractor delivery delays	Schedule	4.2	6.3	26.5	4	Enforcing of liquidation process if failure to deliver within reasonable time, possibility of recontracting.	Construction progress falls behind schedule by means other than weather	Contractors Project manager
Injury/Illness to a team member pertained due to poor weather	Health & Safety	7.1	1.5	10.3	5	After medical attention, the risk register will need to be assessed and reanalysed.	Team member falls ill or injury occurs due to poor weather conditions.	Team member (Health & Safety Officer)
Delays in project due to inability to procure documentation within schedule	Schedule	0.8	8.6	6.88	6	Further requests to council for documentation, contracting a lawyer if necessary.	Documentation has not arrived.	Team member (Litigation Officer)
Damage to materials/materials due to poor weather conditions	Budget Schedule	1.8	3.4	6.12	7	Replace damaged materials, possibility of insurance claim. Building of shelter to negate the reoccurence of this risk.	Materials/machinery were damaged	Project team member (Site Manager)
Risk of affecting the local ecosystem during construction	Environmental	3.2	1.8	5.76	8	Analysis of waste disposal techniques, noise controls and other environmental controls.	Environmental report failure	Project team member (Environment Officer)
Injury to team member during construction due to hazardous processes	Health & Safety	2.6	2.1	5.46	9	After medical attention, the risk register will need to be assessed and reanalysed.	Team member is injured.	Individual team members Health & Safety officer

13.12 Roles and contact register

Table 7. Roles and contacts

Roles	Name	Title	Organisation/ Department	Email	Phone
Project Manager	S. Dyer	Project Manager	PMO	sdyer@GSS.com	(02) 4969 6969 04 122 123 12
Project team	M. Mullen Y. Mahommed C. Mathers	Team member	PMO	mmullen@GSS.com mahommed@GSS.com cmathers@GSS.com	(02) 4969 6969
Project Stakeholders	See Stakeholder Register	See Stakeholder Register	See Stakeholder Register	See Stakeholder Register	See Stakeholder Register
Customer	T. Powers	Council member	Local Council	tpowers@NC.com	(02) 4912 1248
Technical Lead	L. Shepherd	Technical Leader	PMO	lshepherd@GSS.com	

13.13 Communication Matrix

Table 8. Communication matrix

Communication Task	Description	Frequency	Format	Participants/ Distribution	Deliverable
Weekly Status Report	Documented summary of project status	Weekly	Email	Green Scope Solutions, Project Management Team	Progress Report
Weekly Project Team Meeting	Actions are registered and status's reviewed	Weekly	In person	Project management team	Reviewed action register
Project Phase Review	Timeline/progress review for the larger scope of each implementation phase	A week before and after phase 1, 2 and 3	In person and documentation of issues to be address in weekly project meeting	Council, other Financiers, Green Scope Solutions, Community, local residents	Reviewed long term scope, objectives and website updates
Technical Design Review	Reviewing subcontractors	Bi weekly	Email, site visit	Subcontractor Management team	Subcontractor progress reviewed
Stakeholder Interrelationship Review	offering of a platform for dialogue	Phase 1, 2 and 3	In person	Council, Green Scope solutions, community	Issues generated to be addressed
Stakeholder Maintenance Review	Individual stakeholder maintenance	Anytime throughout the project	Email, phone	Any stakeholder to the Project Management team	Any concerns

13.14 Communication Escalation Chart

Table 9. Communication escalation chart

Priority	Definition	Position responsible	Resolution Timeframe
1	Major impact and significant negative impact on project if not resolved.	Project manager and Steering committee via communication plan.	Within half a trading day
2	Slight to medium impact.	Project manager and notification via communication plan.	Within two trading days
3	Insignificant	Project manager designates a team member so address issue.	Within 4 trading days

13.15 Communication flowchart

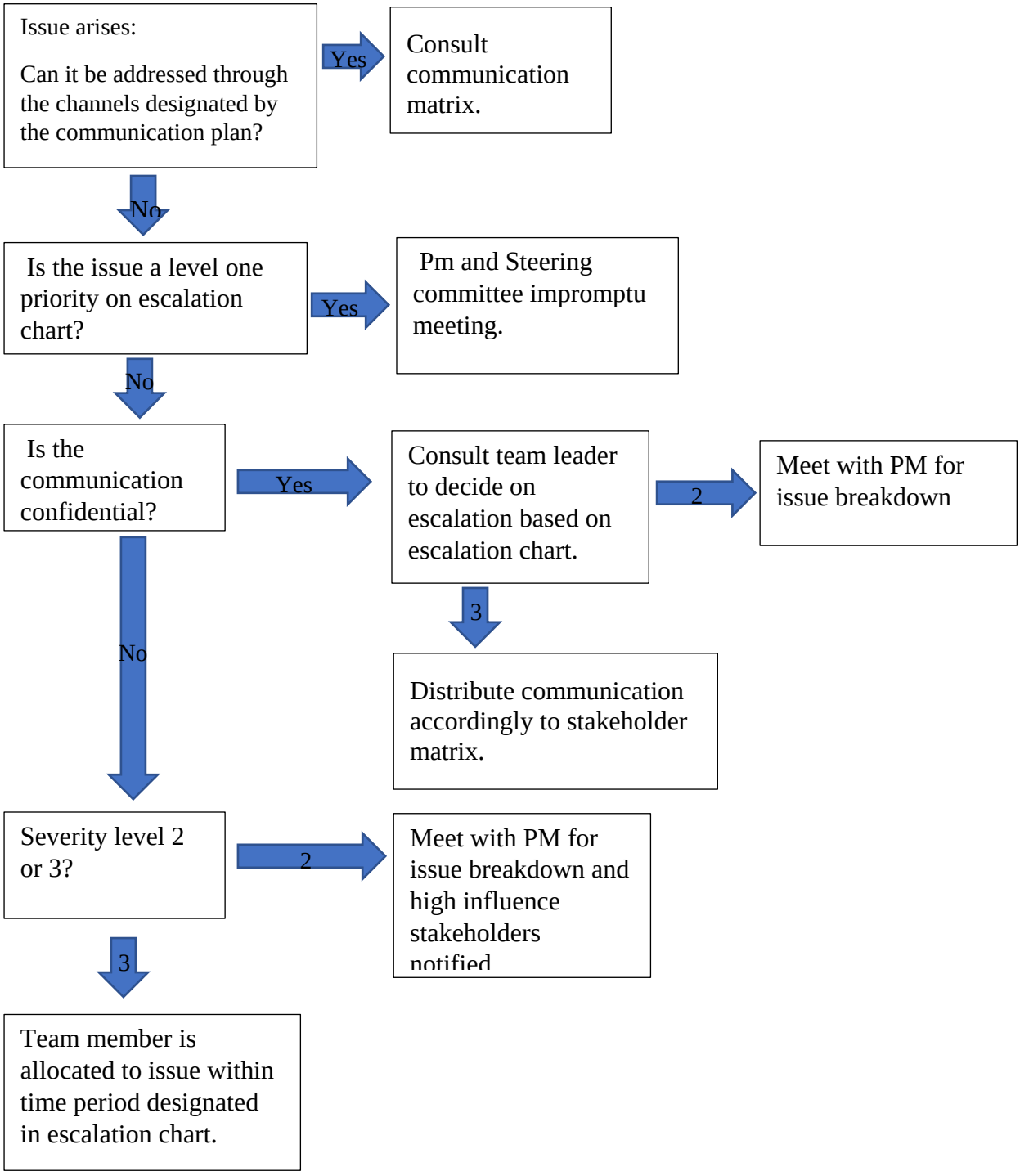

Figure 7. Communication flowchart

13.16 Project budget

Table 10. Project budget, part 1

1st Level	2nd Level	3rd Level	4th Level	Notes	O (man hrs)	M (man hrs)	P (man hrs)	PERT Ave (man hrs)	Hourly rate ($/hr)	O ($)	M ($)	P ($)	PERT Ave ($)
1 Initiation					34	99	164	99	$31.25	$1,063	$3,094	$5,125	$3,094
	1.1 Documentation				32	96	160	96		$1,000	$3,000	$5,000	$3,000
	1.2 Acquisition of licensing credentials				2	3	4	3		$63	$94	$125	$94
2 Planning and design					58	82	106	82	$31.25	$52,180	$75,747	$104,443	$76,601
	2.1 Research into alternative materials				5	7	9	7		$156	$219	$281	$219
	2.2 Project design				33	49	65	49		$1,031	$1,531	$2,031	$1,531
		2.2.1 "Floor plan" design			6	10	12	9.67		$188	$313	$375	$302
		2.2.2 Building design			8	12	16	12.00		$250	$375	$500	$375
		2.2.3 Professional & Stakeholder consultation			5	7	10	7.17		$156	$219	$313	$224
		2.2.4 Site designs for construction phase			8	11	15	11.17		$250	$344	$469	$349
		2.2.5 Design finalisation			6	9	12	9		$188	$281	$375	$281
	2.3 Sourcing tradespeople				14	18	22	18		$438	$563	$688	$563
		2.3.1 Sourcing of professionals			8	10	12	10		$250	$313	$375	$313
		2.3.2 Organisation of community volunteers			6	8	10	8		$188	$250	$313	$250
	2.4 Sourcing and ordering of materials				6	8	10	8		$50,555	$73,434	$101,443	$74,289
		2.4.1 Construction materials								$35,100	$54,650	$78,900	$55,433
			2.4.1.1 Kit home							$20,000	$35,000	$50,000	$35,000
			2.4.1.2 Timber/trellis							$2,000	$4,500	$6,000	$4,333
			2.4.1.3 Fencing							$8,000	$10,000	$12,000	$10,000
			2.4.1.4 Water tanks							$1,000	$1,500	$2,000	$1,500
			2.4.1.5 Facilities fittings							$2,000	$300	$4,000	$1,200
			2.4.1.6 Composting bins							$400	$500	$600	$500
			2.4.1.7 Gravel							$200	$350	$500	$350
			2.4.1.8 Kitchenette							$800	$1,400	$2,000	$1,400
			2.4.1.9 Roller door							$700	$1,100	$1,800	$1,150
		2.4.2 Construction equipment								$11,367	$13,434	$15,430	$13,422
			2.4.2.1 Earthmover							$594	$660	$726	$660
			2.4.2.2 Tipper truck							$528	$800	$1,000	$788
			2.4.2.3 Cement mixer							$132	$176	$220	$176
			2.4.2.4 Construction fencing							$6,885	$8,032	$9,180	$8,032
			2.4.2.5 Portaloos							$3,228	$3,766	$4,304	$3,766
		2.4.3 Sourcing gardening supplies								$3,900	$5,100	$6,800	$5,183
			2.4.3.1 Soil							$200	$300	$400	$300
			2.4.3.2 Permanent plants							$500	$600	$700	$600
			2.4.3.3 Turf							$2,600	$3,200	$4,200	$3,267
			2.4.3.4 Gardening tools							$600	$1,000	$1,500	$1,017

Table 11. Project budget, part 2

3 Execution	141	205	288	208.17		$7,248	$10,719	$15,041	$10,861
3.1 Contracting of tradespeople	261	386	541	391.00		$7,248	$10,719	$15,041	$10,861
3.1.0 Greenscope staff	120	181	253	182.83	$31.25	$3,750	$5,656	$7,906	$5,714
3.1.1 Arborist	8	12	15	11.83	$24.73	$198	$297	$371	$293
3.1.2 Excavators	16	20	25	20.17	$24.00	$384	$480	$600	$484
3.1.3 Irrigation	12	16	20	16.00	$28.00	$336	$448	$560	$448
3.1.4 Plumbers	16	24	36	24.67	$25.00	$400	$600	$900	$617
3.1.5 Electricians	10	16	24	16.33	$25.00	$250	$400	$600	$408
3.1.6 Builders	23	30	47	31.67	$30.00	$690	$900	$1,410	$950
3.1.7 Labourers	55	84	117	84.67	$22.00	$1,210	$1,848	$2,574	$1,863
3.1.8 Roller door fitter	1	3	4	2.83	$30.00	$30	$90	$120	$85
3.2 Site preparation	57	79	102	79.17		$1,518	$2,103	$2,718	$2,108
3.2.1 Implementation of safety procedures	4	6	8	6.00		$123	$184	$245	$184
Greenscope staff	2	3	4		$31.25	$63	$94	$125	
Builder	2	3	4		$30.00	$60	$90	$120	
3.2.2 Erection of temporary fences	3	5	9	5.33		$75	$129	$235	$137
Greenscope staff	1	2	4		$31.25	$31	$63	$125	
Labourer	2	3	5		$22.00	$44	$66	$110	
3.2.3 Site clearing	30	44	55	43.50		$768	$1,128	$1,410	$1,115
Greenscope staff	8	12	15		$31.25	$250	$375	$469	
Arborist	8	12	15		$24.73	$198	$297	$371	
Excavator	6	8	10		$24.00	$144	$192	$240	
Labourer	8	12	15		$22.00	$176	$264	$330	
3.2.4 Site levelling	20	24	30	24.33		$553	$663	$829	$672
Greenscope staff	10	12	15		$31.25	$313	$375	$469	
Excavator	10	12	15		$24.00	$240	$288	$360	
3.3 Construction	220	338	481			$5,730	$8,616	$12,323	$8,753
3.3.1 Erection of building	55	70	110	74.17		$1,555	$1,971	$3,110	$2,092
Greenscope staff	20	25	40		$31.25	$625	$781	$1,250	
Builder	20	25	40		$30.00	$600	$750	$1,200	
Labourer	15	20	30		$22.00	$330	$440	$660	
3.3.2 Connection of utilities	60	80	112	82.00		$1,724	$2,298	$3,210	$2,354
3.3.2.1 Connection of water drain ways	12	16	24	16.67		$338	$450	$675	$469
Greenscope staff	6	8	12		$31.25	$188	$250	$375	
Plumber	6	8	12		$25.00	$150	$200	$300	
3.3.2.2 Connection to mains water	12	16	24	16.67		$338	$450	$675	$469
Greenscope staff	6	8	12		$31.25	$188	$250	$375	
Plumber	6	8	12		$25.00	$150	$200	$300	
3.3.2.3 Installation of irrigation system	24	32	40	32.00		$711	$948	$1,185	$948
Greenscope staff	12	16	20		$31.25	$375	$500	$625	
Irrigation	12	16	20		$28.00	$336	$448	$560	
3.3.2.4 Connection to electrical mains	12	16	24	16.67		$338	$450	$675	$469
Greenscope staff	6	8	12		$31.25	$188	$250	$375	
Electrician	6	8	12		$25.00	$150	$200	$300	
3.3.3 Construction of pathways	16	24	32	24.00		$426	$639	$852	$639
Greenscope staff	8	12	16		$31.25	$250	$375	$500	
Labourer	8	12	16		$22.00	$176	$264	$352	
3.3.4 Construction of garden beds	12	18	28	18.67		$320	$479	$746	$497
Greenscope staff	6	9	14		$31.25	$188	$281	$438	
Labourer	6	9	14		$22.00	$132	$198	$308	
3.3.5 Installation of gardening facilities	10	20	30	20.00		$156	$313	$469	$313
Greenscope staff	5	10	15		$31.25	$156	$313	$469	
Volunteer	5	10	15						
3.3.6 Preparing garden beds and planting permanent flora	8	16	20	15.33		$125	$250	$313	$240
Greenscope staff	4	8	10		$31.25	$125	$250	$313	
Volunteer	4	8	10						
3.3.7 Removal of temporary fencing and worksite signage	9	14	19	14.00		$243	$380	$516	$380
Greenscope staff	4	6	8		$31.25	$125	$188	$250	
Builder	1	2	3		$30.00	$30	$60	$90	
Labourer	4	6	8		$22.00	$88	$132	$176	
3.3.8 Installation of permanent fencing	6	10	14	10.00		$160	$266	$373	$266
Greenscope staff	3	5	7		$31.25	$94	$156	$219	
Labouer	3	5	7		$22.00	$66	$110	$154	
3.3.9 Completion of building interior	44	86	116	84.00		$1,022	$2,020	$2,735	$1,973
3.3.9.1 Installation of dry wall	10	18	24	17.67		$266	$479	$639	$470
Greenscope staff	5	9	12		$31.25	$156	$281	$375	
Labourer	5	9	12		$22.00	$110	$198	$264	
3.3.9.2 Installation of kitchenette	12	24	32	23.33		$313	$626	$833	$608
Greenscope staff	4	8	10		$31.25	$125	$250	$313	
Electrician	2	4	6		$25.00	$50	$100	$150	
Plumber	2	4	6		$25.00	$50	$100	$150	
Labourer	4	8	10		$22.00	$88	$176	$220	
3.3.9.3 Installation of toilets	4	8	12	8.00		$113	$225	$338	$225
Greenscope staff	2	4	6		$31.25	$63	$125	$188	
Plumber	2	4	6		$25.00	$50	$100	$150	
3.3.9.4 Installation of roller door	2	6	8	5.67		$61	$184	$245	$174
Greenscope staff	1	3	4		$31.25	$31	$94	$125	
Roller door fitter	1	3	4		$30.00	$30	$90	$120	
3.3.9.5 Installation of office area	10	20	26	19.33		$175	$350	$463	$340
Greenscope staff	4	8	10		$31.25	$125	$250	$313	
Electrician	2	4	6		$25.00	$50	$100	$150	
Volunteer	4	8	10						
3.3.9.6 Addition of furnishings/finishings	6	10	14	10.00		$94	$156	$219	$156
Greenscope staff	3	5	7		$31.25	$94	$156	$219	
Volunteer	3	5	7						
4 Monitoring/Controlling	29	38	47	38.00	$31.25	$906	$1,188	$1,469	$1,188
4.1 Monitoring project outcomes over 3 months	24	30	36	30.00		$750	$938	$1,125	$938
4.2 Stakeholder meeting held for project closure	3	4	5	4.00		$94	$125	$156	$125
4.3 Establishing maintenance protocols/schedule	2	4	6	4.00		$63	$125	$188	$125
5 Closing	8	12	15	11.83	$31.25	$250	$375	$469	$370
5.1 Completion of project defecit list	3	5	6	4.83		$94	$156	$188	$151
5.2 Finalisation of payments	2	3	4	3.00		$63	$94	$125	$94
5.3 Implementation of maintenance schedule	3	4	5	4.00		$94	$125	$156	$125
						TOTAL O$	TOTAL M$	TOTAL P$	TOTAL PERT $
						$61,646	$91,122	$126,546	$92,113

13.17 Budget forecasts

Table 12. Budget forecasts

	Reserve	Wages and Benefits	Contractor Payments	Construction Materials	Construction Equipment	Gardening Supplies	Week Total	Running Total
Week 1	$140,000	$5,000	$0	$0	$0	$0	$5,000	$5,000
Week 2	$135,000	$1,437	$0	$0	$0	$0	$1,437	$6,437
Week 3	$133,563	$1,000	$0	$0	$0	$0	$1,000	$7,437
Week 4	$132,563	$688	$0	$68,000	$0	$0	$68,688	$76,125
Week 5	$63,875	$1,032	$841	$6,600	$2,763	$0	$11,236	$87,361
Week 6	$52,640	$719	$690	$4,300	$1,037	$0	$6,746	$94,107
Week 7	$45,894	$469	$795	$0	$1,184	$0	$2,448	$96,555
Week 8	$43,280	$782	$795	$0	$1,037	$0	$2,614	$99,168
Week 9	$40,667	$782	$1,065	$0	$1,037	$0	$2,884	$102,052
Week 10	$37,783	$750	$1,325	$0	$1,037	$0	$3,112	$105,164
Week 11	$34,671	$1,141	$0	$0	$1,037	$0	$2,178	$107,342
Week 12	$32,493	$391	$401	$0	$1,037	$0	$1,829	$109,171
Week 13	$30,664	$766	$401	$0	$1,037	$3,400	$5,604	$114,775
Week 14	$25,060	$517	$402	$0	$1,037	$3,400	$5,356	$120,131
Week 15	$19,704	$219	$154	$0	$1,110	$0	$1,483	$121,614
Week 16	$18,221	$250	$0	$0	$1,037	$0	$1,287	$122,901
Week 17	$16,934	$250	$266	$0	$1,037	$0	$1,553	$124,454
Week 18	$15,381	$387	$0	$0	$0	$0	$387	$124,841
Week 19	$14,994	$388	$0	$0	$0	$0	$388	$125,229
Week 20	$14,606	$387	$0	$0	$0	$0	$387	$125,616
Week 21	$14,219	$388	$0	$0	$0	$0	$388	$126,004
Week 22	$13,831	$377	$0	$0	$0	$0	$377	$126,381
Project completion	$13,454	$18,119	$7,135	$78,900	$15,427	$6,800	$126,381	

13.18 Budget variances

Table 13. Budget variances

Budget Variances					
Work package	Package Budget	Minor variance	Action to be taken	Severe variance	Action to be taken
1.1	$5,000	≤ 5%	PM to be notified	> 5%	Budget analysis
1.2	$125	≤ 20%	No action required	> 20%	PM to be notified
2.1	$281	≤ 20%	No action required	> 20%	PM to be notified
2.2	$2,031	≤ 10%	No action required	> 10%	PM to be notified
2.3	$688	≤ 10%	No action required	> 10%	PM to be notified
2.4.1	$78,900	≤ 5%	PM to be notified	> 5%	Budget analysis
2.4.2	$15,430	≤ 5%	PM to be notified	> 5%	Budget analysis
2.4.3	$6,800	≤ 5%	PM to be notified	> 5%	Budget analysis
3.2.1	$245	≤ 20%	No action required	> 20%	PM to be notified
3.2.2	$235	≤ 20%	No action required	> 20%	PM to be notified
3.2.3	$1,410	≤ 10%	No action required	> 10%	PM to be notified
3.2.4	$829	≤ 20%	No action required	> 20%	PM to be notified
3.3.1	$3,110	≤ 10%	No action required	> 10%	PM to be notified
3.3.2	$3,210	≤ 10%	No action required	> 10%	PM to be notified
3.3.3	$852	≤ 20%	No action required	> 20%	PM to be notified
3.3.4	$746	≤ 20%	No action required	> 20%	PM to be notified
3.3.5	$469	≤ 20%	No action required	> 20%	PM to be notified
3.3.6	$313	≤ 20%	No action required	> 20%	PM to be notified
3.3.7	$516	≤ 20%	No action required	> 20%	PM to be notified
3.3.8	$373	≤ 20%	No action required	> 20%	PM to be notified
3.3.9	$2,735	≤ 10%	No action required	> 10%	PM to be notified
4.1	$1,125	≤ 10%	No action required	> 10%	PM to be notified
4.2	$156	≤ 20%	No action required	> 20%	PM to be notified
4.3	$188	≤ 20%	No action required	> 20%	PM to be notified
5.1	$188	≤ 20%	No action required	> 20%	PM to be notified
5.2	$125	≤ 20%	No action required	> 20%	PM to be notified
5.3	$156	≤ 20%	No action required	> 20%	PM to be notified

13.19 Pretender budget

Table 14. Pretender budget

Braye Park Community Garden Pre-Tender Budget			
#	Budget Category and Description	Minimum Cost	Maximum Cost
1	*Materials*		
	Soil	$500	$1,500
	Wood sleepers for garden beds	$200	$500
	Prefabricated building	$10,000	$15,000
	Timber	$5,000	$10,000
	Trellis	$200	$500
	Fruit trees	$500	$1,000
	Gravel	$100	$500
	Turf	$500	$1,000
	Sub-total	$17,000	$30,000
2	*Tradespeople*		
	Electricians	$3,000	$5,000
	Builders	$5,000	$10,000
	Plumbers	$2,000	$5,000
	Labourers	$10,000	$15,000
	Excavators	$3,000	$5,000
	Carpenters	$5,000	$10,000
	Sub-total	$28,000	$50,000
3	*Hiring/machinery*		
	Earth movers	$15,000	$30,000
	Tipper trucks	$15,000	$30,000
	Sub-total	$30,000	$60,000
	TOTAL	$75,000	$140,000

13.20 Risks and opportunities

Table 15. Risks and opportunities

Budget Risks	Risks	Opportunities	Budget Opportunities
-12%	Time delays due to poor weather conditions	Use of volunteers in simple phases to minimise labour costs	13%
-8%	Time delays due to contractor complications	Possible partnerships with local nurseries	8%
-5%	Changes in scope of the project	Use of recycled materials, minimising materials costs	5%
-5%	Delays in schedule due to possible inability to procure documentation in time		
-17%	Damage to materials or equipment due to weather problems		
-5%	Injury to team member		

13.21 Code of conduct

Figure 8. Poster with Green Scope Solutions code of conduct

13.22 Allocation of written components

Table 16. Written components of the project management plan and who was responsible for it

Management Plan Section	Written By
Introduction	Matthew Mullen
Project Charter	Stacey Dyer
Project Management Approach	Charlie Mathers
Scope Management	Yusuf Mahommed
Requirements Management	Yusuf Mahommed
Stakeholder Management	Matthew Mullen
Schedule Management	Leigh Shepherd
Risk Register	Stacey Dyer
Human Resources Management	Charlie Mathers
Communication Management Plan	Matthew Mullen
Cost Management Plan	Leigh Shepherd
Code of Conduct	Stacey Dyer
Compiling	Stacey Dyer
Editing	Stacey Dyer/Leigh Shepherd
Final formatting	Stacey Dyer
All figures/tables in the appendices were created by those responsible for that section.	