



April 27, 2003

MUSE-EI  
School of Engineering  
Mercer University  
Macon, GA 31207

Attention: Dr. George Hayhoe, Subcontract Administrator

Subject: RFP No. MU 200476

We are pleased to submit "A Proposal for the MUSE Gathering Area" in response to your request of March 4, 2004.

The gathering area described in the attached proposal makes use of innovative materials and a creative design. Of particular note is that the unique design serves not only as an outdoor gathering environment, but also as a connection between the future engineering building on the gravel lot and the existing engineering building. The main goal of this project is to encourage students, faculty, and staff to escape from their normal indoor routines and venture outdoors. In order to accomplish Mercer University School of Engineering's goal, this proposal provides students, faculty, and staff with a well-designed outdoor gathering area where people can sit, study, picnic, or hold informal meetings.

If you have any questions, please do not hesitate to call us.

Yours very truly,

Boots Vinson  
Project Manager

Enclosure 1

# A PROPOSAL FOR THE MUSE GATHERING AREA

Prepared for: Dr. George Hayhoe, Subcontract Administrator  
MUSE Engineering Improvements

Prepared by: ABCD Construction  
Boots Vinson, Project Manager  
Chip Brooks, Head Design Engineer  
Drew Cravey, Document Designer  
Adrienne Lovelace, Graphics Designer

April 27, 2004



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## EXECUTIVE SUMMARY

Currently, Mercer University School of Engineering (MUSE) students, faculty, and staff lack a suitable area in which they may escape from their typical indoor environments. Additionally, the need for a connection between the existing engineering building and the proposed new building exists. There are three main reasons for the need of an effective gathering area near MUSE:

- 1 Students, faculty, and staff spend most of their time in classrooms and offices without many breaks, mainly because there is no place for them to congregate outdoors.
- 2 Many people assemble in the lobby, causing this area to be heavily trafficked.
- 3 When people do go outdoors, they tend to accumulate around the doorways, causing congestion.

This proposal describes the establishment of an outdoor gathering area between the existing MUSE building and the gravel parking lot, the future site of the new engineering building. According to representatives of MUSE, the new building is currently being designed and will include various engineering labs, classrooms, and research facilities, as well as some engineering, technical communication, and physics departments. The proposed area solves each of the problems stated above by providing MUSE students, faculty, and staff with a well-designed outdoor gathering area where they can sit, study, picnic, and hold informal meetings. Moreover, it will serve as a walkway linking the two buildings on which the MUSE logo will be engraved.

The gathering area design described in this report consists of: long lasting benches, tables, and trash receptacles; shade trees and attractive landscaping; an appropriate drainage system; high-speed internet access, outdoor electrical outlets, and sufficient lighting; a grill for fundraisers and cookouts; and an engraving of the MUSE logo in the walkway. In approximately six weeks with a budget of approximately \$51,065.28, MUSE can incorporate our innovative design into its current high-tech facility of education.

To guarantee that our proposed solution meets the needs and requirements of MUSE, we administered a survey to random students, faculty, and staff. After analyzing the results, we discovered that most people would use the area at least once a week and which surveyed items the intended users desired in such an outdoor environment. After obtaining direct information from the primary users, we developed the best design by conducting extensive research. Among the many concepts we researched, two seemed the most important: coordinating durable and long-lasting equipment into the gathering area design and accounting for the numerous underground utilities that cross through the proposed construction area.

ABCD Construction recommends that this project be implemented during or after the construction of the new engineering building. Since some of the work will be subcontracted to companies such as Brickman, we will oversee every aspect of the implementation and construction process as it progresses. Our company is the leading provider of design and construction projects in the state, with an excellent reputation for managing multifaceted projects. We are pleased to present this proposal and assure you that ABCD Construction will provide the winning solution for MUSE's needs.

# INTRODUCTION

## PURPOSE AND BACKGROUND

Mercer University School of Engineering, MUSE, wants to encourage its students, faculty, and staff to escape from their normal indoor routines and venture outdoors. Due to the long hours required to solve engineering problems and to attend classes and labs, engineering students and faculty spend a large majority of their time indoors behind desks or computers.

However, no outdoor area near the engineering building that encourages students to break from their demanding work and enjoy a more relaxing environment exists. Some people currently go outdoors, but they do not venture far from the doorways, which causes congestion. Additionally, students, faculty, and staff tend to congregate on the couches in the main lobby or upstairs on the benches around the staircases, causing much traffic in those areas. The highly trafficked environments make it difficult to study, hold informal meetings, or escape from the intense work.

Therefore, MUSE students, faculty, and staff need a well-designed outdoor gathering area where people can sit, study, picnic, or hold informal meetings. With construction of the new engineering research building beginning soon, another need of MUSE arises: the need for a connection between the existing building and the proposed building. The link between the buildings and the gathering area should be both technologically advanced and aesthetically pleasing to echo the innovative atmosphere that MUSE advocates. Design elements should include, at a minimum, walkways, shade, drainage, garbage disposal, and sitting, picnicking, and electric power facilities.

The purpose of this proposal is to establish a gathering area between the existing engineering building and the proposed expansion building by connecting the two buildings with an expanded walkway. The walkway will consist of an open area containing benches, lighting, and landscaping. In conjunction with the walkway, a separate area with picnic tables and benches designed to facilitate informal group meetings will be constructed. Wireless internet access will be available in the gathering area, and each table will be complemented with electric power and internet hookups, providing state-of-the-art facilities for student and faculty use. Finally, the engaging environment will be enhanced with attractive landscaping reflective of the current Mercer landscaping design theme. Figure 1 illustrates our proposed gathering area design.

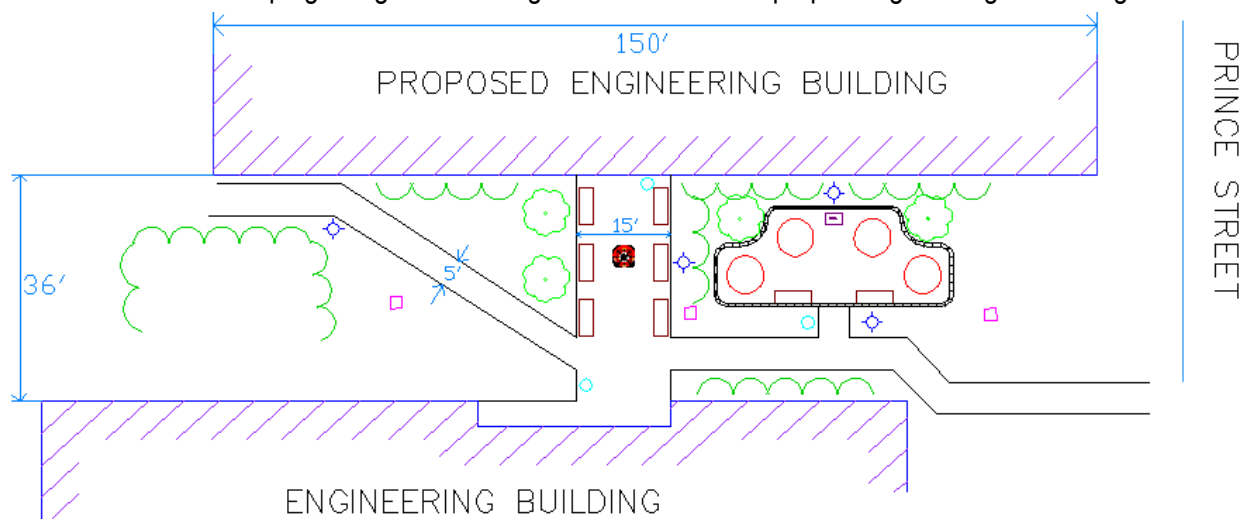


Figure 1: ABCD's Proposed Design

## CREDIBILITY

ABCD Construction has formed a superior design team consisting of members that are highly trained in the various aspects of this project. Known for their project management and team working skills, Boots Vinson, Chip Brooks, Drew Cravey, and Adrienne Lovelace founded ABCD Construction under the belief that they could exceptionally manage high quality design and construction projects successfully by observing their motto, "Building It Right, Right from the Start."



- A** Adrienne Lovelace - Graphics Designer
- B** Boots Vinson - Project Manager
- C** Chip Brooks - Head Design Engineer
- D** Drew Cravey - Document Designer

**Figure 2: Founders of ABCD Construction**  
(Left to Right: Boot Vinson, Drew Cravey, Chip Brooks, and Adrienne Lovelace)

Boots Vinson, our company's project manager, has supervised many teams throughout his career. He acquired quality experience while working with a diverse group of people on numerous projects, especially design projects throughout his college career. His engineering economy and task management knowledge have already given him the opportunity to undertake numerous projects for MUSE, including: a freshman design project, a proposal for a 1.2 million dollar activity center, and a senior design project affiliated with the Institute of Electrical and Electronics Engineers (IEEE) that begins the summer of 2004. His professional management skills are one thing that set ABCD Construction apart from its competitors.

Chip Brooks, Head Design Engineer, is highly skilled in the technical aspects of a project such as this one. His educational background in environmental engineering provides him with extensive knowledge in the areas of drainage systems, landscaping design, and environmental budgeting analysis. His current involvement with the design of a drainage system at Riverwood Paper & Pulp demonstrates his technical aptitude. In addition to his environmental background, he propels ABCD Construction to the top of its job sector with his AutoCAD drafting and interpersonal skills.

Drew Cravey, Document Designer for ABCD Construction, excels in technical communication and leadership. His highly effective communication abilities coupled with his strong desire to accomplish set goals make him an asset to our team. Four years of drafting experience with AutoCAD enhance the company's presentations to clients by allowing them to see the designs being proposed. Beginning this summer, he is co-managing the MUSE—IEEE design project with our project manager, while also performing engineering and cost justification analysis on two capital projects for another company. His highly effective communication skills bring our company closer to the client, allowing us to efficiently meet all of their needs.

Adrienne Lovelace, Graphics Designer, is trained in numerous visual design programs, allowing ABCD Construction to effectively communicate with its clients using pictures and illustrations. Her team working and organizational abilities allow her to integrate different ideas from our client and each team member into a single, effective proposal. Her experience in document graphics design has propelled our company to the top with winning proposal presentations. She helps ABCD Construction present their best to clients.

With our extensive research in this outdoor gathering area project, we feel that ABCD Construction is the best team for the job. We have thoroughly analyzed costs and features of different outdoor furniture, landscaping, and layout designs. Since each team member has experienced six semesters at Mercer University, with various classes located around campus, we feel that we have a supreme understanding of the quality of work MUSE expects from this type of project. With a solid understanding of the needs of MUSE, we at ABCD Construction have created the best design for an outdoor gathering area and connection between the two engineering buildings using the latest technology and most cost efficient methods available.

### **PROPOSAL OUTLINE**

The remainder of this proposal describes in detail the proposed solution mentioned above. It begins with the Technical Approach to solving the problem stated by MUSE, including information on site selection and location, equipment and facilities, required resources, proposed staffing, solution feasibility and advantages, and success criteria. Following the Technical Approach is the Operations Plan, which includes plan implementation methods, management and organization structure, a task schedule, a realistic and accurate budget, and a quality control plan. Finally, various figures such as floor plans of the proposed area and a Gantt chart are included in the Appendices.

## TECHNICAL APPROACH

In order to achieve success, every good plan must include a thorough yet flexible set of steps. Keeping realistic goals in mind, we at ABCD Construction pride ourselves in our concise and timely procedures. Our strategy for this proposal is no different. The following list of action steps shows ABCD Construction's dedication to accomplish the task at hand:

- 1 Clearing Land
- 2 Ordering Materials
- 3 Receiving Materials
- 4 Deepening Utility Lines
- 5 Grading
- 6 Irrigation System Installation
- 7 Drainage Installation
- 8 Installation of Additional Utilities
- 9 Pouring Concrete Walkways
- 10 Pouring Concrete Patio
- 11 Lighting
- 12 Brickwork
- 13 Installation of Benches, Picnic Tables, Trash Receptacles, and Grill
- 14 Installation of Trees, Shrubs, Sod, and Pine Straw
- 15 Logo Installation
- 16 Cleanup

Conveniently located between the existing engineering building and the future building on the gravel parking lot, the gathering area will serve as a connecting passageway and as a serene locale for students, faculty, and staff to sit, study, picnic, and hold informal meetings. The proposed design incorporates seating, landscaping, drainage, electricity, internet access, a grill, and a MUSE logo embedded in the concrete to provide MUSE with a state-of-the-art outdoor environment. The above-mentioned equipment, furniture, and other materials are described in more detail on the following pages. Technical specifications and blueprint drawings are also included. The action steps listed above and other design and implementation details are divided into five main categories for further explanation:

- 1 Location and Design
- 2 Required Equipment, Facilities, and Resources
- 3 Who Will Perform Each Task
- 4 Solution Feasibility and Advantages
- 5 Success Criteria

### LOCATION AND DESIGN

We propose that the gathering area be constructed between the existing engineering building and the gravel parking lot. The gravel lot is the future site of an additional engineering building at Mercer University. In the following subsections, we justify this selection and describe the steps needed to implement the gathering area design.



## SITE SELECTION

In order to best satisfy MUSE's needs, ABCD Construction polled the student, faculty, and staff population using an interest survey. The population sample size included twenty-six people. The survey not only asked where the best place would be for the gathering area, but it also asked questions about what facilities should be included. Key MUSE decision makers such as Dean M. D. Aldridge and Mr. Bill Campbell, Engineering Technician, were also questioned to assure that our selection for the site was the optimum choice. After careful consideration of everyone's needs and requests, we decided that the most effective place for the gathering area would be between the existing engineering building and the gravel parking lot, which is the place that the majority of those surveyed requested.

However, after we analyzed blueprints obtained from the Physical Plant, we realized that this area has many underground utilities, including a thirty-inch drainage pipe. Since building heavy projects over underground utilities, especially drainage pipes, could cause damage to the utilities, we questioned our selection of the site. However, after further discussion with Dean Aldridge and Mr. Russell Vullo, Interim Associate Vice President for Facilities, we decided that this area was still the most efficient choice, considering the future need for a connection between the existing engineering building and the proposed new building. Therefore, we carefully designed the new gathering area around the drainage pipe and decided to lower the utility lines deeper underground. Deepening the utility lines is discussed further in the *Site Renovation* section on page 9. Appendix A contains a topographic AutoCAD drawing describing the existing conditions, the underground utility lines, and the drainage system.



Figure 3: Future Site of the Proposed Gathering Area  
(Left, Center, and Right Views)

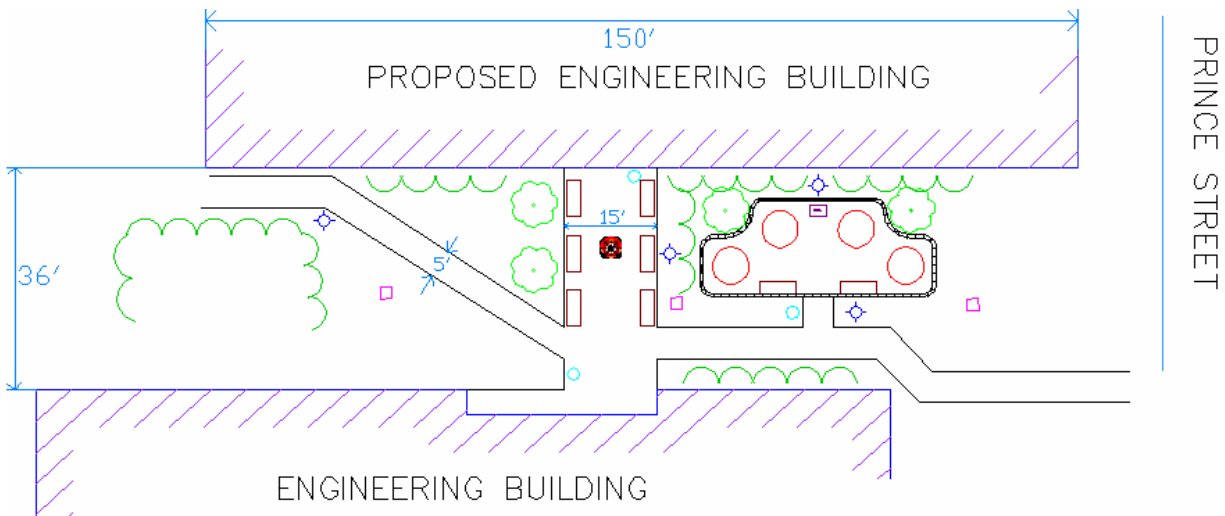
## PHYSICAL LAYOUT AND DESIGN

To provide MUSE with the most efficient gathering area, considering the plans for the new engineering building were still being drafted, ABCD Construction chose a very flexible design. How close the new engineering building will come to the existing building is still unknown; therefore, we used the thirty-six feet wide (building-to-building) measurement obtained from an old set of blueprints. To account for this unknown information, our design allows for much widthwise flexibility due to the way the benches are incorporated in the walkway. If the new building is further away from the existing building than thirty-six feet, then the walkway between the two buildings can easily be lengthened and additional benches can easily be added to account for the extra space, and vice versa.

As can be seen in Figure 4 on page 9, our design consists of a fifteen feet wide passage area lined with benches to provide some seating and a separate area with tables, internet access, and electricity for studying, informal meetings, and picnics. The fifteen feet wide design allows people traveling between the buildings to have plenty of room during high traffic times. By isolating the picnic table patio from the normal

traffic flow, our design promotes a less noisy studying and meeting environment. Aesthetically pleasing landscaping complements the entire area and enhances its welcoming atmosphere. An irrigation system with proper drainage preserves the attractive landscape.

With a width of 36 feet and a length of 150 feet, the total square footage of the proposed area is 5400 square feet. The square footage of the patio area is 512 square feet. Trees, shrubbery, trash receptacles, benches, tables, lights, drains, and other key elements were strategically placed throughout the design to strengthen the overall appearance, quality, and usability. These elements are discussed in detail in the *Required Equipment, Facilities, and Resources* section on page 9. The proposed gathering area is shown in Figure 4, along with important dimensions. Appendix B contains a larger representation of Figure 4.



**Figure 4: ABCD's Proposed Design with Important Dimensions**

#### *SITE RENOVATION*

Required site renovation can be performed in only three steps, which are described below. First, the existing concrete walkways and trees will be removed to prepare the site for grading and utility line deepening. Due to the numerous utility lines underground at the site, the lines will first have to be entrenched deeper into the ground to prevent the concrete footings from exerting too much pressure on them. To accomplish this task, the existing lines will be excavated, the resulting trench will be deepened, and the lines will be reburied. Before the trenches are recovered, any additional electrical and communication lines that are needed for the new lights, internet connections, and electrical outlets will be placed in the ground. The additional depth needed to protect the lines is two feet. Finally, the site will be graded to prepare it for the new concrete walkways and landscaping.

#### **REQUIRED EQUIPMENT, FACILITIES, AND RESOURCES**

To effectively and efficiently meet MUSE's needs, ABCD Construction chose products that had the best balance between cost, high quality, and durability, while remaining connected with the Mercer theme around campus. ABCD Construction is responsible for all equipment needed to install the materials. The storage of the furniture before it is installed will be our responsibility. MUSE's only obligation will be to provide any additional information about underground utilities that was not previously disclosed and to arrange an alternate route for pedestrian traffic through the construction site. The remainder of this section describes the materials and furniture that will be installed in the gathering area.

## TABLES

Picnic tables from the Highland Products Group, part number 166-1003, will provide an attractive and state-of-the-art picnicking area. The tables are constructed from steel and are covered in thermoplastic to enhance attractiveness and durability. Each table is a six foot oval with seating available for six adults. The patio will consist of four black picnic tables, which will accommodate twenty-four adults, as well as two benches, which will accommodate at most six people. The tables will also contain power outlets and Ethernet connections so that a computer will be available to people at all times while they are enjoying the outdoor atmosphere. The tables will be secured in the concrete via a steel cylinder that hides the electric and communication lines. Figure 5 depicts the picnic tables being used in ABCD's design.



Figure 5: Oval Table



Figure 6: Custom Bench  
(Notice the Writing)

## BENCHES

Personalized benches from the Highland Products Group, part number 166-1065, will provide the additional seating for the gathering area. Our design consists of six benches along the walkway between the two buildings and two on the patio. The benches are manufactured using solid roll formed steel with a thermoplastic covering and are approximately six feet in length. The legs and armrests are constructed from solid cast iron for extreme durability. For a more attractive look, the black and orange benches will have "Mercer University School of Engineering" written across the back, as seen in Figure 6.

## LIGHTING, ELECTRICITY, AND INTERNET

Lighting, electricity, and internet access will complement the gathering area and add to its state-of-the-art appeal. The Holophane Corporation will provide lighting for the area. The Jefferson Series Luminaire lamps and Wadsworth Series poles were selected to continue the existing campus lighting theme. Four lights will provide sufficient illumination for the walkway and patio area.

Electricity and Ethernet access will also be provided to the patio area with outlets and internet connections at each table. A Plexiglas box with an access door will be in the center of each table, underneath which the electric power and Ethernet connections will be installed. The Plexiglas will protect the outlets from inclement weather. All necessary wiring will be completed prior to the concrete being poured. Beneath each box on the tables, a steel cylinder extending from the bottom of the table into the ground beneath the concrete will cover the wires to improve safety. After installation, MUSE will be responsible for the costs associated with the electricity and internet services.



Figure 7:  
Jefferson Series  
Luminaire

Wireless internet access will also be available for the gathering area. No Strings Attached (NSA), a separate company submitting a proposal to install wireless internet access throughout MUSE, has incorporated our gathering area design into their wireless coverage plan. Their proposal includes installing

four Netgear Super G wireless routers with 500 feet coverage areas in four key locations on each floor of MUSE. NSA assured us that the coverage area of the routers extends well past our proposed gathering area and into the existing gravel lot. Moreover, outdoor internet access greatly enhances MUSE's innovative and high-tech atmosphere.

#### *TRASH RECEPTACLE*



**Figure 8: Trash Receptacle**

The Highland Products Group trash receptacles with rigid plastic liners, part number 144-1059, will also be provided in the gathering area. Three black trash receptacles will be incorporated into the design: one at the entrances of each building and one on the patio. Each trash receptacle is manufactured with highly durable 1" X 3/8" welded steel slats for extra strength, and then powder coated to provide long lasting quality and appearance similar to the trash receptacles already on campus. Figure 8 includes a picture of the above-mentioned trash receptacle.

#### *GRILL*

To provide MUSE organizations, such as ASME, a more effective place to hold cook-off fundraisers, we incorporated a heavy-duty steel grill in the patio design. A four level adjustable height grill with integrated convenience shelf from the Highland Products Group, part number 136-1021, will be installed in the center of the patio area. Providing engineering student organizations with a place to grill that is closer to the engineering building as opposed to the area in front of the Medical School that is currently being used will facilitate more involvement from other students, faculty, and staff.



**Figure 9: Grill**



**Figure 10: MUSE Logo**

#### *MUSE LOGO*

To enhance the visibility and uniqueness of the gathering area for MUSE, the MUSE logo will be engraved in the middle of the walkway connecting the two buildings. A four foot by four foot image, the logo will serve as a "naming opportunity" for the gathering area. We recommend MUSE find an alumni willing to donate the engraving in exchange for naming the gathering area after them. This will drastically lower costs since engravings are extremely expensive. The MUSE logo is shown in Figure 10.

#### *CONCRETE AND BRICKWORK*

The gathering area will consist of a main walkway, several smaller walkways, and a patio, all of which will be constructed using concrete. The design layout of each of these elements facilitates ease of movement from one place to the next that is needed in the smaller area created by the construction of the proposed new building. The concrete used for the walkways will be four inches thick, slab on grade, with reinforcing wire. The patio area utilizes eight inches thick, slab on grade, with reinforcing wire concrete. The primary reason for increasing the concrete thickness for the patio area is to raise the area above ground a few inches, creating room for the brick pattern to surround the concrete and make the area more attractive. To enhance the appearance of the patio area, a row of bricks will circle the patio along its edges. Mercer Blend is the type of brick being used, which corresponds to other brickwork around the Mercer campus.



Finally, a small ramp will connect the patio section of the gathering area to the walkway to make it handicap accessible. The proposed gathering area in Appendix B further illustrates the design of the concrete walkways and patios.

#### *DRAINAGE*

Appropriate drainage will be provided for all areas of the gathering area. Currently, there are two drop-inlets where rainwater drains. These drains can be seen in Appendix A on the Existing Conditions drawing. ABCD Construction will add an additional drop-inlet between the patio and the walkway to allow this closed area to drain properly. The additional inlet will be located directly above the existing drainage line, making it easy to join them. Furthermore, the patio area, the main walkway, and the smaller walkways will all have a slight, unnoticeable slope to prevent water from accumulating on top of the concrete. This gentle slope will allow any water to roll off the concrete and into the grass where it will then flow to the nearest drain.

#### *LANDSCAPING*

After construction of the gathering area is complete, beautiful landscaping will be added to enhance the atmosphere. When selecting trees, shrubs, and grass for landscaping needs, it is important to check the zones in which the plants can flourish the most. Both zone 7 and zone 8 include portions of Bibb County. Another criterion when selecting plants is considering the overall beautification of the landscape. To provide MUSE with the most attractive landscaping design, ABCD Construction chose plants that meet these two criteria. Our landscaping design includes four beautiful Yoshino Flowering Cherry trees, twenty Hardy White Gardenia shrubs, and green Centipede sod.



**Figure 11: Yoshino Cherry Blossom**

The Yoshino Flowering Cherry trees are strategically placed around the patio area and walkway to provide shade for people relaxing on the tables and benches. The Yoshino Cherry tree has white or pink clusters of beautiful flowers that have a scent of almond. The flowers appear before the leaves, and the total bloom time is usually 10 to 14 days. These ornamental cherries are bred for flowers and fragrance instead of fruit. The lavish blooms of soft pink semi-double fragrant flowers cover the rounded-spreading crown of this cherry. These deciduous trees have glossy, dark green leaves, which turn yellow in fall. At its mature height, the Yoshino Cherry can reach 15 to 25 feet.

The Hardy White Gardenia shrubs line the buildings and walkway edges. The Gardenia is an evergreen shrub, which grows to a height and spread of 2 to 6 feet, depending on the variety. The foliage of well-fed shrubs is glossy, dark-green, 2 to 4 inches long, and half as wide. They are waxy, white, and very fragrant. The flowers remain open over a long period of time, from May through July. The Gardenia's beautiful white flowers enhance the attractiveness of the gathering area.



**Figure 12: Gardenia Flower**

Centipede sod will cover all areas around the concrete walkways where there are no plants. This rich green grass will add to the splendor of the gathering area by connecting all aspects of the area. Centipede can be depended upon to produce a good, dense, relatively weed free turf at low maintenance levels. Pine straw will be used to surround the shrubbery and add to its attractiveness. Finally, the landscaping will be irrigated with a newly installed irrigation system that is a continuation of the existing system currently surrounding MUSE. Care and maintenance of this area will be MUSE's responsibility after construction is completed. We recommend Brickman, Mercer's current landscaping provider, to handle this task.

## **WHO WILL PERFORM EACH TASK**

To minimize costs, ABCD Construction will be performing most of the work. Our construction company is well equipped to handle projects such as this from start to finish. ABCD Construction has all of the necessary equipment required to complete each task. Additionally, due to Brickman's current affiliation with Mercer University, the landscaping work will be contracted out to them with ABCD Construction staff overseeing every aspect of their work to ensure overall product quality.

## **SOLUTION FEASIBILITY AND ADVANTAGES**

To provide MUSE with an optimum design, we planned the gathering area with the most durable and cost efficient materials. The benches, picnic tables, and trash receptacles are made out of steel and coated with thermoplastic, providing the most durable product on the market. The thermoplastic coating is rust free, ensuring high quality and appearance for many years. By providing adequate drainage, our design eliminates the standing water that currently accumulates in the area after a rainstorm. Furthermore, our design solves two of MUSE's needs: the need for a place where students, faculty, and staff can escape from their normal classroom and office environments and the need for a connection between the two engineering buildings.

In addition, our design is low maintenance and handicap accessible. The most maintenance that is required on MUSE's part is maintaining the landscaping, which Brickman currently does for the entire Mercer campus. The only additional maintenance would be to periodically inspect the furniture to ensure that nothing has broken and making sure that the trash receptacles are not full. Moreover, the five feet wide concrete walkways allow for handicap access throughout our design, making the gathering area a pleasant experience for everyone.

Other advantages stem from the elements ABCD Construction incorporated into the design. First, the grill in the patio area will facilitate more MUSE organizations, such as ASME, to hold more cook-off fundraisers and to hold them closer to the engineering building as opposed to the area in front of the Medical School that is currently being used. Second, the Ethernet hookups and electrical outlets at each table, along with the wireless internet access throughout the gathering area, make MUSE one of the leading, technologically advanced, educational institutions in the country.

## **SUCCESS CRITERIA**

As a method of measuring the success of the outdoor gathering area, all students that have classes in the Mercer University School of Engineering during the first semester after its completion will evaluate the area when they complete their course evaluations. In addition, faculty and staff will be given an evaluation sheet where they can voice their opinions on the new facility. This evaluation will consist of questions such as:

- 1 Is the gathering area conducive to studying, picnicking, and holding informal meetings?
- 2 What do you enjoy about the new gathering area?
- 3 What does the gathering area lack?
- 4 Does the gathering area meet all of your needs?

This project is being completed to benefit the students, faculty, and staff of the Mercer University School of Engineering. Therefore, the opinions of these target audiences must be considered when measuring the success of the outdoor gathering area. To achieve success, at least 80 percent of those surveyed should respond with a "Yes" to questions one and four.

Additionally, our success will depend upon completing the project in a timely manner and meeting the specified budget. Completion of the project within one week of the projected date and within ten percent of the projected budget will be considered successful. Finally, meeting all of the conditions of the RFP No. MU 200476 will be necessary for success.

# OPERATIONS PLAN

## MANAGEMENT AND ORGANIZATION

In addition to thorough planning and development of technical details, management will also play an important role. Our team includes a head supervisor, or project manager, who will manage the construction as it progresses at the site. Furthermore, ABCD's head design engineer will supervise the installation and implementation of all materials and facilities for the gathering area. The head design engineer will also directly supervise electricians, who will be installing electrical outlets and hardware for internet access, and general laborers, who will be laying the concrete and installing the furniture and commodities. The head design engineer will report progress and any arising problems to the project manager. The project manager will periodically check in on the construction site to ensure the job is progressing as scheduled.

Once construction is completed, landscaping will proceed. To oversee this aspect of the project, a head landscaper will be hired. The head landscaper, one of Brickman's associates, will also report to the project manager. Periodically, the supervisors will meet to determine how well progress is being made and if the project is on schedule; the meetings will include determining if any new ideas should be implemented. After the meetings, the head design engineer will keep the project manager informed with periodical progress reports. The document and graphics designers will observe construction and landscaping of the site to ensure the proposed design is what is being built. Based on their observations, they will report needed design changes to the project manager as necessary. Finally, all four supervisors will frequently meet with members of MUSE to ensure their needs are being met.

ABCD Construction makes sure that all aspects of the project are covered, and with thorough inspection and schedule managing, the gathering area will be a beautiful place where students, faculty, and staff can spend time. The organizational chart in Figure 13 illustrates the management pyramid for the MUSE gathering area project at ABCD Construction.

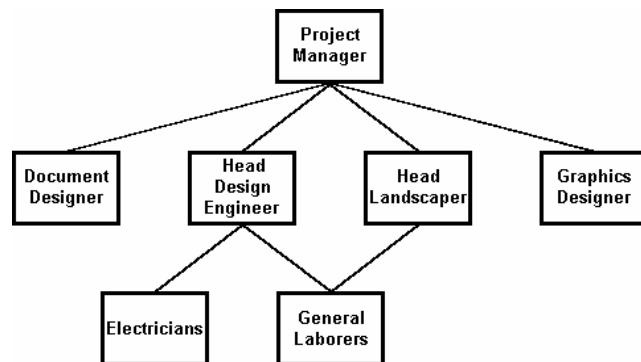


Figure 13: Management Pyramid for MUSE Gathering Project

## PLAN IMPLEMENTATION

ABCD Construction believes in keeping a project on schedule to deliver a quality product at its expected time. To keep operations on schedule, we have project milestones and checkpoints for major aspects of the project. Furthermore, a detailed Gantt chart allows our project manager to see the outline of events that will occur. The required critical path of operation is also illustrated on the Gantt chart.

### MILESTONES

The benefit of milestones is that they keep tasks on schedule and give workers a goal to accomplish. Milestones include the major components of the project. The MUSE gathering area project is divided into three phases. The end of each phase represents a milestone on the Gantt chart. The three phases are Site Renovation, Site Construction, and Landscaping. These milestones will help with progressing from one aspect of the plan to the next.



## GANTT CHART

The Gantt chart is a tool that is very useful in determining how long each task will take. It helps keep workers on track and on time. The milestones described above appear on the Gantt chart as black diamonds, illustrating the end of each phase. Once each milestone is reached, ABCD Construction will meet with executives of MUSE to assure everyone that the project is progressing smoothly. The detailed Gantt chart can be seen in Appendix C.

## COST ANALYSIS AND BUDGETING

### BUDGET

ABCD Construction's proposed budget for the MUSE gathering area includes all of the materials and labor costs needed to offer the best solution. The second column in the table includes the material costs, labor costs, and taxes required to accomplish the task described in the first column. The third column reflects the final price, after overhead and profit. Figure 14 contains the proposed, realistic budget for ABCD's proposed design.

Job Description	Material Costs/Labor Costs/Taxes	Total Cost Including Overhead and Profit
Clearing Land	\$1,760.75	\$2,112.90
Deepening Utility Lines	\$6,250.00	\$7,500.00
Grading	\$822.38	\$986.85
Irrigation System	\$972.00	\$1,166.40
Drainage Installation	\$299.50	\$359.40
Installation of Additional Utilities	\$6,810.16	\$8,172.19
Pouring Concrete Walkways	\$3,000.21	\$3,600.25
Pouring Concrete Patio	\$2,250.46	\$2,700.55
Brickwork	\$403.33	\$484.00
Lighting	\$4,766.67	\$5,720.00
Benches	\$6,025.00	\$7,230.00
Picnic Tables	\$2,279.17	\$2,735.00
Trash Cans	\$2,234.38	\$2,681.25
Grill	\$213.54	\$256.25
Trees	\$175.39	\$210.46
Shrubs	\$226.56	\$271.88
Sod	\$979.69	\$1,175.63
Pine Straw	\$156.25	\$187.50
Logo Installation	\$3,125.00	\$3,750.00
Clean-up	\$300.00	\$360.00
<b>Donation</b> (Naming Opportunity for Logo)	<b>-\$3,125.00</b>	<b>-\$3,750.00</b>
<b>Total Cost</b>	<b>\$39,925.42</b>	<b>\$47,910.50</b>
Shipping Costs		\$3,154.78
<b>Final Cost</b>		<b>\$51,065.28</b>

Figure 14: Estimated Budget for the MUSE Gathering Area

## *COST JUSTIFICATION*

We have confidence that ABCD Construction can deliver the proposed gathering area for \$51,065.28. This price includes the material costs, labor costs, taxes, shipping costs, and overhead and profit. The prices in column two of Figure 14 were calculated by adding up all of the costs of performing the tasks in column one. Then, a standard twenty percent overhead and profit fee was added to these prices to obtain the prices in column three. Twenty percent is the average overhead and profit rate charged by companies in the construction business. The donation totaling \$3750.00 represents a MUSE alumnus donating the MUSE logo engraving in exchange for the gathering area being named after him or her. The Installation of Additional Utilities row in Figure 14 considers the prices of installing Ethernet and electrical wires and connections.

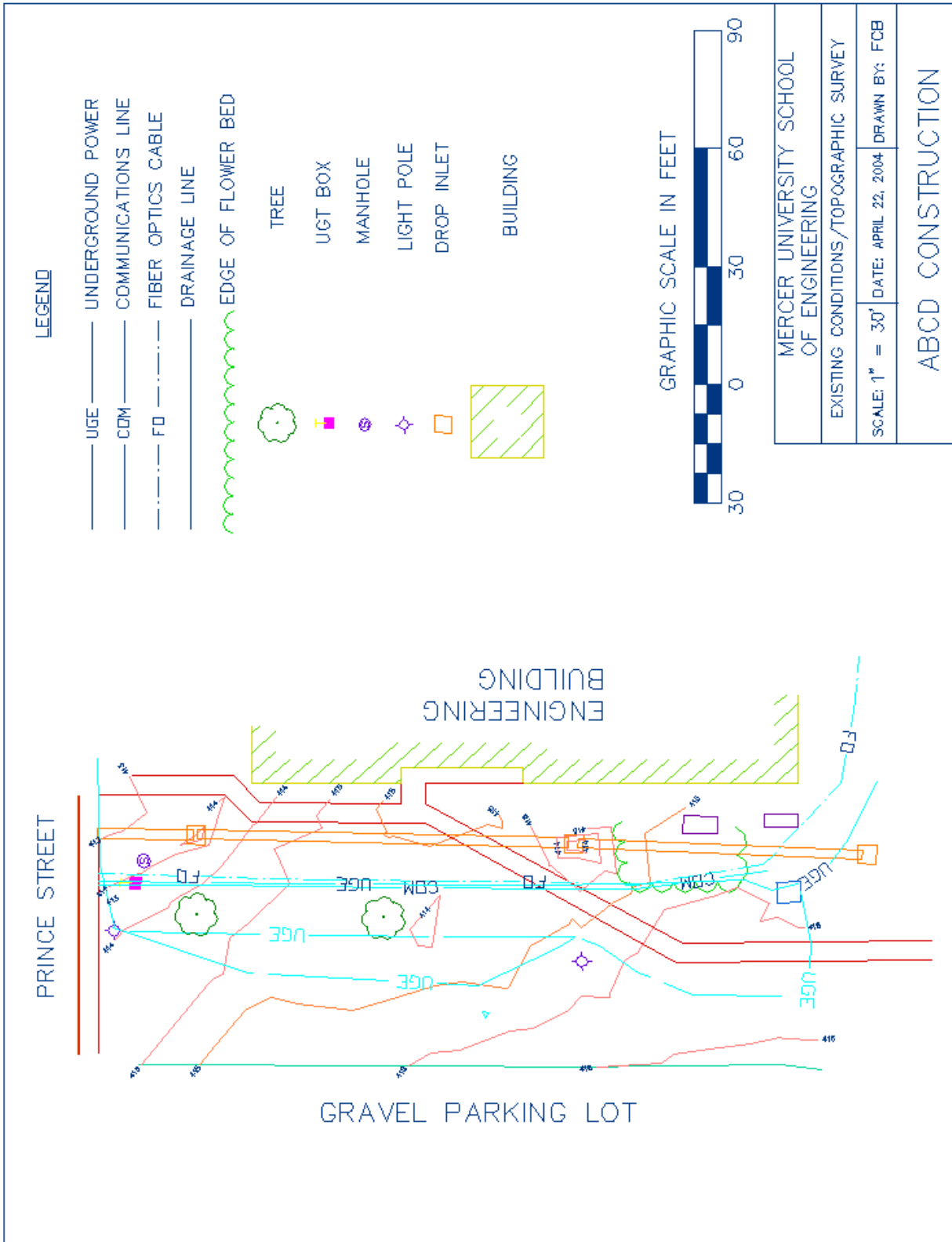
Even though the site chosen requires \$7500.00 to deepen existing utility lines, ABCD Construction decided this area was the best site for the gathering area since some form of walkway would be built here anyway during construction of the new engineering building. By paying extra up front to solve the utility line problem, MUSE will save money in the end because our design allows the connecting walkway between the buildings to serve as the gathering area.

The remaining costs of the materials and products chosen for the gathering area are justified by their high quality and durability. Furthermore, many of the products chosen are reflective of other products currently around the Mercer campus, particularly around the new University Center. As can be expected, to make MUSE a state-of-the-art facility of engineering education, some costs must be expended.

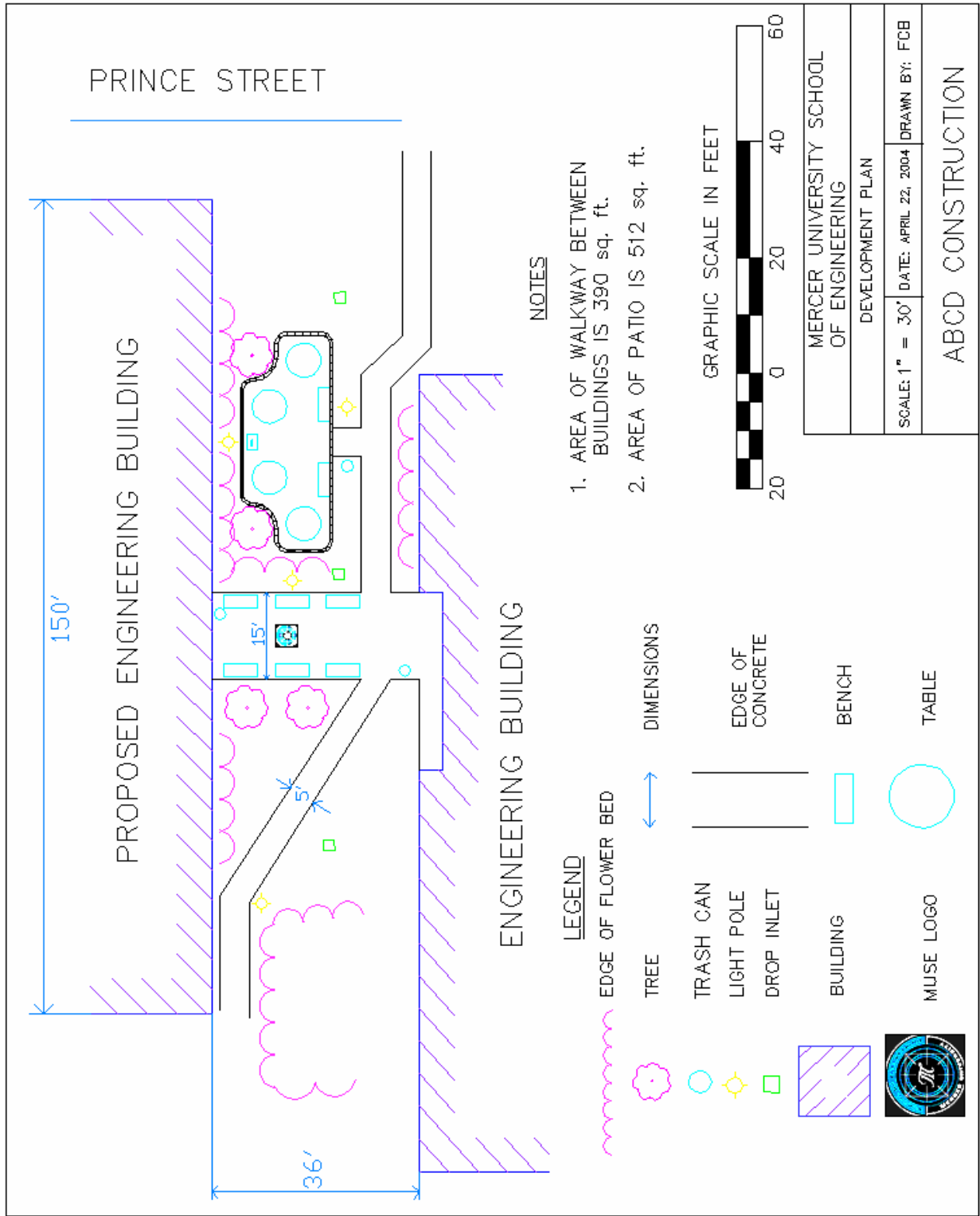
## **QUALITY CONTROL PLAN**

ABCD Construction assures its clients that we will use the highest quality materials available and that we will use quality work in a cost efficient and timely manner. We propose to initiate a quality control plan so that the installation of the products meets MUSE's standards and that any problems would be noticed before construction ends. Three measures can be taken to ensure satisfactory completion. First, to ensure quality work, our project manager and design engineer will make periodic site inspections to make sure the project is on schedule and being completed according to plan. Second, at the completion of each phase discussed in the *Milestones* section, a MUSE representative will tour the construction site with the supervisors and give feedback on project progress. Finally, by following established standards of professional conduct, ABCD Construction will achieve our ultimate goal: satisfying the customer by "Building It Right, Right From The Start."

# APPENDIX A


















# APPENDIX B



## APPENDIX C

ID	Task Name	Duration	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	
1	Cleaning Land	3 days																														
2	Ordering Materials	2 days																														
3	Receiving Materials	14 days																														
4	Deepening Utility Lines	5 days																														
5	Grading	3 days																														
6	Irrigation System	3 days																														
7	Drainage Installation	2 days																														
8	Installation of Additional Utilities	5 days																														
9	<b>Completion of Phase 1</b>	0 days																														
10	Pouring Concrete Walkways	6 days																														
11	Pouring Concrete Patio	8 days																														
12	Lighting	3 days																														
13	Brickwork	2 days																														
14	Benches	2 days																														
15	Picnic Tables	2 days																														
16	Trash Cans	1 day																														
17	Grill	1 day																														
18	<b>Completion of Phase 2</b>	0 days																														
19	Trees	2 days																														
20	Shrubs	2 days																														
21	Sod	2 days																														
22	Pine Straw	1 day																														
23	Logo Installation	3 days																														
24	Clean-up	2 days																														
25	<b>Completion of Phase 3</b>	0 days																														

Project: Proposal Gantt Chart  
Date: Thu 11/16/06

	Critical		Milestone		Rolled Up Critical
	Critical Split		Slack		Rolled Up Critical Split
	Task		Slippage		External Tasks
	Split		Summary		External Milestone
	Progress		Project Summary		Deadline