**SECTION V – FIELD MANAGEMENT**

**Los Angeles Lakers Headquarters**

**El Segundo, California**

**PREMISE**

Congratulations! After several long months of estimating, pricing and negotiation, Morley Builders has finally received Notice to Proceed on the LA Lakers Headquarters. You are a super fan of the Lakers! You are very excited when you learn that your assignment will be field engineer, working under the General Superintendent on this project. As dreams of meeting all the LA Lakers players dance through your head, you meet Gordon, your superintendent… and realize how real this project actually is.

Gordon informs you that now that Morley has the Notice to Proceed, you are already behind. Construction should be starting and you haven’t even finalized the site logistics plan. Subs are arriving on your site tomorrow and you need to provide access, water, laydown space, electricity and parking – not to mention find a space for your own office!

Later that day, you meet with the rest of your team and get your overall responsibilities for the rest of the project. As field engineer, you will be responsible for all the logistics on the project, including hoisting for all trades. Since Morley will be self-performing the concrete scope on the project, you will also be the concrete engineer for the job. You will be responsible for tracking costs, schedule, manpower, material and production for the concrete operation.

Meeting the LA Lakers players and dreaming up schemes for getting LA Lakers courtside tickets will have to wait; at the moment you have a lot to do! And remember, Gordon will expect you to be at the site at 6 AM tomorrow with the site logistics plan complete!

The team has identified the following tasks that they need you to include in the Solutions Binder:

1. Site Logistics
	1. Create a site logistics plan for the project for the start of the job, drawn to scale for clarity. Make sure that the items included in your site logistics plan are included in your overall general conditions estimate.
2. Concrete Engineering Management
3. Create a Submittal Log for the Concrete Scope of Work
4. Create a Subcontract and Purchase Order Buyout Log for the Concrete Scope of Work
5. Create a List of Labor Account Codes that will be Needed to track Concrete Installation on the Project
6. Exterior Façade Sequence
7. Analyze the exterior façade of the project and describe three ways in which the work could be sequenced in the field.
8. Chose an option from the three you presented above and create a bid document that describes the scope and sequence for the exterior façade. Make sure that your sequence is reflected in your overall project schedule.
9. Do a material take-off of the metal panels on the project.
10. Constructability Issues
11. Create RFIs regarding the constructability issues Gordon has pointed out to you.
12. **Bonus points**: Create ONE (1) additional RFI off of the contract documents that Gordon has not pointed out to you as an issue but you see will be when constructing this project.

The following exhibits are included in this section:

* Exhibit V.B.1 – Blank Concrete Submittal Log
* Exhibit V.B.2 – Blank Concrete Buy Out Log
* Exhibit V.B.3 – Blank Concrete Labor Cost Account List
* Exhibit V.D.1 – Constructability Questions #1
* Exhibit V.D.2 – Constructability Questions #2
* Exhibit V.D.3 – Constructability Questions #3
* Exhibit V.D.4 – Constructability Questions #4
* Exhibit V.D.5 – Constructability Questions #5
* Exhibit V.D.6 – Sample Blank RFI Form

**A. EARLY PLANNING AND SITE LOGISTICS**

You are in charge of creating the site logistics plan which will not only be submitted to the owner for approval, but also as part of a ‘Good Neighbor’ letter to the city council. This letter allows the community to be informed of specific and ongoing activities at the construction site. The site logistics plans you will be required to submit are as follows:

This plan should focus specifically on the logistics of early project start up. To get you started, Gordon has prepared an initial “list of issues and constraints” based on discussions with the owner, the City of El Segundo and the superintendent. Be sure to thoroughly address all issues listed below. When creating your site logistics plan keep in mind vehicular control/access as well as pedestrian flow/safety. You may choose a reference sheet from the drawing set to best create your site plan, 11x17 and included in the solutions binder.

The following is the list of issues and constraints from Gordon:

* You have to have three access gates (two primary and one secondary)
* There are public soccer fields across the street to the east that gets heavy use, especially in the summer. Worker parking is restricted on this street.
* The fire station is located kiddy corner from the SW corner of the project site. Access and parking to the site on the south and west sides can be for emergency egress only.
* Transformer for temporary power use is located in the SE corner of the site

Examples of Items You must include (this is not an all-inclusive list):

* + - Site Fence
		- Construction Trailer
		- Worker Parking

After completion of the site logistics plan, include what is reflected in this plan in the general conditions estimate.

Your final submission should be drawn to scale. Remember, you are to choose a reference sheet from the drawing set to best create your site plan; there is no given exhibit for this plan.

**Deliverables:**

1. Site logistics plan for early site planning; scaled with dimensions, and printed on 11x17

**B. CONCRETE ENGINEERING MANAGEMENT**

Morley Builders is unique in that we are not only the General Contractor on this project but we are also the concrete subcontractor. Self-performing the concrete scope on the project not only helps us control the quality and schedule and the project but often helps us increase our profitability as well. With greater potential of profits though, also comes higher risk potential. This means that concrete scope of work items need to be tracked accurately and thoroughly, often down to the nuts and bolts, literally. You have been assigned the role of concrete engineer on this project. This assignment is an indication of how much trust the company has in you because you will be in direct control of how profitable this job can be for the company.

One of the most important things to remember when trying to be profitable on the project is TIME IS MONEY! Gordon is well aware of this truth and has started construction at a rapid pace. Before you know it, concrete will need to be placed. Before you get to that point, you have lots of items to get in place! Consider the following items that will need to be put in place prior to concrete production on this project:

1. Submittal Log
	1. Consider the concrete scope of the project as a whole. Put together a list of items for which you will be responsible for submitting to the design team for approval prior to placing concrete. Note: reinforcing items are included in your scope.
	2. Indicate an approximate schedule for which each of these submittals should be submitted to the design team by. Take into consideration that the design team needs 10 business days for review of each submittal. Work backwards from your overall project schedule and be sure to take into count the lead time for procurement or fabrication of material.
2. Subcontract and Purchase Order Buyout Log
	1. Although Morley Builders is self-performing the concrete and reinforcing scope of work on this project, they really will only be able to supply laborers and carpenters for the job. Therefore, all other items associated with the concrete scope of work you will need to write separate subcontracts and/or purchase orders for in order to execute the work in the field. Create a list of contracts and/or purchase orders you will need to write and execute based on this information for the concrete and reinforcing scope of work. Indicate what scope each contract will cover. Please consider all parts that are needed to build the job, including but not limited to: labor, equipment, permanent and temporary materials.
	2. Create an order of priority for buyout from the list above. Explain your response.
3. Cost and Production Tracking
	1. The greatest variable for profitability in self-perform concrete work is the ability to accurately estimate and track labor and production on each activity throughout the project. One of the best ways to monitor this throughout the project is through the breakdown of the estimate and the setup of cost account codes that will separate labor production for each activity. Review the entire concrete scope on this project. Breakdown all the scope into labor activities. Create a list of activities for which the accountant on the project should set up cost account codes to track labor for each activity.
	2. With each labor activity that requires a cost account code, explain briefly why it would be beneficial to track this activity separately from another activity.

**Deliverables:**

1. Complete the submittal log in Exhibit V.B.1.

Note: You will only be scored for correctly filling in the columns in RED. The other columns can be used for your use. You may add or subtract rows as you see fit.

Print out on 8-1/2” x 11” sheet and include in the solution binder.

1. Complete Subcontract and Purchase Order Buyout Log in Exhibit V.B.2. You may add or subtract rows as you see fit.

Print out on 8-1/2” x 11” sheet and include in the solution binder.

1. Complete the Labor Cost Account Code Sheet in Exhibit V.B.3.

Note: You will only be scored for correctly filling in the columns in RED. The other columns can be used for your use.

Print out on 8-1/2” x 11” sheet and include in the solution binder.

* + 1. **EXTERIOR FAÇADE INSTALLATION SEQUENCE & BUYOUT**

Often times there are multiple ways in which a building can be constructed. The differentiating factor between a mediocre contractor and the best contractor (Morley Builders) is the ability for the contractor to figure out the most efficient way to build the building without sacrificing quality, time, safety or money. The key to success is not only deriving the most efficient plan but communicating the plan to all the necessary parties that need to assist in building the plan. At bid time, exhibits are created to assist in communicating the plan of attack and ensure the subcontractors are planning to build the building in the method you want.

The exterior façade on this project is very complicated. It is an architectural highlight of the project and the quality of both the products and installation cannot be compromised. It protects the interior elements from weather elements and so the timely installation of this façade is important to your construction schedule. Of course, it is also important to build the skin as efficiently as possible to maintain the budget for the project too.

Your project manager has asked for your help in planning the sequence of installation of the exterior façade and communicating this sequence to the bidders. It is important sequence of the work is explained to each subcontractor bidding a portion of the work. If a subcontractor only installing the metal panels, for example, makes an assumption for installation that is out of sequence from your plan then it could create schedule and budget problems after buy out.

In order to provide clear direction to the bidders, your project manager has asked you not only to identify the best sequence of installation for the exterior façade but also to create an exhibit clearly identifying the scope and sequence of the work for use in the buyout process for the exterior facade.

1. Plan the Exterior Façade Installation Sequence
	1. Describe and/or illustrate at least three ways in which the exterior façade could be installed.
	2. For each sequence of work, list the benefits for proceeding with this sequence of installation as well as the possible problems it may cause.
	3. Chose a sequence of Installation. Explain why you settled on this sequence over the other options you describe in part V.C.1.a.
2. Communicate the Exterior Façade Installation Sequence Through the Creation of a Bid Document
	1. Using the project drawings, create a sequence diagram for the exterior façade installation. Your sequence diagram will be used as a bid document for all the exterior façade subcontractors bidding the project. They will use this tool to adequately price the installation sequence and schedule you desire. It is imperative that you be as clear as possible to adequately reflect in your plan how you want the façade to be built and which components you want each subcontractor to complete. This plan should align with your overall building schedule.
	2. You must indicate clearly the extent of each subcontractor’s scope and the direction in which installation should proceed. In addition to your overall sequence diagram (plan view), include elevations and details that pertain to your plan to further identify scope for each trade. Make sure to address each elevation of the façade and transition from one material to another.
3. Analyze the Discrepancies in Subcontractor Bids
	1. You receive two bids on the metal panel scope of work that vary greatly from each other, both in regards to schedule and budget. You quickly realize that one or both of the subcontractors clearly do not understand the extent of the scope, even with the exhibit you provided with the scope of work description. In order to identify the discrepancy, you project manager asks you to do a material take-off of this scope of work. Your take-off should be done by color coding the design documents and compiling the information in an easy to compare format in an excel spreadsheet.

**Deliverables:**

1. Analysis of the Exterior Façade Installation Sequence. Answer the question in a combination of PDF documents or Word Documents. Print in 8-1/2”x11” or 11”x17” format and include in the solutions binder. Be sure to address each of the below:
	1. Describe and/or illustrate three different sequences in which the exterior façade could be constructed.
	2. List or otherwise explain positives and negatives to each approach. Include all your backup analysis.
	3. Choose which approach you think is best for this project and explain why. Make sure this is reflected in your Exhibit needed for part 2 and your overall building schedule.
2. Create an Exhibit that shall be used as a Bid Document to be distributed to the exterior façade bidders. Include a hard copy in the binder, no larger than 11x17. Include the following:
	1. Plan View Showing Overall Sequence with Durations for Each Activity
	2. Elevations Clearly Identifying Each Subcontractor’s Scope of Work
	3. Cut Sections and Transition Details showing Each Subcontractor’s Scope of Work
3. Material take-off of all metal panels. Include a spreadsheet indicating the quantities of each type of exterior metal panel. Print the spreadsheet in 8-1/2”x11” PDF to be included in the solutions binder. Also, include a color coded take-off from the building drawings. Print your color coded take-off on 11”x17” PDF that includes legend.
	* 1. **CONSTRUCTABILITY ISSUES**

Your project is now in the throes of construction. Although the contract documents are intended to tell you exactly what to build, often there are details missing or questions that still need to be answered in order to determine the designer’s intent. Gordon, your project superintendent, has taken the lead in reviewing the drawings and identifying holes in the design. He is too busy managing the field to get the answers he needs though. He needs you to flush out the questions he has ahead of the construction onsite.

He has printed out specific details in the drawings and left vague notes alluding to his questions on your desk. It is your responsibility to write Requests For Information (RFIs) to the owner’s representative and design team to get the answers he needs. Make sure you are as thorough as possible as the answer needs to be distributed and understood by all the tradespeople on site building the job. However, recognize that the owner’s representatives and designers are busy as well. They do not take it lightly if you ask questions that are already identified in the contract documents. Confirm you have done a thorough check of the already issued documents prior to issuing the RFI.

Remember, a properly written RFI will address the following concerns, in addition to identifying the question:

* Request to the proper design team members, including engineers and consultants
* Date answer is needed by (indicate activity in your schedule this RFI response will impact)
* Thorough description of the issue, including attachments as necessary
* Reference to all applicable contract documents, including specifications (where the RFI and appropriate answer will eventually need to be posted)
* Indication if the possible response will lead to additional costs and/or schedule impacts
* A potential solution to the issue that minimizes cost and schedule impacts
* Distribution list of subcontractors that will need to see the answer to the subject RFI

**Deliverables:**

1. Create RFIs for the questions left for you by Gordon (reference Exhibits V.D.1 through V.D.5). These should be submitted on 8-1/2” x 11” documents with all the information needed above. A blank template of a typical RFI is shown in Exhibit V.D.6 to guide you in the right direction.

**V – FIELD MANAGEMENT**

**LA LAKERS HEADQUARTERS**

**Los Angeles, California**

**EXHIBITS**

The following exhibits are included in this section:

* Exhibit V.B.1 – Blank Concrete Submittal Log
* Exhibit V.B.2 – Blank Concrete Buy Out Log
* Exhibit V.B.3 – Blank Concrete Labor Cost Account List
* Exhibit V.D.1 – Constructability Questions #1
* Exhibit V.D.2 – Constructability Questions #2
* Exhibit V.D.3 – Constructability Questions #3
* Exhibit V.D.4 – Constructability Questions #4
* Exhibit V.D.5 – Constructability Questions #5
* Exhibit V.D.6 – Sample Blank RFI Form