RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

November 17, 1986

Subject: Construction Site Monitoring Report #1

Manufacturers Bank Operations Center

Livonia, Michigan

Contractor: Walbridge Aldinger

Project: 85:58

Date of Monitoring: November 7, 1986 (working day 474)

Monitored from: RJS Issue #3, sheets 1 and 2 dated August 7, 1986 (working day 409) and WACO job 6026 schedule revision #0 dated August 1, 1986 (working day 405)

Current target completion date for all building work and tenant improvement work: December 1, 1987 (working day 744)

Working days remaining to completion from this monitoring: 270 working days

Actions taken:

- Reviewed current status of field work with John Moriarity, Superintendent
- Inspected project
- Reviewed general considerations on security systems with John Moriarity
- Identified potential problem areas and discussed these

General

Currently the project is meeting target dates on erection of structural steel and most work is in close alignment with the network models being used. Structural steel in section A to C is erected and detailed with metal deck placed and welded on the first, second, third and fourth floors. Roof deck is not yet in place. Delivery of roof deck is expected sometime in the very near future.

In structural steel section C to E most steel is raised. It is well along in detailing and metal deck erection has started. Structural steel erection for column lines E to G is in work.

Fabrication of remaining structural steel, according to Mr. Moriarity, is in reasonably good shape and there should be no difficulty in maintaining desired progress. Completion of structural steel erection, plumbing and bolting is presently scheduled for mid January, 1987. Structural steel erection is due to be complete December 31, 1986 (working day 510). It appears presently that these are achievable and will be met. There is a slight problem in concrete deck pours. The first deck pour was due to begin forming and reinforcing on November 7, 1986 (working day 474). Currently it is projected that this deck work will not start until November 24, 1986 (working day 485). Thus, the lag projected is about 11 working days. However, durations used on deck pours were somewhat conservative and there is some feeling that this time can be picked up, particularly since floor pour operations were shown as sequencial from each floor and each section into the next floor and section respectively.

Thus, in general, it can be said the structure of the building is in relative good condition and probably will adhere closely to the current schedules and network models. It is absolutely imperative that the mechanical work and electrical work that goes into the slabs and above the floors be worked on and followed very carefully since there have been some difficulties with drawing issues, which have delayed contract awards. This matter is being worked on aggressively by Walbridge Aldinger in conjunction with all concerned and every effort is to be made to maintain the desired plan of work.

At the basement, underground utility work is not yet started. This work was due to begin in late December, 1986. However, it probably will start by November 14, 1986 (working day 479). This is a desirable situation since the early start could allow installation of the slab on grade to be completed by late December, 1986. This, of course, would give considerable room at the basement level to initiate interior rough and finish work.

Most foundation work is complete with the exception of some architectural walls at entries and other outside access points. The only major portion of the basement wall yet to be poured is at the access to the basement, presently being maintained on the west side of the southwest corner. There is no current word on when this wall will be closed in. It is not currently affecting any major operations.

On the site, underground storm sewers, water lines, and sanitary lines are about 95% complete and will be done within the next 10 working days. No work is yet started on bringing primary power into the site since a change in the access point was made to Fox Road. This was issued on a bulletin which was released November 6, 1986 (working day 473).

I suggest at our next planning and scheduling meeting that we address the matter of primary power service to insure that permanent power will be available to the site just as early as possible. I shall discuss this with Mr. Demanski.

So far as the exterior skin of the building is concerned, the precast panel contract has been awarded and detailing of panels into shop drawing format is in work. The first set of shop drawings has been submitted. Presently the target start of work on precast is January 5, 1987 (working day 512). This will be a critical point since it is here we begin closing in the building vertically to weather.

Roofing was due to begin on an early start of November 7, 1986 (working day 474). However, because of the need to erect structural steel in vertical sections, there is some float time available to roofing. Therefore, roofing is presently to begin with blocking curbs and drains about December 1, 1986. This should cause no major difficulties since at least 2 or 3 sections of the building should be available for roofing before it can start production.

Mr. Moriarity and I briefly discussed the award and installation of the intergrated controls contract work. There is a strong indication presently that this controls contract will be awarded to a single controls contractor. This award is imminent. In the package there are many elements which were identified and listed in the regular Monitoring Report #13 dated November 6, 1986 and shown on page 4 and 5 in that report. The complexity of the controls package, designated as package F, makes it important that careful attention be given its design and installation. Therefore, it would be well to make an early decision on who is to manage that entire installation in the field. If it is to be given to the general contractor then this should be done early in the process and a full orientation meeting held, at which all of the design and installation ground rules are spelled out carefully. Control contractors are somewhat independent of conventional building processes and therefore, it will require very careful management of that contract to insure it is properly intergrated

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the building work. Care spent in identifying responsibilities and authority early in the design and installation work is necessary if we are to have it installed well and on time.

General Summary

Overall, the project in the field currently appears to be moving well. The general contractor has a good grasp of the scope of work and is working the job well in line with current plans and schedules.

We did not discuss procurement in great detail at this session since the major contracts for which procurement is to be tracked, have just recently been awarded and it is not possible yet to identify major needs or delivery dates. However, at subsequent field monitorings, I shall plan to review this with the contract construction team.

Mr. Moriarity reports that at this point in time the major contracts are just being awarded and therefore, we should expect from this, that more information will be available at subsequent meetings on the status of procurement for major delivery items. Since the time between now and the completion of this project is extremely tight, procurement will have to be given a high level of attention to insure that deliveries do not delay work on the project.

I shall prepare monitoring reports for field work as a separate set of documents from the regular meetings and issue these as titled in the heading of this report.

It would be well to monitor the project in the field at least once per month and possibly when the work builds up and is being carried out at several different areas, possible every 3 weeks. However, I shall be in touch regularly with Mr. Demanski to establish field monitoring frequency. It would be appreciated prior to these visits, as with this monitoring, the project staff at the contractor's office could be notified.

Ralph J. Stephenson, P. E.

RJS: gmy
TO: Mr. Larry Eastham
Mr. Greg Demanski
Mr. Steve Duczynski
Mr. Daniel Redstone
(Distribution to others to be by above parties)

RALPH J. STEPHENSON, P.E., P.C.
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February 16, 1987

Subject: Construction Site Monitoring Report #2

Manufacturers Bank Operations Center

Livonia, Michigan

Contractor: Walbridge Aldinger

Project: 85:58

Date of Monitoring: February 9, 1987 (working day 537)

Monitored from: RJS Issue #4, sheets 1 and 2, dated January 8, 1987 (working day 515).

Current target completion date for all building work and tenant improvement work: December 1, 1987 (working day 744).

Working days remaining to completion from this monitoring: 207 working days.

Actions taken:

- Inspected project
- Reviewed current status of project with Mr. John Moriarity, superintendent
- Evaluated current status of project

General Summary

The project is currently meeting most major field target dates between early and late starts and finishes. An exception is erection of exterior precast wall panels. The panels are presently being set along column line A and have just recently been put into production erection. Apparently, there were some unforeseen difficulties among the trades that had to be resolved before full progress could be achieved. However, these have been taken care of and full completion of the panels on the exterior is presently being held at March 30, 1987 (working day 572), the date shown in the current issue of the network model.

The basement floor slab on grade in the issue #4 network model was set for March 17, 1987 (working day 563). This date probably will be met or bettered. Underground utility work on high plumbing lines is still to be completed at toilet rooms in the basement, but there are no current difficulties with these lines. Spray on fireproofing at the basement floor has not yet begun, and will probably not start until all or most of the floor is poured out.

At the first floor about 75% of the supported deck is poured out and spray on fireproofing is complete at about the same areas as those at which the deck is poured. No major above floor rough mechanical or electrical work has been started except for miscellaneous sheet metal ductwork risers. The floor is generally ready for other above floor work to start at the first level.

At the second floor the supported deck is poured out generally from column lines A to E. Spray on fireproofing is also in place generally at this same area. Work is in progress readying the deck for additional pour. Currently this work lags slightly over late starts and finishes for the second floor. Deck pours from column lines E to G were due to start on February 6, 1987 (working day 536) and be poured out by February 11, 1987 (working day 539). It is possible that these dates could be met, although it appears presently that there might be a lag of one to two days. This is not a serious problem.

At the third floor, the floor slab is generally poured out from column lines A to E with spray on fireproofing applied over a portion of this area. Work at the third floor is generally meeting or bettering target early and late starts and finishes.

At the fourth floor the supported slab is poured out generally from column lines A to E, however, no spary on fireproofing has yet been started.

Overall, erection of the structure, including supported decks, is in relatively good conformance with the network models currently in effect. It should be pointed out that the network from which this monitoring was gaged, issue #4 dated January 8, 1987 (working day 515) was prepared during a meeting on January 8, 1987 (working day 515) with the contractor, but was not issued formally. However, it was correlated with the Walbridge Aldinger updated schedule as of that date. Thus, the network used for this monitoring is a very close plan form of the current schedule of the contractor as of the date of the meeting.

The diagram has not been officially issued but was given to those desiring copies at the meeting of January 8, 1987 (working day 515). That particular network model analysis indicated the project lagged the issue #3 network model, dated August 7, 1986 (working day 409) by 10 to 20 working days. (This matter was reviewed in Monitoring Report #15 (normal monitoring report) dated January 26, 1987). The roof of the building has been generally completed to horizontal dry in, although there is still a fair amount of work to be done on the roof. There are several openings in the roof, including those for miscellaneous roof mounted equipment, as well as for skylights. Skylight material will be on the job the week of February 9, 1987 and installation will probably start, weather permitting, by about February 11, 1987. This work was due to have begun January 28, 1987 (working day 529).

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I had some discussion with Mr. Moriarity regarding the current status of interior work. The project is rapidly approaching a point where interior rough trades must be put into work as quickly as possible. As pointed out above, some sheet metal ductwork has started, mainly on risers. The floors are being stocked with sheet metal distribution ductwork and probably its installation will begin in the near future.

Mr. Moriarity mentioned that there could be a sizable change in the partition systems to be used in the building. Again, I suggest that these matters be completely resolved as rapidly as possible, since we are quickly drawing near a point where interior finish work on the project will have to start. This is particularly so at the third floor which is the most critical of the levels.

I reviewed briefly with Mr. Moriarity the third flooring interior sequence work discussed at our regular meeting on January 8, 1987 (working day 515). This was the plan in which below access floor work was installed early, followed by the access floor, and then followed by partition work on the access floor. Mr. Moriarity apparently has a copy of this network and we discussed the critical sequencing of the halon system, the access floor, and the partitions in some detail. I gave him my copy of that diagram after our discussion, so he might be able to discuss it with others at meetings to be held in the near future. There still are problems that must be addressed in sequencing of floor completions, issuance of other contract document packages, and maintenance of progress in the field.

I shall review these matters with Mr. Greg Demanski some time in the very near future. Meanwhile, I suggest that all parties to the contract continue to pursue the early interior work that has been identified as important with as much vigor and initiative as possible.

I shall be in touch with Mr. Demanski shortly to set the next planning and monitoring session.

Ralph J. Stephenson, P.E.

RJS:gmy
TO: Mr. Larry Eastham
Mr. Greg Demanski
Mr. Steve Duczynski
Mr. Daniel Redstone
(Distributed to others to be by above parties)

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CONSULTING ENGINEER

July 7, 1987

Subject: Construction Site Monitoring Report #3

Manufacturers Bank Operations Center

Livonia, Michigan

Walbridge Aldinger - contractor

Project: 85:58

Date of Monitoring: June 29, 1987 (working day 636)

Monitored from networks noted below.

Current target completion dates for all building work and tenant improvement work; for early areas - November 2, 1987 (working day 725); for remaining work - December 24, 1987 (working day 762).

Working days remaining to completion from this monitoring: 89 to early area turnover; 126 to full completion.

Actions taken:

- Inspected project
- Reviewed current status of project with Mr. John Moriarity, superintendent for Walbridge Aldinger
- Briefly reviewed current status of project with Mr. John Fancher, project manager for Walbridge Aldinger
- Evaluated current status of project in field

General Summary

We reviewed the project based upon the current networks that had been prepared by me in conjunction with the owner and the contractor's project staff. These diagrams, as has been the case in the past, are being converted to Walbridge Aldinger's scheduling translation and have been or will be issued for the contractor's internal use shortly.

The basement and third floor were monitored from the RJS network issue #7, dated June 3, 1987 (working day 618). First and second floors were monitored from sheets 10 and 8, issue #6, dated April 7, 1987 (working day 578). The fourth floor was monitored from a preliminary network and was merely evaluated in terms of general needs to meet the later target end defined above.

The basement floor, rough overhead mechanical and electrical work is in progress, along with installation of above ceiling miscellaneous iron and hangers. Metal stud work is due to begin July 6, 1987 approximately. It had a scheduled late start of July 6, 1987

(working day 640). It appears that there is no current lag at the basement over late starts and late finishes. However, there is a lag over the early starts and early finishes established in our most recent updating on June 3, 1987 (working day 618). It is this increased lag over the early starts proposed that is of concern as a trend or pattern. However, measured against the present target completion of November 17, 1987 (working day 735), the area should be available for most functions required by the move in date, provided no further slippage is experienced.

First floor work has begun to slip slightly in studs and wall board and presently lags late starts and late finishes by about 5 working days. However, this lag is presently rather small and could be recaptured quickly if the work movement is improved, and if the current causes of slow work at this floor are resolved. Throughout the building, there are many matters that are being reviewed, revised, and resolved on an ongoing basis. Because of this short time period between now and when the target move in is, it is imperative that all revisions be minimized. Any changes to the project at present or any pending matters that are not resolved will delay the job.

At the first floor, it is intended to start scaffolding for atrium finish work sometime later this week. This will intensify the amount of activity at the atrium area and put a demand on trades that are also needed elsewhere. The trade build up is a source of concern since it means that multiple and similar operations will be going on in many of the areas of the building concurrently. Also at the first floor, some difficulty has been encountered at the food service area since it is a small and very congested area of the building.

Presently, we are holding a target date of July 30, 1987 (working day 658) for delivery of marble. This is a critical date and must be watched carefully since the lobby is an important part of the access and circulation patterns needed for the move in.

Overall, the areas to be watched at the first floor include the atrium, cafeteria and food service area, and the lobby interior finishes. However, if work can continue as presently planned, without major future disruption, it should be possible to complete the first floor reasonably close to the desired target.

Second floor work is a source of concern. It was measured against issue #6, dated April 7, 1987 (working day 578). According to this network model which shows a target date for late completion of November 6, 1987 (working day 728). The current lag is about 22 working days primarily in hanging, taping, and sanding gyp board. On June 3, 1987 (working day 618) we monitored the second floor and the apparent lag there then was about 6 working days. Thus, there has been a considerable increase in the amount of lag between early in

June, 1987 and late in June, 1987. This trend is very critical and the amount of the lag at this time would serve to indicate that a careful look be given to second floor work.

In the diagram containing the activities monitored today at the second floor, painting was shown as starting by the late start of July 1, 1987 (working day 638). This date will not be met but it does represent a somewhat pivotal point of the project. Before our next planning and monitoring session, I suggest the project teams evaluate current progress at the second floor relative to their proposed schedules. We should discuss this evaluation in our next session.

Third floor work was monitored from a diagram prepared on June 3, 1987 (working day 618). At the planning meeting we paid considerable attention to installation of the access flooring. Presently, the lag in this work is 8 working days over late starts and late finishes. The target date for beginning access floor installation was June 22, 1987 (working day 631). It is expected to begin July 2, 1987 (working day 639), thus accounting for the 8 working day lag. Since it is a directly critical activity and since it also is an item that is necessary to closely relate to piping below it, the access floor installation will have to be given careful attention in the immediate future. I discussed this matter with Mr. Moriarity and every effort is being made to put floor installation in production.

Fourth floor work is not as critical as other floors. Present status at the fourth floor indicates that most of the rough above floor work is complete and that installation of studs and core board is underway. The project appears to be currently far enough behind what might be desirable milestone dates to indicate that at our next session the fourth floor plan of work should be updated and re-evaluated.

General

The project is now at a point where many of the field operations for similar trades must be installed concurrently. This is a serious problem since it usually indicates difficulties in manning the job may soon be encountered. The reasons for this are very complex and deal with a variety of difficulties encountered in the past. Many of these problems are being resolved as construction proceeds but there still is a residual that prevents full work continunity from being developed in the field even now. There has been some consideration of how the current lags might be regained. One of these that has been discussed in depth, deals with selective overtime. This matter should be looked at in depth now because the short amount of time between the present monitoring and the target date for start is so close for move in.

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Any premium time that has to be worked is best engaged in as early as possible. There is, of course, the always present possibility of once overtime work is initiated that it will not be difficult to keep selective and once started might be hard to stop. These matters should be fully evaluated among the project team by all concerned.

In any event, the current lags on the job indicate that now is the time to make a move to recapture any current delays. Further deferring of decisions in this matter could seriously affect the present completion dates being used for targets.

One other area that should be watched carefully is site installation work. Site work is proceeding relatively well and some paving has been started. However, there is a considerable amount of site work yet to be done and no delays can be tolerated that might possibly interfere with production paving.

I shall be in touch with Mr. Demanski shortly to determine future monitoring needs. Meanwhile, a copy of this report is being sent to Mr. Eastham, Mr. Demanski, Mr. Duczynski, and Mr. Redstone. Distribution to others should be by them as required.

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RJS:gmy
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Mr. Greg Demanski
Mr. Steve Duczynski
Mr. Daniel Redstone
(Distributed to others to be by above parties)

RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

August 30, 1987

Subject: Construction Site Monitoring Report #4

Manufacturers Bank Operations Center - Livonia, Michigan

Walbridge Aldinger - contractor

Project: 85:58

Date of Monitoring: August 28, 1987 (working day 679)

Monitored from networks noted below.

Current target completion dates for building work and tenant improvement work; for early areas, November 2, 1987 (working day 725); for remaining work, December 24, 1987 (working day 762).

Working days remaining to completion from this monitoring: 46 to early area turnover; 83 to full completion.

Actions taken:

- Inspected project
- Reviewed current status of project with Mr. John Moriarity, Superintendent for Walbridge Aldinger and Mr. Steve Duczynski of Schostak
- Evaluated current status of field work on project

General Summary

The project was reviewed from measurements against two sets of plans and schedules. The contractor (WA) has issued an updated bar chart dated August 14, 1987 (working day 669) in which completion dates for various areas are shown as follows.

Basement floor - December 14, 1987 (working day 753)

First floor - December 18, 1987 (working day 757)

Second floor - December 4, 1987 (working day 747)

Third floor - December 2, 1987 (working day 745)

Fourth floor - January 8, 1988 (working day 770)

Controls and security work - January 11, 1988 (working day 771)

It is assumed in this monitoring that the logic behind the WA bar chart is similar to the logic that has been formulated in our various meetings with the architect/engineer, the owner, Schostak,

and the contractor. The logic plan networks have been designated as the RJS networks and are those from which the project was evaluated today. They include the basement and third floors, issue 7, dated June 3, 1987 (working day 618), first and second floors, issue 6, dated April 7, 1987 (working day 578), and fourth floor, issue 6, dated July 13, 1987 (working day 645), sheet 12.

Completion dates shown in each of these network models, which were used to compare with the WA completion dates shown above, are as follows.

Basement - November 17, 1987 (working day 735)

First floor - December 4, 1987 (working day 747)

Second floor - November 6, 1987 (working day 728)

Third floor - October 23, 1987 (working day 718)

Fourth floor - December 30, 1987 (working day 764)

The spread in completion dates on the network models was to stagger the finishing dates of the various floors over a period of time. As can be seen from the above comparisons, the project is now at a point where practically all floors are finishing in December, 1987 and the turnover cycle has been shortened to a very small number of working days. The method of monitoring the project at this session was to evaluate the current status of the project against the RJS network logic plan; to evaluate the lag and add it to the logic plan end date; and then to measure the end date shown by that measurement against the WA bar chart end dates shown in the schedule of August 14, 1987 (working day 669).

The base evaluation below is against the RJS logic networks.

Basement Floor

At the basement, wall studs are substantially complete, some wall board has been hung and work will start on production installation of gyp board within the next few days. Board was due to begin in a production mode on July 20, 1987 (working day 650). Thus, the lag presently is about 27 working days over the network measuring date of November 17, 1987 (working day 735). If we add the lag to the completion date shown, it gives a projected completion date for the basement of December 28, 1987 (working day 762). This, when compared to the WA bar chart of August 14, 1987 (working day 669), shows a lag over that schedule of about 9 working days.

First Floor

There are three basic areas at the first floor. The lobby, the cafeteria and food service area, and the remaining building areas.

Presently, at the cafeteria and food service areas, waterproofing is being installed at the quarry tile surfaces and most gyp board is hung. Taping and sanding of the gyp board at the cafeteria is in work. Quarry tile will probably start by August 31, 1987 (working day 680). Fireproofing at the hood duct has not yet started and apparently there is still some discussion in process about the method of the fireproofing. I strongly recommend this matter be resolved soon since installation of the fireproofing does restrain ceiling work at the food service area.

Food service equipment is available and will be brought to the job site in about 3 weeks. Food service equipment had a network late start of October 5, 1987 so probably will be able to meet or better that date.

Taping and sanding of gyp board at the cafeteria was due to begin no later than August 5, 1987 (working day 662). It is in work and lags by about 14 working days. If we adjust the end date, shown in the RJS network model, of November 19, 1987 (working day 737) for this lag, it brings the new projected finish date of the cafeteria work to December 10, 1987 (working day 751). The target completion for cafeteria work in the WA schedule was November 23, 1987 (working day 739). Thus, the lag over the WA schedule is about 12 working days.

At the lobby, no board as yet started. However, studs are fairly well along. Board was due to begin no later than July 24, 1987 (working day 654); so it appears that there is from 22 to 25 working days lag at this portion of the building. Assuming the lag at 22 working days, puts the completion date for the lobby about a month later than the current target of November 17, 1987 (working day 735) or at December 18, 1987 (working day 757). The WA schedule end date was December 18, 1987 (working day 757), so the lag there currently is 0.

At the remainder of the floor, work is in progress on completing board, taping and sanding. The lag is in these trades and is about 17 working days over the network model, showing a completion of December 4, 1987 (working day 747). Adjusting this by the 17 day lag brings completion to a projected date of December 30, 1987 (working day 764) which is a lag over the WA schedule date of about 7 working days.

Second Floor

Most board has been hung at the second floor and work is currently in progress on taping and sanding. It is expected to begin installing accoustic ceiling suspension, grid, and conduit on August 31, 1987 (working day 680). This work was to have begun no later than July 9, 1987 (working day 643). Thus, the projected lag is about

37 working days. Measuring this lag against the projected network completion date of November 6, 1987 (working day 728), gives a new projected finish of December 31, 1987 (working day 765) for a lag over the WA schedule of about 18 working days.

Third Floor

Currently, work at the third floor is being focused on acoustic ceiling work, and completion of the computer access floor. The lag in the acoustic ceiling work is about 16 working days. If this lag is applied to the network projected end date of October 23, 1987 (working day 718), it indicates a completion of November 16, 1987 (working day 734). The WA schedule completion is shown as December 2, 1987 (working day 745), thus, this floor is slightly ahead of the WA schedule completion.

Fourth Floor

Presently, work is being completed on rough overhead work and installation of wire and conduit. There still remains considerable work on metal studs and wall board, and the current lag appears to be about 11 working days at the floor. Adding this to the projected end date in the network models of December 30, 1987 (working day 764), gives a projected completion of January 15, 1988 (working day 775). This is a lag over the January 8, 1988 (working day 770) completion target in the WA schedule of about 5 working days.

Summary

Thus, if we review current projected completions against the WA schedule of August 14, 1987 (working day 669), we find that the lags are from 9 to 18 working days, primarily at the basement, first and second level interior work. This brings completion of these areas to late December, 1987 or early January, 1988.

It was not determined in detail at this monitoring whether the WA current schedule dated August 14, 1987 (working day 669) is based upon any substantial amount of overtime. If it is assumed that the schedule as provided by WA was based on a minimum of overtime, then the evaluation by Manufacturers and the project team must be whether or not the move in can be successfully made within the structure of dates projected above.

This, of course, assumes that the work from here on can be moved in substantial accordance with the sequences as shown in the network models prepared in our joint meetings.

RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

It presently appears that the third floor, for instance, could be available in early December, 1987 and that, depending upon operational characteristics, most of the other areas will fall in place within the next 3 to 5 weeks after completion of the third floor, ready for start of move in.

There apparently has been considerable discussion among the project team as to the desires of Manufacturers in the move in. It is apparent from the current status of the work that a considerably better probability of achieving these dates as reprojected in the monitoring report, could be had by working overtime at as early a date as possible. Naturally, there are many practical difficulties with selective overtime and it may not be possible to pick and choose what trades work and which contractors work.

At present, the majority of the work at the floors is concerned with studs, hanging dry wall, taping and sanding, and rough electrical installation. It might be well to entertain the possibility of working the dry wall trades and electrical trades for an overtime period of, perhaps, 3 to 5 weeks with definite cut-off provisions as the work begins to assume a staggered and smoothing trend on sucessive floors.

This recommendation is particularly appropriate now because of the very small amount of time remaining to start of the move in. There can be no delay, whatsoever, in deciding on overtime, nor if there is to be overtime worked, in its implementation. Thus, it might be best to work a limited but early and intense schedule of overtime to provide a better picture of the job within the next 3 to 5 weeks. This could be done under the limited overtime scheme proposed above.

In addition, it affects only current trades rather than having a domino effect on the many finishing trades that will be involved on the project at a later date.

As we monitored the project and discussed the trades that might have to work overtime. Mr. Moriarity said that, at present, it is primarily dry wallers, mostly tapers that are in need of such consideration. He pointed out that as the project proceeds, it is entirely possible that the electricians, painters and vinyl hangers, carpenter and millwork trades, along with marble and possibly demountable partition disciplines may also require some overtime to meet the desired schedules. Since the major of these trades that are on the job presently are dry wallers and electricians, the suggestion is, as noted above, that these be the trades that are worked on an overtime basis now.

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CONSULTING ENGINEER

I shall talk to the Manufacturers Bank staff about this monitoring evaluation. Mr. Duczynski who accompanied Mr. Moriarity and me on this monitoring evaluation and analysis will also discuss the matter with the Manufacturers Bank staff.

Meanwhile, I shall be in touch with Mr. Greg Demanski to determine what further needs there might be for additional monitoring and evaluation.

Ralph J. Stephenson, P.E.

RJS:gmy
TO: Mr. Larry Eastham
Mr. Greg Demanski
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Mr. Daniel Redstone
(Distributed to others to be by above parties)

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RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

October 6, 1987

Subject: Construction Site Monitoring Report #5

Manufacturers Bank Operations Center - Livonia, Michigan

Walbridge Aldinger - contractor

Project: 85:58

Date of Monitoring: October 2, 1987 (working day 703)

Monitored from networks as noted below.

Current target completion dates for building work and tenant improvement work; for early areas, November 2, 1987 (working day 725); for remaining work, December 24, 1987 (working day 762).

Working days remaining to completion from this monitoring: 22 to early area turnover; 59 to full completion.

(Note: These amounts of time remaining are based upon the formal completion targets as noted in previous monitoring reports.)

Actions taken:

- Inspected project
- Reviewed current status of project with Mr. John Moriarity, Superintendent for Walbridge Aldinger and Mr. Steve Ducsynski, V.P. for Schostak
- Evaluated current status of field work on project

General Summary

Progress on building work was measured against the RJS logic plan used in the previous monitoring #4 on August 28, 1987 (working day 679). This was done to provide a consistent measuring base to identify trends on the project over the past 4 to 5 weeks. Completion targets in the RJS logic networks, were taken from the following issues:

- basement and 3rd floors - issue 7, dated June 7, 1987 (working day 618)
- 1st and 2nd floors - issue 6, dated April 7, 1987 (working day 578)
- 4th floor - issue 6, dated July 13, 1987 (working day 645)

Completion dates shown in these network models are as follows:

basement - November 17, 1987 (working day 735)

1st floor

total completion of floor - December 4, 1987 (working day 747)

main areas of 1st floor - December 4, 1987 (working day 747)

cafeteria and food service area - November 19, 1987 (working day 737)

lobby - November 17, 1987 (working day 735)

2nd floor - November 6, 1987 (working day 728)

3rd floor - October 23, 1987 (working day 718)

4th floor - December 30, 1987 (working day 764)

Each of the evaluations below is measured against these target dates. It should be pointed out the contractor had issued an updated bar chart on August 14, 1987 (working day 669) showing differing completion dates for the various areas than above. This set of bar charts was described in previous monitoring report #4, dated August 30, 1987, and the completion dates shown in it were tabulated there.

For the purpose of our analysis today, we were interested in measuring the trends on the job from the previous monitoring to determine current projected completion dates, and to help determine, in rough fashion, the impact of the overtime being worked on the project over the past month.

Therefore, the base evaluation below is against the RJS logic networks.

Basement floor

Most board is hung, and taping and sanding is moving well with some painting having started. Presently, it is anticipated that the acoustic ceiling suspension grid and miscellaneous conduit will start October 13, 1987 (working day 710). This was due to have begun no later than September 14, 1987 (working day 689), which gives a projected lag of about 21 working days, with a current lag of about 13 or 14 working days. It probably is appropriate to use some spread in between these two for evaluation of the projected completion date. Doing this, brings projected completion of the basement level to mid December, 1987.

At our previous monitoring, we had projected a completion date for the basement of December 28, 1987 (working day 762). Thus, there has been a slight pick up in performance of interior finish work at the basement.

First floor

Considering the three basic areas of the first floor, cafeteria and food service areas, lobby areas, and main floor areas; there has been some pick up of time at the cafeteria and an increase in the lag over the previous monitoring at the lobby and main floor areas. The increase in lag from the previous monitoring is a source of concern and I strongly recommend that heavy attention be given to the lobby and main floor areas, particularly the lobby.

At the food service area, coolers have been sent and are being connected. Remaining food service equipment was due to start no later than October 5, 1987 (working day 704). It probably will start about October 13, 1987 (working day 710). This is a lag of about 6 working days.

Meanwhile, work has proceeded on the fireproofing of the hood ductwork and this operation should be able to be completed concurrently with other finishing at the area. Of concern is still the overhead work at the ceiling since generally it is not desirable to be working overhead while food service equipment is being installed due to possible damage of equipment. If we assume that the lag at the cafeteria is about 6 working days, it gives us a projected completion of late November, 1987 or early December, 1987. This is a slight improvement from the position of the cafeteria and food service area found in the previous monitoring report #4 on August 28, 1987 (working day 679).

At the lobby area, work appears to have moved very slowly and the current lag there is about 41 working days, as compared to the lag noted on August 28, 1987 (working day 679) of 22 to 25 working days.

At present, wall board has been completed and marble is being erected on the lobby walls. No work has begun as yet on the lobby linear ceiling suspension. However, the area is generally ready for installation of the ceiling, and it probably will start on October 13, 1987 (working day 710). It was due to have begun by August 14, 1987 (working day 669). Thus, the lag is about 41 working days.

The difficulty at the lobby is, that first it is a relatively small area and a large number of people cannot work there without interfering with each other. Secondly, the finish trades are very difficult and time consuming to install and in many instances, cannot proceed concurrently. Once wall marble and ceiling is in, lobby floor marble and the marble cladding on the lobby security desk can proceed, after which mill work and security can be completed.

Thus, presently, with the current lag, lobby work could be extended into mid January, 1988. There is some thought that concurrent activities can be carried out on the lower marble areas. However, this will have to be given careful thoughts since the overhead work probably will proceed from either a fixed or rolling scaffold which needs unobstructed space at the floor level. I suggest that all early access to the building by Manufacturers' employees be routed somewhere other than through lobby areas. This will help keep the lobby clear for trade work and prevent undesirable interferences with ongoing construction.

At main areas of the first floor, work is progressing well on ceilings, and on mechanical and electrical work on these ceilings. The current lag at the first floor appears to be about 22 working days, primarily in the ceiling installation. This is an increase from the previous monitoring, at which time the lag was estimated at 17 working days. Projecting the revised behind position against the end date in the RJS logic plan, gives a completion of early January, 1988.

It should be relatively easy to regain some of the position desired at the first floor and it appears that this is not a serious problem at the current date. However, again, the trend is to be watched, since it is one of increasing lost time.

Second floor

Work at the second floor has moved well and its position has improved compared to the previous monitoring on August 28, 1987 (working day 679). At that monitoring, the estimated lag was about 37 working days. The lag estimated at this monitoring on October 2, 1987 (working day 703) is about 20 working days. Most ceiling work is complete. Vinyl wall covering is being applied and demountable partitions are to start shortly. Using the projected 20 working day lag and applying it to the target end date in the logic plan of November 6, 1987 (working day 728), gives a projected completion in early December, 1987. The reduction in lag indicates that the overtime over the past few weeks has been effective in expediting work at this level.

Third floor

Currently, the lag at the third floor is primarily in demountable partitions, which were due to have been completed by a late finish of October 5, 1987 (working day 704). It appears that the lag is about 7 working days, as compared to the lag at this level in the previous monitoring report on August 28, 1987 (working day 679) of 16 working days. This is a desirable trend for floor work.

Projecting the potential end date of this work at this floor, it appears that it could be completed by early November, 1987. However, considering work that must be done at the atrium, it would be well to consider completion of this third floor level to be targeted for late November or very early December, 1987.

Fourth floor

Work at the fourth floor is presently being concentrated on completion of taping and sanding, with expectations that acoustic ceiling work will start there on October 6, 1987 (working day 705). It was due to begin no later than September 22, 1987 (working day 695). Thus, the lag in ceiling work is projected at about 10 working days. However, other trades might influence this, particularly work at the atrium. Lobby scaffold is to be dismantled starting about late October, 1987. This could affect some of the floor work at the fourth level.

I suggest the lag at the fourth floor be considered between 10 and 20 working days presently. This is to be compared to the lag as measured in the previous monitoring on August 28, 1987 (working day 679) of 11 working days.

The projected fourth floor completion, using the 20 day lag, brings completion of the floor to late January, 1988. Work here must be evaluated as to the desirability of achieving an earlier target date and then project it into the augmented work pattern that is being followed. It does not appear presently, that the fourth floor will cause any major occupancy dislocations. However, that matter is one far better evaluated by Manufacturers.

Atrium

The atrium has not been formally planned by me; nor have we monitored work there in detail at previous sessions. However, at this inspection, some discussion was held regarding atrium work at floor levels.

Currently, Mr. Moriarity plans to begin dismantling the scaffold at the atrium in late October, 1987. As the scaffold is dismantled, undoubtedly, work will be done on perimeter areas of the atrium, particularly at each floor level where considerable work still remains to be done.

It is not totally certain at this point when the full atrium will be free and clear and work there substantially complete. However, it is a portion of the building that should be watched very carefully and I suggest that a detailed plan of work be prepared to evaluate progress on construction at this very critical point in the building.

Care will have to be taken to insure that the atrium construction is brought to completion in general concurrence with the early move-in of the project. We shall watch this in subsequent monitorings of the job as may be appropriate.

General Summary

Overall, the project has picked up time at the basement, the first floor food service area, the second floor, and the third floor. It has dropped further behind at the lobby and main floor areas at the first level, and at the fourth level.

Of particular concern, as noted above, is the lobby area which has lost considerably more than would be desirable over the past month and the atrium, which is an area that has not been focused upon in any major planning effort at our sessions.

From the general appearance of the building, I suggest the limited program of overtime that has been in effect, be continued in selected trades and with careful attention being paid to the areas and trades selectivity by the full project team. Although, there has been some improvement, certain portions of the job still must be given over and above attention to insure their completion within the desired frame work.

Redstone's office has now prepared a preliminary draft of the punching out procedures and most of the people have apparently reviewed these. Again, I strongly recommend that punching out the job begin just as quickly as appropriate and follow a well defined plan of operation.

In addition, I recommend that all warranty discussions, along with operation and maintenance manuals be put into work immediately. As can be seen from the number of working days remaining, noted at the beginning of this report, there is very little time left in which to accomplish much of the important administrative elements of closing out a project.

One other item that was not covered previously is the status of site work. Most paving is done but completion of the paving has been interferred with by the

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wet weather we have had in late fall. Mr. Moriarity feels that he will be able to complete all major paving by the general shut down of the paving season. Landscaping is also in progress and appears to be moving relatively well.

I shall be in touch with Mr. Demanski shortly to determine the need and the appropriateness of further planning and monitoring.

Ralph J. Stephenson, P.E.

RJS:gmy

To: Mr. Larry Eastham
Mr. Greg Demanski
Mr. Steve Duczynski
Mr. Daniel Redstone
(Distribution to others to be by above parties)

RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

November 11, 1987

Subject: Construction Monitoring Report #6

Manufacturers Bank Operations Center - Livonia, Michigan

Walbridge Aldinger - Contractor

Project: 85:58

Date of Monitoring: November 5, 1987 (working day 727)

Monitored from networks as noted below.

Current target completion dates for building work and tenant improvement work; for early areas, November 2, 1987 (working day 725); for remaining work, December 24, 1987 (working day 762).

Working days remaining to completion from this monitoring: 0 (-2) to early area turnover; 35 to full completion.

(Note: These amounts of time remaining are based upon the formal completion targets as noted in this report and previous monitoring reports.)

Actions taken:

- Inspected project
- Reviewed current status of project with Mr. John Moriarity, Superintendent for Walbridge Aldinger, and Mr. Steve Ducsynski, V.P. for Schostak
- Evaluated current status of field work on project

General Summary

This monitoring was based on the RJS logic plan used in previous monitorings #4 and #5. The measuring base was, thus, kept consistent with the reports and evaluation in those monitoring documents. Completion targets in the RJS networks were taken from the following issues:

- basement and 3rd floor - issue 7, dated June 3, 1987 (working day 618)
- 1st and 2nd floors - issue 6, dated April 7, 1987 (working day 578)
- 4th floor - issue 6, dated July 13, 1987 (working day 645)

Completion dates shown in these network models are as follows:

- basement - November 17, 1987 (working day 735)
- 1st floor
  - total completion of floor - December 4, 1987 (working day 747)
  - main areas of 1st floor - December 4, 1987 (working day 747)

cafeteria and food services area - November 19, 1987 (working day 737)

lobby - November 17, 1987 (working day 735)

- 2nd floor - November 6, 1987 (working day 728)
- 3rd floor - October 23, 1987 (working day 718)
- 4th floor - December 30, 1987 (working day 764)

The evaluations below are against these target dates. As with the previous two monitorings, our basic concern at this evaluation was to measure trends on the job so as to determine potential trouble areas and current projected completion dates.

Basement floor

Dry wall is substantially complete. Acoustic ceiling work is well along and lights, ceiling grid, diffusers, and sprinkler heads are in work currently. Vinyl wall covering is being applied and the architectural trim items are being installed. Carpet tile has been started.

The lag as measured against the issue 7 network model, dated June 3, 1987 (working day 618), appears to be 15 to 17 working days. It should be pointed out that with a concerted effort the area could probably be substantially completed within a shorter time than indicated by the current lag. However, the main need at the basement is to have those elements available by early December, 1987, required to insure safe receipt and placement of computer equipment.

At our previous monitoring on October 2, 1987 (working day 703), the lag was about 14 working days current and 21 working days projected. Thus, the floor lag has stayed relatively stable over the past month, possibly improving its position slightly.

First floor

Three areas at the first floor were measured somewhat separately, although work at the cafeteria, food service, and main floor areas is now mergining somewhat in the sequence while the lobby area remains a distinct, separate portion of the project.

The lag at the food service area appears to be about 5 working days, gaging from current status of the food service equipment. Installation and hook up of this equipment is beginning. The lag in food service equipment is somewhat offset by the possibility there will be a shorter time required to run in the equipment, since it will be operated by an outside organization.

Still to be installed at the food service area is the ceiling work and this could possible add slightly to the lag at the kitchen area.

The lag at the previous monitoring at the food service area was about 6 working days, so this area has remained somewhat stable relative to its lag position.

At the lobby area, wall marble is substantially complete and the slat ceiling is being installed and is probably about 70% complete. The ceiling was due to be completed no later than September 8, 1987 (working day 685) so the lobby lag is probably 40 to 45 working days. There may be some possibility of compressing following work at the lobby but, at present, it is doubtful since most following work after ceilings involves special finishes, such as lobby floor marble, installation of the lobby security desk, marble cladding, along with installation of a security console.

The lobby lag at our previous monitoring was about 41 working days, so work at the lobby has slowed slightly. It is projected that the lobby area could be available for use by mid January, 1988. To be watched carefully is delivery of materials to be installed following ceiling completion; particularly equipment that may be required at the reception desk.

At the main floor, work is well along on carpet, and demountable partitions. Completion of demountable partitions was set for a late finish of October 30, 1987 (working day 723). Thus, the lag there is about 12 working days. There may be some adjustment possible in this main area work since apparently the amount of in wall electrical installation is nominal. However, using the 12 working days and measuring 22 working days, indicates that time has been picked up at main portions of first floor and that its completion could probably be brought to about mid or late December, 1987.

Second floor

Work on demountable partitions has moved well at the second floor and they are substantially complete. Most carpet tile has been installed and work is proceeding toward completion of all miscellaneous testing, clean up and move out of the floor. The current lag is about 26 working days, as compared to the lag at the previous monitoring of about 20 working days. However, the increase is not overly serious since work there is so close to being done that it is possible, with a heavy emphasis on needed areas, the floor could be finished off in a shorter time than the full lag. Probably this area could be completed and made available by early December, 1987, depending upon the needs of the bank.

Third floor

The third floor is a critical area for receipt of computer equipment. Thus, field work has been heavily focused on this area over the past several months. At present, acoustic ceilings are generally complete, demountable partitions are installed, mechanical and electrical trim items are nearly complete and the area is being readied for clean up and punching out. Punching out of the floor is expected to start on November 16, 1987 (working day 734).

Measuring the lag as closely as possible, it appears presently to be about 19 working days over the RJS network completion date of October 30, 1987 (working day 723). This lag compares to the lag as of the previous monitoring of 7 working days. However, it does not appear that any major difficulty will be encountered in having the area available for computer equipment.

It should be noted that strong efforts must be made to insure that the proper regulatory permits have been acquired to allow the move in to begin. This move in will be a critical point and should be given careful attention by the architect/engineer, the owner, and the contractors involved.

Fourth floor

At the fourth floor, ceiling grid is substantially complete and related electrical and mechanical work is proceeding close behind. Carpet tile has been installed to the point where demountable partitions could start some time in the near future.

Present plans are to start demountable partition work about November 16, 1987 (working day 734). Measuring against all other architectual items that have not been completed as yet, it appears the current lag is about 16 working days. This compares to a measured lag at our previous monitoring of 10 to 20 working days. Thus, the floor has remained at a stable position over the last few weeks. There appears to be no major difficulty in completing this floor by late January, 1988.

Atrium

The atrium still poses a difficult interference problem. Scaffolding has now been partially dismantled and this dismantling will proceed progressively on down from the upper to lower floors.

Major work being accomplished as dismantling of the scaffold proceeds in the atrium deals with perimeter elements and stair elements that must be finished at the center portion of the building. There was no authenic word as to the actual pace at which scaffold removal can proceed but it appears it may measure about 1 floor every 5 or 6 working days.

This should bring full removal of the scaffold to early December, 1987, at which time the remaining work at the floor level, on level 1 in the atrium, can be completed.

With the scaffold being removed, of course, the entire perimeter areas of the atrium, at each of the levels, should be considered substantially complete. This is a major portion of the project and as the scaffold comes down, the appearance of the entire area should considerably improve.

RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

General Summary

In general, the project has remained fairly consistent with previous lags and we can now reasonably assume that without major unforeseen difficulties, the progressive turnover of the building can proceed from the third floor and portions of the first floor and basement, on through to the second and fourth floors, along with remaining elements of the early floors.

Move in should be able to start by early December, 1987, provided official occupancy approval can be obtained. It will be very critical to properly time punching out of the project so that the areas to be occupied can be officially accepted and worked in. This transition will demand a large amount of skill and patience on the part of the project team.

There appears to be few, if any, physical barriers to occupanying the building, as has been desired. Of importance also is the preparation and submission of operating and maintenance manuals which should be actively in work now. I suggest a full review of this matter be made a regular discussion topic at the ongoing construction sessions.

There probably will be little, if any, further monitoring required of the project and therefore, I will not inspect the job again unless a special need arises.

I should like to thank the entire project team for their cooperation and assistance in helping with the planning and analysis work during the design and construction period. The project has had its share of difficulties, although the excellent work of the entire project team has, in general, resolved these problems well. Again, I congratulate the entire group and am looking forward to a grand opening in the very near future.

Ralph J. Stephenson, P.E.

RJS:gmy

To: Mr. Larry Eastham
Mr. Greg Demanski
Mr. Steve Duczynski
Mr. Daniel Redstone
(Distribution to others to be by above parties)