

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

June 15, 1976

Subject: Monitoring Report #1
Family Health Care Center Addition
Detroit Osteopathic Hospital, Highland Park, Michigan

Project: 76:28

Monitored from Issue #1 dated June 10, 1976

Date of Monitoring: June 10, 1976 (working day 114)

Actions taken:

- Inspected project
- Prepared preliminary network diagram up to close-in
- Identified major early long lead time items

On June 10, 1976 (working day 114) I met with the field and office staff involved in the Family Health Care Center Addition to prepare an initial preliminary network diagram. I also briefly inspected current field progress. At present excavation is well along and most underpinning at the west existing wall has been completed. Completion of mass excavation at the north half of the building is dependent upon relocation of an existing power line. It is expected this relocation will be accomplished within the next few days.

Most work to date has concentrated upon making the site ready for start of footings. Wall and column footings will start generally at the southwest section of the building, probably on June 14, 1976 (working day 116). Work will continue in the south half of the facility concurrently with readying the north half for start of foundation work. Presently north half column and wall footings are planned to start about July 13, 1976 (working day 136) or earlier.

It will be very important to closely coordinate installation of underground plumbing work, installation and encasing of underground spiral duct and start of basement supported deck. Underground plumbing and spiral duct installation will probably precede start of forming for pour #1 (south half of the basement supported deck). Underground plumbing is expected to begin on or before July 14, 1976 (working day 137) and present plans are to complete both plumbing and spiral duct by August 23, 1976 (working day 165) or sooner. It will be necessary to complete all sub-basement walls concurrently with the installation of underground work.

Forming for the first deck pour will probably begin sometime in mid-August. Supported decks have been broken into seven major pours. Four sequence network plans are shown on sheets 2 and 3 of Issue #1 dated June 10, 1976. Under this present plan of action, close-in of the building will probably be accomplished substantially by mid-December 1976. This date may prove a bit late to maintain the current desired schedule. We will discuss close-in in more detail at our next meeting.

As part of the monitoring, a detailed review was made of early long lead time items. A brief discussion of these is given below.

- Material and color schedules:

These will be critical to maintaining good sequencing of interior finish shop drawings, fabrication and delivery. I strongly recommend all material and color schedules be completed and issued as early as possible.

- Hollow metal:

No current word available on hollow metal shop drawings.

- Hospital case work:

No current word available on hospital case work.

- Underground spiral duct:

Shop drawings should be available within a week with fabrication and delivery of the duct by August 2, 1976 (working day 150). This date should be improved if at all possible.

- Early supported concrete deck resteel:

Should be available as needed.

- Chiller:

Chiller shop drawings have been submitted for approval. Delivery is expected about three months after approval (on job about September 29, 1976 - working day 191).

- Central air handling equipment:

Shop drawings will be submitted in about two weeks. Allowing two weeks for approval and four months for delivery, equipment should be on the job by about November 12, 1976 (working day 223).

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- Chiller platform:

Field measurements must be taken for the chiller platform.
Fabrication and delivery of this steel should cause no delay.

- Roof fans:

Roof fan shop drawings should be in within two weeks with
fabrication and delivery about 4 months after approval. This
brings fans to the job by November 12, 1976 (working day 223).

- Roof fan platforms:

Field measurements will be taken of the roof fan platforms
and fabrication, delivery and erection are not expected to be
a problem. Probably roof fan platforms and chiller platforms
will be erected together.

- Trench duct:

No current word.

- Transformer:

No current word.

- Substation:

No current word.

At our next monitoring we should again review deliveries of the above items
to fill in missing information and confirm or revise as needed the data
presently available.

I shall be in touch with Mr. Bagdonas shortly to set the date of the next
meeting.

Ralph J. Stephenson, P.E.

RJS/m

To: Mr. Vidas Bagdonas (Orig. & 1 copy)
(Will distribute to hospital management)

Mr. Richard Lynch (1 copy)
(Will distribute reports as necessary to subcontractors)

Mr. L. G. Shea

July 9, 1976

Subject: Monitoring Report #2

Family Health Care Center Addition

Detroit Osteopathic Hospital, Highland Park, Michigan

Project: 76:28

Date of Monitoring: July 6, 1976 (working day 131)

Monitored from Issue #1 dated June 10, 1976

Target Completion Date: Late September 1977

Actions taken:

- Inspected project
- Reviewed current job status with Mr. McKay
- Prepared network plan for interior work at sub-basement, basement and first floor
- Reviewed long lead time delivery items
- Discussed move-in sequencing

General Summary

Currently underpinning is complete at the south existing wall and column and wall footings are well along at the south half. Sub-basement walls are nearly complete at the south half with one section remaining to be poured out. Mass excavation at the north half is almost complete. Generally the project is meeting major early start/early finish targets in accordance with the Issue #1 network dated June 10, 1976 (working day 114).

Mr. McKay said that spiral underground duct is now to be delivered on July 21, 1976 (working day 142) which is about 8 working days earlier than had been originally anticipated. This will allow underground utility work and spiral ductwork installation to be started earlier and permit construction of slabs on grade ahead of forming the supported decks for pours 1, 2 and 3. Presently it is expected to start underground utility work on July 9, 1976 (working day 134) and to begin filling and fine grading for the slab on grade at pour #1 by August 6, 1976 (working day 154).

The pour #1 slab on grade should be complete by August 23, 1976 (working day 165). This will allow the formed deck to start immediately after. Overall, it is still the intent to substantially close the building in by December 20, 1976 (working day 248). Presently it appears this date can be met.

A brief review of the status of long lead time items is given below.

- Material and color schedules

These will be prepared for final issue as submissions are made by the general contractor of specified materials. We shall identify the more critical of these items during each monitoring session.

- Hollow metal

Hollow metal shop drawings have been submitted and approved with fabrication presently in work. Hollow metal frames are expected on the job by September 1, 1976 (working day 172). Hollow metal doors are expected to arrive September 30, 1976 (working day 192).

- Hospital case work

Shop drawings should be available for checking in about 3 working days with delivery anticipated in late December 1977.

- Underground spiral duct

Shop drawings have been approved and material is to be delivered to the job site July 21, 1976 (working day 142).

- Early supported deck resteel

Shop drawings have been approved and resteel is available as needed.

- Chiller

Shop drawings have been approved and chiller delivery is presently set for September 29, 1976 (working day 191) or earlier.

- Sub-basement central air handling equipment

Shop drawings have been submitted and are presently in for approval. Following approval, fabrication and delivery of equipment will take from two to four months. Assuming four months, equipment will be on the job by November 12, 1976 (working day 223).

- Structural steel for chiller platform

Presently steel dimensions are being clarified, after which chiller platform shop drawings will be prepared. Present delivery of chiller platform steel is anticipated by August 18, 1976 (working day 162).

- Trench duct

Apparently trench duct shop drawings have been submitted and approved. However, since there was no representative of the electrical contractor at the meeting, a delivery was not able to be set. Since the slab on grade is going to be poured early, trench duct will be needed sometime around the first part of August. We set a tentative delivery target of August 2, 1976 (working day 150). This could be a critical item and should be expedited continuously.

- Transformer

No word available on transformers.

- Substation

No word available on substation.

- Fan and equipment at existing roof

Shop drawings have been prepared and submitted and are in for approval. Upon approval, it is expected that delivery will be between 2 and 4 months. Assuming 4 months, brings the fans to the job on November 12, 1976 (working day 223).

Once roof fan shop drawings have been approved and details of the mechanical equipment room submitted and approved, the roof fan platform shop drawings can be prepared. It appears that delivery of the roof fan platform steel will be approximately September 23, 1976 (working day 187).

- Roof equipment room housing

Once details of the room have been approved, the housing can be designed and fabricated.

Presently details of the equipment room are due from the sheet metal contractor on August 4, 1976 (working day 152). Approval should take about 10 working days, followed by fabrication and delivery. Fabrication and delivery will take about 8 weeks bringing delivery of the equipment room housing to the job by October 14, 1976 (working day 202).

Overall, deliveries are in fair condition at this early stage of the job. However, it is to be cautioned that expediting of early items, particularly those dealing with temporary heat, close-in and built-in items is very critical. A comprehensive discussion was held in respect to delivery of air handling equipment. It was agreed that the fan room at the sub-basement was the most critical mechanical area and that every effort should be made to get this equipment into operation by late November so temporary heat could be provided.

It is also important to get the platform structural steel that goes on the existing building for the chiller and mechanical equipment room on the job and installed by late summer or early fall to avoid bad weather and the chance of excessive leakage into the existing facility. Undoubtedly the mechanical contractor will want to close in the roof equipment room so work on it can proceed over the winter. These are all important considerations and should be watched carefully when scheduling deliveries to the job site.

As part of our diagramming today, we prepared a plan of the interior work construction for the sub-basement. This plan will generally apply for the other levels - basement and first floor also. We assigned durations to the sequence for each of the three levels and calculated the initial network for the subbasement out to completion. This is a preliminary

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CONSULTING ENGINEER

calculation subject to further checking and review. Presently it appears the sub-basement will be ready for owner's carpet by March 17, 1977 (working day 309). Other floors will be completed in a staggered sequence following the sub-basement. It was decided at the meeting that we would not impose floor to floor restraints on the various tasks but instead, restrain them only with the point in time at which the trades could move on the floor and start work. Thus, as soon as a floor is stripped and reshored, above floor sheet metal ductwork, mechanical piping and electrical work, along with masonry, can begin. When the building is substantially closed in we can start hanging gyp board on studs.

Remaining to be diagrammed is the emergency entrance, the elevator and remodeling of the existing building. We shall work on these at subsequent diagramming sessions.

I shall draft the full network diagrammed to date into final form, ready for field issue. Meanwhile, I shall forward prints of the new sheets, 4 and 5, showing interior work at the sub-basement to those parties concerned for their review and use.

It should be noted that calculations on sheets 4 and 5 are for the sub-basement only. They do not show the calculations for the basement and the first floor. These will appear in the final issue network on separate sheets.

In summary, the project is currently moving well and the better-than-anticipated field progress may allow construction of the slab on grade prior to start of forming of the supported decks. This should be of help in picking up several working days in the interior work at the sub-basement.

I shall be in touch with Mr. Vidas Bagdonas regarding the next monitoring session. At that time we should plan to complete diagramming the elevator work and the emergency entrance work.

Ralph J. Stephenson, P.E.

RJS/m

To: Mr. Vidas Bagdonas
Mr. Richard Lynch
Mr. L. G. Shea

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

August 20, 1976

Subject: Monitoring Report #3
Family Health Care Center Addition
Detroit Osteopathic Hospital, Highland Park, Michigan

Project: 76:28

Date of Monitorings: August 12, 1976 (working day 158)

Monitored from Issue #2 dated July 6, 1976

Target completion date: Late September or early October 1977

Actions taken:

- Inspected project
- Reviewed current job status with Mr. McKay
- Made detailed review of drafted logic plans and brought up to date
- Discussed and diagrammed owner move-in sequence

General Summary

Currently work is proceeding on installation of spiral duct at the south end, along with construction of accelerator walls. Excavation continues at the north end with pits, and column and wall footings also in work at the north. The project currently lags the Issue #2 network by 5 to 10 working days. Construction in the limited space has proven slightly more difficult than anticipated and some weather problems have also slowed work.

It is presently the intent to begin filling and fine grading for the slab on grade at the sub-basement Monday, August 16, 1976 (working day 160). Floor slabs on grade at the south half will be constructed first and are expected to take about 3 weeks. Thus, start of deck forming for the basement floor supported slab now will begin about September 7, 1976 (working day 175). This information will be incorporated in a new Issue #3 network which will be completed and issued for field and project guidance. The computer run for the network will be based upon this Issue #3 network dated August 12, 1976 (working day 158).

A detailed review of the status on long lead time items was not possible at this session since adequate information for such a detailed review was unavailable. However, we did go over items for which data was available. A brief analysis of these follows.

- Material and color schedules

Preparation of these is presently in work as samples and data are received from the contractor.

- Hollow metal

Shop drawings have been approved and fabrication of hollow metal frames and doors is presently in work.

- Hospital case work

Shop drawings have not been submitted for case work as yet.

- Underground spiral duct

On job.

- Early supported deck resteel

Shop drawings have been approved and fabrication is in process.

- Chiller

Shop drawings have been approved and fabrication should be underway.

- Sub-basement central air handling equipment

Shop drawings have been submitted and are presently being reviewed for approval.

- Structural steel for chiller platform

No word available at this meeting.

- Trench duct

There was some confusion as to the current status of trench duct. Apparently some revisions have been made and are being processed. It would be wise to review this item carefully in the near future since it is important to construction of floor slabs.

- Transformer

No word available at this meeting.

- Substation

No word available at this meeting.

Note: Information on the above two items (Transformer and Substation) should be obtained as soon as possible since they are both critical.

- Fans and equipment at existing roof

No word available at this meeting.

- Roof equipment room housing

No authentic details were available although there seems to be problems in preparing and having approved a suitable design for the enclosure. At present we are planning to do the work prior to the onset of winter weather this year. If this is the case, fabrication and delivery of the housing should be given a high priority of attention.

As part of our work today, we also, using revised logic, calculated and checked interior work sequences for the sub-basement, basement and first floors. Presently unchecked manual computations show that substantial completion points for these floors are as follows:

Sub-basement	April 6, 1977 (working day 323)
Basement	May 4, 1977 (working day 343)
First Floor	July 22, 1977 (working day 398)

These calculations are subject to further check. However, we did use them for our discussions of the owner move-in and remodeling work at the latter part of the monitoring session.

For the move-in discussion, representatives of the owner, architect/engineer and contractor were present. We first identified 14 major blocks of space within the existing building that were to be remodeled. These were discussed in detail and overlays prepared which identified boundaries. Next, the portions of the new building which are needed to begin vacation of existing areas to be remodeled were pinpointed to establish the starting point for major existing building remodeling. This information is presently being prepared in graphic form by Mr. Vitas Bagdenas of the Redstone office. He will distribute the sketches to those involved.

Once the areas were identified and starting points for remodeling established on each relative to the logic plan, we prepared a preliminary network model for the move-in, sheet 1, Issue #1, dated August 12, 1976. This network model

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has been distributed to the owner, the architect/engineer and the contractor. We will use the diagram to base our future detail discussions on move requirements as construction of the new building proceeds.

It should be noted that the vacation of the first two areas in the existing building, E1 and E3, will begin as soon as construction in the new building at the basement and sub-basement has been completed. This will probably be early next May 1977. Once area E1 is partially remodeled and the new linear-accelerator is operative, vacation and remodeling of area E2 can begin.

Area E4 can be worked on as soon as the new electrical equipment for the electrical equipment room is delivered. The hospital has asked that about two weeks notification time be given them so they can clear the present E4 area for work on this installation. The electrical equipment is critical since it does serve the new building.

Areas E6 and E8 of the existing building can be vacated and remodeled once the first floor of the building presently under construction is available. E7 will begin as soon as E6 is complete and will require that the new emergency entry be available.

Areas E9, E13 and E14 depend for their vacation and start of remodeling upon completion of area E8. Once areas E7 and E9 are complete, areas E5, E10, E11 and E12 can be cleaned out and remodeled. This sequence, as noted above, is shown graphically on the preliminary network model for move-in, sheet 1, Issue #1, dated August 12, 1976. It would be appreciated if all concerned would give special attention to this sheet and make every effort to quantify the various tasks shown.

We will discuss the method of using this plan and schedule at future monitoring and diagramming sessions. I shall be in touch with Mr. Bagdonas to set the next monitoring session which will be sometime near the end of August.

Ralph J. Stephenson, P.E.

RJS/n

To: Mr. Vitas Bagdonas
Mr. Dick Lynch
Mr. L. G. Shea
Mr. Luke Miller
Mr. Stan Wright
Mr. Les Bowman
Mr. Wm. Novosedlik

October 5, 1976

Subject: Monitoring Report #4

Family Health Care Center Addition

Detroit Osteopathic Hospital, Highland Park, Michigan

Project: 76128

Date of Monitoring: September 28, 1976 (working day 190)

Monitored from Issue #2 dated July 6, 1976

Target completion date: Late September or early October 1977

Actions taken:

- Inspected project
- Reviewed current job status with Mr. McKay
- Reviewed delay problems and pouring sequences
- Evaluated project status

General Summary

Work over the past five weeks has slowed considerably and presently projected lags in construction of the supported deck range from 19 to 24 working days. The problems have been several including some unseasonable weather, very tight working space, access difficulties and encountering unexpected soil conditions which required a footing re-evaluation.

Currently the slab on grade is complete at pour #1 and the form work for pour #1 is erected with some in-floor work set. No other slabs on grade are as yet in work. Mr. McKay projects that he will be aiming to pour out #2 slab on grade at the sub-basement by October 8, 1976 (working day 198) and the slab on grade at pour #3 by November 8, 1976 (working day 219). Every effort will be made to improve these dates but presently this is what appears realistic under existing circumstances.

I strongly recommend that serious consideration be given to the possibility of constructing a portion of the supported decks at the basement level off mud sills rather than necessarily waiting for the slab to be completed.

This, at least, would move the supported decks up in the excavation and provide a platform by which subsequent floors can be formed at earlier dates than now anticipated.

Also under consideration is the possibility of providing an additional set of forms to allow expediting of the upper floor pours. A brief analysis was made of three different sequences on the concrete deck pours. Mr. McKay and Mr. Lynch will review these and make a decision as to how best to proceed in the very near future. I would like to emphasize the critical need for making decisions on this matter soon since winter is fast approaching and as much exposed concrete work as possible should be completed as early as is feasible.

A brief review was made of the current status of delivery items with Mr. Lynch, Mr. Mallin and Mr. McKay. These are reviewed below.

- Material and color schedules

Most critical information needed for early work has been provided. However, the complete color schedule is not yet available and is being worked upon.

- Hollow metal

Frames and doors are in fabrication and should be delivered in adequate time for use on the job site.

- Hospital case work

Colors have been chosen and shop drawings are presently being reviewed for approval.

- Chiller

The chiller is currently being fabricated.

- Sub-basement central air handling equipment

We are presently maintaining a target delivery date of November 12, 1976 (working day 223) for delivery of this equipment.

- Structural steel for chiller platform

Steel is presently in fabrication and will be delivered shortly.

- Trench duct

Space for trench duct has been provided by boxing out at the poured floors. Duct is due presently on the job about November 1, 1976 (working day 214).

- Transformer

Will be delivered about October 15, 1976 (working day 203).

- Substation

Will be delivered between October 15, 1976 (working day 203) and November 15, 1976 (working day 224).

- Fans and equipment at existing roof

Structural steel for the fan platform is presently in fabrication and will be delivered shortly. The roof fan is also in fabrication but no specific delivery date was available at this meeting.

- Roof equipment room housing

The equipment room housing has been approved and fabrication is presently in work. No word was available at this meeting regarding its delivery although it is expected to be on the job later than had been planned in mid-November.

Overall, the project has lost considerable time over the past month for several reasons. The lag is now serious enough so that heavy efforts must be made to establish techniques of bringing deck work back in line. Serious consideration is being given to a reworking of the supported deck construction sequence and the contractor will make a complete review of this immediately.

Presently the final drafted network is being prepared for computer runs and issue.

Ralph J. Stephenson, P. E.

RJS/m

To: Messrs. Bagdonas, Lynch, Shea, Miller,
Wright, Bowman, Novosedlik

November 5, 1976

Subject: Monitoring Report #5

Family Health Care Center Addition

Detroit Osteopathic Hospital, Highland Park, Michigan

Project: 76:28

Date of Monitoring: November 2, 1976 (working day 215)

Monitored from Issue #4 dated November 2, 1976

Target Completion Date: Late September or early October 1977

Actions taken:

- Inspected project
- Reviewed current job status with Mr. McKay
- Prepared Issue #4 network dated November 2, 1976
- Evaluated project status
- Reviewed move-in sequence

General Summary

Currently the project lags the original target close-in point by 27 to 29 working days. This lag is reflected in the projected completion points for the sub-basement. However, assuming as we have that basement and first floor work will proceed as soon as areas are available, it is possible the lag at these two floors will be somewhat less - probably at present about 16 working days over early targets.

The problems at the site relative to physical work continue about the same. Restricted access and storage have caused difficulties in bringing more than minimal materials to the job for forming and some bad weather has caused additional delays. The problem with weather is that whenever any moisture falls it becomes difficult to dry the site properly. Thus, the working space is, in addition to being congested, difficult to maintain in workable fashion.

Every effort is now being made to pour out floor pour #2 which is at the south end at the basement floor level. Mr. McKay expects to make this pour by November 10, 1976 (working day 221). When it is completed, it is expected another set of forms can be brought on the job to form the deck for above.

Meanwhile pour #3 at the north basement level is expected to be done by December 3, 1976 (working day 237). The schedule of floor pours was reviewed in depth with all concerned and it has been agreed the goals shown in Issue #4 dated November 2, 1976 will be maintained. This calls for the last pour - #7 - the north pour at the roof level - to be made no later than January 13, 1977 (working day 264). As soon as the lower floor pours are made, it is expected to start up with masonry at the south and west basement levels.

At the monitoring we made new projections as to completion points for each floor. These are the dates by which the areas will be cleaned up and available for moving in. Targets are as follows:

Sub-basement	May 17, 1977 (working day 352)
Basement	May 27, 1977 (working day 359)
First Floor	August 15, 1977 (working day 414)

So far as deliveries are concerned, these presently should cause no major difficulties except for movement into the building proper. The tight nature of the site and limited access make it imperative that careful planning of material and equipment deliveries be maintained. Structural steel for mechanical equipment on the existing building has been set and it is expected over the next month considerable progress can be made in setting equipment.

We also made a detailed review of the move-in network - Issue #4 dated November 2, 1976, sheet 10, and made some preliminary determinations as to when remodeling could start in the existing building. One of the more critical elements is delivery of the new linear accelerator. This will have to be brought in through an area that has been left open and would be desirable to close as quickly as possible. Therefore, DOH will initiate inquiries to see if that equipment can be delivered in mid-March 1977.

We were unable to complete a detailed review of the move-in since there is a number of elements yet to be studied. At our next session we should plan to review the entire sequence in depth to insure that proper provisions are made for each area. Mr. Bagdonas reviewed the designations of the various areas and it was requested that the definition of areas by code number be made on larger plan sheets for ease in identification. Mr. Bagdonas will take this under advisement.

We were also able to complete planning for the construction of the new emergency entrance canopy. This work, Mr. McKay expects to begin March 1, 1977 (working day 297). Some work on underground utilities might

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CONSULTING ENGINEER

begin earlier but construction of the canopy and new entrance will begin in March. Present projections are that the area can be ready by May 11, 1977 (working day 348). This is a tight schedule and will have to be followed carefully to insure completion on time. It should be noted that the new emergency entrance must be available for area E7 to be vacated. This appears to be no problem since the work preceding E7 installation will probably be somewhat later. However, the hospital staff said that they would appreciate a minimum down time in the new canopy area.

In summary, the project currently lags from 16 to 29 working days over earlier target dates. This has been caused by a variety of reasons, primarily related to getting underway with the supported concrete decks. It is hoped that some of this time can be picked up over the next few months although for the present it would be wise to consider that the lag probably will be reflected in completion dates for the various areas.

I shall plan to monitor the project regularly from the Issue #4 network. This diagram, sheets 2 through 11, have been distributed to the general contractor and to the owner and architect/engineer. They, in turn, will distribute the plan of work to those parties concerned.

Ralph J. Stephenson, P.E.

RJS
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To: Mr. Vitas Bagdonas
Mr. Dick Lynch
Mr. L. G. Shea
Mr. Luke Miller
Mr. Stan Wright
Mr. Les Bowman
Mr. Novosedlik

November 26, 1976

Subject: Monitoring Report #6
Family Health Care Center Addition
Detroit Osteopathic Hospital, Highland Park, Michigan

Project: 76:28

Date of Monitoring: November 22, 1976 (working day 229)

Monitored from Issue #4 dated November 2, 1976

Target Completion Date: Late September or early October 1977

Actions taken:

- Inspected project
- Reviewed current job status with Mr. McKay and Mr. Malin
- Evaluated project status

General Summary

Currently the project lags the Issue #4 network by about 7 working days. The lag is basically in floor pours, principally pour #4 at the north end of the basement level. This area was due to be poured out no later than December 3, 1976 (working day 237). It probably will be poured out by December 13, 1976 (working day 243). The increasing lag is being partially caused by the colder weather into which the floor pours have moved, along with continual difficulty of operating in the small work areas available. It should be noted that this lag is measured against the targets set and mentioned on page 2 in the Monitoring Report #5 dated November 5, 1976.

At present work is proceeding concurrently on pours #3 and #4, these being the north basement and south first floor levels respectively. Pour #4 is about 2 working days behind and is expected to be made by November 30, 1976 (working day 234). Lags in the floor pours will directly affect total project sequencing and so currently we can assume the 2 to 7 working day lag may be reflected in a corresponding change to target end dates. However, there is some possibility of the time being picked up as the building is opened to interior rough and finish trades.

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

Again, it appears that the field forces are desirous of picking up time and they have indicated that efforts will be made to do so wherever possible.

Presently we are processing the network based on the target dates established in Monitoring Report #5 with slight revisions in the final. These are substantially the same as reported, however. I shall finish processing the project plan and issue it shortly for full field use.

Meanwhile, it would be advisable for all concerned to begin thinking about the detailed tie-in of existing interior remodeling to the new facility. We have already prepared network models on the general work to be done. We should now become explicit.

I shall be in touch with Mr. Bagdonas and Mr. Malin re the next monitoring session.

Ralph J. Stephenson, P.E.

RS/m

**To: Mr. Vitas Bagdonas
Mr. Dick Lynch
Mr. L. G. Shea
Mr. Luke Miller
Mr. Stan Wright
Mr. Les Bowman
Mr. Wm. Novosedlik**

RALPH J. STEPHENSON, P. E.
CONSULTING ENGINEER

December 23, 1976

Subject: Monitoring Report #7
Family Health Care Center Addition
Detroit Osteopathic Hospital, Highland Park, Michigan
Project: 76:28

Monitored from Issue #4 dated November 2, 1976

Date of Monitoring: December 17, 1976 (working day 247)

Target Completion Date: Early October 1977 (This date is set by the job duration of 541 calendar days)

Target Completion Date for new construction from Issue #4 network is as follows:

Sub-basement - May 16, 1977 (working day 351)
Basement - May 26, 1977 (working day 358)
First Floor - August 15, 1977 (working day 414)

This set of dates represents completion of each level in the new addition. Remodeling of the existing building follows the above dates. Monitorings are measured against the above completion targets.

Actions taken:

- Inspected project
- Reviewed current job status with Mr. McKay
- Reviewed current job status with owner, architect and engineer
- Prepared project status report for period from December 17, 1976 (working day 247) through January 21, 1977 (working day 270)

As of December 17, 1976 (working day 247) the project lags by approximately 10 working days in supported deck pours. Pour #3 was due to have been poured out on December 2, 1976 (working day 236). It was poured out yesterday, December 16, 1976 (working day 246). Thus, the lag there is directly reflected in the pour date. Mr. McKay finds that he probably will be using a 15 day pour cycle so this means that pour #5 will probably be poured out on January 11, 1977 (working day 262). It was due to be poured out no later than December 17, 1976 (working day 247), a lag of 15 working

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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

days. Pour #6 will probably be completed on January 18, 1977 (working day 267). It was due to be poured out no later than December 27, 1976 (working day 252), a continuing projected lag of 15 working days. However, pour #7, the last major pour, is presently projected to be completed by January 25, 1977 (working day 272). Its target was in the Issue #4 network January 12, 1977 (working day 263), a lag of 9 working days.

Thus, it can be considered the project presently lags from 9 to 15 working days, trending toward the larger amount. The major impact of the lags is essentially in closing in the building which is a critical intermediate target.

Rough overhead mechanical and electrical work has begun at the sub-basement interior where the floor has been stripped out. However, this work is just now getting underway and lags late starts and late finishes by about the same amount as the pours. Generally it is hoped that some of this time can be picked up. It is not possible at this time with accuracy to project how much and when. We should strive to bring the job back into line with the network and heavy efforts are being made in the field to do this.

The reasons for the lags have been documented in previous monitorings and undoubtedly progress will be improved as the job opens up and work space is available. It is particularly important to establish work room around the building so exterior masonry can begin. Masonry may not be able to start until pour #6 at the south roof level has been completed. If it is at all possible to start earlier and build up the trades by working on interior and exterior masonry concurrently, this would be of help in closing in the building. Close-in is critical.

The assumption is still being made that work on the new emergency entrance and canopy will begin on March 1, 1977 (working day 297) and that it will proceed on through to completion with the exterior work substantially done by May 11, 1977 (working day 348).

As part of our discussion with the hospital and the architect/engineer, it was emphasized again that at a session in mid-January we should refine the network model for move-in, sheet 11, Issue #4, dated November 2, 1976. I recommend the hospital review their deliveries and that the general contractor, along with his subcontractors, identify each area to be remodeled and develop time frame within which this work can occur.

As part of this monitoring, we prepared a project status report from the period between December 17, 1976 (working day 247) and January 21, 1977 (working day 270). This report identifies the current status of the project measured against late starts and late finish dates and gives the number of working days of lag in each task that should have started or been completed. It also lists the jobs that should be started, completed

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

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or continued over the next four week period from December 17, 1976 to January 21, 1977. The report is straightforward and identifies the responsible parties on each task. This report will generally be issued at each monitoring.

I shall set the next meeting with the parties concerned and again remind each that we will be working on the remodeling and move-in network at our next session.

In summary, the project is presently from 9 to 15 working days behind the Issue #4 diagram dated November 2, 1976. The lag is basically in floor pours and is also reflected in the start of rough mechanical and electrical work at the sub-basement. The project will be monitored from Issue #4 dated November 2, 1976. Copies of the network diagram, sheets 1 through 11 and the computer printout have been distributed to all those concerned. Project status reports will be sent to the owner, the architect/engineer and the general contractor.

Ralph J. Stephenson, P.E.

RJS
M

To: Mr. Vitas Bagdonas
Mr. Dick Lynch
Mr. L. G. Shea
Mr. Luke Miller
Mr. Stan Wright
Mr. Les Bowman
Mr. Wm. Novosedlik

January 17, 1977

Subject: Monitoring Report #8
Family Health Care Center Addition
Detroit Osteopathic Hospital, Highland Park, Michigan

Project: 76:28

Date of Monitoring: January 12, 1977 (working day 263)

Monitored from Issue #4 dated November 2, 1976

Target Completion Date: Early October 1977 (This date is set by the job duration of 541 calendar days)

Target Completion Date for new construction from Issue #4 network is as follows:

Sub-basement	-	May 16, 1977 (working day 351)
Basement	-	May 26, 1977 (working day 358)
First Floor	-	August 15, 1977 (working day 414)

This set of dates represents completion of each level in the new addition. Remodeling of the existing building follows the above dates. Monitorings are measured against the above completion targets.

Actions taken:

- Inspected project
- Reviewed current job status with Mr. McKay
- Evaluated job progress

Note: No project status report was prepared for this monitoring

General Summary

As of January 12, 1977 (working day 263) the project currently lags the Issue #4 network by approximately 21 working days. This delay is in floor pours as well as in the rough interior work in progress at the sub-basement.

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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

The major reason for the increasing delay in pouring out floor decks is the bitter cold weather of late December and early January, along with heavy precipitation which has caused difficulty with cleaning decks being worked upon.

Presently Mr. McKay's plan of operation is to pour out deck #5 by January 20, 1977 (working day 269); deck #6 by January 28, 1977 (working day 275) and hopefully, deck #7, the last pour, by February 7, 1977 (working day 281). Measuring by the Issue #4 network, the lag over the target dates is between 17 and 22 working days. There is serious doubt as to whether this entire lag can be recaptured and reflected in improved progress on the close-in of the building or on the interior work. However, there still remains a fair chance that some of the time can be picked up on interior finish work.

Presently rough above floor sheet metal, mechanical piping and electrical work is moving well at the sub-basement although because of the late floor pours, this work too lags by about 21 working days. The difficult areas of the floor at the south end are presently in work and well along there. It should be realized that the sub-basement and basement floor target dates were shown considerably earlier than the first floor target dates (May as compared to mid-August). If some pickup in time can be achieved so that first floor work can proceed earlier and perhaps faster than anticipated, there might be a chance of recapturing a part of the lag.

It also should be pointed out that completion of remodeling on interiors of the existing building by our present target of October may prove very difficult even by achieving the targets shown in the current monitoring reports. As noted previously, we should plan to meet soon to re-assess the remodeling plan and to establish more definitive targets on the project. I do suggest this wait, however, until we have a better handle on the floor pours and are able to get the building frame completed so specific projections can be made. There is no telling presently what the cold weather may bring and if it remains as unseasonably cold as it has for the past four weeks, further delays may occur.

There was some discussion at our session about where to set the large crane to hoist equipment for the new penthouses at the existing building. This is a matter that must be worked out between the field forces and the other parties contractually involved. Mr. McKay feels this will be done shortly.

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Family Health Care Center Addition
Detroit Osteopathic Hospital
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RALPH J. STEPHENSON, P. E.
CONSULTING ENGINEER

In summary, the project currently lags from 17 to 22 working days basically in rough work at the sub-basement and in the floor pours. This lag will be difficult to recapture but every effort is still going to be made as the building is brought up and near close-in to improve performance.

It is anticipated presently that once the roof is on the building which should be in early March, the area now occupied by the job offices may be vacated and they would be moved into the new building.

I shall be in touch with Mr. Bagdonas relative to the next monitoring. No project status report for the job was prepared from this session since job progress has not been substantial enough to warrant the run being made.

Ralph J. Stephenson, P. E.

RJS/m

To: Mr. Vitas Bagdonas
Mr. Dick Lynch
Mr. L. G. Shea
Mr. Luke Miller
Mr. Stan Wright
Mr. Les Bowman
Mr. Wm. Novosedlik

RALPH J. STEPHENSON, P. E.
CONSULTING ENGINEER

February 16 1977

Subject: Monitoring Report #9

Family Health Care Center Addition

Detroit Osteopathic Hospital, Highland Park, Michigan

Project: 76:28

Date of Monitoring: February 14, 1977 (working day 286)

Monitored from Issue #4 dated November 2, 1976

Approximate Starting Date: April 5, 1976 (working day 67)

Target Completion Date: September 28, 1977 (working day 445)

Note: This date is set by the job duration of 541 calendar days or 378 working days. The starting date is subject to check.

Target Completion Dates for new construction from Issue #4 network are as follows:

Sub-basement	-	May 16, 1977 (working day 351)
Basement	-	May 26, 1977 (working day 358)
First Floor	-	August 15, 1977 (working day 414)

Note: These dates represent Issue #4 projected completion of each level in the new addition. Remodeling of the existing building will be concurrent with the finishing of various levels in the new structure.

Actions taken:

- Inspected project
- Reviewed current job status with Mr. Richard Lynch
- Evaluated job progress
- Met with owner's representatives, architect/engineer and major contractor representatives to review job status
- Updated sheet 11 - Move-in Network for Remodeling of Existing Building
- Evaluated total job status

Note: No project status report was prepared for this meeting

General Summary

As of February 14, 1977 (working day 286) the project lag has increased considerably over the previous monitoring on January 12, 1977 (working day 263). This increased lag shows up in the remaining floor pours (6 and 7), as well as in the current status of close-in work and progress on rough above floor mechanical and electrical trades at the sub-basement and basement levels. The Issue #4 network dated November 2, 1976 from which the current monitoring is being prepared anticipated that pour #5 would be completed on December 17, 1976 (working day 247). It actually was poured out on or about January 25, 1977 (working day 272) for a lag of 25 working days. Pour #6 was to have been poured out December 27, 1976 (working day 252). It is being poured out today, February 14, 1977 (working day 286) for a lag of approximately 34 working days. Pour #7, the last roof pour, was to have been made on January 12, 1977 (working day 263). It is presently expected that this pour will be made on February 28, 1977 (working day 296) - a projected lag of 33 working days. These three lags basically govern the close-in of the building and subsequently the completion of each of the various levels. It can be said that the lag for the entire building is from 33 to 38 working days. The slightly larger lag than that given by the floor pours is caused by a fall-behind in work at the basement level.

If we assume that the lag in close-in is 33 working days and the original target close-in was February 10, 1977 (working day 285), the presently projected close-in point is March 30, 1977 (working day 318). It will be very important to expedite completion of all floor pours and dovetail to the greatest extent possible erection of exterior masonry and application of roofing.

The project now is being delayed by water and weather which come in both from the sides and top of the facility. Thus, even though interior rough work is expedited considerably, it will still be difficult to proceed past certain points unless the close-in of the building is made.

So far as interior work is concerned - at the sub-basement sheet metal lags by from 10 to 15 working days; above floor piping by about 30 working days; rough electrical by 24 working days and masonry by about 25 working days. These lags are brought on primarily by the delays to the floor pours and stripping of the decks. Thus, we can assume that the lag at the sub-basement is about 34 working days - about the same as the close-in lag since finish work cannot start there until the building is closed in. Start of finish work is a critical date. At the sub-basement installation of mechanical equipment rooms and other equipment areas is moving reasonably well.

Basement work currently lags in sheet metal by 38 working days; mechanical piping by about 44 working days; above floor electrical by 37 working days and masonry by about 28 working days. Sheet metal has not yet been started at the basement floor. It should be immediately possible to begin installation of this rough work since the fourth and fifth pours have been made, stripped and reshored. I gather from conversations at the site that it is the intent to start work there now on sheet metal and aggressively pursue the other trades concurrently.

The roof has not been poured out as yet so first floor work has not begun. The first pour at the roof level is being made today and it should be possible within 5 to 10 working days to begin some above ceiling work at the first floor.

A summary of the target dates from Issue #4 and the lags which when added to the targets would give projected new completion dates is given below.

Item	Issue #4 dated 11-2-76 target completion	Current or projected lag	Revised target incorporating full lag
Close-in	Feb. 10, 1977 (W/D 284)	34 WD	Mar. 30, 1977 (W/D 318)
Sub-basement	May 16, 1977 W/D 351)	34 WD	July 5, 1977 (W/D 385)
Basement	May 26, 1977 (W/D 358)	38 WD	July 20, 1977 (W/D 396)
First Floor	Aug. 15, 1977 (W/D 414)	33 WD	Sept. 30, 1977 W/D 447)

The lag as of February 14, 1977 (working day 286) can be considered about 34 working days, an increase of 13 working days over the project as it was monitored on January 12, 1977 (working day 263). This is a very serious increase in the amount of behind time and it was urged that all contractors review the current plan of work immediately to see if there are areas that can be worked concurrently rather than sequentially. In addition, it was urged that the general contractor do everything possible to expedite completion of the remaining deck #7 at the roof level. This is being given top priority attention.

The purpose of our session was not only to monitor the present status of the work, but also to make a detailed review of the move-in network on sheet 11. This diagram gives the sequencing of all the various areas of the existing building. These areas have been designated from E1 through

E14. The architect/engineer will prepare a series of plans showing the approximate locations of these areas as an assist to the contractors. Generally it has been assumed that some remodeling work can proceed ahead of completion of levels in the new building. Areas E6 and E8 (A) and E8 (B) are the three locations that can move prior to turnover of new building floors. Other areas follow completion of various levels in the new building in sequence. The sequence is shown on sheet 11, Issue #4, dated November 2, 1976. This drawing has been revised and will be reissued in the very near future as Issue #5 dated February 14, 1977.

A summary review and evaluation was made of each of the areas and its relationship to the remodeling process. The table below is reproduced to indicate the approximate starting and finishing dates for vacating and reoccupying the areas to be remodeled in the existing building based upon current lags. These are from preliminary information gained at our meeting and are subject to further review and confirmation.

Because the end of remodeling work has gone considerably beyond the target date desired by all concerned, each contractor, as well as the owner, and the architect/engineer, will make a comprehensive review of methods by which the job can be compressed.

<u>Area in existing (E) building</u>	<u>Target date vacate</u>	<u>Target date reoccupy</u>
E1	July 20, 1977 (W/D 396)	Aug. 25, 1977 (W/D 422)
E2	Aug. 18, 1977 (W/D 417)	Sept. 21, 1977 (W/D 440)
E3	July 20, 1977 (W/D 396)	Sept. 2, 1977 (W/D 428)
E4	Reported complete	
E5	Sept. 30, 1977 (W/D 447)	Dec. 19, 1977 (W/D 502)
E6	Aug. 30, 1977 (W/D 425)	Sept. 30, 1977 (W/D 447)
E7	Sept. 30, 1977 (W/D 447)	Nov. 25, 1977 (W/D 486)
E8A	Aug. 23, 1977 (W/D 420)	Sept. 12, 1977 (W/D 433)

<u>Area in existing (E) building</u>	<u>Target date vacate</u>	<u>Target date reoccupy</u>
E8B	Sept. 12, 1977 (W/D 433)	Sept. 30, 1977 (W/D 447)
E9	Sept. 30, 1977 (W/D 447)	Dec. 5, 1977 (W/D 492)
E10	Dec. 5, 1977 (W/D 492)	Feb. 13, 1978 (W/D 540)
E11	Dec. 5, 1977 (W/D 492)	Feb. 13, 1978 (W/D 540)
E12	Sept. 30, 1977 (W/D 447)	Dec. 19, 1977 (W/D 502)
E13	Sept. 30, 1977 (W/D 447)	Dec. 19, 1977 (W/D 502)
E14	Sept. 30, 1977 (W/D 447)	Dec. 19, 1977 (W/D 502)

All the above dates are from the start of vacating the area to the point at which the area has been remodeled. Obviously the target completion shown of February 13, 1978 (working day 540) is considerably beyond the original target completion date set. This is in part because of the longer time it will require to remodel than had been originally thought and delays to construction of the new building. It will be critical that the contractors and others involved in the various move-in operations carefully review the work to be done on the project so that every compression of time possible can be made. Meanwhile, the hospital will carefully review its move requirements with the eye in mind of allowing early and concurrent work at as many existing areas as possible.

It should be cautioned that the above analysis of the lags is based upon being able to complete the work in accordance with the logic plan from this point out. It should be considered that compression of this plan is a distinct possibility and of course, every possible step should be taken to gain an earlier target than presently imposed by delays to the job.

I shall proceed to redraft sheet 11, Issue #5, dated February 14, 1977, manually compute and date it and issue it just as quickly as possible.

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

March 19, 1977

Subject: Monitoring Report #10
Family Health Care Center Addition
Detroit Osteopathic Hospital, Highland Park, Michigan

Project: 76:28

Date of Monitorings: March 10, 1977 (working day 304)

Monitored from Issue #4 dated November 2, 1976

Approximate starting date: April 5, 1976 (working day 67)

Target contract completion date: September 28, 1977 (working day 445)

Note: This date is set by the job duration of 541 calendar days or 378 working days. The starting date is subject to check.

Target Completion Dates for new construction from Issue #4 network are as follows:

Sub-basement	-	May 16, 1977 (working day 351)
Basement	-	May 26, 1977 (working day 358)
First Floor	-	August 15, 1977 (working day 414)

Note: These dates are Issue #4 projected completion of each level in the new addition. Remodeling of the existing building will be concurrent with the finishing of various levels in the new structure.

Actions taken:

- Inspected project
- Reviewed move-in sequence with owner, architect/engineer and general contractor
- Reviewed current job status

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Family Health Care Center Addition
Detroit Osteopathic Hospital
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RALPH J. STEPHENSON, P. E.
CONSULTING ENGINEER

Actions taken: (continued)

- Updated network to Issue #6 dated March 10, 1977

Note: This issue is presently being reviewed by Mr. Fedorinchik and will be released when he has confirmed the new targets.

Note: No project status report was prepared for this monitoring.

General Summary

As of March 10, 1977 (working day 304) all major concrete floor and roof pours have been made and the project is now being stripped out while miscellaneous framing and slabs are being completed at various areas of the building. Pour #7 was made on February 24, 1977 (working day 294) which represented a total lag on major floor pours over the Issue #4 network of about 31 working days.

There has been very little quantitative improvement in the current lag position of the job although there is a distinct qualitative improvement which is probably due to several reasons. One, of course, is that the major decks have been poured and stripped which frees up many areas for work. Another is the change in weather which will undoubtedly contribute to an acceleration in pace of exterior close-in. Also, with the freeing up of various floor levels, the exceptionally tight space limitations should be relaxed with more room available in which to work.

It appears at present that the total lag on the job still ranges between 31 and 36 working days over the current Issue #4 network. Using this criteria and the move-in network that was prepared and issued on sheet 11, Issue #5, dated February 14, 1977, the owner, the architect/engineer and the general contractor discussed in some depth possible methods of compressing the move-in sequence by making hospital areas available at earlier dates. This matter is being studied carefully by all concerned and we will, at our next session, make a further review to see where time can be picked up on the total job with special emphasis on the remodeled areas.

Following the move-in discussion Mr. Fedorinchik and I made a detailed study of the current planned job sequence for installation of close-in and interior work. It is possible presently that the job will be substantially closed to weather sometime between March 21, 1977

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Family Health Care Center Addition
Detroit Osteopathic Hospital
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(working day 311) and March 28, 1977 (working day 316). This led into an updating of the interior diagrams with the intent to revise logic and durations to achieve time compression. The results of this evaluation are shown on sheets 3 through 9, Issue #5, dated March 10, 1977 which were calculated manually with blue-line copies being sent to Mr. Fedorinchik only. Distribution of these networks will be made more general when Mr. Fedorinchik has had a chance to review the revised network in more detail and assure himself that the logic, durations and calculations are correct. The reason for this caution is that there was some saving over the 31 to 36 working day lag achieved at each level but it would be wise to assure all concerned that this can be actually executed before reissuing the network formally.

I shall be in touch with Mr. Fedorinchik in the near future to receive his approval on the revised network. Concurrently I shall have the revisions made and recheck all calculations to insure that what we hope to do can actually be done.

It should be noted that furnishing of permanent power is now becoming a very critical item since it will be needed for some early equipment installation. There has been some difficulty in finding a route for the new power service to the existing building. However, this matter is being worked upon and should be resolved within a short time.

I am planning to again monitor the job on Tuesday afternoon, April 5, 1977 (working day 322). I have confirmed this date with Mr. Vitas Bagdonas.

In summary, the project currently remains between 31 and 36 working days behind the Issue #4 network dated November 2, 1976. However, there is a distinct pickup in job tempo and this is expected shortly to result in a recapture of some of the lost time. Also, it is hoped that by a restudy of the logic and durations of the interior work that additional compression can be accomplished. Mr. Fedorinchik and I are studying this in detail. When we have arrived at firm conclusions, it would be wise to again re-diagram the interior remodeling moves with the owner and the architect/engineer.


Ralph J. Stephenson, P.E.²

RJS
m

To: Messrs. Bagdonas, Lynch, Shea, Miller, Bowman
Wright and Novosedlik

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

April 7, 1977

Subject: Monitoring Report #11

Family Health Care Center Addition

Detroit Osteopathic Hospital, Highland Park, Michigan

Project: 76:28

Date of Monitoring: April 5, 1977 (working day 322)

Monitored from Issue #6 dated April 5, 1977

Approximate project starting date: April 5, 1976 (working day 67)

Target contract completion date: September 28, 1977 (working day 445)

Note: This date is set by the job duration of 541 calendar days
or 378 working days. The starting date is subject to check.

Target completion dates for new construction from Issue #6 network
resulting from today's updating are as follows:

Sub-basement	-	June 21, 1977 (working day 376)
Basement	-	July 1, 1977 (working day 384)
First Floor	-	August 3, 1977 (working day 406)
Emergency entrance & canopy	-	June 28, 1977 (working day 381)

Note: These dates are derived from manually computed
networks and will be checked and confirmed. They
may be subject to slight change.

Actions taken:

- Inspected project
- Reviewed project progress with Mr. Fedorinchik
- Updated network to formal Issue #6 dated April 5, 1977 with Mr. Fedorinchik

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Family Health Care Center Addition
Detroit Osteopathic Hospital
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Actions taken: (continued)

- Evaluated job progress

Note: No project status report was prepared for this meeting.

General Summary

As of April 5, 1977 (working day 322) major portions of the building are substantially roofed and closed in except for leakage from a few horizontal and vertical openings where access must be gained to the building. It is the intent to start drywall at the sub-basement April 6, 1977 (working day 323) and follow on through with finish trades in sequence. The present target for completion at the sub-basement is June 21, 1977 (working day 376).

At the basement level, above ceiling rough work is substantially complete, studs are being brought to completion and hanging of drywall will probably begin April 18, 1977 (working day 331). Target completion for the basement is July 21, 1977 (working day 384).

At the first floor, above ceiling work is being brought to completion. Layout for stud work is due to be started April 11, 1977 (working day 326) with studs to begin one week later on April 18, 1977 (working day 331). Present projected target completion is August 3, 1977 (working day 406).

This updating provided a substantial projected improvement in performance over the lag recorded against Issue #4, particularly at the first floor. This, of course, is expected to assist greatly in freeing up areas for renovation work in the existing building and consequently bring the total completion of the project at an earlier date than had been presumed from the last several monitorings.

The emergency entrance and canopy work was also evaluated. At present, foundation construction is proceeding with fabrication of steel in work. Some assumptions were made regarding field measurement for the canopy facias and generally it appears we can use a target of June 28, 1977 (working day 381) for completion of the new emergency entrance. This area is critical to maintaining proper access to emergency facilities in the existing building.

The updating of the network to Issue #6 dated April 5, 1977 provides a better alignment with the original target dates for construction in the new building

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Family Health Care Center Addition
Detroit Osteopathic Hospital
Page three

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

than has been experienced over the past few monitoring reviews. This is particularly so at the first floor where the target date in Issue #4 actually has been improved. The improvement reflects itself in a better renovation sequencing.

Mr. Fedorinchik and I reviewed the move-in sequence on sheet 11 and updated it to Issue #6 dated April 5, 1977. Mr. Stan Wright was available for some of the discussion and assisted materially in reviewing the logic sequence. The dates are tentative, subject to further check, but in essence it appears that we may be able to complete all remodeling as early as October 25, 1977 (working day 464) as compared to the previous late date of February 13, 1978 (working day 540).

There are several reasons for this. One of the major is that the hospital is making strong and conscientious efforts to release space for remodeling as early as possible and second, an earlier delivery of the first floor helps provide earlier access to related areas in the existing building. A full tabulation of the start of vacation and completion of construction for the remodeled areas will be provided in the updated sheet 11. This is being checked and will be drafted into final form as soon as possible.

Thus, it presently appears that the current updated target for total completion of the new facility is August 3, 1977 (working day 406) with completion of all remodeling possible by as early as October 25, 1977 (working day 464).

It should be noted that the revised logic takes into account two major assumptions. At the E2 area it is assumed that the latter portion of the remodeling can be done while the space is occupied. Second, the updated logic is based upon E10 and E11 being vacated within two weeks (10 working days) after the first floor of the new building is complete. This means that this vacation will occur no later than August 17, 1977 (working day 416). It is important that this assumption be confirmed before it is used to set a final target figure. Mr. Fedorinchik and Mr. Wright will accomplish this jointly.

In summary, the project is closed in with finish work about to start at the sub-basement. A complete review of the logic and durations was made at this session and the result was the new Issue #6 network dated April 5, 1977. This diagram is being put into final form and will be issued as soon as ready.

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

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Family Health Care Center Addition
Detroit Osteopathic Hospital
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Overall, the project shows considerable improvement in pace over the last monitoring and it appears that the above targets are feasible.

I shall plan to monitor the project again in about one month and shall be in touch with Mr. Vitas Bagdonas regarding the date of the next session.

Ralph J. Stephenson, P.E.

RJS
m

To: Mr. Vitas Bagdonas
Mr. Dick Lynch
Mr. L. G. Shea
Mr. Luke Miller
Mr. Stan Wright
Mr. Les Bowman
Mr. Wm. Novosedlik

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

May 16, 1977

Subject: Monitoring Report #12
Family Health Care Center Addition
Detroit Osteopathic Hospital, Highland Park, Michigan

Project: 76:20

Date of Monitoring: May 12, 1977 (working day 349)

Monitored from Issue #6 dated April 5, 1977

Approximate project starting date: April 5, 1976 (working day 67)

Target contract completion date: September 28, 1977 (working day 445)

Note: This date is set by the job duration of 541 calendar days
or 378 working days. The starting date is subject to check.

Target completion dates for new construction from Issue #6 network
resulting from today's updating are as follows:

Sub-basement	-	June 21, 1977 (working day 376)
Basement	-	July 1, 1977 (working day 384)
First Floor	-	August 3, 1977 (working day 406)
Emergency entrance & canopy		June 28, 1977 (working day 381)

Actions taken:

- Inspected project
- Reviewed project progress with Mr. Fedorinchik
- Evaluated job status
- Prepared project status report for period from May 12, 1977
(working day 349) to June 17, 1977 (working day 374)

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Family Health Care Center Addition
Detroit Osteopathic Hospital
Page two

RALPH J. STEPHENSON, P. E.
CONSULTING ENGINEER

General Summary

As of May 12, 1977 (working day 349) the project is in good condition with the exception of the canopy construction. At the canopy there has been some trouble fitting up the structural steel since it was a field measured structure and some refabrication was necessary.

The lag at the canopy is about 16 working days, primarily in erection of structural steel. Structural steel was due to have been completed on April 22, 1977 (working day 336). It will now be completed by about May 17, 1977 (working day 352) - a lag of 16 working days. It should be pointed out that this lag is measured against a late finish for the canopy of June 27, 1977 (working day 381) while the actual required completion is August 2, 1977 (working day 405). The August date will be met or bettered, measured by current progress.

At the basement most plastering is complete, painting is in work and ceramic tile is due to begin May 13, 1977 (working day 350). Acoustic ceilings are well along and light fixtures are presently being installed. Some interior doors and hardware are installed and cabinet work is due on the job May 16, 1977 (working day 351). Mr. Fedorinchik reports that there may be some delay in delivery of millwork and trim past the late start date of the item. The installer feels though that he can pick up time and meet current completion targets.

An item of serious concern is elevator work. Completion of the shaft is being held by late deliveries on guide rails and strong efforts are being made to get these on the job immediately. They are needed to set door frames which will allow closing shaft walls. In addition, guide rails are required to begin cab work. If, as presently planned, it requires 40 working days or eight weeks to install the elevator and the target for elevator completion is July 1, 1977 (working day 304), then work on guide rails is going to have to start immediately to meet this target. Mr. Fedorinchik is trying to get this work unlocked.

At the basement floor work is currently meeting targets between early and late starts and finishes. There are some minor local delays but these are not affecting overall work progress. Again, as at the sub-basement, the elevator work is crucial.

First floor work is meeting targets between early and late starts and finishes. There is a tendency at the first floor to be slightly later than at other floors. However, the job should meet its target finish of August 2, 1977 (working day 406).

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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

Mr. Fedorinchik reports that the hospital has been of great help in freeing up many of the areas to remodel. This has allowed prompt vacation of areas to be remodeled, thus, good early performance on the remodeling operation.

In summary, the job is in good shape except for elevator work and heavy attention is to be given to this item over the next week. It is critical that the elevator installer get on the job with guide rails so door frames can be set, walls completed and cabs installed. Most other work at the old and new areas is moving quite well.

As a part of this monitoring, I prepared a project status report covering the period from May 12, 1977 (working day 349) through June 17, 1977 (working day 374). This will be issued concurrently with the monitoring report. I shall plan to monitor the project again next month and will be in touch with Mr. Bagdonas to set the date.

Ralph J. Stephenson, P.E.

RJS
m

To: Mr. Vitas Bagdonas
Mr. Dick Lynch
Mr. L. G. Shea
Mr. Luke Miller
Mr. Stan Wright
Mr. Les Bowman
Mr. Wm. Novosedlik

June 9, 1977

Subject: Monitoring Report #13
Family Health Care Center Addition
Detroit Osteopathic Hospital, Highland Park, Michigan

Project: 76:28

Date of Monitoring: June 7, 1977 (working day 366)

Monitored from Issue #6 dated April 5, 1977

Approximate project starting date: April 5, 1976 (working day 67)

Target contract completion date: September 28, 1977 (working day 445)

**Note: This date is set by the job duration of 541 calendar days
or 378 working days. The starting date is subject to check.**

**Target completion dates for new construction from Issue #6 network against
which this report monitors are as follows:**

Sub-basement	-	June 21, 1977 (w/d 376)
Basement	-	July 1, 1977 (w/d 384)
First Floor	-	August 3, 1977 (w/d 406)
Emergency entrance & canopy	-	June 28, 1977 (w/d 381)

Actions taken:

- Inspected project
- Reviewed project progress with Mr. Fedorinebik
- Evaluated job status
- Prepared project status report for period from June 7, 1977 (working day 366) to July 13, 1977 (working day 391)

General Summary

As of June 7, 1977 (working day 366) the project has slipped at each level and lags range from 5 to 15 working days. These lags have been

caused by a variety of reasons. One of the major is late delivery of wood doors, millwork and trim. Also, cabinet work is taking longer to install than had been anticipated.

In addition, first floor in-wall work at the north end was very complex and consequently delayed installation of board at this half of the building.

Elevator work is proceeding slowly with the rails now installed and cab work about ready to begin shortly.

To review in slightly more detail, work at the sub-basement is from 6 to 14 working days behind present target dates primarily in doors, hardware, millwork, trim and cabinet work installation. Mr. Fedorinchik reports he still is going to maintain target completion of building work at the sub-basement as close to June 21, 1977 (working day 376) as possible. However, carpet will not start until about June 27, 1977 (working day 380). This is about 11 working days later than the date originally set of June 10, 1977 (working day 369).

Basement work lags from 3 to 10 working days, with the chief lag now being in painting and acoustic ceiling grid and conduit. Mr. Fedorinchik anticipates that carpet at the basement floor could start as early as June 29, 1977 (working day 382) which would be about 5 working days later than the present target of June 22, 1977 (working day 377). It appears feasible to use this carpet starting date as a valid goal.

At the first floor the lag ranges from 7 to 12 working days with the largest delay being in board installation. Here, in-wall work proved very difficult and as a result, considerable time was lost trying to complete the mechanical and electrical in-wall work and get started on the board. Mr. Fedorinchik is going to make strenuous efforts to pick up most of this time so as to maintain a completion target of August 3, 1977 (working day 406), but it could be difficult to meet this date. It might be wise to anticipate the actual lag will be from 5 to 8 working days. There are some areas that time could be picked up in by dovetailing activities but it is going to require careful and above average managerial attention.

Canopy work is now about 21 working days behind the target completion of June 28, 1977 (working day 381), with the lag basically in start of slab on grade work. Slab on grade work was originally due to begin no later than May 9, 1977 (working day 346). Some filling and grading has been done but we can assume the lag there is about 21 working days bringing

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RALPH J. STEPHENSON, P. E.
CONSULTING ENGINEER

the canopy to completion on or about July 27, 1977 (working day 401). It is critical that the first floor work and the canopy work be brought home together so one can be used with the other. Presently this appears feasible.

Remodeling work is moving well with several areas being turned over and made available early. Area E1 is lagging our original targets, primarily because there was considerable difficulty with existing mechanical and electrical work. However, there is no apparent major delay being caused by this lag. Work at E2 will probably run on out to the end of the job since this is a very difficult area in which activity must be maintained at the highest level possible.

Work is proceeding in area E3 and is substantially ahead of early and late starts and finishes. Area E4 is substantially complete. Area E6 has been remodeled up to the point where it will be necessary now for the first floor to be completed for it to be continued. Some work is being done in area E8A and work is also proceeding in area E5.

No other remodeling work is presently in progress.

In summary, the project has slipped over the past 17 working days primarily in installation of finish trades at the sub-basement and basement and hanging of board at the north end of the first floor areas. These lags are relatively serious and it will be critical to pick up as much of the lost time as possible. Mr. Fedorinchik feels that some of it can be picked up. However, the lags are real at each of the levels presently.

As a result of this monitoring I prepared a project status report for the period June 7, 1977 (working day 366) to July 13, 1977 (working day 370). This will be issued concurrently with the monitoring report.

I shall plan to monitor the project again in July and will be in touch with Mr. Bagdonas and Mr. Fedorinchik.

Ralph J. Stephenson, P. E.

RJS/m

To: Messrs. Bagdonas, Lynch, Shea, Miller, Wright,
Bowman, Novosedlik

July 15, 1977

Subject: Monitoring Report #14

Family Health Care Center Addition

Detroit Osteopathic Hospital, Highland Park, Michigan

Project: 76:28

Date of Monitoring: July 13, 1977 (working day 391)

Monitored from Issue #6 dated April 5, 1977

Approximate project starting date: April 5, 1976 (working day 67)

Target contract completion date: September 28, 1977 (working day 445)

Note: This date is set by the job duration of 541 calendar days
or 378 working days. The starting date is subject to check.

Target completion dates for new construction from Issue #6 network
against which this report monitors are as follows:

Sub-basement	-	June 21, 1977 (W/D 376)
Basement	-	July 1, 1977 (W/D 384)
First Floor	-	August 3, 1977 (W/D 406)
Emergency entrance & canopy		June 28, 1977 (W/D 381)

Actions taken:

- Inspected project
- Reviewed project progress with Mr. Fedorinchik
- Evaluated job status
- Prepared project status report for period from July 13, 1977
(working day 391) to August 10, 1977 (working day 411)

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General Summary

As of July 13, 1977 (working day 391) the project has been substantially stopped by a plasterers' strike which started on June 21, 1977 (working day 376). Thus, the strike has currently been in effect 15 working days. The general lag on the project now can be measured from the amount of time it will take to complete the first floor upon resumption of plasterers' work.

Mr. Fedorinchik estimates that within 20 working days of the return to work of the plasterers, the first floor could be completed. It should be noted that this is a tight schedule since there will be some startup time required.

The strike has been caused primarily by a dispute between the union and the employers regarding payment of back benefits the union claims is due them. As such it is a difficult strike to evaluate and there is no current word available on when the problem might be resolved. The general contractor is working hard to clear the problem but because of the unpredictable nature of the circumstances, there is no reliable information available.

If the plastering dispute could be resolved this week, probably work could resume on Monday, July 18, 1977 (working day 394). Adding 28 working days (20 to carpet and 8 for carpet and cleanup) brings completion of the first floor to August 25, 1977 (working day 422) which is approximately 16 working days later than the August 3, 1977 (working day 406) completion projected. However, again, it should be pointed out that there is no firm assurance on the settlement of the strike, nor the fact that the first floor can be completed in 20 working days after resumption of work. This is presently a best educated estimate.

Thus, the lag on the job ranges from 16 to 20 working days, depending upon the area in question. Since the major remodeling work is now dependent upon having the first floor available, it can be assumed the lag is best measured from total completion of all floors.

Mr. Fedorinchik was questioned regarding the work that could proceed while the plasterers are on strike. After a thorough inspection of the job, it appears that he has carried most work about as far as it can go without incurring heavy damage or cleanup penalties by proceeding.

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In summary, the project currently lags from 16 to 20 working days, probably closer to the 16 days if the plasterers' strike can be settled promptly since it will take a little more than one month to finish up the job once they return to work. However, it is to be cautioned this is a somewhat optimistic view at present and any decisions made should take that into account.

The first floor is the key to finishing the entire project since most remodeling work now depends upon occupying the first floor area.

The emergency canopy is also stopped because plastering was just about to begin at the soffit. This area will be brought to completion along with the rest of the building when the plasterers return to work.

Some peripheral problems have recently appeared. One is not being able to use the air conditioning system until the building construction is complete. This restriction revolves around the matter of cleaning ductwork, changing filters and other such matters. The lack of a system in the building could cause difficulties with owner equipment installation as well as finishing construction work at the three levels. Intensive discussions continue and hopefully the item can be resolved shortly.

Another problem is that with occupancy as close as it apparently is, telephone work should be proceeding now in the new building. Mr. Fedorinchik reports that as of today there is no telephone work installed. I suggest this matter be reviewed at an early date.

I recommend that at our next session we review the move sequence to insure it is still valid, and where changes are required, to make such revisions. I shall be in touch with Mr. Vitas Bagdonas regarding the next monitoring session. It probably will be the afternoon of August 10, 1977 (working day 411).

Meanwhile I will keep in touch with Mr. Fedorinchik regarding the plasterers' strike situation and if appropriate, make an interim review of the project when the strike has been settled. Mr. Fedorinchik has thought out this situation very well and his projections are presently that finishing of the basement floor for carpet will be two weeks after return of plasterers to the job, completion of the basement floor for carpet three weeks after their return and completion of the first floor

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ready for carpet four weeks or 20 working days after return.

One other potential strike may pose some problems - that is the elevator installers. Currently there is about 8 working days remaining for completion of elevator work up to testing. If there is a strike of the installers it may delay completion of the elevator. Every effort is being made to complete work before such a strike occurs.

As a part of this monitoring I prepared a project status report for the period from July 13, 1977 (working day 391) to August 10, 1977 (working day 411). I shall plan to monitor the project again in August and will be in touch with Mr. Bagdonas regarding the next date.

Ralph J. Stephenson, P. E.

RJS
m

To: Mr. Vitas Bagdonas
Mr. Dick Lynch
Mr. L. G. Shea
Mr. Luke Miller
Mr. Roger Walklin
Mr. Les Bowman
Mr. Wm. Novosedlik

August 11, 1977

Subject: **Monitoring Report #15**

 Family Health Care Center Addition

 Detroit Osteopathic Hospital, Highland Park, Michigan

Project: **76:28**

Date of Monitoring: **August 8, 1977 (working day 409)**

Monitored from Issue #6 dated April 5, 1977

Approximate project starting date: **April 5, 1976 (working day 67)**

Target contract completion date: **September 28, 1977 (working day 445)**

Note: **This date is set by the job duration of 541 calendar days
 or 378 working days.**

Actions taken:

- **Inspected project**
- **Reviewed project progress with Mr. Fedorinchik**
- **Evaluated job status**
- **Prepared rough network for remaining work at first floor
to give guidelines for completion dates**

General Summary

As of August 8, 1977 (working day 409) plasterers are back to work and finish work is continuing at all three levels. At the sub-basement carpet should be able to be started by Wednesday, August 10, 1977 (working day 411) and it is anticipated that the floor will be complete by the evening of August 12, 1977 (working day 414). Phone work is being installed and should also be completed by August 12, 1977 (working day 414).

At the basement, problems are being experienced at lab B04, at the chemical storage and chemical prep areas and in the glass washing area. Evaluating the current status of the work, it appears that basement carpet

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could start by Tuesday, August 16, 1977 (working day 415), moving to the area from the sub-basement installation. Giving carpet five working days brings completion of the basement to August 23, 1977 (working day 420). By this time the ceramic tile finishes and fixtures should be installed at the glass washing area and the area should complete along with the carpet installation.

Chemical storage and prep are being held by the delayed delivery on the fume hood. This fume hood is expected on the job August 15, 1977 (working day 414) and will be installed immediately. It probably will take from 5 to 8 working days to install this fume hood and finish off the two rooms. Thus, they should be complete somewhere near the present anticipated completion of August 23, 1977 (working day 420).

At lab B04 the holdup has been caused by difficulty of installing the stainless steel sheet metal duct riser which cannot be placed until the vertical shaft has been cleaned of deactivated piping and electrical work. This piping and electrical work has now been taken out of service and removal is expected to begin Wednesday, August 10, 1977 (working day 411). It appears presently there could be additional delays due to cabinet work difficulties and these could well take as much as 25 to 30 working days to resolve and complete installation. Thus, completion of the B04 lab area might be as late as September 20, 1977 (working day 439). Every effort is being made to expedite delivery of required cabinet work but it would be wise to consider it will be on the job at a late date.

However, the major part of the basement floor can be projected to be complete, ready for use by August 23, 1977 (working day 420).

At the first floor there is some difficulty with deliveries and completion of work particularly at the emergency entrance. Due to the complexity of this area, Mr. Fedorinchik and I prepared a rough network plan for the remaining work. It appears that by the morning of August 30, 1977 (working day 425) the area could be complete and ready for occupancy by the owner. The canopy area will also be available at that time for receiving emergency patients. Thus, the target for turning the first floor over is presently August 30, 1977 (working day 425).

The major delay items are delivery and installation of the nurses' call station, delivery and installation of the head wall trim and internal components (these apparently arrived on the job August 8, 1977) and remaining metal case work has been brought to the project site and installed.

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Reviewing target completion dates, the key element is completion of the first floor and turnover which was originally scheduled for the evening of August 2, 1977 (working day 406). Our present target for completion of the first floor is the evening of August 29, 1977 (working day 425), a difference of 19 working days. Although all of the delay cannot be attributed to the plasterers' strike, it should be noted that plasterers went out on June 21, 1977 (working day 376) and returned July 18, 1977 (working day 394), a delay of approximately 18 working days. Although plastering did not directly affect and cause all of the delays, it certainly was a major element in preventing continuous completion of the various areas.

Reviewing the various remodeled areas, we find that probably completion of the total remodeled portions of the building will now be approximately November 22, 1977 (working day 484). This is about 20 working days later than the original finish of October 25, 1977 (working day 464) projected in the Issue #6 network dated April 5, 1977.

A brief review of the status of each of the remodeled areas follows.

E1

Substantially complete and partially occupied on August 8, 1977 (working day 409).

E2

Substantially complete. Was occupied while remodeling proceeded.

E3

Partially occupied. Remodeling will be complete in about 20 working days.

E4

Complete.

E5

Substantially complete and partially occupied by August 8, 1977 (working day 409).

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

E6

There is a lag of approximately 19 working days at area E6 due to the fact that it cannot be completed until the first floor is complete and occupied.

E7

There is a lag of approximately 19 working days at area E7 due to the fact that it cannot be completed until the first floor is complete and occupied.

E8A

Substantially complete and occupied as of August 8, 1977 (working day 409).

E8B

Substantially complete and occupied as of August 8, 1977 (working day 409).

E9

Not started.

E10

Not started.

E11

Not started.

E12

Not started.

E13

Not started.

E14

Not started.

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Note: Some minor demolition work has been done on various of the E9 through E14 areas. However, major remodeling at these sectors must wait for completion of first floor work. This accounts for the projected delay to final completion of remodeling.

Mr. Fedorinchik wished to note in this report that the cooperation of the hospital staff has been an enormous help in getting an early jump on some of the remodeled areas. The hospital group is to be complimented for allowing work to proceed, particularly in the more complex areas.

In summary, the entire project presently lags final completion targets as set in Issue #6 dated April 5, 1977 by 15 to 20 working days. It is anticipated this lag can be held.

I shall monitor the project again in late August and shall be in touch with Mr. Fedorinchik and Mr. Bagdonas regarding the date.

Ralph J. Stephenson, P. E.

RJS
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To: Mr. Vitas Bagdonas
Mr. Dick Lynch
Mr. L. G. Shea
Mr. Richard T. Young
Mr. Roger Walklin
Mr. Les Bowman
Mr. Wm. Novosedlik