Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223
ph 1-989-772 2537
e-mail ralphjs@gte.net
October 12, 2001

Monitoring Report #1 Contract 52D - Kalamazoo Waste Water Treatment Plant, Kalamazoo, Michigan

To: Mike Wetzel, P.E. - Assistant City Engineer - DPS City of Kalamazoo
Larry Fischer - Project Manager - DPS City of Kalamazoo
(Mr. Wetzel and Mr. Fischer will distribute copies to others as required)

Date of Monitoring: Thursday October 4, 2001 (working day 450)

Location of meeting: Waste Water Treatment Plant, conference room C.

Monitored from: Sheet #1 - prepared October 4, 2001 (working day 450)

Data date: Wagner-Flook network data date August 28, 2001 (wd 424)

Those Attending:

Larry Fischer - Project Manager - DPS City of Kalamazoo
Dan Miller P.E. - Project Engineer - Jones and Henry Engineers
Phil Jones - Project Manager - Wagner-Flook, Builders
Ralph J. Stephenson, P.E. - Consulting Engineer

Actions Taken:

- Reviewed suggested construction planning procedures.
- Reviewed project status and current progress.
- Reviewed laundry list from Phil Jones schedule.
- Prepared network models from Phil Jones laundry list of activities
- Briefly inspected project.
- Printed out material prepared for distribution.
- Discussed method of monitoring and updating.

Project information - as of October 4, 2001 (wd 450)

- Start date - July 6, 2001 (wd 387) - contract date
- Finish date - November 2, 2002 (wd 726) pm - substantial completion.
- Total completion date - December 2, 2002 (wd 746) pm
- Data date - August 28, 2001 (wd 424)

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223
ph 1-989-772 2537
e-mail ralphjs@gte.net
October 12, 2001

- Run date - September 4, 2001 (wd 428)
- Run page number - 1A
- Construction staff
  Bruce Merchant - Plant Superintendent WWTP, City of Kalamazoo, Michigan
  Larry Fischer - Project Manager for City of Kalamazoo, Michigan
  Mike Wetzel - Program Manager for City of Kalamazoo, Michigan
  Robert Witt - Staff - WWTP, City of Kalamazoo, Michigan
  Bill Henson - Bosch Mechanical
  Jeff Warren - Bosch Mechanical
  Craig Wyman - Project Superintendent Wagner-Flook Builders
  Phil Jones - Project Manager - Wagner-Flook Builders
  Todd Meert - J & L Electric Company
  Dale Wallace - J & L Electric Company

General Notes:

The major objective of this meeting was to bring the planning efforts of the City of Kalamazoo, Wagner-Flook, and Jones and Henry Engineers together to establish an agreeable format for planning, monitoring and scheduling the project. Mr. Phil Jones, project manager for Wagner-Flook had prepared a preliminary bar chart from key information he had received from his project team, and had then assembled this data into a bar chart and a laundry list of project activities.

In our planning and monitoring meeting on October 4, 2001 (wd 450) we developed a project network model from this data. This model was printed and a copy provided to each of those present at the meeting. Mr. Jones will update the data contained in this issue of the model and we will continue our planning efforts based on this updated model at our next monitoring meeting. This meeting is set for Thursday October 18, 2001 (wd 460) at the waste water treatment plant at 9:00 A.M.

At the session on October 4, 2001 (wd 450) much of the early part of the meeting was concentrated on reviewing the current fabrication and delivery information. This information was then coupled with the early building and equipment installation information availble to the planning team. At our next meeting I suggest we review the Sheet 1A fabrication and delivery data, and then complete preparing the building and equipment installation sequencing.

During the meeting on October 4, 2001 (wd 4500) it became necessary for Mr. Fischer and Mr. Jones to visit the site to inspect a current pipe laying activity. I accompanied them to the project and was able to get a summary view of field

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223
ph 1-989-772 2537
e-mail ralphjs@gte.net
October 12, 2001

progress. Underground piping is being installed concurrent with construction of the building foundations. Efforts are being exerted to mesh the fabricate and delivery dates for structural steel and the Butler building components with installation of footings for the buildings. We should make early efforts to verify all delivery dates leading to close in of the buildings to minimize exposure of the building interior to winter weather. Mr. Jones is doing this now;

Another main activity to be considered in our next planning session is to review the relationship of delivery and installation needs of owner furnished equipment to the schedule of work for the building structure. This is a very important part of insuring the project is brought on line in timely and proper manner.

This monitoring report is being sent to Mr. Mike Wetzel and Mr. Larry Fischer with the request that they forward copies of the report to those on the project team who would find the information of value. If you have any questions, please don't hesitate to call or write me.

As noted above, I shall plan to meet again with the project team on Thursday October 18, 2001 (wd 460) to continue our monitoring, planning and scheduling efforts.

Ralph J. Stephenson, P.E.

97: 2C

Monitoring Report #2
Kalamazoo Waste Water Reclamation Plant
Contract 52D - construction

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
November 16, 2001

Monitoring Report #2 Contract 52D - Kalamazoo Waste Water Treatment Plant, Kalamazoo, Michigan

To: Mike Wetzel, P.E. - Assistant City Engineer - DPS City of Kalamazoo
Larry Fischer - Project Manager - DPS City of Kalamazoo

(Mr. Wetzel and Mr. Fischer will distribute copies to others as required)

Date of Monitoring: Thursday November 8, 2001 (wd 475)

Location of meeting: Kalamazoo Waste Water Treatment Plant, conference room C.

Monitored from: Sheet #1A - prepared October 18, 2001 (wd 460)

Data date: Wagner-Flook network data date - August 28, 2001 (wd 424)

Those Attending:
Larry Fischer - Project Manager - DPS City of Kalamazoo
Dan Miller P.E. - Project Engineer - Jones and Henry Engineers
Ralph J. Stephenson, P.E. - Consulting Engineer

Actions Taken:
- Monitored network model sheet 1A, dated October 18, 2001 (wd 460) - data date August 28, 2001 (wd 424)
- Reviewed current project status.
- Updated laundry list from Wagner-Flook schedule, Sheet 1A, data date November 2, 2001 (wd 471).
- Updated network model from Wagner-Flook updated laundry list.
- Made brief inspection of project.

Project information - as of November 8, 2001 (wd 475)
- Start date - July 6, 2001 (wd 387) - contract date
- Finish date - November 2, 2002 (wd 726) pm - substantial completion.
- Total completion date - December 2, 2002 (wd 746) pm
- Current data date as updated by Wagner-Flook - November 2, 2001 (wd 471)

Monitoring Report #2
Kalamazoo Waste Water Reclamation Plant
Contract 52D - construction

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
November 16, 2001

General

The objective of this planning and monitoring meeting was to update the current plan of work using the revised schedule from Mr. Phil Jones of Wagner-Flook to provide the updated durations. Mr. Jones was not able to attend the meeting but had furnished current updating data to those attending the session.

Procurement

The H2O2 tank has been removed. However, further activity on the odor control system is on hold pending a decision by the Owner staff on reuse of the tank. This decision is to be based on observations of the odor control system performance over the next two or three weeks.

Structural steel for the dewatering building has been delivered and is on site. Bridge cranes are expected to be delivered by November 21, 2001 (wd 484). There is no confirmation of this delivery date and it should be checked on an ongoing basis. Butler building concrete resteel is due on the job the PM of November 16, 2001 (wd 482). Secondary Butler building component shop drawings were received by Jones and Henry on November 5, 2001 (wd 473). This steel is anticipated to be delivered on December 20, 2001 (wd 505)

Pasteurization system components are expected to be delivered by January 11, 2001 (wd 519). Lime silos were delivered to the job site on November 8, 2001 (wd 476) and erection of the tanks is in progress.

Overall, procurement appears to be proceeding well. However, because of the number of items yet to be received, and the limited site storage available near the project work area, continued close attention must be given to all procurement activities.

Dewatering Building (DEW)

Currently the trench drain system is being installed at the DEW building. This work will be followed by construction of the slab on grade and erection of structural steel.

Stabilization Building (STAB)

Work in progress at the Stabilization building is primarily excavation, and forming and pouring footings and foundations. As this work is completed it will be followed

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
November 16, 2001

by installation of underground utilities and construction of the slab on grade.

Updating

We updated the network model during this meeting. A copy of the updated model was printed and sent to Mr.Mike Wetzel and Mr. Larry Fischer. They will duplicate and distributed the revised model to project team members.

General

Project work seems to be moving fairly well and the project team is following field work on the job. Since winter weather is beginning to make its presence known, care will have to be taken to see that work proceeds as expeditiously as possible over the next few weeks. Close in of the buildings is an important factor in maintaining a proper work pace.

I shall be in touch with Larry Fischer shortly to set the date of the next planning and monitoring session.

Ralph J. Stephenson, P.E.

97.26

Monitoring Report #3
Kalamazoo Waste Water Reclamation Plant
Contract 52D - construction

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
December 21, 2001

Monitoring Report #3 Contract 52D - Kalamazoo Waste Water Treatment Plant, Kalamazoo, Michigan

To: Mike Wetzel, P.E. - Assistant City Engineer - DPS City of Kalamazoo
Larry Fischer - Project Manager - DPS City of Kalamazoo

(Mr. Wetzel and Mr. Fischer will distribute copies to others as required)

Date of Monitoring: Tuesday December 18, 2001 (wd 502)

Location of meeting: Kalamazoo Waste Water Treatment Plant, conference room C.

Monitored from: Sheet #1A - November 8, 2001 (wd 475)

Data date: Wagner-Flook data date - November 2, 2001 (wd 471)

Those Attending:
Larry Fischer - Project Manager - DPS City of Kalamazoo
Mike Wetzel, P.E. - Assistant City Engineer - DPS City of Kalamazoo
Dan Miller P.E. - Project Engineer - Jones and Henry Engineers
Phil Jones - Project Manager - Wagner-Flook Builders, Inc.
Ralph J. Stephenson, P.E. - Consulting Engineer

Actions Taken:
- Monitored project from network model sheet 1A, dated November 8, 2001 (wd 475) - data date November 2, 2001 (wd 471)
- Reviewed current project status.
- Updated network model to sheet 1A dated December 18, 2001 (wd 502) from Wagner-Flook bar chart dated December 2, 2001 (wd 491)

Project information - as of December 18, 2001 (wd 502)
- Start date - July 6, 2001 (wd 387) am - contract date
- Finish date - November 2, 2002 (wd 726) pm - substantial completion.
- Total completion date - December 2, 2002 (wd 746) pm

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
December 21, 2001

Procurement

The project team reviewed the time frame for making a decision as to whether or not to reuse the existing odor control tank. A decision is to be made by February 5, 2001 (wd 535) am.

The delivery of conveyors was set for March 18, 2002 (wd 564) am. It was assumed by Mr. Jones in setting this date that all major conveyors, unless otherwise noted, will arrive on the job at or about the same date.

Structural steel for the dewatering building is erected, and platforms and gratings are on the job. Efforts are being made to tie the fabrication and delivery of bridge cranes to installation of items that can be erected with the cranes. Bridge cranes for the dewatering building are expected on the job by January 14, 2002 (wd 542) am.

Pasteurization system components are to be delivered in early January 2002. Installation will be started as equipment and space is available.

Overall, procurement commitments and deliveries have tended to drop behind desired early and late start and finish dates. Continuous expediting will be essential as foundations are installed and the buildings are made ready to receive deliveries.

Dewatering Building (DEW)

Currently the concrete trench system is installed at the Dewatering Building, and the slab on grade and topping are in work. Work here is currently about 12 working days behind early starts and finishes.

Stabilization Building (STAB)

Stabilization Building slab on grade work lags early finish targets by about 12 working days. A more accurate evaluation of the Stabilization Building status will be possible as work proceeds on systems installation, and as gratings and platforms are erected.

Updating

In our meeting we updated the monitored network model as of the current date

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
December 21, 2001

of December 18, 2001 (wd 502) am. A disk copy of the updated model was given to Mr.Mike Wetzel and Mr. Larry Fischer after our meeting. They will duplicate and distribute the revised model to project team members.

General

Project work is being delayed to some extent by the heavy wet weather. However Mr. Jones is optimistic about picking up some of the current lag over the next few weeks. The current and projected lags in building work range from 10 to 20 working days. A more detailed evaluation will be made as the network models and Mr. Phil Jones' laundry lists are brought up to date in accordance with subcontractor and supplier information.

I shall be in touch with Mr. Larry Fischer shortly to set the date of the next planning and monitoring session. At this next meeting we should begin detailed planning of the systems and equipment at installation at each area of the facility.

Meanwhile I should like to thank the project staff for their participation in the planning and scheduling work being done on the job, and to wish the entire project team a very Happy Holiday and a wonderful and prosperous New Year.

Ralph J. Stephenson, P.E.

Monitoring Report #4
Kalamazoo Waste Water Reclamation Plan
Project 97:26
Contract 52D - construction

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
January 23, 2002

Monitoring Report #4 Contract 52D - Kalamazoo Waste Water Treatment Plant, Kalamazoo, Michigan - Project 97:26

To: Mike Wetzel, P.E. - Assistant City Engineer - DPS City of Kalamazoo
Larry Fischer - Project Manager - DPS City of Kalamazoo

(Mr. Wetzel and Mr. Fischer will distribute copies to others as required)

Date of Monitoring: Wednesday, January 16, 2002 (wd 521)

Location of meeting: Kalamazoo Waste Water Treatment Plant, conference room C.

Monitored from: Sheet #1A - December 18, 2001 (wd 502)

Data date: Wagner-Flook data date - December 7, 2001 (wd 471)

Those Attending:
Larry Fischer - Project Manager - DPS City of Kalamazoo
Mike Wetzel, P.E. - Assistant City Engineer - DPS City of Kalamazoo
Dan Miller P.E. - Project Engineer - Jones and Henry Engineers
Ed Flook - Principal - Wagner-Flook Builders
Phil Jones - Project Manager - Wagner-Flook Builders, Inc.
Ralph J. Stephenson, P.E. - Consulting Engineer

Actions Taken:
- Monitored project from network model sheet 1A, dated December 18, 2001 (wd 502) - data date December 7, 2001 (wd 495)
- Reviewed current project status.
- Updated network model to sheet 1A dated January 16, 2002 (wd 521) from Wagner-Flook bar chart dated January 15, 2002 (wd 520)

Project information - as of December 18, 2001 (wd 502)
- Start date - July 6, 2001 (wd 387) am - contract date
- Finish date - November 2, 2002 (wd 726) pm - substantial completion.
- Total completion date - December 2, 2002 (wd 746) pm

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
January 23, 2002

Procurement

The project team reviewed the time frame for making a decision as to whether or not to reuse the existing odor control tank. It appears that the Owner is currently approaching a decision in this matter. During our discussion the project staff decided to hold the decision date at the pm of February 4, 2002 (wd 535). Presently this activity has considerable float time which the team would prefer to hold in reserve to allow adequate time for an acceptable decision to be made.

Bridge cranes have been delivered and set at the dewatering building. Shop drawings have been submitted and are being checked for the platforms and grating at the new building, with an early delivery presently set for the pm of March 6, 2002 (wd 557).

Conveyors at the dewatering building (DEW) and the new building are currently to be delivered and installation started by the am of March 18, 2001 (wd 564).

Fabrication and delivery of instrumentation has started and will be continued as the materials arrive and are stored on the job. Pasteurization system components are being delivered and stored on the job storage area until needed.

Stabilization building structural components are 95% delivered and are being erected as they arrive on the job.

Motor control centers are being delivered to the job site and are approximately 90% complete. None have been installed as yet.

Dewatering Building

The slab on grade has been completed at the Dewatering Building and setting the new belt filter presses is in work at present. Erection problems are being worked out to resolve clearance and access difficulties. However the project team expects to have these difficulties overcome soon.

Stabilization Building

Underground plumbing is complete at the Stabilization Building and the slabs on grade are about 75% complete. Masonry end walls and masonry bearing walls are in work and the building is being readied for setting early systems work.

Updating

Much of our work in this meeting was concentrated on updating the project network in accordance with the current status of the job. We were not able to

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
January 23, 2002

complete the full updating since Wagner-Flook, the general contractor is still engaged in obtaining up-to-date information from their subcontractors. However Mr. Phil Jones, the Wagner-Flook project manager is currently meeting regularly with his subcontractors. He will incorporate information on the systems into the updating and his bar chart data as it is received from other contractors on the job.

I have enclosed with this report to Mr. Mike Wetzel and Mr. Fischer, a hard copy and a disk copy of the updated network model prepared on Wednesday, January 16, 2002 (wd 521). They will make whatever copies are needed by Mr. Jones and provide this data so Mr. Jones can complete a full update of the remainder of the project at our next meeting.

Also enclosed with this Monitoring Report #4 dated January 21, 2002 (wd 524) is a printout of the monitored network prepared at the planning and scheduling session held on Wednesday, January 16, 2002 (wd 521).

General

Field project work is still being delayed by rain and snow along with a need to clean the site and clear it of fill currently stockpiled in construction traffic areas.

It was not possible to establish an accurate measure of the lag of the project at this session since full systems installation data is not yet available from the sub contractors. However Mr. Phil Jones is working continuously to obtain additional data as it becomes available. The updated network material enclosed should allow continuing updating from now until our next planning and monitoring session.

I shall be in touch with Mr. Larry Fischer shortly to set the date of the next meeting with the project staff and to discuss the information we must have to continue the detailed planning of systems and equipment.

Ralph J. Stephenson, P.E.

Attachments:
- Disk copy of updated network,issue #4 dated January 16, 2002 (wd 521)
- Monitored project network as of January 16, 2002 (wd 521)
- Updated project network as of January 16, 2002 (wd 521)

Monitoring Report # 5
Kalamazoo Waste Water Reclamation Plan
Project 97:26
Contract 52D - construction

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
February 26. 2002

Monitoring Report #5 Contract 52D - Kalamazoo Waste Water Treatment Plant, Kalamazoo, Michigan - Project 97:26

To: Mike Wetzel, P.E. - Assistant City Engineer - DPS City of Kalamazoo
Larry Fischer - Project Manager - DPS City of Kalamazoo

(Mr. Wetzel and Mr. Fischer will distribute copies to others as required)

Date of Monitoring: Friday February 15, 2002 (wd 543)

Location of meeting: rjs office, Mt. Pleasant, Michigan

Monitored from: Sheet #1A - January 16, 2002 (wd 521)

Data date: Wagner-Flook data date - January 15, 2002 (wd 520)

Location: rjs office, Mt. Pleasant, Michigan

Those Attending:
Larry Fischer - Project Manager - DPS City of Kalamazoo
Ralph J. Stephenson, P.E. - Consulting Engineer

Actions Taken:
- Monitored project from network model sheet 1A, dated January 16, 2002 (wd 521) - data date January 15, 2002 (wd 520)
- Reviewed current project status.
- Updated network model to sheet 1A dated January 16, 2002 (wd 521) from Wagner-Flook bar chart dated January 15, 2002 (wd 520)

Project information - as of December 18, 2001 (wd 502)
- Start date - July 6, 2001 (wd 387) am - contract date
- Finish date - November 2, 2002 (wd 726) pm - substantial completion.
- Total completion date - December 2, 2002 (wd 746) pm

Procurement
The project team has reviewed work at the odor control system, and decided to set a date of the pm of March 4, 2002 (wd 555) as the early finish for deciding whether

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
February 26. 2002

to reuse the H202 existing odor control tank. This decision date provides some float time for installing the tank by the target late finish date of June 28, 2002 (wd 638). However the activity has been using the float time available and I suggest a decision be made on the work schedule in the very near future.

Shop drawings for platforms and gratings at the new building have been submitted for review and approval. Some review and approvals are now in work. Early delivery of the gratings and platforms is set for the pm of April 5, 2002 (wd 579).

Some of the early instrumentation has been delivered and is available in storage to be installed as site conditions allow. Presently conveyors are scheduled to be delivered at an early date of the am of March 18, 2002 (wd 564). Bridge cranes have been delivered and are set at the dewatering area.

General

The slab on grade has been completed at the Dewatering Building and setting the new belt filter presses is in work at present. Erection problems are being worked out to resolve clearance and access difficulties. However the project team expects to have these difficulties overcome soon.

Underground plumbing is complete at the Stabilization Building and the slabs on grade are being installed. Masonry end walls and masonry bearing walls are in work and the building is being readied for setting early systems work.

Most of our work in this meeting was concentrated on updating the project network. Mr. Phil Jones, the Wagner-Flook project manager has been meeting with his subcontractors and information on the systems is being incorporated into the updating as it is received. His bar chart data is also being updated by him as information is received from other contractors on the job. The project team is using this data to update the network models for use in monitoring and planning the remaining work.

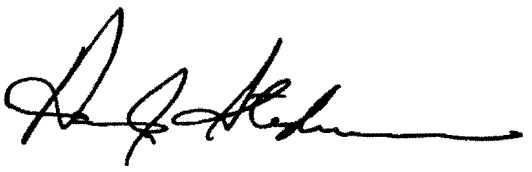
Mr. Larry Fischer and I updated the network model for the buildings and systems from the data he and Mr. Jones had assembled prior to our meeting. This revised data is shown on the network model sheet 1A, dated February 15, 2002. Subsequent to our meeting it was provided to Mr. Jones, Mr. Wetzel, and Mr. Dan Miller by Larry Fischer.

I shall be in touch with Mr. Fischer shortly to set our next planning and monitoring

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
February 26. 2002

session. Major activities during this meeting should include continued work on systems installation and close in of the total facility.

This report is being sent to Mr. Fischer and Mr. Wetzel. They will make further distribution as is needed.



Ralph J. Stephenson, P.E.

Monitoring Report # 6
Kalamazoo Waste Water Reclamation Plan
Project 97:26
Contract 52D - construction

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
May 15, 2002

Monitoring Report #6 Contract 52D - Kalamazoo Waste Water Treatment Plant, Kalamazoo, Michigan - Project 97:26

To: Mike Wetzel, P.E. - Assistant City Engineer - DPS City of Kalamazoo
Larry Fischer - Project Manager - DPS City of Kalamazoo
(Mr. Wetzel and Mr. Fischer will distribute copies to others as required)

Date of Monitoring: Tuesday April 30, 2002 (wd 595)

Location of meeting: Kalamazoo Waste Water Treatment Plant conference room C

Monitored from: Sheet #1A - April 2, 2002 (wd 575)

Data date: Wagner-Flook data date - April 29, 2002 (wd 594) - to be checked

Those Attending:
Larry Fischer - Project Manager - DPS City of Kalamazoo
Dan Miller - P.E. Project Engineer - Jones and Henry Engineers
Ed Flook - Principal - Wagner-Flook Builders
Phil Jones - Project Manager - Wagner-Flook Builders
Ralph J. Stephenson, P.E. - Consulting Engineer

Actions Taken:
- Monitored project from network model sheet 1A, dated April 2, 2002 (wd 575) - data date March 28, 2002 (wd 572)
- Reviewed current project status.
- Updated network model to sheet 1A dated Tuesday April 30, 2002 (wd 595).

Project information
- Start date - July 6, 2001 (wd 387) am - contract date
- Finish date - November 2, 2002 (wd 726) pm - substantial completion.
- Total completion date - December 2, 2002 (wd 746) pm

Stabilization Building
The project team has decided to hold June 28, 2002 (wd 638) for completion of the new odor control tank. Five foul air hoods are presently on site. Three of these have been installed.

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
May 15, 2002

Gratings, platforms and other miscellaneous iron items are being completed at the east half of the stabilization building. Gratings, platforms and miscellaneous items are in work at the west half of the stabilization building. This work leads to the installation of the automatic lubrication system and start up and testing of the pasteurization system. Installation of the pasteurization vessel at the stabilization building will be followed by installation of the thermal feeder and thermal blender. Lime feed equipment will follow electrical rough in at the stabilization building.

Sludge bunker walls have are being constructed at the storage building. This work will be followed by the erection of precast T's and the main structural components of the storage building. Other work at the storage building will move the project on through to start up of the new belt filter presses and to startup of the renovation of the belt filter presses. We will continue planning the remaining work on the buildings and grounds of the project at future meetings of the project team.

Some of the early instrumentation has been delivered and will continue to be installed as site conditions allow.

General
Mr. Phil Jones, the Wagner-Flook project manager has been meeting with his subcontractors and suppliers, and systems information is being incorporated into the project plan as it is received. His bar chart data is also being updated by him as information is received from other contractors on the job.

Mr. Fischer, Mr. Miller and I inspected the project during this latest monitoring, and will continue to update the plan of work at our onging planning meetings. The weather is entering a more moderate phase and progress on the job is expected to improve as we enter spring and summer seasons. I shall be in touch with Mr. Fischer shortly to set our next planning and monitoring date. Major activities during this meeting should include continued intensive work on systems installation and full close in of the total facility.

This report is being sent to Mr. Fischer and Mr. Wetzel. They will make further distribution as is needed

Ralph J. Stephenson, P.E.

Monitoring Report # 7
Kalamazoo Waste Water Reclamation Plan
Project 97:26
Contract 52D - construction

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1 989-772 2537
e-mail ralphjs@gte.net
June 18, 2002

Monitoring Report #7 Contract 52D - Kalamazoo Waste Water Treatment Plant, Kalamazoo, Michigan - Project 97:26

To:
- Mike Wetzel, P.E. - Assistant City Engineer - DPS City of Kalamazoo
- Larry Fischer - Project Manager - DPS City of Kalamazoo

(Mr. Wetzel and Mr. Fischer will distribute copies to others as required)

Date of Monitoring: Tuesday June 11, 2002 (wd 624)

Location of meeting: Kalamazoo Waste Water Treatment Plant conference room C

Monitored from: Sheet #1 A - April 2, 2002 (wd 575)

Data date: Wagner-Flook data date - June 7, 2002 (wd 622) - to be checked

Those Attending:
Mike Wetzel, P.E., Assistant City Engineer, DPS City of Kalamazoo
Larry Fischer - Project Manager - DPS City of Kalamazoo
Phil Jones - Project Manager - Wagner-Flook Builders
Ralph J. Stephenson, P.E. - Consulting Engineer

Actions Taken:
- Monitored project from network model sheet 1A, dated April 30, 2002 (wd 595)
- Reviewed current project status.
- Updated network model to sheet 1A dated June 11, 2002 (wd 624).

Project information
- Start date - July 6, 2001 (wd 387) am - contract date
- Finish date - November 2, 2002 (wd 726) pm - substantial completion.
- Total completion date - December 2, 2002 (wd 746) pm

Stabilization Building and Storage Building
Work is continuing on installation of the new odor control tank as building condition allow. Present planned early completion date for the tank installation is June 18, 2002 (wd 630). Completion of the foul air system is proceeding concurrently. The early finish date of the foul air system is currently planned for

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1 989-772 2537
e-mail ralphjs@gte.net
June 18, 2002

July 3, 2002 (wd 640).

Power is expected to be furnished to the stabilization building by June 28, 2002 (wd 638). Having power will allow start up and testing of the pasteurization system. Wiring, hook up, and start up of the polymer system is planned to be concurrent with startup of the pasteurization system, and on-site training of staff on the new belt filter presses. Presently, initiation of start up of new belt filter presses is planned for the AM of July 16, 2002 (wd 648).

Start up of the new presses will allow moving and renovating the existing presses, completing erection of remaining grating, platforms and other miscellaneous metals at the east half of the dewatering building, start up of the renovated belt filter presses, and completion of the buildings and equipment.

Meanwhile several operations, including installation of the ammonia system and interior finish work at the storage building is planned to proceed concurrently with site work and project closeout.

General
At this monitoring meeting considerable discussion was held concerning training, and preparation of checklists for start up of the equipment. It was suggested that the project team prepare a comprehensive activity list for start up of the various systems. Mr. Phil Jones and Mr. Fischer subsequently prepared a starter list which will be integrated into the building and equipment network at our next meeting on Wednesday June 19, 2002 at the water plant offices. The list is currently at random and will be arranged in sequence as the network is updated. with Mr. Jones and Mr. Fischer.

This report is being sent to Mr. Fischer and Mr. Wetzel. They will make further distribution as is needed.

Ralph J. Stephenson, P.E.

Monitoring Report # 8
Kalamazoo Waste Water Reclamation Plan
Project 97:26
Contract 52D - construction

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1 989 772 2537
e-mail ralphjs@gte.net
July 29, 2002

Monitoring Report #8 Contract 52D - Kalamazoo Waste Water Treatment Plant, Kalamazoo, Michigan - Project 97:26

To:
- Mike Wetzel, P.E. - Assistant City Engineer - DPS City of Kalamazoo
- Larry Fischer - Project Manager - DPS City of Kalamazoo

(Mr. Wetzel and Mr. Fischer will distribute copies to others as required)

Date of Network Monitoring: Tuesday July 23, 2002 (wd 653)
Date of SMI startup and training services data sheet - July 23, 2002 (wd 653)

Location of meeting: Kalamazoo Waste Water Treatment Plant - conference room C

Monitored from: Sheet #1 A - July 23, 2002 (wd 6530

Data date: Wagner-Flook data date - July 23, 2002 (wd 653)

Those Attending:
Mike Wetzel, P.E., Assistant City Engineer, DPS City of Kalamazoo
Larry Fischer - Project Manager - DPS City of Kalamazoo
Phil Jones - Project Manager - Wagner-Flook Builders
Ralph J. Stephenson, P.E. - Consulting Engineer

Actions Taken:
- Monitored project from network model sheet 1A, dated July 23, 2002 (wd 653)
- Reviewed current project status.
- Updated network model to sheet 1A dated July 23, 2002 (wd 653).

Project information
- Start date - July 6, 2001 (wd 387) am - contract date
- Finish date - November 2, 2002 (wd 726) pm - substantial completion.)
- Total completion date - December 2, 2002 (wd 746) pm

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1 989 772 2537
e-mail ralphjs@gte.net
July 29, 2002

Stabilization Building and Building

Work is continuing on installation of the new odor control system to help set the needed sequence for start up of the belt filter presses. Work is also being completed on the ferric sulphate piping and pumps.

At the stabilization building instrumentation is being completed and hooked up and RDP is expected back on the job by the project team to start up and test the automatic lubrication system and the pasteurization equipment. This sequence will, in turn lead to the start up of the grinders and belt feeder press feeder pumps. Concurrently interior work at the storage building and the stabilization building will also lead to the startup of the new belt filter presses. In addition installation and start up of the ammonia removal system will allow start up of the the new belt filter presses and removal of the the temporary BFP pump system. Allen Bradley is expected to continue on-site training on the equipment on 07/23/02 (wd 653).

Other work remaining to be done in includes completion of the the slab on grade at the storage building, installation of finishes and touch up at the mezzanine, and concrete rough in work at the storage building. The megadoors at the storage building also remain to be completed prior to start up of the new belt filter presses.

Once the belt feeder presses are started up, the existing belt feeder presses can be renovated and the project can be completed, concurrently with remaining site work and paving work.

General

The project team also monitored the SMI start up and training operations at various areas of the facility. The current status list is shown below.

01.00 Air compressor startup - Training to be completed
01.04 Connect control panel to PLC - Work in progress
02:00 Belt filter press feed pumps and grinders - Work in progress
02.03 Align couplings - Being aligned
02.06 Wire control panel - Cannot run in hand

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1 989 772 2537
e-mail ralphjs@gte.net
July 29, 2002

03.00 Polymer pumps startup - Complete

04.00 Ammonia removal system startup

- 04.01 Verify that packing and mist eliminator are installed properly - Not started
- 04.04 Verify that all air duct connections have been made and are free from leaks - Work in progress
- 04.05 Connect all instruments (pH level, flow rate controllers) - Work in progress
- 04.06 Connect all chemical feed pumps and piping - Complete for startup
- 04.09 Verify that the fan drain pipe is connected - Complete for startup
- 04.11 Connect control panel to fan motor, recycle pump, and chemical feed pumps - Work in progress
- 04.13 Connect control panel to PLC - Work in progress

05.00 Rob, Dave and Paul (RDP) belt conveyor startup - Complete.

- 05.11 Verify that all safety guards are in place - Complete and painted
- 05.17 Adjust conveyor belts after loading - Wait to produce sludge

06.00 RDP process equipment startup - Work in progress.

- 06.01 Check safety stop switch - ?
- 06.02 Check speed switches - ?
- 06.07 Startup automatic lubrication systems - Work in progress.
- 06.09 Adjust and tighten all bolts for idlers and pulleys - ?
- 06.15 Check cable tension for safety stops - ?
- 06.19 Adjust conveyor belts for loading - ?
- 06.20 Run heat system only after RDP authorization - ?

07.00 RDP lime feed equipment startup - Complete.

- 07.01 Check speed switches - ?
- 07.06 Fill one lime silo with quicklime - Work in progress
- 07.11 Install and wire limit switches for lime slide gates - ?

This report is being sent to Mr. Fischer and Mr. Wetzel. They will make further distribution as is needed.

Ralph J. Stephenson, P.E.

Monitoring Report # 9
Kalamazoo Waste Water Reclamation Plan
Project 97:26
Contract 52D - construction

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
October 10, 2002

Monitoring Report #9 Contract 52D - Kalamazoo Waste Water Treatment Plant, Kalamazoo, Michigan - Project 97:26

Date of Monitoring #9 Friday, October 4, 2002 (wd 705)

To:

Mike Wetzel, P.E. - Assistant City Engineer - DPS City of Kalamazoo
Larry Fischer - Project Manager - DPS City of Kalamazoo
(Mr. Wetzel and Mr. Fischer will distribute copies to others as required)

Location of meeting:

Kalamazoo Waste Water Treatment Plant conference room C

Monitored from:

Sheet #1A - October 4, 2002 (wd 705)

Those Attending Monitoring Meeting #9:

Larry Fischer - Project Manager - DPS City of Kalamazoo
Dan Miller - P.E. Project Engineer - Jones and Henry Engineers
Phil Jones - Project Manager - Wagner-Flook Builders
Ralph J. Stephenson, P.E. - Consulting Engineer

Actions Taken:

Prepared laundry list for Phase 2 - Renovation of existing belt filter presses, solids dewatering, and stabilization and storage facility from bar chart prepared by Phil Jones - dated October 4, 2002 (wd 705).

Partially prepared network model for renovation of existing belt filter presses. Model prepared from Monitoring report #9.

Inspected project with Larry Fischer.

Project information (to be checked)

- Start date - July 6, 2001 (wd 387) am - contract date.
- November 2, 2002 (wd 726) pm - substantial completion.
- December 2, 2002 (wd 746) pm total completion

SMI Phase 2 - Renovation of Existing Belt Filter Presses - to be reviewed by Mr. Larry Fischer, Mr. Phil Jones, and Mr. Dan Miller, P.E.

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
October 10, 2002

- COMPLETE START UP RDP LIME FEED EQUIPMENT
- COMPLETE START UP RDP BELT CONVEYOR
- RDP TRAIN OWNER ON PASTEURIZATION SYSTEM
- START UP PASTEURIZATION SYSTEM & OPERATE SUCCESSFULLY - FIRST WEEK OF TWO CONSECUTIVE CALENDAR WEEKS
- REMOVE WALL AT EXISTING BELT FILTER PRESSES
- START UP PASTEURIZATION SYSTEM & OPERATE SUCCESSFULLY - SECOND WEEK OF TWO CONSECUTIVE CALENDAR WEEKS
- MOVE EXISTING BELT FILTER PRESSES TO DEWATERING BUILDING
- DISASSEMBLE EXISTING BELT FILTER PRESSES
- SAND BLAST & PAINT BELT FILTER PRESS END FRAMES
- ANDRITZ RENOVATE & REASSEMBLE BELT FILTER PRESSES
- SET BELT FILTER PRESSES IN PERMANENT LOCATION
- ERECT GRATINGS & PLATFORMS AT EAST HALF OF DEWATERING BUILDING
- INSTL PIPING, FOUL AIR HOODS, AND ELECTRIC ALTERATIONS AT BELT FILTER PRESSES
- START UP RENOVATED BELT FILTER PRESSES
- CLOSE OUT TOTAL PROJECT
- ROUGH GRADE NORTH ROAD (APPROX 300 FEET)
- INSTALL CURB AND GUTTER AT NORTH ROAD
- LAY AND COMPACT SUBGRADE AT NORTH ROAD

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
October 10, 2002

- INSTALL PAVING AT NORTH ROAD
- FINAL GRADE, PLACE TOP SOIL, AND SEED DISTURBED AREAS AT NORTH ROAD

The project team will check the current network model, Issue #1, dated October 4, 2002, for accuracy. Revisions will be made at our next meeting, or as determined by Mr. Fischer.

Stabilization Building
Installation of gratings, platforms and other miscellaneous metal items are being completed at the stabilization building, and are in work at various other locations as the areas are made available.

Start up and operation of the pasteurization system will accomplished concurrent with operation and maintenance training services for the HVAC units, the overhead crane, air compressors, water softener, and for the variable frequency drives. This work will also be accomplished as construction work proceeds on the roads and landscaping

Sludge bunker wall installation is complete at the storage building. and the facility is being used for sludge storage, and for testing building operations.

Instrumentation installation is proceeding at each of the major sections of the buildings as they are made available. Relocation of the existing belt filter presses to the dewatering building is to begin in late October, 2002 and will proceed through December, 2002, and early January, 2003

General
Mr. Phil Jones, Mr. Larry Fischer and Mr. Dan Miller have been meeting regularly to continue planning for the entire building, site, and equipment complex. Their work is reflected in periodic updatings of the project network model and issuance of these to the project team.

At this monitoring tour we walked the job and continued reviewing work in conjunction with the updating of the current model. Outside temperatures are beginning to drop and it will require careful planning of the project close out to complete the job by the current target dates.

I shall be in touch with Mr. Fischer shortly to set our next planning and monitoring date. Major activities at this meeting should include continued intensive work on

Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.net
October 10, 2002

systems installation and full close in of the total facility.

This report is being sent to Mr. Fischer and Mr. Wetzel. They will make further distribution as is needed.

Mike Wetzel P.E. - cc

Ralph J. Stephenson, P.E.

97:026

Monitoring Report #10
Kalamazoo Waste Water Reclamation Plant
Project 97:26
Contract 52D - construction

Ralph J. Stephenson, P.E.,P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 4223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.nte
Tuesday, November 21, 2002

Monitoring Report #10 Contract 52D - Kalamazoo Waste Water Treatment Plant
Kalamazoo, Michigan - Project 97:26

Date of Monitoring #10 Friday, November 14, 2002 (wd 734)

To:

Mike Wetzel, P.E. - Assistant City Engineer - DPS City of Kalamazoo
Larry Fischer - Project Manager - DPS City of Kalamazoo
(Mr. Wetzel and Mr. Fischer will distribute copies to others as required)

Location of Meeting:

Kalamazoo Waste Water Treatment Plant, conference room C

Monitored from:

Issue #2 - Sheet 1A - November 14, 2002 (wd 734)

Those Attending Monitoring Meeting #10:

Larry Fischer - Project Manager - DPS City of Kalamazoo
Phil Jones - Project Manager - Wagner-Flook Builders
Ralph J. Stephenson, P.E. - Consulting Engineer

Actions Taken:

- Reviewed and updated bar chart prepared by Phil Jones - dated November 14, 2002 (wd 734).
- Inspected project with Larry Fischer
- Updated sheet 1A, issue #2, phase 2
- Completed network model for phase 2 - renovation of existing belt filter presses.

Project Information (to be checked)

Start date - July 6, 2001 (wd 387) am - contact date
November 2, 2002 (wd 726) pm - substantial completion
December 2, 2002 (wd 746) pm - total completion

SMI Phase 2

Progress on relocation of existing belt filter presses to be checked by project team as work proceeds.

Close in and finishing of buildings:

General work on various operating elements of the facility is proceeding as design,

Ralph J. Stephenson, P.E.,P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 4223-9096
ph 1-989-772 2537
e-mail ralphjs@gte.nte
Tuesday, November 21, 2002

and installation decisions allow. The plant is currently producing sludge, and apparently progress on the facility is moving in fair alignment with the present overall plan of action.

Belt filter presses are being installed and conveyer trim elements, primarily dealing with operational characteristics are being installed and adjusted.. Start up of the pasteurization system is in work along with completion of grating installation, foul air hoods and training on various parts of the equipment.

A change order request is being processed for addition of a new door and stair at the south wall of the storage building. Delivery of the stair is set for mid December 2003, with installation to be completed in early January, 2003. Presently start up of the newly renovated presses is expected to begin in early February, 2003.

I shall be in touch with Mr. Larry Fischer shortly to set the needed close out meetings and discuss how best to evaluate the construction performance on the total facility. At present it appears the best approach might be to establish a check list of "Things that worked well, and "Things that didn't work well" for the overall program. The check list can then be used as a model for planning future projects.

This report is being sent to Mr. Fischer and Mr. Mike Wetzel. They will make further distribution as needed.

Mike Wetzel, P.E.

Ralph J. Stephenson, P.E., P.C.

XVI. **Meeting - Thursday - March 29, 2001 (318) - using 2000 - 2004 wd calendar**

A. **Location of meeting - rjs office in Mt. Pleasant**

B. **Those attending**

1. Larry Fischer - Project Manager - City of Kalamazoo
2. Dan Miller - Project Engineer - Jones and Henry
3. Ralph J. Stephenson - Consultant

C. **Agenda**

1. Review construction documents for 52D.
2. Review schematic flow chart of 52D.
3. Review spec requirement for network planning on project.
4. √ Adjourn between 03;30 and 04;00.
5. √ Identify collateral projects needed to activate 52D.
6. √ Identify early COK activities needed to start project by April 16, 2001 (330).
7. √ Prepare summary network for total job
8. √ Review current status of proposals for Contract 52D - Rebid - Solids Dewatering, Stabilization, and Storage Facility - Kalamazoo, Michigan.
9. √ Review equipment location matrix.
10. √ Review method of meshing contractor's planning and scheduling with rjs involvement.

D. **Meeting notes**

1. Proposal received on March 2, 2001 (299)
2. Three bidders
   a) Davis Construction
   b) Miller Davis Construction
   c) L. D. Doca - General Contractor
3. Project delivery system
   a) Hard money general contract.
   b) Subcontracts awarded by general contractor.
   c) General contractor holds bond for total job.
   d) Liquidated damages in effect for general contractor - $600 per day.
   e) No bonus clauses.
4. Key contract dates
   a) Execution of contract target - April 16, 2001 (330)
   b) Contractor execute contract by April 26,, 2001 P.M. (339)
   c) Owner issue notice to proceed by May 1, 2001 A.M. (341).
   d) Contract time 485 calendar days to substantial completion from date of notice to proceed.
   e) Final completion 515 calendar days to total completion from date of notice to proceed.
   f) Intermediate target dates by contract
      (1) Two presses in operation concurrently with pasteurization system being made operational - 13 months from notice to proceed date.

(2) After 2 weeks of successful operation of the presses and pasteurization, the relocation of the belt filter presses can begin.
(3) Belt filter press manufacturer has 4 weeks in which to complete reconditioning the presses on site. Belt filter press maufacturer's contract is with the owner.
(4) Upon completion of the reconditioning of the filter presses the general contractor has 6 weeks to bring the project to substantial completion.

5. Owner furnished equipment
   a) 2 belt filter presses - on site stored in blower building - owner responsible for safe keeping. General contractor responsible for the safe movement from their present location to the point of use of these presses when the contractor's and plant schedule allows - to be discussed between contractor and the owner.
   b) Supervisory program logic controller - furnished by owner, installed by separate contract let by owner. Installation and terminations of the wiring from the plc to the devices is the responsibility of the general contractor. Making the terminations is the responsibility of the general contractor. Installation of wiring and making terminations from the plc to the work station is the responsibility of the system integrator. Installation of the wiring and making terminations from the plc to the dcu (existing plant control system - distributed control unit) is the responsibility of the COK.
   c) Existing softening equipment will be relocate by the general contractor from the dse (differential sedimentation and elutriation) building to its new location. The equipment is not currently in use and can be moved at the general contractor.
   d) West switch gear replacement and connections to load center 11 and 11A transformers is to be let by a separate contract by the COK. The general contractor is to set the new transformers and stub conduits.

97:26

Ralph J. Stephenson, P.E.
Consulting Engineer

XVI. **Meeting - Thursday - March 29, 2001 (318) - using 2000 - 2004 wd calendar**

A. **Location of meeting - rjs office in Mt. Pleasant**

B. **Those attending**

1. Larry Fischer - Project Manager
2. Dan Miller - Project Engineer
3. Ralph J. Stephenson - Consultant

C. **Agenda**

1. Prepare summary network for total job
2. Identify early COK activities needed to start project by April 16, 2001 (330).
3. Review spec requirement for network planning on project.
4. Review method of meshing contractor's planning and scheduling with rjs involvement.
5. Identify collateral projects needed to activate 52D.
6. Review schematic flow chart of 52D.
7. Review construction documents for 52D.
8. Adjourn between 03;30 and 04;00.
9. √ Review equipment location matrix.
10. √ Review current status of proposals for Contract 52D - Rebid - Solids Dewatering, Stabilization, and Storage Facility - Kalamazoo, Michigan.

D. **Meeting notes**

1. Proposal received on March 2, 2001 (299)
2. Three bidders
   a) Davis Construction
   b) Miller Davis Construction
   c) L. D. Doca - General Contractor
3. Project delivery system
   a) Hard money general contract.
   b) Subcontracts awarded by general contractor.
   c) General contractor holds bond for total job.
   d) Liquidated damages in effect for general contractor - $600 per day.
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   a) Execution of contract target - April 16, 2001 (330)
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      (1) Two presses in operation concurrently with pasturization system being made operational - 13 months from notice to proceed date.
      (2) After 2 weeks of successful operation of the presses and pasturization, the relocation of the belt filter presses can begin.
      (3) Belt filter press manufacturer has 4 weeks in which to complete reconditioning the presses on site. Belt filter press maufacturer's contract is with the owner.
      (4) Upon completion of the recoditioning of the filter presses the general contractor has 6 weeks to bring the project to substantial completion.
5. Owner furnished equipment
   a) 2 belt filter presses - on site stored in blower building - owner responsible for safe keeping. General contractor responsible for the safe movement from their present location to the point of use of these presses when the contractor's and plant schedule allows - to be discussed between contractor and the owner.
   b) Supervisory program logic controller - furnished by owner, installed by separate contract let by owner. Installation and terminations of the wiring from the plc to the devices is the responsibilty of the general contractor. Making the terminations is the responsibility of the general contractor. Installation of wiring and making terminations from the plc to the work station is the responsibility of the system

intergrator. Installation of the wiring and making terminations from the plc to the dcu (existing plant control system - distributed control unit) is the responsibility of the COK.

c) Existing softening eqipment will be relocate by the general contractor from the dse (differential sedimentation and elutriation) building to its new location. The equipment is not currently in use and can be moved at the general contractor.

d) West switch gear replacement and connections to load center 11 and 11A transformers is to be let by a separate contract by the COK. The general contractor is to set the new transformers and stub conduits.

XIV. **Meeting - Wednesday - October 18, 2000**

A. **Those attending**

1. Ken Collard, P.E. - Director of Public Services - City of Kalamazoo
2. Mike Wetzel, P.E. - Assistant City Engineer - DPS City of Kalamazoo
3. Ralph J. Stephenson, P.E. - Consultant

B. **Agenda**

1. How do we get from itch to scratch?
2. Define the integrated land plan - the definition below must be reviewed and validated repeatedly
   The integrated land use plan for the 60± acres of land available for water quality management that will maximize the use of the land to maintain and improve environmental quality.
3. Tie together the loose ends dealing with the project and the program.
4. Review use of construction management delivery techniques on the job.
5. Review changes proposed for cost reduction.
6. Review how the bond issue (replenishment) drives the project.
7. Review financing methods to be used for project.
8. Review financing methods to be used for program.
9. Review all delivery systems to be considered.
10. How should we identify the components of the program?
11. What are examples of the components of a project?
    a) Master plan integration
    b) Storage issue
    c) Product marketing
    d) Product selling
    e) Well head protection
    f) Solids management
    g) Etc.
12. Are we recycling the starting point of the planning and programming process?
13. Good guy - bad guy concepts and practices.
14. Public relations program details if appropriate
15. Graph public interest between water quality management and resources.

C. **Updated glossary of terms**

1. Agency authority
   A relation in which one person or organization acts on behalf of another with the other person's or organization's formal authority.
2. Authority
   The prerogatives, either vested or acquired over a long period of time, that allows an individual to carry out their responsibilities and duties.

This includes the right to determine, adjudicate, or otherwise settle issues or disputes; the right to control, command, or determine.

3. Core ethic and mission statement - ho 509
   a) Definitions
      (1) Core ethic
      The fundamental value statement upon which the company is built, managed and does business.
      (2) Mission
      A statement of the most important result to be achieved by the project being successfully completed.

   b) TRCS core ethic
   TRCS is committed to provide exemplary consulting services to those who own, build, operate and maintain facilities, all through innovation, competence, mutual respect, integrity & cooperation.

   TRCS will focus on maintaining excellent client and community relationships. Through these efforts we will endeavor to be receptive & responsive, encouraging profitability for our clients and ourselves.

   c) TRCS mission statement
   TRCS's mission for the 12 months from March 16, 1998 is to secure and successfully execute sufficient volume of work as an advisor, consultant and translator in construction, administration and planning all in compliance with our core ethic while securing future opportunities consistent with our market plan.

4. Cost/benefit
   A comparative measure of benefits to be gained at a cost. A cost/benefit analysis usually establishes standards by which the benefits are given a value, and standards by which value-added is measured against what is desired, and what can be afforded. This allows the highest benefit/cost ratios to be identified within the standards adopted.

5. Culture - business
   A way of doing business that has been generated by a group of human beings and is passed along from one business generation to another, generally by unstructured communication.

6. Development
   A business operation in which the primary goal is to locate and produce profitable and marketable real estate assets.
7. Education
   The teaching and learning process by which the principles of doing things are conveyed to the learner.
8. Effective
   Of a nature that achieves identifiable goals and objectives in accordance with an action plan, and achieves worthwhile peripheral goals through intermediate accomplishments.
9. Efficient
   Exhibiting a high ratio of output to input.

10. EMS - Environmental Management System
11. Enterprise
    A project that is of above average importance and requires boldness and readiness in its undertaking.
12. Environmental quality
13. Headworks
14. Horizontal growth (Integration)
    A management system that emphasizes diversifying by expanding existing functions by classes. For instance a design office could accomplish horizontal integration through dividing their operations into various kinds of projects such as commercial, institutional and industrial. These all use the same or similar functional disciplines but the organization is divided into separate groups that concentrate mainly on one of the three main building types.
15. Integrated land plan - note: the definition below must be reviewed and validated repeatedly
    The integrated land use plan for the 60± acres of land available for water quality management that will maximize the use of the land to maintain and improve environmental quality.
16. ISO - A quality auditing system - International Society of ???
17. Law
    The actions or processes by which the rules of a society are enforced and through which redress for grievances is obtained
18. Manage
    To define, assemble and direct the application of resources.

19. Management by exception
    A measuring and monitoring system that sounds an alarm to the manager when problems have appeared or are about to appear, and remains silent when there are no problems. The system identifies the problem area, thus permitting the effective manager to manage the exception while leaving the smoothly running operations to continue running smoothly.
20. Marketing
    The process of conceiving, formulating and implementing a process by which the ultimate service or product of an organization can be successfully sold.
21. Mission
    A statement of the most important result to be achieved by the project being successfully completed.
22. Must list
    Those items that must be included in the scope of work to make the project a go. If any of the items in the must list are not able to be included the project is a no-go.
23. Need-to-know communications
    An organizational communications system based on the managerial belief that information should only be offered and provided to those who truly need it and can use it to add value to the product they are responsible for producing.
24. Negotiated contract
    A contract obtained through offering multi-value benefits in addition to cost benefits to the prospective client. Usually conditions of the final contract are negotiated after an offer has been conditionally accepted.
25. Off-site
    Located outside the contract site boundaries.
26. On-site
    Located within the contract site boundaries.
27. Partnering - a base statement
    A method of conducting business in the planning, design, and construction profession without the need for unnecessary, excessive and/or debilitating external party involvement.
28. Partnering - Associated General Contractors
    A way of achieving an optimum relationship between a customer and a supplier. A method of doing business in which a person's word is their bond, and where people accept responsibility for their actions.

Partnering is not a business contract, but a recognition that every business contract includes an implied covenant of good faith.

29. Partnering - Construction Industry Institute
    A long term commitment between two or more organizations for the purpose of achieving specific business objectives by maximizing the effectiveness of each participant's resources.

    This requires changing traditional relationships to a shared culture without regard to organizational boundaries. The relationship is based upon trust, dedication to common goals, and an understanding of each other's individual expectations and values. Expected benefits include improved efficiency and cost effectiveness, increased opportunity for innovation, and the continuous improvement of quality products and services.
30. Partnering - organizational
    The application of partnering systems and methods to the ongoing work and staff activities of an organization. An internal partnering system within an organization as applied to the internal work effort of the company staff.
31. Partnering - project or tactical
    A method of applying project-specific management in the planning, design, and construction profession without the need for unnecessary, excessive and/or debilitating external party involvement.
32. Partnering - strategic
    A formal partnering relationship that is designed to enhance the success of multi-project experiences on a long term basis.

    As each individual project must be maintained, a strategic partnership must also be maintained by periodic review of all projects currently being performed - Ida B. Brooker 1994 WEX
33. Partnering charter
    The basic manual for operating a partnering system. Contains at a minimum, the mission of the project team, and their objectives for the project. Usually is signed by those writing the document.

    The charter is an agreement in principle and must not supersede or supplant the design and construction contracts in place or to be written.
34. Peer review
    A partial or full audit evaluation of the project done by objectively based individuals or organizations outside those owning, designing, building or

operating the facility.

35. Perception
    The process of becoming aware of something through any of the senses. To become aware of in one's mind; to achieve an understanding of.
36. Planning
    Establishing and arranging necessary and desired actions leading to end, intermediate and peripheral objectives.
37. Profit
    The return in resources obtained by investing other resources in a business or an enterprise. Usually the returned resource has a greater value to the investor than does the invested resource.
38. Program
    A narrative oriented statement of the needs and character of the proposed user operation, the requirements of the user and owner, the nature of the environment to be planned, designed and built, and the corresponding characteristics of the space that will satisfy these needs and requirements. Sometimes called the brief.
39. Project
    A set of work actions having identifiable objectives, and a beginning and an end.
40. Project delivery system
    A method of assembling, grouping, organizing & managing project resources so as to best achieve project goals & objectives.

41. Project director
    The individual responsible for implementation of several projects upon which his company is engaged.
42. Project manager
    One who helps establish objectives generated by a need, plans how these objectives are to be reached through a set of work actions, and then assembles and directs the application of available resources to achieve the objectives on one or more projects.

    Usually the project manager is most concerned with supportive actions which bring resources to the point of effective use.
43. Resources
    The tools of the supportive and ex'e'cutive manager. Resources include time, talent, tools, equipment, time, money, experience, space, materials, as well as intangibles, such as enthusiasm, morale and leverage.

44. Solids Management Improvement Program
    A phased sequence of solids handling (including processing) improvements which convert plant operation from its current mode to an operation in which the incinerator and WAR/DSE system is replaced by additional sludge dewatering equipment, a lime stabilization system, and a liquid and bulk residual storage facility.

    In addition the SMI with lime enhancement (LE) program includes modifications to the management systems employed to implement and operate the SMI facility.
45. Synergism
    The action of two or more substances, organs, or organisms to achieve an effect of which each is individually incapable.

46. Total quality management
    The managing process which helps insure that the quality of all components, and of the final product in the planning, design and construction of any facility is maintained at a level which meets the client's program performance requirements.
47. Ultimate decision maker (UDM)
    The individual or group at the lowest management level that has the authority to make a final binding decision in any job related matter.
48. Upgrade
    An improvement in the function of any system, tool or process.
49. Used material
    Water and solids that are received and treated to correct deficiencies, remove contaminants, add agents of change, and perform other operations that will produce usable products.
50. Value
    The increase in worth of an open system to which an item of value has been added. Often multiplied by the weight of a factor to give the weight & value rating of a factor to help determine a choice of alternatives.
51. Value added
    The improvement in the worth of anything that results from the efforts, contribution and involvement of specific people, processes, materials and ideas.
52. Vertical growth (integration)
    A management system that encourages diversifying by adding new functions to existing functions. New functions added usually bear an organizational relation to the existing. An example of vertical integration

is incorporating real estate control, building design, financing, construction, leasing and asset management into a single development operation.

53. Want list
    Those items that are wanted and can be included in the scope of work, over and above the must list items, since they provide a definable and acceptable rate of return on their cost.
54. Win - win
    A situation in which there are no losers. Usually some parties win more than other parties win.
55. Wish list
    Those items that the owner and the user wish they could include but might not be able to due to budgetary or other reasons. Wish list items are best added, not deleted, as the project moves into construction.
56. World of nonwords
    The world in which we live by our physical actions.

D. **Mission of WWTP renovation - as of Monday November 2, 1998**
   1. What is the single most important result to be achieved by this project being successfully completed?
      a) To provide the most effective solids management system possible within the cost and time restraints, and within the regulatory framework governing the program.
   2. What specific objectives must be achieved to successfully complete our mission?
      a) To replace the present solids management without loss of operating capabilities during design and construction of the new SMI facilities.
      b) To take the DPS out of the air quality requirements window needed to maintain the incinerator operation.
      c) To reduce the potential safety hazards associated with wet air regeneration.
      d) To reduce future operations and maintenance costs compared with the current costs of operating the present WAR and incinerator systems.
      e) To make the entire new SMI installation complete and operative by mid year of 2000.
      f) To eliminate projected future capital costs for replacing the current facility as it wears out.
      g) To maximize the use of existing land areas and building areas for construction of the new SMI.

h) To insure that the product of the SMI can be handled safely, economically and efficiently by the operating mechanism of the SMI system.
i) To insure that concurrent in-house training in the proper operation and maintenance of the SMI system is conducted to mesh with making the system operational.
j) To provide guidelines for effective odor control over the next 10 years of operation within existing and new waste water treatment systems at the plant.
k) To eliminate the need to use regenerated carbon.
l) To provide optimum flexibility in the use of carbon forms in secondary treatment - taking into account that the carbon does not have to be regenerated.
m) To constantly strive to improve the working conditions and safety of those active in the operation and maintenance of the plant.
n) To document and file, in an easily used retrieval system, all activities that concern "Things that Go Right" and activities that concern "Things that Go Wrong"

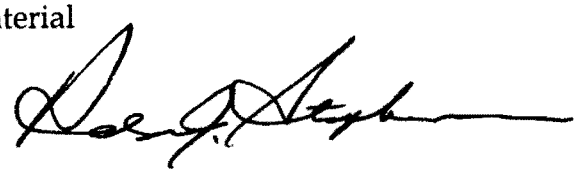
E. **Typical example of a project within a program**
1. Program - To maintain & improve the operations required to provide adequate preliminary treatment of used material.
2. Outcome of the program and the project - An improved quality of the end product of the program and project, and improved value and acceptability of the product.
3. Project - To upgrade the headworks so that the removal of grit and screenings is improved.
4. Impacts and influences - Must consider what impact or influence this program and its outcome has on the current project and its program.
   a) Example - if the end product contains shredded plastics which the current project fails to remove, the value of the end product is lowered and the risk of damage, high maintenance costs, and excessive wear to the preliminary and other equipment is increased.
5. Considerations - must consider what standards have to be set in the earlier program to achieve the desired outcome of the larger and later program.

F. **Impacts and effects of the Solids Management Program**
1. What are the unit functional processing group programs that are affected by the current project of solids management improvement (SM) - names assumed to be valid until January 1, 2015. (this analysis is to be continued to exhaustion.)

a) Preliminary treatment - no
b) Primary treatment - yes
   (1) Impacts and influences of SMI program on the Primary Treatment program
      (a) Potential inadequate disposal of solids from the SM process
      (b) etc.
   (2) Impacts and influences of the Primary Treatment program on the SM program?
      (a) Could constrain the market demand for SM program products.
c) Secondary treatment - yes
d) Tertiary treatment - no
e) Disinfection - no
f) Solids management - yes
   (1) Solids dewatering
   (2) Solids stabilization

G. **Suggested classification system for functional processing names**
1. Unit functional processing groups - names assumed to be valid until January 1, 2015.
   a) Preliminary treatment
   b) Primary treatment
   c) Secondary treatment
   d) Tertiary treatment
   e) Disinfection
   f) Solids management
      (1) Solids dewatering
      (2) Solids stabilization
2. Geographic grouping within the plant
   a) Downstream
   b)
3. Characteristics of the end product.
   a)

H. **Vision for next 15 years at the Integrated Land Plan site.**
1. All functions presently being accommodated will still be a part of the Integrated Land Plan until January 1, 2015.
2. What are the functional groupings within the Water Reclamation Plant
   a) Chemical treatment of used material
   b) Other?



VII. **Meeting - Friday October 30, 1998 ( )**
- A. **Location - RJS office in Mt. Pleasant, Michigan**
- B. **Those attending**
  1. Mike Wetzel, P.E. - Project director
  2. Ralph J. Stephenson, P.E. - Consultant
- C. **Agenda**
  1. Set agenda for meeting on Monday November 2, 1998
     a) Mike Wetzel
     b) Bob DeMink
     c) Frank Szopo
     d) Ken Collard
     e) Ralph J. Stephenson
  2. Identify phase 1 additional work yet to be done as of October 29, 1998
  3. Update Sheet SM#1 summary network model - issue #3 to issue #4
  4. Update project program summary sequence plan for use in Monday meeting
     a) Incorporate phase 1 work into the summary network
  5. Print out network models for Monday meeting
- D. **Proposed agenda for meeting on Monday November 2, 1998**
  1. Those expected to attend
     a) Mike Wetzel
     b) Bob DeMink
     c) Frank Szopo
     d) Ken Collard
     e) Ralph J. Stephenson
  2. Subjects to be covered
     a) Introduction the subject of the conference
     b) Present a solids management improvements program overview - use existing flow charts to explain phased program
        (1) Design
            (a) Phase 1 - Lime stabilization backup to incinerator
            (b) Phase 2 - Plant wide solids management improvements
        (2) Construction
            (a) Phase 1 - Lime stabilization backup to incinerator - incinerator will be taken off line at the completion of phase 1 construction
            (b) Phase 2 - Plant wide solids management improvements - Wet air regeneration (WAR)system will be taken off line at the completion of phase 2 construction
  3. Materials to be prepared
- E. **Documents prepared for program planning**
  1. Network models
     a) Sheet #SM1 - Front end work - desig

(1) Issue #1 - July 30, 1997
  (a) Issue #1 - Mtr September 9, 1997
(2) Issue #2 - September 9, 1997
  (a) Issue #2 - Mtr June 19, 1998

b) Sheet #? - Front end work for phases 2 and 3
(1) Issue #1 - July 30, 1997
  (a) Issue #1 - Mtr September 9, 1997
(2) Issue #2 - September 9, 1997

c) Sheet PHS 1 - Phase 1 design work
(1) Issue #1 - August 1, 1997
(2) Issue #2 - September 9, 1997

d) Sheet #1 - Phase 1 construction - by Mike Wetzel
(1) Issue #1 - May 20, 1998
  (a) Issue #1 - Mtr June 2, 1998
(2) Issue #2 - June 2, 1998
  (a) Issue #2 - Mtr June 19, 1998
(3) Issue #3 - June 19, 1998
  (a) Issue #3 - Mtr June 19, 1998
  (b) Issue #3 - Mtr June 26, 1998
  (c) Issue #3 - Mtr July 3, 1998
  (d) Issue #3 - Mtr July 10, 1998
(4) Issue #4 - July 13, 1998
  (a) Issue #4 - Mtr July 17, 1998
(5) Issue #5 - July 24, 1998
  (a) Issue #5 - Mtr July 24, 1998
  (b) Issue #5 - Mtr August 12, 1998
(6) Issue #6 - July 10, 1998 (?) - may not have been used
(7) Issue #7 - October 21, 1998 - may not have been used

e) Sheet SM#1 - Summary network model - construction
(1) Issue #1 - June 19, 1998
(2) Issue #2 - August 13, 1998 (formerly sheet 1)
(3) Issue #3 - August 24, 1998 (mwe on macproject pro)
(4) Issue #4 - October 29, 1998 (updated from Issue #2 dated August 13, 1998 and done on MacProject v2)

f) Sheet #1 - Phase 1 construction work - interim lime stabilization as backup for incinerator
(1) Issue #1 - June 19, 1998
  (a) Issue #1 - Mtr June 19, 1998
  (b) Issue #1 - Mtr August 13, 1998
(2) Issue #2 - August 13, 1998

g) Sheet #2 - Phase 1 construction work - interim lime stabilization as backup for incinerator - additional construction work.
   (1) Issue #1 - August 17, 1998
h) Sheet #? - Solids management improvements program - Flow chart for related projects - prepared by Mike Wetzel for management review
   (1) Issue #1 - October 19, 1998

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48858
ph 517 772 2537
June 20, 1994

Mr. Bruce Minsley
Deputy Utilities Director
City of Kalamazoo
Department of Public Services
415 Stockbridge Avenue
Kalamazoo, Michigan 49001-2898

Dear Bruce:

Re: *Master Utility Plan meeting notes*

Enclosed is a full set of meeting notes from the utility master planning sessions with you, Rohel, Bob, Ken, and others. I am reasonably certain you already have a complete set from the material we prepared during the meetings. However I usually feel that, for large projects, it is a good idea to occasionally print the entire set to insure nothing has been lost in the various translations we make.

The current network models are not enclosed since I am reasonably certain you have the latest editions of these

I suggest you send copies to Rohel and Bob for their review and filing. If there are any corrections or revisions please mark up a copy and we will review the changes at our next meeting. If you want corrections made quickly just send the marked up copy to me.

Thank you for all your help in the very intense meetings we have been having. I believe your end product will show the results of the hard work. Please also tell Rohel I would like to see the business model he derives if it can be distributed to the project team.

Sincerely yours,

Enclosure: meeting minutes

Ralph J. Stephenson, P. E.

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer

Utility Master Plan notes - disk 377

I. General notes - to be updated as planning proceeds (updated 06/09/94)

A. Mission, goals & objectives for the planning program.

1. Missions

The single most important thing to achieve as a result of preparing the master utility plan.

a) Water side

To prepare guidelines from which to plan and direct growth of the water supply system and evaluate the effectiveness of the plant and distribution systems.

b) Wastewater side

To prepare guidelines from which to plan and direct growth of the wastewater system and evaluate the effectiveness of the collection and plant systems.

2. Goals

Goals are unquantified targets you wish to achieve by accomplishing the mission.

a) Water side

(1) Define critical water treatment processes to be evaluated.
(2) Define methods to be used to validate decisions made toward achieving the water side mission.
(3) Prepare a set of related definitions that can be used to guide implementation of the water supply master plan.
(4) Define criteria to be used to make decision analyses.
(5) Establish methods of determining growth of water demand patterns and forecasting demand in specified areas.
(6) Define a set of indicators that will allow current and future management to provide a safe and reliable water supply.
(7) Develop advisory board(s) to provide technical/policy ??

b) Wastewater side

(1) Define a set of indicators that will allow current and future management to provide a safe and reliable wastewater treatment system
(2) Define methods to be used to validate decisions made toward achieving the wastewater side mission.
(3) Prepare a set of related definitions that can be used to guide implementation of the master wastewater plan.
(4) Provide for ongoing evaluation of existing and new treatment techniques
  (a) To optimize capital and operating & maintenance costs.
  (b) To provide maximum service within the rate structure.
(5) Define criteria to be used to make decision analyses.
(6) Establish methods of determining growth of wastewater loading patterns and forecasting loads for treatment processes.
(7) Define critical waste treatment processes to be evaluated.
(8) Develop technical advisory board(s) to provide technical/policy input.
(9) Maximize use of beneficial byproducts of the waste treatment process.
(10) Identify markets and investment needs for production and sale of byproducts of the wastewater treatment process.

B. Interest groups that are stakeholders in the results of the master planning and its execution.
   1. What questions do we want to ask relative to the stakeholders?
      a) What input should stakeholders be expected to contribute to preparation of the master utility plan?
      b) How do we obtain input from the stakeholders?
      c) What are the gradients of importance of the various stakeholders to achieving the mission of the utility plan?
   2. Stakeholders
      a) Zoning districts
         (1) General manufacturing
         (2) Light manufacturing
         (3) General business
         (4) Community business
         (5) Neighborhood business
         (6) Professional and business office
         (7) Neighborhood shopping centers
         (8) Multiple family medium density
         (9) Two family
         (10) Single family
         (11) Multiple family high density
         (12) Open space
      b) DPU customer classifications
         (1) Industrial
         (2) Commercial
         (3) Multi family residential
         (4) Single family residential
      c) Residential community
         (1) Inside city
            (a) Non resident owners
            (b) Resident owners
            (c) Renters
               i) Multi family
               ii) Single family
            (d) Transient lodging
         (2) Outside city
            (a) Non resident owners
            (b) Resident owners
            (c) Renters
               i) Multifamily
            (d) Transient lodging
      d) Business community.
         (1) Retail
         (2) Industrial
         (3) Service

(4) Manufacturing
(5) Office
(6) Other

e) Institutional community.
(1) Colleges
(2) Hospitals
(3) Churches
(4) Public use buildings
(5) Government buildings

f) Regional political structures.
(1) Commissioners
(2) Mayor
(3) Advisory boards
(4) Townships

g) City management.
(1) Manager's offices
(2) Operating divisions

h) Employees of the DPU.

i) Regulatory agencies
(1) DNR
(2) EPA
(3) Public health departments
(4) Fire marshal
(5) Other

j) Other?

C. Major classes of work to be done in preparing and implementing a utility master plan?

1. Water supply side

Mission - To prepare guidelines from which to plan and direct growth of the water supply system and evaluate the effectiveness of the plant and distribution systems.

a) Define critical water treatment processes to be evaluated. (these actions must always end up with producing an identifiable product.)
(1) Identify management decisions and actions.
(a) Decide on the number, capacity, and placement of treated water storage facilities.
(b) Evaluate options for emergency back up power at all stations.
i) Well fields
ii) Booster pump stations
iii) Main plant
iv) Transfer station
v) Storage tanks
(2) Identify treatment processes
(a) Compare pros and cons of multiple pump stations vs. consolidation.
i) Example - COK now has 20 well fields - should they be kept as is, or consolidated into fewer well fields?

(b) Evaluate optimum well capacity vs. well number.
(c) How do the stakeholders feel about iron removal and paying for it?
i) May form a user group from the stakeholders to help in the decision re iron removal.
(d) Corrosion management and control
i) To what degree can we continue to use phosphates?
ii) What are the alternatives to use of phosphates?
(1) Softening / pH control
(2) Use of silicates
(3) Other?
(e) Disinfection
i) Chlorine alternatives
(f) Other?
(3) Provide for ongoing evaluation of existing and new treatment techniques
(a) To optimize capital and operating & maintenance costs.
(b) To provide maximum service within the rate structure.
(c) To evaluate the impact of existing and new treatment techniques on staffing.

b) Define methods to be used to validate decisions made toward achieving the water side mission.
c) Define criteria to be used to make and validate decisions made toward achieving the water side mission.
d) Forecasting and planning
(1) Establish methods of determining present and future water demands and patterns in all pressure districts.
e) Define indicators to allow current and future managers and staff to proactively respond, in a timely manner, to water quality and quantity demands.
(1) Indicators include:
(a) Demand.
(b) Land use and development trends
(c) Demographic patterns.
Demographics - the characteristics of human populations, as size, growth, density, distribution, and vital statistics
(d) Funding characteristics.
i) Financial
(1) Types of financing available.
(2) Rates & their impacts.
(3) Affordability.
ii) Non financial
(1) Inventory utility
(2) Land
(e) Regulatory structure.
i) Wellhead protection
ii) Other?
f) Develop technical and advisory boards

2. Wastewater side
   Mission - To prepare guidelines from which to plan and direct growth of the wastewater system and evaluate the effectiveness of the collection and plant systems.
   a) Define indicators to allow current and future managers and staff to proactively respond, in a timely manner, to waste water quality and quantity requirements.
      (1) Indicators include:
         (a) Inflow quantity - revenue funded water
         (b) Inflow quality
         (c) Infiltration to collection system (i & i) - unintended or unwanted water intrusion into the system. Unfunded water.
         (d) Land use and development trends
         (e) Demographic patterns.
         Demographics - the characteristics of human populations, as size, growth, density, distribution, and vital statistics
         (f) Funding characteristics.
            i) Financial
               (1) Types of financing available.
               (2) Rates & their impacts.
               (3) Affordability.
            ii) Non financial
               (1) Inventory utility
               (2) Land
         (g) Regulatory issues.
            i) Air
            ii) Solids
            iii) Water
               (1) Influent quality
               (2) Effluent quality
   b) Define methods to be used to validate decisions made toward achieving the wastewater side mission.
   c) Forecasting and planning
      (1) Establish methods of determining present and future waste water treatment demands and patterns.
   d) Prepare a set of related definitions that can be used to guide implementation of the master wastewater plan.
   e) Provide for ongoing evaluation of existing and new treatment techniques
      (1) To optimize capital and operating & maintenance costs.
      (2) To provide maximum service within the rate structure.
      (3) To evaluate the impact of existing and new treatment techniques on staffing.
   f) Define criteria to be used to make decision analyses.
   g) Establish methods of determining growth of wastewater loading patterns and forecasting loads for treatment processes.
   h) Define critical waste treatment processes to be evaluated.

i) Develop technical advisory board(s) to provide technical/policy input.
j) Develop plan for the production, marketing and sale of wastewater treatment byproducts
Use James River cogeneration plant as model for investigation.
(1) Evaluate, investigate, and report on how to maximize use of beneficial byproducts of the waste treatment process.
(a) Heat
(b) Solids
(c) Liquids
(d) etc.
(2) Identify markets and investment needs for production and sale of byproducts of the wastewater treatment process.
(a) Reclaimed water
(b) Primary solids
i) Fuels
(1) Greases
(2) Oils
(3) Plastics
(4) Rags
(5) Paper
(6) Brush
(7) etc.
ii) Fertilizers
(1) Nitrogen containing
(2) Phosphorous containing
(3) etc.
(c) Secondary solids
i) Fuels
(1) Carbon
ii) Fertilizers
(1) Carbon
iii) Fill solids & soils conditioning
(1) Diatomaceous earth
iv) etc.

D. Definitions
1. Byproducts
2. Marketing
3. Sales
4. Liquids
5. Solids
6. Coordinate
Use only to describe analysis, articulation, communication - to act is to convert coordination to management.

- One that is equal in importance, rank, or degree.
- Of equal importance, rank, or degree.
- To place in the same order, class, or rank.
- To harmonize in a common action or effort.
- To work together harmoniously.

a) Analyze
b) Articulate
c) Communicate

7. Effective
8. Empower
   To give someone the responsibility and matching authority to accomplish an assignment.
9. Goals
   Unquantified targets you wish to achieve by accomplishing the mission.
10. Manage
    - To direct or control the use
    - To exert control over.
    - To make submissive to one's authority, discipline, or persuasion.
    - To direct or administer (a business, for example).
    - To contrive or arrange: managed to wangle a promotion.
    - To direct, supervise, or carry on business or other affairs.
    - To carry on; get along: I don't know how they manage without him.

    a) Analyze
    b) Articulate
    c) Communicate
    d) Act!
11. Management
12. Maximum service
    Wastewater treatment capabilities that meet the needs of the service area customers.
13. Mission
    The single most important thing to achieve as a result of preparing the master utility plan.
14. Objectives
    Quantified goals.
15. Proactive
    Acting in anticipation of future problems, needs, or changes.

    Doing more than merely taking the initiative. It means that we are responsible for our own actions and that our behavior is a function of our decision, not our conditions. (paraphrased from "Seven Habits of Highly Effective People" - Covey)

    To follow a course of action needed to accomplish objectives considering what are currently perceived as future influences on achieving such objectives.

16. Program
17. Project
18. Quality
19. Quantity
20. Reactive
21. Reliability
22. Service area
23. Service districts to be served
24. Stakeholder
    One who has a share or interest in an enterprise.
25. Value added
    The improvement over current conditions that can be expected by the implementation of a program of work.

    In the case of the stormwater system, value added includes:

    • Increased property values for areas in which flooding occurs.
    • Improvement in the level of public safety.
    Includes roadway conditions, bridge integrity, sewer integrity.
    • Improvement in the level of public health maintenance.
    • Improvement in the perception of the quality of life in regards to environmental, and recreational elements.
    • The potential to display and make visible to the public where the tax revenue is being raised, what is being done with it, and how it benefits those who pay.

E. Abbreviations
   1. bmi - Bruce Minsley - Deputy Director DPU - project manager for master plan study.
   2. kpc - Kenneth P. Collard, P. E. - Director of Public Utilities
   3. rde - Robert DeMink - Waste Water Superintendent - in meeting part time
   4. rjs - Ralph J. Stephenson, Consultant
   5. rwa - Rohel W. Amundson - Utilities Plant Operations Manager - operation assessment for utilities

F. References used

II. Date of meeting - February 11, 1994

A. Time of meeting - 1:57:13 PM

B. Those attending
   1. Bruce Minsley - Deputy Director DPU - project manager for master plan study.
   2. Rohel W. Amundson - Utilities Plant Operations Manager - operation assessment for utilities
   3. Ralph J. Stephenson, Consultant

C. Agenda
   1. Define major components of master plan.

2. Define tasks to be done - laundry list
3. Lay out network model for how to proceed on entire project.
4. Discuss decision tree analysis and how to use.
5. Evaluate policies & philosophy of the water delivery system.
   Philosophy - We have service contracts with 9 political entities to provide water service on request. If we deem it not feasible to provide water to any area, that political entity may obtain water service from any other source of water, including providing their own.
6. Evaluate policies & philosophy of the waste water treatment system
   Philosophy - We have service contracts with 19 political entities to provide full waste water treatment service on request.

7. √Define edge of corn cob pile at which to begin.
8. √Set goals and objectives of master plan study.
9. √Identify interest groups that are stakeholders in the results of the master planning and its execution.
   a) Citizens of Kalamazoo.
   b) Business community.
      (1) Retail
      (2) Industrial
      (3) Service
      (4) Manufacturing
      (5) Office
      (6) Other
   c) Institutional community.
   d) City political structure.
   e) City management.
   f) Employees of the DPU.
   g) Other

D. References used
   1. City of Kalamazoo Master Plan - March, 1990
   2. Water Utility Management Plan - February, 1975
   3. Service area map from the 2020 water management plan. (elevations in () are of the tank overflow)
      a) Low service district (930')
      b) Intermediate service district (971')
      c) High service district (1040')
      d) East side high service district (1040')
      e) Super high service district (1100')
      f) Ultra high service district (1140')

E. Miscellaneous notes
   1. Influent system
   2.

F. Mission, goals & objectives for the planning program.

1. Missions
   The single most important thing to achieve as a result of preparing the master utility plan.
   a) Water side
      To prepare guidelines from which to plan and direct growth of the water supply system and evaluate the effectiveness of the plant and distribution systems.
   b) Wastewater side
      To prepare guidelines from which to plan and direct growth of the wastewater system and evaluate the effectiveness of the collection and plant systems.
2. Goals
   Goals are unquantified targets you wish to achieve by accomplishing the mission.
   a) Water side
      (1) Define critical water treatment processes to be evaluated.
      (2) Define methods to be used to validate decisions made toward achieving the water side mission.
      (3) Prepare a set of related definitions that can be used to guide implementation of the water supply master plan.
      (4) Define criteria to be used to make decision analyses.
      (5) Establish methods of determining growth of water demand patterns and forecasting demand in specified areas.
      (6) Define a set of indicators that will allow current and future management to provide a safe and reliable water supply.
   b) Wastewater side
      (1) Define a set of indicators that will allow current and future management to provide a safe and reliable wastewater treatment system
      (2) Define methods to be used to validate decisions made toward achieving the wastewater side mission.
      (3) Prepare a set of related definitions that can be used to guide implementation of the master wastewater plan.
      (4) Provide for ongoing evaluation of treatment techniques
         (a) To optimize capital and operating & maintenance costs.
         (b) To provide maximum service within the rate structure.
      (5) Define criteria to be used to make decision analyses.
      (6) Establish methods of determining growth of wastewater loading patterns and forecasting loads for treatment processes.
      (7) Define critical waste treatment processes to be evaluated.

G. Where do we begin our planning for the program?
   1. Set the mission and the preliminary goals and objectives, to be achieved by completion of the master utility plan.

H. Interest groups that are stakeholders in the results of the master planning and its execution.
   1. What questions do we want to ask relative to the stakeholders?
      a) What input should stakeholders be expected to contribute to preparation of the master utility plan?

b) How do we obtain input from the stakeholders?
c) What are the gradients of importance of the various stakeholders to achieving the mission of the utility plan?

2. Stakeholders
   a) Zoning districts
      (1) General manufacturing
      (2) Light manufacturing
      (3) General business
      (4) Community business
      (5) Neighborhood business
      (6) Professional and business office
      (7) Neighborhood shopping centers
      (8) Multiple family medium density
      (9) Two family
      (10) Single family
      (11) Multiple family high density
      (12) Open space
   b) DPU customer classifications
      (1) Industrial
      (2) Commercial
      (3) Multi family residential
      (4) Single family residential
   c) Residential community
      (1) Inside city
         (a) Non resident owners
         (b) Resident owners
         (c) Renters
            i) Multi family
            ii) Single family
         (d) Transient lodging
      (2) Outside city
         (a) Non resident owners
         (b) Resident owners
         (c) Renters
            i) Multifamily
         (d) Transient lodging
   d) Business community.
      (1) Retail
      (2) Industrial
      (3) Service
      (4) Manufacturing
      (5) Office
      (6) Other

e) Institutional community.
   (1) Colleges
   (2) Hospitals
   (3) Churches
   (4) Public use buildings
   (5) Government buildings
f) Regional political structures.
   (1) Commissioners
   (2) Mayor
   (3) Advisory boards
g) City management.
   (1) Manager's offices
   (2) Operating divisions
h) Employees of the DPU.
i) Regulatory agencies
   (1) DNR
   (2) EPA
   (3) Public health departments
   (4) Fire marshal
   (5) Other
j) Other?

I. Definitions
1. Service area
2. Maximum service
   Wastewater treatment capabilities that meet the needs of the service area customers.
3. Effective
4. Coordinate
   • One that is equal in importance, rank, or degree.
   • Of equal importance, rank, or degree.
   • To place in the same order, class, or rank.
   • To harmonize in a common action or effort.
   • To work together harmoniously.

   a) Analyze
   b) Articulate
   c) Communicate
5. Empower
6. Manage
   • To direct or control the use
   • To exert control over.
   • To make submissive to one's authority, discipline, or persuasion.
   • To direct or administer (a business, for example).
   • To contrive or arrange: managed to wangle a promotion.
   • To direct, supervise, or carry on business or other affairs.

e) Institutional community.
   (1) Colleges
   (2) Hospitals
   (3) Churches
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   • To contrive or arrange: managed to wangle a promotion.
   • To direct, supervise, or carry on business or other affairs.

- To carry on; get along: I don't know how they manage without him.

a) Analyze
b) Articulate
c) Communicate
d) Act!

7. Management
8. Program
9. Project
10. Quality
11. Quantity
12. Reliability
13. Service districts to be served
14. Stakeholder
    - One who has a share or interest in an enterprise.

J. Major classes of work to be done in preparing and implementing a utility master plan?
   1. Water supply side
      a) Define critical water treatment processes to be evaluated. (these actions must always end up with producing an identifiable product.)
         (1) Identify treatment processes
            (a) Compare pros and cons of multiple pump stations Vs. consolidation.
            (b) Evaluate optimum well capacity vs. well number.
            (c)
      b) Define methods to be used to validate decisions made toward achieving the water side mission.
   2. Wastewater side

III. Date of meeting - March 31, 1994

A. Time of meeting - 8:50:46 AM
B. Those attending
   1. Bruce Minsley - Deputy Director DPU - project manager for master plan study.
   2. Rohel W. Amundson - Utilities Plant Operations Manager - operation assessment for utilities
   3. Robert DeMink - Waste Water Superintendent - in meeting part time
   4. Ralph J. Stephenson, Consultant
C. Agenda
   1. Define major components of master plan.
   2. Define tasks to be done - laundry list
   3. Lay out network model for how to proceed on entire project.
   4. Discuss decision tree analysis and how to use.
   5. Evaluate policies & philosophy of the water delivery system.
      Philosophy - We have service contracts with 9 political entities to provide water service on request. If we deem it not feasible to provide water to any area, that political entity may obtain water service from any other source of water, including providing their own.

6. Evaluate policies & philosophy of the waste water treatment system
   Philosophy - We have service contracts with 19 political entities to provide full waste water treatment service on request.

IV. Date of meeting - Tuesday, April 26, 1994 - 1:51:53 PM

A. Those attending
   1. Bruce Minsley - Deputy Director DPU - project manager for master plan study.
   2. Rohel W. Amundson - Utilities Plant Operations Manager - operation assessment for utilities
   3. Ralph J. Stephenson, Consultant

B. Agenda
   1. Update network model sheet mp1, dated March 31, 1994.
   2. Review Bruce Minsley's comments on current network.

V. Date of meeting - Thursday, June 9, 1994 - 8:26:15 AM

A. Those attending
   1. AM meeting
      a) Bruce Minsley - Deputy Director DPU - project manager for master plan study.
      b) Robert DeMink - Waste Water Superintendent
      c) Rohel W. Amundson - Utilities Plant Operations Manager - operation assessment for utilities
      d) Ralph J. Stephenson, Consultant
   2. PM meeting
      a) Bruce Minsley - Deputy Director DPU - project manager for master plan study.
      b) Rohel W. Amundson - Utilities Plant Operations Manager - operation assessment for utilities
      c) Ralph J. Stephenson, Consultant

B. Agenda
   1. Complete network model for the wastewater master plan
   2. Review general notes for revisions and additions.
      a) Goals and objectives - added byproduct use.
      b) Major classes of work - added byproduct discussion notes.

1. Network models
   a) Sheet #SM1 - Front end work - desig
      (1) Issue #1 - July 30, 1997
         (a) Issue #1 - Mtr September 9, 1997
      (2) Issue #2 - September 9, 1997
         (a) Issue #2 - Mtr June 19, 1998
   b) Sheet #? - Front end work for phases 2 and 3
      (1) Issue #1 - July 30, 1997
         (a) Issue #1 - Mtr September 9, 1997
      (2) Issue #2 - September 9, 1997
   c) Sheet PHS 1 - Phase 1 design work
      (1) Issue #1 - August 1, 1997
      (2) Issue #2 - September 9, 1997
   d) Sheet #1 - Phase 1 construction - by Mike Wetzel
      (1) Issue #1 - May 20, 1998
         (a) Issue #1 - Mtr June 2, 1998
      (2) Issue #2 - June 2, 1998
         (a) Issue #2 - Mtr June 19, 1998
      (3) Issue #3 - June 19, 1998
         (a) Issue #3 - Mtr June 19, 1998
         (b) Issue #3 - Mtr June 26, 1998
         (c) Issue #3 - Mtr July 3, 1998
         (d) Issue #3 - Mtr July 10, 1998
      (4) Issue #4 - July 13, 1998
         (a) Issue #4 - Mtr July 17, 1998
      (5) Issue #5 - July 24, 1998
         (a) Issue #5 - Mtr July 24, 1998
         (b) Issue #5 - Mtr August 12, 1998
      (6) Issue #6 - July 10, 1998 (?) - may not have been used
      (7) Issue #7 - October 21, 1998 - may not have been used
   e) Sheet SM#1 - Summary network model - construction
      (1) Issue #1 - June 19, 1998
      (2) Issue #2 - August 13, 1998 (formerly sheet 1)
      (3) Issue #3 - August 24, 1998 (mwe on macproject pro)
      (4) Issue #4 - October 29, 1998 (updated from Issue #2 dated August 13, 19
         and done on MacProject v2)
   f) Sheet #1 - Phase 1 construction work - interim lime stabilization as backup incinerator
      (1) Issue #1 - June 19, 1998
         (a) Issue #1 - Mtr June 19, 1998
         (b) Issue #1 - Mtr August 13, 1998
      (2) Issue #2 - August 13, 1998
   g) Sheet #2 - Phase 1 construction work - interim lime stabilization as backup incinerator - additional construction work.
      (1) Issue #1 - August 17, 1998

h) Sheet #? - Solids management improvements program - Flow chart for related projects - prepared by Mike Wetzel for management review (1)Issue #1 - October 19, 1998

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer

Storm Water Utility System - Program groundwork data

I. General notes - to be updated as study proceeds

A. Other names for stormwater utility

1. Stormwater Collection and Treatment System.
2. Stormwater Disposal System.
3. Kalamazoo Regional Stormwater Drainage Basin
4. Words to include in title.
   a) Basin
      • A region served by a single drainage system consisting of collectors and sub basins.
   b) Collection
   c) Disposal
   d) District
   e) Drainage
   f) Kalamazoo
   g) Land use
   h) Sewer
   i) Regional
      • Of, pertaining to, or characteristic of a large geographic region.
      • Of, pertaining to, or characteristic of a particular region or district; localized.
   j) Storm sewer
   k) Stormwater
   l) Treatment
   m) Utility
      • The condition or quality of being useful; usefulness: "I have always doubted the utility of these conferences on disarmament" (Winston Churchill).
      • A public service, such as gas, electricity, water, or transportation.

B. Definitions

1. Business community
2. Charter
3. Credible government

   Credible:
   • Capable of being believed; plausible.
   • Worthy of confidence; reliable

   Government:
   • The act or process of governing, especially the control and administration of public policy in a political unit.
   • The exercise of authority in a political unit; rule.
   • The agency or apparatus through which an individual or body that governs exercises its authority and performs its functions.
   • A system or policy by which a political unit is governed.
   • The management or administration of an organization, business, or institution.

4. Economic neutrality
5. Egregious
   • Outstandingly bad; flagrant.

6. **Enterprise**
   - **A business organization.**
   - **Industrious and systematic activity.**

   • As applied to the City of Kalamazoo - A department or division of the city services that charges for its services totally or in part. These charges go the specific department or division providing the service and are used for operations, capital funding, and maintenance.

7. **Equitable**
8. **Equity**
9. **Export**
10. **Factor**
11. **Fair**
12. **Mandate**
13. **Mechanism**
14. **Residents**
15. **Revenue policy goals - from Kalamazoo memo to the Mayor and Commission from the City Manager dated April 22, 1994**
    The set of decisions made regarding the raising of revenues to fund the operations of government. Ideally, the revenue policy will reflect a community's fundamental values and will be developed based upon well-reasoned decisions regarding such issues as equity of the tax burden, economic consequences, increased local self-sufficiency, and others.
16. **Stormwater utility**
17. **Subsidy**
18. **Utility**
    - **The condition or quality of being useful; usefulness: "I have always doubted the utility of these conferences on disarmament" (Winston Churchill).**
    - **A public service, such as gas, electricity, water, or transportation.**
19. **Value added**
    The improvement over current conditions that can be expected by the implementation of a program of work.

    In the case of the stormwater system, value added includes:

    • Increased property values for areas in which flooding occurs.
    • Improvement in the level of public safety.
    Includes roadway conditions, bridge integrity, sewer integrity.
    • Improvement in the level of public health maintenance.
    • Improvement in the perception of the quality of life in regards to environmental, and recreational elements.
    • The potential to display and make visible to the public where the tax revenue is being raised, what is being done with it, and how it benefits those who pay.
20. **Weight**

II. **Date of meeting - Tuesday, April 26. 1994**
   A. **Place of meeting - DPU offices**
   B. **Time of meeting - 8:30 A. M.**

C. Those attending
   1. Ken Collard - Director DPU
   2. Jim Gallogy - Director DPW
   3. Ralph Stephenson - Consultant

D. Agenda
   1. Discuss obligations of city of Kalamazoo from meeting of February 11, 1994
   2. Discuss and test assumptions made in our meeting of February 11,1994

E. Obligations of city management - a continuing review and analysis from notes of 02/11/94

A. It is the obligation of the City to protect the health, welfare and safety of the community and its residents.

B. The City is expected to determine public health, welfare and safety needs.

C. The City management must then design programs to meet these needs, establish funding mechanisms, and to recommend the adoption of the these proposed programs.

D. Once the programs are adopted by the Commission, the City management is required to implement the programs to the best of their abilities.

E. The stormwater utility system is intended to meet the stormwater collection, treatment and disposal needs that in the opinion of the city management, exist in the community, and affect the health, safety, and welfare of the citizens of the community.

1. To protect the health, safety and welfare of the community and its residents.
   a) The path of law and legal obligations goes from the state statutes to the city charter.
   b) Through these obligations the chief executive officer of the city is charged with executing the obligations with the support of the city commission.
2. To determine public health, safety, and welfare needs in accordance with state and federal statutes, laws, and regulations as may be required. These needs may also be identified as desirable by local, state, and federal guidelines of a non binding nature.

F. Assumptions we start with - a continuing review and analysis from notes of 02/11/94
   1. That, in the opinion of city management, the City of Kalamazoo needs to collect & dispose of stormwater.
   2. That, in the opinion of city management, the City of Kalamazoo will be required by 1997 to test all stormwater for contamination.
   3. That, in the opinion of city management, the City of Kalamazoo will be required by 1999 to treat all contaminated stormwater.
   4. That, in the opinion of city management, the City of Kalamazoo needs to reduce stormwater contamination at its source.
   5. That, in the opinion of city management, the City of Kalamazoo needs to regulate the rate of stormwater flow into the collector system.
   6. That the stormwater system does add value to residency in Kalamazoo.
   7. That the upgraded stormwater system will add additional value to Kalamazoo residents
   8. That the stormwater implementation program will not unfairly escalate as other funding needs are encountered.
   9. That the work to be done is to be paid for fairly and openly.
   10. Will have to go to a public vote on the issue if petitioned by the public.
   11. That the current stormwater system is in need of preventive maintenance.

12. That the current stormwater system is in need of technical improvements.
13. That the current stormwater system is in need of selective renovation.
14. That the streams, rivers, lakes and other visible waterways in the Kalamazoo region will be improved by the implementation of a stormwater utility system.

G. General notes
1. State constitution enables state law which enables the city charter - these mandates are implemented through the following mandates:
a) Federal mandates - city must abide by
(1) Laws
(2) Regulations
(3) Administrative policy
b) State mandates - city must abide by
(1) Laws
(2) Regulations
(3) Administrative policy
c) Local mandates - discretionary as a community
(1) Supplement federal
(2) Supplement state
(3) Complementary federal
(4) Complementary state
(5) Independent
2. An illustration of how the hierarchy of the regulation translates into various mandate levels.
a) Issue A
(1) Local
(2) Federal
(3) State
b) Issue B
(1) Local
(2) State
c) Issue C
(1) Local

III. Date of meeting - Friday, February 11, 1994
A. Place of meeting - DPU offices
B. Time of meeting - 8:30 A. M.
C. Those attending
1. Pat DiGiovanni - Deputy City Manager
2. Jim Gallogy - Director DPW
3. Ken Collard - Director DPU
4. Ralph Stephenson - Consultant
D. General notes
1. Obligations of city management - an overview of their relation to the stormwater system.

A. It is the obligation of the City to protect the health, welfare and safety of the community and its residents.

B. The City is expected to determine public health, welfare and safety needs.

C. The City management must then design programs to meet these needs, establish

funding mechanisms, and to recommend the adoption of the these proposed programs.

D. Once the programs are adopted by the Commission, the City management is required to implement the programs to the best of their abilities.

E. The stormwater utility system is intended to meet the stormwater collection, treatment and disposal needs that in the opinion of the city management, exist in the community, and affect the health, safety, and welfare of the citizens of the community.

2. Documents referred to in conference
   a) Presentation by MPS to Southwest Michigan Chapter of the American Public Works Association - January 20, 1994
   b) Feasibility Phase Working Paper #2 - October, 1992
   c) Storm water management - a utility approach 1993
   d) Feasibility Phase Working Paper #1 - September, 1992
   e) Phases of work proposed.
      (1) Feasibility study
      (2) Development
      (3) Implementation
      (4) Should add pre feasibility analysis.
3. What is the up front work needed from where we are
   a) Where are we?
      (1) Completed feasibility analysis for funding of stormwater system needs.
      (2) Authorized award of contract to MPS for development of the Storm Water Management Utility (stormwater collection, treatment, and disposal system)
   b) What is the US Government regulatory agency stance
      (1) NPDES (National Pollutant Discharge Elimination System) permit.
      (2) What is the quality issue?
      (3) How to pay for it?
         (a) General fund - 20 mil cap
            i) Go to the electorate to raise cap
         (b) User fee
         (c) Special assessment.
            i) Drainage district.
4. What are the assumptions we start with
   a) That, in the opinion of city management, the City of Kalamazoo needs to collect & dispose of stormwater.
   b) That, in the opinion of city management, the City of Kalamazoo will be required by 1997 to test all stormwater for contamination.
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   g) That the upgraded stormwater system will add additional value to Kalamazoo residents

h) That the stormwater implementation program will not unfairly escalate as other funding needs are encountered.
i) That the work to be done is to be paid for fairly and openly.
j) Will have to go to a public vote on the issue if petitioned by the public.
k) That the current stormwater system is in need of preventive maintenance.
l) That the current stormwater system is in need of technical improvements.
m) That the current stormwater system is in need of selective renovation.
n) That the streams, rivers, lakes and other visible waterways in the Kalamazoo region will be improved by the implementation of a stormwater utility system.

5. Definitions
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   The improvement over current conditions that can be expected by the implementation of a program of work.

   In the case of the stormwater system, value added includes:

   • Increased property values for areas in which flooding occurs.
   • Improvement in the level of public safety.
   Includes roadway conditions, bridge integrity, sewer integrity.
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   • The potential to display and make visible to the public where the tax revenue is being raised, what is being done with it, and how it benefits those who pay.

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   Credible:
   • Capable of being believed; plausible.
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6. Miscellaneous comments
a) Grand Rapids & Kalamazoo regions are very similar and are related.
b) Ann Arbor & Kalamazoo are not similar and are not closely related.
c) Storm water knows no political boundaries.
d) More appropriate approach for storm water is a regional area.
e) Most Portage development runoff go into a storage system that feeds the water back into the aquifer.
f) Looking at a way to capture revenue from entities that presently are not paying for the stormwater services they receive from the utility use.
g) Three legged stool concept and sample of the participants of shared responsibility, authority and strengths.
(1) Owner, a/e , contractor - construction
(2) Executive, legislative, judicial - governing
(3) Operations, maintenance & engineering - production & manufacturing
(4) City management, staff, and citizenry - Political management

h) **Very little maintenance has been done on storm water system**
i) **Very little improvement has been made to storm water system.**

E. **Laundry list - to be prepared in subsequent meetings.**

Ralph J. Stephenson. P. E.
Consulting Engineer

Kalamazoo Waste Water Reclamation Pilot Plant - disk 377

I. **Date of meeting - 8:28:31 AM - Tuesday, January 25, 1994**
II. **Location of meeting - Kalamazoo Department of Public Utilities offices**
III. **Those involved**
  A. City of Kalamazoo Department of Public Utilities
    1. Ken Collard - Director
    2. Frank Szopo - Ciy Engineer
    3. Larry Fischer - project manager
  B. City of Kalamazoo Department of Public Work
    1. Larry
  C. Jones and Henry - Engineers of record
    1. Dale Holopeter - Vice President & Principal
  D. Whitaker Construction - general contractor
    1.
  E. Bosch Mechanical - mechanical contractor
    1. Larry Dibble - project manager
    2. Bill Henson - field superintendent
  F. Zimpro
  G. Black & Veatch
IV. **Those attending meeting**
  A. Ken Collard - DPU Director
  B. Frank Szopo - City Engineer
  C. Larry Fischer - Project manager
  D. Ralph J. Stephenson - Consultant
V. **Physical characteristics of project**
  A. Key dates
    1. 01/14/94 PM (wd 265) - rebid project proposals received
      a) Prices firm as qualified by Whitaker - 60 calendar days - pm 03/16/94 (wd 307)
      b) Bosch firm as specified - 120 calendar days - pm 05//16/94 (wd 351)
      c) City's intent is to enter into a contract by 03/16/94 (wd 307)
    2. Field work shall begin no later than 30 calendar days after the agreement is executed, or the notice to proceed is issued, whichever is earlier.
    3. Milestone dates are measured from the date of the notice to proceed.
    4. Milestone dates by contract - start from notice to proceed
      a) Milestone #1 - 045 calendar days - pour out concrete footers & walls for new building.
      b) Milestone #2 - 175 calendar days - building complete with all equipment installed & operable under local control.
      c) Milestone #3 - 210 calendar days - total completion of project with closed out & OEM manuals submitted. Training is to be complete on new equipment.
      d) Liquidated damages of $250 per calendar day in effect for both milestones #1 & #2.
    5. Contractor documents to be submitted within 10 calendar days of the notice to proceed.
      a) Preliminary schedule of shop drawing submittals.
      b) Preliminary schedule of values for all work.
      c) Preliminary construction schedule of all work.
    6. All submittals are to flow through Larry Fischer to Jones & Henry.
  B. Project delivery systems
    1. Professional service delivery system used throughout
      a) A1

b) B2
c) C3b
d) D1a
(1) Jones & Henry will

2. Construction project delivery system used in 1st bidding period September, 93 to November, 93.
   a) A1
   b) B3
   c) C1
   d) D1a/1, 3, 4
3. Construction project delivery system used in 2nd bidding period Novem ber, 93 to January, 94.
   a) Building architectural & structural trades - contract 45G
      (1) A1
      (2) B3
      (3) C1
      (4) D2b/1, 3, 4
   b) Mechanical trades - contract 45M & H
      (1) A1
      (2) B3
      (3) C1
      (4) D2b/1, 3, 4
4. Electrical Process Control work - for first bidding
   a) Included in general contract.
5. Electrical Process Control work - for second bidding
   a) To be done by City of Kalamazoo staff
   b) Equipment purchases - 6 to 12 vendors involved
      (1) A3
      (2) B3
      (3) C1
      (4) D2b4
   c) Installation - to be done by licensed electricians & instrumentation technicians on staff of Kalamazoo DPU.
      (1) Payroll based on estimates by Larry Fischer.
      (2) City representative - Larry Fischer
      (3) Field supervision - Ron Sefcik.

VI. **General comments**

A. Went out for general bids in September, 1993.
B. Retained Jones & Henry in July, 1993
C. 2 trains of flow for control and for test runs.
D. Bought considerable equipment in Milford in summer 1993
   1. 1 Equalization tanks
   2. 2 Aeration tanks
   3. 2 Clarifiers
   4. 2 Storage tanks
   5. 3 RAS pumps
   6. 2 Sludge pumps
   7. 1 Sand filter
   8. Sand filter grating/ handrail

9. Mudwell pumps
10. etc

E. Is currently stored at the site.
F. Idea of pilot plant is to mimic the operation of the full plant.
G. Have been studying the pilot concept for some time.
H. Summary cost history of project.
   1. Original construction estimate - $739,000 for all contractural services & equipment
      a) All under one general contractor with subs for electrical, mechanical & heating & ventilating.
      b) Bid price came in at $1, 645,465 for the low response.
         (1) Most of cost overrun in electrical instrumentation work - only one responsive bidder to the generals.
         (2) Possible reasons for high electrical prices?
            (a) Single responsive bidder.
            (b) Possible inexperienced specialty contractors.
            (c) Large dollar amount of owner purchased equipment.
            (d) Possible lack of clear definition of work within trade sections.
      c) All bids were rejected and the project was restudied.
         (1) Project revised to shift more construction cost responsibility to city forces.
         (2) Proposals were solicited from multiple primes.
         (3) Additional management duties on the project were taken on by the city technical staff - i. e. project management & electrical & instrumentation work.
      d) Electrical equipment purchases included
         (1) Instrumentation
         (2) Wire
         (3) Conduit
         (4) Operational computers
         (5) Devices
         (6) Control panels
   2. Rebid project - $900,000 engineer's estimate for the rebid project.
      a) Delivery system as described in project construction delivery systems above.
      b) Bid prices for second proposal - ±$1,107,095
         (1) 45G - Whitaker Construction - $404,550
         (2) 45M & 45H - Bosch Mechanical - $417,545
         (3) Electrical equipment purchases component - ±$85,000 (not yet purchased as of 01/25/94)
         (4) Process control equipment - ±$175,000 (partially firm)
         (5) Miscellaneous soil testing - ±$25,000 (estimate only)
      c) Internal cost items that are part of this project and are to be charged to it. - ±$136,000
         (1) Electrical employee costs for construction - ±$100,000
         (2) Technical staff managment time on project - ±$36,000
      d) Items that are part of this project but not to be charged to it.
         (1) Software development. - ±$14,000
         Software upgrading is in progress throughout plant. Vendor is going to work on total plant operating control system. The water reclamation plant pilot facility is a component of the total operating control system. Therefore software costs are assigned to the vendor's total cost separate from the individual pilot plant costs. The total cost if assigned to the pilot plant might be as much as $14,000.

VII. **What could we do to get the plant built within a cost we can afford today.**
- A. Build one train and use the plant operation as the control until the second train can be installed.
- B. Eliminate tank covers.
- C. Go to steel and paint.
- D. Revise doors from aluminum to steel
- E. Rework ventilation system.
- F. What are the future costs of savings made now?
- G. Spread costs for the plant over a three year period and define the annual costs to be expended in each year.
- H. Use existing devices and instrumentation and other control equipment and build the ultimate system over a period of time.

VIII. **Laundry lists**
- A. Procurement (DAFD - DETAIL, APPROVE, FABRICATE & DELIVER)
  1. DAFD EARLY RESTEEL
  2. DAFD STRUCTURAL STEEL
  3. DAFD MOTOR STARTERS
  4. DAFDPROCESS CONTROL PANEL
  5. DAFD TANK COVERS
  6. DAFD ACOUSTICAL BLOCK MASONRY UNITS
  7. DAFD SWINGING DOORS AT BLOWER ROOM
  8. SUBMIT & APPROVE CONCRETE MIX DESIGNS
  9. DAFD ROOF METAL DECK
  10. DAFD STEEL JOISTS
  11. DAFD METAL SIDING
  12. DAFD HOLLOW METAL FRAMES
  13. DAFD HOLLOW METAL DOORS
  14. DAFD HARDWARE
  15. DAFD ALUMINUM WINDOWS
- B. Front end work
  1. MOBILIZE & MOVE ON SITE
  2. INSTALL TEMPORARY TOILETS & WATER
  3. INSTALL TEMPORARY ELECTRIC SERVICE
  4. LAY OUT BUILDING & SET CORNERS
- C. Site demolition & removal work
  1. REMOVE 54" ABANDONED SANITARY SEWER
  2. REMOVE & CAP MISCELLANEOUS ABANDONED SMALL UTILITIES
- D. Site utility work
  1. RELOCATE 1"NATURAL GAS LINE
  2. RELOCATE 3" WATER LINE
  3. INSTALL & TEST AIR LINES IN EXISTING TUNNEL
  4. INSULATE AIR LINES IN EXISTING TUNNEL
  5. INSTALL & TEST PROCESS LINES IN TUNNEL
  6. INSTALL HEAT TAPE ON PROCESS LINES AT SCRUBBING CHAMBER
  7. INSTALL INSULATION ON PROCESS LINES AT SCRUBBING CHAMBER
- E. Site earthwork
  1. STRIP BUILDING SITE & STOCKPILE TOPSOIL
  2. GRADE BUILDING SITE TO ROUGH ELEVATIONS
- F. Site paving work
  1. FORM, REINFORCE & POUR CURBS

2. PLACE & COMPACT AGGREGATE BASE
3. LAY ASPHALT BASE COURSE
4. LAY ASPHALT FINISH COURSE

G. Building substructure work
1. FORM, REINFORCE, POUR & STRIP BUILDING WALL & COL FOOTINGS
2. FORM, REINFORCE, POUR & STRIP UTILITY TRENCH FLOORS & WALLS
3. FORM, REINFORCE, POUR & STRIP BUILDING FOUNDATION WALLS
4. PLACE INSULATION, BACKFILL & COMPACT AT INTERIOR & EXTERIOR OF BUILDING
5. EXCAVATE, INSTALL, TEST & BACKFILL UNDERGROUND UTILITIES IN BUILDING
   a) SANITARY PIPING
   b) PLANT WATER
   c) GAS LINE
   d) POTABLE WATER
6. EX CAVATE, INSTALL & BACKFILL PVC ELECTRICAL UNDERGROUND IN BUILDING
7. FILL & FINE GRADE FOR BUILDING SLAB ON GRADE
8. POUR OUT BUILDING SLAB ON GRADE
9. FORM, REINFORCE, POUR & STRIP EQUIP BASES IN BUILDING
10. CURE EQUIPMENT BASES IN BUILDING

H. Building superstructure work
1. ERECT STRUCTURAL STEEL & WALL GIRTS
2. PLUMB & T RIM STRUCTURAL STEEL & WALL GIRTS
3. SET HOLLOW METAL FRAMES
4. ERECT STEEL JOISTS
5. PLUMB & TRIM STEEL JOISTS
6. ERECT MASONRY BEARING WALLS

I. Building interior rough work
1. INSTALL INTERIOR MISC IRON ITEMS
2. INSTALL INTERIOR ALUMINUM HANDRAILS
3. FORM, REINFORCE, POUR & STRIP INTERIOR STAIR
4. INSTALL INT STEEL STAIRS
5. ERECT INTERIOR MASONRY WALLS
6. SET INTERIOR HOLLOW METAL FRAMES
7. INSTALL INTERIOR GRATING

J. Building close in work
1. ERECT INSULATED METAL ROOF PANELS
2. ERECT EXT WALL PANELS
3. ERECT EXT WALL INSUL & INTERIOR WALL LINER PANELS
4. INSTALL ROOF GUTTERS & DOWNSPOUTS
5. INSTALL EXT BUILDING MOUNTED LIGHTING
6. INSTALL PREGLAZED EXT WINDOWS
7. INSTALL OVERHEAD DOOR & MOTOR OPERATORS
8. INSTALL EXT MAN DOORS & HARDWARE
9. GLAZE EXT MAN DOORS
10. INSTALL EXT ALUMINUM WINDOWS
11. INSTALL LOUVERS IN EXTERIOR WALLS
12. CAULK EXTERIOR JOINTS AS REQUIRED
13. PAINT EXTERIOR BUILDING ELEMENTS AS REQUIRED

K. Building interior finish work
   1. INSTALL ABOVE CEILING ROUGH MECHANICAL WORK
   2. INSTALL ABOVE CEILING ROUGH ELECTRICAL WORK
   3. INSTALL BLOWER ROOM ACOUSTIC CEILING SUSPENSION & GRID
   4. INSTALL OFFICE & WORK ROOM ACOUSTIC CEILING SUSPENSION & GRID
   5. INSTALL LIGHT FIXTURES AT ACOUSTIC CEILING
   6. INSTALL GRILLS & DIFFUSERS AT ACOUSTIC CEILINGS
   7. HANG & CONNECT INDUSTRIAL LIGHTS AT OPEN AREAS
   8. INSTALL TOILET ROOM PLUMBING FIXTURES
   9. INSTALL TOILET ROOM ACCESSORIES
   10. ERECT MONORAIL SUPPORT SYSTEM
   11. INSTALL MONORAIL
   12. INSTALL SAFETY SHOWERS
   13. APPLY INTERIOR FLOOR COATING

L. Landscaping
   1. SEED SITE AS REQUIRED

M. Building tank work
   1. SET & ALIGN EQUALIZATION TANKS
   2. SET & ALIGN INDUSTRIAL WASTE STORAGE TANKS
   3. SET & ALIGH AERATION TANKS
   4. SET & ALIGN CLARIFIER TANKS
   5. SET & ALIGN SAND FILTER TANK
   6. INSTALL TANK COVERS
   7. INSTALL TANK VENTILATION EQUIPMENT & CONNECT
   8. INSTALL & CONNECT PIPING TO & FROM TANKS
   9. INSTALL & CONNECT ELECTRICAL WORK TO & FROM TANKS & RELATED PUMPS

N. Building systems work
   1. INSTALL PUMP MOTOR STARTERS
   2. INSTALL & CONNECT PUMPS
   3. INSTALL PUMP PIPING
   4. INSTALL & CONNECT POLYMER FEED SYSTEM
   5. FILL SAND FILTERS WITH SAND
   6. INSTALL HVAC CONTROLS SYSTEM PIPING & CONDUIT
   7. INSTALL FAN MOTOR STARTERS

O. Building process control work
   1. SET ANALYZERS & PROBES
   2. INSTALL FIELD WIRING FROM ANALYZERS & PROBES
   3. INSTALL PROCESS CONTROL PANEL

P. Owner's work
   1. CITY INSTALL FURNITURE & FURNISHINGS

Q. Check out and test work
   1. PREPARE & SUBMIT OEM'S
   2. CONDUCT TRAINING SESSIONS
   3. DETERMINE & PROVIDE WARRANTIES
   4. PREPARE & SUBMIT CONSTRUCTION RECORD SETS
   5. PUNCH OUT PROJECT
   6. CORRECT PUNCH LISTS
   7. CLEAN UP & TURN OVER

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48858
ph 517 772 2537

May 5, 1993

Kenneth P. Collard, P. E.
Utilities Director
City of Kalamazoo
Department of Public Utilities
415 Stockbridge Avenue
Kalamazoo, Michigan 49001-2898

Dear Mr. Collard:

Re: Coaching and training needs for the Department of Utilities staff

You recently asked me to express some thoughts about my experience thus far with the City of Kalamazoo Public Utilities staff. Specifically you are interested in what training, coaching and doing actions might be of further value in assisting the department and its people to more effectively manage the DPU's complex work load.

There are literally hundreds of subjects that we all should know more about. Determining which are the most important to extending our abilities is difficult. Determining which are relevant to our jobs is an even more formidable task.

The assignment is complicated for me by my need to evaluate, and then determine what degree of skill and effectiveness I might possess that would qualify me to teach, coach and do the work encompassed.

I have reconnoitered my master list of topics and selected a few subjects that I feel would be suitable for your staff, and that fit the mission underlined above. I then assigned my opinion rating to each subject, and determined which topics I could train, coach and do. The list is enclosed with this letter.

Opinion ratings range from 1 to 10, with 1 being of relatively low importance, and 10 being of the utmost importance. Please remember these are my personal assessments of the subject importance relative to your needs. I then placed an asterisk in front of the subjects in which I felt reasonably well versed.

The staff to which most of the topics are addressed include technical, operational, and administrative management at upper and middle levels. Some of the material to be covered could be extended into lower technical, operational and administrative levels. However I would like to review this in more depth with you and your middle managers before making any recommendations.

I feel that many of the subjects could be introduced and taught by actually applying them to functions and projects that are currently in progress within the department. We did this with the MIS system analysis, the shared facilities discussion, the water tank construction, and the well field renovation program with reasonably good results.

I can provide my professional services in a variety of ways ranging from the one we recently used, which set a cap on the hours and fee, on through to establishing work modules having specific scopes of

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48858
ph 517 772 2537

May 5, 1993

work as boundaries. However you feel is the best method of proceeding is fine with me. It is however, of paramount importance to first properly identify the high priority needs of the department. Once this has been done the coaching/teaching/doing mode can be established to fit needs.

If you have any questions, please don't hesitate to call.

Sincerely yours,

Ralph J. Stephenson, P. E.

City of Kalamazoo, Michigan
Department of Utilities
Kenneth P Collard, P. E. , Director

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer

+ **Subjects of value - Department of Utilities - City of Kalamazoo**
The number preceding the subject shows a rating from 01 to 10. For subjects I consider to be of lesser importance I have used a rating from 01 to 03; for moderately important subjects a rating of from 04 to 06; for important subjects a rating of 07 and 08; and for very important subjects a rating of 09 or 10.

Those subjects with an asterisk (*) the rating I feel competent to teach, coach, and do adequately to meet the demands I perceive are needed for this assignment.

- *09 - Yardsticks by which to measure project success - how do you know when you've done a good job, and how do you develop a set of standards by which success is determined
- *09 - Documentation types, processes, & levels - how to properly and most economically document your construction project
- *09 - Common causes of contested claims - what are the most common construction troubles?
- *09 - Closing out the project - how do you get out of the project once you have built it?
- *08 - The macro matrix of the design & construction industry - the large picture of the design and construction profession and why it is important to understand
- *08 - Planning and scheduling the architectural and engineering production process - how to apply effective tools and techniques to properly model the design process and simulate impacts on the job
- *08 - Network planning & critical path method - basic and advanced methods of planning and scheduling design and construction work
- *08 - Measuring and monitoring performance - how to measure your progress toward defined goals and objectives
- *08 - Defining goals and objectives - how do you determine where you want you and what you need to get there?
- *08 - Identifying the problem job - the characteristics of a problem job and how they show up early in the program and design stages
- *07 - Writing good reports - how to effectively translate & convey your mental imaging to others in writing they can understand
- 07 - Time management - how to manage time as a resource
- *07 - Ethics in the design and construction profession - the value added by ethical behavior and how to add it
- *07 - Employing the power of training - how to train effectively
- *07 - Conflict resolution - design and construction conflict resolution and effective ways of achieving it
- *06 - Using intelligent questioning - the how and why of questioning techniques and how they help insure project success
- *06 - Thinking & reasoning effectively - improving your thought processes for improved performance
- *06 - Starting up the project - what are the essential ingredients needed to properly start a design or construction project?
- *06 - Resource allocation for success - how to properly assign resources so as to avoid potential profit loss
- *06 - Profit and its role in success - the types of profit and why they are important to the various participants in the construction profession
- *06 - Management styles and their relation to success in the owner, designer or construction organization

date printed: May 6, 1993

- *06 - Keeping accurate records - the importance of record keeping and how to balance record keeping with the needs for the records
- *06 - Decision making tools for the professional - principals of making profitable, useful and reliable decisions
- *06 - Construction contract characteristics - what are the various methods by which design and construction projects can be placed under contract and managed
- *06 - Applying situational thinking - macro/micro thinking and its role in management, decision making and leadership
- *05 - Translating the project network model - various methods of translating information about a project into different graphic languages for better management and control potential
- *05 - The function and role of construction business participants
  "What do all of these people we know and deal with, do for a living, and what do they have to do with my project?"
- *05 - Partnering - how to use it as a preventive technique in avoiding or lessening construction related destructive disputes and conflict
- *05 - How do we achieve true profit? - the meaning of profit as applied to all participants in a design and construction program
- *05 - Evaluating impacts on project progress and design - determining the impact various disruptions might have or have had on a construction project
- *05 - Developing a consistent working glossary of terms - preparing and using a vocabulary for understandable communications on a project
- *05 - Creativity and how it is achieved - the six basic elements of being creative in construction
- *05 - Construction management. what it is, and what it is not - the liable, non liable, agency, contractor types of CM and what they mean to the owner and others
- 04 - Writing good project programs - the role of the early, well written project program - what it is, and how it affects project success
- *04 - Technography in design and construction - useful methods of in-meeting note taking to improve and expedite decision making and record keeping
- *04 - Scheduling construction work - principles of deriving good schedules from good job plans.
- *04 - Project money flow - the flow of the money resource on a design and construction project and why this flow is important to all involved
- *04 - Project management - its nature, rationale, & practice
- *04 - Preparing and using check lists - the use of check lists as a planning and follow up tool to insure ongoing attention to important management details
- *04 - Nine steps to becoming a good project manager - the nine essentials thinking practices of good managers
- *04 - Improving your people skills - general methods of improving your abilities to work effectively with people
- *04 - Focusing on vital targets - how to separate the various degrees of problems encountered and concentrate on the most important first
- 04 - Effective meetings - methods of planning, organizing, conducting and documenting meetings to get results
- *04 - Dispute resolution - binding and non binding dispute resolution methods, and how they are used
- *03 - Weather and its impact on construction - what are the criteria for adding weather considerations into a project plan and schedule
- 03 - Tracking project cash flow - the use of planning and scheduling tools as applied to the financial resources available for project financing

- *03 - Project delivery systems - what are the various methods of assembling, selling, obtaining and managing a construction project?
- 03 - Problem solving - the methods by which solutions to problems are approached, analyzed and solutions discovered
- *06 - Principles of organization for the design and construction professional - key principals of organization and staff structuring for effective action - how do the various parties in a design and construction program best interact with each other to achieve the project mission & objectives?
- 03 - Managing by exception - a method of managing to the actual needs of a project
- 03 - Fundamentals of good management - how does the good manager do it?
- *03 - Elements of true profit - the types and nature of profit in business
- *03 - Costs committed vs. money spent - how committed and actual money flows on a project
- 03 - Collections, retention & final payment - the methods and reasons for proper payment practices, and the effects of retention on project performance
- *03 - Basic project management software tools for the designer & constructor
- 02 - What is total quality management (TQM) - really?
- 02 - Professional service contract characteristics - agency and contracting methods for planning, design, and consulting services.
- *02 - Preparing and using contract document matrixes - how to package contract documents for use in fast track projects

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan
ph 517 772 2537

October 14, 1992

Kenneth P. Collard, P. E.
Utilities Director
Department of Public Utilities
415 Stockbridge Avenue
Kalamazoo, Michigan 49001-2898

Re: ***Technical and management considerations in modeling the futures of Kalamazoo's public works program***

Dear Ken:

It was good to see you again, and to meet Mr. Minsley and Mr. Szopo. The high level of technical competence and concerned professionalism that marks Kalamazoo's engineering public servants is most impressive.

After our meeting I gave considerable thought to how I might add value to the efforts of you and your staff. It seems that a guiding principle for adding value, as trite as it sounds, still rests in the axiom you quoted at our meeting - to be effective you must *plan the work and then, work the plan.*

Resources available to effectively use this concept include people, time, and funding. People, **a.**) apply their abilities to discover and articulate the needs they perceive; **b.**) devote the time available to manage and do the job demanded by their perceptions, and; **c.**) do this all within the funding disciplines surrounding their their efforts.

Within this simplistic model, I believe I can help you and your staff in several efforts. Some of these are:

a.) Help identify, quantify, evaluate and set planning and implementation priorities for public area improvement (infrastructure) programs, and the projects they encompass.

b.) Display and teach the use of various success-proven planning and management tools to help increase the probability of program and project success.

c.) Help model and schedule implementation of selected present and future Public Utility Department programs and projects.

d.) Advise re management actions that might be appropriate in considering and implementing organizational improvements.

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan
ph 517 772 2537

October 14, 1992

e.) Assist to plan and implement a short, medium, and long range management level training program.

f.) Advise and assist as needed and appropriate to improve public utility program interactions with other public and private sector operations in Kalamazoo.

g.) Assist in maintaining a proper scale of planning by applying overview micro/macro analyses of the public utility work program.

Typical programs and projects to which the above actions might be applied include:

a.) Modeling development and use of working tools such as a management, and geographic information systems.

b.) Modeling physical planning and implementation programs such as Arcadia Creek, University Research Park, new pumping facilities, and other complex and high visibility planning units.

c.) Updating selected elements of the city's long range physical plan.

d.) Advising on departmental and organizational function and structuring within the management responsibility patterns of the Public Utility Department.

I believe that the basic thrust of my initial work with you and your staff should be concentrated on assisting the Department to better help themselves. As specific elements emerge, to which my abilities and experience can add value, I can be further involved to whatever degree, and in any way you might wish. The degree and way will be made clearer as the pattern of my involvement is set in our initial work.

To start, I recommend I be retained to work with you and your staff for three or four working days spaced over a three or four week period. During this time I shall concentrate on isolating the Department's most pressing needs to which we feel I can contribute from my knowledge, experience and abilities.

This work will result in an outline of recommended and defined actions. As time permits we will also work on specific projects that are of near future use, and that fit into the medium and long range plans of the Department and the city.

I suggest my major work during the first day and a half be with you, Mr. Minsley, and Mr. Szopo. Our job in these sessions will be to develop, outline, analyze and state a broad projected course of action for the Department over the next one to ten years. The focus next should be to specifically articulate the Public Utility Department's role in the production and implementation of the plan.

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan
ph 517 772 2537

October 14, 1992

On succeeding days, I recommend the meetings be expanded to include others that have a stake in the plan's success. During this period we shall begin translating the longer range goals and objectives into specific lines of action for the Department. I shall, of course prepare and submit to you, full reports on my work as it proceeds during this initial period.

My current professional fee is $95.00 per hour. For this early professional work, I suggest we budget approximately 45 hours. Time will be charged only as it is spent in the interest of the project. Travel time will be charged as assigned to the project, since I may be able to combine work travel to other current projects if the opportunity arises. An additional copy of my personal and professional resume is enclosed for your use.

I appreciate the three of you taking time to meet with me, and of giving me an opportunity to propose a course of technical and management work for Kalamazoo. If you have any questions please feel free to call.

Thank you again for your courtesy and interest.

Sincerely yours,

Ralph J. Stephenson, P. E.

SMI STARTUP & TRAINING SERVICES

As of 7/23/02

97.26

Line # Col. 1	Rec. # Col. 2	Equipment/Process Col. 3	Supplier Col. 4	Inspection/Testing Duration Col. 5	Startup Duration Col. 6	Training Duration Col. 7	Notes Col. 8
1 ✓	**01.00** ✓	**AIR COMPRESSOR STARTUP CHECKLIST** ✓ Complete	**WILSON AIR EQUIPMENT**	**0.50 WKG DAY** ✓ Comp	**0.50 WKG DAY** Comp	**1 WKG DAY** To be Complete	**SPEC SECT 15400**
2	01.01	CONNECT POWER LEADS TO MOTOR STARTER. Complete	J & L ELECTRIC	AS DIRECTED BY GC			
3	01.02	CHECK OIL LEVEL. Complete	WILSON AIR EQUIPMENT	AS DIRECTED BY GC			PER EQUIP SUPPLIER SUBMITTAL -
4	01.03	ACTIVATE MAIN DISCONNECT. Complete	J & L ELECTRIC	AS DIRECTED BY GC			
5	01.04	CONNECT CONTROL PANEL TO PLC. In work	J & L ELECTRIC	AS DIRECTED BY GC			Control wires to be terminated in panels
6	01.05	JOG MOTOR FOR PROPER ROTATION (CHECK). Complete	WILSON AIR EQUIPMENT	AS DIRECTED BY GC			PER EQUIP SUPPLIER SUBMITTAL -
7	**02.00**	**BELT FILTER PRESS FEED PUMPS/GRINDERS STARTUP CHECKLIST** In progress	**MOYNO, INC.**	1.50 WKG DAYS In progress	**1.50 WKG DAYS** In progress	**2.00 WKG DAYS**	**SPEC SECT 11441 & 11735**
8	02.01	OPEN INLET AND DISCHARGE VALVES . Complete	BOSCH MECH	AS DIRECTED BY GC Complete	Complete	-	
9	02.02	ADD LUBRICATING FLUID TO PUMP. .. Complete	BOSCH MECH	AS DIRECTED BY GC			
10	02.03	ALIGN COUPLINGS. / Being realigned	BOSCH MECH	AS DIRECTED BY GC			PER EQUIP SUPPLIER SUBMITTAL -
11	02.04	TIGHTEN PACKING GLANDS. Complete	BOSCH MECH	AS DIRECTED BY GC			PER EQUIP SUPPLIER SUBMITTAL -
12	02.05	CONNECT & ENERGIZE ELECTRIC POWER. Complete	J & L ELECTRIC	AS DIRECTED BY GC			
13	02.06	WIRE CONTROL PANEL . Complete - Control wire in hand	J & L ELECTRIC	AS DIRECTED BY GC			
14	02.07	CHECK THAT DRIVE BOLTS HAVE PROPER TENSION. Complete	BOSCH MECH	AS DIRECTED BY GC			PER EQUIP SUPPLIER SUBMITTAL -
15	02.08	FILL GROUND SLUDGE TANK WITH WATER. Complete	CITY OF KALAMAZOO	AS REQUESTED BY GC			
16	02.09	CHECK MOTOR/PUMP FOR PROPER ROTATION. Complete	BOSCH MECH	AS DIRECTED BY GC			PER EQUIP SUPPLIER SUBMITTAL -
17	**03.00**	**POLYMER PUMPS STARTUP CHECKLIST** Complete	**FLUID DYNAMICS**	**AS RECOMMENDED BY SUPPLIER**	**AS RECOMM BY SUPPLIER**	**AS RECOMMENDED BY MFG**	**SPEC SECT 11230 -**
18	03.01	PLUMB DILUTION WATER TO PUMP Complete	BOSCH MECH	AS DIRECTED BY GC	PART OF SUPPLIER RECOMM	PART OF MFG RECOMM	
19	03.02	PLUMB SOLUTION DISCHARGE TO BELT FILTER PRESSES. Est Complete	BOSCH MECH	AS DIRECTED BY GC	PART OF SUPPLIER RECOMM	PART OF MFG RECOMM	
20	03.03	PERFORM HYDROSTATIC TEST ON ALL PLUMBING. Complete	BOSCH MECH	AS DIRECTED BY GC	PART OF SUPPLIER RECOMM	PART OF MFG RECOMM	

SMI STARTUP & TRAINING SERVICES

14 complete
7 in progress or not complete

Line # Col. 1	Rec. # Col. 2	Equipment/Process Col. 3	Supplier Col. 4	Inspection/Testing Duration Col. 5	Startup Duration Col. 6	Training Duration Col. 7	Notes Col. 8
21	03.04	CONNECT POLYMER FILL LINES TO POLYMER TANK. Complete	BOSCH MECH	AS DIRECTED BY GC	PART OF SUPPLIER RECOMM	PART OF MFG RECOMM	
22	03.05	FILL POLYMER TANK WITH POLYMER. Complete	CITY OF KALAMAZOO	AS DIRECTED BY GC	PART OF SUPPLIER RECOMM	PART OF MFG RECOMM	
23	03.06	MAKE POWER CONNECTIONS TO PUMP. Complete	J & L ELECTRIC	AS DIRECTED BY GC	PART OF SUPPLIER RECOMM	PART OF MFG RECOMM	
24	03.07	WIRE CONTROL PANEL TO PUMP. Complete	J & L ELECTRIC	AS DIRECTED BY GC	PART OF SUPPLIER RECOMM	PART OF MFG RECOMM	
25	03.08	MAKE REMOTE CONTROL CONNECTIONS TO PLC. Complete	J & L ELECTRIC	AS DIRECTED BY GC	PART OF SUPPLIER RECOMM	PART OF MFG RECOMM	
26	**04.00**	**AMMONIA REMOVAL SYSTEM STARTUP CHECKLIST** Not started	**DUALL OWOSSO**	**PERFORMANCE TEST CERTIFYING COMPLIANCE**			**SPEC SECTION 11801 -**
27	04.01	VERIFY THAT PACKING AND MIST ELIMINATOR ARE INSTALLED PROPERLY. Not started	DUALL OWOSSO	PERFORMANCE TEST CERTIFYING COMPLIANCE			PER EQUIP SUPPLIER SUBMITTAL -
28	04.02	VERIFY THAT MAKE-UP WATER IS PIPED TO SCRUBBER (AND HYDO TESTED). Complete	DUALL OWOSSO	PERFORMANCE TEST CERTIFYING COMPLIANCE			PER EQUIP SUPPLIER SUBMITTAL -
29	04.03	VERIFY THAT ALL OTHER PLUMBING CONNECTIONS HAVE BEEN MADE. Complete	DUALL OWOSSO	PERFORMANCE TEST CERTIFYING COMPLIANCE			PER EQUIP SUPPLIER SUBMITTAL -
30	04.04	VERIFY THAT ALL AIR DUCT CONNECTIONS HAVE BEEN MADE AND ARE FREE FROM LEAKS. In progress	DUALL OWOSSO	PERFORMANCE TEST CERTIFYING COMPLIANCE			PER EQUIP SUPPLIER SUBMITTAL -
31	04.05	CONNECT ALL INSTRUMENTS (pH, LEVEL, FLOW RATE CONTROLLERS). In progress	DUALL OWOSSO	PERFORMANCE TEST CERTIFYING COMPLIANCE			PER EQUIP SUPPLIER SUBMITTAL -
32	04.06	CONNECT ALL CHEMICAL FEED PUMPS & PIPING. Complete for Startup	BOSCH MECH	PERFORMANCE TEST CERTIFYING COMPLIANCE			
33	04.07	VERIFY THAT SEAL WATER IS INSTALLED TO RECYCLE PUMP. Complete	DUALL OWOSSO	PERFORMANCE TEST CERTIFYING COMPLIANCE			PER EQUIP SUPPLIER SUBMITTAL -
34	04.08	VERIFY THAT RECYCLE PUMP IS PLUMBED. Complete	BOSCH MECH	PERFORMANCE TEST CERTIFYING COMPLIANCE			
35	04.09	VERIFY THAT THE RECYCLE PUMP COUPLING IS ALIGNED. Complete for Startup	BOSCH MECH	PERFORMANCE TEST CERTIFYING COMPLIANCE			
36	04.10	VERIFY THAT THE FAN DRAIN PIPE IS CONNECTED. Complete	BOSCH MECH	PERFORMANCE TEST CERTIFYING COMPLIANCE			
37	04.11	CONNECT CONTROL PANEL TO FAN MOTOR, RECYCLE PUMP, AND CHEMICAL FEED PUMPS. In progress	DUALL OWOSSO	PERFORMANCE TEST CERTIFYING COMPLIANCE			PER EQUIP SUPPLIER SUBMITTAL -
38	04.12	CONNECT ALL PIPING FROM THE ACID STORAGE TANK TO THE FILL POINT. Complete	BOSCH MECH	PERFORMANCE TEST CERTIFYING COMPLIANCE			
39	04.13	CONNECT CONTROL PANEL TO PLC. In progress	J & L ELEC	PERFORMANCE TEST CERTIFYING COMPLIANCE			PER EQUIP SUPPLIER SUBMITTAL -
40	**05.00**	**ROB, DAVE & PAUL (RDP) BELT CONVEYOR START UP CHECK LIST** Complete	**RDP**	**04.00 WKG DAYS**	**05.00 WKG DAYS**	**05.00 WKG DAYS**	**SPEC SECT 11139 -**

SMI STARTUP & TRAINING SERVICES

16 complete
1 waiting
1 in progress

Line # Col. 1	Rec. # Col. 2	Equipment/Process Col. 3	Supplier Col. 4	Inspection/Testing Duration Col. 5	Startup Duration Col. 6	Training Duration Col. 7	Notes Col. 8
41	05.01	CHECK SAFETY STOP SWITCH Complete	J & L ELEC				
42	05.02	CHECK SPEED SWITCH Complete	RDP				
43	~~05.02~~	CHECK SPEED SWITCH Complete	RDP				
44	05.03	APPLY POWER TO CONTROL PANEL Complete	J & L ELEC				
45	~~05.03~~	APPLY POWER TO CONTROL PANEL Complete	J& L ELEC				
46	05.04	INSTL JOG SWITCH Complete	J & L ELEC				
47	05.05	INSTL BELT SCALE INTEGRATOR Complete	J & L ELEC				
48	05.06	CONNECT LIMIT SWITCHES ON SHUTTLE CONVEYORS Complete	J & L ELEC				
49	05.07	APPLY POWER TO DRIVE MOTORS Complete	J & L ELEC				
50	05.08	START UP AUTOMATIC LUBRICATING SYSTEM Complete	BOSCH MECH				
51	05.09	VERIFY BEARING HAVE BEEN LUBRICATED Complete	RDP				
52	05.10	CHECK AND TIGHTEN ALL BOLTS FOR IDLERS & PULLEYS Completed	RDP				
53	05.11	VERIFY THAT ALL SAFETY GUARDS ARE IN PLACE Completed & painted	RDP				
54	05.12	ADJUST BELT SCRAPER, PLOW, & SKIRT BOARD Completed	RDP				
55	05.13	CHECK AND TIGHTEN ALL ASSEMBLY HARDWARE Completed	RDP				
56	05.14	CHECK SAFETY CABLE TENSION Completed	RDP				
57	05.15	CHECK DRIVE FOR PROPER ROTATION Completed	RDP				
58	05.16	CHECK BELT TRACKING AND ALIGNMENT Complete	RDP				
59	05.17	ADJUST CONVEYOR BELTS AFTER LOADING Wait for product to run	RDP				
60	**06.00**	**RDP PROCESS EQUIPMENT START UP CHECK LIST** In progress	RDP				

SMI STARTUP & TRAINING SERVICES

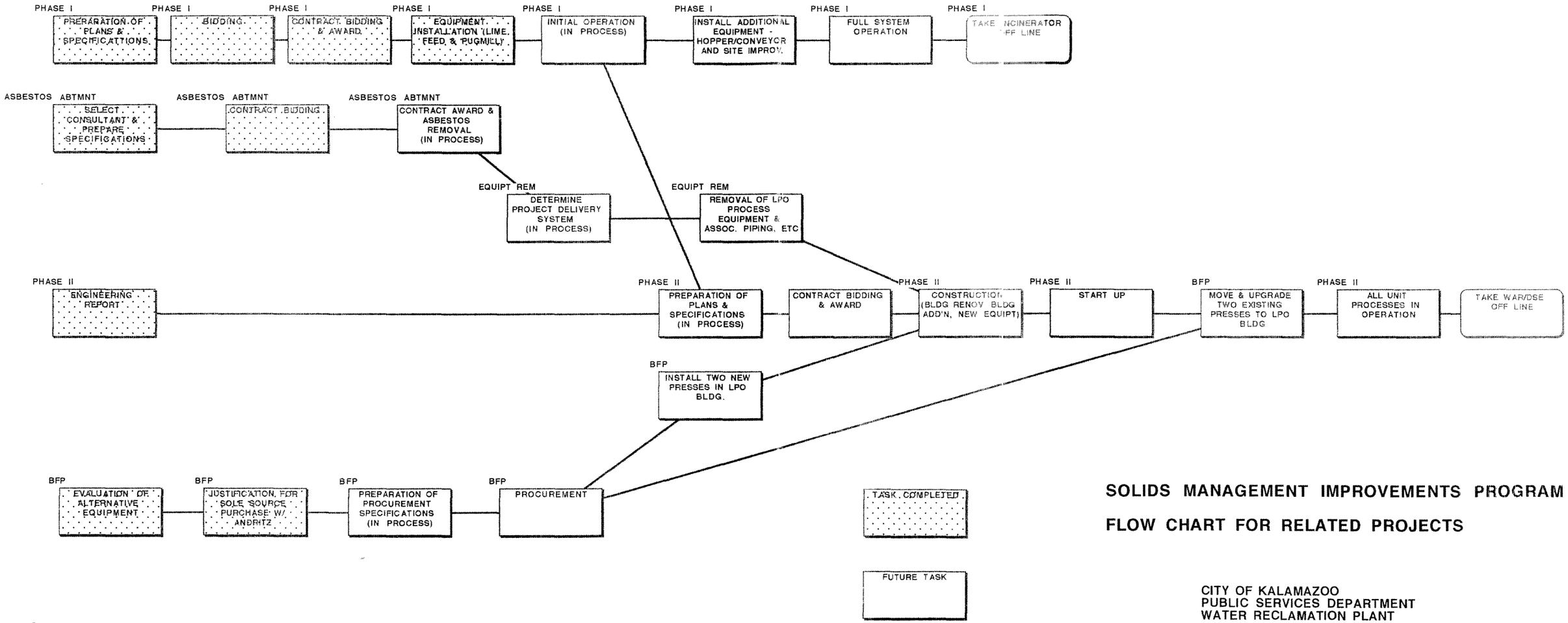
13 complete
7 in progress

Line # Col. 1	Rec. # Col. 2	Equipment/Process Col. 3	Supplier Col. 4	Inspection/Testing Duration Col. 5	Startup Duration Col. 6	Training Duration Col. 7	Notes Col. 8
61	06.01	CHECK SAFETY STOP SWITCH ?	J & L ELEC				
62	06.02	CHECK SPEED SWITCHES ?	RDP				
63	06.03	APPLY POWER TO CONTROL PANEL Complete	J & L ELEC				
64	06.04	CONNECT THERMO COUPLES ON PASTEURIZATION & THERMAL BLENDER & THERMAL FEEDER Complete	J & L ELEC				
65	06.05	CONNECT HEATING ELEMENTS ON PSTEURIZATION VESSEL Complete	J & L ELEC				
66	06.06	APPLY POWER TO DRIVE MOTORS Complete	J & L ELEC				
67	06.07	START UP AUTOMATIC LUBRICATION SYSTEMS In Progress	BOSCH MECH				
68	06.08	VERIFY BEARINGS HAVE ADEQUATE LUBRICATION Complete	RDP				
69	06.09	ADJUST & TIGHTEN ALL BOLTS FOR IDLERS & PULLEYS —	RDP				
70	06.10	CHECK & ADJUST BELT SCRAPER, PLOW & SKIRT BOARD Complete	RDP				
71	06.11	CHECK AND TIGHTEN ALL ASSEMBLY HARDWARE Complete	RDP				
72	06.12	CHECK AND ALIGN DRIVE CHAINS & SPROCKETS Complete	RDP				
73	06.13	APPLY GREASE DIRECTLY TO THE ENTIRE LENGTH OF CHAIN Complete	RDP				
74	06.15	CHECK CABLE TENSION FOR SAFETY STOPS —	RDP				
75	06.16	CHECK FIELD WIRING TO THE EXTERNAL HEAT SYSTEM Complete	RDP				
76	06.17	CHECK DRIVE MOTOR FOR PROPER ROTATION Complete	RDP				
77	06.18	CHECK BELT TRACKING & ALIGNMENT Complete	RDP				
78	06.19	ADJUST CONVEYOR BELTS FOR LOADING —	RDP				
79	06.20	RUN HEAT SYSTEM ONLY AFTER RDP AUTHORIZATION —	RDP				
80	06,14	VERIFY THAT ALL SAFETY GUARDS ARE IN PLACE Complete	RDP				

SMI STARTUP & TRAINING SERVICES

Line # Col. 1	Rec. # Col. 2	Equipment/Process Col. 3	Supplier Col. 4	Inspection/Testing Duration Col. 5	Startup Duration Col. 6	Training Duration Col. 7	Notes Col. 8
81	**07.00**	**RDP LIME FEED EQUIPMENT START UP** Complete	**RDP**				
82	07.01	CHECK SPEED SWITCHES -	RDP				
83	07.02	CONNECT LIME UNLOADING PANELS Complete	J & L ELEC				
84	07.03	CONNECT LIME UNLOADING DUST COLLECTOR Complete	J & L ELEC				
85	07.04	APPLY POWER TO DRIVE MOTORS Complete	J & L ELEC				
86	07.05	CHECK LIME BIN LEVEL SWITCHES Complete	RDP				
87	07.06	FILL ONE LIME SILO WITH QUICKLIME In progress	CITY OF KALAMAZOO				
88	07.07	INSTALL AIR ACTUATED SLIDE GATE ON LIME SCREW CONVEYORS Complete	BOSCH MECH				
89	07.08	VERIFY OPERATION OF BIN ACTIVATOR In progress Complete	BOSCH MECH				
90	07.09	START UP AUTOMATIC LUBRICATION SYSTEMS Complete	BOSCH MECH				
91	07.10	VERIFY BEARINGS HAVE ADEQUATE LUBRICATION Complete	RDP				
92	07.11	INSTALL AND WIRE LIMIT SWITCHES FOR LIME SLIDE GATES Complete	J & L ELEC				

[8 complete
3 in progress

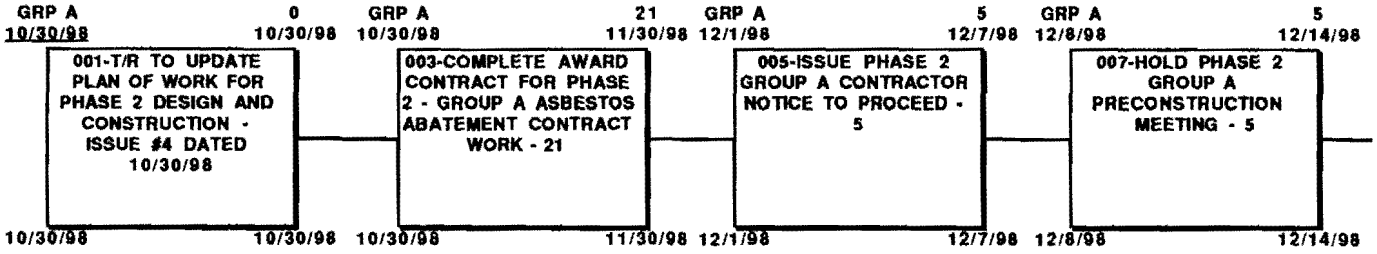


SOLIDS MANAGEMENT IMPROVEMENTS PROGRAM

FLOW CHART FOR RELATED PROJECTS

CITY OF KALAMAZOO
PUBLIC SERVICES DEPARTMENT
WATER RECLAMATION PLANT

PHASE 2 GROUP A CONST WORK

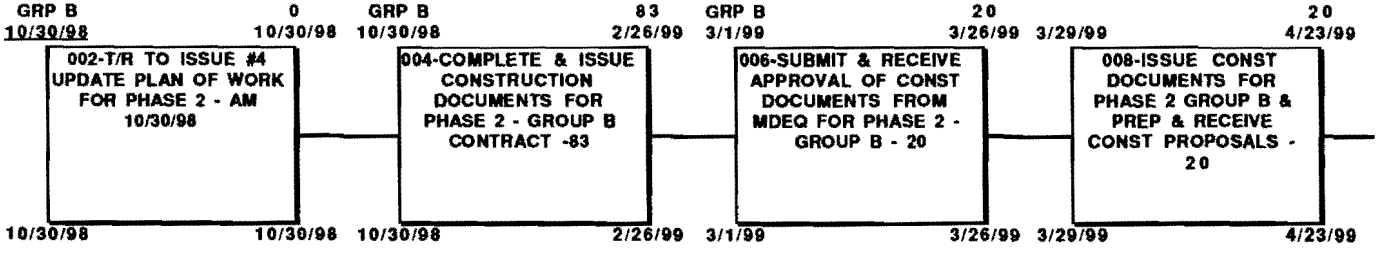


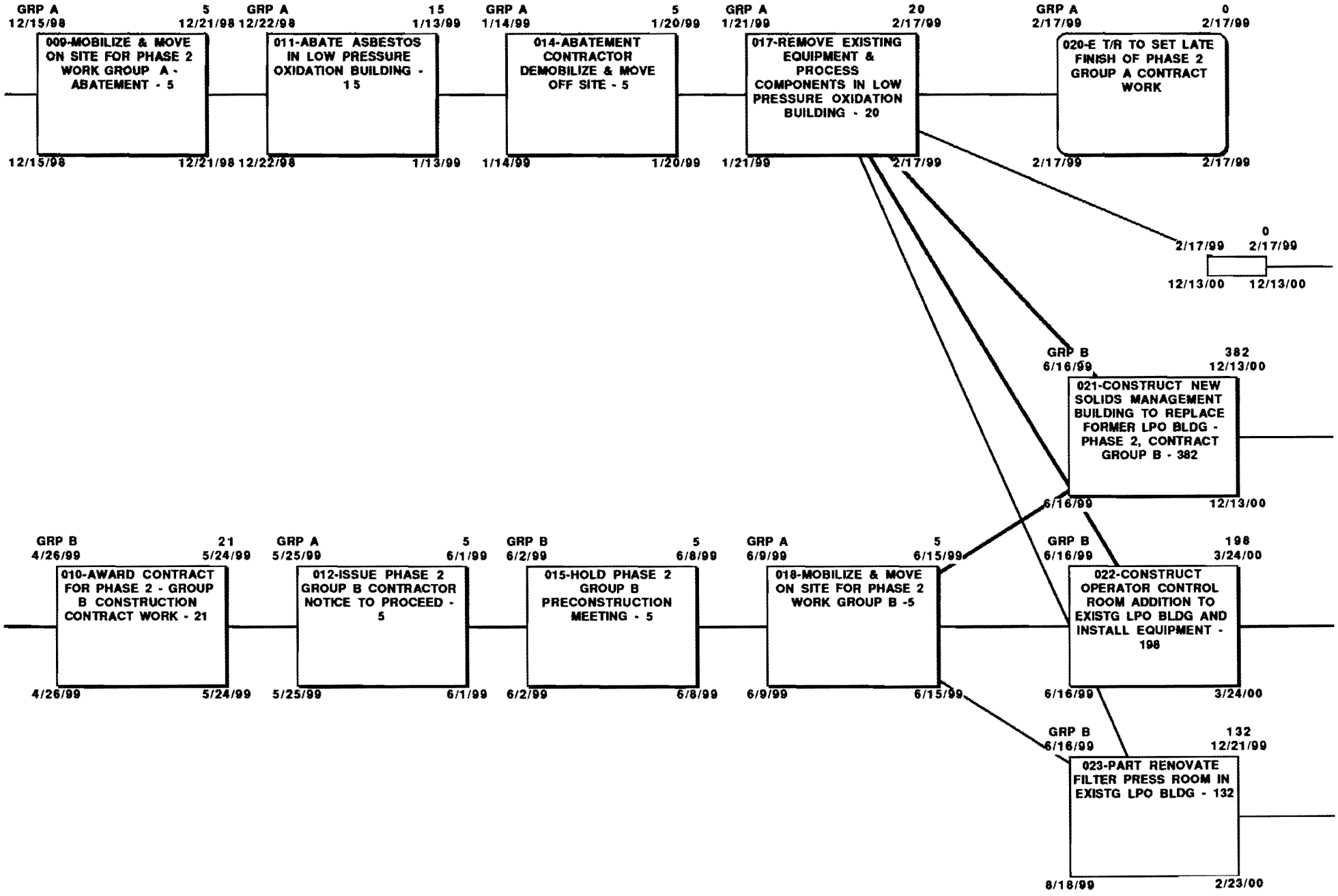
NOTE:
- CONSTRUCTION DOCUMENTS FOR PHASE 2 GROUP A WORK WERE COMPLETED AND ISSUED ON 08/26/98.

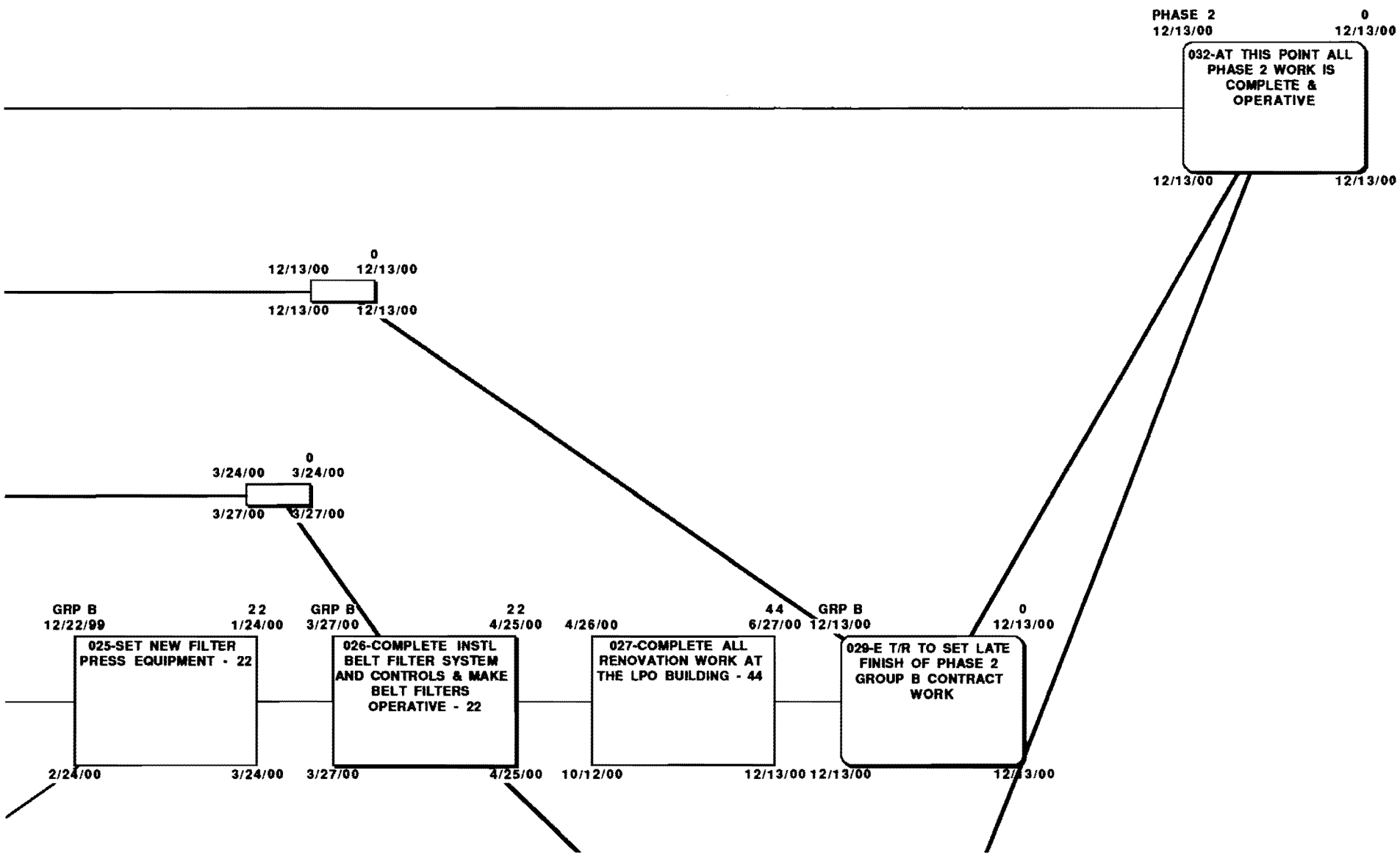
- PROPOSALS FOR THE WORK WERE RECEIVED ON 09/23/98.

- CONSULTANT'S AWARD RECOMMENDATIONS RECEIVED 10/29/98

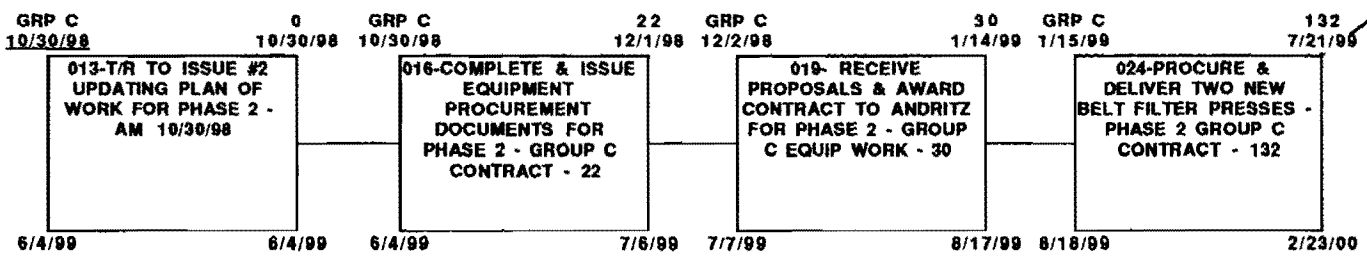
PHASE 2 GROUP B CONST WORK




GRP A
12/15/98
5
12/21/98
009-MOBILIZE & MOVE ON SITE FOR PHASE 2 WORK GROUP A - ABATEMENT - 5
12/15/98
12/21/98
GRP A
12/22/98
15
1/13/99
011-ABATE ASBESTOS IN LOW PRESSURE OXIDATION BUILDING - 15
12/22/98
1/13/99
GRP A
1/14/99
5
1/20/99
014-ABATEMENT CONTRACTOR DEMOBILIZE & MOVE OFF SITE - 5
1/14/99
1/20/99
GRP A
1/21/99
20
2/17/99
017-REMOVE EXISTING EQUIPMENT & PROCESS COMPONENTS IN LOW PRESSURE OXIDATION BUILDING - 20
1/21/99
2/17/99
GRP A
2/17/99
0
2/17/99
020-E T/R TO SET LATE FINISH OF PHASE 2 GROUP A CONTRACT WORK
2/17/99
2/17/99
2/17/99
0
2/17/99
12/13/00
12/13/00
GRP B
6/16/99
382
12/13/00
021-CONSTRUCT NEW SOLIDS MANAGEMENT BUILDING TO REPLACE FORMER LPO BLDG - PHASE 2, CONTRACT GROUP B - 382
6/16/99
12/13/00
GRP B
4/26/99
21
5/24/99
010-AWARD CONTRACT FOR PHASE 2 - GROUP B CONSTRUCTION CONTRACT WORK - 21
4/26/99
5/24/99
GRP A
5/25/99
5
6/1/99
012-ISSUE PHASE 2 GROUP B CONTRACTOR NOTICE TO PROCEED - 5
5/25/99
6/1/99
GRP B
6/2/99
5
6/8/99
015-HOLD PHASE 2 GROUP B PRECONSTRUCTION MEETING - 5
6/2/99
6/8/99
GRP A
6/9/99
5
6/15/99
018-MOBILIZE & MOVE ON SITE FOR PHASE 2 WORK GROUP B -5
6/9/99
6/15/99
GRP B
6/16/99
198
3/24/00
022-CONSTRUCT OPERATOR CONTROL ROOM ADDITION TO EXISTG LPO BLDG AND INSTALL EQUIPMENT - 198
6/16/99
3/24/00
GRP B
6/16/99
132
12/21/99
023-PART RENOVATE FILTER PRESS ROOM IN EXISTG LPO BLDG - 132
8/18/99
2/23/00


PHASE 2
12/13/00
0
12/13/00
032-AT THIS POINT ALL PHASE 2 WORK IS COMPLETE & OPERATIVE
12/13/00
12/13/00
0
12/13/00
12/13/00
12/13/00
0
3/24/00
3/24/00
3/27/00
3/27/00
GRP B
12/22/99
22
1/24/00
GRP B
3/27/00
22
4/25/00
4/26/00
44
6/27/00
GRP B
12/13/00
0
12/13/00
025-SET NEW FILTER PRESS EQUIPMENT - 22
026-COMPLETE INSTL BELT FILTER SYSTEM AND CONTROLS & MAKE BELT FILTERS OPERATIVE - 22
027-COMPLETE ALL RENOVATION WORK AT THE LPO BUILDING - 44
029-E T/R TO SET LATE FINISH OF PHASE 2 GROUP B CONTRACT WORK
2/24/00
3/24/00
3/27/00
4/25/00
10/12/00
12/13/00
12/13/00
12/13/00

PHASE 2 GROUP C CONST WORK



Phase 2 construction contract groupings:

- **Group A**

1. Asbestos abatement in LPO building
2. LPO equipment removal

- **Group B**

1. Renovate existing LPO building

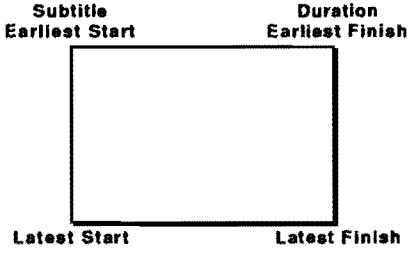
   a. Sludge feed pumps
   b. Belt filter presses
   c. Belt filter press drain system
   d. Operator room
   e. Motor control center

2. Construct LPO building addition

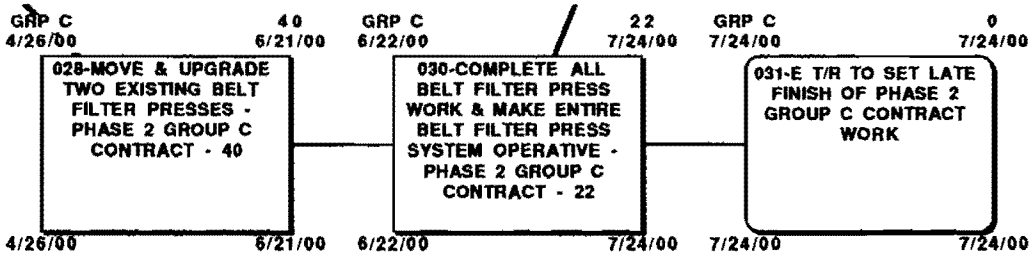
   a. Conveyance systems
   b. Bulk storage facilities
   c. Truck unloading system
   d. Polymer feed system
   e. Lime feed systems
   f. Sludge mixing/pugmill
   g. Scum treatment/decanting system

- **Group C**

1. Procure and install 2 new belt filter systems
2. Move and upgrade 2 existing belt filter presses



ACTIVITY LEGEND



ABBREVIATIONS

PP - Pilot Plant
DPS - Department of Public Services
SMI - Solids Management Improvement
J & H - Jones & Henry
ED - Engineering Department
KWRP - Kalamazoo Water Reclamation Plant
MDEQ - Michigan Department of Environmental Quality
T/R - Time restraint
E T/R - End time restraint

PHASE 2 WORK - SUMMARY PLAN OF CONTRACT GROUPS A, B & C

SUMMARY NETWORK MODEL FOR SOLIDS MANAGEMENT IMPROVEMENT PROGRAM

City of Kalamazoo Water Reclamation Plant Kalamazoo, Michigan

Mike Wetzel - Assistant City Engineer for Plant Engineering

Issue #1 - June 19,1998
Issue #2 - August 13, 1998
Issue #3 - in Mike Wetzel's issue 3 fldr - mac pro
Issue #4 - October 30, 1998
i4 smi sht SM1

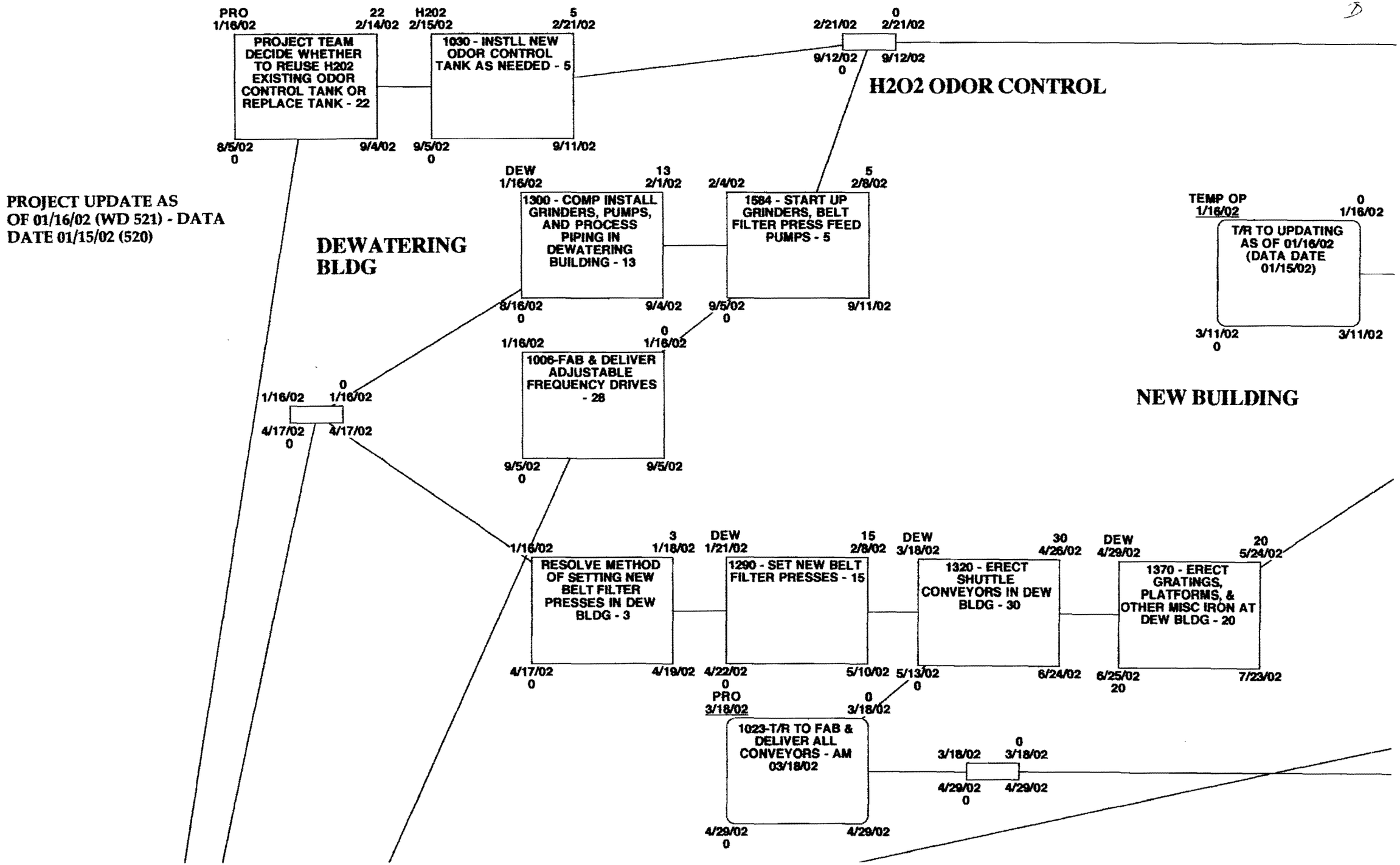
Reserved Activity Numbers

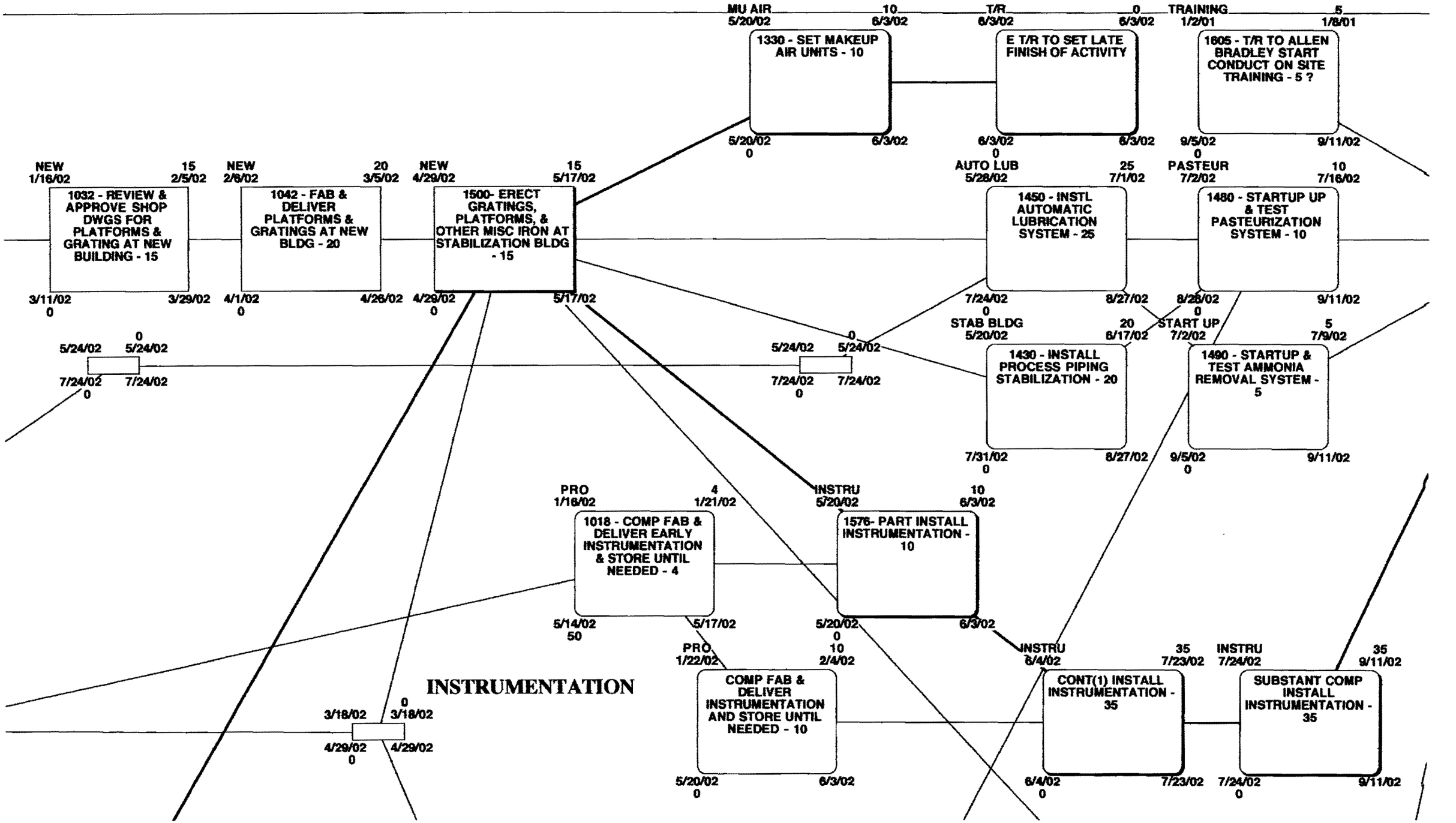
41	46
42	47
43	48
44	49
45	50

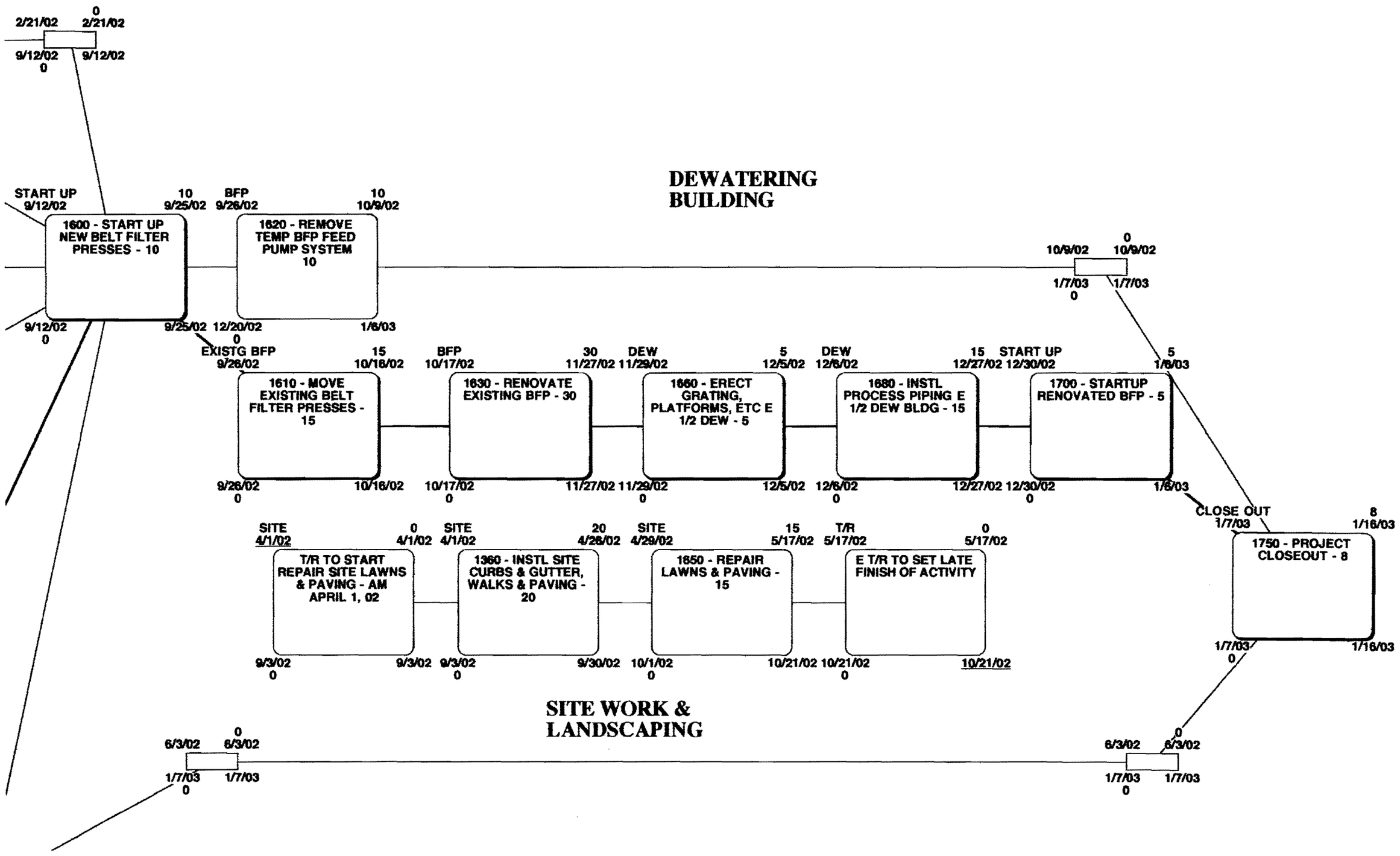
lan 001
han ??

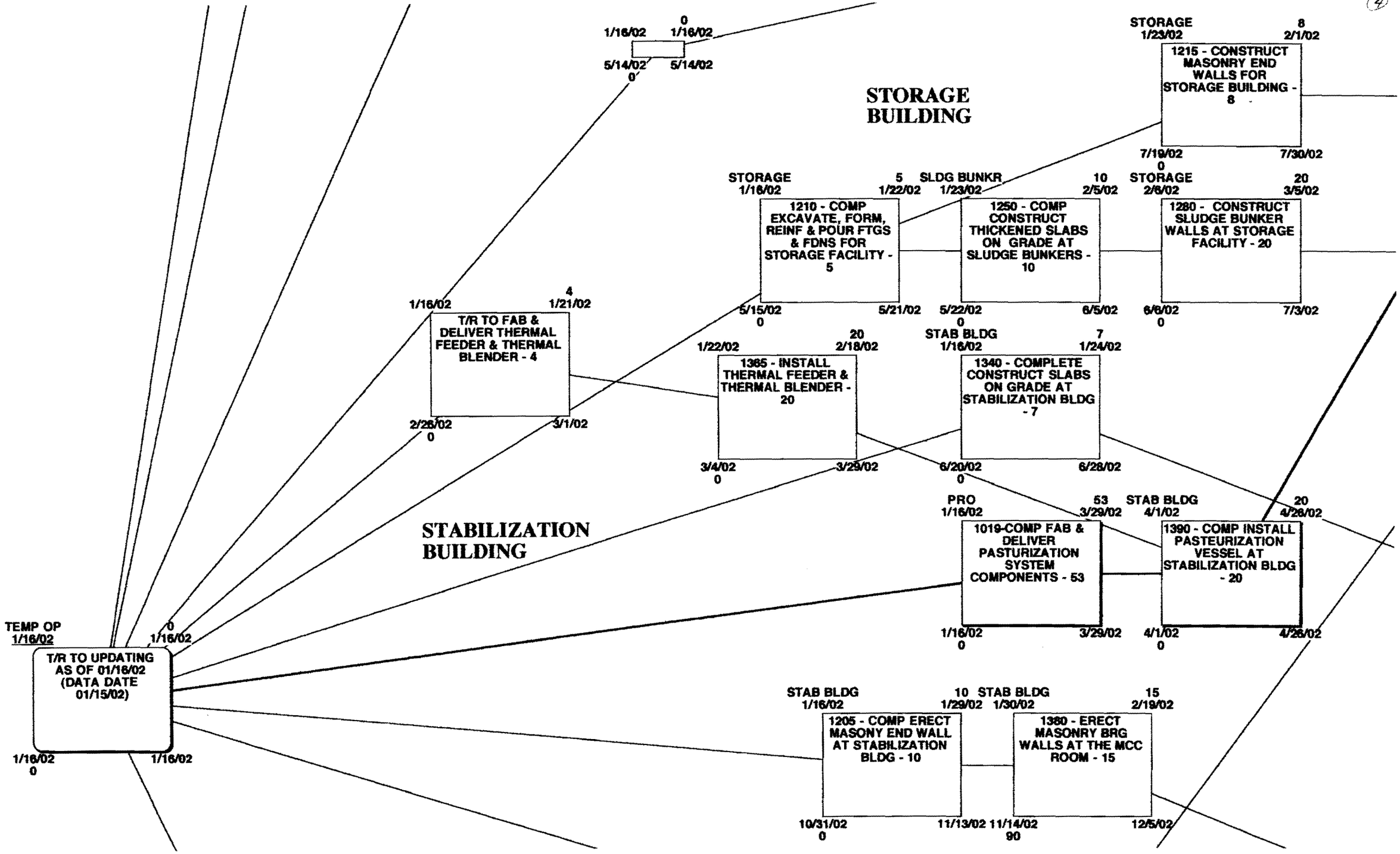
Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48828
ph 517 772 2537

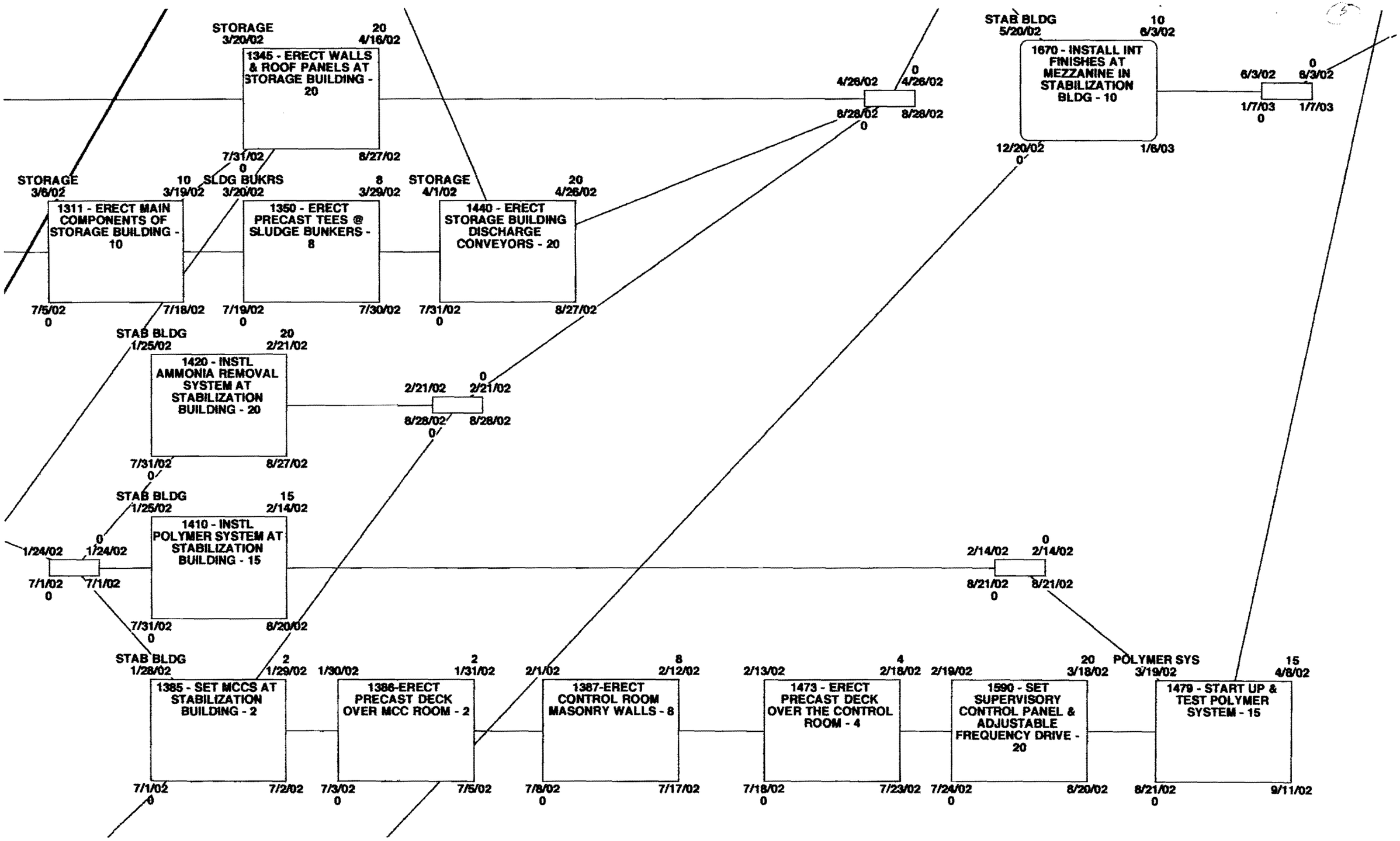
SHEET #SM1


PROJECT UPDATE AS OF 01/16/02 (WD 521) - DATA DATE 01/15/02 (520)
PRO 1/16/02
22 2/14/02
PROJECT TEAM DECIDE WHETHER TO REUSE H202 EXISTING ODOR CONTROL TANK OR REPLACE TANK - 22
8/5/02 0
9/4/02
H202 2/15/02
5 2/21/02
1030 - INSTLL NEW ODOR CONTROL TANK AS NEEDED - 5
9/5/02 0
9/11/02
2/21/02 0
2/21/02
9/12/02 0
9/12/02
H2O2 ODOR CONTROL
DEW 1/16/02
13 2/1/02
1300 - COMP INSTALL GRINDERS, PUMPS, AND PROCESS PIPING IN DEWATERING BUILDING - 13
8/16/02 0
9/4/02
2/4/02
5 2/8/02
1584 - START UP GRINDERS, BELT FILTER PRESS FEED PUMPS - 5
9/5/02 0
9/11/02
DEWATERING BLDG
TEMP OP 1/16/02
0 1/16/02
T/R TO UPDATING AS OF 01/16/02 (DATA DATE 01/15/02)
3/11/02 0
3/11/02
1/16/02
0 1/16/02
1006-FAB & DELIVER ADJUSTABLE FREQUENCY DRIVES - 28
9/5/02 0
9/5/02
NEW BUILDING
1/16/02
0 1/16/02
4/17/02 0
4/17/02
1/16/02
3 1/18/02
RESOLVE METHOD OF SETTING NEW BELT FILTER PRESSES IN DEW BLDG - 3
4/17/02 0
4/19/02
DEW 1/21/02
15 2/8/02
1290 - SET NEW BELT FILTER PRESSES - 15
4/22/02 0
5/10/02
DEW 3/18/02
30 4/26/02
1320 - ERECT SHUTTLE CONVEYORS IN DEW BLDG - 30
5/13/02 0
6/24/02
DEW 4/29/02
20 5/24/02
1370 - ERECT GRATINGS, PLATFORMS, & OTHER MISC IRON AT DEW BLDG - 20
6/25/02 20
7/23/02
PRO 3/18/02
0 3/18/02
1023-T/R TO FAB & DELIVER ALL CONVEYORS - AM 03/18/02
4/29/02 0
4/29/02
3/18/02
0 3/18/02
4/29/02 0
4/29/02


MU AIR
5/20/02
10
6/3/02
1330 - SET MAKEUP AIR UNITS - 10
5/20/02
0
6/3/02
T/R
6/3/02
0
6/3/02
E T/R TO SET LATE FINISH OF ACTIVITY
6/3/02
0
6/3/02
TRAINING
1/2/01
5
1/8/01
1605 - T/R TO ALLEN BRADLEY START CONDUCT ON SITE TRAINING - 5 ?
9/5/02
0
9/11/02
NEW
1/16/02
15
2/5/02
1032 - REVIEW & APPROVE SHOP DWGS FOR PLATFORMS & GRATING AT NEW BUILDING - 15
3/11/02
0
3/29/02
NEW
2/6/02
20
3/5/02
1042 - FAB & DELIVER PLATFORMS & GRATINGS AT NEW BLDG - 20
4/1/02
0
4/26/02
NEW
4/29/02
15
5/17/02
1500- ERECT GRATINGS, PLATFORMS, & OTHER MISC IRON AT STABILIZATION BLDG - 15
4/29/02
0
5/17/02
AUTO LUB
5/28/02
25
7/1/02
1450 - INSTL AUTOMATIC LUBRICATION SYSTEM - 25
7/24/02
0
8/27/02
PASTEUR
7/2/02
10
7/16/02
1480 - STARTUP UP & TEST PASTEURIZATION SYSTEM - 10
8/28/02
0
9/11/02
5/24/02
0
5/24/02
7/24/02
0
7/24/02
5/24/02
0
5/24/02
7/24/02
0
7/24/02
STAB BLDG
5/20/02
20
6/17/02
1430 - INSTALL PROCESS PIPING STABILIZATION - 20
7/31/02
0
8/27/02
START UP
7/2/02
5
7/9/02
1490 - STARTUP & TEST AMMONIA REMOVAL SYSTEM - 5
9/5/02
0
9/11/02
PRO
1/16/02
4
1/21/02
1018 - COMP FAB & DELIVER EARLY INSTRUMENTATION & STORE UNTIL NEEDED - 4
5/14/02
50
5/17/02
INSTRU
5/20/02
10
6/3/02
1576- PART INSTALL INSTRUMENTATION - 10
5/20/02
0
6/3/02
PRO
1/22/02
10
2/4/02
COMP FAB & DELIVER INSTRUMENTATION AND STORE UNTIL NEEDED - 10
5/20/02
0
6/3/02
INSTRU
6/4/02
35
7/23/02
CONT(1) INSTALL INSTRUMENTATION - 35
6/4/02
0
7/23/02
INSTRU
7/24/02
35
9/11/02
SUBSTANT COMP INSTALL INSTRUMENTATION - 35
7/24/02
0
9/11/02
INSTRUMENTATION
3/18/02
0
3/18/02
4/29/02
0
4/29/02


DEWATERING BUILDING
SITE WORK & LANDSCAPING
START UP 9/12/02
10 9/25/02
BFP 9/26/02
10 10/9/02
1600 - START UP NEW BELT FILTER PRESSES - 10
1620 - REMOVE TEMP BFP FEED PUMP SYSTEM 10
EXISTG BFP 9/26/02
15 10/16/02
BFP 10/17/02
30 11/27/02
DEW 11/29/02
5 12/5/02
DEW 12/6/02
15 12/27/02
START UP 12/30/02
5 1/6/03
1610 - MOVE EXISTING BELT FILTER PRESSES - 15
1630 - RENOVATE EXISTING BFP - 30
1660 - ERECT GRATING, PLATFORMS, ETC E 1/2 DEW - 5
1680 - INSTL PROCESS PIPING E 1/2 DEW BLDG - 15
1700 - STARTUP RENOVATED BFP - 5
CLOSE OUT 1/7/03
8 1/16/03
1750 - PROJECT CLOSEOUT - 8
SITE 4/1/02
0 4/1/02
SITE 4/1/02
20 4/28/02
SITE 4/29/02
15 5/17/02
T/R 5/17/02
0 5/17/02
T/R TO START REPAIR SITE LAWNS & PAVING - AM APRIL 1, 02
1360 - INSTL SITE CURBS & GUTTER, WALKS & PAVING - 20
1650 - REPAIR LAWNS & PAVING - 15
E T/R TO SET LATE FINISH OF ACTIVITY


STORAGE BUILDING
STABILIZATION BUILDING
TEMP OP 1/16/02
T/R TO UPDATING AS OF 01/16/02 (DATA DATE 01/15/02)
0 1/16/02
1/16/02 0
1/16/02 0
1/16/02 0
0 1/16/02
5/14/02 0
5/14/02
T/R TO FAB & DELIVER THERMAL FEEDER & THERMAL BLENDER - 4
4 1/21/02
2/26/02 0
3/1/02
1210 - COMP EXCAVATE, FORM, REINF & POUR FTGS & FDNS FOR STORAGE FACILITY - 5
STORAGE 1/16/02
5 1/22/02
5/15/02 0
5/21/02
1250 - COMP CONSTRUCT THICKENED SLABS ON GRADE AT SLUDGE BUNKERS - 10
SLDG BUNKR 1/23/02
10 2/5/02
5/22/02 0
6/5/02
1280 - CONSTRUCT SLUDGE BUNKER WALLS AT STORAGE FACILITY - 20
STORAGE 2/6/02
20 3/5/02
6/6/02 0
7/3/02
1215 - CONSTRUCT MASONRY END WALLS FOR STORAGE BUILDING - 8
STORAGE 1/23/02
8 2/1/02
7/19/02 0
7/30/02
1365 - INSTALL THERMAL FEEDER & THERMAL BLENDER - 20
1/22/02
20 2/18/02
3/4/02 0
3/29/02
1340 - COMPLETE CONSTRUCT SLABS ON GRADE AT STABILIZATION BLDG - 7
STAB BLDG 1/16/02
7 1/24/02
6/20/02 0
6/28/02
1019-COMP FAB & DELIVER PASTURIZATION SYSTEM COMPONENTS - 53
PRO 1/16/02
53 3/29/02
1/16/02 0
3/29/02
1390 - COMP INSTALL PASTEURIZATION VESSEL AT STABILIZATION BLDG - 20
STAB BLDG 4/1/02
20 4/26/02
4/1/02 0
4/26/02
1205 - COMP ERECT MASONY END WALL AT STABILIZATION BLDG - 10
STAB BLDG 1/16/02
10 1/29/02
10/31/02 0
11/13/02
1380 - ERECT MASONRY BRG WALLS AT THE MCC ROOM - 15
STAB BLDG 1/30/02
15 2/19/02
11/14/02 90
12/5/02


STORAGE
3/20/02
20
4/16/02
1345 - ERECT WALLS & ROOF PANELS AT STORAGE BUILDING - 20
7/31/02
0
8/27/02
STAB BLDG
5/20/02
10
6/3/02
1670 - INSTALL INT FINISHES AT MEZZANINE IN STABILIZATION BLDG - 10
12/20/02
0
1/6/03
4/26/02
0
4/26/02
8/28/02
0
8/28/02
6/3/02
0
6/3/02
1/7/03
0
1/7/03
STORAGE
3/6/02
10
3/19/02
1311 - ERECT MAIN COMPONENTS OF STORAGE BUILDING - 10
7/5/02
0
7/18/02
SLDG BUKRS
3/20/02
8
3/29/02
1350 - ERECT PRECAST TEES @ SLUDGE BUNKERS - 8
7/19/02
0
7/30/02
STORAGE
4/1/02
20
4/26/02
1440 - ERECT STORAGE BUILDING DISCHARGE CONVEYORS - 20
7/31/02
0
8/27/02
STAB BLDG
1/25/02
20
2/21/02
1420 - INSTL AMMONIA REMOVAL SYSTEM AT STABILIZATION BUILDING - 20
7/31/02
0
8/27/02
2/21/02
0
2/21/02
8/28/02
0
8/28/02
STAB BLDG
1/25/02
15
2/14/02
1410 - INSTL POLYMER SYSTEM AT STABILIZATION BUILDING - 15
7/31/02
0
8/20/02
1/24/02
0
1/24/02
7/1/02
0
7/1/02
2/14/02
0
2/14/02
8/21/02
0
8/21/02
STAB BLDG
1/28/02
2
1/29/02
1385 - SET MCCS AT STABILIZATION BUILDING - 2
7/1/02
0
7/2/02
1/30/02
2
1/31/02
1386-ERECT PRECAST DECK OVER MCC ROOM - 2
7/3/02
0
7/5/02
2/1/02
8
2/12/02
1387-ERECT CONTROL ROOM MASONRY WALLS - 8
7/8/02
0
7/17/02
2/13/02
4
2/18/02
1473 - ERECT PRECAST DECK OVER THE CONTROL ROOM - 4
7/18/02
0
7/23/02
2/19/02
20
3/18/02
1590 - SET SUPERVISORY CONTROL PANEL & ADJUSTABLE FREQUENCY DRIVE - 20
7/24/02
0
8/20/02
POLYMER SYS
3/19/02
15
4/8/02
1479 - START UP & TEST POLYMER SYSTEM - 15
8/21/02
0
9/11/02

VIII. Laundry lists

A. Procurement - shop drawings

1. 1000 00 D (wd?) NOTICE TO PROCEED
2. 1006 25 D - SHOP DRAWINGS VFD
3. 1009 25 D - SHOP DRAWINGS WIRING LAYOUT
4. 1011 20 D - SHOP DRAWINGS BRIDGE CRANE
5. 1012 20 D - SHOP DRAWINGS XFMRS
6. 1013 20 D - SHOP DRAWINGS MCSS
7. 1014 20 D - SHOP DRAWINGS INSTRUMENTATION
8. 1019 20 D - SHOP DRAWINGS PASTURIZATION VESSEL
9. 1021 20 D - SHOP DRAWINGS LIME SILO
10. 1023 20 D - SHOP DRAWINGS CONVEYORS
11. 1025 30 D - SHOP DRAWINGS STRUCT STEEL DEW BLDG
12. 1031 10 D - SHOP DRAWINGS PLATFORMS & GRATING FOR DEW BLDG
13. 1005 45 D - SHOP DRAWINGS - METAL BUILDING
14. 1008 05 D - SHOP DRAWINGS - CONC REINF NEW BLDG
12. 1031 10 D - SHOP DRAWINGS PLATFORMS & GRATING FOR NEW BLDG

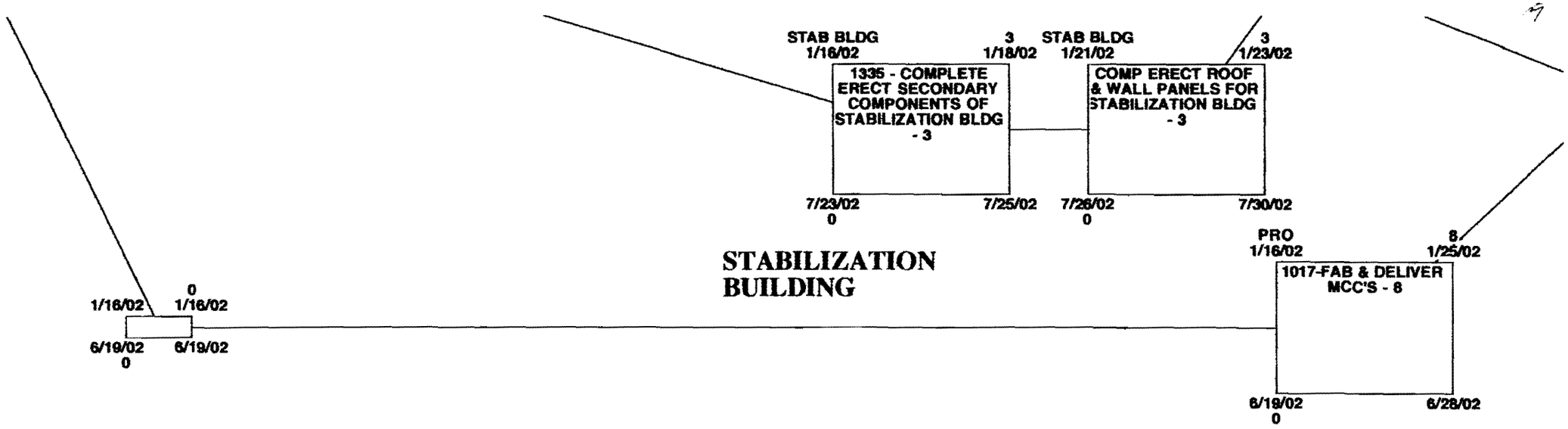
B. Procurement - fabricate & deliver

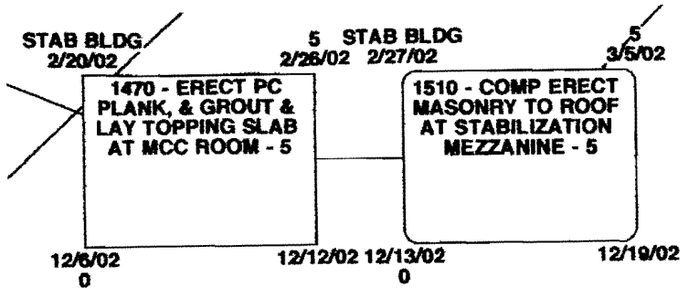
1. 1015 40 D - FAB/DEL BRIDGE CRANES
2. 1016 70 D - FAB/DEL XFMRS
3. 1029 05 D - FAB/DEL CONC REINF STAB BLDG
4. 1017 60 D - FAB/DEL MCSS
5. 1018 50 D - FAB/DEL INSTRUMENTATION
6. 1028 50 D - FAB/DEL STRUCT STEEL DEW BLDG
7. 1026 30 D - FAB/DEL LIME SILO
8. 1027 40 D - FAB/DEL CONVEYORS
9. 1022 130 D - FAB/DEL PASTURIZATION SYSTEM

C. Building & systems work

1. 1010 05 D - MOBILIZE
2. 1020 05 D - PREPARE LAY DOWN AREA
3. 1030 05 D - RELOCATE H2O2 TANK
4. 1040 02 D - UNDERGROUND PIPING AT TEMP ENCL
5. 1060 05 D - RELOCATE 18" SANITARY
6. 1070 05 D - TEMP BFP FEED PUMP ENCLOSURE
7. 1050 20 D - DEMO FLOOR SLAB DEW BUILDING
8. 1200 10 D - SILO FOUNDATION
9. 1080 02 D - GSST DISCH TO TEMP ENCLOSURE
10. 1090 01 D - SHUT DN BFP FEED PUMPS
11. 1100 04 D - RELOC MUFFIN MONSTER
12. 1195 05 D - XFMR PAD
13. 1175 05 D - DUCT BANK FROM LC-11 & 11A
14. 1110 01 D - OPERATE SO. BFP FEED PUMPS
15. 1120 05 D - RELOCATE NO. BFP FEED PUMPS
16. 1130 02 D - RELOCATE H2O2 FEED PUMPS
17. 1180 20 D - FTGS & FDNS DEWATERING BLDG
18. 1190 20 D - FTGS & FDNS STABILIZATION BLDG
19. 1140 01 D - STARTUP NO. BFP PUMPS
20. 1270 10 D - SL ON GRADE & TOPPING DEWATERING
21. 1150 01 D - SHUT DN BFP FEED PUMPS DISC SO
22. 1160 00 D - OPERATE SYST W/NO. PUMPS
23. 1170 05 D - RELOCATE STARTUP SO BFP FD PUMPS
24. 1300 20 D - GRINDER, PUMPS & ASSOC PIPING DEW
25. 1210 25 D - FTGS & FDNS STORAGE FACILITY
26. 1230 20 D - TRENCH SYSTEM DEWATERING BLDG
27. 1240 05 D - UNDERGROUND PLBG STABILIZATION
28. 1250 10 D - SLABS ON GRADE SLUDGE BUNKERS
29. 1280 20 D - BUNKER WALLS STORAGE FACILITY
30. 1220 05 D - STRUCTURAL STEEL DEWATERING BLDG
31. 1576 80 D - INSTALL INSTRUMENTATION
32. 1260 15 D - BRIDGE CRANES DEWATERING BLDG
33. 1310 25 D - ERECT STR STRL & METAL BUILDING
34. 1350 08 D - PRECAST TEES @ SLUDGE BUNKERS
35. 1575 40 D - INSTALL XFMRS & MCCS
36. 1290 25 D - SET NEW BELT FILTER PRESSES
37. 1330 10 D - SET MAKEUP AIR UNITS
38. 1340 10 D - SLABS ON GRADE STABILIZATION BLDG
39. 1360 20 D - CURBS & GUTTER, WALKS & PAVING
40. 1380 15 D - MASONRY BRG WALLS STABILIZATION
41. 1400 20 D - LIME SILO & FEED EQPT

√1. 1010 05 D - MOBILIZE
√2. 1020 05 D - PREPARE LAY DOWN AREA
√3. 1030 05 D - RELOCATE H2O2 TANK
√4. 1040 02 D - UNDERGROUND PIPING AT TEMP ENCL
√5. 1060 05 D - RELOCATE 18" SANITARY
√6. 1070 05 D - TEMP BFP FEED PUMP ENCLOSURE
√7. 1050 20 D - DEMO FLOOR SLAB DEW BUILDING
√8. 1200 10 D - SILO FOUNDATION
√9. 1080 02 D - GSST DISCH TO TEMP ENCLOSURE
√10. 1090 01 D - SHUT DN BFP FEED PUMPS
√11. 1100 04 D - RELOC MUFFIN MONSTER
√12. 1195 05 D - XFMR PAD
√13. 1175 05 D - DUCT BANK FROM LC-11 & 11A
√14. 1110 01 D - OPERATE SO. BFP FEED PUMPS
√15. 1120 05 D - RELOCATE NO. BFP FEED PUMPS
√16. 1130 02 D - RELOCATE H2O2 FEED PUMPS - DELETED
√17. 1180 20 D - FTGS & FDNS DEWATERING BLDG
√18. 1190 20 D - FTGS & FDNS STABILIZATION BLDG
√19. 1140 01 D - STARTUP NO. BFP PUMPS
√20. 1270 10 D - SL ON GRADE & TOPPING DEWATERING
√21. 1150 01 D - SHUT DN BFP FEED PUMPS DISC SO
√22. 1160 00 D - OPERATE SYST W/NO. PUMPS
√23. 1170 05 D - RELOCATE STARTUP SO BFP FD PUMPS
√24. 1300 20 D - GRINDER, PUMPS & ASSOC PIPING DEW
√25. 1210 25 D - FTGS & FDNS STORAGE FACILITY
√26. 1230 20 D - TRENCH SYSTEM DEWATERING BLDG
√27. 1240 05 D - UNDERGROUND PLBG STABILIZATION
√28. 1250 10 D - SLABS ON GRADE SLUDGE BUNKERS
√29. 1280 20 D - BUNKER WALLS STORAGE FACILITY
√30. 1220 05 D - STRUCTURAL STEEL DEWATERING BLDG
√31. 1576 80 D - INSTALL INSTRUMENTATION
√32. 1260 15 D - BRIDGE CRANES DEWATERING BLDG
√33. 1310 25 D - ERECT STR STRL & METAL BUILDING
√33A 1205 10 D - MASONY END WALL STABILIZATION BLDG
√34. 1350 08 D - PRECAST TEES @ SLUDGE BUNKERS
√35. 1575 40 D - INSTALL XFMRS & MCCS
√36. 1290 25 D - SET NEW BELT FILTER PRESSES
√37. 1330 10 D - SET MAKEUP AIR UNITS
√38. 1340 10 D - SLABS ON GRADE STABILIZATION BLDG
39. 1360 20 D - CURBS & GUTTER, WALKS & PAVING
√40. 1380 15 D - MASONRY BRG WALLS STABILIZATION
√41. 1400 20 D - LIME SILO & FEED EQPT
√42. 1410 15 D - POLYMER SYSTEM
√43. 1420 20 D - AMMONIA REMOVAL SYSTEM
√44. 1430 20 D - PROCESS PIPING STABILIZATION
√45. 1320 30 D - SET CONVEYORS W 1/2 DEW BLDG
√46. 1650 15 D - REPAIR LAWNS & PAVING
√47. 1470 05 D - PRECAST PLANK STABILIZATION BLDG
√48. 1490 05 D - STARTUP AMMONIA REMOVAL SYSTEM
√49. 1500 15 D - GRATING PLATFORMS, ETC STABILIZATION
√50. 1510 05 D - MASONRY WALLS CONTROL ROOM
√51. 1670 10 D - FINISHES CONTROL ROOM
√52. 1370 20 D - GRATING PLATFORMS, ETC. DEW BLDG
√53. 1440 20 D - STORAGE DISCHARGE CONVEYORS
√54. 1450 25 D - AUTOMATIC LUBRICATION SYSTEM
√55. 1460 30 D - PROCESS PIPE FOR RENOVATED BELT FILTER PRESSES
√56. 1390 30 D - PASTEURIZATION SYSTEM
√57. 1480 10 D - STARTUP PASTEURIZATION SYSTEM
√58. 1600 10 D - STARTUP NEW BELT FILTER PRESSES
√59. 1605 05 D - ALLEN BRADLEY ON SITE TRAINING
√60. 1610 15 D - MOVE EXISTING BELT FILTER PRESSES
√61. 1620 10 D - REMOVE TEMP BFP FEED PUMP SYSTEM
√62. 1630 30 D - RENOVATE EXISTING BFP
√64. 1660 15 D - GRATING PLATFORM ETC E 1/2 DEW
√65. 1680 20 D - PROCESS PIPING E 1/2 DEW BLDG
√66. 1700 05 D - STARTUP RENOVATED BFP
√67. 1750 10 D - PROJECT CLOSEOUT


STAB BLDG
1/16/02
3
1/18/02
1335 - COMPLETE ERECT SECONDARY COMPONENTS OF STABILIZATION BLDG - 3
7/23/02
0
7/25/02
STAB BLDG
1/21/02
3
1/23/02
COMP ERECT ROOF & WALL PANELS FOR STABILIZATION BLDG - 3
7/26/02
0
7/30/02
STABILIZATION BUILDING
0
1/16/02
1/16/02
6/19/02
0
6/19/02
PRO
1/16/02
8
1/25/02
1017-FAB & DELIVER MCC'S - 8
6/19/02
0
6/28/02



STABILIZATION BUILDING

42. 1410 15 D - POLYMER SYSTEM
43. 1420 20 D - AMMONIA REMOVAL SYSTEM
44. 1430 20 D - PROCESS PIPING STABILIZATION
45. 1320 30 D - SET CONVEYORS W 1/2 DEW BLDG
46. 1650 15 D - REPAIR LAWNS & PAVING
47. 1470 05 D - PRECAST PLANK STABILIZATION BLDG
48. 1490 05 D - STARTUP AMMONIA REMOVAL SYSTEM
49. 1500 15 D - GRATING PLATFORMS, ETC STABILIZATION
50. 1510 05 D - MASONRY WALLS CONTROL ROOM
51. 1670 10 D - FINISHES CONTROL ROOM
52. 1370 20 D - GRATING PLATFORMS, ETC. DEW BLDG
53. 1440 20 D - STORAGE DISCHARGE CONVEYORS
54. 1450 25 D - AUTOMATIC LUBRICATION SYSTEM
55. 1460 30 D - PROCESS PIPE/PUMPING EQPT DEW BLDG
56. 1390 30 D - PASTEURIZATION SYSTEM
57. 1480 10 D - STARTUP PASTEURIZATION SYSTEM
58. 1600 10 D - STARTUP NEW BELT FILTER PRESSES
59. 1605 05 D - ALLEN BRADLEY ON SITE TRAINING
60. 1610 15 D - MOVE EXISTING BELT FILTER PRESSES
61. 1620 10 D - REMOVE TEMP BFP FEED PUMP SYSTEM
62. 1630 30 D - RENOVATE EXISTING BFP
63. 1640 20 D - SET CONVEYORS E 1/2 DEW BLDG
64. 1660 15 D - GRATING PLATFORM ETC E 1/2 DEW
65. 1680 20 D - PROCESS PIPING E 1/2 DEW BLDG
66. 1700 05 D - STARTUP RENOVATED BFP
67. 1750 10 D - PROJECT CLOSEOUT

ITEMS TO ADD
MAKE UP AIR UNITS
LUBRICATION SYSTEM
AMMONIA REMOVAL SYSTEM

PROJECT UPDATE AS OF 01/16/02 (WD 521) - DATA DATE 01/15/02 (520)

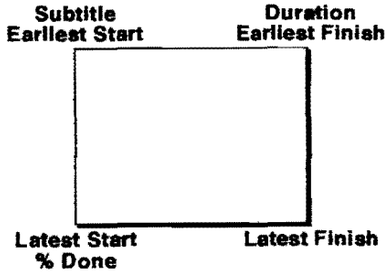
Solids Dewatering, Stabilization, and Storage Facility - Contract 52 D (rebid) Kalamazoo, Michigan

Wagner-Flook Builders, Inc.
Battle Creek, Michigan
Phil Jones - Project Manager

City of Kalamazoo - Public Services Department
Larry Fischer - Project Manager

Jones & Henry Engineers, Inc.
Dan Miller - Project Manager

Ralph J. Stephenson, P.E.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48858-9096
ph 1-989-772 2537



ACTIVITY LEGEND

Data date - Wagner-Flook

August 28, 2001 original
August 28, 2001 mtr 10/18/01
October 18, 2001 updating (10/08/01 data)
October 18, 2001 mtr 11/8/01
November 8, 2001 updating (11/2/01 data)
November 8, 2001 mtr 12/18/01
December 18, 2001 updating (12/07/01 data)
January 16, 2002 updating (01/15/02 data)

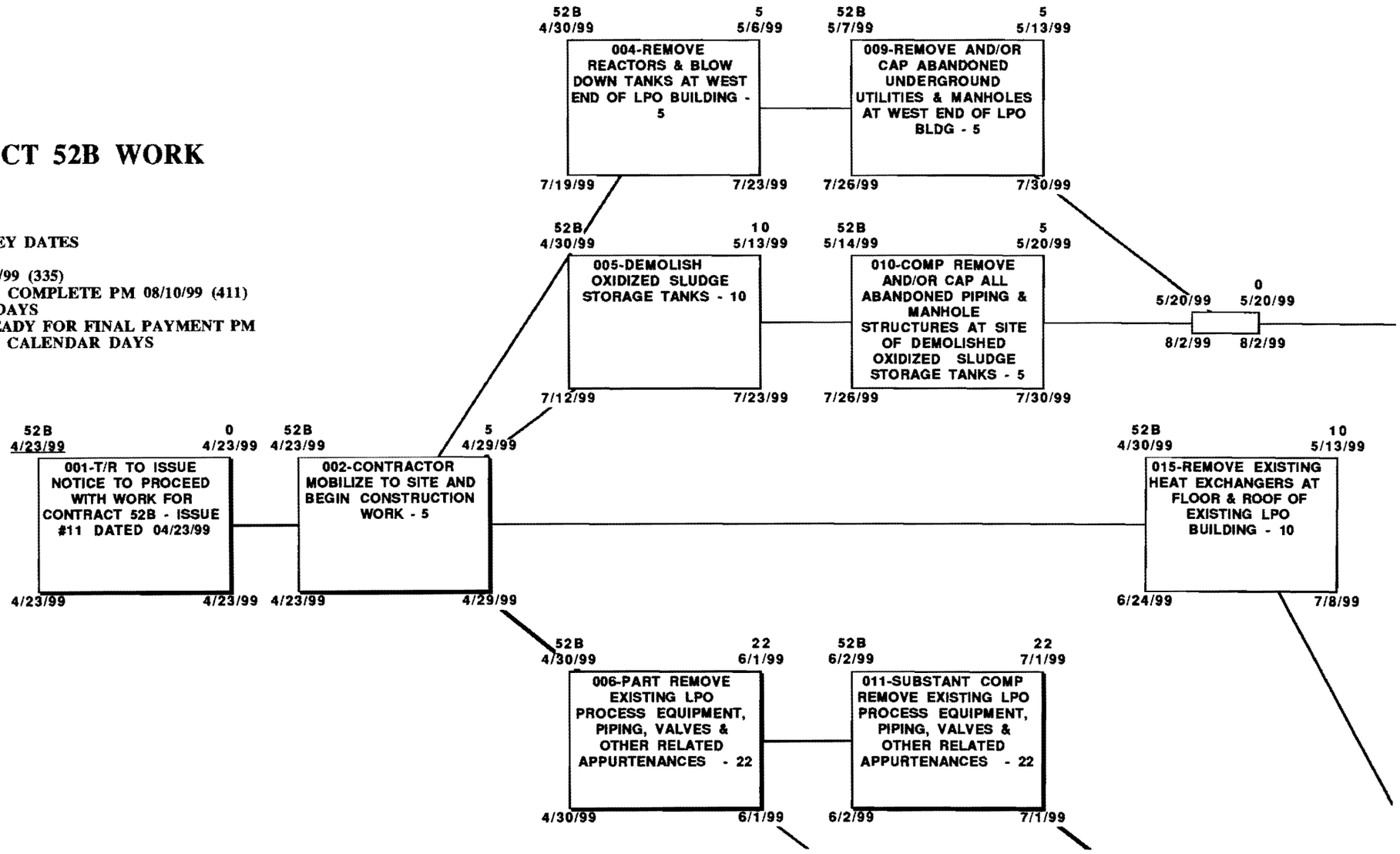
Sht 1A updte 01/16/02 - 01/15/02 data dte

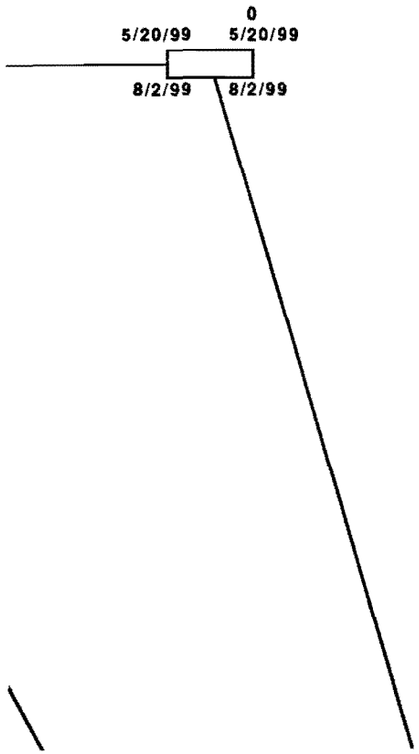
Sheet 1A

CONTRACT 52B WORK

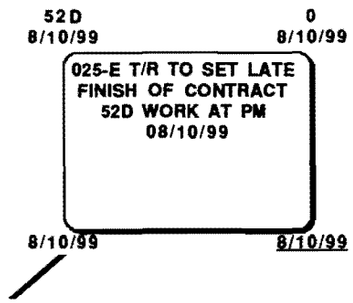
CONTRACT 52B KEY DATES

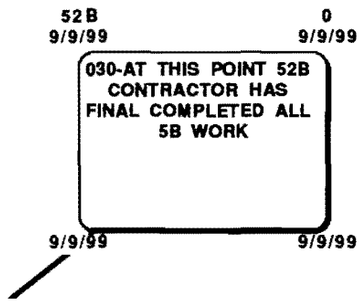
- START AM 04/23/99 (335)
- SUBSTANTIALLY COMPLETE PM 08/10/99 (411) - 110 CALENDAR DAYS
- COMPLETE & READY FOR FINAL PAYMENT PM 09/09/99 (432) - 140 CALENDAR DAYS





Note:
Mike W to study the relation between completion of work, and substantially complete date & remaining work to final completion.





NEW SOLIDS MANAGEMENT BUILDING

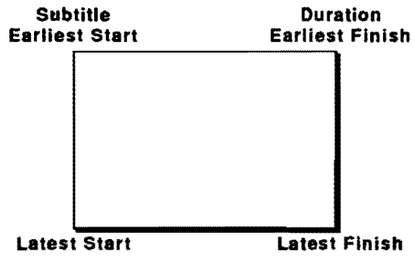
- BELT CONVEYORS
  - -BFP UNLOADING
  - -SERPENTINE
  - -REVERSIBLE FLAT BELT
  - -INDEXING
- POLYMER FEED SYSTEM
- LIME FEED SYSTEM
- SLUDGE MIXING SYSTEM
- BULK STORAGE EQUIPMENT
- CONTROL PANELS
- SLUDGE PUMPS
- SCUM TREATMENT
- OTHER

RENOVATED LPO BUILDING

- FOUR BELT FILTER PRESSES
- AREA FOR TWO FUTURE BFP
- BFP FEED PUMPS
- BELT CONVEYOR
- CONTROL PANELS @ BFP
- INDUSTRIAL WORK STATION
- OTHER

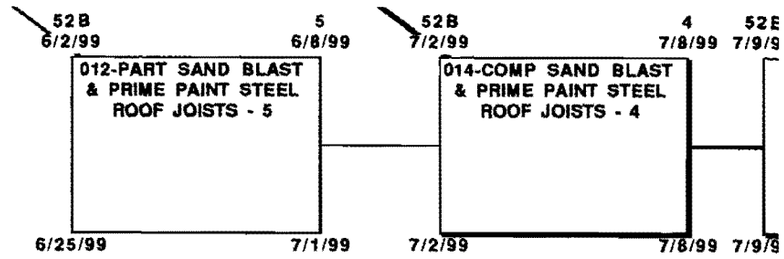
OPERATOR CONTROL ROOM ADDITION

- MOTOR CONTROL CENTERS
- COMPUTER CONTROL EQUIPMENT
- CONTROL PANELS



ABBREVIATIONS

PP - Pilot Plant
DPS - Department of Public Services
SMI - Solids Management Improvement
J & H - Jones & Henry
ED - Engineering Department
KWRP - Kalamazoo Water Reclamation Plant
MDEQ - Michigan Department of Environmental Quality
T/R - Time restraint
E T/R - End time restraint



Contract grouping scope of work

- **Contract 52A**

1. Asbestos abatement in LPO building

- **Contract 52B**

2. LPO equipment removal, roof replacement & demolision of oxidized sludge storage tanks

- **Contract 52C**

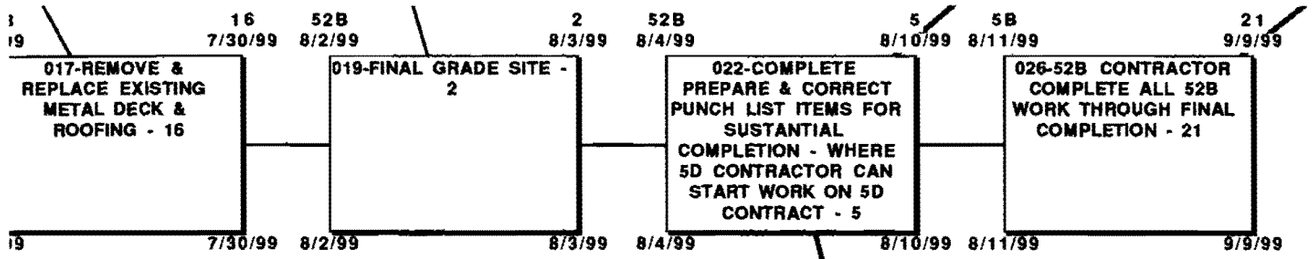
1. Procure and install 2 new belt filter systems
2. Move and upgrade 2 existing belt filter presses

- **Contract 52D**

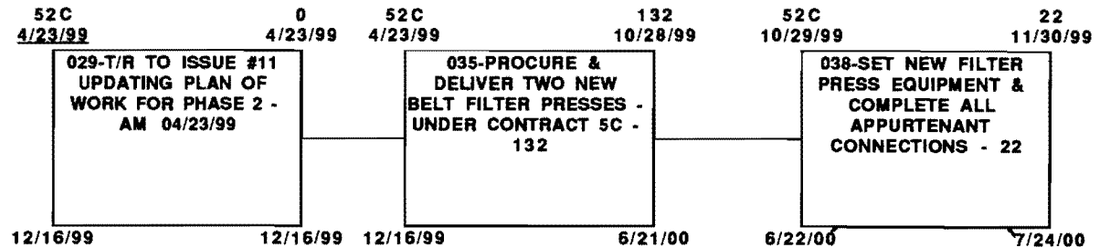
1. Renovate existing LPO building
  a. Sludge feed pumps
  b. Install belt filter presses
  c. Belt filter press drain system
  d. Upgrade odor control system
2. Construct LPO building addition
  a. Conveyance systems
  b. Install live bottom hoppers - bulk storage facilities -
  c. Truck unloading system
  d. Polymer feed system
  e. Lime feed systems
  f. Sludge mixing/pugmill
3. Construct operator control & MCC addition

- **Contract 52E**

1. Procure live bottom hoppers



PHASE 2
GROUP C
CONST WORK:
(Contract 52C)



ACTIVITY LEGEND

Issue #1 - June 19,1998
Issue #2 - August 13, 1998
Issue #3 - in Mike Wetzel's issue 3 fldr - mac pro
Issue #4 - October 30, 1998
Issue #5 - November 2,1998
Issue #6 - December 17, 1998
Issue #7 - January 29, 1999
Issue #8 - March 2, 1999
Issue #9 - March 17, 1999
Issue #10 - April 21, 1999
Issue #11 - April 22, 1999
i11 sht 1SM smry

Reserved Activity Numbers

51	56
52	57
53	58
54	59
55	60

lan 001
han ??

CONTRACTS 52A,B,C,D & E
SUMMARY PLAN OF WORK

SUMMARY NETWORK MODEL FOR SOLIDS MANAGEMENT IMPROVEMENT PROGRAM

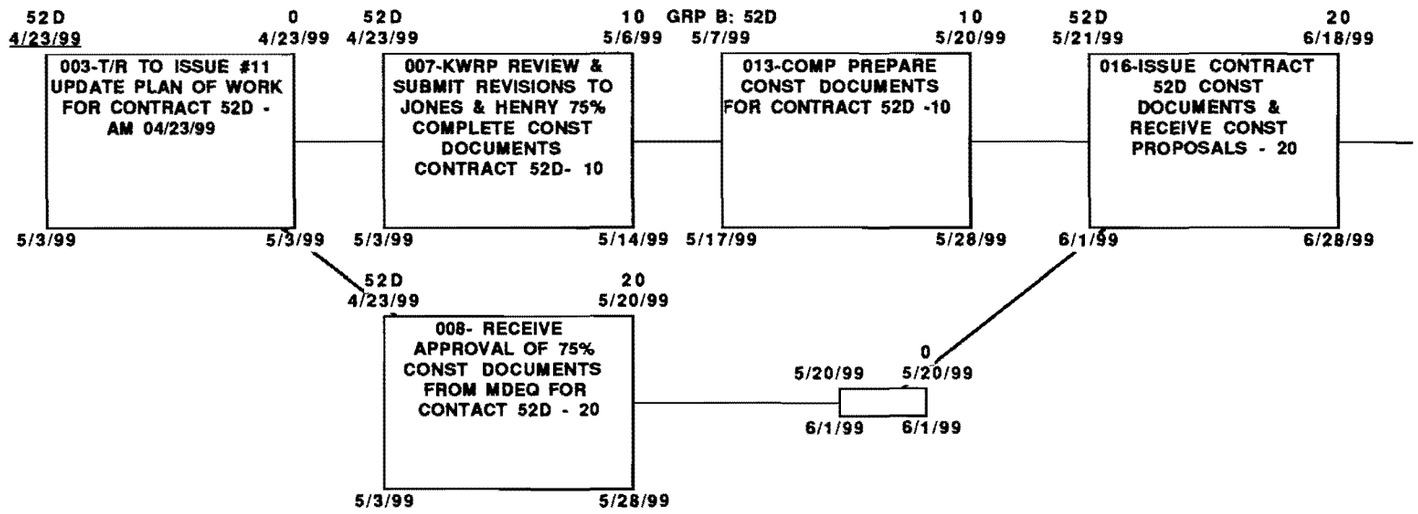
City of Kalamazoo Water Reclamation Plant Kalamazoo, Michigan

Mike Wetzel - Assistant City Engineer for Plant Engineering

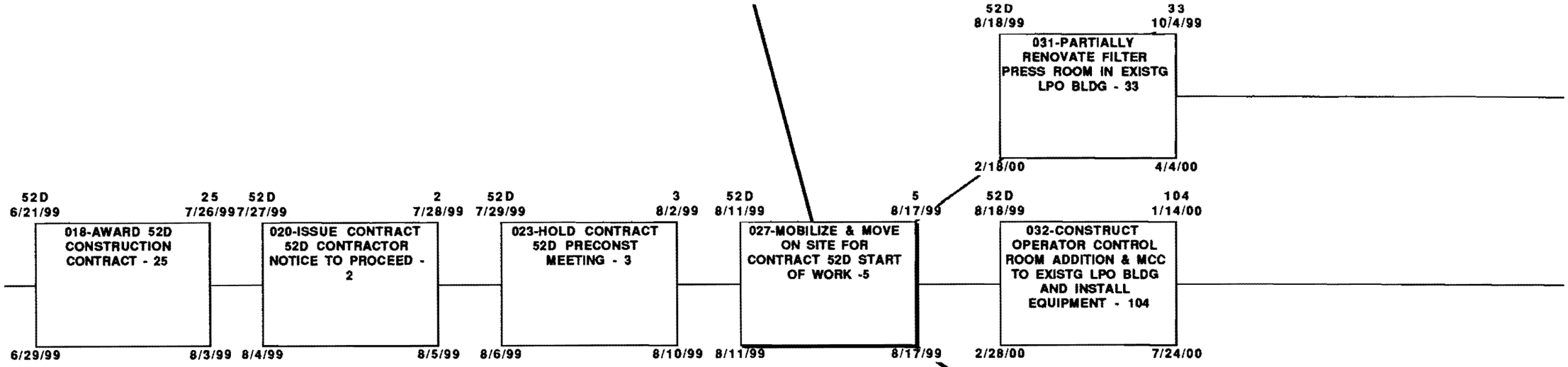
Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48828
ph 517 772 2537

SHEET #1SM

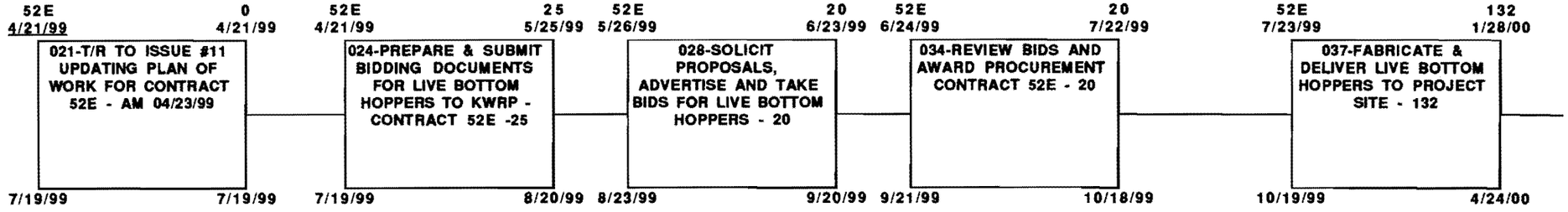
PHASE 2
GROUP C
CONST WORK:
Contract 52D

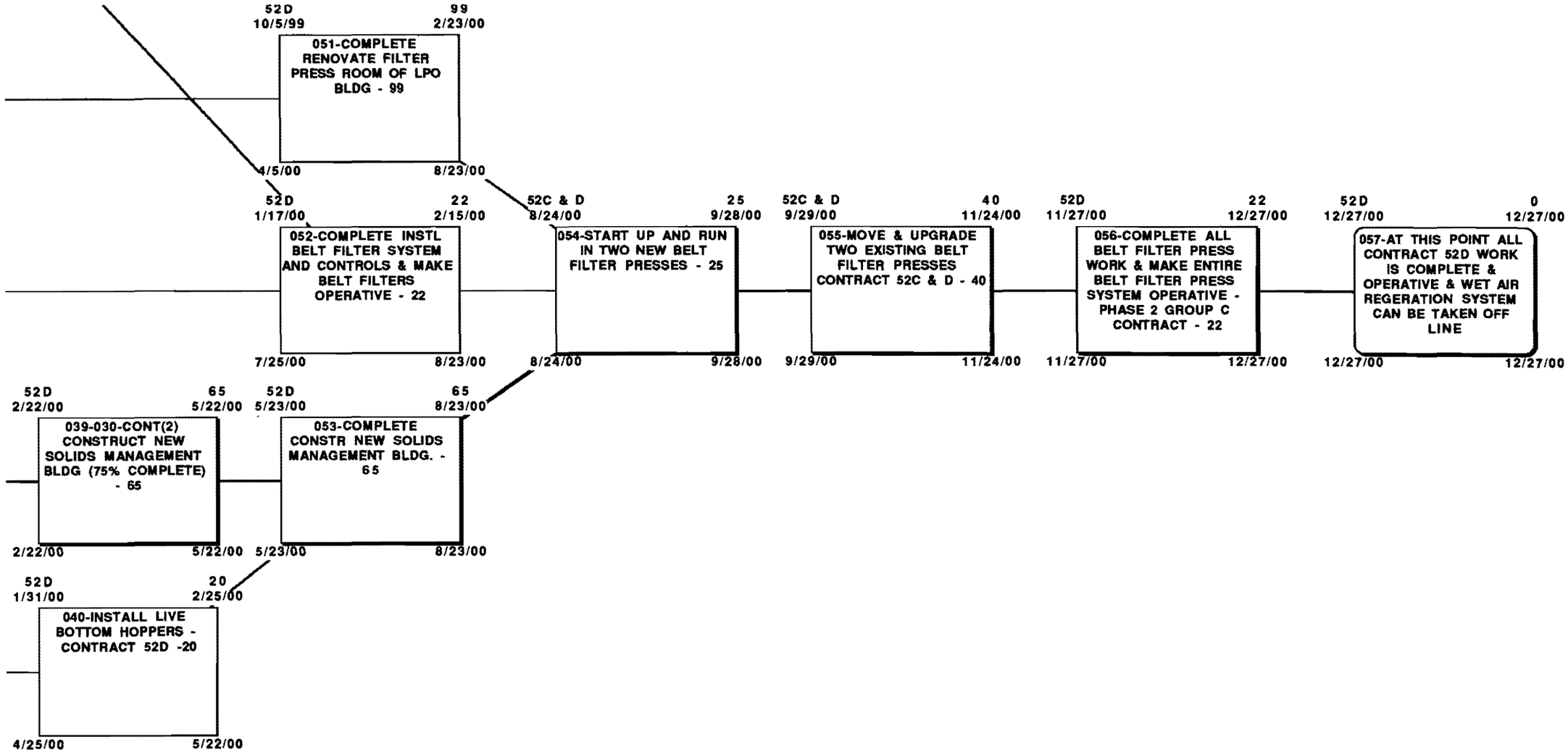


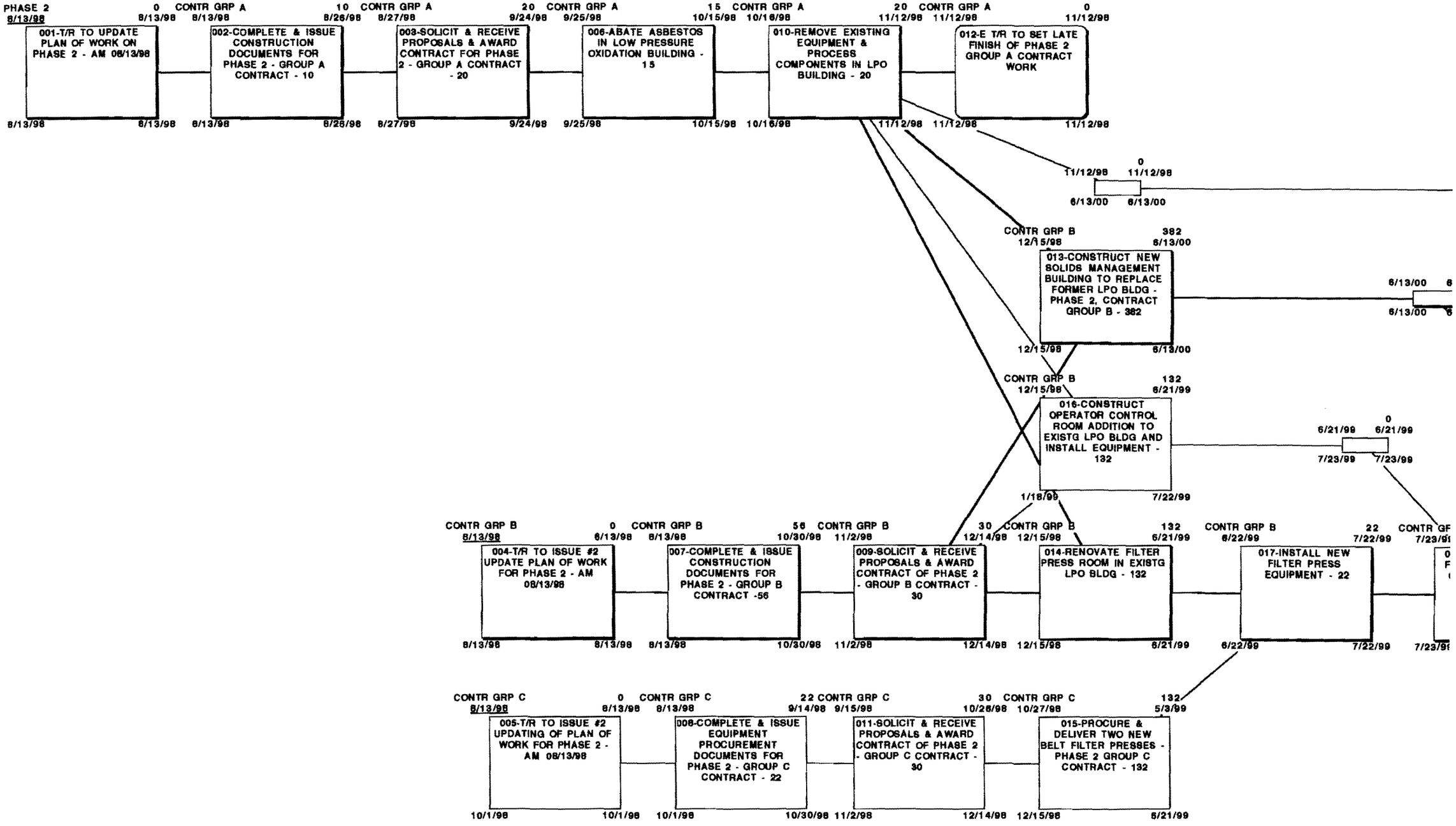
CONTRACT 5D
CONSTRUCTION WORK

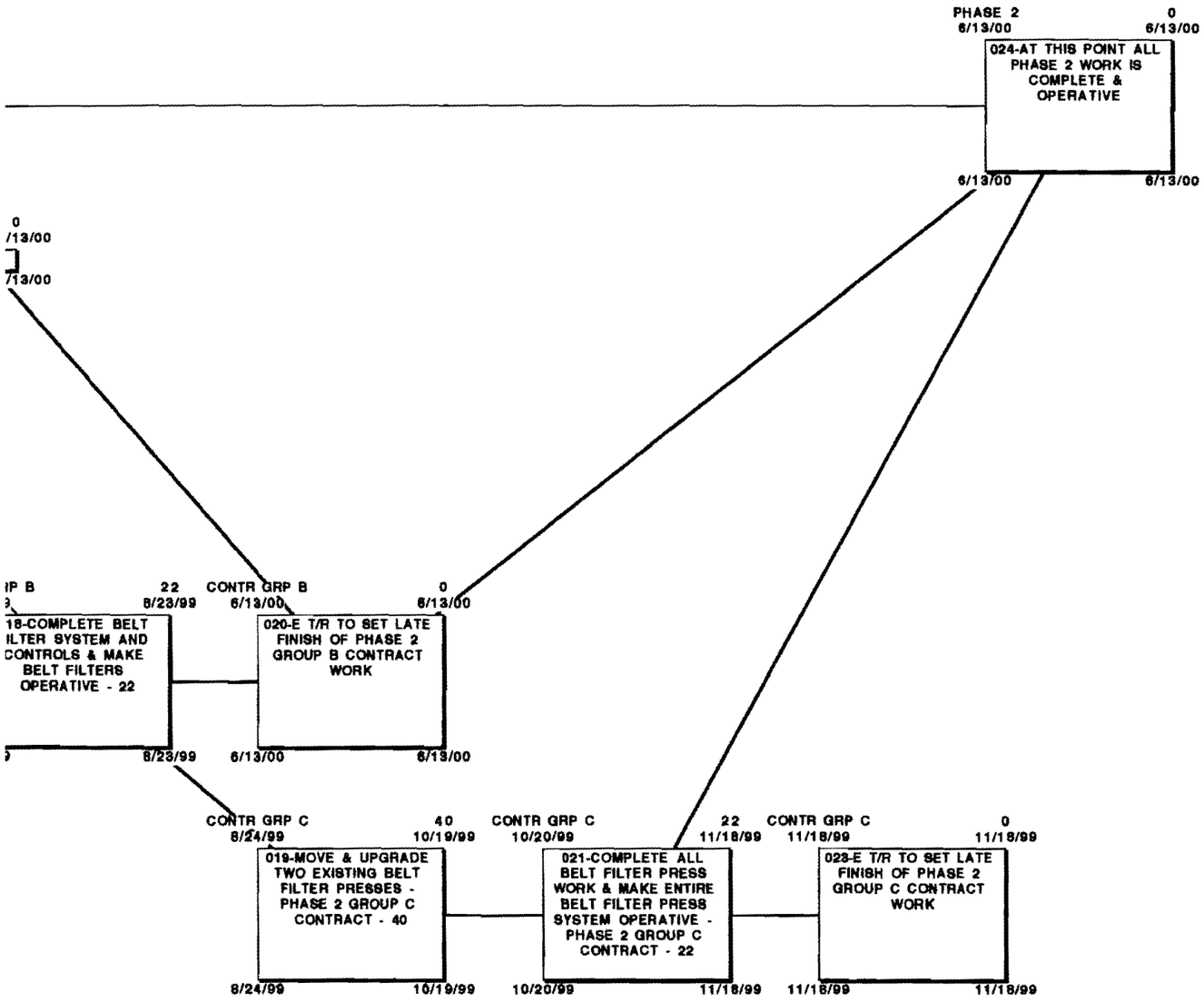


LIVE BOTTOM HOPPERS - CONTRACT 52E




52D
10/5/99
99
2/23/00
051-COMPLETE RENOVATE FILTER PRESS ROOM OF LPO BLDG - 99
4/5/00
8/23/00
52D
1/17/00
22
2/15/00
052-COMPLETE INSTL BELT FILTER SYSTEM AND CONTROLS & MAKE BELT FILTERS OPERATIVE - 22
7/25/00
8/23/00
52C & D
8/24/00
25
9/28/00
054-START UP AND RUN IN TWO NEW BELT FILTER PRESSES - 25
8/24/00
9/28/00
52C & D
9/29/00
40
11/24/00
055-MOVE & UPGRADE TWO EXISTING BELT FILTER PRESSES CONTRACT 52C & D - 40
9/29/00
11/24/00
52D
11/27/00
22
12/27/00
056-COMPLETE ALL BELT FILTER PRESS WORK & MAKE ENTIRE BELT FILTER PRESS SYSTEM OPERATIVE - PHASE 2 GROUP C CONTRACT - 22
11/27/00
12/27/00
52D
12/27/00
0
12/27/00
057-AT THIS POINT ALL CONTRACT 52D WORK IS COMPLETE & OPERATIVE & WET AIR REGERATION SYSTEM CAN BE TAKEN OFF LINE
12/27/00
12/27/00
52D
2/22/00
65
5/22/00
039-030-CONT(2) CONSTRUCT NEW SOLIDS MANAGEMENT BLDG (75% COMPLETE) - 65
2/22/00
5/22/00
52D
5/23/00
65
8/23/00
053-COMPLETE CONSTR NEW SOLIDS MANAGEMENT BLDG. - 65
5/23/00
8/23/00
52D
1/31/00
20
2/25/00
040-INSTALL LIVE BOTTOM HOPPERS - CONTRACT 52D -20
4/25/00
5/22/00

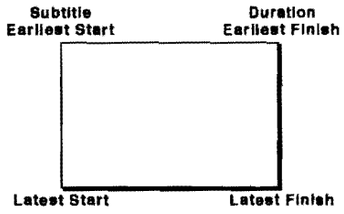

PHASE 2
8/13/98
001-T/R TO UPDATE PLAN OF WORK ON PHASE 2 - AM 08/13/98
8/13/98 8/13/98
0 CONTR GRP A
8/13/98 8/13/98
002-COMPLETE & ISSUE CONSTRUCTION DOCUMENTS FOR PHASE 2 - GROUP A CONTRACT - 10
8/13/98 8/26/98
10 CONTR GRP A
8/26/98 8/27/98
003-SOLICIT & RECEIVE PROPOSALS & AWARD CONTRACT FOR PHASE 2 - GROUP A CONTRACT - 20
8/27/98 9/24/98
20 CONTR GRP A
9/24/98 9/25/98
006-ABATE ASBESTOS IN LOW PRESSURE OXIDATION BUILDING - 15
9/25/98 10/15/98
15 CONTR GRP A
10/15/98 10/16/98
010-REMOVE EXISTING EQUIPMENT & PROCESS COMPONENTS IN LPO BUILDING - 20
10/16/98 11/12/98
20 CONTR GRP A
11/12/98 11/12/98
012-E T/R TO SET LATE FINISH OF PHASE 2 GROUP A CONTRACT WORK
11/12/98 11/12/98
0
11/12/98 11/12/98
6/13/00 6/13/00
CONTR GRP B
12/15/98 12/15/98
382
6/13/00
013-CONSTRUCT NEW SOLIDS MANAGEMENT BUILDING TO REPLACE FORMER LPO BLDG - PHASE 2, CONTRACT GROUP B - 382
12/15/98 6/13/00
6/13/00 6/13/00
CONTR GRP B
12/15/98 12/15/98
132
6/21/99
016-CONSTRUCT OPERATOR CONTROL ROOM ADDITION TO EXISTG LPO BLDG AND INSTALL EQUIPMENT - 132
1/18/99 7/22/99
0
6/21/99 6/21/99
7/23/99 7/23/99
CONTR GRP B
8/13/98 8/13/98
0 CONTR GRP B
8/13/98 8/13/98
004-T/R TO ISSUE #2 UPDATE PLAN OF WORK FOR PHASE 2 - AM 08/13/98
8/13/98 8/13/98
56 CONTR GRP B
8/13/98 10/30/98
007-COMPLETE & ISSUE CONSTRUCTION DOCUMENTS FOR PHASE 2 - GROUP B CONTRACT -56
8/13/98 10/30/98
30 CONTR GRP B
11/2/98 12/14/98
009-SOLICIT & RECEIVE PROPOSALS & AWARD CONTRACT OF PHASE 2 - GROUP B CONTRACT - 30
11/2/98 12/14/98
132
12/15/98 6/21/99
014-RENOVATE FILTER PRESS ROOM IN EXISTG LPO BLDG - 132
12/15/98 6/21/99
CONTR GRP B
6/22/99 6/22/99
22
7/22/99
017-INSTALL NEW FILTER PRESS EQUIPMENT - 22
6/22/99 7/22/99
CONTR GF
7/23/9
CONTR GRP C
8/13/98 10/1/98
0 CONTR GRP C
8/13/98 10/1/98
005-T/R TO ISSUE #2 UPDATING OF PLAN OF WORK FOR PHASE 2 - AM 08/13/98
10/1/98 10/1/98
22 CONTR GRP C
9/14/98 10/1/98
008-COMPLETE & ISSUE EQUIPMENT PROCUREMENT DOCUMENTS FOR PHASE 2 - GROUP C CONTRACT - 22
10/1/98 10/30/98
30 CONTR GRP C
10/26/98 11/2/98
011-SOLICIT & RECEIVE PROPOSALS & AWARD CONTRACT OF PHASE 2 - GROUP C CONTRACT - 30
11/2/98 12/14/98
132
5/3/99
015-PROCURE & DELIVER TWO NEW BELT FILTER PRESSES - PHASE 2 GROUP C CONTRACT - 132
12/15/98 6/21/99


PHASE 2
6/13/00
0
6/13/00
024-AT THIS POINT ALL PHASE 2 WORK IS COMPLETE & OPERATIVE
6/13/00
6/13/00
0
/13/00
/13/00
IP B
22
8/23/99
CONTR GRP B
6/13/00
0
6/13/00
18-COMPLETE BELT ILTER SYSTEM AND CONTROLS & MAKE BELT FILTERS OPERATIVE - 22
020-E T/R TO SET LATE FINISH OF PHASE 2 GROUP B CONTRACT WORK
8/23/99
6/13/00
6/13/00
CONTR GRP C
8/24/99
40
10/19/99
CONTR GRP C
10/20/99
22
11/18/99
CONTR GRP C
11/18/99
0
11/18/99
019-MOVE & UPGRADE TWO EXISTING BELT FILTER PRESSES - PHASE 2 GROUP C CONTRACT - 40
021-COMPLETE ALL BELT FILTER PRESS WORK & MAKE ENTIRE BELT FILTER PRESS SYSTEM OPERATIVE - PHASE 2 GROUP C CONTRACT - 22
023-E T/R TO SET LATE FINISH OF PHASE 2 GROUP C CONTRACT WORK
8/24/99
10/19/99
10/20/99
11/18/99
11/18/99
11/18/99

ABBREVIATIONS

PP - Pilot Plant
DPS - Department of Public Services
SMI - Solids Management Improvement
J & H - Jones & Henry
ED - Engineering Department
KWRP - Kalamazoo Water Reclamation Plant
MDEQ - Michigan Department of Environmental Quality

PHASE 2 WORK - SUMMARY PLAN OF CONTRACT GROUPS A, B & C



ACTIVITY LEGEND

Issue #1 - June 19,1998
Issue #2 - August 13, 1998
i2 smi sht SM1 (formerly sht 1)

Reserved Activity Numbers

141	146
142	147
143	148
144	149
145	150

lan 001
han ??

SUMMARY NETWORK MODEL FOR SOLIDS MANAGEMENT IMPROVEMENT PROGRAM

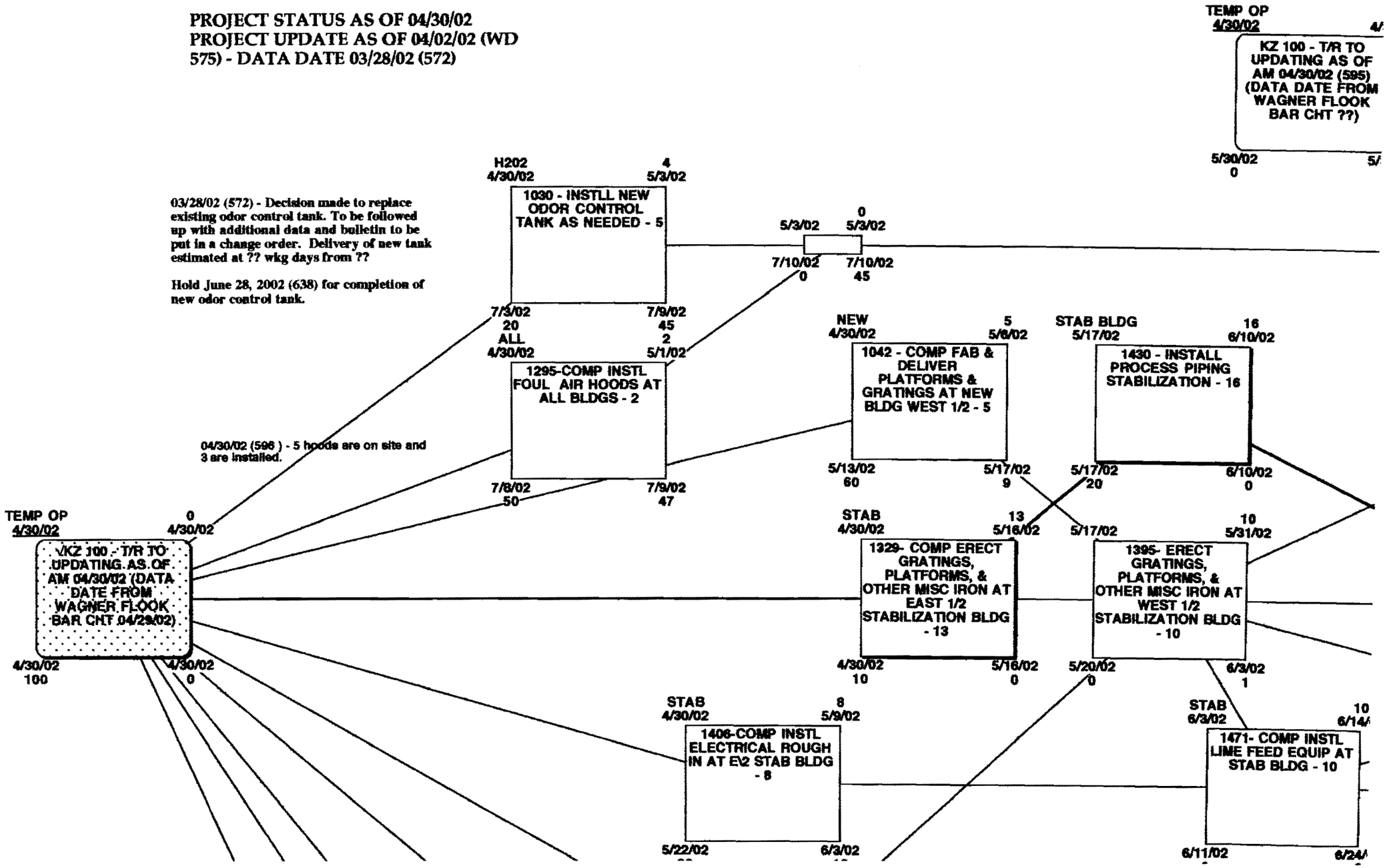
City of Kalamazoo Water Reclamation Plant Kalamazoo, Michigan

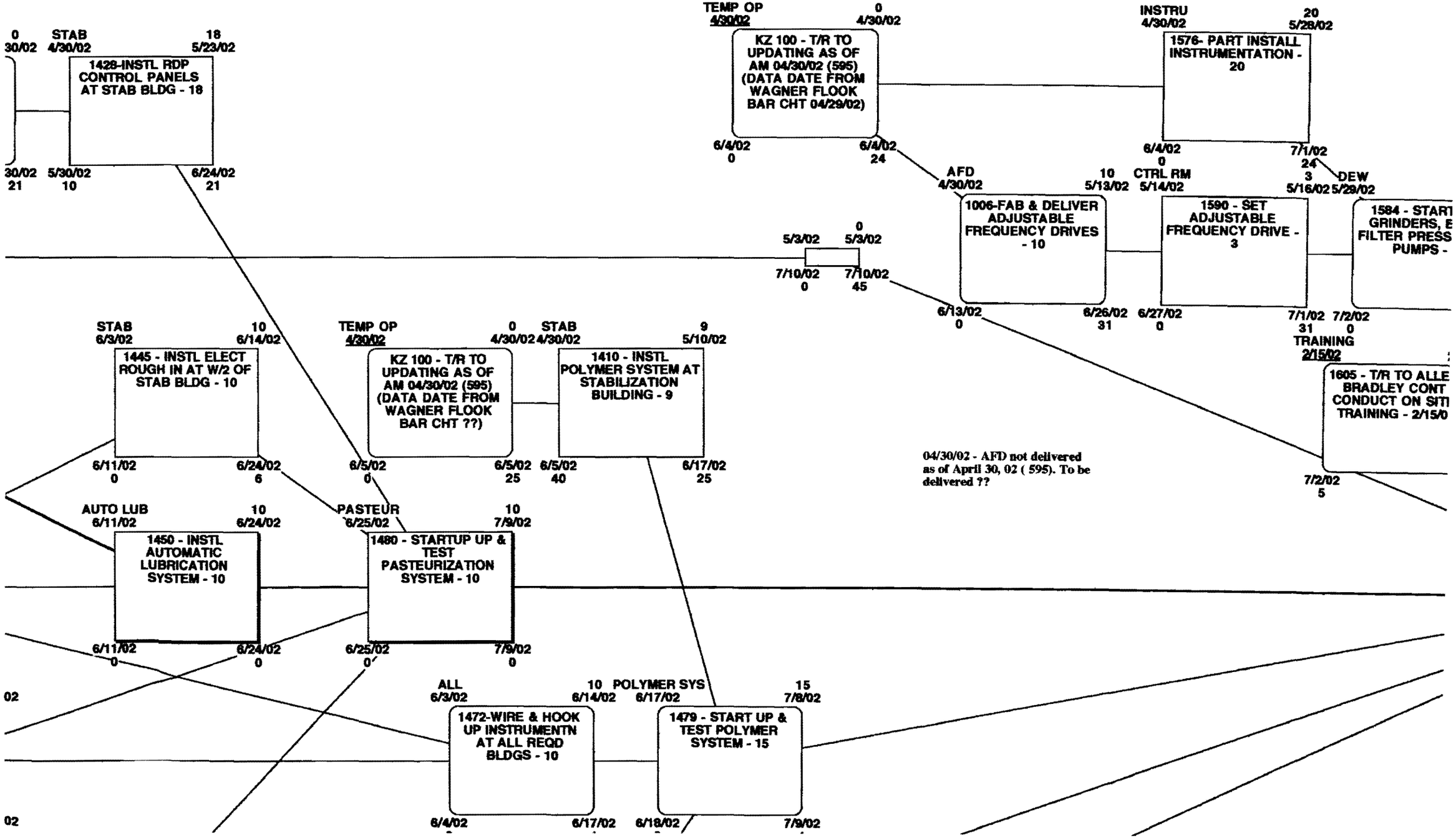
Mike Wetzel - Assistant City Engineer for Plant Engineering

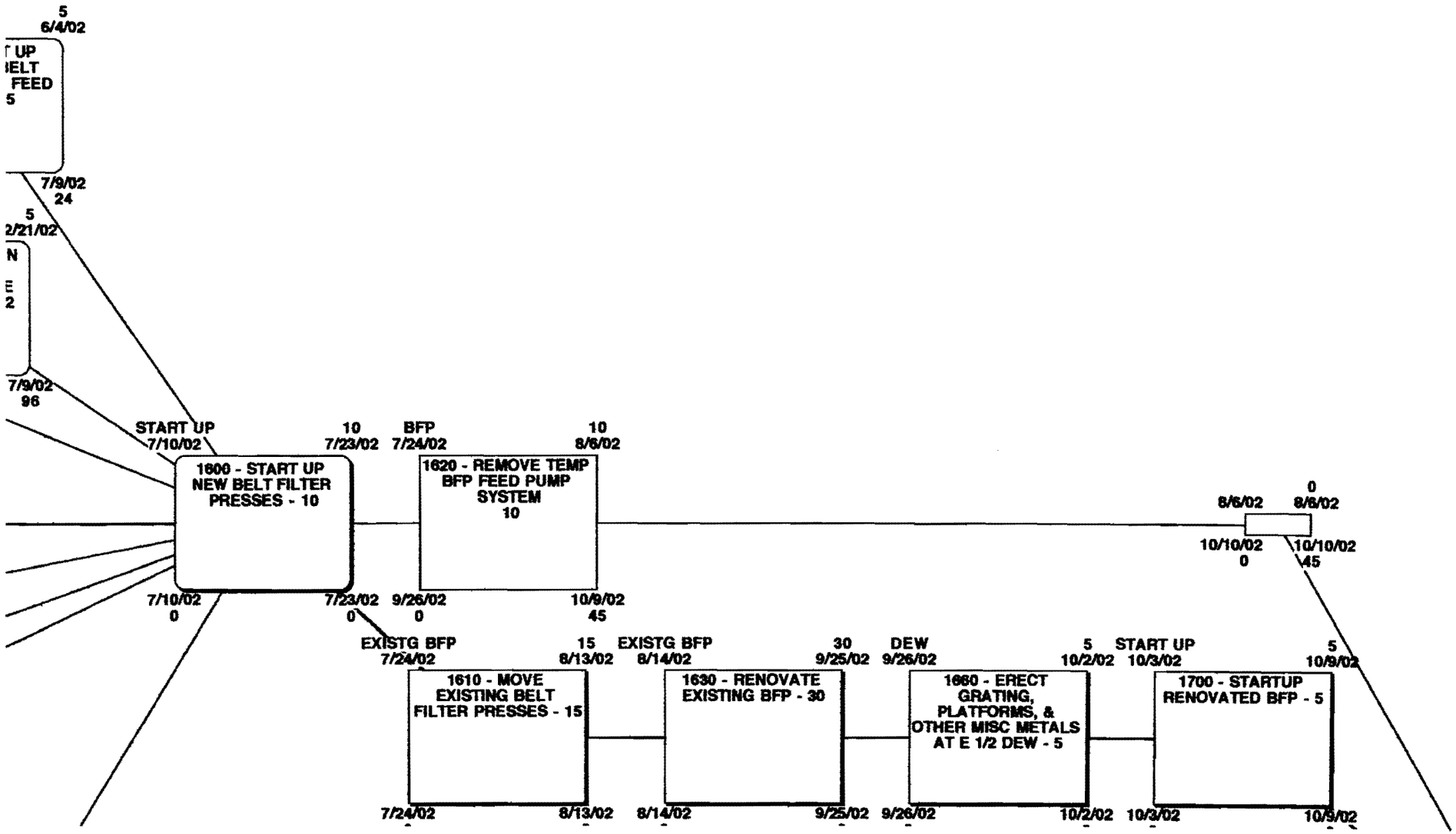
Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48828
ph 517 772 2537

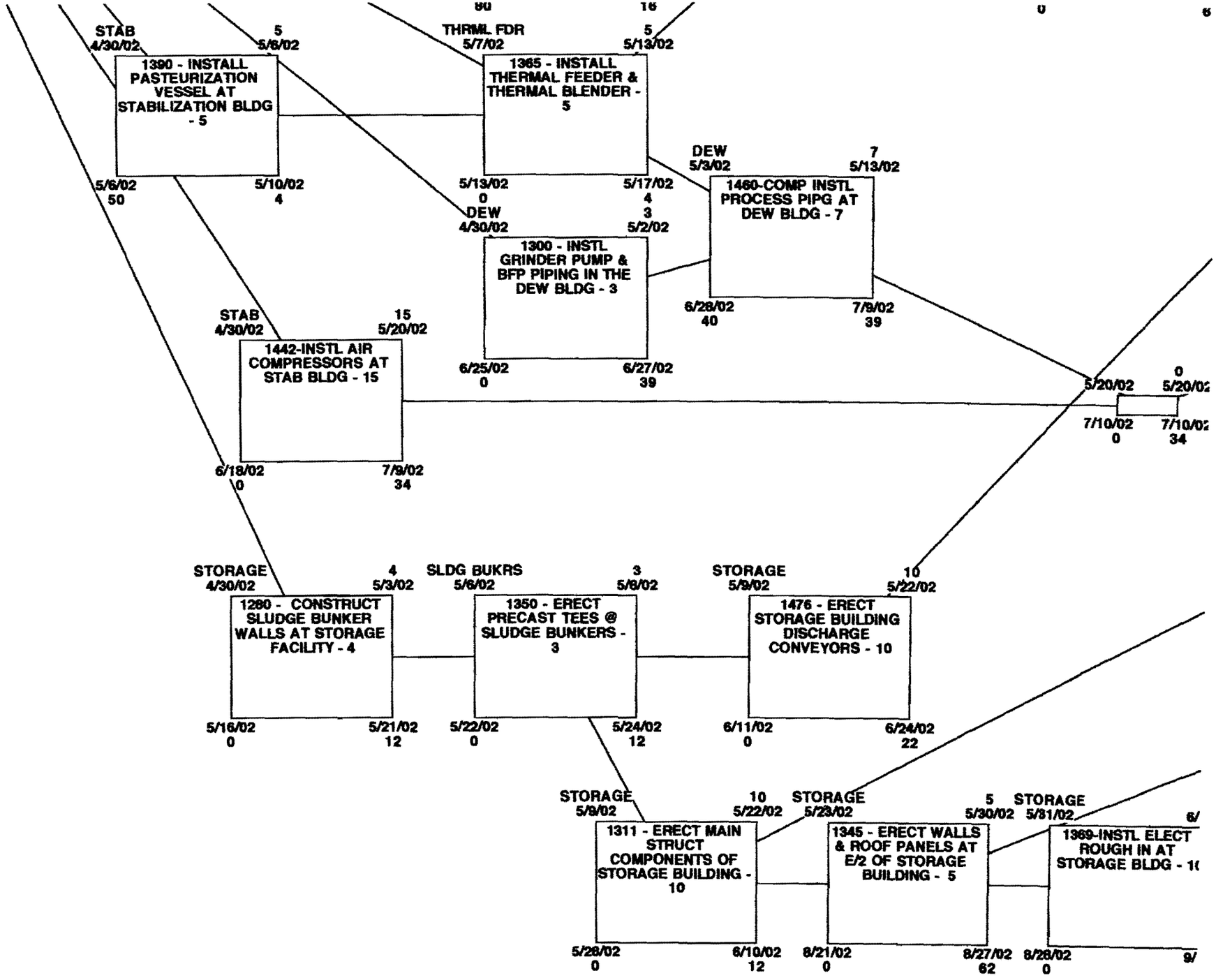
SHEET #SM1

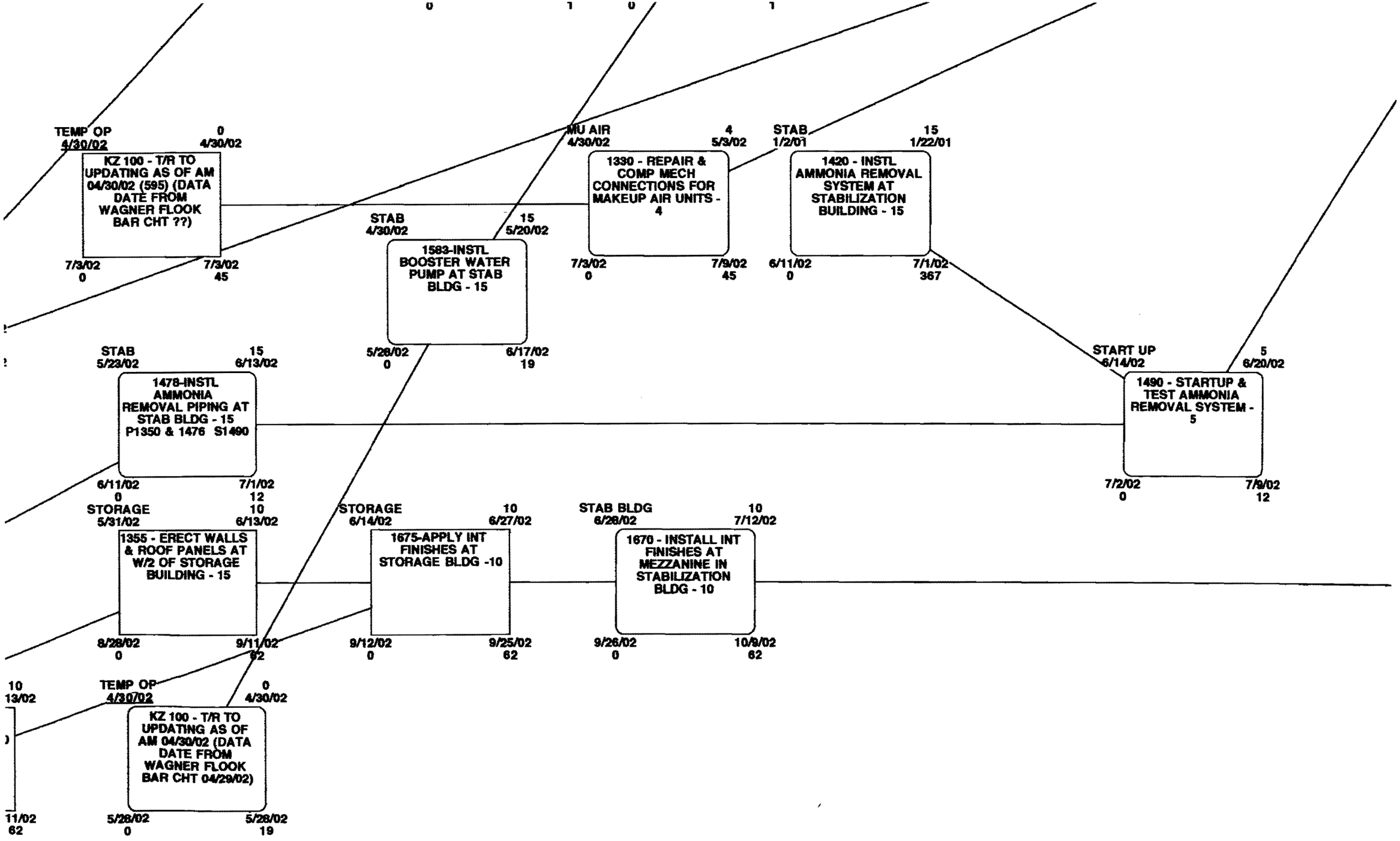
PROJECT STATUS AS OF 04/30/02
PROJECT UPDATE AS OF 04/02/02 (WD 575) - DATA DATE 03/28/02 (572)

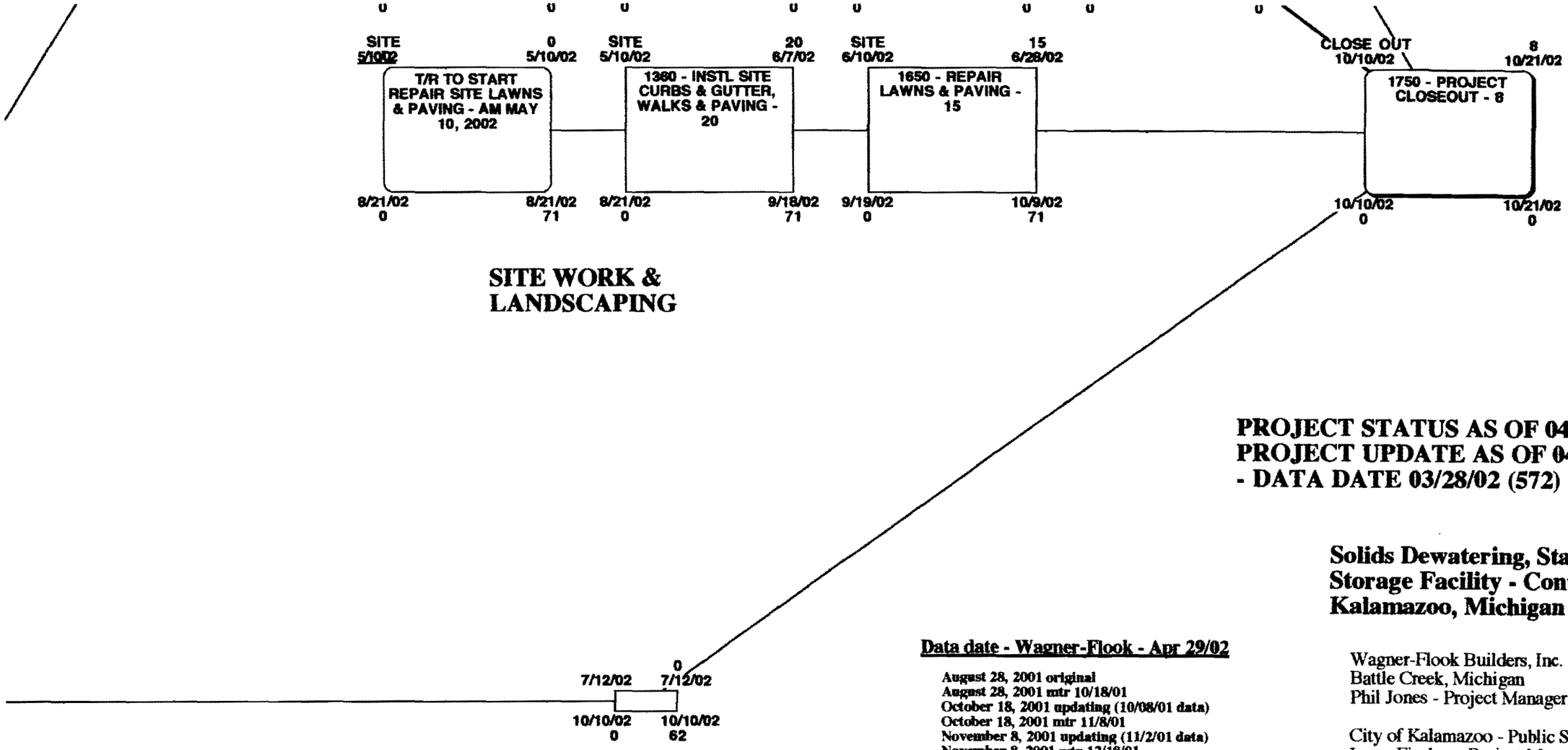



0
30/02
STAB
4/30/02
18
5/23/02
1428-INSTL RDP CONTROL PANELS AT STAB BLDG - 18
30/02
21
5/30/02
10
6/24/02
21
TEMP OP
4/30/02
0
4/30/02
KZ 100 - T/R TO UPDATING AS OF AM 04/30/02 (595) (DATA DATE FROM WAGNER FLOOK BAR CHT 04/29/02)
6/4/02
0
6/4/02
24
INSTRU
4/30/02
20
5/28/02
1576- PART INSTALL INSTRUMENTATION - 20
6/4/02
0
7/1/02
24
AFD
4/30/02
10
5/13/02
CTRL RM
5/14/02
3
5/16/02
DEW
5/29/02
1006-FAB & DELIVER ADJUSTABLE FREQUENCY DRIVES - 10
1590 - SET ADJUSTABLE FREQUENCY DRIVE - 3
1584 - START GRINDERS, E FILTER PRESS PUMPS -
5/3/02
0
5/3/02
7/10/02
0
7/10/02
45
6/13/02
0
6/26/02
31
6/27/02
0
7/1/02
31
7/2/02
0
TRAINING
2/15/02
1605 - T/R TO ALLE BRADLEY CONT CONDUCT ON SIT TRAINING - 2/15/0
7/2/02
5
STAB
6/3/02
10
6/14/02
1445 - INSTL ELECT ROUGH IN AT W/2 OF STAB BLDG - 10
6/11/02
0
6/24/02
6
TEMP OP
4/30/02
0
4/30/02
KZ 100 - T/R TO UPDATING AS OF AM 04/30/02 (595) (DATA DATE FROM WAGNER FLOOK BAR CHT ??)
6/5/02
0
6/5/02
25
STAB
4/30/02
9
5/10/02
1410 - INSTL POLYMER SYSTEM AT STABILIZATION BUILDING - 9
6/5/02
40
6/17/02
25
04/30/02 - AFD not delivered as of April 30, 02 (595). To be delivered ??
AUTO LUB
6/11/02
10
6/24/02
1450 - INSTL AUTOMATIC LUBRICATION SYSTEM - 10
6/11/02
0
6/24/02
0
PASTEUR
6/25/02
10
7/9/02
1480 - STARTUP UP & TEST PASTEURIZATION SYSTEM - 10
6/25/02
0
7/9/02
0
02
ALL
6/3/02
10
6/14/02
1472-WIRE & HOOK UP INSTRUMENTN AT ALL REQD BLDGS - 10
6/4/02
6/17/02
POLYMER SYS
6/17/02
15
7/8/02
1479 - START UP & TEST POLYMER SYSTEM - 15
6/18/02
7/9/02
02


5
6/4/02
UP
ELT
FEED
5
7/9/02
24
5
2/21/02
N
2
7/9/02
96
START UP
7/10/02
10
7/23/02
BFP
7/24/02
10
8/6/02
1600 - START UP NEW BELT FILTER PRESSES - 10
1620 - REMOVE TEMP BFP FEED PUMP SYSTEM 10
0
8/6/02
8/6/02
10/10/02
0
10/10/02
45
7/10/02
0
7/23/02
0
9/26/02
0
10/9/02
45
EXISTG BFP
7/24/02
15
8/13/02
EXISTG BFP
8/14/02
30
9/25/02
DEW
9/26/02
5
10/2/02
START UP
10/3/02
5
10/9/02
1610 - MOVE EXISTING BELT FILTER PRESSES - 15
1630 - RENOVATE EXISTING BFP - 30
1660 - ERECT GRATING, PLATFORMS, & OTHER MISC METALS AT E 1/2 DEW - 5
1700 - STARTUP RENOVATED BFP - 5
7/24/02
8/13/02
8/14/02
9/25/02
9/26/02
10/2/02
10/3/02
10/9/02


STAB
4/30/02
5
5/6/02
1390 - INSTALL PASTEURIZATION VESSEL AT STABILIZATION BLDG - 5
5/6/02
50
5/10/02
4
THRML FDR
5/7/02
5
5/13/02
1365 - INSTALL THERMAL FEEDER & THERMAL BLENDER - 5
5/13/02
0
5/17/02
4
DEW
5/3/02
7
5/13/02
1460-COMP INSTL PROCESS PIPG AT DEW BLDG - 7
6/28/02
40
7/9/02
39
DEW
4/30/02
3
5/2/02
1300 - INSTL GRINDER PUMP & BFP PIPING IN THE DEW BLDG - 3
6/25/02
0
6/27/02
39
STAB
4/30/02
15
5/20/02
1442-INSTL AIR COMPRESSORS AT STAB BLDG - 15
6/18/02
0
7/9/02
34
5/20/02
0
5/20/02
7/10/02
0
7/10/02
34
STORAGE
4/30/02
4
5/3/02
1280 - CONSTRUCT SLUDGE BUNKER WALLS AT STORAGE FACILITY - 4
5/16/02
0
5/21/02
12
SLDG BUKRS
5/6/02
3
5/8/02
1350 - ERECT PRECAST TEES @ SLUDGE BUNKERS - 3
5/22/02
0
5/24/02
12
STORAGE
5/9/02
10
5/22/02
1476 - ERECT STORAGE BUILDING DISCHARGE CONVEYORS - 10
6/11/02
0
6/24/02
22
STORAGE
5/9/02
10
5/22/02
1311 - ERECT MAIN STRUCT COMPONENTS OF STORAGE BUILDING - 10
5/28/02
0
6/10/02
12
STORAGE
5/23/02
5
5/30/02
1345 - ERECT WALLS & ROOF PANELS AT E/2 OF STORAGE BUILDING - 5
8/21/02
0
8/27/02
62
STORAGE
5/31/02
1369-INSTL ELECT ROUGH IN AT STORAGE BLDG - 1
8/28/02
0


TEMP OP
4/30/02
0
4/30/02
KZ 100 - T/R TO UPDATING AS OF AM 04/30/02 (595) (DATA DATE FROM WAGNER FLOOK BAR CHT ??)
7/3/02
0
7/3/02
45
MU AIR
4/30/02
4
5/3/02
1330 - REPAIR & COMP MECH CONNECTIONS FOR MAKEUP AIR UNITS - 4
7/3/02
0
7/9/02
45
STAB
1/2/01
15
1/22/01
1420 - INSTL AMMONIA REMOVAL SYSTEM AT STABILIZATION BUILDING - 15
6/11/02
0
7/1/02
367
STAB
4/30/02
15
5/20/02
1583-INSTL BOOSTER WATER PUMP AT STAB BLDG - 15
5/28/02
0
6/17/02
19
STAB
5/23/02
15
6/13/02
1478-INSTL AMMONIA REMOVAL PIPING AT STAB BLDG - 15 P1350 & 1476 S1490
6/11/02
0
7/1/02
12
START UP
6/14/02
5
6/20/02
1490 - STARTUP & TEST AMMONIA REMOVAL SYSTEM - 5
7/2/02
0
7/9/02
12
STORAGE
5/31/02
10
6/13/02
1355 - ERECT WALLS & ROOF PANELS AT W/2 OF STORAGE BUILDING - 15
8/28/02
0
9/11/02
62
STORAGE
6/14/02
10
6/27/02
1675-APPLY INT FINISHES AT STORAGE BLDG -10
9/12/02
0
9/25/02
62
STAB BLDG
6/28/02
10
7/12/02
1670 - INSTALL INT FINISHES AT MEZZANINE IN STABILIZATION BLDG - 10
9/26/02
0
10/9/02
62
TEMP OP
4/30/02
0
4/30/02
KZ 100 - T/R TO UPDATING AS OF AM 04/30/02 (DATA DATE FROM WAGNER FLOOK BAR CHT 04/29/02)
5/28/02
0
5/28/02
19



PROJECT STATUS AS OF 04/30/02
PROJECT UPDATE AS OF 04/02/02 (W
- DATA DATE 03/28/02 (572)

Solids Dewatering, Stabilization
Storage Facility - Contract 52 D
Kalamazoo, Michigan

Data date - Wagner-Flook - Apr 29/02

August 28, 2001 original
August 28, 2001 mtr 10/18/01
October 18, 2001 updating (10/08/01 data)
October 18, 2001 mtr 11/8/01
November 8, 2001 updating (11/2/01 data)
November 8, 2001 mtr 12/18/01
December 18, 2001 updating (12/07/01 data)
January 16, 2002 updating (01/15/02 data)
February 15, 2002 updating (01FEB02 data)
February 15, 2002 mtr 03/28/02
March 28, 2002 updating (03/27/02 data) - not issued, updating completed on April 2, 2002
April 2, 2002 mtr completed
April 30, 2002 updte completed

Sht 1A updte April 30, 2002 - Apr 29/02 data dte

Wagner-Flook Builders, Inc.
Battle Creek, Michigan
Phil Jones - Project Manager

City of Kalamazoo - Public Services Depar
Larry Fischer - Project Manager

Jones & Henry Engineers, Inc.
Dan Miller - Project Manager

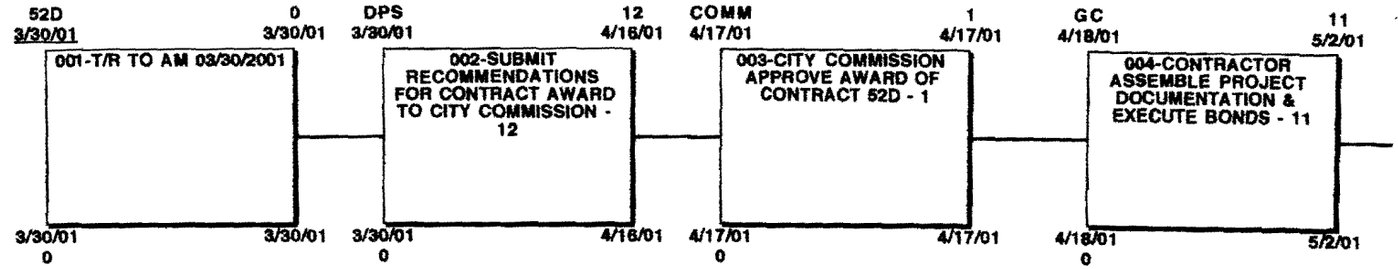
Ralph J. Stephenson, P.E.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48858-9096
ph 1-989-772 2537

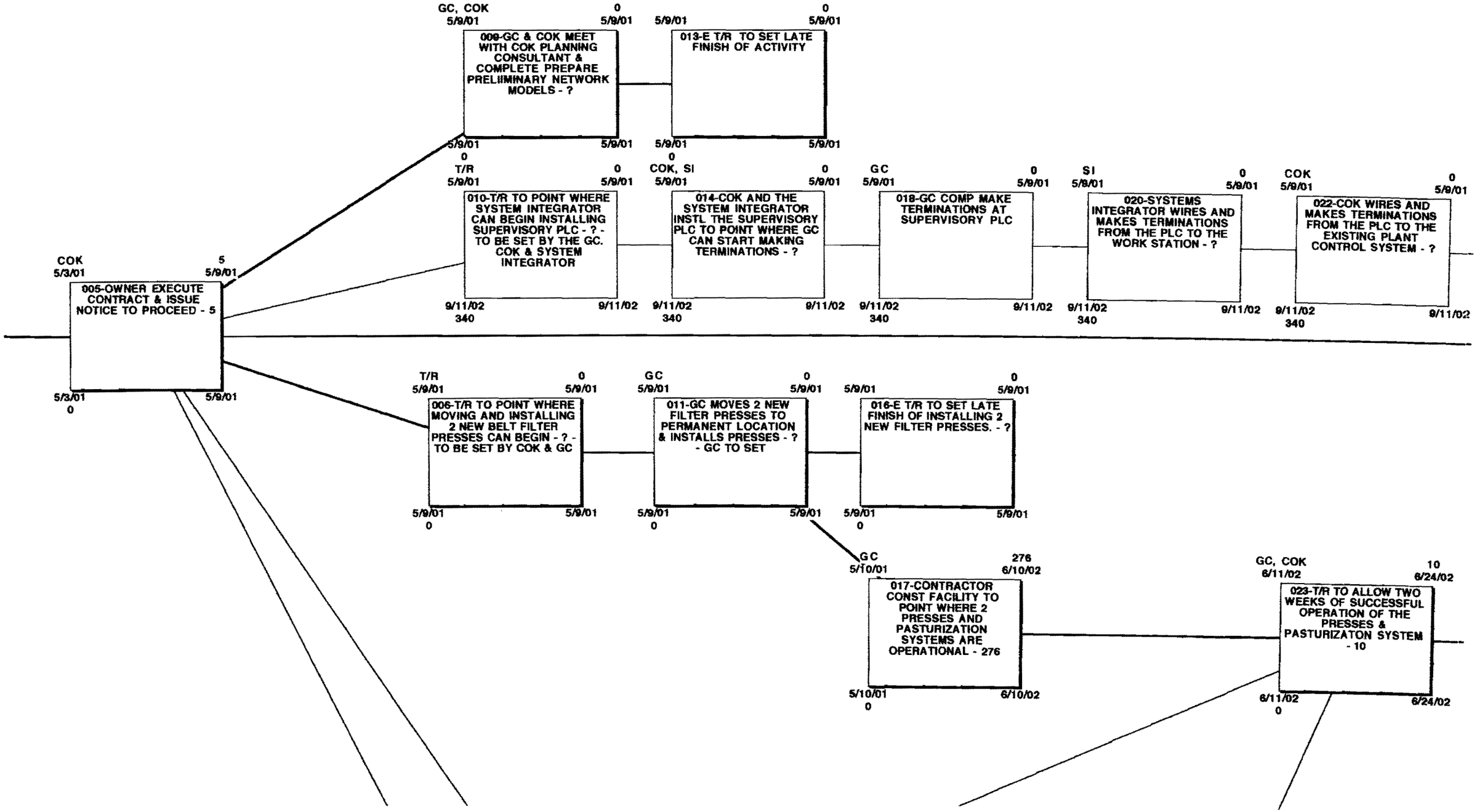
Sh

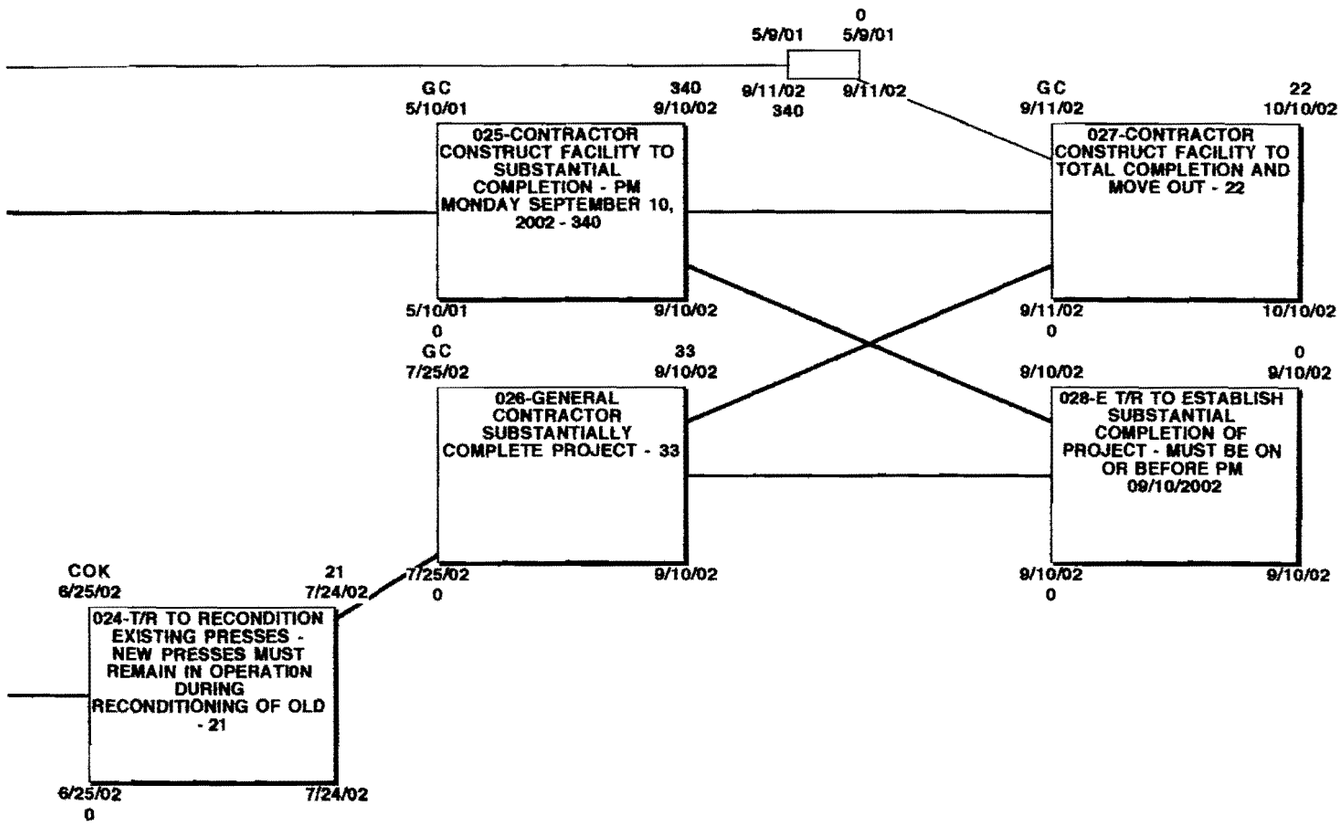
Contract grouping - 52 D

- Contract 52D rebid

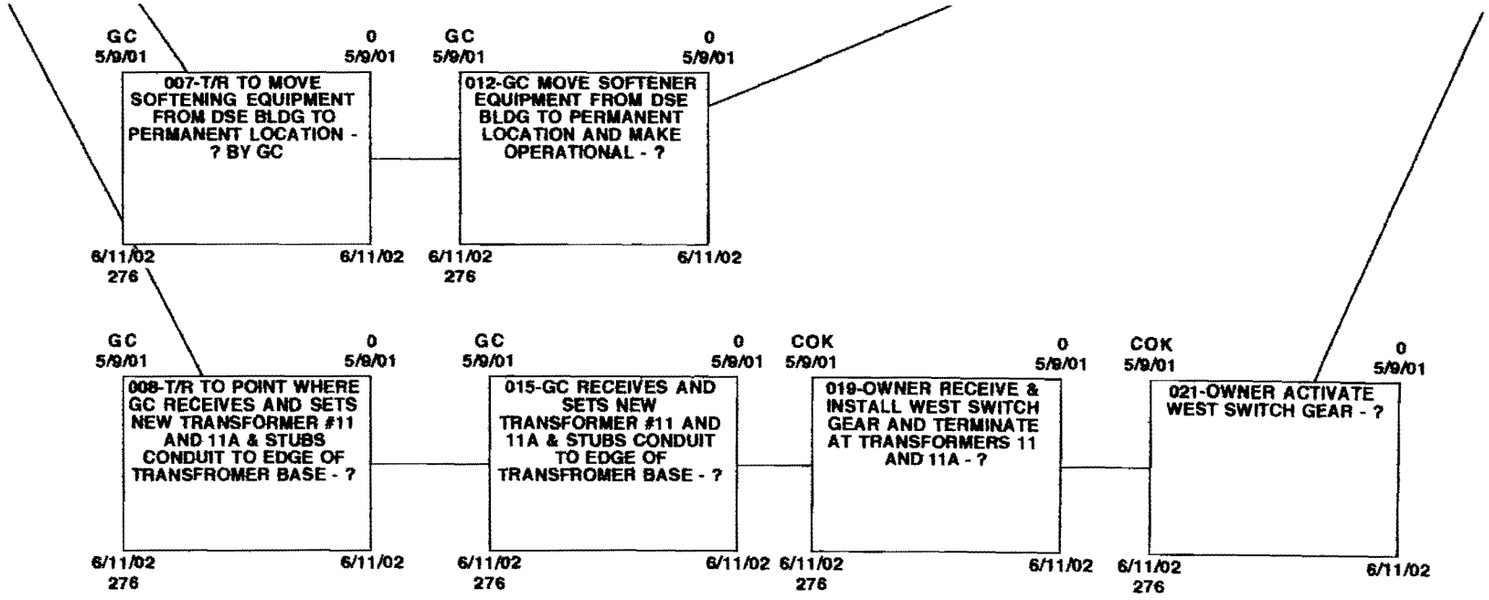
1. Renovate existing LPO building
   a. Sludge feed pumps
   b. Install belt filter presses
   c. Belt filter press drain system
   d. Upgrade odor control system
2. Construct stabilization building
   a. Install Preheat,Thermo mixer and Pasteurization units
   d. Polymer storage & feed
   e. Lime feed & storage systems
   f. Plant water booster pump station
   g. House air compressor
   h. Construct operator control & MCC addition
3. Construct piled storage and truck loading building
   a. 3 storage bins
   b. dual overhead conveyor system
   c. Odor control system



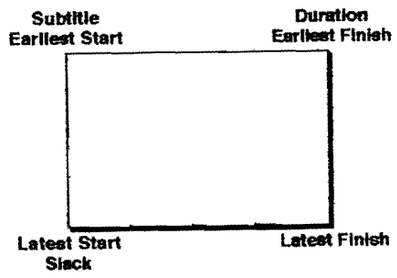

005-OWNER EXECUTE CONTRACT & ISSUE NOTICE TO PROCEED - 5
COK
5/3/01
5
5/9/01
5/3/01
0
5/9/01
009-GC & COK MEET WITH COK PLANNING CONSULTANT & COMPLETE PREPARE PRELIIMINARY NETWORK MODELS - ?
GC, COK
5/9/01
0
5/9/01
5/9/01
0
5/9/01
013-E T/R TO SET LATE FINISH OF ACTIVITY
010-T/R TO POINT WHERE SYSTEM INTEGRATOR CAN BEGIN INSTALLING SUPERVISORY PLC - ? - TO BE SET BY THE GC. COK & SYSTEM INTEGRATOR
T/R
5/9/01
0
5/9/01
9/11/02
340
9/11/02
014-COK AND THE SYSTEM INTEGRATOR INSTL THE SUPERVISORY PLC TO POINT WHERE GC CAN START MAKING TERMINATIONS - ?
COK, SI
5/9/01
0
5/9/01
9/11/02
340
9/11/02
018-GC COMP MAKE TERMINATIONS AT SUPERVISORY PLC
GC
5/9/01
0
5/9/01
9/11/02
340
9/11/02
020-SYSTEMS INTEGRATOR WIRES AND MAKES TERMINATIONS FROM THE PLC TO THE WORK STATION - ?
SI
5/9/01
0
5/9/01
9/11/02
340
9/11/02
022-COK WIRES AND MAKES TERMINATIONS FROM THE PLC TO THE EXISTING PLANT CONTROL SYSTEM - ?
COK
5/9/01
0
5/9/01
9/11/02
340
9/11/02
006-T/R TO POINT WHERE MOVING AND INSTALLING 2 NEW BELT FILTER PRESSES CAN BEGIN - ? - TO BE SET BY COK & GC
T/R
5/9/01
0
5/9/01
5/9/01
0
5/9/01
011-GC MOVES 2 NEW FILTER PRESSES TO PERMANENT LOCATION & INSTALLS PRESSES - ? - GC TO SET
GC
5/9/01
0
5/9/01
5/9/01
0
5/9/01
016-E T/R TO SET LATE FINISH OF INSTALLING 2 NEW FILTER PRESSES. - ?
5/9/01
0
5/9/01
017-CONTRACTOR CONST FACILITY TO POINT WHERE 2 PRESSES AND PASTURIZATION SYSTEMS ARE OPERATIONAL - 276
GC
5/10/01
276
6/10/02
5/10/01
0
6/10/02
023-T/R TO ALLOW TWO WEEKS OF SUCCESSFUL OPERATION OF THE PRESSES & PASTURIZATON SYSTEM - 10
GC, COK
6/11/02
10
6/24/02
6/11/02
0
6/24/02


0
5/9/01
5/9/01
GC
5/10/01
340
9/10/02
9/11/02
340
9/11/02
GC
9/11/02
22
10/10/02
025-CONTRACTOR CONSTRUCT FACILITY TO SUBSTANTIAL COMPLETION - PM MONDAY SEPTEMBER 10, 2002 - 340
027-CONTRACTOR CONSTRUCT FACILITY TO TOTAL COMPLETION AND MOVE OUT - 22
5/10/01
0
9/10/02
9/11/02
0
10/10/02
GC
7/25/02
33
9/10/02
9/10/02
0
9/10/02
026-GENERAL CONTRACTOR SUBSTANTIALLY COMPLETE PROJECT - 33
028-E T/R TO ESTABLISH SUBSTANTIAL COMPLETION OF PROJECT - MUST BE ON OR BEFORE PM 09/10/2002
COK
6/25/02
21
7/24/02
7/25/02
0
9/10/02
9/10/02
0
9/10/02
024-T/R TO RECONDITION EXISTING PRESSES - NEW PRESSES MUST REMAIN IN OPERATION DURING RECONDITIONING OF OLD - 21
6/25/02
0
7/24/02

01. COMPLETE WRITE & REVIEW TECHNICAL SPECS SUPERVISORY PLC WORK
02. COMPLETE WRITE & REVIEW TERMS & CONDITIONS FOR SUPERVISORY PLC WORK
03. REVIEW & APPROVE PROPOSALS FROM SYSTEMS INTEGRATOR SUBCONTRACTORS
04. ISSUE NOTICE TO PROCEED ON SYSTEMS INTEGRATOR WORK
26. MOBILIZE & MOVE ON SITE FOR SYSTEMS INTEGRATOR WORK
27. SUBMIT RECOMMENDATIONS FOR VALVES AND ACTUATORS TO CITY COMMISSION
28. SUBMIT RECOMMENDATIONS FOR CELL REHABILITATION TO CITY COMMISSION
29. COMPLETE WRITE TECHNICAL SPECS FOR EFFLUENT, BACKWASH & MUD VALVES
30. CITY REVIEW & APPROVE TECHNICAL SPECS FOR EFFLUENT, BACKWASH & MUD VALVES
31. CITY ADVERTISE FOR PROPOSALS FOR EFFLUENT, BACKWASH & MUD VALVES
32. PREPARE & SUBMIT PROPOSALS FOR EFFLUENT, BACKWASH & MUD VALVES
33. CITY RECEIVE & OPEN PROPOSALS FOR EFFLUENT, BACKWASH & MUD VALVES
34. REVIEW & RECOMM CONTRACTORS FOR EFFLUENT, BACKWASH & MUD VALVES
35. ISSUE NOTICE TO PROCEED FOR EFFLUENT, BACKWASH & MUD VALVES
36. EFFLUENT, BACKWASH & MUD VALVE CONTRACTOR MOVE ON SITE
37. PREPARE & SUBMIT SHOP DRAWINGS FOR EFFLUENT, BACKWASH & MUD VALVES
38. REVIEW & APPROVE SHOP DRAWINGS FOR EFFLUENT, BACKWASH & MUD VALVES
39. FAB & DELIVER EFFLUENT, BACKWASH & MUD VALVES
40. ISSUE NOTICE TO PROCEED ON CELL REHABILITATION WORK
41. MOBILIZE & MOVE ON SITE FOR CELL REHABILITATION WORK
42. SUBMIT RECOMMENDATIONS FOR EFFLUENT, BACKWASH & MUD VALVES TO CITY COMMISSION


GC
5/9/01
0
5/9/01
007-T/R TO MOVE SOFTENING EQUIPMENT FROM DSE BLDG TO PERMANENT LOCATION - ? BY GC
6/11/02
6/11/02
276
GC
5/9/01
0
5/9/01
012-GC MOVE SOFTENER EQUIPMENT FROM DSE BLDG TO PERMANENT LOCATION AND MAKE OPERATIONAL - ?
6/11/02
6/11/02
276
GC
5/9/01
0
5/9/01
008-T/R TO POINT WHERE GC RECEIVES AND SETS NEW TRANSFORMER #11 AND 11A & STUBS CONDUIT TO EDGE OF TRANSFROMER BASE - ?
6/11/02
6/11/02
276
GC
5/9/01
0
5/9/01
015-GC RECEIVES AND SETS NEW TRANSFORMER #11 AND 11A & STUBS CONDUIT TO EDGE OF TRANSFROMER BASE - ?
6/11/02
6/11/02
276
COK
5/9/01
0
5/9/01
019-OWNER RECEIVE & INSTALL WEST SWITCH GEAR AND TERMINATE AT TRANSFORMERS 11 AND 11A - ?
6/11/02
6/11/02
276
COK
5/9/01
0
5/9/01
021-OWNER ACTIVATE WEST SWITCH GEAR - ?
6/11/02
6/11/02
276

Issue #1 - March 29, 2001
i1 smrA - 52D contr rebid



ACTIVITY LEGEND

Reserved Activity Numbers

51	56
52	57
53	58
54	59
55	60

lan 001
han 99

ABBREVIATIONS

PP - Pilot Plant
DPS - Department of Public Services
SMI - Solids Management Improvement
J & H - Jones & Henry
ED - Engineering Department
KWRP - Kalamazoo Water Reclamation Plant
MDEQ - Michigan Department of Environmental Quality
T/R - Time restraint
E T/R - End time restraint

SOLIDS DEWATERING, STABILIZATION AND STORAGE FACILITY - CONTRACT 52D - REBID A

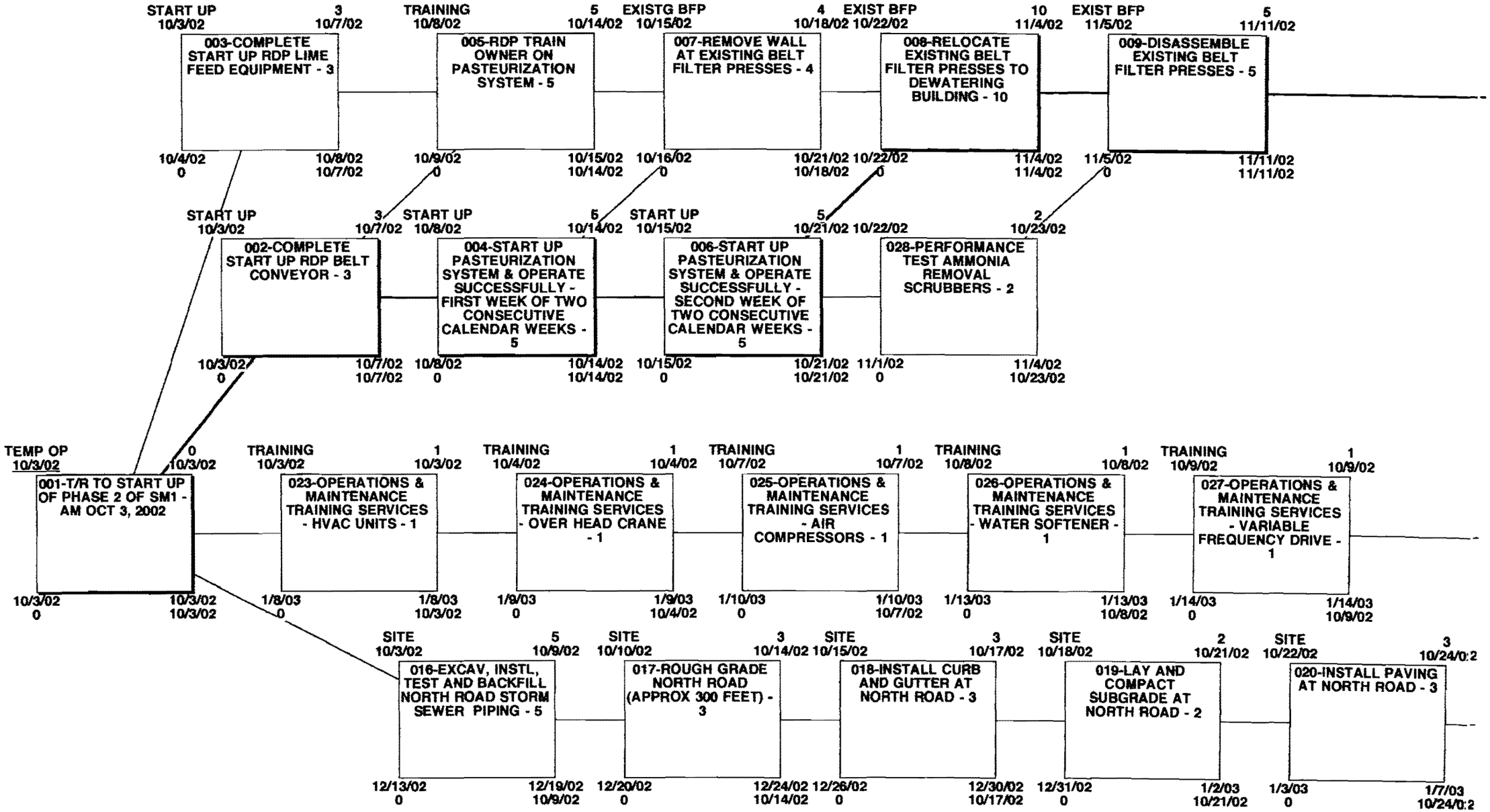
SUMMARY NETWORK MODEL FOR SOLIDS HANDLING PROGRAM

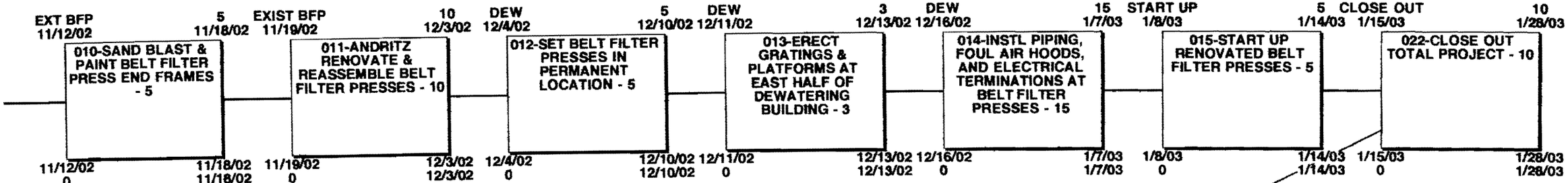
City of Kalamazoo Water Reclamation Plant
Kalamazoo, Michigan

Larry Fischer - Project Manager
Dan Miller, P.E. - Consultant

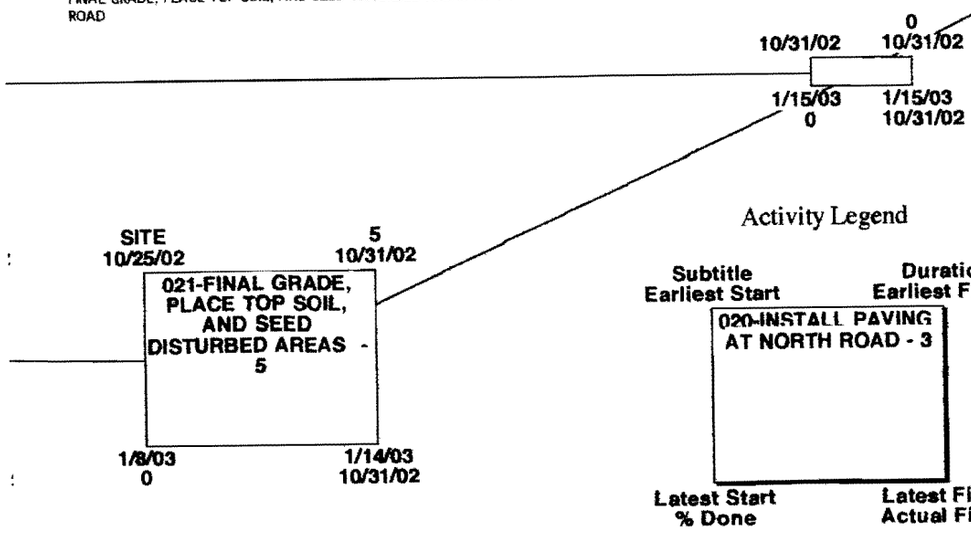
Ralph J. Stephenson, P.E., P.C.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48828
ph 517 772 2537

SHT SMRA - 52D

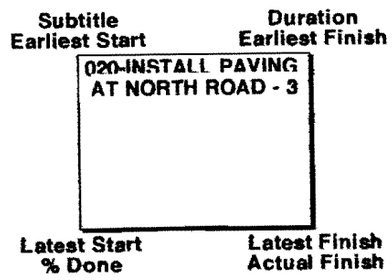

START UP
10/3/02
3
10/7/02
003-COMPLETE START UP RDP LIME FEED EQUIPMENT - 3
10/4/02
0
10/8/02
10/7/02
TRAINING
10/8/02
5
10/14/02
005-RDP TRAIN OWNER ON PASTEURIZATION SYSTEM - 5
10/9/02
0
10/15/02
10/14/02
EXISTG BFP
10/15/02
4
10/18/02
007-REMOVE WALL AT EXISTING BELT FILTER PRESSES - 4
10/16/02
0
10/21/02
10/18/02
EXIST BFP
10/22/02
10
11/4/02
008-RELOCATE EXISTING BELT FILTER PRESSES TO DEWATERING BUILDING - 10
10/22/02
0
11/4/02
11/4/02
EXIST BFP
11/5/02
5
11/11/02
009-DISASSEMBLE EXISTING BELT FILTER PRESSES - 5
11/5/02
0
11/11/02
11/11/02
START UP
10/3/02
3
10/7/02
002-COMPLETE START UP RDP BELT CONVEYOR - 3
10/3/02
0
10/7/02
10/7/02
START UP
10/8/02
5
10/14/02
004-START UP PASTEURIZATION SYSTEM & OPERATE SUCCESSFULLY - FIRST WEEK OF TWO CONSECUTIVE CALENDAR WEEKS - 5
10/8/02
0
10/14/02
10/14/02
START UP
10/15/02
5
10/21/02
006-START UP PASTEURIZATION SYSTEM & OPERATE SUCCESSFULLY - SECOND WEEK OF TWO CONSECUTIVE CALENDAR WEEKS - 5
10/15/02
0
10/21/02
10/21/02
10/22/02
2
10/23/02
028-PERFORMANCE TEST AMMONIA REMOVAL SCRUBBERS - 2
11/1/02
0
11/4/02
10/23/02
TEMP OP
10/3/02
0
10/3/02
001-T/R TO START UP OF PHASE 2 OF SM1 - AM OCT 3, 2002
10/3/02
0
10/3/02
10/3/02
TRAINING
10/3/02
1
10/3/02
023-OPERATIONS & MAINTENANCE TRAINING SERVICES - HVAC UNITS - 1
1/8/03
0
1/8/03
10/3/02
TRAINING
10/4/02
1
10/4/02
024-OPERATIONS & MAINTENANCE TRAINING SERVICES - OVER HEAD CRANE - 1
1/9/03
0
1/9/03
10/4/02
TRAINING
10/7/02
1
10/7/02
025-OPERATIONS & MAINTENANCE TRAINING SERVICES - AIR COMPRESSORS - 1
1/10/03
0
1/10/03
10/7/02
TRAINING
10/8/02
1
10/8/02
026-OPERATIONS & MAINTENANCE TRAINING SERVICES - WATER SOFTENER - 1
1/13/03
0
1/13/03
10/8/02
TRAINING
10/9/02
1
10/9/02
027-OPERATIONS & MAINTENANCE TRAINING SERVICES - VARIABLE FREQUENCY DRIVE - 1
1/14/03
0
1/14/03
10/9/02
SITE
10/3/02
5
10/9/02
016-EXCAV, INSTL, TEST AND BACKFILL NORTH ROAD STORM SEWER PIPING - 5
12/13/02
0
12/19/02
10/9/02
SITE
10/10/02
3
10/14/02
017-ROUGH GRADE NORTH ROAD (APPROX 300 FEET) - 3
12/20/02
0
12/24/02
10/14/02
SITE
10/15/02
3
10/17/02
018-INSTALL CURB AND GUTTER AT NORTH ROAD - 3
12/26/02
0
12/30/02
10/17/02
SITE
10/18/02
2
10/21/02
019-LAY AND COMPACT SUBGRADE AT NORTH ROAD - 2
12/31/02
0
1/2/03
10/21/02
SITE
10/22/02
3
10/24/02
020-INSTALL PAVING AT NORTH ROAD - 3
1/3/03
0
1/7/03
10/24/02



COMPLETE START UP RDP LIME FEED EQUIPMENT
COMPLETE START UP RDP BELT CONVEYOR
RDP TRAIN OWNER ON PASTEURIZATION SYSTEM
START UP PASTEURIZATION SYSTEM & OPERATE SUCCESSFULLY - FIRST WEEK OF TWO CONSECUTIVE CALENDAR WEEKS
REMOVE WALL AT EXISTING BELT FILTER PRESSES
START UP PASTEURIZATION SYSTEM & OPERATE SUCCESSFULLY - SECOND WEEK OF TWO CONSECUTIVE CALENDAR WEEKS
MOVE EXISTING BELT FILTER PRESSES TO DEWATERING BUILDING
DISASSEMBLE EXISTING BELT FILTER PRESSES
SAND BLAST & PAINT BELT FILTER PRESS END FRAMES
ANDRITZ RENOVATE & REASSEMBLE BELT FILTER PRESSES
SET BELT FILTER PRESSES IN PERMANENT LOCATION
ERECT GRATINGS & PLATFORMS AT EAST HALF OF DEWATERING BUILDING
INSTL PIPING, FOUL AIR HOODS, AND ELECTRICALTERMINATIONS AT BELT FILTER PRESSES
START UP RENOVATED BELT FILTER PRESSES
CLOSE OUT TOTAL PROJECT
EXCAV, INSTL, TEST AND BACKFILL NORTH ROAD STORM SEWER PIPING
ROUGH GRADE NORTH ROAD (APPROX 300 FEET)
INSTALL CURB AND GUTTER AT NORTH ROAD
LAY AND COMPACT SUBGRADE AT NORTH ROAD
INSTALL PAVING AT NORTH ROAD
FINAL GRADE, PLACE TOP SOIL, AND SEED DISTURBED AREAS AT NORTH ROAD



Activity Legend



PHASE 2 - RENOVATION OF EXISTING BELT FILTER PRESSES SOLIDS DEWATERING, STABILIZATION AND STORAGE FACILITY CONTRACT 52D

Reserved Activity Numbers

030 034
031 035
032 036
033 037

LAN 001
HAN 027

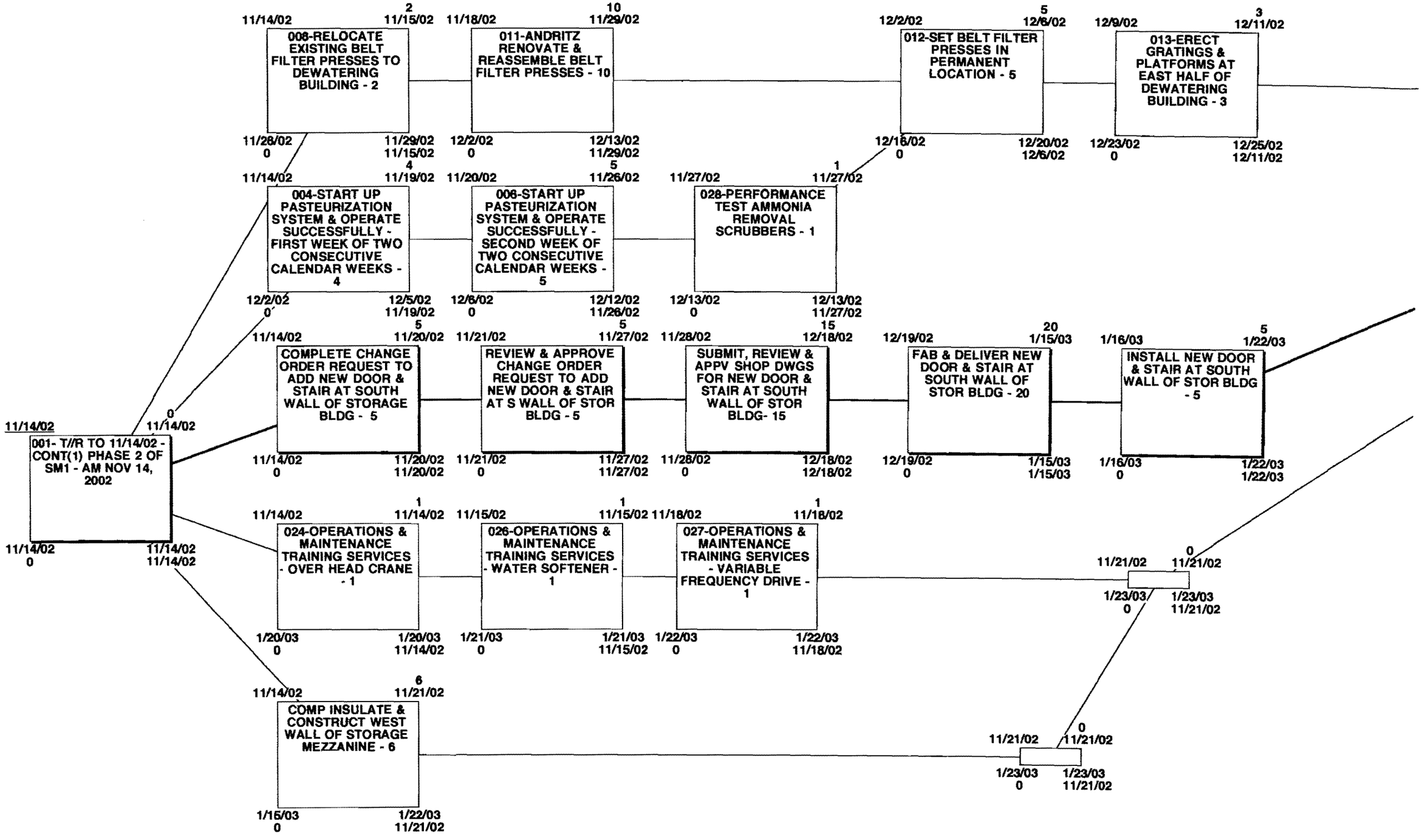
Issue #1 Phase 2
October 4, 2002

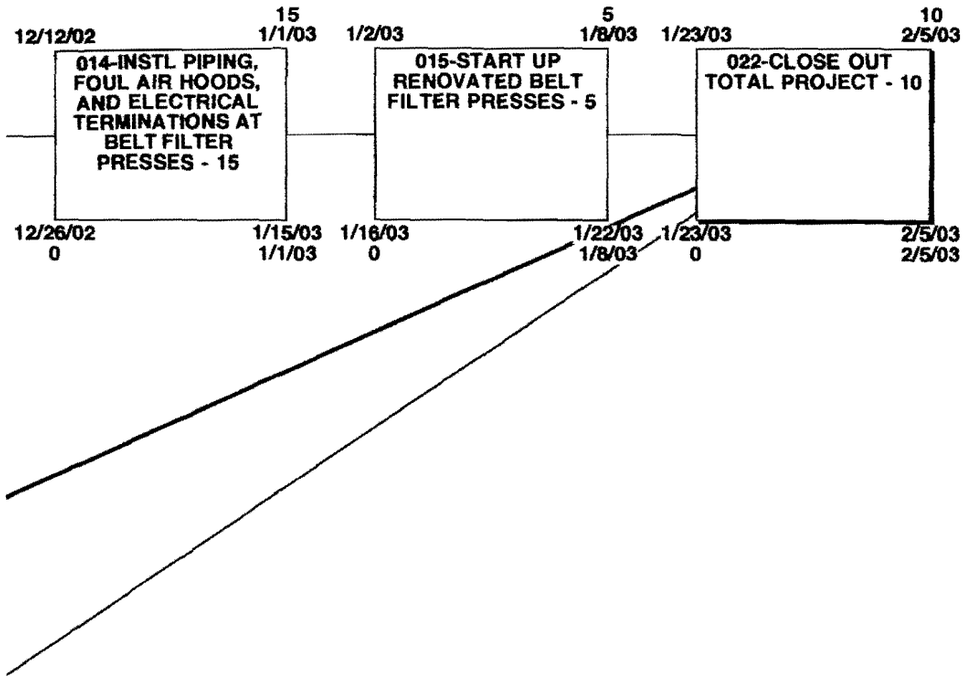
Wagner-Flook Builders, Inc.
Battle Creek, Michigan
Phil Jones - Project Manager

City of Kalamazoo - Public Services Department
Larry Fischer - Project Manager

Jones & Henry Engineers, Inc.
Dan Miller - Project Manager

Ralph J. Stephenson, P.E.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48858-9096
ph 1-989-772 2537


001- T//R TO 11/14/02 - CONT(1) PHASE 2 OF SM1 - AM NOV 14, 2002
11/14/02
0
11/14/02
11/14/02
0
11/14/02
008-RELOCATE EXISTING BELT FILTER PRESSES TO DEWATERING BUILDING - 2
11/14/02
2
11/15/02
11/28/02
0
11/29/02
011-ANDRITZ RENOVATE & REASSEMBLE BELT FILTER PRESSES - 10
11/18/02
10
11/29/02
12/2/02
0
12/13/02
012-SET BELT FILTER PRESSES IN PERMANENT LOCATION - 5
12/2/02
5
12/6/02
12/16/02
0
12/20/02
013-ERECT GRATINGS & PLATFORMS AT EAST HALF OF DEWATERING BUILDING - 3
12/9/02
3
12/11/02
12/23/02
0
12/25/02
004-START UP PASTEURIZATION SYSTEM & OPERATE SUCCESSFULLY - FIRST WEEK OF TWO CONSECUTIVE CALENDAR WEEKS - 4
11/14/02
4
11/19/02
12/2/02
0
12/5/02
006-START UP PASTEURIZATION SYSTEM & OPERATE SUCCESSFULLY - SECOND WEEK OF TWO CONSECUTIVE CALENDAR WEEKS - 5
11/20/02
5
11/26/02
12/6/02
0
12/12/02
028-PERFORMANCE TEST AMMONIA REMOVAL SCRUBBERS - 1
11/27/02
1
11/27/02
12/13/02
0
12/13/02
COMPLETE CHANGE ORDER REQUEST TO ADD NEW DOOR & STAIR AT SOUTH WALL OF STORAGE BLDG - 5
11/14/02
5
11/20/02
11/14/02
0
11/20/02
REVIEW & APPROVE CHANGE ORDER REQUEST TO ADD NEW DOOR & STAIR AT S WALL OF STOR BLDG - 5
11/21/02
5
11/27/02
11/21/02
0
11/27/02
SUBMIT, REVIEW & APPV SHOP DWGS FOR NEW DOOR & STAIR AT SOUTH WALL OF STOR BLDG- 15
11/28/02
15
12/18/02
11/28/02
0
12/18/02
FAB & DELIVER NEW DOOR & STAIR AT SOUTH WALL OF STOR BLDG - 20
12/19/02
20
1/15/03
12/19/02
0
1/15/03
INSTALL NEW DOOR & STAIR AT SOUTH WALL OF STOR BLDG - 5
1/16/03
5
1/22/03
1/16/03
0
1/22/03
024-OPERATIONS & MAINTENANCE TRAINING SERVICES - OVER HEAD CRANE - 1
11/14/02
1
11/14/02
1/20/03
0
1/20/03
026-OPERATIONS & MAINTENANCE TRAINING SERVICES - WATER SOFTENER - 1
11/15/02
1
11/15/02
1/21/03
0
1/21/03
027-OPERATIONS & MAINTENANCE TRAINING SERVICES - VARIABLE FREQUENCY DRIVE - 1
11/18/02
1
11/18/02
1/22/03
0
1/22/03
11/21/02
0
11/21/02
1/23/03
0
1/23/03
COMP INSULATE & CONSTRUCT WEST WALL OF STORAGE MEZZANINE - 6
11/14/02
6
11/21/02
1/15/03
0
1/22/03
11/21/02
0
11/21/02
1/23/03
0
1/23/03



PHASE 2 - RENOVATION OF EXISTING BELT FILTER PRESSES
SOLIDS DEWATERING, STABILIZATION AND STORAGE FACILITY CONTRACT 52D

Reserved Activity Numbers

030 034
031 035
032 036
033 037

LAN 001
HAN 027

Issue #2 Phase 2
November 14, 2002

Wagner-Flook Builders, Inc.
Battle Creek, Michigan
Phil Jones - Project Manager

City of Kalamazoo - Public Services Department
Larry Fischer - Project Manager

Jones & Henry Engineers, Inc.
Dan Miller - Project Manager

Ralph J. Stephenson, P.E.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48858-9096
ph 1-989-772 2537

Activity Legend