



**CITY OF FRANKLIN  
COUNCIL AGENDA REPORT**  
*City Council Meeting July 9, 2012*

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**From:** Brian J. Sullivan, Municipal Services Director

**Subject:** City Council is being provided an update on the status of Water Treatment Project for Iron and Manganese Removal from groundwater pumped at the Franklin Falls, Acme 1 and Acme 2 City water supply wells.

**Recommended motion:**

No Action Required.

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**Discussion:**

Municipal Services Director will be available at the November 7, 2011 City Council meeting for questions. This is our current time line.

**1. January 2008:**

- City accepts grant from Community Development Finance Authority (CDFA).
- Request for Proposals (RFP) is issued by City for Engineering Services and a pre-submission conference is conducted.

**2. February 2008** – RFP packages opened from five respondents.

**3. March 2008** – City Staff Selection Committee interviews all five firms responding to RFP. Selection is qualification based. Committee unanimously selects Earthtech as top firm.

**4. April 2008** – Contract Negotiations are completed and contract successfully executed, saving rate payer approximately \$57,000.

**5. May 2008:**

- Pilot Study performed at Acme 1 and 2 wells and at Franklin Falls well. Positive outcome is achieved, in that Iron and Manganese can successfully be removed from all three groundwater wells using filtering process of three different types of filtering media.
- Consulting Engineer and City Staff file pre-application under the New Hampshire Department of Environmental Services (NHDES), Drinking Water State Revolving Fund (DWSRF) for three projects, totaling \$7,200,000.
- Army Corps is notified of City's desire to perform under-water river crossing for (2) 12" water mains to connect Franklin Falls and Acme 1 and 2 pumping stations. City Staff and Consulting Engineer have determined constructing one treatment plant at Acme well sites, along with a river crossing pipeline connecting both wells, is the most cost effective remedy.

**6. June 2008:**

- City is notified that all the applications submitted in May under the NHDES, DWSRF qualify as projects for funding consideration.
- Preliminary Engineering Report begins by Earthtech. Report should be available August 2008. Plant design begins.
- City Staff and Earthtech conduct first formal meeting with Army Corps of Engineers. Plant design is discussed and SWSRF Loan applications drafted.

**7. July 2008:**

- City qualifies for State Revolving Fund (SRF) Loan in the amount of \$7,200,000. The importance of this is that other grant / loan funding agencies use NHDES ranking and qualification to determine viability and feasibility of the project(s).
- City / CDFA / Earthtech / NHDES and U.S. Department of Agriculture (USDA) Staff hold joint pre-grant submission meeting to discuss project funding and feasibility.

**8. August and September 2008** – Preliminary Engineering Report is finalized.

**9. October 2008** – NHDES / City initiate Project Environmental Review Process.

**10. November 2008** – (1) City awaits Army Corps decision on directional boring for Pemigewasset under-water pipeline river crossing, (2) City Staff files for grant reimbursement from NH CDFA, and (3) City Staff and Earthtech begin grant / loan applications for 2009 Community Development Block Grant (CDBG) \$500,000 grant and USDA Rural Development \$7,200,000 grant / loan requests.

**11. December 2008** – City Staff will request authorization to file grant / loan application with CDFA and USDA and report back to City Council in January or February, at which time City Council will determine if the project will move forward.

**12. January 2009:**

- Grant / Loan applications are filed with CDFA for a \$500,000 CDBG Grant and with USDA for a \$7,200,000 Grant / Loan.
- Discussions continue with the Army Corps of Engineers relative to permitting / licensing for temporary access on Franklin Falls Dam property to perform Geophysical Evaluation and to obtain an easement or permanent rights for the under-water river crossing for pipelines.

**13. February 2009** – City is notified by USDA that we qualify for a \$3,302,000 loan and a \$3,398,000 grant under the USDA Water Environmental Program. This is a preliminary determination. City awaits response on our \$500,000 CDBG Application.

**14. March 2009** – City obtains license to perform Geophysical Evaluation of the river crossing pipeline location from the Army Corps of Engineers.

**15. April 2009** – City received and has executed Easement from U.S. Army Corps of Engineers for dual pipeline river crossing, underneath the Pemigewasset River. City notified it did not get the \$500,000 Public Facilities Community Development Block Grant. City notified that it qualified for a USDA Rural Development Grant for \$3,555,000 and loan for \$3,645,000. City notified it will qualify for \$3,645,000 interim financing from New Hampshire Drinking Water

State Revolving Fund Loan. USDA has approved Water System Feasibility Study, preliminary engineering report.

**16. May 2009:**

- City Staff and Janet Levy meet with Acme Staple and Consulting Engineer, relative to the impact of groundwater contamination, on City's ability to locate dewatering lagoons on City property.
- Earth Tech Contract Terminated
- RFP's issued for Design and Construction Services for pipeline and plant design

**17. June 2009:**

- City Council authorizes City Manager and Mayor to retain Bond Council, execute interim financing loan agreement with State of NH under Drinking Water State Revolving Fund and execute 30-year grant loan agreement with USDA Rural Development program.
- Proposals accepted from engineering firms for plant design and distribution system improvements.

**18. July 2009:**

- Selection Committee conducts interviews with three engineering firms that submitted proposals for Design Services and Construction Bid Documents and Inspection.
- Tata & Howard is awarded contract for Engineering Design Services.
- Test boring logs and information for building, River Crossing pipeline and Hill Road pipeline.
- City Staff begins discussion with Acme Staple, relative to acquisition of 2.5 acre adjacent parcel of land for garage facility.

**19. August 2009:**

- Design on River Crossing and Hill Road pipelines begin.
- Finalizing of Preliminary Engineering Report continues.

**20. September 2009:**

- City Staff tours Water Treatment Plant of similar design and operation to proposed Franklin Facility.
- Monthly Financial reporting to USDA begins.
- City Staff continued discussion with Acme Staple, relative to land acquisition.

**21. October 2009:**

- Final Design River Crossing Pipeline and Hill Road pipeline is completed and submitted to USDA for review and approval.
- Preliminary building design begins.
- City Staff submits request to Army Corps for potential long-term lease of 3-acre piece of property, adjacent to southwest corner of City well field, for potential garage facility site.

**22. November 2009:**

- City Staff finalizes floor plan layout and other Water Treatment Plant design/construction features.
- Boring log and subsurface report for geotechnical evaluation of subsurface conditions is completed for building design.

- City awaits final approval from USDA on River Crossing and Hill Road pipelines. Bid Documents prepared.
- Discussion continues with Acme Staple.

**23. December 2009:**

- Work on all the fore-mentioned continues and will be added to next timeline update.
- \$119,827 expended, to date, on design and construction services.

**24. January 2010:**

- Discussion continues with Army Corps relative to acquisition of 3-acre parcel of land for lagoon and easement for storage building.
- Engineer continues design work for River Crossing and Hill Road pipelines.
- Amendment #1 for Additional Soils investigations signed by Rural Development.
- Additional Geotechnical work is performed for building / Water Treatment Plant location.

**25. February 2010:**

- USDA and NHDES continue with review of design for pipeline and Treatment Plant.
- Final design of Hill Road pipeline is complete.
- City Staff meets with Engineer and directional boring Consultant, Brierley Associates, on-site, to determine final depth, pipe location, logistics, site review, etc.

**26. March 2010:**

- Phase II / Final Engineering Report completed and submitted to USDA and NHDES.
- Shore-land permit is submitted to NHDES for approval.
- City receives approval from NHDES on interim financing (construction loan).
- Site layout continues to be finalized for building location, lagoons, septic system, Water Treatment Plant and storage garage.

**27. April 2010:**

- City Staff meets with NHDES Staff to perform final project review and permit approvals.
- Shore-land permit received from NHDES.

**28. May 2010:**

- City receives final authorization from USDA to bid out all projects.
- Hill Road pipeline is advertised for public bidding. Bid opening scheduled for June 8th.
- City Staff meets with representatives from US Army Corps, relating to temporary use of Piney Point for construction and fusion of piping, in conjunction with River Crossing directional bore.
- Engineer working towards final design and bid documents for River Crossing pipeline.
- Water Treatment Plant final design at about 40% completion.
- Site work for Water Department storage building underway.
- Design for final site plan begins.

**29. June 2010:**

- Bids opened on Hill Road Water Main project. Low Bidder was R.D. Edmunds at a price of \$386,360. Just below the Engineer's Estimate of \$390,000.
- License received from Army Corps to allow above ground work on Piney Point. This enables the design to be modified to construction of four shorter pipe segments to construct the river crossings this will enable smaller, more local contractors to bid on the project.

**30. July 2010:**

- A pre-construction conference was held on July 15<sup>th</sup> to discuss the Hill Road Water Main project.
- 75% drawings and specifications were sent to Rural Development and NHDES for their review. City Staff met with NHDES to discuss their concerns on the project site plan. City requested to move the treatment plant on the site.
- Received approval to bid the River Crossing contract.

**31. August 2010:**

- River Crossing pipeline contract is publicly advertised for bidding. Bid opening scheduled for September 2<sup>nd</sup>.
- Construction work begins on Hill Road Project.
- Additional soil borings done on the treatment plant site as a result of the new location.

**32. September 2010:**

- Bids opened on the river crossing project. Low Bidder was R.D. Edmunds at a price of \$889,850, below the Engineer's estimate of \$1,000,000.
- A pay application and project meeting was held on September 24<sup>th</sup>
- Pre-construction conference was held on the River Crossing contract.
- Pipeline work nearly complete on Hill Road; clean up, guardrail and services remain.
- 95% drawings & specifications submitted to Rural Development and NHDES for their review.

**33. October 2010:**

- City Staff met with Engineers to review 95% drawings and specifications.
- Comments received from RD and NHDES on 95% drawings and specifications. Engineers preparing responses and getting documents ready for bidding.
- City receives authorization to put Water Treatment Plant out to Public Bid.

**34. November 2010:**

- Pipeline work complete on Hill Road. Itemized punch list to be completed in Spring.
- Henniker Directional Drilling mobilize and begin work on River Crossing.
- City received balance of interim SRF funding from NHDES.
- Pay application meeting held on November 5<sup>th</sup>.

**35. December 2010:**

- Pay application meeting held on December 9<sup>th</sup>.
- Bid opening on the Treatment Plant Building December 9<sup>th</sup>. A total of eight bids received.
- Three lowest bidders were Weston & Sampson @ \$3,015,200; Apex Construction @ \$3,046,700 and Penta Corporation @ \$3,168,800. Engineers estimate was \$4,100,000. The two lowest bids were over \$1,000,000 below Engineers estimate. Engineer and City Staff are reviewing qualifications and project experience for the three lowest bids.

**36. January 2011**

- Held interview with low bidder on the treatment building, Weston & Sampson CMR on January 4<sup>th</sup>. Representatives of RD, NHDES and City's Engineer were present. After the interview it was decided to go forward with award of the contract to Weston & Sampson, CMR.
- Contract signing for Treatment Plant was held on January 20<sup>th</sup>.

- Pay applications meeting for River Crossing also held on January 20<sup>th</sup>. Two of the four pipelines segments under the river have now been completed.

### **37. February 2011**

- Weston & Sampson begins the treatment plant construction process by submitting shop drawings and other required documents to Tata & Howard, Inc. A change order was signed with R. D. Edmunds on the river crossing to proceed with rock drilling for the Acme side pipelines. Winter conditions prevented much outside activity on the project. Pay application meeting for the water treatment plant covered initial bonds, insurance, and shop drawing submittals.

### **38. March 2011**

- Drilling resumes on the river crossing. Progress is steady but slow. Further progress was made on Water Treatment plant shop drawings. Discussions begin on a Change Order to provide an access ramp to the basement area of the treatment plant.

### **39. April 2011**

- The river crossing drilling has completed the pilot hole for the third pipe location. Reaming begins to increase the diameter to allow the full sized pipeline to be installed. Equipment problems with the reamer slow the progress. Office trailers are installed on the treatment plant site. Excavation completed for the treatment plant foundation and the first concrete is placed for the un-reinforced mudmat below the basement floor slab.

### **40. May 2011**

- The first loads of reinforcing steel arrive on-site for the basement floor slab. The vapor barrier is installed on top of the mud mat. On May 18<sup>th</sup>, after the installation of the reinforcing steel, the basement floor slab was poured. The groundbreaking ceremony was May 26<sup>th</sup>. On May 31<sup>st</sup> the 3<sup>rd</sup> of 4 legs of the river crossing was completed by pulling 1,400 feet of 12-inch HDPE pipe under the river from Piney Point to the Acme site. In the process, 440 feet of rock was drilled and reamed.

### **41. June 2011**

- Drilling for the 4<sup>th</sup> and final leg of the river crossing was delayed while negotiating a contract amendment and gaining approval for it from Rural Development.  
- Steel was erected as reinforcement for the interior and exterior basement walls, sleeves installed in those walls as necessary, and three separate concrete pours occurred to construct the basement walls. Staging was erected to and a plywood deck installed over it in preparation for the first floor concrete pour. Steelworkers began staging and wiring in the lower level of the reinforcing steel for the first floor slab.

### **42. July 2011**

- Drilling for the 4<sup>th</sup> and final leg was begun on July 5<sup>th</sup>. On July 11<sup>th</sup>, with only about 5 hours of rock drilling on the rock drill, the “mud motor” failed and broke apart. Ultimately it was not able to be recovered and had to be abandoned in the ground. After receiving replacement equipment, drilling was restarted on July 26<sup>th</sup>.  
- Steelworkers continued wiring in the lower level of the reinforcing steel for the first floor slab, electrical conduit was run in the first floor slab by the electricians, a small bit of plumbing placed in the floor slab, and a number of sleeves placed, and wiring of the second layer of reinforcing

steel for the floor, and finally, the first floor slab was poured. The backwash tank was filled, tested, and passed a leakage test.

#### **43. August 2011**

- On the water main river crossing, the rock pilot drill was completed and a the 12-inch rock ream was begun..
- As of August 5<sup>th</sup>, the staging and plywood deck used for the first floor concrete pour was removed, three sides of the building foundation was waterproofed, insulated, and backfilled with gravel. The backwash tank was pressure washed and had a waterproofing sealer applied. The removal of concrete nubs and pressure washing of the remaining interior basement walls was begun.
- Steel reinforced CMU (concrete masonry unit) wall construction for both the exterior and interior walls was begun along with the installation of some plumbing and electrical conduit inside those walls. All CMU walls to the level of the first floor were completed.

#### **44. September 2011**

- Concrete planks were installed for the mezzanine level over the offices and the dry chemical feed room. A 2-inch floor was then poured over the concrete planks and steel reinforced CMU wall construction was continued and completed, including roof gables, all of CMU type construction.
- The four very large pressure filter tanks were installed.
- On the water main river crossing, the 12-inch diameter rock ream was completed and the 18-inch rock ream was begun.

#### **45. October 2011**

- The insulating of the exterior walls simultaneously with “split faced concrete block” veneer construction over the CMU walls was begun and completed.
- Wood roof trusses were installed, and plywood sheathing installed over the roof trusses.
- Wooden gables were fabricated and installed over the CMU gable ends as part of the finishing process and are nearly complete.
- A propane tank was installed, complete with cathodic protection, and a propane line to the building was installed.
- The site was backfilled to near finish grade.
- Excavation for retaining wall footings occurred.
- Major electrical conduit was installed inside the basement of the building.
- Some process piping and automated valves were installed.
- On the water main river crossing, the 18-inch rock ream was completed, the fourth and final pipe was pulled through the 1500 foot long bore hole, specialized fittings attached to the ends of the pipe, and all connections from the river crossing pipe on the Acme side of the river were made to the Water Treatment Plant.

#### **46. November 2011**

- Process piping installation continued.
- The ramp to the basement’s retaining wall’s footings were constructed and poured followed by the construction of the vertical steel and forms for the ramp retaining wall itself.
- The driveway and parking areas received final grading, graveling, and were paved with a base course of pavement. In the process, two production remediation wells in the construction zone

(owned by Acme Staple) were permanently protected with concrete manhole barrels, frames and covers.

- Duct work for the dehumidifier system was begun.
- Siding on the gable ends of the building was completed.
- Process piping work in the basement was begun.
- Connections between the new HDPE river crossing water mains to the water distribution system were completed at Franklin Falls.
- The HDPE river crossing water mains between Franklin Falls and the Acme site were pressure tested and successfully passed these tests.
- As part of this project, a ventilation louver in the existing Chemical Feed Building at the Acme site was removed and the wall bricked up. This is in preparation for the installation of two new Variable Frequency Drives on Acme public water supply wells #1 and #2.

#### **47. December 2011**

- The 12-inch diameter Ductile Iron Pipe which connects the River Crossing to the Plant was pressure tested and successfully passed the pressure tests.
- All River Crossing pipe and all new Ductile Iron pipe at the Acme site were flushed free of debris, super chlorinated for disinfection, flushed free of the super chlorinated water, then tested for bacteria. All tests were passed.
- A 3-phase transformer and two 7.5 Hp VFDs were installed in the electrical room. Construction of electrical conduit and wiring continued.
- Inside the pressure vessels, distribution pipes were assembled and installed, then concrete poured inside the vessels to support the pipes.
- HVAC duct work construction was begun for the treatment plant's office section. This included coring of the floor of the mezzanine and the internal concrete block walls on the first floor for the duct work.
- The parking area at the Franklin Falls Pump Station was paved where the new valve cluster was installed.
- A catch basin was installed at the bottom of the ramp which goes to the basement, and it was connected to a sump and storm water pump station inside the building. The ramp was then backfilled and graveled. It will be paved in the Spring.
- Ceiling drywall installation was begun.
- Holes were cored in the main floor and in an exterior wall for the installation of the fire protection (sprinkler) system. The system itself will be installed later.
- The ramp's concrete retaining wall was extended at both north and south ends with a surplus segmented block wall.
- The area behind the ramp's retaining wall was backfilled, loamed and seeded. A fence was installed on the ramp's concrete retaining wall.
- Traffic bollards were installed by the first floor's overhead door, by the propane regulator next to the building, around the propane tank fill, and around electrical "hand holes" to prevent damage.
- Installation of the metal roof was begun.
- The large Clearstory windows were installed.
- The hydropneumatic pump and pressure tank, used to operate the valves, was mounted.
- Three medium-sized pumps in the basement were mounted.
- Stairs to the basement and the mezzanine were installed.
- The septic system was installed, inspected, and approved.

- The large propane tank was filled with fuel and the three propane-fire unit heaters were made operational.

#### **48. January 2012**

- Ceiling drywall installation was completed.
- Blown-in insulation was installed in the attic of the building.
- The ceiling of the main floor received its first coat of paint.
- Overhead lighting for the main floor was completed.
- Ventilation equipment on the mezzanine was installed and its controls wired up.
- Backwash process piping received its first coat of paint.
- The industrial-sized dehumidifier installation was begun.
- The majority of HVAC ductwork was installed in the offices.
- Interior of the west basement wall was insulated and studded
- The gas water heater was installed.
- The piping for the recycle/backwash tank (inside the tank) was installed.
- The building's sanitary plumbing was installed.
- Installation of the sprinkler system was begun.
- Fabrication and welding of the specialized stainless steel piping for the backwash tank pumps was completed.
- Installation of the chemical feed system equipment was begun.

#### **49. February 2012**

- The industrial-sized dehumidifier was reinstalled with steel supports instead of wooden ones at the contractor's expense.
- Interior of the west basement wall was sheet rocked, and painted.
- Electrical room and basement lighting was installed including emergency lighting.
- Most interior walls received a first coat of paint.
- Structural supports for the process piping in the main room were fabricated, welded, and installed.
- Structural supports for the process piping were installed in the basement.
- Process service water was piped to the control valves.
- The building domestic water supply was begun and piped throughout most of the building.
- Unistrut, conduit, and wiring for the process instrumentation and controls was completed.
- The sprinkler system was nearly completed throughout the entire building.
- Drain piping from the dry chemical feed area to the stormwater sump was completed.
- All process piping on the main floor received a second coat of paint.
- Vinyl tile was installed on the floors of the three offices.
- Ceramic tile installation was begun in the two bathrooms.

After months of discussion and considerable effort by City staff, the Mayor, the City Manager, our consultants: Tata & Howard and Janet Levy, and our City Attorney, USDA has agreed to allow the City to use project contingency funds for a water main project in West Franklin.

#### **50. March 2012**

- Installation of the chemical feed lines in the dry chemical feed area was continued.
- Wiring of the control valves and the valve position sensors was continued.
- Wiring for the ventilation equipment for the main floor, the electrical closet, and the mezzanine was completed and the equipment made operational.
- The propane gas piping was painted.

- The upper half of the walls in the main floor received a second coat of paint. (The lower half will receive a second coat when all other work has been completed, to avoid its being marked.)
- Vinyl flooring was installed in the laboratory and in the other offices.
- Tiling of the bathrooms was continued.
- The plumbing for the hydropneumatic valve control system was started.
- Water supply plumbing for the domestic water service was continued and is now nearly complete except for a small amount.
- The VFDs for the 75 Hp well pumps were installed and wired.
- Sill covers were installed for the three large Clerestory windows.
- Locks and door hardware were installed on all doors.
- The security camera was installed and made operational.
- Process instrumentation in the basement was installed and wired.
- The laboratory cabinetry was installed.

### **51. April 2012**

- Painting interior walls and piping continued.
- Plumbing work began in the bathrooms. Also plumbers installed RPZ (backflow device), water meter and pressure reducing valve.
- Fiber optic cable installed to provide SCADA connection from plant to other City water sites like the tanks and pump stations.
- Began backwashing filter media to remove fines.
- Electrical and control work progressing

### **52. May 2012**

- RD signed an amendment allowing design work to begin on the water mains in west Franklin.
- Chemical feed panels arrive and are installed and wired.
- Office furniture arrives.
- Lab equipment arrives.
- Chemical feed pumps for chlorine and soda ash solution are tested to be ready for start up.
- Bathroom fixtures are installed.
- Electrical and SCADA work continues.
- HVAC work progresses on AC units and dehumidification system.
- Plumbers are insulating piping systems
- Large propane fired unit heaters are installed in the process area and the basement.
- Dry feeder system for soda ash is started up and tested.

### **53. June 2012**

- Filter manufacturer on-site with electrician and controls company to check out operation of the filters.
- Chemical delivered for plant start up.
- water department staff trained on chemical feed and filter systems.
- Finished pavement, prepped and installed.
- Loam and seed placed adjacent to the plant driveway and parking area.
- Plant set up to filter water in test modes, at first through a hydrant on-site, then later after passing a bacteria test water was filtered and sent into the distribution system.
- met with RD on-site to review potential extra work on the treatment site

### **Concurrences:**

Project is consistent with City Council action directing Staff to proceed with grant and other funding alternatives and is also consistent with USDA requirements as outlined in grant agreement.

**Fiscal Impact:**

**Alternatives:**

**Attachments/Exhibits:**