



RESOLUTION No. 2016-3256

A RESOLUTION AUTHORIZING TO ACCEPT STAFF'S EVALUATION OF THE ALTERNATIVE CONTRACTING METHOD USED FOR THE WASTE WATER TREATMENT PLANT REPAIR, RENOVATION AND EXPANSION PROJECT.

RECITALS:

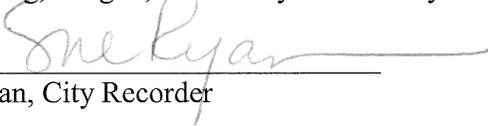
1. Through resolution No. 2009-2870, the City Council adopted the findings for exemption from local contract review board rules for the repairs and improvements to the wastewater treatment plant.
2. Per ORS 279C.355, the report shown in Exhibit "A" is an evaluation of the public improvement project which evaluates the use of the alternative contracting method.

THE CITY OF NEWBERG RESOLVES AS FOLLOWS:

City Council hereby accepts staff's evaluation, shown as exhibit "A," of the alternative contracting method used for the waste water treatment plant repair, renovation and expansion project. Exhibit "A" is hereby adopted and by this reference incorporated.

- **EFFECTIVE DATE** of this resolution is the day after the adoption date, which is: February 2, 2016

ADOPTED by the City Council of the City of Newberg, Oregon, this 1st day of February 2016.



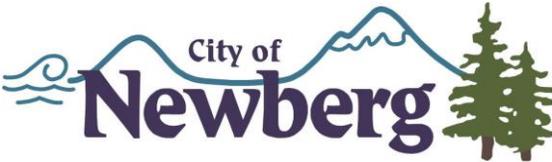
Sue Ryan, City Recorder

ATTEST by the Mayor this 3rd day of February 2016.



Bob Andrews, Mayor

Newberg City Hall
Tel: 503.537.1240
www.newbergoregon.gov



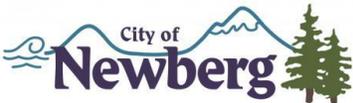
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PUBLIC IMPROVEMENT CONTRACT EVALUATION

Wastewater Treatment Plant Repair, Renovation and Expansion Project



“Working Together for a Better Community – Serious About Service”

PUBLIC IMPROVEMENT CONTRACT EVALUATION Final

Overview

The City of Newberg recently completed the final phase of a large, multi-phased upgrade project at the waste water treatment plant. This project was completed using an alternate contracting method, Construction Manager / General Contractor (CM/GC). Per the Oregon Revised Statutes (ORS), section 279C.355, this report evaluates the project as a result of using an alternate contracting method.

ORS 279C.355 Evaluation of public improvement projects not contracted by competitive bidding. (1) Upon completion of and final payment for any public improvement contract, or class of public improvement contracts, in excess of \$100,000 for which the contracting agency did not use the competitive bidding process, the contracting agency shall prepare and deliver to the Director of the Oregon Department of Administrative Services, the local contract review board or, for public improvement contracts described in ORS 279A.050 (3)(b), the Director of Transportation an evaluation of the public improvement contract or the class of public improvement contracts.

(2) The evaluation must include but is not limited to the following matters:

- The actual project cost as compared with original project estimates;
- The amount of any guaranteed maximum price;
- The number of project change orders issued by the contracting agency;
- A narrative description of successes and failures during the design, engineering and construction of the project; and
- An objective assessment of the use of the alternative contracting process as compared to the findings required by ORS 279C.335.

Project Description

The City of Newberg (City), Oregon owns and operates the Newberg Wastewater Treatment Plant (WWTP), located at 2301 Wynooski Road. Originally placed into service in 1987, the plant facilities were in need of repair, restoration, and expansion (RRE) to meet the year 2030 projected growth. The following areas were identified as focal points in the improvement plan: the Influent Pump Station, Headworks Facility, Oxidation Ditches, Disinfection System, Sludge Dewatering, and Site Improvements. These improvements fit within the recommendations of the 2007 Facilities Plan Update (FPU) approved by the

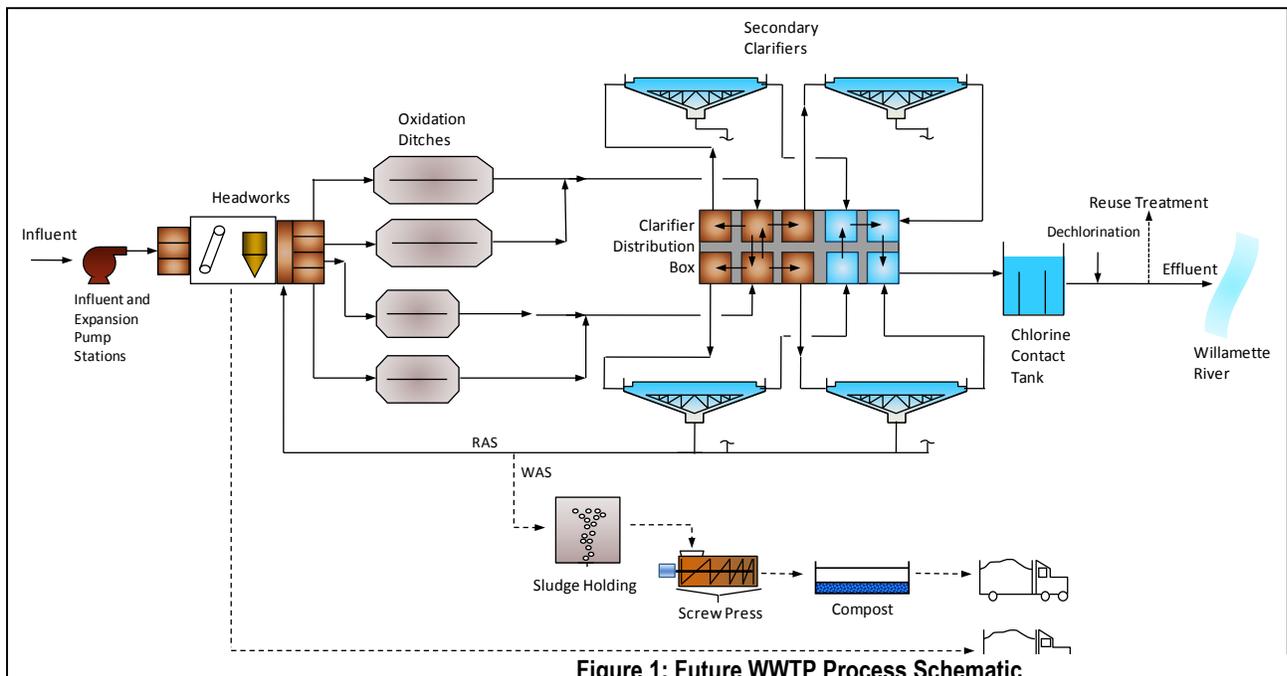


Figure 1: Future WWTP Process Schematic

Oregon Department of Environmental Quality (DEQ), the discharge permitting agency, in 2009. The Newberg WWTP process flow schematic is presented in Figure 1 above:

Project Finances

The original project budget, including design and construction was \$55M. The total spent on both design and construction, at the end of this final phase was just over \$25M. Portions of the upgrade project, such as improvements to the dechlorinating system and new oxidation ditches, were not completed with the large CMGC project due to funding limitations. The plan is to complete the future projects utilizing cash funding (rates and system development charges), if possible, rather than utilizing debt financing. Throughout the project, there were no contract change orders which increased the total value of any guaranteed maximum price (GMP)

To accommodate funding availability, the project was designed and constructed in two separate phases. The Improvements for each of these phases, and associated GMP contracts are as follows:

Phase 1:

Secondary Clarifiers – \$4,425,521 GMP

Oxidation Ditch Repairs – \$226,198 GMP

Phase 2:

Influent Pump Station Road – \$450,358 GMP

Influent Pump Station Expansion, Headworks, Dewatering, Septage Receiving, Site Improvements - \$15,516,327 GMP

Construction Schedule, Management, and Control Techniques Used

Utilizing the CM/GC method for construction allowed the site works contractor, Mortenson

Construction, to be involved with project design at an early stage of development. The early involvement of the project team, Mortenson, City, and HDR (Engineer), made coordination of schedule and management of the project more effective. Weekly coordination meetings to review design and schedule created many opportunities to save money and plan work effectively. Multiple value engineering sessions were conducted to analyze the design and identify opportunities to attain cost savings on the scale of millions of dollars.

Safety Performance



There have been over 70,000 man-hours over the course of 4 years and the project achieved zero lost-time injuries and zero first aid events.

This accomplishment was a result of careful planning and creating a positive safety culture through implementation of Mortenson's Zero Injury program. Zero injuries would not have been possible unless there was 100% commitment to creating a safe job site from everyone who was part of the construction.

Collaboration Benefits

As a result of the combined efforts of the team, the project was completed under budget, even after significant added work was completed as well. This considerable cost savings effectively maximized the potential of the City's budget and left the plant with significantly more upgrades than originally contracted.

Early involvement of the contractor was a large contributing factor that led to significant cost savings. The following are a portion of the cost saving benefits:

- During a value engineering session early in the design phase, it was proposed to place the new influent pump station (IPS) near the existing influent pump station instead of along Wynooski road as originally proposed. This design change removed the need for directional boring, which saved the city upwards of one million dollars.
- Careful planning during the construction process was another area where significant savings were achieved. An example of this was leaving the electrical cabinet for the existing IPS in place during the sheet pile process, rather than relocating it. There were concerns that the vibrations from the sheet pile driving process would damage the existing equipment and walls of the existing pump station because of the close proximity. It was proposed to conduct settlement monitoring twice daily in addition to having an electrician monitoring the cabinet full time.
- Rather than removing the sheet piles at the IPS site after the work was completed, it was proposed to abandon them in place. This removed significant vibrations that would have been created in the process of removal and helped justify leaving the electrical cabinet in place and protect the existing walls of the pump station.



Figure 2: Underground Piping

- The avoidance of by-pass sewer pumping between the existing and new IPS was achieved through close collaboration of the entire project team including subcontractors of the general contractor, providing significant costs savings.
- Originally the screw press manufacturer was supposed to be on site during installation because the equipment would need to be dis-assembled in order to fit into the existing building. Through careful review between Mortenson and Lynch Mechanical, a plan was developed to roll the equipment through the existing doors on carts with only a few inches of clearance in all directions. Existing structures were analyzed by HDR to confirm that the exterior elevated slab could support the full weight of the equipment. This adjustment in workflow saved the project time and money and was completed with no issues.



Figure 3: Screw Presses Installed

- Adjustments in the startup process provided cost and schedule savings. The screens of the existing headworks were reused in the new headworks as they were fairly new and in good condition. Refurbishment of the existing headworks screens was completed in place during operations of the existing headworks rather than during relocation to the new Headworks. This completed some of the startup process early and gave the opportunity to test the refurbished screens early and ensure that everything worked.

The removal of test valves in the raw sewage lines was another area of cost and schedule savings. The startup process was broken into two independent portions and coordinated in a way that avoided the need for the installation of expensive 20" valves on the raw sewage lines that run from the influent pump station to the headworks building. These startup adjustments were the biggest contributor to completing the project three months ahead of schedule.

- Early site exploration through potholing saved time in the schedule associated with the installation of a 30" raw sewage pipe from the Influent Pump Station to the Headworks building.
- Examination of the plant's electrical building allowed for reconfiguration of existing equipment to make room for the new equipment that needed to be installed, eliminating the need for an additional electrical building.

All of the above are examples of how Mortenson, HDR and the City/plant staff worked together to plan the project and make adjustments that would ultimately save the City of Newberg money and deliver the project ahead of schedule. Cost savings were significant enough to allow for added work which includes the following:

- Frontage Improvements: Added paved area for compost, continuous roadside sidewalk along Wynooski, slurry seal asphalt maintenance over the entire plant site.
- RV Dump: Located outside site fence for 24 hour access.
- Septage Receiving: A new station was installed with an automated payment mechanism for commercial trucks to dump waste.
- Misc. Improvements: New gutters at Chlorine Contact Basins, catwalk over Chlorine Contact Basins and around

screw presses, added parking/laydown around new influent pump station.

- Plant Control Panel: Significant cleanup of all wiring in plant control panel at operations building.

Even after completing all of the added work listed above, the City did not fully spend the original budget. Constant communication and teamwork between all parties and the use of the CM/GC approach helped achieve these savings, and delivered the City of Newberg



Figure 4: Septage Receiving & RV Dump Station expanded capacity and increased functionality at the wastewater treatment plant.

Construction Phasing

The nature of this project brought on challenging conditions that the project team had to work through together to properly handle. The plant was required to be fully operational during the entirety of the project, which caused the necessity to work around raw sewage. This added another level of complexity to the startup process and required creativity in determining startup of new equipment around raw sewage. Furthermore, these new systems needed to interact with existing systems that were sometimes 30+ years old.

To combat these adverse conditions, the team came up with the idea of dividing the existing operational systems so that the plant could operate partially on the old system, and the new system. This provided additional

redundancy and securities to avoid plant flow interruptions and potential permit violations.

The project was completed with zero permit violation.

Assessment of Findings of Fact:

As part of the decision to use an alternate contracting method, City Council approved 'findings of fact' justifying the use of the CM/GC contracting method. The following is an assessment of the project in relation to the findings originally presented to the Council.

Finding 1 - Design, construction and integration of new facilities into an existing and fully operational wastewater treatment plant requires a contractor experienced in similar projects that can work around the hazards, and operational constraints associated with modifications to wastewater treatment plant.

The level of expertise required for this project would not have adequately been able to be evaluated in a tradition sealed bid process. The RFP process used allowed the City to choose the most qualified contractor for the CM/GC project.

Finding 2 - The phasing and staging of this project combined with the funding plan and duration of construction, make this a unique project that requires a contractor that can come in early and help the City develop and phase the work. The complexity of the project and the attendant need for close coordination during the project by required project participants will be best addressed through the use of the CM/GC contracting process. Optimal value for the City is to have the CM/GC participate early in the design process so that the design team can integrate ideas and methods into the design process.

The early involvement of the contractor in the design of the improvements proved to be extremely valuable in all aspects of the project

as outlined in other parts of this report. Specifically, contractor input allowed for better cost control and estimating, scheduling, and design changes which reduced in either a process improvements or a construction cost savings.

Finding 3 - Use of the CM/GC process is expected to accelerate the project schedule compared to a traditional procurement approach.

Scheduling of the construction projects were accelerated throughout the different phases because early work packages were able to be released for construction ahead of the entire construction package. This allowed the contractor to begin construction on early work items while the design for the larger project was being completed, accelerating the schedule.

Finding 4 - The RFP process will promote fair and unbiased competition among CM/GC firms. The RFP process allows the City to select the firm and its team members that are best-suited for the project based on factors such as experience, ability to respond to the technical complexity or unique character of the project, value engineering ideas, schedule enhancement, past performance, price and other factors specific to the project. Selection of the best proposal received via the RFP process will be based on a team review of weighted evaluation criteria.

The evaluation process was fair and complete. The contractor that the City selected was well qualified and there were no protests by other contractors.

Finding 5 - The RFP will be publicly advertised to ensure an open and competitive process. Because in addition all major components of the project will be competitively solicited, the suggested process will not encourage favoritism in the awarding of public improvement contracts or

substantially diminish competition for public improvement contracts.

As part of each Guaranteed Maximum Price (GMP), a large portion of the work was competitively bid by subcontractors of Mortenson. The City oversaw the bidding process and the result was that the majority of the work done was completed by competitively bid subcontracts.

Finding 6 - Participation of the contractor in the design of the plant improvements, as provided in the CM/GC process, will more easily allow the incorporation of quality materials and equipment, selected on performance and life-cycle cost rather than the lowest initial price.

This process allowed for the discussion of materials and equipment selection and did allow the City to specify products, or types of products that would best serve the City's needs rather than just be the lowest cost

Finding 7 – The CM/GC will make value engineering recommendations during the design process that will save costs in the overall construction of the Plant.

Informal and formal value engineering activities regularly occurred during the design and construction of the project. These activities resulted in cost saving measures and/or added value to the project.