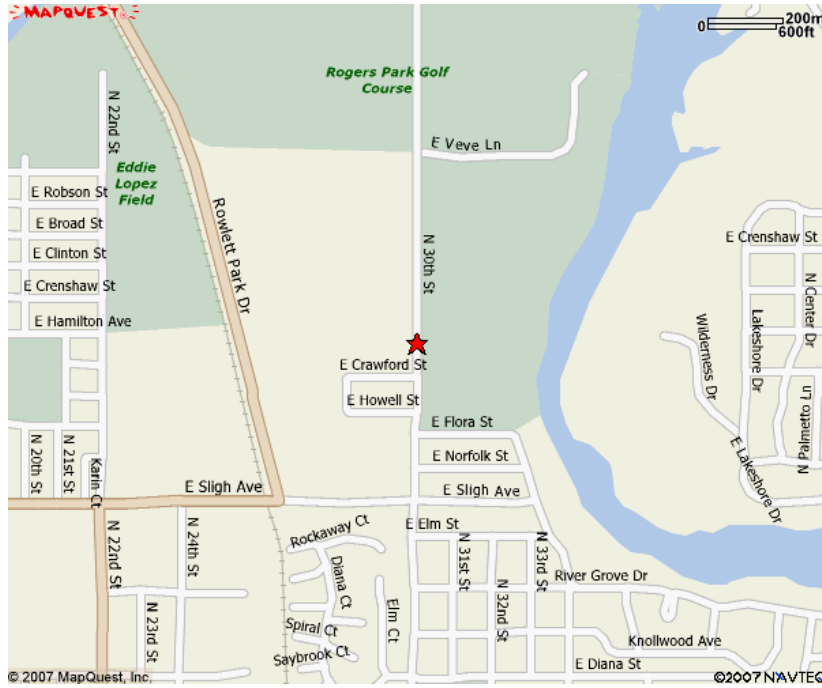
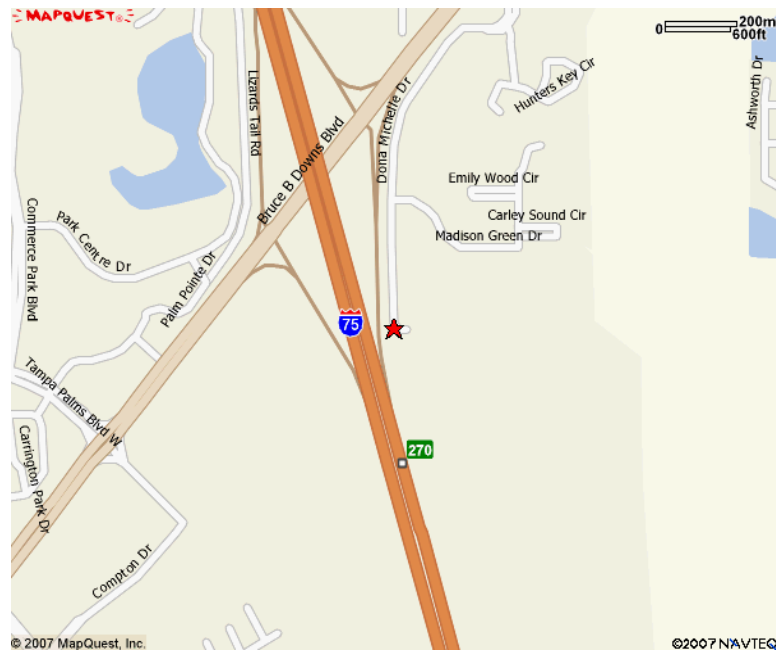


7-C-95; High Service Pumping Improvements; Design-Build Supplemental Information Package

Project Locations



David L. Tippin Water Treatment Facility
7125 N 30th St
Tampa, FL 33610



Morris Bridge Water Treatment Plant
17101 Dona Michelle Drive
Tampa, FL 33647

BUDGET ESTIMATE

This project is anticipated to be phased. The project has been allotted \$2.5M for FY08. Additional funding may be available through bonding.

GENERALIZED SCOPE OUTLINE

High Service Pump Nos. 9, 10, 11, 12, & 13 Installation,
High Service Pump No. 7 Variable Speed Drive Replacement,
High Service Pump Abandonment, Yard Piping and Finished Water Metering at the
David L. Tippin Water Treatment Facility, and
High Service Pumps Nos. 1-4 Variable Speed Drive Drive Replacement at the
Morris Bridge Water Treatment Plant

1. PURPOSE

Provide a solution for the Tampa Water Department to

- Continue providing water via high service pumping
- Increase useable clearwell volume
- Efficiently utilize proposed transmission mains
- Phase out aging pumps and drives
- Address yard pipe sizing and configuration concerns
- Avoid emergency funding
- Address reliability concerns
- Increase operation and maintenance efficiency

2. BACKGROUND

Variable speed high service pumping is utilized by the Tampa Water Department (TWD) to distribute potable water throughout the distribution system. The variable frequency drives (VFDs) for DLTWTF High Service Pump (HSP) Nos. 4, 5 and 7 as well as the two VFD's shared between MBWTP HSP Nos. 1, 2, 3 and 4 are not supported by existing manufacturers or distributors due to age. Additionally, the current configuration of drives at the MBWTP has decreased operational flexibility and causes strains on the electrical connections when more than two pumps must be operated simultaneously (see Figure 1.) High service pump information is provided in Table 1.

This situation reduces the ability of the TWD to provide a reliable source of potable water because parts are not available for scheduled or unscheduled maintenance needs and the likelihood of a running pump tripping is increased.

Exhibit “A,” David L. Tippin Water Treatment Facility Retrofit (Finished Water Storage, Pumping and Transmission Improvements) provides additional relevant information along with Exhibit “B,” the presentation associated with Exhibit “A.”

Note: Exhibits “A” and “B” are available for inspection only at 306 E Jackson Street 4th Floor Tampa, FL 33602. 813-274-8456.

Since the writing of Exhibit A an additional 48” transmission main is planned to be installed to the plant property that will need to be tied in and the 48-inch venturi meter has been resized.

Table 1. High Service Pump Information

Plant	HSP Identifier	Motor Rating	Existing Drive	Current Status	Project Needs
DLTWTF	1 26 MGD, shaved impeller, horizontal split case	1000 HP, GE MN5KAF 84091030 301	Benshaw Soft Start	Historic GE Innovation Series VFD has been cannibalized for parts & the drive has been replaced with a Benshaw soft start.	The soft start is adequate and variable speed is not required. The scope will include the eventual removal of HSP 1 and associated equipment.
DLTWTF	2 14 MGD, horizontal split case, 2 stage		Across line	Functional, but minimal pumping capacity	The scope will include the eventual removal of HSP 2 and associated equipment.
DLTWTF	3 14 MGD, horizontal split case, 2 stage		Across line	Functional, but minimal pumping capacity	The scope will include the eventual removal of HSP 3 and associated equipment.
DLTWTF	4 26 MGD, shaved impeller, horizontal split case	1000 HP, GE MN5KAF 84091030 301	GE Innovation Series, no bypass	Functional, however no parts available.	The scope will include the eventual removal of HSP 4 and associated equipment. If the pump is needed for capacity during construction phasing, a soft start should be included in this project.
DLTWTF	5 26 MGD, horizontal split case	1000 HP, GE MN5KAF 84091030 301	GE Innovation Series, no bypass	Functional, however no parts available for drive and limits useable clearwell volume.	The scope will include the eventual removal of HSP 5 and associated equipment. HSP 5 will be replaced with new variable speed vertical turbine HSP 11.*
DLTWTF	6 26 MGD, horizontal split case			Functional, but limits useable clearwell volume.	The scope will include the eventual removal of HSP 6 and associated equipment. HSP 6 will be replaced with new variable speed vertical turbine HSP 12.*
DLTWTF	7 25 MGD,	1000 HP GE	GE Innovation Series, no bypass	Functional, however no parts available.	Replacement of existing electronics with air cooled VFD

	vertical turbine				with bypass.
DLTWTF	8 25 MGD, vertical turbine	1000 HP GE		Functional	No change anticipated.
DLTWTF	FUTURE 9, vertical turbine				25 MGD @ ~190 ft, Variable Speed with bypass
DLTWTF	FUTURE 10, vertical turbine				25 MGD @ ~190 ft, Variable Speed with bypass
DLTWTF	FUTURE 11, vertical turbine				30 MGD @ ~190 ft, Variable Speed with bypass
DLTWTF	FUTURE 12, vertical turbine				30 MGD @ ~190 ft, Variable Speed with bypass
DLTWTF	FUTURE 13, vertical turbine				25 MGD @ ~190 ft, Variable Speed with bypass
MBWTP	1, horizontal split case	600 HP US Electric	Toshiba (1&2 share)	Functional, however no parts available.	Replacement of existing drives with a liquid cooled VFD with bypass for <u>each</u> pump.
MBWTP	2, horizontal split case	600 HP US Electric	Toshiba (1&2 share)	Functional, however no parts available.	Replacement of existing drives with a liquid cooled VFD with bypass for <u>each</u> pump.
MBWTP	3, horizontal split case	600 HP US Electric	Toshiba (3&4 share)	Functional, however no parts available.	Replacement of existing drives with a liquid cooled VFD with bypass for <u>each</u> pump.
MBWTP	4, horizontal split case	600 HP US Electric	Toshiba (3&4 share)	Functional, however no parts available.	Replacement of existing drives with a liquid cooled VFD with bypass for <u>each</u> pump.

*Need for replacement is unknown. Preliminary engineering is necessary to determine if the vortexing issue can be resolved without pump replacement.

Each variable speed HSP at the DLTWTF has a dedicated VFD for the corresponding HSP. The configuration at the MBWTP is slightly different as shown in Figure 1. When both HSP (1 or 2) and HSP (3 or 4) are both operated, the remaining pump in each pair must be operated across the line.

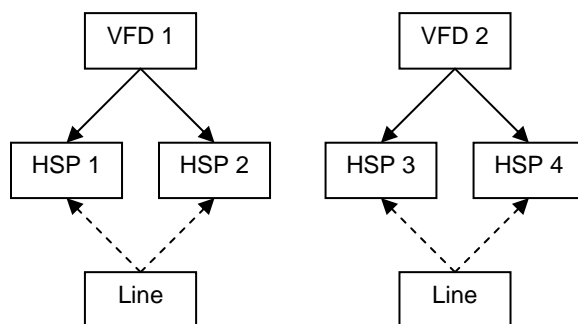


Figure 1. The drive configuration at the MBWTP has limited operational flexibility. When HSP 1 is running and it is desired that HSP 2 also run, it is necessary to run HSP 2 across the line. The same situation applies for HSP Nos. 3 and 4.

3. ANTICIPATED PROJECT REQUIREMENTS

3.1. Preliminary Design

- Obtain all available TWD as-built drawings for the subject equipment and locations
- Obtain all available reports related to the project
- Verify accuracy of all TWD supplied drawings, verbiage and other supplied information
- Meet with TWD staff onsite at a time mutually agreeable to both parties to review existing conditions and project constraints
- Prepare a preliminary design report meeting the requirements of the Florida Administrative Code. This report will need to include items such as HSP 5&6 vortex solution investigation, building needs, pump/pipe sizing, stormwater concerns, phasing, cost estimates, investigation of options, etc.

3.2. Design

3.2.1. Material & equipment specifications

Specified materials and equipment shall be of superior quality, state-of-the art and manufactured for extensive service life with minimum operation and maintenance requirements.

When available and applicable, material specifications utilized by the appropriate City of Tampa Department shall be utilized. The firm shall be responsible for preparing a complete set of material and construction specifications consistent with any existing City of Tampa specifications.

3.2.2. Plant Operations

The improvements shall be designed as to minimize impacts to plant operations during construction.

3.2.3. Construction Plans

- All construction plans and specifications shall be of superior quality and extremely detailed.
- Plans shall be based on field conditions observed by the firm.
- Construction plans and specifications shall be prepared for the 60%, 90% and 100% levels. Tampa Water Department staff will review the 60% and 90% plans and provide comments to guide necessary plan revisions.
- The 60% submittal shall contain a preliminary Guaranteed Maximum Price (GMP) budget and preliminary Guaranteed Contract Completion Date for review and approval of the City. The 90% submittal shall contain the final GMP and Contract Completion Date.
- The firm shall provide:
 - All plan copies necessary for permitting & construction
 - 3 sets of plans for review at each level of plan development
 - 10 sets of signed and sealed as-builts
 - An AutoCAD disk containing the as-built drawings when the necessary improvements have been constructed

3.2.4. Required Meetings

The firm shall attend meetings with TWD staff at the specified levels of plan development and as needed (minimum monthly) during the permitting and construction stages.

3.3. Permitting

All required actions for permitting to be in compliance with all Laws, Rules, Codes, Ordinances, Statutes, etc. including but not limited to supplying signed and sealed copies of plans, completing and submitting applications, responding to requests for additional information, performing public notices, attending meetings with regulatory agencies as needed, submitting certifications of completion, etc. shall be the responsibility of the firm. All fees and costs associated with permitting shall be the responsibility of the firm.

3.4. Construction

3.4.1. Anticipated Time Line

From Issuance of the Notice to Proceed with Design Services:

2 months – Project schedule presented at a project kickoff meeting

8 months – Preliminary design

16 months – Final design

18 months – Execution of Contract Amendment establishing GMP

19 months – All permits obtained

31 months – Major equipment delivered to site

37 months – All equipment installed, instrumentation complete, programming complete

38 months – Equipment performance testing

3.5. Post Construction

3.5.1. Programming, Instrumentation and Control

All control wiring, equipment installation, programming, etc. necessary to operate the proposed VFDs remotely & automatically shall be the responsibility of the firm. The programming style shall be consistent with the existing style in place.

3.5.2. Startup Services

The firm shall provide complete startup services by a degreed engineer.

3.5.3. Performance testing

A performance test shall be conducted prior to final acceptance. Determining the parameters of the performance test shall be negotiated during the design process and be approved by the Tampa Water Department prior to final plans approval.

3.5.4. Restoration

The firm shall be responsible for restoring the site to original condition or better.

3.5.5. Operation and Maintenance Manuals

Operation and maintenance manuals specific to the installed equipment shall be provided to the TWD by the firm.

3.5.6. Training

Training shall be provided to TWD staff by the firm on the proper operation and maintenance of the installed equipment. A total of two complete training sessions shall be provided to accommodate plant shift scheduling.

4. PROPOSER REQUIREMENTS

4.1. Engineer

The engineer utilized for this project must have an office within 125 miles of the project site and have suitable resources and experience to accomplish the project objectives within the time frame specified.

4.2. Construction (sub)contractor(s)

The construction utilized for this project shall have an office within 125 miles of the project site and have the suitable resources and experience to accomplish the project objectives within the time frame specified.