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Memorandum

To: Steve Chrabaszcz, P.E., State Engineer & Environmental Coordinator, USDA Rural Development
Norman St Jean, Area Loan Specialist, USDA Rural Development

From: Dave Prickett, P.E. President, DPC Engineering, LLC
James Rivers, Staff Engineer, DPC Engineering, LLC

Date: April 3, 2020

Cc: Jim Mersfelder, Vice President & Treasurer, WLSD
Jeff Clark, Board Member, WLSD

Re: **Updates to Preliminary Engineering Report – USDA Funding Application
Regional Wastewater Management Project, Woodridge Lake Sewer District**

This Memorandum includes a summary of key items needed to update and complete the Preliminary Engineering Report (PER) submitted to USDA Rural Development as part of the funding application for the Wastewater System Upgrades Project for Woodridge Lake Sewer District, as well as responses to the comments provided by USDA in their memorandum of March 31, 2020 (attached).

Item/Responses

1.a – Intergovernmental Review

No action required by the preparer.

1.b – Town of Litchfield Supplemental Information

The revised PER submitted to USDA on March 25, 2020, included information specific to Woodridge Lake Sewer District. The proposed Project is a regional project, including the Town of Litchfield, CT, who will be submitting an application in parallel with WLSD. Following is the supplemental information, as requested by USDA, to update the PER to include available information specific to the Town of Litchfield.

The Town of Litchfield is a 56.8 square mile municipality located in Litchfield County, Connecticut. The portion of the Project Planning Area located within the Town of Litchfield includes portions of the proposed force main, extending from the Litchfield/Goshen town line on Beach Street, south of Milton Road, across Route 202, south on Constitution Way, and extending southwest along a portion of the Litchfield interceptor sewer on White Woods Road. The Litchfield WPCF, located at 29 Stoddard Road, is also included within the Project Planning Area.

As of 2019, there were 1,210 sewer customers in the Town of Litchfield. Based on 2010 Census data, the unit population per home in Litchfield is 2.28. This results in an estimated current sewered population of approximately 2,760. There are no new connections proposed to the Litchfield sanitary sewer system as part of the proposed Project. The majority of Litchfield sewer customers are served by the Litchfield WPCF, however there are a portion of sewer customers in the village of Northfield, who convey wastewater flows to the Town of Thomaston, and a portion of sewer customers along Route 202, who convey wastewater flows to the City of Torrington. The Litchfield WPCA pays the City of Torrington and the Town of Thomaston annually, according to their Intermunicipal Agreements (IMA).



The Litchfield WPCA oversees the operation, maintenance, and management of the Litchfield WPCA and sanitary sewer system. The WPCA maintains a cooperative but independent role with respect to the Town of Litchfield government and departments. The WPCA is governed by a Board appointed by the Town of Litchfield’s Board of Selectmen, and serve a 5-year term.

The WPCA is a self-supporting entity, and charges sewer users for the operation and maintenance of the sewer system. Litchfield sewer users are charged by the Equivalent Dwelling Unit (EDU), with residential sewer users equaling 1 EDU. Commercial and public sewer users are also charged per EDU, based on water consumption. The current annual sewer rate (FY2020) in Litchfield is \$408 per EDU. There are 2,310 EDUs billed by the Litchfield WPCA annually. This includes 2,020 EDUs tributary to the Litchfield WPCF, 210 EDUs connected to the Torrington sanitary sewer system, and 80 EDUs connected to the Thomaston sanitary sewer system. The Town of Morris, CT discharges flows to the Litchfield WPCF, via a cross-country sewer interceptor along Route 209, for treatment and disposal. The Litchfield WPCA charges the Morris Sewer Authority for each gallon of wastewater conveyed to the Litchfield WPCF, with a surcharge for every gallon over 75,000 GPD, on a 7-consecutive day basis.

The annual operating budget is developed by the Litchfield WPCA prior to each Fiscal Year. The annual operating budget for FY2020 is \$1,138,349. A detailed breakdown of the Litchfield WPCA’s FY2020 Sewer Operations Fund is shown in Table 1.

Table 1: Litchfield WPCA FY2020 Operating Budget

Budget Component	Cost
Sewer Administration	
Perm FT (Salaries & Wages)	\$105,346
Supplies	\$1,400
Supp. Data	\$100
Advertising	\$100
Printing	\$250
Meetings	\$600
PRF Medicare	\$100
PRF Insurance	\$18,975
PRF Legal	\$2,500
PRF Audit	\$3,425
PRF Other (Payment to Torrington & Thomaston)	\$187,120
Index Record	\$1,700
Tele. Page	\$-
Postage	\$1,900
Small Equipment	\$800
201A Def	\$4,894
Sub-Total of Sewer Administration =	\$329,210



Budget Component	Cost
Sewer Operations	
Perm FT (Salaries & Wages)	\$200,577
OT Stand	\$15,010
Supp. Auto	\$4,300
Supp. Misc.	\$41,347
Rep. Equipment	\$16,392
Protec CLT	\$600
Contingency	\$5,000
PRF Other	\$1,800
SRV Other	\$2,750
Electric	\$63,229
Gas Unleaded	\$1,983
Diesel	\$3,313
Tele. Page	\$2,150
499-C Loan	\$22,074
GRG SML Equipment	\$600
Replacement	\$69,961
Sub-Total of Sewer Operations =	\$451,086
Transfer to General Fund	
Trans Gen (499-C Loan)	\$199,016
Sub-Total of Transfer to General Fund =	\$199,016
Fringe Benefits	
Work Comp	\$23,309
Med & Life	\$82,760
FICA	\$20,357
Pension TN	\$28,150
Medicare	\$4,461
Sub-Total of Fringe Benefits =	\$159,037
Total Sewer Operating Budget	\$1,138,349

The proposed Project, Regional Alternative 2, includes decommissioning of the existing WLSD WPCF, construction of a regional pump station, storage tank, and force main from WLSD to the Litchfield collection system, and upgrades to the Litchfield WPCF. The total estimated cost of the proposed Project is \$38,800,000. The opinion of probable cost for the Project, as well as the potential Litchfield and WLSD portion of costs are shown in Table 2.



Table 2: Proposed Project (Regional Alternative 2) – Opinion of Probable Project Cost

Component	Opinion of Probable Cost	Potential Litchfield Portion of Costs	Potential WLSL Portion of Costs
WLSL Pump Station	\$4,200,000	\$0	\$4,200,000
WLSL Force Main	\$8,500,000	\$0	\$8,500,000
WLSL Storage Tank	\$2,100,000	\$0	\$2,100,000
Decommissioning of WLSL WPCF	\$640,000	\$0	\$640,000
Litchfield (Regional) WPCF Improvements	\$13,470,000	\$7,500,000	\$5,970,000
Construction Sub-Total	\$28,910,000	\$7,500,000	\$21,410,000
Project Contingency (10%)	\$2,891,000	\$750,000	\$2,141,000
Final Design Phase	\$2,333,800	\$600,000	\$1,733,800
Bidding and Negotiating Phase	\$145,700	\$37,500	\$108,200
Construction Phase	\$1,458,600	\$375,000	\$1,083,600
Post-Construction Phase	\$145,700	\$37,500	\$108,200
Resident Project Representative	\$1,750,200	\$450,000	\$1,300,200
Allowance for Engineering Services (20%)	\$5,834,000	\$1,500,000	\$4,334,000
Allowance for Legal, Bond Counsel and Short-Term Interest (~4%)	\$1,165,000	\$250,000	\$915,000
Project Total	\$38,800,000	\$10,000,000	\$28,800,000

The opinion of probable annual costs for the Town of Litchfield, upon completion of the proposed Project, are shown in Table 3. The current transfer to the general fund for Clean Water Fund Loan (499-C) is due at the end of FY2023, and will be removed from the budget beginning in FY2024. Based on the Litchfield portion of the proposed Project at \$10,000,000, assuming a 35% grant from USDA-RD, and an interest rate of 2.25%, the projected annual debt service for Litchfield for a USDA-RD loan is \$248,200 per year. Included in the opinion of probable annual costs for the Town of Litchfield are yearly reserve deposits to cover short-lived and longer-term assets at the Litchfield WPCF, as shown in Table 4.



**Table 3: Proposed Project (Regional Alternative 2) – Opinion of Probable Annual Costs
FY2024**

Budget Component	Cost
Sewer Administration	
Perm FT (Salaries & Wages)	\$118,570
Supplies	\$1,580
Supp. Data	\$120
Advertising	\$120
Printing	\$290
Meetings	\$680
PRF Medicare	\$120
PRF Insurance	\$21,360
PRF Legal	\$2,820
PRF Audit	\$3,860
PRF Other (Payment to Torrington & Thomaston)	\$210,610
Index Record	\$1,920
Tele. Page	\$-
Postage	\$2,140
Small Equipment	\$910
201A Def	\$5,510
Sub-Total of Sewer Administration =	\$370,610
Sewer Operations	
Perm FT (Salaries & Wages)	\$225,760
OT Stand	\$16,900
Supp. Auto	\$4,840
Supp. Misc.	\$46,540
Rep. Equipment	\$18,450
Protec CLT	\$680
Contingency	\$5,630
PRF Other	\$2,030
SRV Other	\$3,100
Electric	\$82,920
Gas Unleaded	\$2,240
Diesel	\$3,730



Budget Component	Cost
Tele. Page	\$2,420
499-C Loan	\$-
GRG SML Equipment	\$680
Replacement	\$78,750
Sub-Total of Sewer Operations =	\$494,670
Transfer to General Fund	
Trans Gen (499 C-Loan)	\$0
Trans Gen (USDA-RD Loan)	\$248,200
Sub-Total of Transfer to General Fund =	\$248,200
Fringe Benefits	
Work Comp	\$26,240
Med & Life	\$93,150
FICA	\$22,920
Pension TN	\$31,690
Medicare	\$5,030
Sub-Total of Fringe Benefits =	\$179,030
Short-Lived Asset Reserve	
Short-Lived Asset Reserve	\$141,000
Sub-Total of Short-Lived Asset Reserve =	\$141,000
Total Sewer Operating Budget	\$1,433,510

Table 4: Conceptual Short-Lived Asset Schedule

Location	Short-Lived Asset	Replacement Cost	Useful Life	Annual Reserve
WPCF	Screening System Motor and Rakes	\$60,000	6-10 Years	\$6,000
WPCF	Screening System Compactor Motor and Brushes	\$50,000	6-10 Years	\$5,000
WPCF	Grit System Motor and Rakes	\$75,000	11-15 Years	\$5,000
WPCF	Grit Processing System Dewatering Screw, Brushes and Motor	\$90,000	11-15 Years	\$6,000
WPCF	Grit Pump Replacement	\$40,000	6-10 Years	\$4,000
WPCF	Anoxic Mixer Replacement	\$120,000	11-15 Years	\$8,000



Location	Short-Lived Asset	Replacement Cost	Useful Life	Annual Reserve
WPCF	Aeration Blower Replacement	\$300,000	11-15 Years	\$20,000
WPCF	Secondary Clarifier Motor Replacement	\$60,000	11-15 Years	\$4,000
WPCF	Replace Return Sludge Pump	\$120,000	11-15 Years	\$8,000
WPCF	Replace Waste Sludge Pump	\$60,000	11-15 Years	\$4,000
WPCF	Replace Thickened Sludge Pump	\$90,000	11-15 Years	\$6,000
WPCF	Replace Sludge Tank Mixers	\$225,000	11-15 Years	\$15,000
WPCF	RDT Replacement	\$750,000	11-15 Years	\$50,000
Sub-Total =		\$2,040,000		\$141,000

1.c – Obligation of Funds

No action required by the preparer.

1.d – Contact Programs

The replacement of the Litchfield interceptor sewer is not required as part of this Project. The proposed Project includes a 1.0 MG storage tank, which will allow for sufficient storage at the WLSD Regional Pump Stations during high flow periods. Our initial evaluation of the interceptor determined that the Litchfield interceptor sewer did not have sufficient capacity to accommodate wastewater flows from WLSD during periods of high flows, and recommended replacement of the interceptor sewer. Upon further evaluation we determined that the storage tank will allow WLSD to store wastewater and distribute during low flow periods, to avoid inundation of the Litchfield interceptor sewer. Replacement of the interceptor sewer may be necessary in the future, should Litchfield add additional connections to its system, or see a substantial increase in infiltration and inflow.

1.e – Project Cost Estimates

The cost estimates presented in Table 7 and Table 8 represent estimated costs in 2020 dollars. The cost estimates presented in Table 14 and Table 16 represent estimated costs escalated to the year of implementation. The total escalated Project cost (less the deferred interceptor component) is \$38,800,000.

31 March 2020
(SRC/20-050)

SUBJECT: Woodridge Lake Sewer District, Regional Sewer Extension Project
Review of Revised Preliminary Engineering Report

TO: Jennifer Lerch
Program Director

FROM: Steve Chrabascz
State Engineer & Environmental Coordinator

1. A revised Preliminary Engineering Report (PER) for the above subject project prepared by DPC Engineering LLC dated 25 March 2020 was submitted electronically to PSS. Also submitted on 26 March 2020 was an updated cost estimate. This updated cost estimate includes (1) an estimate of total project costs, (2) an estimate of costs by infrastructure geographical location and (3) an estimated of costs by infrastructure ownership. The prior version of the PER dated 6 December 2019 was reviewed by PSS on 11 December 2019 but could not be approved due to several issues. Since that time, the Project Engineer has had many meetings and a few additional months to fine tune the alternatives and estimated costs. Before I list my comments, I would like to provide the following project recap:

Funding for this project was actually obligated on 8 April 2016 in the amounts of \$12,682,000 loan and \$2,826,000 grant. At obligation the proposed project was to convey wastewater flows to the neighboring Town of Torrington for treatment at their existing facility. The project included the installation of approximately 34,000 lf of 8-inch sewer force main piping and the construction of two (2) pump stations. Following the completion of the pipe installation, the District's existing treatment plant would be decommissioned. The project was completely designed and was publicly bid on 14 June 2019. There were to be three (3) separate contracts with contract award amounts totaling \$14,025,800. Following the bidding and prior to awarding of the construction contracts, issues that were being discussed and negotiated included the tie-in fee to be paid to the Town of Torrington and the fees for police and/or flaggers. The tie-in fee that was last discussed was \$2,429,000, and fees for police during construction was \$1,771,872. Both of these fees were considered excessive and unjustified. The project would now be short approximately \$7M and it was determined at a total project cost of approximately \$22M the project would not be sustainable. Given the circumstances and the fact that the District still had to address their problem, the District and their engineer elected to evaluate additional options. The PER submitted in December is the result of these additional project evaluations.

The revised PER was reviewed for form and content in accordance with RD Instruction 1780, RUS Bulletin 1780-2, "Preliminary Engineering Report for Water and Waste Disposal Programs" issued on 4 April 2013. I also revisited my review memorandum of 11 December and the revised PER and offer the following comments:

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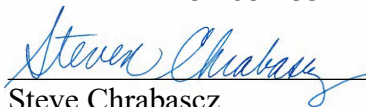
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SUBJECT: Woodridge Lake Sewer District, Regional Sewer Extension Project
Review of Revised Preliminary Engineering Report

- a. Most of my review comments made back in December 2019 have been adequately addressed and corrected.
- b. This project involves two (2) different entities – the Woodridge Lake Sewer District (WLSD) and the Town of Litchfield. It is understood that separate, independent applications will be submitted from WLSD and Litchfield. The current PER includes system information specifically for WLSD, and not for Litchfield. Given that the Town of Litchfield will be submitting an independent application, the PER needs to be supplemented with additional information specific to Litchfield and their system. It is suggested that the Project Engineer use the same format already in place but provide the information specific to Litchfield.
- c. It is unclear at this time if the original obligation of funds will be deobligated and new funding established or if subsequent funding will be obligated. Keep in mind that if funding is deobligated and re-obligated, then the “new” project would be subject to the American Iron and Steel (AIS) requirements mandated by Section 746 of Title VII of the Consolidated Appropriations Act of 2017 and subsequent statutes mandating domestic preference. If a subsequent loan/grant is made, AIS would not be applicable. A response from the project engineer is not needed for this item.
- d. Both Regional Alternatives No. 2 and No. 3 include a deferred component for the replacement of the existing Litchfield interceptor sewer of approximately 17,600 linear feet at an added cost of \$15,330,000. The report states that the replacement is needed because the current interceptor is currently undersized to convey the additional flows from WLSD. This is a substantial cost for an already expensive project. It was understood that a 1.0M gallon storage tank would be constructed “to store flows from WLSD during high-flow events when Litchfield could not accommodate these flows in the existing interceptor. Flows from WLSD would be pumped into the system when interceptor flows subside.” Please clarify if this interceptor is actually required, when it would need to be installed, and who would pay for it.
- e. Cost estimates provided in the PER do not appear to be consistent. Table 7 should be identical with Table 14. Numbers found in Table 11 should be consistent with the total project costs in Tables 7 and 9. Cost for the interceptor taken from Table 7 and Table 9 was \$15,330,000, but Table 14 shows a cost of \$16,970,000.

In an effort to expedite the review/approval of the PER, I will forward this memorandum directly to the Project Engineer.

2. If you have any questions, please feel free to contact me at 413-253-4334.



Steve Chrabasz
State Engineer & Environmental Coordinator

Original to: N. St. Jean
ecc: J. Lerch, F. Petrulli