



PER – Preliminary Engineering Report

USDA Rural Development

SU-EFC – Engineers Roundtable

4 April 2024

PER – Preliminary Engineering Report

- PER – One of two technical documents required in application – via RDApply
 - PER (final, signed/stamped)
 - Health and Sanitary Documentation
 - ER – Environmental Report (may be draft)
- RUS Bulletin 1780-2 format and requirements
- https://www.rd.usda.gov/files/UWP_Bulletin_1780-2.pdf
- Other formats:
 - EFC. Ok for application, but RD will need/request more information.
- PER Review and Acceptance by State Engineer (SE) for financing

A Better PER

- Scope – description vs. cost estimate. Consistent with other application documents, including map showing existing system and proposed project.
- Environmental – summary of impacts for alternatives or construction. No more.
- Alternatives: discussion, technically infeasible vs. too costly, LCCA (NPV basis, *i* [CircularA-94AppendixC.pdf \(whitehouse.gov\)](#) real discount).
- Costs
 - PER and RDA apply the same
 - discussion on materials and procurement: Open and Free, material/construction selection, system standardization, BABAA
 - Contingency; explain/revise if other than 10%; no inflation factor.
 - Breakdown non-construction/soft costs.
 - O&M and SLA - Needed for entire system, not necessarily just project.
 - Annual User Cost: Debt Service and O&M

A Better PER – (cont.)

- User Connections vs. EDUs (equivalent dwelling units and use/flows)
- Connections in PER and Application/RDApply –
 - # residential connections,
 - avg. use per residential connection and total residential use
 - # non-residential connections, # vacant parcels
 - total non-residential use
- Connections and use/flow in PER and RDApply match.
- RD Determines EDUs from info in PER and RDApply.
- PER can have proposed EDUs (municipality-billing vs. RD-financing).

O&M – Operation and Maintenance Costs

- Existing System
- Proposed Project
- Breakdown matching municipal budget
- Purchase only system

SLA – short lived assets:

-System vs. Project

-Village vs. Town District

Examples in 1780-2

Short Lived Assets				
Asset		Years		
		5	10	15
Pumps (years depends on type)		\$	\$	\$
Meters				
	Individual	\$		
	Master		\$	
Tank Painting				\$
Control Valves		\$	\$	
Disinfection Equipment		\$	\$	
Computer Equipment/Software		\$		
Control Equipment		\$		
	Gauges		\$	
	Transmitters		\$	
	Sensors		\$	
Repair Equipment				\$
Lab Equipment		\$		
Tools		\$		
Emergency Generator Parts				\$
Tank Cathodic Protection Replacement			\$	
Filter Media Replacement				\$

RUS Bulletin 1780-26 – Updated May 2023

- https://www.rd.usda.gov/files/UWP_Bulletin_1780-26.pdf
- Requirements for Contract Documents and Engineering Agreement with RD financed projects.
- The new 1780-26 (2023) has Domestic Preference (BABAA – Build America, Buy America Act, includes AIS) requirements:
 - Certifications – Contractor, Manufacturer, Engineer, Attny., Engineering Agreement

Why USDA RD uses standard contract documents

- Use of EJCDC with Bulletin 1780-26 revisions.
- Standard Contracts are required by 7 CFR 1780 (OGC review required if non-standard documents are proposed).
- Ensure that all applicable federal requirements are included in bidding and contract documents.
- Promote consistent implementation of our regulations and policies.
- Streamline review by State Engineers and utilize RD staff resources efficiently.

Planned Future Updates to 1780-26

- Engineering E-series updates (2020 E-500)
- Small Construction Contract (projects less than \$500K)
- Procurement P-Series
- Design Build Series

Build America, Buy America Act (BABAA)

- Part of the Infrastructure Investment & Jobs Act (IIJA)
- All “federally assisted” infrastructure must comply with BABAA
- Domestic preference requirements:
 - Construction materials – 100% domestic
 - Iron and Steel – must be 100% domestic (AIS)
 - Manufactured products – manufactured in the US, and 55% of components manufactured in US (cost basis)
- Not covered: cement and cementitious materials, aggregates (stone, sand, gravel), aggregate binding agents, additives

Prior Planned Project Waiver for BABAA

- Approved June 20th, 2023
- Expires June 19th, 2024
- Must receive requests in time for funds to be OBLIGATED BY JUNE 19th, 2024!
- For WEP and CF Program projects that were planned prior to May 14th, 2022.
- For the purpose of this waiver, previously planned projects meet at least 1 criterion:
 - Criterion 1- Projects where funds were previously awarded and the scope was not increased after May 14, 2022
 - Cost Overruns
 - Criterion 2- Projects evidenced by:
 - (a) a submittal of a project to USDA prior to May 14th, 2022 with a significant level of design and engineering.
OR
 - (b) documentation indicating that substantial public engagement for project selection and approval had occurred on or before May 14th, 2022 for projects with a significant level of design and engineering.

BABAA Documentation

- From RUS Bulletin 1780-26 (2023)
 - BABAA Engineer's Certification
 - BABAA Contractor's Certification
 - BABAA Manufacturer's Certifications
- Please Note: It is the Project Owner's responsibility to collect all BABAA manufacturer certifications and maintain a file with all documentation in case anyone were to check for compliance.
- USDA RD will **only** be collecting BABAA manufacturer certifications for **iron and steel materials** (anything that falls under AIS) and will perform an AIS site visit.
- If a project is determined to not be subject to BABAA requirements (based on obligation date or if they receive a waiver), **AIS still applies!**

AIS Items Needed from Engineer to USDA RD

- Draft AIS Site Visit Checklist report (attached), with AIS Materials listed and any de minimis list
- AIS Manufacturer Certifications
- Pictures of AIS Materials showing “USA” stamp
- AIS engineering certification
- AIS Contractor Certifications – at Substantial Completion
- All documents via PDFs



ATTACHMENT 01 62 13-01
CERTIFICATION OF COMPLIANCE
AMERICAN IRON AND STEEL

7/25/19

Emmett Brown's Welding & Tank Maintenance
1640 Riverside Drive
Hill Valley, CA

Subject: American Iron & Steel Certification for Project OUTATIME1985
South Elevated Water Storage Tank Rehabilitation
City of Twin Pines, CA

I, certify that the bending, forming, rolling, cutting processes for manufacturing the following products and/or materials shipped or provided for the subject project are in full compliance with the American Iron & Steel requirement as mandated by Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A - Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2017) and subsequent statutes mandating domestic preference.

Item, Products, and/or Materials:

1. Roof Handrail
2. Painter's Rail
3. Flap Gate

Such processes took place at the following location(s):
Our shop located at 9303 Lyon Drive, Hill Valley, CA.

If any of the above compliance statements change while providing material to this project we will immediately notify the prime Contractor and the Engineer.

Respectfully,

Emmett Brown

CEO, Emmett Brown's Welding & Tank Maintenance

AIS elements:

- Project reference
- Specific list of products
- Location of manufacturing (city and state)
- Signature of a company representative
- AIS reference



AIS Mfr. Certification Letter - Example

Pictures of AIS Materials showing "USA" stamp



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Environmental
Facilities Corporation

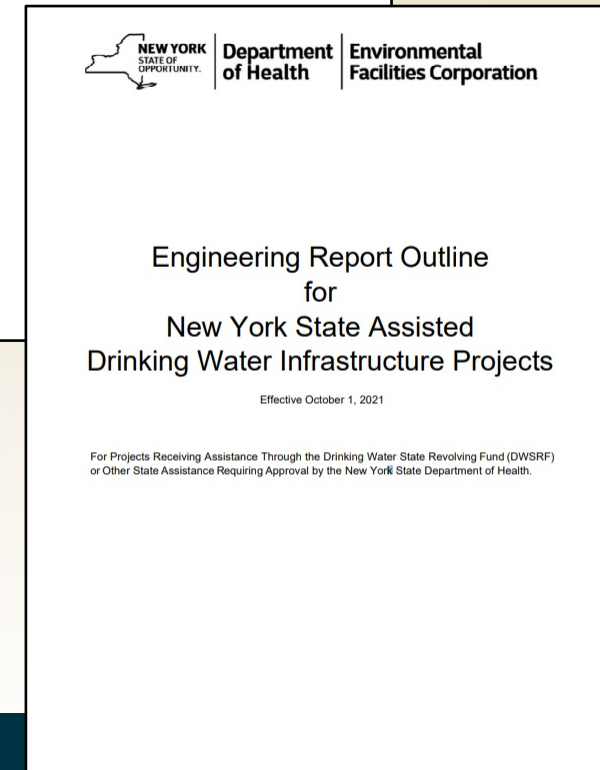
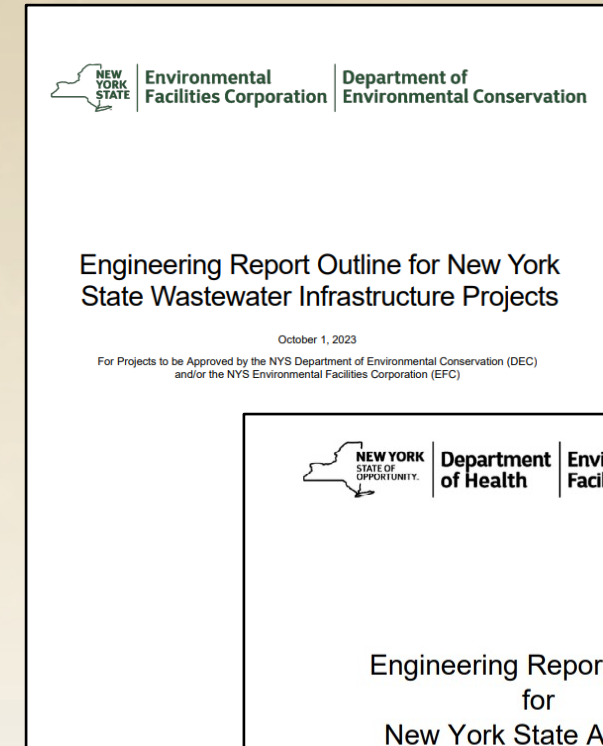
Department
of Health

- State Revolving Fund
- Engineering Report Outlines

- Liz Ricci, P.E., EFC
- Will Grady, DOH
- Engineers Roundtable | April 4, 2024

Engineering Report Outline

- ✓ Each SRF Program has its own Engineering Report Outline
- ✓ Developed such that it covers requirements from various funding agencies
- ✓ Used to list your project on the Annual List of the Intended Use Plan
- ✓ Acceptability reviews will be performed to ensure all required items are included before a project can be on the Annual List.



Engineering Report Outline

Required Report Elements

Final and Stamped by
Professional Engineer

01

Identify the Problem

02

Enforcement action, aging
infrastructure, consolidation, etc.

Alternatives
Analysis

03

Do nothing, replacement in
kind, upgrade, etc.

Recommended
Capital Improvement
Project

04

Total Project Costs

05

Project Location Maps

06

Engineering Report
Certification

07

Smart Growth
Assessment

08

Engineering Report Outline

✓ **The Outline includes:**

- Project background and history
- Alternatives analysis
- Summary and comparison of alternatives
- Recommended alternatives
- Project objectives including Environmental Justice, Disadvantaged Communities, Resiliency, and Affordability

✓ **Additional items required include:**

- Present Worth Life Cycle Analysis
- FEMA Flood Maps
- Enforcement Action documentation/discussion
- Manufacturer cut sheets for evaluated technologies
- Sizing and Design calculations
- Discussion of deviation from accepted standards, if applicable

Design Standards

✓ Clean Water:

- Recommended Standards for Wastewater Facilities (i.e. Ten States Standards)
- TR-16 Guides for the Design of Wastewater Treatment Works (TR-16)
- NYS Stormwater Management Design Manual
- NYS Design Standards for Intermediate Sized Wastewater Treatment Systems
- NYS Flood Risk Management Guidance for Implementation of the Community Risk and Resiliency Act (CRRRA)
- American Water Works Association Manual M6, Water Meters

✓ Drinking Water:

- Recommended Standards For Water Works (i.e. Ten States Standards)
- New York Codes, Rules and Regulations, Title 10, Part 5, Subpart 5-1
- Subpart 5-1, Appendix 5D Special Requirements for Wells Serving Public Water Systems
- Applicable standards (latest edition) published by the American Water Works Association
- Table B-3 of the NYS Design Standards for Intermediate Sized Wastewater Treatment Systems, if applicable for estimating water demand
- NYS Flood Risk Management Guidance for Implementation of the Community Risk and Resiliency Act (CRRRA)

Alternative Analysis

- ✓ **Need a comprehensive analysis of alternatives**
- ✓ **Present Worth Life Cycle Analysis**
 - Compare Capital Costs + O&M over 30-year period
- ✓ **Discuss why recommended alternative was selected**
- ✓ **Include rationale if an alternative is determined to be technically infeasible or not evaluated**
- ✓ **Report must recommend a capital project**
 - e.g. I/I studies should not recommend only additional field work as next steps

Flood Elevation Considerations

- ✓ **Per TR-16 (wastewater)**
 - Protect critical equipment 100-yr elevation + 3 feet
 - Protect non-critical equipment 100-yr elevation + 2 feet
- ✓ **New facilities should provide uninterrupted operation of all units during 100-yr flood**
- ✓ **Existing facilities should be improved to “the maximum extent possible” to meet this flood protection criteria**
- ✓ **Refer to FEMA Flood Insurance Rate Maps (FIRM)**

TR-16
GUIDES FOR THE DESIGN OF WASTEWATER TREATMENT WORKS
2011 Edition
as Revised in 2016

Prepared by the
New England Interstate
Wastewater Treatment
Wannalancit Mills, 650 Suffolk
Tel: 978-321-1111
mail@neiwat.org
Ronald E. ...
Com...
Connectic...
Maine
Massachu...
New Ham...

Department of Environmental Conservation
New York State Flood Risk Management Guidance for Implementation of the Community Risk and Resiliency Act
AUGUST 2020
Andrew M. Cuomo, Governor | Rossana Rosado, Secretary of State | Basil Geggos, Commissioner

**Draft CRRA updated values currently available for public comment through April. We will update our guidance when finalized.

Flood Elevation Considerations

Water supply and wastewater treatment plants, and pump stations	CRITERIA		
		Non-tidal	Tidal
New York State Flood Risk Management Standard and Guidance (DEC August 2020)	Non-critical equipment	Critical Equipment	Critical Equipment
	The vertical flood elevation and corresponding horizontal floodplain ¹⁴ that result from adding 2 feet of freeboard to the BFE and extending this level (transversely to the direction of flow in riverine situations) to its intersection with the ground.	The vertical flood elevation and corresponding horizontal floodplain subject to flooding from the 0.2% annual chance flood. ³	The vertical flood elevation and corresponding horizontal floodplain subject to flooding from the 0.2% annual chance flood. ³
Community Risk and Resiliency Act (CRRRA)		The vertical flood elevation and corresponding horizontal floodplain ¹⁴ that result from increasing current, relevant peak flow parameters ¹⁵ , e.g., Q100, to account for projected peak flows*, adding 3 feet of freeboard, and extending this level (transversely to the direction of flow in riverine situations) to its intersection with the ground.	The vertical flood elevation and corresponding horizontal floodplain that result from adding the high sea-level rise projection ¹⁶ applicable for the full, expected service life of the infrastructure to the BFE, adding 3 feet of freeboard, and extending this level to its intersection with the ground.
Use the highest of the criteria:			
TR-16: Guides for the Design of Wastewater Treatment Works New England Interstate Water Pollution Control Commission (NEIWPC) ¹⁰	100 year flood ¹ + 2 Uninterrupted operation of all units during a 100 year flood and all structural, process and electrical equipment should be placed above or protected against the 100 year flood	100 year flood ¹ + 3 ft	100 year flood ¹ + 3 ft and safeguard against salt exposure and wave action

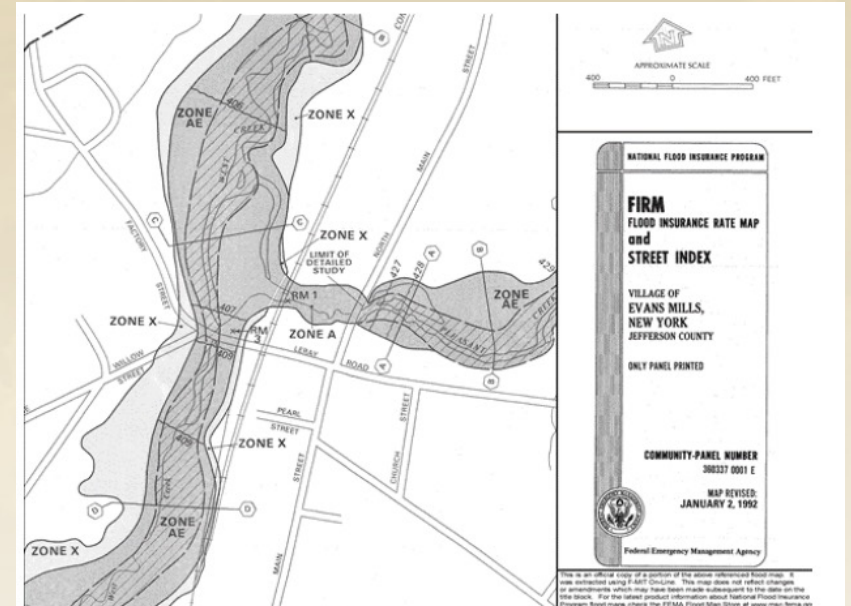


Figure 19. FIRMette, Evans Mills, NY, showing AE Zone with BFEs, cross section, floodways, and shaded X zone indicating 500 year flood zone.

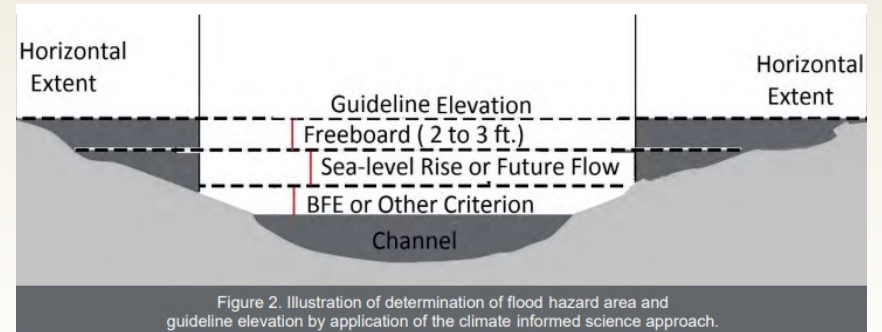


Figure 2. Illustration of determination of flood hazard area and guideline elevation by application of the climate informed science approach.

Flood Elevation Considerations

✓ Options for “protection” of equipment

- Move to a different location
- Elevate above the flood elevation
- Design to be submersible
- Flood barriers
- Water-tight enclosures
- Stoplogs at garage entrances
- Raised motor drives and pumps
- Construct new facilities outside of coastal velocity flood zones



City of Binghamton/Village of Johnson City Joint
Sewage Treatment Plant 2006



New Flood Wall along Susquehanna River

Cost Per User

- ✓ **Provide a discussion of the number of ratepayers responsible for the debit for the proposed project and water/wastewater budget.**
- ✓ **Equivalent Dwelling Units (EDU) – unit of measure for water/wastewater generated from a typical single-family home.**
- ✓ **Other documentation can be used:**
 - Residential billing accounts
 - System connections that are paying for the project
- ✓ **Estimate the annual cost per EDU/typical user due to proposed project**

Other Considerations

- ✔ **Total Project Budget – Is it current? Is there sufficient contingency?**
- ✔ **Project schedule – Is it current? Did you factor Regulatory review time?**
 - EFC now requires a 60-day review period of P&S prior to bid advertisement.
- ✔ **Does the report include all scope items?**
 - Report identifies the scope that the EFC financing will fund
 - Consider discussing scope priorities
- ✔ **Confirm scope matches Environmental Review and Bond Resolution**
 - Avoids delay with financing package and ensures eligibility

Drinking Water Considerations

- ✓ **New Water Districts:**
 - Description of properties included in new or expanded WDs
 - Number of service connections
 - Residential vs. non-residential properties
 - Consolidations of existing PWS?
 - Demand estimate for water district area
- ✓ **Clear project scope and description of project need**
- ✓ **Documentation of Violations**
- ✓ **Sanitary Survey Reports that cite system deficiencies**
- ✓ **Project budget is up-to-date**

Clean Water Considerations

- ✓ **New systems:**
 - Explain how wastewater flows are estimated
 - Confirm downstream hydraulic capacity if connecting to an existing system
 - Confirm proposed SPDES permit limits for new treatment plants with NYSDEC
- ✓ **Discuss sewer service area**
- ✓ **SPDES permit limits and upcoming modifications**
- ✓ **Discuss how the project addressing a NYSDEC Consent Order or SPDES permit compliance schedule**
- ✓ **Is consolidation feasible?**

Engineering Planning Grants (EPG)

- Funding for hardship communities to pay for the initial planning of eligible **CWSRF projects**.
- Coordinated jointly with DEC staff



The application period is typically during the summer



This funding helps develop an Engineering Report

Engineering Reports are required to list your project on the Annual List of the CWSRF Intended Use Plan.



Grant awards up to \$100K

- Up to \$100,000 per locality for inflow/infiltration studies required by enforcement action
- Up to \$50,000 for all other projects

Thank you!

Liz Ricci, P.E.

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