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May 29, 2009

DRAFT

Mr. Theodore Dunn
Health Program Associate
Department of Public Health, Drinking Water Section
410 Capitol Avenue
MS #5I WAT
P.O Box 340308
Hartford, CT 06134-0308.

Subject: Support Letter for Extension of Water to Aljen Heights
Ledyard WPCA (CT 0727051)

Dear Mr. Dunn:

This letter is to provide additional information in support of the Town of Ledyard's "Extension of Water to Aljen Heights". As you are aware, the Ledyard Water Pollution Control Authority (WPCA) submitted this project for consideration under Connecticut's Drinking Water Infrastructure Improvement Projects funded under the American Recovery and Reinvestment Act (ARRA) of 2009 program. Based on the preliminary ranking (dated April 30, 2009), the project scored 30 points and was ranked 148th in the listing. The purpose of this letter and the Town's verbal presentation at the June 1 Public Hearing is intended to improve ranking of the Aljen Heights project. This project is vital to the Town of Ledyard and the residents in the Aljen Heights area.

Project Description

Aljen Heights is located in the northwest corner of Ledyard, generally bounded by Poquetanuck Cove to the north, Avery Hill to the south and Avery Hill Road to the east. Ground grades range from El. 10 at the Cove to El. 150 along Avery Hill Road. There are approximately 360 lots (280 single-family lots along the route and within the Aljen Heights subdivision area and 80 lots along Route 214 and the southern portion of Avery Hill Road). Lots in the Aljen Heights area are generally quarter-acre (10,000 – 15,000 square feet). The area currently includes on-site private wells for the entire proposed service area except the 50-lot Avery Hill Trailer Park that is served by a community well. Except as noted, each lot includes on-site water (private well) and on-site sewage disposal.

The Aljen Heights area would be served initially as an extension of the Gales Ferry water system. As part of an earlier CT DPH funded project, there is an existing 12-in. main between the water storage tank (HGL 310) at Holmberg Orchard and the Avery Hill Trailer Park water system[1] (HGL 400±). The Aljen Heights area would be served by a 12-in. main along Avery Hill Road to the Arrow Head Drive/Ledyard-Preston town line. A pressure-reducing valve

[1] The Avery Hill Trailer Park water system was acquired by the Ledyard WPCA in 200_. The WPCA subsequently replaced all old water mains in the Park, with a Small Cities grant funding.

(PRV) facility would be located about halfway between Avery Hill and Aljen Heights. The PRV would reduce the hydraulic grade to approximately 310. Within the Aljen Heights subdivision, a 12-in. main would loop around Michael Lane, Royal Oaks Drive, Sunset Avenue (portion) and Arrow Head Drive. Other streets in the subdivision would be served by 8-in. mains (Hillcrest Avenue, Willow Lane, Louis, Aljen, Laurel Avenues, Jean B and White Birch Courts, Sunset Avenue [portion] Barn Road, Arrowhead Drive, Johnnie and Green Point Courts). Other streets along the route to Aljen Heights to be served would include Windward Lane and Tucker's Run. (See Figure 1).

Following phases of the project would include the interconnection of the Gales Ferry and Ledyard Center/Highlands water distribution systems along Route 214 and Avery Hill Road from Route 214 to the Avery Hill Trailer Park. A PRV would be located in Route 214 to control hydraulic grade between the systems.

Project Benefits

Extension of Water to Aljen Heights will address a number of health-related issues that threaten the residents of this area, including:

- By letter from CT DPH (October 22, 2008 – RCSA 19-13-1351d (b)(3) and (j)(a)), the current supply source (single community well) for Avery Hill Trailer Park (50 trailer units) has been noted to have a number of sanitary survey violations. **Without correction of these violations, the imposition of a "Consent Order" may be levied against the Town.**

  During the summer/fall of 2005 the community well went dry, requiring the Ledyard WPCA to truck water in to supply the trailer park and placing the residents on an Emergency Water Rationing Program (i.e., limited water availability to two 2-hour periods per day). **The proposed project will allow replacement of the current supply source.**

- Based on "file review" of Ledge Light Health District septic system data there were approximately sixty-three (63) properties (23 percent of properties served in Phases 1 and 2), which had a failed on-site septic system (subsequently repaired). It is only a matter of time when these on-site systems will fail. Due to relatively small lot areas, the ability to meet health-related issues may become difficult if not impossible. **Municipal water for these existing small lots will allow additional area for siting new replacement private sewage systems (when they are required in the future). See Figure 2 for Lots that have had failed/replaced septic systems.**

- Review of limited available water quality data from private wells indicates water-quality concerns. High nitrate levels (5-15 mg/l) were noted in twenty-one wells. Occasional total coliform (including fecal) and other bacteria have been noted. Marginal water quality, including excessive iron, manganese, sodium, chloride, hardness and low pH, has resulted in use of in-home treatment systems. **High quality municipal water will**

eliminate water-quality concerns. See Figure 2 for Lots that have exceeded Nitrate/Nitrite Action Level or Health Code MCL's.

- Review of private well construction information indicates private wells are up to 30 or 40-years old (with some records indicating installations as far back as the early 1970's). Many (about 50 percent of the total 140 wells that had available well construction data) are bedrock wells, up to 700 feet deep. The wells have a wide range of yield, although most are on the order of 3 to 5 gpm. However, there are a number of wells with yields as low as 0.5 gpm. Based on available well construction logs, bedrock wells are cased from ground surface to bedrock and then drilled into bedrock, of varying competency, receiving recharge through cracks and fissures. A number of the bedrock wells were replacement wells for shallow dug wells that reportedly went dry during the drought of the early 1980s. As noted above, lots within the project area are small, with limited potential for future replacement wells. A number of dug wells were noted to be inundated by floodwaters resulting in individual bacteria contamination events (some of these wells have been replaced). **Provision of municipal water from a known quality supply source (Groton Utilities) that is adequately protected will eliminate concerns over "water from where and of what quality".**

- In 2008, the Thames Basin Regional Interconnection project was completed. Groton, Ledyard, and Montville water systems are now connected. Groton Utilities provides water supply to Montville, Mohegan Tribe of Indians of Connecticut (MTUA) and Connecticut Correctional Complex through Ledyard along Route 12, crossing the Thames River from Hurlbutt Road (Ledyard) to Dock Road (Montville). Currently, Ledyard WPCA is completing the extension of water service to the Ledyard Center/Highlands service area. Groton Utilities will provide water supply to this area at Route 117. **Extension to Aljen Heights will interconnect the two water systems in Ledyard (Gales Ferry and Ledyard Center/Highlands). System interconnection (Phases 3 and 4) will improve overall reliability. Additionally, the interconnection will improve redundancy for the "Regional System" of Groton/Ledyard/Montville by providing an alternative route of supply should a failure occur in Route 12 between the Ledyard/Groton town line and the Thames River Crossing.**

- Should an additional source of supply be developed in Groton, it would provide potential for future regionalization to facilitate 1) connecting the Ledyard system to the Preston/ Norwich system at Route 12, 2) supply water to the historic area of Preston, and 3) supply whatever development that may be sited at the former Norwich State Hospital. **Extension of Water to Aljen Heights would provide options for local communities to meet future water supply needs.**

Project Scoring

Based on telephone conversations with DPH staff, the project scored 30 points[1] in connection with the Priority Ranking System. The Town of Ledyard respectfully requests reconsideration of the point assignment to this project. In particular we note the following for consideration:

- Phases 1 and 2

SWTR Violation Groundwater Under the Influence (AHTP Well)	50
Main Extension to Private Wells with Health Code Violations (Nitrate)	20
Source Deficit/System Capacity Deficit (AHTP individual supply source)	40
Interconnection/customer absorbed – Gales Ferry to Avery Hill	15
Pumping Facilities – Relocation of Gallup Hill BPS to serve Aljen Heights	5
Main Extension for Interconnection – extension to Aljen Heights area	5
Source / **Distribution Violations -	10
Subtotal	145

- Phases 3 and 4

Interconnection – Gales Ferry to Ledyard Center	15
Main Improvement – Route 214 (Rte 12 to Rte 117; replace 6-in. AC)	5
Main Extension for Interconnection – extension to Aljen Heights area	5
Subtotal	25

Total Potential Points Phases 1 through 4 **170**

Project Scope and Schedule

The project scope includes approximately 45,500 l.f. of 12- and 16-in. watermain in Avery Hill Road and Route 214 and 12- and 8-in. watermain the adjacent side streets within the Aljen Heights area of Ledyard.

Water works facilities would be built under four separate construction phases, as follows:

- Phase 1: 6,600 l.f. of 12-in. and 2,600 l.f. of 8-in. watermain in Avery Hill Road – Avery Hill Trailer Park to Ledyard/Preston town line including Tucker's Run and Windward Lane, together with pressure reducing station and relocation of Gallup Hill Booster Pumping Station, including pump modifications and hydropneumatic tank.

- Phase 2: 6,150 l.f. of 12-in. and 8,750 l.f. of 8-in. watermain in Aljen Heights including Michael Lane, Royal Oaks Drive, Arrowhead Drive, Aljen Avenue, Sunset Avenue, Hillcrest Avenue, Willow Lane, Louis Avenue, Barn Road, Laurel Avenue, Green Point Street, Johnny Court, Jean B Court and White Birch Court.

[1] The 30 points are broken down as follows – 15 for Interconnection/customer absorbed (per PWS), 5 for main extension for interconnection and 10 for source/distribution violations.

- Phase 3: 15,400 l.f. of 16-in. and 475 l.f. of 12-in. extension in Stoddard Wharf Road (Route 214), Route 12 to Route 117 and Avery Hill Extension.

- Phase 4: 5,500 l.f of 16-in. watermain in Avery Hill Road – Stoddard Wharf Road to Avery Hill Trailer Park.

The Town has started engineering design for Phases 1 and 2 anticipated to be completed within two months; engineering design for the booster pumping station relocation/pump modification would be completed within one month. If the Town were notified of the likelihood of funding by June 15, 2009, design would be completed by August 1, 2009. Bidding of the project would be completed by September 1, 2009 and construction started by September 15, 2009. Construction would be completed by late Summer 2010.

The Town is currently investigating its ability to finance engineering design for Phases 3 and 4. Options include Town referendum, state and federal funding sources, etc. With availability of funding, engineering design for the watermains and pressure reducing station could be completed within three months. If the Town were able to secure funding by July 31, 2009, design would be completed by October 31, 2009. Bidding of the project would be completed by November 30, 2009 and construction started in early March or April 2010. Construction would be completed by late Fall/Winter 2010.

Local and State Project Permitting and Schedule

The Town of Ledyard does not anticipate any problems in applying for and receiving all of the required permits for the Aljen Heights project proposal as is being proposed in this funding request.

At this time, local permits have not been obtained. However, because the Ledyard WPCA and the Town have identified this project as a critical project and one of the next "major" projects for the WPCA, it is believed that local permits would be obtained expeditiously. Assuming design is completed as noted above the Town would proceed with "planning/zoning/building" type permits utilizing "conceptual level" design. For inland wetlands, the Ledyard WPCA would obtain the necessary permitting during the bidding period. It is anticipated that all local permits would be in-hand by August 15, 2009 for Phases 1 and 2 and by October 15, 2009 for Phases 3 and 4.

Assuming there is strong likelihood of funding, the Town would proceed with diversion permit modifications utilizing the conceptual level design (the Town currently has two existing diversion permits with Groton Utilities) that may require minor increases in volume. The Ledyard WPCA would obtain necessary DPH "Permission to Construct" permits during the bidding period. Phase 1 and 2 do not involve DOT permits; Phases 3 and 4 do require a DOT permit; the Ledyard WPCA would propose to start the permitting process with the conceptual level plans and be prepared to apply for the final DOT permit during later stages of the design period. It is anticipated that all state permits would be in-hand by August 15, 2009 for Phases 1 and 2 and by October 15, 2009 for Phases 3 and 4.

Project Probable Construction Cost

Because the Town and WPCA recognize the limited availability of funding through the ARRA/SRF program, the Town is suggesting that Phases 1 and 2 (which address the urgent Aljen Height water supply situation) be addressed immediately and that Phases 3 and 4 be deferred to a later date so as to properly address the priority for required funding to remediate Aljen Heights water quality and Public Health issues noted above. The project probable construction costs are estimated as follows:

Immediate

- Phase 1 – 6,600 l.f. of 12-in. and 2,575 l.f. of 8-in. watermain (Avery Hill Trailer Park to Ledyard/Preston Town line including Tucker's Run and Windward Lane, pressure reducing valve in Avery Hill Road and relocation of Gallup Hill Booster Pumping Station, including pump modifications and hydropneumatic tank)

Subtotal:	$1,950,000

- Phase 2 – 6,150 l.f. of 12-in. and 8,750 l.f. of 8-in. watermain (Aljen Heights subdivision)

Subtotal:	$2,900,000
Immediate Need Cost:	**$4,850,000**

Longer-Term

- Phase 3 – 15,400 l.f. of 16-in. watermain interconnecting Route 117 to Route 12 (including pressure reducing valve)

Subtotal:	$3,860,000

- Phase 4 – 5,500 l.f. of 16-in. watermain interconnecting Route 214 to Aljen Heights watermain extension

Subtotal:	$1,230,000
Longer-Term Cost:	**$5,090,000**
Total Projects – Phases 1 – 4:	**$9,940,000**

Conclusions

The Extension of Water to Aljen Heights will address a number of health-related issues that threaten the residents of this area, including:

- Correction of sanitary survey violations at current supply source (single community well) for Avery Hill Trailer Park. Without improvements and eliminations of these violations, the imposition of a "Consent Order" may be levied against the Town. The proposed project will allow replacement of the current supply source.

- Approximately sixty-three (63) properties (or 23 percent of properties to be served by Phases 1 and 2), have had a failed on-site septic system (subsequently repaired). Municipal water for these existing small lots will allow additional area for siting private replacement sewage systems to meet current health code standards.

- Water quality data from private wells indicate water quality concerns. High nitrate levels (5-15 mg/l) were noted in twenty wells. Marginal water quality, including excessive iron, manganese, sodium, chloride and hardness along with low pH, has resulted in use of in-home treatment systems. High quality municipal water will eliminate water-quality concerns.

- Private wells serving the area homes are up to 30 or 40-years old (with some records indicating installations as far back as the early 1970's). Many (about 50 percent of the total 140 wells that well construction information was available) are bedrock wells, up to 700 feet deep. The wells have a wide range of yield, with a few wells with yields as low as 0.5 gpm. The lots within the project area are small with limited potential for future replacement wells. A number of dug wells were noted to be inundated by historic floodwaters resulting in individual bacteria contamination events. Provision of municipal water from a known quality supply source (Groton Utilities) that is adequately protected will eliminate concerns over "water from where and of what quality".

- Extension to Aljen Heights will interconnect the two water systems in Ledyard (Gales Ferry and Ledyard Center/Highlands). System interconnection (Phases 3 and 4) will improve overall reliability. Additionally, the interconnection will improve redundancy for the "Regional System" of Groton/Ledyard/Montville by providing an alternative route of supply should a failure occur in Route 12 between the Ledyard/Groton town line and the Thames River Crossing.

- Extension of Water to Aljen Heights would provide options for the local communities to meet future water supply needs.

By providing funding to the Town of Ledyard under the ARRA/SRF program, the CT DPH will assist the Town in correcting potentially serious health-related concerns for a number of private residences. If this vital project is not funded, the situation could develop into a crisis whereby the Town is forced to take emergency action to protect public health. The economic impact of potentially having to provide temporary water while a long-term permanent solution is

constructed could be devastating. The Town believes Phases 1 and 2 require immediate action. In addition funding of Phases 1 and 2 would allow the Town to pursue funding for the remainder of the total project. Given these difficult financial times, any assistance provided to the Town will benefit all citizens of Ledyard.

We trust this is adequate for your current needs. Please call if you have any question.

Very truly yours,

LEDYARD WATER POLLUTION CONTROL AUTHORITY

By:

DRAFT

Greg Teifert, Director

RSJ:vs
enc.
cc: Mayor Fred Allen
Ledyard WPCA
Amory Engineers, P.C.

MOHEGAN TRIBAL UTILITY AUTHORITY

MONTVILLE

PRESTON

ALJEN HEIGHTS PHASE 2

ALJEN HEIGHTS AREA

ALJEN HEIGHTS PHASE 1

AVERY HILL TRAILER PARK

AVERY HILL ROAD PHASE 4

PHASE 3 - RTE. 214 (RTE. 12 TO RTE. 117)

MASHANTUCKET PEQUOT TRIBAL RESERVATION

NORTH STONINGTON

LEDYARD

LEDYARD CENTER WATER SYSTEM

HIGHLANDS WATER SYSTEM

THAMES BASIN REGIONAL WATER INTERCONNECTION

WATERFORD

STONINGTON

GROTON

FROM GROTON UTILITIES

FROM GROTON UTILITIES

RIVER

THAMES

Middle School

Town Annex

Town Hall

Ledyard Middle School

Bd. Ed. Office

High School

Gales Ferry School

LEGEND

EXISTING WATERMAIN

PROPOSED WATERMAIN

P:\Clients\Ledyard\3279 Water Advice 2009\Aljen Heights SRF\Overall Plan.dwg

WATER POLLUTION CONTROL AUTHORITY
LEDYARD, CT

EXTENSION OF WATER TO ALJEN HEIGHTS

MAY 2009

GRAPHIC SCALE

2000 0 1000 2000 4000 8000

(IN FEET)
1 inch = 2000 ft.

AMORY ENGINEERS, P.C.
DUXBURY, MA

PHASE 1 & 2

ARROWHEAD DRIVE

GREEN POINT ST

JOHNNY CT

ROYAL OAKS DRIVE

SUNSET AVE

LAUREL AVE

Aljen Ave

BARN RD

HILLCREST AVENUE

ELLIS LANE

MICHAEL LANE

WHITE BIRCH COURT

JEAN B COURT

LANE

WILLOW

WINDWARD LANE

AVERY HILL ROAD

TUCKERS RUN

Aljen Heights

Ledyard

ALJEN HEIGHTS
PHASE 2

PRV HGL(420-310)

RELOCATED BOOSTER
PUMPING STATION WITH
HYDRO TANK

1.25 MG TANK
AT HOLMBERG TANK

HOLMBERG
TANK

WATERMAIN EXTENSION-
ALJEN HEIGHTS PHASE 1

AVERY HILL
TRAILER PARK

GALES FERRY
WATER SYSTEM

MAGNETIC

LEGEND

EXISTING
- 4" WATERMAIN
- 8" WATERMAIN
- 12" WATERMAIN
- 16" WATERMAIN

PROPOSED
- 8" WATERMAIN
- 12" WATERMAIN

HYDRANT
VALVE
PRESSURE REDUCING VALVE
BOOSTER PUMPING STATION

LOT TO BE SERVED
FAILED/REPAIRED SEPTIC SYSTEM
NITRATE > ACTION LEVEL (5mg/l)
NITRATE > MCL (10mg/l)

WATER POLLUTION CONTROL AUTHORITY
LEDYARD, CONNECTICUT

PROPOSED WATERMAIN EXTENSION
TO ALJEN HEIGHTS

SCALE: 1" = 500'

DECEMBER 2008

AMORY ENGINEERS, P.C.
DUXBURY, MASSACHUSETTS