October 26, 2022

Division of Environmental Remediation
Remedial Bureau E, 12th Floor
New York State Department of
Environmental Conservation
625 Broadway
Albany, New York 12233-7016

Attention: Mr. Ian Beilby, Section Chief, Section C (Special Projects, Bureau D)

Subject: **Geotechnical Investigation Workplan**
Saint-Gobain McCaffery Street Operable Unit Number 02
Municipal Water Supply; Site Number 442046

Dear Mr. Beilby:

On behalf of Honeywell, Inc. (Honeywell) and Saint-Gobain Performance Plastics Corporation (the "Companies"), WSP USA Environment & Infrastructure Inc. (WSP) is submitting this Geotechnical Investigation Workplan[1] to evaluate a potential alternative alignment for the water lines described in the Record of Decision ("ROD") for Operable Unit Number 02 (OU2) for the McCaffery Street Site located in the Village of Hoosick Falls (Village), New York (Site). As set forth in the ROD, the selected remedy for OU2 includes the installation of a new water conveyance line which will connect two groundwater wells located west of the Hoosic River and south of the Village to the existing water treatment plant (WTP) located on Water Works Road. Based upon WSP's evaluation and conversations with the Village of Hoosick Falls ("Village") and the New York State Department of Environmental Conservation ("NYSDEC"), it is believed that an alternative water conveyance line alignment may be shorter in length and more easily implemented than the alignment currently proposed in the ROD. This geotechnical investigation is intended to evaluate the feasibility of such an alternative alignment in furtherance of ongoing conversations between the Companies, the Village, and NYSDEC with respect to the design and implementation of the OU2 remedy. The geotechnical investigation will provide

[1] Since the issuance of the ROD, the Companies, NYSDEC and the Village have been discussing various aspects relating to the implementation of the ROD. Pending a decision on who will design and construct the remedy, the Companies are submitting this workplan in order to timely advance the proposed scope of work.

necessary data on the presence of shallow bedrock and/or groundwater that could impact the constructability of the water line along this alternate alignment. In addition, topographic and utility surveys that will be completed in conjunction with the geotechnical work, will provide the locations of existing utilities, both subsurface and aboveground, that may be in conflict with the proposed waterline alignment.

INTRODUCTION

The remedy described in the ROD includes the following components:

- Development of two new groundwater supply wells: Existing test wells located south of Hoosick Falls will be converted to production wells;
- Provide required redundancy by maintaining a minimum of one existing Village well: A third well is required to provide redundancy in the case of an outage of the primary wells;
- Construction of a water transmission line from the new wells to the Hoosick Falls water treatment plant along public rights of way;
- Continued maintenance and operation of the public water supply treatment plant for removal of naturally occurring elements, disinfection, and distribution to meet applicable water supply requirements; and
- Retain the existing granular activated carbon treatment system to ensure non-detect concentrations of site-related contaminants of concern in the finished drinking water.

A water conveyance line alignment was described in the ROD and included installation of a water line from the two test wells located south and west of the Village to the public right-of-way on NYS Route 22. The conveyance line would then extend north along NYS Route 22, cross the Hoosic River on the River Street bridge, turn south, and follow Fiske Street and Water Works Road to the WTP. The approximate length of the alignment is 2.5 miles. Based on discussions between the Village, NYSDEC, and the Companies, it is believed that an alternate alignment with an approximate length of 1.9 miles may be more suitable. This alignment would include running the water line from the test wells north along NYS Route 22 to a location just west of the WTP. From this location, the water line would be installed below the Hoosic River via horizontal directional drilling (HDD) methods. On the east side of the river, the alignment would follow Water Works Road to the WTP. A technical memorandum further describing the alternate alignment is included as **Attachment 1** to this document. The evaluation described herein is intended to gather geotechnical data that may be used to facilitate further discussion between the Companies, the Village and NYSDEC with respect to the design and construction of the new water line.

The water line will be installed entirely below ground, therefore information related to surface and subsurface conditions needs to be collected. The investigation proposed herein by the Companies consists of a topographic and utility survey and a geotechnical investigation.

SCOPE OF WORK

Topographic and Utility Survey

A topographic survey will be conducted along the proposed water line alignment. The survey will include establishing recoverable horizontal and vertical control based on NAD83 State Plane Coordinate System-NY East Zone and NAVD88 Vertical Datum. Prior to conducting the topographic survey, Dig Safely New York (New York 811) will be notified to mark utilities along the alignment. The topographic survey will be performed to develop 1-foot contours and will include locations of subsurface and above grade utilities and structures located within five feet of the proposed water line alignment.

Geotechnical Investigation

A geotechnical investigation along the proposed water line alignment will be conducted to collect data on the subsurface conditions. The intent of the boring program is to identify areas of shallow bedrock or groundwater that could cause issues during construction. The geotechnical investigation will include advancement of up to 17 shallow borings to a depth of ten feet below ground surface (bgs). The anticipated boring locations are presented in **Figure 1**. Actual boring locations will be adjusted to avoid overhead and subsurface utility conflicts and minimize traffic disruption. The borings will be advanced using 3-inch inside diameter (ID) hollow or solid stem augers. Subsurface lithology will be visually identified from auger cuttings. Soil samples will not be collected for laboratory analysis. Borings will be backfilled with auger cuttings and supplemented with sand and compacted to the extent practicable. Where borings are located on paved surfaces, the surface will be repaired in conformance with NYS Department of Transportation standards.

To support the HDD design, two additional geotechnical borings will be advanced in the general area of the entry and exit pits adjacent to the river. Each boring will be advanced using 4-inch ID hollow stem augers to 30 feet bgs. Standard Penetration Testing (SPT) will be conducted continuously from ground surface to the termination of the boring. SPTs will be conducted in accordance with ASTM D 1586. If auger refusal is encountered prior to 30 feet, up to ten feet of rock coring will be performed. Rock coring will be completed in accordance with ASTM D 2113. The borings will be backfilled with bentonite and water grout and soil cuttings will be drummed and disposed off-site. A geotechnical engineer or geologist will oversee the boring program, log each boring and collect soil and rock samples. Selected soil and rock samples will be delivered to a geotechnical laboratory for

index and strength testing. The anticipated geotechnical laboratory testing program is presented in **Table 1**.

Table 1

Geotechnical Laboratory Testing

Test Name	Test Procedure	Estimated Number of Tests
Atterberg Limits	ASTM D 4318	4
Moisture Content	ASTM D 2216	4
Grain Size Analysis	ASTM D 6913	8
Unconfined Compressive Strength of Rock	ASTM D 7012C	2

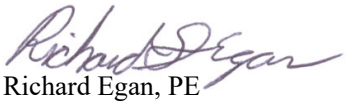
Actual number of samples submitted for laboratory testing will be based on the subsurface conditions encountered during the investigation.

SCHEDULE

Weather and conditions permitting, the Companies intend to proceed with the investigation proposed herein upon NYSDEC's approval of this document. Accordingly, the Companies respectfully request that NYSDEC approve this workplan by mid-October.

If you have questions on the material provided herein, please contact Rick Egan, at 207-775-3405.

Yours sincerely,

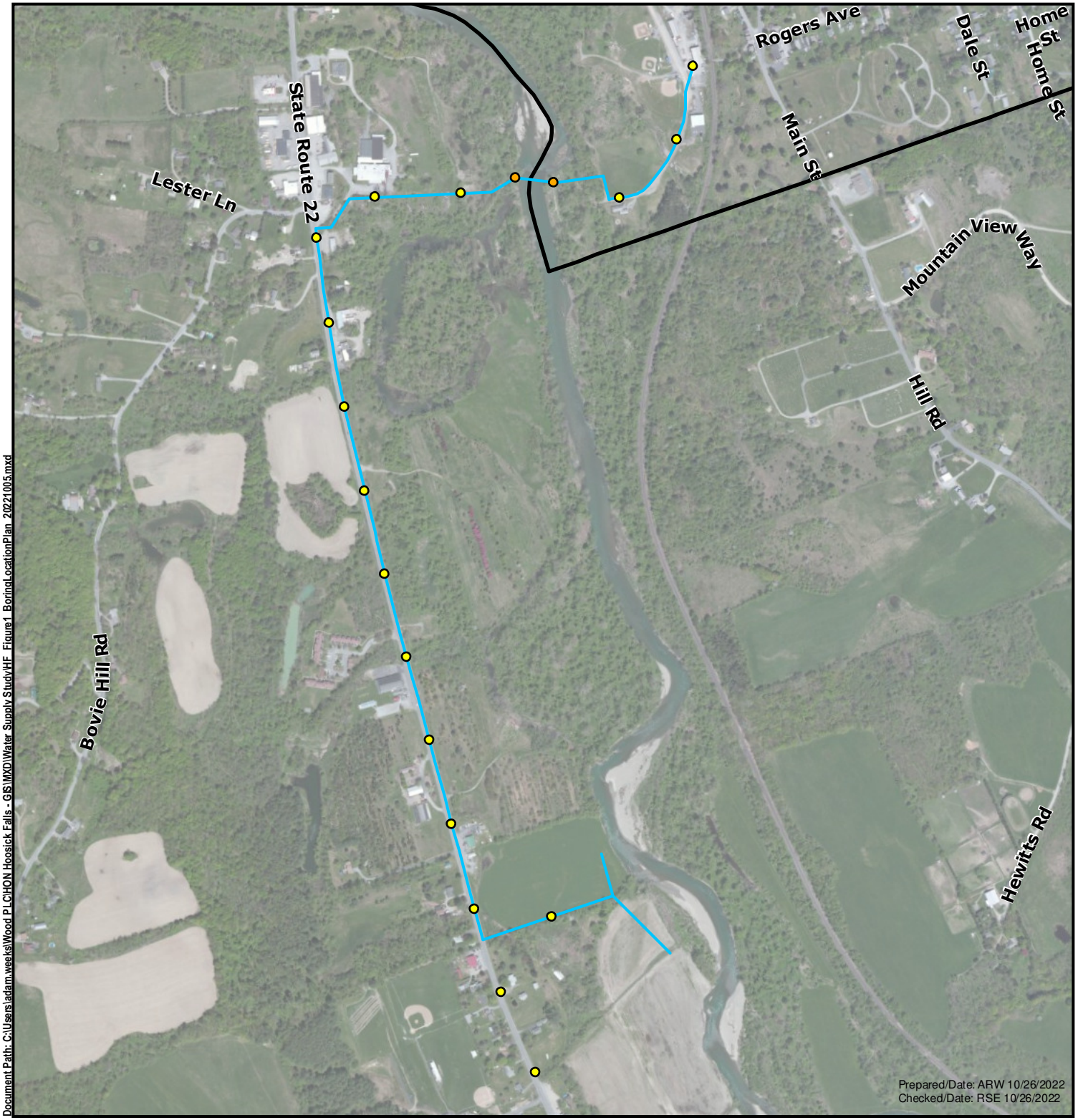


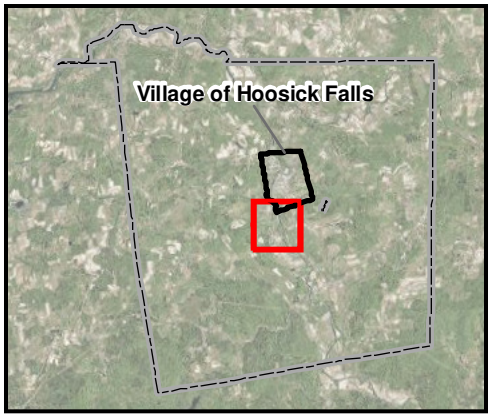
Richard Egan, PE
Project Manager
WSP USA E&I, Inc

cc: R. Iyengar
M. Millspaugh
S. Jazic
D. Desnoyers
C. Angier
D. Edelstein
B. Angerman
C. Burns
D. Servetas
T. Johnson

Figure 1

Boring Location Plan





Legend

- Proposed Boring Location
- Proposed HDD Boring
- Proposed Water Main Extension
- Village of Hoosick Falls Boundary

NOTES:

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N

0 150 300 600 900

Feet

Figure 1: Boring Location Plan

Village of Hoosick Falls
Town of Hoosick, New York

WSP

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Attachment 1
Water Line Alignment Memo

TECHNICAL MEMORANDUM

DATE: October 7, 2022

TO: Sasa Jazic (Honeywell), Chris Angier (SGPP)

FROM: Richard Egan, P.E. (WSP)

REVIEWED BY: Dan Servetas, P.E. (WSP)

SUBJECT: Hoosick Falls OU2 – Water Line Alignment

PROJECT NO: 3652220368

1.0 INTRODUCTION

WSP USA &I, Inc. (WSP) prepared this technical memorandum to support planning and decision-making for the alignment of a new water line to supply water to the Village of Hoosick Falls, NY (Village). The New York State Department of Environmental Conservation (NYSDEC) issued a Record of Decision (ROD) directing the installation of a new water line which will connect two groundwater wells located west of the Hoosic River and south of the Village to the existing water treatment plant (WTP) located on Water Works Road. The two existing wells, which will be converted to supply wells, are located on two privately owned parcels, referred to as the Wysocki property and LaCroix property. A water line alignment was presented in the ROD that was based on the Municipal Water Supply Study for the Village of Hoosick Falls (ERM/CHA, 2020). The proposed alignment was selected because it was largely confined to public right-of-way (ROW). The Water Supply Study acknowledges that additional options for the water line may be amenable to the Village and provide benefit for the project. Moreover, a change in the alignment is minor as it has little to no impact on the remedy (See DER-2). Therefore, a revised alignment, if proposed, would not be anticipated to require a ROD amendment.

This memorandum discusses the alignment as presented in the ROD and provides a description of a potential alternate route that may be more easily implemented and maintained over the long-term.

2.0 ROD ALGINMENT AND TECHNICAL CHALLENGES

A graphical depiction of the water line alignment presented in the ROD is included as Attachment 1. Individual 8-inch water lines would be extended from the wells to the public right-of-way on NYS Route 22 before joining into a single 12-inch line. The 12-inch line would extend north along NYS Route 22, cross the Hoosic River on the River Street bridge, turn south,

and follow Fiske Street and Water Works Road to the WTP. The approximate length of the alignment is 2.5 miles.

The technical challenges with this alignment include the river crossing and the likely conflict with existing utilities within the Village along River Street. To cross the river, the water line would be suspended from the bottom of the bridge in a similar fashion to the existing 12-inch insulated water line that is currently installed along the bridge. A structural assessment of the bridge would be required to design the water line crossing. The design would require NYSDOT review and approval, and a permitting process would need to be completed. The complexity and duration of structural analysis will depend on whether full load rating calculations and AASHTO files are available for the bridge.

It appears that several utilities currently exist along the southern side of River Street in the Village including both water and sewer. The installation of a new water line would require a review of existing utilities and an assessment of how to efficiently work around or relocate the utilities to facilitate installation. Road closures and detour routes would need to be established to complete this work in a safe and efficient manner.

A geotechnical pre-design investigation that includes advancement of 32 borings up to ten feet in depth along the alignment would need to be conducted. The intent of the boring program would be to identify areas of shallow bedrock or groundwater that could cause constructability issues.

3.0 ALTERNATE ALIGNMENT AND TECHNICAL CHALLENGES

As set forth herein, an alternate water line alignment could potentially increase safety and efficiency and reduce overall long-term maintenance efforts and costs while reducing construction costs for the project. The alternate alignment is shown graphically in Attachment 2. Similar to the ROD alignment, the alternative route includes individual 8-inch water lines that would be extended from the supply wells on the Wysocki and LaCroix properties to NYS Route 22 before joining into a single 12-inch line. The 12-inch line would extend north along NYS Route 22 for approximately 0.8 miles. At that point, the line will turn to the east and run through three private properties before crossing below the Hoosic River (just south of the River Road Site). On the east side of the river, the water line will be installed on Village parcels and then north along Water Works Road to the WTP. The approximate length of this alignment is 1.9 miles.

The technical challenge with this alignment is the installation of the water line below the Hoosic River by horizontal directional drilling (HDD) methods. As the waterline heads east from NYS Route 22, it would traverse through the three private properties shown on Attachment 3 and listed below:

- Property 37-2-11

- Property 37-2-10
- Property 37-2-6.2

Information presented in the Draft Site Characterization Report, Oak Materials-River Road 1, 2 and 3 (ERM; August 13, 2021) (SC Report) shows depth to the bedrock in the vicinity of the proposed line route between NYS Route 22 and the Hoosic River to be between 15 and 35 feet below ground surface (bgs), with the greater depth closer to the Hoosic River. It is anticipated that the HDD entry pit will be located on Property 37-2-6.2. The entry pit would be excavated to 5 to 8 feet below ground surface. The pipeline would enter the pit at an approximate angle of 15 degrees to the horizontal to extend below the bottom of river. Below the river the water line will extend within the overburden and enter an exit pit on the Village property at an approximate return angle of 15 degrees. A geotechnical investigation, that includes advancing one geotechnical boring at the proposed entry and exit pits to a depth of 30 feet bgs, would need to be conducted to confirm the data presented in the SC Report and to support the design of the HDD work. Additionally, 17 shallow geotechnical borings would be advanced to ten feet bgs along the remainder of the alignment. The intent of the boring program is to identify areas of shallow bedrock or groundwater that could cause constructability issues.

4.0 BENEFITS OF EACH ROUTE

The benefit of the alignment defined by the ROD is that entirety of the route, with the exception of the water line from the supply wells to NYS Route 22, are within public ROWs. With the ROD alignment, gaining access to the ROWs to install the water line should not be difficult. Along NYS Route 22, the water line alignment will be on the east side of the road where access would need to be granted by the NYSDOT. Within the Village, along River Street, Fiske Street and Water Works Road, the alignment will be within Village ROW.

There are several benefits to the alternate alignment. There is less disruption in the Village as a result of construction related activities, road closures and detour routes. This results in a more efficient and safer option. Additionally, the overall length of the alignment is reduced; by crossing the river at the location shown on Figure 2, the alternate alignment is approximately 0.6 miles shorter than the ROD alignment. The reduction in length will result in a shorter installation. The shorter alignment should also result in lower maintenance costs and the potential to reduce the size of the supply well pumps. The HDD design for the river crossing could be completed on a shorter schedule with potentially simpler regulatory review and permitting process than the bridge crossing.

ROD Alignment		Alternate Alignment	
Pro	**Con**	**Pro**	**Con**
Entirely on public ROW	Longer route	Shorter route	Require private property access agreements
Has DEC approval	DOT permitting	Less material costs	Future easements on private property
	Bridge support design	Shorter construction period	Environmental permitting for HDD at Hoosic River
	Utility conflicts within Village	Less impacts to Village during construction	

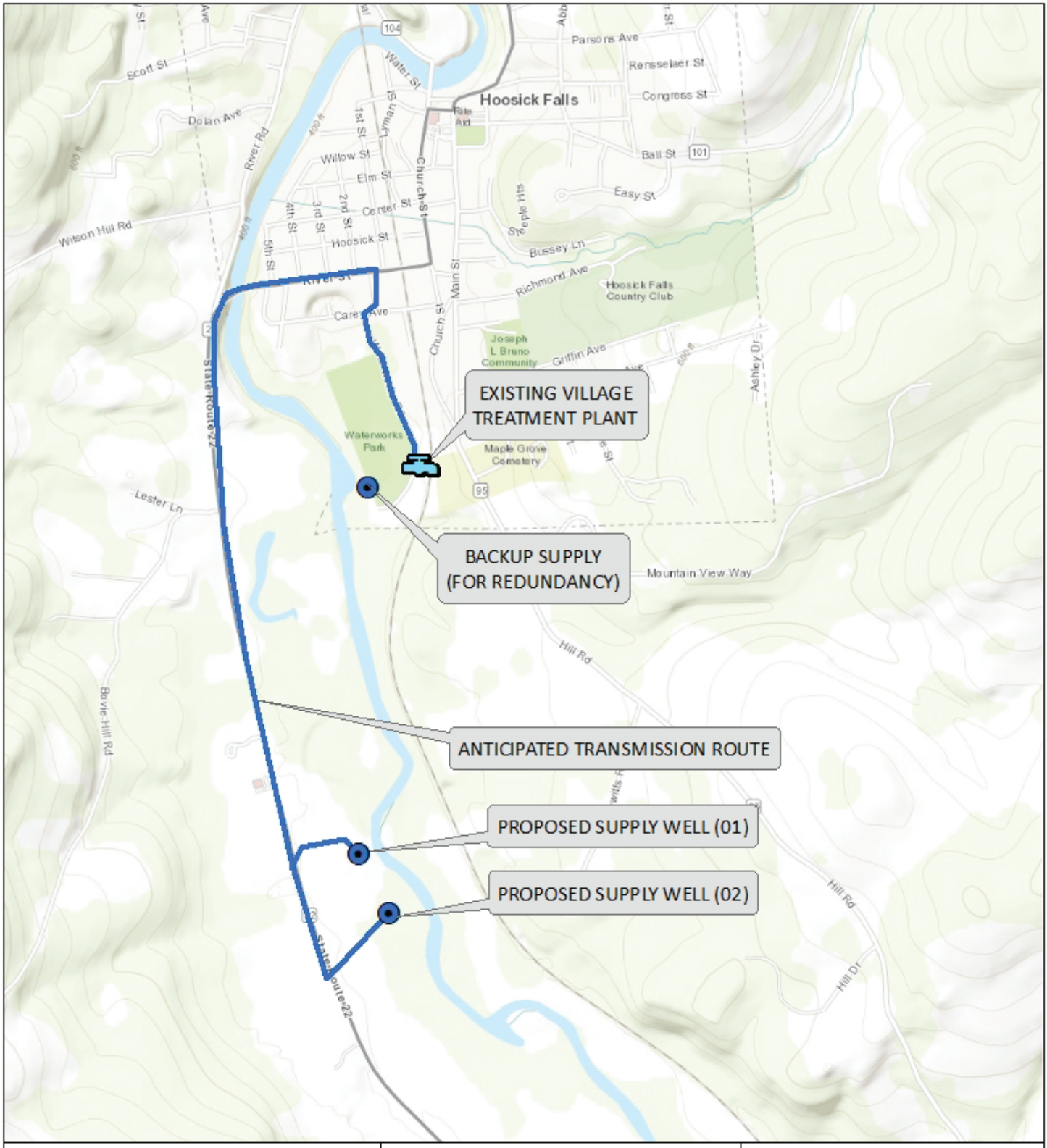
Honeywell has previously entered into access agreements with owners of the three properties needed for the alternate alignment for purposes of investigative activities. These access agreements are sufficient to allow the geotechnical investigation work to proceed at this time. In light of the existing agreements, it is reasonably expected that expanded access agreements and/or easements could be secured for these properties.

The horizontal directional drilling is a commonly used technology for river crossings. The WSP team has experience with HDD and with obtaining the proper permits for this type of work.

Based on this evaluation, it appears that any disadvantages identified for the alternate alignment can be effectively mitigated.

ATTACHMENT 1

WATER LINE ALIGNMENT PRESENTED IN ROD



Saint-Gobain ~ McCaffrey St
442046, Operable Unit 02

Hoosick Falls Water Supply

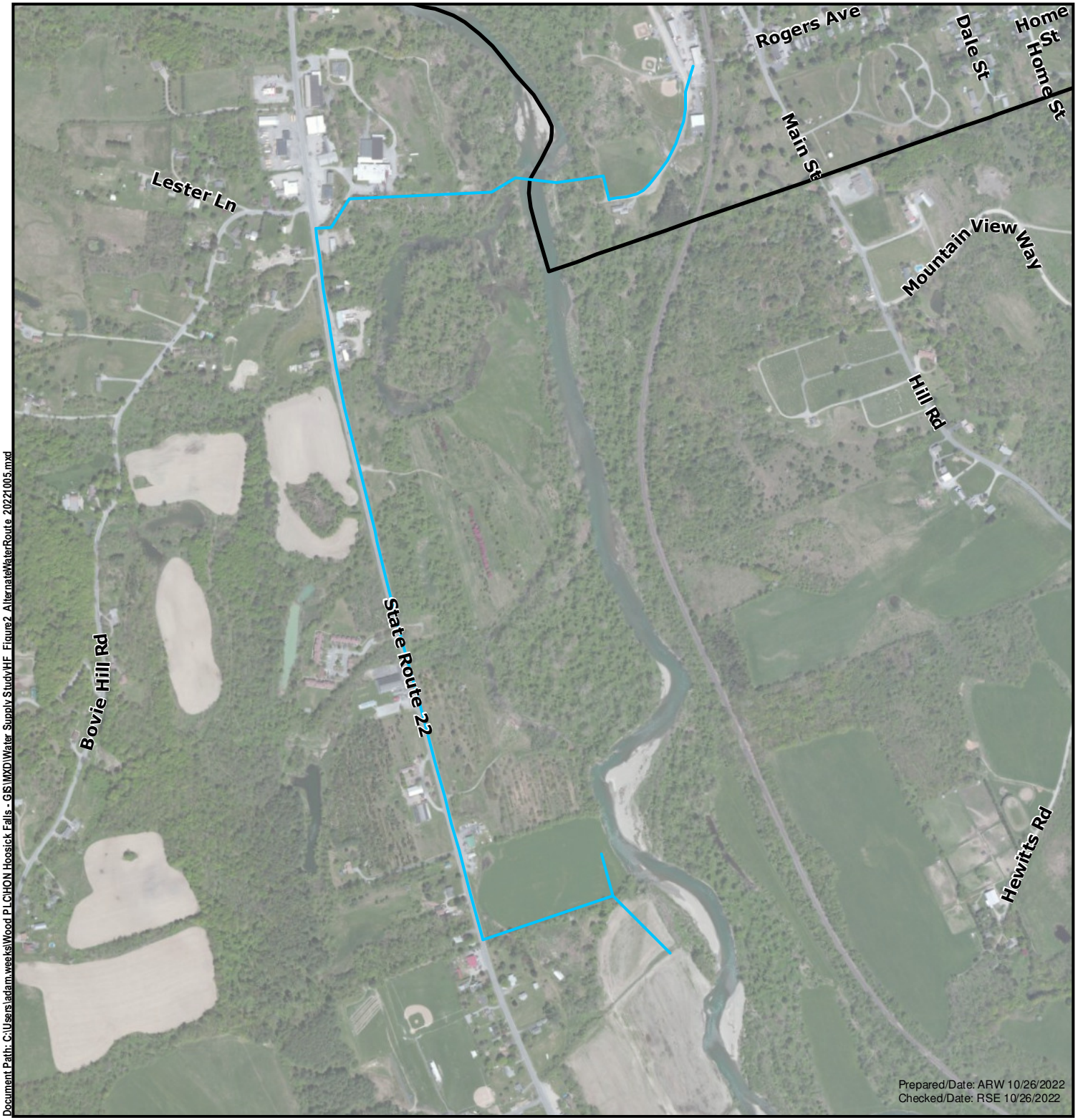
Option 1 (A & B):
New Groundwater Source

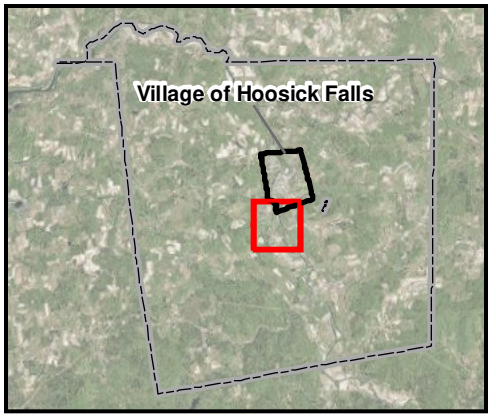
NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

FIGURE 2

ATTACHMENT 2

ALTERNATE WATER LINE ALIGNMENT





Legend

Proposed Water Main Extension

Village of Hoosick Falls Boundary

NOTES:

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Figure 2: Alternate Water Line Route

Village of Hoosick Falls
Town of Hoosick, New York

WSP

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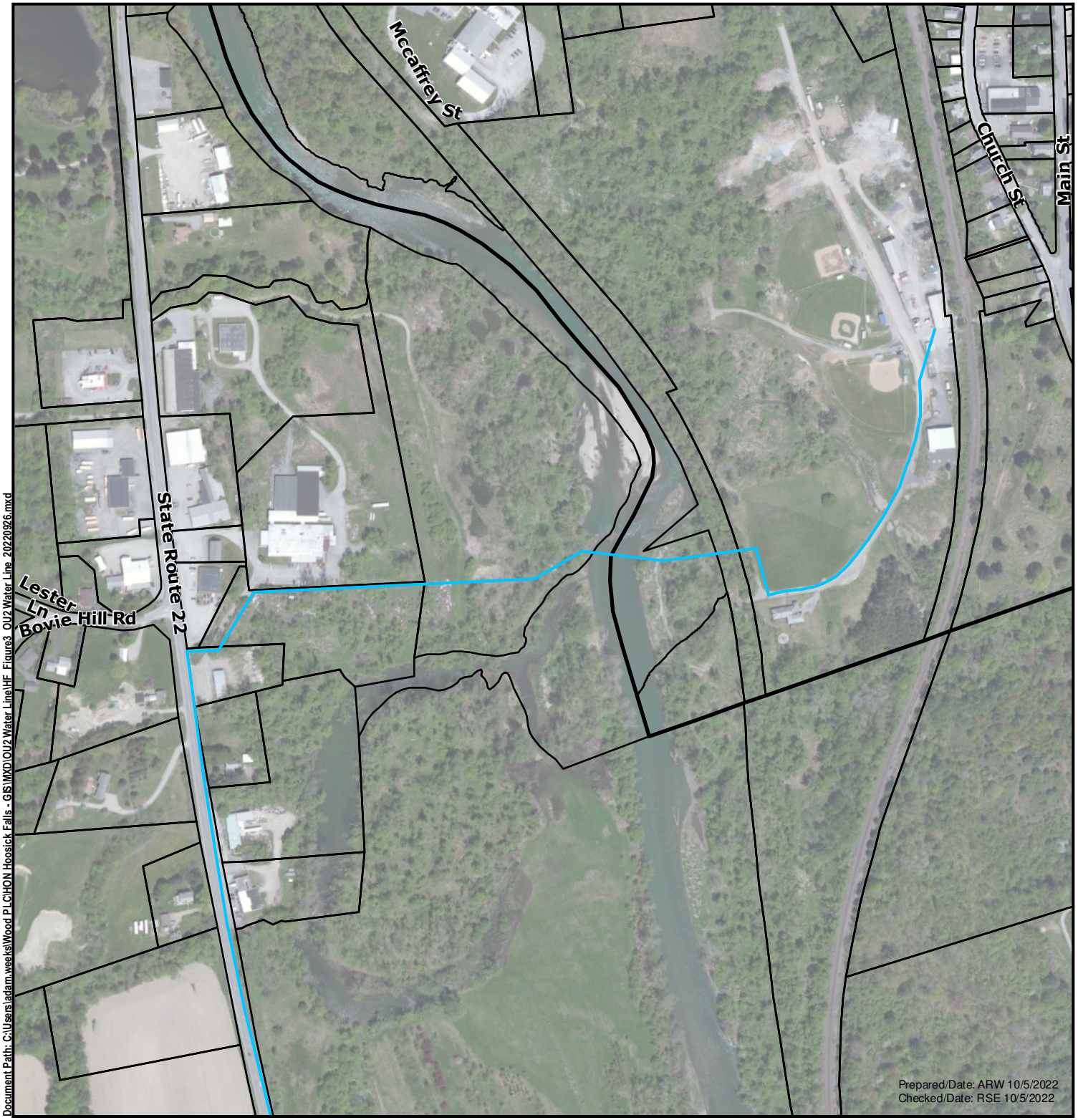
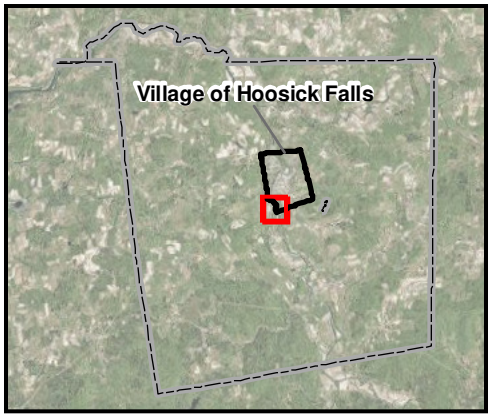
ATTACHMENT 3

PRIVATE PROPERTIES TO BE ACCESSED





Legend

- Proposed Water Main Extension
- Village of Hoosick Falls Boundary
- Tax Parcel Boundaries

NOTES:

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Figure 3:
Proposed Water Main Extension
Village of Hoosick Falls
Town of Hoosick, New York

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