November 13, 2023

Mr. Chris Kersten
Town of Hillsdale Supervisor
2684 NYS Route 23
PO Box 305
Hillsdale, NY 12529

Re: Preemptive Closure Development
West End Road over Taghkanic Creek
Hillsdale, New York
Ryan Biggs | Clark Davis 12282-5

Dear Chris:

At your request, Ryan Biggs | Clark Davis Engineering and Surveying, DPC (Ryan Biggs) has completed our preemptive closure development of the West End Road Bridge over Taghkanic Creek in the Town of Hillsdale, New York. The purpose of this study was to develop strategies to keep using the bridge and to develop a plan in the event the bridge gets red flagged during the next bridge inspection. A structural evaluation of the existing superstructure and substructures was previously completed by Ryan Biggs and documented in a report dated April 20, 2021. A feasibility study for the replacement of the bridge was previously completed by Ryan Biggs and documented in a report dated September 14, 2021.

Introduction

The structural evaluation performed by Ryan Biggs determined that the existing bridge is in poor condition. While it is technically possible to repair the bridge, it was determined to be grossly not cost effective and that complete replacement was the preferred alternative. The Town had selected a replacement type but has not yet secured the necessary funds to undertake the project.

Background

The existing bridge consists of a single simple span that crosses Taghkanic Creek. See the photograph. The existing superstructure is a reinforced concrete one-way slab and is approximately 27 feet long by 20 feet 6 inches wide by about 1 foot 3 inches thick. The existing substructures are concrete and appear to be founded on the existing soil. The existing hydraulic opening is approximately 90 sq. ft. See attachment Sketch SK-1 for “existing conditions”. The creek is classified as a Class C(T) waterbody, meaning it is suitable for fishing and non-contact activities and is a trout water. The bridge is reported to have been built in 1945. For more information on the existing structure and the deficiencies necessitating this study, refer to the previous reports prepared by Ryan Biggs.

Alternatives

The following pages describe various bridge preemptive closure development alternatives. Each section lists the alternative, describes the features of the alternative, and indicates our opinion of probable cost (if any) for that particular alternative. The probable costs are based on the schematic designs described below and are therefore approximate only.

Do Nothing Alternative –

Don’t plan for anything. Just let the chips land where they may. Although this alternative doesn’t cost anything, it does not align with being “preemptive” and is therefore removed from further discussion.

Off-Site Detour –

There are two feasible alternatives for off-site detours. Detour 1 is approximately 3 miles and takes about 7 minutes. The detour is achieved via Rodman Road to Appletree Lane to Rockledge Road or vice versa. Detour 2 is approximately 6 miles and takes about 14 minutes. The detour is achieved via Lockwood Road to Texas Hill Road or vice versa. See attachments for mapped out views of the detours.There are obviously many other routes that can be taken but with either substantially more mileage, time, or turns compared to Detours 1 and 2, these other routes have been removed from further discussion.

Each detour would require notification of emergency personnel and the installation of standard detour signage in accordance with the Manual for Uniform Traffic Control Devices. Like any other Town-owned sign, they will require routine maintence to ensure they continue to face the

correct direction, don't become overgrown with vegitation, or stolen / vandalized. Our opinion of probable cost to fabricate and install the detour signs is approximately $20,000.

Temporary Bridge –

This alternative involves constructing a temporary bridge over top of the existing bridge. See attachment SK2 for schematic, plan, section, and elevation of the temporary bridge. In summary, the temporary bridge would involve excavating slightly into the existing roadway surface and casting temporary reinforced concrete foundations "behind" the existing substructures. A modular / panelized temporary bridge superstructure could be erected and installed on the temporary foundations. A reinforced concrete backwall would be constructed on each temporary foundation. Embankment fill would be brought in to provide smooth ramp-like transitions from the existing roadway surface to the travel surface of the temporary bridge. The roadway portion of the embankment would be paved. Our opinion of probable construction cost to construct the temporary foundations, embankments, assemble the temporary bridge and to pave the roadway is approximately $150,000. A temporary bridge can be rented from a Manufacturer such as Acrow Bridge. There are many variables which effect the rental costs, but as an oversimplification we would anticipate the rental costs to be approximately $10,000 per month. In turn, if the temporary bridge was rented for a year, the total cost of the temporary bridge would be between $250,000 and $300,000. It is not known if there are "discount" rates for longer term situations or if it may be more economical to just purchase the structure outright instead of renting. As an aside, approximately 15 years ago, Columbia County purchased a 73-foot long temporary bridge for a similar project. If it still existed, that bridge would work for your location.

Opinion of Probable Project Cost

Ryan Biggs' opinion of probable project cost is made on the basis of Ryan Biggs' experience and best judgement as a design professional. However, since Ryan Biggs has no control over the cost of labor, materials, equipment or over competitive bidding or market and economic conditions, Ryan Biggs cannot guarantee that proposals, bids, or construction costs will not vary from its opinion of probable cost. If you wish greater assurance as to the project cost, an independent cost estimator should be employed by you.

The opinion of probable project costs utilized prevailing wage rates. Similarly, the opinion of probable construction costs assumes the project is bid and that the selected Contractor performs all the work described above. Having Town forces provide materials (e.g., embankment, paving, or detour signs) and or complete some of the work (e.g., installing detour signs, constructing the temporary bridge substructures, paving the road, or even erecting the temporary bridge) has the potential to reduce the final bid from the Contractor.

The cost ranges provided above are in 2023 dollars and assume that the preemptive projects will begin within the next year. If the preemptive projects are postponed, the cost ranges will increase because of additional inflation.

The opinion does not include construction inspection or administration since the type of funding source will greatly impact the extent of inspection and administration and thus cost.

Recommendations + Summary

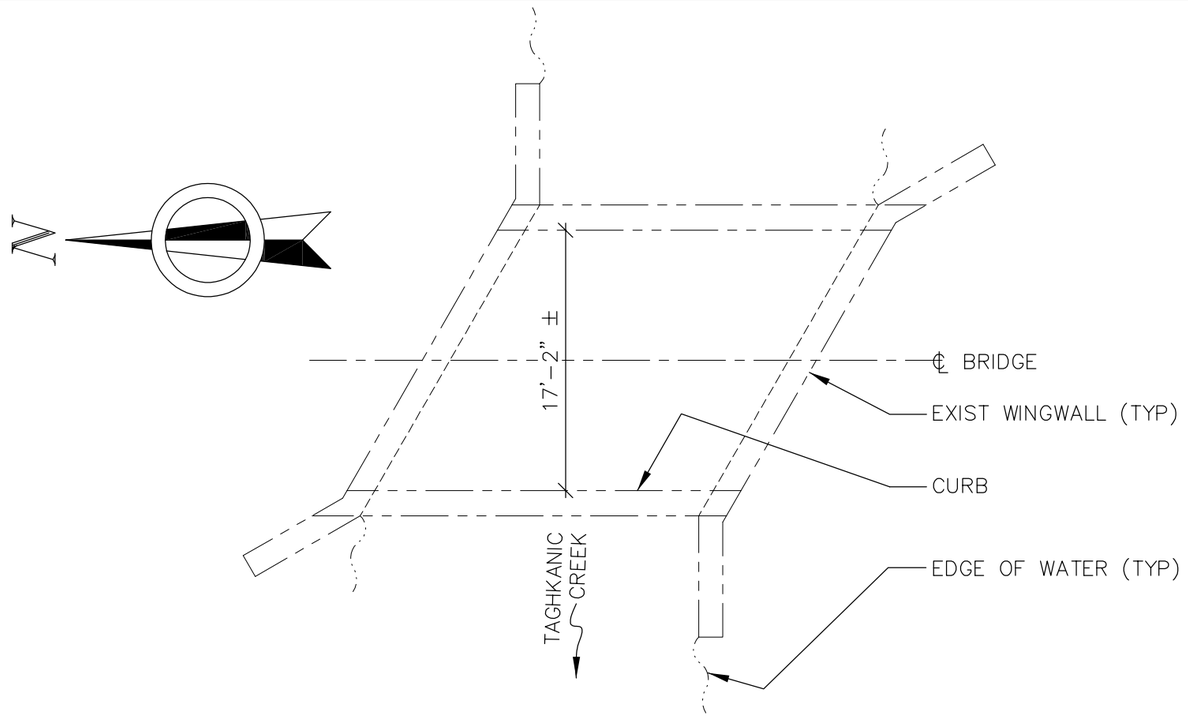
As stated in the structural evaluation report, the existing bridge is in need of corrective action. It is understood that finding funding for a complete replacement project is a difficult task. Similar funding issues are likely to occur for a preemptive project as well albeit to a lesser extent. Discussions should be had with emergency services and perhaps a Town Hall "meeting" to understand the extent of inconvenience an offsite detour brings to the public versus the approximate cost of the temporary structure.

Respectfully submitted,

RYAN BIGGS | CLARK DAVIS
ENGINEERING AND SURVEYING, D.P.C.

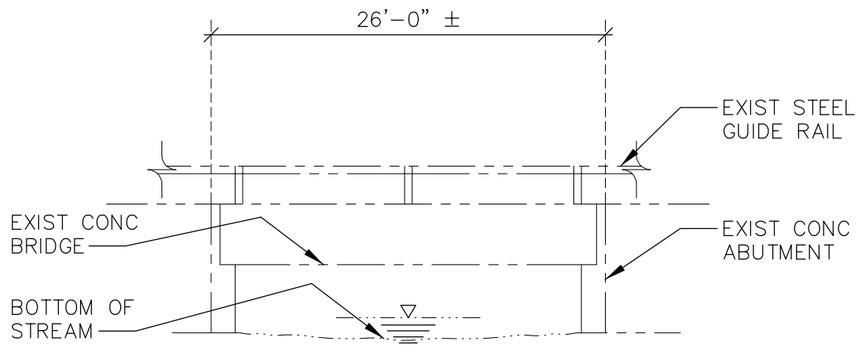
Matt Yerkey, P.E. (AL, MA, MN, NY, WV)
Principal

Attachments:
Existing Condition Sketch SK1;
Off-site detour maps;
Temporary bridge Sketch SK2



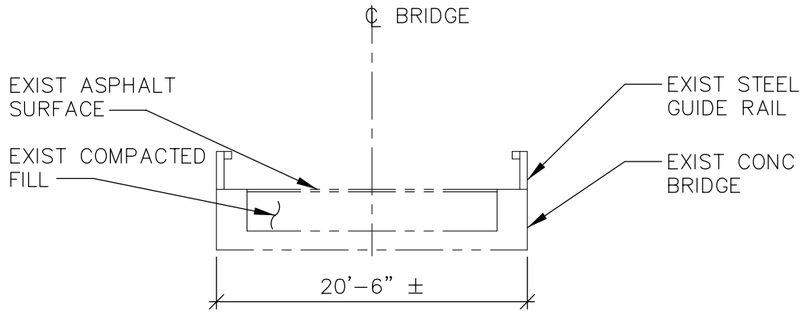
1 SK–1 EXISTING PLAN

SCALE: 1" = 10'–0"



2 SK–1 EXISTING ELEVATION

SCALE: 1" = 10'–0"



3 SK–1 EXISTING SECTION

SCALE: 1" = 10'–0"

PROJECT: WEST END ROAD OVER TAGHKANIC CREEK
PREEMPTIVE CLOSURE STUDY
SUBJECT: EXISTING CONDITIONS

DATE: November 13, 20223
DWG BY: JMO CHK BY: MGY
JOB NO.: 12282.5 PAGE: SK-1

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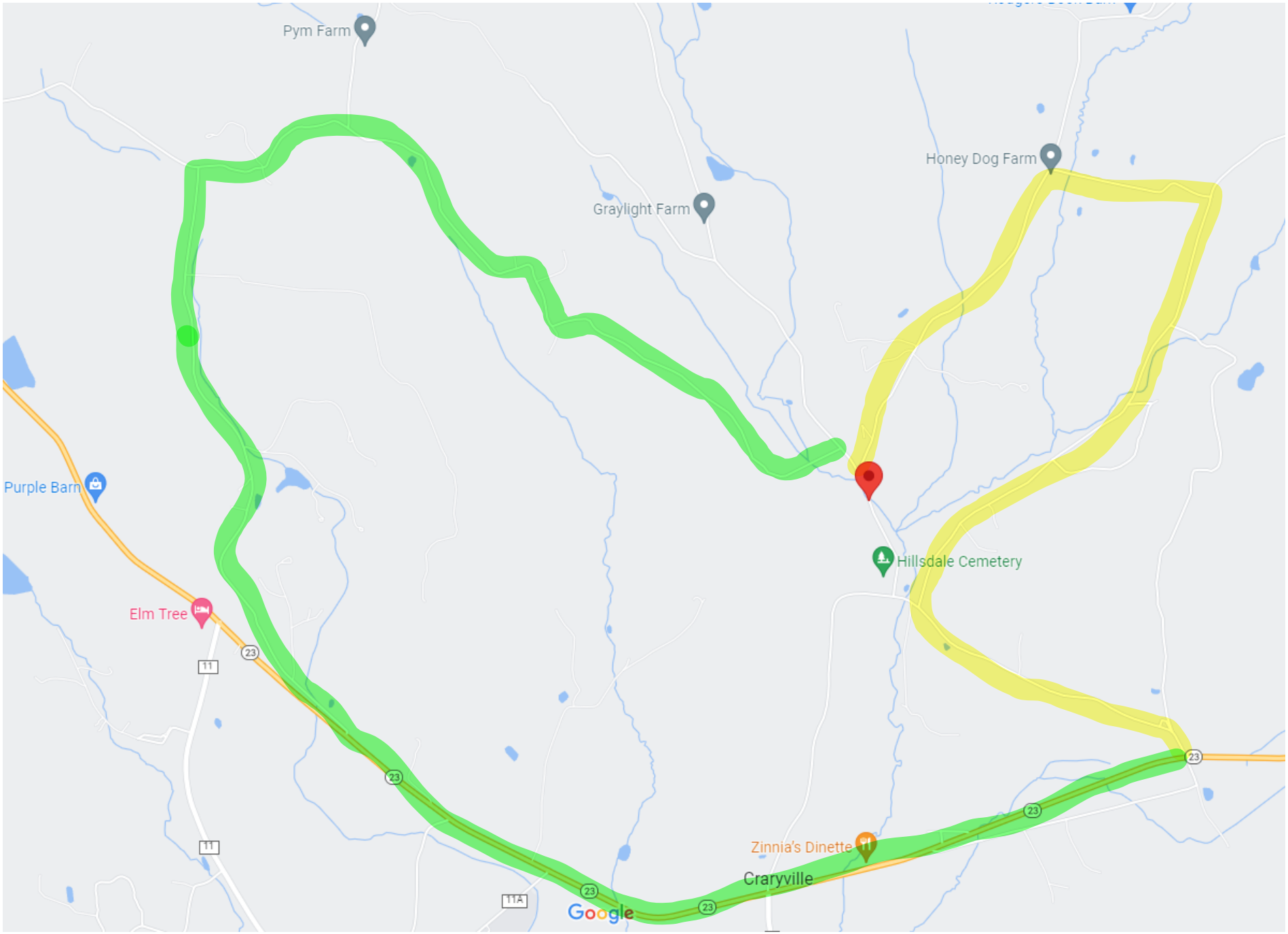
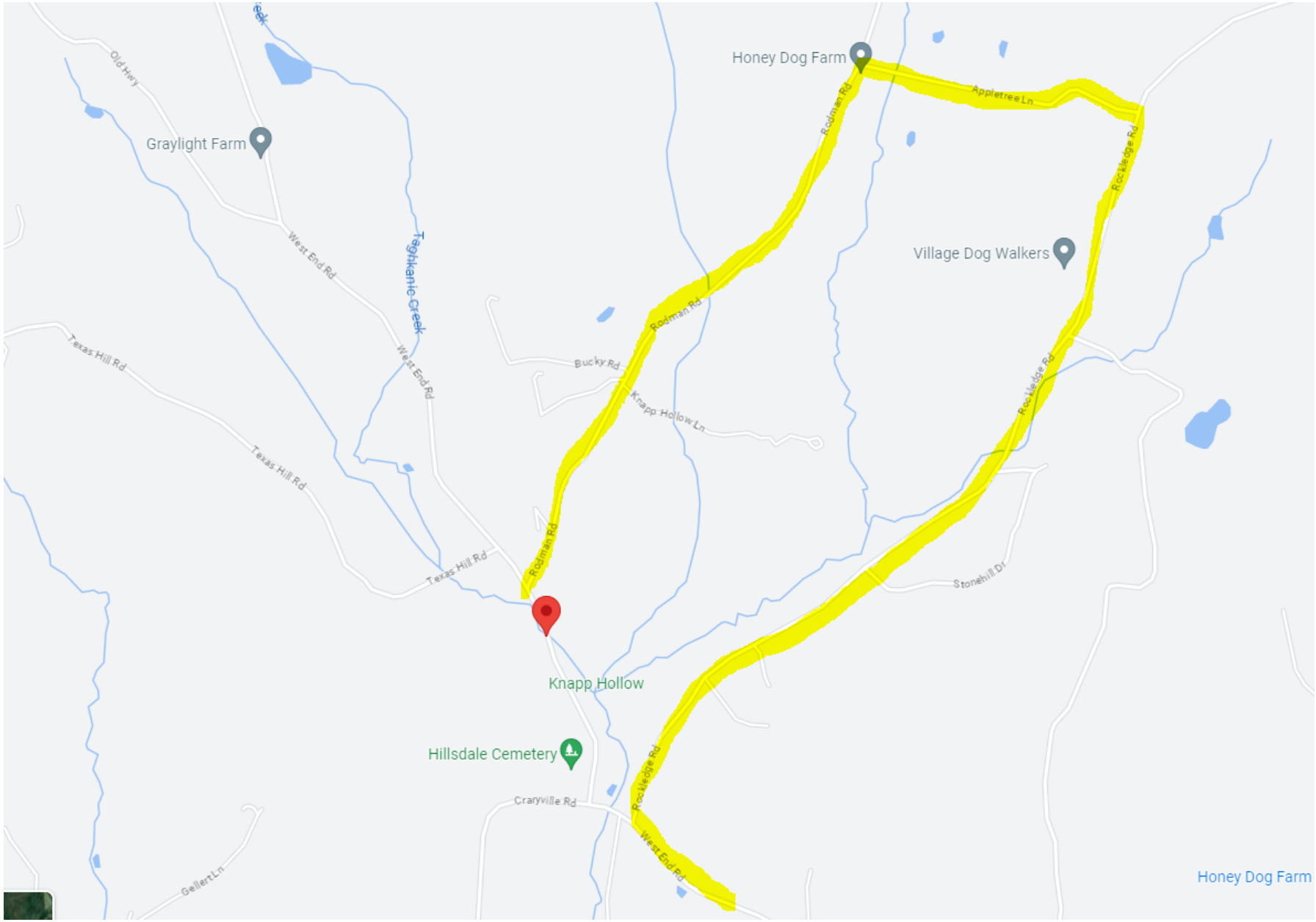
DETOUR 1

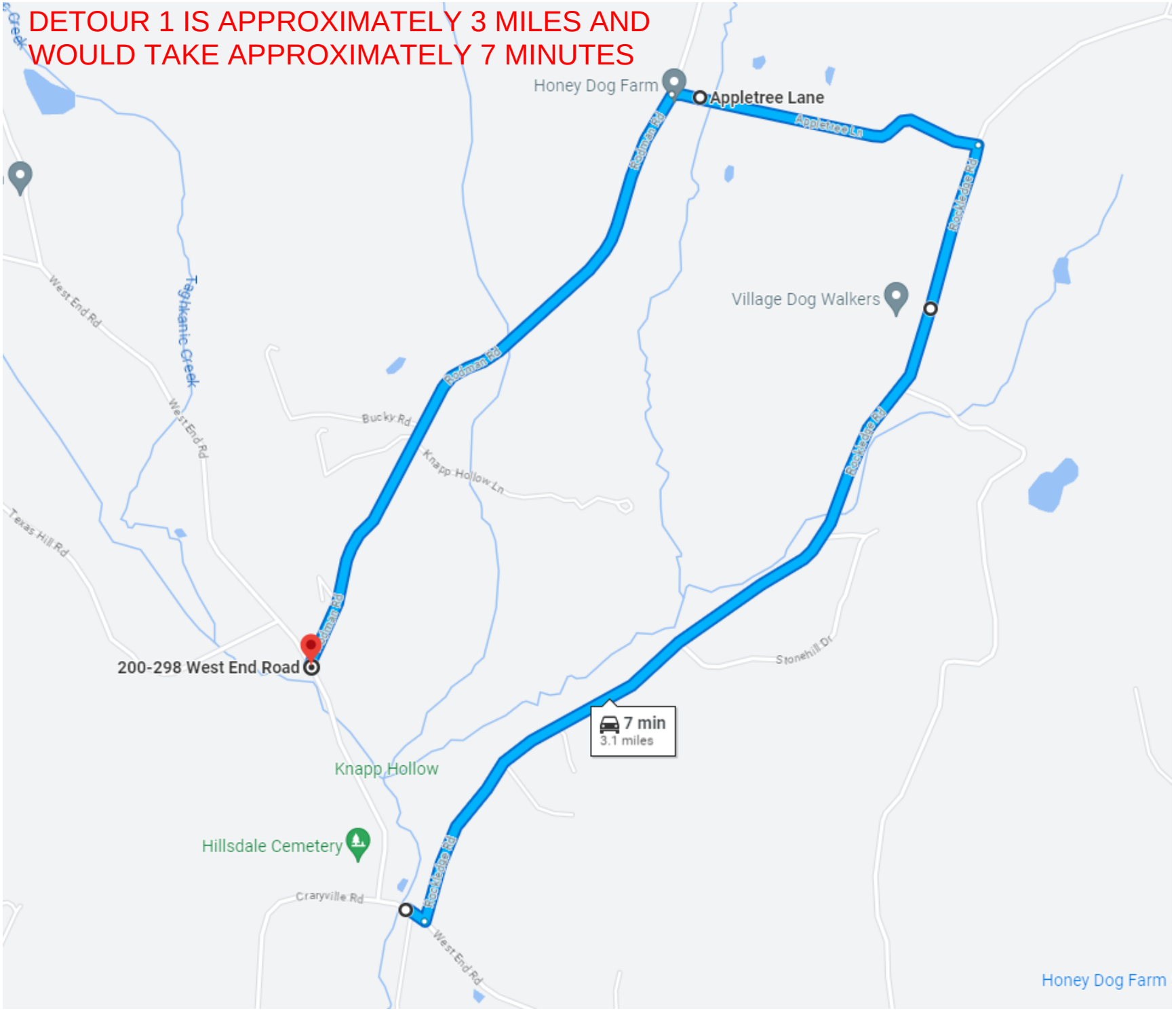
DETOUR 2



ZOOMED IN VERSION OF DETOUR 1

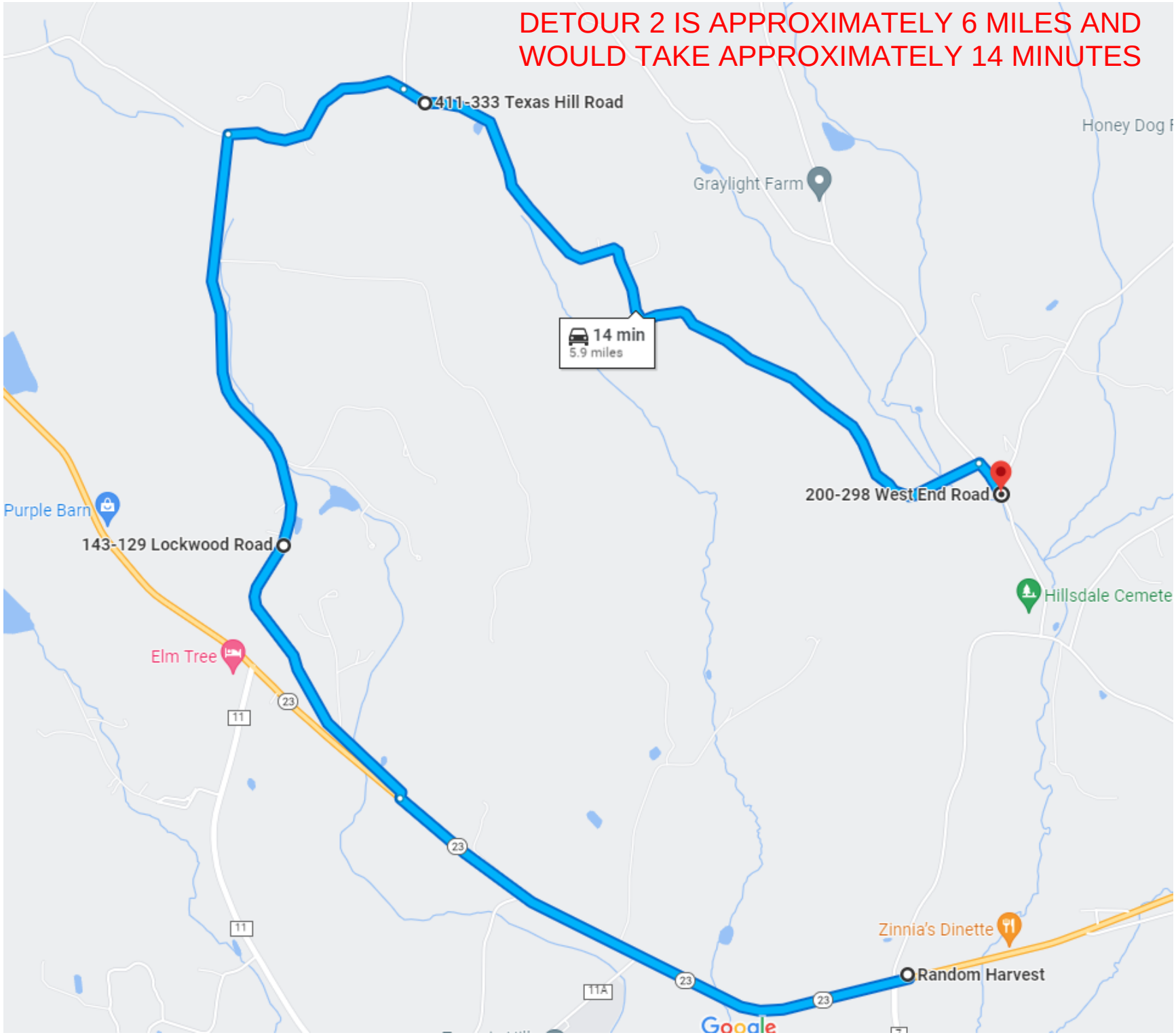


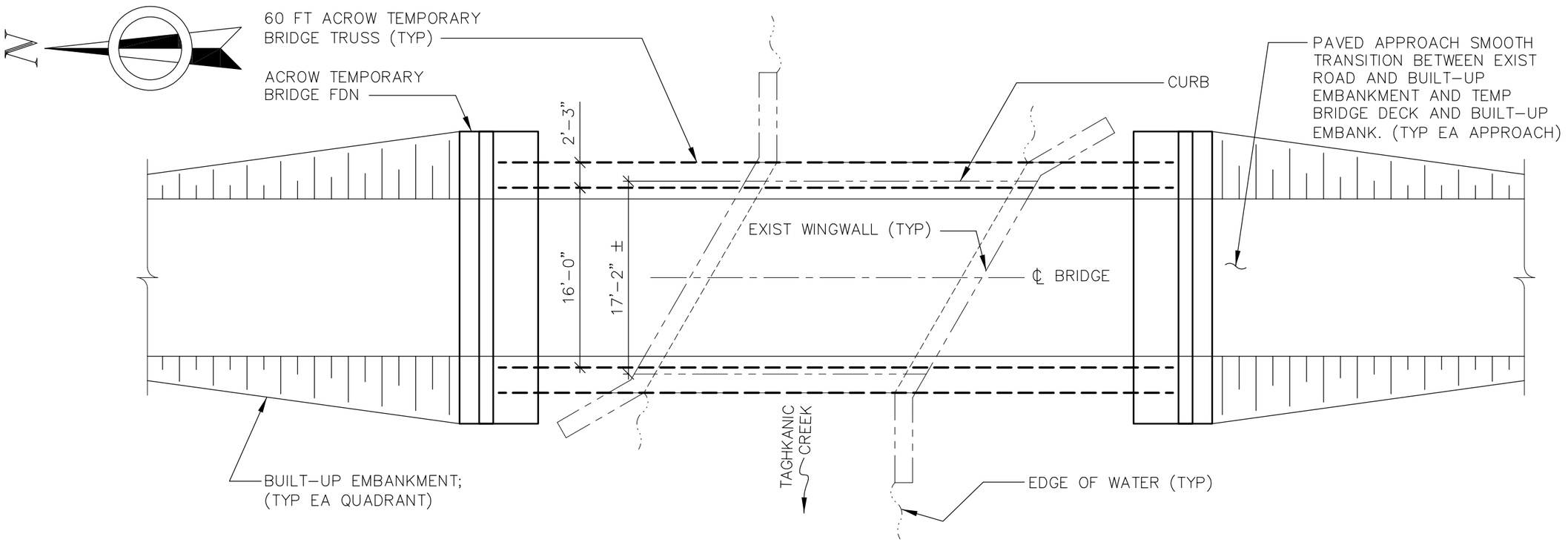
DETOUR 1 IS APPROXIMATELY 3 MILES AND WOULD TAKE APPROXIMATELY 7 MINUTES



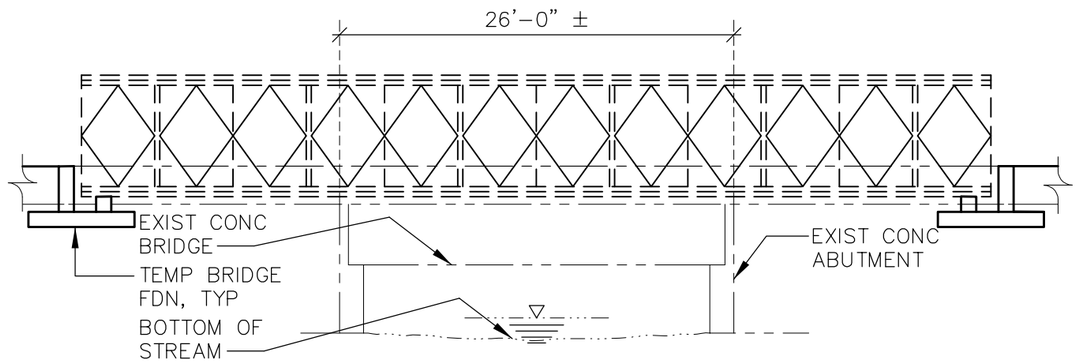

ZOOMED IN VERSION OF DETOUR 2
Texas Hill Rd
Carlson Rd
Lockwood Rd
Graylight Farm
West End Rd
Teghkanic Creek
Bucky Rd
Rodman Rd
Knapp Hollow
Hillsdale Cemetery
Crary ville Rd
Rockledge Rd
Hereford Hills Rd
Marsh Hawk Rd
Richard Hill Rd
Gellert Ln
e Purple Barn
XtraMart
Elm Tree
Brothers Contracting
West Hillsdale Baptist Cemetery
Woodland Rd
23
11

DETOUR 2 IS APPROXIMATELY 6 MILES AND WOULD TAKE APPROXIMATELY 14 MINUTES

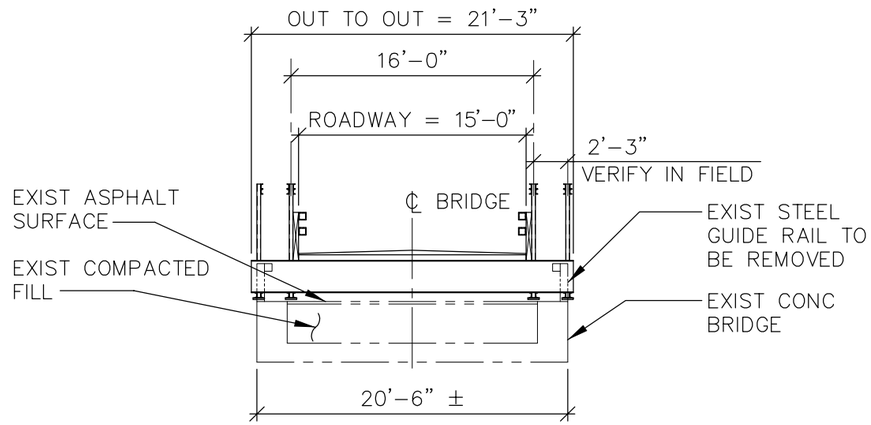




1 SK-2 **TEMPORARY BRIDGE PLAN**
SCALE: 1" = 10'-0"



2 SK-2 **TEMPORARY BRIDGE ELEVATION**
SCALE: 1" = 10'-0"



3 SK-2 **TEMPORARY BRIDGE SECTION**
SCALE: 1" = 10'-0"

PROJECT: WEST END ROAD OVER TAGHKANIC CREEK
PREEMPTIVE CLOSURE STUDY
SUBJECT: TEMPORARY BRIDGE

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