OHIO PUBLIC WORKS FOR YOU

State of Ohio

Public Works Commission

Application for Financial Assistance

IMPORTANT: Please consult "Instructions for Financial Assistance for Capital Infrastructure Projects" for guidance in completion of this form.

Applicant

Applicant: Ottawa County Subdivision Code: 123-00123

District Number: 5 County: Ottawa Date: 09/09/2021

Contact: Gino Monaco Phone: (419) 734-6725
(The individual who will be available during business hours and who can best answer or coordinate the response to questions)

Email: gmonaco@co.ottawa.oh.us FAX: (419) 734-6858

Project

Project Name: Ottawa County Regional Water Distribution - Seconday Feed Loop Zip Code: 43452

Subdivision Type (Select one)

- [X] 1. County
- [ ] 2. City
- [ ] 3. Township
- [ ] 4. Village
- [ ] 5. Water (6119 Water District)

Project Type (Select single largest component by $)

- [ ] 1. Road
- [ ] 2. Bridge/Culvert
- [X] 3. Water Supply
- [ ] 4. Wastewater
- [ ] 5. Solid Waste
- [ ] 6. Stormwater

Funding Request Summary (Automatically populates from page 2)

Total Project Cost:	2,307,805 .00
1. Grant:	325,000 .00
2. Loan:	0 .00
3. Loan Assistance/ Credit Enhancement:	0 .00
Funding Requested:	325,000 .00

District Recommendation (To be completed by the District Committee)

Funding Type Requested (Select one)

- [ ] State Capital Improvement Program
- [ ] Local Transportation Improvement Program
- [ ] Revolving Loan Program
- [ ] Small Government Program

District SG Priority: _____

SCIP Loan - Rate: ____ % Term: ____ Yrs Amount: _____ .00

RLP Loan - Rate: ____ % Term: ____ Yrs Amount: _____ .00

Grant: Amount: _____ .00

LTIP: Amount: _____ .00

Loan Assistance / Credit Enhancement: Amount: _____ .00

For OPWC Use Only

STATUS

Project Number: _____

_____

Release Date: _____

OPWC Approval: _____

Grant Amount: _____ .00

Loan Amount: _____ .00

Total Funding: _____ .00

Local Participation: _____ %

OPWC Participation: _____ %

Loan Type: [ ] SCIP [ ] RLP

Date Construction End: _____

Date Maturity: _____

Rate: _____ %

Term: _____ Yrs

1.0 Project Financial Information (All Costs Rounded to Nearest Dollar)

1.1 Project Estimated Costs

Engineering Services

Preliminary Design:	16,450 .00		
Final Design:	73,250 .00		
Construction Administration:	121,355 .00		
Total Engineering Services:	a.)	211,055 .00	11 %
Right of Way:	b.)	.00	
Construction:	c.)	1,905,750 .00	
Materials Purchased Directly:	d.)	.00	
Permits, Advertising, Legal:	e.)	.00	
Construction Contingencies:	f.)	191,000 .00	10 %
Total Estimated Costs:	g.)	2,307,805 .00	

1.2 Project Financial Resources

Local Resources

Local In-Kind or Force Account:	a.)	.00	
Local Revenues:	b.)	1,982,805 .00	
Other Public Revenues:	c.)	.00	
ODOT / FHWA PID:	d.)	.00	
USDA Rural Development:	e.)	.00	
OEPA / OWDA:	f.)	.00	
CDBG: ☐ County Entitlement or Community Dev. "Formula" ☐ Department of Development	g.)	.00	
Other:	h.)	.00	
Subtotal Local Resources:	i.)	1,982,805 .00	86 %

OPWC Funds (Check all requested and enter Amount)

Grant: 100 % of OPWC Funds	j.)	325,000 .00	
Loan: 0 % of OPWC Funds	k.)	.00	
Loan Assistance / Credit Enhancement:	l.)	0 .00	
Subtotal OPWC Funds:	m.)	325,000 .00	14 %
Total Financial Resources:	n.)	2,307,805 .00	100 %

1.3 Availability of Local Funds

Attach a statement signed by the Chief Financial Officer listed in section 5.2 certifying all local resources required for the project will be available on or before the earliest date listed in the Project Schedule section. The OPWC Agreement will not be released until the local resources are certified. Failure to meet local share may result in termination of the project. Applicant needs to provide written confirmation for funds coming from other funding sources.

2.0 Repair / Replacement or New / Expansion

2.1 Total Portion of Project Repair / Replacement:	2,307,805 .00	100 %	A Farmland Preservation letter is required for any impact to farmland
2.2 Total Portion of Project New / Expansion:	0 .00	0 %	
2.3 Total Project:	2,307,805 .00	100 %	

3.0 Project Schedule

3.1 Engineering / Design / Right of Way	Begin Date: 08/31/2021	End Date: 06/30/2022
3.2 Bid Advertisement and Award	Begin Date: 08/01/2022	End Date: 10/01/2022
3.3 Construction	Begin Date: 10/01/2022	End Date: 06/01/2024

Construction cannot begin prior to release of executed Project Agreement and issuance of Notice to Proceed.

Failure to meet project schedule may result in termination of agreement for approved projects. Modification of dates must be requested in writing by project official of record and approved by the Commission once the Project Agreement has been executed.

4.0 Project Information

If the project is multi-jurisdictional, information must be consolidated in this section.

4.1 Useful Life / Cost Estimate / Age of Infrastructure

Project Useful Life: 50 Years Age: 1999 (Year built or year of last major improvement)

Attach Registered Professional Engineer's statement, with seal or stamp and signature confirming the project's useful life indicated above and detailed cost estimate.

4.2 User Information

Road or Bridge: Current ADT _____ Year _____ Projected ADT _____ Year _____

Water / Wastewater: Based on monthly usage of 4,500 gallons per household; attach current ordinances.

Residential Water Rate Current $ 23.00 Proposed $ 24.00

Number of households served: 8,015

Residential Wastewater Rate Current $ 36.00 Proposed $ 36.00

Number of households served: 53,880

Stormwater: Number of households served: _____

4.3 Project Description

A: SPECIFIC LOCATION (Supply a written location description that includes the project termini; a map does not replace this requirement.) 500 character limit.

The Ottawa County Regional Water Distribution Secondary Feed Loop to Catawba Island, Danbury and Portage Townships will begin in the vicinity of the Pressure Reducing Valve located just east of the intersection of West Perry Street and North Monroe Street in Port Clinton, Ohio and then extend east approximately 11,620 feet to the existing Ottawa County Regional Water Distribution Water Main located in the vicinity of the intersection of Sand Road and State Route #163.

B: PROJECT COMPONENTS (Describe the specific work to be completed; the engineer's estimate does not replace this requirement) 1,000 character limit.

The Ottawa County Regional Water Distribution Secondary Feed Loop to Catawba Island, Danbury and Portage Townships includes the construction of a 12" diameter Secondary Feed Water Main starting at the existing 24" Ottawa County Regional Water Transmission Main located ot the intersection of West Perry Stret and North monroe Street and exetending east to the exisitng 12" diameter Regional Water distribution main located at the intersection of Sand Road and State Route #163. The project will include the installation of a water main, 4 12" gate valves, two fire hydrant assemblies and two connections to existing water mains.

C: PHYSICAL DIMENSIONS (Describe the physical dimensions of the existing facility and the proposed facility. Include length, width, quantity and sizes, mgd capacity, etc in detail.) 500 character limit.

The project will include an estimated 11,620 lineal feet of 12" water main and fittings, 4 12" gate valves and valve boxes, 2 fire hydrant assemblies, 2 connections to existing water mains, 250 lineal feet of storm sewer repair, 3,500 square yards of road pavement repair, 300 square yards of drive pavement repair, trafic control, restoration, preconstruction video, bonds, mobilization and insurance.

5.0 Project Officials

Changes in Project Officials must be submitted in writing from an officer of record.

5.1 Chief Executive Officer

(Person authorized in legislation to sign project agreements)

Name: Donald A. Douglas
Title: President, Board of County Commissioners
Address: 315 Madison Street
Room 103
City: Por Clinton State: OH Zip: 43452
Phone: (419) 734-6700
FAX: (419) 734-6858
E-Mail: rslauterbeck@co.ottawa.oh.us

5.2 Chief Financial Officer

(Can not also serve as CEO)

Name: Jennifer Widmer
Title: County Auditor
Address: 315 Madison Street
Room 202
City: Port Clinton State: OH Zip: 43452
Phone: (419) 734-6742
FAX: (419) 734-6592
E-Mail: jwidmer@co.ottawa.oh.us

5.3 Project Manager

Name: James K. Frey
Title: Sanitary Engineer
Address: 315 Madison Street
City: Port Clinton State: OH Zip: 43452
Phone: (419) 734-6725
FAX: (419) 734-6858
E-Mail: kfrey@co.ottawa.oh.us

6.0 Attachments / Completeness review

Confirm in the boxes below that each item listed is attached (Check each box)

- [x] A certified copy of the legislation by the governing body of the applicant authorizing a designated official to sign and submit this application and execute contracts. This individual should sign under 7.0, Applicant Certification, below.

- [x] A certification signed by the applicant's chief financial officer stating the amount of all local share funds required for the project will be available on or before the dates listed in the Project Schedule section. If the application involves a request for loan (RLP or SCIP), a certification signed by the CFO which identifies a specific revenue source for repaying the loan also must be attached. Both certifications can be accomplished in the same letter.

- [x] A registered professional engineer's detailed cost estimate and useful life statement, as required in 164-1-13, 164-1-14, and 164-1-16 of the Ohio Administrative Code. Estimates shall contain an engineer's seal or stamp and signature.

- [ ] A cooperative agreement (if the project involves more than one subdivision or district) which identifies the fiscal and administrative responsibilities of each participant.

- [ ] Farmland Preservation Review - The Governor's Executive Order 98-IIV, "Ohio Farmland Protection Policy" requires the Commission to establish guidelines on how it will take protection of productive agricultural and grazing land into account in its funding decision making process. Please include a Farm Land Preservation statement for projects that have an impact on farmland.

- [x] Capital Improvements Report. CIR Required by O.R.C. Chapter 164.06 on standard form.

- [x] Supporting Documentation: Materials such as additional project description, photographs, economic impact (temporary and/or full time jobs likely to be created as a result of the project), accident reports, impact on school zones, and other information to assist your district committee in ranking your project. Be sure to include supplements which may be required by your local District Public Works Integrating Committee.

7.0 Applicant Certification

The undersigned certifies: (1) he/she is legally authorized to request and accept financial assistance from the Ohio Public Works Commission as identified in the attached legislation; (2) to the best of his/her knowledge and belief, all representations that are part of this application are true and correct; (3) all official documents and commitments of the applicant that are part of this application have been duly authorized by the governing body of the applicant; and, (4) should the requested financial assistance be provided, that in the execution of this project, the applicant will comply with all assurances required by Ohio Law, including those involving Buy Ohio and prevailing wages.

Applicant certifies that physical construction on the project as defined in the application has NOT begun, and will not begin until a Project Agreement for this project has been executed with the Ohio Public Works Commission. Action to the contrary will result in termination of the agreement and withdrawal of Ohio Public Works Commission funding from the project.

Donald A. Douglas, President

Certifying Representative (Printed form, Type or Print Name and Title)

D. Douglas 9/9/21

Original Signature / Date Signed

OTTAWA COUNTY REGIONAL WATER
ENGINEERS OPINION OF PROBABLE PROJECT COSTS
12" SECONDARY FEED WATERLINE
August 24, 2021

NO.	ITEM	QTY	UNITS	UNIT COST	TOTAL
	Ottawa Co. Waterline				
1	12" Waterline and Fittings	11,620	LF	$118	$1,371,160
2	12" Gate Valves and Valve Box	4	EA	$3,500	$14,000
3	Fire Hydrant Assembly	2	EA	$5,700	$11,400
4	Connect to Existing Waterline	2	EA	$7,500	$15,000
5	Storm Sewer Repair	250	LF	$50	$12,500
6	Pavement Repair - Roads	3,500	SYD	$100	$350,000
7	Pavement Repair - Drives	300	SYD	$75	$22,500
8	Traffic Control	1	LS	$7,690	$7,690
9	Restoration	1	LS	$50,000	$50,000
11	Preconstruction Video	1	LS	$4,500	$4,500
12	Bonds, Mobilization, and Insurance	1	LS	$47,000	$47,000
	Construction Subtotal				**$1,905,750**
	Contingencies 10%				$191,000
	Subtotal Opinion of Construction Costs				**$2,096,750**
	Topo Survey & Preliminary Design				$16,450
	Design				$73,250
	Bidding and Negotiation				$8,450
	Construction Administration				$25,355
	Construction Observation (Full-time)				$79,550
	Construction Staking				$8,000
	Subtotal Engineering Fees				**$211,055**
	TOTAL OPINION OF PROJECT COSTS				**$2,307,805**

The estimated useful life of the waterlines is fifty (50) years.

Jack A. Jones, P.E.

NOTE: This estimate does not include interest during construction, finance fees, bond counsel, assessment Land costs or EPA permit fees.

DISTRICT 5
CAPITAL IMPROVEMENT PROJECTS
QUESTIONNAIRE
ROUND 36

Name of Applicant: Ottawa County, Ohio
Project Title: Regional Water Secondary Feed loop to Catawba, Oakbury & Portage

The following questions are to be answered for each application submitted for State Issue II SCIP, LTIP and Loan Projects. Please provide specific information using the best documentation available to you. Justification of your responses to these questions will be required if your project is selected for funding, so please provide correct and accurate responses. **Villages and Townships under 5,000 in population should also complete the Small Government Criteria.**

1. What percentage of the project in repair A= __%, replacement B= 100%, expansion C= __%, and new D= ___%? (Use dollar amounts of project to figure percentages and make sure the total equals one hundred(100) percent) A+B= 100% C+D= ___% **ORC Reference(s):164.06(B)(1); 164.14(E)(10)**

   Repair/Replacement =Repair or Replacement of public facilities owned by the government (any subdivision of the state).

   New/Expansion = Replacement of privately owned wells, septic systems, private water or wastewater systems, etc.

2a. Existing Physical Condition of Infrastructure **ORC Reference(s):164.06(B)(2);164.14(E)(9);164.14(E)(2); 164.14(E)(8)**

Points	Category	Description	Examples
10	Failing	Infrastructure has reached a point where it requires replacement, reconstruction or reconfiguration to fulfill its purpose	-Intersection Reconfiguration due to accident problem- Structural paving of 3.5" or greater of additional pavement - Pavement Widening to meet ODOT L&D Standards - Complete Pavement Reconstruction -Water or Sewer Line Replacement - Water or Sewer Plant Replacement - Widening graded shoulder width to ODOT L&D Standard -Complete Bridge or Culvert replacement-Replacement of a major component of a water and/or sewer treatment plant which would result in a failure in meeting WQ Standards
8	Poor	The condition is substandard and requires repair or restoration in order to return to the intended level of service and comply with current design standards. Infrastructure contains deficiency and is functioning at a diminished capacity.	-Multiple course of paving - Structural Culvert Lining - Bridge Deck Replacement - Replacement of a component such as a control mechanism, pumps, hydrants, valves, filters,

			etc of a water or sewer plant - Single course of paving with 25% base repair-Widening graded shoulder width to less than ODOT L&D Standard
6	Fading	The condition requires reconditioning to continue to function as originally intended.	-Single course of paving -Sewer Lining Projects -Water tower painting -Repair of a tank to maintain structural integrity in existing water and sewer systems-Widening aggregate berm on existing graded shoulder width
4	Fair	The condition is average, not good or poor. The infrastructure is still functioning as originally intended. Minor deficiencies exist requiring repair to continue to function as originally intended and/or to meet current design standards	
2	Good	The condition is safe and suitable to purpose. Infrastructure is functioning as originally intended, but requires minor repairs and/or upgrades to meet current design standards	
0	Excellent	The condition is new or requires no repair. Or, no supporting documentation has been submitted	

2b. Age of Infrastructure **ORC Reference(s):164.06(B)(2)**

Life	20	30	50
Project Type	Road	Wastewater and Water Treatment	Bridge/Culvert, Sanitary Sewer, Water Supply, Storm Water, Solid Waste
Points			
0	0-4 Years	0-6 Years	0-10 Years
1	5-8 Years	7-12 Years	11-20 Years
2	9-12 Years	13-18 Years	21-30 Years
3	13-16 Years	19-24 Years	31-40 Years
4	17-20 Years	25-30 Years	41-50 Years
5	20+ Years	30+ Years	50+ Years

3. Health and Safety Rating: **ORC Reference(s):164.06(B)(4),164.14(E)(1); 164.14(E)(10)**

If the proposed project is not approved what category would best represent the impact on the general health and/or public safety?

ROADS

Extremely Critical:	Resurfacing, Restoration, Rehabilitation and Reconstruction (4R) of a Major Access Road.*
Critical:	Resurfacing, Restoration and Rehabilitation (3R) of a Major Access Road.*
Major:	Resurfacing, Restoration, Rehabilitation and Reconstruction (4R) of a Minor Access Road.*
Moderate:	Resurfacing, Restoration and Rehabilitation (3R) of a Minor Access Road.*
Minimal:	Preventative Maintenance of a Major Access Road.
No Impact:	Preventative Maintenance of a Minor Access Road.

Projects that have a variety of work will be scored in the LOWEST category of work contained in the Construction Estimate.

Road/Street Classifications:

Major Access Road:	*Roads or streets that have a dual function of providing access to adjacent properties and providing through or connecting service between other roads.*
Minor Access Road:	*Roads or streets that primarily provide access to adjacent properties without through continuity, such as cul-de-sacs or loop roads or streets.*
Preventative Maintenance:	*Non Structural Pavement work such as chip sealing, cape sealing, micro-surfacing, crack sealing, etc.*

*(3R) Resurfacing, Restoration and Rehabilitation - Improvements to existing roadways, which have as their main purpose, the restoration of the physical features (pavement, curb, guardrail, etc.) without altering the original design elements. **(Surface and Intermediate layer Mill and Fills, overlays with less than or equal to 3.5" of additional pavement, etc....)**

*(4R) Resurfacing, Restoration, Rehabilitation and Reconstruction - Much like 3R, except that 4R allows for the complete reconstruction of the roadway and alteration of certain design elements (i.e., lane widths, shoulder width, SSD, overlays with greater than 3.5" of additional pavement. etc.).

BRIDGES SUFFICIENCY RATING

Extremely Critical:	0-25, or a General Appraisal rating of 3 or less.
Critical:	27-50, or a General Appraisal rating of 4.
Major:	51-65 or a General Appraisal rating of 5 or 6.
Moderate:	66-80 or a General Appraisal rating of 7.
Minimal:	81-100 or a General Appraisal rating of more than 7.
No Impact:	Bridge on a new roadway.

WASTEWATER TREATMENT PLANTS

Extremely Critical:	Improvements required by the Environmental Protection Agency (EPA) in the form of a consent decree, finding and orders or court order, and Health Department Construction Ban.
Critical:	Improvements required by the Environmental Protection Agency (EPA) in the form of NPDES permit requirements or Notice of Violations.
Major:	Replace deficient appurtenances. Update existing processes due to EPA recommendations.
Moderate:	Increase capacity to meet current needs or update processes to improve effluent quality.
Minimal:	New/Expansion project to meet a specific development proposal.
No Impact:	New/Expansion to meet future or projected needs.

WATER TREATMENT PLANT

Extremely Critical:	EPA orders in the form of a consent decree, findings and orders or court order.
Critical:	Improvements to meet Environmental Protection Agency (EPA) Safe Drinking Water Regulations and/or Notice of Violations.
Major:	Replace deficient appurtenances. Update existing processes due to EPA recommendations.
Moderate:	Increase capacity to meet current needs or update processes to improve water quality.
Minimal:	New/Expansion project to meet a specific development proposal.
No Impact:	New/Expansion to meet future or projected needs.

COMBINED SEWER SEPARATIONS (May be construction of either new storm or sanitary sewer as long as the result is two separate sewer systems.)

Extremely Critical: EPA orders in the form of a consent decree, findings and orders or court order. Health Department Construction Ban.

Critical:	Separate, due to chronic backup or flooding in basements.
Major:	Separate, due to documented water quality impairment, or due to EPA recommendations.
Moderate:	Separate, due to specific development proposal within or upstream of the combined system area.
Minimal:	Separate, to conform to current design standards.
No Impact:	No positive health effect.

STORM SEWERS

Extremely Critical:	Improvements ordered by the Environmental Protection Agency (EPA) in the form of a consent decree, findings and orders or court order.

Critical:	Chronic flooding (structure damage) or improvements required by the Environmental Protection Agency (EPA) in the form of NPDES permit requirements or Notice of Violations.
Major:	Inadequate capacity (land damage).
Moderate:	Inadequate capacity with no associated damage.
Minimal:	New/Expansion to meet current needs.
No Impact:	New/Expansion to meet future or project needs.

CULVERTS

Extremely Critical:	Structurally deficient or functionally obsolete. Deterioration has already caused a critical safety hazard to the public.
Critical:	Inadequate capacity with land damage and the existing or high probability of property damage.
Major:	Inadequate capacity (land damage).
Moderate:	Inadequate capacity with no associated damage.
Minimal:	New/Expansion to meet current needs.
No Impact:	New/Expansion to meet future or projected needs.

SANITARY SEWERS

Extremely Critical:	EPA orders in the form of a consent decree, findings and orders or court order. Health Department Construction Ban.
Critical:	Replace, due to chronic pipe failure, chronic backup or flooding in basements, sewer system overflows, and/or improvements required by the Environmental Protection Agency (EPA) in the form of NPDES permit requirements or Notice of Violations.
Major:	Replace, due to inadequate capacity or infiltration, or due to EPA recommendations.
Moderate:	Rehabilitate to increase capacity to meet current needs or to reduce inflow and infiltration.
Minimal:	New/Expansion project to meet a specific development proposal.
No Impact:	New/Expansion to meet future or projected needs.

SANITARY LIFT STATIONS AND FORCE MAINS

Extremely Critical:	Structurally deficient. Deterioration has already caused a safety/health hazard to the public, or; EPA orders in the form of a consent decree, findings and orders or court order.
Critical:	Inadequate capacity with actual or a high probability of property damage; or improvements required by the Environmental Protection Agency (EPA) in the

form of NPDES permit requirements.

Major:	EPA recommendations, or; reduces a probable health and/or safety problem.
Moderate:	Rehabilitate to increase capacity to meet current needs.
Minimal:	New/Expansion to meet a specific development proposal.
No Impact:	New/Expansion to meet future or projected needs.

WATER PUMP STATIONS

Extremely Critical:	Structurally deficient. Deterioration has already caused a safety hazard to the public, or, EPA orders in the form of a consent decree, findings and orders or court order.
Critical:	Inadequate capacity with the inability to maintain pressure required for fire flows.
Major:	Replace due to inadequate capacity or EPA recommendations.
Moderate:	Rehabilitate to increase capacity to meet current needs.
Minimal:	New/Expansion to meet a specific development proposal.
No Impact:	New/Expansion to meet future or projected needs.

WATER LINES/WATER TOWERS

Extremely Critical:	Replace to solve low potable water pressure or excessive incidents of main breaks in project area.
Critical:	Replacement/Rehabilitation due to structural deficiency such as excessive corrosion and/or safety upgrades, etc.
Major:	Replace undersized water mains as part of an overall upgrade process. Replace water meters that have exceeded their useful life.
Moderate:	Increase capacity to meet current needs. Spot repairs/recoating to restore moderate corrosion of water components.
Minimal:	New/Expansion project to meet a specific development proposal.
No Impact:	New/Expansion to meet future or projected needs.

OTHER

Extremely Critical:	There is a present health and/or safety threat.
Critical:	The project will provide immediate health and/or safety benefit.
Major:	The project will reduce a probable health and/or safety problem.

Moderate: The project will delay a health and/or safety problem.

Minimal: A possible future health and/or safety problem mitigation.

No Impact: No health and/or safety effect.

NOTE: *Combined projects that can be rated in more than one subset may be rated in the other category at the discretion of the District 5 Executive Committee. In general, the majority of the cost or scope of the project shall determine the category under which the project will be scored.*

(Submittals without supporting documentation will receive 0 Points for this question.)

Extremely Critical ___, Critical X, Major ___, Moderate ___, Minimal ___, No Impact ___. Explain your answer.

(Additional narrative, charts and/or pictures should be attached to questionnaire)

4. Identify the amount of local funds that will be used on the project as a percentage of the total project cost. **ORC Reference164.06(B)(6);)ORC164.06(B)(7); ORC164.06(B)(3); ORC164.14(E)(4)**

A.) Amount of Local Funds = $ 1,982,805

B.) Total Project Cost = $ 2,307,805

RATIO OF LOCAL FUNDS DIVIDED by TOTAL PROJECT COSTS (A□B)= 86 %

Note: Local funds should be considered funds derived from the applicant budget or loans funds to be paid back through local budget, assessments, rates or tax revenues collected by the applicant.

5. Identify the amount of other funding sources to be used on the project, excluding SCIP or LTIP Funds, as a percentage of the total project cost. **ORC Reference(s):164.06(B)(7);164.14(E)(4)**

Grants 0 % Gifts ___%, Contributions 0 %

Other 0 % (explain)_____ , Total 0 %

Note: Grant funds and other revenues not contributed or collected through taxes by the applicant should be considered other funds. The Scope of Work for each Funding Source must be the same.

6. Total Amount of SCIP and Loan Funding Requested- An Applicant can request a grant per the categories below for points as indicated on the Priority Rating Sheet. If the Applicant is including a loan request equal to, but not exceeding 50% of the OPWC funding amounts listed below, there will be no point penalty. If loan funds requested are more than 50%, points as listed in the Priority Rating Sheet will apply. **ORC Reference(s):164.14(E)(10);164.06(B)(5)**

_____	$500,001 or More
_____	$400,001-$500,000
_____	$325,001-$400,000
✓	$275,001-$325,000

_____ $175,001-$275,000
_____ $175,000 or Less

There are times when the District spends all of the grant money and has loan money remaining. When this happens, the district makes a loan offer in the amount of the requested grant to the communities that were not funded. The offers are made in the order of scoring. We need to know if you are not successful in obtaining grant dollars for your project if you would be interested in loan money:

YES X NO_____
(This will only be considered if you are not funded with grant money and there is remaining loan money.) **Please note: if you answer "no" you will not be contacted, only if you answer "yes" will an offer be made in the event that there is loan money remaining.**

7. If the proposed project is funded, will its completion directly result in the creation of permanent full-time equivalent (FTE) jobs (FTE jobs shall be defined as 36 hours/week) ? Yes ___ No X. If yes, how many jobs within eighteen months? __ Will the completed project retain jobs that would otherwise be permanently lost? Yes ___ No X. If yes, how many jobs ____ **will be created/retrained** within 18 months **following the completion of the improvements**?
ORC Reference(s): 164.14(E)(3);164.14(E)(10)
(Supporting documentation in the form of letter from affected industrial or commercial enterprises that specify full time equivlent jobs that will be retained or created directly by the installation or improvement of Public infrastructure. Additional items such as; 1) newspaper articles or other media news accounts, 2) public meeting minutes, and/or 3) a letter from the County Economic Development Director or State of Ohio Economic Development Professional that alludes to the requirement for the infrastructure improvement to support the business. Submittals without supporting documentation will receive 0 points for this question.)

8. What is the total number of existing users that will directly benefit from the proposed project if completed? 5,917 *(Use households served, traffic counts, etc. and explain the basis by which you arrived at your number.) **ORC Reference 164.14(E)(7); 164.06(B)(10)** * Represents 5,917 customer connections serving +/- 10,000 permanent population and +/- 50,000 seasonal/transient throughout the summer.

9. Economic Distress Criteria **ORC Reference 164.06(B)(8)**
What is the Local Median Household Income as a percentage of the District Median Household Income? 125.24 %. Please utilize the Economic Distress Scoring Criteria based on ACS 2013-2017 Data provided in Exhibit A.

10. Readiness to Proceed Criteria **ORC Reference 164.06(B)(9); ORC 164.14(E)(5)**
Please categorize the status of planning and design elements for the project.
_____ Plans have not begun yet (0 Points)

X Preliminary Engineering Complete (1 Point)

_____ Final Design Complete (2 Points)

11. Base Score Total for Questions 1-10= 87

12. County Subcommittee Priority Points= _____
(25-20-15 Points for each of the SCIP and LTIP Project Categories)

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13. DISCRETIONARY POINTS (BY DISTRICT COMMITTEE ONLY)

13a. A **District Discretionary Point** may be awarded to projects that demonstrate significant Area-wide, County, or Community Impact. (Include documentation to support the claim of significance) (Maximum of 1 Point at the discretion of the District Executive Committee) _____
ORC Reference 164.14(E)(7)

13b. A **District Discretionary Point** may be awarded to projects that demonstrate that the entity has maximized local financial resources including assessments. Provide a Fund Status Report and/or the water and sanitary waste utility rate structures are at least 2.5% of area median household income for combined systems and 1.5% of the area median household income for water and sanitary only systems. Please provide rate ordinances for water and sanitary sewer to be considered for discretionary points. (Maximum of 1 Point at the discretion of the District 5 Executive Committee)_____ **ORC Reference 164.06(B)(3)**

14. **Grand Total of Points** _____

15. Is subdivision's population less than 5,000 Yes No ___ If yes, continue. You may want to design your project per Small Government Project Evaluation Criteria, released for the current OPWC Round to assist in evaluating your project for potential Small Government Funding. The Small Government Criteria is available on the OPWC website at
https://www.pwc.ohio.gov/Portals/0/Data/SmallGovernment%20Round%2036%20Methodology.pdf?ver=2019-08-07-071749-143

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16. **OHIO PUBLIC WORKS COMMISSION SMALL GOVERNMENT PROGRAM GUIDELINES**

All projects that are sponsored by a subdivision with a population of 5,000 or less, and not earning enough points for District Funding from SCIP or LTIP Funds, are then rated using the Small Government Program Rating Criteria for the corresponding funding round. In order to be rated the entity must submit the Small Government Suppliment and their required budgets with their application. **Only infrastructure that is village- or township- owned is eligible for assistance.** The following policies have been adopted by the Small Government Commission:

- District Integrating Committees may submit up to seven (7) applications for consideration by the

Commission. All 7 must be ranked, however, only the top five (5) will be scored. The remaining two (2) will be held as contingency projects should an application be withdrawn.

• Grants are limited to $500,000. Any assistance above that amount must be in the form of a loan.

• Grants for new or expanded infrastructure cannot exceed 50% ofthe project estimate.

• The Commission may deny funding for water and sewer systems that are deemed to be more cost-effective if regionalized.

• If a water or sewer project is determined to be affordable, the project will be offered a loan rather than a grant. Pay special attention to the **Water & Wastewater Affordability Supplemental and the Small Government Water & Wastewater Affordability Calculation Worksheet. Both are available on the Small Government Program Tab at** https://www.pwc.ohio.gov/Programs/Infrastructure-Programs/Small-Government

• Should there be more projects that meet the "annual score" than there is funding, the tie breaker is those projects which scored highest under Health & Safety, with the second tie breaker being Condition. If multiple projects have equivalent Health & Safety and Condition scores they are arranged according to the amount of assistance from low to high. Once the funded projects are announced, "contingency protects" may be funded from project under-runs by continuing down the approved project list.

• Supplemental assistance is not provided to projects previously funded by the Commission.

• Applicants have 30 days from receipt of application by OPWC without exception to provide additional documentation to make the application more competitive under the Small Government criteria. Applications will be scored after the 30-day period has expired. The applicants for each District's two (2) contingency projects will have the same 30-day period to submit supplemental information but these applications will not be scored unless necessary to do so. **It is each applicant's responsibility for determining the need for supplemental material. The applicant will not be asked for or notified of missing information unless the Commission has changed the project type and it affects the documentation required. Important information may include, but is not limited to: age of infrastructure, traffic counts or utility users, median income information, user rates ordinances, and the Auditor's Certificate of Estimated Revenues or documentation from the Auditor of State that subdivision is in a state of fiscal emergency.**

If you desire to have your Round 36 project considered for Small Government Funding please download the Small Government Evaluation Criteria applicable to Round 36 by accessing the OPWC Website at https://www.pwc.ohio.gov/Portals/0/Data/SmallGovernment%20Round%2036%20Methodology.pdf?ver=2019-08-07-071749-143. **Please follow the Small Government Evaluation Criteria and include supporting documentation to receive points. Specifically, include the Auditor's Certification of funds for your entity and documentation supporting the age of the infrastructure.**

Please complete the Small Government Evaluation Criteria and attach all required supporting documentation and attach it to the District 5 Questionnaire for Round 36.

Date: September 9, 2021
Signature:
Title: Donald A. Douglas, President, Board of Ottawa County Commissioners
Address: 315 Madison Street, Port Clinton, Ohio 43452
Phone: 419-734-6700
FAX: 419-734-6858
Email: RSlauterback@co.ottawa.oh.us

District 5
Capital Improvement Project
Priority Rating Sheet, Round 36

Revised 06/29/2021

COUNTY:	Ottawa
PROJECT:	OCRW SECONDARY FEED LOOP
EST. COST:	2,307,806
PROJECT NUMBER	

No.	"A" WEIGHT FACTOR	CRITERIA TO BE CONSIDERED	"B" PRIORITY FACTORS	"A" x "B"	Type	PRIORITY FACTORS						No.
			0 2 4 6 8 10			0	2	4	6	8	10	
1	1	(REPAIR OR REPLACE) vs. (NEW OR EXPANSION)		10		0% + Repair or Replacement	20% + Repair or Replacement	40% + Repair or Replacement	60% + Repair or Replacement	80% + Repair or Replacement	100% + Repair or Replacement	1
			0 2 4 6 8 10			0	2	4	6	8	10	
2A	1	EXISTING PHYSICAL CONDITION Please refer to Criteria #2 of the Round 36 Scoring Methodology. Must submit substantiating documentation. (100% New or Expansion = 0 Points)		10		Excellent	Good	Fair	Fading	Poor	Failing	2A
			0 1 2 3 4 5		Type	0	1	2	3	4	5	
2B	1	AGE		2	Road	0-4 Yrs	5-8 Yrs	9-12 Yrs	13-16 Yrs	17-20 Yrs	20+ Yrs	2B
					Wastewater	0-6 Yrs	7-12 Yrs	13-18 Yrs	19-24 Yrs	25-30 Yrs	30+ Yrs	
					Bridge/Culvert, Sanitary Sewer, Water Supply, Storm Water, Solid Waste	0-10 Yrs	11-20 Yrs	21-30 Yrs	31-40 Yrs	41-50 Yrs	50+ Yrs	
			0 2 4 6 8 10			0	2	4	6	8	10	
3	2	PUBLIC HEALTH AND/OR SAFETY CONCERNS Submittals without supporting documentation will receive 0 points for this question.		16		No Impact	Minimal	Moderate	Major	Critical	Extremely Critical	3
			0 2 4 6 8 10			0	2	4	6	8	10	
4	2	LOCAL MATCHING FUNDS Percentage of Local Share (Local funds are funds derived from the applicant budget or a loan to be paid back through the applicant budget, assessments, rates or tax revenues)*		20		0%	10%	20%	30%	40%	50%	4
			0 2 4 6 8 10			0	2	4	6	8	10	
5	1	OTHER FUNDING (Excluding Issue II Funds) (Grants and other revenues not contributed or collected through taxes by the applicant, including Gifts, Contributions, etc. – must submit copy of award or status letter)		0		0%	10%	20%	30%	40%	50%	5
6		OPWC GRANT AND LOAN FUNDS REQUESTED Please refer to Criteria #6 of the Round 36 Methodology for clarification.		16								6
	2	Grant or Loan Only	-9 -5 0 6 9 10			-9	-5	0	6	9	10	6
						Grant or Loan Only $500,001 or more	$400,001 to $500,000	$325,001 to $400,000	$275,001 to $325,000	$175,001 to $275,000	$175,000 or less	
	2	Grant/Loan Combination	-9 -5 0 6 9 10			Grant/Loan Combination $750,000 or more	$600,001 to $750,000	$487,501 to $600,000	$412,501 to $487,500	$262,501 to $412,500	$262,500 or less	6
		When scoring a project that is only grant or only loan, Please use the chart labeled "Grant or Loan Only". When scoring a grant/loan combination, score the project for the grant in the first chart, then use the second chart labeled "Grant/Loan Combination" to score the total (grant and loan combined). Use the lower of the two as the score.										
			0 2 4 6			0	2	4	6			
7	1	JOB CREATION/RETENTION Indicate full time equivalent jobs. Include supporting documentation in the form of a commitment letter from business or third party entity		0		0-6 Jobs	7-14 Jobs	15-24 Jobs	25+ Jobs			7
			0 2 4 6 8 10			0	2	4	6	8	10	
8	1	BENEFIT TO EXISTING USERS (households or traffic counts) Equivalent dwelling units or direct connections. Traffic Counts within three years with certified documentation, etc.		10		0-99 Users	100-349 Users	350-499 Users	500-749 Users	750-1000 Users	1000+ Users	8
			0 1 2			0	1	2				
9	1	ECONOMIC DISTRESS Local MHI as a percentage of the District Median MHI		0		100%+	80%-100%	Less Than 80%				9
			0 1 2			0	1	2				
10	1	READINESS TO PROCEED		1		Plans Not Begun Yet	Preliminary Engineering Complete	Final Design Complete				10
11		SUBTOTAL RANKING POINTS (MAX = 115)		85		Other Info Does this project have a significant impact on productive farmland? YES NO Attach impact statement if yes. Is the Applicant ready to proceed to bids after State Approval within 6 months? YES NO						
12		COUNTY SUBCOMMITTEE PRIORITY POINTS (25-20-15)										
13A		DISCRETIONARY POINTS (BY DISTRICT ONLY) (MAX=1)				District Discretionary Points may be awarded to projects that demonstrate a significant Area wide, County, or Community Impact. Include documentation to support the claim of significance.						
13B		DISCRETIONARY POINTS (BY DISTRICT ONLY) (MAX=1)				District Discretionary Points may be awarded to projects that demonstrate that the entity has maximized financial resources including assessments and utility rate structure.						
14		GRAND TOTAL RANKING POINTS										

* Applicants must certify local and other share contributions. Specify, all funding sources to be utilized as local share at the time of application submittal.

EXHIBIT A **Economic Distress Scoring Criteria**

District 5 will use ACS 2013-2017 data below to score criteria #7 of the Scoring Methodology. Information is listed for each county, municipality and township . The Median Household Income (MHI) for each entity was divide by the District 5 Mean MHI to produce an Economic Distress Factor. District 5 then assigned points as follows: for each entity having an Economic Distress Factor of 80% or less a score of 2 is awarded; for entities with an Economic Distress Score of 80.1% to 100.0% 1 point was awarded; for entities in excess of 100.1% a score of 0 was awarded.

County	Municipality	2017 Median Household Income	2010 Population	2017 Economic Distress Factor	
	District 5 Mean MHI	$55,893			
Paulding	Cecil village	$33,750	188	60.38%	
Wood	Bowling Green city	$33,794	30,028	60.46%	
Paulding	Haviland village	$33,906	215	60.66%	
Wood	Fostoria city	$35,125	13,441	62.84%	
Sandusky	Fremont city	$35,296	16,734	63.15%	
Williams	Bryan city	$35,815	8,545	64.08%	
Erie	Sandusky city	$36,117	25,793	64.62%	
Defiance	Sherwood village	$36,250	827	64.86%	
Paulding	Broughton village	$36,667	120	65.60%	
Henry	McClure village	$36,875	725	65.97%	
Paulding	Oakwood village	$37,273	608	66.69%	
Williams	Blakeslee village	$38,125	96	68.21%	
Wood	Walbridge village	$38,613	3,019	69.08%	
Wood	West Millgrove village	$39,000	174	69.78%	
Paulding	Grover Hill village	$39,107	402	69.97%	2 Points
Williams	West Unity village	$39,250	1,671	70.22%	
Ottawa	Rocky Ridge village	$39,375	417	70.45%	
Ottawa	Portage township	$40,000	1,291	71.57%	
Defiance	Ney village	$41,111	354	73.55%	
Wood	Hoytville village	$41,471	303	74.20%	
Paulding	Paulding village	$41,490	3,605	74.23%	
Wood	Risingsun village	$41,771	606	74.73%	
Paulding	Antwerp village	$41,827	1,736	74.83%	
Paulding	Latty township (Remainder of)	$42,188	615	75.48%	
Ottawa	Clay Center village	$42,321	276	75.72%	
Paulding	Payne village	$42,339	1,194	75.75%	
Paulding	Scott village	$42,500	286	76.04%	
Ottawa	Bay township	$42,969	1,458	76.88%	
Ottawa	Oak Harbor village	$43,456	2,759	77.75%	
Ottawa	Port Clinton city	$43,554	6,056	77.92%	
Williams	Pioneer village	$43,667	1,380	78.13%	
Williams	Montpelier village	$43,955	4,072	78.64%	
Fulton	Fayette village	$44,120	1,283	78.94%	
Williams	Edon village	$44,338	834	79.33%	

OTTAWA COUNTY
SANITARY ENGINEERING DEPARTMENT
315 Madison Street, Room 105
Ottawa County Courthouse
Port Clinton, Ohio 43452

James K. Frey, P.E., P.S.

www.co.ottawa.oh.us/index.php/sanitary-engineer
Telephone: (419) 734-6725
Fax: (419) 734-6858

Ottawa County Regional Water Distribution System Secondary Feed Loop to Catawba Island, Danbury and Portage Townships

In 1999, Ottawa County completed construction of a $67.8 million dollar Regional Water Treatment Plant, Transmission and Distribution Supply System. The project included a new 6 million gallon per day (mgd) water treatment plant, 3 elevated water towers and 147 miles of transmission and distribution mains. Since then, a number of additional public and private water main extension projects have been completed bringing the total to 188 miles of water main pipe that is presently owned, operated and maintained by the county. In 2005, the regional water treatment plant was expanded to 9-mgd to serve the expanding water supply needs of the county.

The Regional Water Transmission System serves the City of Port Clinton, the Village of Oak Harbor and also provides water to Ottawa County's distribution system that supplies water to customers located throughout 7 townships including Bay, Catawba Island, Danbury, Erie, Harris, Portage and Salem. The 24" water transmission main that was constructed on State Road in Portage Township serves Catawba Island, Danbury and Portage Townships. This transmission main (see the attached map) is the sole water source to the residents and businesses located in these three townships. A total of 5,917 customer accounts are supplied water through this 24" transmission main representing an existing permanent population of +/- 10,000 and a seasonal population that exceeds 50,000 on summer weekends.

As you will note upon review of the application and supporting documents, the 24" transmission main located on State Road between Plasterbed Road and State Route #53 is faced with an imminent threat of failure due to the existence of abandoned underground gypsum mines and shafts located throughout the area. The United States Gypsum Company mined the area for gypsum from 1902 through the 1970's. Afterwards, the underground abandoned mines were allowed to fill with water. The movement of underground water within and between these abandoned underground mines, via sand and gravel seams, has contributed to a number of soil subsidences throughout the area starting in 2004. The subsidences have resulted in several recent water and sewer main failures (see attached documentation).

Fluctuating Lake Erie and Sandusky Bay surface water levels have had an influence upon the migration of the water within these mines and shafts. In addition, rain events, which have become more severe in recent years due to climate change, are flooding properties more often throughout the area. Combined with the high lake and bay levels, saturated soils and water filled mines and shafts, the storm water ends up having no

place to go. The end result is that the flooded mines, during significant rain events, become pressurized creating an artesian condition that causes the mine water to migrate back and forth through and between the mine shafts and caverns. This condition lends itself to subsidence occurring throughout the entire mined area. The growing fear of Ottawa County officials is that a larger catastrophic subsidence may occur at any time causing a disastrous failure of the 24" transmission main. A complete pipe separation of the 24" transmission main would literally drain the county's water system in the matter of minutes creating an emergency situation throughout the three most densely populated townships within the county. Depending upon the severity of the subsidence, residents could be without safe drinking water for days, or possible longer. The economic fallout throughout the area would result in a potential loss of millions of dollars per day according to FEMA's Benefit Cost Calculator.

The imminent threat to Ottawa County's transmission main is becoming more of a concern every day to county officials due in part to recent subsidence and recent actions of the Ohio Department of Transportation (ODOT). ODOT has had its own share of soil subsidence issues throughout this same Portage Township area. The ODOT problems were determined to be directly caused by the same flooded underground gypsum mines that the county is concerned with. ODOT has had to spend over $20 million dollars in the past 10-12 years analyzing the threat and injecting grout under sections of State Route #2 in an effort to keep the existing highway from collapsing. Hundreds of thousands of yards of concrete and production grout has been injected into the underground mines directly under State Route #2. All of that grout was injected in the water filled mines further causing the water in the mines to be displaced, further propelling the mine water to migrate back and forth through the various caverns and shafts ultimately creating a situation whereby the movement of the mine water has contributed to additional subsidence issues throughout the mined areas within Portage Township.

The imminent threat to Ottawa County's 24" State Road Water Transmission Main is not a standard or normal water industry problem. The transmission main was placed into operation in 1999. The piping system is only 22 years old. The useful life of a water piping system, based upon standard design criteria, is supposed to be 50 years; although many water piping systems are able to operate and function for over 100 years. Due to the worsening stability of the underground mines, the 24" transmission main is threatened and requires a replacement/backup water main to ensure continued service when an inevitable pipe failure does occur.

Ottawa County is requesting that the Ohio Public Works Commission assist the county by providing a $325,000 grant toward the construction of the Secondary Feed Loop to Catawba Island, Danbury and Portage Townships. The secondary feed loop will be installed through the City of Port Clinton beginning at the intersection of West Perry Street and North Monroe Street and then extend east approximately 11,620 feet on Perry Street to the vicinity of the intersection of Sand Road and State Route #163. The local share cost of the project will be paid for through the Regional Water - Distribution System Repair and Replacement Fund and the Ottawa ARPA Fund. A design agreement with Poggemeyer Design Group has already been entered into for the project. Preliminary engineering work has been completed laying out the general route of the 12" secondary feed loop main through the City of Port Clinton. The actual design

and Ohio EPA approval process is anticipated to be completed before July 1, 2022. Construction is scheduled to commence in October 2022 and be administratively completed and closed out by June 1, 2024.

In the event of a transmission main failure, the secondary feed loop will serve as an immediate backup water supply to the east end of the county restoring/replacing the 24" transmission main water supply. At this point in time, the existing 24" State Road Transmission Main is the only drinking water supply source to Ottawa County customers located east of the City of Port Clinton. The proposed project will not serve any new customers and will not include any new service connections. The project will exclusively allow Ottawa County to continue to provide water service to existing customers; especially during a catastrophic failure of the 24" transmission main.

Dated: 09-10-2021

July 27, 2021

IN THE MATTER OF
AUTHORIZING THE SANITARY ENGINEER AND
COUNTY ENGINEER'S OFFICES
TO APPLY FOR OPWC FUNDING

It was moved by Commissioner Coppeler and seconded by Commissioner Stahl that the Board of Ottawa County Commissioners authorize the Sanitary Engineering Department and the County Engineer's Offices to electronically file applications to apply for OPWC funding. The Sanitary Engineer and the County Engineer will forward a copy of the signed application and upon award of the grant will notify the Commissioner's office to request approval to sign specific OPWC project agreements. This action is taken upon the recommendation of the Sanitary Engineer.

Vote on Motion: Donald A. Douglas, yes; Mark E. Coppeler, yes; Mark W. Stahl, yes.

cc: Sanitary Engineer
County Engineer

RESOLUTION NO. 21-31

A RESOLUTION BY THE BOARD OF COUNTY COMMISSIONERS OF OTTAWA COUNTY, OHIO DESIGNATING AND AUTHORIZING THE MEMBERS OF THE BOARD OF COUNTY COMMISSIONERS AS THE SIGNATORY FOR ALL ELECTRONIC FORMS AND DOCUMENTS RELATED TO THE OPWC FUNDING APPLICATIONS TO THE OHIO PUBLIC WORKS COMMISSION

The Board of County Commissioners of the County of Ottawa, Ohio, met in regular session at the office of the Board of County Commissioners, Ottawa County Courthouse, Port Clinton, Ohio on the 27th day of July, 2021, at the regular place of meeting with the following members present:

Donald A. Douglas Mark E. Coppeler Mark W. Stahl

Commissioner Coppeler offered the following resolution and moved its passage, which was duly seconded by Commissioner Stahl.

WHEREAS, the State Capital Improvement Program and the Local Transportation Improvement Program both provide financial assistance to political subdivisions for capital improvements to public infrastructure, and

WHEREAS, Ottawa County is eligible to receive financial assistance from the Ohio Public Works Commission to finance capital improvements, and

WHEREAS, the Ohio Public Works Commission requires individuals to be designated and authorized to sign all forms and documents associated with applications to the Ohio Public Works Commission.

NOW THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Ottawa County, Ohio:

SECTION 1: That the members of the Board shall be and are hereby designated as signatory designees.

SECTION 2: That the members of said Board shall be and are hereby authorized to sign all electronic forms and documents associated with applying for financial assistance to the Ohio Public Works Commission.

Vote on Motion: Donald A. Douglas, yes; Mark E. Coppeler, yes; Mark W. Stahl, yes.

I, Rhonda Slauterbeck, County Administrator/Clerk of the Board of Commissioners of Ottawa County, Ohio, hereby do certify that the above is a true and correct copy of a resolution adopted by said Board under said date and as same appears in Commissioners' Journal, Volume 104.

Rhonda Slauterbeck

Rhonda Slauterbeck, County Administrator/Clerk
Board of Ottawa County Commissioners

Prepared by: Sanitary Engineering Dept.

cc: Sanitary Engineering Dept.
County Engineer

Jennifer J Widmer
Ottawa County Auditor

315 Madison St., Room 202
Port Clinton, Ohio 43452
Office: (419)734-6740
Fax: (419) 734-6592
www.ottawacountyauditor.org

CHIEF FINANCIAL OFFICERS CERTIFICATION OF LOCAL SHARE FUNDS

September 8, 2021

I Jennifer Widmer, County Auditor of Ottawa County, Ohio do hereby certify that Ottawa County does have the total amount of $1,982,805 in its Regional Water Distribution Repair/Replacement Fund and ARPA Fund and that this amount will be used to pay the local share cost of the Ottawa County Regional Water Distribution Secondary Feed Loop to Catawba Island, Danbury and Portage Township when it is required.

Jennifer J. Widmer

Jennifer Widmer, Auditor of Ottawa County, Ohio

Ohio Public Works Commission
Five Year Capital Improvement Plan/Maintenance of Effort
REQUIRED
Submit to Commission/Update Annually

Ottawa County — **Subdivision**

123-00123 — **Code**

9/5/2021 — **Date**

Project Name/Description	Funding Codes(s)	Status (A) Active (P) Pending (C) Complete	Total Cost	Two Year Effort		Five Year Plan				
				Yr 2020	Yr 2021	Yr 2022	Yr 2023	Yr 2024	5Yr 2025	Yr 2026
				Funded		*Planned*				
State Road, Sanitary Sewer Emergency Subsidence	OPWC, Local	C	$268,368	$268,368						
Danbury WWTP & Collection System Improvements	Local	C	$1,618,706	$1,618,706						
PCI - Moores Dock Rd Santiary Sewer Replacement	OPWC, Local	C	$355,248	$65,267	$289,981					
Danbury WWTP & Collection System Improvements	Local	A	$1,827,375	$32,096	$500,000	$1,295,279				
PCI - WWTS - Ph II Collection System Improvements	OPWC, Local	A	$554,550	$17,173	$200,000	$337,377				
OCRWTP - Filter Bed Rehab & Media Replacement	OPWC, Local	A	$275,000	$24,524	$200,000	$50,476				
Allen/Jerusalem Twp. Sanitary Sewer Extension	EPA, DOD, Local	P	$19,784,988	$23,500	$300,000	$700,000	$300,000	$7,000,000	$11,000,000	$ 461,488.00
OCRW Supply to the Village of Elmore	EPA, DOD, Local	P	$4,388,415		$150,000	$1,500,000	$2,738,415			
OCRW-D Seconday Feed to Catawba & Danbury	OPWC, EPA, Loc	P	$2,307,805		$25,000	$300,000	$1,832,805	$150,000		
PCI WWTP Septage, Sludge & Blower Improvements	EPA, OPWC, Loc	P	$1,510,100			$250,000	$1,210,100	$50,000		
Phase 5, Allen/Clay Twp Sanitary Sewer Improveme	EPA, Local	P	$2,388,750				$38,000	$200,000	$1,150,000	$1,000,750
RWTP & Interconnector Cathodic Protection	OPWC, Local	P	$126,000				$120,000	$6,000		
Regional Water - Distribution Flow Monitoring	OPWC, Local	P	$264,600					$250,000	$14,600	

Blank Forms Available At
www.pwc.state.oh.us

November 19, 2019

IN THE MATTER OF
AUTHORIZING A SEWER RATE INCREASE
FOR CUSTOMERS OF THE
PORTAGE/CATAWBA ISLAND TOWNSHIP
SEWER SUB-DISTRICT

It was moved by Commissioner Stahl and seconded by Commissioner Douglas that the Board of Ottawa County Commissioners amend Section 3.11.5 of the Ottawa County Sewer District Rules and Regulations in order to increase the monthly sewer rate $1.00 per equivalent dwelling unit (EDU), from $35.00 to $36.00 per EDU for the Portage/Catawba Island Township Sewer Sub-District. The rate increase shall be placed into effect on December 19, 2019, and will first appear on the February 1, 2020 sewer bill (for the January, 2020 service period). The rate increase is necessary to generate additional revenue to meet future capital improvement debt service obligations of the sewer system, building repairs, equipment replacements, and increased operation & maintenance expenses. This action is taken upon the recommendation of the Sanitary Engineer.

The amended section of text of Section 3.11.5 shall read as follows:

3.11.5 PORTAGE/CATAWBA ISLAND TOWNSHIP SEWER SUB-DISTRICT

User Charge	$28.56 per equivalency factor
Capital Charge	$ 7.44 per equivalency factor
Total Monthly Charge	$36.00 per equivalency factor

Vote on Motion: Mark E. Coppeler, yes; Mark W. Stahl, yes; Donald A. Douglas, yes.

c: Sanitary Engineering Department

November 21, 2013

IN THE MATTER OF
AUTHORIZING AN INCREASE OF THE
OTTAWA COUNTY REGIONAL WATER
SUPPLY SYSTEM DISTRIBUTION USER RATES
AND MODIFICATIONS OF APPENDIX 'B' OF THE
OTTAWA COUNTY SEWER DISTRICT PUBLIC
WATER RULES AND REGULATIONS

It was moved by Commissioner Regal and seconded by Commissioner Arndt that the Board of Ottawa County Commissioners amend Appendix "A" of the Ottawa County Sewer District, Public Water Supply Rules and Regulations and Standard Specifications by increasing the monthly minimums and rate schedule by 4.545%. The increase, as summarized in the attachment, shall go into effect on December 18, 2013 and will be reflected on the February 1, 2014 utility bill for services rendered during the January 2014 service period. In addition, Appendix "B", Section I, B11 - the fee for the turn-on service due to non-payment or violation is being increased to $50.00, effective February 1, 2014; and Section I, B13 – Billing Re-establishment Fee (see attached) and Section I, B19 – Water Meter Costs (see attached) are being updated to reflect current costs effective December 18, 2013. This action is taken upon the recommendation of the Sanitary Engineer.

Vote on Motion: James M. Sass, yes; Jo Ellen Regal, yes; Steven M. Arndt, yes.

c: Sanitary Engineering

WATER SYSTEM USER RATES

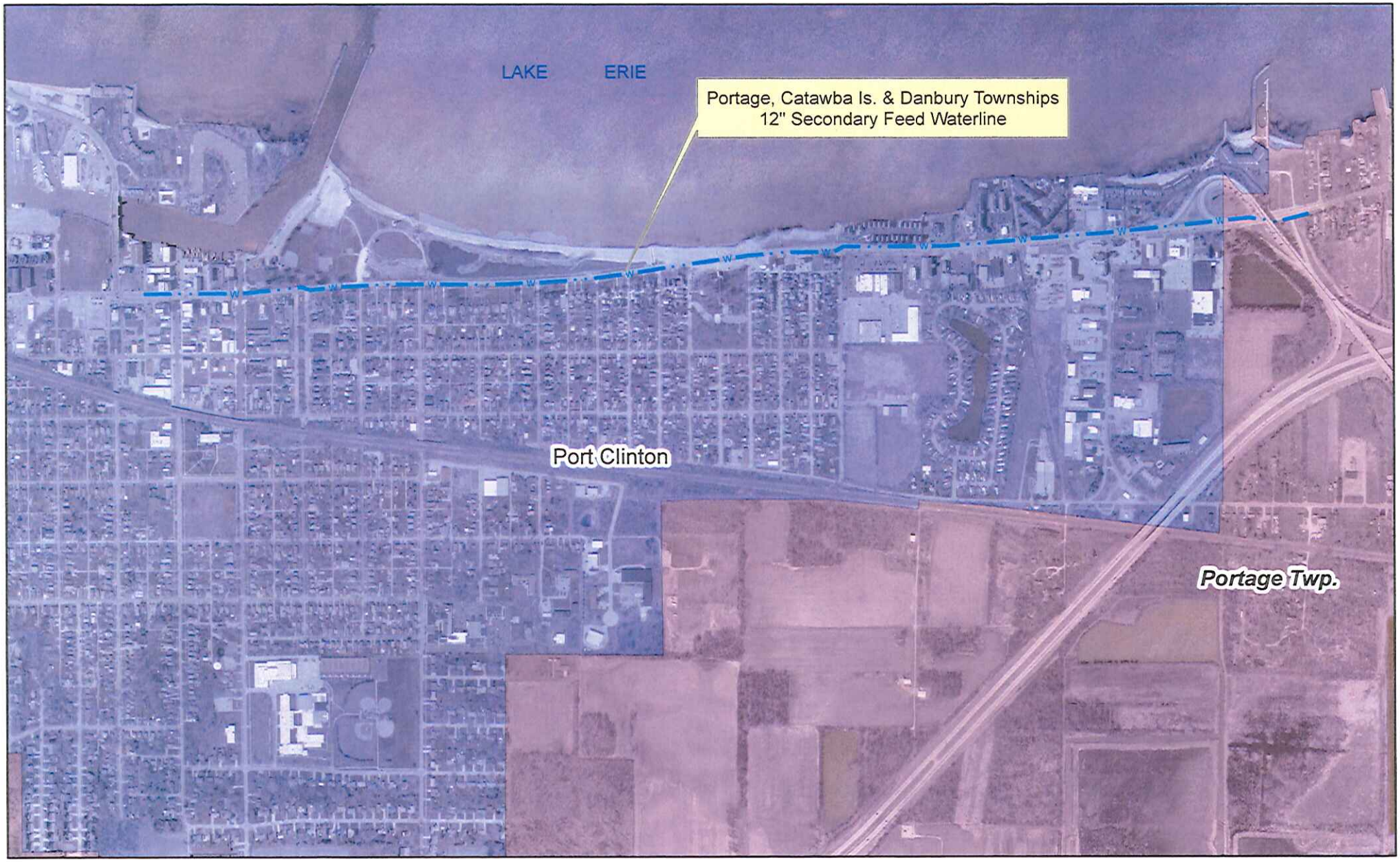
SECTION I

A. Effective January 2014 Service Period (December 18, 2013), the following rates shall be charged for being connected to the Regional Water system and for water consumption or use as measured and recorded by the primary water meter in use for the premise or area. Said charges to be billed monthly and based on the metered amount as read or estimated. A minimum rate shall be charged for each service (primary meter) connected to the public water system.

METER SIZE	MONTHLY MINIMUM	GALLONS OF WATER (Included as part of the minimum)
5/8" - ¾" (standard single family dwelling size)	$ 23.00/mo.	4,500 gallons
1"	$ 38.18/mo.	7,680 gallons
1 ½"	$ 78.03/mo.	16,500 gallons
2"	$ 139.68/mo.	30,469 gallons
3"	$ 315.12/mo.	74,054 gallons
4"	$ 560.70/mo.	140,073 gallons
6" and greater	$ 1,263.30/mo.	334,028 gallons

GRADUATED RATE SCHEDULE:

First 4,500 Gallons	$ 23.00 minimum
Next 5,500 Gallons	$ 4.78 per 1,000 gallons
Next 20,000 Gallons	$ 4.42 per 1,000 gallons
Next 60,000 Gallons	$ 4.04 per 1,000 gallons
Next 270,000 Gallons	$ 3.63 per 1,000 gallons
> 360,000 Gallons	$ 3.27 per 1,000 gallons



APPENDIX F
MAP

N
W E
S

Secondary Feed Loop Supporting Documentation

1. Ohio Department of Transportation Route 2 Grout Injection Project – Project Cost - $20,000,000

    a. Toledo Blade Pre-Monitoring Article
    b. Toledo Blade Monitoring Article
    c. Toledo Blade Grout Project Article
    d. Sandusky Register Article
    e. Marshall University SR-2 Presentation
    f. ODOT Project Nomination/Overview

2. State Rd. 10" Sanitary Sewer Main Collapse (Unknown Subsidence) – Project Cost $254,263

    a. State Rd. Sewer Evaluation Binder 1
    b. OCSE Capital Infrastructure Report
    c. OCSE State Rd. Sewer Investigation Work Orders

3. Plasterbed Rd. 8" Sanitary Sewer Main Collapse (Mine Subsidence)

    a. OCSE Plasterbed Rd. Sewer Investigation Work Order
    b. Kwest Group Sanitary Sewer Repair Photos 2019
    c. Kwest Violation Letters

4. US Gypsum Company Property Purchase (Potential Sink Holes) – 11 Acre Cost $1,350,000

    a. Letter from Willard Roth, former property owner
    b. Property cards for parcels bought from Mr. Roth by US Gypsum
    c. Map illustrating location of purchased properties in relation to 24" water main
    d. OCSE letter to USG to abandon water & sewer lines after homes razed on purchased Roth properties.

5. Ottawa County Natural Hazard Mitigation Plan

    a. 2.2.6 Land Subsidence – Pg. 58-57

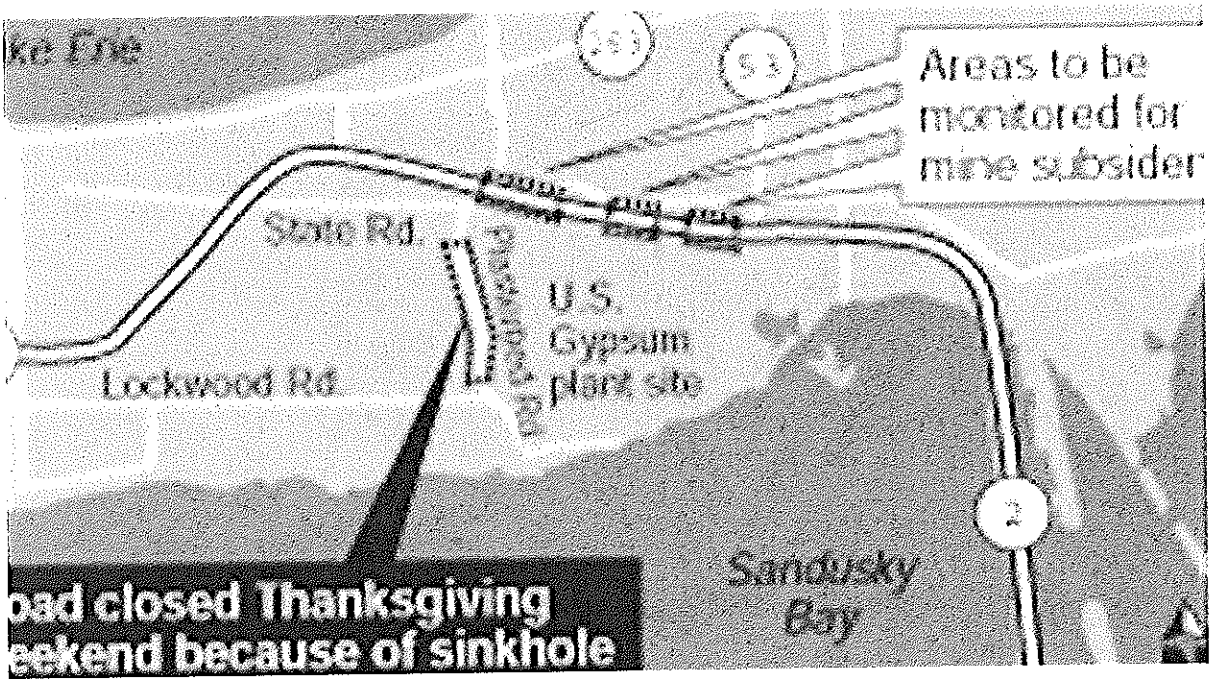
6. Known mines in relation to 24" water main

7. Map of mine and soil subsidences near 24" water main

8. County Engineer

    a. Ron Lajti letter of support
    b. Picture of initial construction of concrete bridge under Plasterbed Rd. above mine subsidence.

1a



ODOT plans to monitor 3 mines under State Rt. 2

DAVID PATCH
The Blade
dpatch@theblade.com

DEC 8, 2004 | 8:14 AM

State officials plan to set up monitoring devices along State Rt. 2, east of Port Clinton, where three inactive gypsum-mine tunnels pass under the roadway.

While the three mines are not believed to pose a current threat to the road's stability, the monitoring system will give the state an early warning if the earth above the tunnels begins to sink, Ohio Department of Transportation officials told the Ottawa County commissioners and other county leaders yesterday.

U.S. Gypsum Co. alerted ODOT to the mines in July and asked the state's permission to install its own monitoring devices within the Route 2 right-of-way, Joe Rutherford, a transportation department spokesman, said after the meeting.

ODOT consented, but prefers to do its own monitoring as well, Mr. Rutherford said. The purpose of yesterday's meeting was

to let local officials know what is happening near the Portage Township facility near Carl R. Keller Field, rather than have rumors bubble up, he said.

"We want to let them know we have a plan in place, in case they get questioned by their constituents," the spokesman said.

Robert Steinmiller, Ottawa County engineer, said he welcomed the heads-up and noted that mining-related subsidence closed part of nearby Plasterbed Road during the Thanksgiving weekend. The tunnel affecting Plasterbed belongs to the Celotex Corp., which has a mine and quarry next to U.S. Gypsum, he said. While there have been other depressions and sinkholes nearby, this was the first beyond mine property.

Steven Arndt, a county commissioner, said it's well known that "mines are virtually everywhere" in that part of Portage Township, and he is "very appreciative" of ODOT's preparations.

If Route 2 were to be affected, state officials plan to detour traffic via State Rts. 163 and 53 while the roadway is stabilized and repaired. ODOT will pay for operating its monitoring devices, Mr. Rutherford said, but the mine owners would be liable for the cost of repairing any damage attributable to the tunnels.

John Mandel, a U.S. Gypsum spokesman, said he had no further information yesterday about the Route 2 monitoring.

State officials began cataloguing underground mines across Ohio after an abandoned coal mine in Guernsey County collapsed under I-70 in March, 1995, shutting the freeway down for months. Since then, hundreds of old tunnels under state highways have been identified, and ODOT has spent $31 million to stabilize problem spots.

While most are abandoned coal mines in the eastern and southern areas of Ohio, another inactive gypsum mine was located beneath State Rt. 269, north of Castalia in Erie County. Brian Stacy, a spokesman at ODOT's district office in Ashland, said there are no known problems with the Route 269 location.

Gypsum, a mineral composed of calcium sulfate and water, is used primarily in the manufacture of wallboard and has been mined in eastern Ottawa County for more than a century. A small community near the mines is named after the mineral.

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New sensors to monitor for sinkholes in Ottawa Co.

DAVID PATCH
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SEP 28, 2011 | 7:16 AM

GYPSUM, Ohio -- Sinking of ground above a mine may be best known in Ohio as a coalfield problem, but the Ohio Department of Transportation now is taking precautions against road depressions or sinkholes becoming an issue along State Rt. 2 in eastern Ottawa County, where gypsum rock once was mined underground.

Starting soon -- perhaps as early as Friday -- a state contractor will string coaxial cables beneath part of Rt. 2 in Portage Township that will serve as sensors for any shifting beneath the roadway that could cause dips or even sinkholes in the pavement like one that closed part of I-70 above an abandoned Guernsey County coal mine in southeast Ohio for three months in 1995.

Portage Township's old gypsum mines, now mostly flooded, "are a strong suspect for problems in that area," said Todd Audet, the department's district deputy director at the Bowling Green office.

Depressions that "look like bomb craters," Mr. Audet said, have appeared in several locations above the old mines -- all protected now by fences and none of them in the Route 2 right of way. "We just haven't had any holes open up under our road yet," he said. "We're not taking any chances with that happening."

In addition to the cable installation, the transportation department is looking into a pilot project to fill in some of the mine tunnels that go under Route 2 in the area.

Burton Scot Contractors of Newbury, Ohio, holds a $262,226.10 state contract to install the Time Deflection Reflectrometry cables under the highway. The cables are crimped every 50 feet throughout their length and

an electronic signal is sent through them, Theresa Pollick, a transportation department spokesman, explained.

"The crimp shows up as a spike and gives the system an established position to detect if something moves," she said. "The purpose is detecting movements in the ground that you can't see on the surface."

The contractor will calibrate instruments to operate the monitoring system, Ms. Pollick said. The interval for checking the cables' signal remains to be determined but is likely to be every 15 minutes or so, she said.

Design of the pilot tunnel corrective project continues under consultation with the Federal Highway Administration and U.S. Environmental Protection Agency, with work expected to start by year's end.

The pilot area is just east of the Route 2 bridge over Gypsum Road, and the underground work may require single-lane closings on the freeway, she said.

Once the pilot has been completed and evaluated, the department expects to design a full-scale project to correct any mine shifting under Route 2 by filling the tunnels in. A public hearing would be a part of that project's development, Ms. Pollick said.

Bill St. Leger, the Ohio plant manager for U.S. Gypsum Corp., said the area that would later be beneath Route 2 was mined during the 1950s and 1960s. Except for a connecting tunnel under what was then the New York Central Railroad, all mining in the area was done under 700 acres the mining company owned at the time, he said. But the state bought some of that land to build the Route 2 freeway east from Port Clinton and across the Thomas Edison Bridge.

Filling in part of the mine under Route 2 will not be a problem for U.S. Gypsum, as "there is no active mining in the area now," Mr. St. Leger said.

During the late 1970s, he said, the local factory switched to synthetic gypsum, calcium sulfate produced when limestone is used to "scrub" sulfur from smoke produced by coal-fired power plants -- a process still used today. Both gypsum and its synthetic counterpart are used primarily to process a plaster substance that is used in drywall.

Within a couple of years of the mines' shutdown, the tunnels flooded, and water dissolving some of the underground gypsum rock is the presumed

cause for depressions and sinkholes in the area.

Only so much calcium sulfate can dissolve into the water before it becomes chemically saturated, Mr. St. Leger said, so areas where there is no water current should be stable. The mine beneath Route 2 is very deep and calm, he said, "so the incidence of subsidence would be low in that area."

But transportation department officials aren't taking chances that the coal-mine subsidence that shut down I-70 near Cambridge, Ohio, 16 years ago could repeat itself in Ottawa County.

In that case, a hole about 13 feet across and 10 feet deep suddenly developed in the freeway's eastbound lanes, damaging three cars and a truck that struck it before the freeway was shut down. The department, aware of possible mine subsidence in the area, had been checking the site every four hours and had retained a consultant to design a corrective project, but the subsidence occurred abruptly.

The freeway was closed for three months, and bridges had to be built at two locations where geologists found especially unstable rock at the mined level.

Two other coal-mine locations, one near the I-70/I-77 interchange in Guernsey County and the other on I-470 just west of the Ohio River bridge in Bellaire, underwent either grouting or excavation and back-filling to stabilize those roadways during 1995 and 1996.

Last year, Burton Scot Contractors installed a sink-detection system similar to the one to be installed under Route 2 under another stretch of I-70 in Muskingum County.

No cost estimate has been released yet for the pilot tunnel-filling project. The three coal-mine projects done in the 1990s, which were much more extensive, cost the department a combined $11.3 million.

Mr. St. Leger said U.S. Gypsum will not be financially involved in the ODOT work, but is very supportive of the stabilization work. "What they're doing is great," he said.

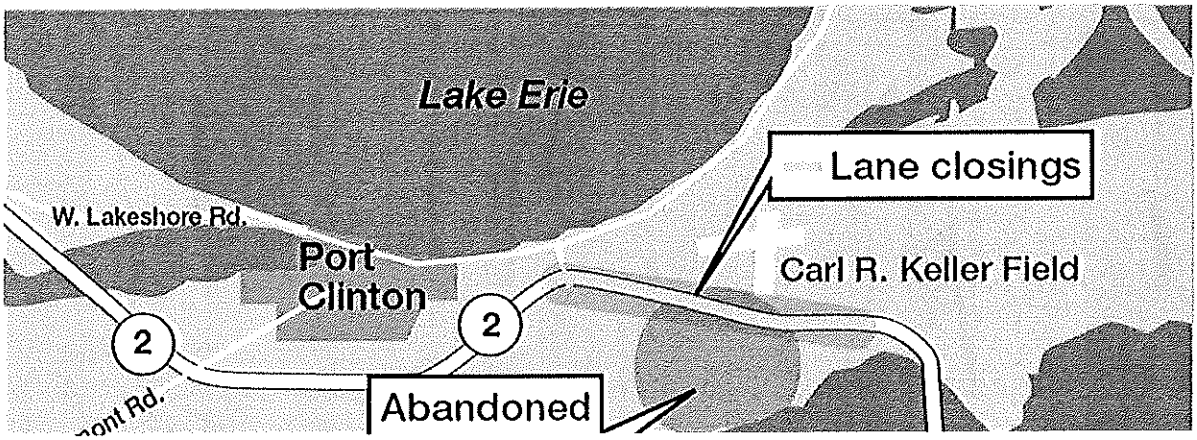
Contact David Patch at: dpatch@theblade.com or 419-724-6094.

First Published September 28, 2011, 12:00am

1c

LANE CLOSINGS PLANNED

The mine work is scheduled to start Sept. 15 and take two years to complete, with lane closings between the Port Clinton and Catawba Island exits. Closings will be suspended between May 15 and Sept. 15, 2014.



ODOT to fill old mine with grout

Tunnel runs under State Rt. 2

DAVID PATCH
The Blade
dpatch@theblade.com

MAY 6, 2013 | 12:41 PM

GYPSUM, Ohio — Two years after stringing sensors under a part of State Rt. 2 that passes over an abandoned gypsum mine, the Ohio Department of Transportation plans to start a more permanent cure for the risk that the old tunnel might collapse someday.

A department contractor is to pump grout through holes drilled from the surface into the mine, first to plug it on either side of the right-of-way and then to fill up the area in between. When the grout — a mixture of sand, water, and cement — hardens, it will shore up the tunnel.

The work will require lane closings on State Rt. 2 for the better part of at least two years, but state officials have promised that will be scheduled to avoid the peak tourism season in the area.

"The benefit of filling the mines under SR 2 is to assure the safety of the traveling public," said Theresa Pollick, a transportation department

spokesman in Bowling Green. "ODOT is having this work performed to eliminate any future settlement."

That benefit will cost $20,668,621.89, the value of the state's contract with Beaver Construction Co. of Canton.

The contractor last month began building crossovers to shift traffic onto one side of the freeway while work is done on the other side, requiring lane closings in both directions. Route 2's shoulders also will be beefed up to handle the two-way traffic.

That initial work is supposed to be wrapped up by Memorial Day, if not sooner, Ms. Pollick said. The mine work itself is scheduled to start Sept. 15 and take two years to complete, with lane closings suspended from May 15 through Sept. 15, 2014.

If any more work remains to be done after May 15, 2015, the contractor will wait until the following September to do that.

ODOT spent about $260,000 two years ago to run coaxial cables through the area to detect any shifting that might happen beneath State Rt. 2 where it passes over the old mine tunnels near the prosaically named community just east of Port Clinton in eastern Ottawa County.

It also performed a pilot test that year of the grouting process, which was found to be successful, Ms. Pollick said.

Abandoned in the 1970s when U.S. Gypsum Corp. switched to processing synthetic gypsum for the manufacture of drywall and other products, the mine eventually flooded. Water dissolving some of the underground gypsum rock — primarily calcium sulfate — was later blamed for depressions and sinkholes in the area.

Bill St. Leger, the Ohio plant manager for U.S. Gypsum, said in 2011 that filling part of the mine would not affect the company, which no longer mined the area. Synthetic gypsum — calcium sulfate produced when limestone is used to "scrub" sulfur out of the smoke from coal-fired power plants — is shipped to the Ottawa County plant from outside the area.

U.S. Gypsum is not contributing to the cost of stabilizing the mine.

An estimated 115,107 cubic yards of grout will be pumped into the tunnel, Ms. Pollick said — enough to fill everything beneath State Rt. 2 but no more

than necessary. Work will be done on the westbound side first, with all traffic using the eastbound lanes, with the traffic pattern reversed during the project's second year.

"Confirmation borings" will be drilled after the project's completion to confirm its effectiveness, the ODOT spokesman said.

Contact David Patch at: dpatch@theblade.com or 419-724-6094.

First Published May 6, 2013, 12:00am

1d

Keeping Ohio 2 from going under

By Patrick Pfanner
Feb 27, 2015 1:00 AM

pfanner@sanduskyregister.com

The Ohio Department of Transportation is concerned about sinkholes developing beneath Ohio 2.

ODOT, which overseas the upkeep of all state routes, closed portions of Ohio 2 between exits 124 and 121, the Catawba and Port Clinton exits, and reduced it to a two-lane highway.

They started a $20 million project a number of years ago because they were concerned about the safety of motorists driving over that area.

"That portion of Ohio 2 was built over the old Gypsum Mines," ODOT spokeswoman Theresa Pollick said. "It wasn't an issue until the last few years when we discovered the mines were flooded."

The Gypsum Mines were in use from the early 1900s through the 1970s, and the section of the mines below Ohio 2 was mined in the 1950s and 60s.

"My husband, Phil, worked in the mines years ago," Gypsum business owner Marie Berry said. "We haven't heard much about it lately and we heard that no one is in danger. I would hope that is indeed the case because we sit right on top of that area."

Berry runs Seed Faith Missions Food Pantry on Lake Street in Gypsum.

"ODOT surveyed the mines before Ohio 2 was built over that area," Pollick said. "The mines flooded sometime after that."

Pollick said they conducted a survey a number of years ago and installed a monitoring system to try and detect any developing sinkholes.

"We're using deflection cables that let us know if there are any movements beneath the surface of that area," Pollick said. "We use this system in other parts of Ohio when state routes are built near coal mines."

Gypsum is a mineral commonly used in many forms of plaster and chalk and isn't something ODOT usually needs to worry about when maintaining roads.

"The Gypsum Mines are a unique problem because we're used to dealing with coal in other parts of the state," Pollick said. "We looked at that area and tried to develop a plan to fill in portions of the mine under Ohio 2. We used a grout-like substance to try to stabilize the surface."

The project aims to reinforce the ground and the state route in that area. The stabilization work started in April of 2013 and is still underway. The entire project is slated to finish in 2016.

"One of the reasons this project is taking this long is because crews are limited to when they can work," Pollick said.

Tourism Impact

ODOT crews are trying to work during the cooler months to avoid the influx of tourists and not put themselves in harm's way by working in sub-zero temperatures

"Our goal is to look out for the safety of the traveling public and the interests of the community," Pollick said. "We realize that businesses in that area rely on Ohio 2 for their economic survival."

Ohio 2 serves as the main way of travel for millions of tourists who visit Ottawa County during the summer to fish, boat and partake in other warm weather activities. Traffic is slowed between exits 124 and 122 to 55 mph right now while work continues.

"Ottawa County relies on tourism," Berry said. "There seems to be more poverty here during the winter because so many people leave after summer."

Pollick said they plan to open the rest of Ohio 2 up and restore it to a four-lane highway in May.

"It's been a nightmare for us to reroute our truck when we need to go pickup food," Berry said. "We usually use the ramp nearby but it's closed for the road work."

Added Pollick: "We realize how important tourism is to the county and we want to make sure our project doesn't interfere this summer. Our goal is to keep everyone safe."

Subsurface Investigation and Conceptual Alternatives

Mitigation of Gypsum Mine Voids Under SR-2 in Ottawa County, Ohio

Presented By: Ohio Department of Transportation
CH2M HILL
CTL Engineering
Technos, Inc.
Workhorse Technologies

WORKHORSE TECHNOLOGIES

TECHNOS INC.

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U.S. GYPSUM CO.

History

- Gypsum mined from 1902 to 1977
- Section under SR-2 mined 1950's – 1960's
- SR-2 constructed in 1965
- Mines flooded in 1979
- Active sinkholes since Dec. 2004

Location

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Difficult Mine Conditions

- Lower mine seam covers 500 acres
- Gypsum mine seam 16 feet
- Mine voids average 10 feet, but locally may be up to 15 feet in height
- Deepest section (Ahrens) 85 feet
- Room and pillar, with 15'x15' pillars and rooms span 20 feet
- Overlain by 10-15 feet of dolomite, shale, and gypsum

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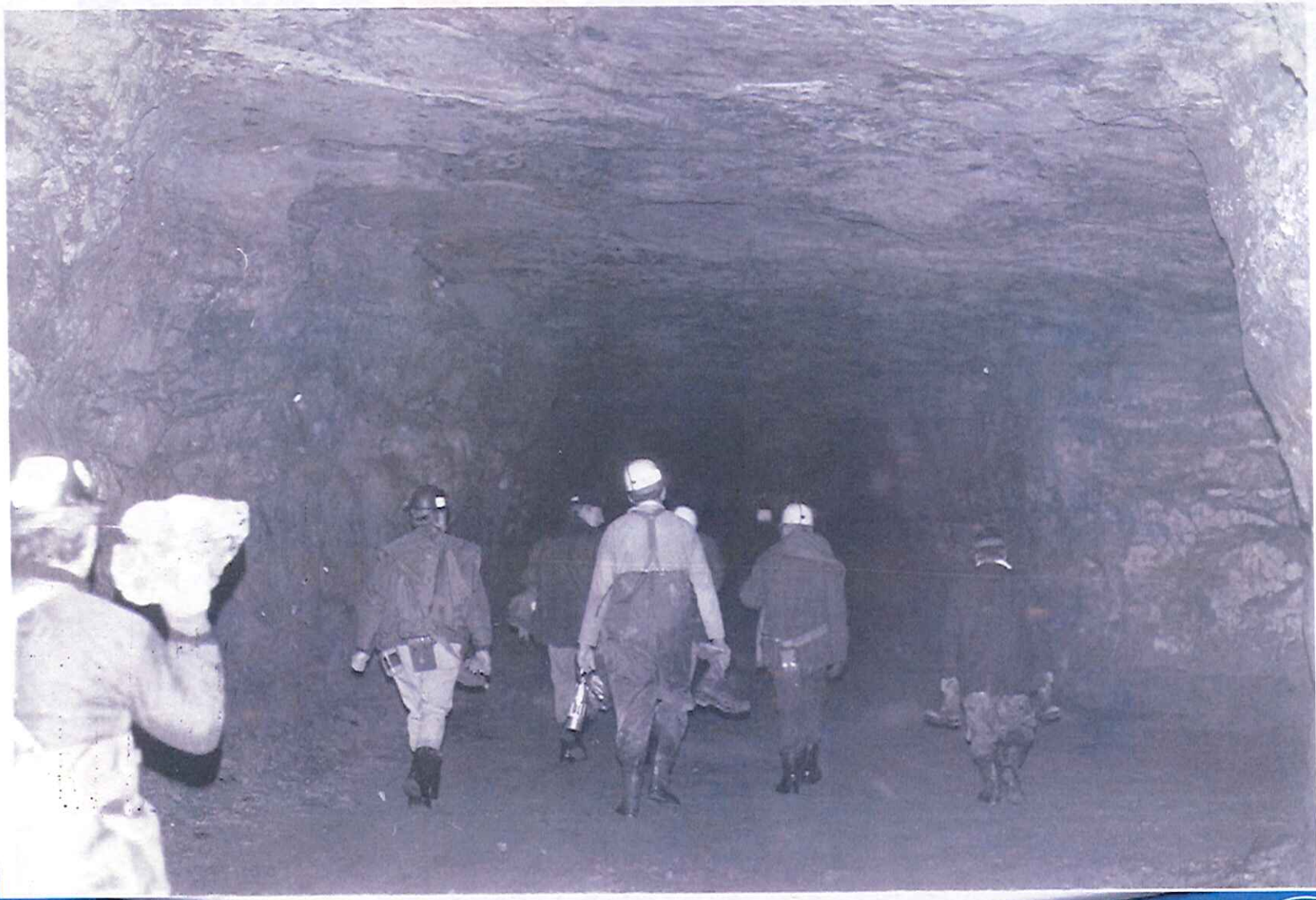

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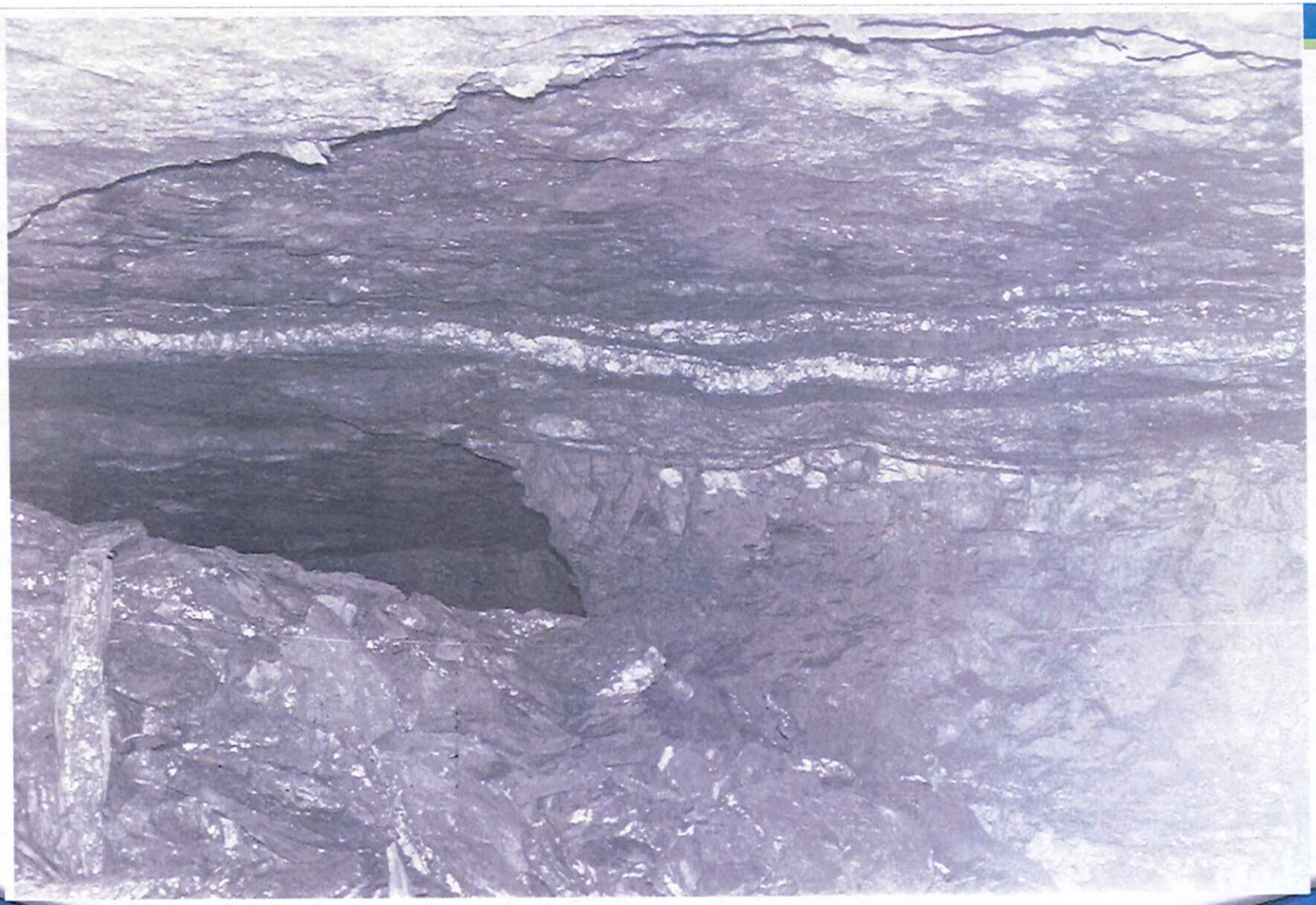

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Purpose & Need Goals

Minimize Community Impacts

- Airport, residential properties, large-scale camping facilities, cemeteries and municipal properties in project area
- Minimize environmental impacts
- Project be consistent with existing local plans

Purpose & Need Goals

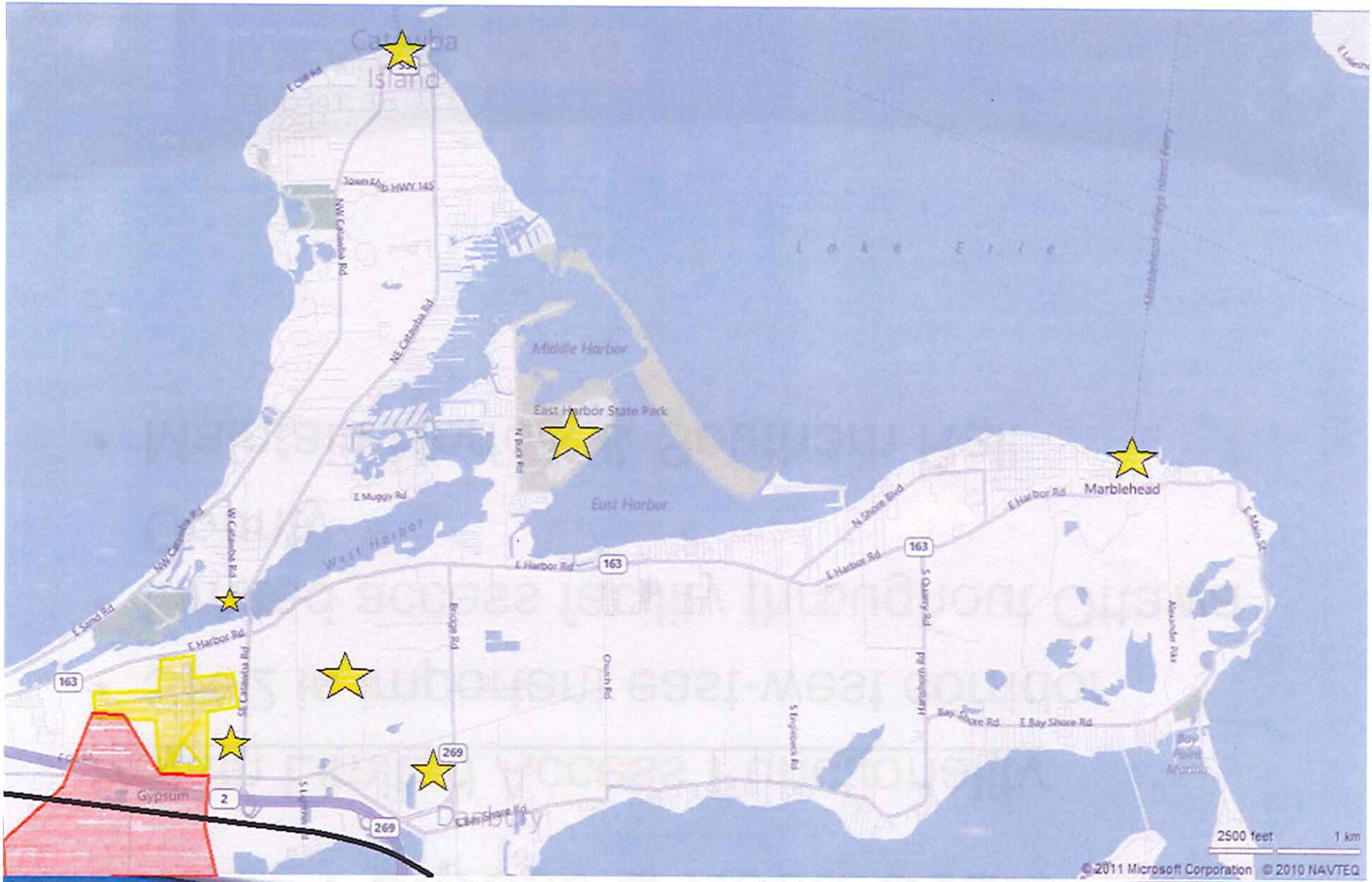
Minimize Peak Season Traffic Disruptions

- SR-2 carries 18,000 vpd
- SR-2 is vital to tourist industry along Lake Erie
- Primary access to Marblehead peninsula and Ferry access to Middle & South Bass
- Secondary access to Cedar Point
- Minimize construction duration

Purpose & Need Goals

Retain Limited Access Functionality

- SR-2 is important east-west corridor
- Limited access facility throughout Ottawa County
- Maintain Norfolk & Southern Rail



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OTT-2 Detour Route and Traffic Volumes

Traffic Counts in Erie (2006), Ottawa (2009) and Sandusky (2009) Counties are from ODOT Traffic Survey Report

Detour will add 19 miles to a one-way trip from SR-2/SR-53 interchange to SR-2/US-6 interchange

2/5/10

Detour Cost

	Closure Duration (Days)	Cost to SR-2 Motorists
A	30	$5,401,222.20
B	180	$32,407,333.20
C	365	$65,714,870.10
D	365	$65,714,870.10

Project Goals

- Understand the existing geologic conditions
- Verify and define the approximate limits of the mine
- Understand the risks involved with mitigating the existing conditions

Project Goals

- Develop and evaluate conceptual alternatives based on the Purpose & Need
  - Remediate existing mines (SR-2 maintains current alignment)
  - Land bridge (SR-2 maintains current alignment)
  - Relocate/Shift SR-2

Geotechnical Investigation

- Surface geophysical
- Confirmation borings (21 Total)
- Laboratory testing
- Sonar modeling

Surface Geophysics to Help Identify Mine Boundaries

Approach included two surface geophysical methods:

- Microgravity – primarily to map mine boundaries
- Resistivity Imaging – primarily to identify other geologic variability and to aid in interpreting the gravity data

Microgravity

Gravity measurements detect changes in the earth's gravitational field caused by local changes in the density of the soil and rock or engineered structures.

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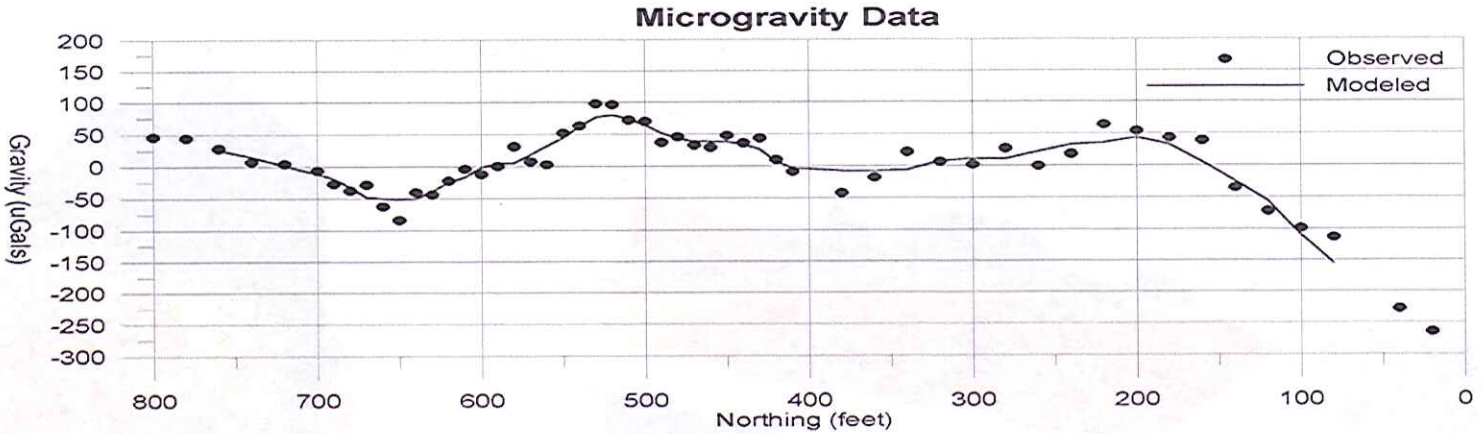
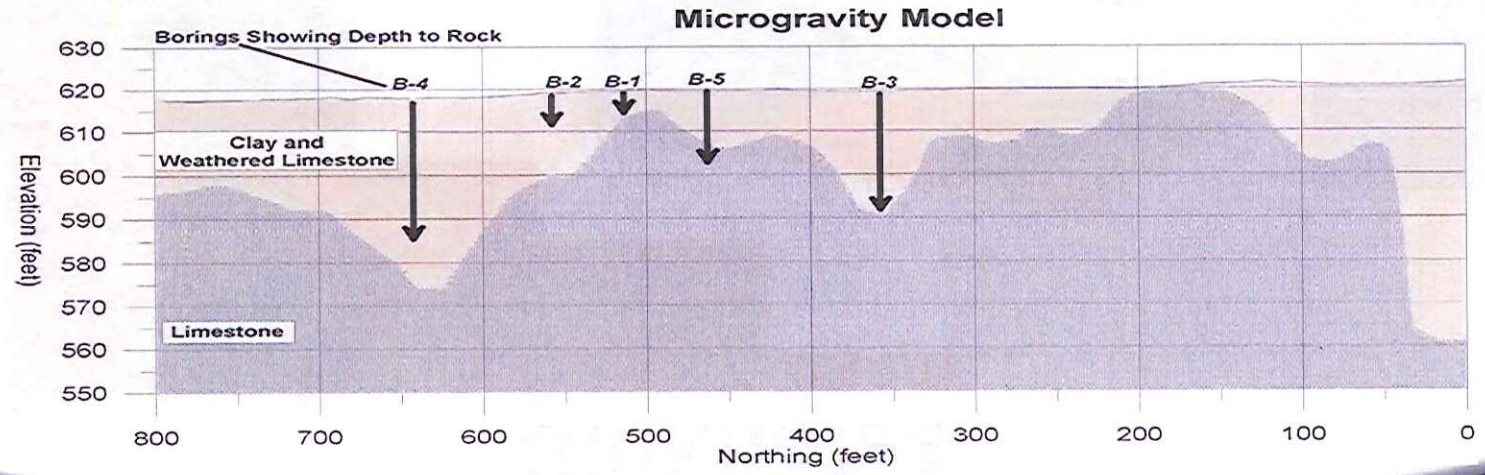
Mapping of Top of Rock





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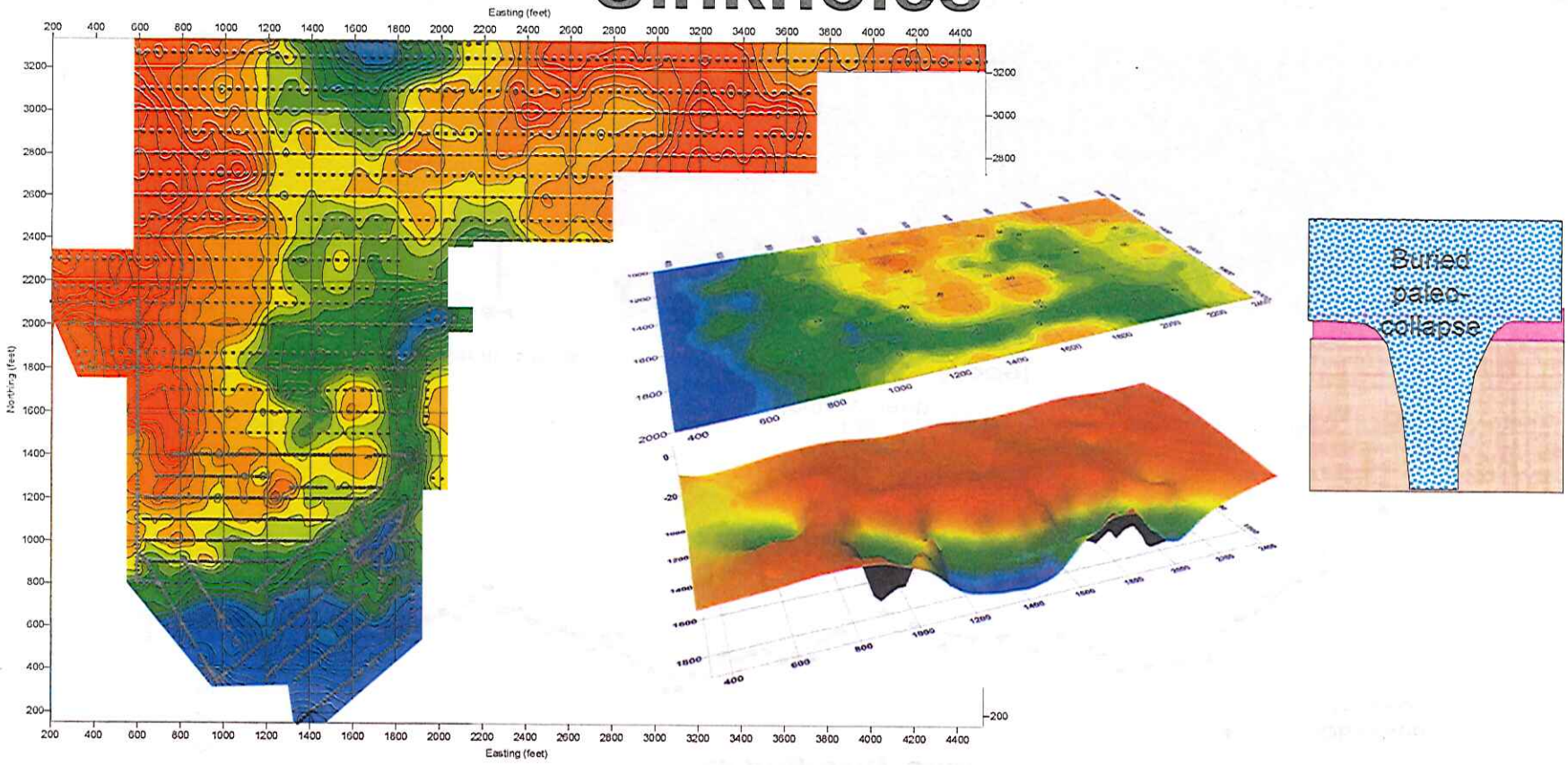
Mapping Old Paleo-Collapse Sinkholes



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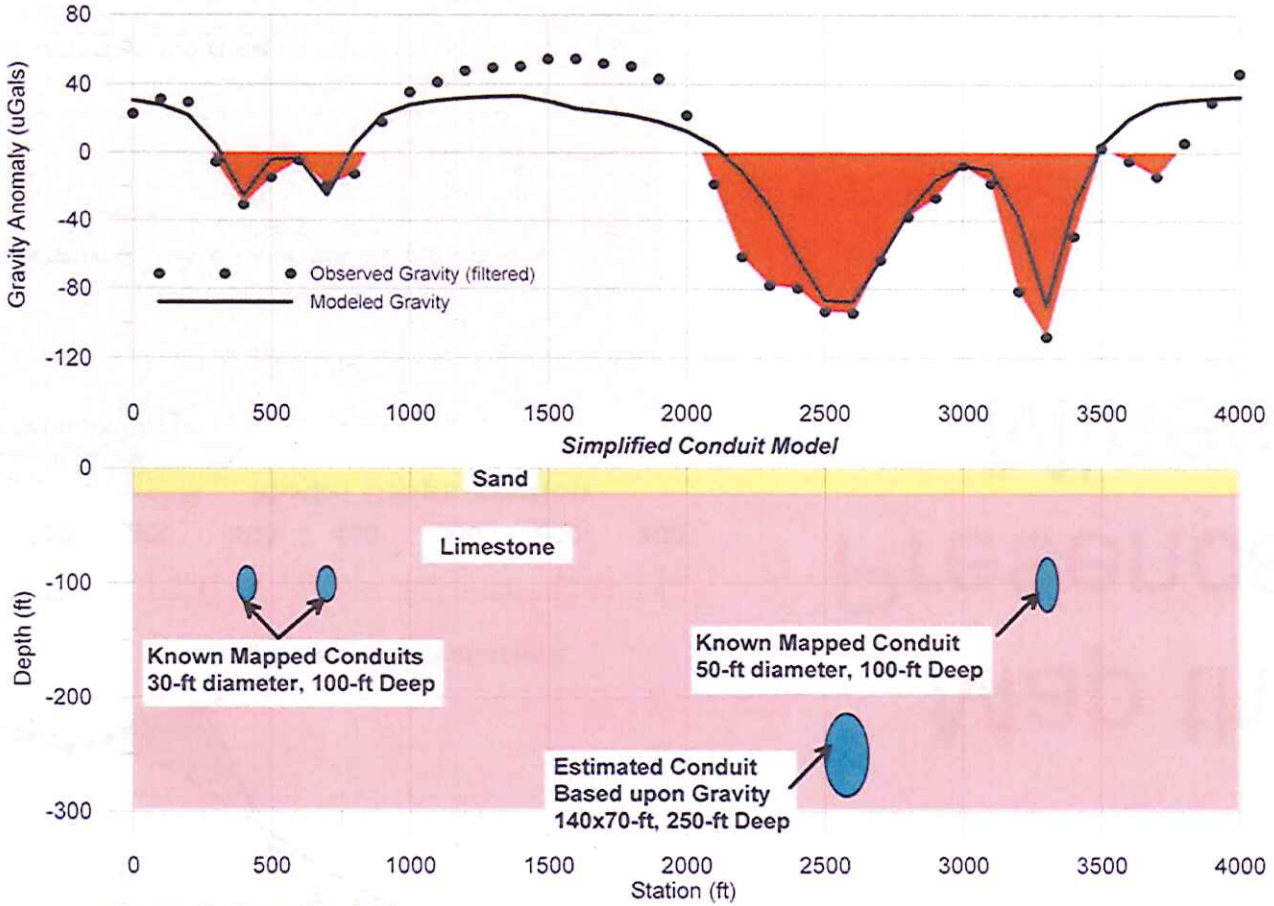
Detection of Large Conduits



Source: Technos, Inc., 2006

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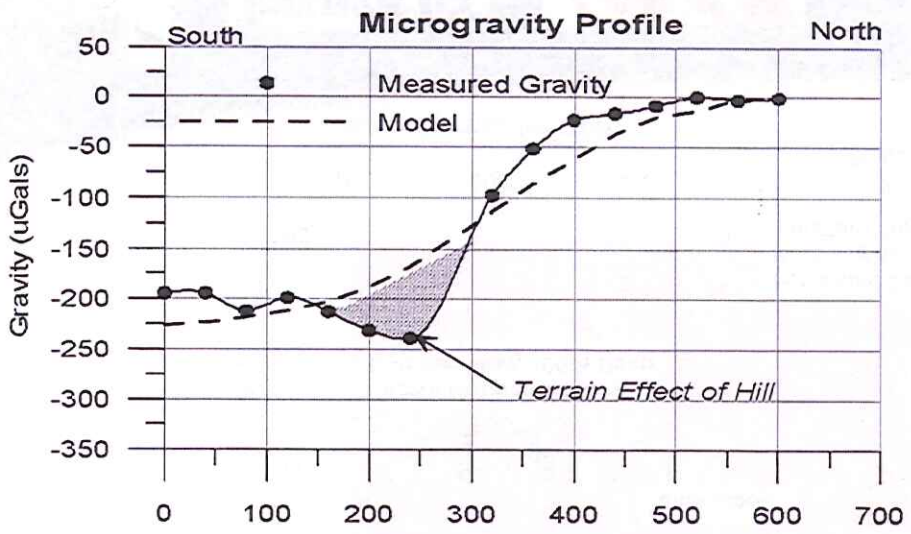

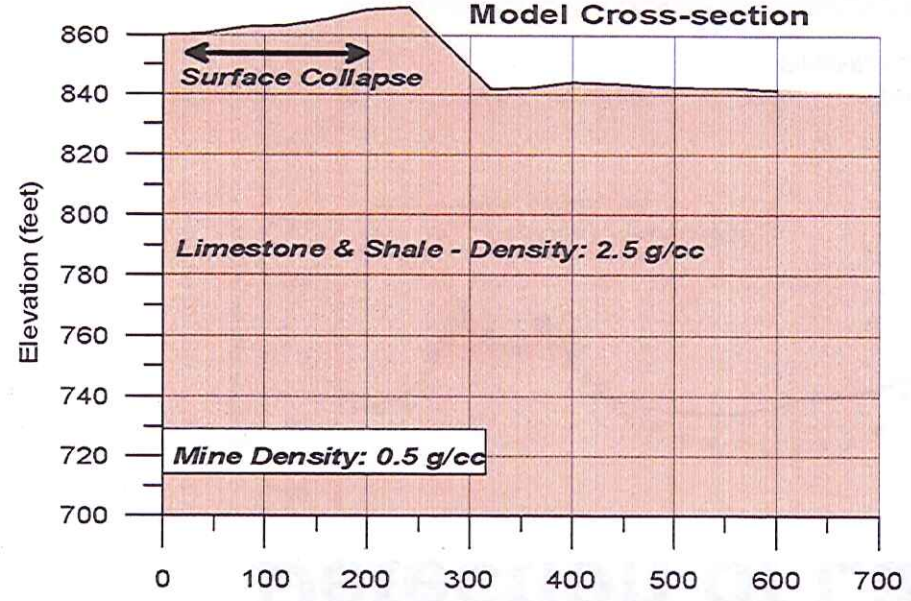

Map the Presence of Mines

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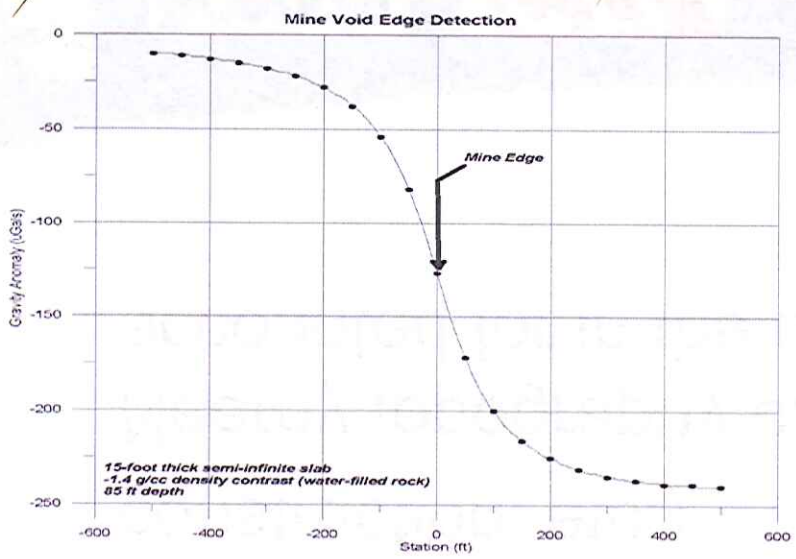
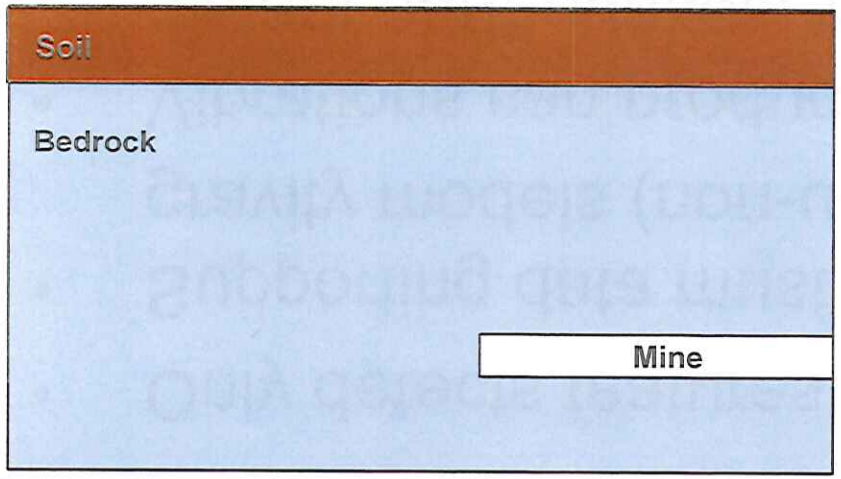
STATE OF OHIO DEPARTMENT OF TRANSPORTATION

Limitations

- Only detects features with a density contrast
- Supporting data must be used to constrain gravity models (non-unique modeling)
- Vibrations can produce noise in data (e.g. distant earthquakes, wind, waves, vehicles, construction, etc.)
- Nearby topography can introduce noise if not accounted for in the data processing



Forward Model of Gravity Response Over Expected Mine Conditions



85 ft deep,
15 ft high

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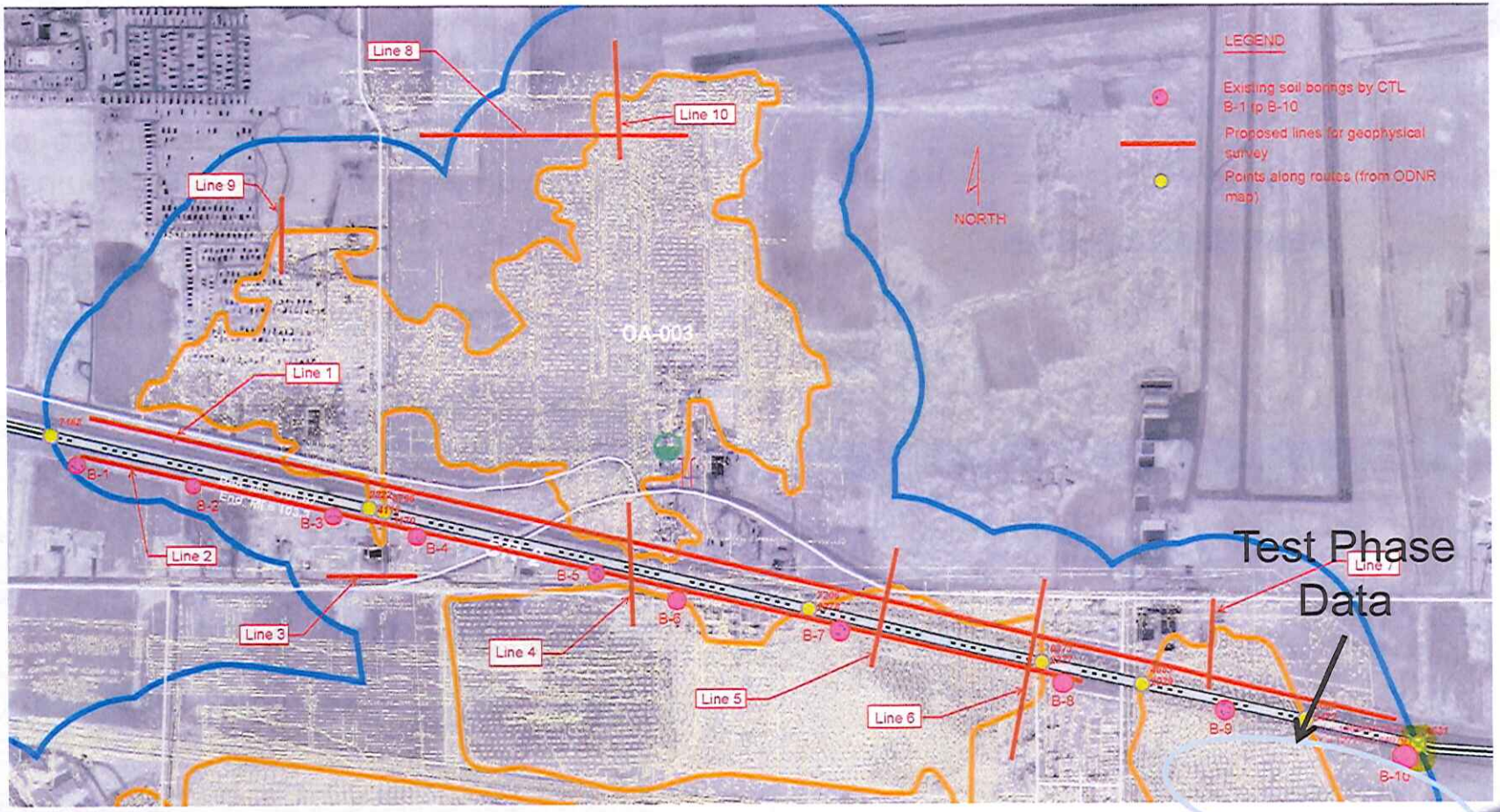
Planned Geophysical Lines



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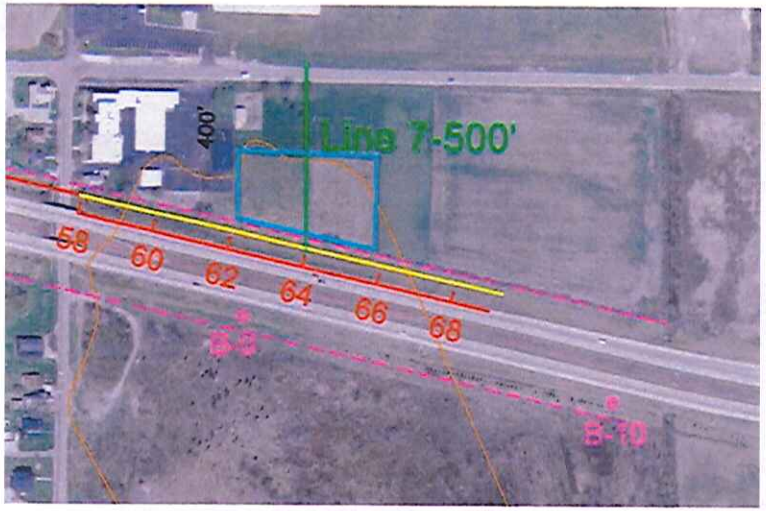
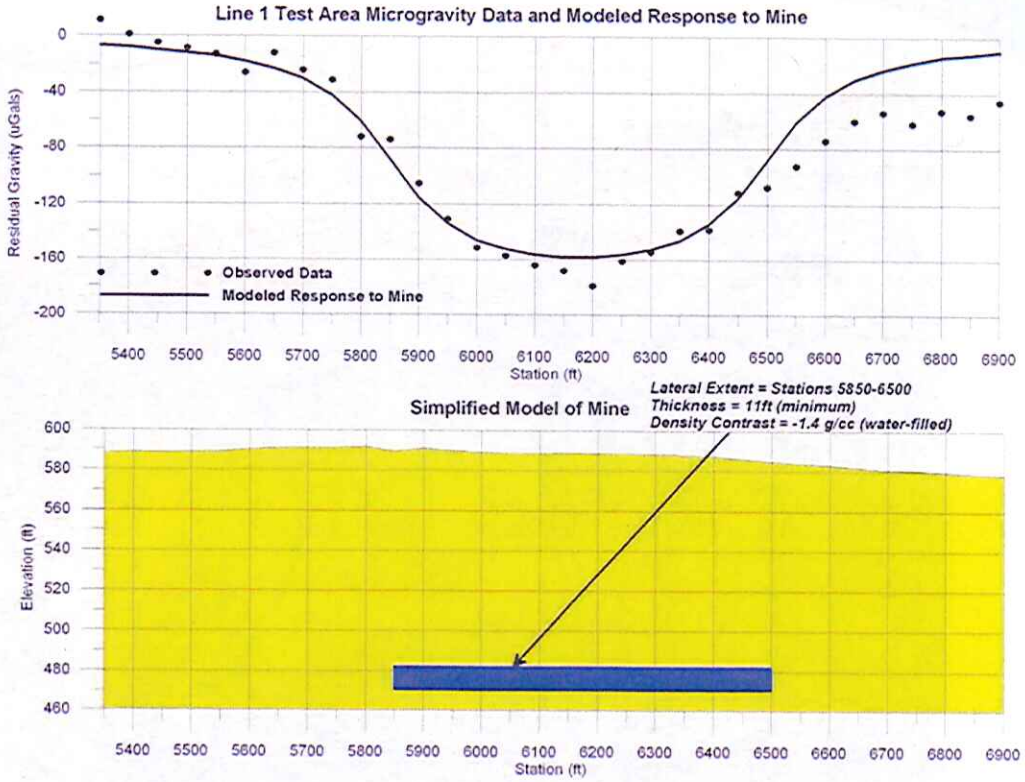
Microgravity Test Data





- Fairly insensitive to depth due to large planar target
- Very sensitive to thickness – 11 ft assumes water-filled, could be up to 15 ft or as little as 7 ft, if air-filled

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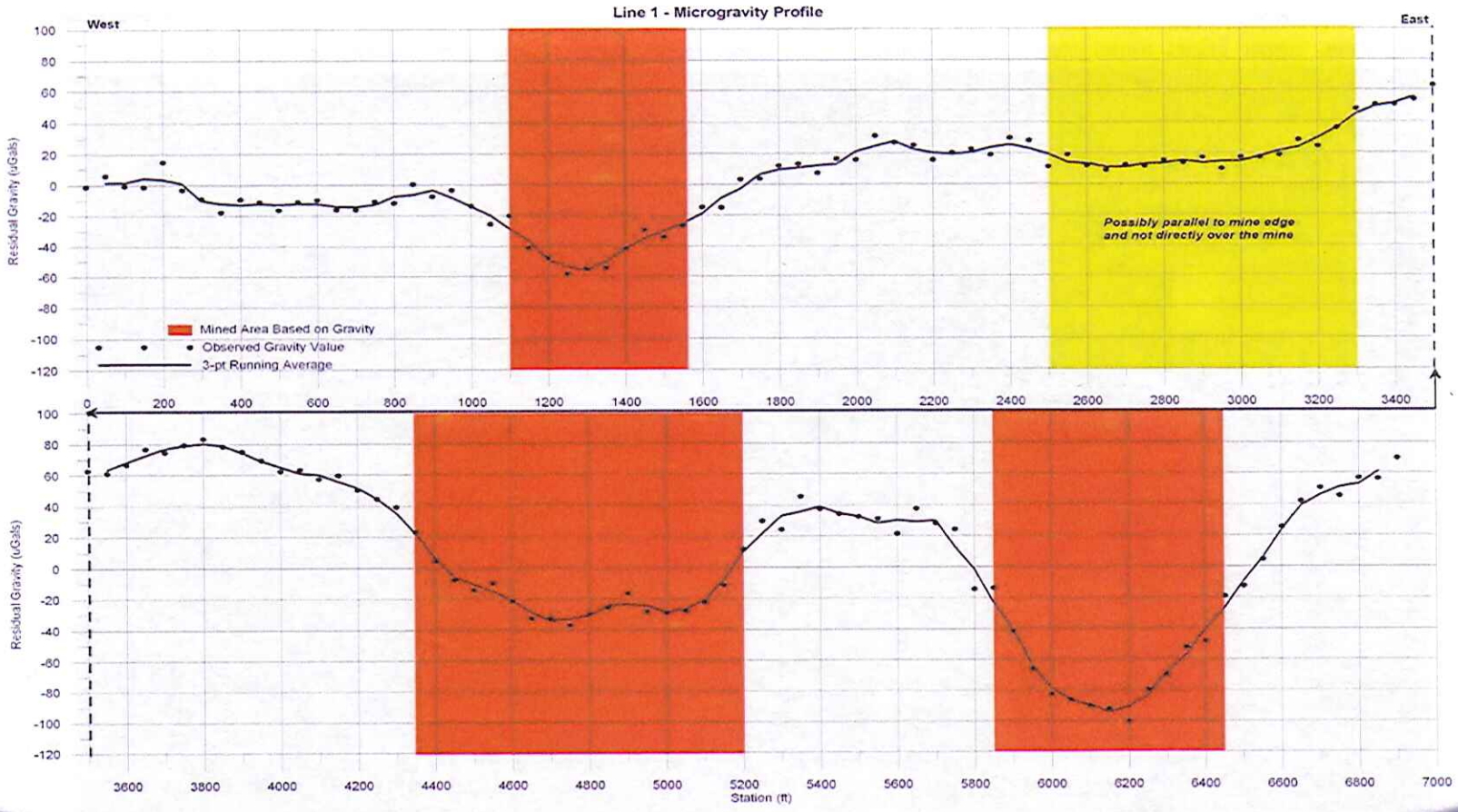
Microgravity Data – Line 1



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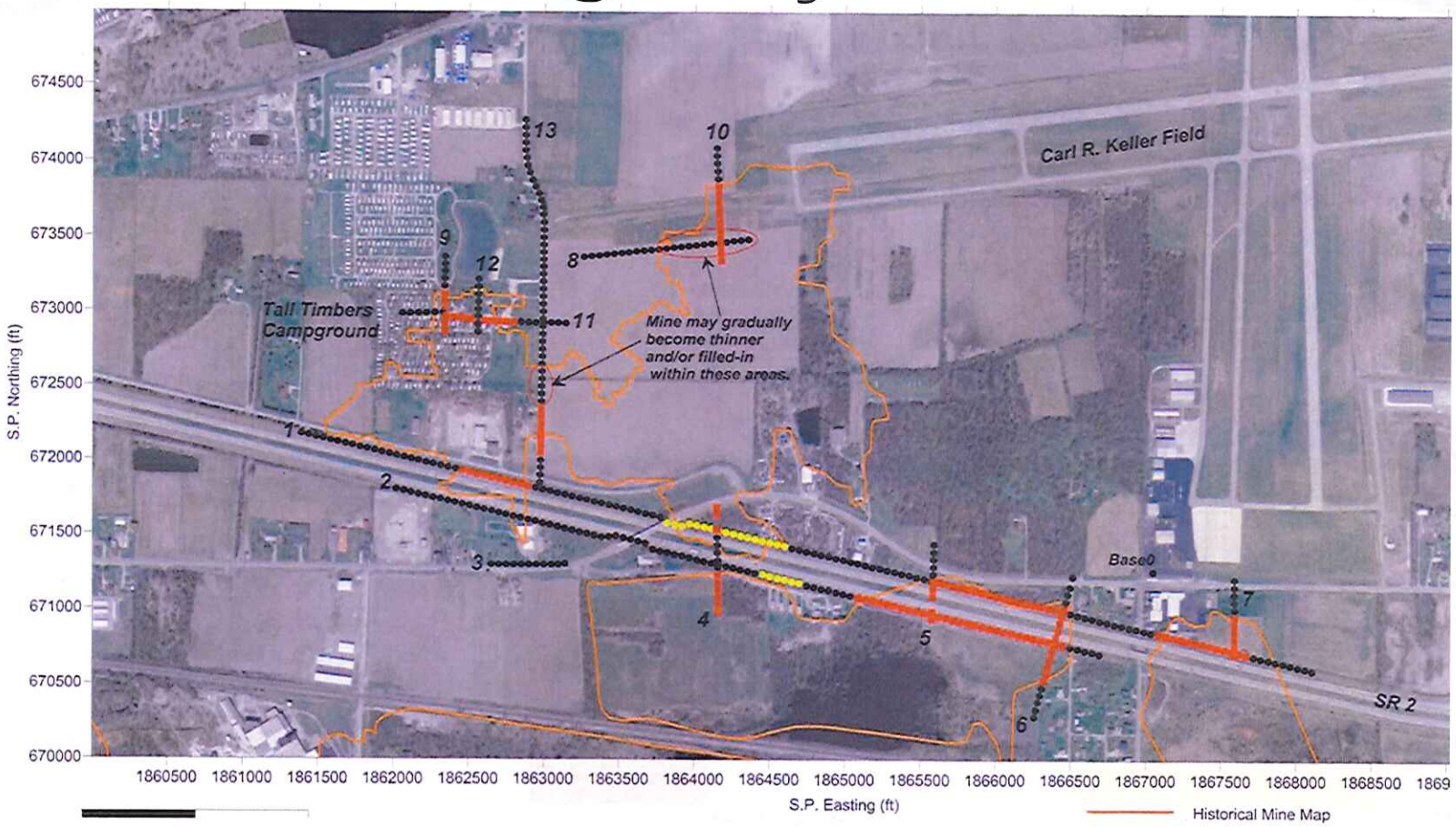
Microgravity Results



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Results from Microgravity Alone

- Response from mine, even at deepest provided a good target for microgravity
- Top of rock is deeper to east
- Mine is deeper to east
- Thickness of mine varies – 2 to 12 ft, getting thinner to northwest

SUBSURFACE INVESTIGATION PLAN

OTT-2-25.06
PID 78672
PORTAGE TOWNSHIP
OTTAWA COUNTY, OHIO

LEGEND
BORING LOCATIONS
MINE LIMITS IN THE SR 2 PROJECT AREA

N
SCALE IN FEET

UNDERGROUND MINE LOCATIONS BELOW SR 2 IN THE STUDY AREA AND BORING LOCATIONS

FIGURE 3

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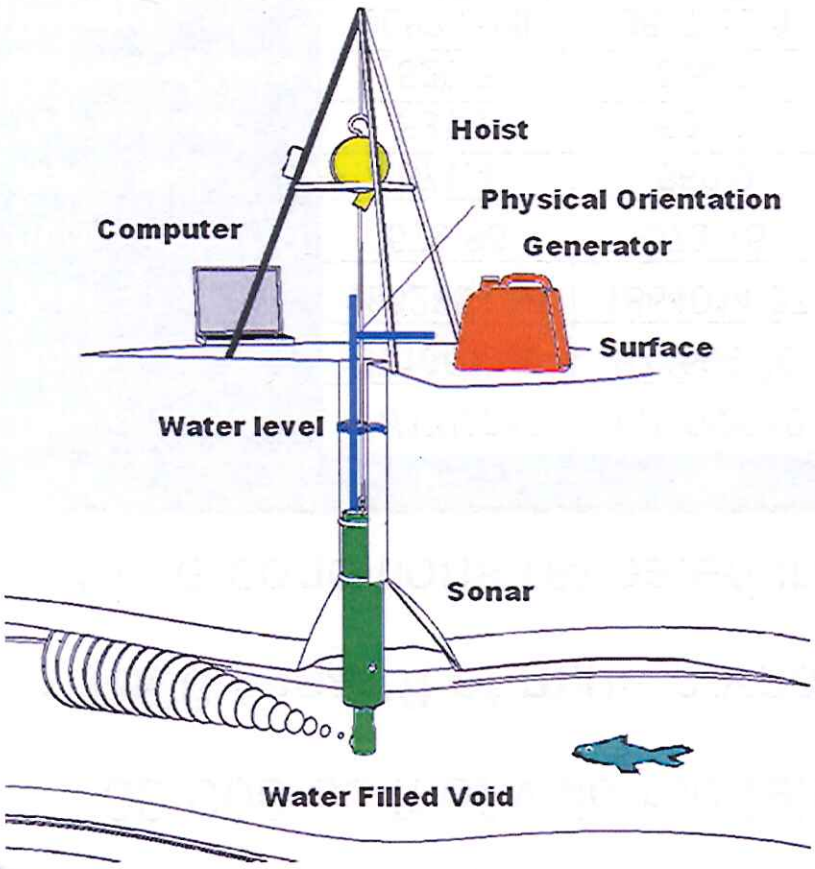
Sonar Deployment



- Sonar deployed by hoist from tripod
- Sonar linked mechanically to the surface providing a physical orientation
- Horizontal sonar scans are collected at 1 ft or less incremental elevations
- Computer controls and logs data from sonar unit

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Statistics

- 200,000 cu ft of void modeled
- 1800 linear ft of mine corridor modeled
- Mine conditions revealed in models

Hole	P-4	P-6	P-11	P-17	P-18
Date of Sonar	11/17/2010	11/19/2010	11/17/2010	11/20/2010	11/20/2010
North	671861.68	671599.10	671017.05	671133.77	671139.71
East	1862851.85	1864014.87	1866416.33	1863336.13	1864129.80
Surface Elev	579.86	579.15	587.66	585.03	584.52
Water Elev	571.4	569.9	571.1	571.4	570.4
Top of Void	531.7	527.7	524.5	547.4	543.5
Bottom of Void	526.5	524.0	514.5	537.3	532.0
Volume	9083 cu ft	3537 cu ft	38314 cu ft	64039 cu ft	80648 cu ft

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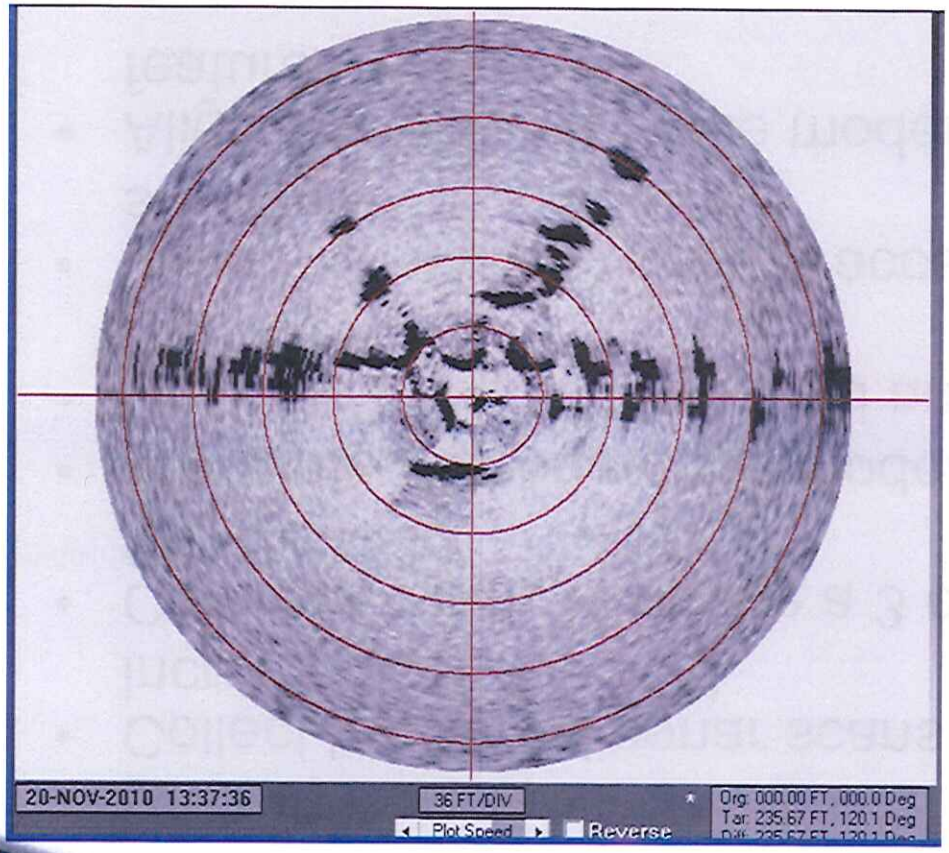
Sonar Modeling Process

- Collect horizontal sonar scans in small vertical increments in the field
- Combine scans to create a 3 dimensional model of the flooded void
- Translate and orient the model into site coordinates
- Produce plots, models, and analyze the model for volume
- View 2-D and 3-D data to access the remaining mine structures
- Align the features in the model with the mine map features

Sonar plot from field P-18



Sonar plot for 1 elevation as viewed in the field

Red circles represent 36 ft per division in this scan

Red cross hairs show the borehole location center of the scan

Center to edge is approximately 200 ft

Dark areas are reflections from surfaces in the mine.

Crisp black lines are from vertical surfaces and fuzzy lines like shown to the left show slope of roof.

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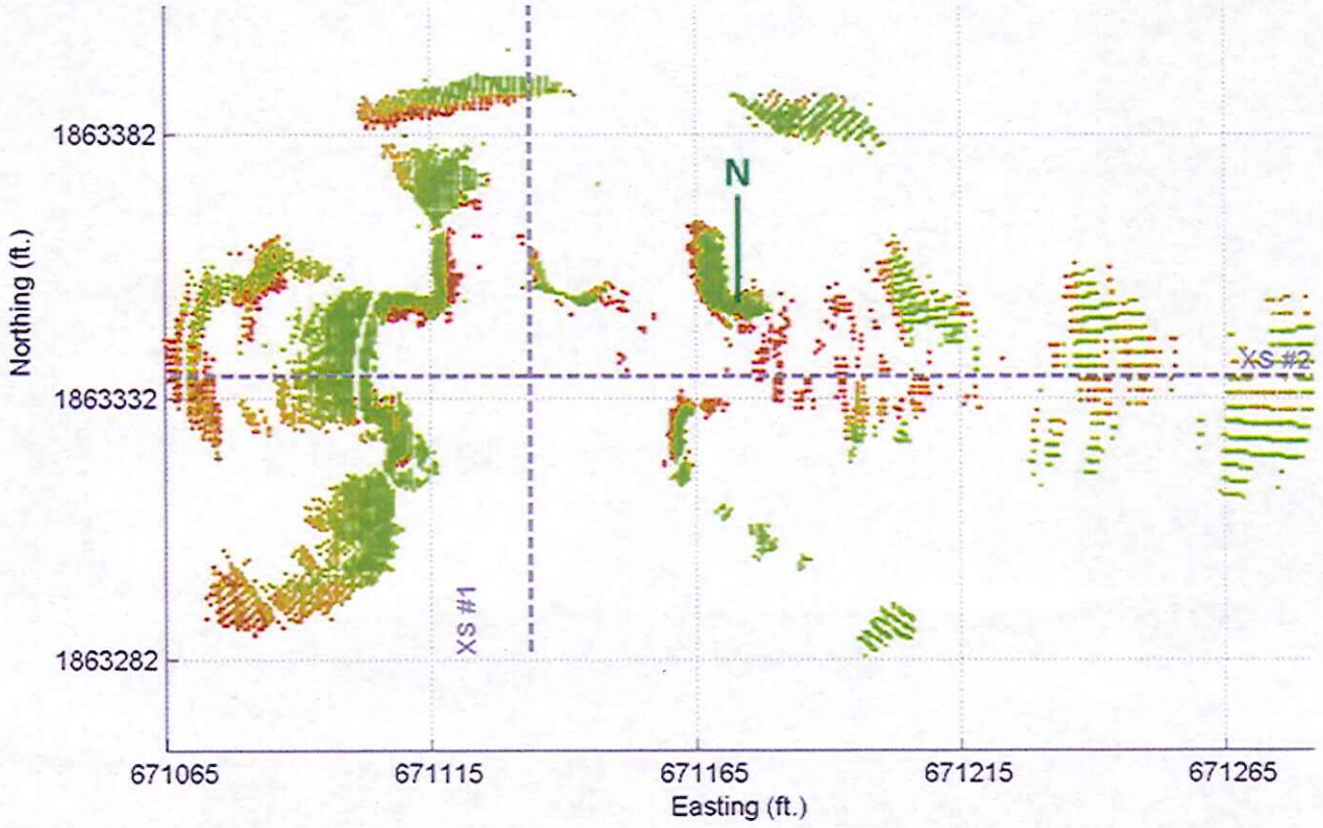
Composite plot of sonar scans P-17



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P-17 sonar aligned on mine map

Sonar Results

- Confirmation and orientation of old mine maps through feature matching with sonar models
- Revealed areas of collapse and areas where pillars are still intact
- Larger models verified dip of the seam where both roof and floor were visible

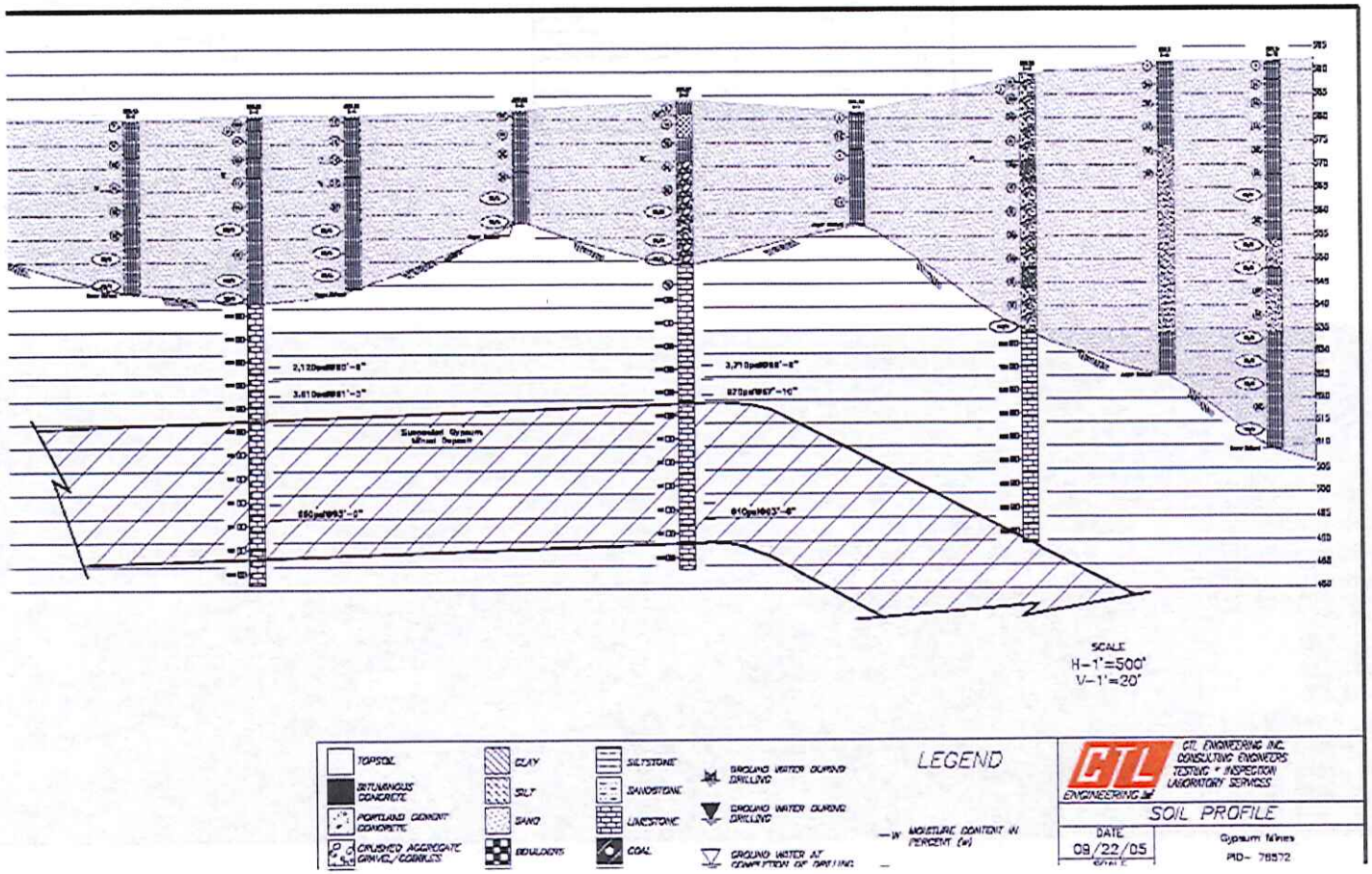
Sonar data was gathered 200 ft from some of the boreholes

The water was filled with suspended particles and visibility was minimal. The camera was only useful to verify the water level and to confirm blockage or bottom.

Alternative Development

- Minie Stabilization (SR-2 maintains current alignment)
- Land bridge (SR-2 maintains current alignment)
- Relocate/Shift SR-2

SR 2 – GENERAL SUBSURFACE PROFILE



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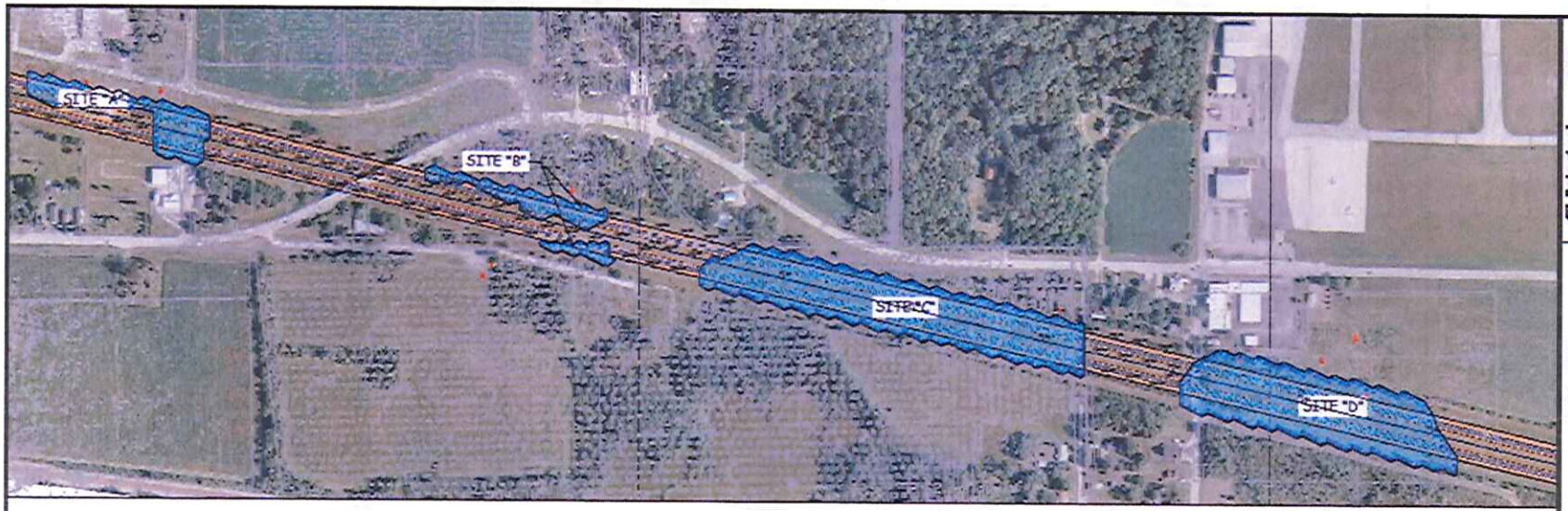
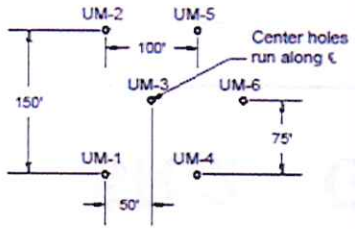
BORING INJECTION PLAN



LEGEND

UM-1 UNMAPPED AREAS OF GYPSUM EXPLORATORY BORINGS

MAPPED GYPSUM MINE GROUT INJECTION AREA



TYPICAL EXPLORATORY HOLE LAYOUT

ENGINEERS ESTIMATE
(UNMAPPED GYPSUM EXPLORATORY BORINGS)

DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
Drilling 70 Unmapped Exploratory Holes	4,900	L.F.	$12.00	$58,800
Casing Unmapped Exploratory Holes	2,450	L.F.	$3.00	$7,350
Purchasing, Handling and Placing Grout	10,000	C.Y.	$125.00	$1,250,000
Sediment Control	100	L.F.	$3.00	$300
Revegetation	1	L.S.	$10,000	$10,000
			Total	$1,326,450

SCALE 1" = 400'

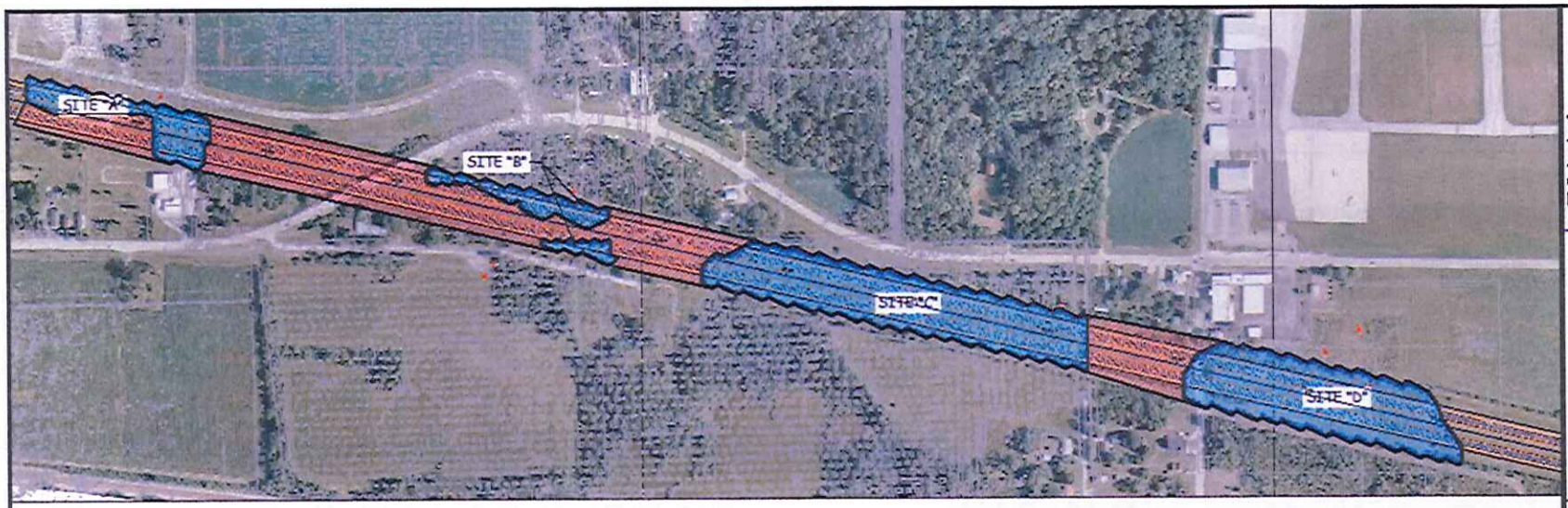
0 400 800 1200

GTL Engineering of West Virginia, Inc.

017 - 2 - 25.05

UNMAPPED EXPLORATORY BORINGS

MINE STABILIZATION PLAN



SITE "A"

Grouted coverage area 87,146 ft²
x Mine Depth 11 ft / 27 ft³/yd³ x
40% Void volume = 14,200 yd³

SITE "B"

Grouted coverage area 61,775 ft²
x Mine Depth 11 ft / 27 ft³/yd³ x
40% Void volume = 10,100 yd³

SITE "C"

Grouted coverage area 318,072 ft²
x Mine Depth 11 ft / 27 ft³/yd³ x
40% Void volume = 51,834 yd³

SITE "D"

Grouted coverage area 273,217 ft²
x Mine Depth 13 ft / 27 ft³/yd³ x
40% Void volume = 52,620 yd³

UNMAPPED AREAS OF GYPSUM EXPLORATORY BORINGS

70 Exploratory Holes x 70 ft Average Depth = 4900 lf

10,000 yd³ Grout

LEGEND

MAPPED GYPSUM MINE GROUT INJECTION AREA

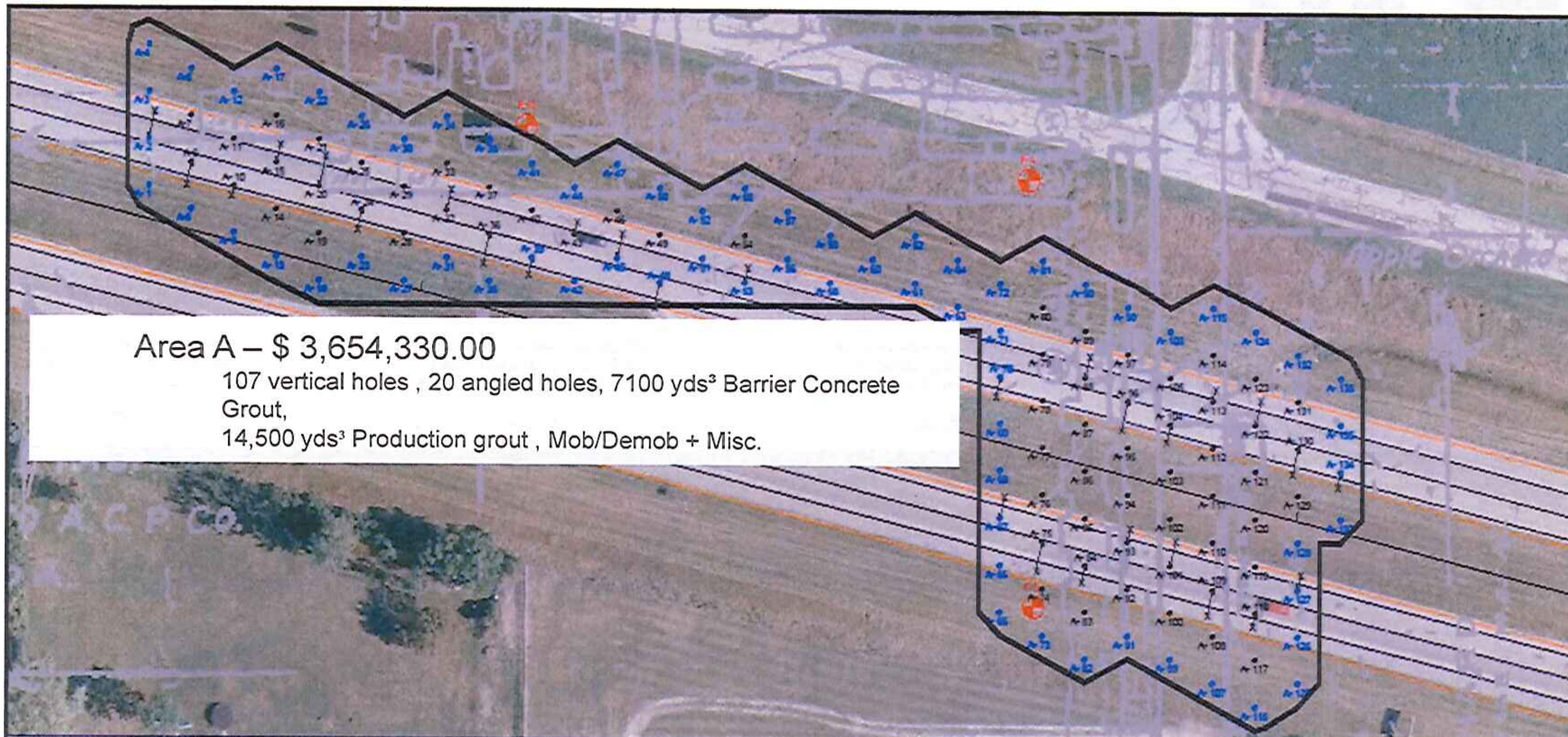
UNMAPPED GYPSUM MINE EXPLORATORY BORING AREA

SCALE 1" = 400'

0 400 800 1200

017-2-2105

OVERALL SITE PLAN



Area A – $ 3,654,330.00

107 vertical holes , 20 angled holes, 7100 yds³ Barrier Concrete Grout,
14,500 yds³ Production grout , Mob/Demob + Misc.

LEGEND

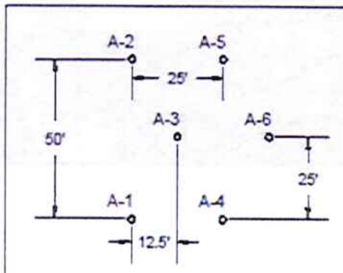
- VERTICAL GROUT INJECTION HOLE
- ANGLED GROUT INJECTION HOLE
- BARRIER INJECTION HOLE
- BORE HOLE

SCALE 1" = 60'

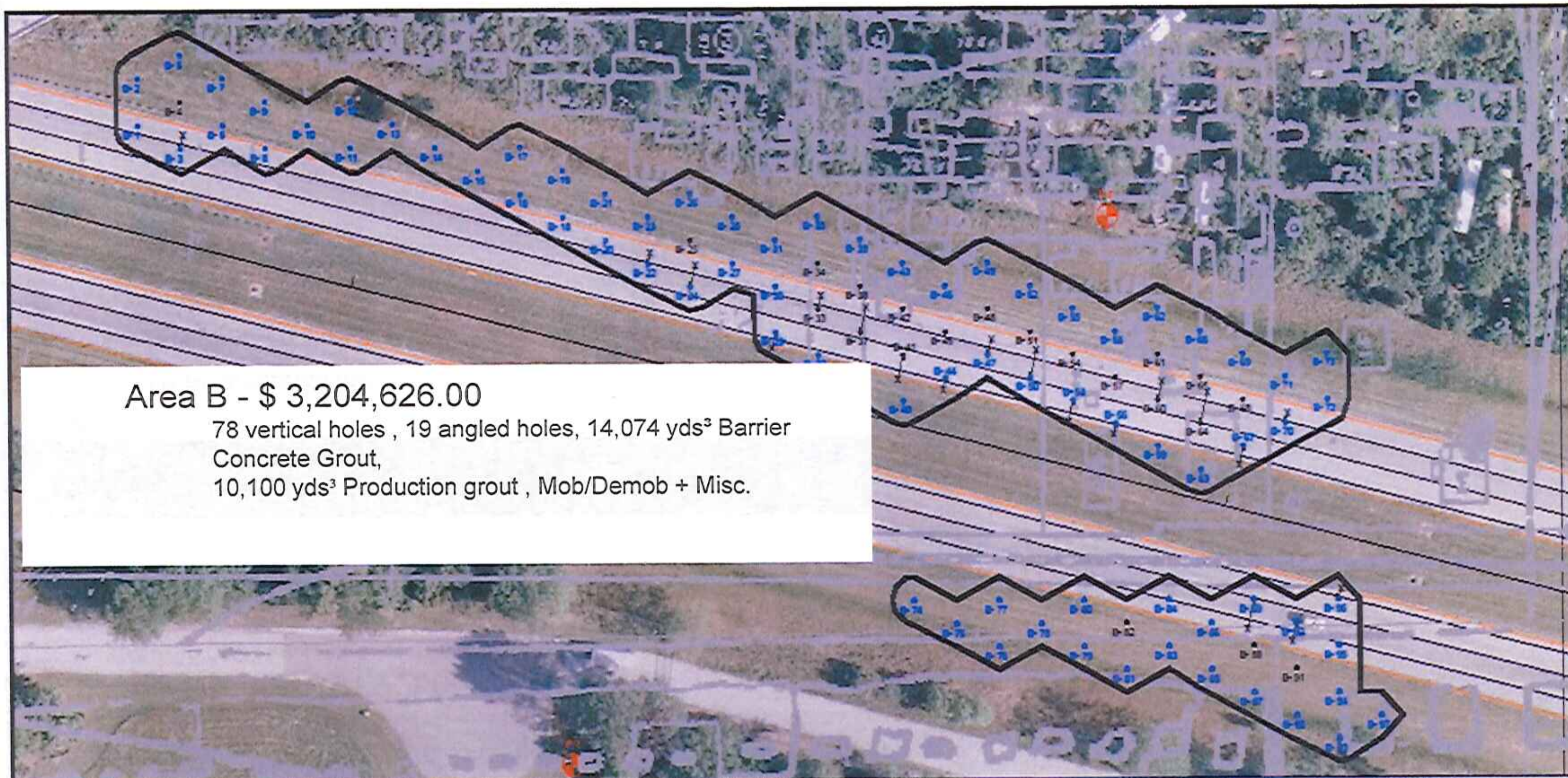
0 60 120 180

ENGINEERS ESTIMATE
(SITE "A" ONLY)

DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
Mobilization and Demobilization	1	L.S.	$60,000	$60,000
Construction Layout	1	L.S.	$5,000	$5,000
Quality Control	1	L.S.	$10,000	$10,000
Drilling 107 Vertical Injection Holes	6,420	L.F.	$12.00	$77,040
Casing Vertical Injection Holes	3,210	L.F.	$3.00	$9,630
Drilling 20 Angled Injection Holes	1,773	L.F.	$18.00	$31,914
Casing Angled Injection Holes	887	L.F.	$3.00	$2,661
Purchasing, Handling and Placing Concrete	710	C.Y.	$95.00	$67,450
Purchasing, Handling and Placing Grout	14,200	C.Y.	$125.00	$1,775,000
Confirmation Drilling	240	L.F.	$35.00	$8,400
Borehole Photography	10	HRS.	$40.00	$400
Sediment Control	100	L.F.	$3.00	$300
Dewatering	1	L.S.	$37,500	$37,500
QA-Program Inc. some regrouting	1	L.S.	$375,000	$375,000
Revegetation	1	L.S.	$10,000	$10,000
			Total	$3,654,330
			Grouted Area	87,145 ft^2
			Price per ft^2	$41.93/$ft^2$



TYPICAL GROUT INJECTION HOLE LAYOUT



Area B - $ 3,204,626.00

78 vertical holes , 19 angled holes, 14,074 yds³ Barrier Concrete Grout,
10,100 yds³ Production grout , Mob/Demob + Misc.

LEGEND

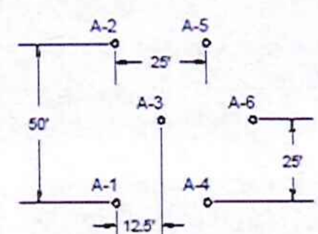
- VERTICAL GROUT INJECTION HOLE
- ANGLED GROUT INJECTION HOLE
- BARRIER INJECTION HOLE
- BORE HOLE

SCALE 1" = 60'

0 60 120 180

ENGINEERS ESTIMATE
(SITE "B" ONLY)

DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
Mobilization and Demobilization	1	L.S.	$80,000	$80,000
Construction Layout	1	L.S.	$5,000	$5,000
Quality Control	1	L.S.	$10,000	$10,000
Drilling 78 Vertical Injection Holes	4,311	L.F.	$12.00	$51,732
Casing Vertical Injection Holes	2,132	L.F.	$3.00	$6,396
Drilling 19 Angled Injection Holes	1,045	L.F.	$18.00	$18,810
Casing Angled Injection Holes	520	L.F.	$3.00	$1,560
Purchasing, Handling and Placing Barrier Material	14,074	C.Y.	$95.00	$1,337,030
Purchasing, Handling and Placing Grout	10,100	C.Y.	$125.00	$1,262,500
Confirmation Drilling	240	L.F.	$35.00	$8,400
Borehole Photography	10	HRS.	$40.00	$400
Sediment Control	100	L.F.	$3.00	$300
Dewatering	1	L.S.	$37,500	$37,500
QA-Program Inc. some regrouting	1	L.S.	$375,000	$375,000
Revegetation	1	L.S.	$10,000	$10,000
			Total	$3,204,628
			Grouted Area	61,775 ft²
			Price per ft²	$51.88/ft²



TYPICAL GROUT
INJECTION HOLE LAYOUT

Area C - $ 9,791,22500

399 vertical holes , 109 angled holes, 23,889 yds³ Barrier Concrete Grout,
51,834 yds³ Production grout , Mob/Demob + Misc.

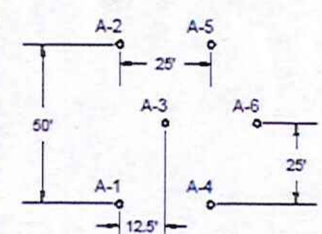
LEGEND

- VERTICAL GROUT INJECTION HOLE
- ANGLED GROUT INJECTION HOLE
- BARRIER INJECTION HOLE
- BORE HOLE

ENGINEERS ESTIMATE
(SITE "C" ONLY)

DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
Mobilization and Demobilization	1	L.S.	$80,000	$80,000
Construction Layout	1	L.S.	$5,000	$5,000
Quality Control	1	L.S.	$10,000	$10,000
Drilling 399 Vertical Injection Holes	23,940	L.F.	$12.00	$287,280
Casing Vertical Injection Holes	15,960	L.F.	$3.00	$47,880
Drilling 109 Angled Injection Holes	6,760	L.F.	$18.00	$121,680
Casing Angled Injection Holes	4,360	L.F.	$3.00	$13,080
Purchasing, Handling and Placing Barrier Material	23,889	C.Y.	$95.00	$2,269,455
Purchasing, Handling and Placing Grout	51,834	C.Y.	$125.00	$6,479,250
Confirmation Drilling	1,200	L.F.	$35.00	$42,000
Borehole Photography	40	HRS.	$40.00	$1,600
Sediment Control	500	L.F.	$3.00	$1,500
Dewatering	1	L.S.	$37,500	$37,500
QA-Program Inc. some regrouting	1	L.S.	$375,000	$375,000
Revegetation	1	L.S.	$20,000	$20,000
			Total	$9,791,225
			Grouted Area	318,072 ft²
			Price per ft²	$30.78/ft²

SCALE 1" = 100'

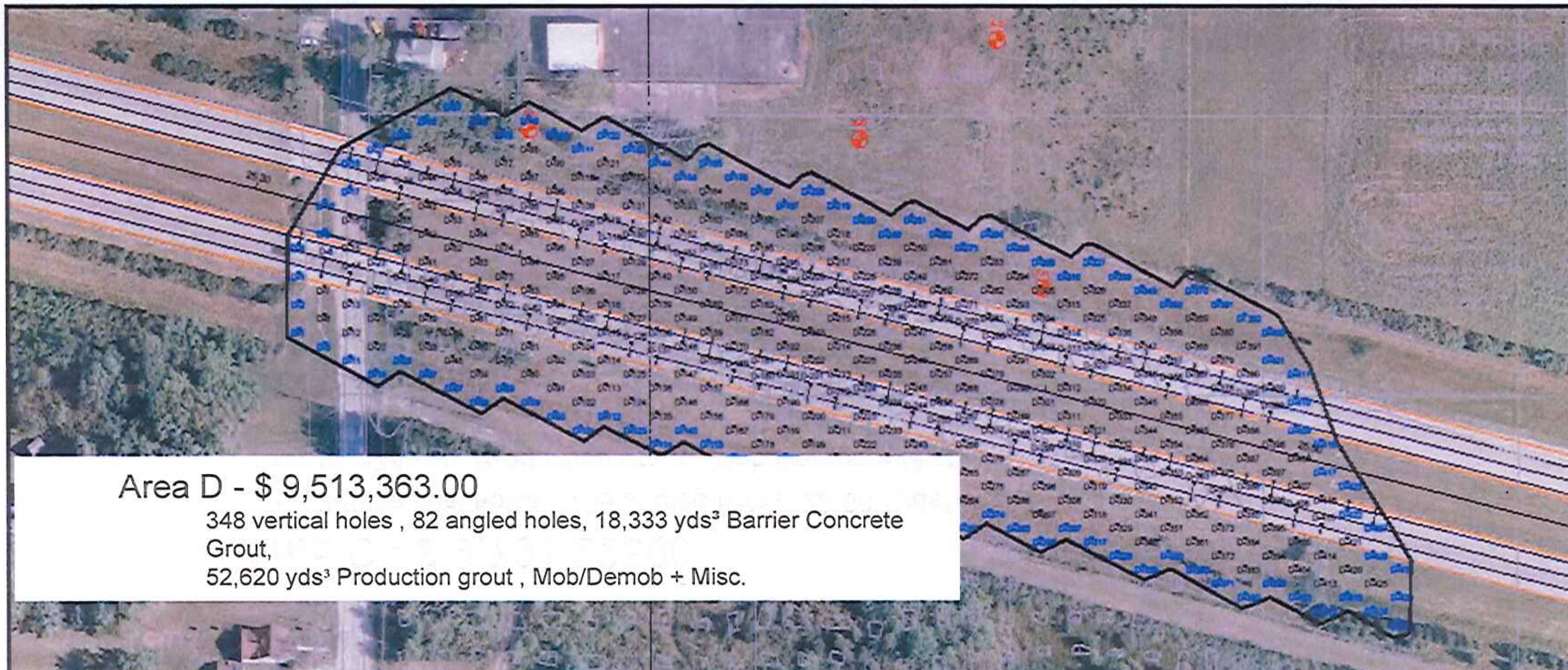


TYPICAL GROUT
INJECTION HOLE LAYOUT

CTL Engineering of West Virginia, Inc.

OTT-2-28.06

SITE "C" STA. 4/13 - 4/20



Area D - $ 9,513,363.00

348 vertical holes , 82 angled holes, 18,333 yds³ Barrier Concrete Grout,
52,620 yds³ Production grout , Mob/Demob + Misc.

LEGEND

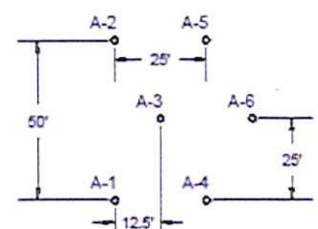
- VERTICAL GROUT INJECTION HOLE
- ANGLED GROUT INJECTION HOLE
- BARRIER INJECTION HOLE
- BORE HOLE

ENGINEERS ESTIMATE
(SITE "D" ONLY)

DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
Mobilization and Demobilization	1	L.S.	$80,000	$80,000
Construction Layout	1	L.S.	$5,000	$5,000
Quality Control	1	L.S.	$10,000	$10,000
Drilling 348 Vertical Injection Holes	33,060	L.F.	$12.00	$396,720
Casing Vertical Injection Holes	24,012	L.F.	$3.00	$72,036
Drilling 82 Angled Injection Holes	8,036	L.F.	$18.00	$144,648
Casing Angled Injection Holes	5,458	L.F.	$3.00	$16,374
Purchasing, Handling and Placing Barrier Material	18,333	C.Y.	$95.00	$1,741,635
Purchasing, Handling and Placing Grout	52,620	C.Y.	$125.00	$6,577,500
Confirmation Drilling	950	L.F.	$35.00	$33,250
Borehole Photography	40	HRS.	$40.00	$1,600
Sediment Control	500	L.F.	$3.00	$1,500
Dewatering	1	L.S.	$37,500	$37,500
QA-Program inc. some regrouting	1	L.S.	$375,000	$375,000
Revegetation	1	L.S.	$20,000	$20,000
			Total	$9,513,363
			Grouted Area	273,217 ft²
			Price per ft²	$34.82/ft²

SCALE 1" = 100'

0 100 200 300



TYPICAL GROUT
INJECTION HOLE LAYOUT

CTL Engineering of West Virginia, Inc.

OTT-2-28.05

SITE "D" STA. 482-484

Grouting Costs

- Area A – $ 3,654,330.00
  - 107 vertical holes , 20 angled holes, 7100 yds³ Barrier Concrete Grout,
  - 14,500 yds³ Production grout , Mob/Demob + Misc.
- Area B - $ 3,204,626.00
  - 78 vertical holes , 19 angled holes, 14,074 yds³ Barrier Concrete Grout,
  - 10,100 yds³ Production grout , Mob/Demob + Misc.
- Area C - $ 9,791,22500
  - 399 vertical holes , 109 angled holes, 23,889 yds³ Barrier Concrete Grout,
  - 51,834 yds³ Production grout , Mob/Demob + Misc.
- Area D - $ 9,513,363.00
  - 348 vertical holes , 82 angled holes, 18,333 yds³ Barrier Concrete Grout,
  - 52,620 yds³ Production grout , Mob/Demob + Misc.

TOTAL MINE REMEDIATION

$ 26,163,544

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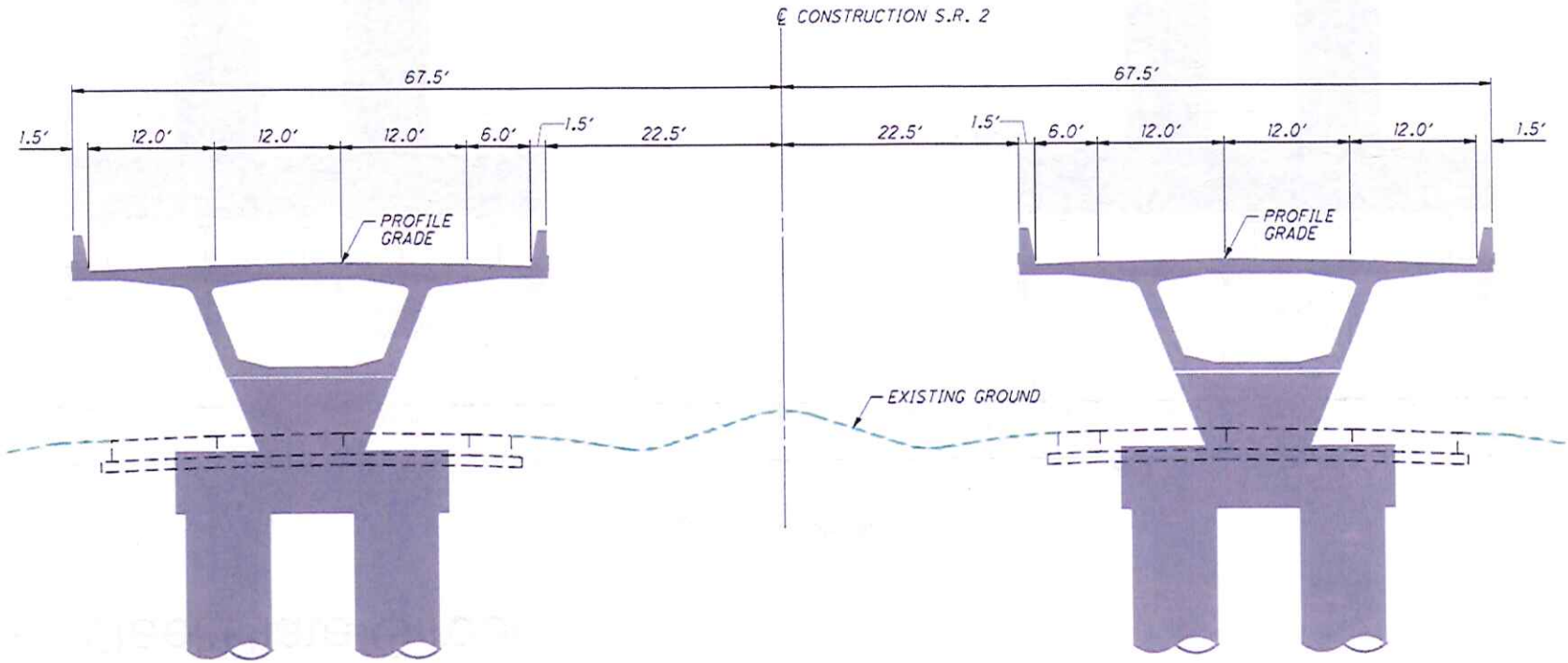
Land Bridge Alternative

- Segmental Concrete Box Girder



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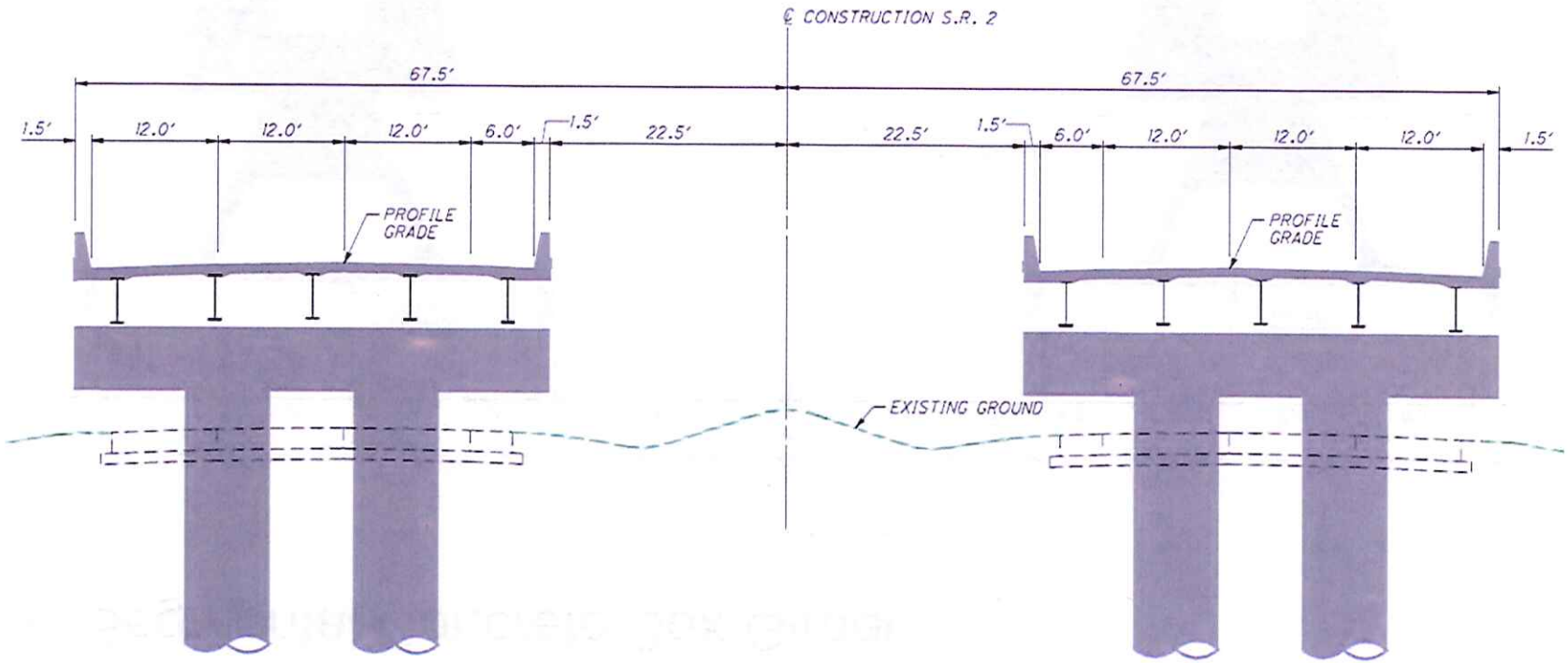
Land Bridge Alternative

- Steel Plate Girder



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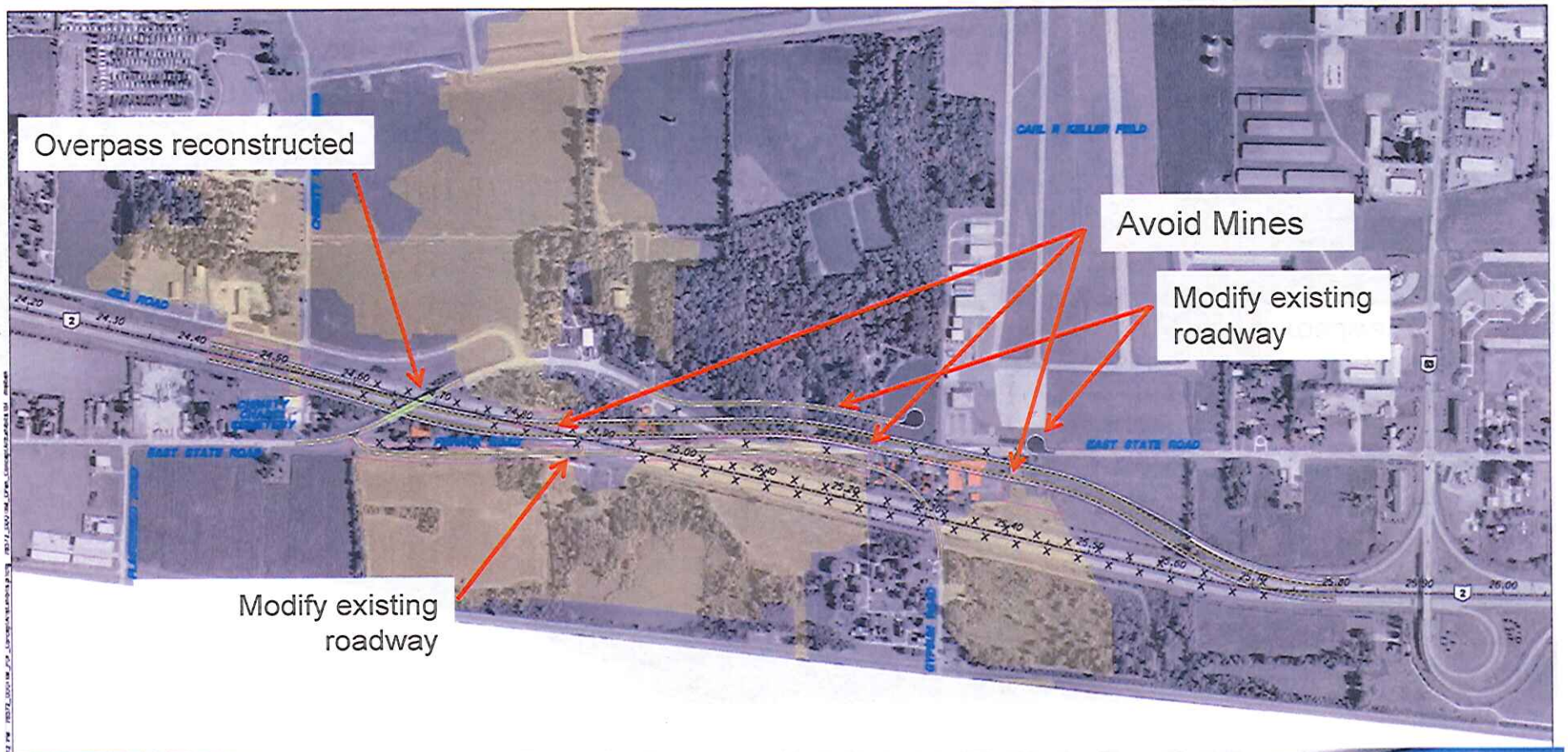
Shift SR-2: Alternative 3A



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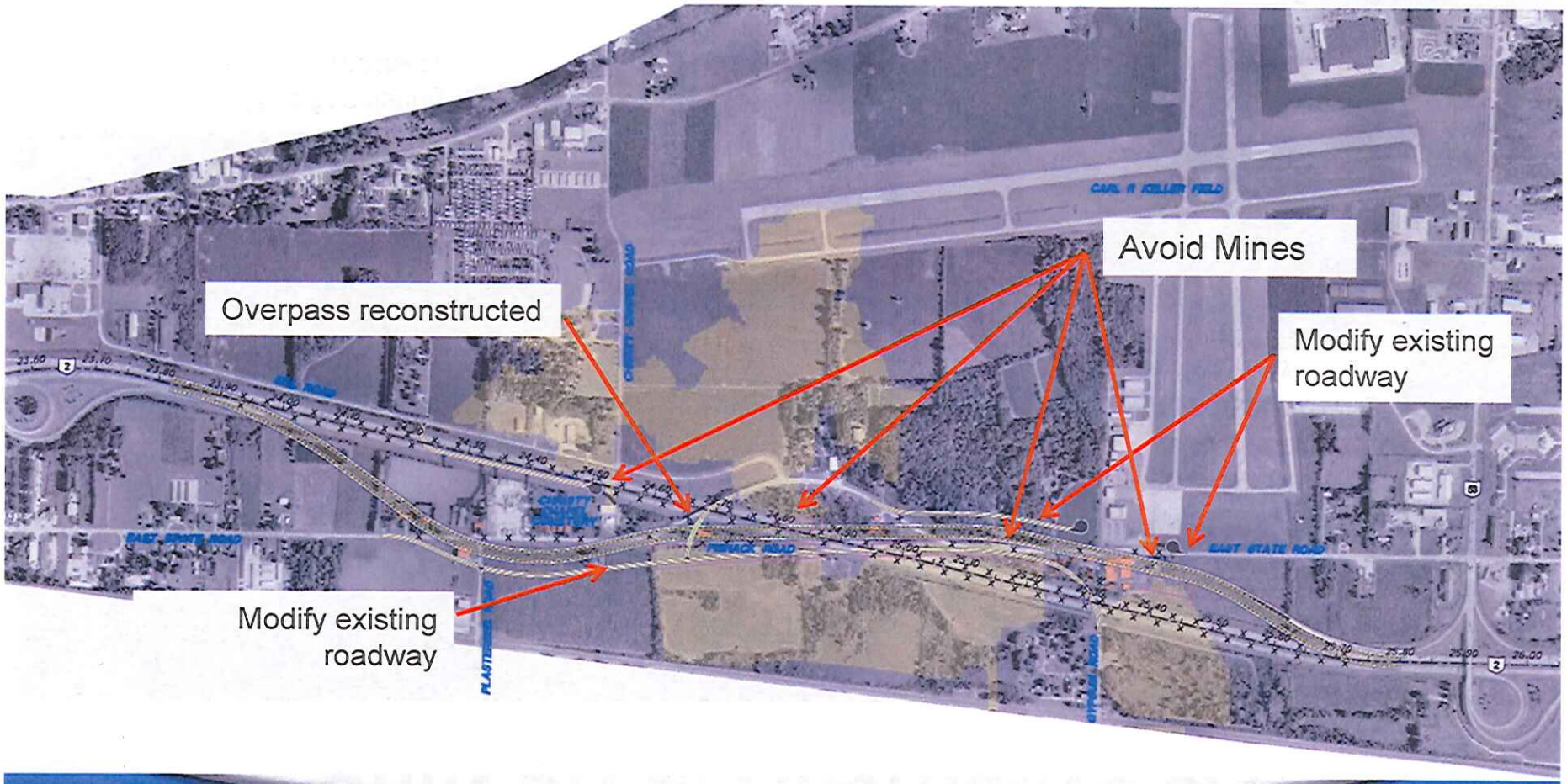
Shift SR-2: Alternative 3B



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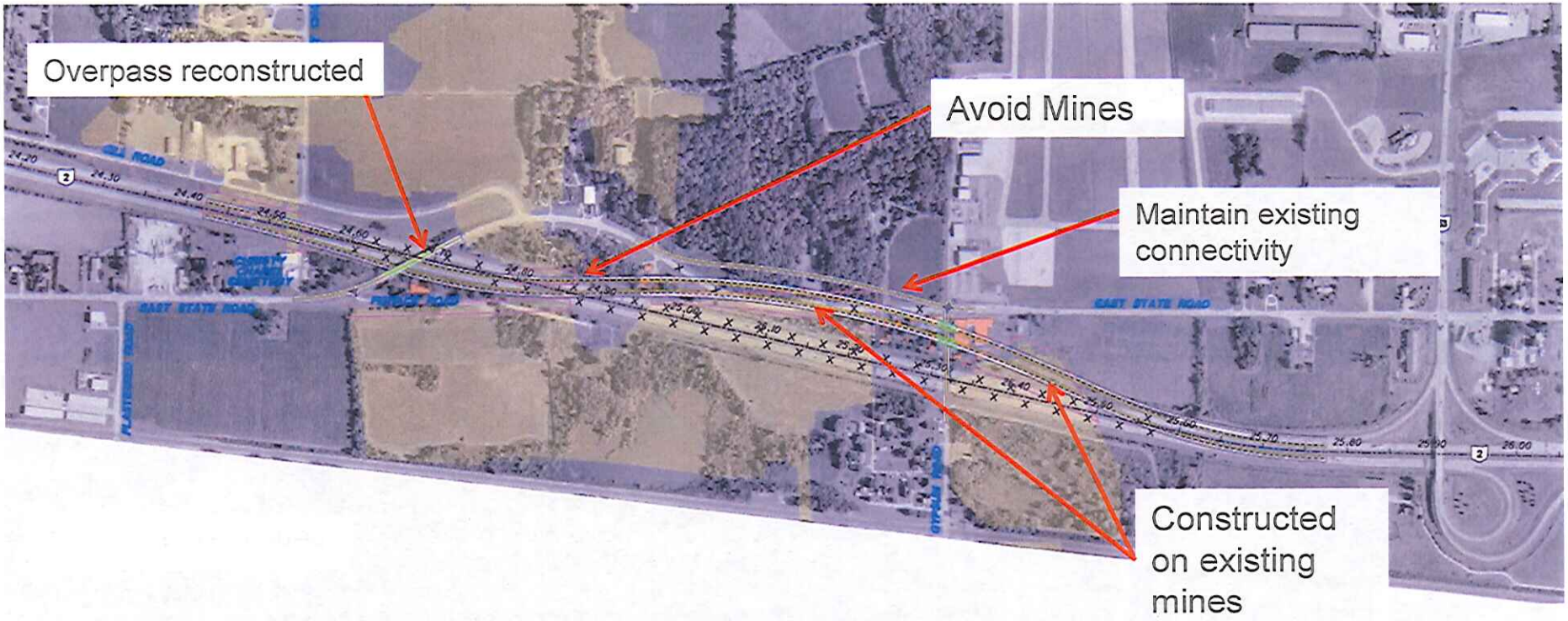
Shift SR-2: Alternative 3C



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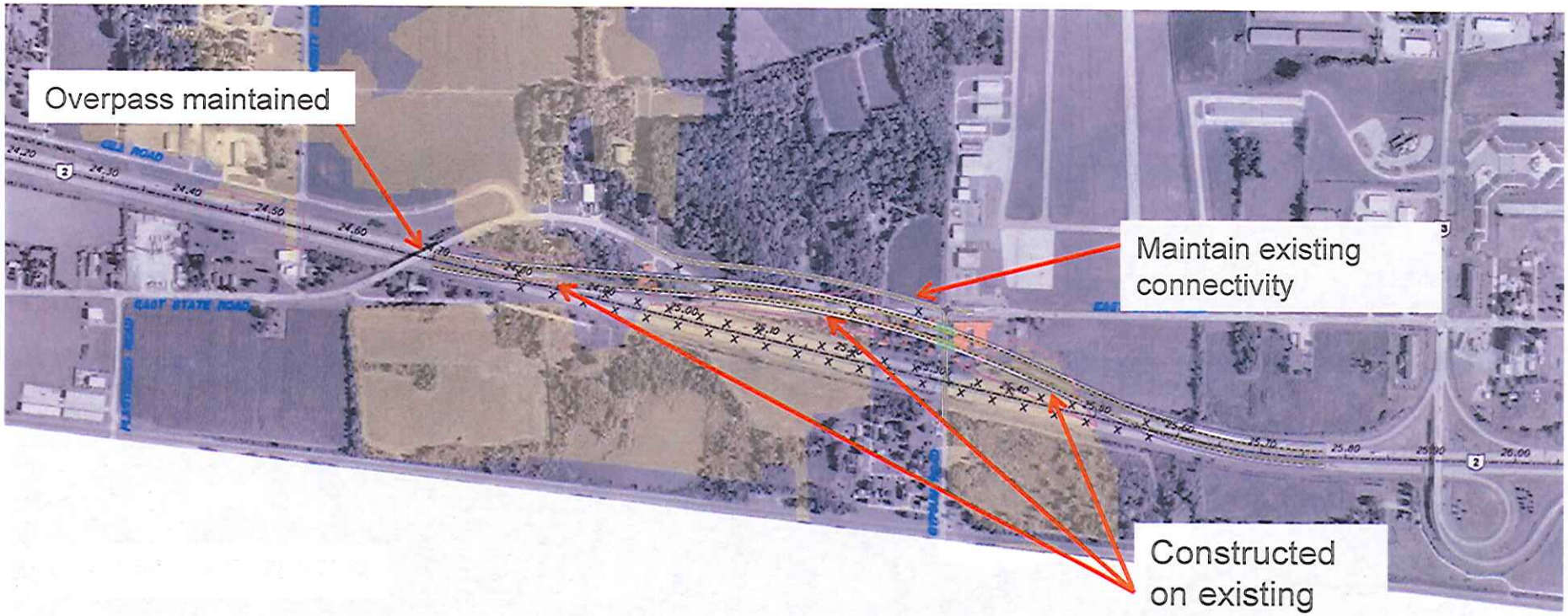
Shift SR-2: Alternative 3D



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Conclusions and Recommendations

- Land Bridge – Eliminated from further consideration
  - High construction cost
  - Long construction schedule
  - High impact to existing traffic

- Mine Stabilzation – Continued for further consideration
  - Minimally satisfy all key elements of the Purpose & Need

Conclusions and Recommendations

- Shift SR-2: Alt. 3A and 3B – Eliminated from further consideration
  - High right-of-way needs
  - Long construction schedule
  - Alter existing roadway network

- Shift SR-2: Alt. 3A and 3B– Continued for further consideration
  - Minimally satisfy all key elements of the Purpose & Need

Next Steps

- PREPARE A DESIGN FOR A SMALL PILOT PROJECT, THERE IS A CONCERN REGARDING THE GROUTING AND BARRIERS FOR VOIDS POSSIBLY EXCEEDING 13 FEET IN HEIGHT

- EVALUATE THE RESULTS OF THE PILOT PROJECT TO DETERMINE THE MOST FEASIBLE APPROACH TO STABILIZING THESE MASSIVE VOIDS

- DEVELOP DESIGN DOCUMENTS IN ACCORDANCE WITH THE BEST ALTERNATIVE

QUESTIONS?

Nomination Template

Project Data

Project PID	78572
Project Name	OTT-2-25.05
Road	State Route 2 (SR-2)
County or Municipality	Ottawa County
ODOT District	District 2
Category for which project is being nominated	Best Rural Project
Construction project Number	426431
Dates of PS&E, Letting and Construction Completion	PS&E: October 2012 Letting: March 2013 Construction: Sept. 2013 – Spring 2016
Name of Organization Submitting	ODOT D2, CH2M and CTL
Contact person for award-related material/submittal (Name, email, phone, mailing address)	Shawn Thompson Shawn.Thompson@ch2m.com (614) 825-6757 1103 Schrock Road, Suite 400, Columbus
Region Contact Person and their role	Doug Rogers, PE, Project Manager
Project Personnel and their roles, including significant players from bureaus (e.g. Structures), agencies, consultants, etc.	Bureaus: Office of Geotechnical Engineering Agencies: ODOT, Ohio EPA, Consultants: CH2M, CTL

Award Ceremony Information:

Person(s) accepting award at ceremony (Name, Email, phone)	Doug Rogers, Doug.Rogers@dot.ohio.gov, (419) 373-4397 Mike Gramza, Mike.Gramza@dot.ohio.gov, (419) 373-4466 Shawn Thompson, Shawn.Thompson@ch2m.com, (614) 825-6757 Patrick Gallagher, pgallagher@ctleng.com, (304) 292-1135
Names to show on certificate, up to 6 persons and their companies or roles	Doug Rogers, PE (ODOT D2, Planning & Engineering) Mike Gramza, PE (ODOT D2, Planning and Engineering Administrator) Vince Roberts, PE (ODOT D2, Construction) Brian Logston, PE (ODOT Office of Geotechnical Engineering) CH2M (Study & Design) CTL (Study & Design)

One JPG image to be used on certificate	Attached

Executive Summary:

Overall purpose, goals, and design methodology	The purpose of this project was to investigate solutions to the potential/impending failure of State Route 2 (SR-2) where it lies over abandoned gypsum mines. The gypsum mines lie roughly between the SR-2/SR-53 interchange and the SR-2/SR-163 interchange in Ottawa County, Portage Township. The gypsum mines were already in place when SR-2 was originally constructed. The mines were abandoned and allowed to flood. Since gypsum is soluble in water, the gypsum columns supporting the mine roof are unstable. Over the past 5 to 10 years, numerous and more frequent subsidence events have been documented in areas surrounding SR-2. As a result of these events and because of their threat to SR-2, this project was undertaken to assess the extent and condition of the mines and evaluate remediation alternatives. Goals included the following: • Repair and undermined areas under State Route 2 to provide safety to motorists • Retaining the limited access functionality of SR-2 • Minimizing peak-season traffic disruptions during construction • Resuming normal conditions, as quickly as possible • Avoiding long-term community impacts • Implementing a permanent solution considering cost and risk of future mine subsidence
Highlight any unique aspects of the project	A surface geophysical investigation was completed. This study used microgravity analysis to determine the gypsum mine boundaries. Resistivity imaging was used to determine geologic conditions and variability across the site. The microgravity analysis determined that the gypsum mine generally correlated well with the historical mine map. The resistivity imaging was very successful in mapping lateral and horizontal variations across the site. The stabilization of the road was done by a technique known as grout injection. The project drilled over 500 injection holes into the underlying mine voids which were between 45 and 90 vertical feet below the roadway. A total of 118,000 cubic yards of grout was injected into the submerged mine voids which were between 6' and 14' in height. The section of state route 2 that was stabilized was over 1 mile in length and following the drilling and grouting all lanes were newly paved. The project was completed in 2 phases, West bound lanes were stabilized from Sept 2013 – May 2014 & the east bound lanes were stabilized Sept 2014 – June

	2015.

Judging Criteria:

Project Development Process

Project development schedule maintained	An aggressive schedule was an integral part of this project given that it was declared an emergency. The ODOT PDP was maintained on an accelerated schedule given the emergency nature.
Effective comment and conflict resolution process	Proactive communication with the public and municipalities within project limits was a priority to ensure the public knew about the project and restrictions for travel during construction.
Cooperative and effective project management	Meeting the aggressive schedule was a true team effort that involved communication on a daily basis from the geotechnical investigation through final design.

Plan and Contract Quality

Project bid cost relative to budget estimates as a measure of fiscal planning	$20.7M
Quantity variations	
Total number of bid items on project(s)	86
Number of items for which the final quantity was within 2% of the quantity as let	20
Contract Change Orders	
Number and value of change orders. Explain why changes were needed	35 Change orders approximately $700,000 related to Changes in the field which changed quantities based on actual payments vs. estimated quantities for underground work. This amount included over $140,000 for a VE savings. $3.6 million in change orders for work that was non-performed because the construction engineer was able to manage damage to pavement during MOT. $1.6 million in added work and equally non-performed work for quantity difference in barrier grout and production grout (means and methods of contractor, not design related).

Number of design related changes. Explain why changes were needed	#11 Approximately $15,000 for temporary paint and rumble strip removal that were left out of the plans.
Dollar change from "as let" cost due to CCO's and quantity revisions	$1,201,449.86
Cost change as percentage of as let cost	+ 5.8% ie. 20,668,621.89 bid amount, current amount = 21,870,071.75
Addenda	
Number of addenda issued prior to letting	6
General nature and change in construction cost for each addenda	Addenda were clarifications for plans and allowable grouting materials and methods.

Alignment and Location Design

Alternatives	
Number and general nature of alternative alignments including relationship to location of existing roadway	Investigation of the extent and condition of the mines included completion of a geophysical investigation, drilling boreholes, laboratory testing, mapping of mine voids using sonar technology, and a review of historical information. The data and information collected was used to develop and evaluate conceptual alternatives to minimize the risk of a mine collapse adversely affecting SR-2. • Conceptual Alternative 1—Land Bridge on Existing Alignment This alternative consists of the design and construction of a bridge or bridges founded on a system of deep foundations. The bridges are intended to span the mine area. This option allows the SR-2 corridor to remain in its existing location, supported by a structure that will prevent damage resulting from future mine subsidence. • Conceptual Alternative 2—Mine Remediation This alternative involves filling the mine voids under and within the zone of influence of SR-2. The void space would be injected with grout consisting of a combination of cement, sand, and fly ash. This alternative will allow the existing SR-2 corridor to remain in its current location. • Conceptual Alternative 3A through 3D—Shift SR-2 to Avoid Mines This alternative will use roadway realignments to avoid many of the areas susceptible to mine subsidence while maintaining the existing interchanges. Localized mine remediation or land bridges would still be required for this alternative in areas

	where the relocated road is within the influence zone of the mines. Four configurations were developed and evaluated as part of this alternative. Based on the evaluation of conceptual alternatives, the following recommendations were developed: • Alternative 1 was eliminated from further consideration. Among the benefits of a land bridge is that it maintains SR-2 in its existing location and minimizes the risk of subsidence induced roadway damage. However, it was eliminated from further consideration due to an anticipated long construction schedule, high cost of construction, and high impact to existing traffic. • Alternative 2 was found to minimally satisfy all of the key elements of the project's purpose and need. Consequently, mine remediation is recommended for further consideration. • Alternatives 3A and 3B were eliminated from further consideration. These relocated SR-2 alternatives maximized the ability to avoid the existing mines. However, they were eliminated from further consideration due to right-of-way needs, long construction schedule and the altered local roadway network would potentially affect the Ottawa County tourist industry. • Alternatives 3C and 3D were found to minimally satisfy all of the key elements of the project's purpose and need. Consequently, these configurations are recommended for further consideration.
Alignment fit	
Efforts to fit to topography thereby minimizing cuts and fills, allowing flatter back slopes, more gradual driveway slopes, etc.	Relocating SR 2 was significantly more impactful. The alternative to remediate the mines and leave SR-2 in place dramatically minimized impacts to topography.
Design practices	
Safety and maintenance-related considerations incorporated into design. (Improving vision, raising grade through marshes, etc.)	CH2M developed a robust MOT scheme to maintain traffic during construction. As an important route to Lake Erie and Marblehead peninsula, and a secondary access to Cedar Point, it was key to minimize peak season traffic disruptions. Therefore, we implemented a pilot project before full construction to proactively identify what safety concerns may appear. During the pilot project, a small section was grouted to see how the design and material would work and to test for a collapse. Afterwards the results were evaluated to determine the most feasible approach to stabilize voids.

Cost-Effective Design

Design elements which reduced costs. Identify this impact in terms of ODOT construction cost, cost to traveling public, or cost to entire public	Of the alternatives developed, the alternative with the lowest construction cost was implemented.
Project Maintainability	Risk management played an important role in this project. We weight the risks of maintaining SR-2 on the existing alignment against several other options. Considering all risks involved, the project proceeded on the most risk-conscience path available. Similarly, the thorough and innovative geotechnical investigation and implementing a the pilot project helped to successfully maintain the existing corridor and keep traffic open during construction with the most cost effective solution.

Complexity of Design

Unusual, non-standard, or innovative design features and practices	Repairing the mines, which had up to 14 feet high mine shafts, had not been successfully accomplished in the United States prior to this project. Implementing a pilot project to test remediation of the mines and leaving SR-2 in place were unique and innovative features. The pilot project confirmed that the concept developed by the design team would be a safe and technically correct way of supporting the State Route 2 roadway. During the pilot, different grouts were tested to find best material for success.
New technology and products used	A surface geophysical investigation was completed. This study used microgravity analysis to determine the gypsum mine boundaries. Resistivity imaging was used to determine geologic conditions and variability across the site. The microgravity analysis determined that the gypsum mine generally correlates well with the historical mine map. The resistivity imaging was very successful in mapping lateral and horizontal variations across the site.
Degree of coordination and timing	Due to the emergency status of the project, daily coordination was required during the geotechnical investigations. During the study and design phase, weekly meetings/conference calls were required to ensure progress and resolution to outstanding items.
Number and type of controls governing	The location of this project is a 4-lane limited access section of State Route 2, which is one of the main roadways for people traveling to Lake Erie, Cedar Point, Put-In-Bay and Kelley's Island. Construction of this project was limited to only days outside of May 15 through September 15. This made staging of the project critical since opening a safe roadway mid-project added more complexity. Injection of the grout near the Lake Erie water supply also required extensive coordination with Ohio EPA. This project was also located directly next to the Ottawa County Airport which is the only transportation route to the Islands in the winter when the lake is frozen. The equipment specified for this project required safe paths for airway traffic.

Number of traffic control stages	7

Community Sensitive Design

Mitigation of Adverse Impact on Public During Construction	Given the emergency nature of this project all design measures were made to remain sensitive to this important tourist area. Everyone shared the goal to maintain the natural area and mitigate adverse impacts during construction for the Erie-Ottawa Regional Airport, Norfolk Southern Railroad, residential properties, large-scale camping facilities (500 sites), cemeteries and other municipal properties in project area.
Preservation of Natural Areas	As much as 30 percent of the study area is devoted to tourist attractions and lodging. Maintaining the existing character and providing a sustainable solution were decision factors during the evaluation and design process.
Reestablishment of Natural Vegetation or Wetlands	The design approach resulted in no disturbed wetlands during construction. Only grass median areas were disturbed, which were graded and reseeded at the end of construction.
Preservation of Historical and Archeological Features	No historical and archeological features were disturbed with this project.
Enhancement of Cultural Resources	According to the Ohio Historic Preservation Office, no sites in the study area are on the National Register of Historic Places. The Christy Chapel Cemetery is located on the north side of East State Street, south of SR-2 (between Plasterbed and Fishack Roads). The graves date from the 1850s.
Community Sensitive Design	As an important route to Lake Erie and Marblehead peninsula, and a secondary access to Cedar Point, it was key to minimize peak season traffic disruptions along SR 2. Proactive communication with the public and municipalities within project limits was a priority to ensure the public knew about the project and restrictions for travel during construction.
Overall Aesthetic Appeal	Given that this project work was below ground, there aren't any major aesthetic features to this project.

Location Map(s)

- See SR-2 high level map

Photographs

- 5-10 digital photos (.JPG format) suitable for large-screen display. Before-and-after photos are encouraged.
- Photos may be included in the Nomination material, but additional, separated, JPG files are required for use in the Awards Presentation (the images may be the same)

From: Rogers, Doug <Doug.Rogers@dot.ohio.gov>
Sent: Wednesday, August 25, 2021 8:49 AM
To: Mccolley, Patrick <Patrick.McColley@dot.ohio.gov>; Mondora, Mark <Mark.Mondora@dot.ohio.gov>; Crabtree, Hiram <Hiram.Crabtree@dot.ohio.gov>
Subject: RE: FW: SR2 Mine subsidance/grouting project

The construction contract for the main mine remediation, which extended under SR 2 was $20,668,621.89. The remediation, supported 129,100 SY of pavement area. The depth to mines through this area ranged from 45 feet to over 90 feet. There was also about $5M that was non-performed as Mark showed. There was a lawsuit associated with this project that was in the $1.7M range that would also need to be added to that total. The overall construction cost came out to about $134.54 per square yard of pavement area with remediated support.

We also did a pilot project in the property, just east of the old elementary school between SR 2 and State Road to determine feasibility for stacking the grout to 10+ feet. The cost of that construction contract was $1,799,341. For this area, we treated about 22,000 square feet of ground area with mine depths at 80-90 feet. The cost came out to be about $736/SY of area. This project included more monitoring and instrumentation along with a large open cut that we flooded to visualize how the grout stacked so inherently, the cost was going to be much higher than the production area under SR 2.

If you need more information, please let me know.

Doug Rogers, P.E.
Planning & Engineering
ODOT District 2
317 East Poe Rd., Bowling Green, Ohio 43402
419-373-4397 (Office)
transportation.ohio.gov

Basic Project Data by Project
Ohio Department of Transportation

ALT ID	CONT ID	County/Route/Section	PE/PS	District
130027	OTT78572	OTT-2-25.05	vroberts / vroberts	02

Encumbrance Number	Contract Number	Federal Project Number
582514	OTT78572	E100(822)

Project Description

For Improving Section Ott-2-25.05, State Route 2, Portage Township, Ottawa County, Ohio, In Accordance With Plans And Specifications By Stabilization Of Gypsum Mine Voids Under S.R. 2 And Pavement Repairs.

Location Text

PORTAGE TOWNSHIP

Contractor	Phone Number	Address
BEAVER EXCAVATING COMPANY	(330)478-2151	P O BOX 6059 CANTON OH 44706

Project Engineer/Supervisor	Spec Year	Est Days
Roberts, Vincent	2010	1 and 16

Surety Name

HARTFORD FIRE INSURANCE CO

Key Description	Proj Date	Actl Date
DISTRICT MATL CERTIFICATION	12/15/2015	12/15/2015
FINAL INSPECTION REQUESTED	6/23/2015	6/23/2015
FINAL CHANGE ORDER TO CONTRACTOR	10/9/2015	10/9/2015
FINAL CHANGE ORDER APPROVED	8/1/2017	8/1/2017
FINAL ESTIMATE APPROVED BY DISTRICT	1/3/2019	1/3/2019
FINAL INSPECTION DATE	6/30/2015	6/30/2015
OPEN TO TRAFFIC (BENEFICIAL USE)	5/22/2015	5/22/2015
FINAL REPORT APPROVED BY DISTRICT	3/11/2019	3/11/2019
FINAL ESTIMATE GENERATED	8/9/2018	8/9/2018
FINAL QUANTITIES REPORT TO CONTRACTOR	7/13/2015	7/13/2015
FUNDING VERIFIED	3/29/2013	3/29/2013
FINAL QUANTITIES APPROVED BY CONTR	8/3/2015	8/3/2015
ACTUAL FINAL INSP P LIST COMPLETION DT	7/14/2015	7/14/2015
PRE-CONSTRUCTION MEETING HELD	4/12/2013	4/12/2013
PAYROLL REQUIREMENTS MET	4/16/2016	4/16/2016
AFFIDAVIT OF COMPLIANCE REQ FROM CONTR	10/9/2015	10/9/2015
FINAL CHANGE ORDER GENERATED	10/9/2015	10/9/2015
SUBSTANTIAL/PHYSICAL WORK COMPLETED	7/14/2015	7/14/2015
FINAL ESTIMATE & REPORT TO FINANCE	5/6/2019	5/6/2019
FINAL QUANTITIES APPROVED BY AUDIT	8/21/2015	8/21/2015

PERFORMANCE END DT	Estimated Construction Duration
8/28/2020	0

Basic Project Data by Project

Ohio Department of Transportation

0

Critical Description	Date
Letting Date	03/07/2013
Award Date	03/14/2013
Original Completion Date	05/15/2015
Adjusted Completion Date	05/15/2015
Execution Date	04/10/2013
Contractor Final Release Date	05/06/2019
Notice to Proceed Date	04/10/2013
Open to Traffic Date	05/22/2015
Substantial Work Complete Date	07/14/2015
Work Begin Date	04/16/2013

Proj Nbr	State Job Number	Federal Project Number	Fed Const Type Code
OTT78572-1	426431	DOT1E100822	06

Bid Contract Amount	% Sublet	Current Amt
$20,668,621.89	35.70%	$15,630,277.15

Regular Work Adjustment	Extra Work Adjustment
($7,078,249.77)	$2,039,905.03

Paid on Original Contract	% Paid on Original Contract
$13,970,610.73	67.59%

Paid on Extra Work	% Paid on Extra Work
$1,659,666.45	81.36%

Total Paid to Date	% Paid to Date
$15,630,277.18	100.00%

POGGEMEYER
DESIGN GROUP

approximately 14 feet. Between 18.5 feet and the bottom of the bore at 35 feet, the report shows weathered gypsum and limestone rock.

- Soil Bore #5 (located west of MH 6-1), shows that the bore hole collapsed at 16 feet and rock was encountered at 24.5 feet.
- Soil Bore #7 (located east of Plasterbed Road), shows rock encountered at approximately 20 feet. Auger refusal was at 30 feet.
- Soil Bore #6 and #7 were the only test bores in the report where the test holes did not collapse.

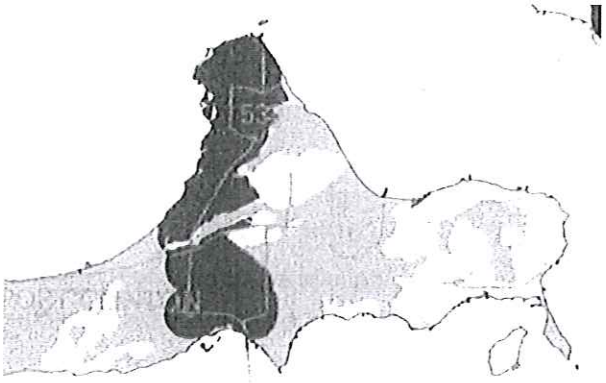
The USDA Soil Survey maps of the Evaluation Area show the soils to be predominately Toledo Silty Clay (To), with some Nappanee Silty Clay (NpA), Udorthents (Ud) and Bono Silty Clay (Bo) within the direct surrounding area. The Toledo Silty Clay soil classification properties include being very poorly drained with frequent ponding and a very low capacity to transmit water.

The State of Ohio, Department of Natural Resources Division of Geological Survey provides additional information on the Karst land formations within this area of Ottawa County:

> *BELLEVUE-CASTALIA KARST PLAIN The Bellevue-Castalia Karst Plain occupies portions of northeastern Seneca County, northwestern Huron County, southeastern Sandusky County, and western Erie County. Adjacent karst terrain in portions of Ottawa County, including the Marblehead Peninsula, Catawba Island, and the Bass Islands, is related in geologic origin to the Bellevue-Castalia Karst Plain.*
>
> *Karst is a landform that develops on or in limestone, dolomite, or gypsum by dissolution and that is characterized by the presence of characteristic features such as sinkholes, underground (or internal) drainage through solution-enlarged fractures and caves. While karst landforms and features are commonly striking in appearance and host to some of Ohio's rarest fauna, they also can be a significant geologic hazard. Sudden collapse of an underground cavern or opening of a sinkhole can cause surface subsidence that can severely damage or destroy any overlying structure such as a building, bridge, or highway. Improperly backfilled sinkholes are prone to both gradual and sudden subsidence, and similarly threaten overlying structures. Sewage, animal wastes, and agricultural, industrial, and ice-control chemicals entering sinkholes as surface drainage are conducted directly and quickly into the ground-water system, thereby posing a severe threat to potable water supplies. Because of such risks, many of the nation's state geological surveys, and the U.S. Geological Survey, are actively mapping and characterizing the nation's karst regions.*
>
> *Karst in the Bellevue-Castalia and Lake Erie islands region is due to collapse of overlying carbonate rocks into voids created by the dissolution and removal of underlying gypsum beds. According to Verber and Stansbery (1953, Ohio Journal of Science), ground water is*

introduced into Salina Group anhydrite (CaSO4) through pores and fractures in the overlying carbonates. The anhydrite chemically reacts with the water to form gypsum (CaSO4 •2H2 O), undergoing a 33 to 62 percent increase in volume in the process. This swelling lifts overlying strata, thereby opening fractures and creating massive passageways for conduction of greater volumes of ground water through the Silurian Bass Islands Dolomite and into underlying Salina Group strata. Gypsum, being readily soluble in water, is dissolved, creating huge voids. Overlying carbonates then collapse or break down, leaving surface depressions similar to those resulting from roof failure of an underground mine.

The Evaluation Area is directly within the mapped Karst area in Ottawa County which also includes significant mine activity in the area.



Additional Soil Testing and Review - TTL

Three additional soil test borings were drilled along the northern right-of-way of State Road adjacent to the existing sanitary sewer within the section of sewer line that has failed. These soil borings were drilled to depths of 39.3 feet, 44.5 feet, and 39.8 feet. Each of the borings was drilled into rock in an effort to determine if there was a failure in the rock causing settlement. The results were not conclusive in providing a reason for the sewer failure. One bore did find either a void or collapse in the rock formation of approximately one foot; however, it was not apparent whether this occurred due to very highly weathered rock or a void in the bedrock. The potential void did not appear in the other two borings and does not provide enough information to base a conclusion that a void collapse caused the sewer settlement. Soil Borings #1, #2, and #3 were performed in the general area of the sewer subsidence, located within the 240 feet along the 10-inch sanitary sewer, and within the proximity of the previous soil borings. These soil borings revealed very wet soil conditions for the locations where the borings were located. These results are not considered to be typical of expected results for these soil types or when compared to the original soil borings in the vicinity.

The geotechnical investigation and report indicate that there is no one item that indicates a cause of the sewer failure. The recommendation of the geotechnical engineer is to replace the sanitary sewer in another location and avoid this existing sewer alignment, if possible. With some of the changes in the sewer discharged in this area, it may be possible to reroute this sewer. The soils report from TTL is attached in the Appendix.

Other

We reviewed the available ODNR mining maps of the area. The State Road Sanitary Sewer Evaluation Area appears to be outside of any known mining areas. BPB Celotex (property now owned by KWest) was located south of the railroad tracks that parallel State Road. None of the available mining and undermining maps from ODNR and from a developer that at one point proposed a development on the old BPB Celotex property, shows any indications that this mine extended north of the railroad tracks or north of State Road in the Evaluation Area. According to ODNR Division of Mineral Resources Management the ground surface elevation is approximately at 580 feet and the gypsum is at an elevation of 537 to 530 – or a depth 43 to 50 feet below ground surface. The sanitary sewer is at a depth of between 17 – 20 feet.

We also reviewed some available data from the Ohio Department of Transportation (ODOT) on the subsurface investigation and conceptual alternatives of mitigation of gypsum mine voids under State Route 2. Reconstruction of State Route 2 took place just east of the Evaluation Area. As part of ODOT's investigation, the history of mining in the area includes that gypsum was mined from 1902 to 1977. The mines flooded in 1979 and active sinkholes were noted since 2004.

The correlation between the flooding of 1979 and sinkholes in 2004 would require considerable further investigation. It is important to note the weather conditions of this time period which includes the Blizzard of 1978 with sub-zero temperatures and the record snow falls in 1979; however, these events occurred around 25 years prior to the noted sink holes and there is no direct connection other than gypsum is known to be soluble in water.

An additional consideration is the proximity of the Evaluation Area to Sandusky Bay and the location of Ottawa County to Lake Erie and the high ground water tables in the area.

As part of the ODOT study, sonar modeling of the mine areas were mapped in an effort to update the ODNR mine maps. Unfortunately, the mined area is east of the Evaluation Area; however, it should be noted that the study does in fact show that mines are located north of the railroad tracks that parallel State Road and east of Plasterbed Road. This mine was owned by USG Corporation. It also shows that

there are mines north of State Route 2. This mine extends north even as far as the airport and extend west past Plasterbed Road. This mine was owned by Certainteed.

The week of June 11th, 2018 (June 12 and 13, 2018), there was a significant rainfall event in the Port Clinton area that left many streets and properties flooded. The field immediately north of the sanitary sewer failure location was under water and one (1) property owner reported a sanitary sewage backup into his commercial building. The building is connected to the State Road Sanitary Sewer with a lateral located between the known locations of the pipe failure. This typically indicates a break or separation in the sanitary sewer pipe allowing storm water to enter the sanitary sewer. Additionally, the timing of this indicates an apparent direct inflow situation into the sanitary sewer. It will be important to include the evaluation of this sewer lateral in any solution selected.

Conclusion

The pipe failures observed in the video inspection of the gravity sanitary sewer show a sharp significant drop in the pipe elevation. This significant change in pipe elevation is not typically seen in construction related failures. While pipe bellies and dips in the pipe alignment can be associated with construction related issues, such a sharp and significant drop would be difficult to attribute to construction practices. The amount of change in elevation far exceeds any over excavation in the trench during construction. This rules out construction related failure with the sanitary sewer construction.

While there were significant issues encountered during construction, we do not believe these construction issues had an impact on the significant drop in pipe alignment shown in the 2017 video inspection. All of the construction related issues were encountered above the pipe invert. The soils at the time of construction in the bottom of the trench appeared to be consistent with what was found in the original soils report and did not appear to be insufficient to support the pipe installation. The pipe was properly bedded, backfilled and compacted. The sewer line was televised prior to the pipe failure and did not indicated any of the misalignment issues that were any cause for concern. This significant sudden drop in pipe elevation occurring several years after the initial construction would typically indicate a displacement or subsidence below the trench bottom. It is also unusual that this drop in pipe invert elevation was not reflected to the ground surface.

While the Evaluation Area does not appear to be located directly over a mapped mined area as shown by the ODNR Mine Maps, the pipe failure looks consistent with a subsidence failure; however, this is not reflected on the ground surface. There is approximately 235 feet of 10-inch gravity sanitary sewer pipe between the failure points where the condition of the pipe is unknown. Additionally, there are two (2)

sanitary sewer laterals located between the failure points that are also of unknown condition. It is suspected that significant pipe separation in the laterals located in this stretch of pipe is contributing to infiltration of stormwater into the sanitary sewer collection system.

The ODNR Mine Maps indicate there are no mines directly below this sanitary sewer. The subsistence failure of the sanitary sewer is indicative of a mine roof failure or the washing out of gypsum material in the rock formation causing a collapse of the rock formation below the sanitary sewer line. This type of failure could be caused or accelerated by shifts in water flow below ground. Any changes to the geology below the sanitary sewer line could impact the flow of subsurface groundwater including grouting, pumping groundwater or unfilled drilling holes.

ODNR Division of Mining has been contacted about this threat to public health and the ultimate failure of the sanitary sewer system. They are interested in knowing of our findings. There is an Emergency Mine Response Team that can provide valuable assistance if there is any indication that this pipe failure is linked to mining related activity. We recommend keeping ODNR informed of any findings related to mining activity found in the ongoing evaluation.

Since the sanitary sewer pipe material is PVC pipe, it would not be capable of bridging a void below the pipe. PVC pipe will reflect conditions below the pipe. The timing of the pipe failure strongly suggests a sudden shift in the subsurface conditions below the pipe. The video inspection from 2014 showed a slight belly in the pipe in the Evaluation Area. The video inspection was performed 10 years after the original construction of the sanitary sewer. A belly in the sanitary sewer pipe could be an expected type of construction related issue.

The video inspection performed in the same area in 2017 indicates a significant pipe failure that presents an eminent threat to the integrity of the sanitary sewer collection system. It is expected that this sanitary sewer will at some point plug and not allow waste to be collected and transported to the pump station. This sanitary sewer line is also suspect of contributing excessive infiltration of stormwater and groundwater into the sanitary sewer system. This is causing additional wear on pump station and causing surcharges in the collection system.

There is a 24-inch diameter transmission waterline on the south side of State Road following the same corridor as the sanitary sewer on the north side of State Road. This transmission waterline is a critical feed to the service area east in Ottawa County. A failure of this waterline would produce catastrophic results if there were a subsidence under the waterline. It is critical that conditions are monitored in this area to provide any warning of potential transmission waterline failure.

The additional soil borings that were performed by TTL did not produce any conclusive information on the cause of the pipe failure. The soil above and around the sewer line had a very high water content

that seemed uncharacteristic for the soils and the location. The source of the water is assumed to be from the sewer, but that is not known for sure.

Recommendations

The additional soil borings performed in the Evaluation Area found conditions that indicated very wet soil conditions and recommended an alternate route if possible. As stated previously, the additional soil borings did not reveal a direct cause of the pipe failure. Options for repairing this section of failed sewer are complicated and have involved significant review to determine the best lasting options for this repair. It is difficult to recommend the best repair when the source of failure of the sewer line has not been clearly identified. We have narrowed the options considered for repairs to three of what we think are the most viable for the long-term stability of the sanitary sewer.

Option 1 - Rerouting the sanitary sewer to the south side of State Road or to a private easement to the north of the State Road right-of-way would be an option that could move the sanitary sewer out of the area where the soils have been verified to cause problems with the vertical alignment of the sewer. This option would be difficult to construct for several reasons. The existing sewer was installed at minimum grade. This would require even flatter than minimum grade be used, the installation of at least two more manholes, and increased ongoing maintenance for this section of sanitary sewer. Moving the sanitary sewer to the south side of State Road would also put the sanitary sewer in relatively close proximity to an existing 24-inch waterline that is a very important line to the eastern portion of the County's service area. Moving north would require purchase of private easement and could also not avoid the particular soils issues that currently exist. Additional soil borings would be required to verify soil conditions for the relocated sewer option. Our opinion of probable costs for this option is $237,196 depending on the final costs for preparing easement(s) and land acquisition costs.

Option 2 - This option is our preferred option and involves replacing the existing sanitary sewer with a new line constructed in the same alignment with a supporting structure constructed under the new sewer line. This option also has concerns associated with it that include maintaining the State Road pavement, the existing storm sewer located directly over the sanitary sewer, and what kind of support structure would be best suited to meet the long-term needs of the County. This existing alignment would provide the best flow characteristics for the sanitary sewer system. The existing alignment has rock that is between four feet and eight feet below the sewer invert. We recommend the supporting structure be constructed out of low density concrete fill and extend down to the rock. To do this would either require the installation of sheet piling or the planned replacement of a portion of State Road. This reinforcement would support the new sewer pipe to maintain vertical alignment in the collection system. The difficulties with this option include the stability of State Road and maintaining the pavement without undermining the paved surface. We also face the original issue that we do not know what caused this significant movement in the sewer pipe. If this was caused by a larger issue that may come to light in the future, this option does not protect against that. Our opinion of probable costs for this option is $217,525 depending on the impact of construction on State Road.

Capital Infrastructure Report

Year Completed	Name of Project	Total Cost	Funding Source	Project Description
2020	Danbury Township WWTP & Collection System Improvements, Phase I	$1,618,706	Local Revenues / $1,618,706	Replace influent chamber, rehab lagoon blower system, replace Actiflo turbidity & pH meter; and various other improvements to PS#'s 1,2,3,4,6,7,8,9,JI1; GPS's 1,2, 4,5,7,8,9,10,11, GPS @ WWTP; CIPP lining of 584 lf of 21" RCP, 215 lf of 15" RCP, rehab of hammer taps within the Interceptor, Installation of inside drops & chemical grouting of service connections with manholes
2020	State Road Sanitary Sewer Subsidence - Emergency Repair Project	$254,623	OPWC Emergency Grant / $185,290 Local Revenues / $69,333	Install a new pump station, 470 lf of 3-inch force main, laterals and a manhole to replace a collapsed sanitary sewer
2019	Regional Water - Raw Water Pump Station Improvements	$30,000	Local Revenues / $30,000	Rebuild Raw Water Pump #3 (100 HP pump)
2019	PCI WWTP & Collection System Improvements, Phase I	$2,411,112	OEPA, WPCLF Loan / $1,197,511 Local Revenues / $1,213,601	Replace mechanical screen, aerated grit removal system, valves and the WAS force main @ each digester tank, install new telescopic valve on each of the 3 digesters, rehab chlorine contact tank, add new dissolved oxygen probe within each reactor tank and various other improvements to the WWTP; in addition, various improvements to PS#'s 30,40,50,70, 90,110,115, 120,130,132,135,145,150,170,180,190,200,210,220, 230,240,250,260,270,280,285,290,320, 330,340,350, 360,380,390,400,405,410,420,435,437,438,440, 442, 450,500, 510 and the RWPS
2019	Ottawa County Regional Water - Elevated Tank Rehabilitation Project	$1,167,419	OPWC Loan / $137,872 Local Revenues / $1,029,547	Install TTHM improvements (mixers) in the Danbury; rehab & paint the Catawba Island & Harris Township water towers; blast to bare metal and paint the Danbury Tower and replace attitude valve at each tower
2019	Regional Water Treatment Plant Clarifier Mechanism Recoating	$481,071	OPWC Loan / $76,922 Local Revenues / $404,149	Sandblast and repaint clarifiers #1, 2 & 3 mechanism components

Ottawa County

Ryan Barth <rbarth@co.ottawa.oh.us>

State Rd 1: Gravity Sewer Main Repair

1 message

mobile311@dudesolutions.com <mobile311@dudesolutions.com> Wed, Jun 9, 2021 at 2:02 PM
To: rbarth@co.ottawa.oh.us

Id: 6731581
Type: Gravity Sewer Main Repair
Priority: 5
Status: Complete
Description: 371.35169853000002
Adkins CCTV 10" sewer line looking for I/I.
Address: 2311 E State Rd
City: Port Clinton
State: Ohio
Zip: 43452
Latitude: 41.508589470000000
Longitude: -82.889938710000000
Collected: 12/22/2017 9:16:43 AM
Collected By: Ryan.Barth
Posted: 12/22/2017 9:16:43 AM
Last Updated: 6/9/2021 2:02:13 PM
Last Updated By: Ryan.Barth
Asset Id: 201002018
GIS Layer: Sewer Main
Comments: Major deflection and possible sewer separation approximately 94' downstream of MH #6-3.

9/2019
Gravity sewer abandoned with new pressure sewer being laid above by Gill Construction.
http://map.mobile311.com/mobile311/default.aspx?linkedworkitem=6731581

Custom Form

CCTV Inspection Date: 12/20/2017 7:00:00 AM
CCTV Inspection Time: 1
Sewer_Type: Public Main
Date-Camera Service: 12/22/2017 7:00:00 AM

Ottawa County

Ryan Barth <rbarth@co.ottawa.oh.us>

State Rd 2: Gravity Sewer Main Repair

1 message

mobile311@dudesolutions.com <mobile311@dudesolutions.com> Wed, Jun 9, 2021 at 2:04 PM
To: rbarth@co.ottawa.oh.us

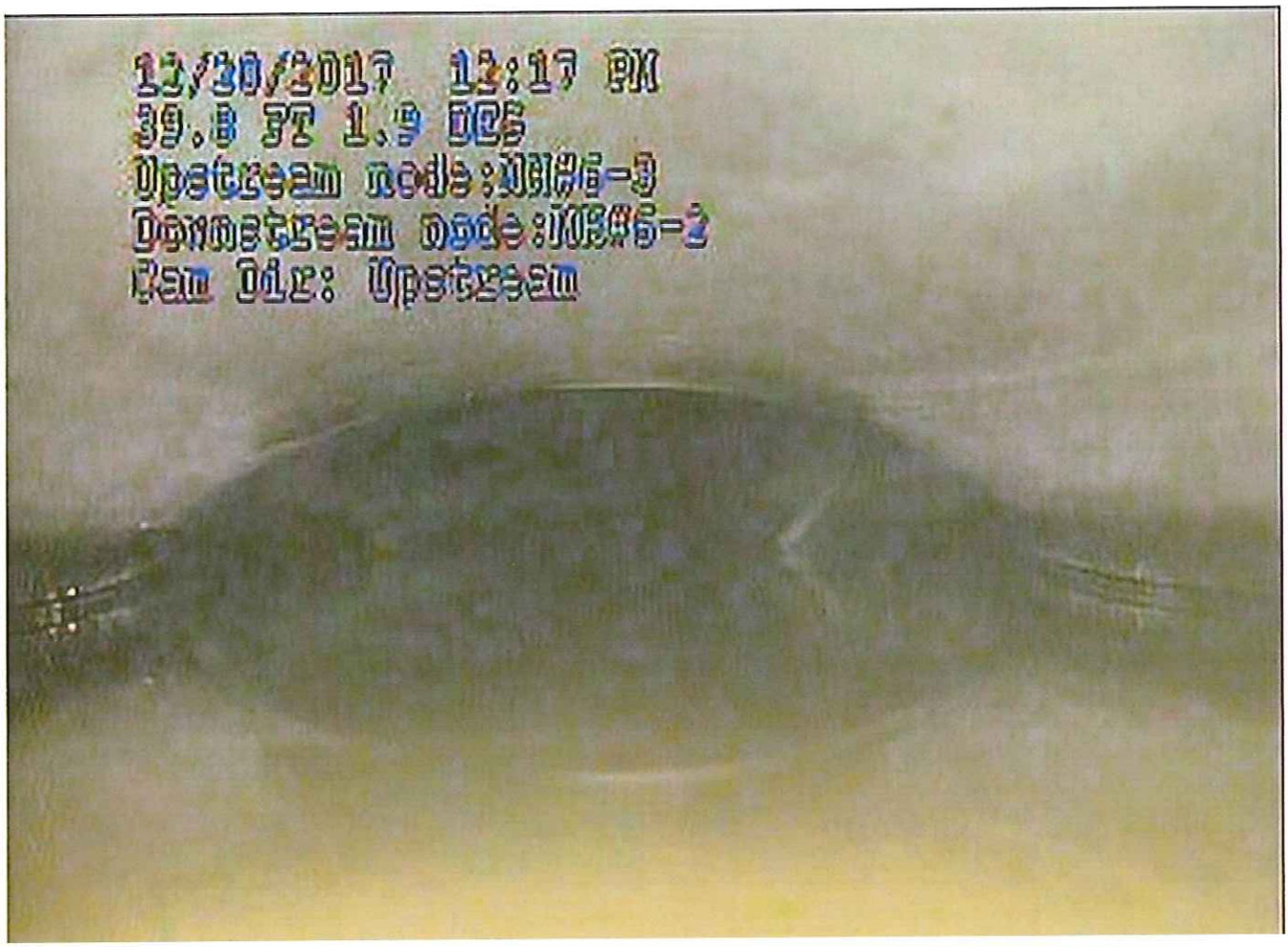
Id: 6731790
Type: Gravity Sewer Main Repair
Priority: 5
Status: Complete
Description: 371.35169853000002
CCTV 10" sewer main for possible I/I
Address: 2297 E State Rd
City: Port Clinton
State: Ohio
Zip: 43452
Latitude: 41.508597500000000
Longitude: -82.890748740000000
Collected: 12/22/2017 9:37:57 AM
Collected By: Ryan.Barth
Posted: 12/22/2017 9:37:57 AM
Last Updated: 6/9/2021 2:04:07 PM
Last Updated By: Ryan.Barth
Asset Id: 201002018
GIS Layer: Sewer Main
Comments: Adkins CCTV discovered separated 10" sewer main approximately 45' upstream of MH #6-2.

9/2019
Gravity sewer abandoned with new pressure sewer being laid above by Gill Construction.
http://map.mobile311.com/mobile311/default.aspx?linkedworkitem=6731790

Custom Form

CCTV Inspection Date: 12/20/2017 7:00:00 AM
CCTV Inspection Time: 1
Sewer_Type: Public Main
Date-Camera Service: 12/22/2017 7:00:00 AM


12/30/2017 11:11 AM
83.7 FT 1.9 DEG
Upstream node:MH5-3
Downstream node:MH5-2
Cam Dir: Downstream


12/30/2017 12:17 PM
39.8 FT 1.9 DEG
Upstream node:MH6-3
Downstream node:MH6-2
Ram Dir: Upstream


12/20/2017 14:24


2308
12/20/2017 14:25


LAKELAND
AUTO & MARINE
2308
12/20/2017 14:25

Ottawa County

Ryan Barth <rbarth@co.ottawa.oh.us>

rbarth@co.ottawa.oh.us: SSES Sewer Investigate

1 message

mobile311@dudesolutions.com <mobile311@dudesolutions.com> Tue, Aug 24, 2021 at 3:36 PM
To: rbarth@co.ottawa.oh.us

Id: 6822170
Type: SSES Sewer Investigate
Priority: 5
Status: Complete
Description: 396.59545305 CCTV to verify integrity of 10" sewer main in the vicinity of a mine subsidence.
Address: 960 S Plasterbed Rd
City: Port Clinton
State: Ohio
Zip: 43452
Latitude: 41.502569000000000
Longitude: -82.889077190000000
Collected: 1/10/2018 12:34:06 PM
Collected By: Ryan.Barth
Posted: 1/10/2018 12:34:06 PM
Last Updated: 8/24/2021 3:36:16 PM
Last Updated By: Ryan.Barth
Asset Id: 201001802
GIS Layer: Sewer Main
Comments: CCTV video work performed by Adkins Sanitation and OCSE verified that the 10" sewer main has failed because of a mine subsidence. Cameras were run from the upstream manhole (South to North) approximately 244' till the pipe drops off and then from the downstream manhole (North to South) approximately 134' to where the pipe is collapsed.

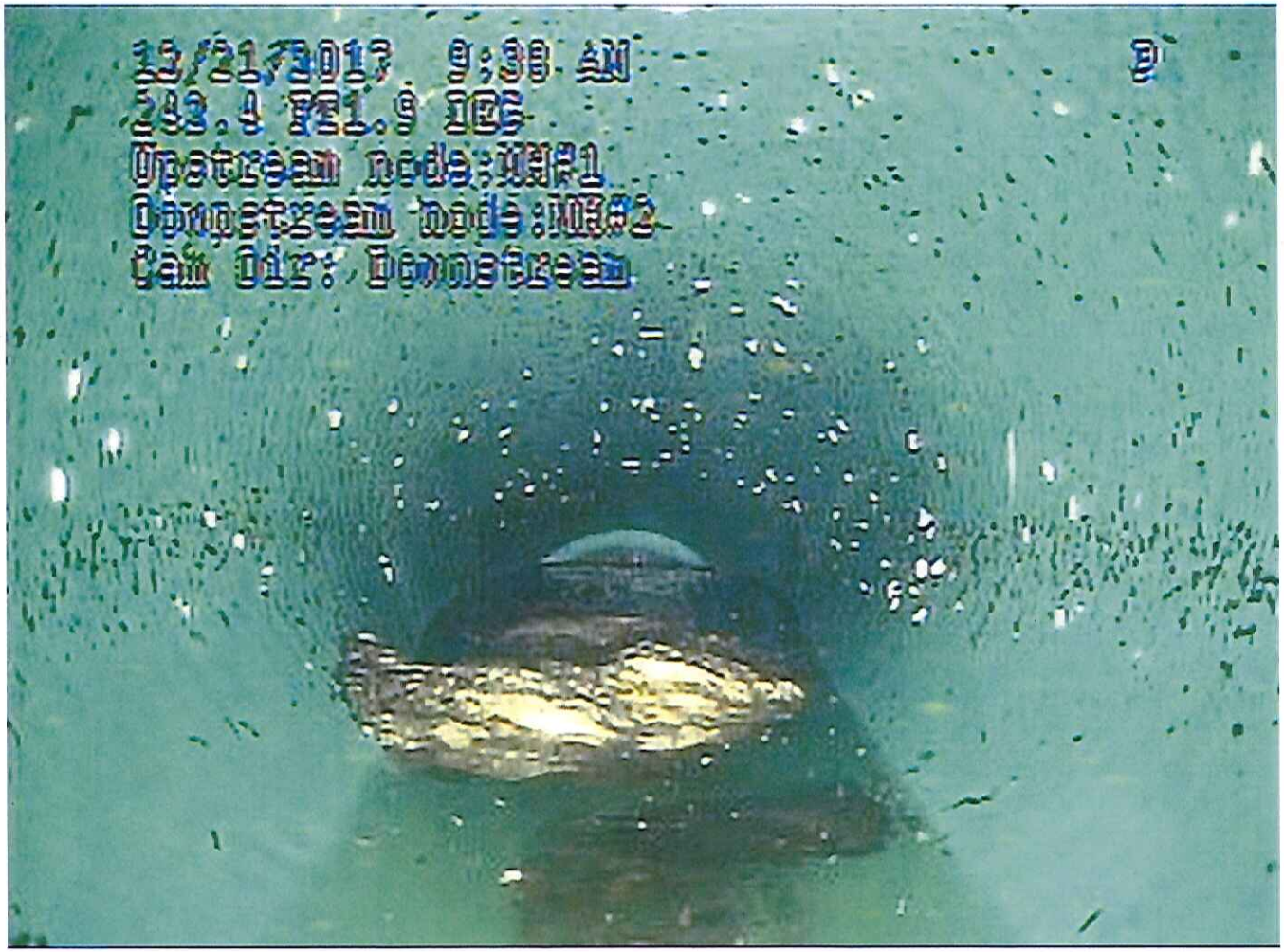
3/19
CCTV line for Kwest to get approximate location of quality pipe for repair

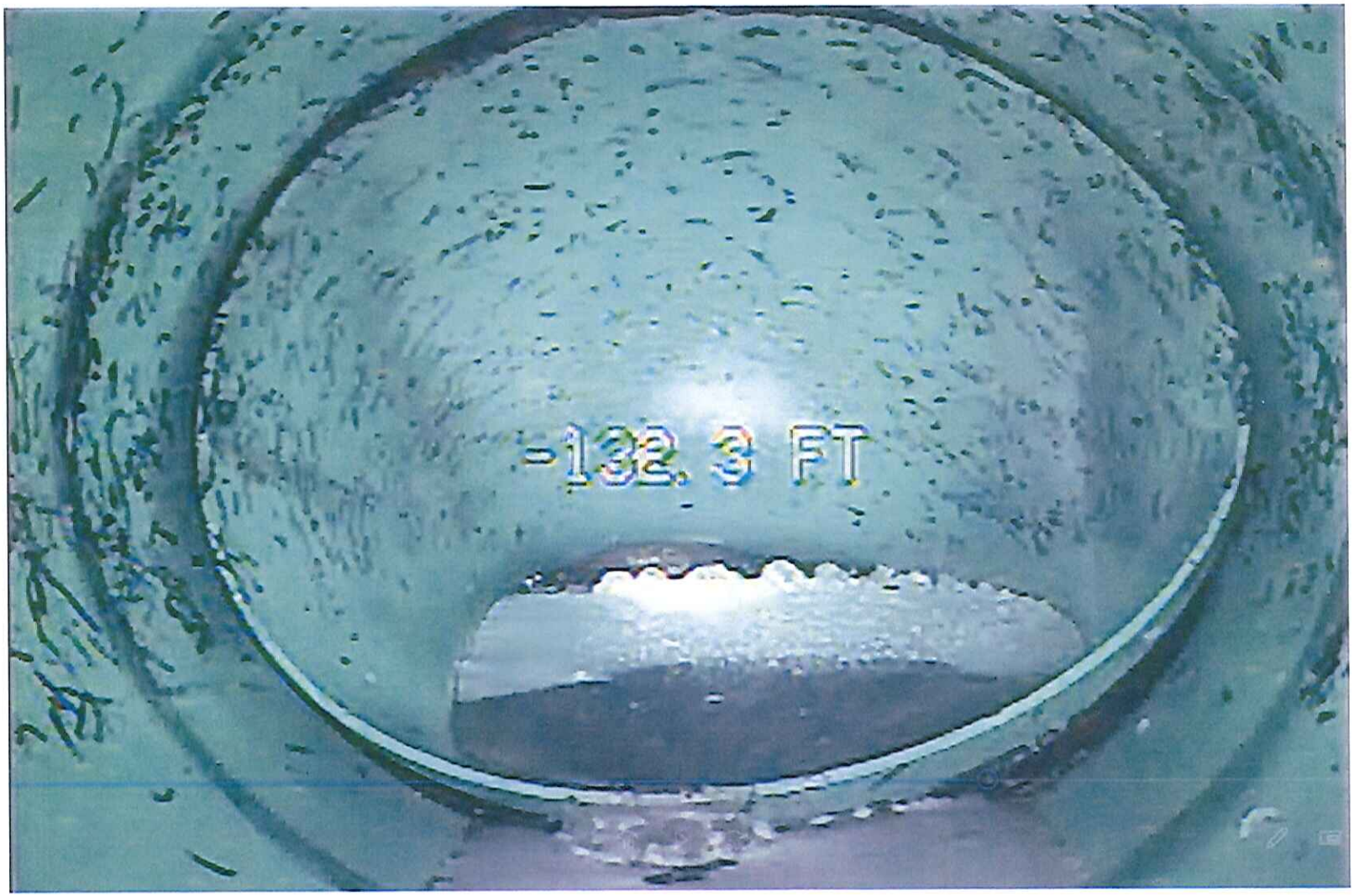
3/25
Repairs completed per Jim W. Re-monitor.

5/30
Drafted compliance letter.
http://map.mobile311.com/mobile311/default.aspx?linkedworkitem=6822170

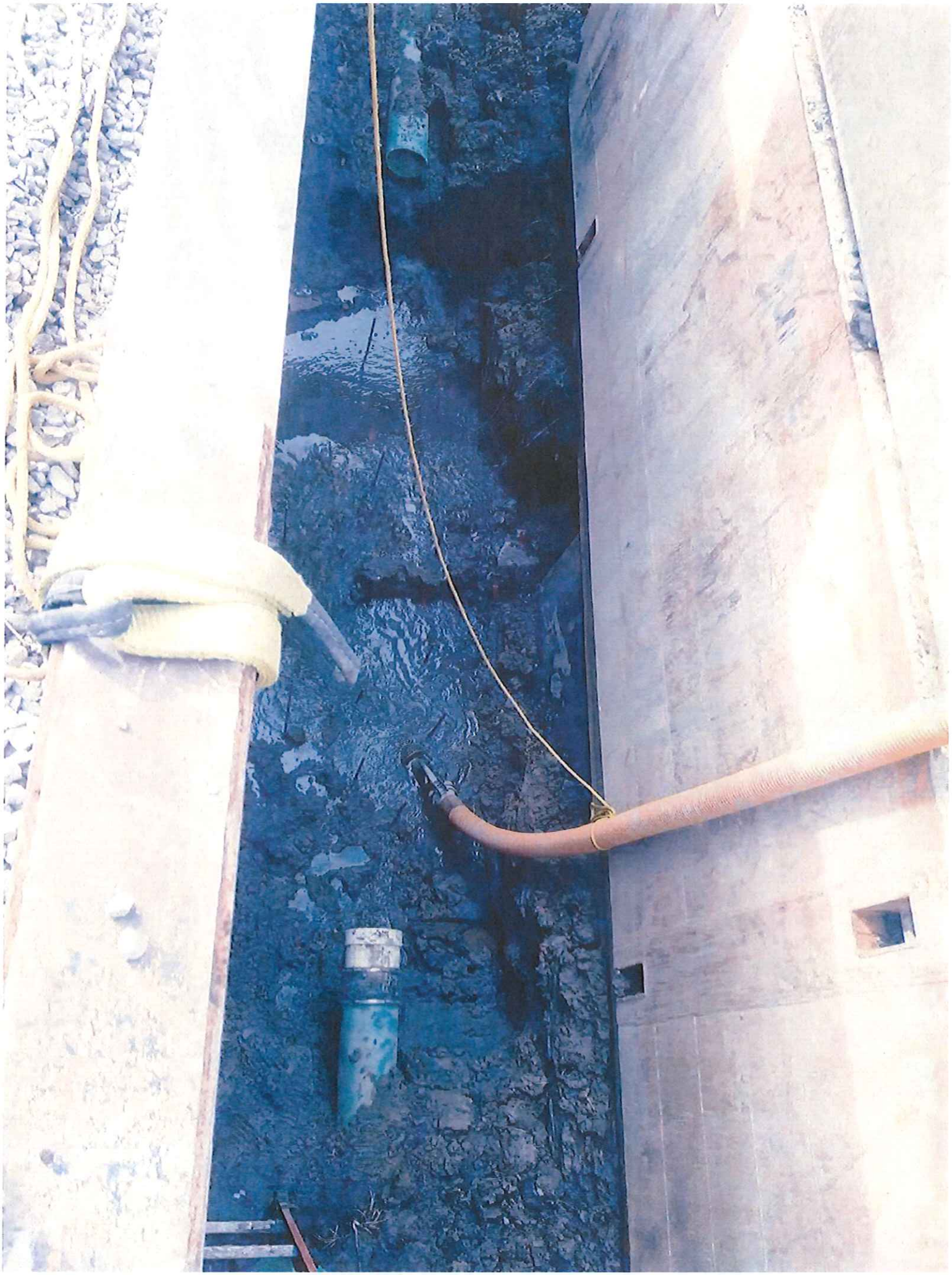
Custom Form

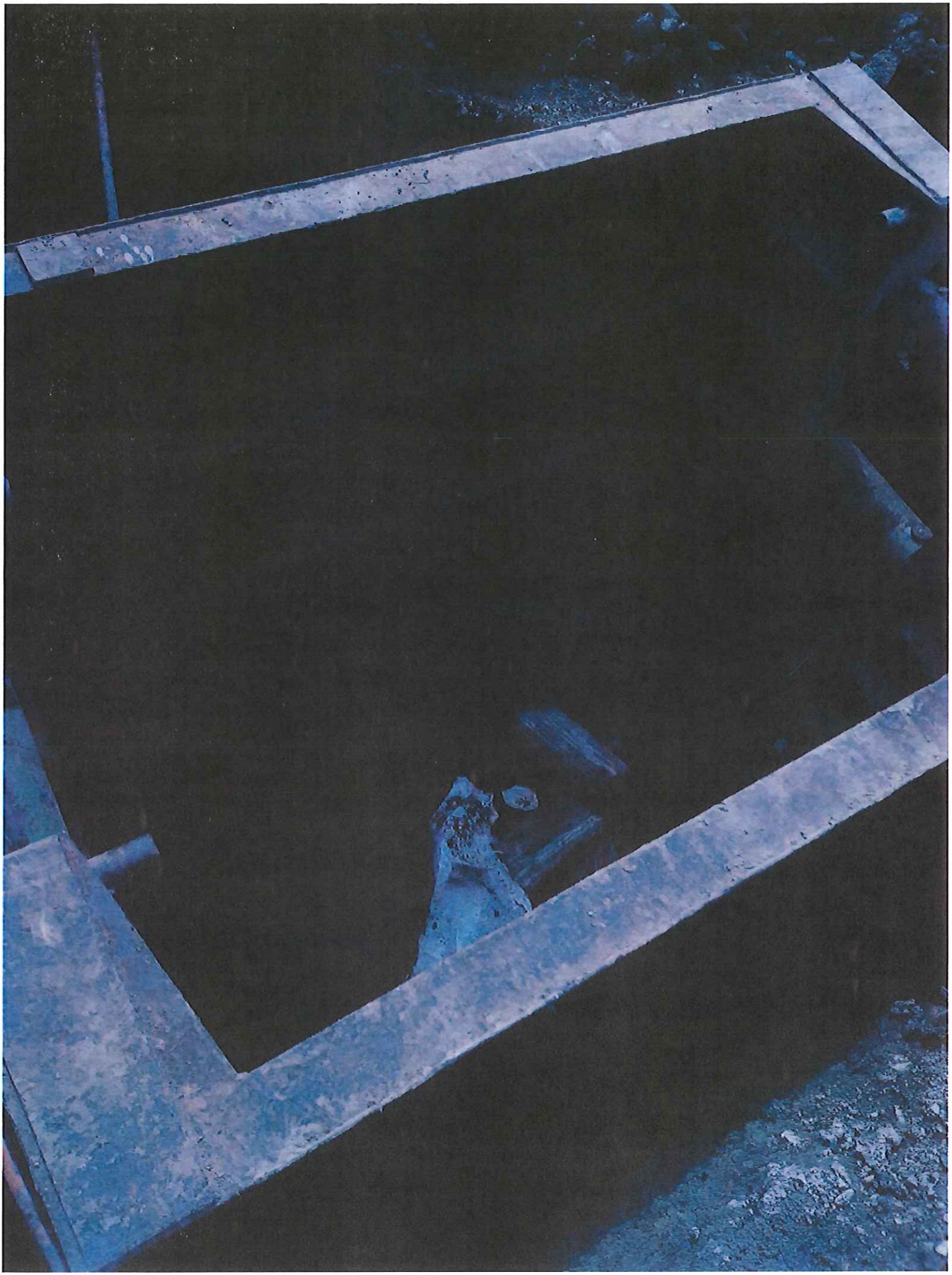
CCTV Inspection Date: 3/19/2019 7:00:00 AM
CCTV Inspection Time: 1
Sewer_Type: Public Main
Sewer System: PCI
Manhole Number Entered:
Distance Viewed: 265


12/21/2012 9:38 AM
293.4 FT1.9 DES
Upstream node:WW1
Downstream node:WW2
Cam Dir: Downstream


-132.3 FT


12/21/2017 10:55





3c

OTTAWA COUNTY
SANITARY ENGINEERING DEPARTMENT
315 Madison Street, Room 105
Ottawa County Courthouse
Port Clinton, Ohio 43452

James K. Frey, P.E., P.S.

www.co.ottawa.oh.us/sanitaryengineer
Telephone: (419) 734-6725
Fax: (419) 734-6858

October 25, 2018

Mark Murray
Kwest Group
8305 Fremont Pike
Perrysburg, OH 43551

Re: Portage/Catawba Island Wastewater Collection System
Sewer Subsidence on Plasterbed Road

Dear Mr. Murray:

On January 10, 2018 a letter was mailed to you detailing the damage and near failure of the County owned 8" sanitary sewer line on Plasterbed Road which was caused by a mine subsidence. This subsidence was previously documented in 2015 as a cause of damage to the County owned waterline in the same area. The Portage/Catawba Island Wastewater Collection System has been experiencing increased Infiltration and Inflow (I/I) of rain and ground water into the sanitary sewer collection system in the area of State and Plasterbed Roads. To mitigate these heavy flows, all sources of I/I, including this damage, shall be corrected.

To date no repair has been made to the sanitary sewer nor has any communication been received as to when the issue will be rectified. **This defect shall be corrected by December 31, 2018.** Please contact me at (419) 734-6726 to discuss this issue as soon as possible.

Sincerely,

Steven J. Lange, P.E.
Engineer

cc: Steve Wagner, Operations Manager
Ryan Barth, SSES Coordinator
Jim Wilburn, Project Observer
file

OTTAWA COUNTY
SANITARY ENGINEERING DEPARTMENT
315 Madison Street, Room 105
Ottawa County Courthouse
Port Clinton, Ohio 43452

James K. Frey, P.E., P.S.

www.co.ottawa.oh.us/sanitaryengineer
Telephone: (419) 734-6725
Fax: (419) 734-6858

May 30, 2019

Mark Murray
Kwest Group
8305 Fremont Pike
Perrysburg, OH 43551

Re: Portage/Catawba Island Wastewater Collection System
Sewer Subsidence on Plasterbed Road

Dear Mr. Murray:

On March 25, 2019 our department's Project Observer, Jim Wilburn, inspected the repairs made to the County owned 8" sanitary sewer line on Plasterbed Road that had been damaged by a mine subsidence. The repairs have been re-monitored and are currently not allowing any ground water to infiltrate the sanitary sewer main. Ottawa County Sanitary Engineering Department's maintenance personnel will continue to monitor the flows in the line for any infiltration. At this time the Kwest Group is in compliance with Ottawa County's Wastewater Rules and Regulations. Thank you for your efforts in reducing ground and surface water entering the sanitary sewer.

Sincerely,

Ryan D. Barth
SSES Coordinator

RDB/ese

cc: Jim Wilburn
Steve Lange
file

4a

August 30, 2021

Mr. Donald A. Douglas, President
Board of Ottawa County Commissioners
315 Madison Street, Room 103
Port Clinton, Ohio 43452

Re: Ottawa County Regional Water – Secondary Feed Loop
serving Catawba Island, Danbury and Portage Townships
to Mitigate the Imminent Threat to the State Road 24" Water Transmission Main

Dear Mr. Douglas,

Recently, I was contacted by the Ottawa County Sanitary Engineering Department regarding property that I previously owned on Fishack Road in Portage Township. It is my understanding that the department is gathering information to apply for a pre-disaster grant, authorized by the Federal Emergency Management Agency (FEMA) and administered through the Building Resilient Infrastructure and Communities (BRIC) program. As part of the application process, the department is documenting known and potential mine subsidences that pose an imminent threat to critical infrastructure located throughout the Portage Township area.

I was advised by department officials that the 24" State Road water transmission main, which supplies drinking water to Catawba Island, Danbury and Portage Townships, is the sole means of water supply to the local residents, businesses and visitors throughout the eastern 1/3 of Ottawa County. This transmission main is located above an underground gypsum mine which, after it was abandoned in the 1970's, was filled with water and has since experienced fluctuating groundwater levels influenced by the constantly changing surface water levels of Lake Erie. These surface water influenced fluctuations of the groundwater levels have impacted the integrity of the old gypsum mines and are, unfortunately, creating sinkholes and subsidences throughout a widespread area in Portage Township. Ottawa County's 24" transmission main is located immediately to the north of the property that I once owned (see the attached map for exact location).

During the time that I owned this property, it was my intention to develop the remaining vacant acreage into a 25-30 lot subdivision. My neighbors to the south, the US Gypsum Company (USG), challenged and argued against my rezoning proposal. USG owns hundreds of acres of land immediately south of the property that I once owned, and had historically mined gypsum throughout the area from 1902 through the 1970's. As you know, the company continues to operate a manufacturing plant in Portage Townhip. I have requested mine maps of the area on numerous occasions, but they were never made available to me by the company. Ultimately, the local planning commission did approve the rezoning for my subdivision. However, soon after that approval, I was approached by representatives of USG to purchase my entire eleven acre property, including a number of existing structures. The USG

representatives explained to me that there were known abandoned gypsum mines under the property that I owned and wished to develop. It was also disclosed to me that the abandoned mine ceilings had been excavated close to the ground surface and posed a serious risk to any structures that were built or proposed to be built over the top of the mined area.

Given the information provided to me at the time by the USG representatives, I made the decision to accept their offer to purchase the multiple parcels of land that I owned. The potential risk of a serious earth subsidence, mine collapse and/or any subsequent loss of property or life were too great a risk to continue with any future development plans on my part.

Based upon my personal experience with the land that I owned and its immediate proximity to Ottawa County's 24" water transmission main, I strongly urge and support the Board of Ottawa County Commissioners to pursue the construction of the proposed Secondary Feed Loop to serve as an emergency water supply main and loop to the east end of Ottawa County's water distribution system. Recognizing that the ongoing threat of a surface subsidence throughout the mined areas of Portage Township will never be completely mitigated, it is imperative to construct a secondary water feed loop to Catawba Island, Danbury and Portage Townships in order to preserve and promote the general public's health and welfare. If the water supply was ever cut off to the eastern 1/3 of Ottawa County due to a mine subsidence or collapse, it would take days or even weeks to completely restore the service depending upon the nature and size of the collapse and time of year.

The imminent threat of the danger associated with future mine subsidences throughout this area is well known to the State of Ohio and many local officials. The Department of Transportation recently spent $20+ million dollars to inject grout into locations of the gypsum mine directly below State Route #2 in an effort to shore up and stabilize the base of the highway in order to minimize any future risk of subsidence.

I am writing this letter in support of the Secondary Feed Loop Project that the Sanitary Engineering Department is developing in the hope that Ottawa County may be able to secure federal and/or state grant funding to assist with the construction of this very critical mitigative measure. If there is any additional information that I may provide to the county or any other agency with regard to the project proposal and/or my own personal experience with USG and the mined areas, please feel free to contact me at any time.

Sincerely,

Will Roth

Cc: Sanitary Engineering Department
File

Ottawa County, Ohio - Property Record Card
Parcel: 0200235203279000 Card: 1

Owner	UNITED STATES GYPSUM COMPANY
Address	2802 E FISHACK
Land Use	(300) I - INDUSTRIAL, VACANT LAND
Class	INDUSTRIAL
Legal Description	LOT 1 CATRI SUB & 1/2 VACATED FISHACK RD 6/30/11
Tax Mailing Name	UNITED STATES GYPSUM CO DEPT 179
Tax Mailing Address	550 W ADAMS ST, CHICAGO IL 60661

MAP

SKETCH

A sketch is unavailable for this parcel.

COMMERCIAL

COMMERCIAL FEATURES

LAND

Code	Frontage	Depth	Acreage	SqFt	Value
3	74	236	N/A	17464	$1,920.00

VALUATION

	Appraised	Assessed
Land Value	$1,920.00	$670.00
Building Value	$0.00	$0.00
Total Value	$1,920.00	$670.00
CAUV Value		$0.00
Taxable Value		$670.00

PERMITS

IMPROVEMENTS

SALES

Date	Buyer	Seller	Price	Validity
2/21/2007	UNITED STATES GYPSUM COMPANY	ROTH WILLARD & GLORIA	$1,350,000.	MULTIPLE PARCELS

Ottawa County, Ohio - Property Record Card
Parcel: 0200235203304000 Card: 1

Owner	UNITED STATES GYPSUM COMPANY
Address	2840 FISHACK
Land Use	(300) I - INDUSTRIAL, VACANT LAND
Class	INDUSTRIAL
Legal Description	LOT 2 CATRI SUB & 1/2 VACATED FISHACK RD 6/30/11
Tax Mailing Name	UNITED STATES GYPSUM CO DEPT 179
Tax Mailing Address	550 W ADAMS ST, CHICAGO IL 60661

MAP

SKETCH

A sketch is unavailable for this parcel.

COMMERCIAL

COMMERCIAL FEATURES

LAND

Code	Frontage	Depth	Acreage	SqFt	Value
3	158	235	N/A	37130	$4,080.00

VALUATION

	Appraised	Assessed
Land Value	$4,080.00	$1,430.00
Building Value	$0.00	$0.00
Total Value	$4,080.00	$1,430.00
CAUV Value		$0.00
Taxable Value		$1,430.00

PERMITS

IMPROVEMENTS

SALES

Date	Buyer	Seller	Price	Validity
2/21/2007	UNITED STATES GYPSUM COMPANY	ROTH WILLARD & GLORIA	$1,350,000.	MULTIPLE PARCELS

Ottawa County, Ohio - Property Record Card
Parcel: 0200235203311000 Card: 1

Owner	UNITED STATES GYPSUM COMPANY
Address	2880 E FISHACK
Land Use	(300) I - INDUSTRIAL, VACANT LAND
Class	INDUSTRIAL
Legal Description	LOT 3 CATRI SUB & 1/2 VACATED FISHACK RD 6/30/11
Tax Mailing Name	UNITED STATES GYPSUM CO DEPT 179
Tax Mailing Address	550 W ADAMS ST, CHICAGO IL 60661

MAP

SKETCH

A sketch is unavailable for this parcel.

COMMERCIAL

COMMERCIAL FEATURES

LAND

Code	Frontage	Depth	Acreage	SqFt	Value
3	75	173	N/A	12975	$1,430.00

VALUATION

	Appraised	Assessed
Land Value	$1,430.00	$500.00
Building Value	$0.00	$0.00
Total Value	$1,430.00	$500.00
CAUV Value		$0.00
Taxable Value		$500.00

PERMITS

IMPROVEMENTS

SALES

Date	Buyer	Seller	Price	Validity
2/21/2007	UNITED STATES GYPSUM COMPANY	ROTH WILLARD & GLORIA	$1,350,000.	MULTIPLE PARCELS

Ottawa County, Ohio - Property Record Card
Parcel: 0200802410667000 Card: 1

Owner	UNITED STATES GYPSUM COMPANY
Address	2888 FISHACK
Land Use	(500) R - RESIDENTIAL, VACANT LAND, LOT
Class	RESIDENTIAL
Legal Description	LOT 4 CATRI SUB
Tax Mailing Name	UNITED STATES GYPSUM CO DEPT 179
Tax Mailing Address	550 W ADAMS ST, CHICAGO IL 60661

MAP

SKETCH

A sketch is unavailable for this parcel.

RESIDENTIAL

LAND

Code	Frontage	Depth	Acreage	SqFt	Value
1	90	143	N/A	N/A	$6,170.00

VALUATION

	Appraised	Assessed
Land Value	$6,170.00	$2,160.00
Building Value	$0.00	$0.00
Total Value	$6,170.00	$2,160.00
CAUV Value	$0.00	
Taxable Value	$2,160.00	

PERMITS

IMPROVEMENTS

SALES

Date	Buyer	Seller	Price	Validity
2/21/2007	UNITED STATES GYPSUM COMPANY	ROTH WILLARD & GLORIA	$1,350,000.	MULTIPLE PARCELS

Ottawa County, Ohio - Property Record Card
Parcel: 0200235203276000 Card: 1

Owner	UNITED STATES GYPSUM COMPANY
Address	0 FISHACK
Land Use	(500) R - RESIDENTIAL, VACANT LAND, LOT
Class	RESIDENTIAL
Legal Description	PARCEL 6 & 7
Tax Mailing Name	UNITED STATES GYPSUM CO DEPT 179
Tax Mailing Address	550 W ADAMS ST, CHICAGO IL 60661

MAP

SKETCH

A sketch is unavailable for this parcel.

RESIDENTIAL

LAND

Code	Frontage	Depth	Acreage	SqFt	Value
1	0	0	1	N/A	$12,180.0
7	0	0	4.23	N/A	$5,150.00

VALUATION

	Appraised	Assessed
Land Value	$17,330.00	$6,070.00
Building Value	$0.00	$0.00
Total Value	$17,330.00	$6,070.00
CAUV Value	$0.00	
Taxable Value	$6,070.00	

PERMITS

IMPROVEMENTS

SALES

Date	Buyer	Seller	Price	Validity
2/21/2007	UNITED STATES GYPSUM COMPANY	ROTH WILLARD & GLORIA	$1,350,000.	MULTIPLE PARCELS

Ottawa County, Ohio - Property Record Card
Parcel: 0200235203323000 Card: 1

Owner	UNITED STATES GYPSUM COMPANY
Address	2905 E FISHACK
Land Use	(300) I - INDUSTRIAL, VACANT LAND
Class	INDUSTRIAL
Legal Description	LOT 5 CATRI SUB & 1/2 VACATED FISHACK RD 6/30/11
Tax Mailing Name	UNITED STATES GYPSUM CO DEPT 179
Tax Mailing Address	550 W ADAMS ST, CHICAGO IL 60661

MAP

SKETCH

A sketch is unavailable for this parcel.

COMMERCIAL

COMMERCIAL FEATURES

LAND

Code	Frontage	Depth	Acreage	SqFt	Value
3	90	225	N/A	20250	$2,230.00

VALUATION

	Appraised	Assessed
Land Value	$2,230.00	$780.00
Building Value	$0.00	$0.00
Total Value	$2,230.00	$780.00
CAUV Value		$0.00
Taxable Value		$780.00

PERMITS

IMPROVEMENTS

SALES

Date	Buyer	Seller	Price	Validity
2/21/2007	UNITED STATES GYPSUM COMPANY	ROTH WILLARD & GLORIA	$1,350,000.	MULTIPLE PARCELS

Ottawa County, Ohio - Property Record Card
Parcel: 0200235203345000 Card: 1

Owner	UNITED STATES GYPSUM COMPANY
Address	2897 FISHACK
Land Use	(500) R - RESIDENTIAL, VACANT LAND, LOT
Class	RESIDENTIAL
Legal Description	LOT 6 CATRI SUB
Tax Mailing Name	UNITED STATES GYPSUM CO DEPT 179
Tax Mailing Address	550 W ADAMS ST, CHICAGO IL 60661

MAP

SKETCH

A sketch is unavailable for this parcel.

RESIDENTIAL

LAND

Code	Frontage	Depth	Acreage	SqFt	Value
1	119	195	N/A	N/A	$8,550.00

VALUATION

	Appraised	Assessed
Land Value	$8,550.00	$2,990.00
Building Value	$0.00	$0.00
Total Value	$8,550.00	$2,990.00
CAUV Value		$0.00
Taxable Value		$2,990.00

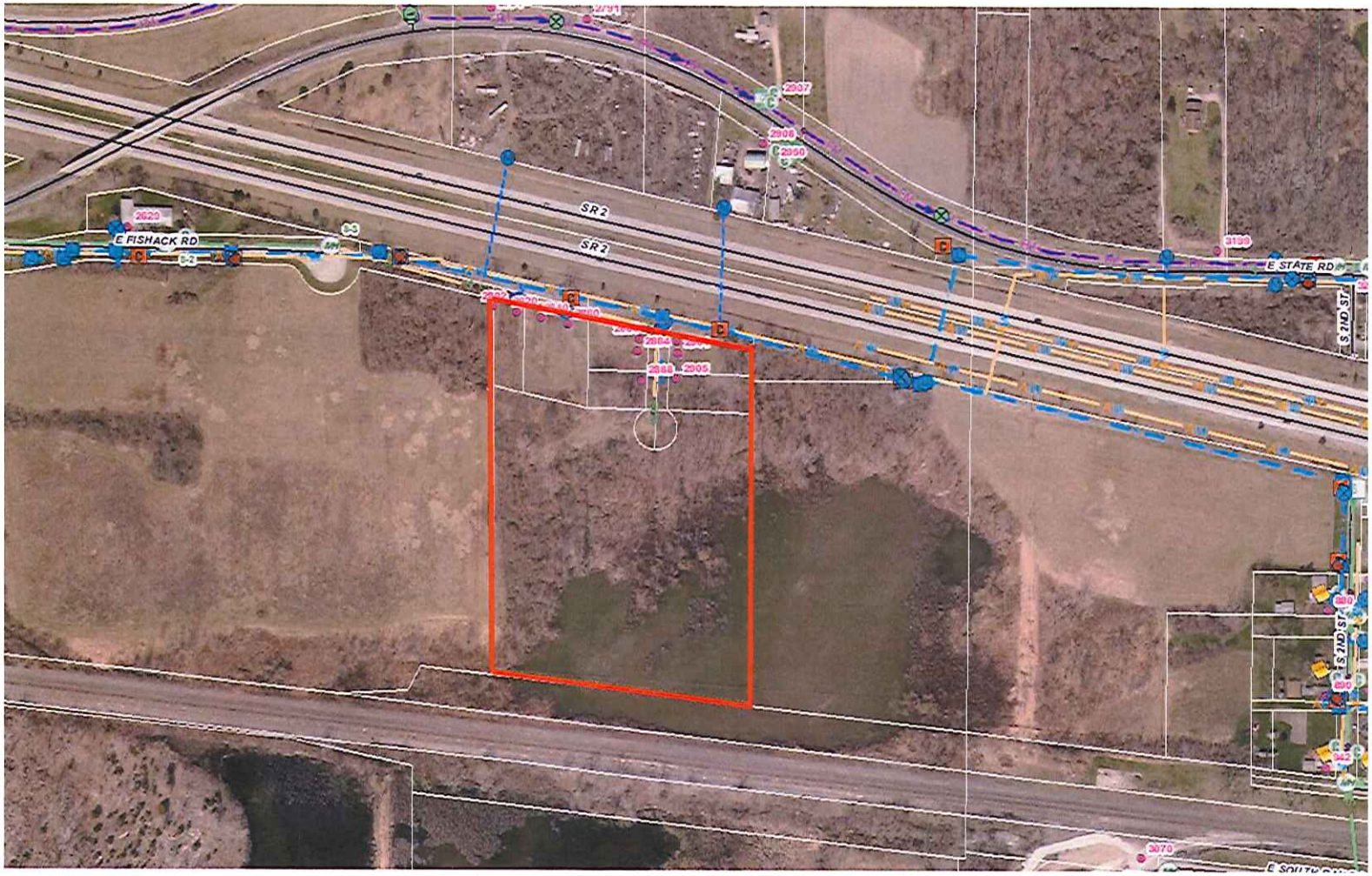
PERMITS

IMPROVEMENTS

SALES

Date	Buyer	Seller	Price	Validity
2/21/2007	UNITED STATES GYPSUM COMPANY	ROTH WILLARD & GLORIA	$1,350,000.	MULTIPLE PARCELS

Location of 24" transmittion main in relation to Willard Roth properties bought by US Gypsum.



Border of multiple parcels

4d

OTTAWA COUNTY
SANITARY ENGINEERING DEPARTMENT

315 Madison Street, Room 105
Ottawa County Courthouse
Port Clinton, Ohio 43452

James K. Frey, P.E., P.S.

Telephone: (419) 734-6725
Fax (419) 734-6858

September 5, 2007

United States Gypsum Company
Attn: Andy Cvitkovich
3120 East Plasterbed Road
Gypsum, Ohio 43433

Re: Fishack Road Sanitary Sewer and Public Water Main Abandonment

Dear Mr. Cvitkovich:

Pursuant to a conversation with Loren Bryant, I am forwarding you this department's abandonment requirements for of Fishack Road Sanitary Sewer and Regional Water. Please find attached 4 pages of record drawings to assist in the explanation of these requirements.

GENERAL:

- This Department shall be contacted 24 hours prior to any excavation.
- All excavations shall be inspected prior to backfill.
- An access gate adequately sized for construction equipment shall be required to obtain entrance to easement.

SANITARY:

- Sanitary Sewer easement shall be abandon 3' east of manhole #8-3.
- Excavate and cap the 8" sewer main east of manhole #8-3 leaving a 3' stub.
- Concrete plug the invert of three (3) manholes #8-4 (east and west), #9-1 (west and south), #9-2 (north and south), then fill with ODOT #304 granular.
- All castings shall be removed.

WATER:

- Water services at 2802, 2820, 2840, 2860 Fishack Road, and the master water meter service near 2899 Fishack Road shall be abandoned at the corporation stop on the main waterline. The copper water services connection shall be cut and crimped to limit backflow hazards.

Please feel free to contact myself or Doug Perkins if you have any further questions or concerns.

Sincerely,

Steve R. Wagner
Technical Coordinator

Cc: James K. Frey P.E., P.S.
Gino Monaco
Doug Perkins
Theresa Spitler

Port Clinton, and the townships of Bay, Portage, Erie, Carroll, and Salem. Roadways were flooded, houses were inaccessible and basements and first floors flooded, and power was out for up to a day. While this storm resulted in significant damage and disruption of life, it did not meet declaration thresholds because many properties were privately insured and/or the homes that were damaged were seasonal, not primary, homes.

Table 2-25: Flood History

Hazard	Total Incidents	Total Property Loss	Total Crop Loss	Total Deaths	Total Injuries	Average Loss/Incident
Flood	21	$16.515M	$6.045M	0	0	$786K

2.2.6 Land Subsidence

Land subsidence is the lowering of the land-surface elevation from changes that take place underground. This can be caused by human actions such as pumping substances like water, oil, and gas from underground reservoirs, collapse of underground mines; dissolution of limestone aquifers, also known as sinkholes, and hydro-compaction from the initial wetting of dry soils. This can cause damage to roads, bridges, and other infrastructure and change the elevation and slope of streams, canals, and drains when the land beneath collapses and sinks.

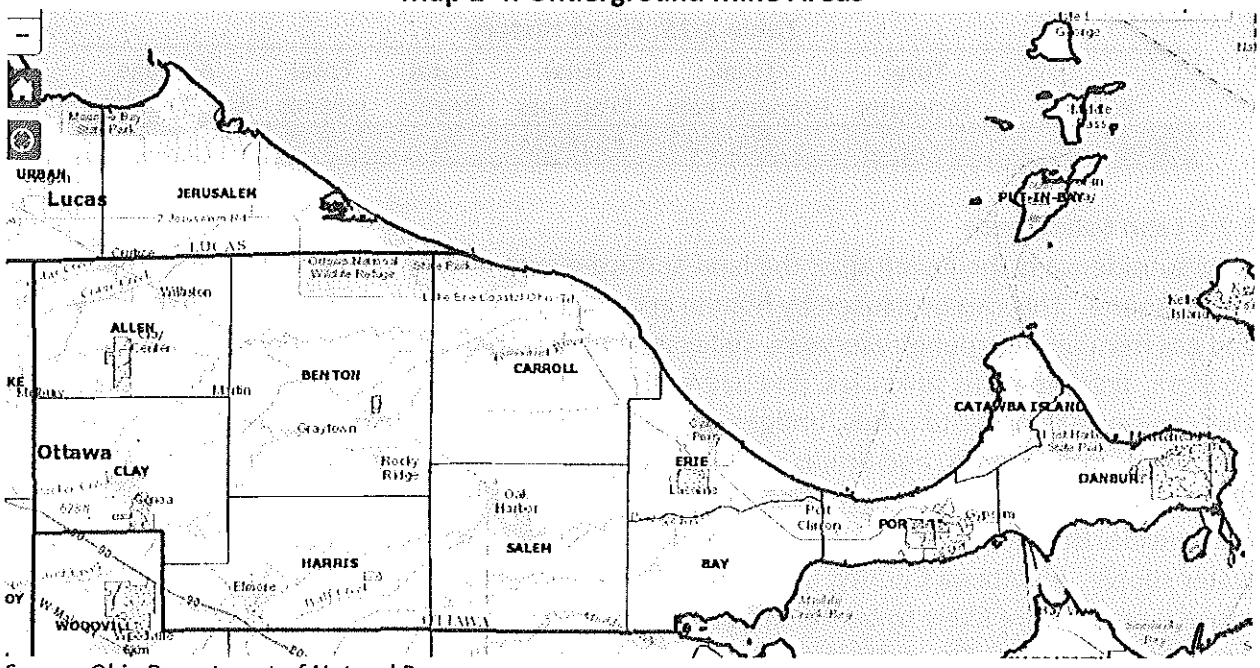
Nationwide, the most common cause of land subsidence is exploitation of the underground water supply. In Ottawa County, land subsidence rarely occurs for this reason. Instead, the cause is much more likely to be the dissolution of limestone aquifers or collapse of underground mines. The eastern and western portions of Ottawa County are most susceptible to this hazard. The eastern townships are located at the edge of karst terrain. As rainwater seeps into the water-soluble limestone and gypsum, fractures form. These fractures grow and expand over time, increasing the risk of collapse. Caves on the Bass Islands and the Marblehead Peninsula were formed by this karst activity. Smaller sinkholes are located throughout the eastern area of the county.

Abandoned mines are also a risk in parts of Ottawa County. When the area above the abandoned mines collapses or experiences lateral and vertical movement, the mines can cave in. The abandoned mines are located in Portage Township and result from the removal of gypsum by local industries and date back to the early 1900s.

In 2015, the Ohio Department of Transportation completed repairs to State Route 2 in Portage Township because of the abandoned gypsum mine void areas beneath the road. These mines were abandoned and uncharted areas that were used by the gypsum industry earlier in the 20th century as drywall and other gypsum products were produced from local subterranean assets. When State Route 2 was repaired and repaved, the initial roadway failed very quickly. The underground voids were identified and the contractor was required to re-install the highway after engineering and completing structural supports. The highway has been repaired and has not failed again in the past year.

The map below identifies the areas in Ottawa County with underground mines. These mines are located near the areas with limestone and gypsum mining operations. The following jurisdictions are affected by this hazard: Allen Township, Benton Township, Clay Township, Danbury Township, Genoa, Marblehead, and Portage Township.

Map 2-4: Underground Mine Areas



Source: Ohio Department of Natural Resources

2.2.7 Severe Thunderstorm

A thunderstorm is a local storm produced by a cumulonimbus cloud accompanied by thunder, lightning, and/or hail. Lightning is a brief, naturally occurring electrical discharge that occurs between a cloud and the ground. Hail is frozen rain pellets that can damage buildings, vehicles, and other structures as they fall. Hail forms in the higher clouds and accumulates size as it falls as precipitation. If temperatures close to the ground are warm, the hail can partially melt or become freezing rain. Most thunderstorms include heavy precipitation and wind. These storms can produce hail, lightning, flash floods, tornadoes, and damaging winds that pose significant risk to people and property in the area. A thunderstorm that produces a tornado, winds of 58 mph or greater, and/or hail with a diameter of at least 1", is considered a severe thunderstorm. These storms typically develop as part of a larger storm front and are preceded and followed by regular thunderstorms.

Ottawa County experiences many thunderstorm events each year. The majority of these events include heavy precipitation, wind, and thunder. Hail and lightning are possible, but occur much less frequently than wind and heavy precipitation. Thunderstorms that include hail and lightning are much less frequent but are generally more severe. Thunderstorms are a countywide hazard and can affect all areas and jurisdictions. These storms range from minor to severe, although the most are minor or moderate. Thunderstorms are relatively frequent but

FEMA Hazard Mitigation Plan Status

About

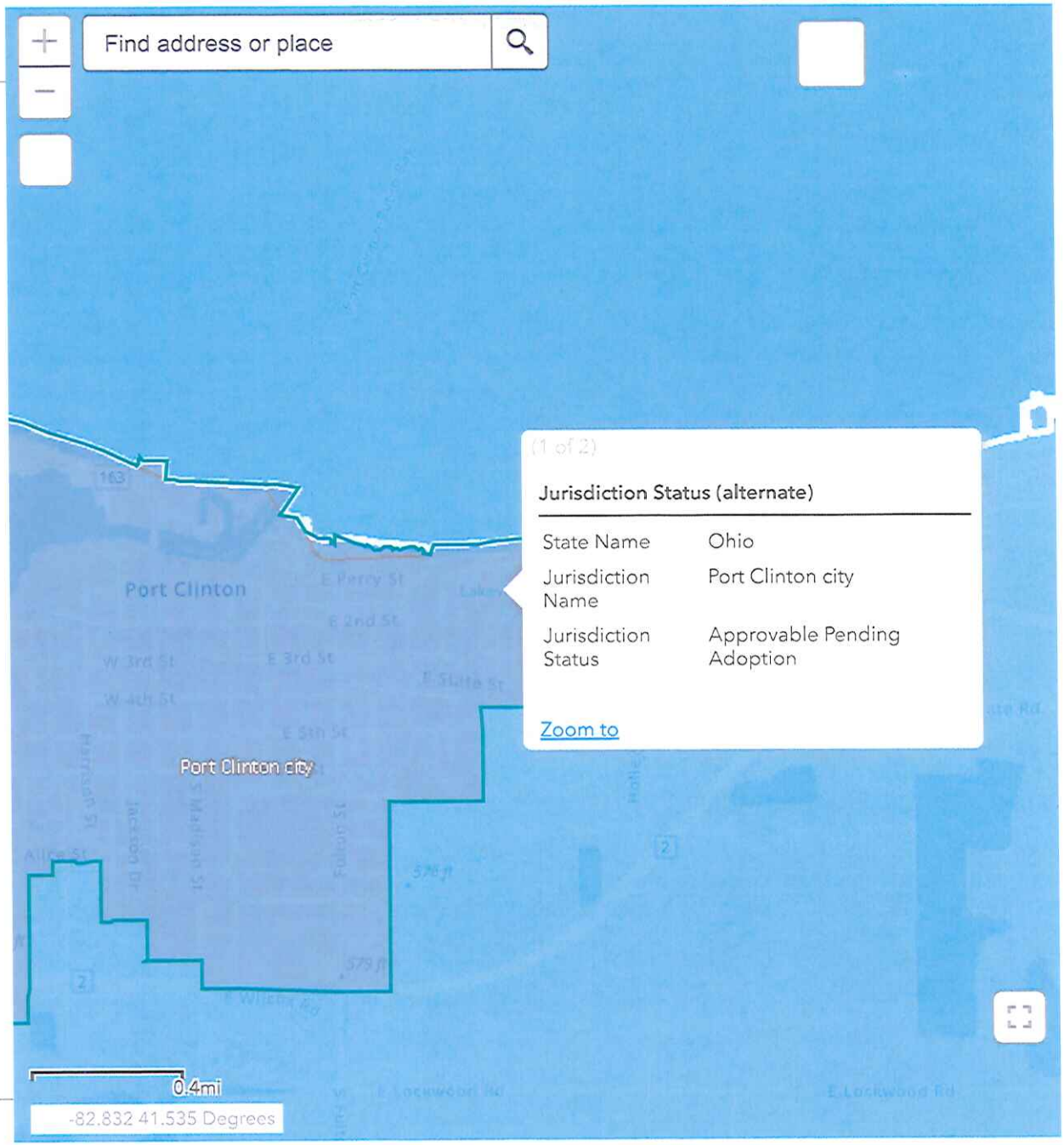
Hazard Mitigation Plan Status

NOTE: The data provided in this product are regularly updated directly from FEMA's Mitigation Planning Portal (MPP). A recent database migration has introduced limited data issues where jurisdictions do not display their status properly. If you notice any data discrepancies, or identify any issues with this mapping service, please contact FEMA-RiskMAP-ITHelp@fema.dhs.gov.

This product does not contain Personally Identifiable Information (PII).

Click the State name below to view the State Hazard Mitigation Plan. For additional information on mitigation planning, visit: https://www.fema.gov/emergency-managers/risk-management/hazard-mitigation-planning

Alabama
Alaska
American Samoa
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota



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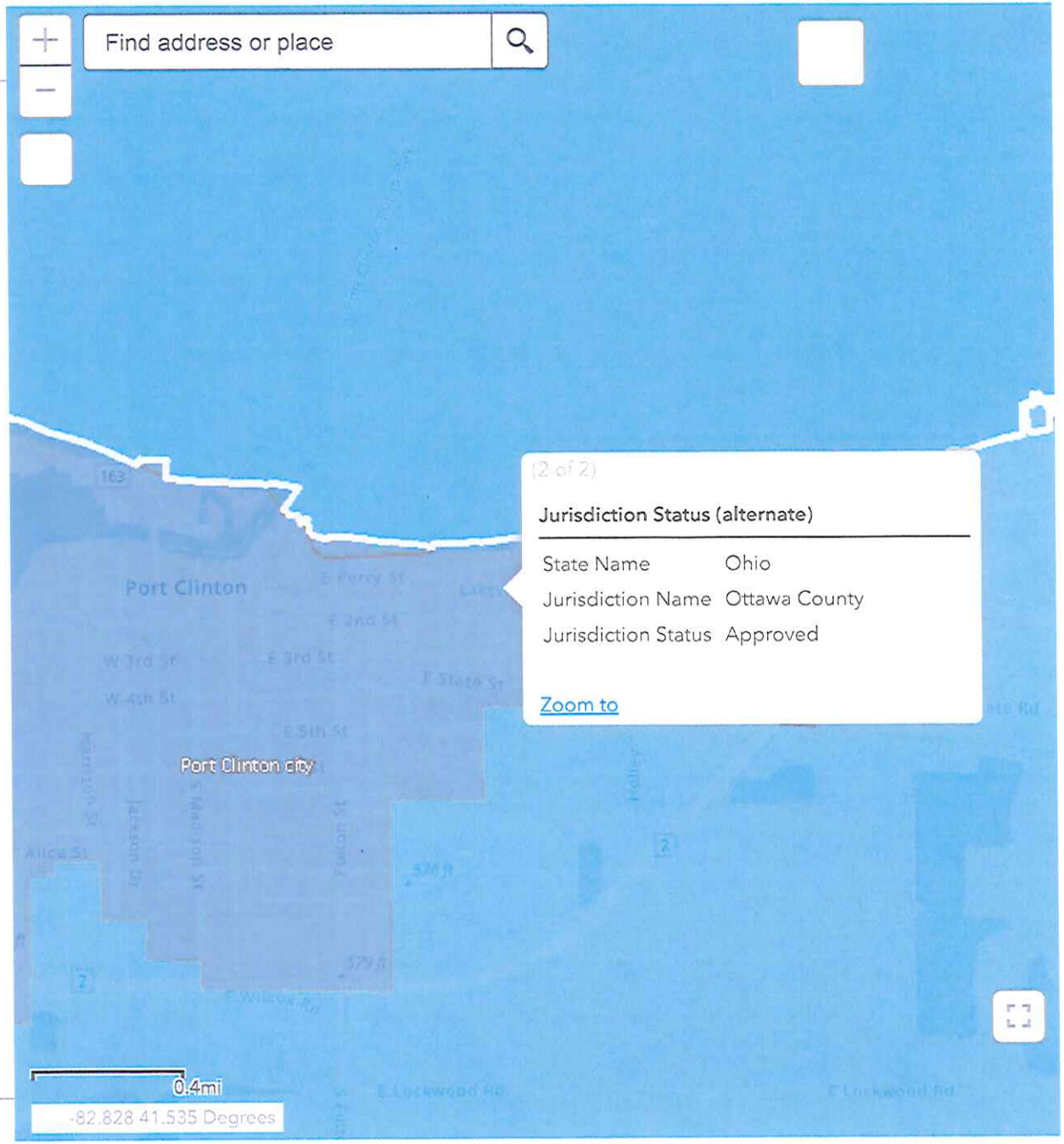
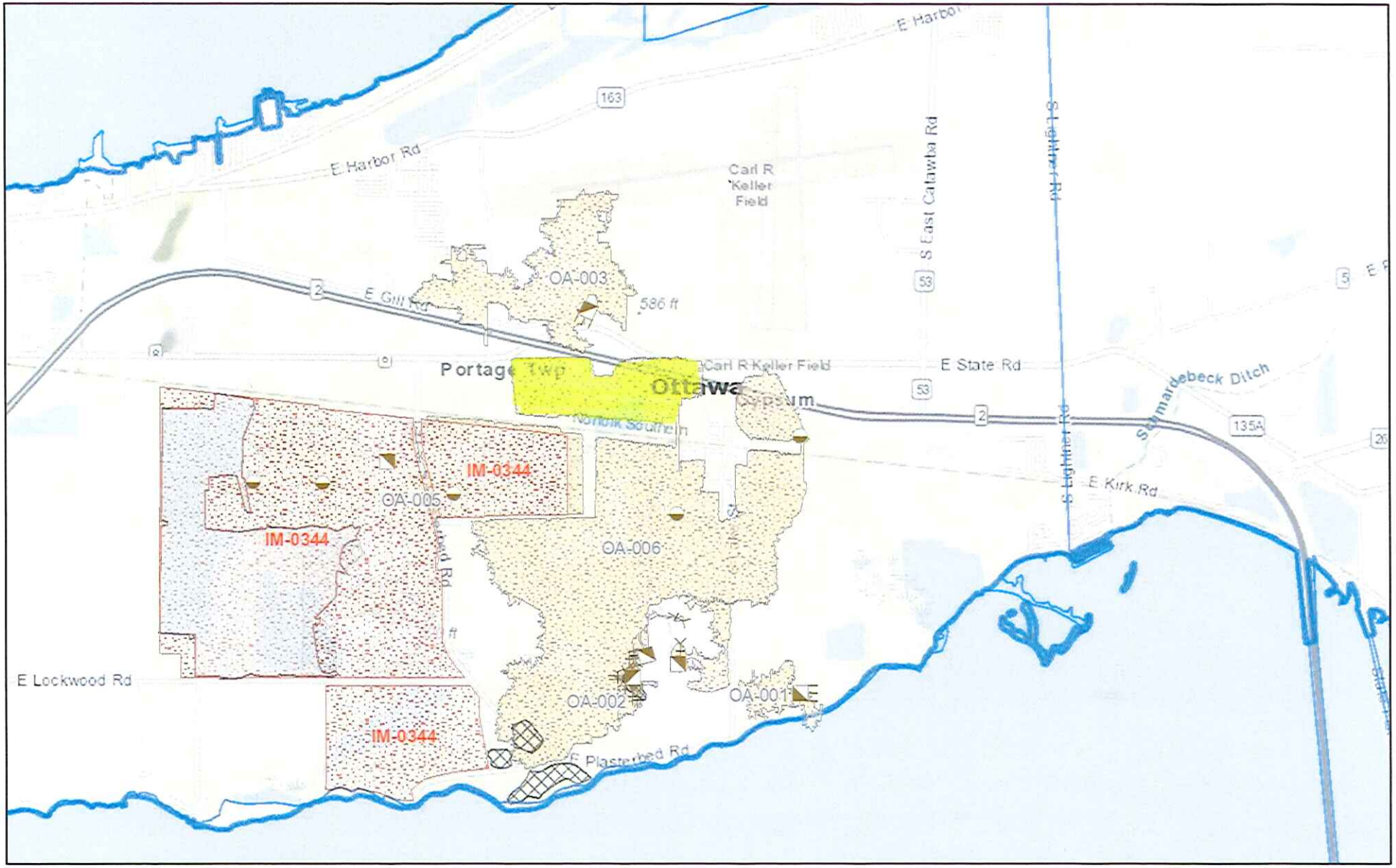
Alabama
Alaska
American Samoa
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota



Mines of Ohio



June 22, 2021

Current

- Air Shaft
- Drift Entry
- Vertical Mine Shaft
- Slope Entry

Past

- Air Shaft
- Drift Entry
- Vertical Mine Shaft
- Slope Entry
- Locations

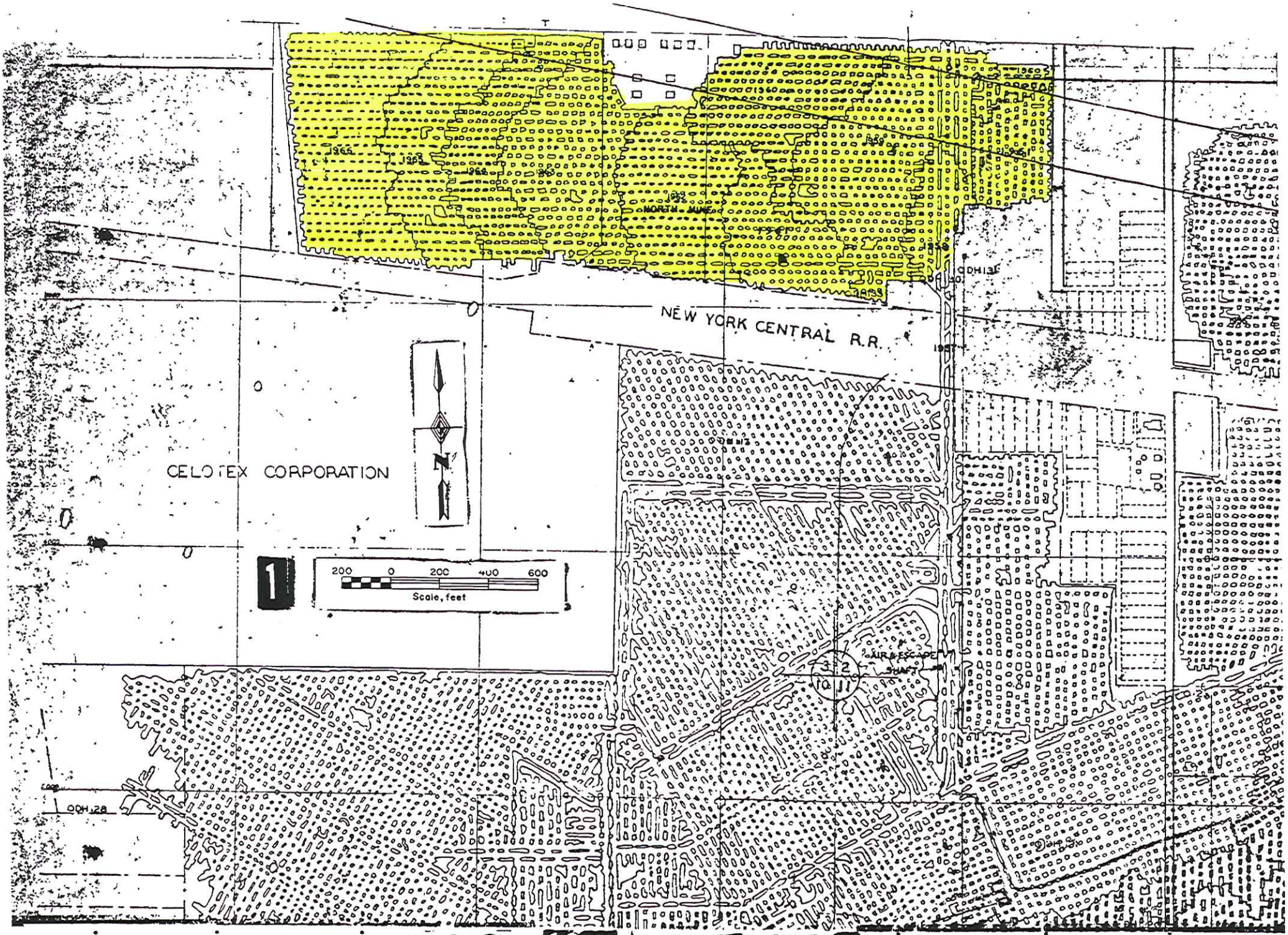
1:36,112

0 0.3 0.6 1.2 mi

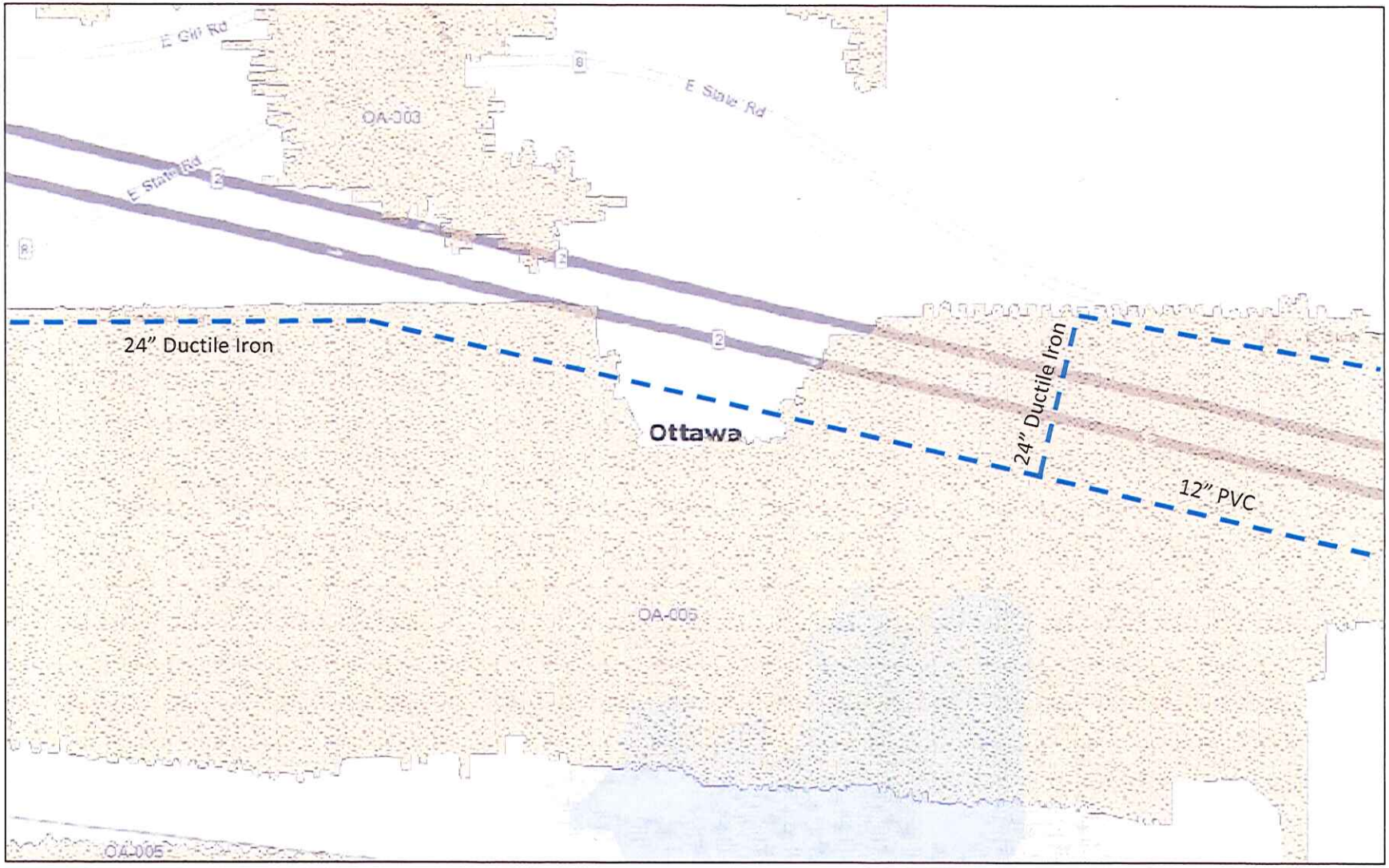
0 0.5 1 2 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

Ohio Dept. of Natural Resources



Mines of Ohio



June 21, 2021

Current

- Air Shaft
- Drift Entry
- Vertical Mine Shaft
- Slope Entry

Past

- Air Shaft
- Drift Entry
- Vertical Mine Shaft
- Slope Entry
- Locations

1:4,514

0 0.0375 0.075 0.15 mi

0 0.05 0.1 0.2 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

Ohio Dept. of Natural Resources

Map of mine and soil subsidences near 24" Regional Water Inter-connector

1. 24" Regional Water Inter-connector
2. State Rd. soil subsidence
3. Plasterbed Rd. mine subsidence

8a

Ottawa County Engineer's Office

Ronald P. Lajti, Jr., P.E., P.S.
Ottawa County Engineer

8247 W. State Route 163
Oak Harbor, Ohio 43449

Phone: 419-734-6777
Fax: 419-734-6768

September 9, 2021

To: James K. Frey
Ottawa County Sanitary Engineer
Court House, Room 105
Port Clinton, OH 43452

Re: OCRW-D Secondary Feed Loop to Catawba Island, Danbury and Portage Townships.

It was recently brought to my attention that the Office of the Ottawa County Sanitary Engineer endeavors to add redundancy to their only main municipal water supply line that feeds the eastern end of Ottawa County. Given the location of the existing line, and the fact that it traverses an area that is known to contain abandoned gypsum mines with a history of producing sink holes, a secondary supply line should be considered of utmost importance. I fully support this endeavor and encourage swift progress in solidifying funds to bring this plan to fruition.

Sincerely,

Ronald P. Lajti Jr., P.E., P.S.
Ottawa County Engineer

Cc: File

S:\Correspondence\Sanitary Engineer\Mine subsidence waterline secondary feed loop endorsement.doc