



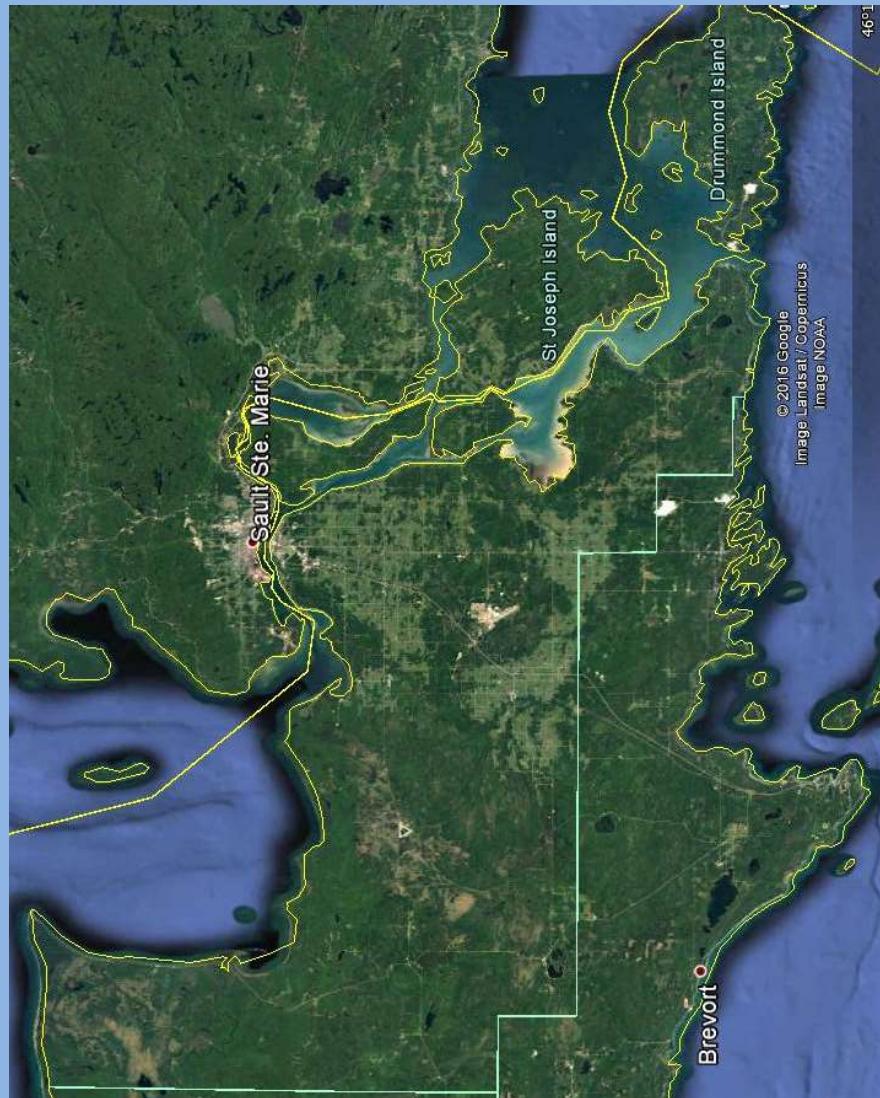
How many Engineers in the room?



# St. Mary's River Little Rapids Habitat Restoration Project



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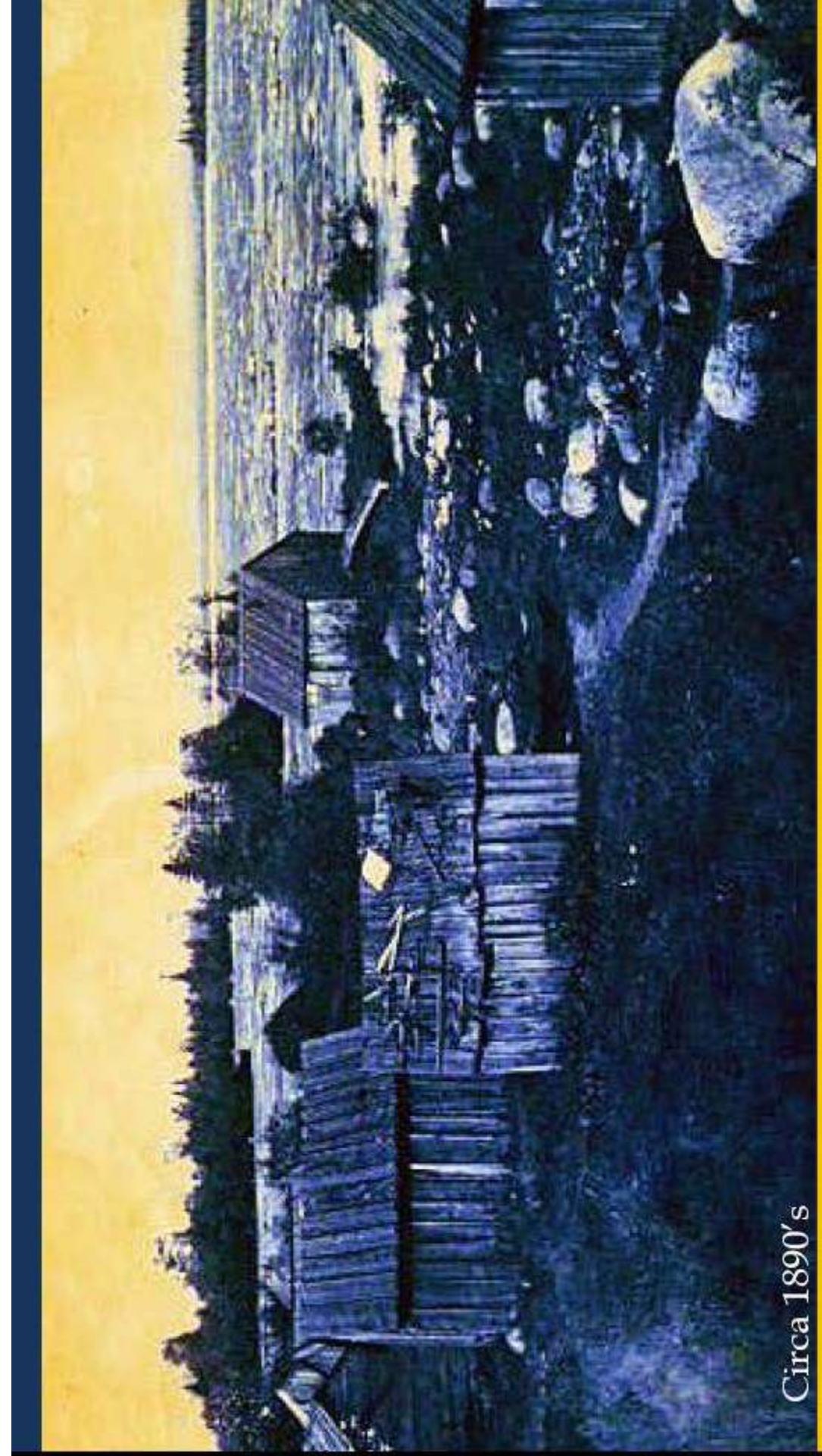
Robert W. Laitinen, PS  
Superintendent / Manager  
Chippewa County Road Comm.  
3949 S. Mackinac Trail  
Sault Ste. Marie, MI  
(906) 440-2244

rlaitinen@chippewacountyroads.org  
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On Facebook  
[@chippewacountyroads](https://www.facebook.com/chippewacountyroads)

# St. Mary's River Little Rapids Habitat Restoration Project





Circa 1890's

The Sault Area Rapids have been highly modified including: 1) total island removal, 2) development of hydroelectric plants, 3) locks and dredged channels for support of ship navigation, and 4) construction of the island causeway at Sugar Island and the Neebish Island cut.

Native Americans netting whitefish in the famous Sault  
Rapids no longer exists as much of the rapids habitat was  
destroyed for shipping and commercial interests.



Little Rapids - 1939

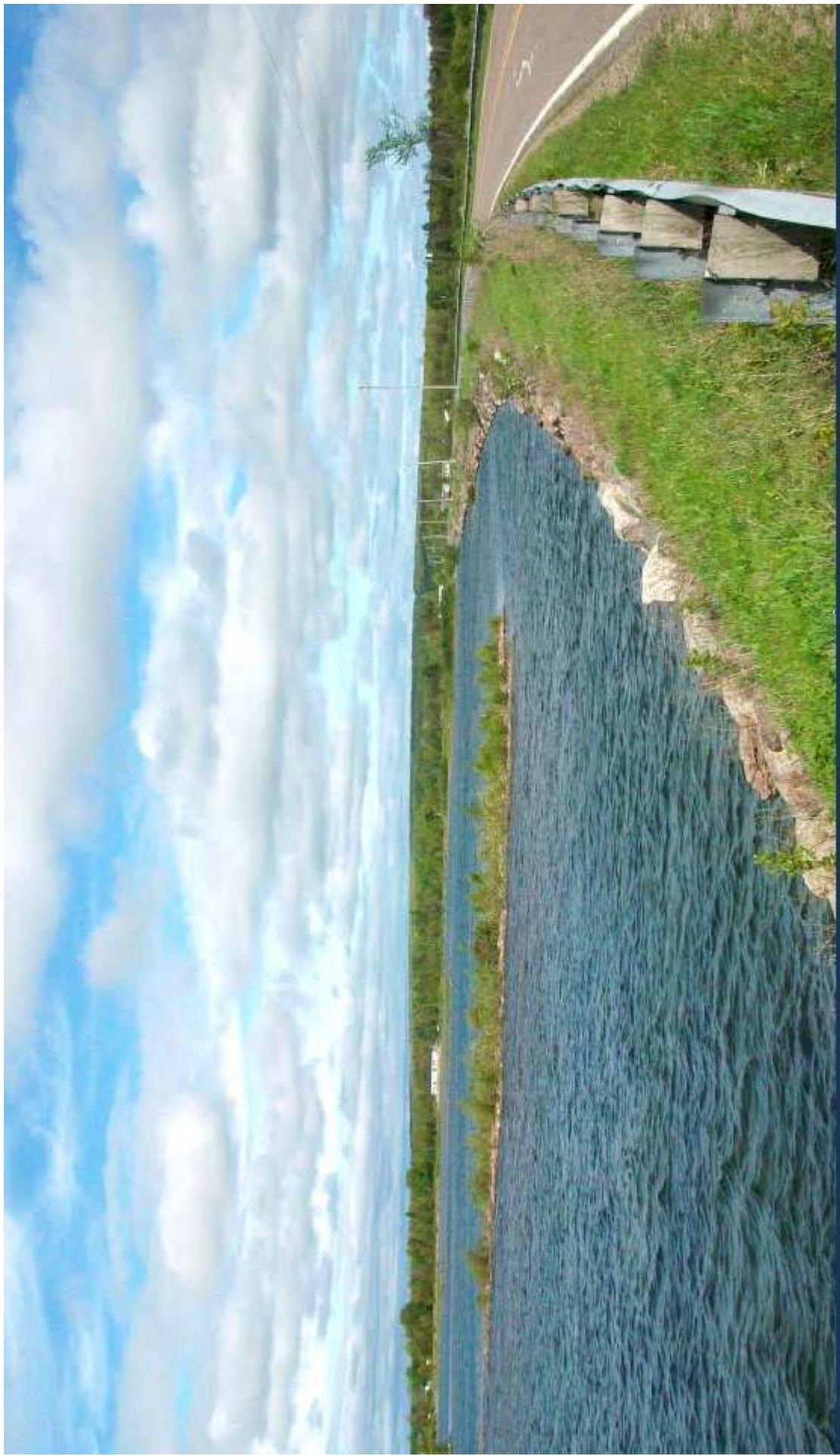
3 small bridges existed

FLOW

Shipping  
channel



Looking *south* east from the Sugar Island Causeway



Looking *north* east from the Sugar Island Causeway

# Primary project goal - Rehabilitation of St. Marys River Little Rapids



Lentic (still) water

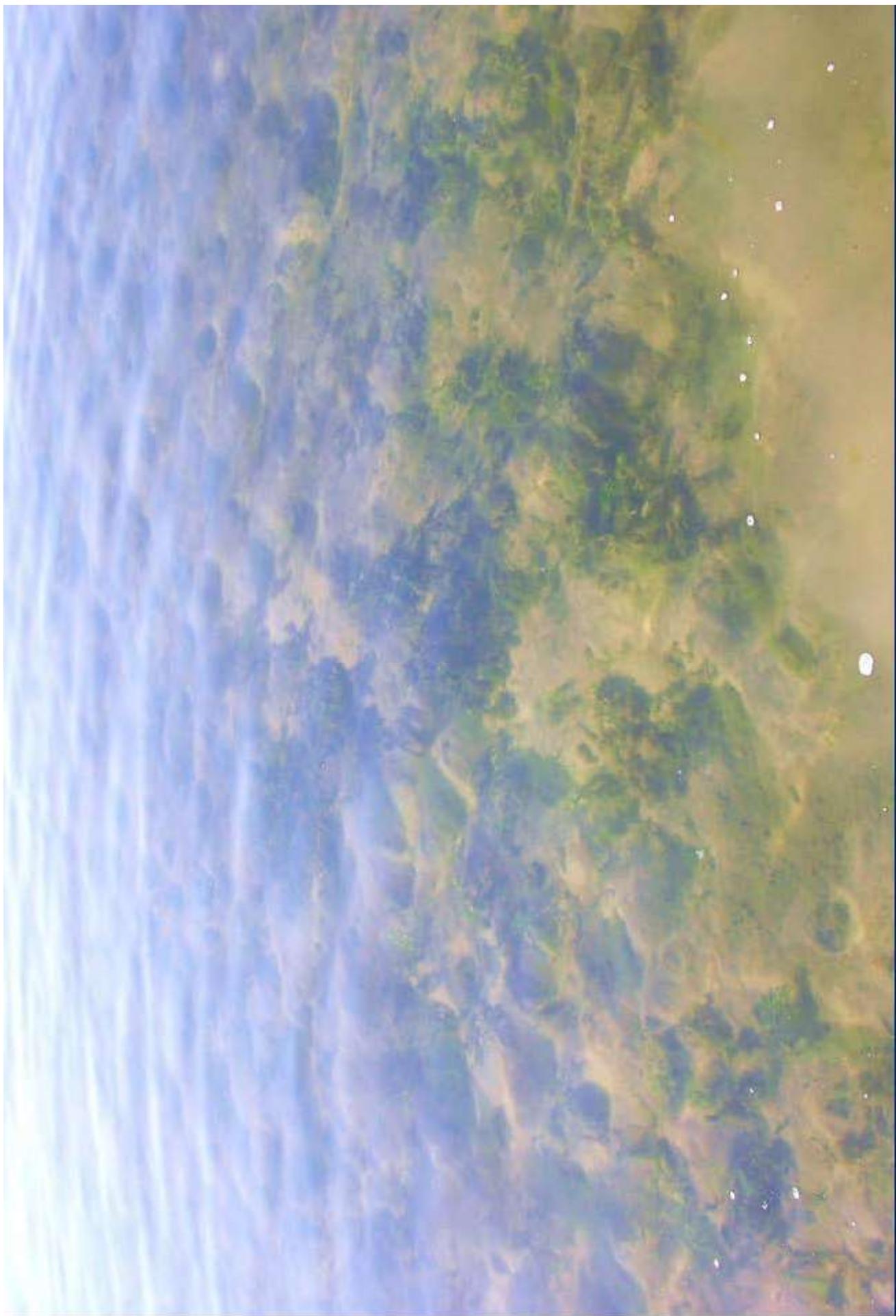


Lotic (moving) water

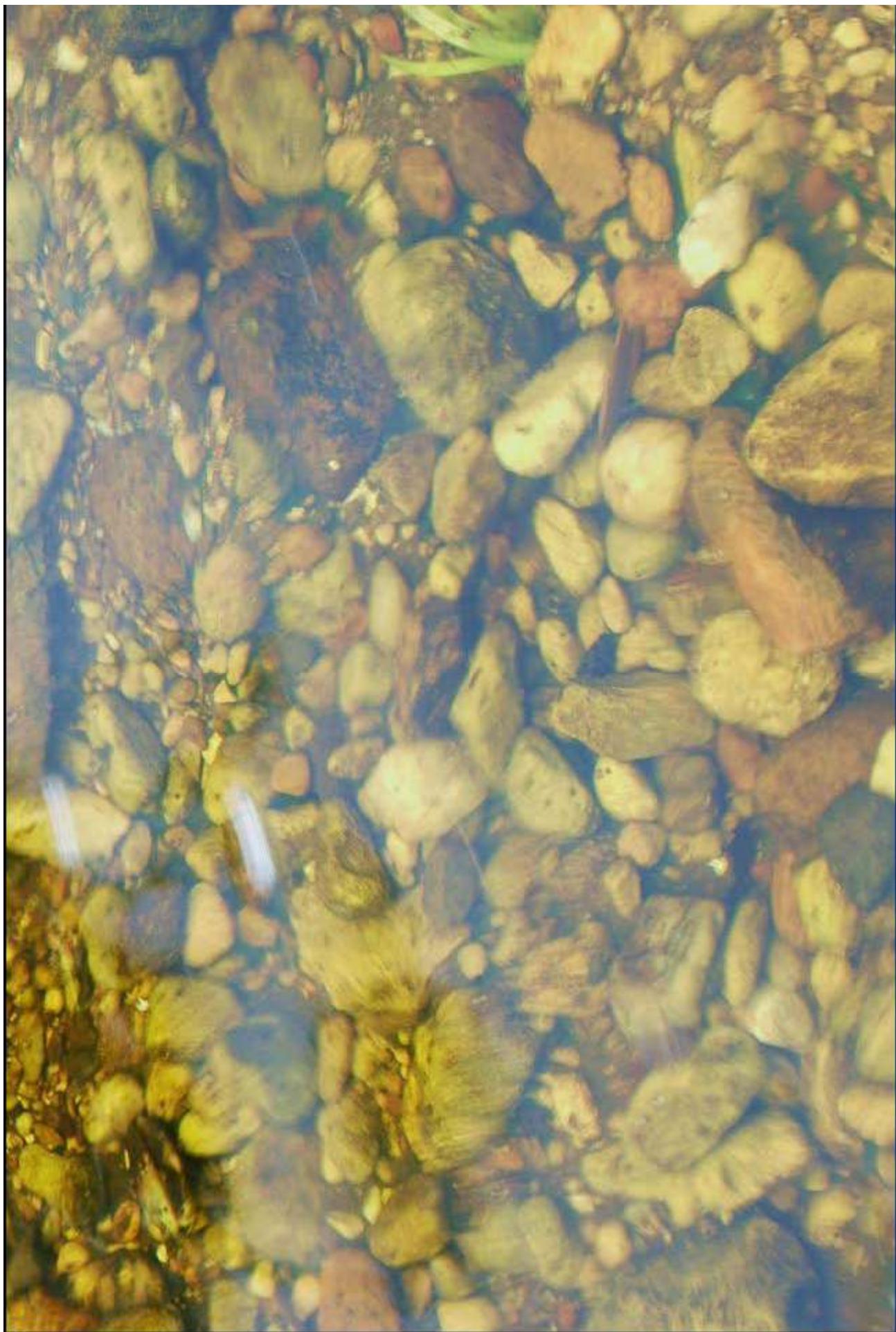
# Expected Changes

- Stream velocity
- Flow
- Bottom Substrate changes in specific areas
- Fish community composition shift
- Increased seasonal use by new fish species
- Benthic organism composition shift and expansion





Current state – Silt may cover some of the better substrate sou  
of the seafloor.



After restoration – Clean gravel for spawning and juvenile rearing enacted

## **Seasonal fisheries surveys proposed**

- Determine species composition and fish abundance pre and post implementation



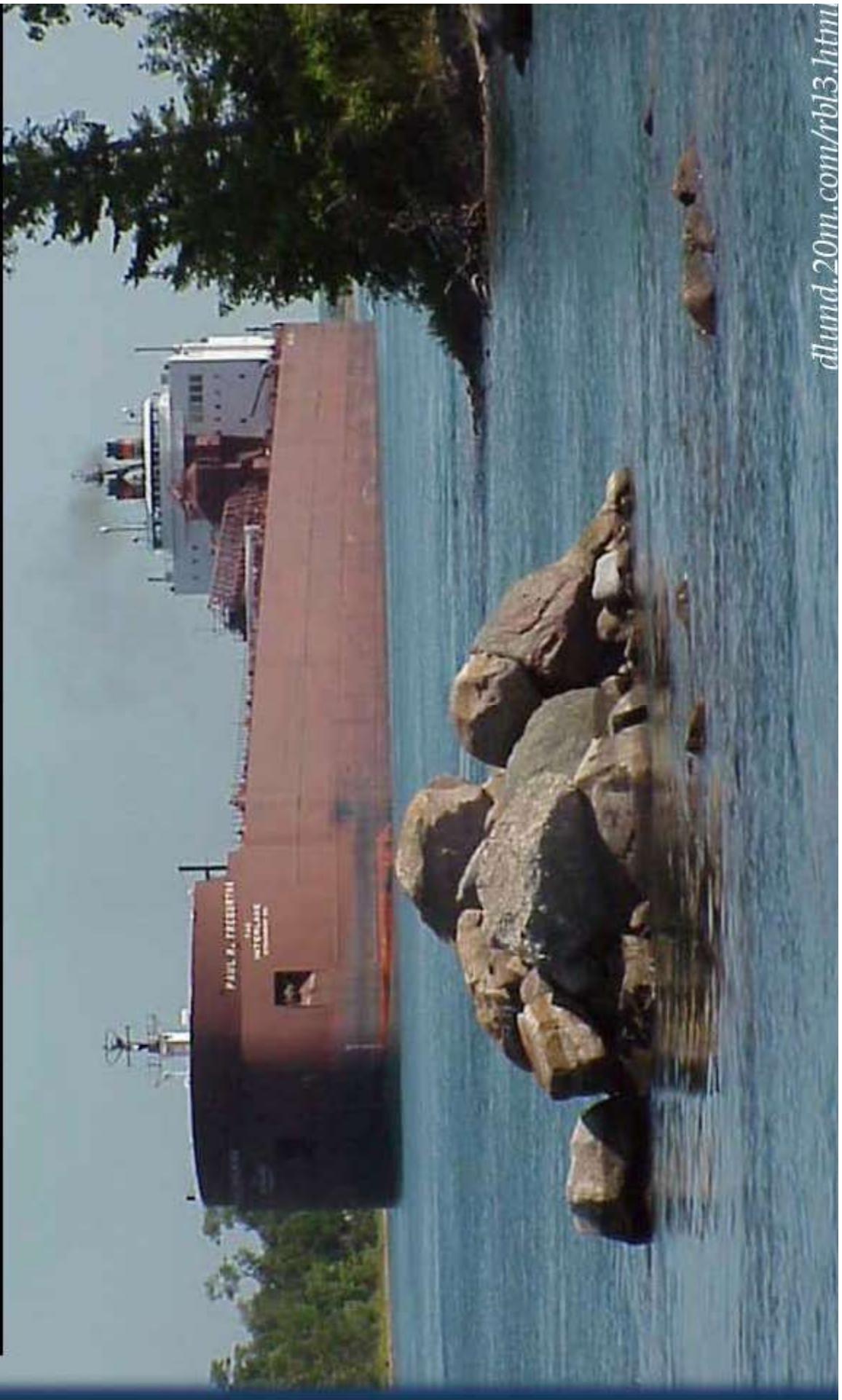


Numerous other studies have been proposed including :

- Aquatic insect surveys
- Sturgeon/walleye spawning and use
- Sea Lamprey use
- Recreational use using cameras
- Freshwater mussel



What about Great Lakes Shipping? A 2012/2013 flow study funded by NOAA indicates that restoring flows to the Little Rapids will not have any meaningful impact on Great Lakes Shipping under all flows conditions (Per Troy R. Naperala /Senior Engineer / URS 2013)



# Great Idea, How do we fund it?

- Project was first proposed by Soo area sportsmen's club in 1992.
- Co-operative feasibility study performed by the club, MDNR and funded by Edison Sault Electric Co.
- Found to be feasible but no viable funding sources were identified.
- Feasibility study lacks hydraulic modeling.

# Great Idea, How do we fund it?

- 2010 – Great Lakes Restoration Initiative is introduced
- 2011 – Soo area sportsmen, MDNR, MDEQ, LSSU, U.S. Fish and Wildlife, EUP Regional Planning Great Lakes Commission and others approach road commission and ask to apply for funds to complete hydraulic analysis, complete engineering design, and construct.
- Road Commission agrees, LSSU is first applicant

# Great Idea, How do we fund it?

- LSSU application is not selected, NOAA is interested, recommends re-application for only hydraulic modeling and engineering
- 2012 – EUP Regional Planning re-applies and grant for engineering work is awarded to URS Corp.
- 2013 – Great Lakes Commission applies for and is awarded construction grant - 6.1 mill
- 2013 – EUP Reg. Planning, LSSU, and Road Commission sign sub-recipient agreements with Great Lakes Commission

# Great Idea, How do we fund it?

- After agreements with sub-recipients 4.6 million left for construction
- Design-Build, Fixed Price-Variable Scope contracting method chosen. URS Corp.(now AECOM) prepares project documents and RFP for Road Commission
- 2014 – No completed proposals received, all contractors state project goals can not be met with available funds. Also state a need for additional geotechnical information.

# Great Idea, How do we fund it?

- 2014 – Great Lakes Commission approaches NOAA and requests additional funds for construction. 3.5 mill additional is approved.
- Winter 2014/2015 - Additional geotechnical drilling is accomplished and amended RFP is prepared
- Summer/ Fall 2015 – Payne and Dolan / Zenith Tech are chosen as design – builders
- Winter 2015/2016 – Design Phase, RFC plans by May

Why is the Road Commission involved?



# Why is the Road Commission involved?

- Through Long-term use, Road Commission is owner of roadway
- U.S. Corps of Engineers is owner of adjacent bottomland
- U.S. Corps of Engineers, NOAA very interested in project
- Road Commission remains involved to maintain local input and control since we are ultimate owner and responsible for maintenance.
- Existing culverts (two 6' Dia.) are a safety hazard and should be replaced anyway

# Human Benefits



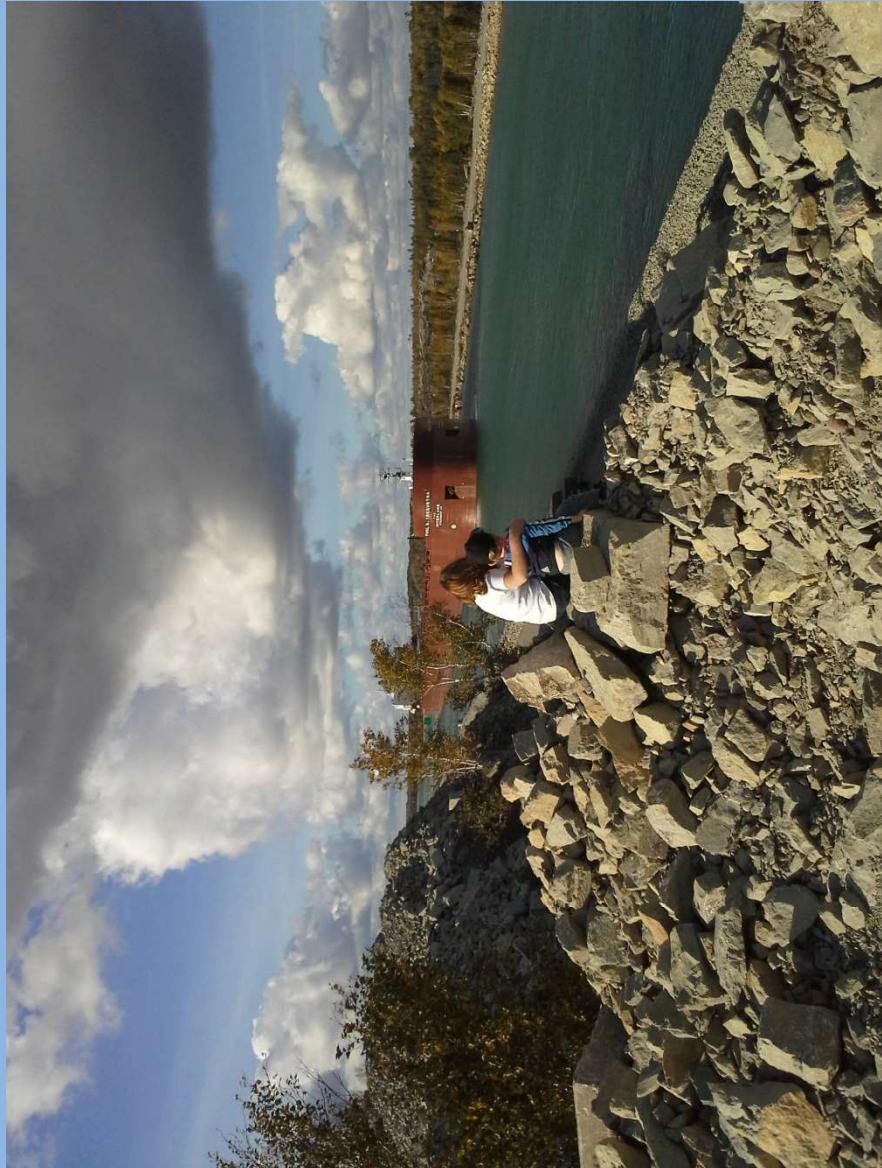
# Construction Difficulties

- Its ON an island, not TO an island!!! Delivery of all materials must pass across the deck of this boat. Max Length 114', Max weight is two Redi-mix trucks.

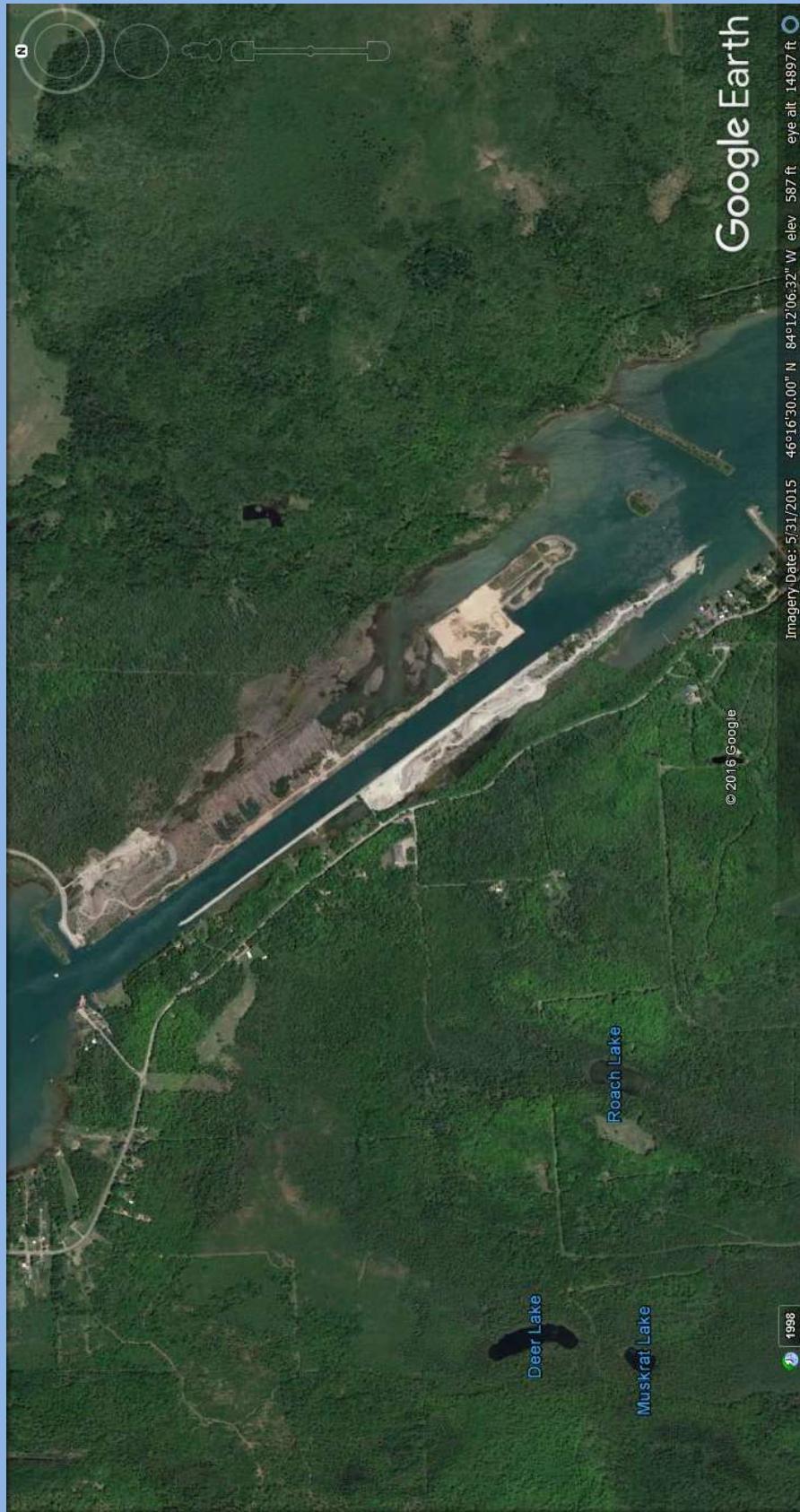


# Construction Difficulties

- There is no good source of aggregate on the island, all aggregates must be trucked to the site.
- License was received to haul waste stone from a Corps of Engineers property approx 20 miles south of site.



# Borrow site

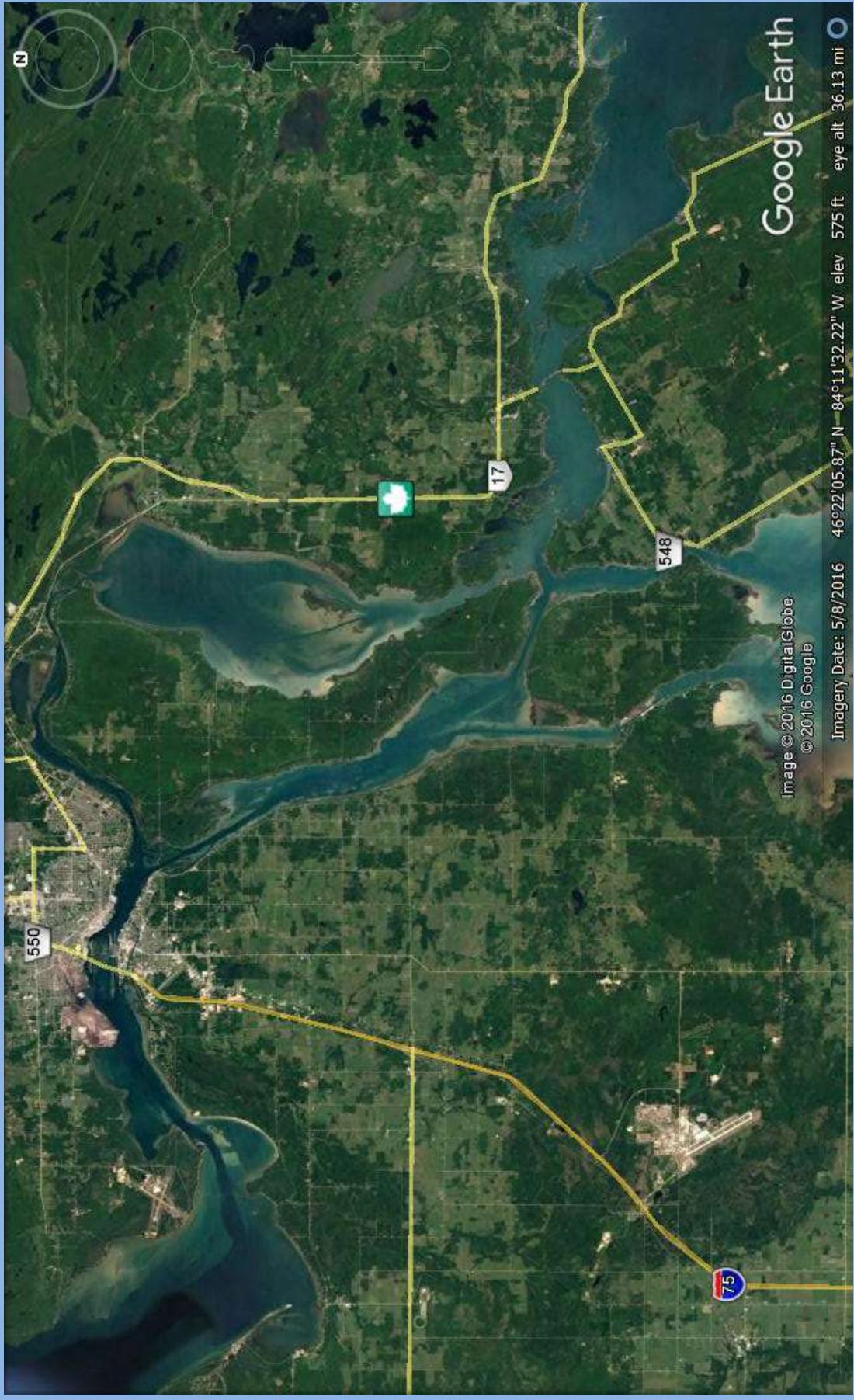


## Aerial view of eventual bridge location



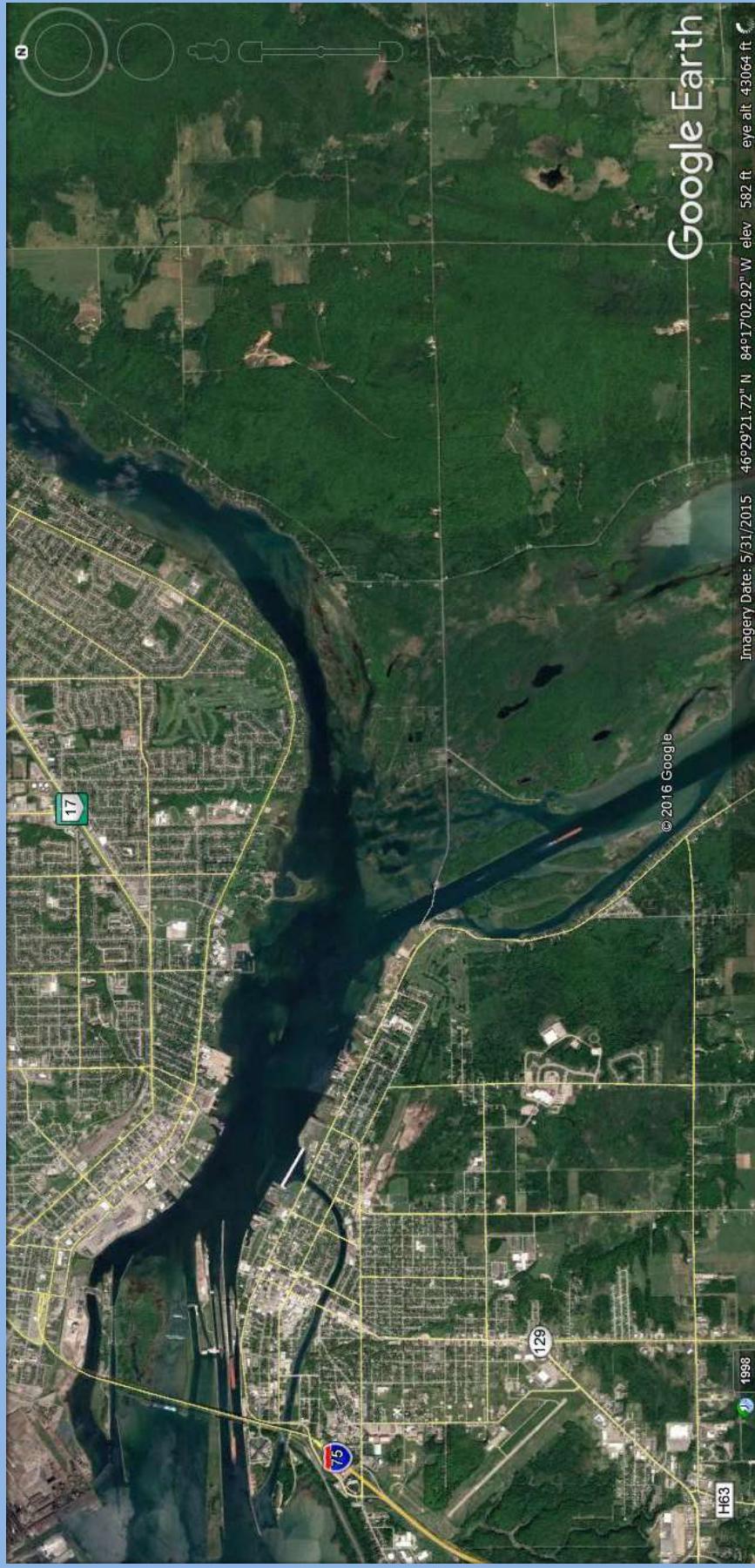
- Very little room for staging
- U/G phone needs relocate
- Must allow for two-way traffic
- O/H power needs relocate
- Very poor underlying soils

# Overview of the region

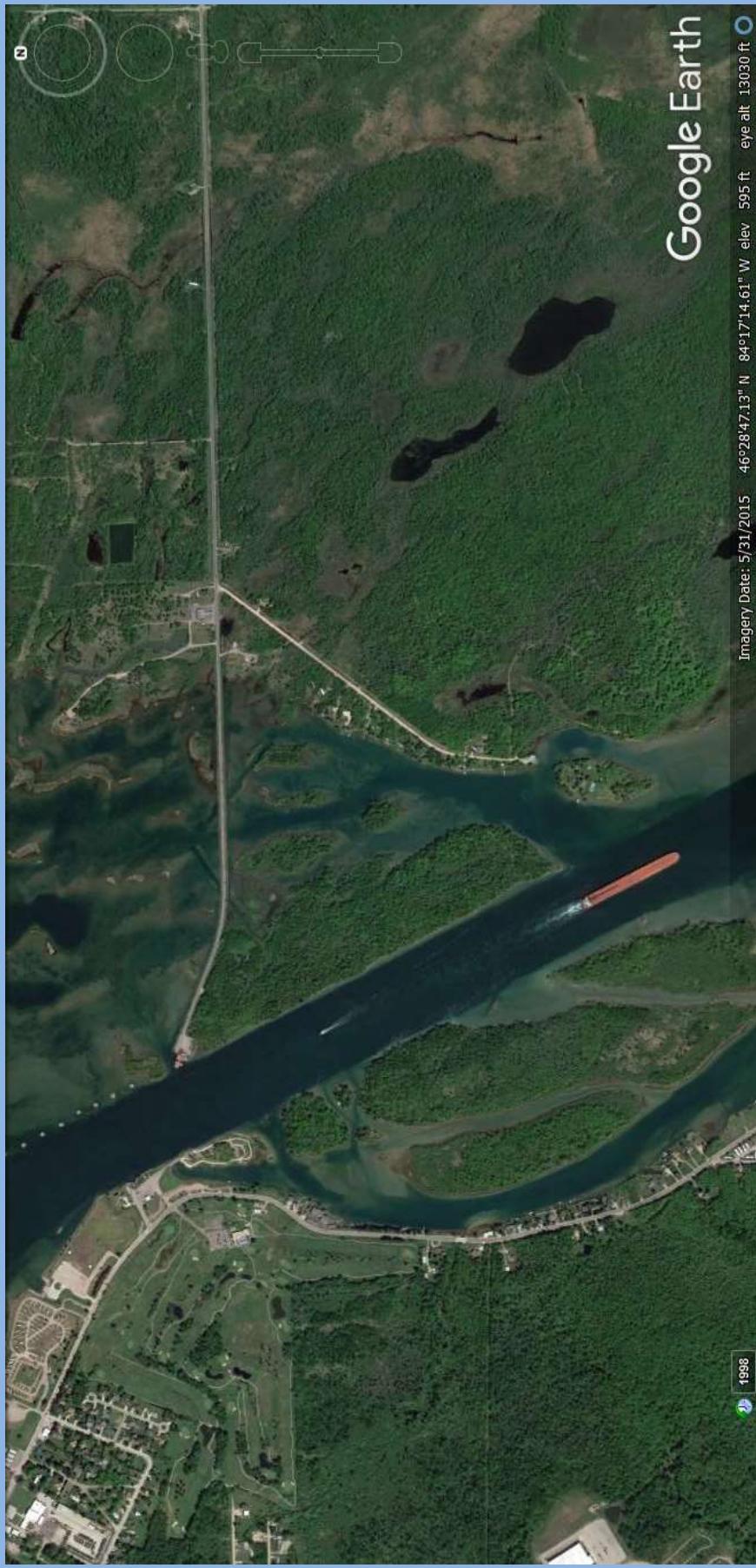


Approx 20 mile haul route on County owned roads

# Construction Difficulties



# Construction Difficulties



## SHEET INDEX

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SHEET 3-6	TOPICAL SECTIONS
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SHEET 11	PERMANENT EROSION CONTROL
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SHEET 14-15	TIMBERYARD RAVINES ROAD 3 PLAN AND PROFILE
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SHEET 28-33	CONSTRUCTION ROAD CROSS SECTIONS
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SHEET 63	FINISHED ROAD ALIGNMENT
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SHEET 80	STRUCTURE PLAN OF 2ND BRIDGE & PROFILE
SHEET B-1	SECTIONS & DETAILS
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SHEET B-21	PEDESTRIAN RAILING DETAILS
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SHEET B-25	GENERAL STEEL REINFORCING
SHEET B-26	SCREW DETAILS

## CHIPPEWA COUNTY ROAD COMMISSION LITTLE RAPIDS RESTORATION 1 1/2 MILE ROAD RECONSTRUCTION

### RELEASED FOR CONSTRUCTION PLANS



PROJECT LOCATION MAP

SCALE: NONE

THE IMPROVEMENTS COVERED BY THESE PLANS  
SHALL BE DONE IN ACCORDANCE WITH THE  
2012 MICHIGAN STATE HIGHWAY DESIGN STANDARDS  
AND THE 2011 MICHIGAN MANUAL OF UNIFORM  
TRAFFIC CONTROL DEVICES.  
DESIGN SPEED 60 MPH  
AADT 2000-2000

JITTLE SHEET LEGEND

PROJECT LOCATION



Robert  
Laitinen,  
PS



Robert Laitinen PS  
cc:Chippewa County Road  
and Street Superintendent/  
Manager,  
email:surveyor@ccalt.mn.gov  
2016-08-18 10:12:22 -04:00

Robert - X

ProjectCenter 1:30 X  
① projectcenter.com/project/5204/folder/1412210/multiple\_workflow?es\_1Idr=1412210  
② 7-Day Forecast for Lē Kinross, MI (49732) Weather Radar - Mon

Apps ③ Home Page - 500 CC Chippewa County, MI Robert Latinen LandAirsSea - Current



## Little Rapids Habitat Restoration – Roadway Reconstruction Design-Build

Latinen, Robert W.

Construction > Construction Submittal Tracking						
New		Assigned To	In Court	Subject	Related RFP Section Number	Submitted On
Document Search		Originator	Brucker, Jake	Substantial Completion Progress Report #9 + certified	02 - Project Management	Due Date
<input type="checkbox"/> Contract Documents	<input type="checkbox"/> RFN / Addendums	TenHaker, Amy	Heimstetter, Dave	Pay Application #9	02 - Project Management	11/16/2016
<input type="checkbox"/> Technical Proposal	<input type="checkbox"/> Addendums	TenHaker, Amy	Heimstetter, Dave	Punch List as of 11/7/16	02 - Project Management	11/15/2016
<input type="checkbox"/> Document Control	<input type="checkbox"/> NTP	VanDorn, Tom	Heimstetter, Dave	Punch List as of 11/20/16	02 - Project Management	11/15/2016
<input type="checkbox"/> Design	<input type="checkbox"/> Design Submittal Tracking	Solvold, John	Heimstetter, Dave	Dec 7 Day Break Results	13 - Structures	10/23/2015
<input type="checkbox"/> Design RTI Tracking	<input type="checkbox"/> Design RTI Tracking	TenHaker, Amy	Heimstetter, Dave	Progress Report #8 + certified	02 - Project Management	10/13/2015
<input type="checkbox"/> Design Submittal Discussion	<input type="checkbox"/> Design RTI Discussion	TenHaker, Amy	Heimstetter, Dave	Pay Application #3	02 - Project Management	10/13/2015
<input type="checkbox"/> RFN Documents	<input type="checkbox"/> Meeting Minutes	Solvold, John	Heimstetter, Dave	Upcoming Strength Requirements	13 - Structures	10/25/2015
<input type="checkbox"/> Construction	<input type="checkbox"/> Construction Submittal	Brucker, Jake	Heimstetter, Dave	Temporary Road Removal plan	04 - Environmental Compliance	10/12/2016
<input type="checkbox"/> Construction RFN Tracking	<input type="checkbox"/> Construction Submittal Discussion					
<input type="checkbox"/> Construction RFN Discussion	<input type="checkbox"/> Change Orders					
<input type="checkbox"/> Work Orders	<input type="checkbox"/> Meeting Minutes					
<input type="checkbox"/> Reference Information Document	<input type="checkbox"/> Tag Cloud					
<input type="checkbox"/> GalerCar						
<input type="checkbox"/> eComments						

Filing | - 10 of 67 All : Previous 1 2 3 4 5 6 7 Next

Download CSV

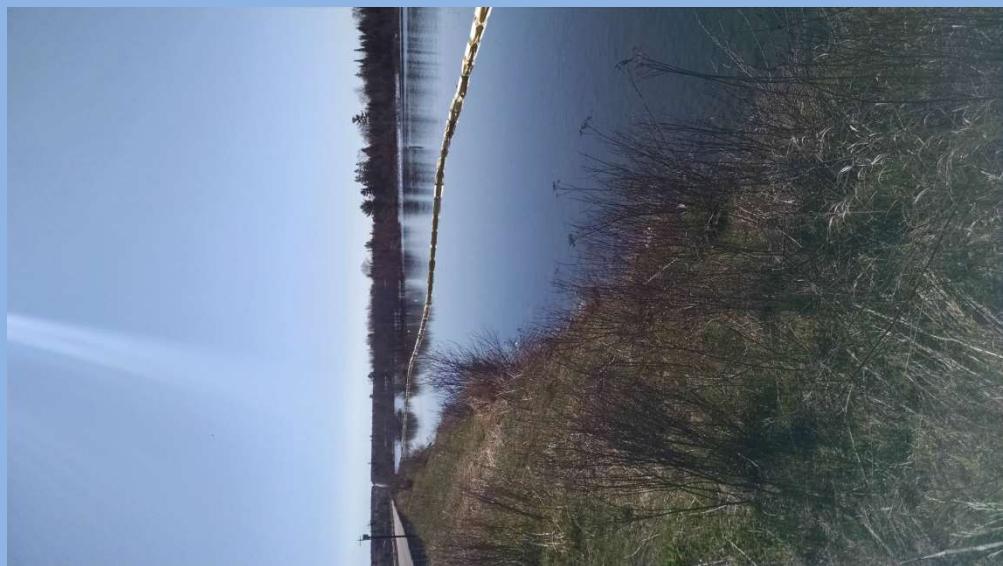
Tag Cloud

# Construction Begins

- May 09 2016 – Construction commences



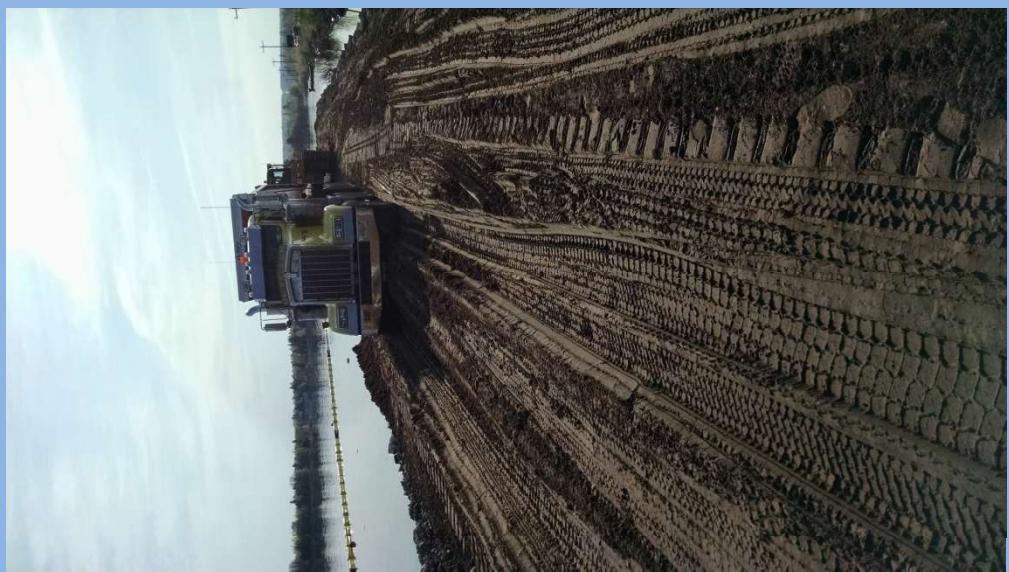
# Turbidity Curtains



# Temporary Roadway



# Temporary Roadway



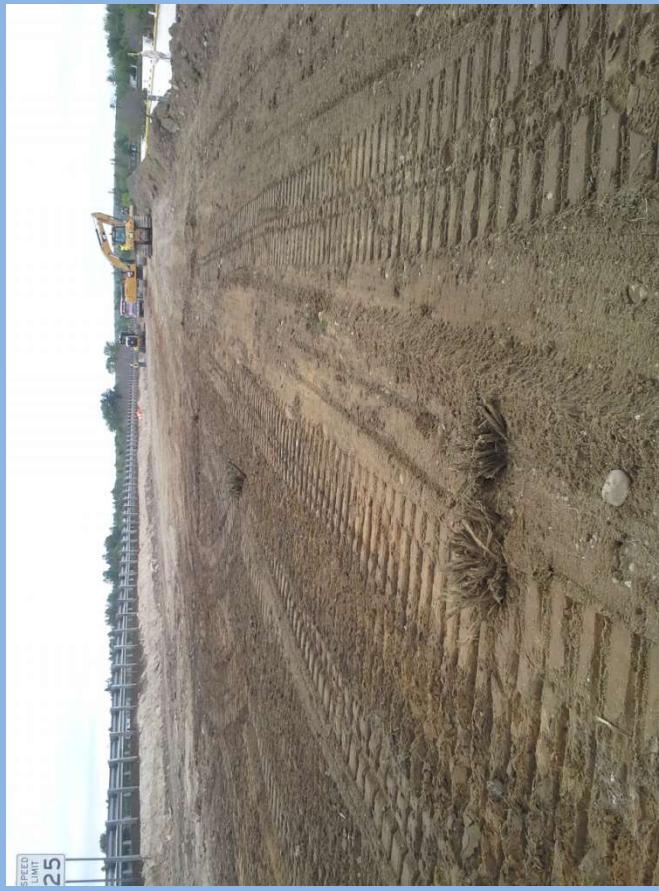
# Construction Access Roadway



# Construction Access Roadway



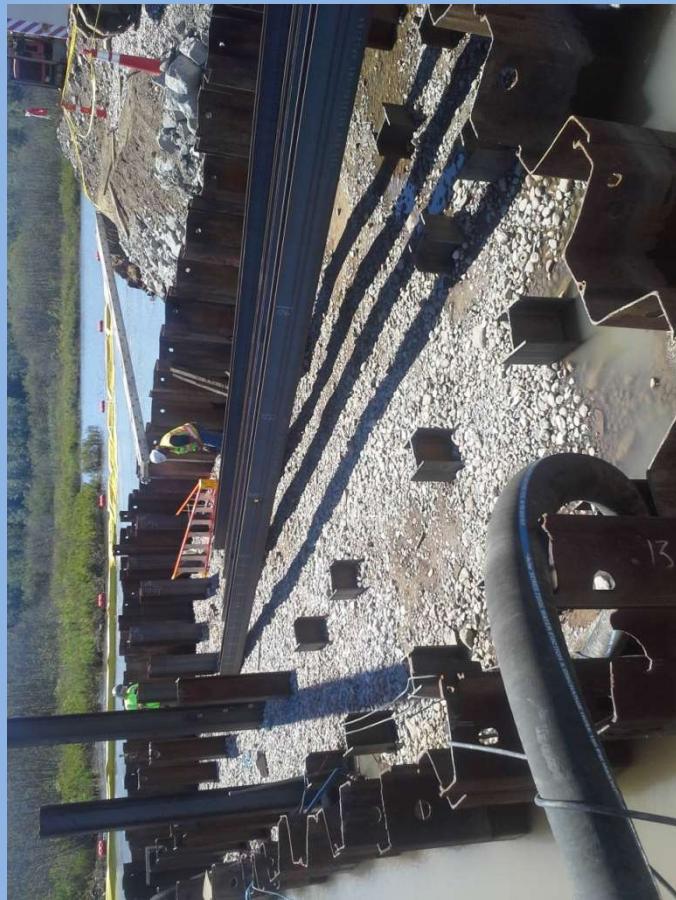
# Buried Treasure



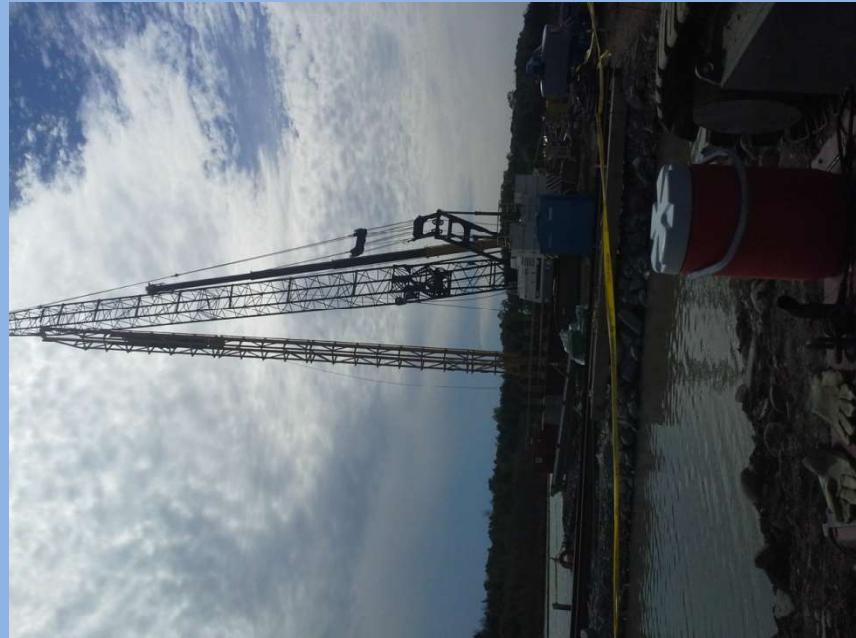
# Equipment and Materials Arriving



# Pile Driving begins



# Pile Driving continues



# Pile Driving continues



# Work Force Changes



# Friday Jobsite visitor



# Foundation work continues



# Stripping Forms



Foundation Complete 08/31/2016



# Loading Girder



# Safety Meeting before Girder set



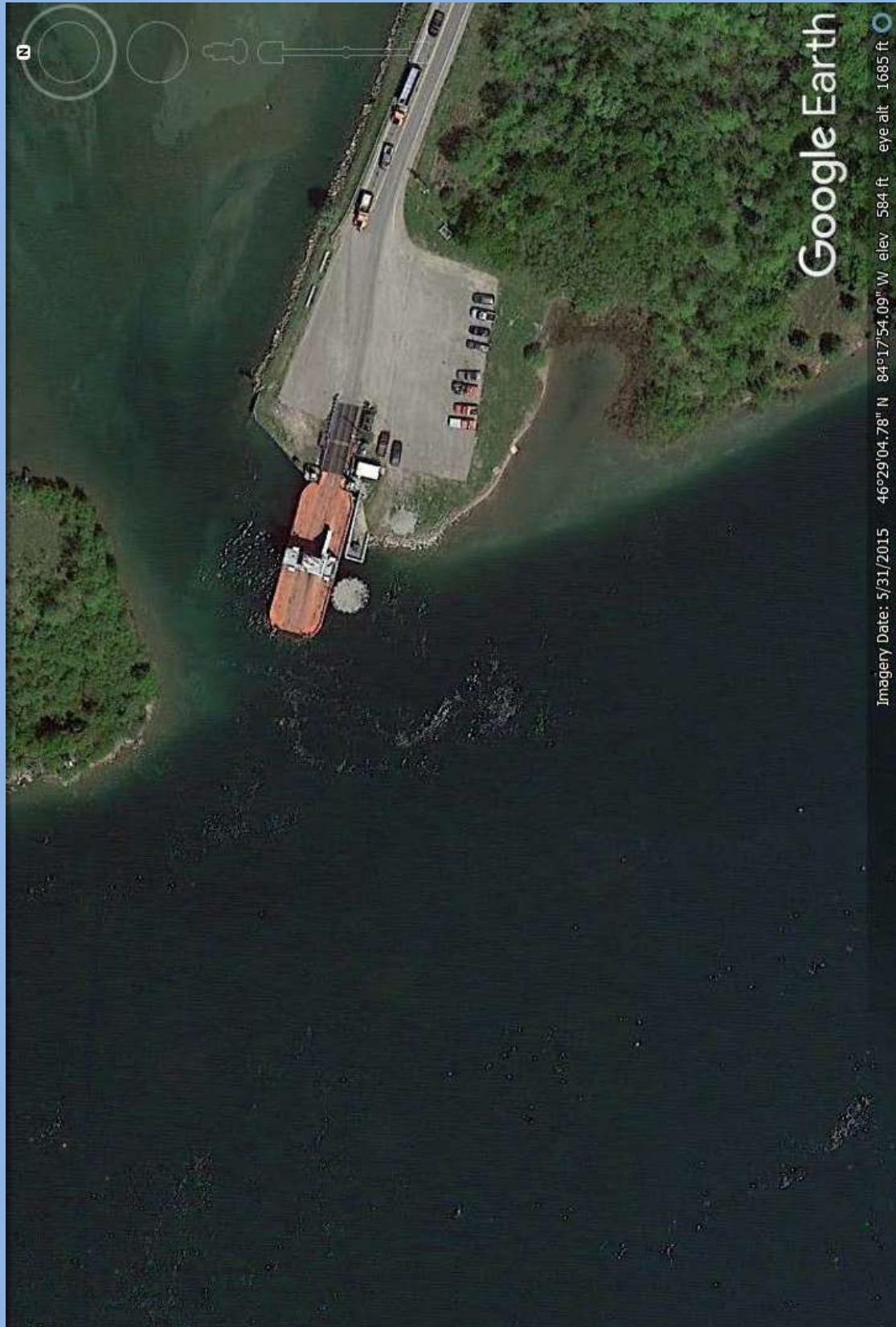
# Girders Arrive



# Girders Arrive



# Girders Arrive



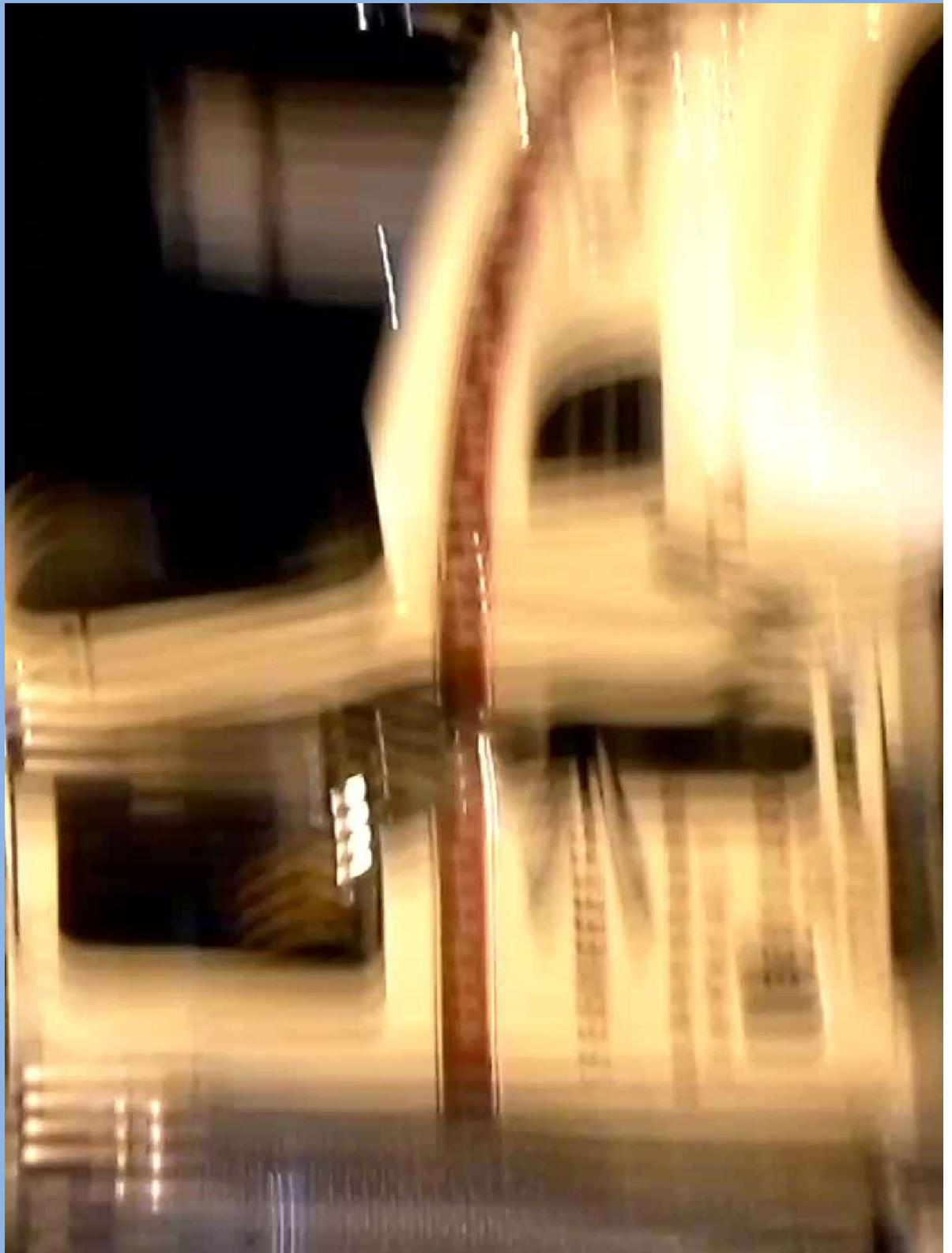
# Girders Arrive



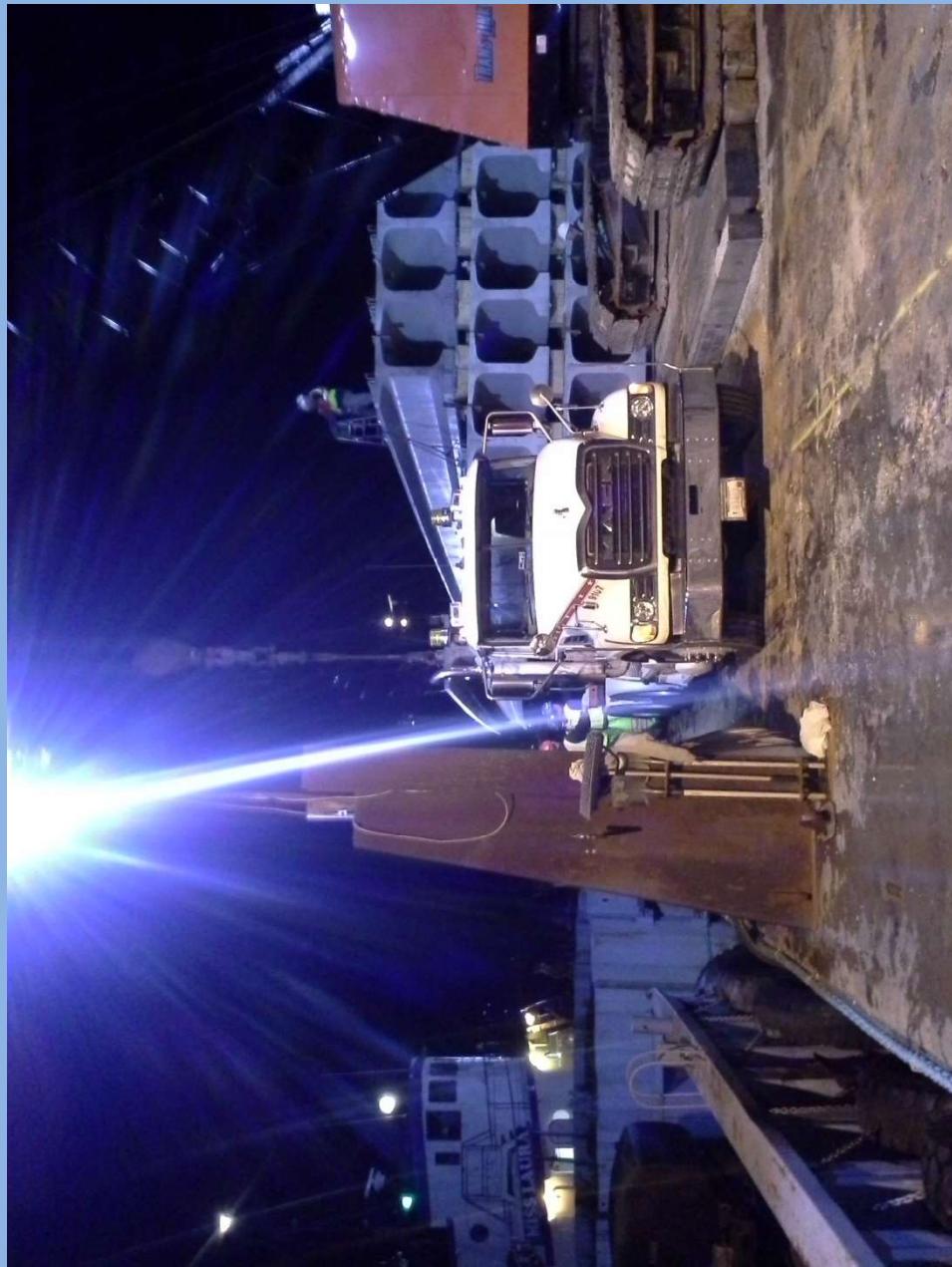
# Girders Arrive



First to unload



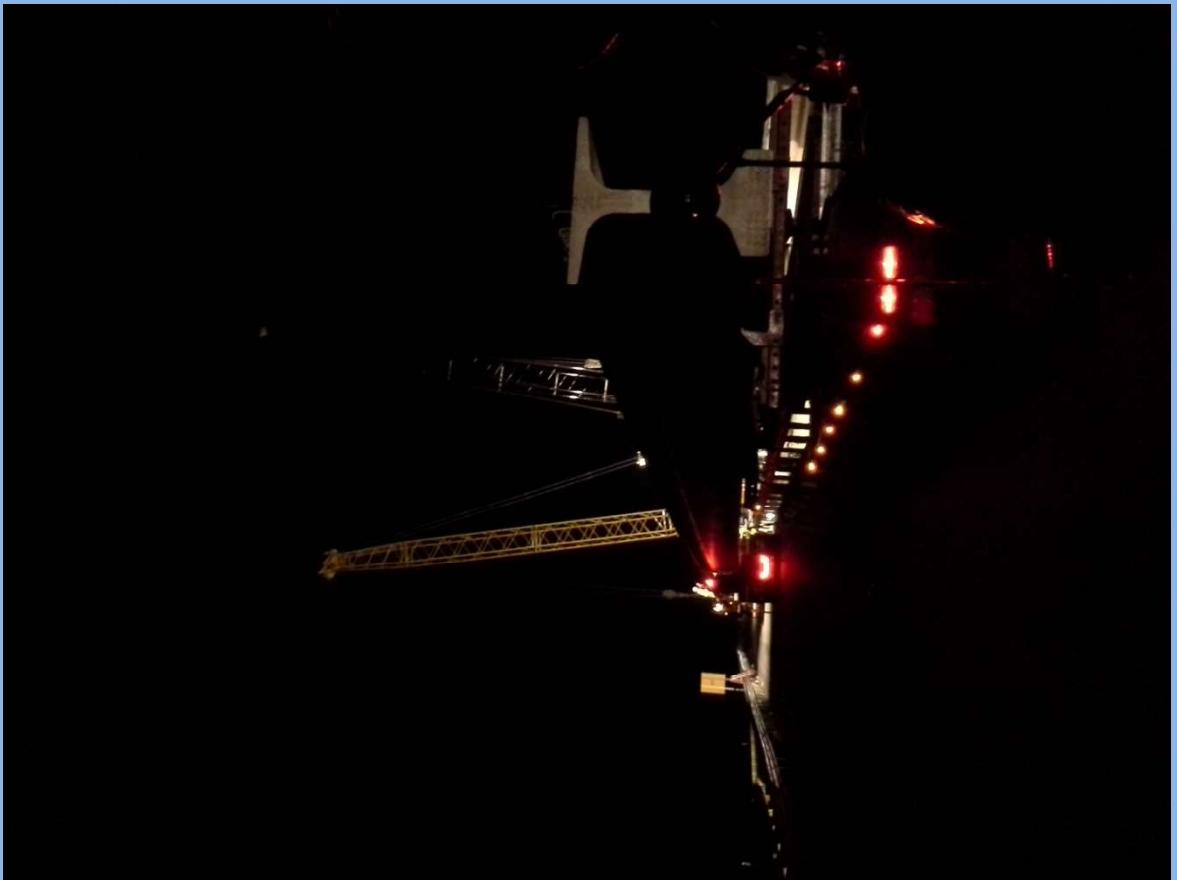
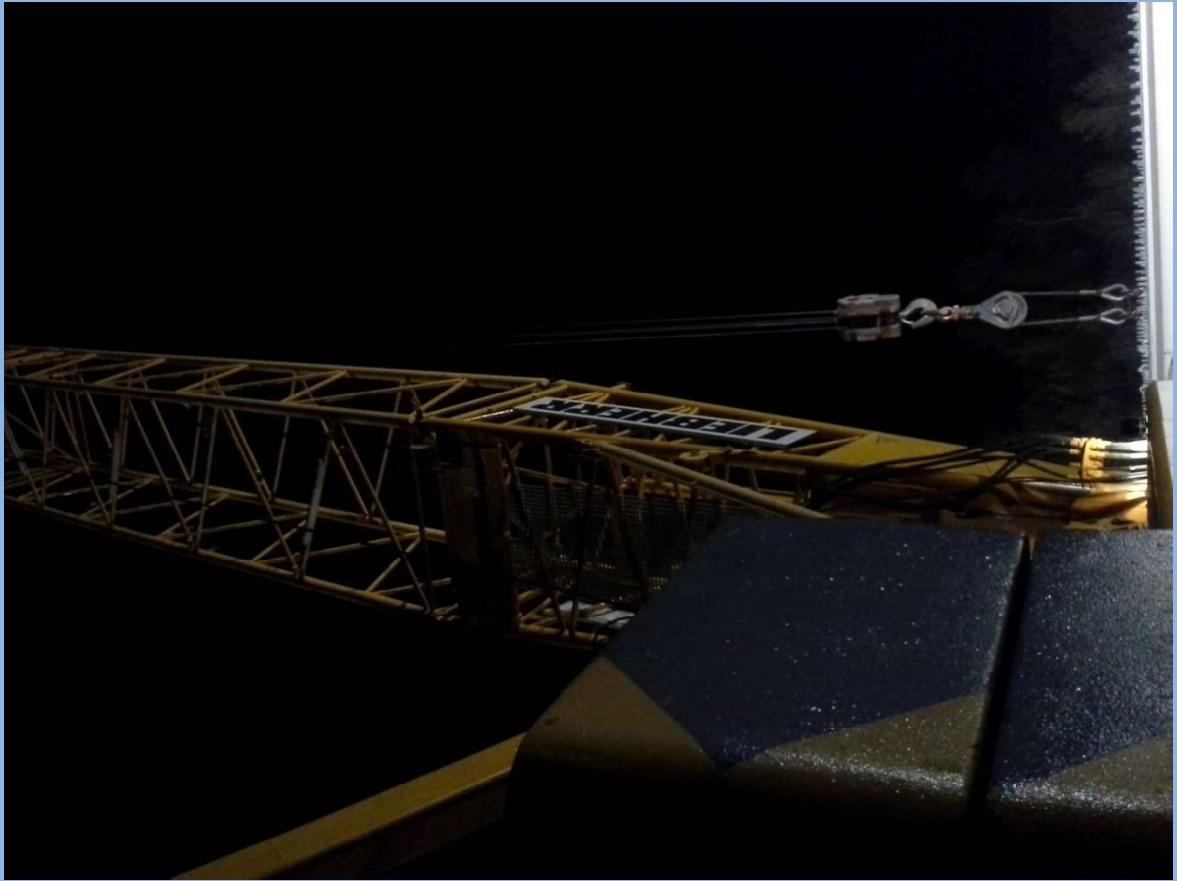
First to unload



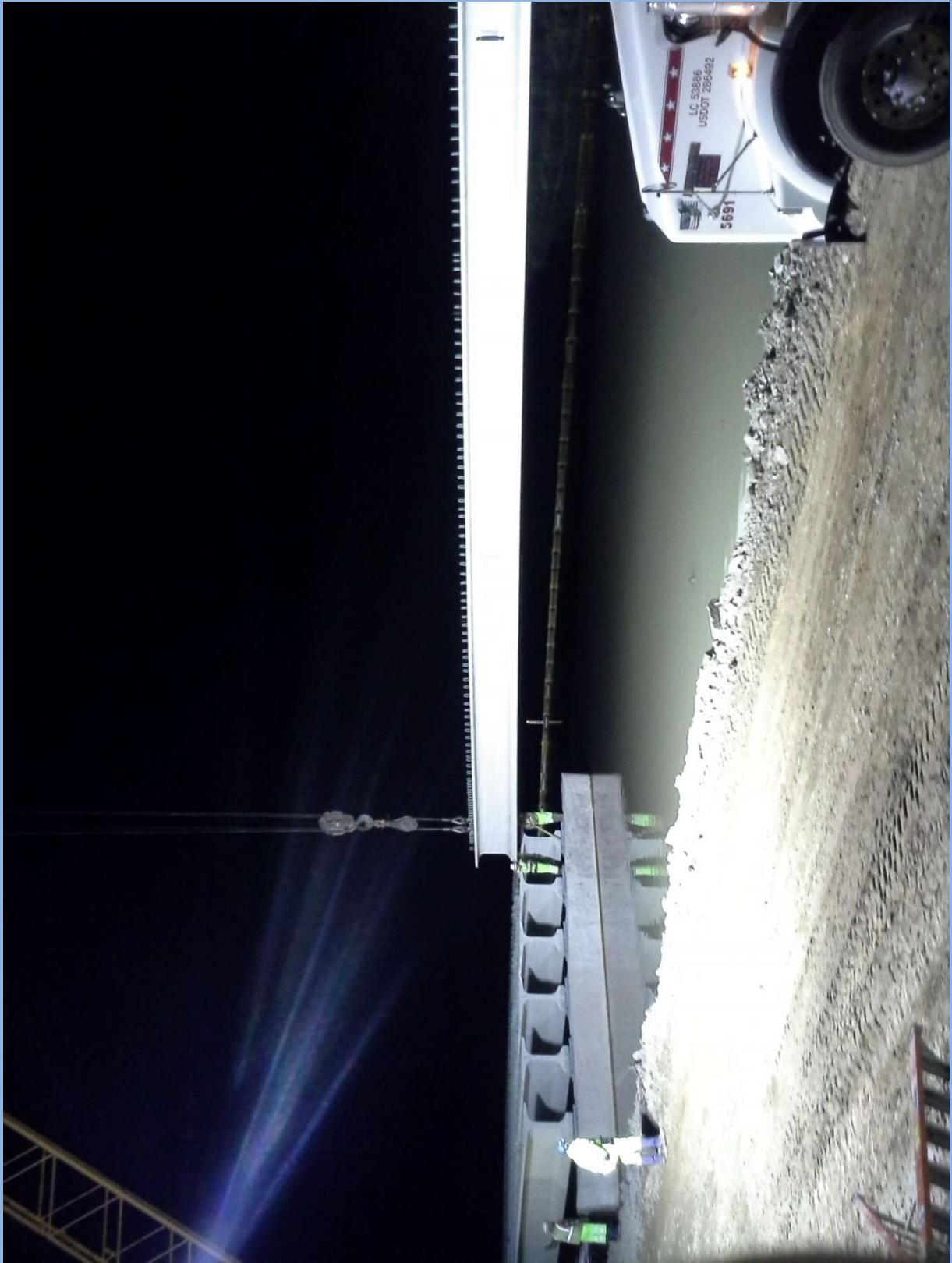
# First Set



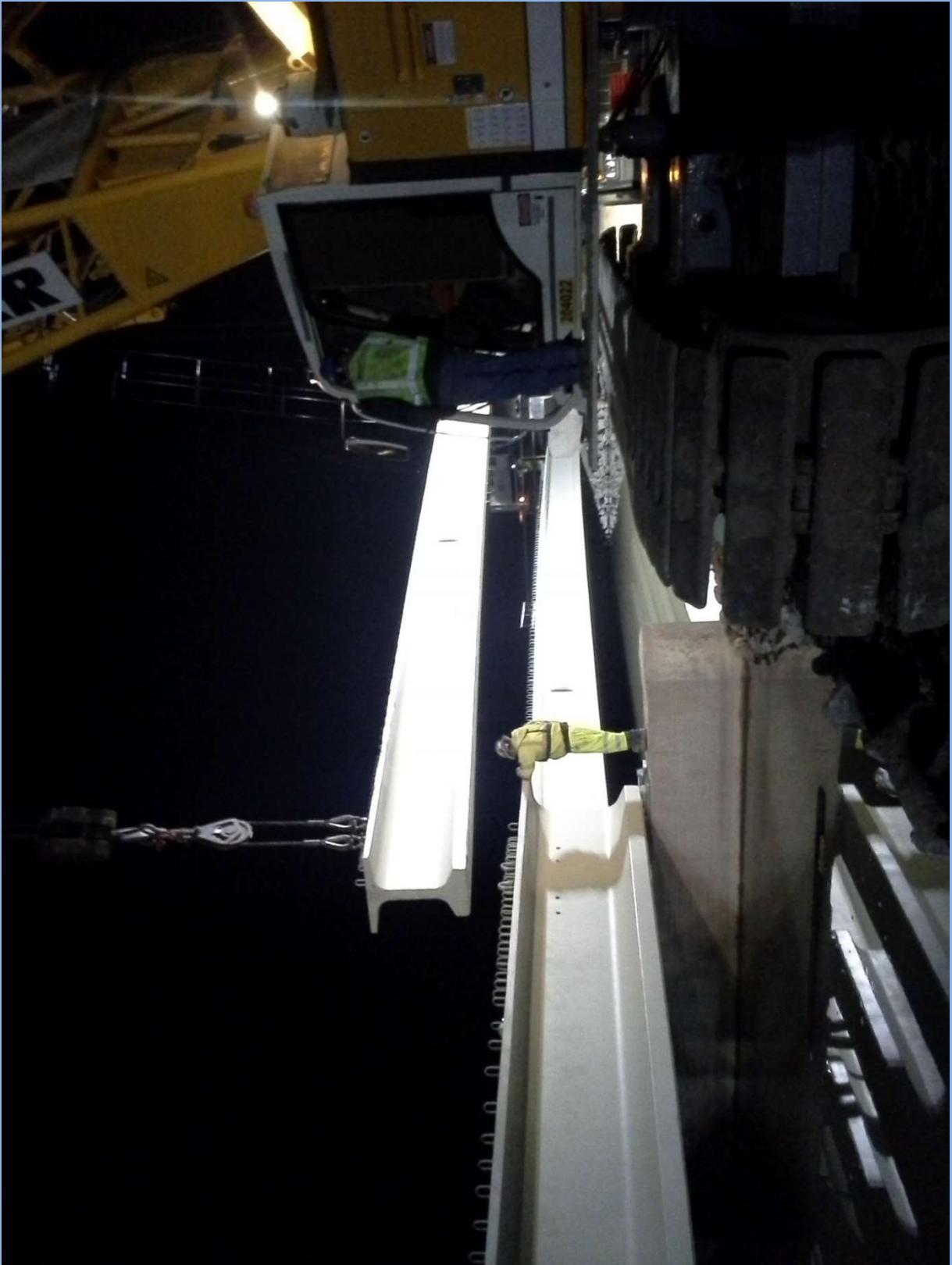
# More Girders



# More Girders



# More Girders



# Girder Set Complete

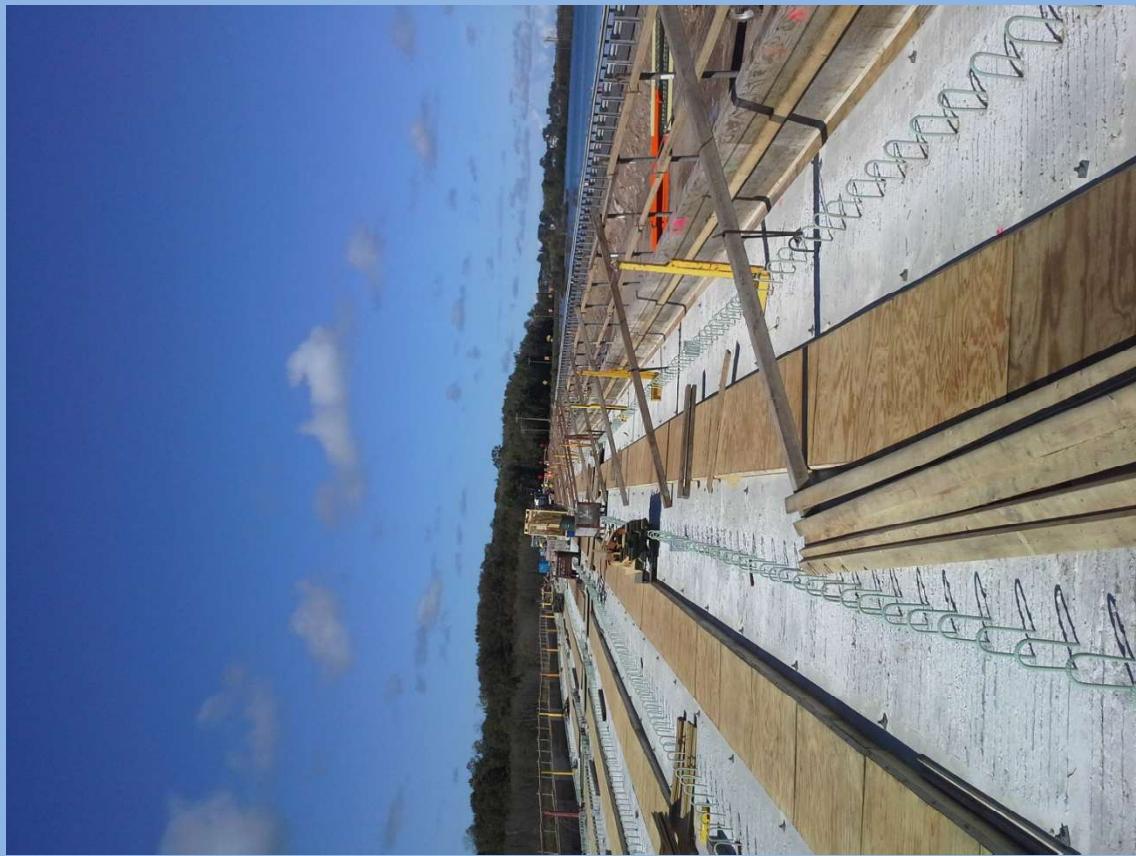


Girder Set Complete 09/02/2016

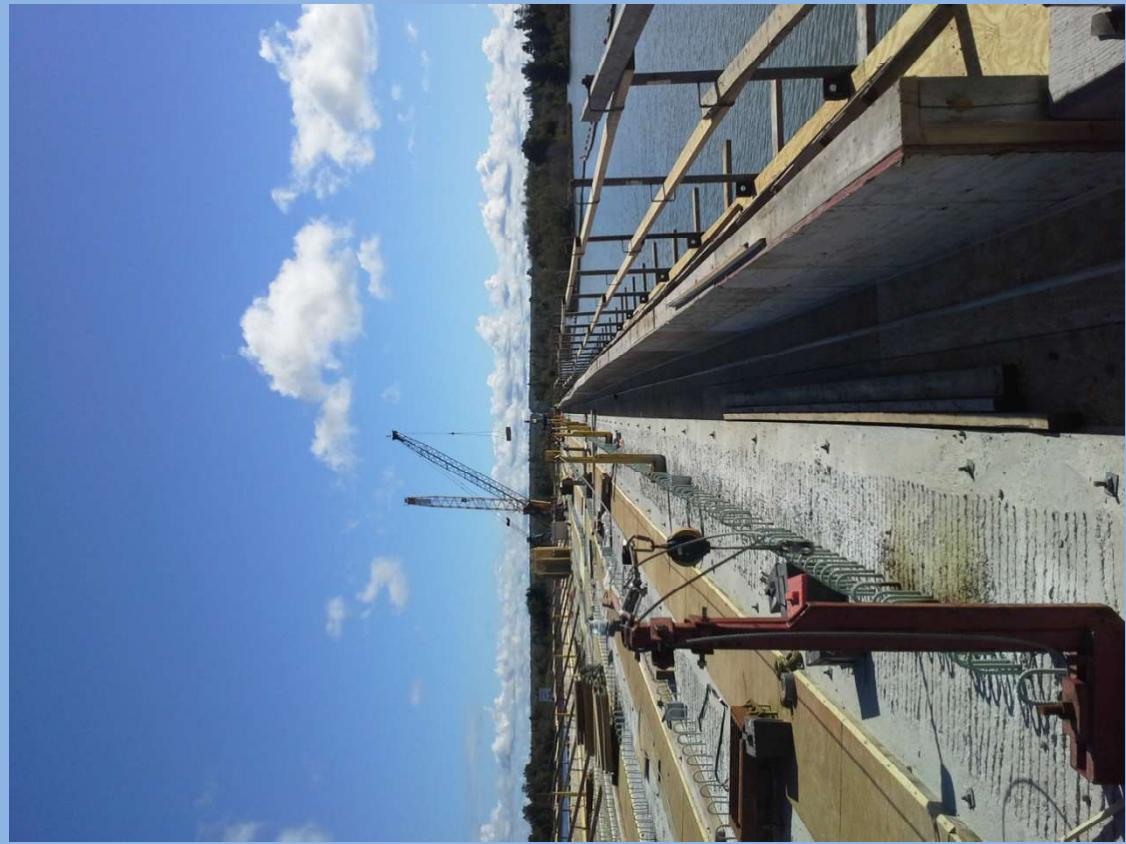
7:25 AM



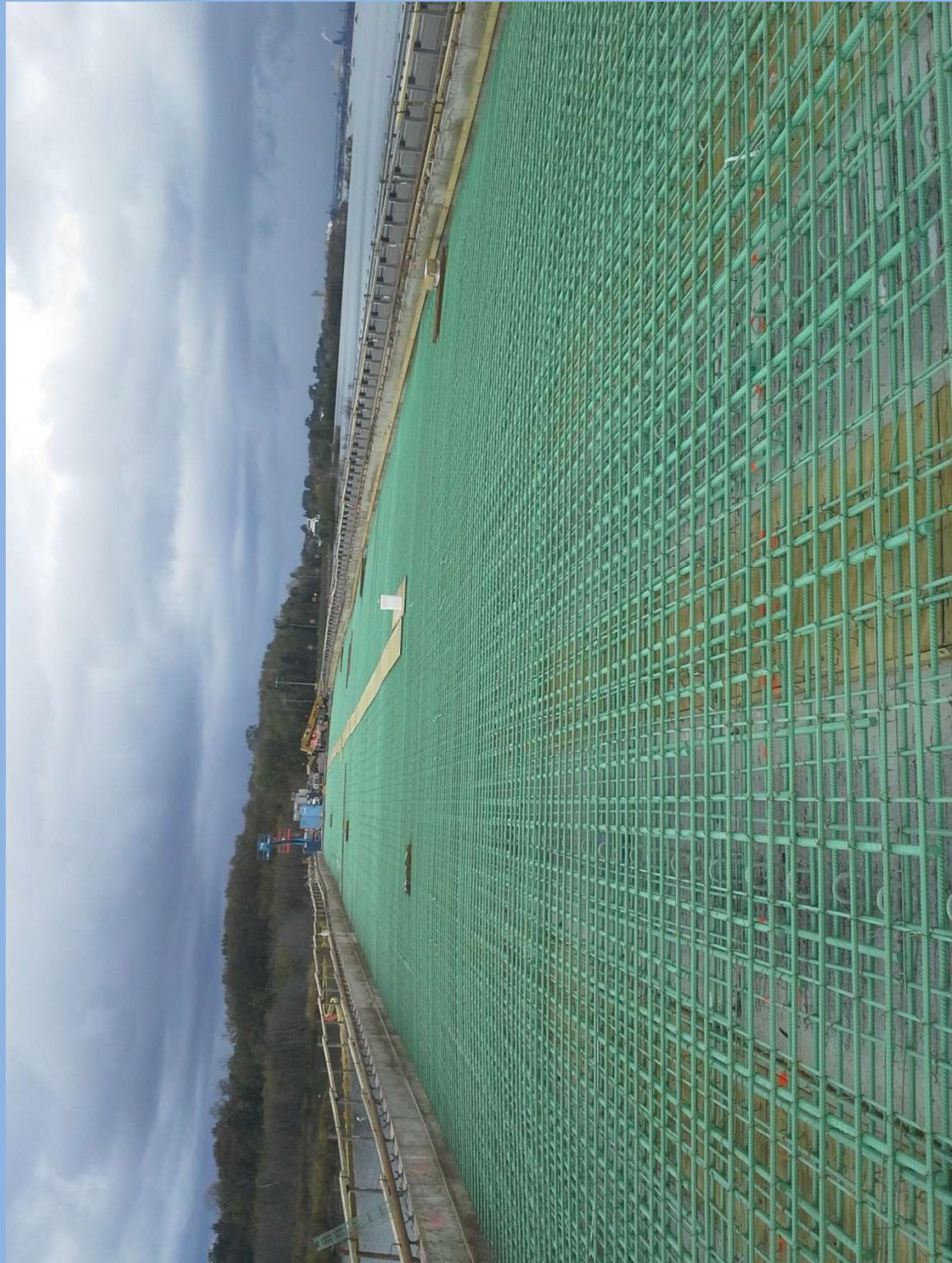
# Begin Formwork 09/03/2016



# Continue Formwork



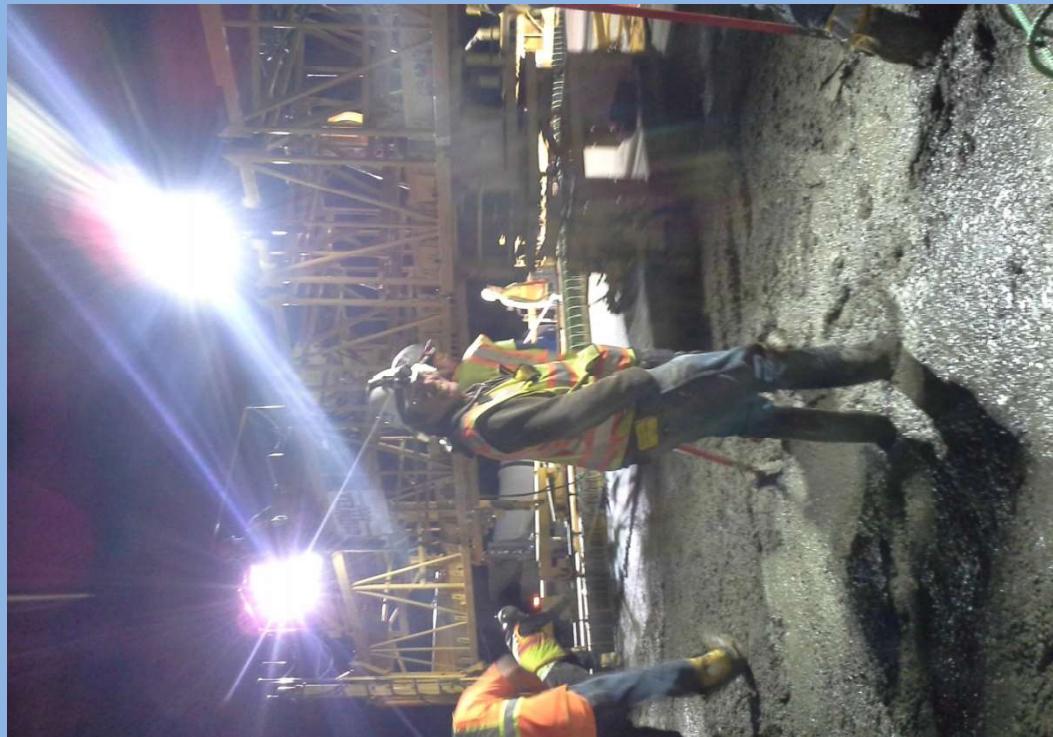
Ready to pour



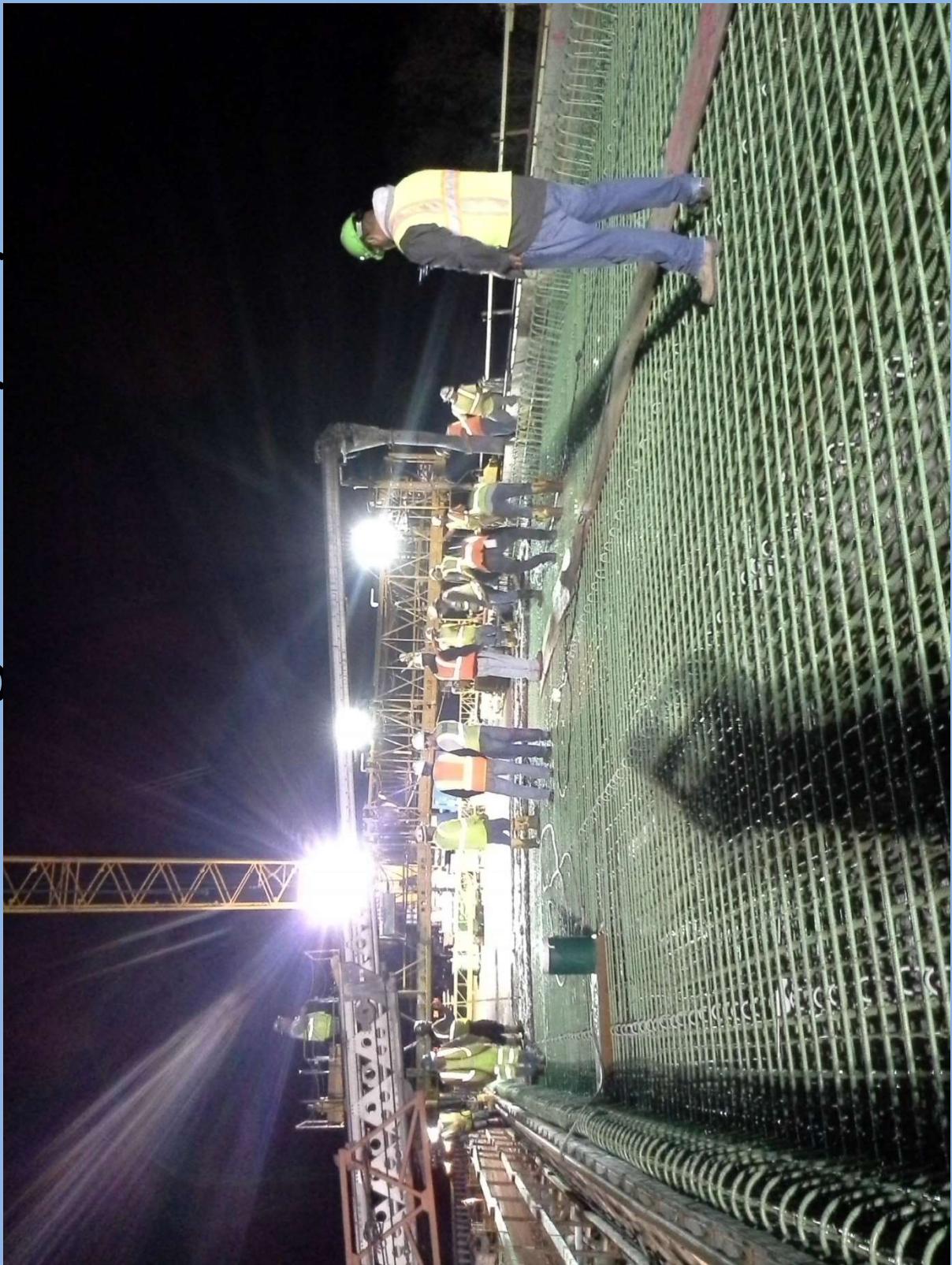
# Ready to Pour



Another All Nighter 10/03/2016



Another All Nighter 10/03/2016

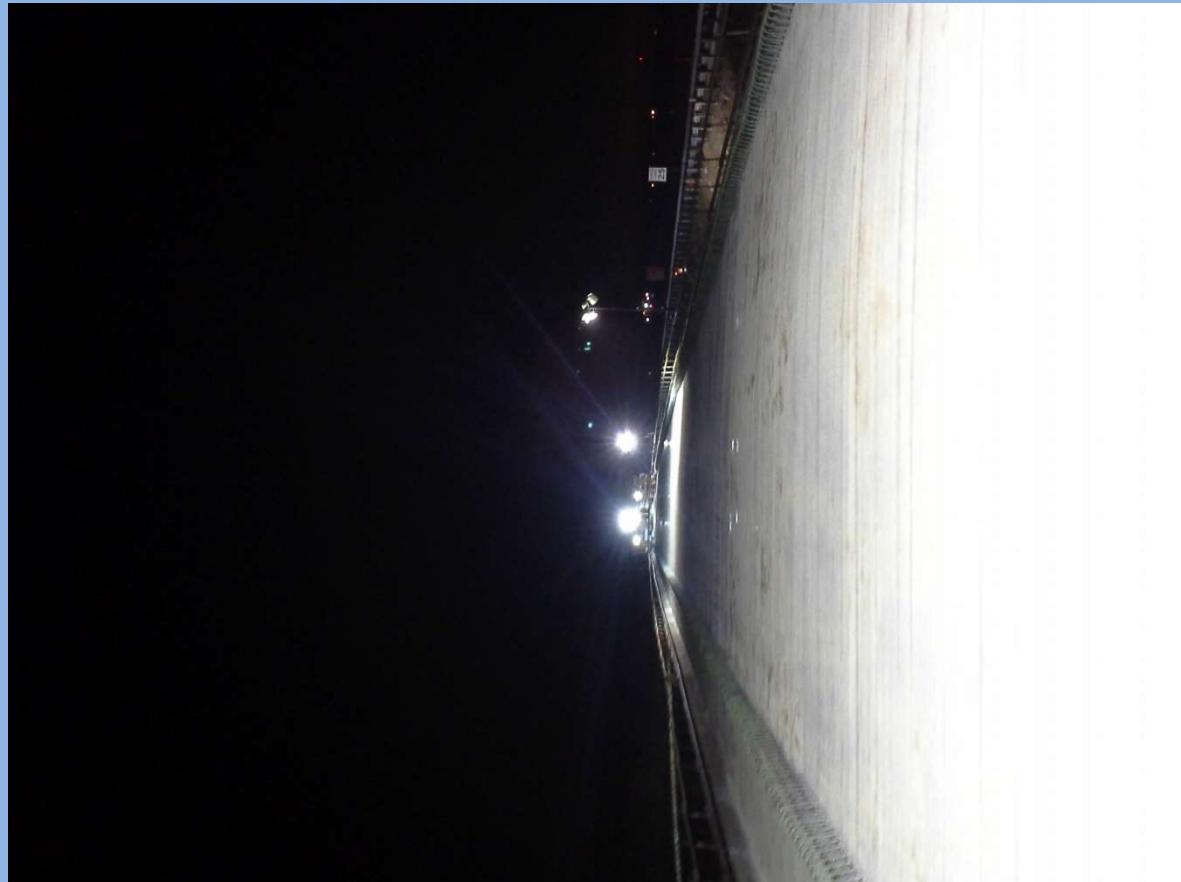


Another All Nighter 10/03/2016



Deck Pour Complete 10/04/2016

6:55 AM



# Curing deck and Forming Parapets



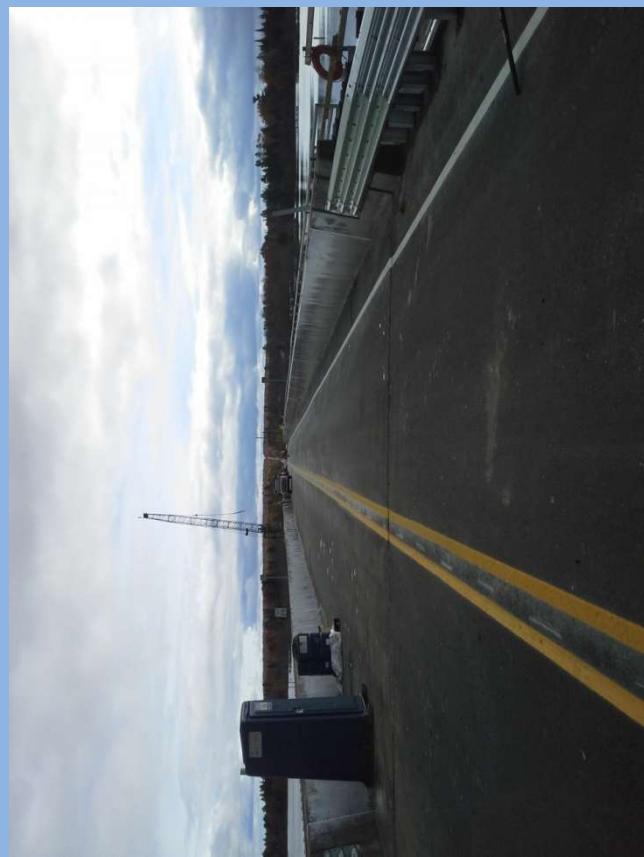
# Bridge Nearing Completion



# Bridge Nearing Completion



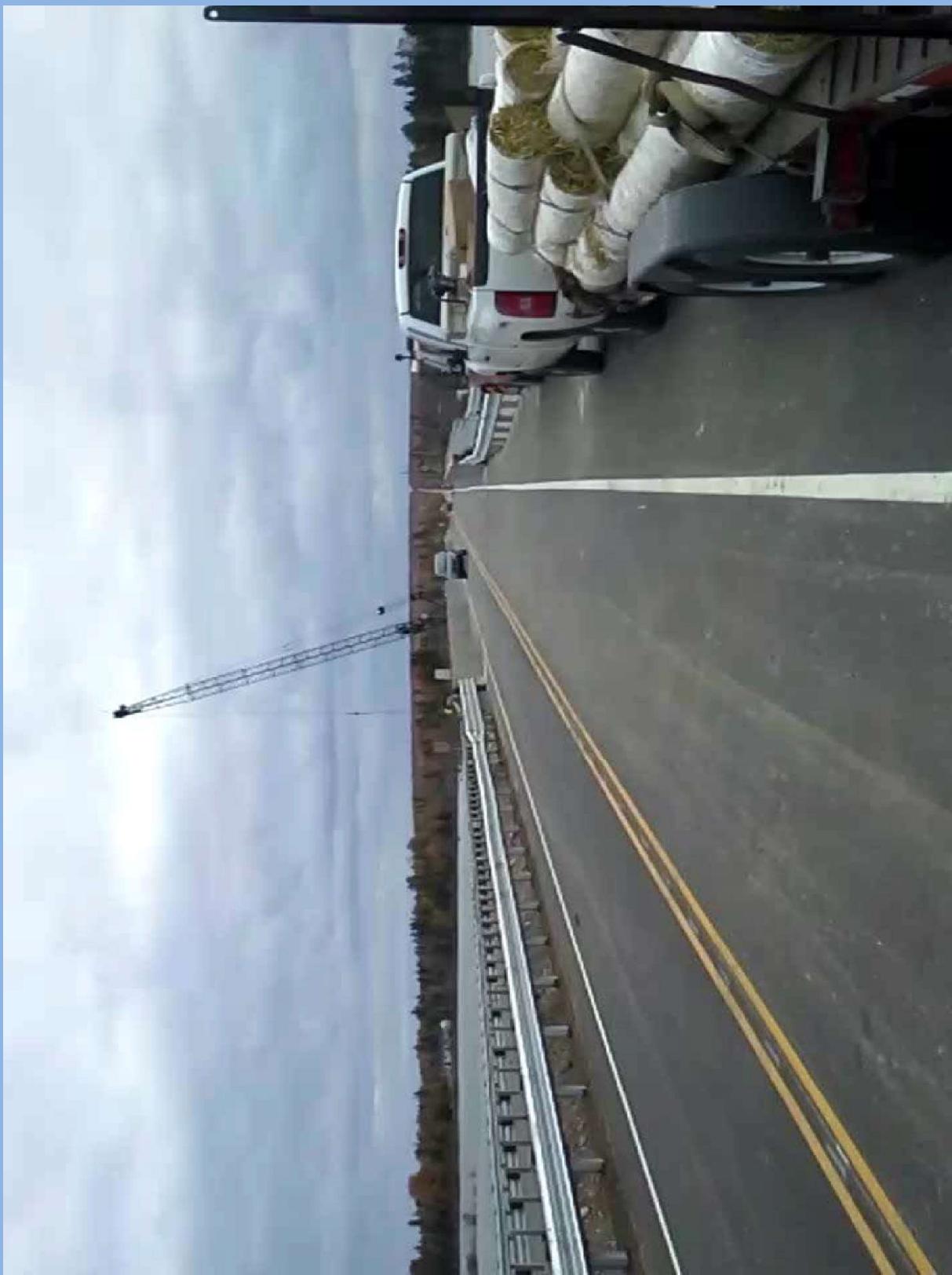
# Bridge Nearing Completion



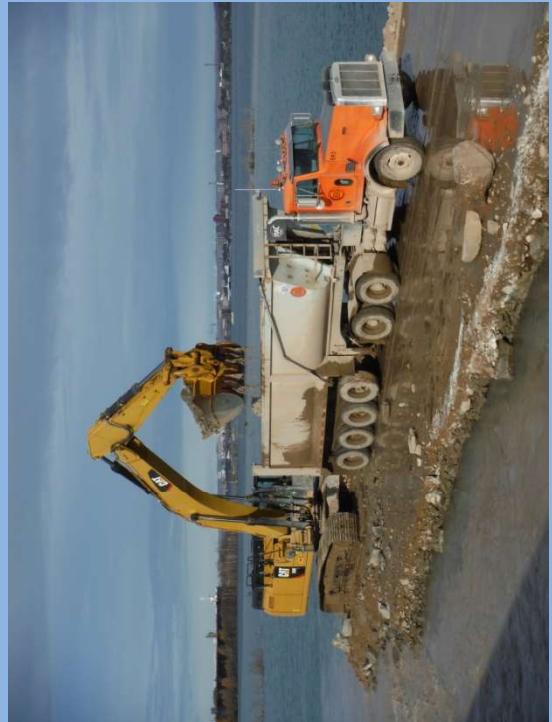
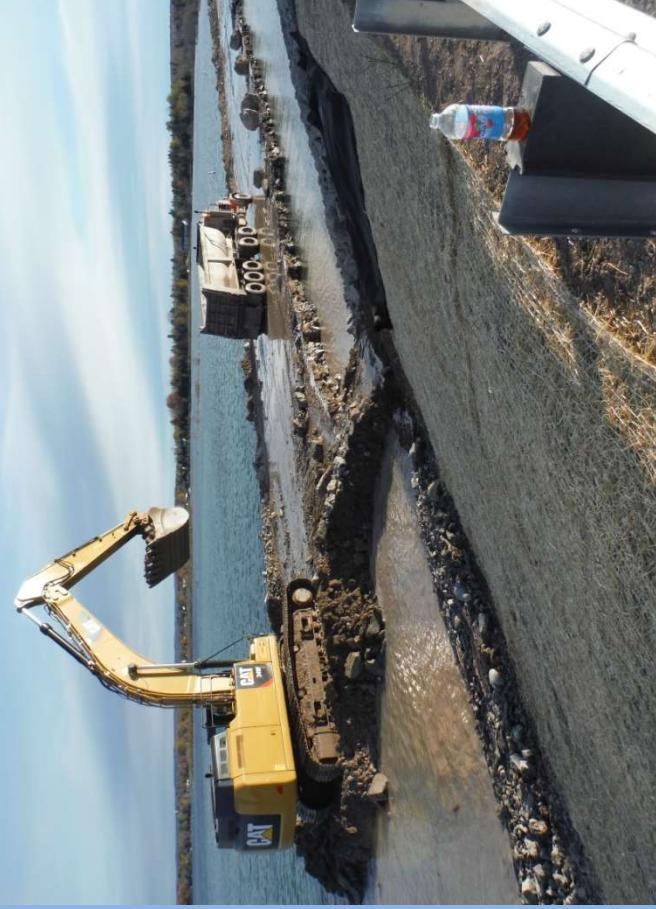
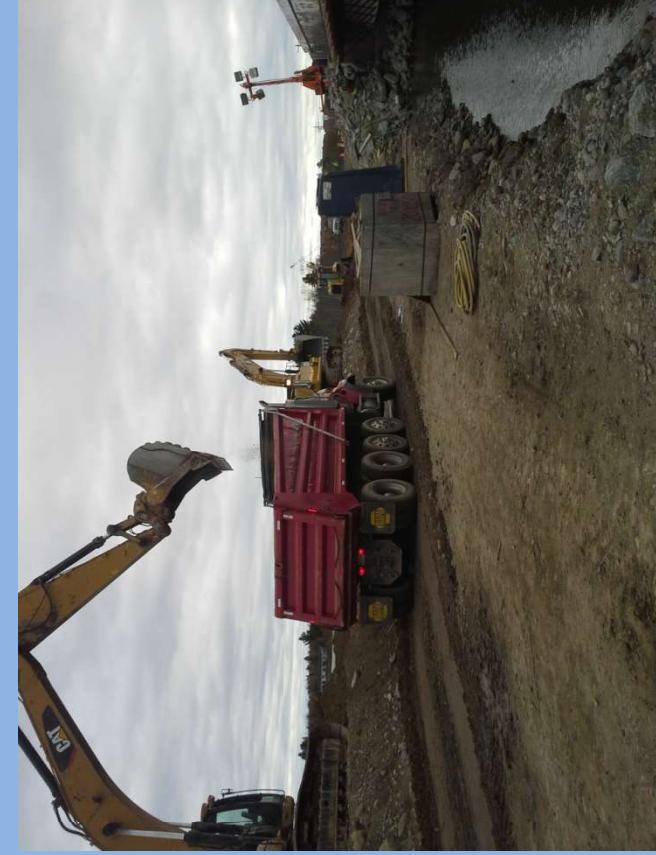
Bridge is complete



Open to Traffic 10/21/2016 11:30 AM



# Remove Temp Road



# Remove Temp Road



# Remove Temp Road



Remove Temp Road Complete

11/02/2016



Build it and they will come.....



# Timelapse of construction

