Illinois Department of Natural Resources
JB Pritzker, Governor • Natalie Phelps Finnie, Director
One Natural Resources Way • Springfield, Illinois 62702-1271
www.dnr.illinois.gov

Office of Water Resources, Michael A. Bilandic Building, 160 N. LaSalle St., S-703, Chicago, IL 60601

March 3, 2026
Application No. C20250029

Illinois Department of Natural Resources, Office of Water Resources
Public Notice

Installation of marine fiber optic cables, in Lake Michigan, near Northerly Island, Chicago, IL 60605

Peninsula Fiber Network, LLC, 1901 W. Ridge Street, Suite 2, Marquette, MI 49855-2485, has applied for an Illinois Department of Natural Resources, Office of Water Resources permit for the installation of marine fiber optic cables, in Lake Michigan, near Northerly Island, Chicago, IL 60605.

The project consists of two marine (i.e., underwater) fiber optic cables (FOC) across Lake Michigan from Chicago to St. Joseph, Michigan and Chicago to Benton Harbor, Michigan, to create shorter, redundant, and more reliable connections. The project includes approximately 48.2 miles of marine FOC in Lake Michigan, in Illinois. Each cable segment linking Chicago to Michigan will include shoreline landing sites with horizontal directional drill (HDD) borehole entry/exit points, HDD-installed FOC, and FOC installed via surface lay methods on the bed of Lake Michigan. Surface lay cable may include 4,429 feet of 6.1 inch articulated pipe, 221,228 feet of 1.25 inch single armor, and 25,758 feet of 1.5 inch double armor configurations, selected based on lakebed conditions and protection requirements. At each shore landing, HDD will be used to install the FOC underground, within 3,364 feet of six inch casing, allowing it to bypass nearshore obstacles and hazards. The HDD exit points will be through temporary 13 inch boreholes, and will be approximately 1,400 feet offshore for the southerly route and 1,600 feet offshore on the northerly route. Beyond the HDD exits, the FOC will be laid on the lakebed or possibly buried to a depth of approximately three to five feet for a relatively short distance from the shoreline (i.e. about 1.25 miles). The decision to bury the cable will be based on the results of the hydrographic and geophysical survey and an analysis of lake sediment characteristics. At this time, no underwater cable burial methods or anchoring is proposed during cable installation, which will limit bottom disturbing impacts to the immediate cable footprint. The proposed project will be reviewed using the Department's Part 3704 Rules. A location map and plans are attached to this notice.

No work is to start on this project unless and until such a time that the permit is issued.

Inquiries and comments regarding the proposed project can be directed to Eric Otto, Senior Water Resources Engineer, of the Chicago Office at IDNR/OWR, 160 N. LaSalle Street, Suite S-703, Chicago, Illinois 60601 or eric.otto@illinois.gov.

An expanded version of the public notice can be viewed at https://dnr.illinois.gov/waterresources/publicnotices.html.

The signatures, email addresses, and phone numbers of the applicant, co-applicant (if any), and authorized agent (if any) are redacted from this public notice. The mailing addresses and phone numbers of adjoining and adjacent property owners are redacted from this public notice.

Comments will be accepted through **April 5, 2026**.

November 10, 2025
Project No. 2305496

VIA EMAIL: DNR.DWRM@illinois.gov, epa.401.docs@illinois.gov, ChicagoRequests@usace.army.mil

Illinois Department of Natural Resources
Office of Water Resources
Lake Michigan Management Section
160 N. LaSalle Street
Suite S-700
Chicago, IL 60601

U.S. Army Corps of Engineers, Chicago District
Attn Regulatory Branch
231 LaSalle Street
Suite 1500
Chicago, IL 60604

Illinois Environmental Protection Agency
Bureau of Water
Division of Water Pollution Control
Facility Evaluation Unit
1021 North Grand Avenue East
Post Office Box 19276
Springfield, IL 62794-9276

Re: Peninsula Fiber Network, LLC Joint Permit Application for Illinois
Project 1 - Infrastructure for Michigan's Peninsulas and Critical Crossings (IMPACC)

GEI Consultants, Inc (GEI) on behalf of Peninsula Fiber Network, LLC (PFN), has prepared the attached Joint Permit Application for a project in Chicago, Illinois and within Lake Michigan to install middle mile fiberoptic cable to create reliable broadband infrastructure. The application is being submitted for PFN's Infrastructure for Michigan Peninsulas and Critical Crossings (IMPACC) Project 1 (Project) through the National Telecommunication and Information Administration (NTIA) Enabling Middle Mile Broadband Infrastructure Program (MM). The Project consists of two underwater fiber connections (north and south routes) across Lake Michigan from southern Chicago, Illinois to St. Joseph, Michigan and northern Chicago to Benton Harbor, Michigan, to create a shorter, redundant, and more reliable middle mile route to Chicago. The project is scheduled to commence in April 2026 and be completed by December 2027.

The entire Project 1 route consists of approximately 237 miles crossing 121.4 miles along the bed of Lake Michigan (marine route) and 116.1 terrestrial miles in both Michigan and Illinois. The Project components within the state of Illinois are the subject of this permit application which includes

approximately 2.7 miles of terrestrial route and 48.2 miles of marine fiber optic cable located within Illinois state waters of Lake Michigan. PFN is seeking authorization for this Project under U.S. Army Corps of Engineers (USCAE) Nationwide Permit 57 Electric Utility Line and Telecommunications Activities and from the Illinois Department of Natural Resources under Illinois Administrative Code Part 3704 for projects along the shoreline and within Lake Michigan. Please consider this letter, permit application, and attached information as the Pre-Construction Notification (PCN) for work within a Section 10 Water of the River and Harbors Act.

The NTIA is the lead federal agency and is supporting the development of the Environmental Assessment to meet the compliance requirements of the National Environment Policy Act, including Endangered Species Act Section 7 Consultation and Section 106 Consultation of the National Historic Preservation Act.

Closing

If you have any questions, please feel free to contact me at

Sincerely,

GEI Consultants, Inc.

Mike Peterson
GEI, Senior Environmental Scientist

Matthew Peramaki
GEI, Project Manager

Attachments:

- Joint Application Form for Illinois
- State of Illinois Child Support Certification
- Attachment 1. List of Adjoining Property Owners
- Attachment 2: Project Description
- Attachment 3: Project Purpose and Need
- Attachment 4: Summary of Impacts
- Attachment 5: Avoidance, Minimization, and Compensation Measures
- Attachment 6: Shore Landings HDD Plan and Profile Overview
- Attachment 7: Wetland Delineation Report
- Attachment 8: Cultural Resources and Threatened and Endangered Species
- Attachment 9: Inadvertent Return Contingency Plan
- Attachment 10: Illinois Terrestrial Route
- Attachment 11: North Route Marine Alignment with Hydrographic Survey
- Attachment 12: South Route Marine Alignment with Hydrographic Survey

Figures:

- Figure 1: Project Overview
- Figure 2: Route Features and Proposed Route
- Figure 3: Chicago North Landing at Northerly Island
- Figure 4: Chicago South Landing at Lakefront Blvd

JOINT APPLICATION FORM FOR ILLINOIS

ITEMS 1 AND 2 FOR AGENCY USE

1. Application Number	2. Date Received

3. and 4. (SEE SPECIAL INSTRUCTIONS) NAME, MAILING ADDRESS AND TELEPHONE NUMBERS

3a. Applicant's Name:	3b. Co-Applicant/Property Owner Name (if needed or if different from applicant):	4. Authorized Agent (an agent is not required):
Steven Hughes Company Name (if any) : Peninsula Fiber Network, LLC Address: 1901 W Ridge St Ste 2 Marquette, MI 49855-2485 Email Address:	Company Name (if any): Address: Email Address:	Mike Peterson Company Name (if any): GEI Consultants, Inc Address: 5350 Miller Trunk HWY Unit D Hermantown, MN 55811-5580 Email Address:
Applicant's Phone Nos. w/area code Business: Residence: Cell: Fax:	Applicant's Phone Nos. w/area code Business: Residence: Cell: Fax:	Agent's Phone Nos. w/area code Business: Residence: Cell: Fax:

STATEMENT OF AUTHORIZATION

I hereby authorize, GEI, Mike Peterson to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

Applicant's Signature _____ Date 11/10/2025

5. ADJOINING PROPERTY OWNERS (Upstream and Downstream of the water body and within Visual Reach of Project)

Name	Mailing Address	Phone No. w/area code
a. Please See Attachment 1		
b.		
c.		
d.		

6. PROJECT TITLE:

PFN Project 1 - Infrastructure for Michigan's Peninsulas and Critical Crossings (IMPACC)

7. PROJECT LOCATION:

Please See Figure 1 for Project Location Route

LATITUDE: 41.86499 °N LONGITUDE: -87.60875 °W	UTMs Northing: Easting:				
STREET, ROAD, OR OTHER DESCRIPTIVE LOCATION	LEGAL DESCRIPT	QUARTER	SECTION	TOWNSHIP NO.	RANGE
Northerly Island and Lakefront Trail			16,22,27	39N	14E

☒ IN OR ☒ NEAR CITY OF TOWN (check appropriate box) Municipality Name	WATERWAY	RIVER MILE (if applicable)
Chicago	Lake Michigan	NA

COUNTY	STATE	ZIP CODE
Cook	Illinois	60605

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☐ Corps of Engineers ☐ IL Dep't of Natural Resources ☐ IL Environmental Protection Agency ☐ Applicant's Copy

8. PROJECT DESCRIPTION (Include all features):

See Attachment 2: Project Description

9. PURPOSE AND NEED OF PROJECT:

See Attachment 3: Project Purpose and Need

COMPLETE THE FOLLOWING FOUR BLOCKS IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

10. REASON(S) FOR DISCHARGE:

Placing the fiber optic cable on the bed of Lake Michigan, no other fill/discharge is anticipated.

11. TYPE(S) OF MATERIAL BEING DISCHARGED AND THE AMOUNT OF EACH TYPE IN CUBIC YARDS FOR WATERWAYS:

TYPE: See Attachment 4: Impact Summary

AMOUNT IN CUBIC YARDS:

138.93 Cubic Yards, See Attachment 4

12. SURFACE AREA IN ACRES OF WETLANDS OR OTHER WATERS FILLED (See Instructions)

0.692 acres of permanent impacts and 0.084 Acres of temporary impacts in Lake Michigan (Attachment 4)

13. DESCRIPTION OF AVOIDANCE, MINIMIZATION AND COMPENSATION (See instructions)

See Attachment 5 for Avoidance, Minimization, and Compensation Measures. See Attachment 8 for the summary of cultural resources and threatened and endangered species consultations and surveys.

14. Date activity is proposed to commence: 4/1/2026

Date activity is expected to be completed: 12/31/2027

15. Is any portion of the activity for which authorization is sought now complete? Yes ☐ No ☒

NOTE: If answer is "YES" give reasons in the Project Description and Remarks section.

Month and Year the activity was completed

Indicate the existing work on drawings.

16. List all approvals or certification and denials received from other Federal, interstate, state, or local agencies for structures, construction, discharges or other activities described in this application.

Issuing Agency	Type of Approval	Identification No.	Date of Application	Date of Approval	Date of Denial
Illinois DNR	Part 1075 Consultation	2602411 and 2602408	8/5/2025	8/27/2025	
Illinois SHPO	SHPO Section 106	013060525	6/5/2025	in progress	
Illinois DNR	Comprehensive Environmental Review Process	In Progress	In Progress	In Progress	
US FIsh and Wildlife Service	Section 7 Consultation	In Progress	In Progress	In Progress	

17. CONSENT TO ENTER PROPERTY LISTED IN PART 7 ABOVE IS HEREBY GRANTED. Yes ☒ No ☐

18. APPLICATION VERIFICATION (SEE SPECIAL INSTRUCTIONS)

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

Signature of Applicant or Authorized Agent	11-6-2025 Date
Signature of Applicant or Authorized Agent	Date
Signature of Applicant or Authorized Agent	Date

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SEE INSTRUCTIONS FOR ADDRESS

LOCATION MAP

See Figures 1 - 4

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PLAN VIEW

See Attachment 6, 11, and 12

FOR AGENCY USE ONLY

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Landing Site	Parcel Pin	Owner	Address	Mailing Address	Location Relative to Project	Notes
Lakefront Staging	17-27-205-002-0000	Chicago Parks District	450 E 23RD ST	-	North	Park district not listed on parcel but within park boundaries
Lakefront Staging	17-22-110-003-0000	Chicago Parks District	1200 S LAKE SHORE DR	-	North	Park district not listed on parcel but within park boundaries
Lakefront Staging	17-34-220-001-0000	Chicago Parks District	-	-	South	No address listed on parcel, CPD not listed, however is within park boundaries
Lakefront Staging	17-34-220-002-0000	Chicago Parks District	-	-	South	No address listed on parcel, CPD not listed, however is within park boundaries
Northerly Island Staging	17-22-200-003-0000	Chicago Parks District	1300 S Lake Shore Dr		North	Park district not listed on parcel but within park boundaries
Northerly Island Staging	17-22-110-003-0000	Chicago Parks District	1200 S Lake Shore Dr		North	Park district not listed on parcel but within park boundaries
Northerly Island Staging	17-22-200-004-8005	Elsons Ill at Meigs	1521 S Linn White Dr	-	South	No mailing address
Northerly Island Staging	17-22-200-004-8002	Chicago Parks District	1521 S Linn White Dr		South	

ATTACHMENT 2
Project Description

Peninsula Fiber Network, LLC
Infrastructure for Michigan Peninsulas and Critical Crossings (IMPACC)
Project 1

Through NTIA's Enabling Middle Mile Broadband Infrastructure Program (MM), Peninsula Fiber Network, LLC (PFN) is developing the Infrastructure for Michigan Peninsulas and Critical Crossings (IMPACC) project. IMPACC encompasses three independent utility projects (Projects 1, 2, and 3), all designed to establish resilient fiber optic cable (FOC) networks across Michigan's unserved and underserved communities. Project 1 includes both Illinois and Michigan, while Projects 2 and 3 are entirely within Michigan. The primary goal is to enhance MM broadband infrastructure and provide critical redundancy to data centers in Chicago, Illinois.

Project 1 consists of two underwater fiber connections (north and south routes) across Lake Michigan from southern Chicago, Illinois to St. Joseph, Michigan and northern Chicago to Benton Harbor, Michigan, to create a shorter, redundant, and more reliable middle mile route to Chicago (**Figure 1**). Project 1 extends through underserved areas of southwest rural Michigan to an inter-exchange carrier (IXC) facility in Byron Center, Michigan. The entire Project 1 route consists of approximately 237 miles crossing 121 miles along the bed of Lake Michigan (marine route) and 116 terrestrial miles in both Michigan and Illinois.

The Project 1 components within the state of Illinois are the subject of this permit application which includes approximately 2.7 miles of terrestrial FOC and 48.2 miles of marine FOC located within Illinois state waters of Lake Michigan (**Figure 2**). These components support the establishment of redundant connection between Chicago and Michigan's broadband infrastructure.

Beyond Illinois, Project 1 includes approximately 113 miles of terrestrial FOC in Michigan and 73 miles of marine route FOC within Michigan's jurisdiction of Lake Michigan.

Lake Michigan Marine Project 1 Route

Each marine segment linking Chicago, Illinois to Saint Joseph and Benton Harbor, Michigan will include shoreline landing sites with Horizontal Directional Drill (HDD) borehole entry/exit points, HDD-installed fiber optic conduit, and cable segments installed via surface lay methods (**Figure 3 and 4**). Surface lay cable may include articulated pipe, single armor, and double armor configurations, selected based on lakebed conditions and protection requirements. The terrestrial segments will directly connect to the marine cables at the designated shore landing sites, integrating the underwater and land-based infrastructure (**Attachment 6**).

Shore Landing Sites

In Illinois, two temporary landing areas will be established to support HDD operations connecting the terrestrial and marine segments of the fiber optic route. One will be located within the parking lot of the Alder Planetarium on Northerly Island and the second will be located within the McCormick Place along the Lakefront Trail (**Figure 3 and 4**). Both onshore locations were selected to be in upland areas. These areas will be used for drilling bore pits and staging equipment.

Locations were selected based on their proximity to the Lake Michigan shoreline and their potential to minimize environmental impacts, favoring existing parking areas and vacant/minimal impact lots.

At each shore landing, horizontal directional drilling will be used to install the FOC underground, allowing it to bypass nearshore obstacles and hazards. Each HDD borehole is expected to be approximately 8 inches in diameter and will accommodate a 6-inch casing. HDD will enable installation beneath areas at high risk for erosion, ecologically sensitive zones, and locations where ice scour could pose a risk to the cable.

The HDD entry point bore pit, will be in upland areas, outside the boundaries of regulated wetlands and water bodies. The HDD bore pits will be excavated in the upland. Erosion and sedimentation controls, including straw bales, filter socks, and safety fencing, will be installed and maintained for the duration of operations.

The HDD exit point will be approximately 1,400 feet offshore for the southerly route and 1,600 feet offshore on the northerly route, on the bed of Lake Michigan.

HDD Operations

During the HDD operations, a bentonite-based drilling fluid (slurry), potentially with polymer additives, will be used to stabilize the bore pit and transport cuttings back to the entry pit. A solids separation system will be used to reclaim and recycle the drilling fluid, while residual slurry and cuttings will be contained and hauled off-site for proper disposal. Prior to borehole exit at the lakebed, the drill stem will be flushed with fresh water to minimize the risk of inadvertent fluid returns.

The borehole exit location will be confirmed by dive crews. Once confirmed, the drill stem will be retracted and fitted with a blunt steel nose. After reaming and final preparation, a coned or duckbill fitting will be attached to the conduit for pullback. A pre-installed stainless-steel pulling cable will then be used to pull the fiber optic cable from the lakeside exit point back to the upland transition manhole using a winch and pulley system. The transition manhole will be installed at the upland landing and connected to the HDD conduit using restrained flange couplings and HDPE pipe.

HDD operations are expected to take approximately 3 to 8 weeks, depending on bore length and subsurface conditions. Typical equipment includes a drill rig, mud rig, mud reclaimers, power units, generators, excavators, drill pipe, support vehicles, pumps, trailers, and storage tanks. The entry angle (typically 15 degrees) and bore geometry have been selected to minimize the risk of bore skipping and inadvertent fluid returns, particularly at transitions between sand and limestone. Final bore path geometry and depth will be confirmed based on results from geotechnical investigations.

An Inadvertent Release (Frac-Out) Plan (**Attachment 9**) has been prepared to include the procedures and responsibilities for preventing, detecting, containing, and cleaning up frac-outs during directional drilling operations.

Beyond the HDD exit, the FOC will be laid on the existing lakebed surface or possibly buried to a depth of approximately 3 to 5 feet for a relatively short distance from the shoreline (i.e. about 1.25 miles). The decision to bury the cable will be based on the results of the hydrographic and geophysical survey and an analysis of lake sediment characteristics. At this time, no underwater cable burial methods or anchoring is proposed during cable installation, which will limit bottom-disturbing impacts to the immediate cable footprint.

Surface Lay Installations

For surface lay segments, the FOC will be spooled from a deployment vessel and placed directly on the lakebed. The vessel will adjust its path to avoid known underwater obstructions, including boulders, sensitive resources, and existing infrastructure.

To protect the cable in higher-risk areas where abrasion is anticipated, the following protective measures are used:

Surface Lay Articulated Pipe: Interlocking, hinged protective sleeves are installed over the cable to provide additional protection against localized abrasion, anchor strikes, and trawl gear. Articulated pipe is generally used for short, targeted sections near shore crossings, infrastructure intersections, or hard substrate areas.

Surface Lay Single Armor: A steel wire armor layer surrounds the cable core, providing mechanical protection against abrasion and localized impact while maintaining flexibility. This configuration is typically used in areas with moderate risk from fishing gear or natural debris.

Surface Lay Double Armor: Two concentric layers of steel wire armor are applied, offering enhanced mechanical protection and increased resistance to crushing forces. This is used in higher-risk areas, such as nearshore zones with heavy vessel traffic or known anchor drag hazards.

Underwater Cable Burial Methodologies

It is not anticipated that cable burial will be required, rather the articulated pipe will be used to protect the fiberoptic cable in nearshore areas to limit disturbance to the lakebed sediments. If cable burial is required, a revised permit application will be required to be submitted. The cable burial methods listed below are provided for information only, to discuss the typical cable burial methods. f Following the HDD exit, burial may typically be completed using one of the following methods:

Jet plow / water jetting: High-pressure water jets fluidize the sediment, creating a narrow trench that allows the cable to settle to the target depth. This method minimizes sediment resuspension and allows rapid backfilling.

Shear Plow: A non-fluidizing plow creates a narrow trench into which the cable is laid. This method displaces less sediment and is generally used for shallow burial depths (<4 feet).

Cable position, burial depth, and environmental conditions will be continuously monitored during installation to ensure compliance with design specifications and to minimize lakebed disturbance.

Terrestrial Project Route

The terrestrial route for Project 1 within the State of Illinois is not part of this Joint Permit Application, as there are no regulated wetlands, waterways, or other aquatic resources that will be impacted, but is noted here for project context. This segment includes approximately 2.9 miles of underground FOC located in the City of Chicago. The route is within developed areas, where the FOC will be installed using HDD to avoid surface impacts, or will be installed within the existing freight tunnels (**Attachment 10**).

ATTACHMENT 3
Project Purpose and Need

Peninsula Fiber Network, LLC
Infrastructure for Michigan Peninsulas and Critical Crossings (IMPACC)
Project 1

During the COVID-19 pandemic, the nation discovered how a lack of broadband access is a barrier to education, health care and emergency services. Several Michigan counties being served by this project have high health outcome scores suggesting poor access to health care, poor health behaviors, and poor social and economic conditions. Access to reliable and affordable broadband internet can play a positive role in reversing these health outcomes for Michiganders.

Over the past decade, Michigan has been actively improving the state's connectivity ecosystem. The past and present Governors made broadband a priority for Michigan and adopted a Michigan Broadband Roadmap with specific goals, objectives, and strategies to address connectivity deficiency in Michigan. Michigan, alongside the National Telecommunications and Information Administration (NTIA), is prioritizing expansion and extension of middle mile infrastructure to reduce the cost of connecting unserved and underserved areas to the backbone of the internet, and to promote broadband connection resiliency through the creation of alternative network connections that can be designed to prevent single points of failure on a broadband network.

Purpose

The Peninsula Fiber Network, LLC (PFN) project titled Infrastructure for Michigan's Peninsulas and Critical Crossings (IMPACC) was developed to meet both state and NTIA Middle Mile Grant (MMG) program goals; to connect middle mile infrastructure to last mile networks that provide or plan to provide broadband service to households in unserved areas, to offer wholesale broadband services at reasonable rates on a carrier-neutral basis, and to strengthen national security.

To accomplish these goals, PFN will construct three routes that traverse Michigan's lakes and unserved counties and towns to bring much needed middle mile infrastructure into rural counties serving over 35,000 homes in need of broadband internet connectivity.

This document focuses on Project 1 which consists of two underwater fiber connections (north and south routes) across Lake Michigan from southern Chicago, Illinois to St. Joseph, Michigan and northern Chicago to Benton Harbor, Michigan, to create a shorter, redundant, and more reliable middle mile route to Chicago. The Project 1 components within the state of Illinois are the subject of this permit application which includes approximately 2.7 miles of terrestrial FOC and 48.2 miles of marine FOC located within Illinois state waters of Lake Michigan.

Need

Throughout our nation, the digital divide has had substantial effects on the economic development of rural homes and businesses. Nearly 1.24 million Michigan households (31.5%) do not have a permanent, fixed internet connection and nearly 31% of households earning less than $20,000

annually (197,000) do not have a broadband connection. Broadband now serves as the definitive infrastructure driving the global economic transformation.

Unique to Michigan's geography, the undersea lines provide alternative routes to connect the Upper and Lower Peninsulas of Michigan to Chicago. Fiber installed below the lakebed is less likely to be impacted by severe weather patterns and other catastrophic events, making it ideal for redundancy and resiliency.

Project 1 Byron Center to Chicago

The undersea fiber connection across Lake Michigan to Chicago from Benton Harbor, MI and St. Joseph, MI, creates a shorter, redundant, and more reliable middle mile (MM) route to Chicago, one of the largest Interexchange Carrier (IXC) points. Michigan's unique geography previously required fiber routes to traverse around Lake Michigan where the risks of being cut are high and occur multiple times a year. Installing undersea fiber provides additional economic security for Michigan and our nation. Carriers in Michigan will have a fiber connection to Chicago with access to the lowest cost wholesale core Internet. This route also extends through unserved/underserved areas of southwest rural Michigan to an IXC facility in Byron Center, MI going through Berrien, Van Buren, and Allegan Counties. A recent broadband study in Berrien County by Merit, Inc, stated 64% of townships in southwest Michigan do not have access to an internet connection with a download speed of 25 megabits per second (Mbps) and an upload speed of 3 Mbps (25/3 Mbps) broadband. The study also indicates that in 76% of the 1,062 census blocks, customers indicated they could not obtain broadband service even though the Federal Communications Commission map considered the census block served.

Description of Proposed Action and Alternatives

As part of the planning process, PFN explored alternative ways to meet the project purpose and need. Alternatives as described below were analyzed for reasonableness, cost-effectiveness, effect on the environment, and consistency in meeting the purpose and needs of the areas. The possible alternatives are technically implementable and possibly economically feasible but do not realistically meet the goals of the project. These alternatives are documented but eliminated from further review. The alternatives include:

- Alternate technologies
- Siting and location alternatives
- Alternative corridors or routes for infrastructure proposals

Proposed Action

This project consists of the proposed optical fiber cable build that will ultimately interconnect via existing sections of optical fiber, to fulfill all the obligations of the grant. These purposes include:

1. Provide backbone optical fiber high-bandwidth paths to existing broadband last-mile networks.
2. Provide broadband into unserved and underserved areas of Michigan.
3. Connect underserved anchor institutions along the routes.

Additional purposes include providing significant additional bandwidth into remote areas or areas with very high demand and limited resources and providing redundancy protection for the bandwidth on those limited existing routes feeding these areas. The proposed cables include significant 'dark' or spare fibers that will be available for other users and future developments, as required in the Open Architecture of the grant.

The proposed Project 1 cable buildout is independent from the other two proposed projects in physical terms and in satisfying the grant obligations. This route connects numerous anchor institutions along the route, connects into existing fiber networks, can be built and operated independently of the other proposed routes, and has numerous end-users in underserved areas that will benefit from the turnup.

Although each route segment may be considered independently, the combined network will fulfill the overall project purpose and need once all sections are operational, interconnected, and integrated with existing optical fiber infrastructure funded outside this grant award.

Project 1 will deliver significant broadband capacity and cable redundancy (and dark fiber for others and for future use) from Chicago data centers to the east side of Lake Michigan near Benton Harbor and on to Byron Center. These proposed cables and their capacities will also serve to lessen the load on some of the existing broadband facilities on the south side of Lake Michigan, allowing that capacity and expansion capability to be used in additional development in those regions with minimal additional construction.

The terrestrial, on-shore proposed cable portion of this network route on the east side of Lake Michigan will provide broadband capabilities to numerous Anchor Institutions and to existing broadband networks that have a great need for additional bandwidth to fully provide the end users in the area, including underserved potential subscribers, with all the promises of optical fiber and nearly unlimited broadband service.

The terrestrial cable portion on the west side of Lake Michigan, into Chicago, is planned for interconnection with numerous data networks. PFN has budgeted for new construction to the main data interconnection points. PFN will utilize existing cable conduits in the areas, thus saving some of the budgeted expense, time, and disruption that would otherwise be incurred.

No Action Alternative

Under the No Action alternative, the project purpose and need would not be met, and unserved and underserved areas would remain without adequate broadband access. While limited, low-bandwidth services and middle-mile infrastructure currently exist, subscribers and institutions would continue to face constraints in utilizing modern communications technologies. Although environmental impacts may be minimal if current service levels and behaviors remain unchanged, it is expected that residents will continue to seek improved connectivity. Demand for higher-quality broadband services is growing, and in the absence of this project, communities may turn to alternative, and potentially more environmentally disruptive, solutions to meet their connectivity needs.

Alternative Methods to Increase Broadband Services

Alternatives ways of meeting the goals of this network, to increase broadband services to the areas, may include the following:

a) Upgraded electronics on the existing communications connections into the areas
b) Other technologies to bring broadband to the area
c) Other routes for the proposed optical fiber cables.

During the planning phases and initial network design, PFN has considered all three alternatives listed. The analyses are as follows for each alternative.

a) Upgrading electronics along existing communication routes was considered as a potentially less expensive and less environmentally impactful option in the short term. While this approach may be more constructible than installing new cable, it would not provide a long-term solution. Although optical fiber offers high ultimate capacity, limitations in where and how that capacity is accessed can restrict its effectiveness. Upgrades can be costly, disruptive to existing services, and may complicate bandwidth distribution to last-mile and rural networks. These upgrades also increase the likelihood of service outages.

   PFN has observed that existing fiber networks in the region are already experiencing high demand from current end users, and service providers are planning bandwidth expansions. Accelerating upgrades to meet broader regional demand would likely trigger further infrastructure needs, increased costs, and additional risks. While technically viable and environmentally preferable in the near term, this alternative would not eliminate the need for new cable installations.

b) Terrestrial wireless and satellite broadband were also evaluated. These technologies can deliver limited broadband services with lower upfront costs for small user bases, and satellite services may be particularly suitable for the most remote areas. Wireless backhaul networks, including microwave towers, could also be developed but involve high capital and maintenance costs and require designated fall zones.

   All wireless options are ultimately constrained by bandwidth limitations, spectrum availability, and signal reliability. Satellite latency, while improving, can still hinder real-time communications such as voice and video. As such, these technologies may serve as short-term or supplemental solutions, particularly for mobile use or extremely remote locations, but are not suited for meeting long-term regional broadband needs at scale.

c) Alternative routes and locations for the proposed optical fiber cable and associated infrastructure were carefully evaluated during project planning. This included analysis of cultural resources, contamination risks, geologic conditions, wetlands, waterways, rare species, and existing infrastructure, supported by hydrographic and environmental surveys.

Wherever feasible, routes and construction methods were adjusted to avoid impacts. For example, HDD entry and exit pits were relocated outside of wetlands following delineations, and HDD was substituted for plowing or trenching in areas with rare plant species or sensitive waterways. Routes and facilities were also realigned to favor previously developed upland areas where possible.

Alternatives Considered but Eliminated from Further Discussion

As noted above, satellite and wireless backbone network solutions were eliminated from further consideration due to limitations in bandwidth, reliability, and long-term suitability. Additional alternatives that were also dismissed include upgrades to existing copper telephone cables and Broadband over Power Lines (BPL).

Upgrading copper telephone infrastructure can, in some cases, provide gigabit-level throughput by bonding multiple cable pairs and using advanced electronics. However, this approach is limited by distance constraints, the availability and condition of copper pairs, and power requirements. As such, broadband over twisted-pair copper is only feasible in confined areas, such as within existing buildings, where fiber installation is cost-prohibitive.

BPL technology can theoretically deliver several megabits per second over existing electrical infrastructure, but it is similarly limited in bandwidth and reach. This method may be appropriate only in rare cases where new construction is infeasible or where environmental sensitivity makes traditional infrastructure installation impractical.

ATTACHMENT 4
Summary of Impacts

Peninsula Fiber Network, LLC
Infrastructure for Michigan Peninsulas and Critical Crossings (IMPACC)
Project 1

GREAT LAKES IMPACTS

Impacts to Great Lakes bottom lands (the bed of Lake Michigan) will be from the installation of the fiber line along the lakebed. There are four types of fiber cable installation anticipated for this project:

1. HDD of the fiber line will occur at the shore landings for the transition from the terrestrial route to the marine route. A 6-inch diameter casing will be installed as the conduit for the FOC and will remain in place. The 6-inch casing is considered the permanent impact.
    a. The HDD bore hole is a 13-inch diameter boring under the bed of Lake Michigan for the fiberoptic cable and casing to be installed. The borehole is considered a temporary impact as the hole will not remain open following cable installation.
2. Articulated Pipe: Interlocking, hinged protective sleeves are installed over the cable to provide additional protection against localized abrasion, anchor strikes, and trawl gear. Articulated pipe is generally used for short, targeted sections near shore crossings, infrastructure intersections, or hard substrate areas where having an exposed fiberoptic line may me more susceptible to damage. This impact is considered permanent as the 6.1-inch diameter pipe will remain in place.
3. Surface Lay installation of a single wall fiber conduit with a diameter of 1.25 inches. This is considered a permanent impact as the cable will remain in place.
4. Surface Lay installation of a double wall fiber conduit with a diameter of 1.5 inches. This is considered a permanent impact as the cable will remain in place.

The materials placed on the bottom of Lake Michigan, within Illinois are limited to the fiberoptic cable and the HDD casing. The volume of the cable and the casing are provided in Table 1.

Table 1. Volume of Material (Fiber Optic Cable Structure) Installed in Lake Michigan (Illinois)

Fiberoptic Fill Type	Diameter (in)	Diameter (ft)	Length (ft)	Volume (cubic feet)	Volume (Cubic Yards)
HDD: Casing	6	0.5	3,364	660.5	24.464
Surface Lay – Double Armor Cable	1.5	0.125	25,558	313.6	11.616
Surface Lay – Single Armor Cable	1.25	0.104	221,228	1879.3	69.604
Articulated Pipe	6.1	0.508	4,429	897.7	33.248
			Totals:	**3751.1**	**138.931**

The permanent impacts are summarized in Table 2, and the temporary impacts are summarized in Table 3.

Table 2. Permanent Impacts in Lake Michigan - Surface Area in Acres (Illinois)

Type of Fiberoptic Cable Install	Diameter (in)	Diameter (ft)	Length (mi)	Length (ft)	Permanent Impacts (acres)
HDD: Casing	6	0.5	0.60	3,364	0.039
Surface Lay – Double Armor Cable	1.5	0.125	4.80	25,558	0.073
Surface Lay – Single Armor Cable	1.25	0.104	41.90	221,228	0.528
Articulated Pipe	6.1	0.508	0.80	4,429	0.052
Totals			**48.10**	**254,579**	**0.692**

Table 3. Temporary Impacts in Lake Michigan - Surface Area in Acres (Illinois)

Type of Fiberoptic Cable Install	Width (in)	Width (ft)	Length (mi)	Length (ft)	Temporary Impacts (acres)
HDD: borehole	13	0.67	0.60	3,364	0.084
Totals			**0.60**	**3,364**	**0.084**

WETLAND and WATERWAY IMPACTS

A wetland delineation was completed for the terrestrial segment of the Project, along with a survey of other aquatic resources. No wetlands or waterways were identified within the project footprint. A copy of the Wetland Delineation Report is included as **Attachment 7**.

FLOODPLAIN IMPACTS

The project does not cross any regulated floodplain, other than the segment along the bed of Lake Michigan that is associated with the Zone VE Floodplain in Lake Michigan.

ATTACHMENT 5
Avoidance, Minimization, and Compensation

Peninsula Fiber Network, LLC
Infrastructure for Michigan Peninsulas and Critical Crossings (IMPACC)
Project 1

Avoidance Measures:

Shore Landings

PFN evaluated several shore landing sites for various purposes, including constructability, Horizontal Directional Drill operations, placement of the fiber along the bed of Lake Michigan, and presence of wetland, waterways, and floodplains. The two sites that were selected (Northerly Island and Lakefront Trail) avoid direct impacts to wetlands, waterways, and floodplains.

Terrestrial Route

The terrestrial route was selected to follow existing disturbed road rights-of-way and underground tunnels whenever possible. The selected route minimizes soils disturbance and completely avoids wetlands, waterways, and floodplains.

Marine Route

To meet the Project purpose, impacts to the bed of Lake Michigan cannot be avoided under the proposed action. However, PFN conducted several studies of the proposed route along the bed of Lake Michigan, including a hydrographic and geophysical survey, an analysis of lake sediment characteristics, and a maritime archaeological survey. The route was selected to avoid sensitive features identified during the studies.

Additionally, consultation with IDNR for Title 17 Illinois Administrative Code Part 1075 through the Ecological Compliance Assessment Tool (EcoCAT), resulted in the IDNR requesting actions to avoid impacts to listed species. Therefore, PFN has agreed to avoid impacts to the state-listed mudpuppy (*Necturus maculosus*) by maintaining a 10-meter buffer from human made structures on the bed of Lake Michigan during cable placement.

The summary of surveys and consultations for cultural resources and threatened and endangered species are provided in Attachment 8.

Minimization Measures:

Shore Landings

The locations of shore landings were selected based on their proximity to the Lake Michigan shoreline and their potential to minimize environmental impacts, favoring existing parking areas and vacant/minimal impact lots. The use of HDD installation methods at the shore landings will enable cable installation while avoiding ecologically sensitive zones and locations where ice scour could pose a risk to the cable and minimizing impacts beneath areas at high risk for erosion.

Erosion and sedimentation controls, including straw bales, filter socks, and safety fencing, will be installed and maintained for the duration of operations.

An Inadvertent Release (Frac-Out) Plan (**Attachment 9**) has been prepared to include the procedures and responsibilities for preventing, detecting, containing, and cleaning up frac-outs during directional drilling operations.

Marine Route

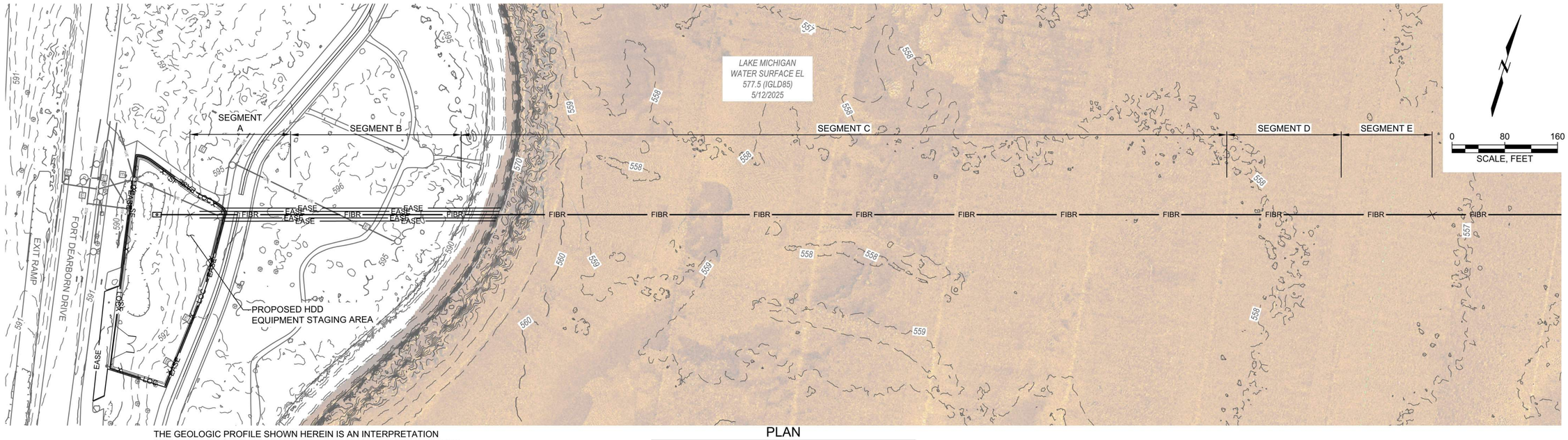
Specific cable routes and shoreline landing sites have been selected to maximize efficiency and minimize environmental impact. Once the shore landings were selected and the marine route studies were analyzed, the most direct path was selected to minimize disturbance to the bed of Lake Michigan and efficiently install the fiberoptic line.

Cable installation methods are proposed to minimize disturbance to lakebed sediments by using articulated pipe and avoiding burying the cable. No underwater cable burial methods or anchoring is proposed during cable installation, which will limit bottom-disturbing impacts to the immediate cable footprint.

Cable position and environmental conditions will be continuously monitored during installation to ensure compliance with design specifications and to minimize lakebed disturbance.

Compensation:

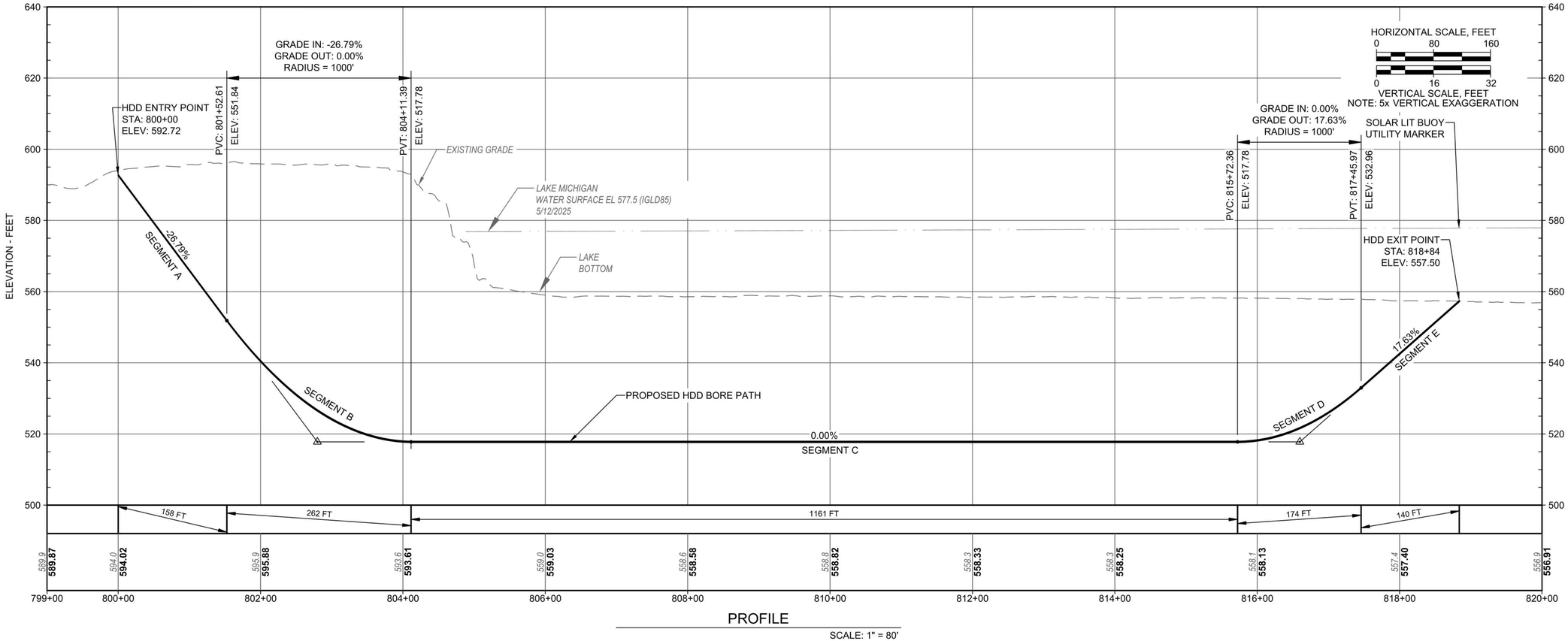
Compensatory Mitigation will not be required. There will be no loss of aquatic resources.



PLAN

SCALE: 1" = 80'

THE GEOLOGIC PROFILE SHOWN HEREIN IS AN INTERPRETATION BASED ON LIMITED SUBSURFACE INFORMATION OBTAINED FROM THE GEOTECHNICAL SOIL BORINGS PERFORMED AT THE PROJECT SITE. THE PROFILE IS AN ESTIMATED REPRESENTATION OF SUBSURFACE CONDITIONS BETWEEN AND BEYOND THE BORING LOCATIONS.



PROFILE

SCALE: 1" = 80'

PRELIMINARY

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PFN
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PENINSULA FIBER
NETWORK, LLC
1901 WEST RIDGE ST.,
SUITE 2
MARQUETTE, MI 49855

CHICAGO LAKEFRONT TRAIL - SITE PLAN IMPACC PROJECT

CHICAGO, ILLINOIS

DRAFT
NOT FOR CONSTRUCTION

P.E. No.:	64048
Approved:	DST
Checked:	MFS
Drawn:	LMR
Designed:	DST
GEI Project	2305496

Attention: 0 1"
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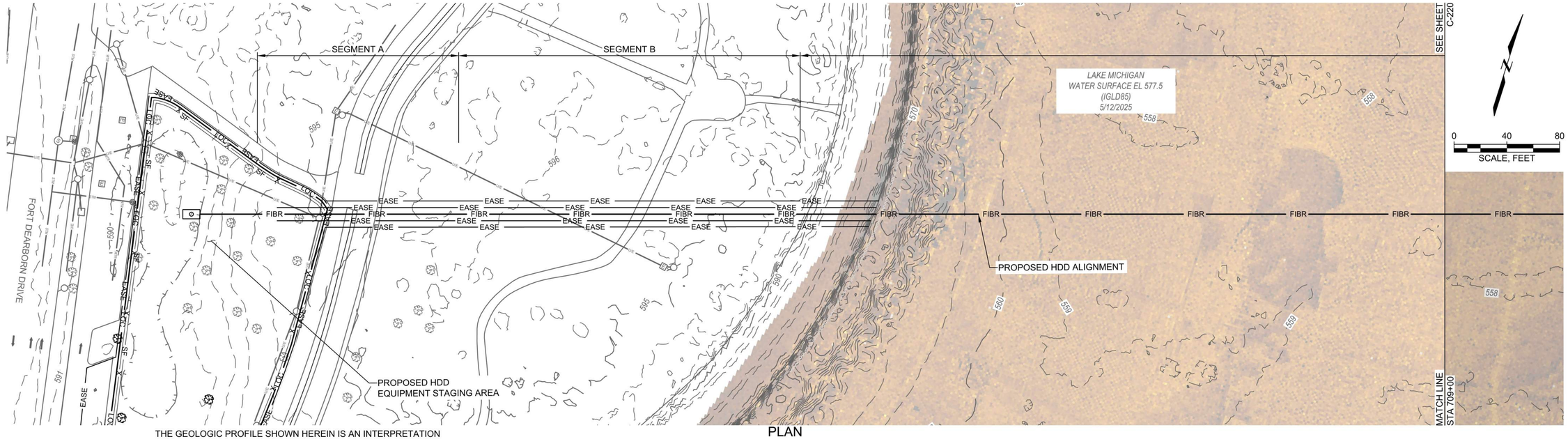
SHEET NAME

HDD PLAN & PROFILE OVERVIEW

SHEET NO.

C-200



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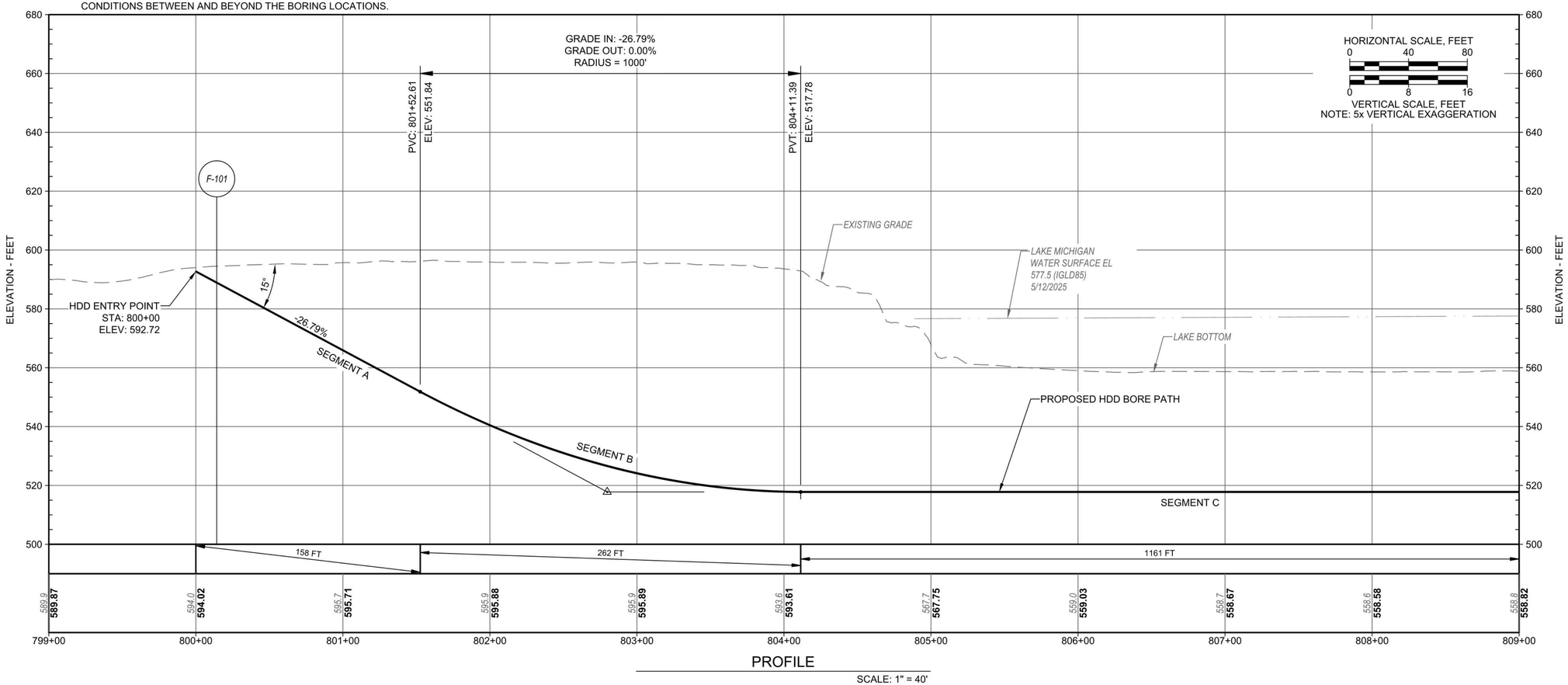

PROFILE

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CHICAGO LAKEFRONT TRAIL - SITE PLAN IMPACC PROJECT

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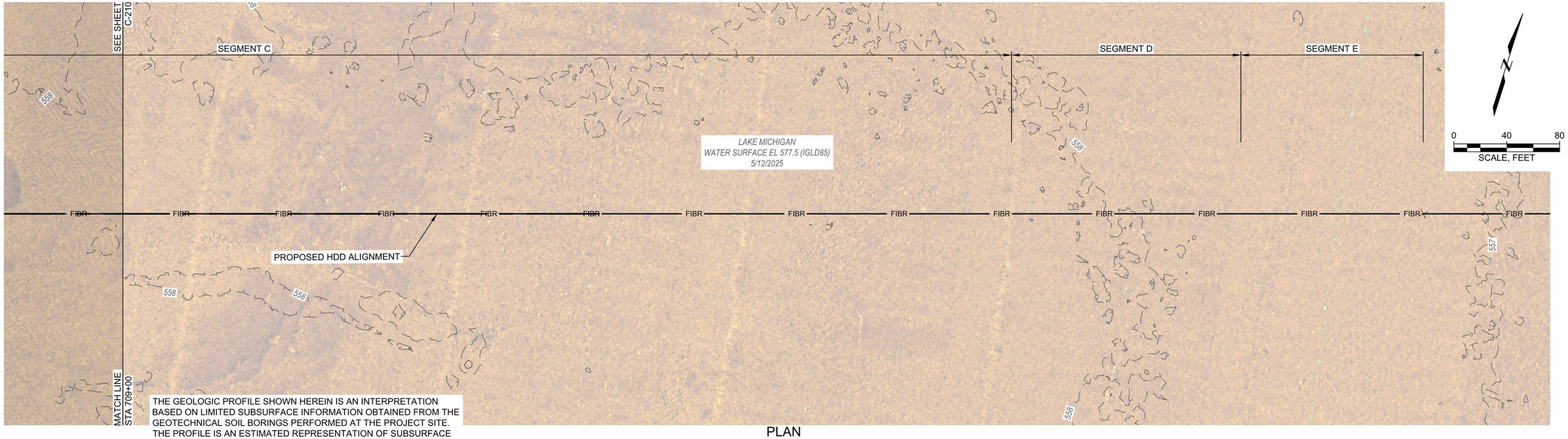

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PLAN

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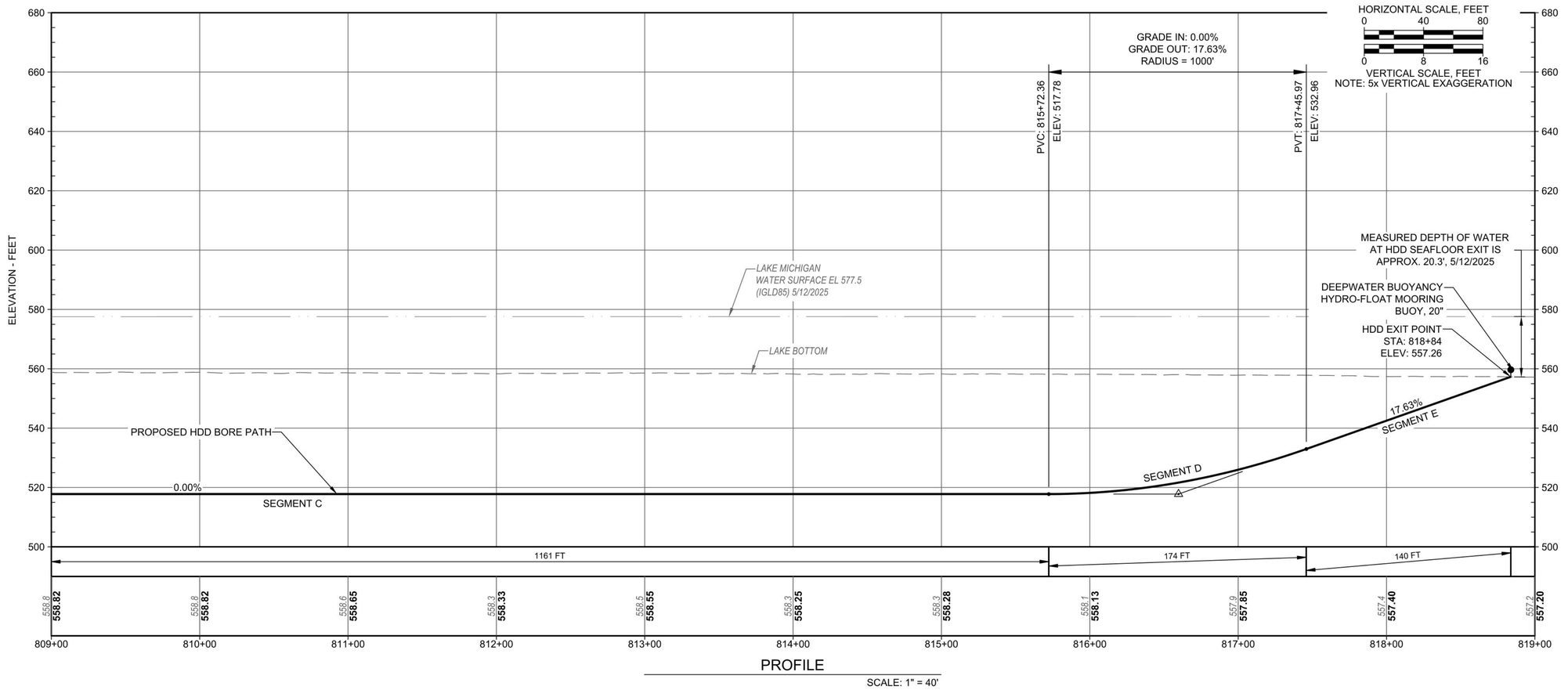

PROFILE

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CHICAGO LAKEFRONT TRAIL - SITE PLAN IMPACC PROJECT

CHICAGO, ILLINOIS

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HDD PLAN & PROFILE STA 809+00 TO 819+50

SHEET NO.

C-220

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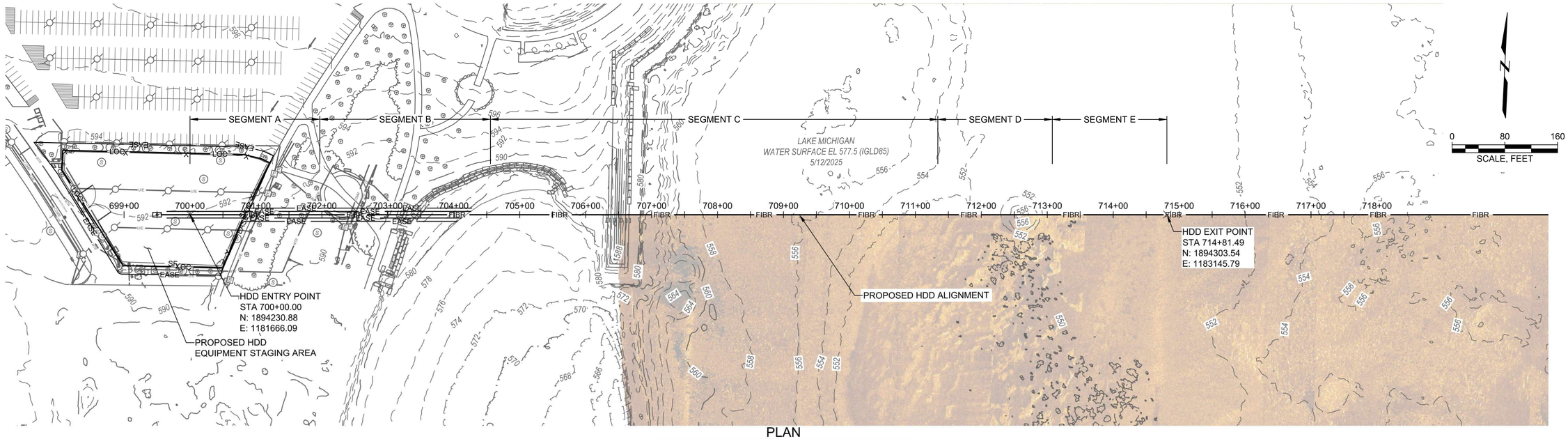

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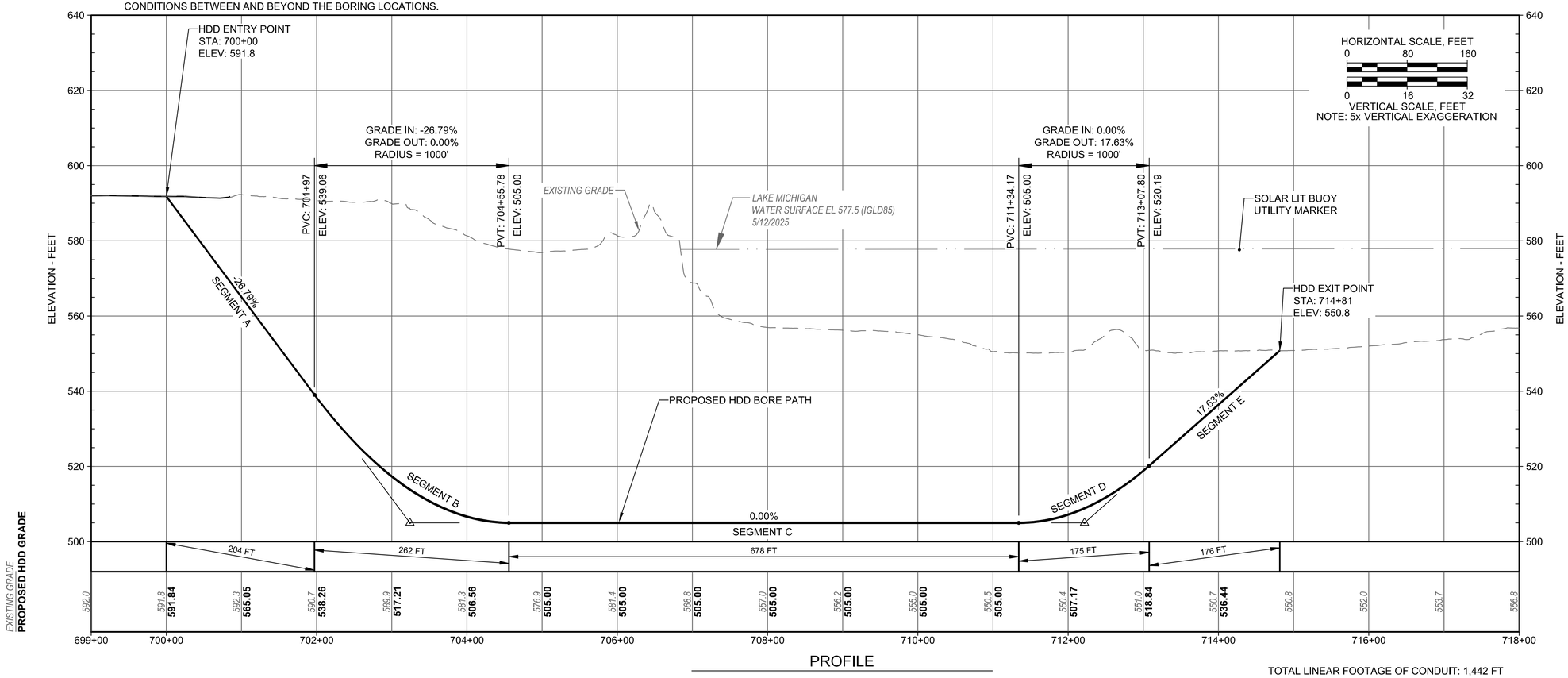

PROFILE

TOTAL LINEAR FOOTAGE OF CONDUIT: 1,442 FT

PRELIMINARY

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CHICAGO NORTHERLY ISLAND - SITE PLAN IMPACC PROJECT

CHICAGO, ILLINOIS

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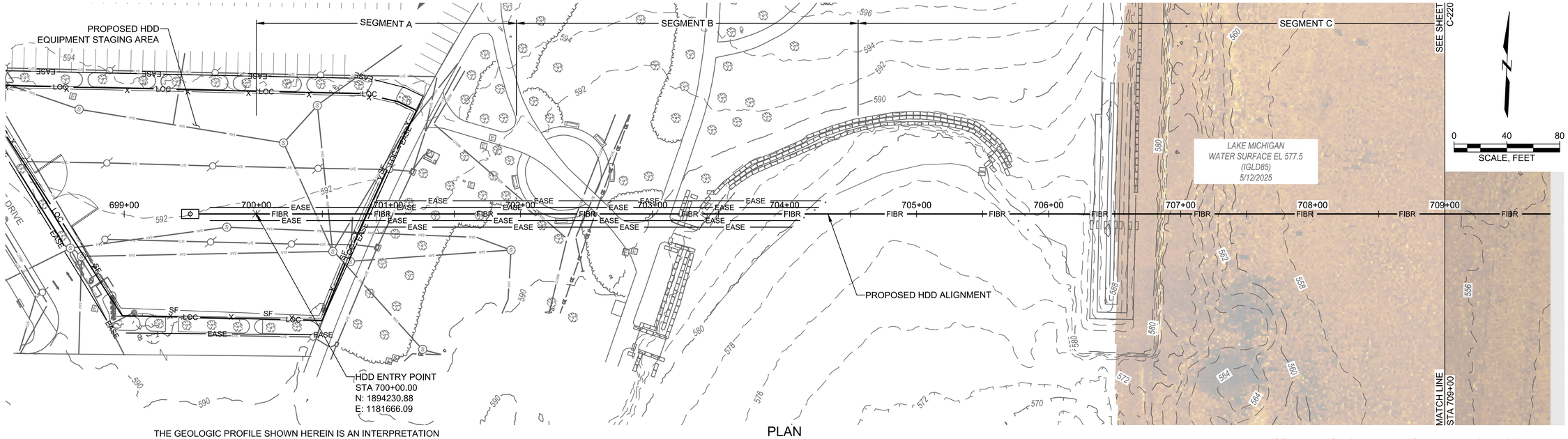
C-200



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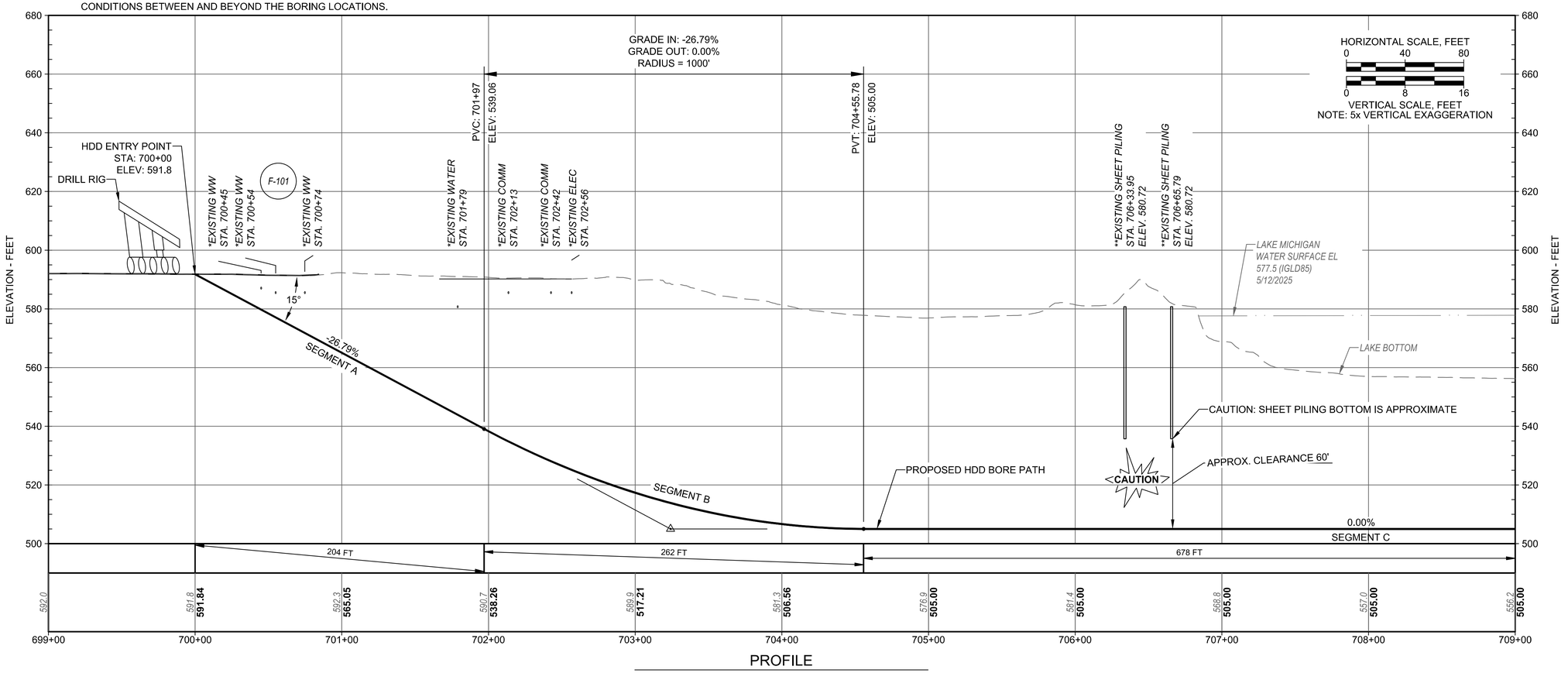
* UTILITY ELEVATIONS ARE APPROXIMATE BASED ON RECORD DRAWINGS. CONTRACTOR TO FIELD VERIFY UTILITIES.

** EXISTING SHEET PILING DEPTH IS IS APPROXIMATELY 45 FT.



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C-210

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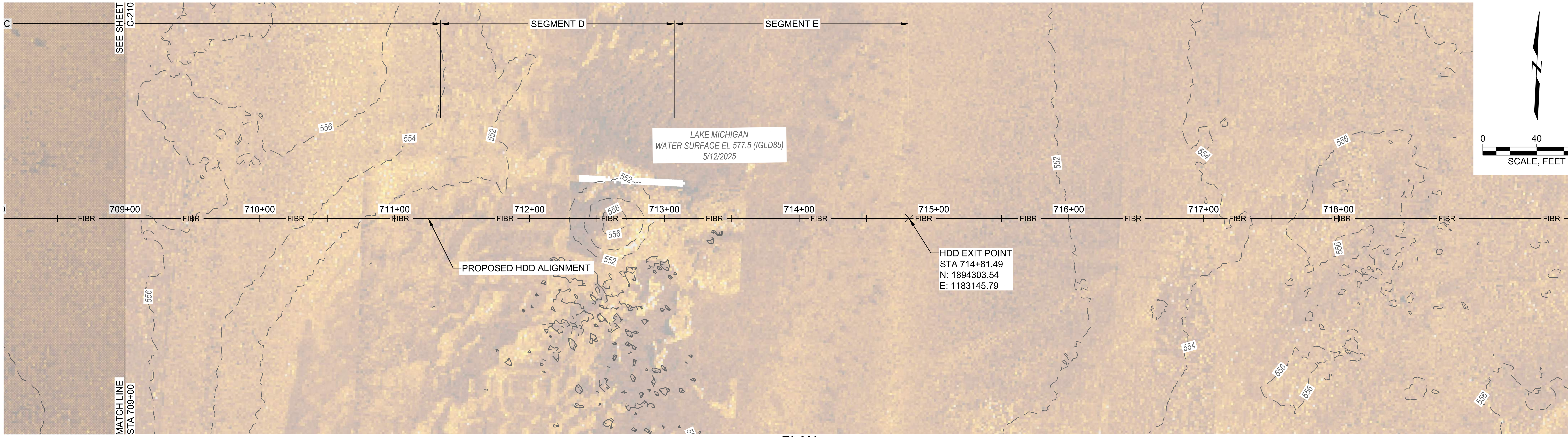

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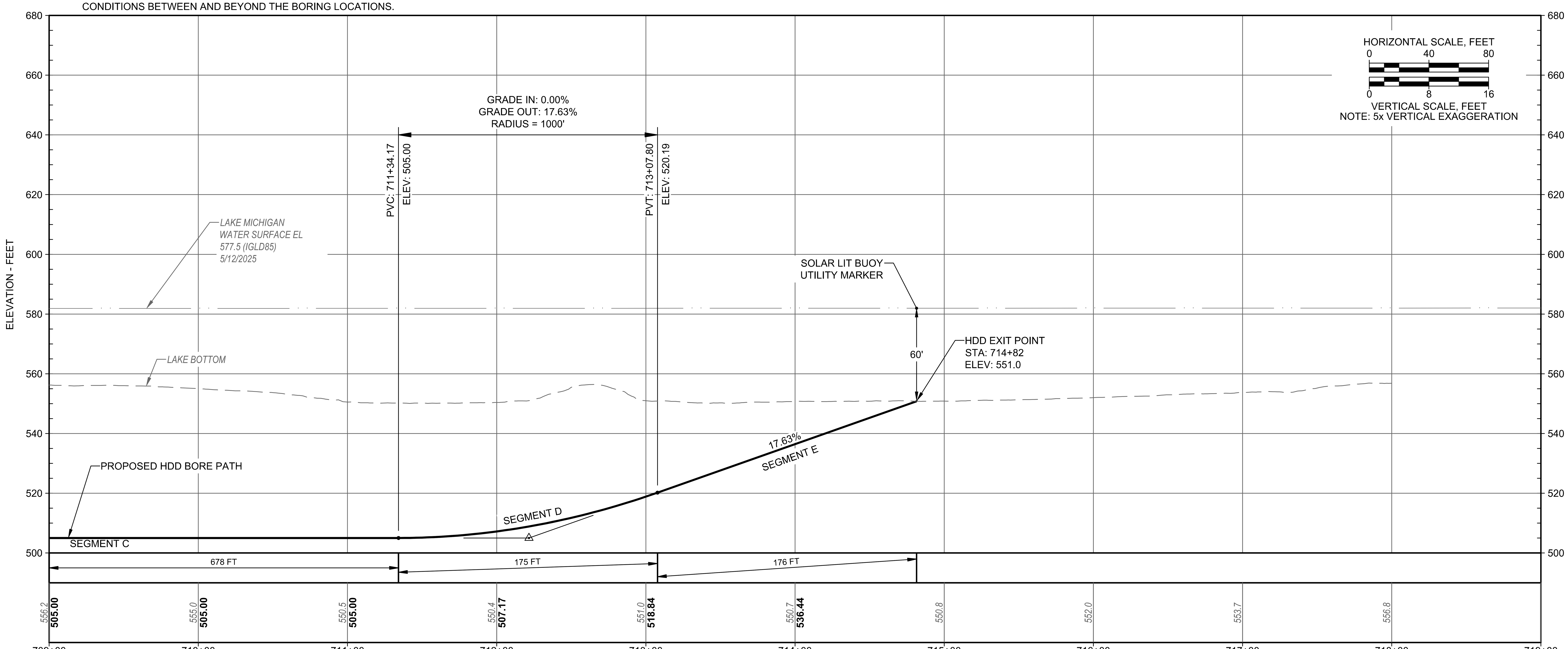

PROFILE

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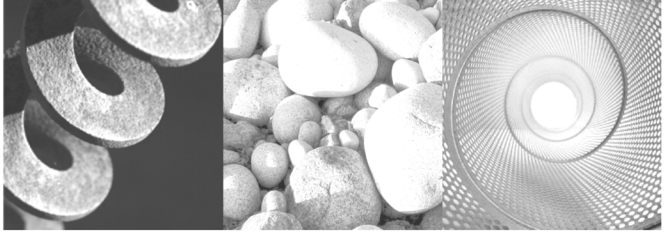

GEI Consultants

Wetland Delineation Report

Infrastructure for Michigan Peninsulas and Critical Crossings - Project 1: Illinois

Cook County, Illinois

Submitted to:
Peninsula Fiber Network
JSI Engineering, LLC
1475 North 200 West
Nephi, UT 84648

Submitted by:
GEI Consultants of Michigan, P.C.
109 W. Baraga Ave.
Marquette, MI 49855
608.807.0502

July 25, 2025
Project No. 2305496

Shannon McClusky
Environmental Scientist

Rob Peterson, PWS
Senior Environmental Scientist

Table of Contents

Figures

Attachments

1. Introduction

1.1. Introduction

GEI Consultants of Michigan, P.C. (GEI) was retained by JSI Engineering, LLC (JSI) to complete an identification and delineation of wetlands and waterways (wetland delineation) to support Peninsula Fiber Network (PFN) with development of Infrastructure for Michigan Peninsulas and Critical Crossings (IMPACC), a collection of independent utility projects proposing to construct a fiberoptic cable network. IMPACC is a project consisting of three proposed optical cable builds that will interconnect through existing sections of optical fiber networks. The proposed project will help provide optical fiber high-bandwidth capacity to existing broadband land-mile networks, provide broadband to unserved and underserved areas of Michigan, and connect underserved anchor institutions along the proposed routes. GEI has prepared this Wetland Delineation Report to summarize the findings of the wetland delineation completed for the terrestrial route of IMPACC's Project 1 – Chicago (Project).

1.2. Delineation Area

The proposed Project 1 terrestrial route is approximately 2.95 miles from Printers Row to Northerly Island & McCormick Place to east of 27th Street Station in Cook County (**Figure 1**). The Project Area of Investigation (AOI) represents the total area evaluated during this wetland delineation, including the proposed fiber installation location, and a 300-foot-wide buffer zone, that extends 150-feet outward from the fiber line location. The proposed fiber route is primarily situated along existing road right-of-way (ROW) that has been historically disturbed from the placement of fill material for the road grade, tree clearing, and periodic vegetation maintenance to control trees and shrubs. The total AOI covers approximately 108.71 acres. The Google Earth file of the fiber installation location was provided by JSI, and the 300-foot-wide buffer zone was generated by GEI.

1.3. Qualifications

The wetland delineation was managed by GEI Project Manager, Eric Englund. Mr. Englund has 12 years of experience related to environmental regulatory compliance and provided scheduling and logistics support, scope of work guidance, and fieldwork oversight for this project. GEI Wetland Scientist, Rob Peterson, served as the In-House Reviewer for the Wetland Delineation Report. Mr. Peterson has over 20 years of experience related to wetland delineation and is certified as a Professional Wetland Scientist by the Society of Wetland Scientists.

Fieldwork was led by GEI Environmental Scientists and lead delineators Shannon McClusky and Kate Kasten.

Shannon McClusky has a B.S. in Environmental Science. She has over 5 years of experience with wetland delineation in accordance with the U.S Army Corps of Engineers Wetland Delineation Manual

and regional supplements, mapping sensitive ecological features, and identifying and applying management techniques for various habitat types.

Kate Kasten has a B.S in Ecology and Evolutionary Biology and a minor in Fish Biology with 5 years of professional experience performing wetland delineations in accordance with the U.S Army Corps of Engineers Wetland Delineation Manual and regional supplements, aquatic invasive species surveys, rare plants and animal surveys, and macroinvertebrate identification.

2. Delineation Methodology

2.1. Scope of Work

- Pre-Field Records Review: The following background data was reviewed prior to the site visit:
  - Review of the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) Mapping;
  - United States Department of Agriculture (USDA) Web Soil Survey; United States Geological Survey (USGS) Topographic Maps (National Geographic Society, 2018);
  - Illinois Geospatial Data Clearinghouse 5-foot Contour Data;
  - 1998 and 2005 USGS Orthoimages;
  - 1956, 1973, 1982, and 1998 USGS Historical Aerial Imagery;
  - 1938, 1955, 1959, 1965, and 1971 USDA Historical Aerial Photographs; 2005, 2006, 2007, 2009, 2010, 2011, 2012, 2015, and 2019 USDA Aerial Photographs;
  - 1998 National Aerial Photography Program (NAPP) orthophoto; and
  - 2004, 2005, 2006, 2007, 2010, 2011, 2012, 2014, 2015, 2017, 2019, 2021, and 2023 National Agricultural Imagery Program (NAIP) orthophotos.
- Field Delineation: Evaluation of the project area for the presence of wetlands and waterways. Completion of soil probes, identification of vegetation, and hydrology conditions at sample plot locations.
- Wetland and Waterway Boundary Location: Collection of boundary location coordinates by Global Positioning System (GPS) survey.
- Report: Evaluation of information collected and preparation of a written report.

Photographic documentation of the field delineation is included in Attachment III.

2.2. Wetlands

Wetlands are defined by the United States (U.S.) Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) as *“areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”* Similarly, Michigan's wetland statute, Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, defines a wetland as *"land characterized by the presence of water at a frequency and duration sufficient to support, and that under normal circumstances does support, wetland vegetation or aquatic life, and is commonly referred to as a bog, swamp, or marsh."* Wetlands present within the AOI were identified and delineated using the procedures described in the

U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory, Waterways Experiment Station, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (US Army Engineer Research and Development Center, 2011). These methods utilize the standard multi-parameter approach (vegetation, hydrology, and soils) for wetland identification as outlined in the *Corps of Engineers Wetland Determination Data Forms*. In general, an area is considered a wetland if hydrophytic vegetation, wetland hydrology, and hydric soils are present. Delineated wetlands are classified in accordance with the classification systems set forth in Wetlands of the United States (Shaw and Fredine. 1971) and *Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979).

2.3. Other Aquatic Resources

The wetland delineation includes other aquatic resources affected by regulated activities in waters of both the U.S. and Illinois. The delineation area was specifically surveyed for wetlands (as defined under Section 404 of the Clean Water Act) and other aquatic resources such as seasonal ponds, seeps, springs, ditches, and streams (intermittent, ephemeral, and perennial). Observations and mapping of potential connections and flow paths between other aquatic resources and wetlands can provide information for determining regulatory jurisdiction.

2.4. On-Site Wetland Delineation

GEI's on-site wetland delineation was completed on June 24, 2025, following the USACE procedure for identifying wetland boundaries by completing the appropriate number of sampling points, investigating the required wetland criteria, and identifying the boundary between wetland and upland areas. A soil sampling auger or tiling shovel was used to complete soil sampling points and check the soils and hydrology at periodic intervals throughout the delineated boundary to confirm accuracy and/or adjust the boundary accordingly. All wetland boundaries within the Project were geolocated using a global positioning system (GPS) capable of sub-foot accuracy and incorporated into a geographic information system (GIS) using ArcGIS 10.8 GIS software. The Site GPS data is being used to aid in site planning.

In addition to wetlands, waterbodies (lakes or ponds), waterways (streams, rivers, and ditches), and other aquatic resources (seeps and springs) within the AOI were assessed and mapped during fieldwork if present. The estimated top of bank of waterbodies or waterways were identified and geolocated with GPS as polylines or polygons. Seeps and springs were identified and mapped as points. Observations of the other aquatic resource characteristics were recorded.

The on-site data collection focused on completing sampling points within identified sampling units. Sampling units were distinguished by differences in landscape position, vegetation, soils, hydrology and/or disturbance relevant to the aquatic resource. GEI typically uses plant communities as the primary sampling units. Plant community units typically reflect spatial variations in geomorphology, hydrology, soils, and other factors that are important to the formation and maintenance of wetlands. Plant community units were identified during the desktop analysis and were adjusted based on observed field conditions. Sampling point locations within the plant community units were selected to be representative of the plant community. Wetland sample point transects with corresponding upland and

wetland sample points were collected for each identified wetland plant community observed within the AOI using the Northcentral Northeast (NCNE) Supplement Data Form. Representative sample points were taken for wetland complexes that were similar in size and community composition.

2.4.1. Sampling Point Nomenclature

If present, wetlands are given one label per wetland complex that consisted of the letter W (Wetland) followed by a unique number assigned chronologically (e.g., 001, 002, 003) along the AOI (e.g., W-000). Waterways are given one label per waterway that consisted of the letter S (Stream) followed by a unique number assigned chronologically (e.g., 001, 002, 003) along the AOI (e.g., S-000). Sampling points are assigned a unique label consisting of the letter P (Point) followed by a unique number assigned chronologically (e.g., P-01, P-02, P-03). Sampling point numbers are assigned chronologically from east to west along the AOI regardless of wetland or upland status.

2.4.2. Normal Circumstances and Antecedent Precipitation

Anthropogenic disturbances have altered portions of the AOI in the form of tree and shrub clearing for transmission and transportation ROW, Installation of overhead power poles, construction of roads, ROW access, and residential and commercial development. These alterations to soils, vegetation, and hydrology were legally established, maintained, and represent the long-term condition; therefore, normal circumstances were present during the time of the on-site wetland delineation.

Precipitation data was obtained using the USACE Antecedent Precipitation Tool (APT) (Version 2.9) to determine if climatic/hydrologic conditions were considered dry, normal, or wet for the AOI at the time of fieldwork. The APT obtains and compares recent and long-term precipitation data for a specific location to the range or normal rainfall conditions that occurred during the prior 30-year period. The APT queries data from weather stations located within a thirty-mile radius and assigns a rank to each station based on a weighted difference value which is determined based on distance and difference in elevation from the station to a specific location. The weather station with the lowest weighted difference that has sufficient data to develop the prior 30-year period is selected as the primary station. Remaining stations are recalculated in relation to the primary station and are used to backfill any missing data for the primary station. The APT also displays monthly values from Palmer Drought Severity Index (PDSI) and Web-based Water-Budget Interactive Modeling Program (WebWIMP). A series of historic and recent aerial photos of the site were also reviewed for potential wetness signatures which could indicate wetland hydrology. Normal conditions were reported over the 30 days prior to the site visit with 5.16 inches recorded since May 25th, 2025 (normal range = 2.71 – 6.23) (**Attachment I**).

2.4.3. Vegetation

The vegetation occurring at representative sampling point locations is assessed to determine the dominant species in the tree, woody vine, sapling/shrub, and herbaceous vegetation strata. Vegetation plot sizes include a 30-foot radius for tree and woody vine strata, a 15-foot radius for sapling/shrub

stratum, and a 5-foot radius for herbaceous stratum. Depending on the community size encountered at each sampling point, the plot size for the tree/vine/shrub/herb strata may be adjusted to restrict the sampled vegetation to the plant community being assessed. The percentage of absolute areal cover is visually estimated for each species within each plot and recorded on the NCNE Supplement Data Forms. Wetland indicator status is applied to each species from *The National Wetland Plant List: 2022 Wetland Rating* (USACE, 2022). The 50/20 rule is applied to determine dominant species within each stratum. The Rapid Test for Hydrophytic Vegetation, Dominance Test, and Prevalence Index are then calculated, and a determination of the presence of hydrophytic vegetation is made.

2.4.4. Hydrology

Each sampling point is investigated for primary and secondary hydrology indicators listed on the NCNE Supplement Data Forms and as described in the USACE Wetlands Delineation Manual and Regional Supplement. Observations of surface water depth, depth to saturation and depth to water table are also recorded. Observations of hydrology indicators are recorded on the NCNE Supplement Data Forms.

2.4.5. Soils

The presence or absence of hydric soils is assessed through the use of a shovel or soil auger to observe and document the soil profile to a depth of at least 24 inches unless a restrictive layer is encountered, or a hydric soil indicator and hydrology are identified at a lesser depth. Soil profile descriptions of the hue, value, and chroma for each soil horizon are completed at each sampling point using Munsell soil color charts. The USDA NRCS soil texture, special features (e.g., redox concentrations, depletions, muck, sulfidic odor) along with horizon depths, are recorded for each soil horizon. Accepted field indicators (*NRCS 2018, Field Indicators of Hydric Soils in the United States, Version 9.0*) were referenced to determine if the hydric soils technical criteria are met. Soil conditions and hydric soil indicators are recorded on the NCNE Supplement Data Forms for each sampling point.

3. Desktop Review Results

3.1. Land Use

The Project AOI is approximately 2.95 miles long within portions of Cook County, Illinois. The land cover within the AOI is predominantly disturbed roadway, transmission line, other utility ROW, commercial and urban development. The surrounding land cover is primarily commercial development and urban residential.

3.2. Topography

The USGS Topographic Map (**Figure 1**) indicates the presence of Lake Michigan within the AOI.

The 5-foot Contour Map (**Figure 2**) indicates that elevation ranges from a low of +/-590 feet above mean sea level (MSL) in the northern portion of the project area in to a high of +/-615 feet above MSL in the central portion of the project area.

3.3. USFWS NWI Review

GEI reviewed the USFWS NWI (**Figure 3**) for the occurrence of mapped wetlands. The NWI map indicates one (1) L2UBHx (Lacustrine, Littoral, Unconsolidated Bottom, Permanently Flooded, Excavated) feature present within the project area. The NWI feature represents Lake Michigan which is located on the eastern portion of the project area.

3.4. NRCS Soil Map Units

GEI reviewed the USDA NRCS Soil Survey to identify soil characteristics, hydric soil map units, soil map units which may contain hydric components, and drainage class. The soil survey was also reviewed for the hydric rating by map unit, which describes the percentage of a soil map unit that is considered to have hydric components. The soil survey identified 4 soil map units within the Project. One of the four soil map units is listed as predominantly non-hydric (3% of Route 1 Corridor) while the other three are listed as non-hydric (97% of Route 1 Corridor). **Figure 3** presents the NRCS Soil Map Units and **Attachment II** provides a summary of the soil map units and the hydric ratings.

3.5. National Hydrography Dataset and FEMA Floodplain

The NHD does not indicate the presence of a water feature or an intersection with a mapped floodplain within the project footprint. The 300-foot buffer along the alignment that crosses from Ulysses Grant Park to the Northerly Island does intersect with Lake Michigan's Zone AE; however, this part of the route is terrestrial and does not directly intersect the FEMA floodplain.

4. On-Site Wetland Delineation Results

4.1. Wetlands

No wetlands were identified within the Site boundary during the time of the Site visit.

4.1.1. Waterbodies

No waterbody crossings were identified within the Site boundary during the time of the Site visit.

5. Summary and Regulatory Concurrence

Based on GEI's best professional judgement and using the criteria outlined in the

USACE Wetlands Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland

Delineation Manual: Northcentral and Northeast Region, there are no wetlands or other aquatic resources present within the AOI.

6. References

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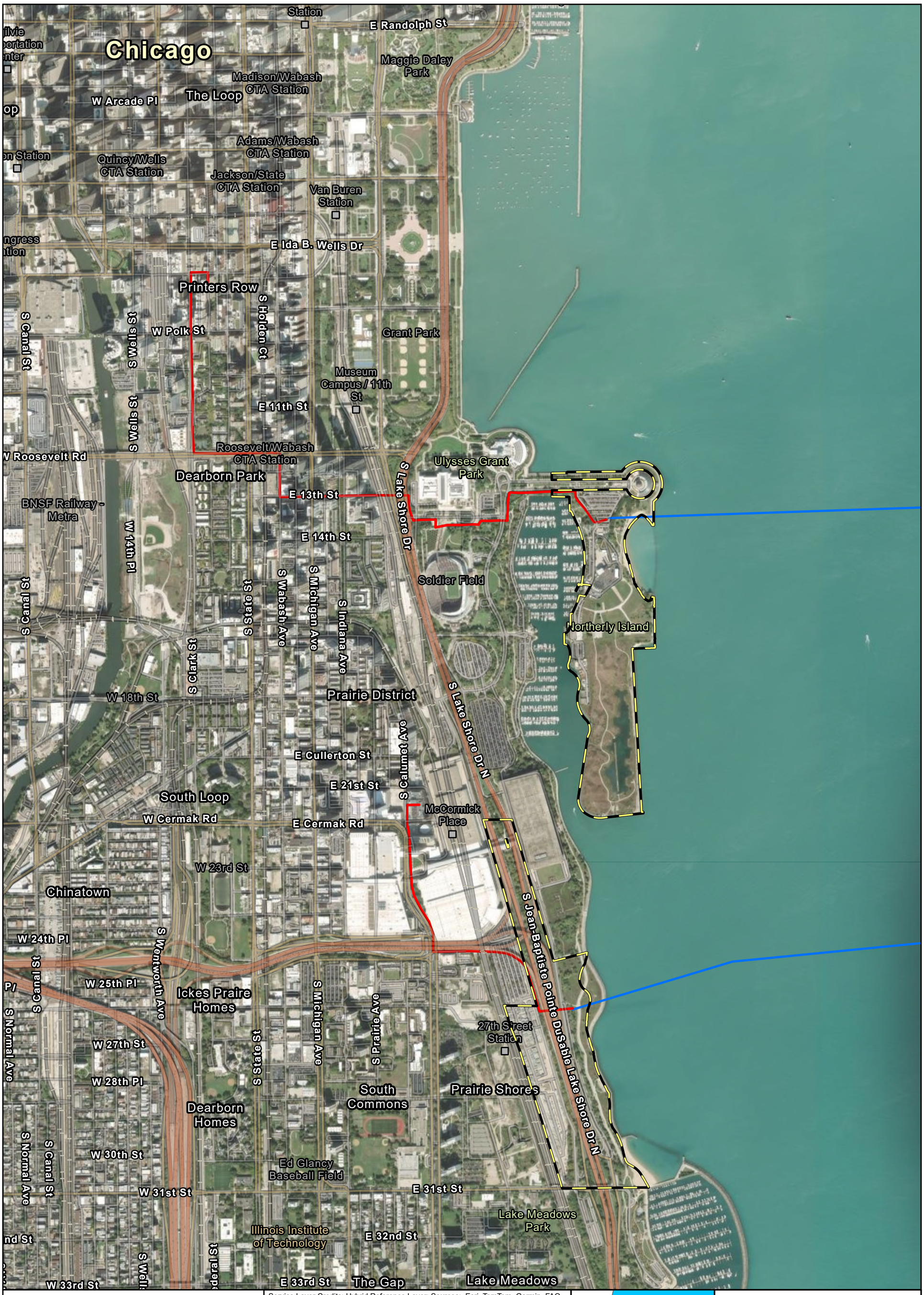
Figures



Project 1 Terrestrial Route

Project 1 Maritime Route

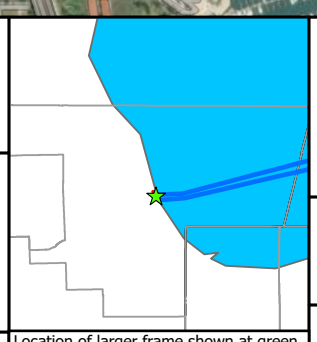
Landing Parcels

Service Layer Credits: Hybrid Reference Layer: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community
World Imagery: Maxar, Cook County Contours

INFRASTRUCTURE FOR MICHIGAN PENINSULAS AND CRITICAL CROSSINGS (IMPACC)
PROJECT 1 - BENTON HARBOR/ST. JOE TO CHICAGO
COOK COUNTY
ILLINOIS

PREPARED FOR
PENINSULA FIBER NETWORK

SEPTEMBER, 2025



Location of larger frame shown at green star location. Blue line shows maritime route.

FIGURE 01
SITE LOCATION

GEI Consultants

0 0.25 Miles N

B:\Working\JSI OSP ENGINEERING\2305496 Lake Michigan Fiber Crossing-Landings\05_GIS\Route 1 Environmental\Wetland Figures (Chicago)

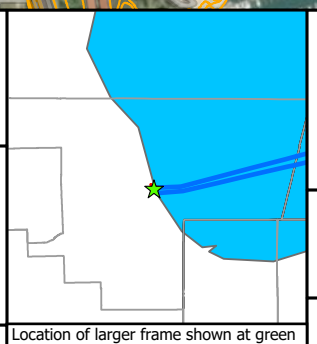
Project 1 Terrestrial Route
Project 1 Maritime Route
150-Foot Project 1 Terrestrial Route Buffer
Landing Parcels
5 Foot Contours

Service Layer Credits: Hybrid Reference Layer: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community
World Imagery: Maxar, Cook County Contours

INFRASTRUCTURE FOR MICHIGAN PENINSULAS AND CRITICAL CROSSINGS (IMPACC)
PROJECT 1 - BENTON HARBOR/ST. JOE TO CHICAGO
COOK COUNTY
ILLINOIS

PREPARED FOR
PENINSULA FIBER NETWORK

SEPTEMBER, 2025



Location of larger frame shown at green star location. Blue line shows maritime route.

FIGURE 02
5-FOOT CONTOURS

GEI Consultants

0 0.25 Miles

N

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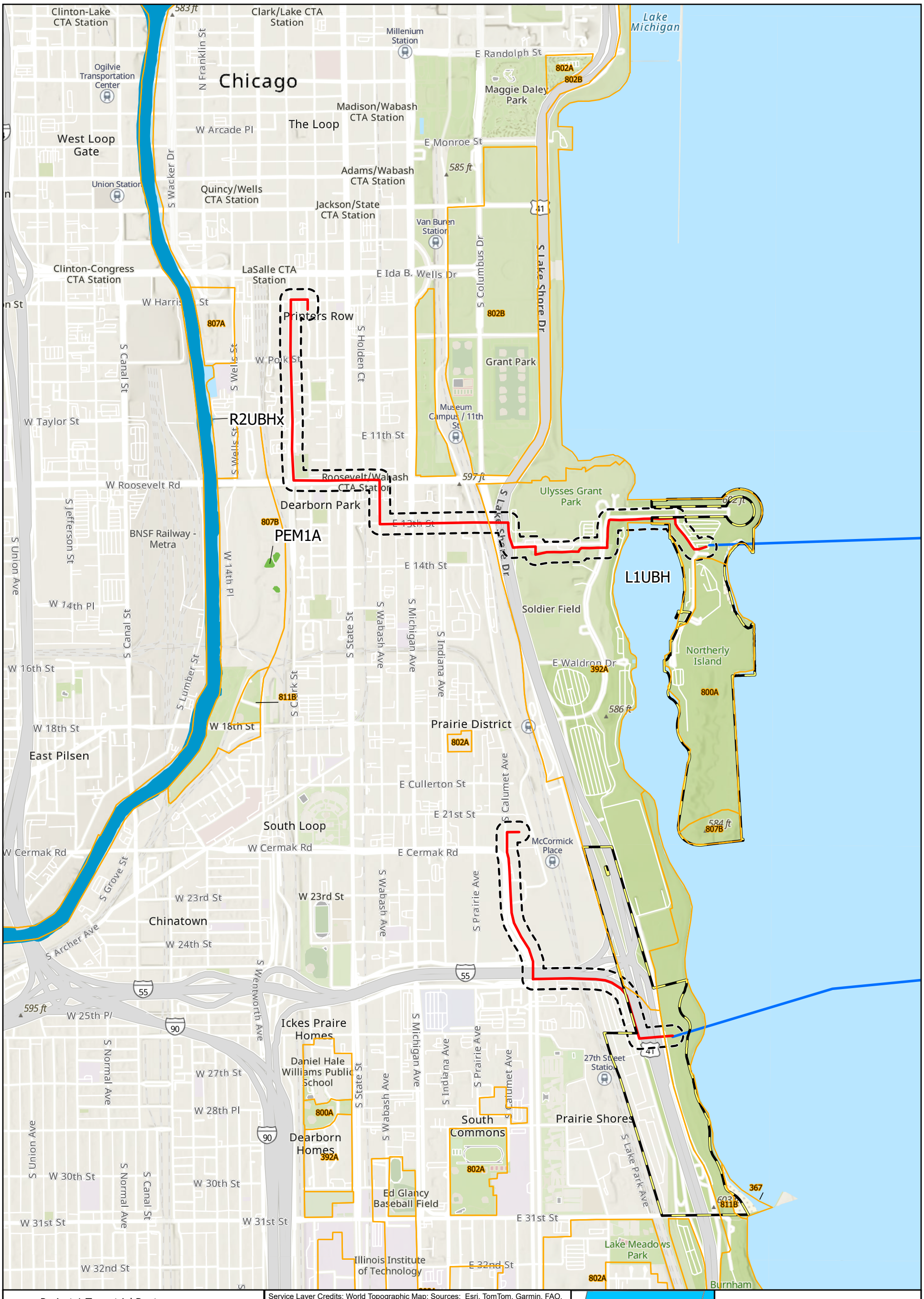

Project 1 Terrestrial Route
Project 1 Maritime Route
150-Foot Project 1 Terrestrial Route Buffer
Landing Parcels
Hydric Soil Units

National Wetland Inventory

Marsh, Swamp, Bog, Prairie
River

Service Layer Credits: World Topographic Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community
World Hillshade: Esri, NASA, NGA, USGS, FEMA, National Wetland Inventory, USDA NRCS Soils Data

INFRASTRUCTURE FOR MICHIGAN PENINSULAS AND CRITICAL CROSSINGS (IMPACC)
PROJECT 1 - BENTON HARBOR/ST. JOE TO CHICAGO
COOK COUNTY
ILLINOIS

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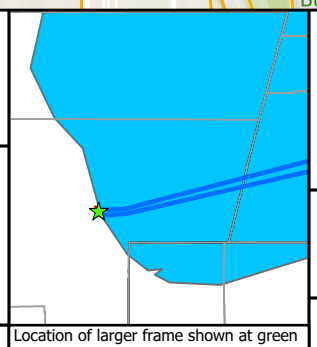

Location of larger frame shown at green star location. Blue line shows maritime route.

FIGURE 03
NATIONAL WETLAND INVENTORY
AND NRCS SOIL UNITS

GEI Consultants

0 0.25 Miles N

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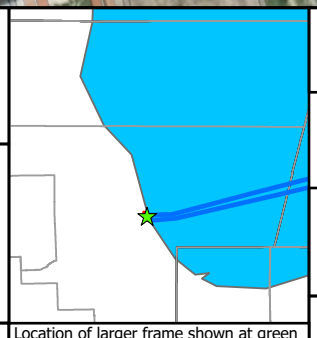
Project 1 Terrestrial Route
Project 1 Maritime Route
150-Foot Project 1 Terrestrial Route Buffer
No wetlands or waterways were identified within AOI

Service Layer Credits: Hybrid Reference Layer: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community
World Imagery: Maxar

INFRASTRUCTURE FOR MICHIGAN PENINSULAS AND CRITICAL CROSSINGS (IMPACC)
PROJECT 1 - BENTON HARBOR/ST. JOE TO CHICAGO
COOK COUNTY
ILLINOIS

PREPARED FOR
PENINSULA FIBER NETWORK

SEPTEMBER, 2025



Location of larger frame shown at green star location. Blue line shows maritime route.

FIGURE 05
WETLAND BOUNDARIES AND SAMPLE POINT LOCATIONS

GEI Consultants

0 800 Feet N

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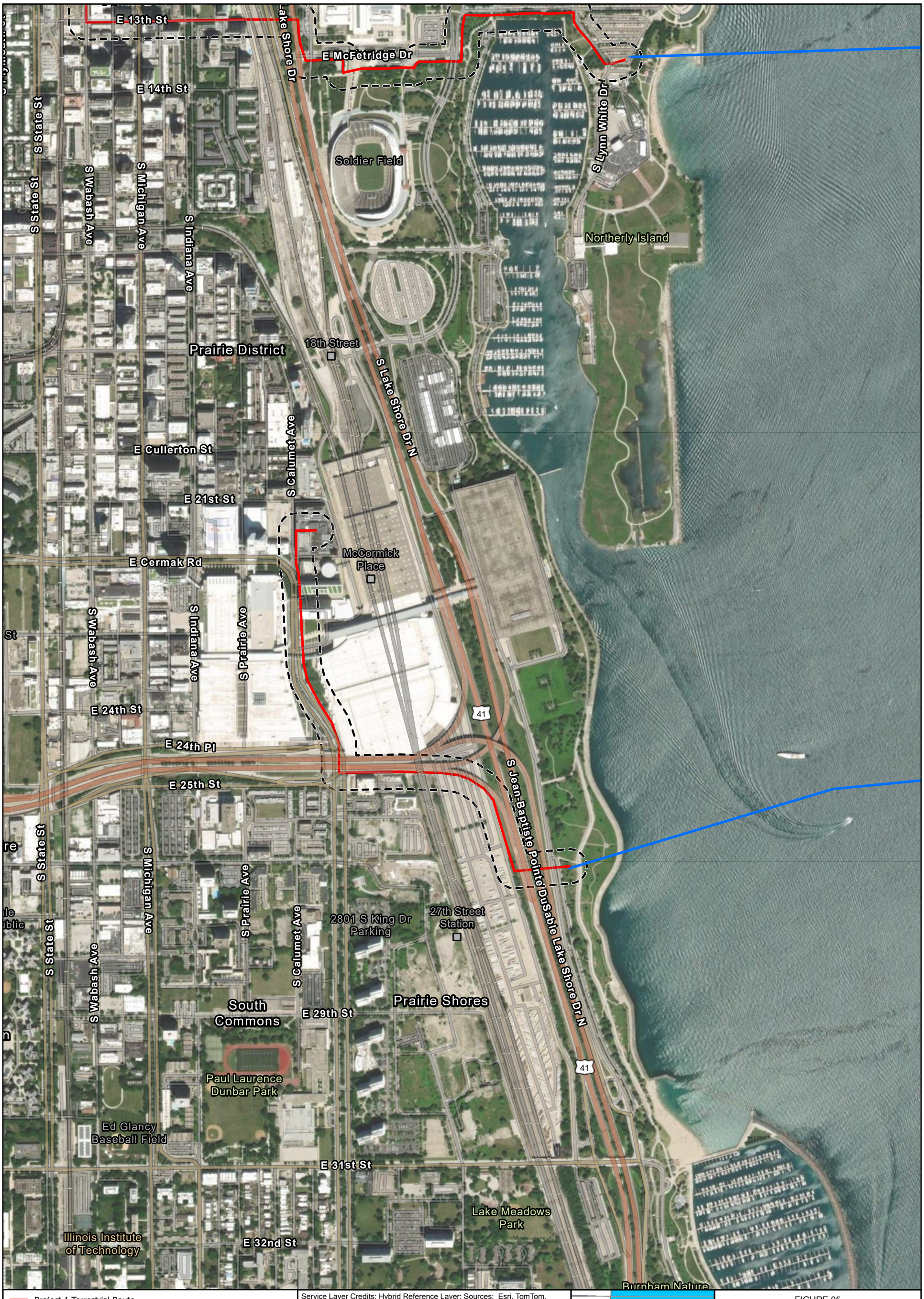

Project 1 Terrestrial Route

Project 1 Maritime Route

150-Foot Project 1 Terrestrial Route Buffer

No wetlands or waterways were identified within AOI

Service Layer Credits: Hybrid Reference Layer: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community
World Imagery: Maxar

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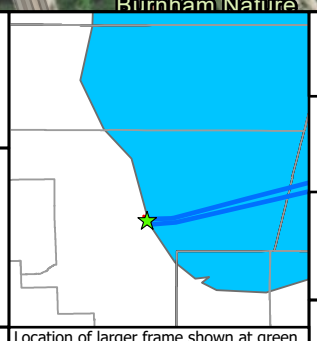
SEPTEMBER, 2025



Location of larger frame shown at green star location. Blue line shows maritime route.

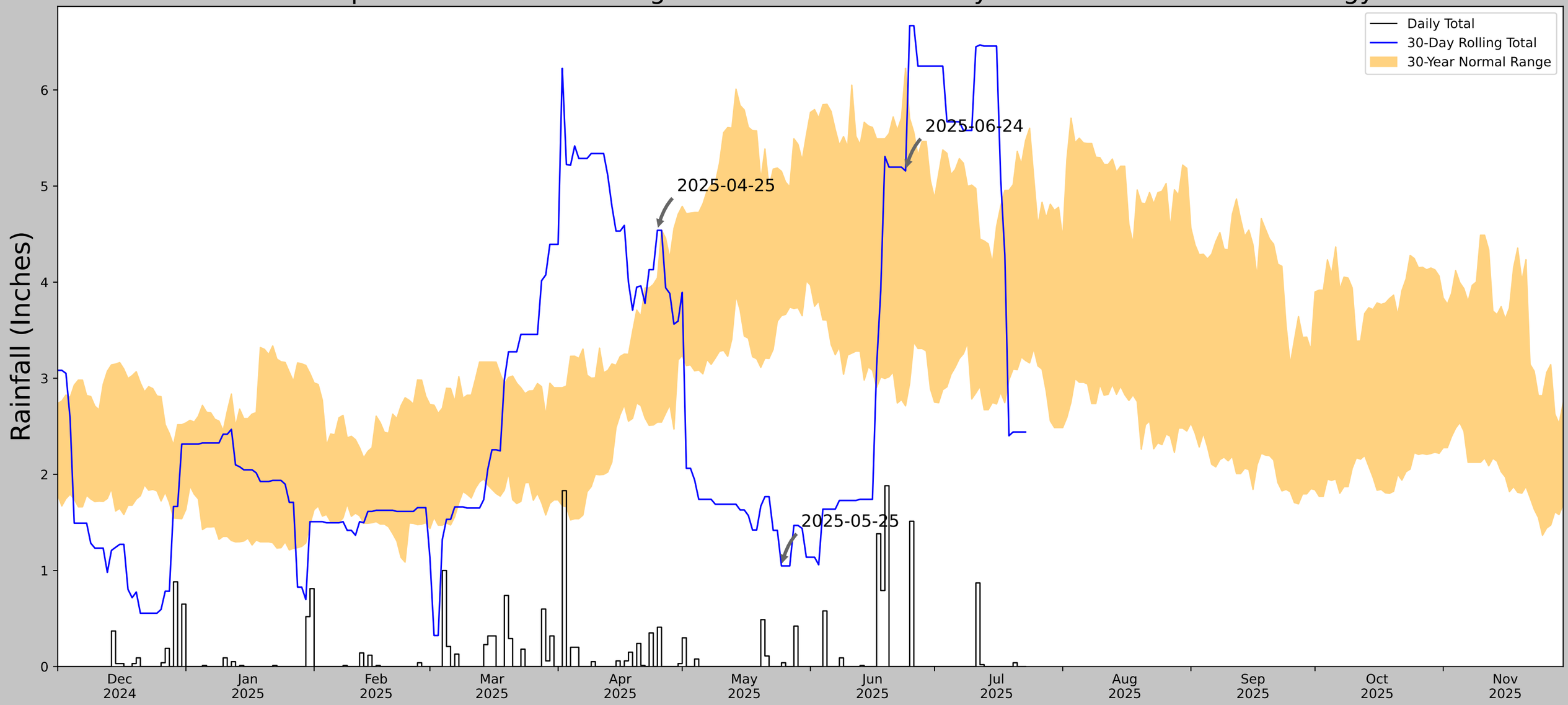
FIGURE 05
WETLAND BOUNDARIES AND SAMPLE POINT LOCATIONS

GEI Consultants

0 800 Feet N

B:\Working\JSI OSP ENGINEERING\2305496 Lake Michigan Fiber Crossing-Landings\05_GIS\Route 1 Environmental\Wetland Figures (Chicago)

Attachment I Antecedent Precipitation Tool



Coordinates	41.84766, -87.61312
Observation Date	2025-06-24
Elevation (ft)	589.894
Drought Index (PDSI)	Moderate drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-06-24	2.712205	6.225591	5.15748	Normal	2	3	6
2025-05-25	3.651181	5.153543	1.047244	Dry	1	2	2
2025-04-25	2.543307	4.045276	4.53937	Wet	3	1	3
Result							Normal Conditions - 11

Figures and tables made by the
Antecedent Precipitation Tool
Version 2.9

US Army Corps of Engineers.
ERDC

Developed by:
U.S. Army Corps of Engineers and
U.S. Army Engineer Research and
Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CHICAGO MIDWAY AP 3SW	41.7372, -87.7772	620.079	11.388	30.185	5.468	11353	83
OAK LAWN 1.6 WNW	41.7269, -87.7777	617.126	0.712	2.953	0.323	0	7

Attachment II USDA Soil Survey Information

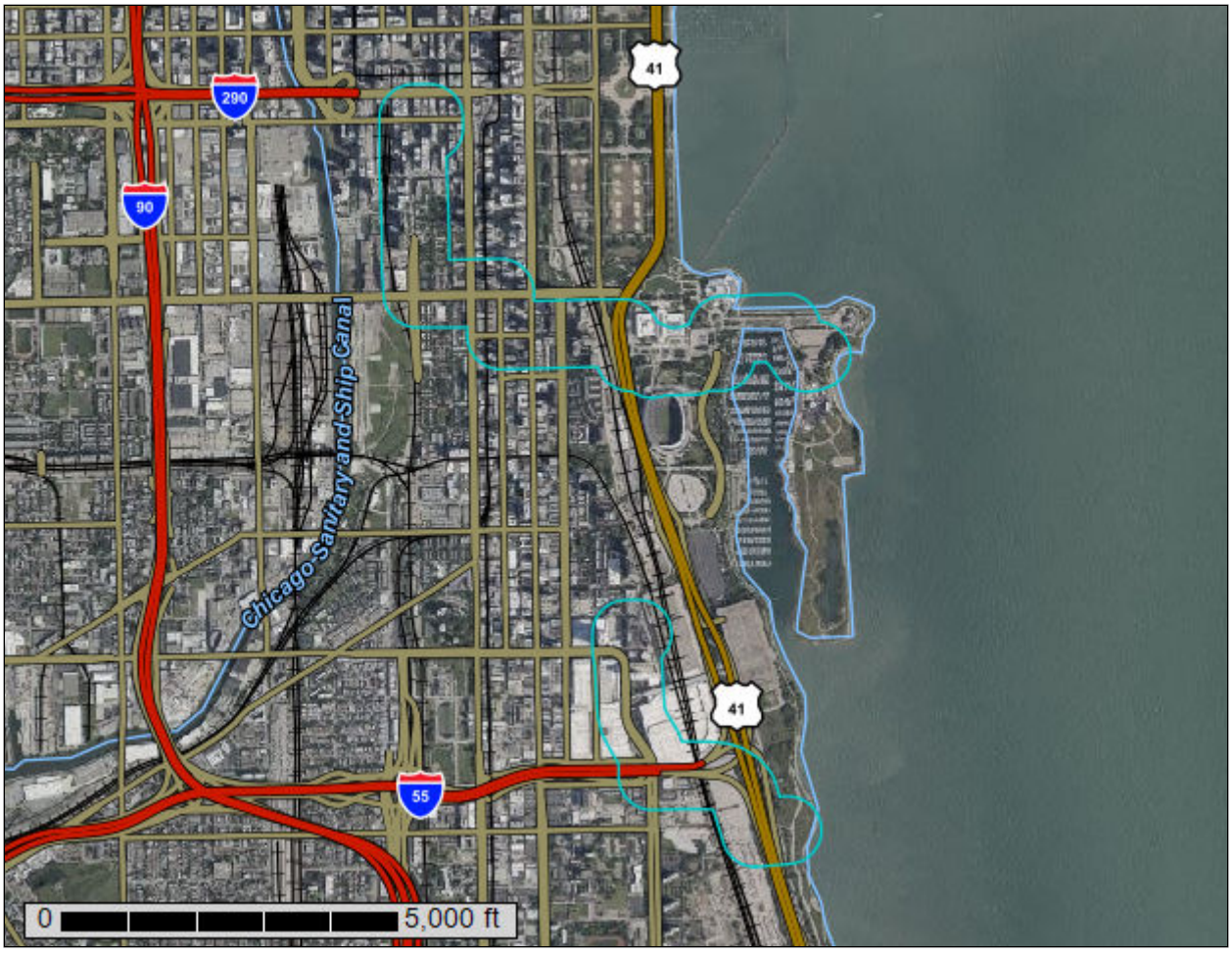
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Cook County, Illinois



September 11, 2025

Custom Soil Resource Report
Soil Map

Map Scale: 1:20,700 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 300 600 1200 1800

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cook County, Illinois
Survey Area Data: Version 18, Aug 21, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
392A	Urban land-Orthents, loamy, complex, nearly level	83.7	22.3%
533	Urban land	256.5	68.2%
800A	Psamments, nearly level	3.2	0.9%
807B	Orthents, loamy-skeletal, undulating	2.9	0.8%
811B	Anthroportic Udorthents, 2 to 6 percent slopes	11.2	3.0%
Totals for Area of Interest		**376.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Cook County, Illinois

392A—Urban land-Orthents, loamy, complex, nearly level

Map Unit Setting

National map unit symbol: 2qhr5
Elevation: 510 to 980 feet
Mean annual precipitation: 28 to 40 inches
Mean annual air temperature: 45 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 70 percent
Orthents, loamy, nearly level, and similar soils: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Down-slope shape: Linear
Across-slope shape: Linear

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Description of Orthents, Loamy, Nearly Level

Setting

Landform: Ground moraines, lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Earthy fill

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 42 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: C
Ecological site: R097XB046IL - Chicago Moist Clayey Flats
Hydric soil rating: No

Minor Components

Orthents, clayey, nearly level

Percent of map unit: 5 percent
Landform: Ground moraines, lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Orthents, loamy-skeletal, nearly level

Percent of map unit: 5 percent
Landform: Lake plains, ground moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

533—Urban land

Map Unit Setting

National map unit symbol: 2qhr4
Elevation: 510 to 980 feet
Mean annual precipitation: 28 to 40 inches
Mean annual air temperature: 45 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Down-slope shape: Linear
Across-slope shape: Linear

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Orthents, loamy, nearly level

Percent of map unit: 4 percent
Landform: Lake plains, ground moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Orthents, clayey, nearly level

Percent of map unit: 4 percent
Landform: Ground moraines, lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Orthents, loamy-skeletal, nearly level

Percent of map unit: 2 percent
Landform: Lake plains, ground moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

800A—Psamments, nearly level

Map Unit Setting

National map unit symbol: 2qhrr
Elevation: 510 to 980 feet
Mean annual precipitation: 28 to 40 inches
Mean annual air temperature: 45 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Psamments, nearly level, and similar soils: 92 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Psamments, Nearly Level

Setting

Landform: Beach ridges, lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Earthy fill

Typical profile

H1 - 0 to 10 inches: loam
H2 - 10 to 38 inches: sand
H3 - 38 to 60 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Ecological site: R097XB046IL - Chicago Moist Clayey Flats
Hydric soil rating: No

Minor Components

Orthents, loamy

Percent of map unit: 4 percent
Landform: Lake plains, ground moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Urban land

Percent of map unit: 4 percent
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

807B—Orthents, loamy-skeletal, undulating

Map Unit Setting

National map unit symbol: 312zv
Elevation: 540 to 930 feet
Mean annual precipitation: 28 to 40 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Orthents, loamy-skeletal, undulating, and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Orthents, Loamy-skeletal, Undulating

Setting

Landform: Outwash plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Human-transported material

Typical profile

^Au - 0 to 6 inches: extremely artifactual very artifactual cobbly-artifactual loam
^Cu - 6 to 79 inches: extremely artifactual cobbly-artifactual clay loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: R097XB046IL - Chicago Moist Clayey Flats
Hydric soil rating: No

Minor Components

Urban land

Percent of map unit: 5 percent
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

811B—Anthroportic Udorthents, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2ytdc
Elevation: 570 to 690 feet
Mean annual precipitation: 37 to 40 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 150 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Anthroportic udorthents, moderately deep water table, and similar soils: 92 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Anthroportic Udorthents, Moderately Deep Water Table

Setting

Landform: Ground moraines, lake plains
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Human-transported material over till

Typical profile

^Au - 0 to 6 inches: silty clay loam
^Cu - 6 to 28 inches: silty clay loam
2Ab - 28 to 38 inches: silty clay loam
2ABb - 38 to 43 inches: silty clay loam
2Btb - 43 to 60 inches: silty clay loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 30 to 42 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Ashkum, drained

Percent of map unit: 4 percent
Landform: Ground moraines, lake plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R110XY024IL - Ponded Depressional Sedge Meadow
Hydric soil rating: Yes

Urban land

Percent of map unit: 4 percent
Landform: Ground moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Hydric Rating by Map Unit

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

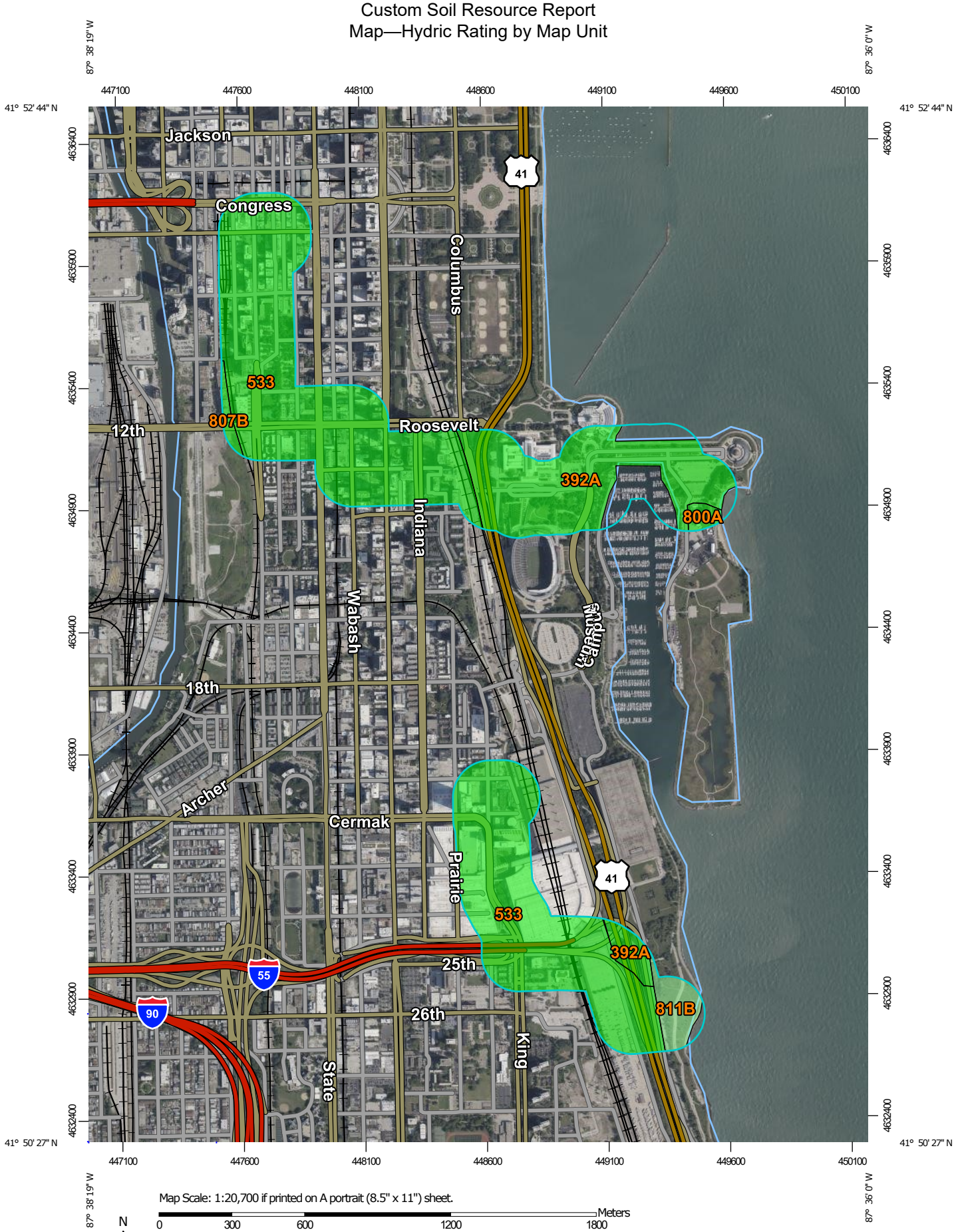
Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Map—Hydric Rating by Map Unit



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cook County, Illinois
Survey Area Data: Version 18, Aug 21, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
392A	Urban land-Orthents, loamy, complex, nearly level	0	83.7	22.3%
533	Urban land	0	256.5	68.2%
800A	Psamments, nearly level	0	3.2	0.9%
807B	Orthents, loamy-skeletal, undulating	0	2.9	0.8%
811B	Anthroportic Udorthents, 2 to 6 percent slopes	4	11.2	3.0%
Totals for Area of Interest			**376.2**	**100.0%**

Rating Options—Hydric Rating by Map Unit

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

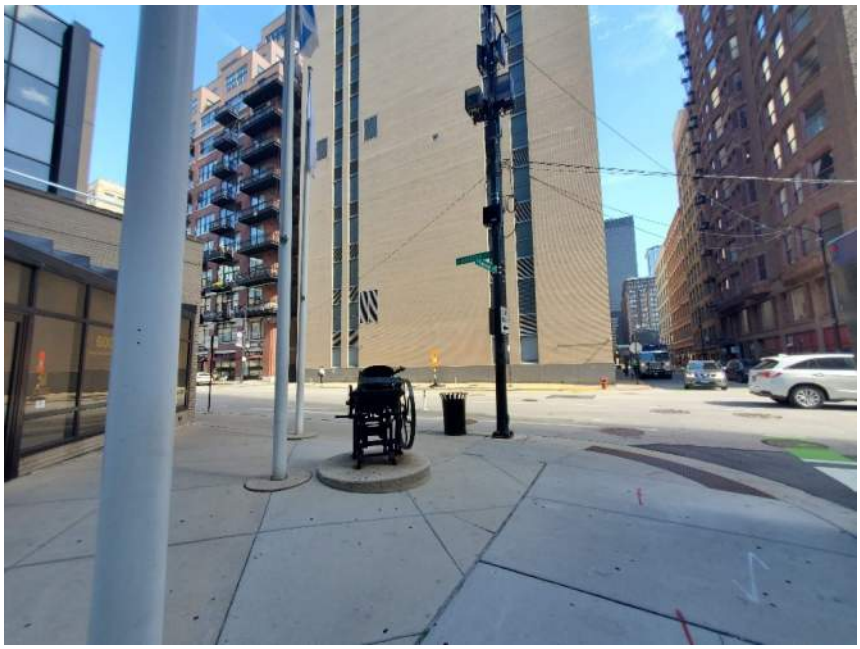
United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Attachment III Photographic Log

Photographic Log

Project Name: PFN Wetland Verification Report

DATE: June 24, 2025	
DIRECTION: East	
NOTES: Metro railway from West looking East	
PHOTO BY: **KATE KASTEN**	

DATE: June 24, 2025	
DIRECTION: Northwest	
NOTES: Overview of project area at the intersection of Harrison St. & Federal St.	
PHOTO BY: **KATE KASTEN**	

Photographic Log

Project Name: PFN Wetland Verification Report

DATE: June 24, 2025	
DIRECTION: East	
NOTES: Overview of project area along Solidarity Dr.	
PHOTO BY: **SHANNON**	

DATE: June 24, 2025	
DIRECTION: East	
NOTES: Roadway bridge Solidarity Rd.	
PHOTO BY: **KATE KASTEN**	

Photographic Log

Project Name: PFN Wetland Feature Verification Report

DATE: June 24, 2025	
DIRECTION: East	
NOTES: Overview of project area on E. McFetridge Dr.	
PHOTO BY: **SHANNON**	

DATE: June 24, 2025	
DIRECTION: South	
NOTES: Burham Harbor.	
PHOTO BY: **SHANNON**	

Photographic Log

Project Name: PFN Wetland Feature Verification Report

DATE: June 24, 2025	
DIRECTION: West **NOTES:** Overview of Northerly Island A1. **PHOTO BY:** **SHANNON**	

DATE: June 24, 2025	
DIRECTION: East **NOTES:** Overview of Lakefront B1. **PHOTO BY:** **SHANNON**	

Photographic Log

Project Name: PFN Wetland Feature Verification Report

DATE: June 24, 2025	
DIRECTION: Northeast	
NOTES: The Loop metro.	
PHOTO BY: **KATE KASTEN**	

DATE: June 24, 2025	
DIRECTION: North	
NOTES: Station 411+40.43 Structure no. 016-0746	
PHOTO BY: **KATE KASTEN**	

Photographic Log

Project Name: PFN Wetland Feature Verification Report

DATE: June 24, 2025	
DIRECTION: South	
NOTES: Station 411+40.43 Structure no. 016-0746	
PHOTO BY: **KATE KASTEN**	

DATE: June 24, 2025	
DIRECTION: North	
NOTES: Overview of McCormick Place Lot B.	
PHOTO BY: **SHANNON**	

ATTACHMENT 8
Cultural Resources and Threatened and Endangered Species

Peninsula Fiber Network, LLC
Infrastructure for Michigan Peninsulas and Critical Crossings (IMPACC)
Project 1

The National Telecommunications and Information Administration (NTIA) is the lead federal agency for the IMPACC Project 1, as they are funding the Project. As part of the federal action, the project requires compliance with the National Environmental Policy Act (NEPA). Project 1 requires the development of an Environmental Assessment for NEPA compliance. As part of the NEPA process, PFN is required to complete Section 106 of the National Historic Preservation Act of 1966 (NHPA) and Section 7 Consultation of the Endangered Species Act.

Cultural Resources Status

PFN is in the process of coordinating with the Illinois State Historic Preservation Office (IL SHPO) to complete the Section 106 consultation. Documentation of the correspondence with SHPO is included with this document (SHPO Log #013060525). Archaeological surveys along the terrestrial and marine routes have been conducted in coordination with the IL SHPO office. The consultation results can be provided once available. The following is a summary of the surveys conducted and coordination with IL SHPO:

- The nearshore Lake Michigan Maritime Engineering and Archaeological Survey was completed in the Fall of 2024.
- A project introduction meeting with IL SHPO occurred on February 26, 2025, which initiated the project in the SHPO system.
- An Illinois SHPO early consultation/project review request was submitted. The SHPO Log Number for both terrestrial and maritime is 013060525. Upon completion of the terrestrial and maritime surveys, the technical document will be submitted to IL SHPO for review.
- The maritime Survey Methods Review Request was submitted to IL SHPO on 6/5/2025. The formal survey request was provided by IL SHPO on 6/11/2025.
- The offshore Lake Michigan Maritime Archaeological Survey was completed during the summer of 2025.
- The analysis of the hydrographic and marine geophysical survey is ongoing and expected to be completed in fall 2025.

Threatened and Endangered Species

Federal Review - USFWS

PFN has been in coordination with the USFWS for Section 7 Consultation and is preparing a Biological Assessment. The Official Species List and Determination Key (D-Key) were completed on August 25, 2025. The Official Species List is included with this document. It was determined between the USFWS and NTIA that the D-Key was not the appropriate method for determining the impacts to species for this project, and that a Biological Assessment should be completed and submitted for USFWS review and concurrence. Once Section 7 Consultation has been completed, the results can be provided.

State Review - IDNR

The Illinois Department of Natural Resources' Natural Heritage Database (IDNR-NHD) was reviewed for state-listed threatened and endangered species, Illinois Natural Areas Inventory (INAI) sites, and Illinois Nature Preserves Commission (INPC) protected areas. The review was conducted via IDNR's Ecological Compliance Assessment Tool (EcoCAT) and was submitted for consultation under the Illinois Endangered Species Protection Act and Illinois Natural Areas Preservation Act (INPA) Part 1075. Two EcoCAT's were submitted, one for the north route and one for the south route.

The EcoCAT consultation identified three protected resources that may be within the vicinity of the Project:

- Mudpuppy (*Necturus maculosus*)
- Short-eared Owl (*Asio flammeus*)
- Mottled Sculpin (*Cottus bairdii*)

The IDNR response letters to the consultation are included in this document and included the following recommended actions to avoid adverse impacts:

- Short-eared owl and mottled sculpin
    - The Department has determined that adverse impacts to this species are unlikely.
- Mudpuppy
    - EcoCAT has indicated records for the state-listed mudpuppy in the vicinity of the project. PFN has agreed to avoid impacts to the mudpuppy by maintaining a 10-meter buffer from human made structures on the bed of Lake Michigan during cable placement. Therefore the IDNR response stated that because the cable installation nearshore will not involve burial into the lakebed, a 10-meter buffer from human-made structures on the lake bottom

will be maintained during cable placement (with the exception that HDD may pass beneath shoreline riprap at less than 10 meters depth), and HDD operations for the Chicago shore landings are anticipated to occur in late spring through summer 2026, adverse impacts are not expected.

Given the above recommendations are adopted, the IDNR has determined that impacts to these protected resources are unlikely and impacts to other protected resources in the vicinity of the project location are also unlikely.

Consultation on the part of the IDNR is closed. The EcoCAT consultation documentation is included.

Illinois Department of Natural Resources
JB Pritzker, Governor • Natalie Phelps Finnie, Director
One Natural Resources Way • Springfield, Illinois 62702-1271
www.dnr.illinois.gov

Cook County
Chicago
Lake Michigan,
St. Joseph, MI to Chicago
GEI-2305496,
NTIA
Peninsula Fiber Network LLC IMPACC Project 1

PLEASE REFER TO: SHPO LOG #013060525

SURVEY REQUEST

June 11, 2025

Jennifer M. Sanka
GEI Consultants, Inc.
8615 W. Bryn Mawr Avenue
Suite 406
Chicago, IL 60631

Thank you for requesting comments from our office concerning the possible effects of the project referenced above on cultural resources. Our comments are required by Section 106 of the National Historic Preservation Act of 1966 (16 USC 470), as amended, and its implementing regulations, 36 CFR 800: Protection of Historic Properties.

The project area may contain significant archaeological resources. Accordingly, a Phase I archaeological **survey** to locate, identify, and record all archaeological resources within the project area will be **required**. The area(s) that need(s) to be surveyed include(s) all area(s) that will be developed as a result of the issuance of the federal agency permit or the granting of the federal grants, funds, or loan guarantees that have prompted this review.

We approve of the proposed survey methods for identifying any submerged maritime resources and look forward to reviewing the results. If you have further questions, please contact Jeff Kruchten, Principal Archaeologist, at 217/785-1279 or jeff.kruchten@illinois.gov.

Sincerely,

Carey L. Mayer, AIA
Deputy State Historic Preservation Officer

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chicago Ecological Service Field Office
1511 47th Ave
Moline, IL 61265-7022
Phone: (309) 757-5800

In Reply Refer To: 08/15/2025 18:58:38 UTC
Project Code: 2025-0136689
Project Name: PFN Project 1 Maritime Illinois

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

Additionally, please note that on March 23, 2022, the Service published a proposal to reclassify the northern long-eared bat (NLEB) as endangered under the Endangered Species Act. The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing

determination for the NLEB by November 2022 (Case 1:15-cv-00477, March 1, 2021). The bat, currently listed as threatened, faces extinction due to the range-wide impacts of white-nose syndrome (WNS), a deadly fungal disease affecting cave-dwelling bats across the continent. The proposed reclassification, if finalized, would remove the current 4(d) rule for the NLEB, as these rules may be applied only to threatened species. Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). If your project may result in incidental take of NLEB after the new listing goes into effect this will first need to addressed in an updated consultation that includes an Incidental Take Statement. If your project may require re-initiation of consultation, please contact our office for additional guidance.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Note: IPaC has provided all available attachments because this project is in multiple field office jurisdictions.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chicago Ecological Service Field Office
1511 47th Ave
Moline, IL 61265-7022
(309) 757-5800

This project's location is within the jurisdiction of multiple offices. However, only one species list document will be provided for all offices. The species and critical habitats in this document reflect the aggregation of those that fall in each of the affiliated office's jurisdiction. Other offices affiliated with the project:

Michigan Ecological Services Field Office
2651 Coolidge Road Suite 101
East Lansing, MI 48823-6360
(517) 351-2555

PROJECT SUMMARY

Project Code: 2025-0136689
Project Name: PFN Project 1 Maritime Illinois
Project Type: New Constr - Below Ground
Project Description: Peninsula Fiber Network (PFN) will install fiberoptic cable in Michigan to bring broadband internet connectivity to unserved and underserved communities. 1.0 - 1.5-inch fiberoptic cable will be installed primarily underground along road rights-of-way as well as under Lake Michigan. The western terminus of the project is located in Chicago.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.89431405,-87.35160238518846,14z

Counties: Illinois and Michigan

ENDANGERED SPECIES ACT SPECIES

There is a total of 11 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered

BIRDS

NAME	STATUS
Piping Plover *Charadrius melodus* Population: [Great Lakes watershed DPS] - Great Lakes, watershed in States of IL, IN, MI, MN, NY, OH, PA, and WI and Canada (Ont.) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Endangered
Rufa Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential

REPTILES

NAME	STATUS
Eastern Massasauga (=rattlesnake) *Sistrurus catenatus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2202 General project design guidelines: https://ipac.ecosphere.fws.gov/project/SHJEIVWTJBCPPMOB6CF2AGQJIE/documents/generated/5280.pdf	Threatened

INSECTS

NAME	STATUS
Hine's Emerald Dragonfly *Somatochlora hineana* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7877	Endangered
Mitchell's Satyr Butterfly *Neonympha mitchellii mitchellii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8062	Endangered
Monarch Butterfly *Danaus plexippus*	Proposed Threatened

NAME	STATUS

There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/9743

FLOWERING PLANTS

NAME	STATUS
Eastern Prairie Fringed Orchid *Platanthera leucophaea*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/601

Leafy Prairie-clover *Dalea foliosa*	Endangered

Population:
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5498

Pitcher's Thistle *Cirsium pitcheri*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/8153

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

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1. The Bald and Golden Eagle Protection Act of 1940.

2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper

Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

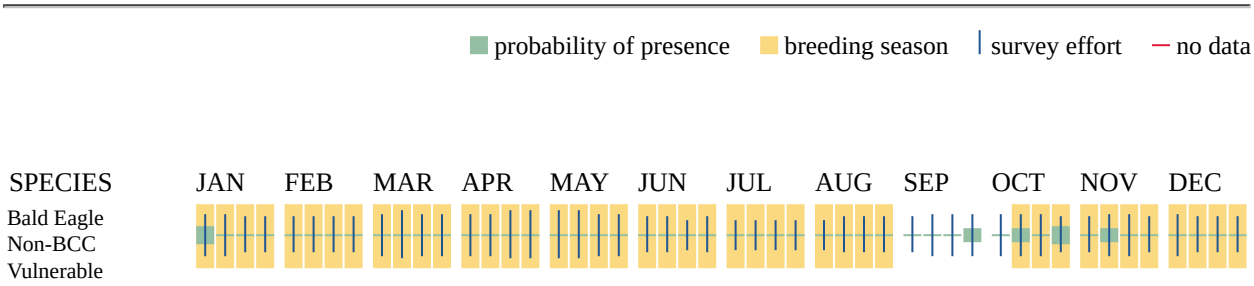
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover *Pluvialis dominica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10561	Breeds elsewhere
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9454	Breeds May 20 to Jul 31
Cerulean Warbler *Setophaga cerulea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 21 to Jul 20
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will *Antrostomus vociferus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10678	Breeds May 1 to Aug 20
Grasshopper Sparrow *Ammodramus savannarum perpallidus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8329	Breeds Jun 1 to Aug 20

NAME	BREEDING SEASON
Henslow's Sparrow *Centronyx henslowii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3941	Breeds May 1 to Aug 31
Kentucky Warbler *Geothlypis formosa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9443	Breeds Apr 20 to Aug 20
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Pectoral Sandpiper *Calidris melanotos* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9561	Breeds elsewhere
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9439	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Ruddy Turnstone *Arenaria interpres morinella* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/10633	Breeds elsewhere
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9478	Breeds elsewhere
Semipalmated Sandpiper *Calidris pusilla* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9603	Breeds elsewhere
Short-billed Dowitcher *Limnodromus griseus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere

NAME	BREEDING SEASON
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

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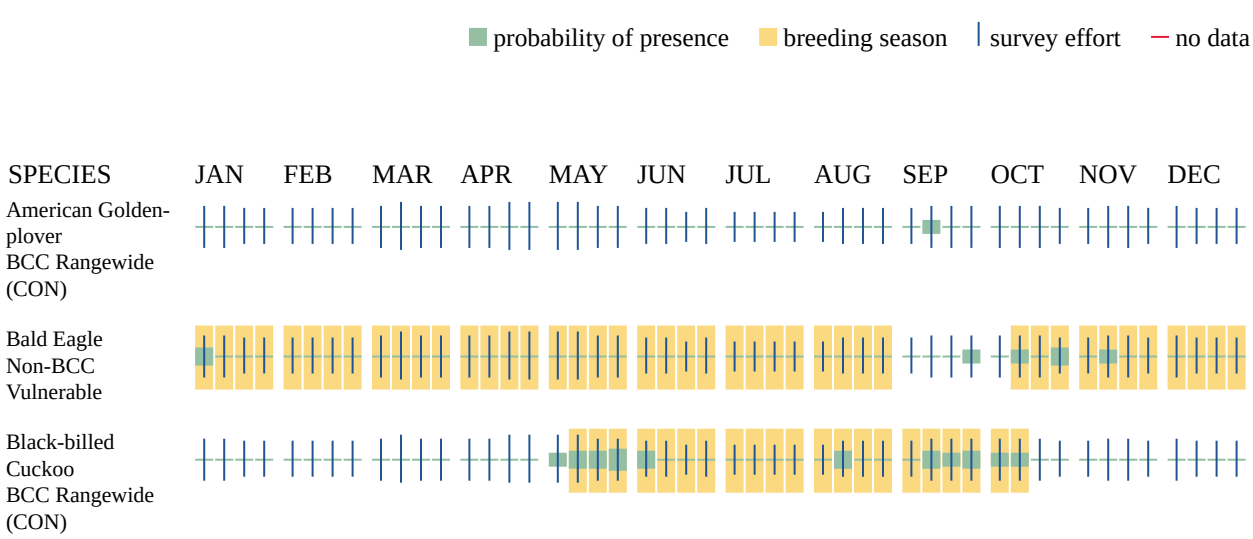

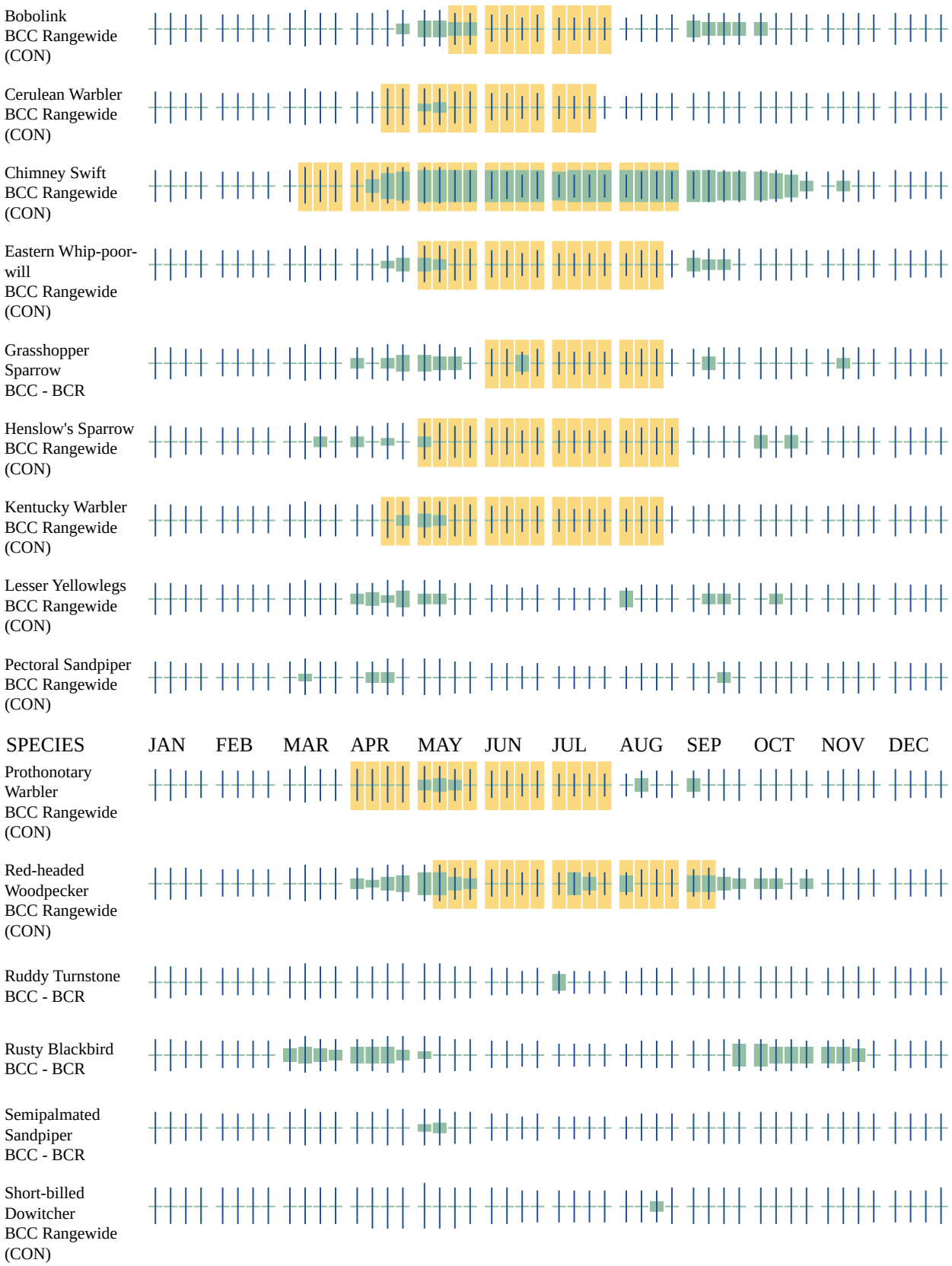
Bobolink
BCC Rangewide
(CON)
Cerulean Warbler
BCC Rangewide
(CON)
Chimney Swift
BCC Rangewide
(CON)
Eastern Whip-poor-
will
BCC Rangewide
(CON)
Grasshopper
Sparrow
BCC - BCR
Henslow's Sparrow
BCC Rangewide
(CON)
Kentucky Warbler
BCC Rangewide
(CON)
Lesser Yellowlegs
BCC Rangewide
(CON)
Pectoral Sandpiper
BCC Rangewide
(CON)
SPECIES
JAN
FEB
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APR
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JUN
JUL
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OCT
NOV
DEC
Prothonotary
Warbler
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(CON)
Red-headed
Woodpecker
BCC Rangewide
(CON)
Ruddy Turnstone
BCC - BCR
Rusty Blackbird
BCC - BCR
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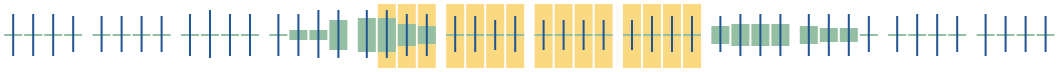
Wood Thrush
BCC Rangewide
(CON)



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

LAKE

- L1UBH
- L2UBH
- L2UBHx

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Wyatt Behrends
Address:	5350 Miller Trunk Hwy
Address Line 2:	Suite D
City:	Duluth
State:	MN
Zip:	55811
Email	wbehrends@geiconsultants.com
Phone:	6512611763

Illinois Department of Natural Resources
JB Pritzker, Governor • Natalie Phelps Finnie, Director
One Natural Resources Way • Springfield, Illinois 62702-1271
www.dnr.illinois.gov

August 27, 2025

Wyatt Behrends
Environmental Scientist
5350 Miller Trunk Highway
Suite D
Duluth, MN 55811-5580

RE: Infrastructure for Michigan's Peninsulas and Critical Crossings Project (IMPACC)
Consultation Program
EcoCAT Review #2602408
Cook County

Dear Mr. Behrends:

The Department has received your submission for this project for the purposes of consultation pursuant to the *Illinois Endangered Species Protection Act* [520 ILCS 10/11], the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17], and Title 17 *Illinois Administrative Code* Part 1075.

GEI is supporting JSI Engineering, LLC (JSI) with Peninsula Fiber Network's (PFN's) Infrastructure for Michigan's Peninsulas and Critical Crossings (IMPACC) Project in Michigan and Illinois. The IMPACC Project includes three routes connecting unserved counties and towns to bring middle mile infrastructure into rural counties, improving the connectivity and redundancy for unserved and underserved areas of the Upper Peninsula and both eastern and western lower Michigan. Route 1 Connects Chicago, IL to St. Joseph, MI via a marine cable through Lake Michigan. The project plans to use two landing sites in Chicago and extend ~1 mile from the south site and ~2 miles from the north site to connect to the existing fiber network. This EcoCAT response specifically addresses the impacts posed by the south site.

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

[1] This species was not indicated to be in the vicinity of the project by the Illinois Natural Heritage Database, however, due to the potential suitable habitat in the project area and occurrence of records in the vicinity, it was added to the list of species being reviewed for this project.

State Threatened or Endangered Species
Mudpuppy (*Necturus maculosus*)[1]
Short-eared Owl (*Asio flammeus*)

Due to the project scope and proximity to protected resources, the Department recommends the following actions be taken to avoid adversely impacting listed species in the vicinity of the project:

Mudpuppy
Records of the state-listed Mudpuppy exist in the project vicinity. These amphibians move closer to the Lake Michigan shore in winter and can be found in cracks and crevices around human-made structures. The project proponent has indicated that the FOC installation nearshore will not involve burial into the lakebed, and that a 10-meter buffer from human-made structures on the lake bottom will be maintained during cable placement (with the exception that HDD may pass beneath shoreline riprap at less than 10 meters depth). Furthermore, HDD operations for the Chicago shore landings as a whole are anticipated to occur in late spring through summer 2026. The Department has therefore determined that adverse impacts to the Mudpuppy are unlikely.

Short-eared Owl
The Department has determined that adverse impacts to this state-listed species are unlikely.

Given the above recommendations are adopted, the Department has determined that impacts to these protected resources are unlikely. The Department has determined impacts to other protected resources in the vicinity of the project location are also unlikely.

In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

Consultation on the part of the Department is closed, unless the applicant desires additional information or advice related to this proposal. Consultation for Part 1075 is valid for two years unless new information becomes available which was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the action has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

The natural resource review reflects the information existing in the Illinois Natural Heritage Database at the time of the project submittal and should not be regarded as a final statement on the project being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are unexpectedly encountered during the project's implementation, the applicant must comply with the applicable statutes and regulations.

This letter does not serve as permission to take any listed or endangered species. As a reminder, no take of an endangered species is permitted without an Incidental Take Authorization or the required permits. Anyone who takes a listed or endangered species without an Incidental Take Authorization or required permit may be subject to criminal and/or civil penalties pursuant to the *Illinois Endangered Species Act*, the *Fish and Aquatic Life Act*, the *Wildlife Code* and other applicable authority.

Please contact Alexandra (Alex) Davis (Alexandra.Davis@illinois.gov) with any questions about this review.

Sincerely,

Bradley Hayes
Manager, Impact Assessment Section
Division of Real Estate Services and Consultation
Office of Realty & Capital Planning
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
Bradley.Hayes@Illinois.gov
Phone: (217) 782-0031

Illinois Department of Natural Resources
JB Pritzker, Governor • Natalie Phelps Finnie, Director
One Natural Resources Way • Springfield, Illinois 62702-1271
www.dnr.illinois.gov

August 27, 2025

Wyatt Behrends
Environmental Scientist
5350 Miller Trunk Highway
Suite D
Duluth, MN 55811-5580

RE: Infrastructure for Michigan's Peninsulas and Critical Crossings Project (IMPACC)
Consultation Program
EcoCAT Review #2602411
Cook County

Dear Mr. Behrends:

The Department has received your submission for this project for the purposes of consultation pursuant to the *Illinois Endangered Species Protection Act* [520 ILCS 10/11], the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17], and Title 17 *Illinois Administrative Code* Part 1075.

GEI is supporting JSI Engineering, LLC (JSI) with Peninsula Fiber Network's (PFN's) Infrastructure for Michigan's Peninsulas and Critical Crossings (IMPACC) Project in Michigan and Illinois. The IMPACC Project includes three routes connecting unserved counties and towns to bring middle mile infrastructure into rural counties, improving the connectivity and redundancy for unserved and underserved areas of the Upper Peninsula and both eastern and western lower Michigan. Route 1 Connects Chicago, IL to St. Joseph, MI via a marine cable through Lake Michigan. The project plans to use two landing sites in Chicago and extend ~1 mile from the south site and ~2 miles from the north site to connect to the existing fiber network. This EcoCAT response specifically addresses the impacts posed by the north site.

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

State Threatened or Endangered Species
Mottled Sculpin (*Cottus bairdii*)

Mudpuppy (*Necturus maculosus)*
Short-eared Owl (*Asio flammeus*)

Due to the project scope and proximity to protected resources, the Department recommends the following actions be taken to avoid adversely impacting listed species in the vicinity of the project:

Mudpuppy

EcoCAT has indicated that records of the state-listed Mudpuppy exist in the project vicinity. These amphibians move closer to the Lake Michigan shore in winter and can be found in cracks and crevices around human-made structures. The project proponent has indicated that the FOC installation nearshore will not involve burial into the lakebed, and that a 10-meter buffer from human-made structures on the lake bottom will be maintained during cable placement (with the exception that HDD may pass beneath shoreline riprap at less than 10 meters depth). Furthermore, HDD operations for the Chicago shore landings as a whole are anticipated to occur in late spring through summer 2026. The Department has therefore determined that adverse impacts to the Mudpuppy are unlikely.

Mottled Sculpin & Short-eared Owl

The Department has determined that adverse impacts to these state-listed species are unlikely.

Given the above recommendations are adopted, the Department has determined that impacts to these protected resources are unlikely. The Department has determined impacts to other protected resources in the vicinity of the project location are also unlikely.

In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

Consultation on the part of the Department is closed, unless the applicant desires additional information or advice related to this proposal. Consultation for Part 1075 is valid for two years unless new information becomes available which was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the action has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

The natural resource review reflects the information existing in the Illinois Natural Heritage Database at the time of the project submittal and should not be regarded as a final statement on the project being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are unexpectedly encountered during the project's implementation, the applicant must comply with the applicable statutes and regulations.

This letter does not serve as permission to take any listed or endangered species. As a reminder, no take of an endangered species is permitted without an Incidental Take Authorization or the required permits. Anyone who takes a listed or endangered species without an Incidental Take Authorization or required permit may be subject to criminal and/or civil penalties pursuant to the *Illinois Endangered Species Act*, the *Fish and Aquatic Life Act*, the *Wildlife Code* and other applicable authority.

Please contact Alexandra (Alex) Davis (Alexandra.Davis@illinois.gov) with any questions about this review.

Sincerely,

Bradley Hayes
Manager, Impact Assessment Section
Division of Real Estate Services and Consultation
Office of Realty & Capital Planning
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
Bradley.Hayes@Illinois.gov
Phone: (217) 782-0031

May 16, 2025
Project No. 2305496

VIA EMAIL: shughes@pfnllc.net

Steven Hughes
Peninsula Fiber Network LLC
1901 W Ridge St. #2
Marquette, MI 49855

Re: Inadvertent Return Permit Memo
IMPACC Project

Dear Mr. Hughes:

The following memorandum is intended to be used for permitting purposes and describes what an inadvertent return (IR) is, when they occur, how their risk may be reduced, and what remediation can be done should one occur.

Introduction

The Infrastructure for Michigan's Peninsulas and Critical Crossing (IMPACC) project involves the installation of fiber communication cables between Chicago and the Upper Peninsula of Michigan. This alignment includes eight shore landing installations at locations where the cable transitions from being installed on land to on the lakebed of Lake Michigan. These shore landings will be installed with Horizontal Directional Drilling (HDD) to direct the cable under environmentally sensitive areas and outside the extents of near-shore ice scour on the lakebed. The purpose of this memorandum is to describe the HDD process by which these cables will be installed, the IR risk associated with HDD installation and the methods which will be utilized to reduce IR risk, and minimum response procedures should an IR occur.

HDD Methodology: Drill and Leave

A "Drill and Leave" HDD methodology will be used for the shore landing installations. A traditional HDD installation involves an initial pilot bore, subsequent reaming passes to enlarge the pilot bore to the appropriate size, and then pulling the carrier pipe through the enlarged borehole. A "Drill and Leave" installation differs from the traditional approach in that there are no ream passes and no carrier pipe pullback through the bore. Steps involved in a "Drill and Leave" installation are as follows:

1. Pilot bore and associated drill pipe advanced from bore entry to lakebed bore exit.
2. Drill pipe is retracted back to the surface entry.
3. Original pilot bit is removed and replaced with a blunt nose push head.

   a. The drill pipe used for drilling the pilot bore may be replaced with another drill pipe to serve as the fiber optic conduit if desired.
4. The drill pipe is advanced back to lakebed bore exit location.
5. Divers remove the blunt nose push head and attach an end appurtenance.
6. Fiber optic cable is pulled back through the drill pipe (now serving as fiber optic conduit) from lakebed to land.

Inadvertent Returns (IR)

Background

During HDD, drilling fluid, primarily comprised of a mixture of bentonite (which is a non-toxic clay soil) and water, is used to return cuttings back to the borehole entry location, prevent the borehole from collapsing, and keep the tooling from overheating. This drilling fluid is pumped down the drill pipe to the drill bit and circulated out of the borehole by establishing a pressure gradient, with the pressure depending on the pumping rate, density of the drilling fluid, size of the borehole, size of drill pipe, and location within the borepath. If the pressure of the drilling fluid becomes greater than the confining pressure of the surrounding ground (a combination of inherent material strength and overburden pressure) then the ground surrounding the borehole will fracture. An inadvertent return occurs if the drilling fluid is able to travel through pressure-induced fractures (or other naturally occurring fractures or void space) and reach the surface. When an IR occurs circulation will be lost in the borehole (no more drilling fluid coming out of the hole at bore entry), downhole pressures will significantly reduce, and drilling fluid may accumulate at the location of the IR fracture.

IRs can occur during any phase of HDD construction but are most common during the pilot bore. During the pilot bore the area between the drill pipe and borehole walls is smallest, and the resulting drilling fluid velocities and pressures are at their highest. IRs also commonly occur where the depth of cover is low, such as near the borehole exit or under low spots in topography, as the overburden stress around the borehole is reduced at these locations. IR risk is influenced by formation strength and can be reduced by locating the alignment in stronger ground conditions.

IR Risk Mitigation

IR mitigation begins well before the mobilization of drilling equipment to the project site. IR risk mitigation starts with sound design and engineering practice, followed by competent HDD contractor personnel and implementation of industry best practice means and methods during HDD execution. The methods described below represent a variety of potential measures available for reducing inadvertent releases and mitigating the effects of a release should one occur.

The HDD subcontractor will be required to submit an Inadvertent Drilling Fluid Release Contingency Plan to the project design team for its review and acceptance. This plan will include a specific means and methods strategy for each HDD crossing reaffirming and detailing how the HDD subcontractor will conform with the requirements of the project specifications to prevent and to mitigate any effects of an IR should one occur. The selected HDD subcontractor will be responsible for incorporating specific permit conditions, applicable regulatory requirements, site specific environmental features, geotechnical

information, and documentation of Safety Data Sheets (SDS) for all drilling fluids and LCMs (if used) into its submittal.

IR risk can be effectively managed through a variety of methods in both the design and construction phases. Table 1 includes methods which will be implemented in the design phase while Table 2 includes methods the contractor will implement or may implement as needed during the construction phase.

Table 1. Design Phase IR Risk Mitigation Methods

Risk Mitigation	Description
Geotechnical Investigation	A geotechnical investigation will be implemented for each shore landing alignment. Each investigation will consist of borings and a laboratory testing program. Borings will be drilled both on land and from offshore barges to provide subsurface data across the entirety of each alignment. The subsurface investigation will provide information to be used in alignment selection and calculations. Key components to understand include the depths/locations and physical properties of different soil and rock units. Test pits may also be constructed to better understand the near surface ground behavior.
Borepath Alignment Selection	The borepath will be adjusted in an iterative process as additional information is received from geotechnical investigation and IR calculations. The depth of the borepath can be increased to reduce IR risk if necessary. The entry and exit angles for the borepath can be steepened to reduce the length of borehole where low cover is present. The borepath can also be shifted to be located in stronger material such as bedrock.
IR Calculations	IR calculations will be performed for each shore landing alignment and will identify the IR risk at different locations along the alignment. Depending on the results of the calculations, the borepath may be adjusted and the contractor may be advised to alter their drilling methodology in certain areas with higher IR risk.
HDD Specification	An HDD Specification will be developed which will require the contractor to submit aspects of their planned drilling methodology, materials, and equipment for review and approval by the design team prior to construction. Included in this submittal of a Drilling Fluid Release Contingency Plan which will describe the methods the contractor will take should an IR occur. The HDD specification will also require that all drilling fluid and associated additives be non-toxic.

Table 2. Construction Phase IR Risk Mitigation Methods

Risk Mitigation	Description
Reducing Pumping Rates	When the pilot bore reaches areas where a higher IR risk has been identified the contractor may be able to reduce pumping rates to reduce the drilling fluid pressure in the borehole. This will subsequently reduce the rate of production as it will take more time for cuttings to be transported to the borehole entry location. A base level of fluid pumping is required to maintain the circulation of cuttings and keep the borehole open.
Construct Relief Pit, Trench, or Well	Relief pits, trenches, or wells may be installed on the ground surface near areas where an IR has a higher likelihood of occurring. A pit, trench, or well becomes a favorable location for an IR to exit in as it represents the shortest path to intersect the surface. An IR which intersects a containment pit/trench can be easily cleaned up and managed with the use of vacuum truck or similar.
Drill with Fresh Water	Fresh water will be used to displace drilling fluid back to the borehole entry location when the pilot bore is nearing the exit location. This will ensure that if an IR were to occur on the approach to the exit location it will consist of fresh water and not drilling fluid. This also results in only fresh water exiting the borehole when the pilot bore reaches the exit location, preventing drilling fluid from impacting Lake Michigan.

Use of Additives in Drilling Fluid	An IR may occur if cuttings are insufficiently transported and clog the borehole. Additives may be introduced to the drilling fluid to improve the fluid's ability to transport cuttings and to prevent clay from clumping together.
Closely Monitor Drilling Fluid Pressures	Drilling fluid pressures will be closely monitored to quickly identify when an unexpected drop or rise in pressure occurs. A quick drop in pressure may indicate that drilling fluid is fracturing or escaping through the surrounding ground. An early detection may give the contractor time to adjust their drilling methodology prior to drilling fluid intersecting the surface as an IR. A sudden rise in pressure or back pressure in the drill pipe may indicate insufficient transport of cuttings or borehole collapse. The pilot drill string can be pulled back through the borepath a sufficient distance to break up and clear the obstruction, allowing forward drilling operations to continue with appropriate drilling fluid pressures.
Visual Observation of Drilling Fluid Flow	Drilling fluid flow rates can be visually monitored by comparing the differences between fluid rate pumped down-hole and the rate of returns flowing into the surface containment pits near the bore entry location. If more fluid is being pumped into the borehole than is returning to the surface it indicates drilling fluid is being lost to the formation. Note that if pauses in drilling occur, it may take a brief period of time to reestablish the circulation of cuttings and have drilling fluid flowing out of the borehole entry location.
Swabbing the Borehole	After fully advancing the pilot bore by the length of one drill pipe the bore can be retracted by the same length and then advanced again. This is repeated for each drill pipe added to the pipe string as the pilot bore is advanced. This process improves the removal of cuttings from the borehole and helps prevent clogging and/or borehole collapse, reducing likelihood of an IR.

IR Response Procedures

In the event that an IR occurs during drilling the contractor will be required by contract specification to take the following steps to reduce its impact:

1. Identify the IR and cease operations: An IR can be identified by documenting a spike or drop in pressure, a reduction in drilling fluid returning to the borehole entry location, and by visual observation at the surface along the borepath. If an IR is confirmed, drilling operations will stop.
2. Notification: The contractor will notify key project personnel and any relevant governing bodies of an IR.
3. Land Response: If the IR occurs on land the contractor is to contain/isolate it and remove any fluid that has collected at the surface. An IR can be contained using a combination of berms, straw wattles, silt fences, etc. and the drilling fluid can be removed using vacuum trucks, submersible pumps, and/or absorbent material which can be removed. An IR relief well could also be drilled near the site of the IR to reduce pressures at that location and direct lost drilling fluid to a location where it can be collected and removed. When resuming drilling Loss Circulation Materials (LCM) could be added to the drilling fluid to assist in sealing fractures where drilling fluid escaped from the borehole. The use of IR relief wells and LCMs would be considered on a case-by-case basis, as their effectiveness is situational.
4. Lake Response: If the IR occurs at the lakebed the contractor is to stop drilling activities for 24 hours to allow for the bentonite in the drilling mud to swell and seal potential IR pathways. Adding LCMs to the drilling fluid upon resuming drilling operations could further aid in sealing loss pathways, depending on the nature of the IR, geology, and specific location.

It is the paramount goal of the project stakeholders and the HDD contractor to minimize the potential of an IR to the surface through design and construction IR risk mitigation tactics. Further, in the unlikely event of IR to the surface the following procedures will minimize consequence of the IR:

- Provide the timely detection of an IR that could compromise or impact any sensitive surface feature,
- Facilitate notification of all appropriate agencies immediately and document the incident, and
- Facilitate proper response, containment, and cleanup in the event an IR occurs.

Closing

If you have any questions, please feel free to contact me at 630.418.0272

Sincerely,

GEI Consultants, Inc.

James Lirot
HDD Construction Engineer

Matt Peramaki, P.E.
Vice President

Frac-Out Contingency Plan for 123NET

Introduction and Purpose

Directional bore operations can result in unintentional releases of drilling fluids, known as frac-outs, which involve drilling mud seeping upwards through the subsurface soils towards the ground surface. Although drilling muds primarily consist of bentonite clay-water mixtures and are not classified as toxic, they can impact aquatic ecosystems if released into water bodies. This Frac-Out Contingency Plan aims to establish procedures and responsibilities for preventing, detecting, containing, and cleaning up frac-outs during directional drilling operations for the installation of fiber optic cable across Genesse, Lapeer, Macomb and St. Clair counties in Michigan.

Objectives

- Minimize Potential for Frac-Outs: Implement measures to reduce the occurrence of frac-outs.
- Timely Detection: Ensure prompt identification of frac-outs.
- Environmental Protection: Protect sensitive riverbeds and riparian vegetation.
- Organized Response: Facilitate an organized, minimal-impact response to frac-outs.
- Notification: Immediately inform permitting authorities, management, and safety personnel of any incidents.

Description of Work

123NET is overseeing the installation of fiber optic cables along town, county, and state highways in Michigan. The contractor is responsible for adhering to this plan during all directional drilling activities. Work tasks will be detailed to crew members, emphasizing immediate cessation of drilling upon detecting a frac-out. Cleanup procedures will commence promptly, and the management/environmental department will be consulted for guidance.

Site Supervisor/Foreman Responsibilities

The Site Supervisor/Foreman will ensure:

- Daily equipment checks to prevent hazardous material leaks.
- Availability and readiness of spill kits and containment materials.
- Equipment for containing and cleaning frac-outs staged on-site or readily accessible within **fifteen minutes.**
- Use of absorbent pads and plastic sheeting to protect riverbeds if necessary.

Training

Prior to construction, the Site Supervisor/Foreman will train crew members on:

- Frac-Out Contingency Plan provisions, equipment maintenance, and permit requirements.
- Inspection procedures for release prevention and containment equipment.
- Immediate drilling cessation and reporting responsibilities in case of a frac-out.
- Operation of release control equipment and communication protocols with agency representatives.

Drilling Procedures

Daily procedures include:

- Availability of the Frac-Out Contingency Plan on-site.
- Presence of the Site Supervisor/Foreman during drilling operations.
- Daily Job Briefings to review frac-out procedures and address crew concerns.

- Close monitoring of drilling pressures and annulus during pilot bores.
    - Pressures at the mud pump or in the bore annular space should remain reasonably steady, based on the distance and depth of drilling operations. If pressures increase or decrease sharply (i.e. an outlier, which could be defined as 15-20% change in either direction), the contractor should be notified and the matter discussed and potentially investigated.
- Use of spill kits and ready availability of vacuum trucks and containment materials.

Field Response to Frac-Out Occurrence

Immediate actions in response to a frac-out:

- Halt directional boring immediately.
- Retract the bore stem to alleviate pressure.
    - Notify the Site Supervisor/Foreman for 123Net management and environmental/safety department involvement.
- Evaluate and address frac-out severity with appropriate response measures.
- Contain and cleanup using approved methods, including vacuum trucks if necessary.

Response Closeout Procedures

Upon containing and cleaning the frac-out:

- Recycle or dispose of recovered drilling fluid at approved facilities.
- Restore upland cleanup/excavation areas to pre-project conditions with clean fill, topsoil, seed and mulch in accordance with landowner specifications.
- Restore wetlands/waters of the State in accordance with Michigan Department of Environment, Great Lakes, and Energy (EGLE) requirements.
- Remove containment measures under the supervision of the Site Supervisor/Foreman.

Construction Re-Start and Bore Abandonment

- Small releases associated with shallow boring in the vicinity of the entry or exit pit must be contained. If contained, and there are no impacts to wetlands or waters of the State, construction may continue. Cleanup of drilling mud must also occur.
- External notification or agency involvement requires management/environmental department approval for construction restart.
- Bore abandonment is a last resort after unsuccessful frac-out control efforts.

Notification

In case of frac-out reaching a water source:

- Notify 123Net management/environmental department, who will coordinate notification of EGLE promptly.
- Provide detailed information including location, time, type, and cleanup methods used.

Communicating with Regulatory Agency Personnel

- Ensure regulatory compliance and safety during at all times.
- Coordinate communication with regulatory agencies through the Site Supervisor/Foreman and/ or environmental department.

Documentation

- Maintain a daily log of frac-out events detailing notification details and actions taken.
- Document project completion and cleanup efforts (in writing and with photographs), including removal of construction materials and debris, as well as site restoration activities.

This Frac-Out Contingency Plan outlines procedures to mitigate and manage risks associated with directional drilling operations, ensuring environmental protection and regulatory compliance throughout the project for 123Net.

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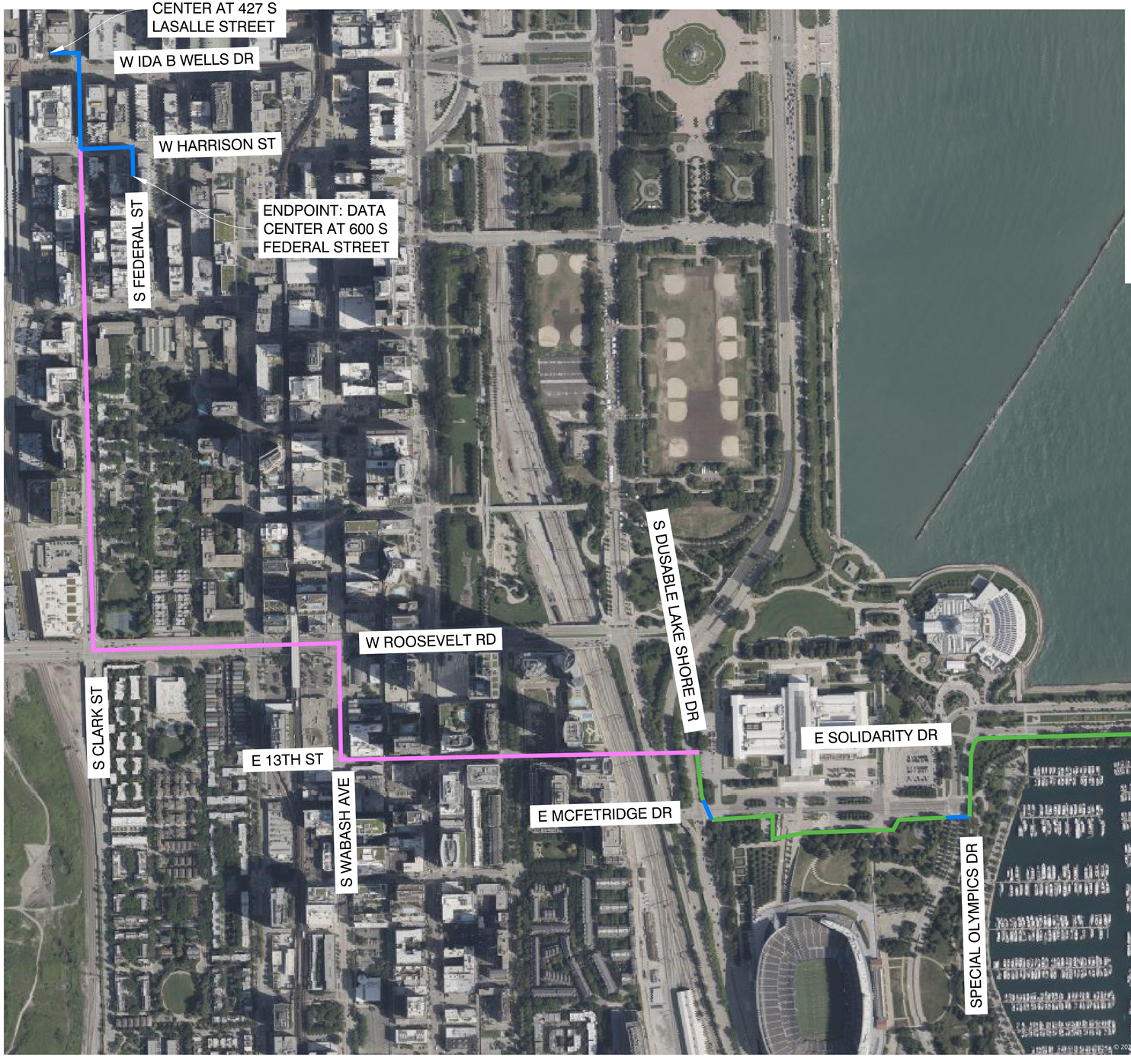
NORTH ROUTE

PROJECT MANAGER: ERIN HURLEY



NORTH ROUTE
Scale: 1" = 300'

LEGEND	
LAND OWNER/ PERMITTING AGENCY	LINETYPE
CHICAGO PARK DISTRICT	
CITY OF CHICAGO	
FREIGHT TUNNELS	

0 150 300 600

1 inch = 300 ft.

N

SEGMENT:

NOTES:

ENGINEER:

hbk ENGINEERING

921 WEST VAN BUREN STREET, SUITE 100
CHICAGO, ILLINOIS 60607
STATE OF ILLINOIS DEPARTMENT
OF PROFESSIONAL REGULATION.
LICENSE NO. 184-002308

OWNER/DEVELOPER:

PFN PENINSULA FIBER NETWORK

CONTRACTOR:

TITLE:

EXHIBIT OF
LAND OWNERSHIP/
PERMITTING JURISDICTION
PFN IMPACC PROJECT
CHICAGO, ILLINOIS

REVISIONS

REV	DATE	DESCRIPTION	BY
01	7/30/2025	FOR CHICAGO & CPD REVIEW	CFD
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12			

DRAWN BY:	CHECKED BY:	APPROVED BY:
CFD	EMH	DRR

PROJECT NUMBER:	24-0554
FILE NAME:	240554
OUC NUMBER:	N/A
DATE DRAWN:	07/29/2025
SCALE:	AS SHOWN

SHEET: 1 OF: 2

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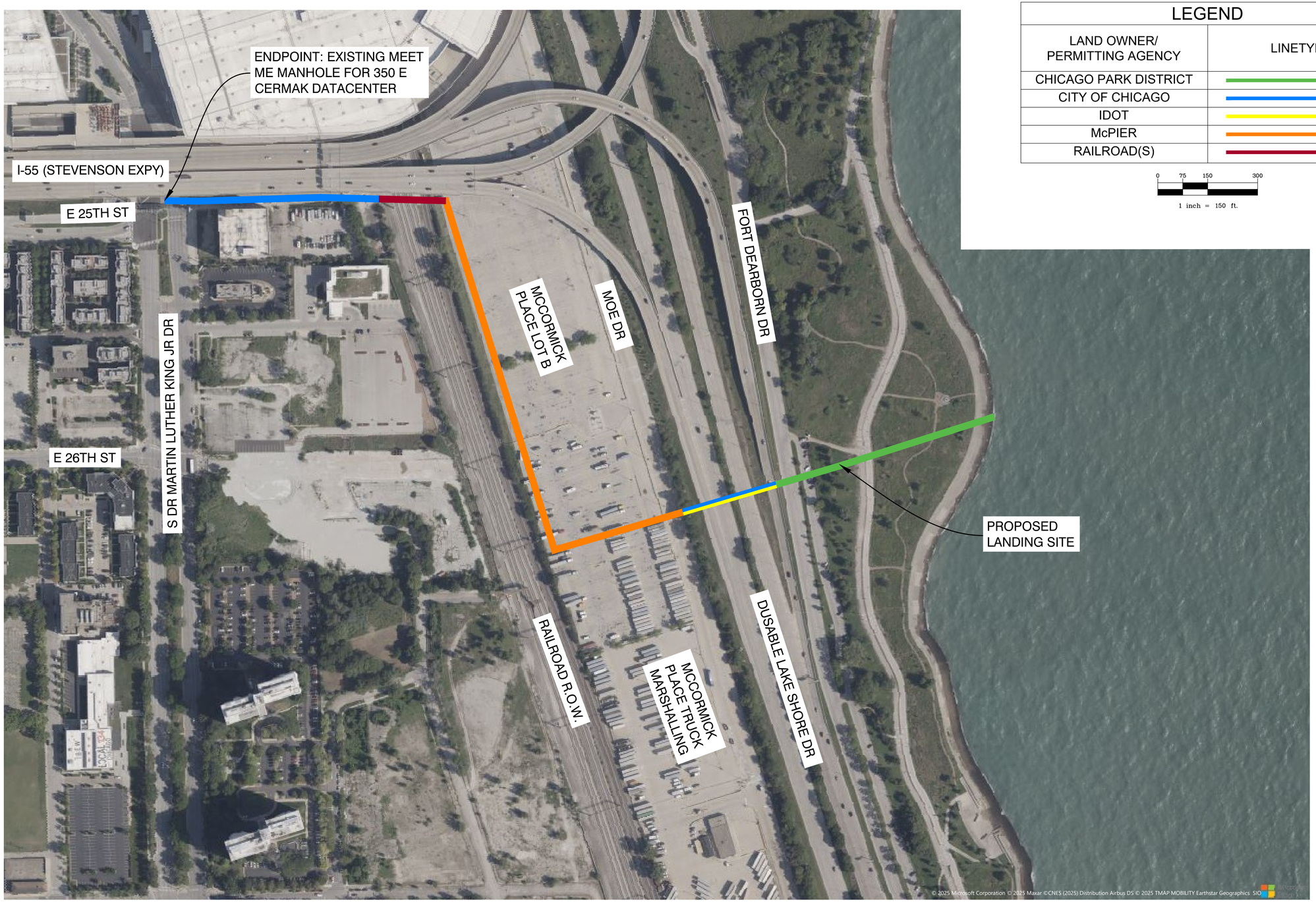
SOUTH ROUTE

PROJECT MANAGER: ERIN HURLEY



SOUTH ROUTE

Scale: 1" = 150'

LEGEND

LAND OWNER/ PERMITTING AGENCY	LINETYPE
CHICAGO PARK DISTRICT	
CITY OF CHICAGO	
IDOT	
McPIER	
RAILROAD(S)	

0 75 150 300

1 inch = 150 ft.

N

SEGMENT:

NOTES:

ENGINEER:

hbk ENGINEERING

921 WEST VAN BUREN STREET, SUITE 100
CHICAGO, ILLINOIS 60607
STATE OF ILLINOIS DEPARTMENT
OF PROFESSIONAL REGULATION.
LICENSE NO. 184-002308

OWNER/DEVELOPER:

PFN PENINSULA FIBER NETWORK

CONTRACTOR:

TITLE:

EXHIBIT OF LAND OWNERSHIP/ PERMITTING JURISDICTION PFN IMPACC PROJECT CHICAGO, ILLINOIS

REVISIONS

REV	DATE	DESCRIPTION	BY
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CFD	EMH	DRR

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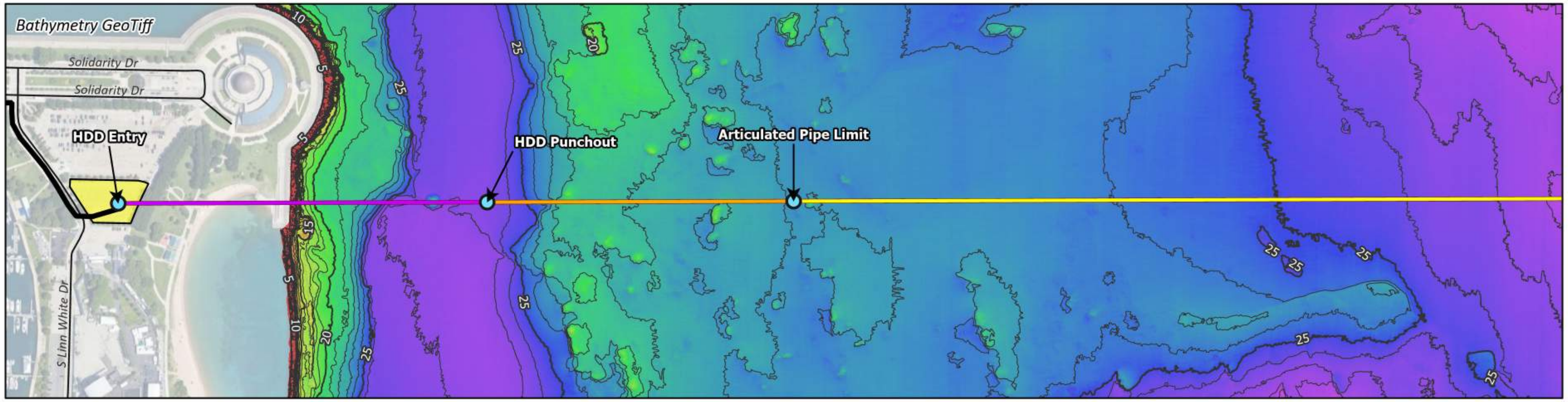
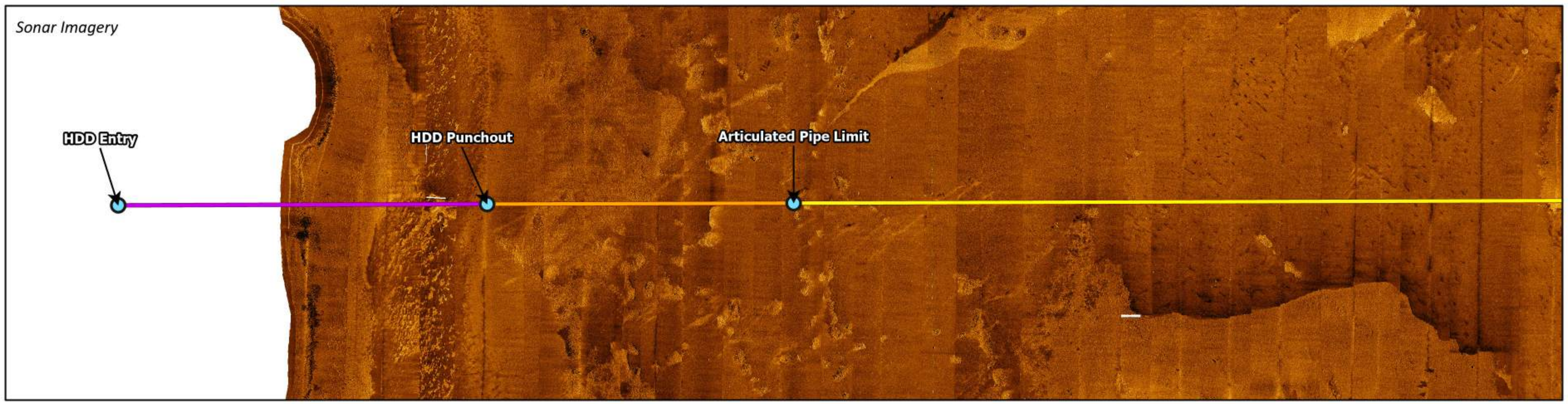
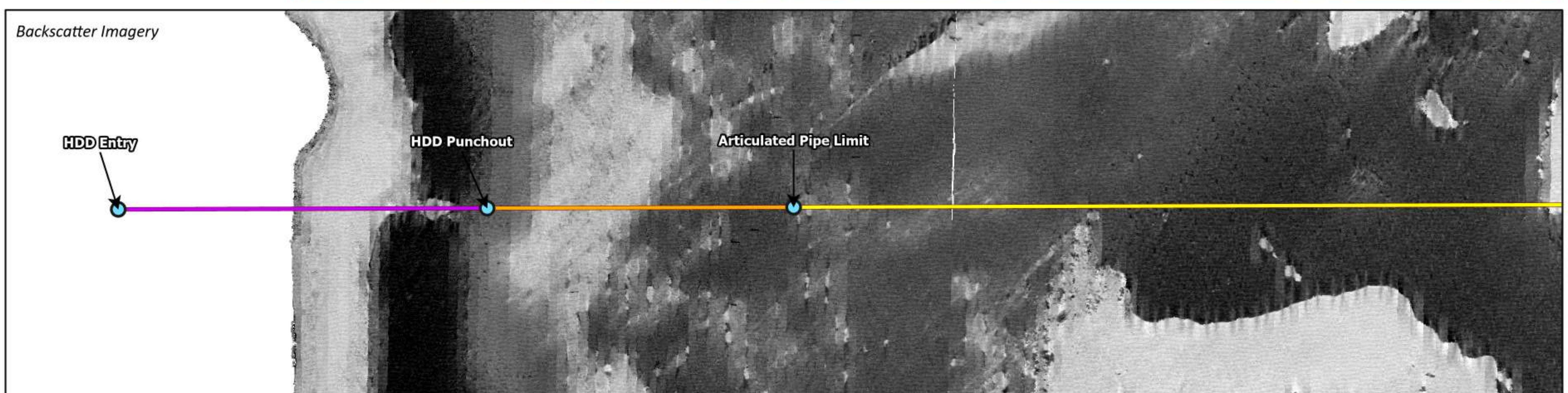






NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

- Route Features

Project 1 Proposed Route

- Articulated Pipe
- HDD Bore
- Surface Lay (Double Armor)
- Terrestrial
- Bathymetry Contours (Feet Below IGLD85 LWD)
- HDD Staging Extent

N W E S

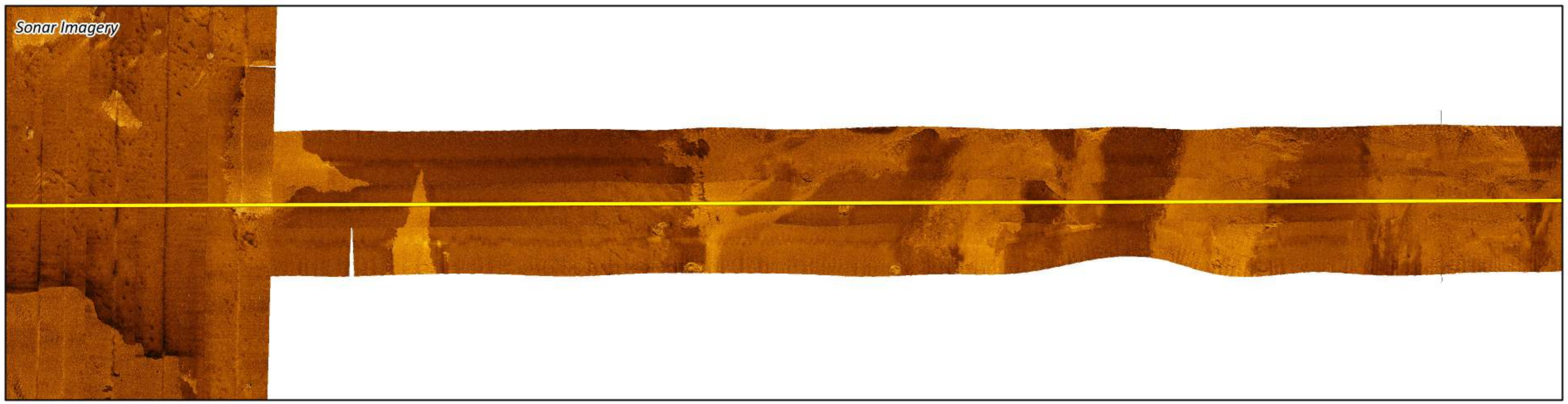
GEI Consultants

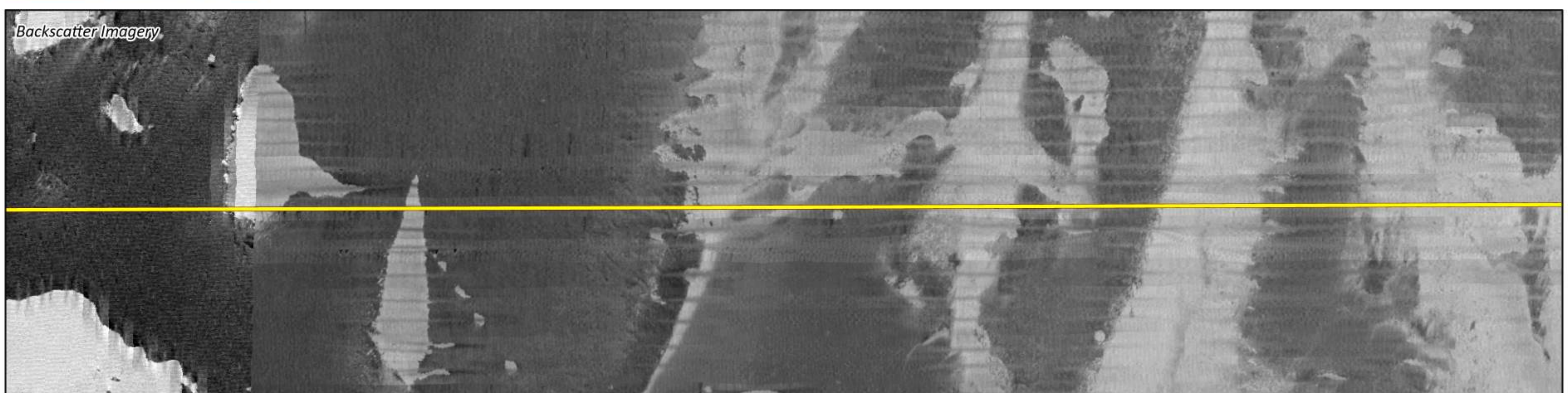
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Cook County, Illinois

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY





NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

- Surface Lay (Double Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

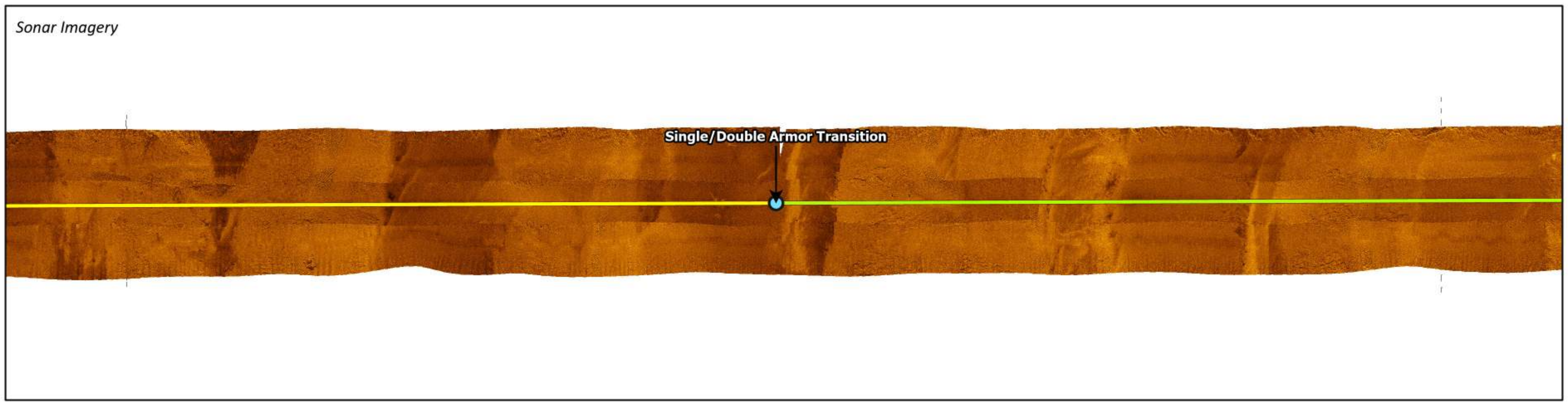
GEI Consultants

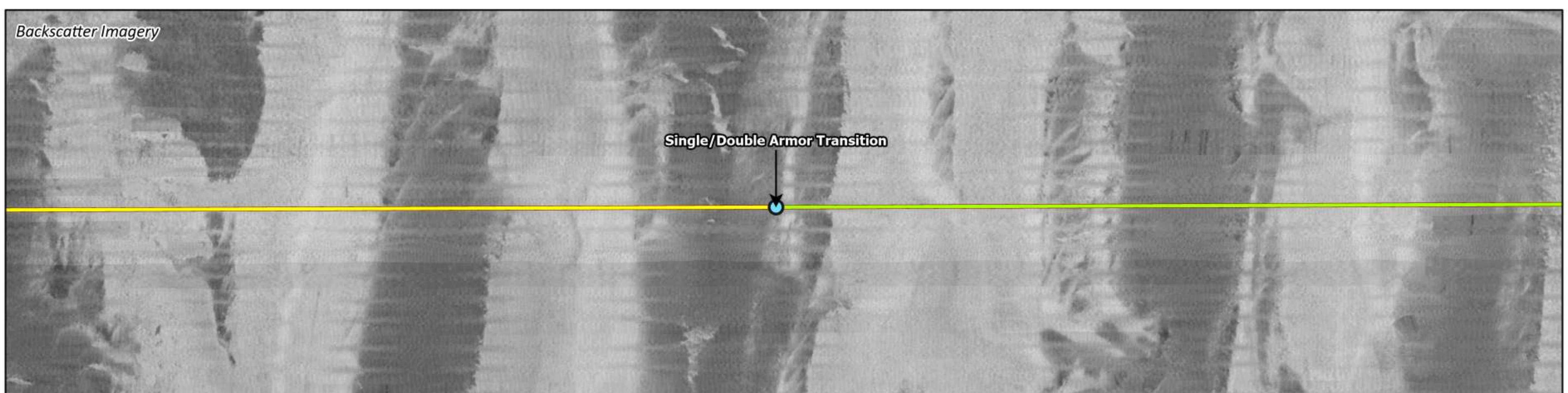
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Cook County, Illinois

Project 2305496 October 2025





NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

- Route Features

Project 1 Proposed Route

- Surface Lay (Double Armor)
- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

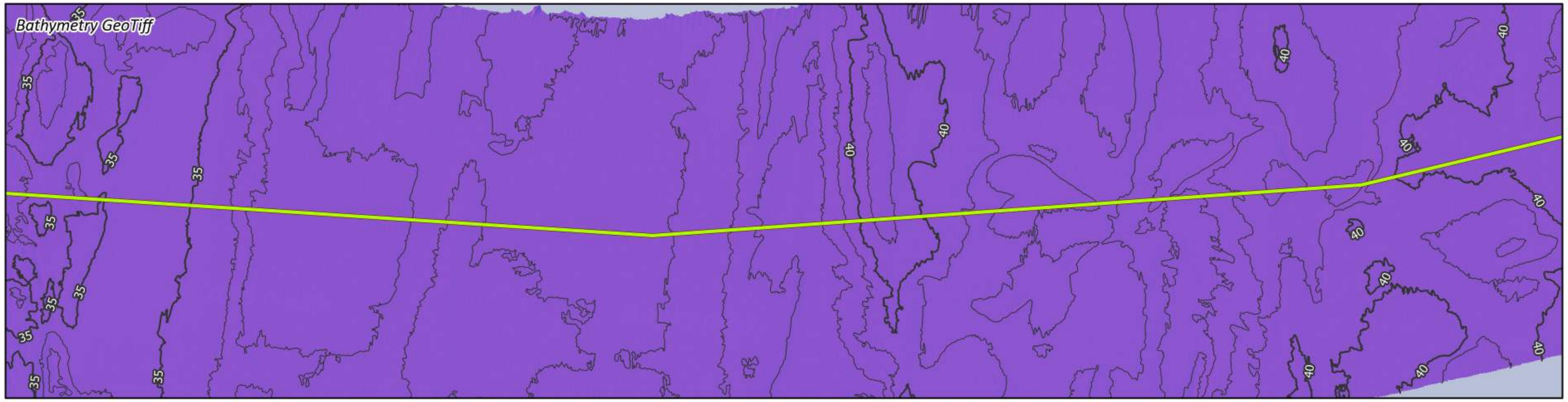
GEI Consultants

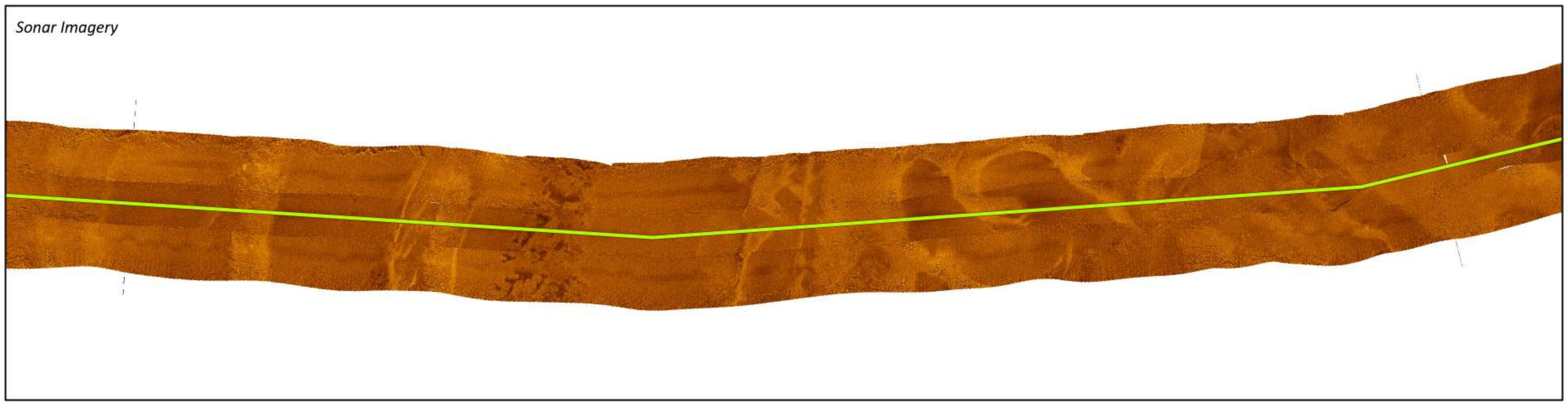
0 250 500 1,000 Feet

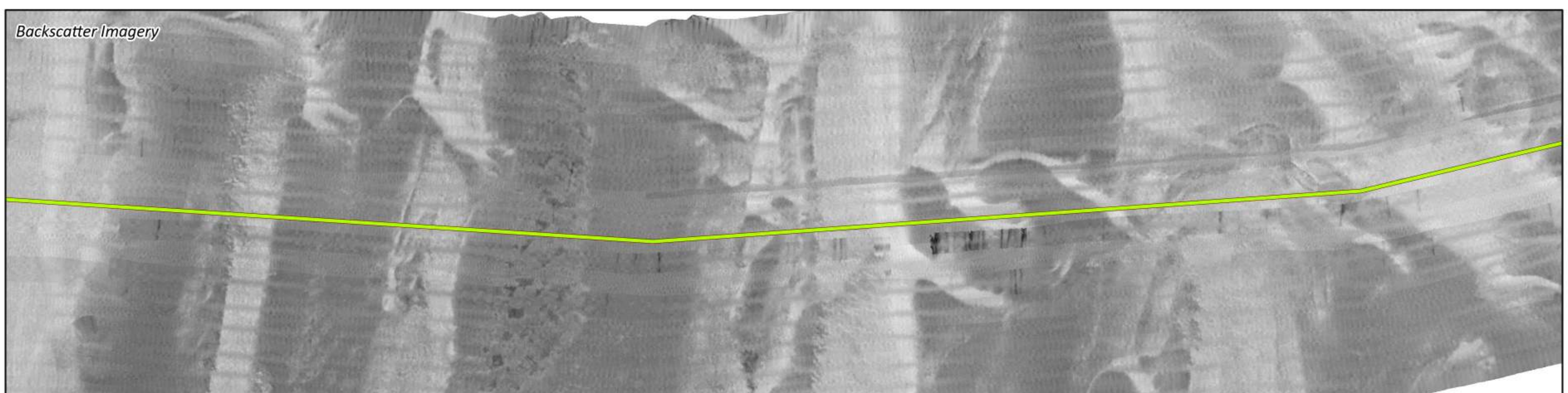
IMPACC Project 1
JSI Engineering

Cook County, Illinois

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N
W E
S

GEI Consultants

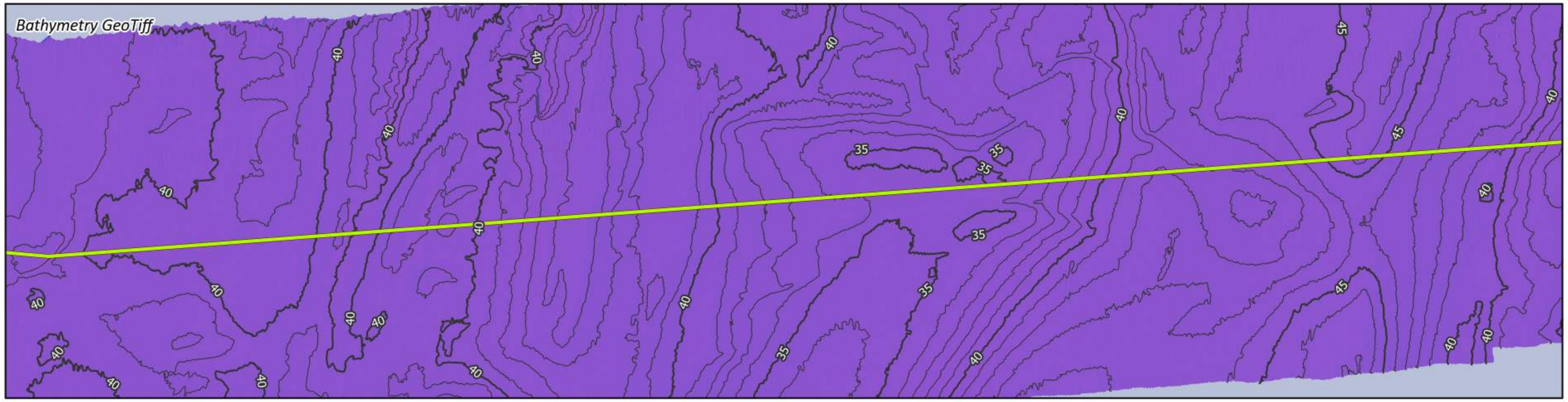
0 250 500 1,000 Feet

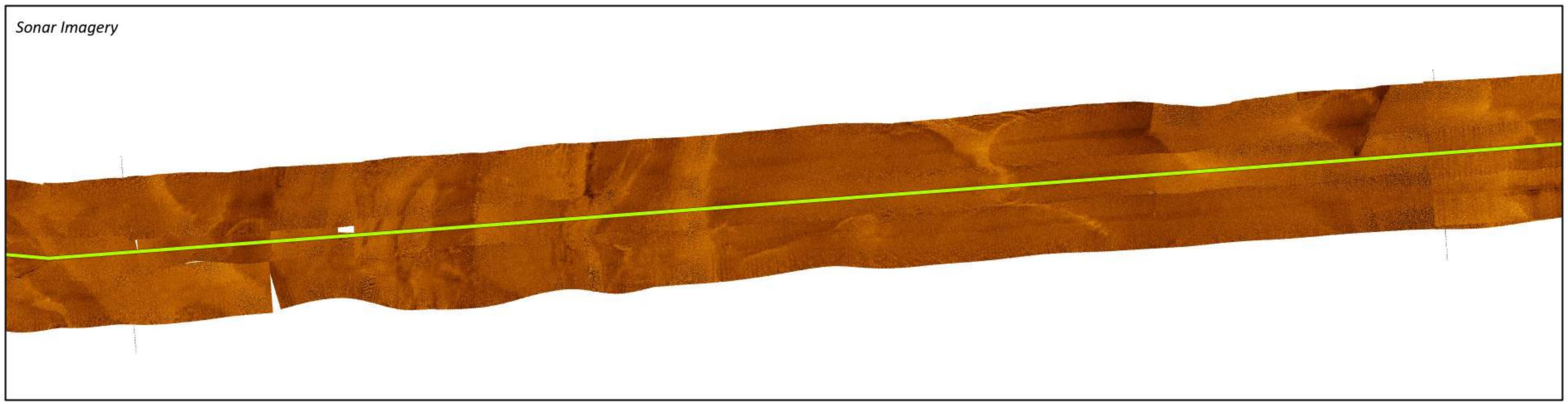
IMPACC Project 1
JSI Engineering

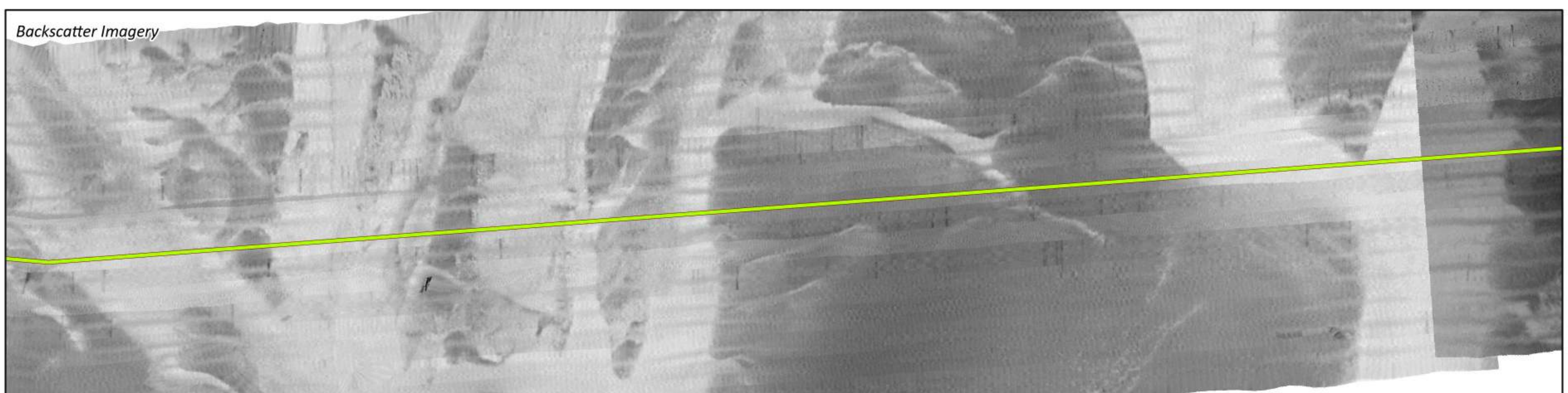
Cook County, Illinois

Project 2305496 October 2025 4 of 62

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

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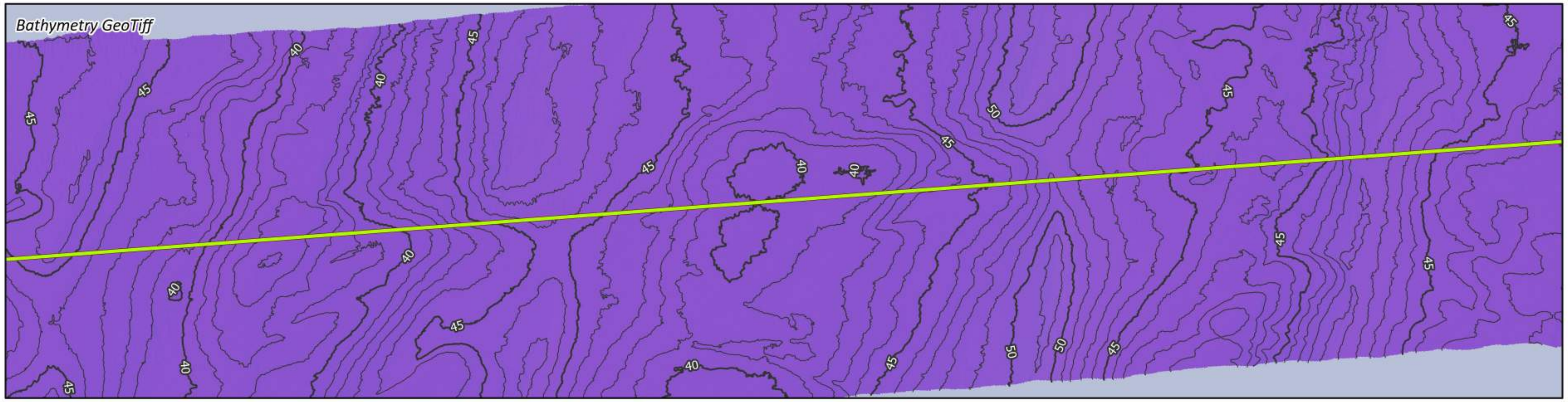
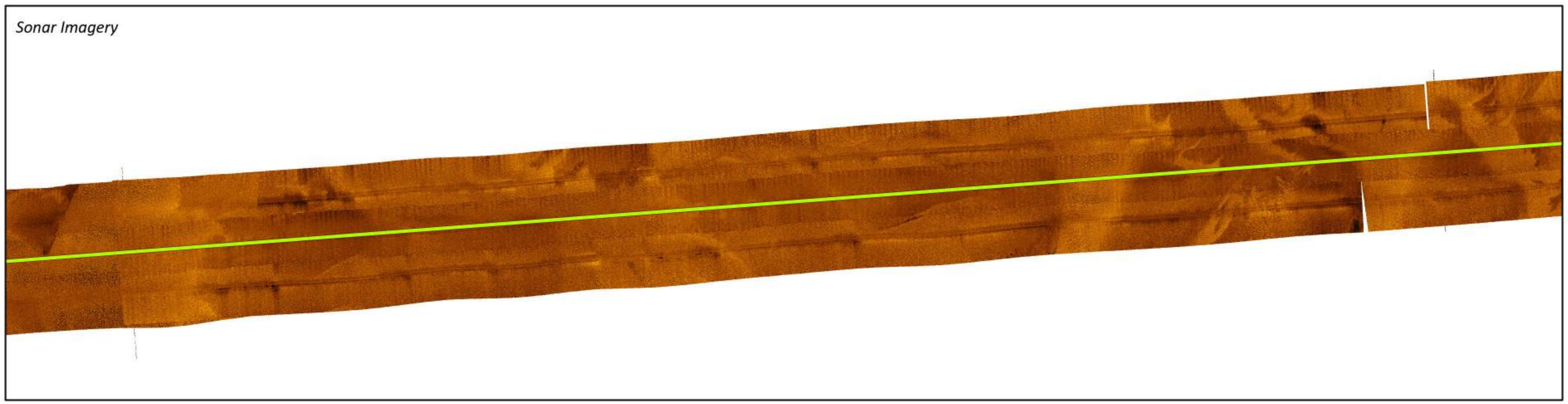
Path: D:\Projects\PFN Fiber\Seaworks\WGS84\Project 1 Plan Profile 11x17.aprx

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

Bathymetry GeoTiff



Sonar Imagery



Backscatter Imagery

NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

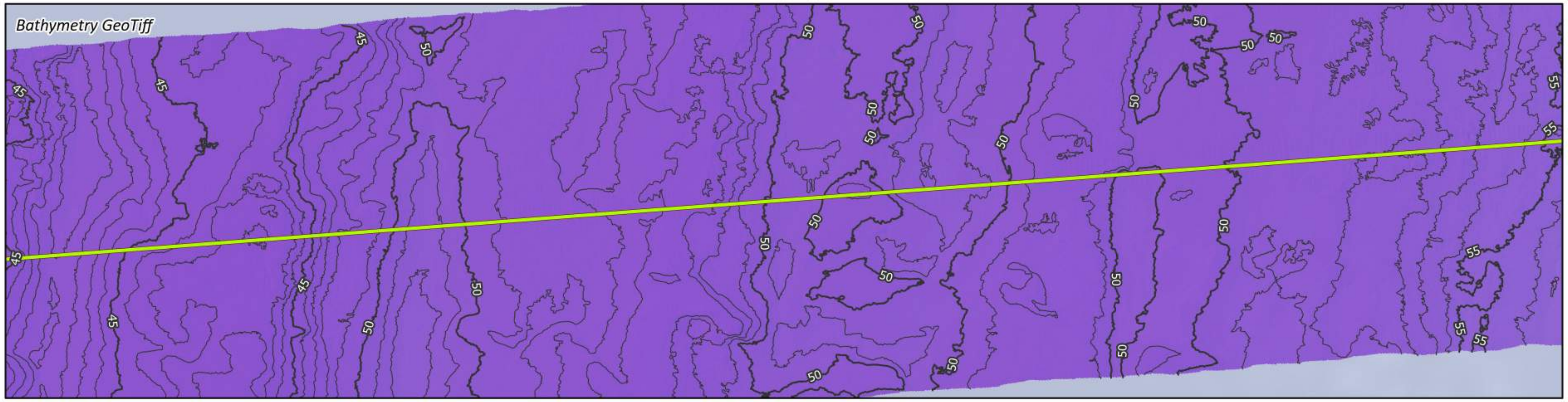
N W E S

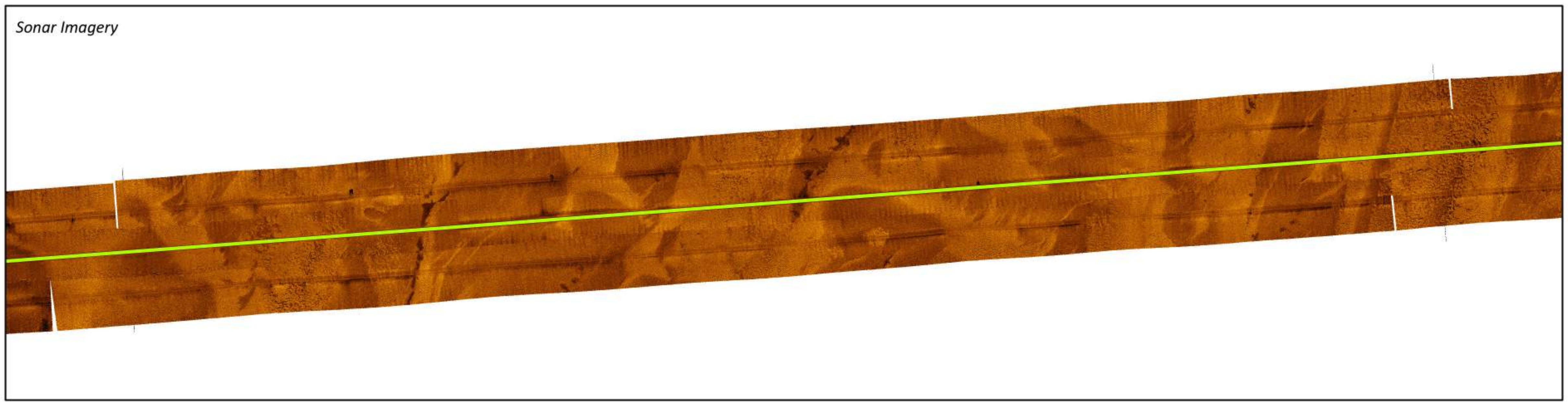
GEI Consultants

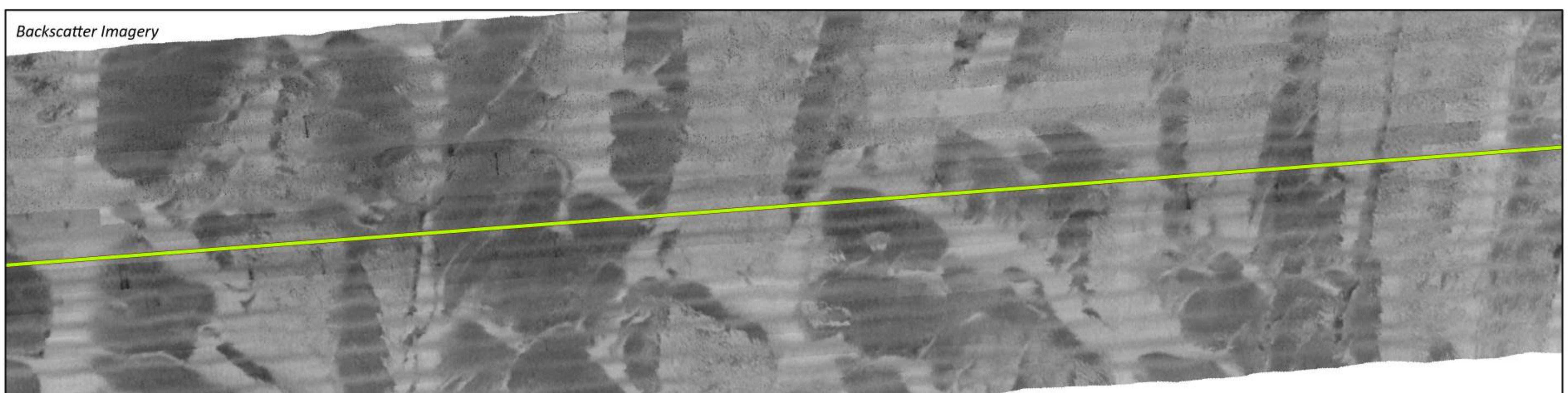
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Cook County, Illinois







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

GEI Consultants

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IMPACC Project 1
JSI Engineering

Cook County, Illinois

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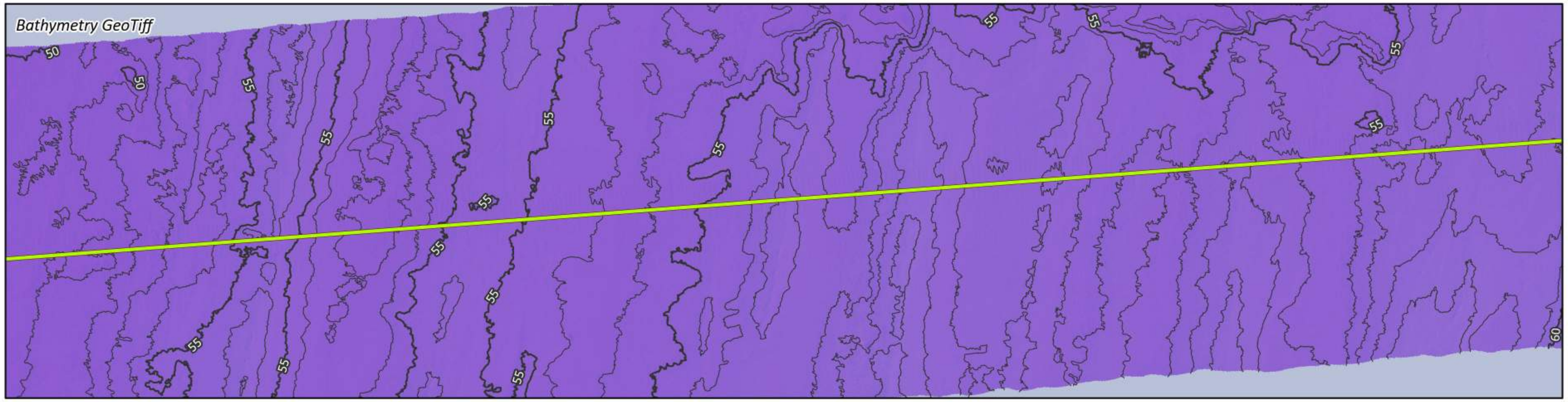

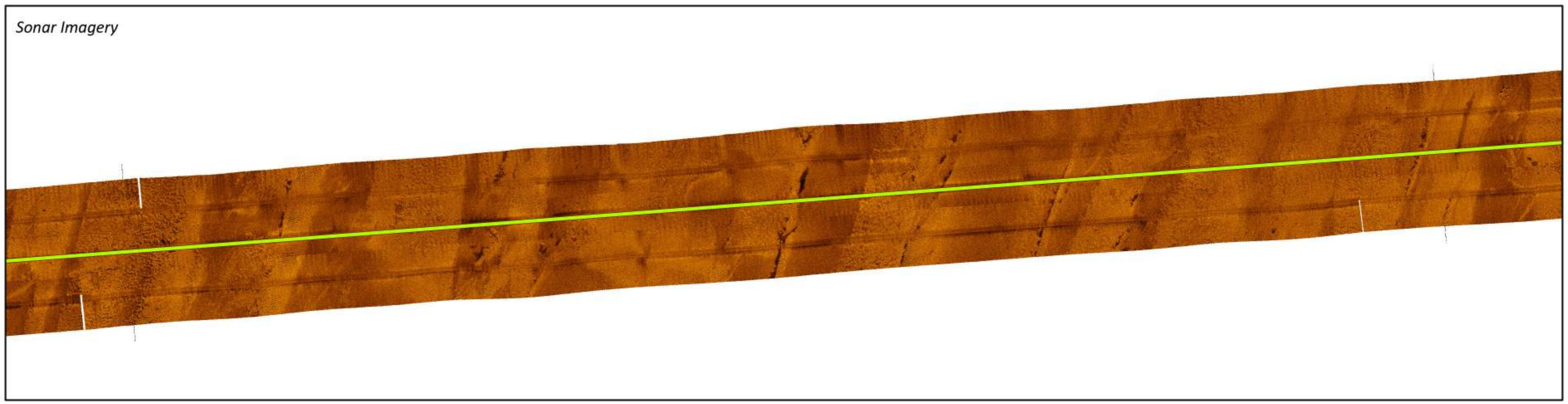

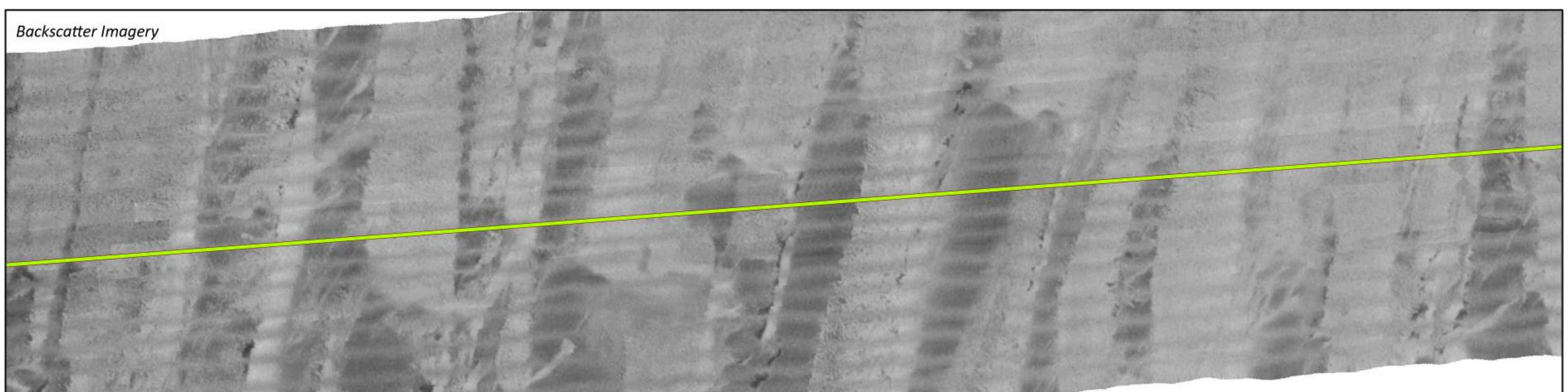

NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

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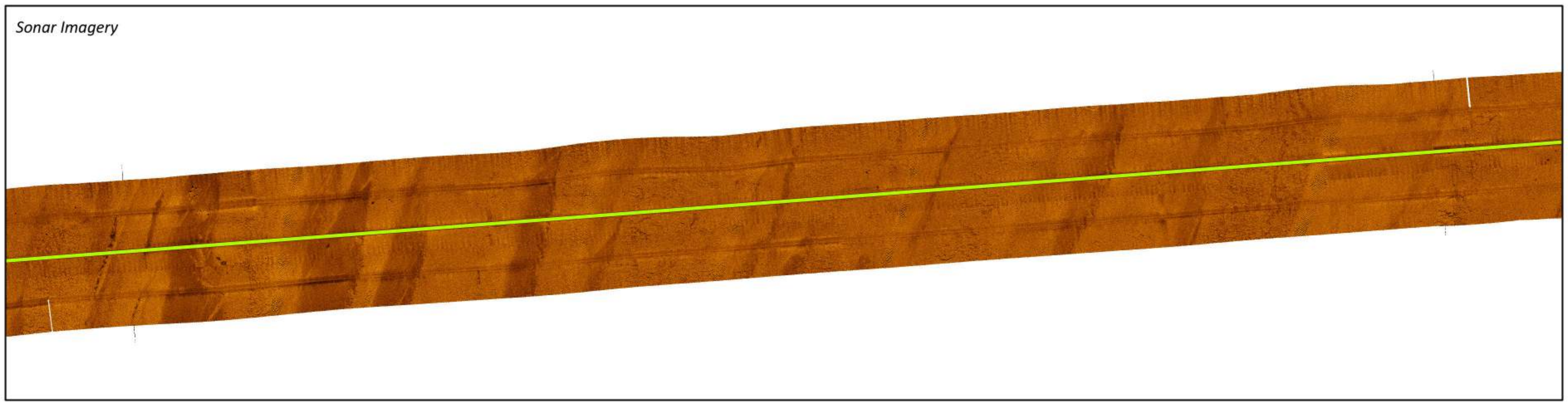
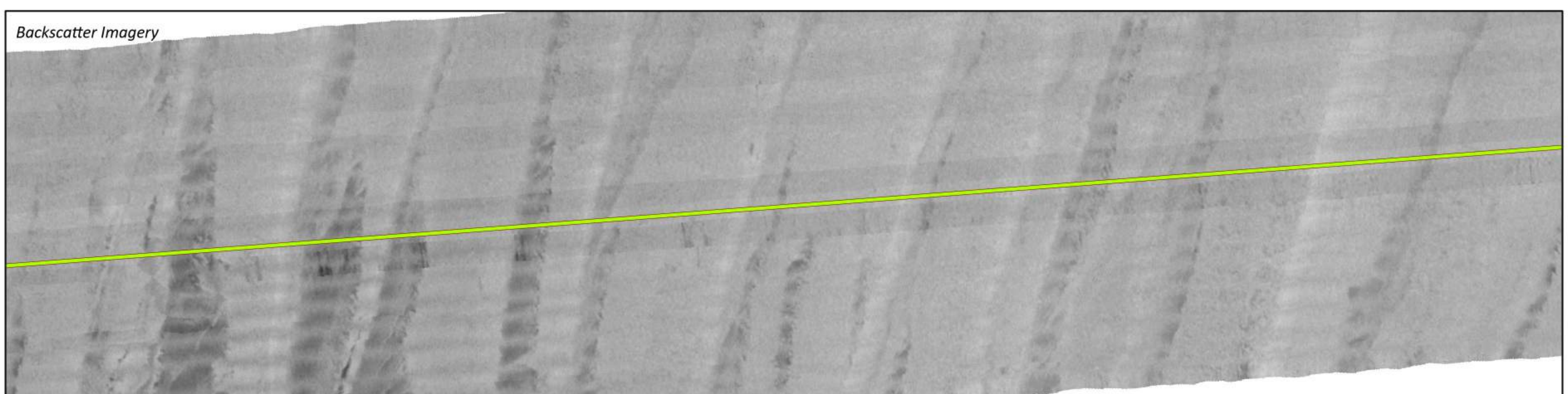
IMPACC Project 1
JSI Engineering

Cook County, Illinois

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY





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Project 1 Proposed Route

- Surface Lay (Single Armor)
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0 250 500 1,000 Feet

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Cook County, Illinois

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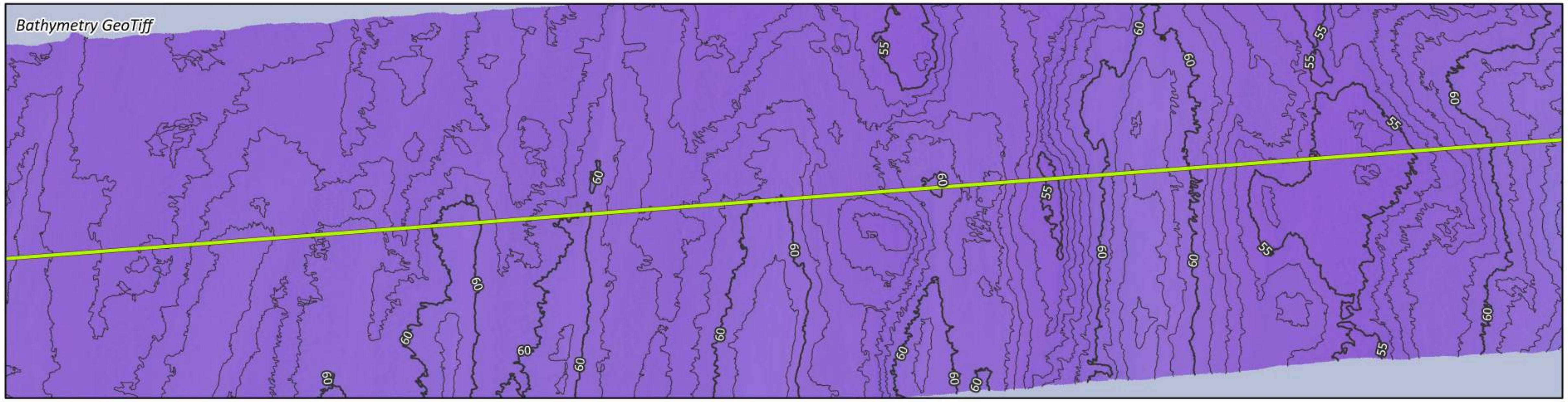
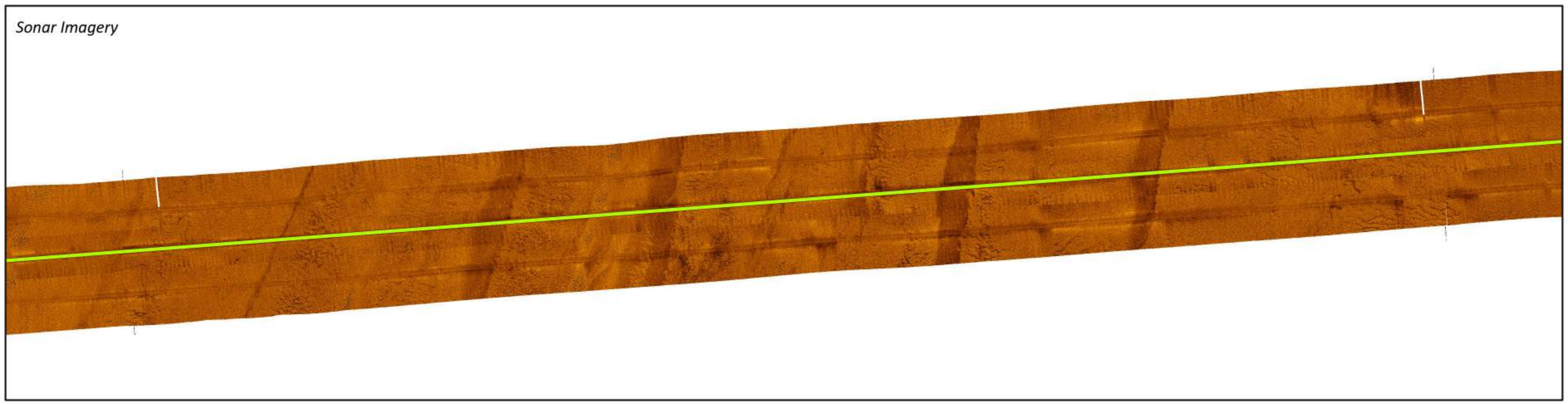
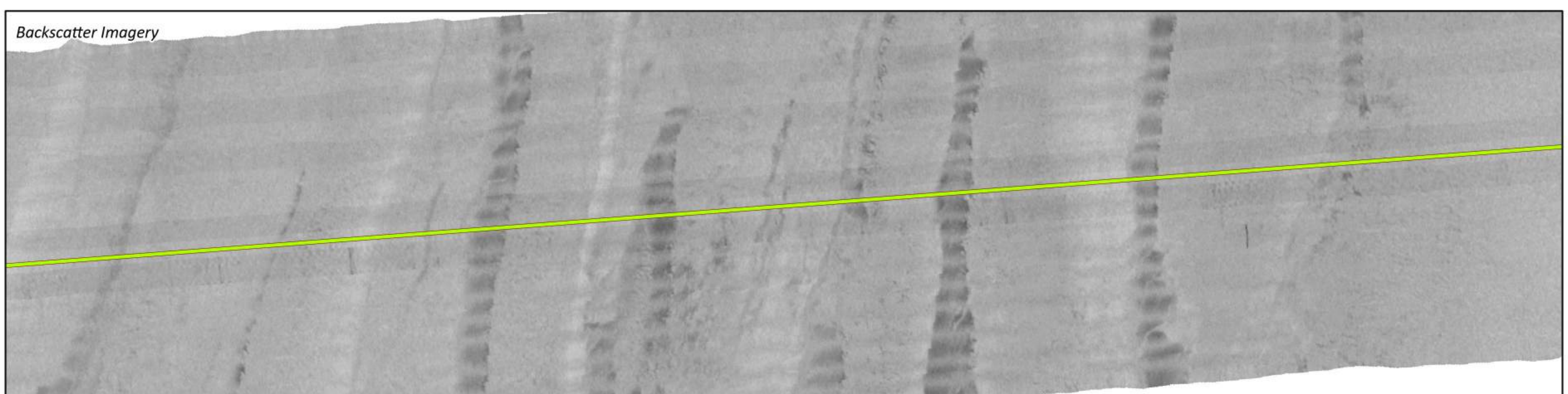
NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

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JSI Engineering

Cook County, Illinois

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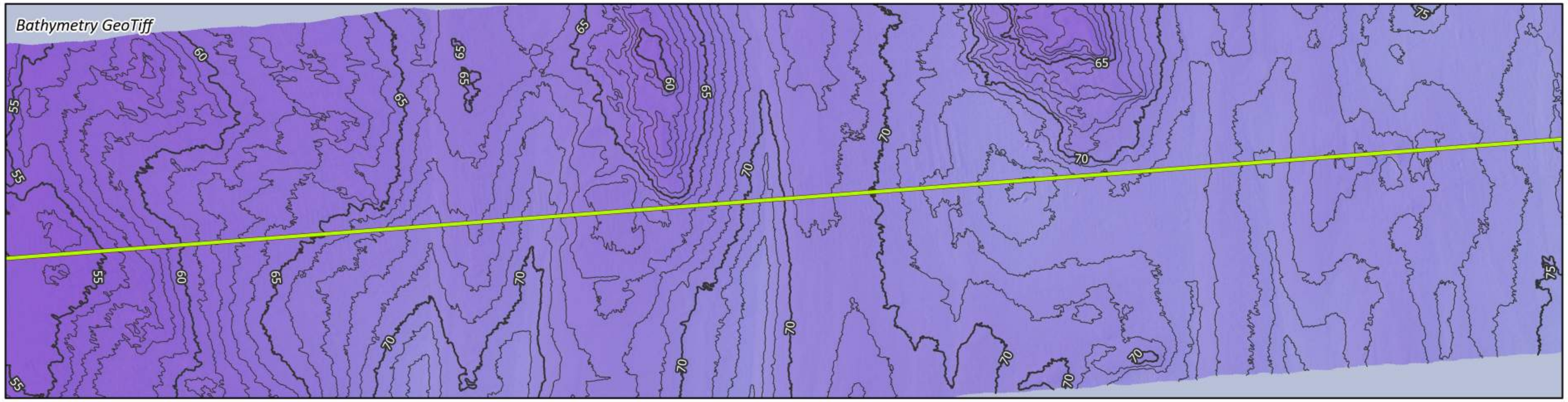
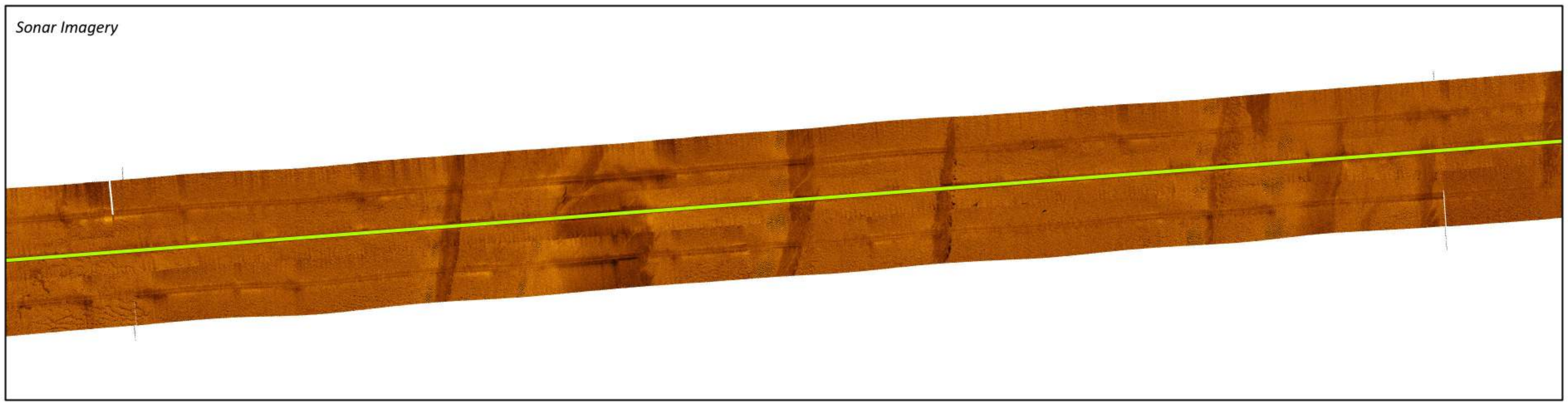
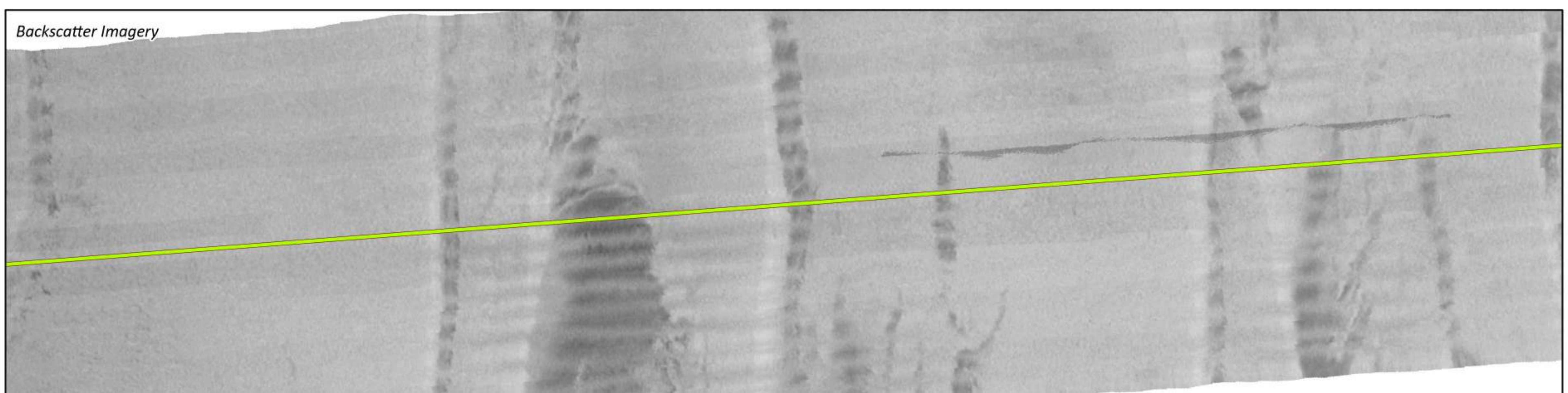
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

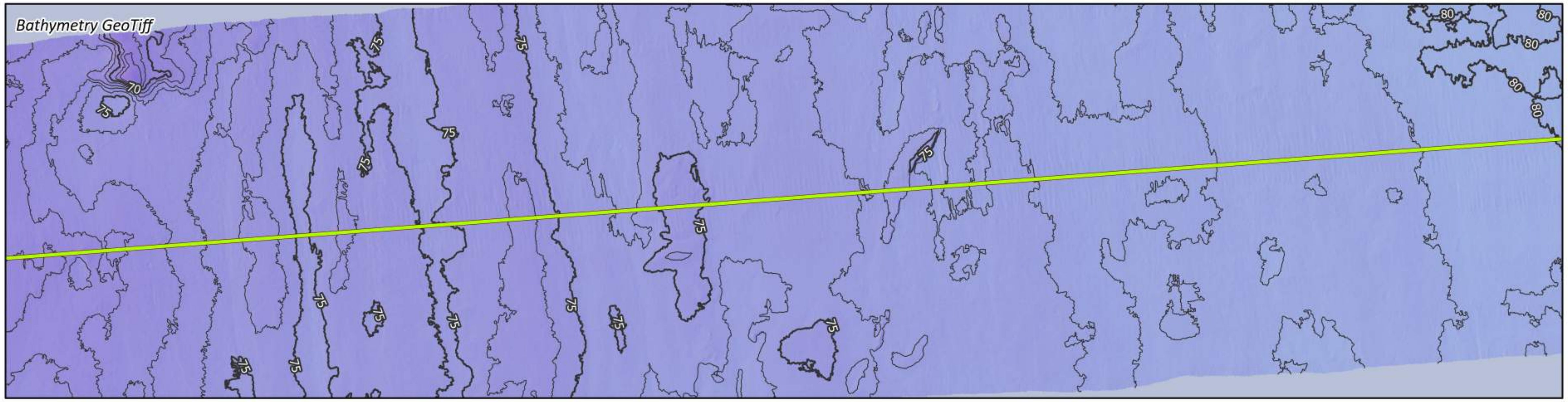
0 250 500 1,000 Feet

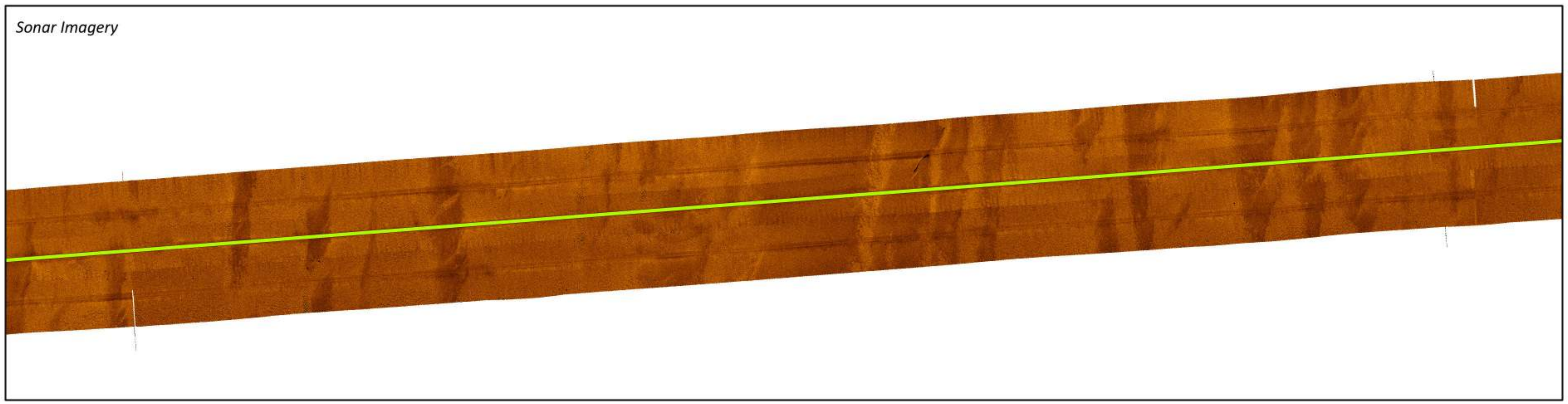
NAD 1983 BLM Zone 16N ftUS

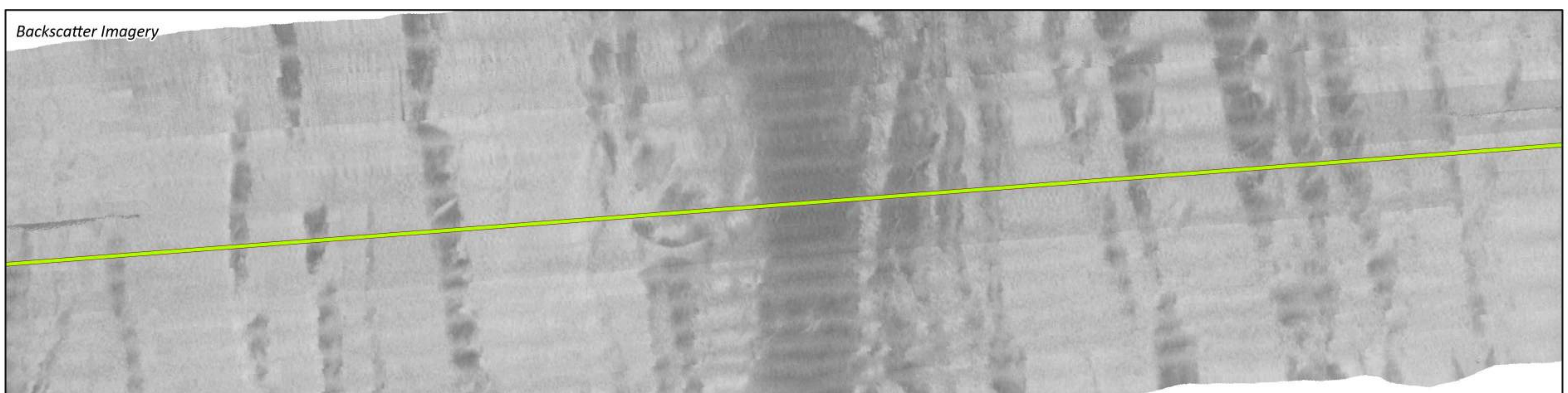
IMPACC Project 1
JSI Engineering

Cook County, Illinois

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

NAD 1983 BLM Zone 16N ftUS

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JSI Engineering

Cook County, Illinois

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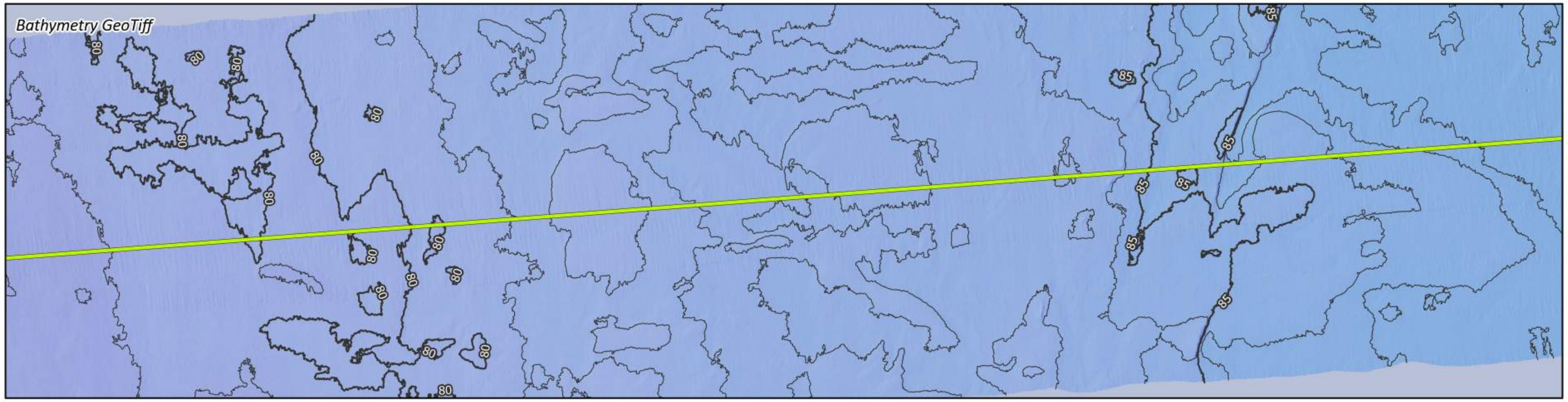
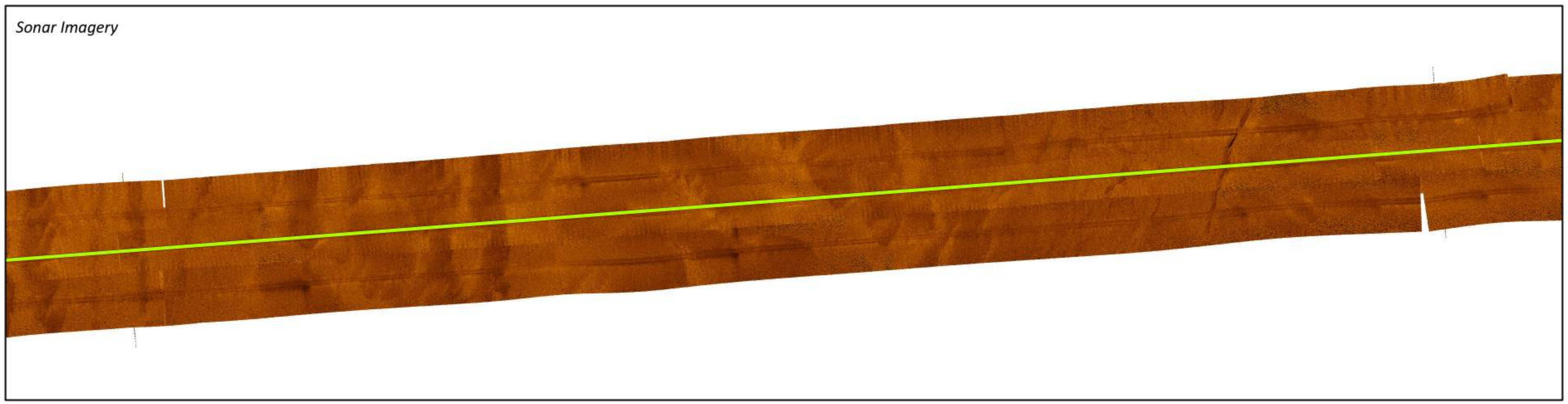
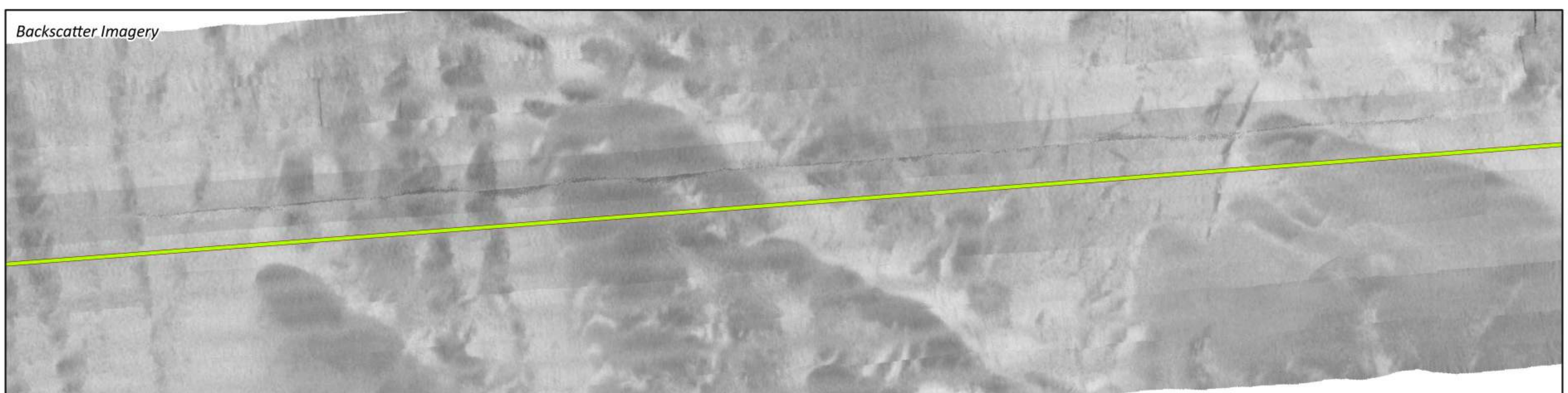






NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1 NORTH LEG CROSSING HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

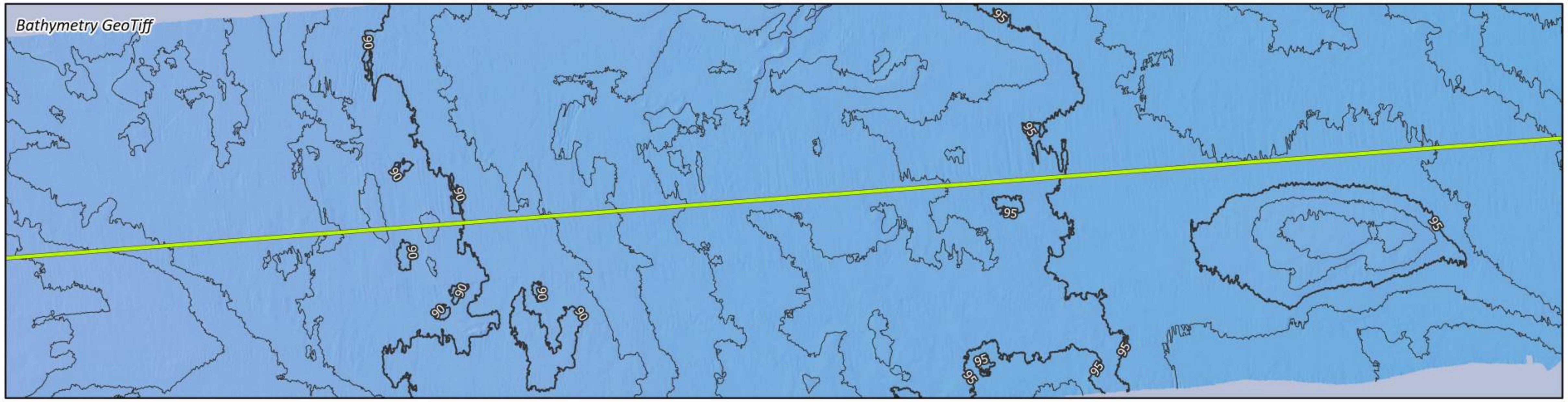
GEI Consultants

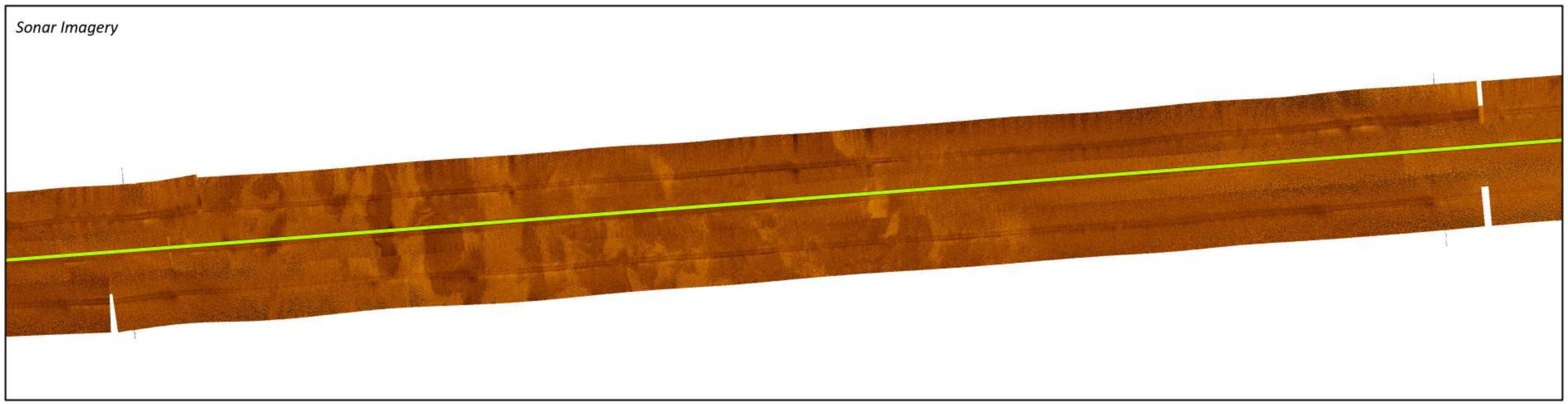
0 250 500 1,000 Feet

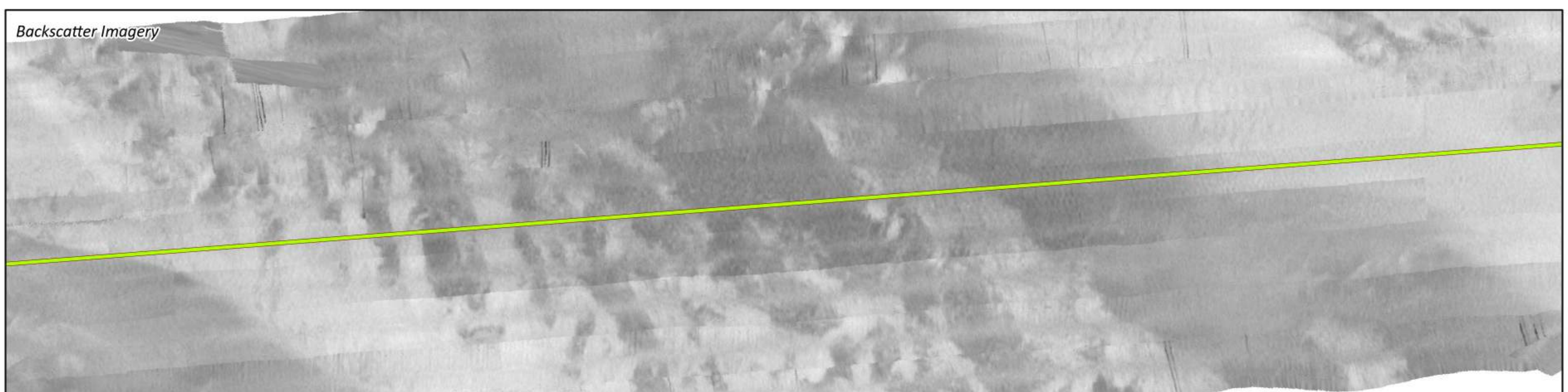
IMPACC Project 1
JSI Engineering

Cook County, Illinois

Project 2305496 October 2025







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IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

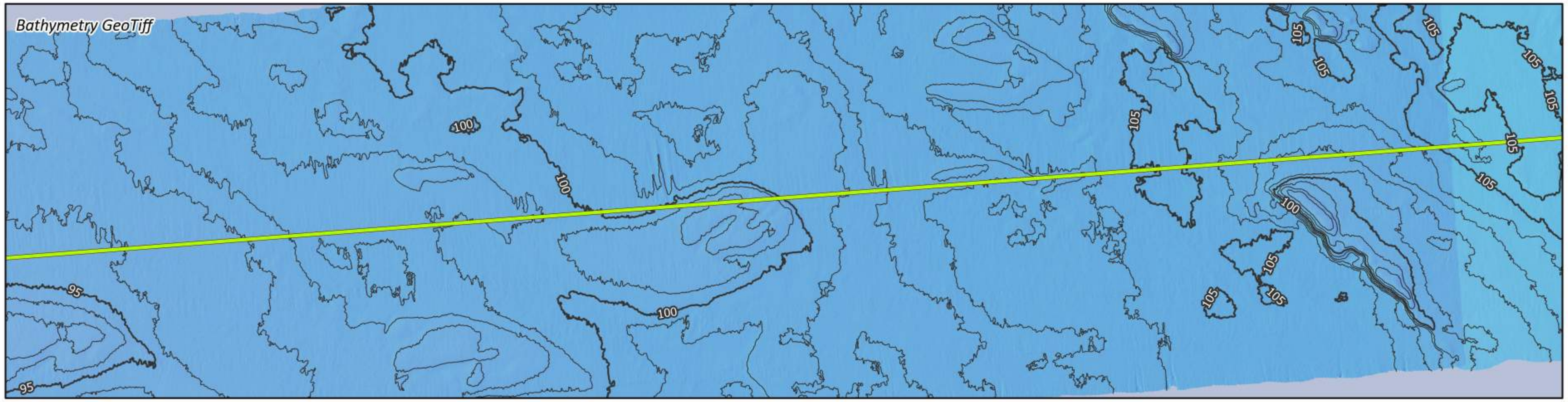
N W E S

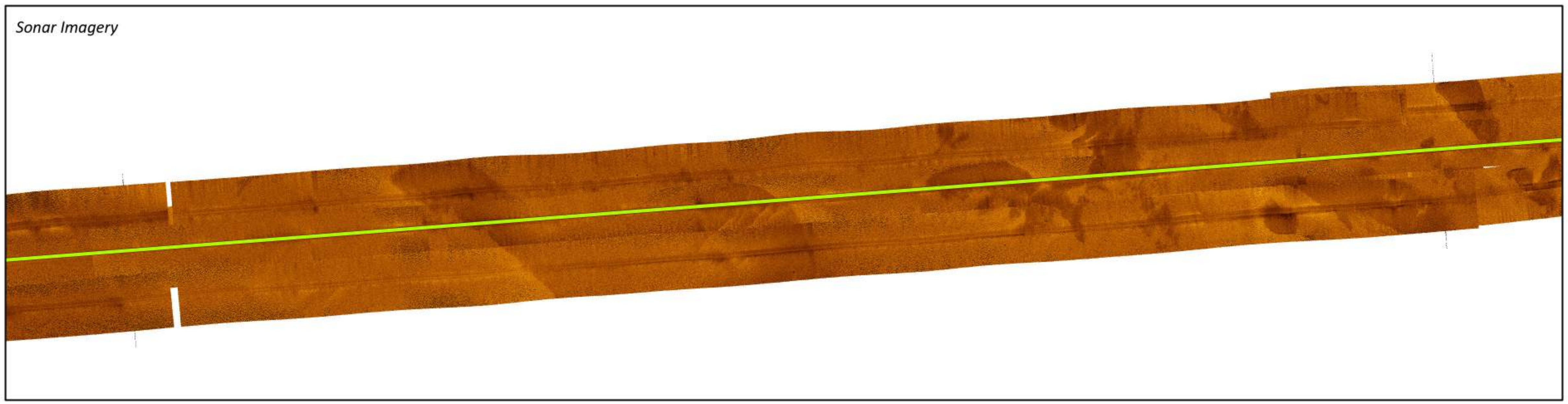
GEI Consultants

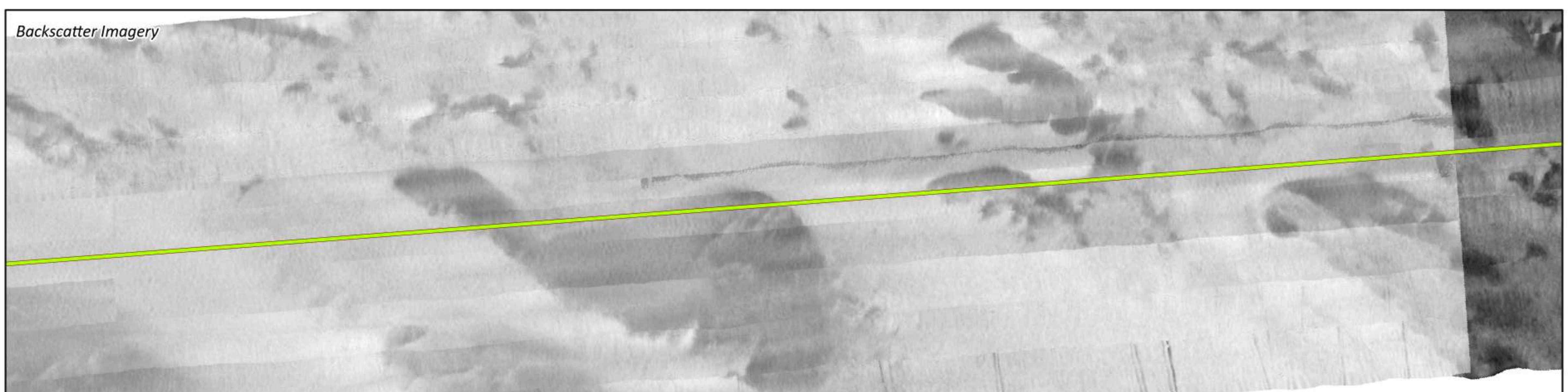
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Cook County, Illinois







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IMPACC PROJECT 1 NORTH LEG CROSSING HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

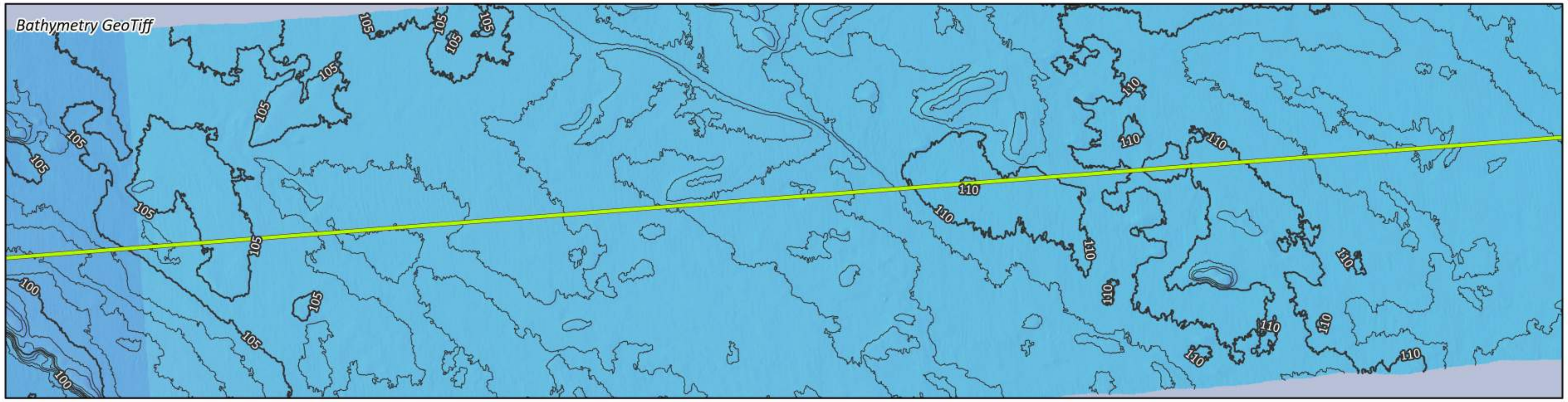
GEI Consultants

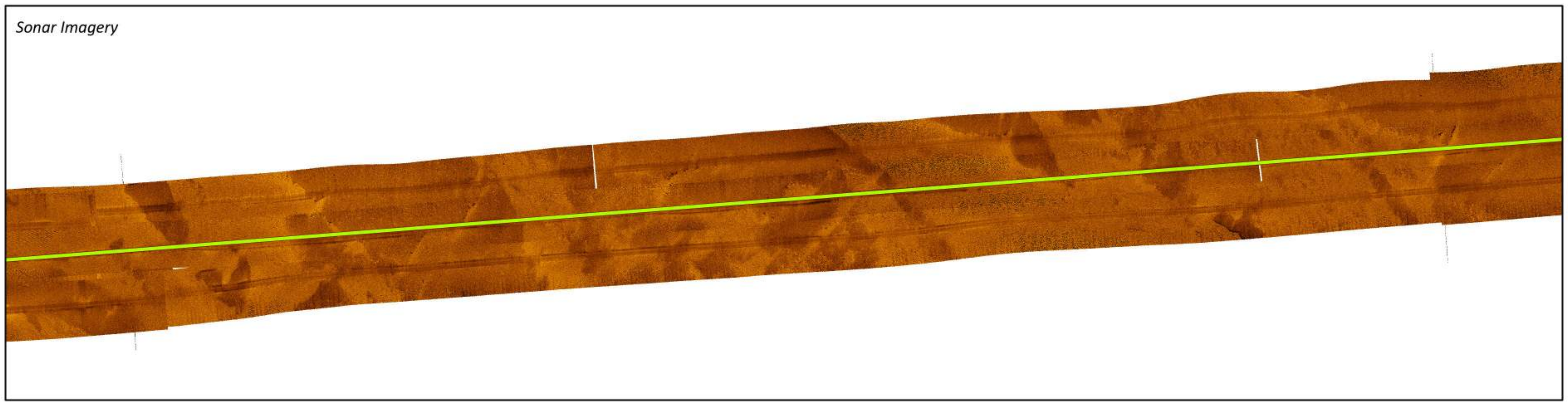
0 250 500 1,000 Feet

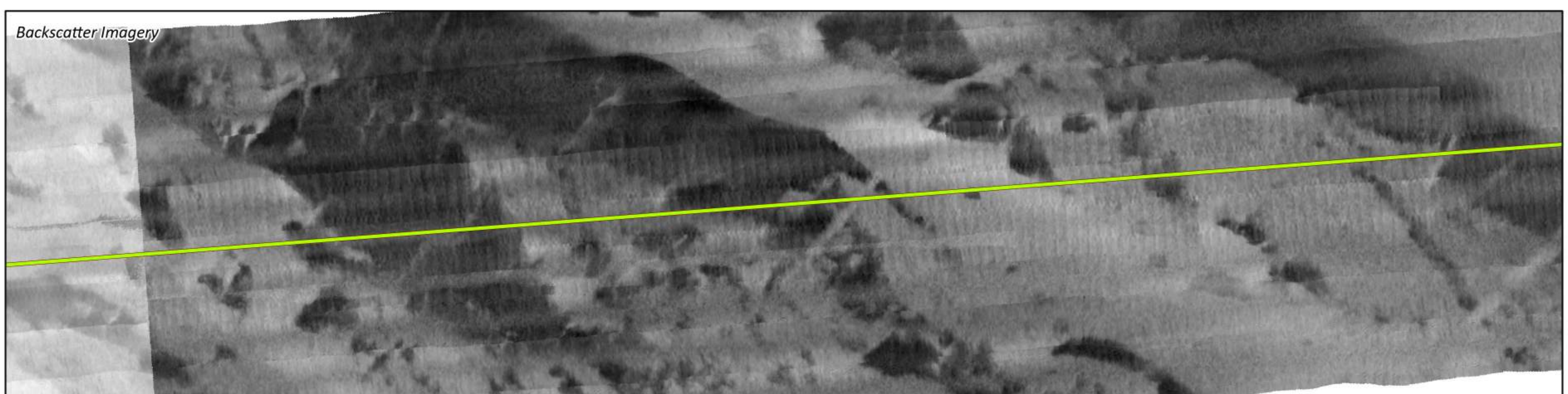
IMPACC Project 1
JSI Engineering

Cook County, Illinois

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

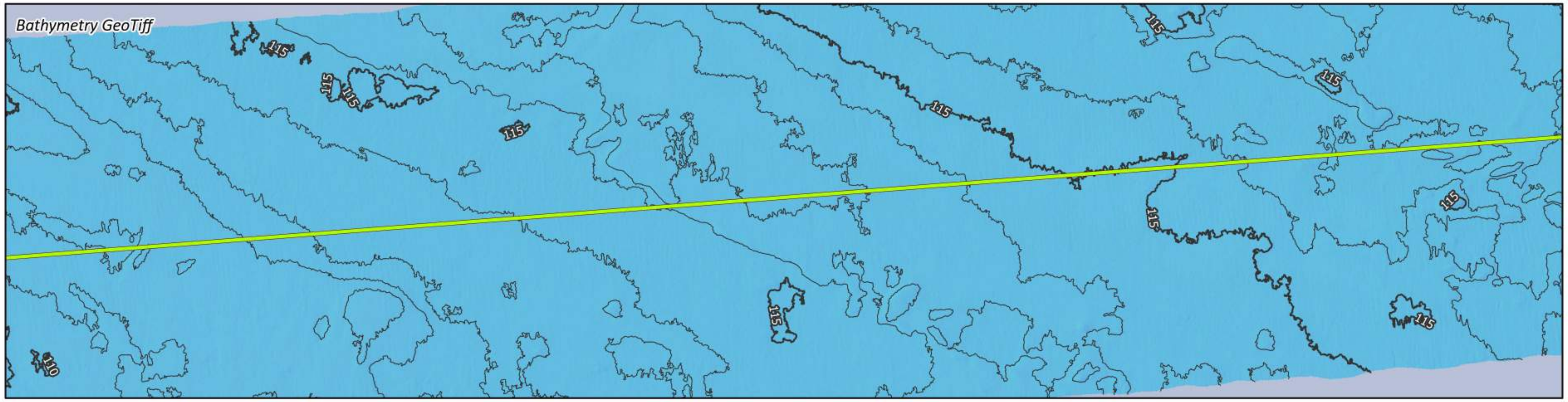
N W E S

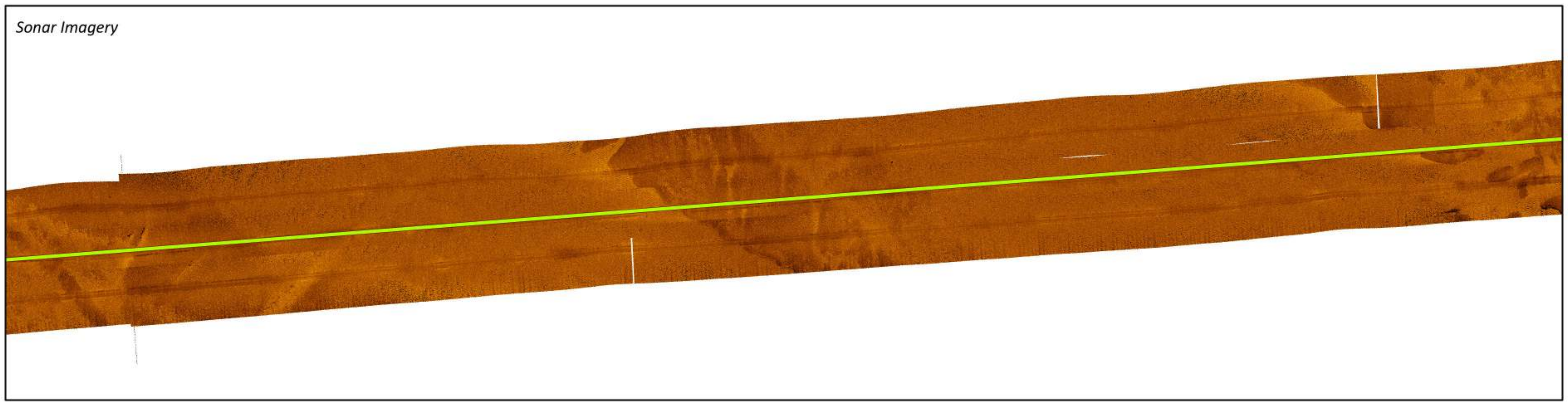
GEI Consultants

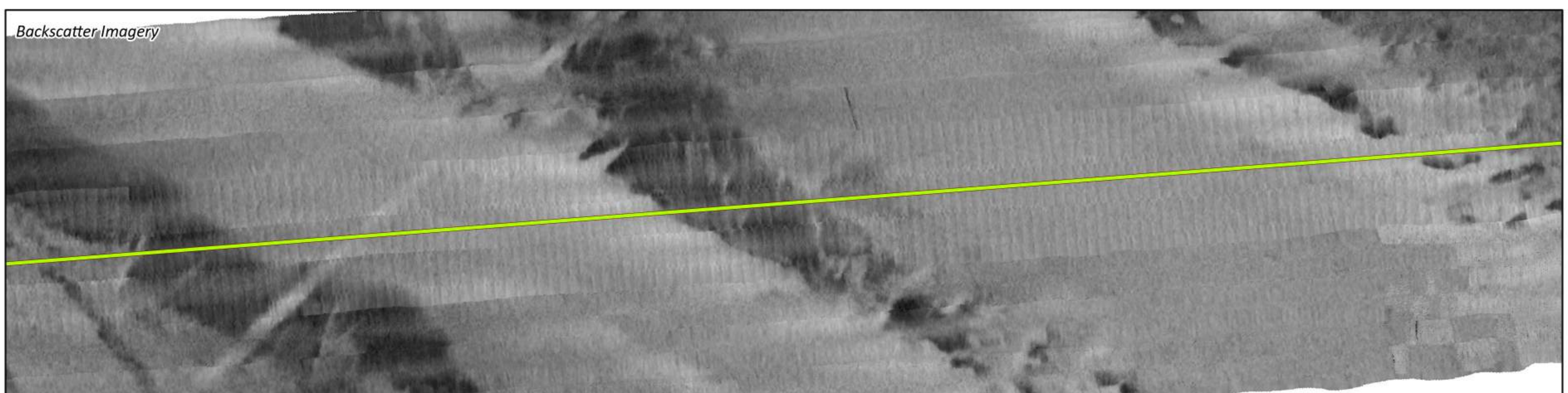
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Cook County, Illinois







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IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

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JSI Engineering

Cook County, Illinois

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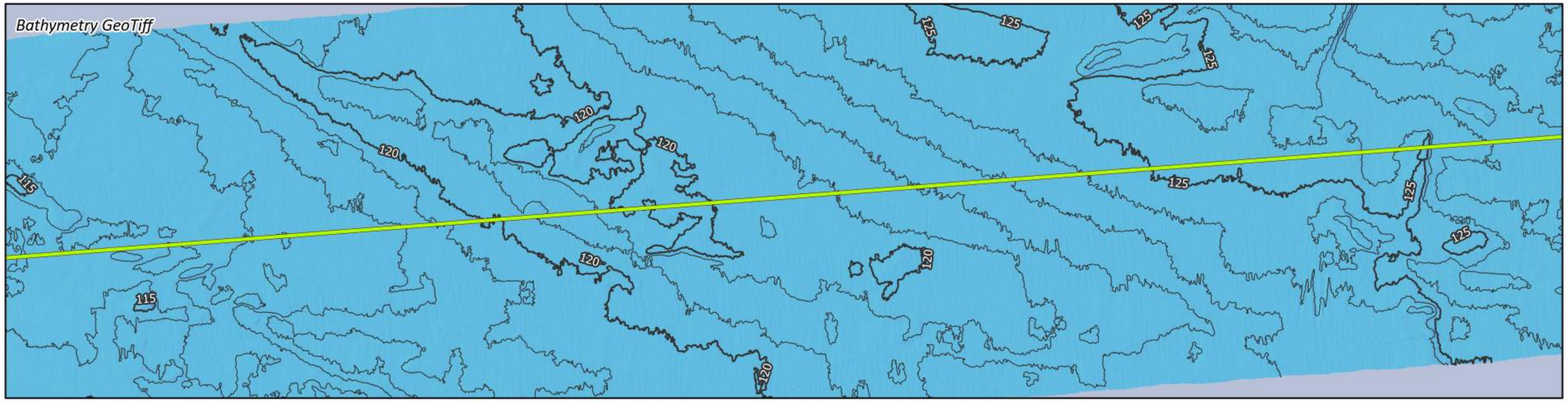
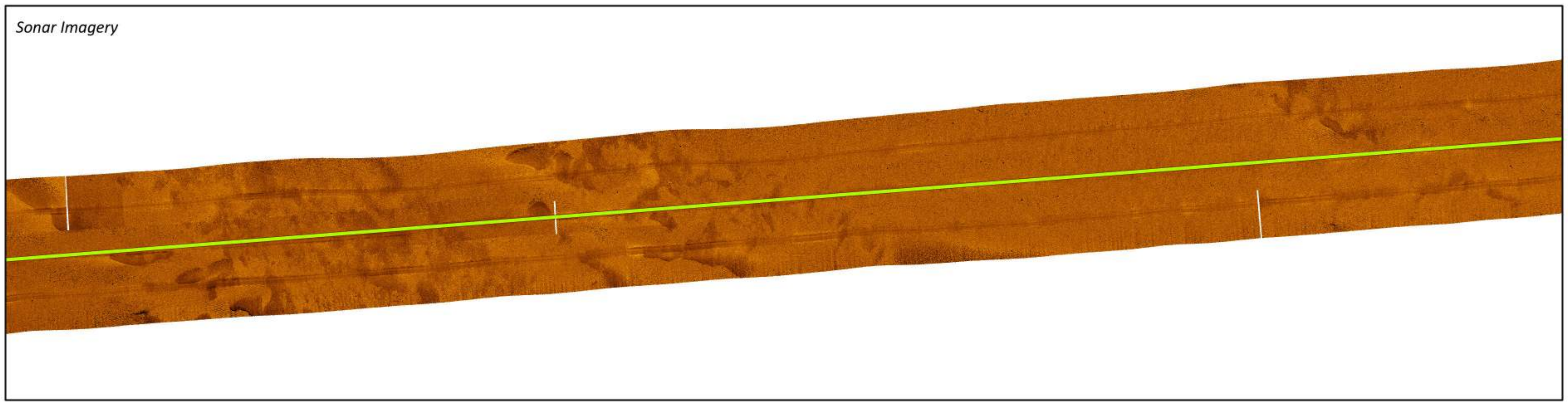
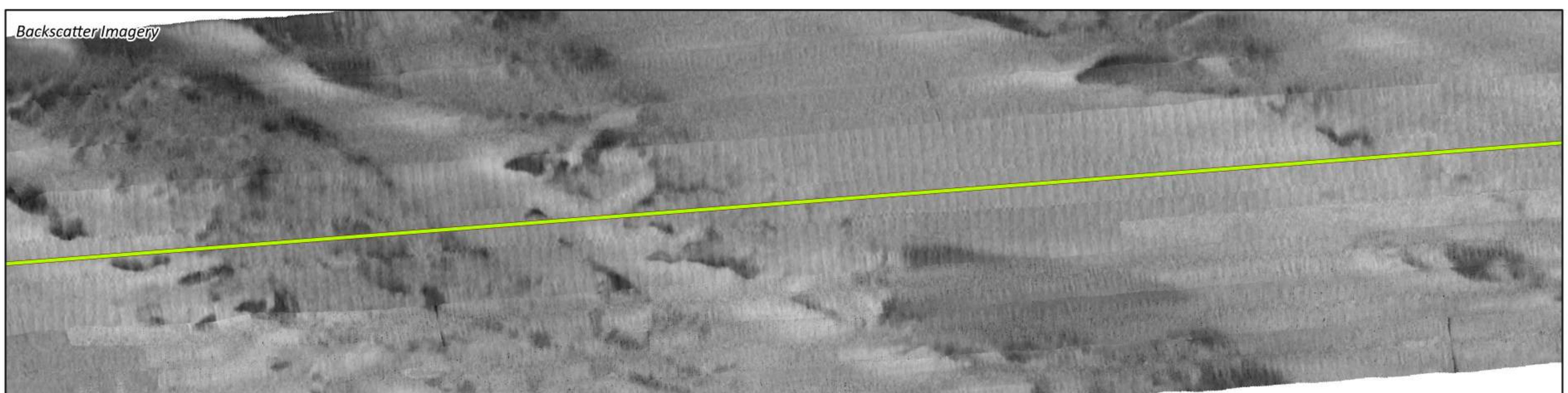
IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

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GEI Consultants

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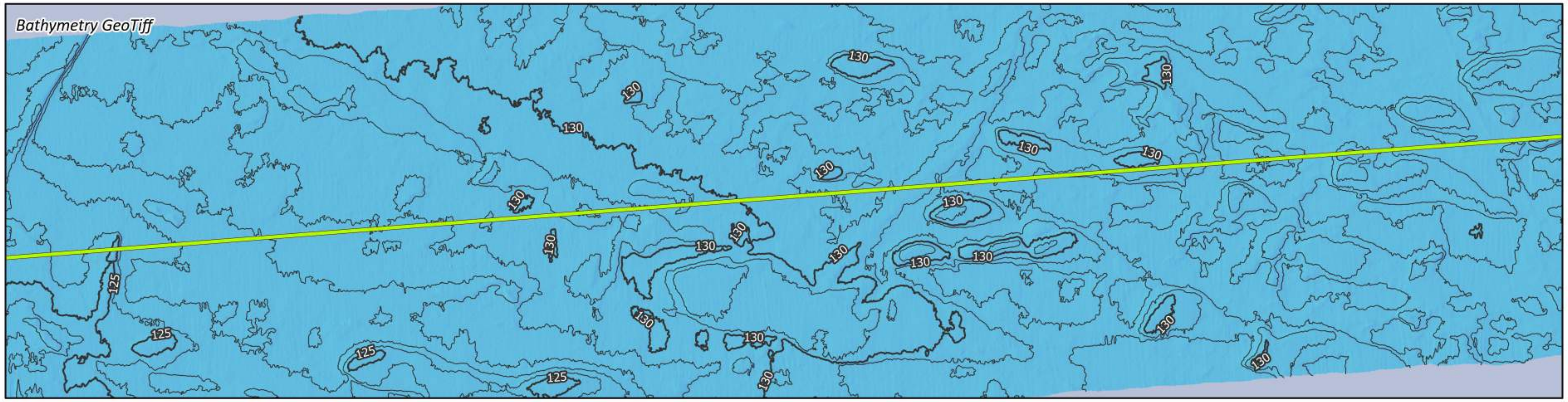
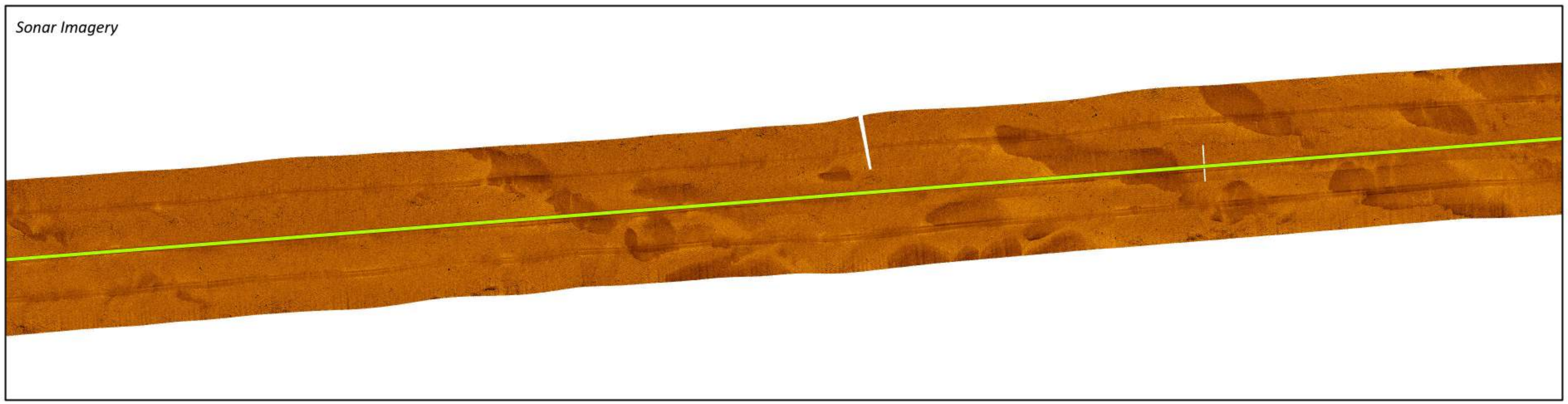
Feet

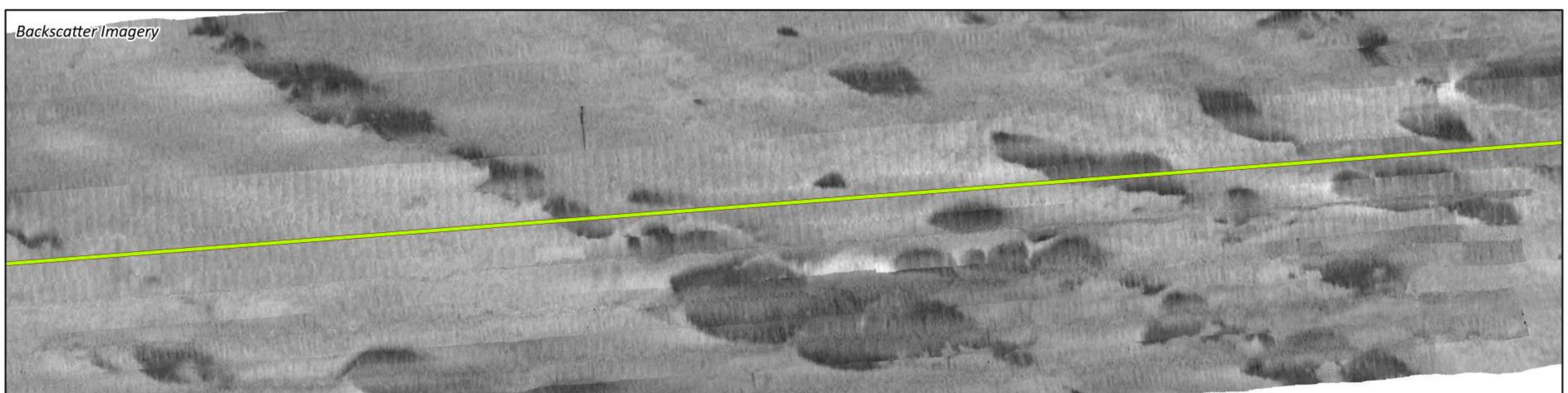
NAD 1983 BLM Zone 16N ftUS

IMPACC Project 1
JSI Engineering

Cook County, Illinois







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1 NORTH LEG CROSSING HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

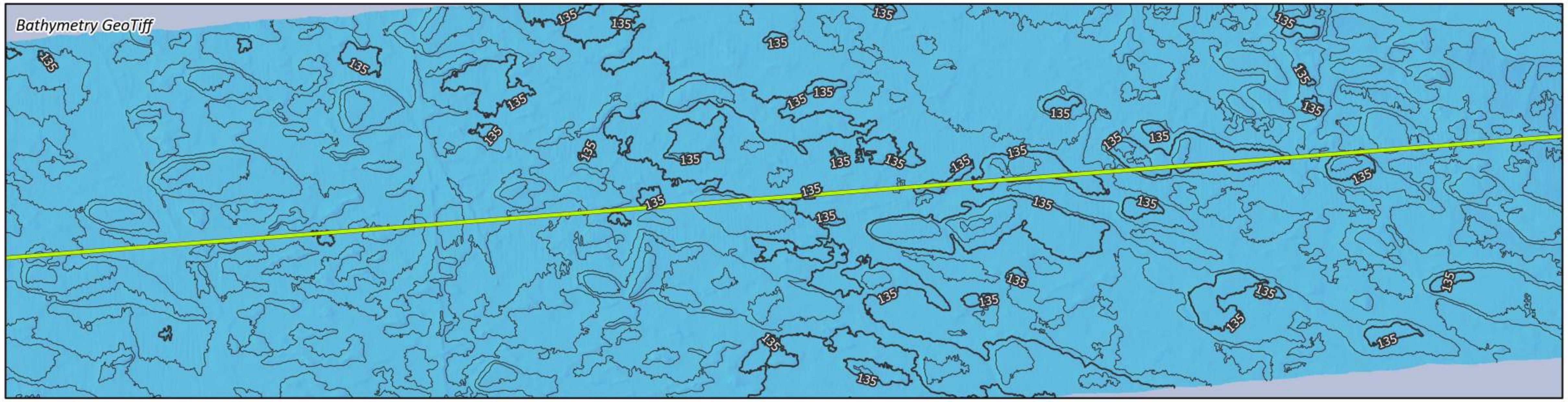
0 250 500 1,000 Feet

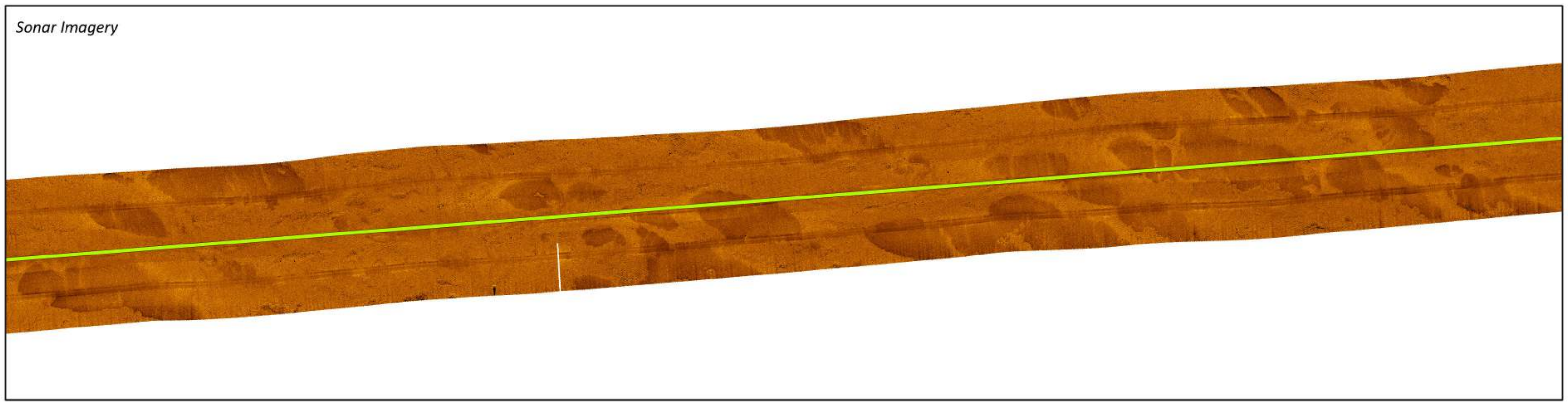
IMPACC Project 1
JSI Engineering

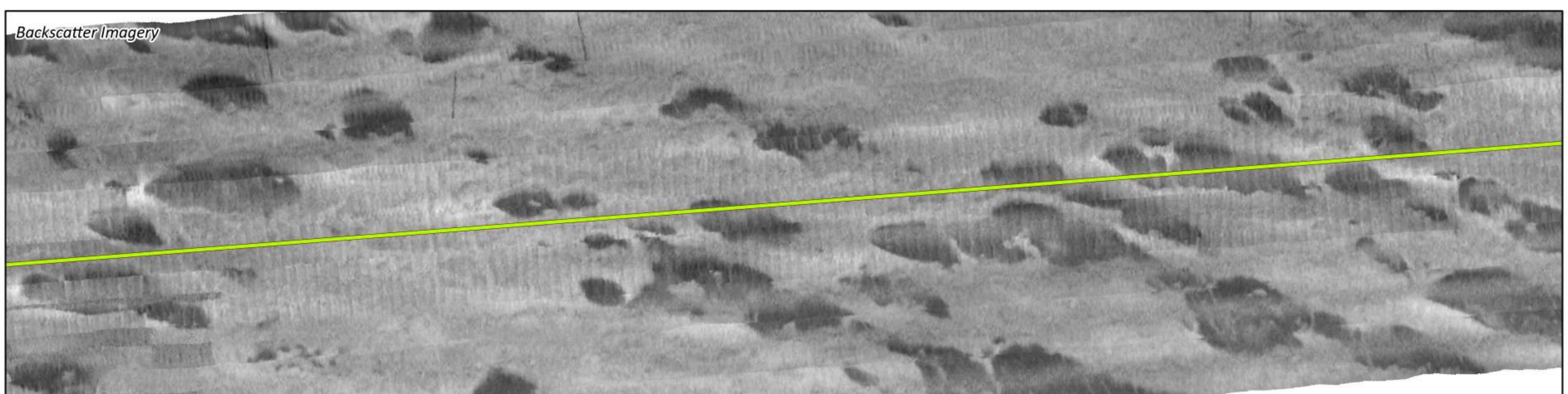
Cook County, Illinois

Project 2305496 October 2025

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

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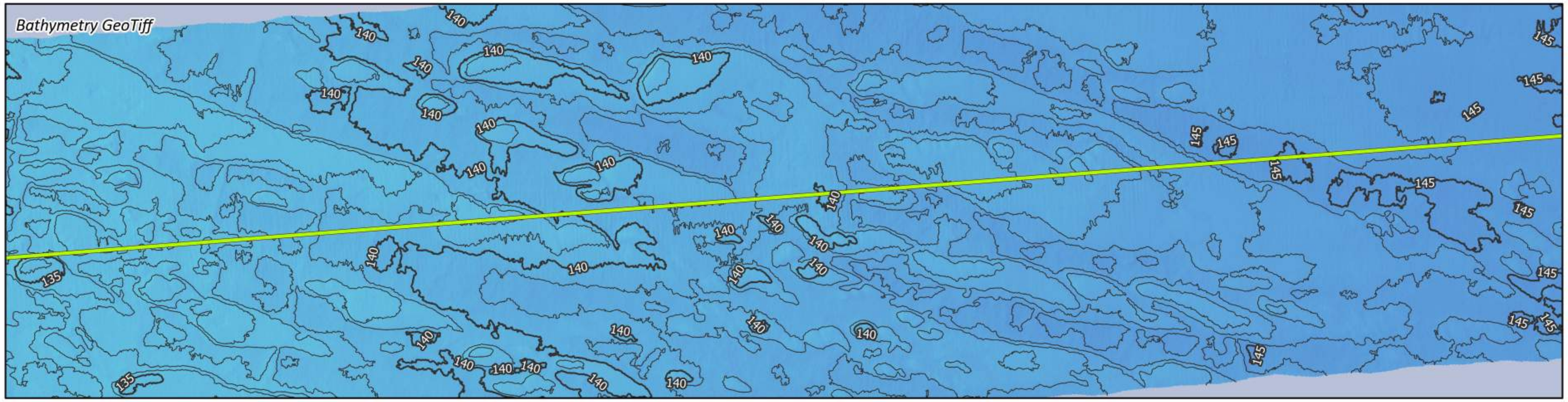
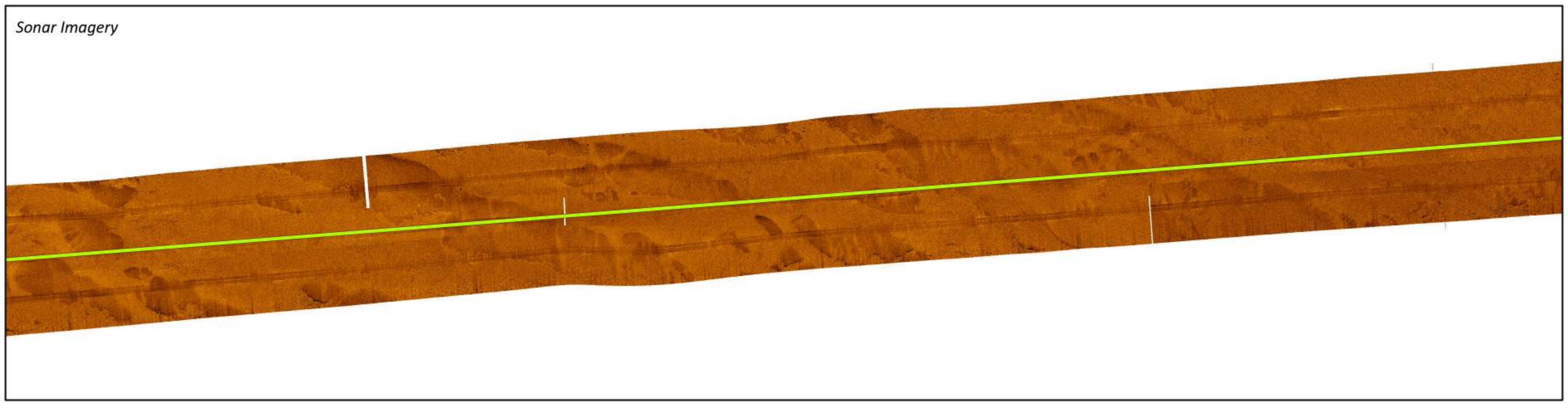
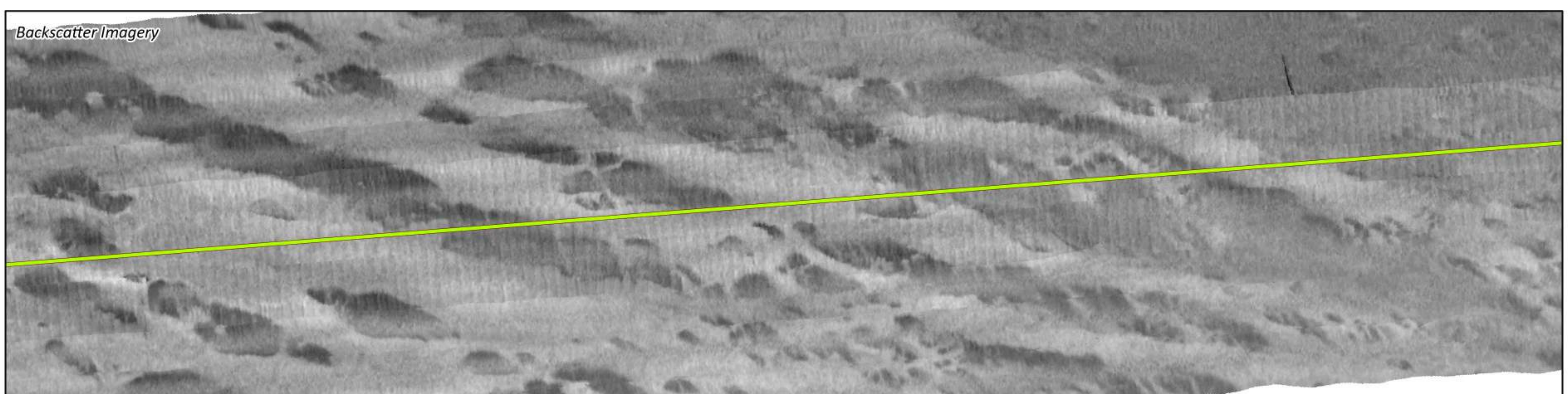
JSI Engineering

Cook County, Illinois

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

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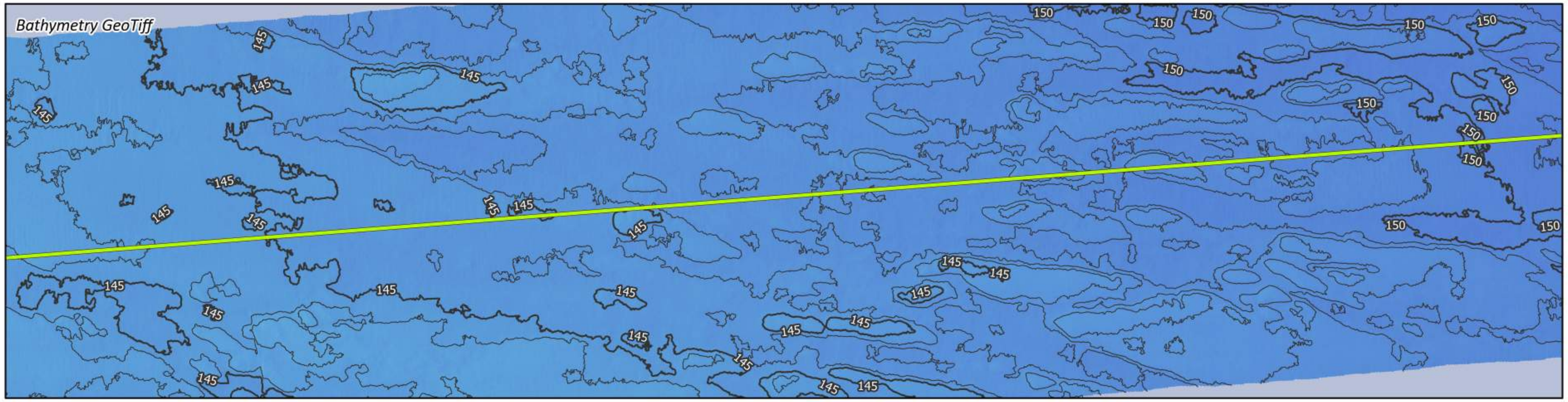
Cook County, Illinois

Project 2305496 October 2025

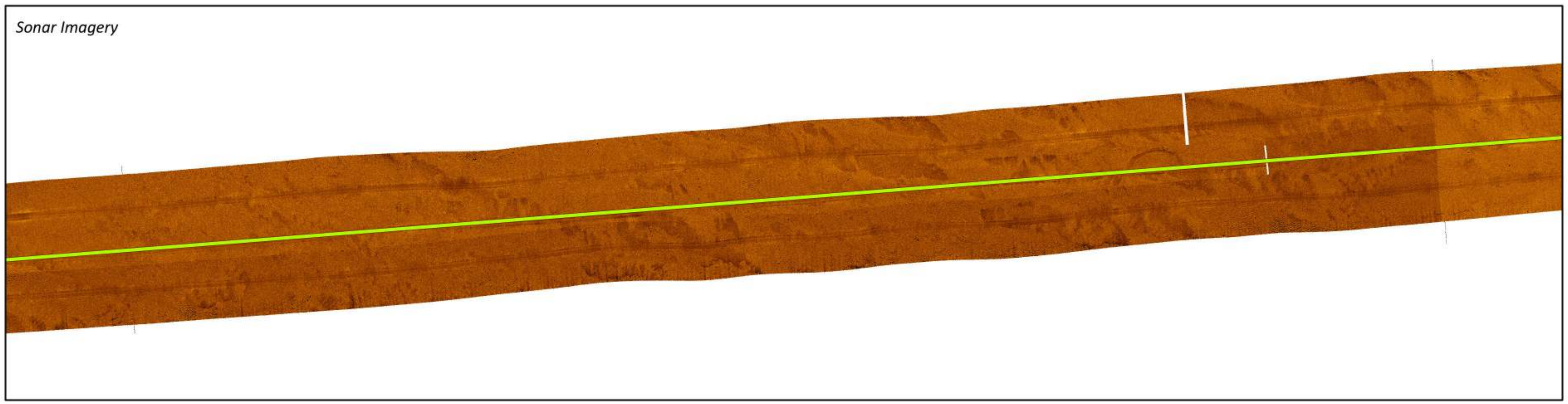
NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

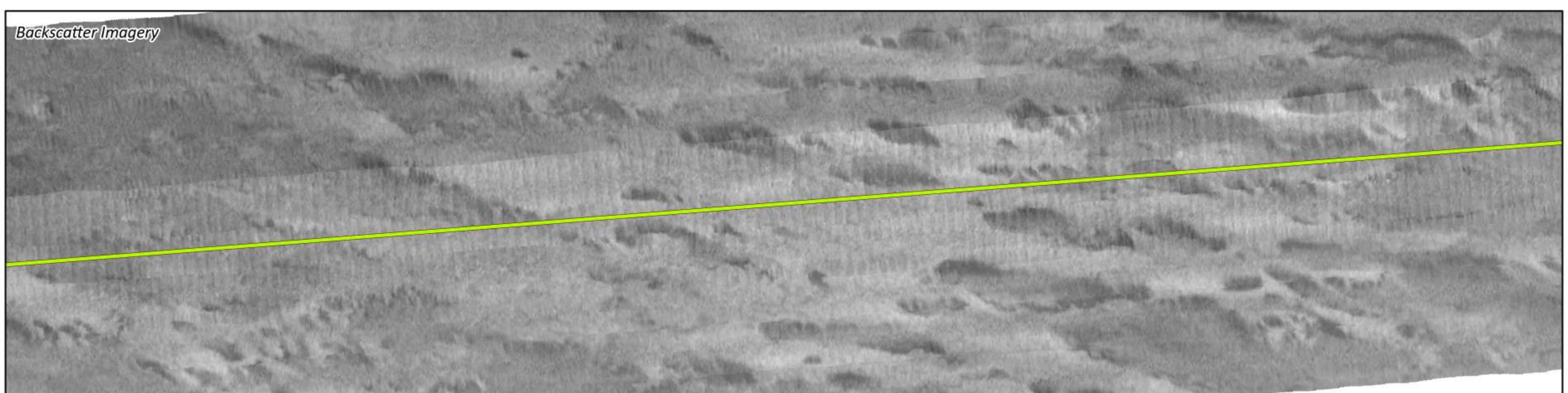
Bathymetry GeoTiff



Sonar Imagery



Backscatter Imagery



LEGEND:

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Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

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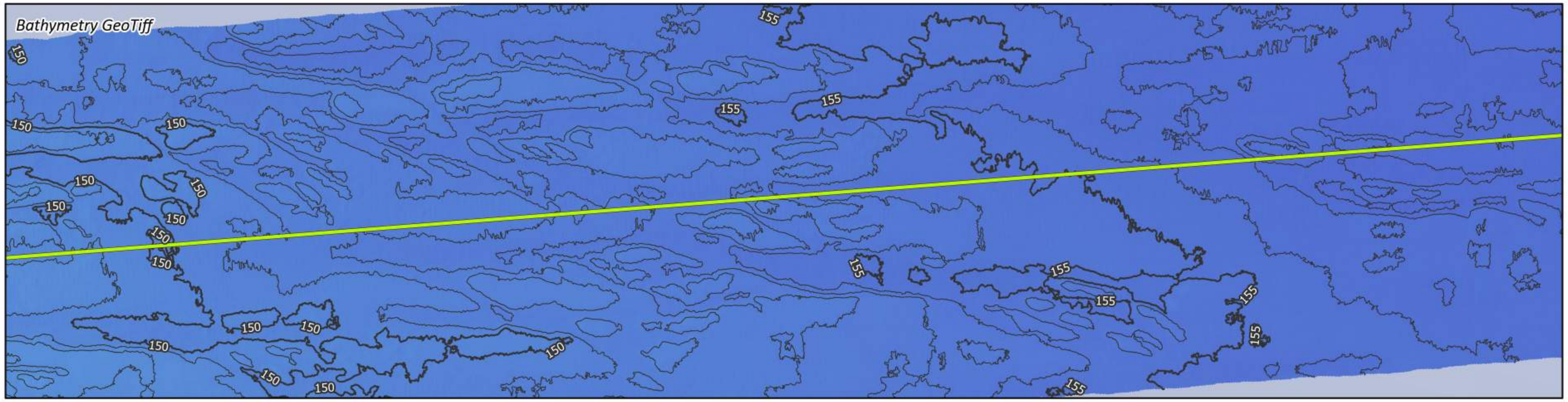
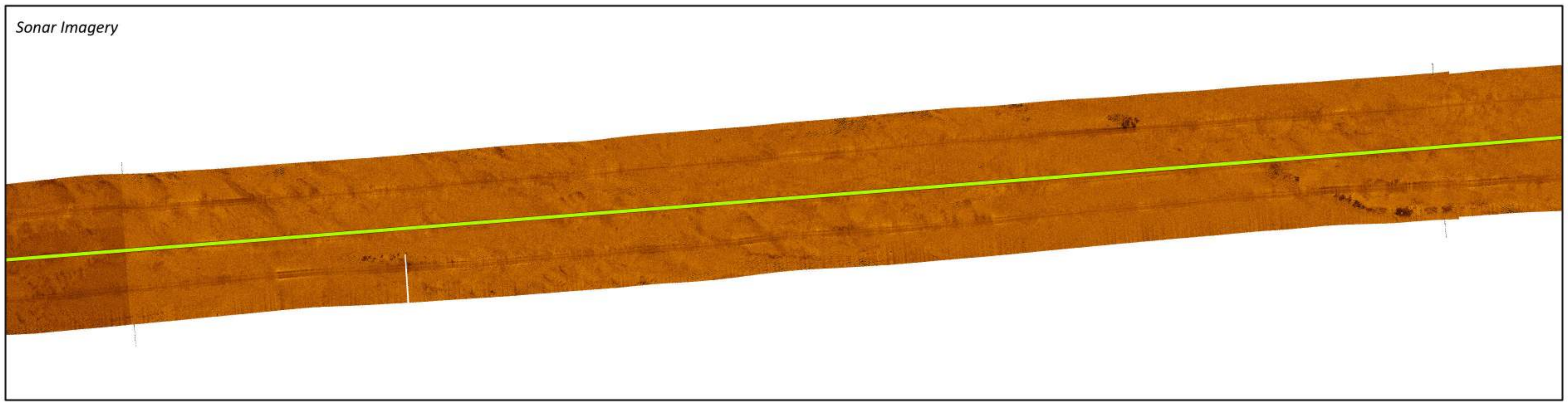
Cook County, Illinois

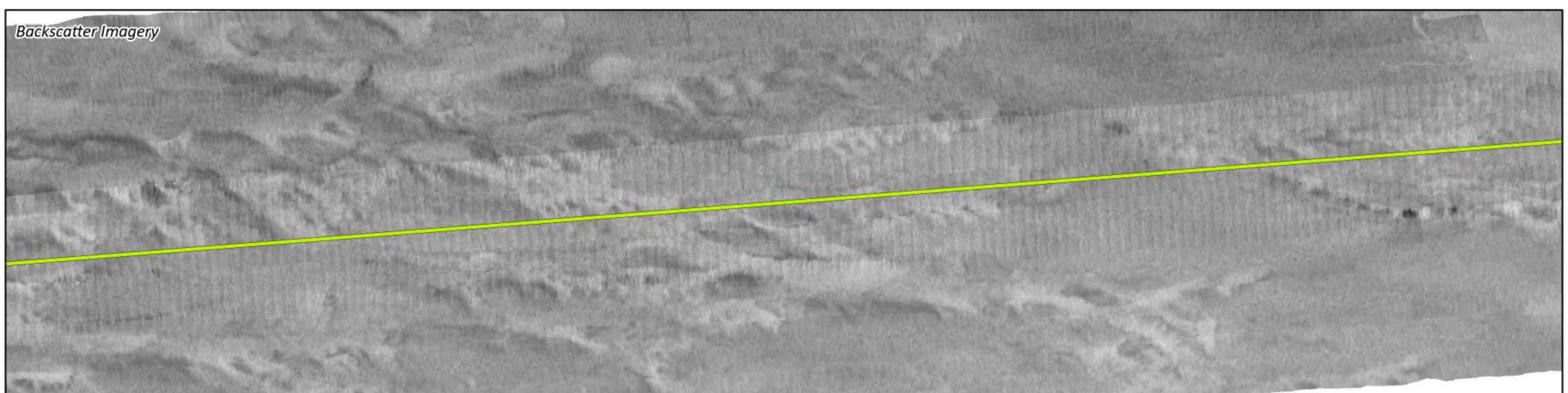
Project 2305496 October 2025

NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

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Cook County, Illinois

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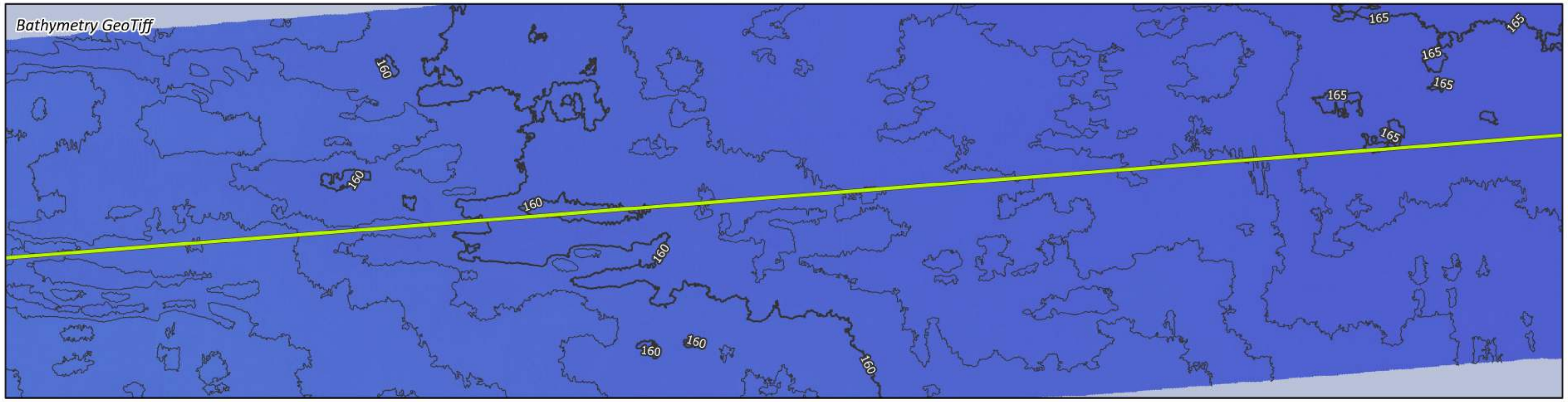
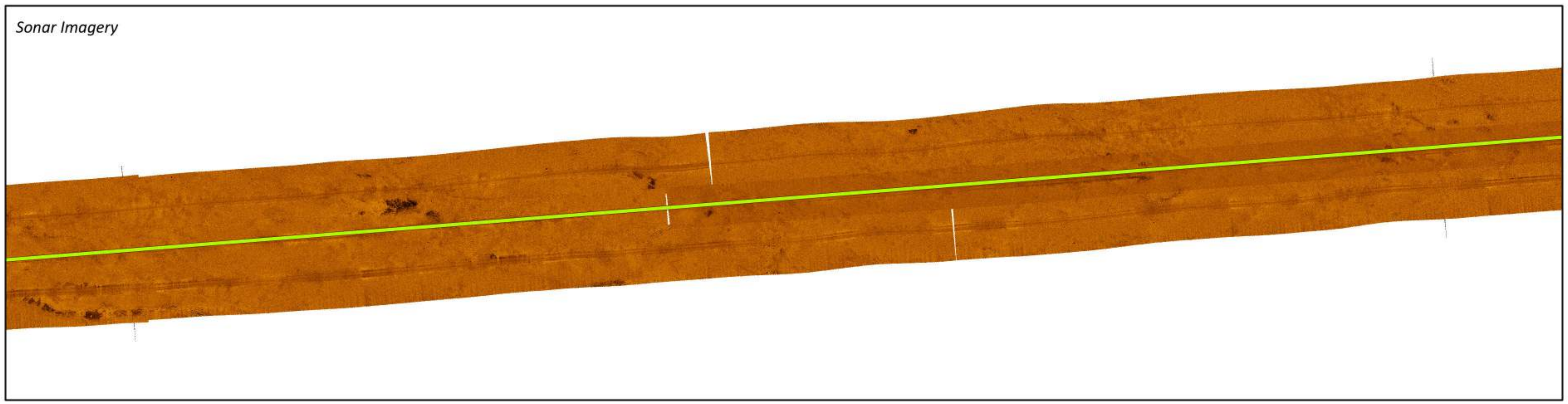
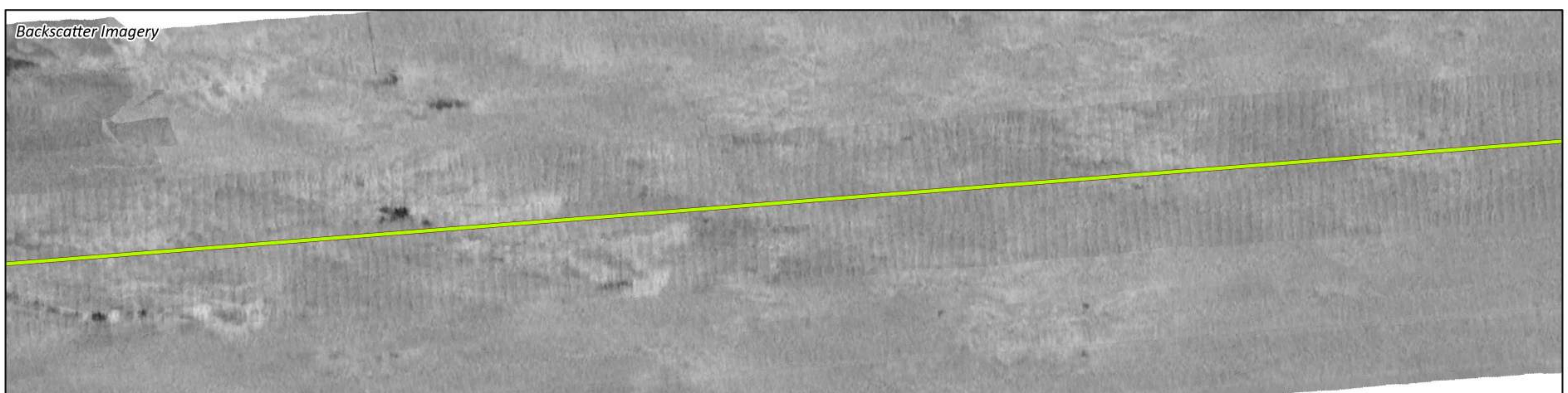






NAD 1983 BLM Zone 16N ftUS

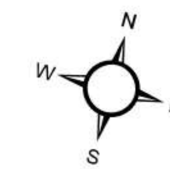
IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)



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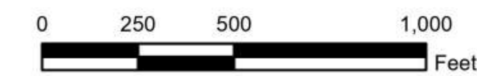
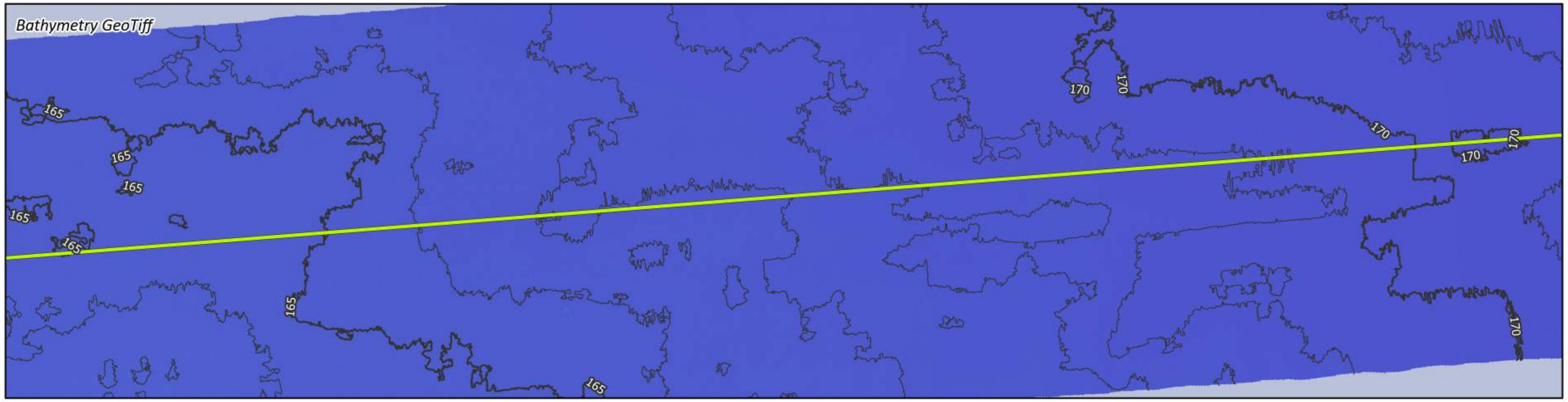
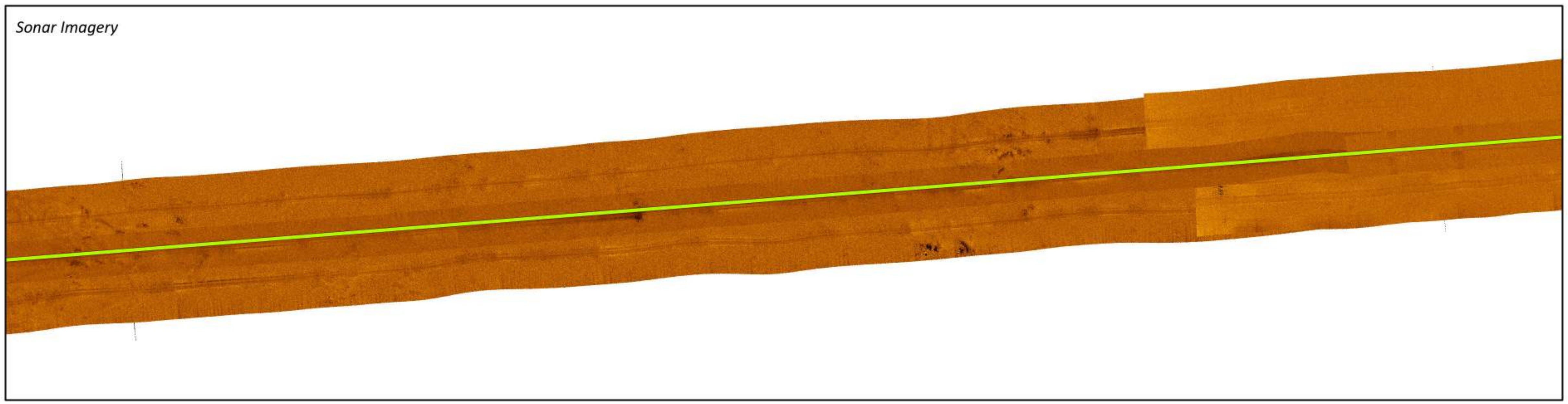
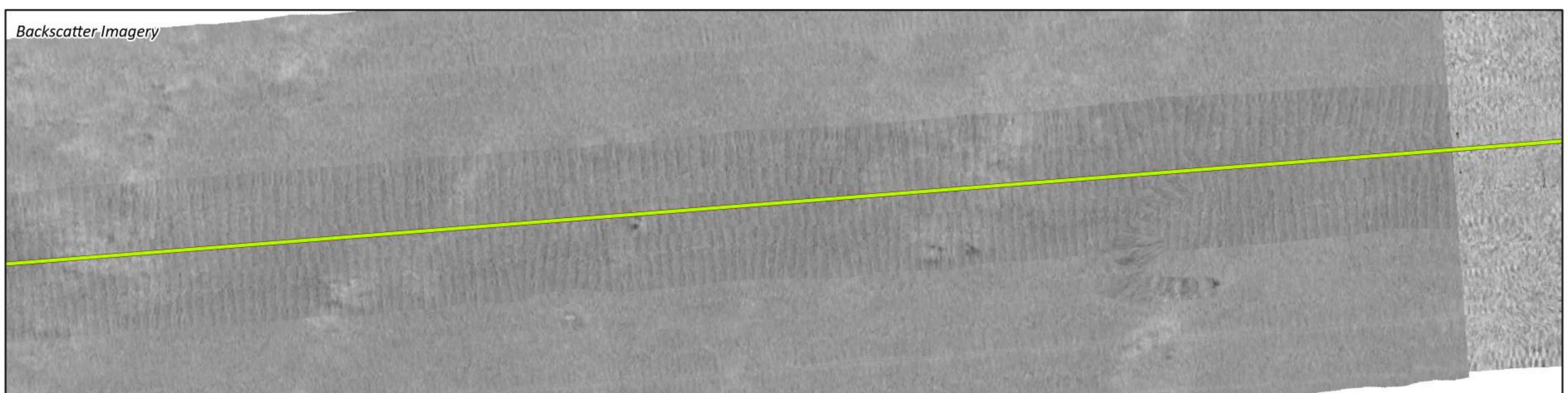


IMPACC Project 1
JSI Engineering

Cook County, Illinois







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

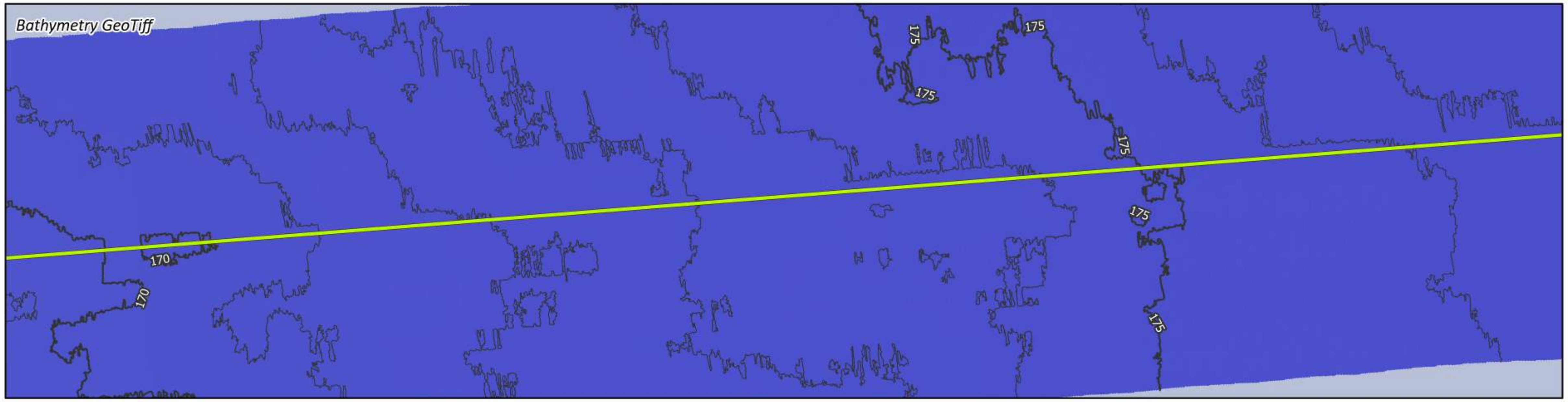
N W E S

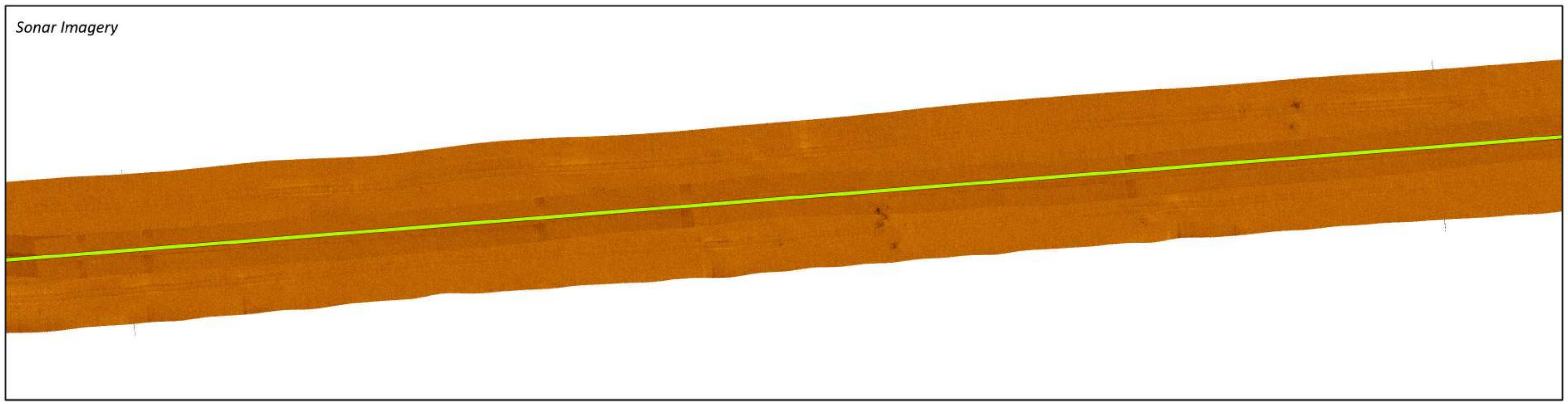
GEI Consultants

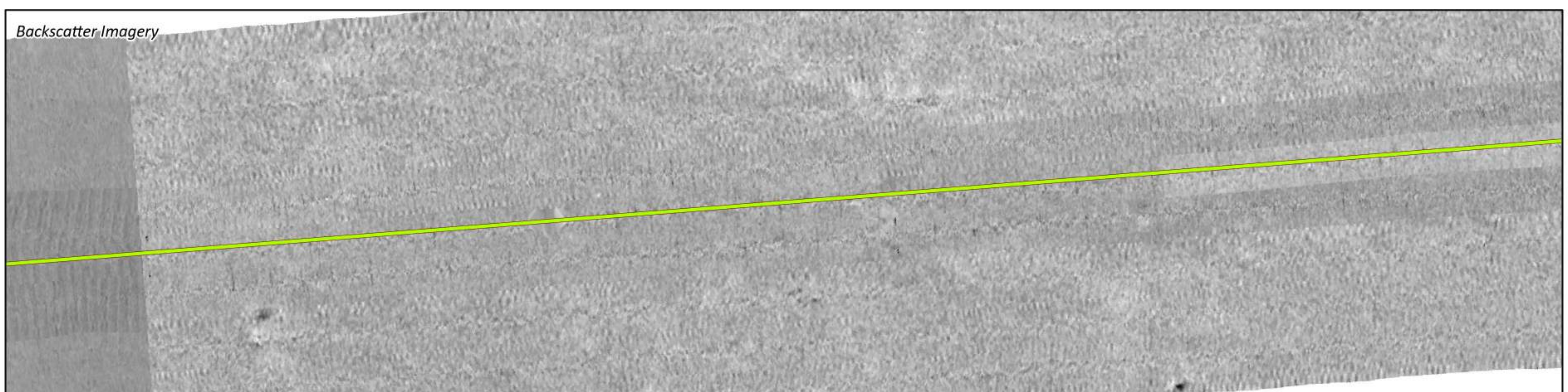
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan

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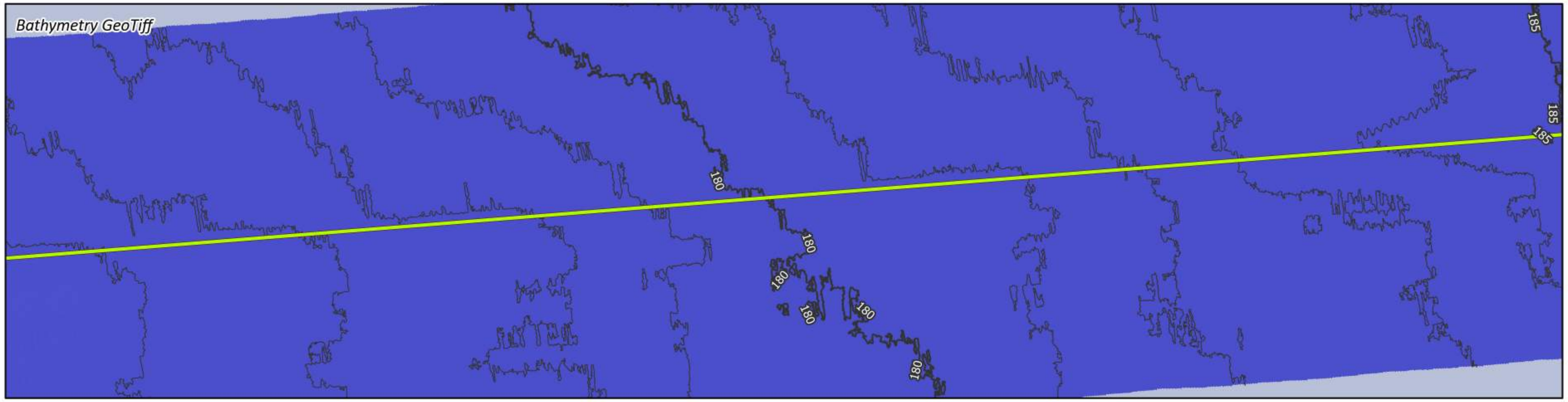
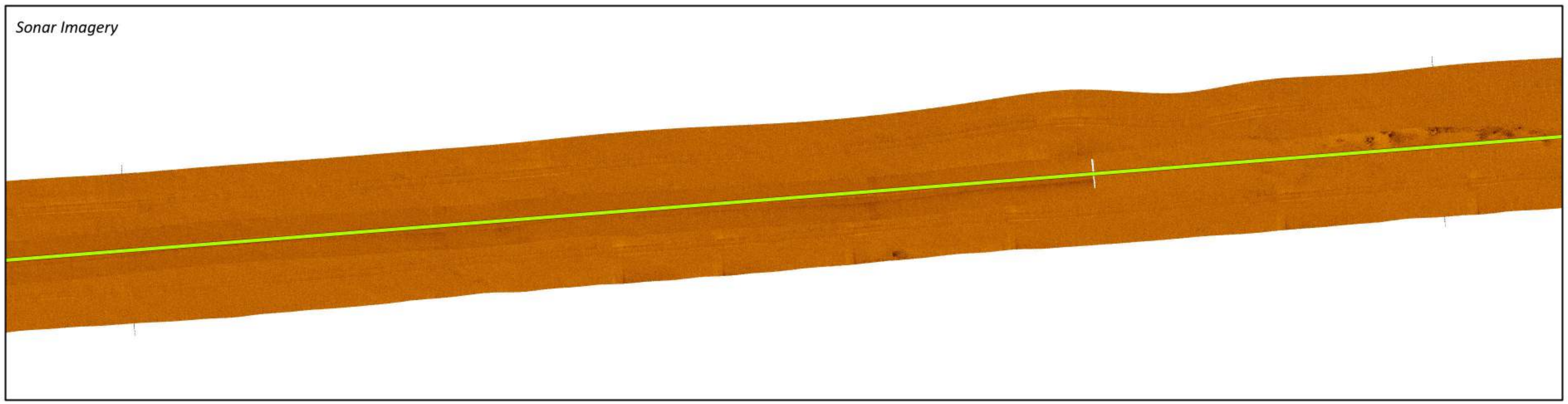
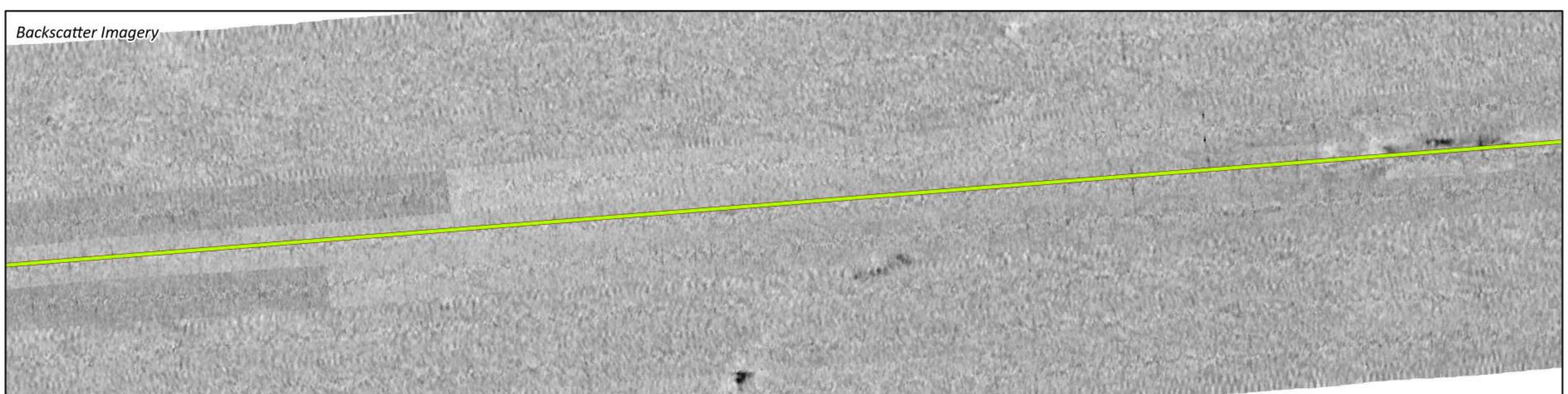






NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

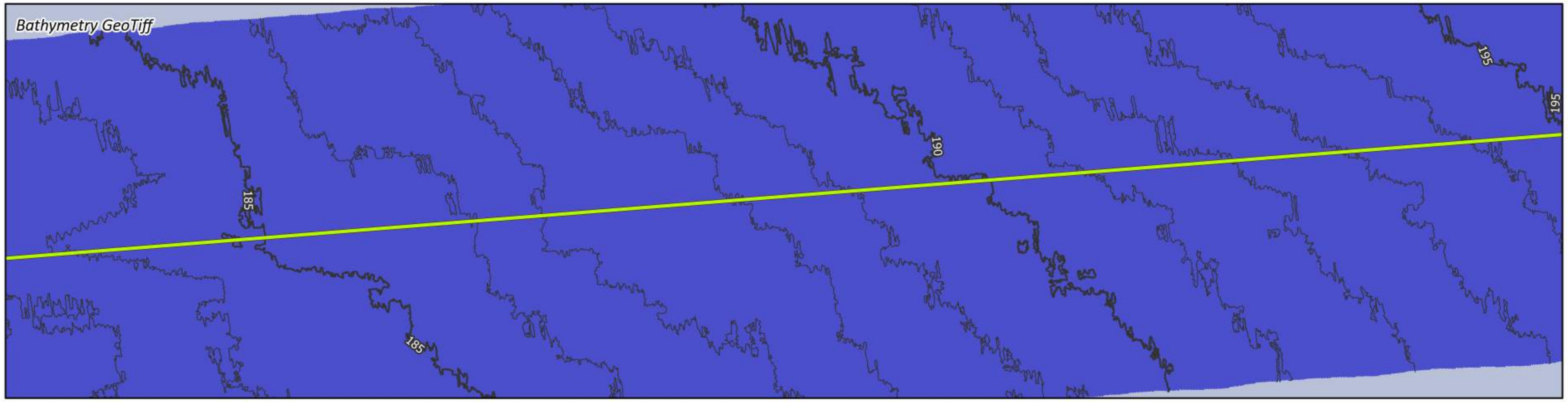
- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

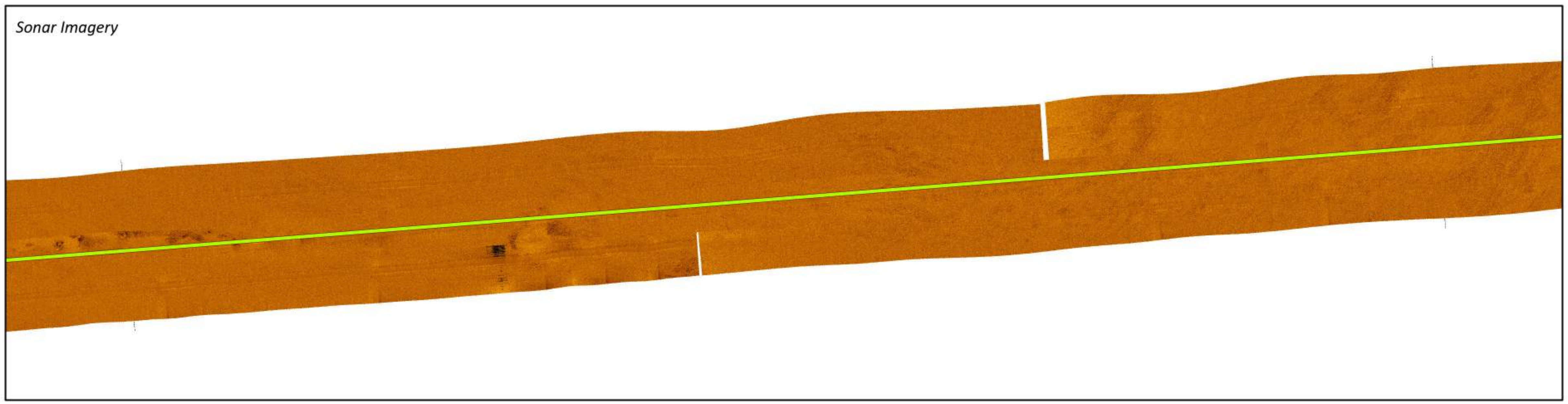
GEI Consultants

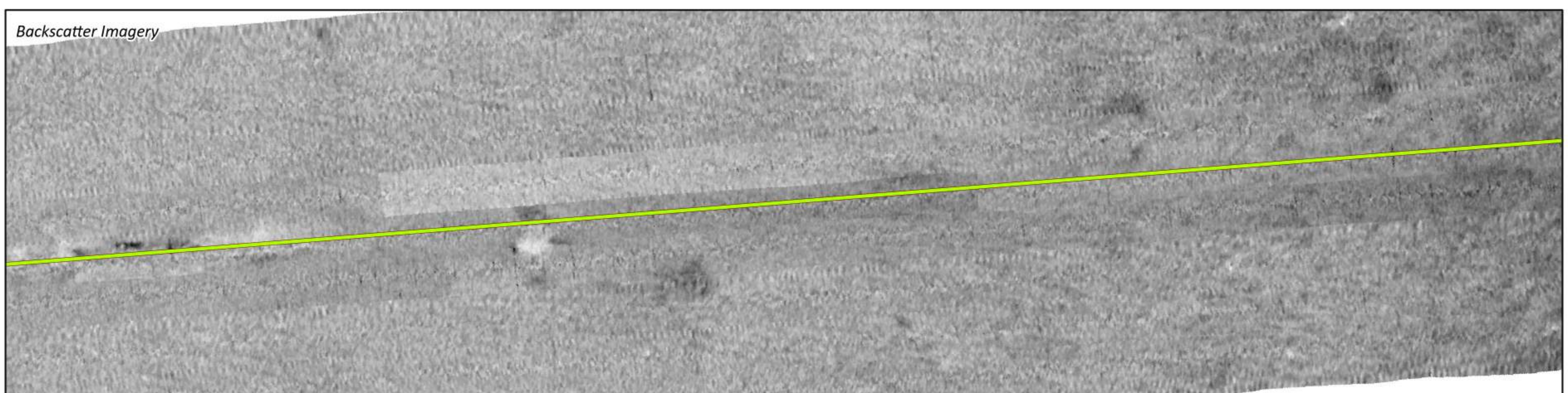
Scale: 0, 250, 500, 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan

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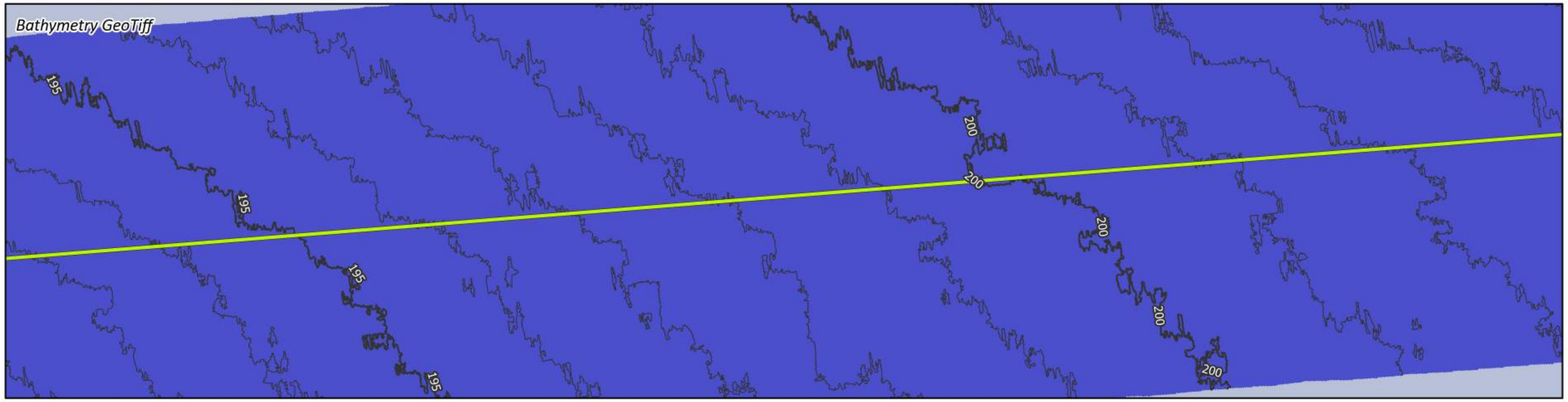
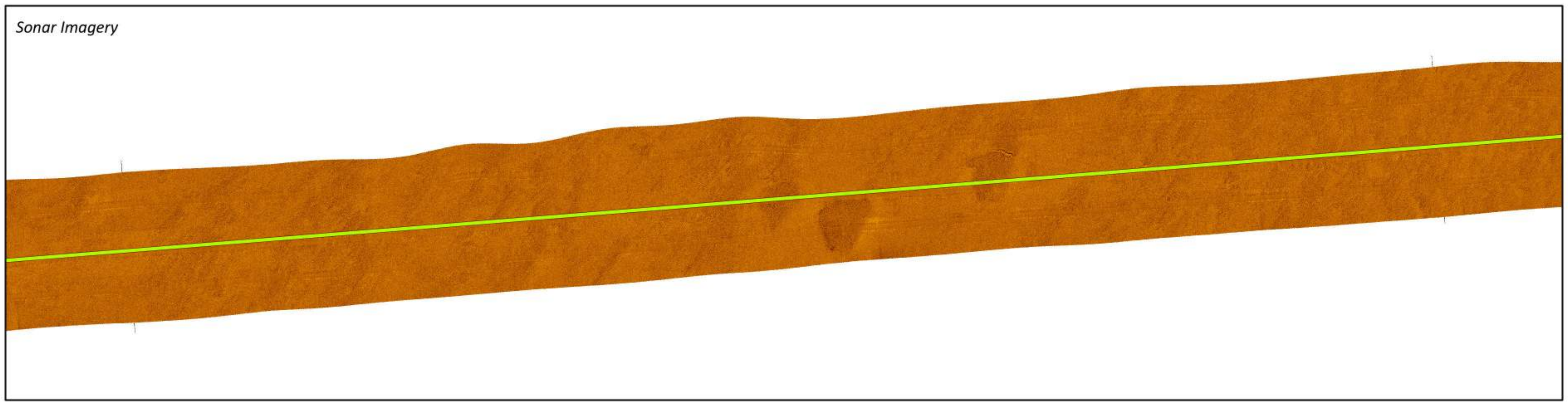
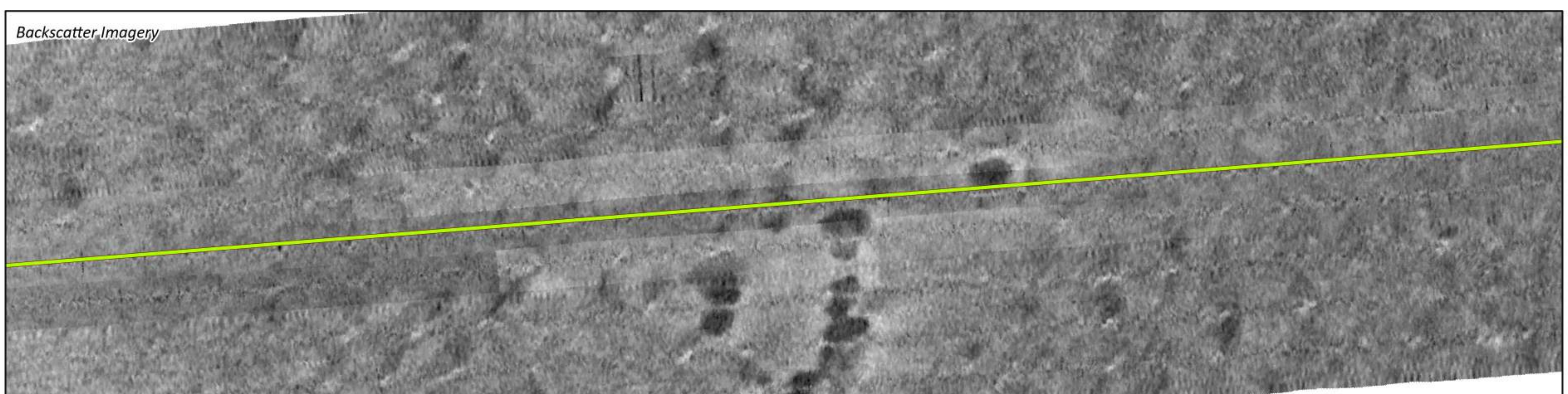






NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

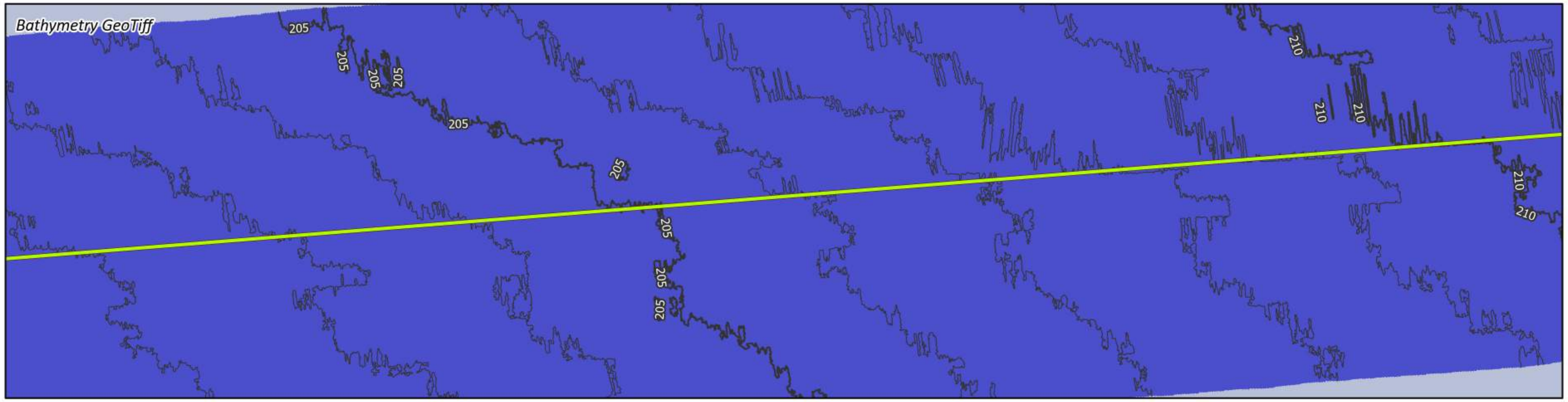
N W E S

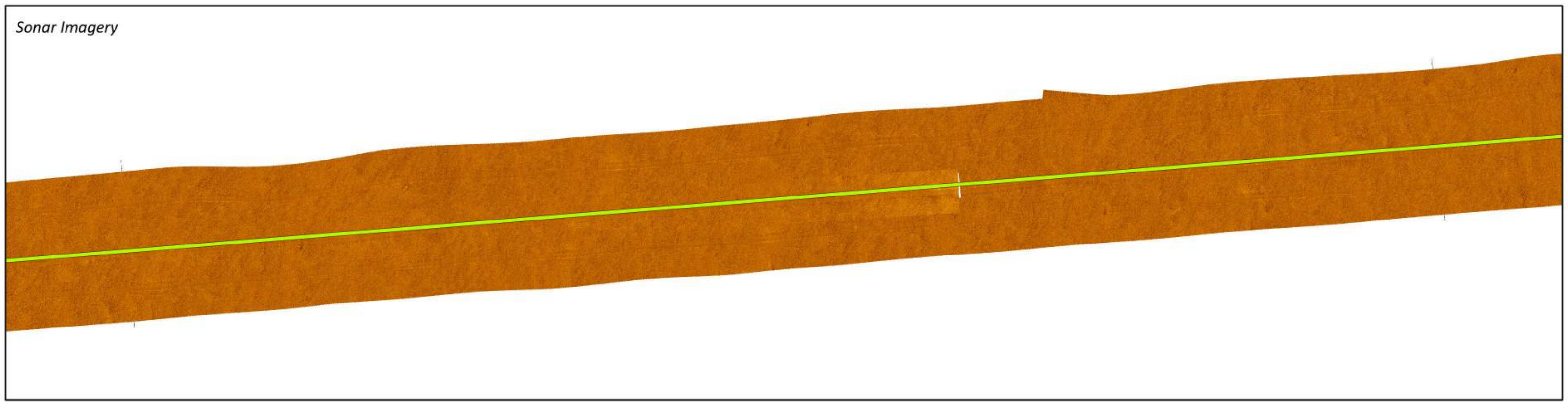
GEI Consultants

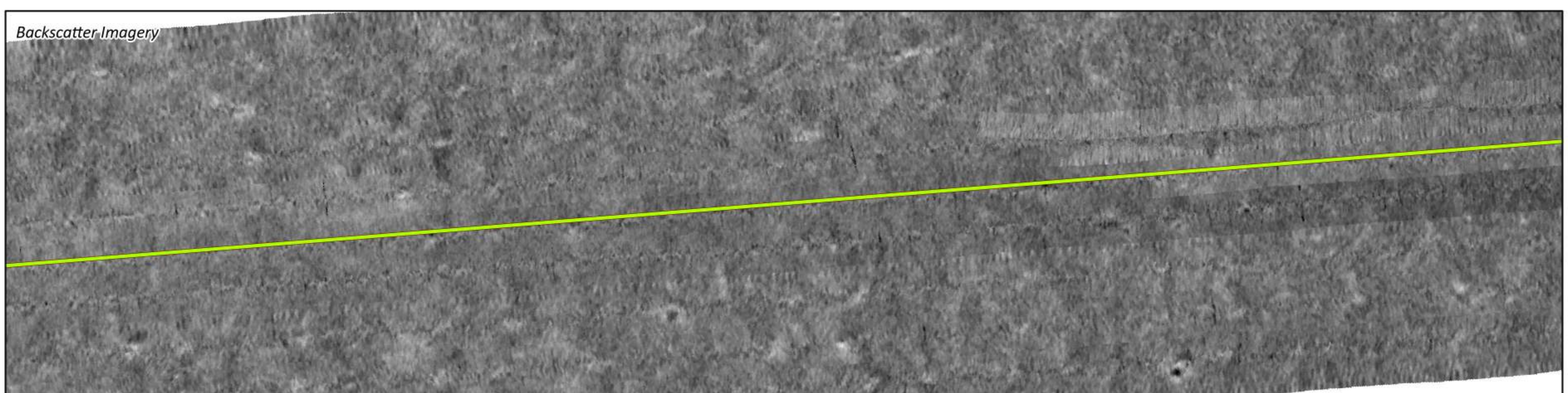
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

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Bathymetry Contours (Feet Below IGLD85 LWD)

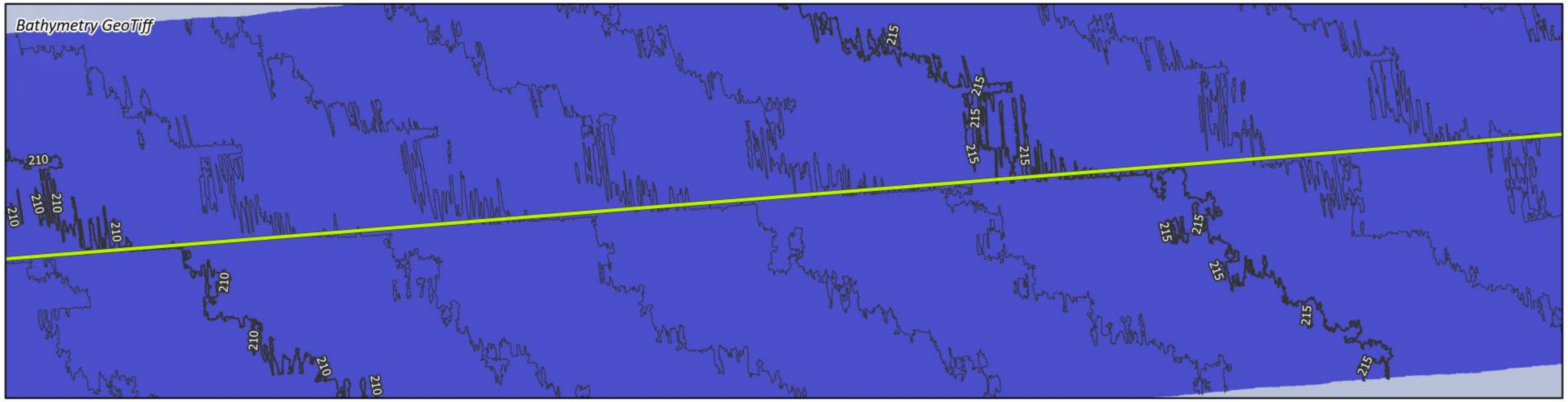
GEI Consultants

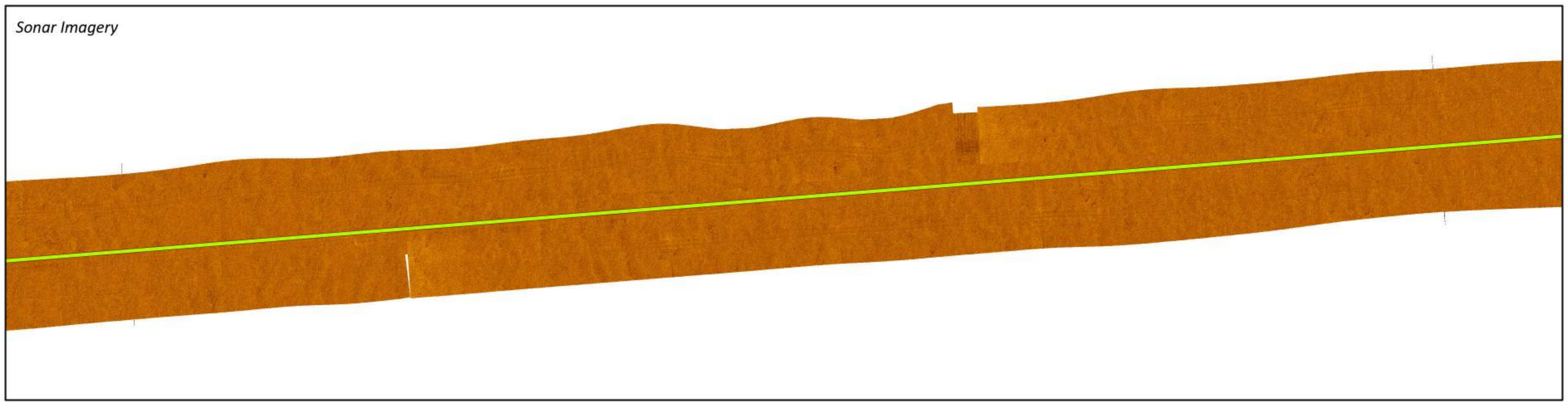
0 250 500 1,000 Feet

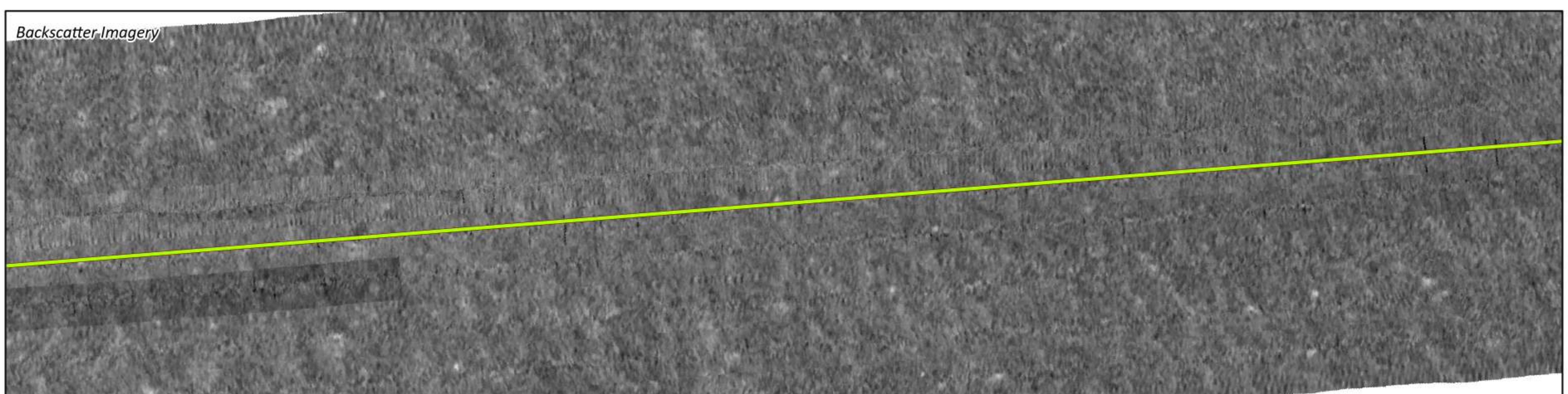
IMPACC Project 1
JSI Engineering

Berrian County, Michigan

Project 2305496 October 2025







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

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Bathymetry Contours (Feet Below IGLD85 LWD)

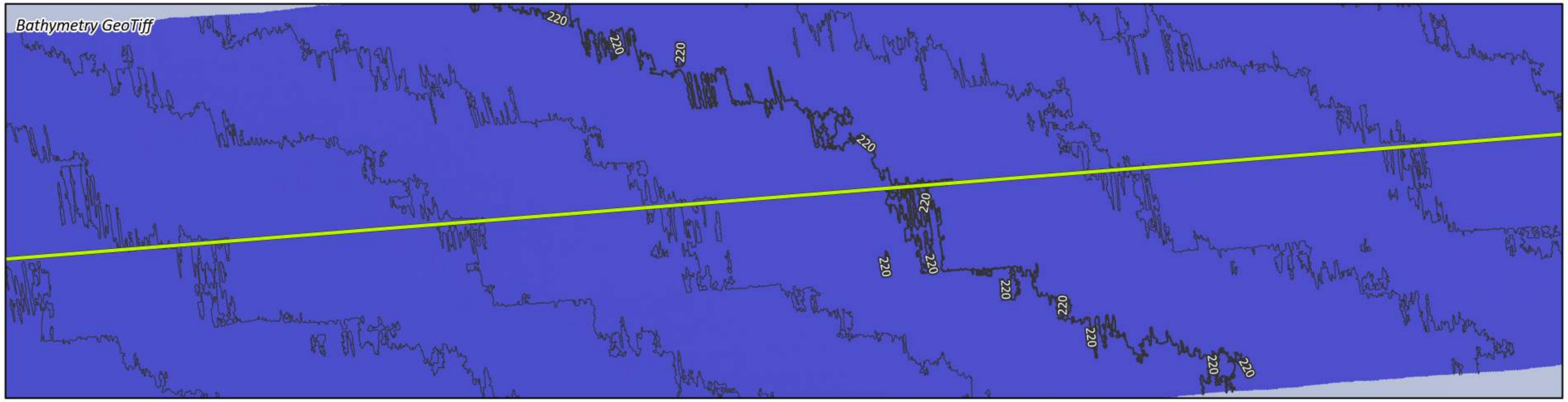
N W E S

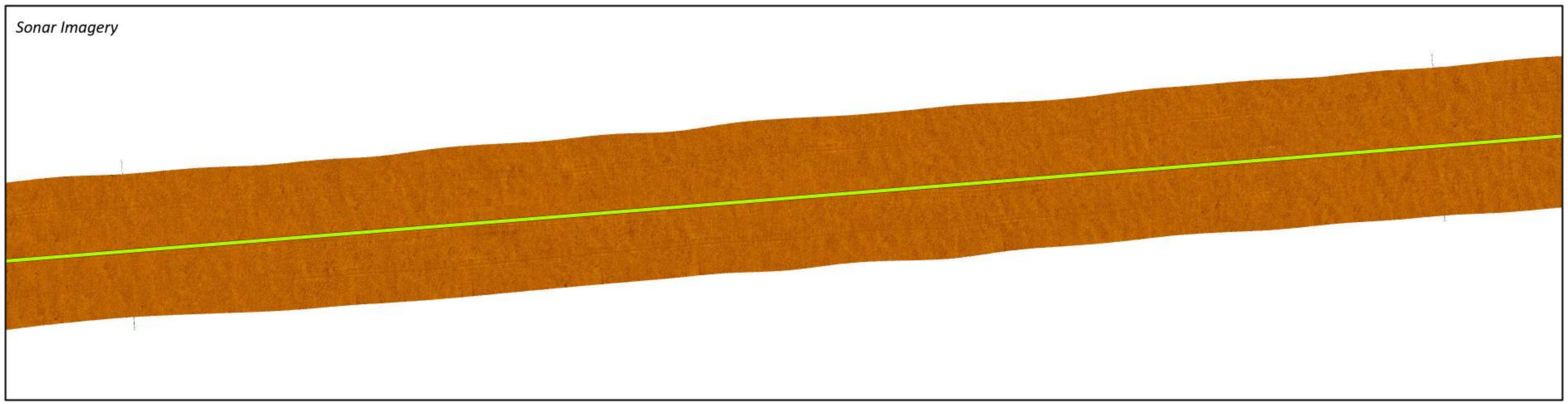
GEI Consultants

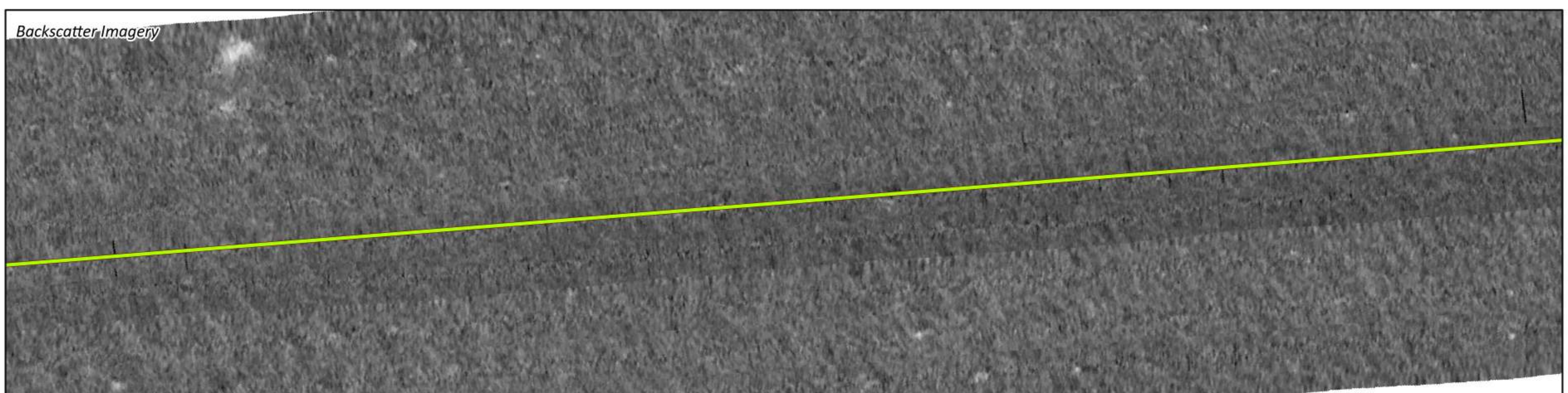
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

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Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

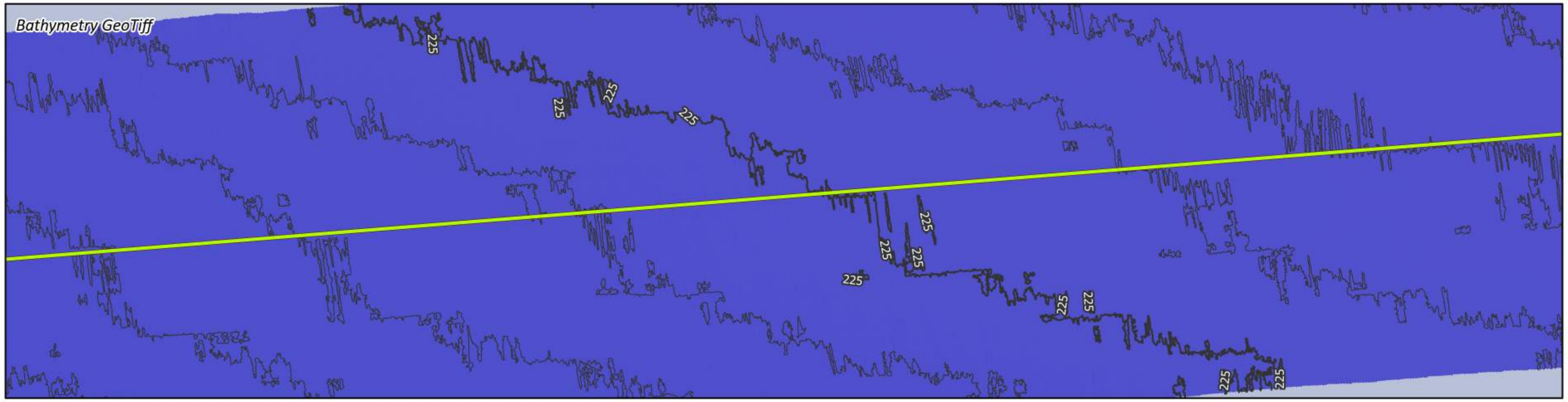
GEI Consultants

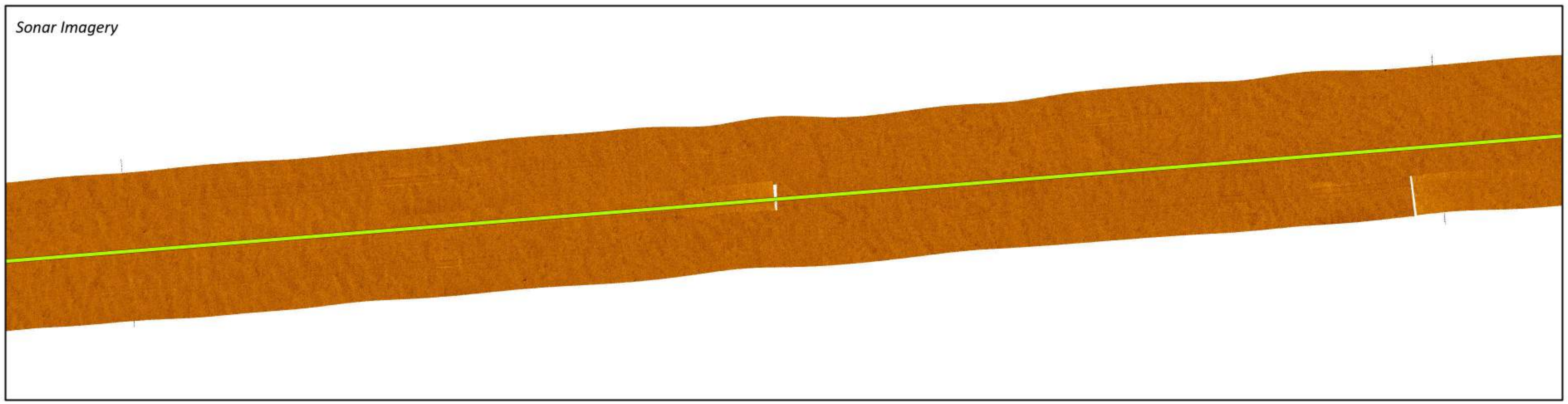
0 250 500 1,000 Feet

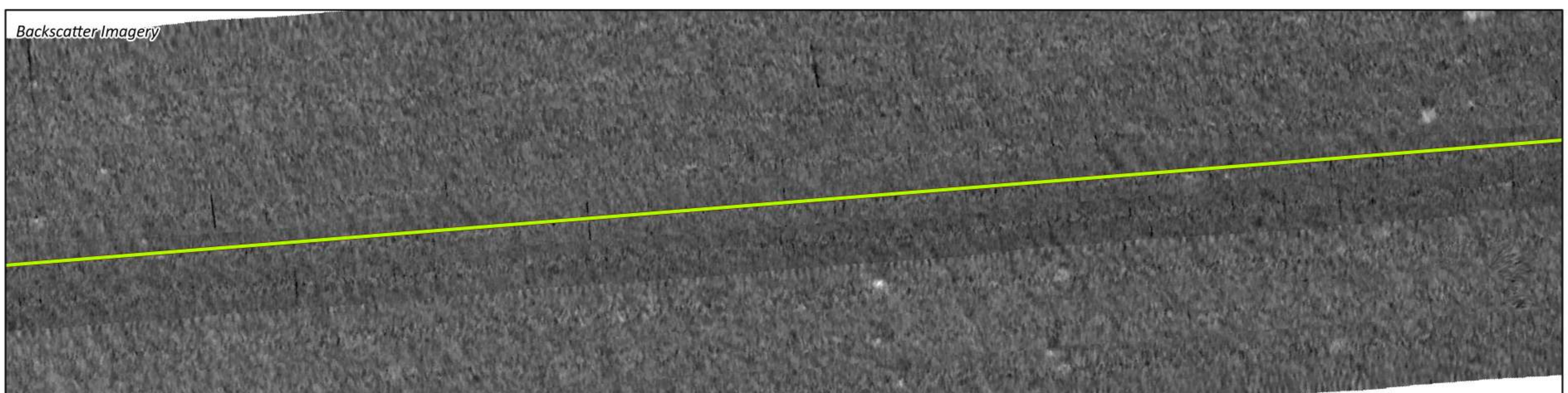
IMPACC Project 1
JSI Engineering

Berrian County, Michigan

Project 2305496 October 2025







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
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HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

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N W E S

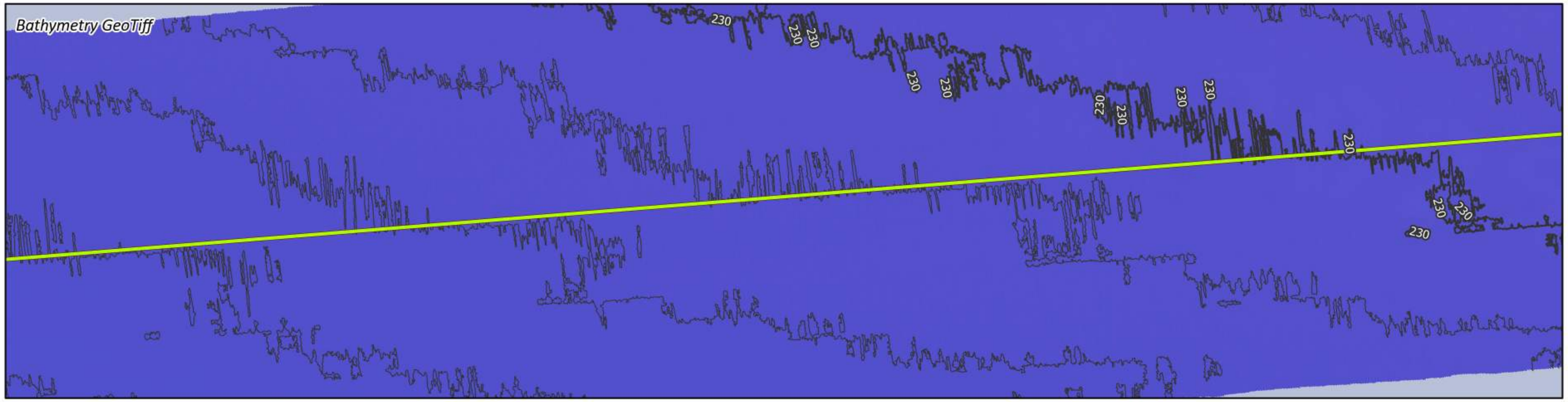
GEI Consultants

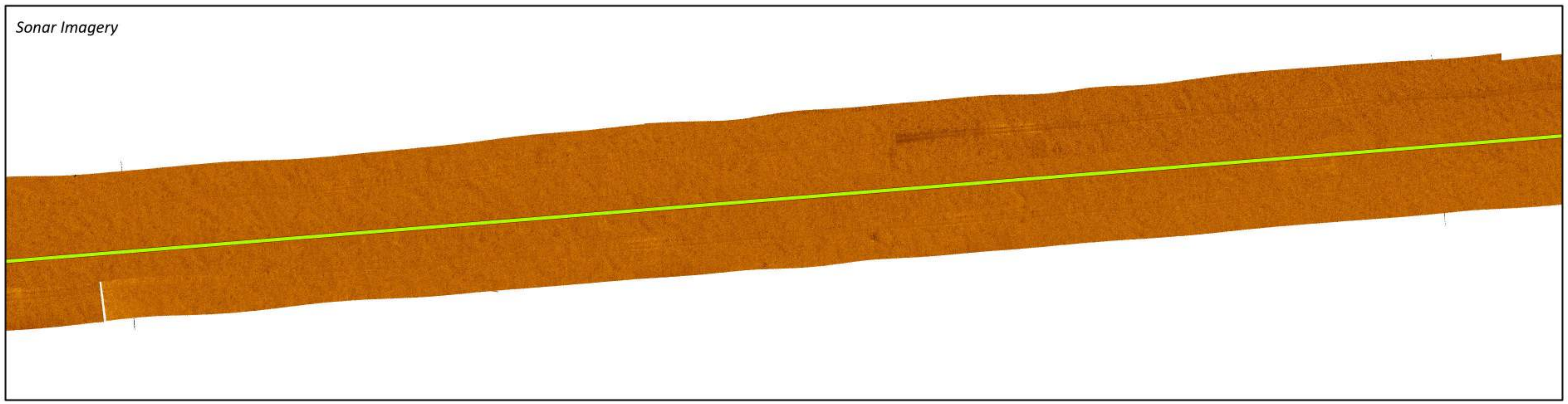
0 250 500 1,000 Feet

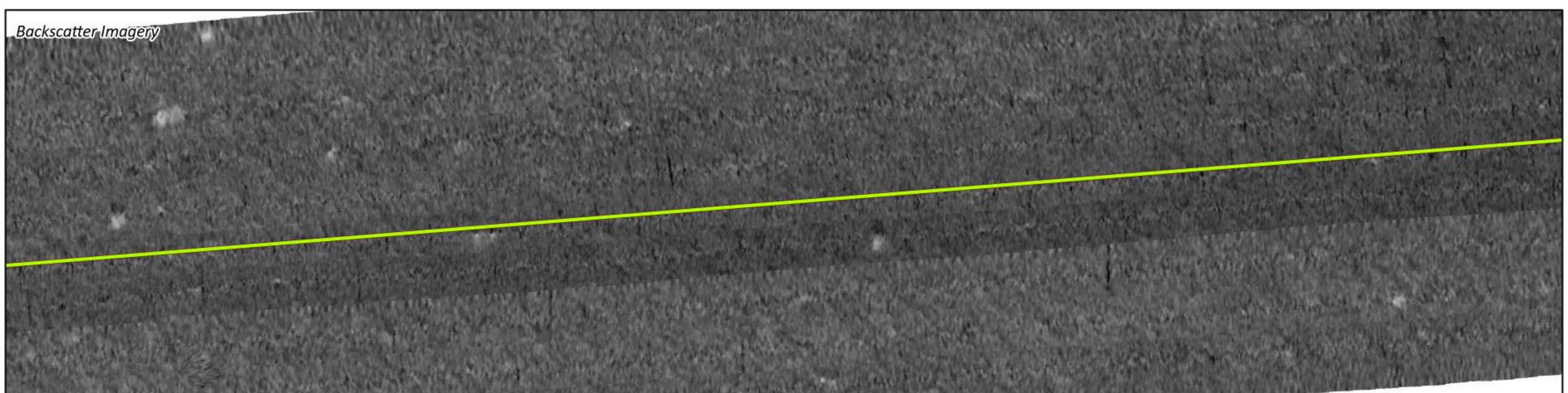
IMPACC Project 1
JSI Engineering

Berrian County, Michigan

Project 2305496 October 2025







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

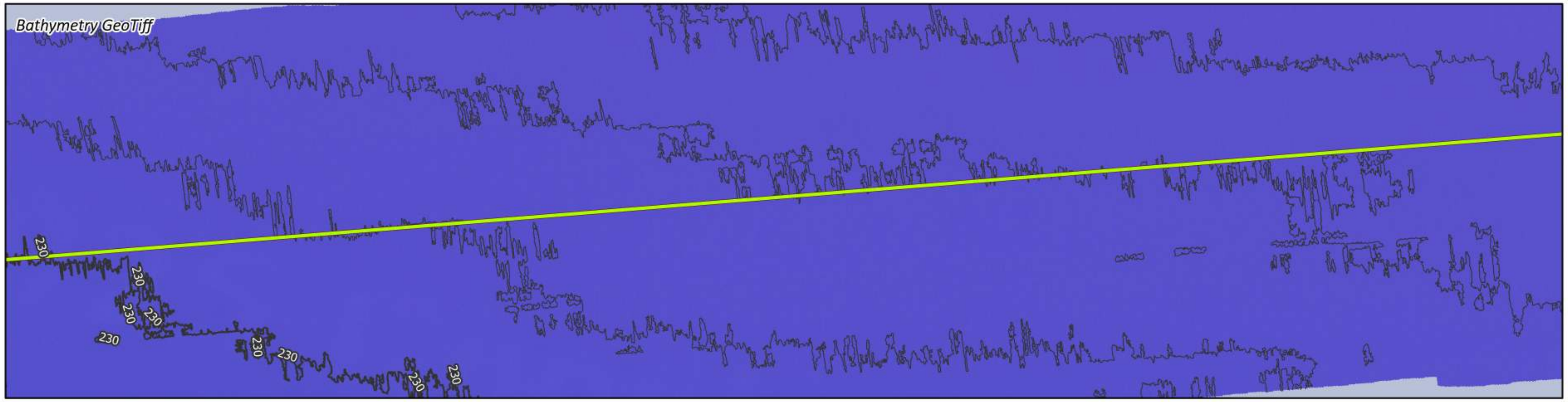
- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

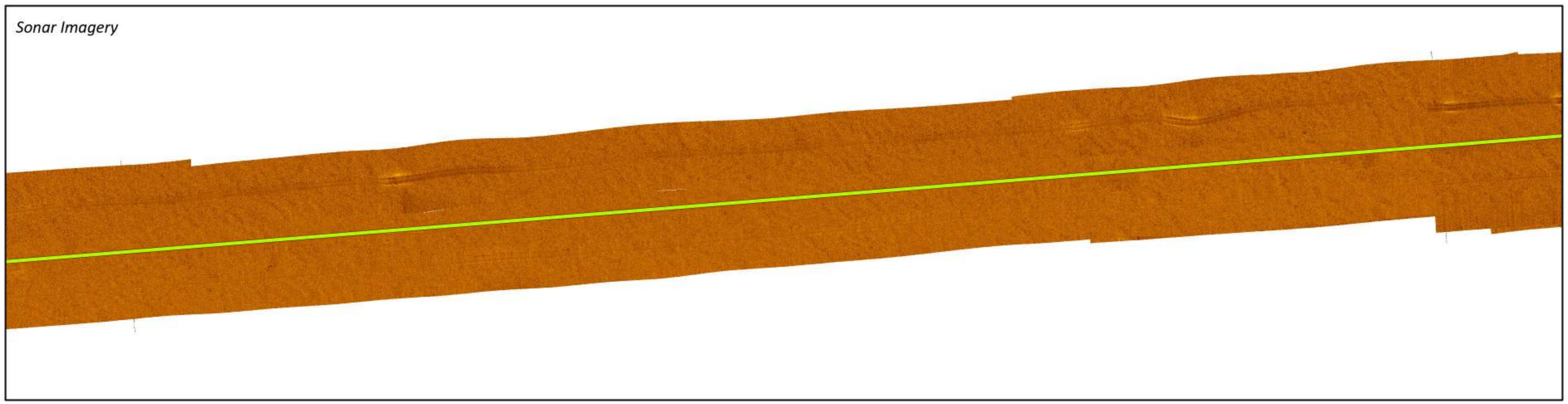
GEI Consultants

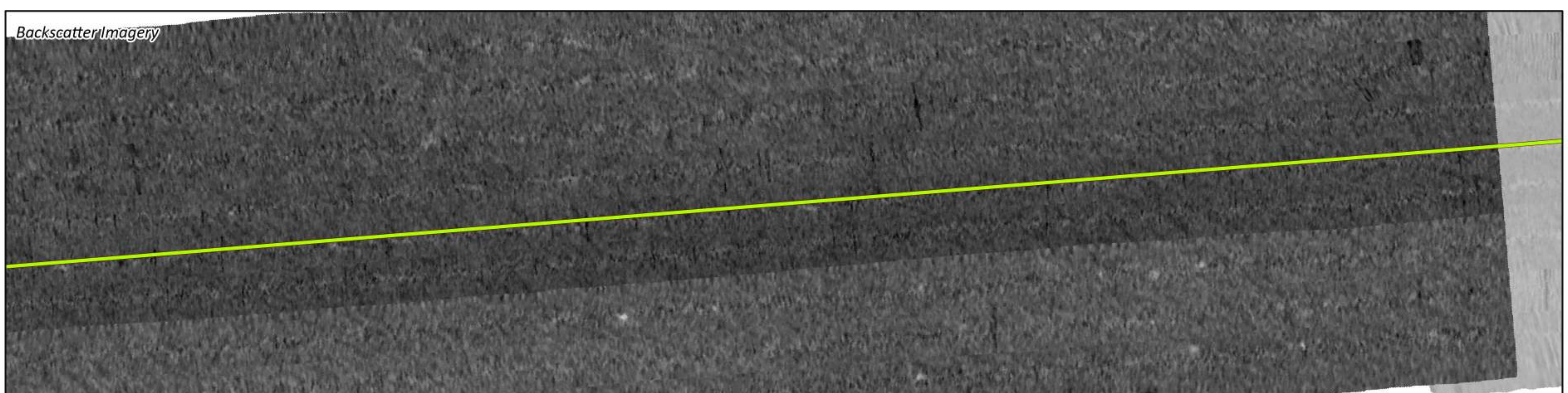
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan







NAD 1983 BLM Zone 16N ftUS

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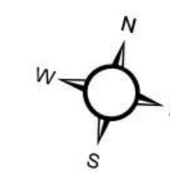
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)



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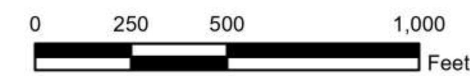
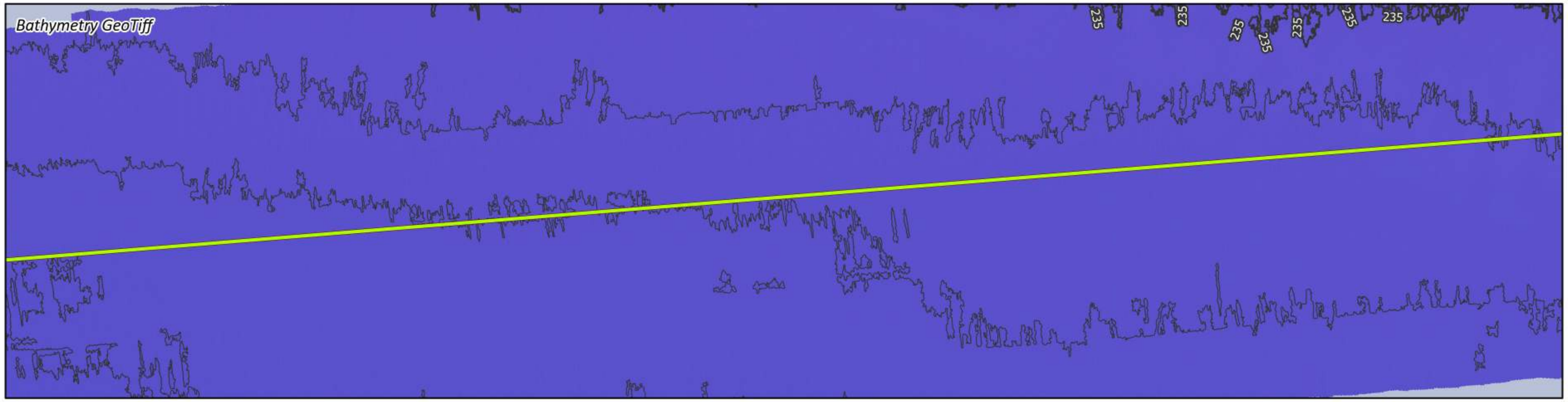
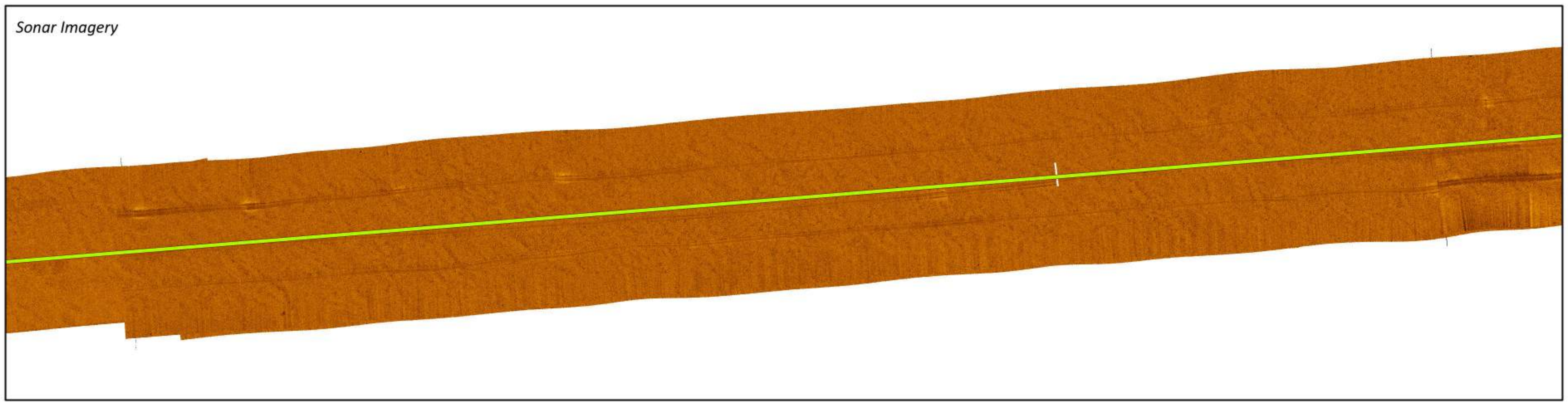
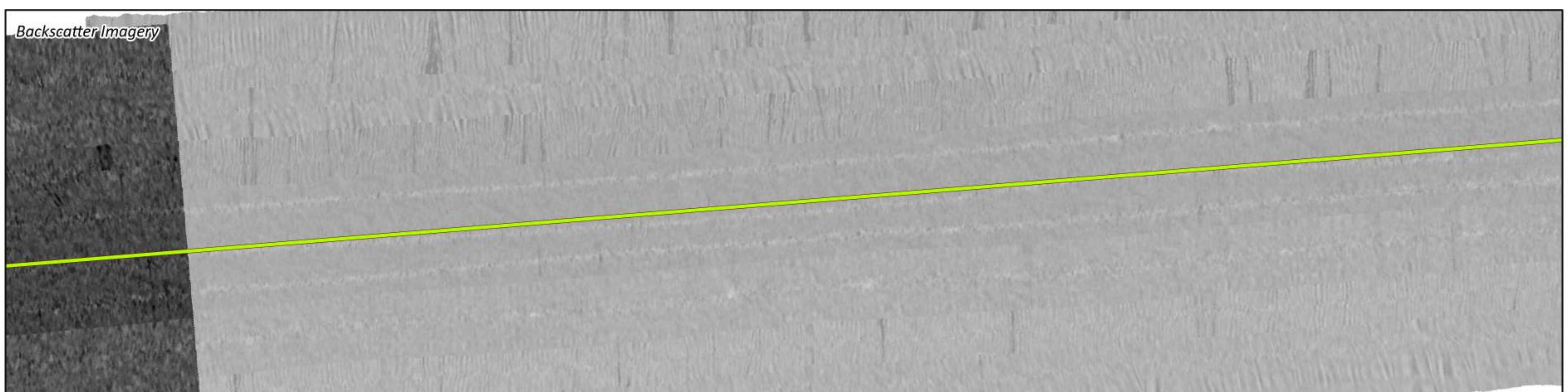


IMPACC Project 1
JSI Engineering

Berrian County, Michigan







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

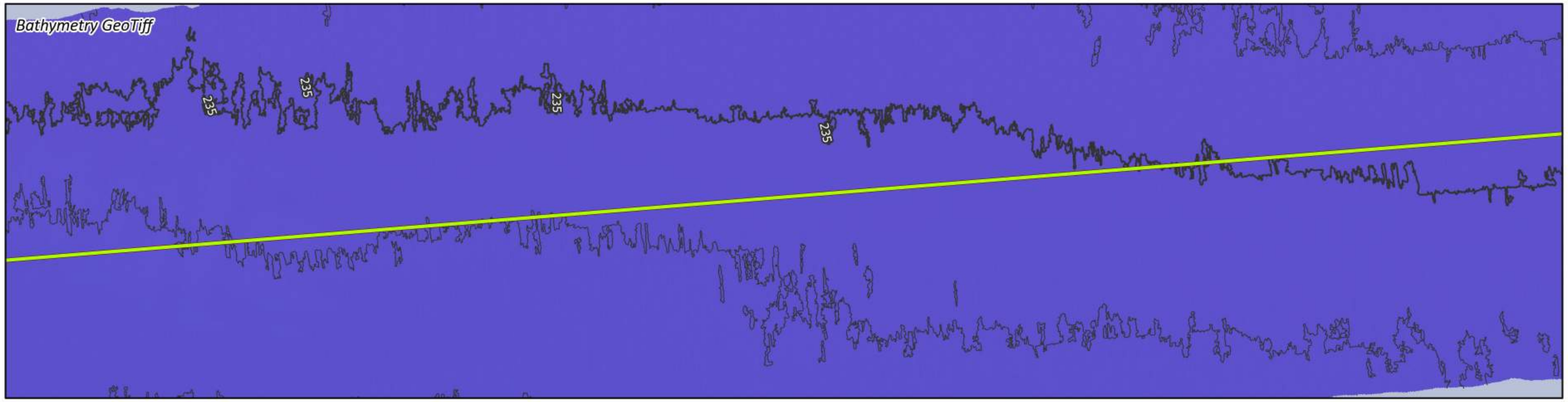
N W E S

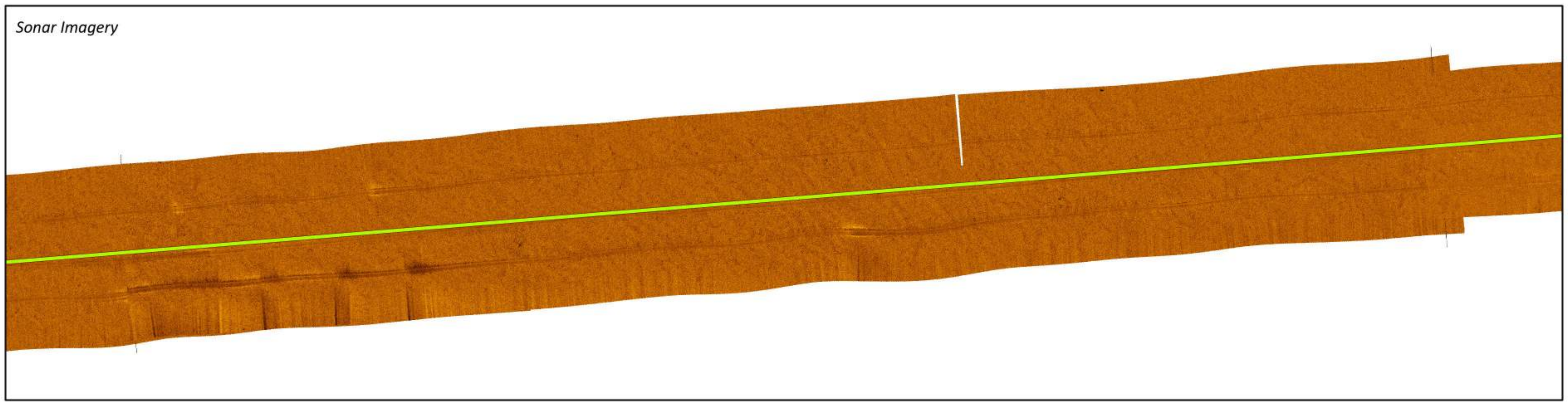
GEI Consultants

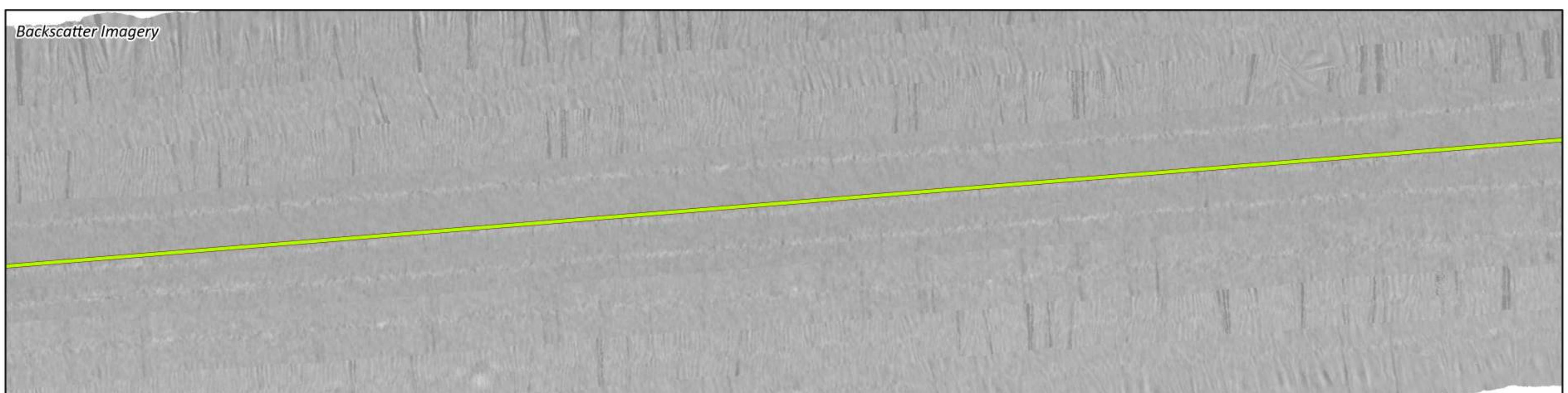
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan

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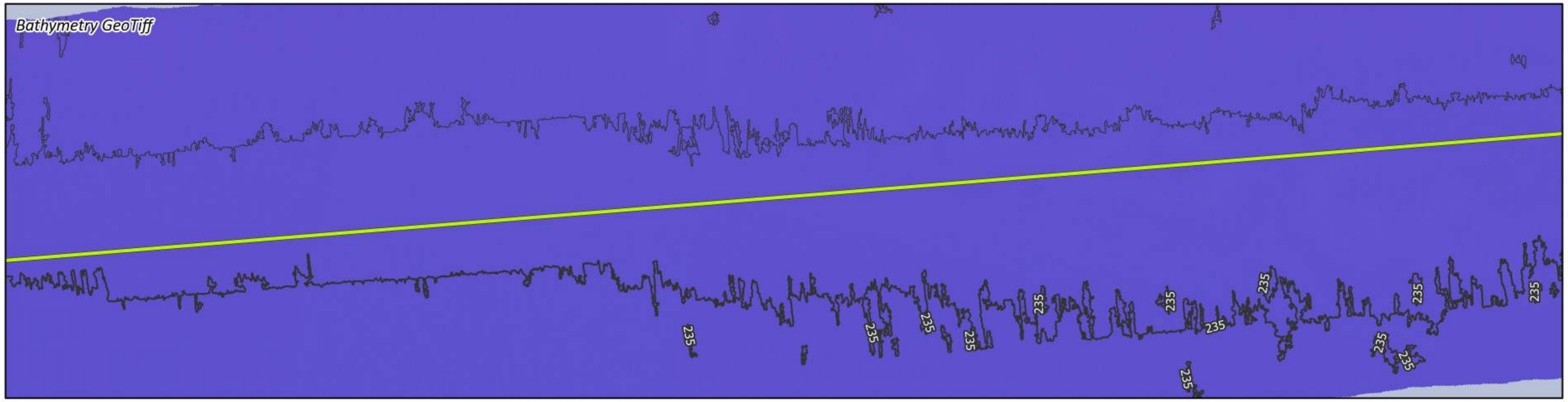
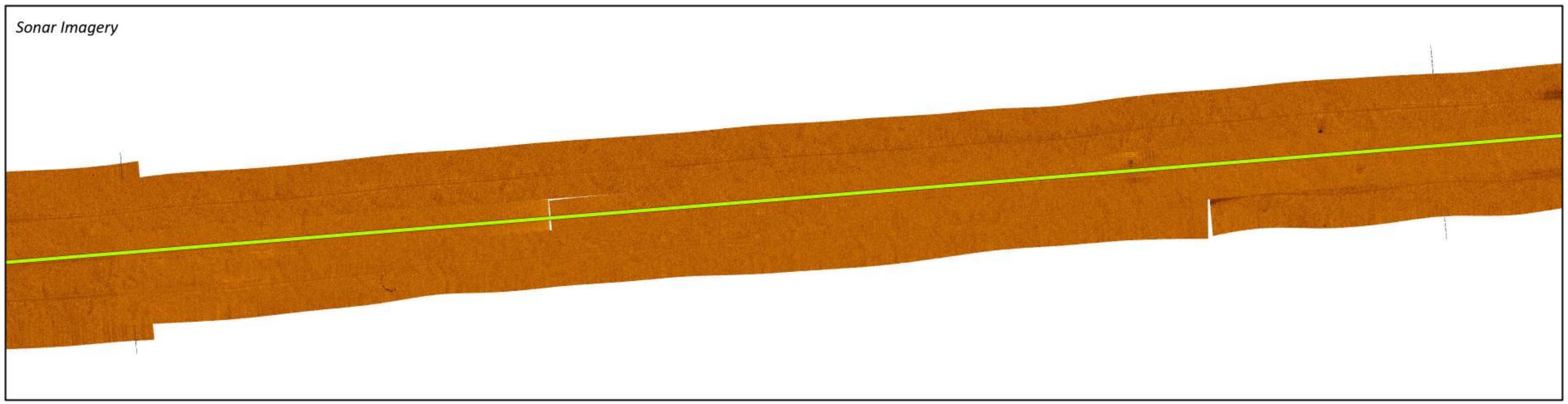
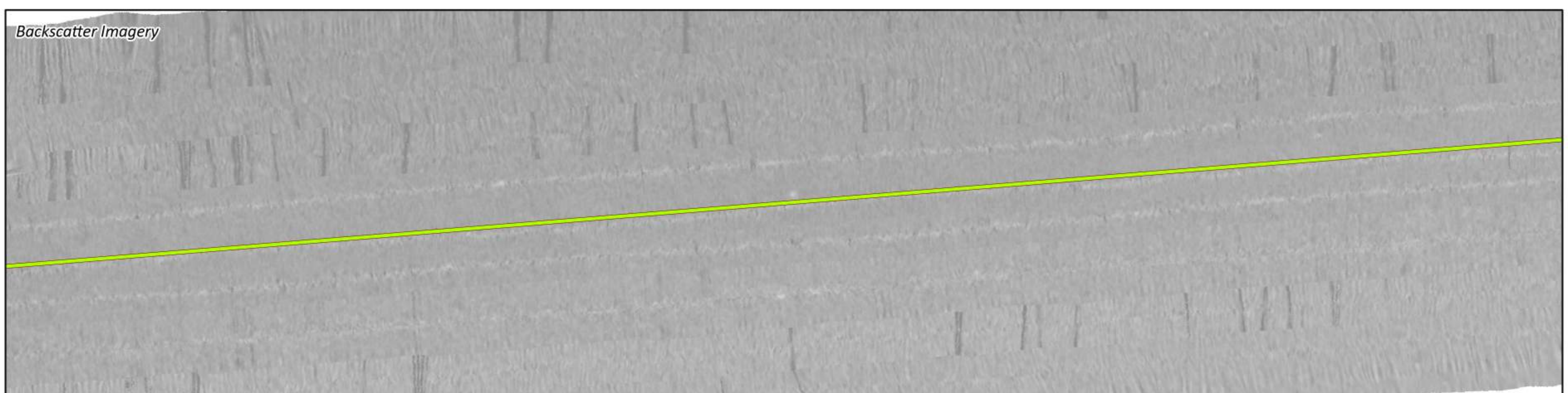






NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

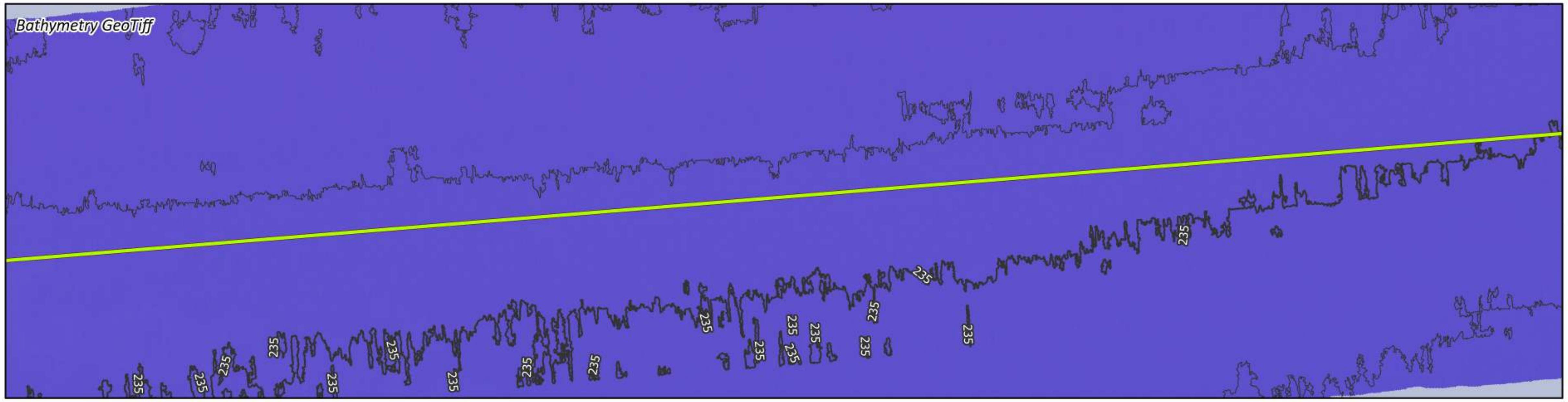
N W E S

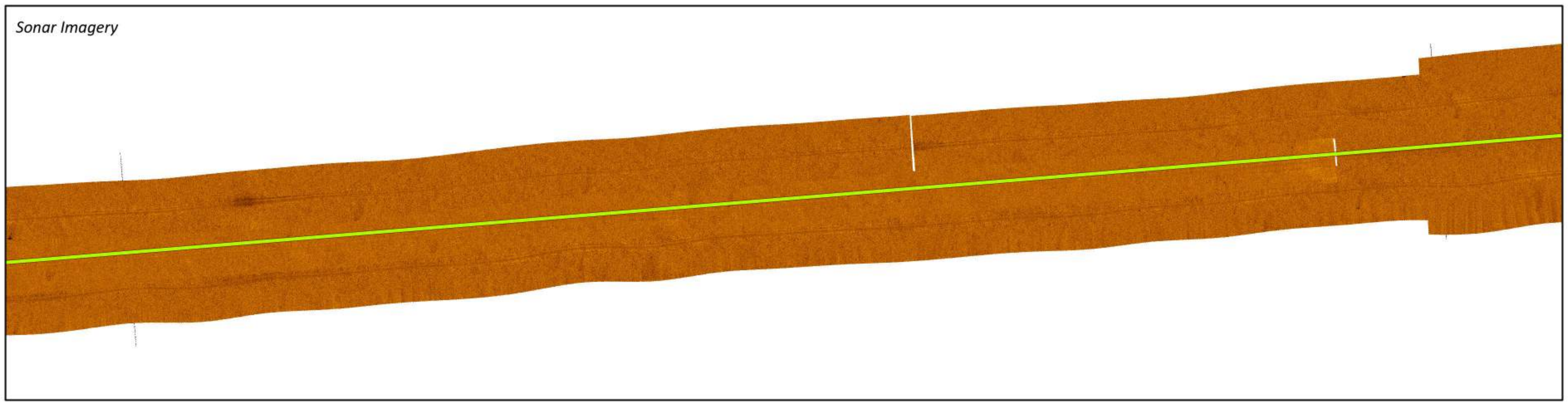
GEI Consultants

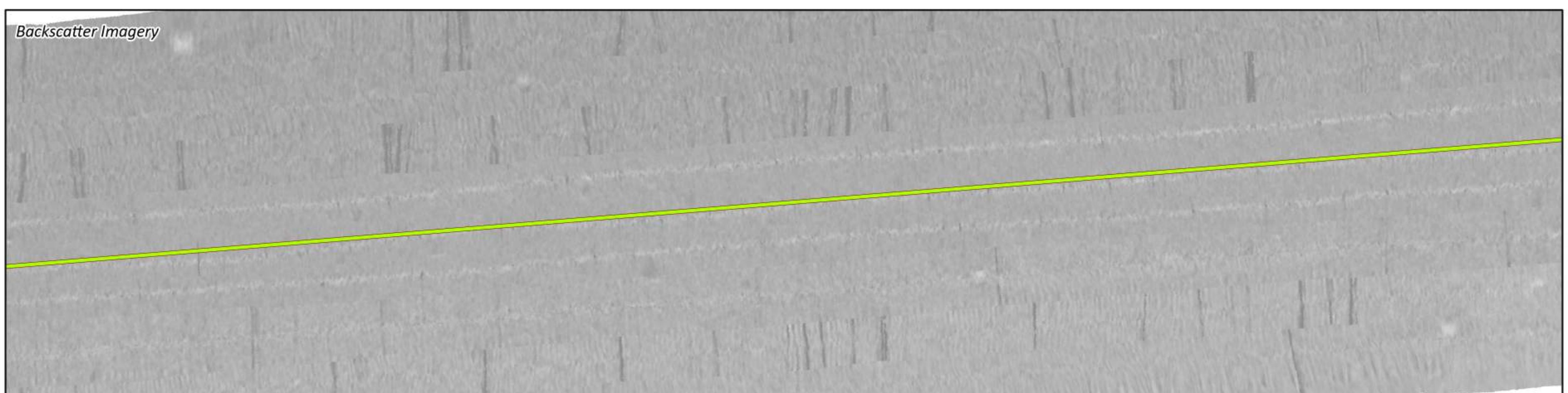
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

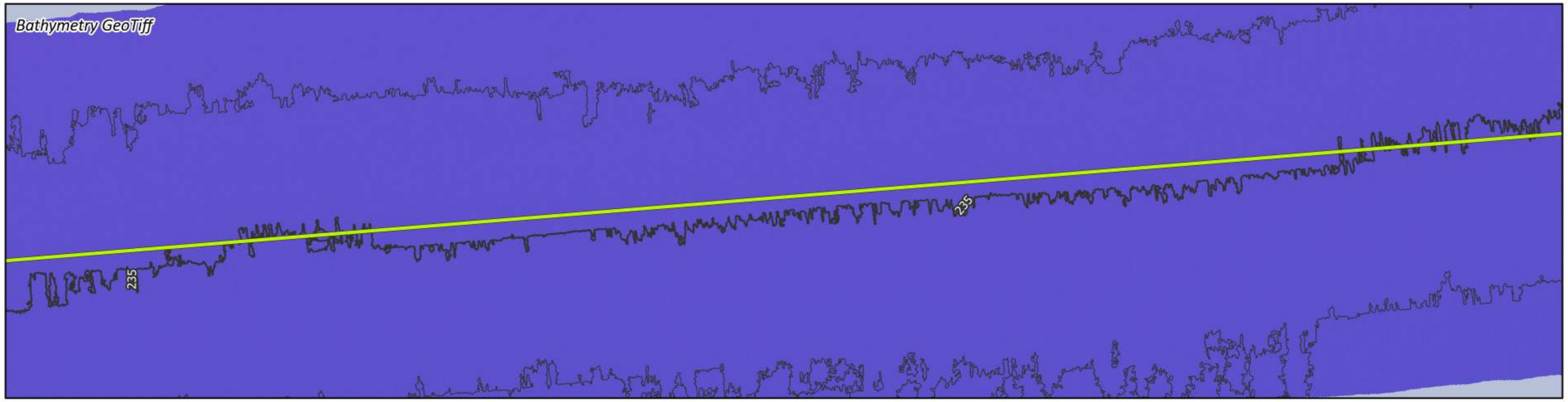
0 250 500 1,000 Feet

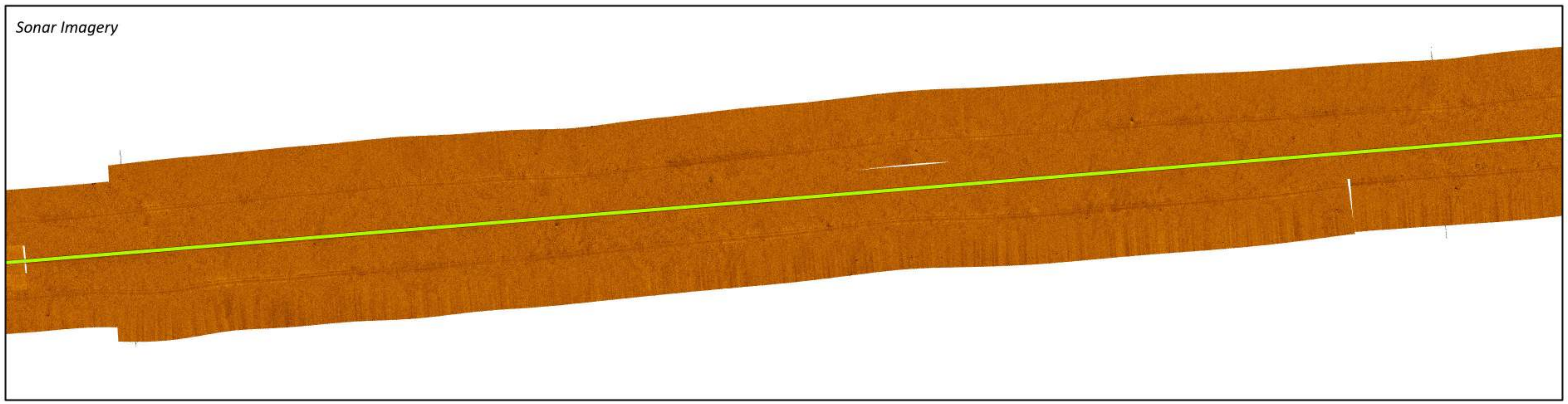
IMPACC Project 1
JSI Engineering

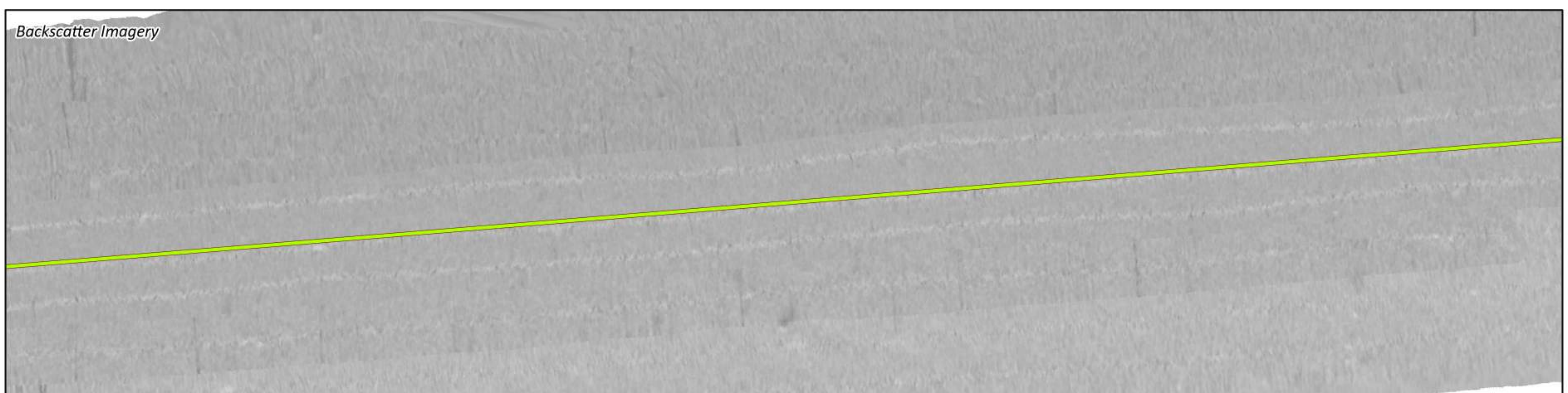
Berrian County, Michigan

Project 2305496 October 2025

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY





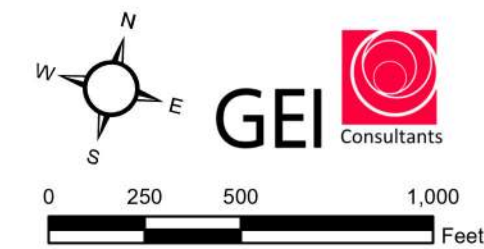


NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)



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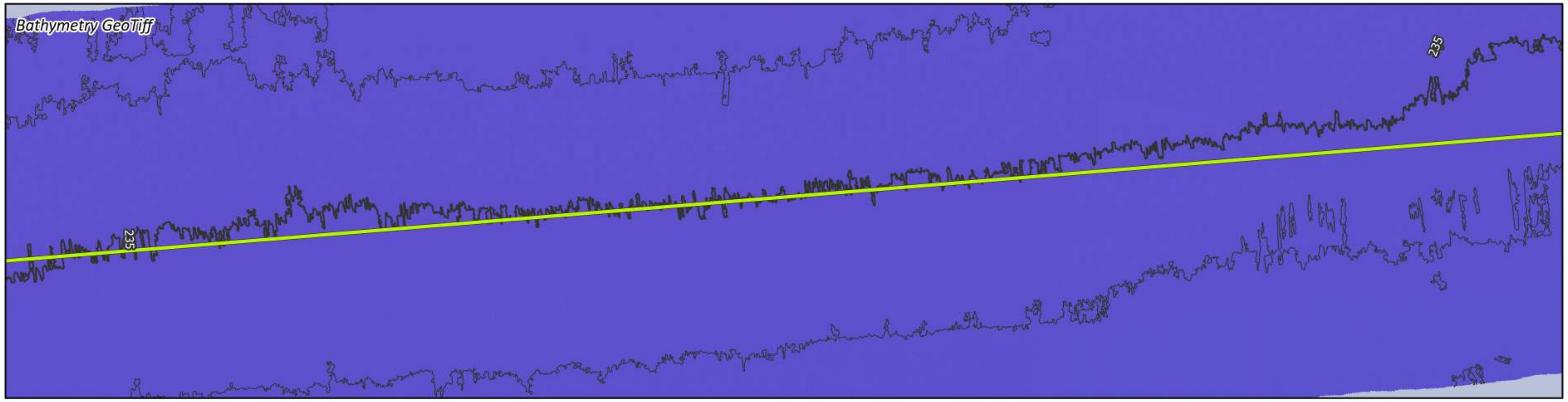
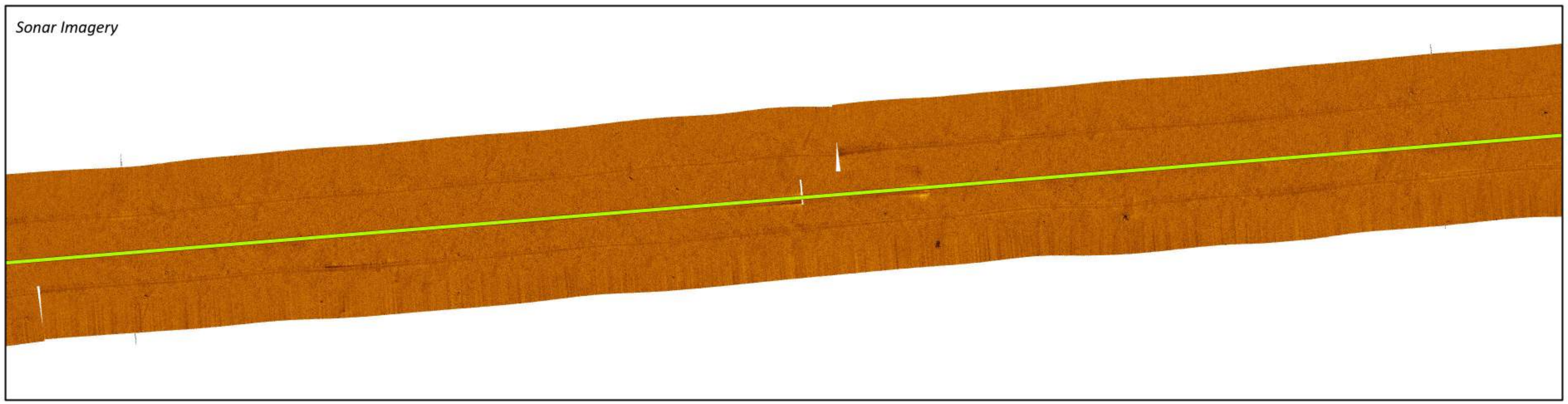
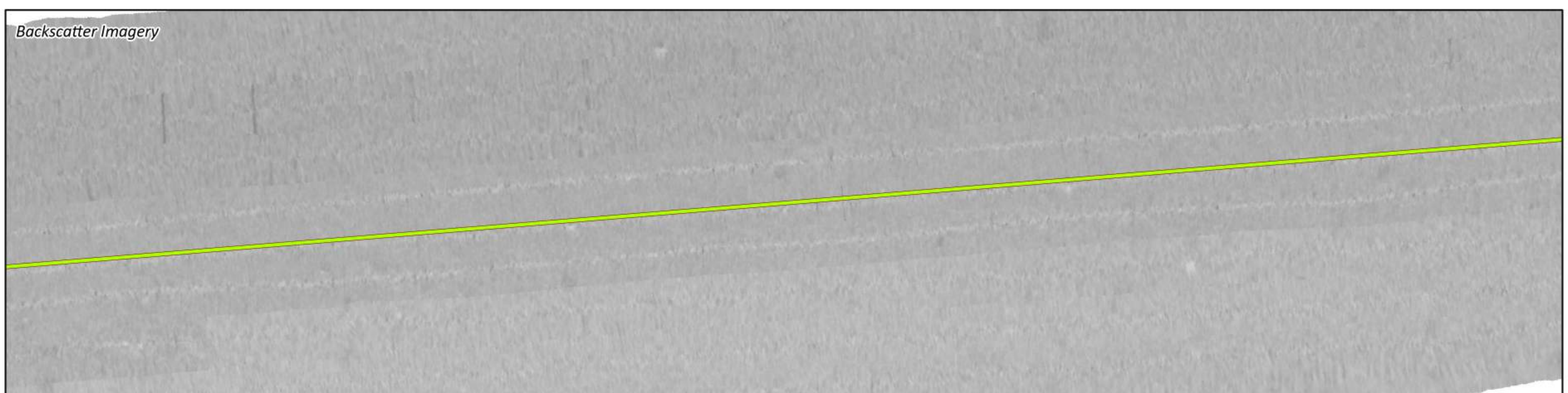






NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

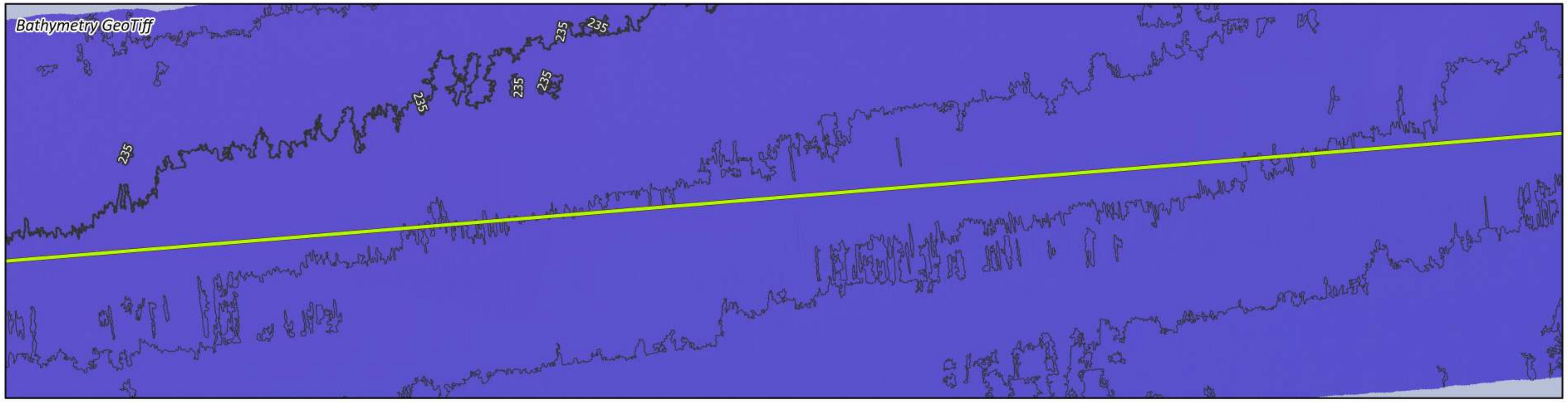
N W E S

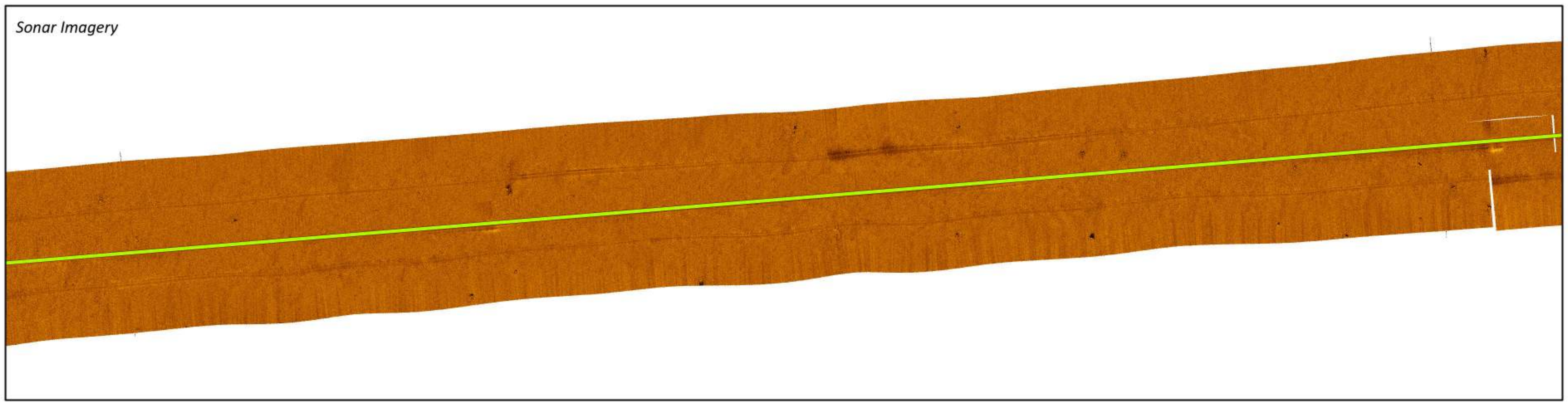
GEI Consultants

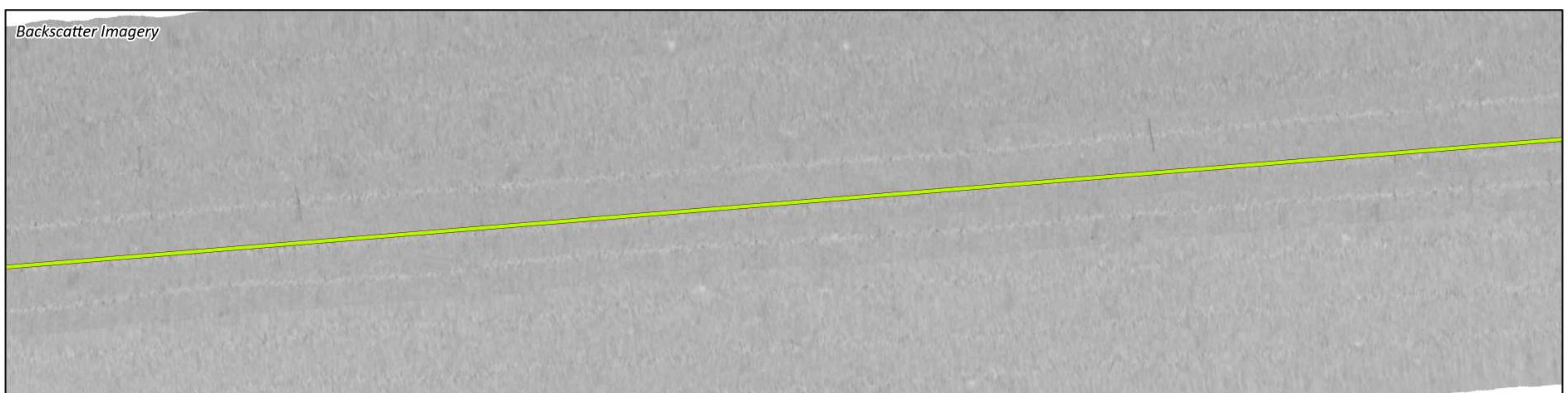
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

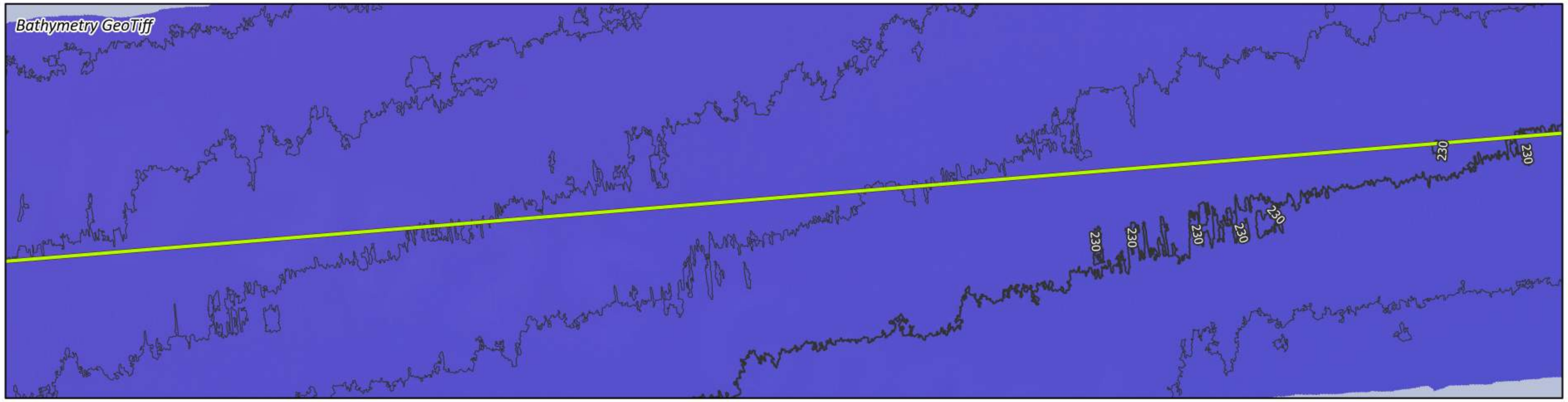
N W E S

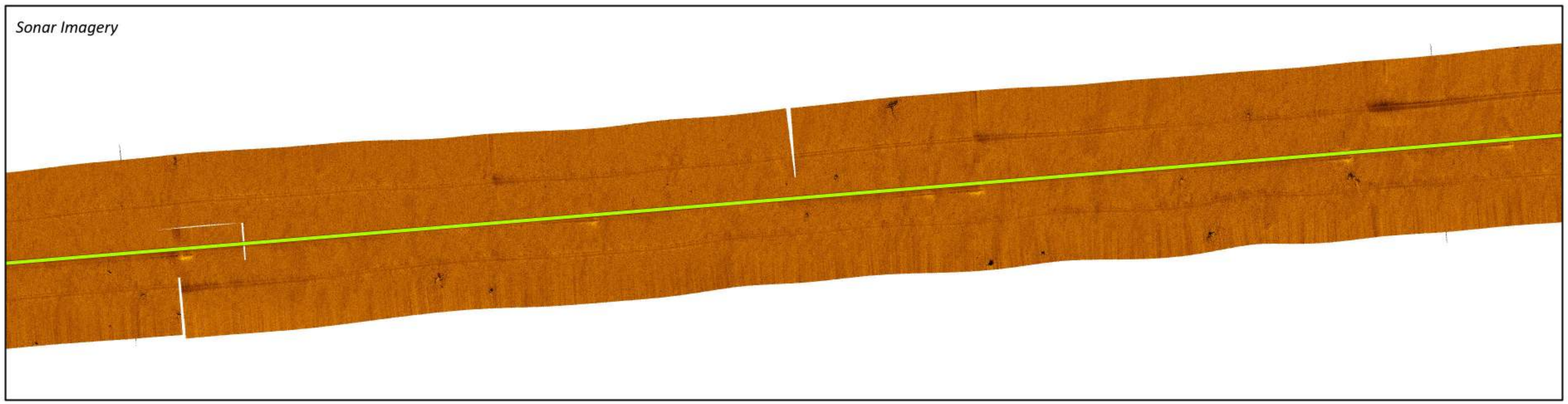
GEI Consultants

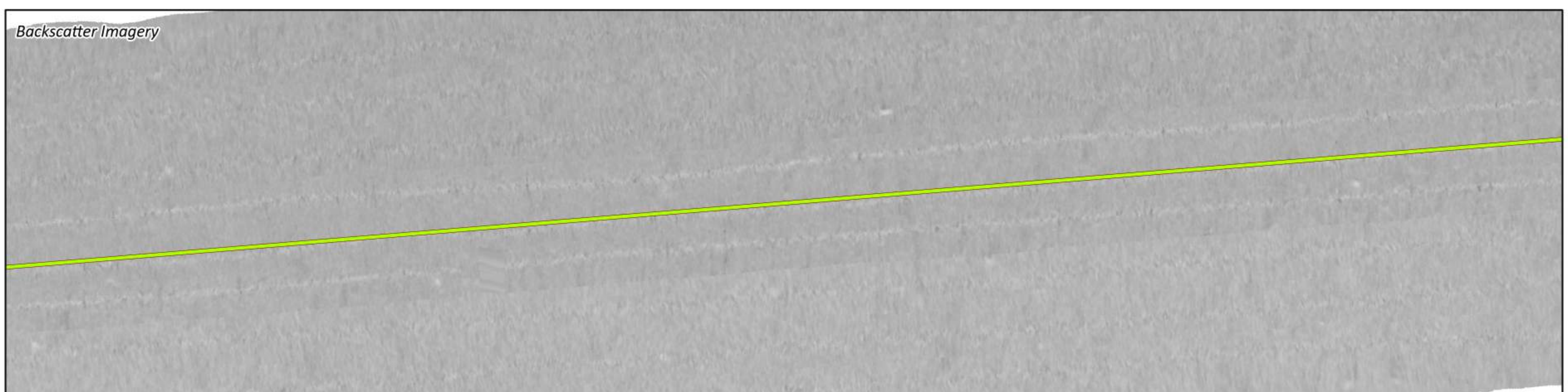
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

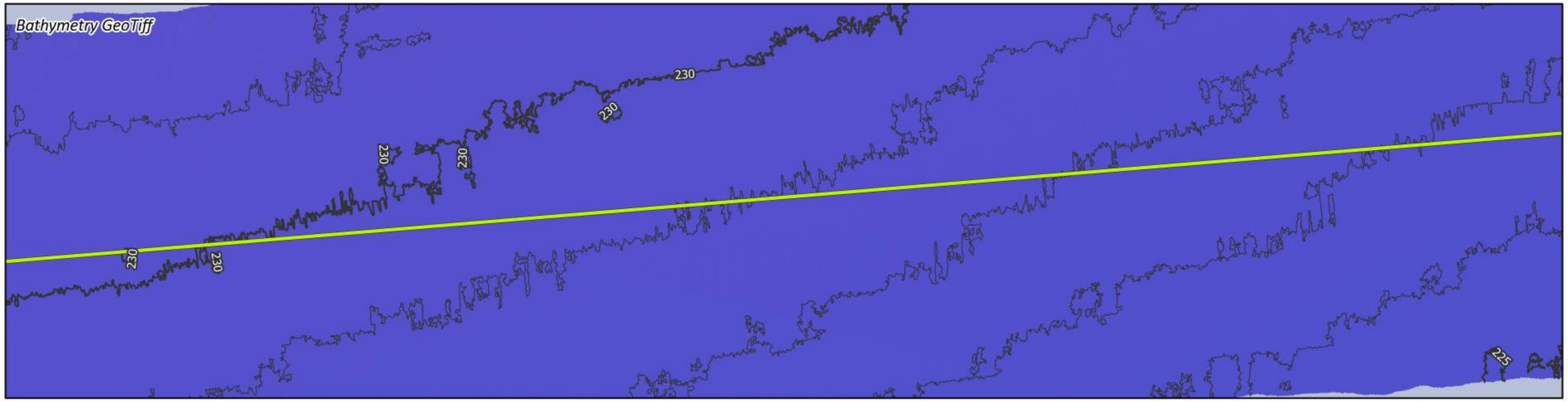
GEI Consultants

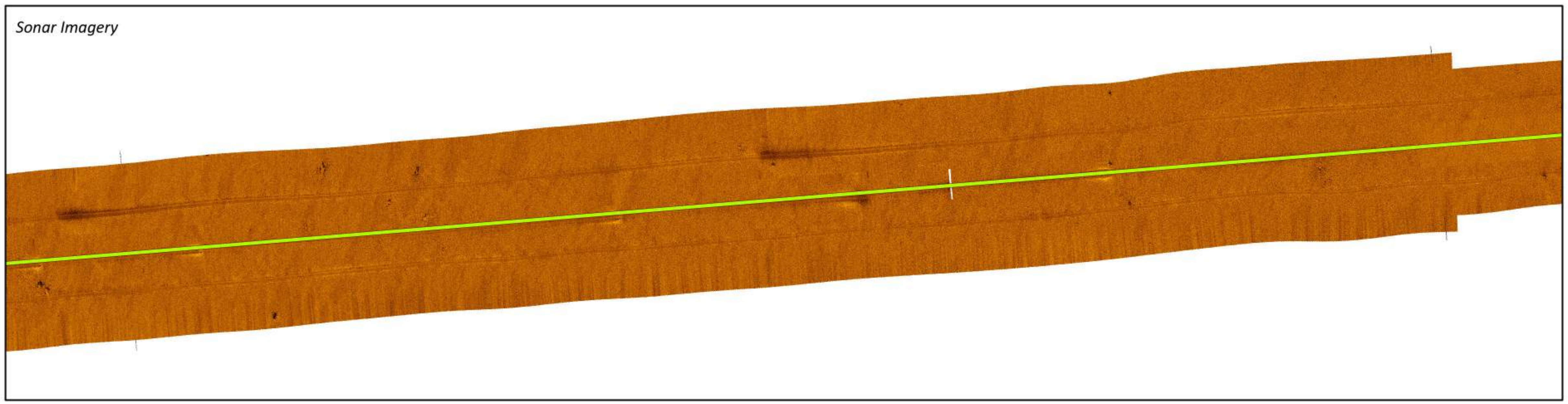
0 250 500 1,000 Feet

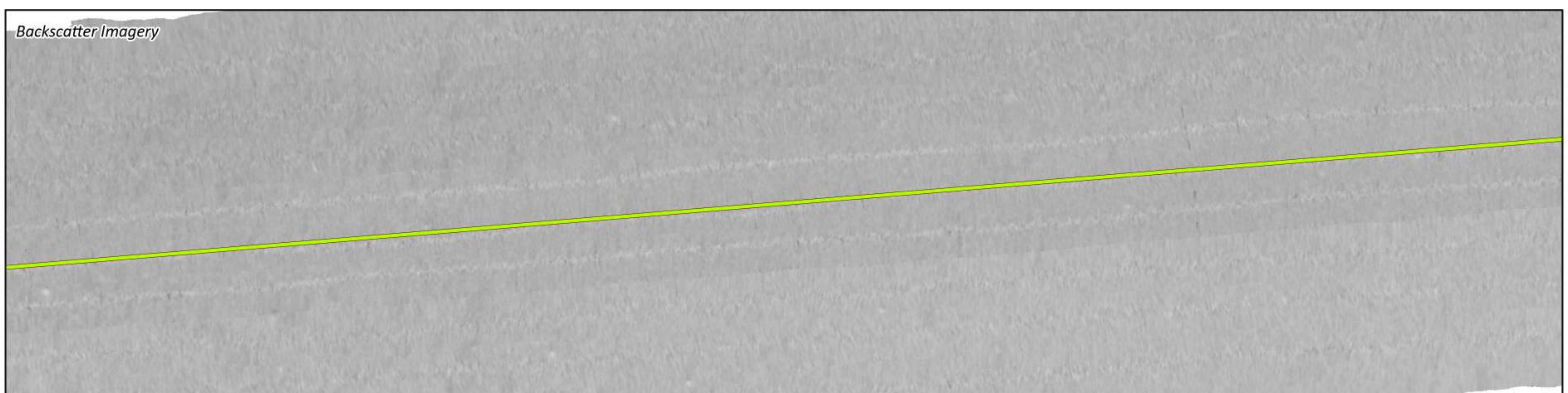
IMPACC Project 1
JSI Engineering

Berrian County, Michigan

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

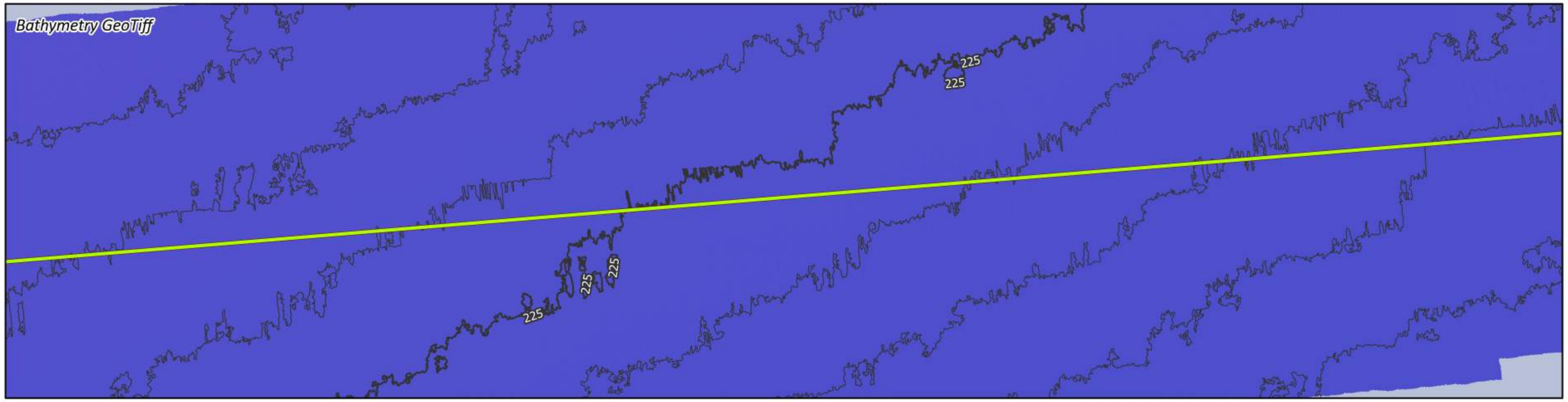
0 250 500 1,000 Feet

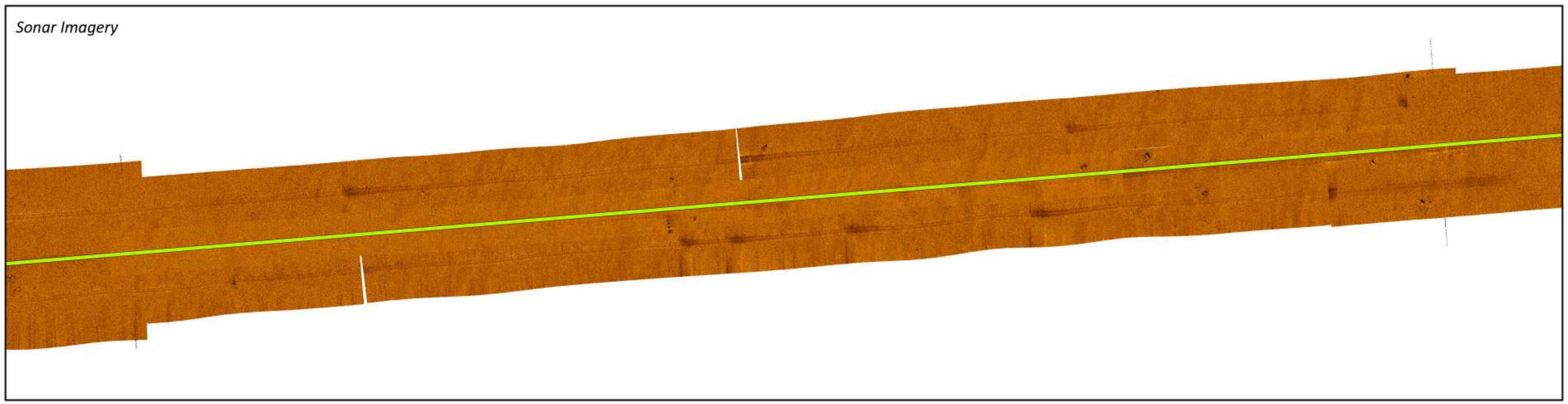
IMPACC Project 1
JSI Engineering

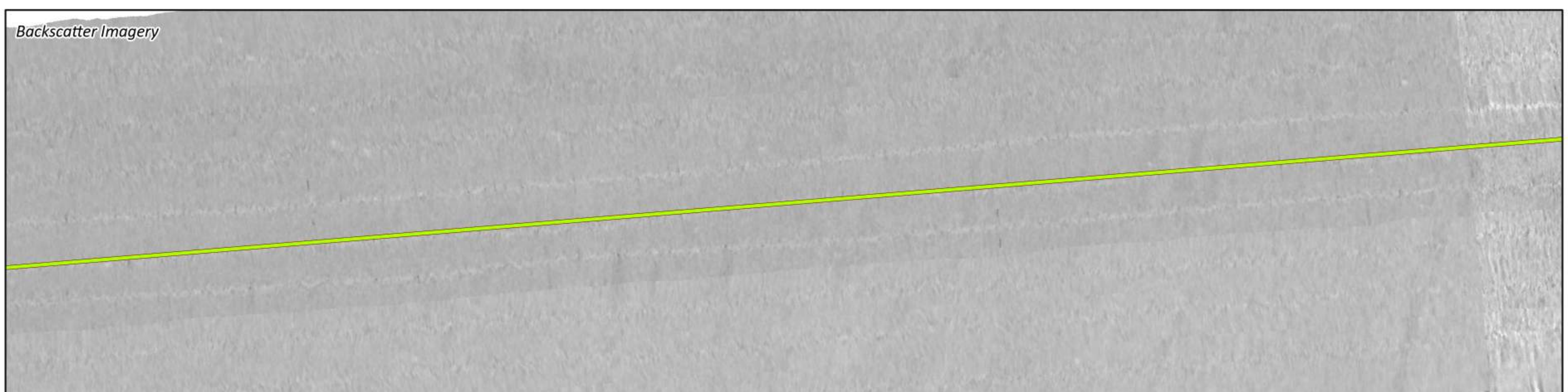
Berrian County, Michigan

Project 2305496 October 2025

NAD 1983 BLM Zone 16N ftUS







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

GEI Consultants

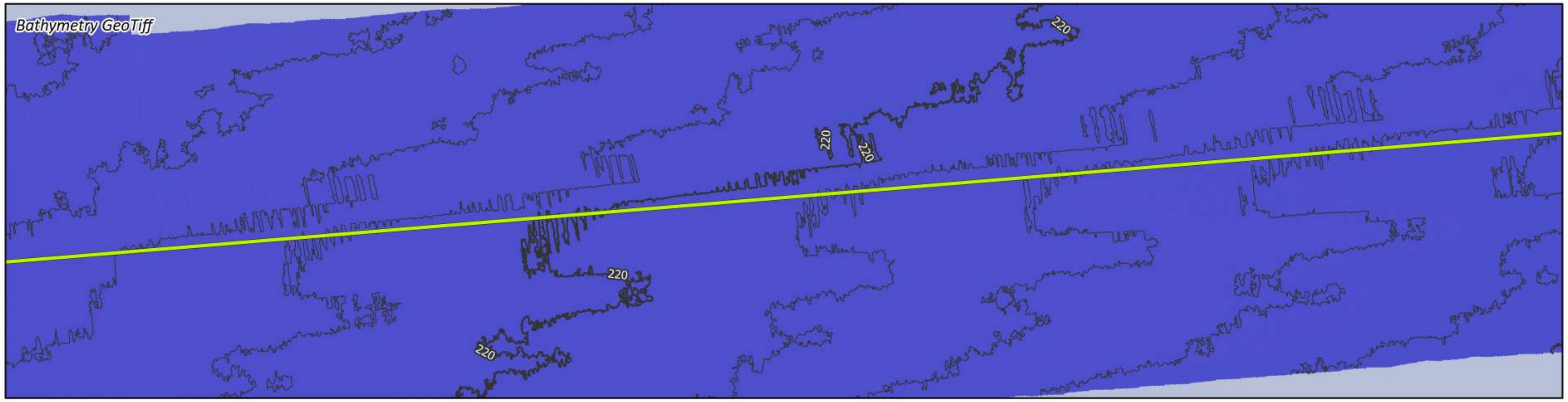
0 250 500 1,000 Feet

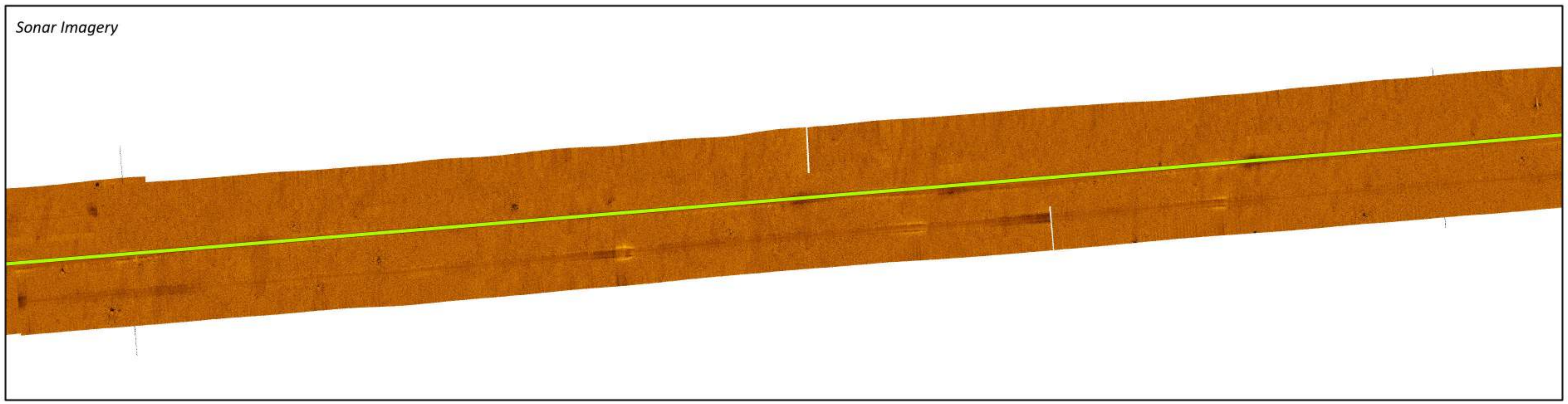
IMPACC Project 1
JSI Engineering

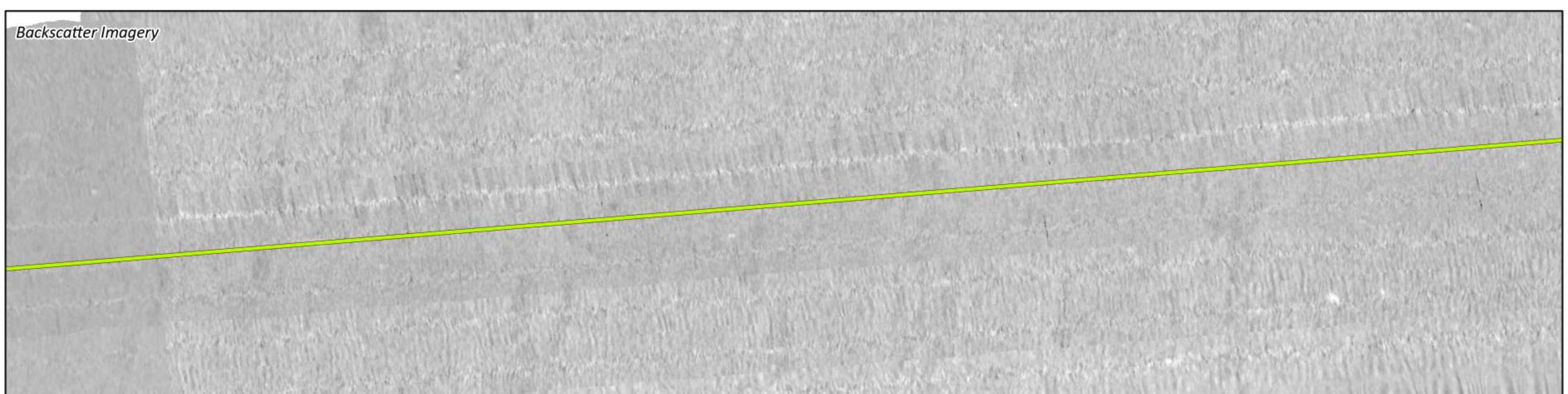
Berrian County, Michigan

Project 2305496 October 2025

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N E S W

GEI Consultants

0 250 500 1,000 Feet

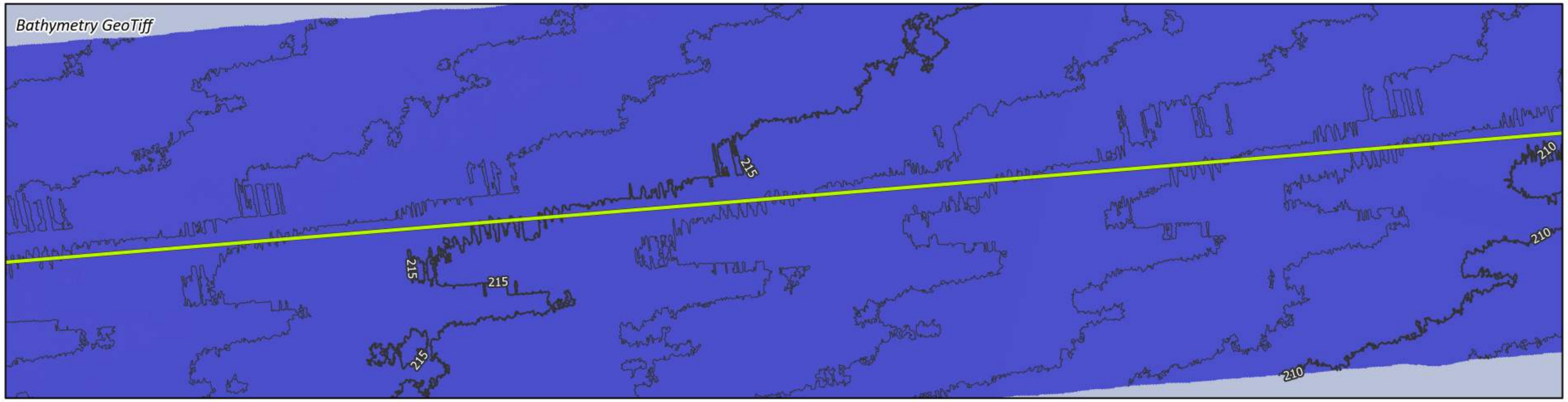
NAD 1983 BLM Zone 16N ftUS

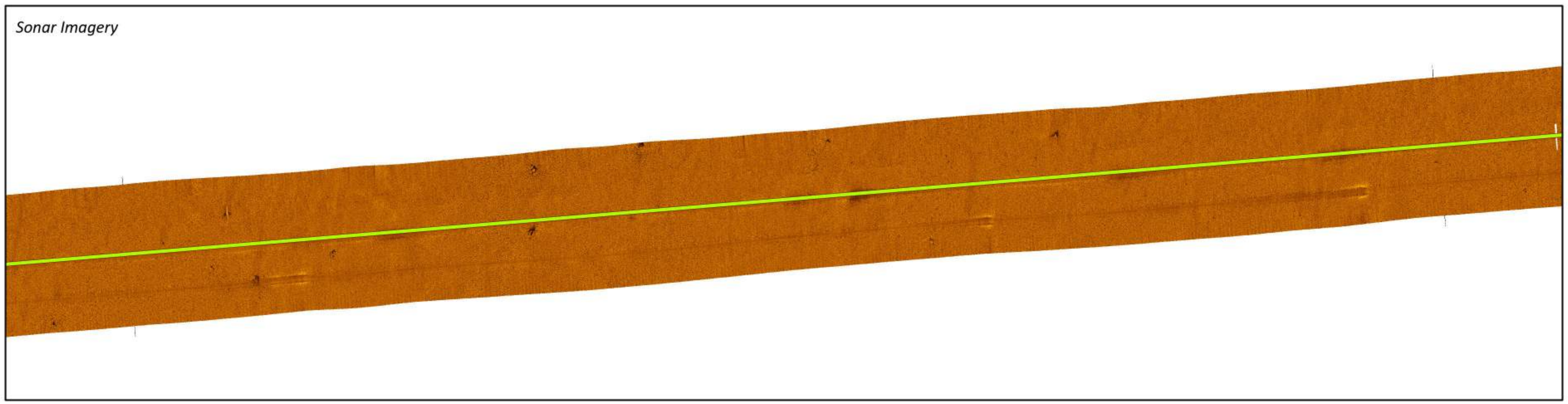
IMPACC Project 1
JSI Engineering

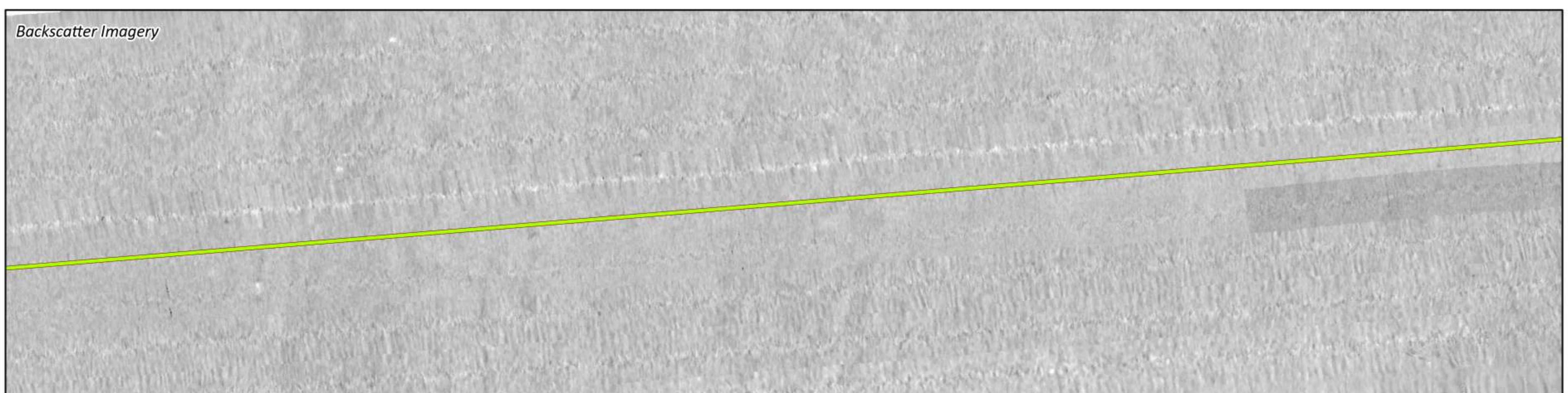
Berrian County, Michigan

Project 2305496 October 2025

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

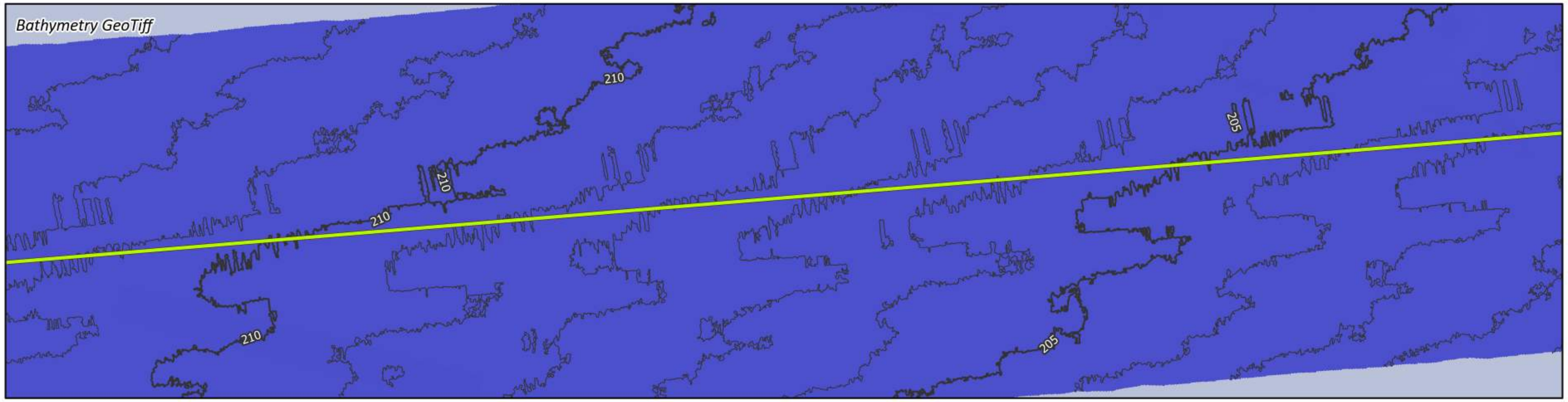
0 250 500 1,000 Feet

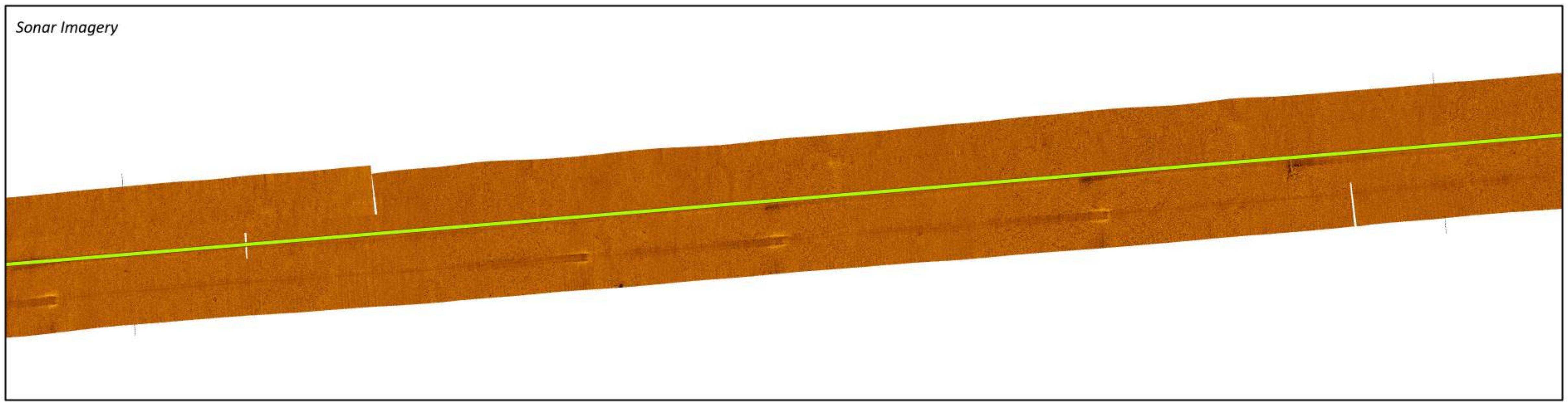
IMPACC Project 1
JSI Engineering

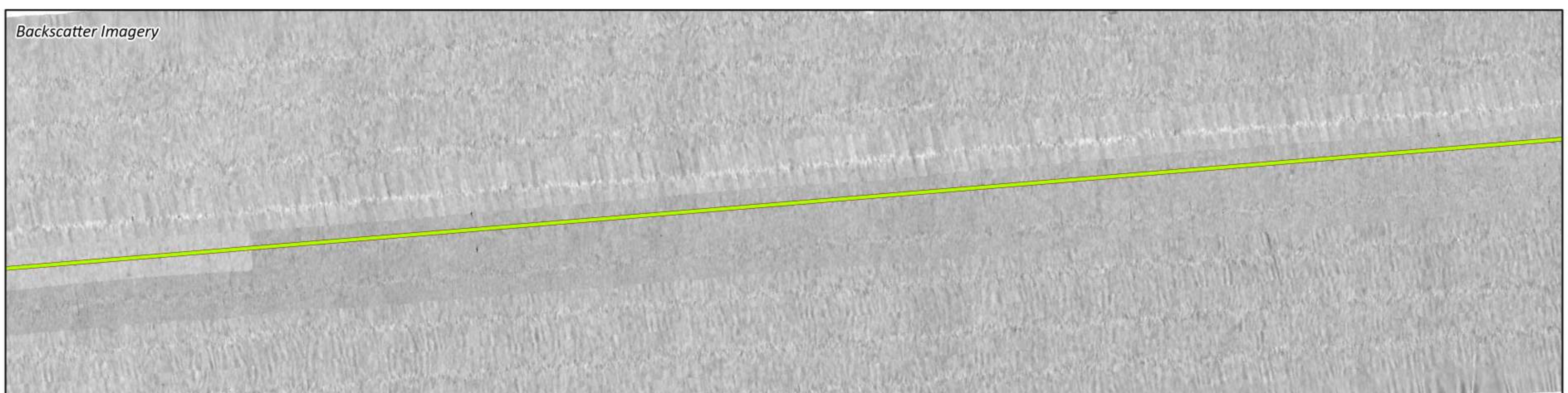
Berrian County, Michigan

Project 2305496 October 2025

NAD 1983 BLM Zone 16N ftUS







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1 NORTH LEG CROSSING HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

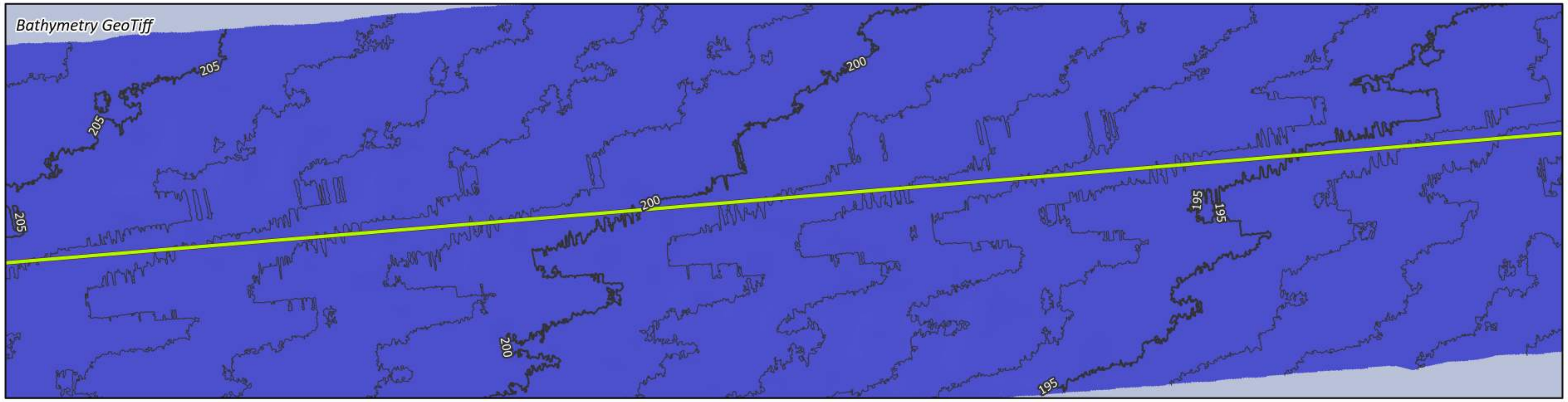
IMPACC Project 1
JSI Engineering

Berrian County, Michigan

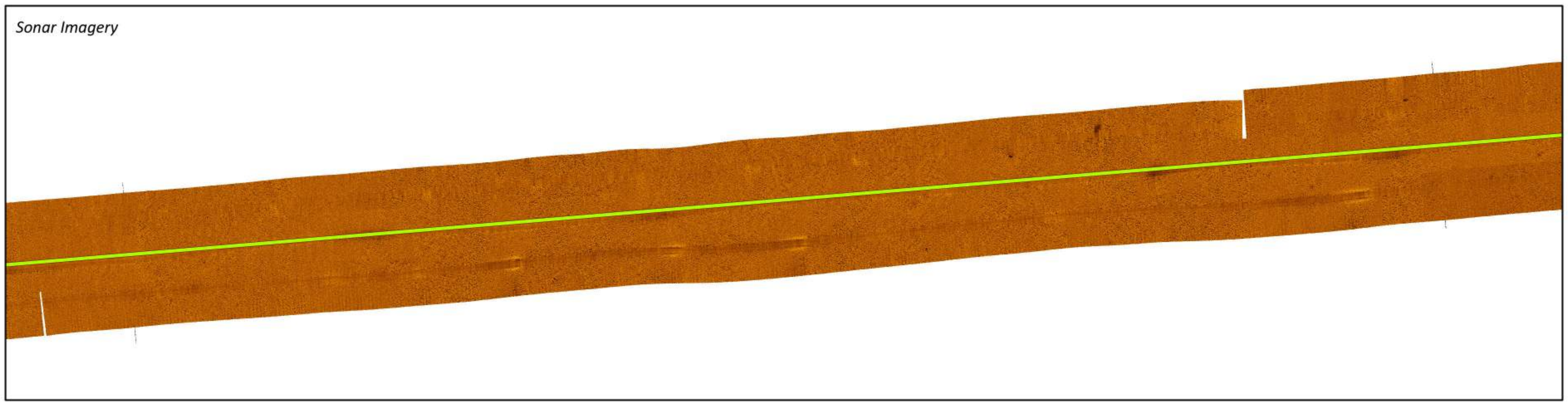
Project 2305496 October 2025

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

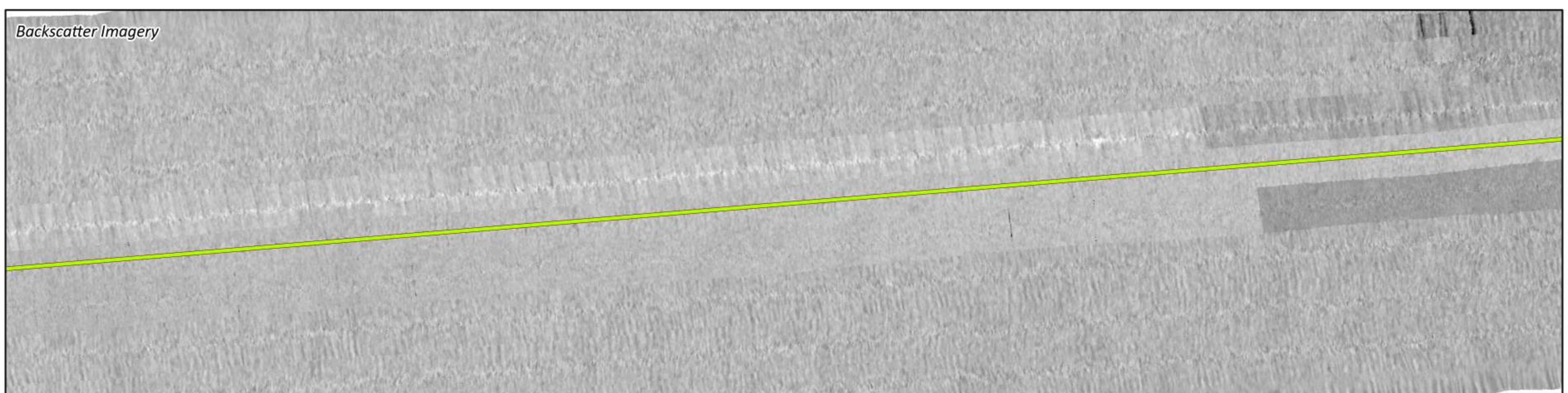
Bathymetry GeoTiff



Sonar Imagery



Backscatter Imagery



NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

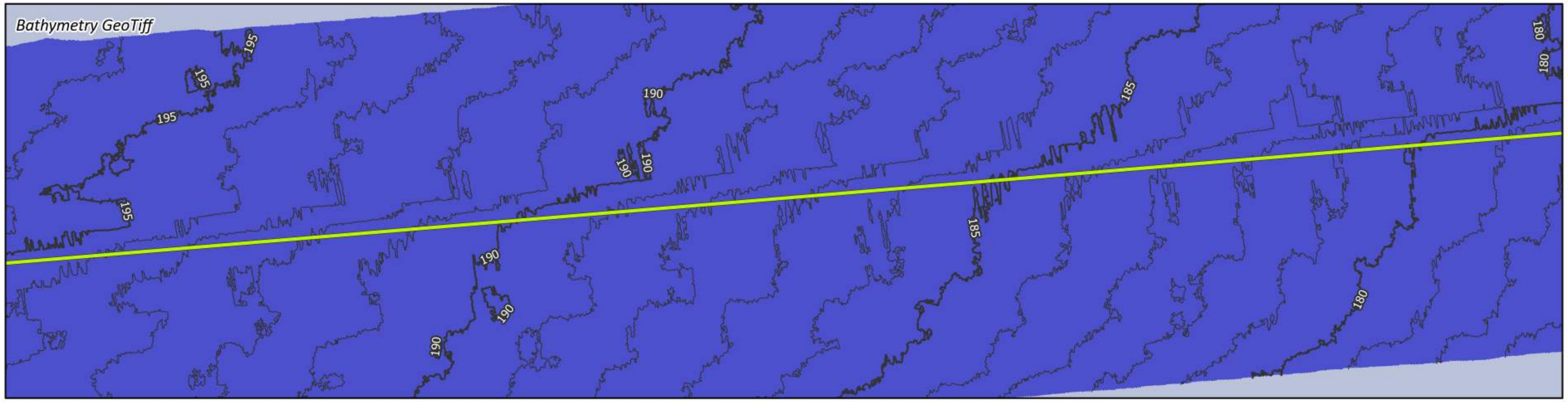
GEI Consultants

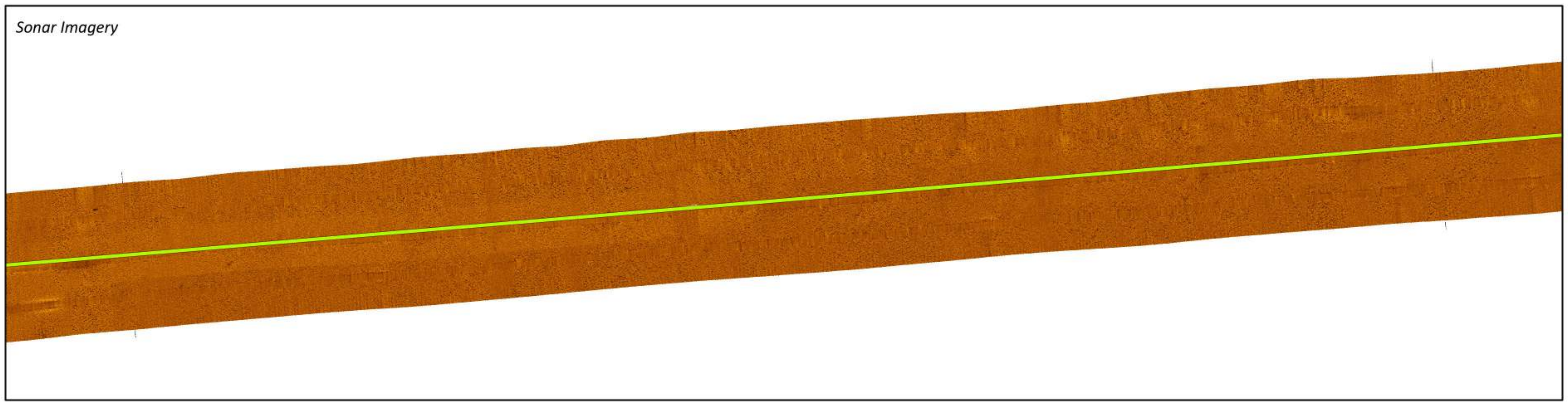
0 250 500 1,000 Feet

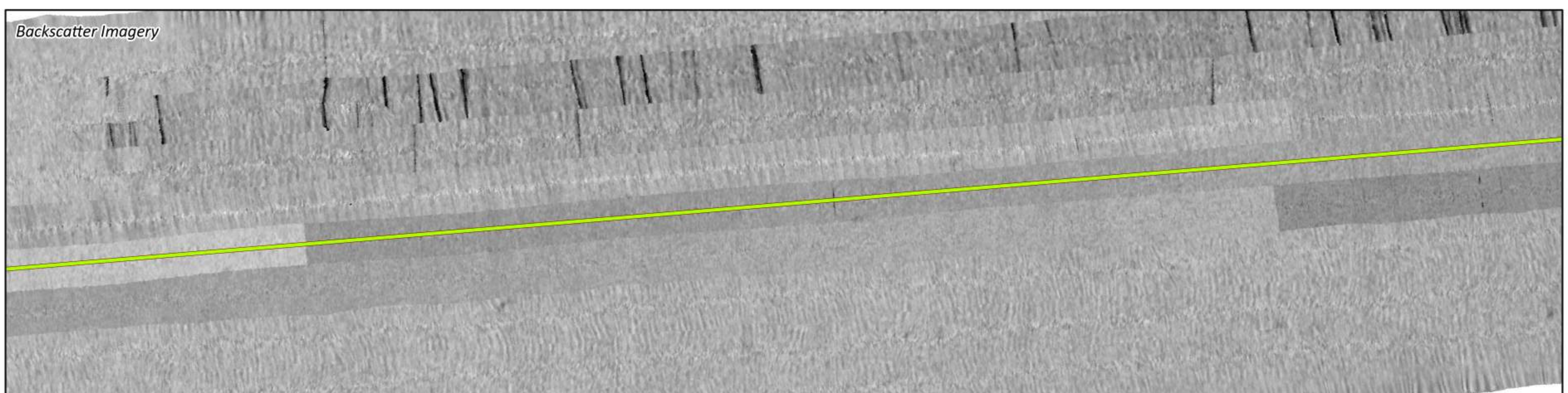
IMPACC Project 1
JSI Engineering

Berrian County, Michigan

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

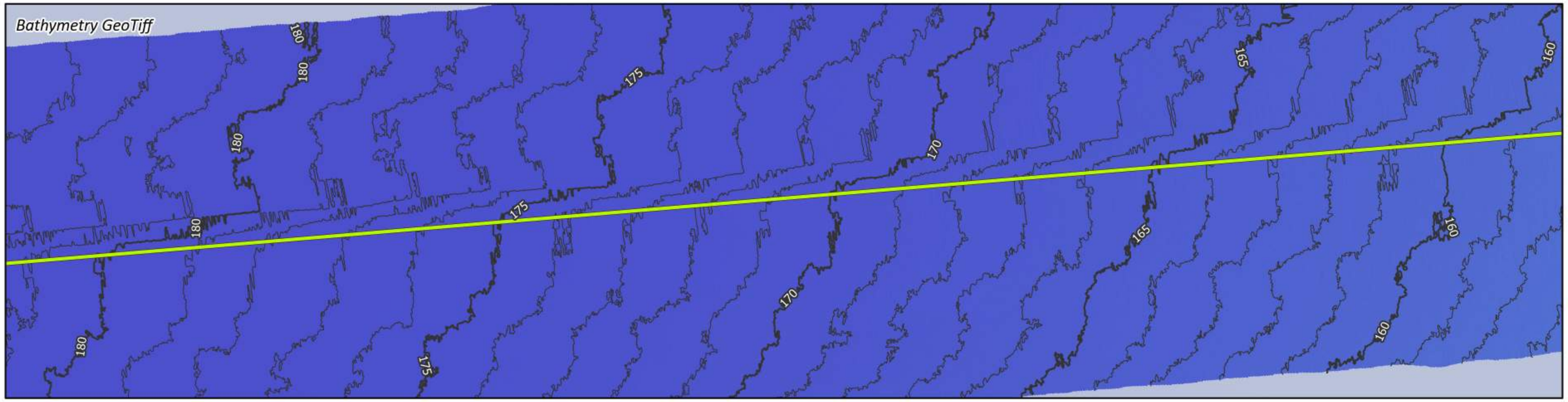
0 250 500 1,000 Feet

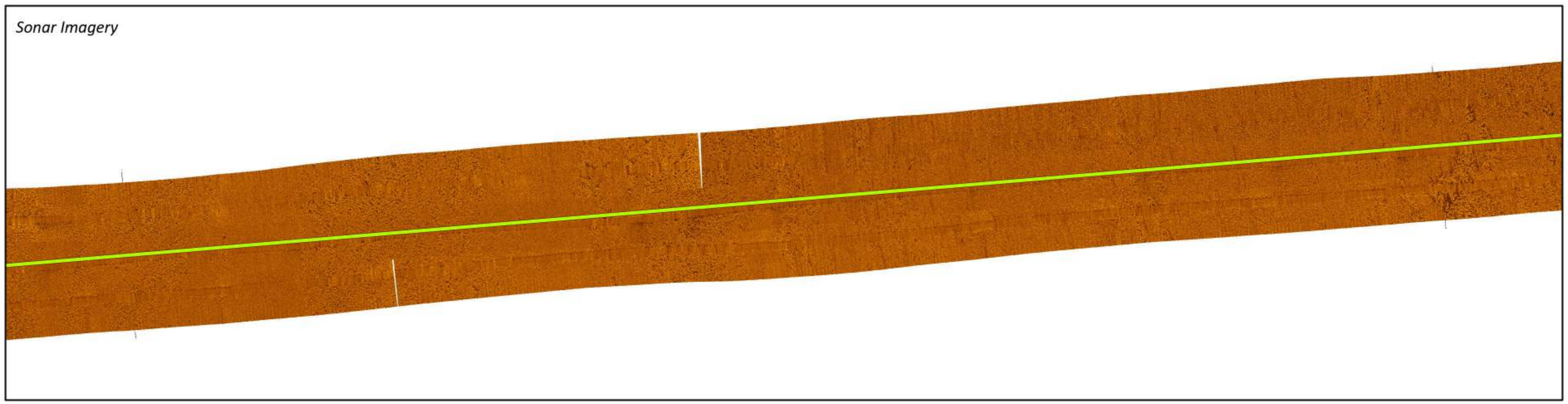
IMPACC Project 1
JSI Engineering

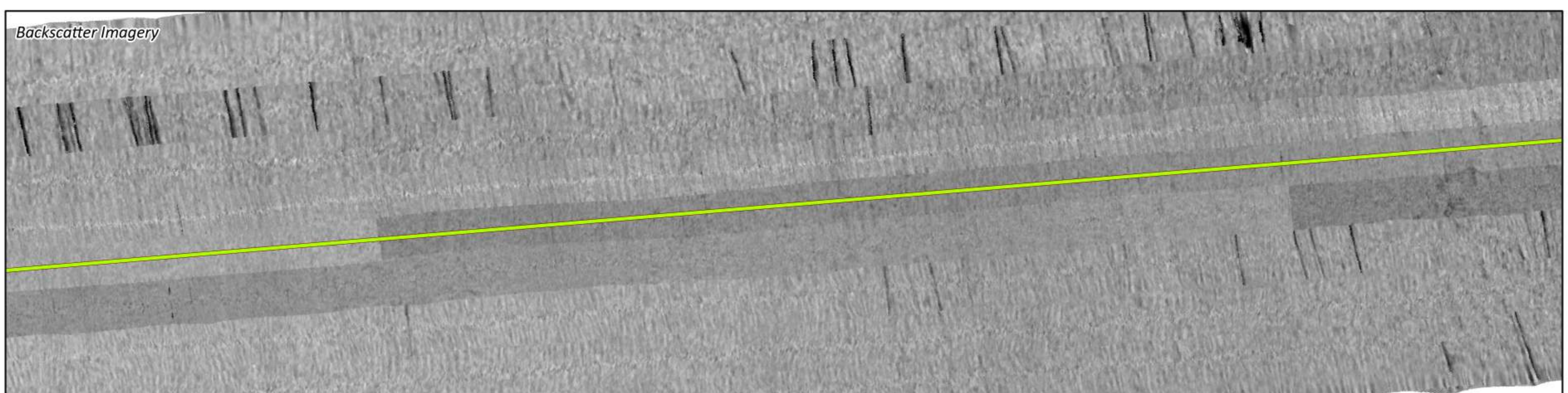
Berrian County, Michigan

NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

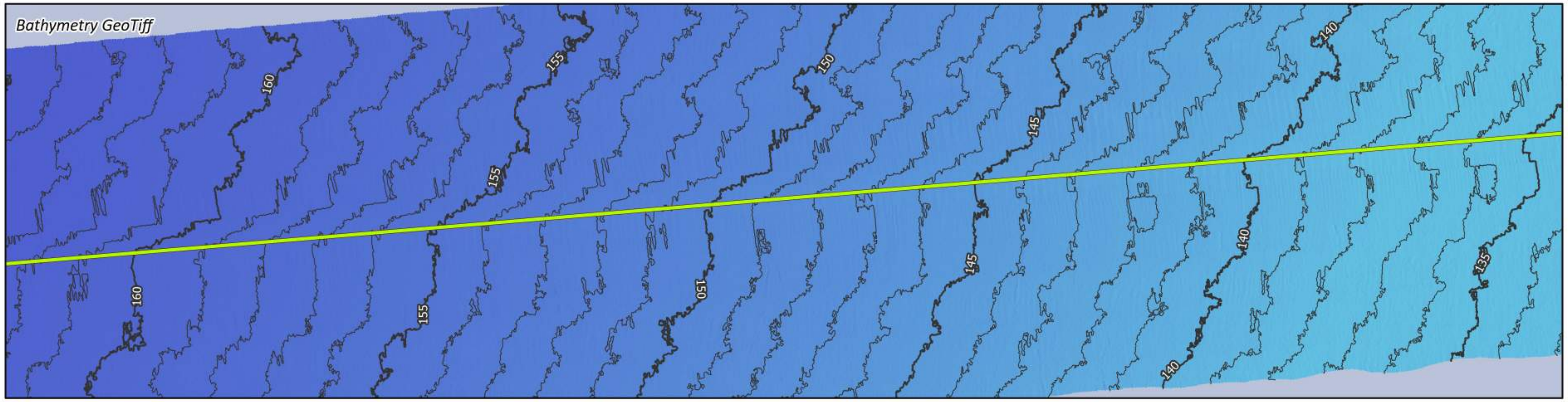
GEI Consultants

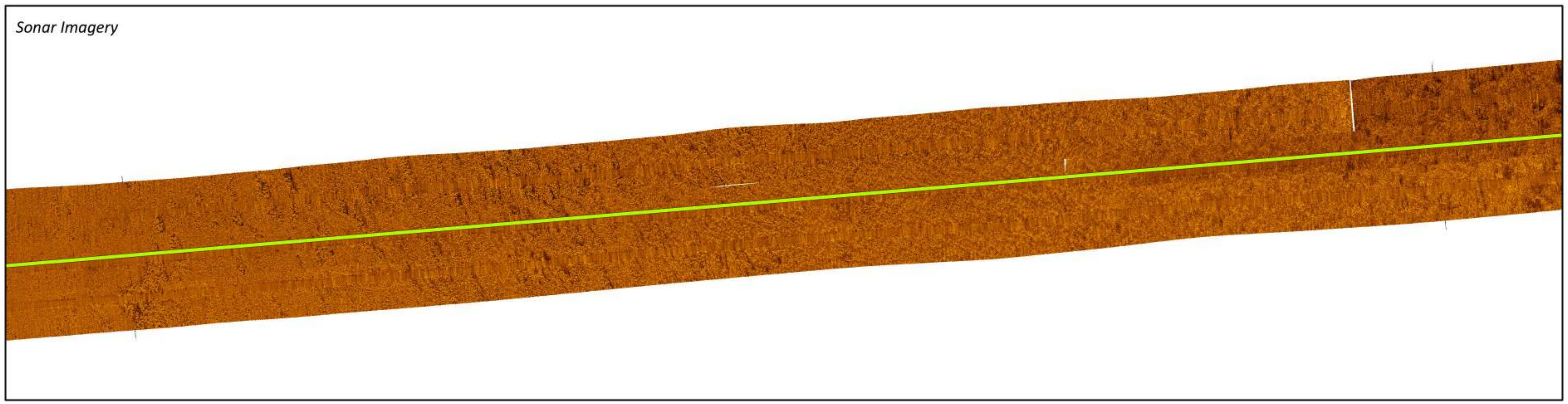
0 250 500 1,000 Feet

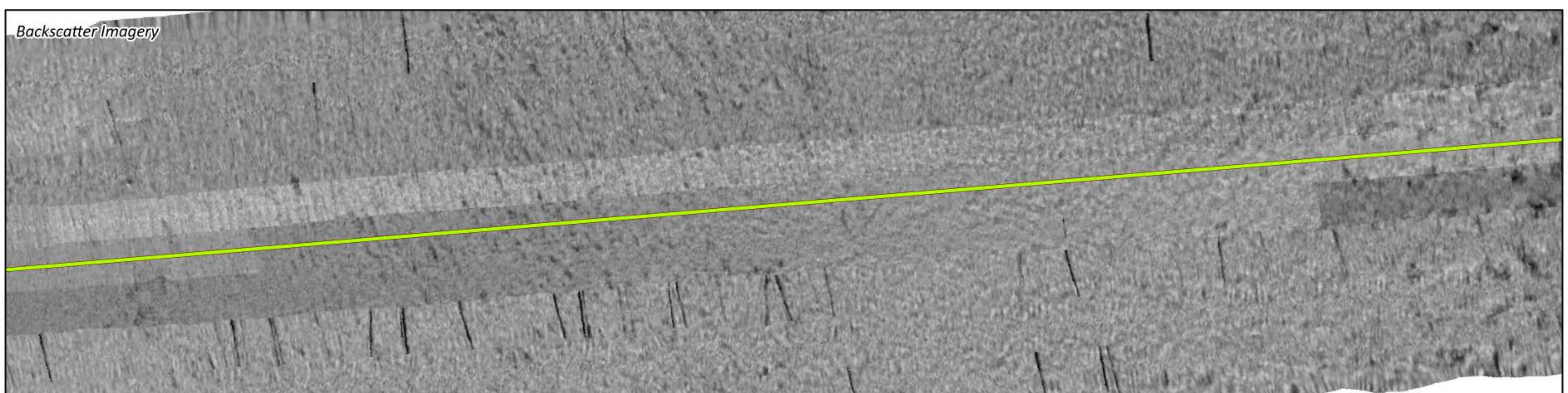
IMPACC Project 1
JSI Engineering

Berrian County, Michigan

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY



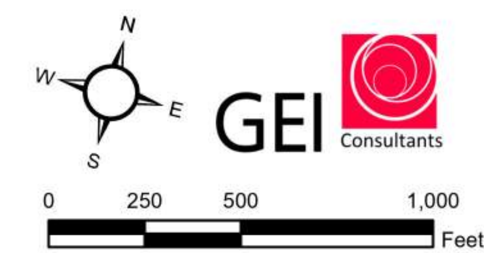




LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)



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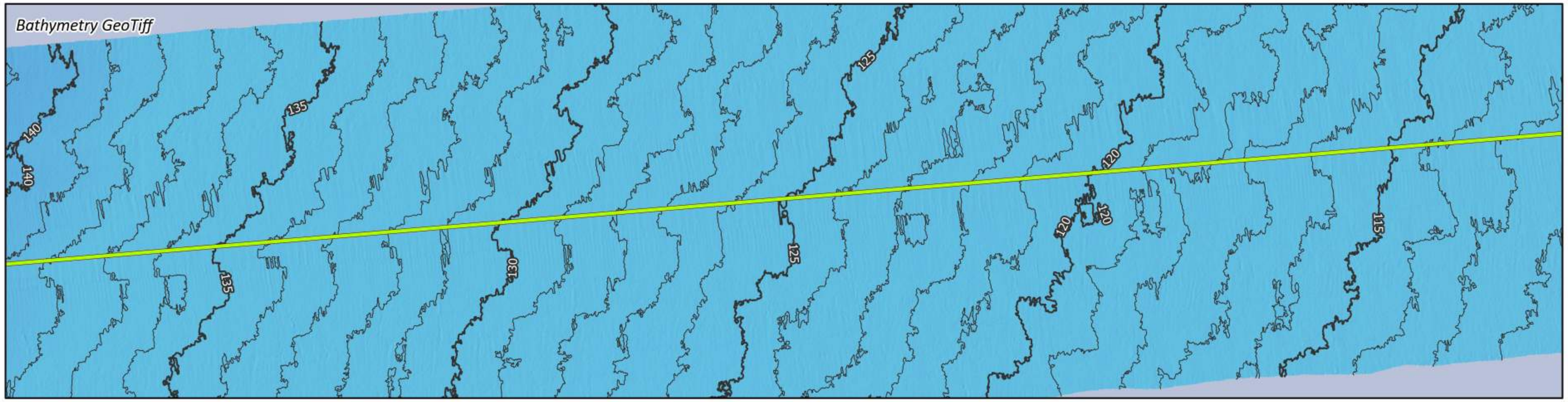
NAD 1983 BLM Zone 16N ftUS

IMPACC Project 1
JSI Engineering

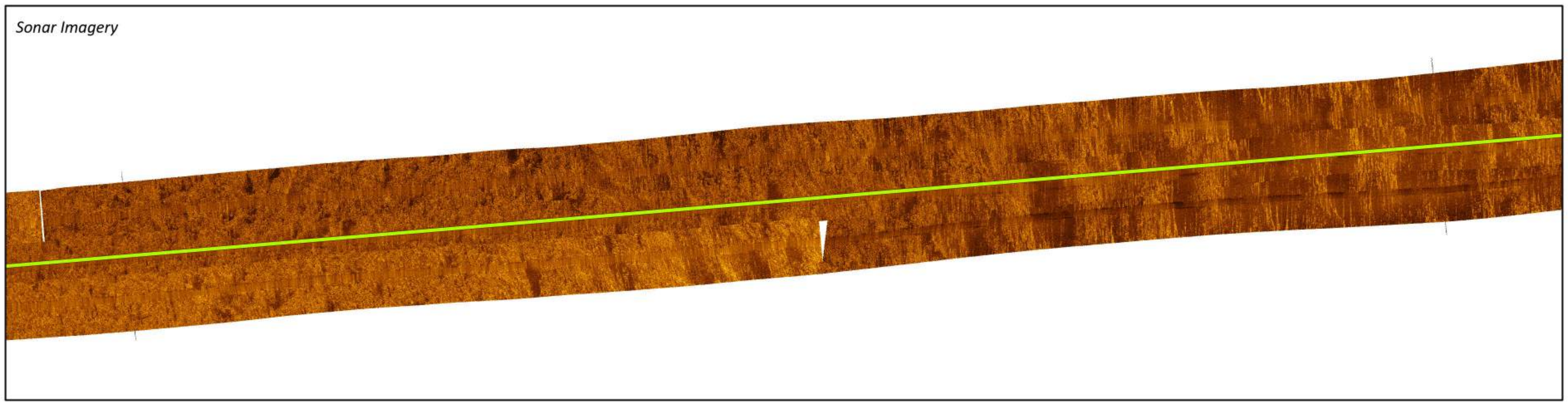
Berrian County, Michigan

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

Bathymetry GeoTiff



Sonar Imagery



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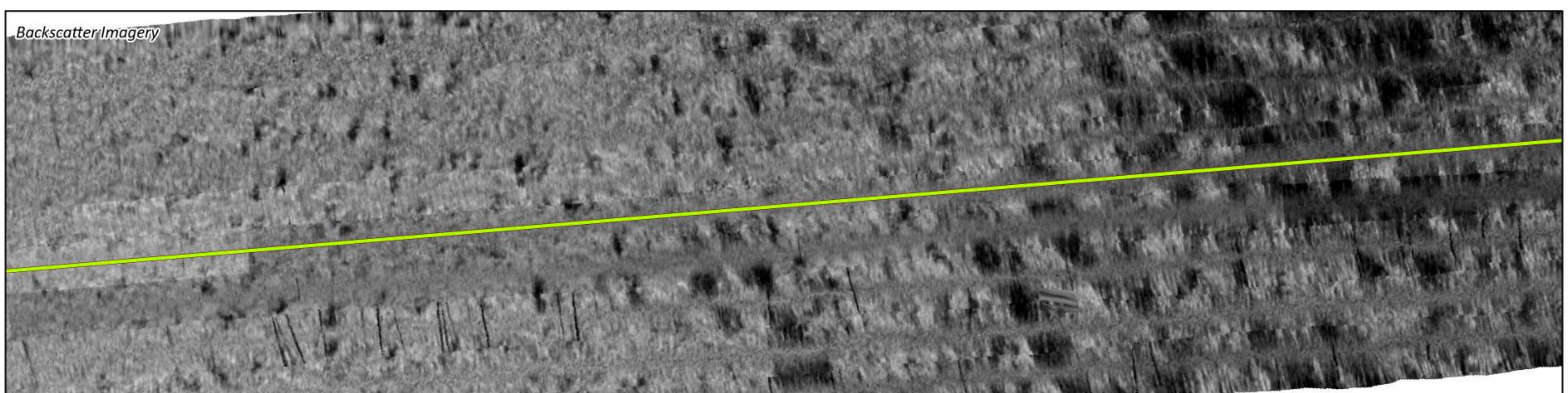

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

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Berrian County, Michigan

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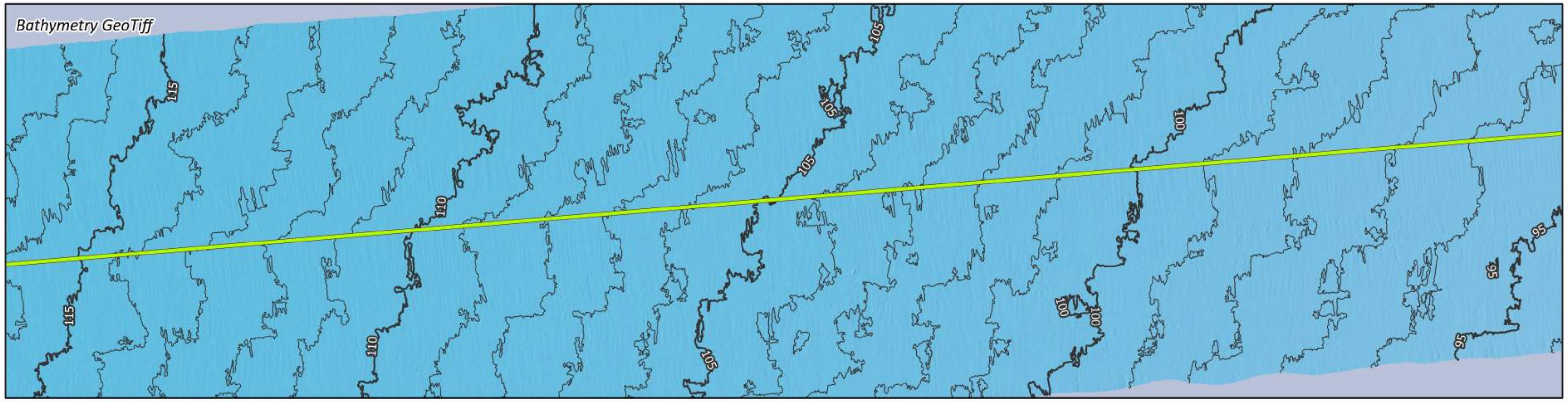
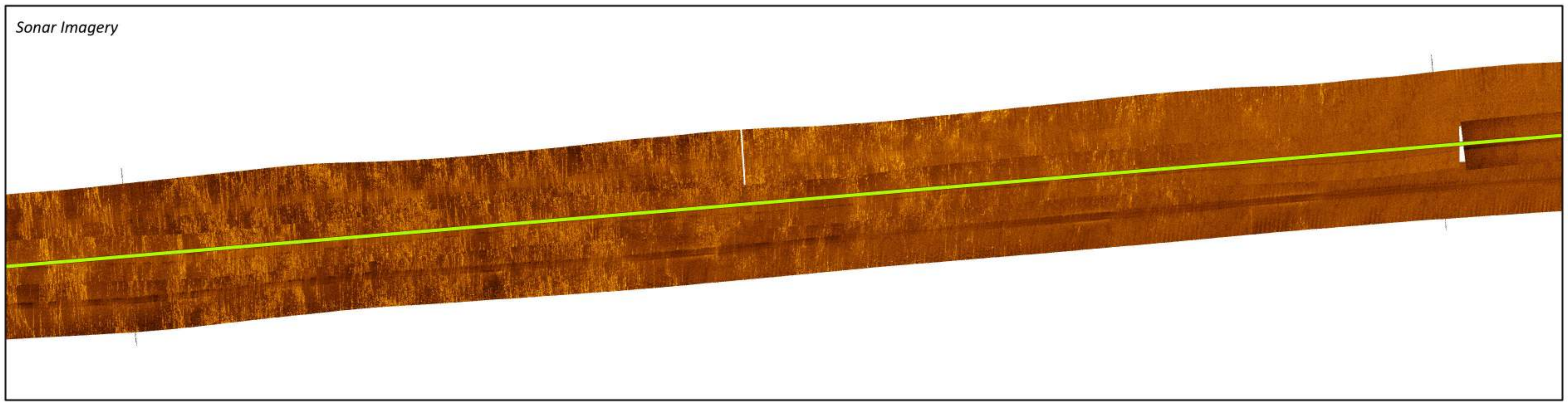
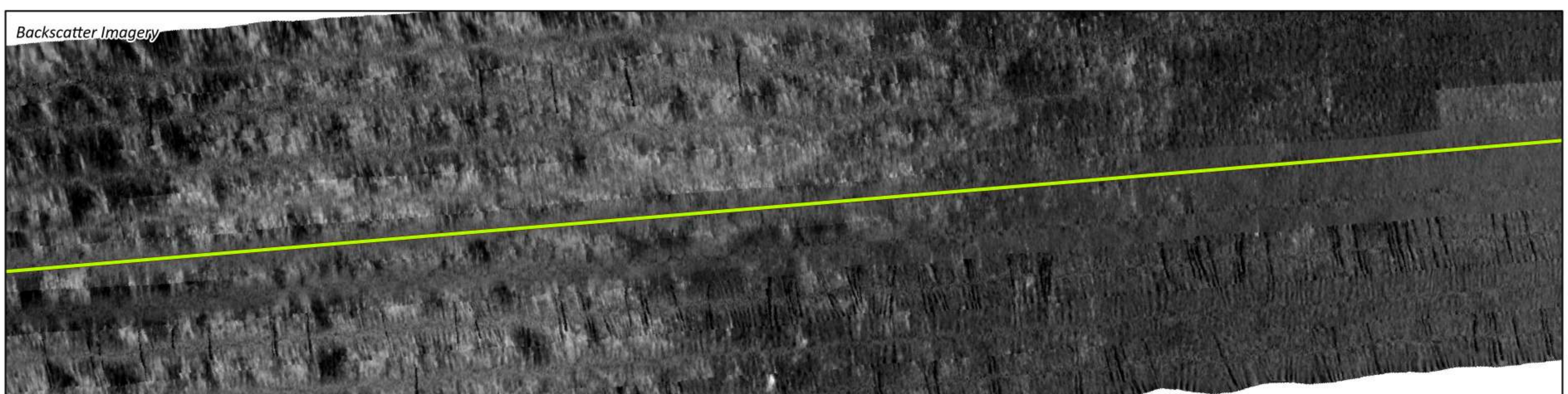
NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

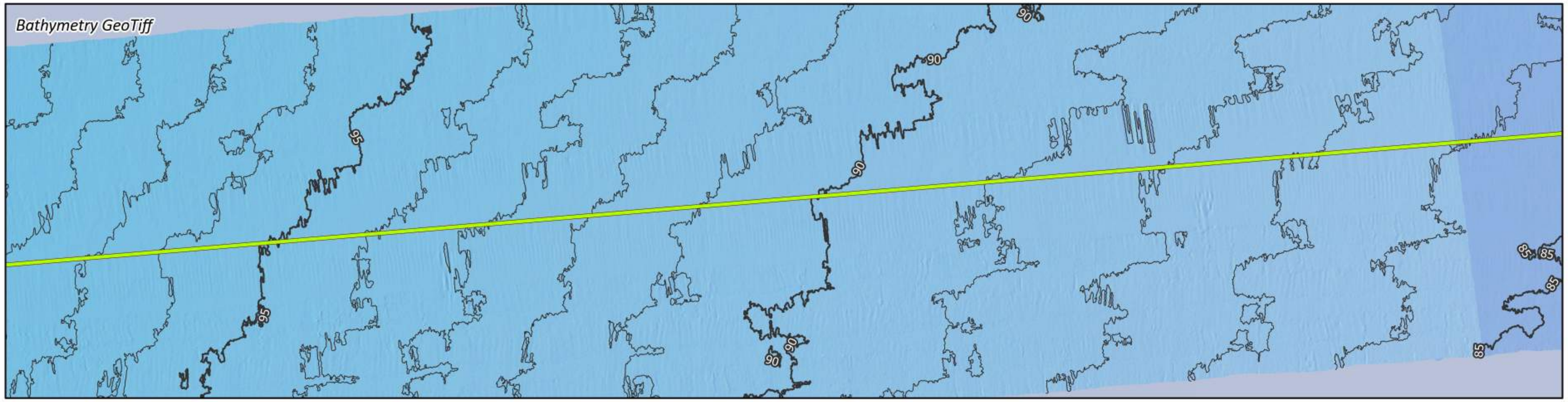
GEI Consultants

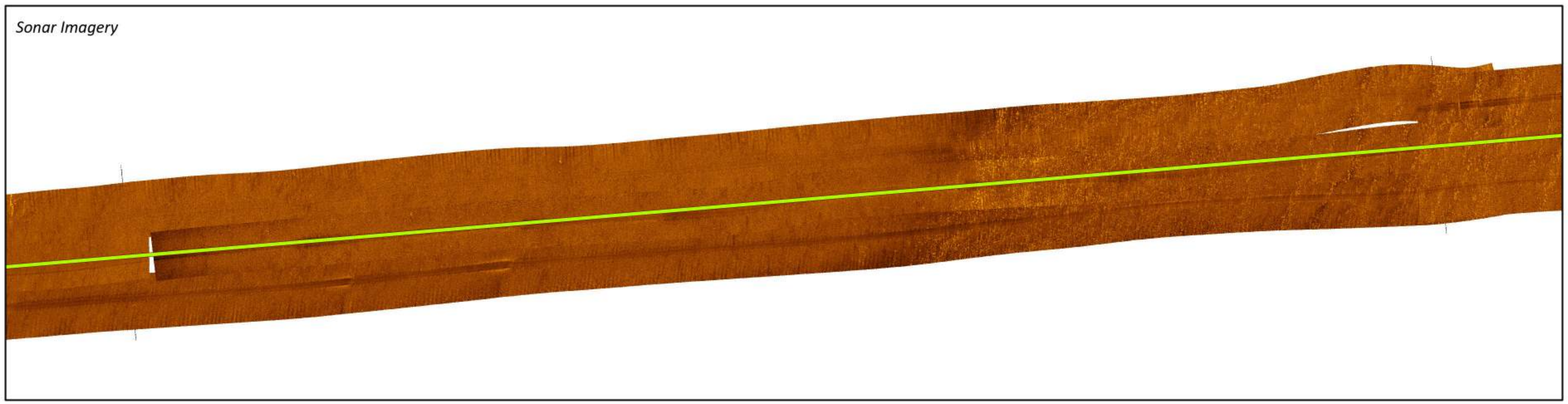
0 250 500 1,000 Feet

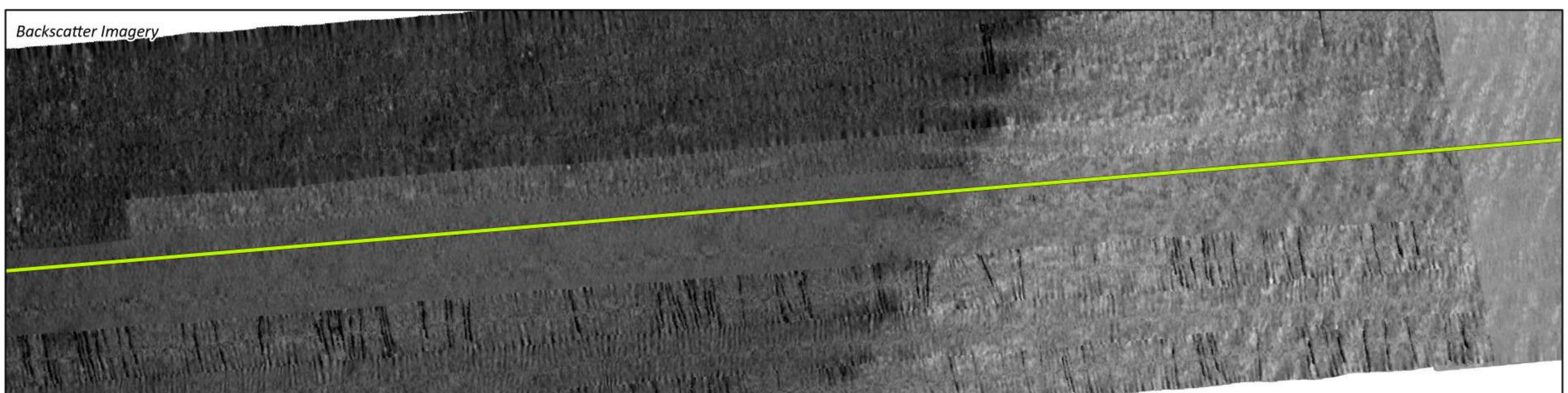
IMPACC Project 1
JSI Engineering

Berrian County, Michigan

Project 2305496 October 2025







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

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JSI Engineering

Berrian County, Michigan

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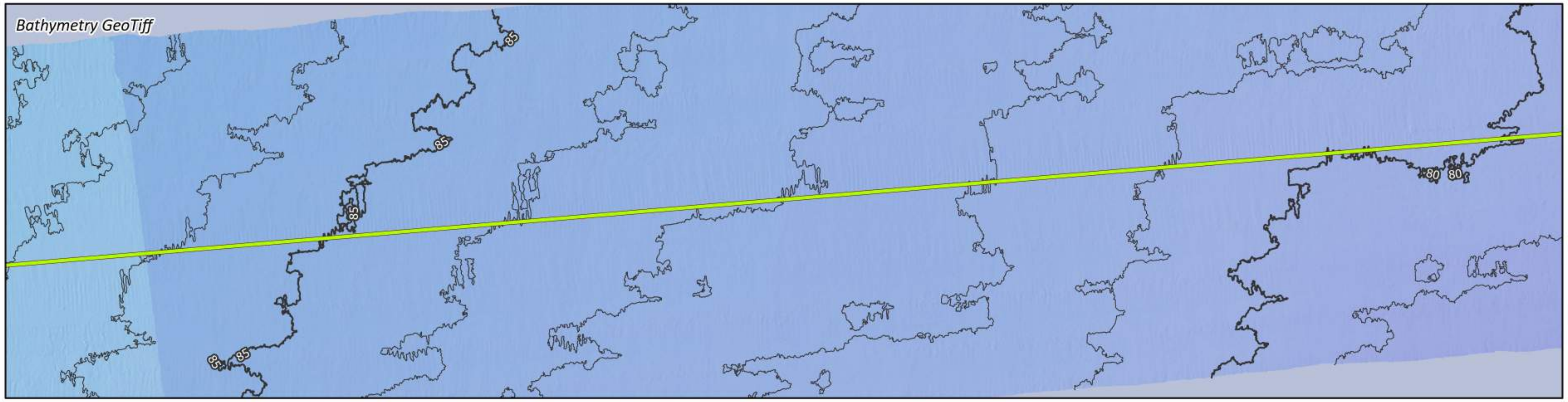
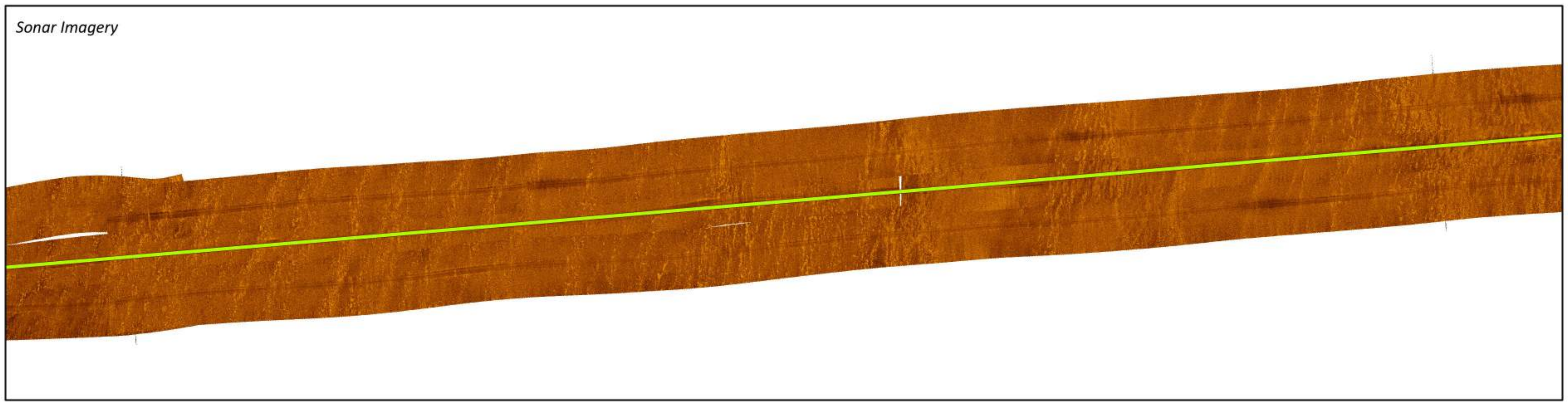




NAD 1983 BLM Zone 16N ftUS

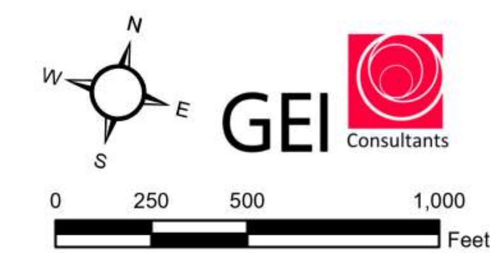
IMPACC PROJECT 1 NORTH LEG CROSSING HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)



IMPACC Project 1
JSI Engineering

Berrian County, Michigan

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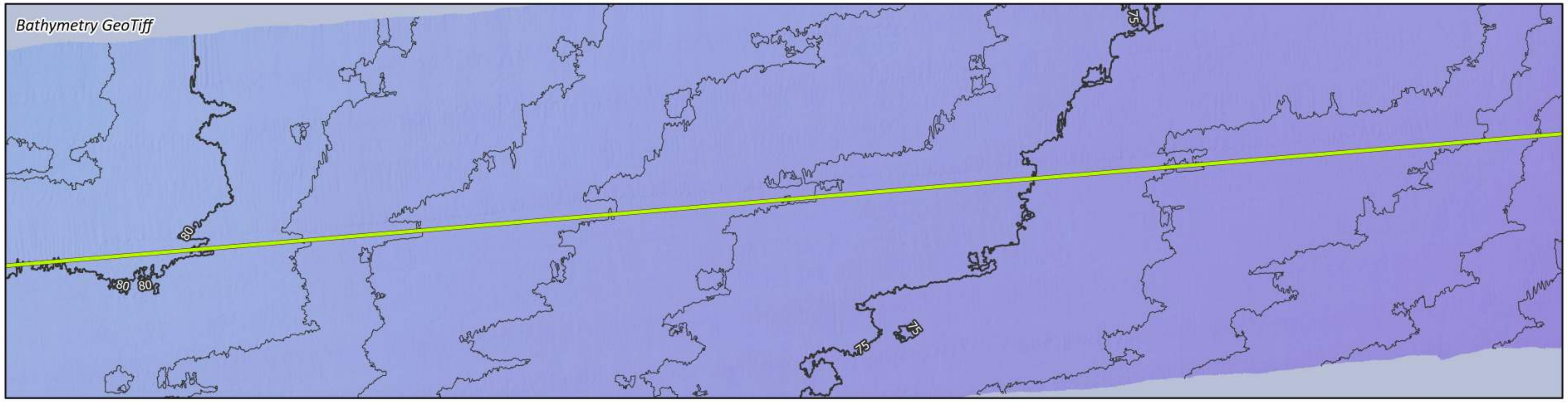
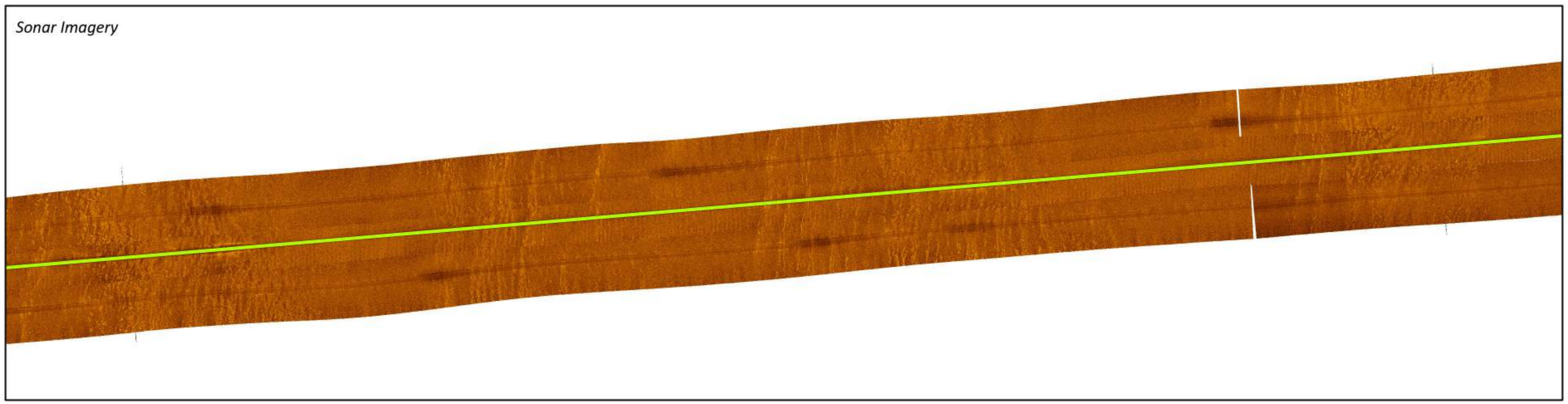
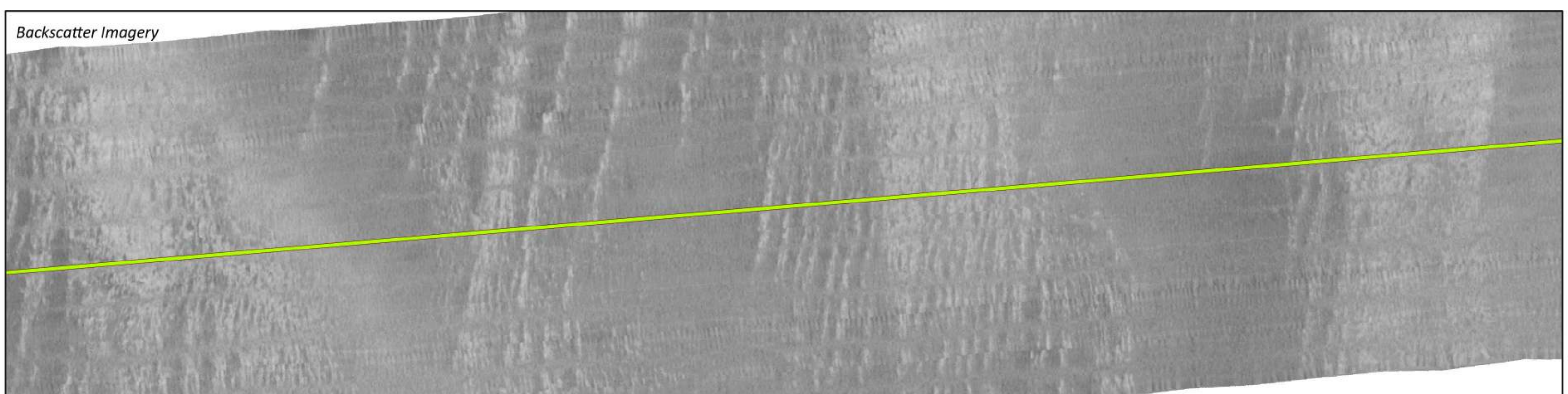






NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

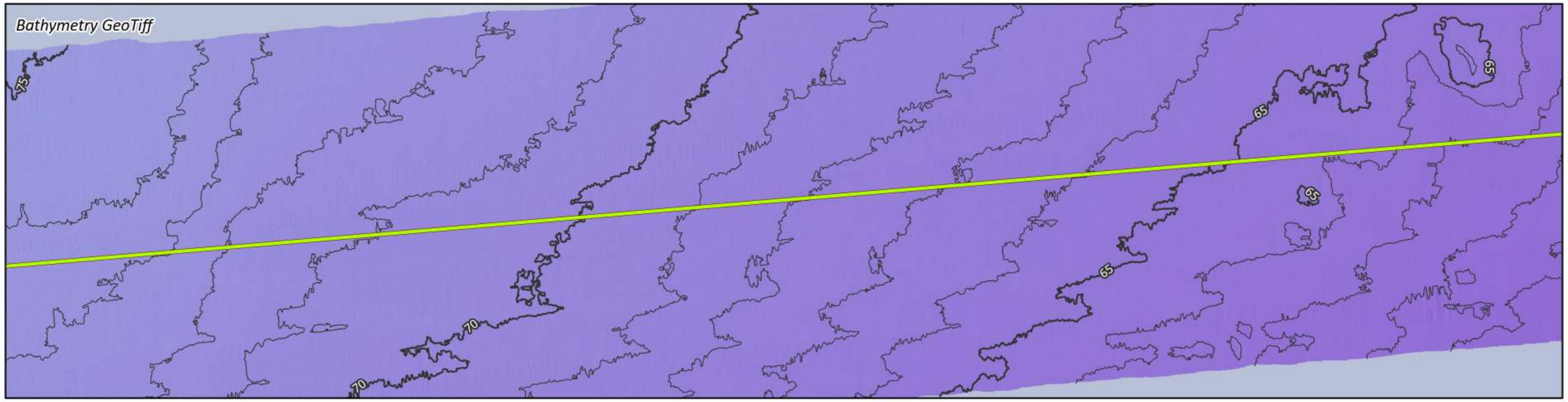
GEI Consultants

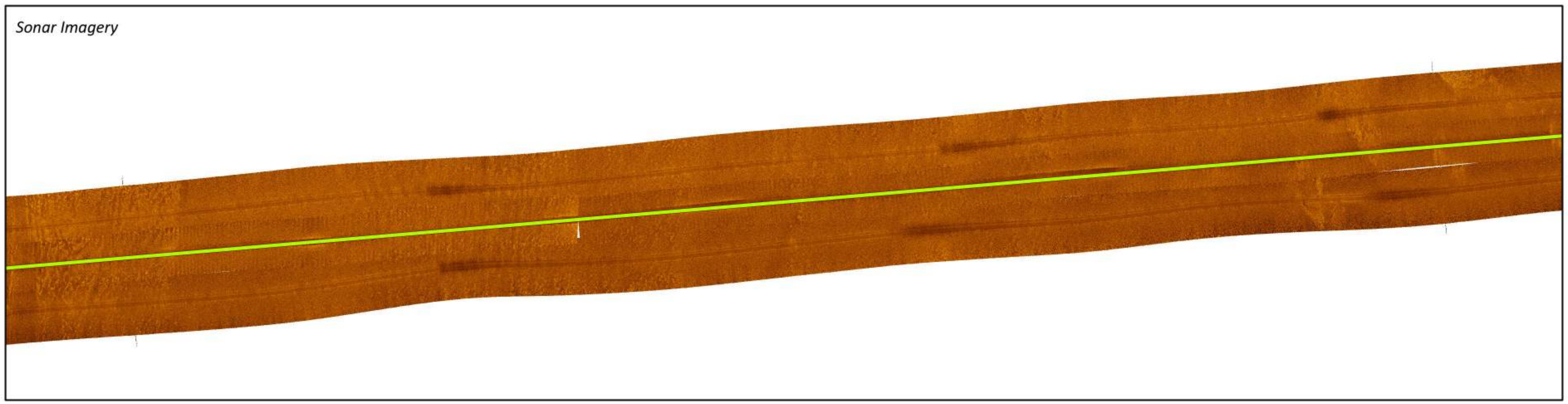
0 250 500 1,000 Feet

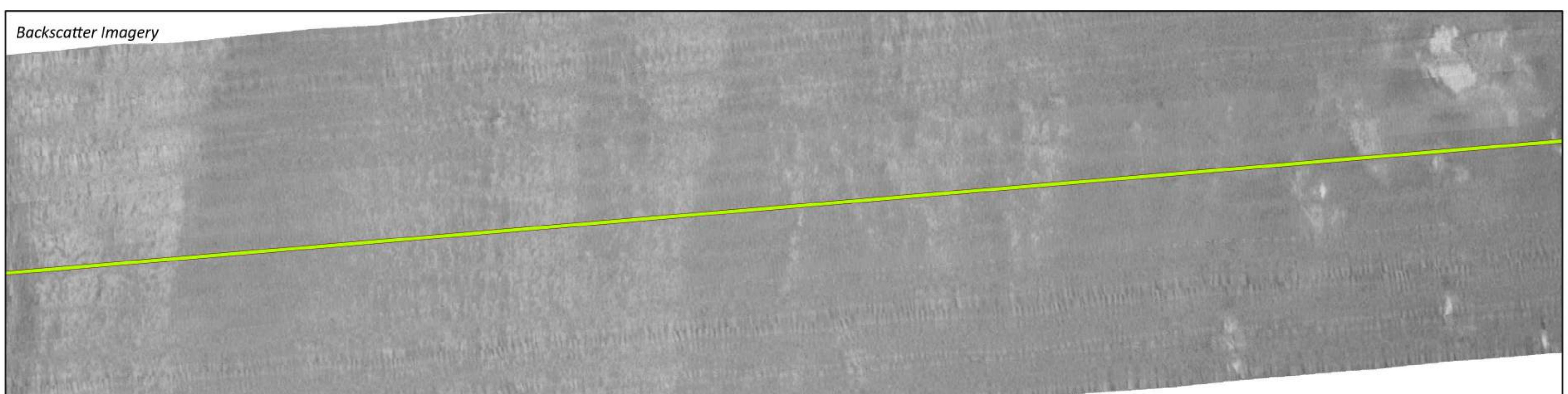
IMPACC Project 1
JSI Engineering

Berrian County, Michigan

Project 2305496 October 2025







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

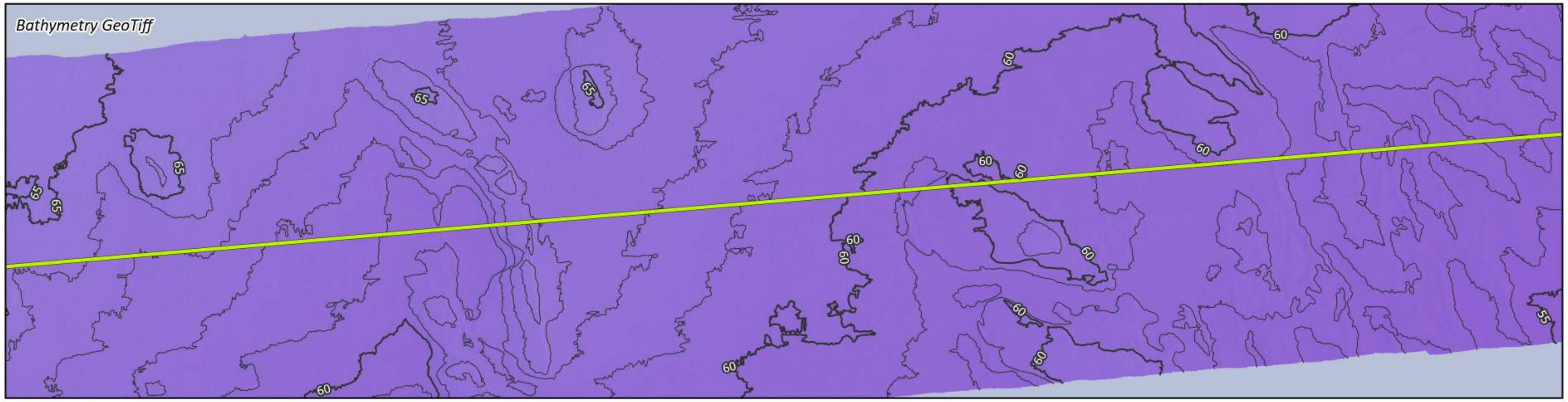
N W E S

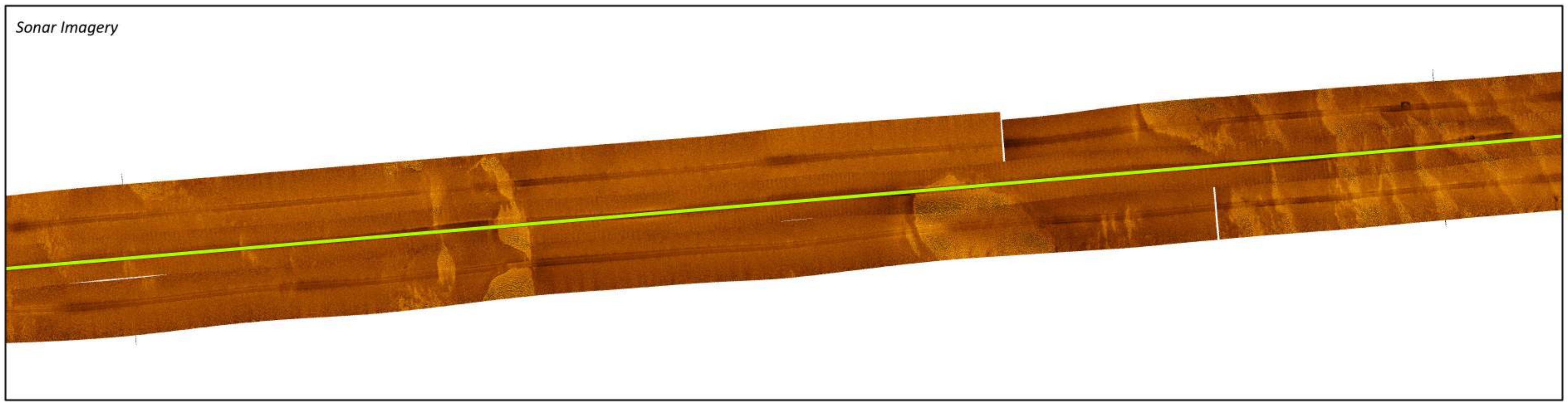
GEI Consultants

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan





NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

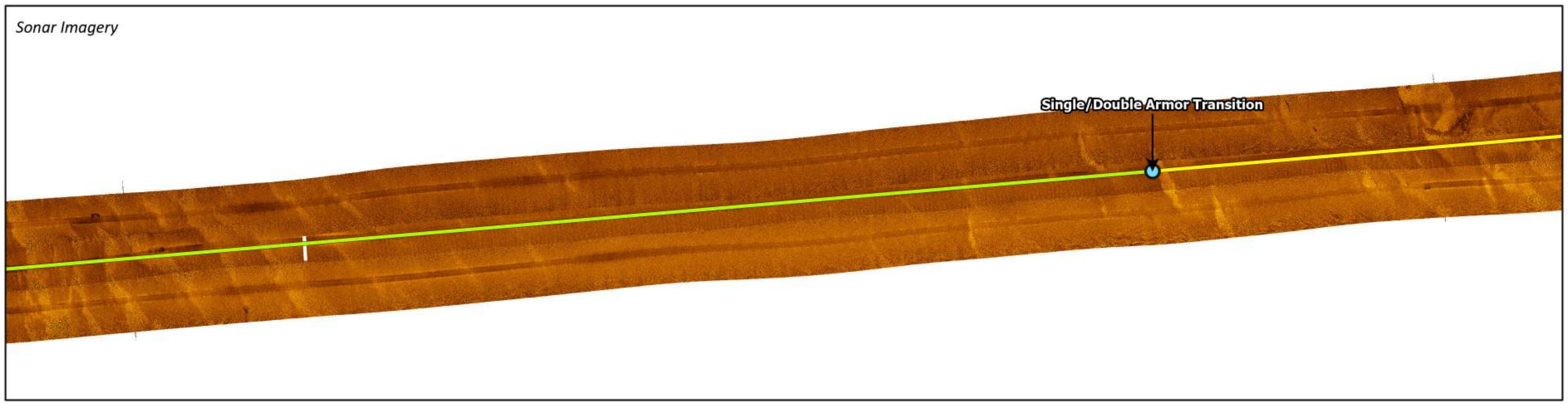
GEI Consultants

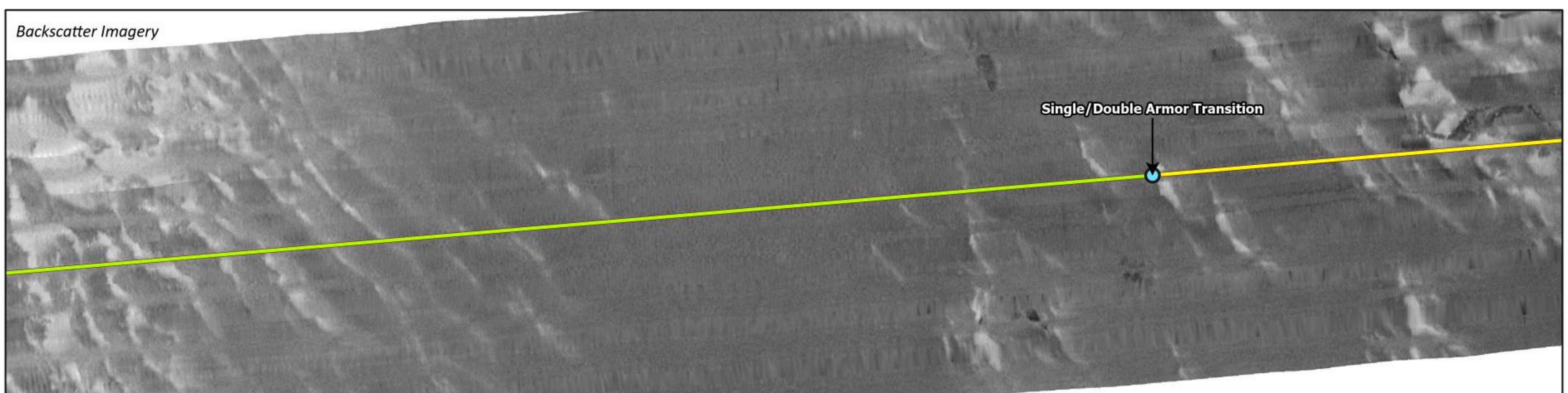
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY





NAD 1983 BLM Zone 16N ftUS

LEGEND:

- Route Features

Project 1 Proposed Route

- Surface Lay (Double Armor)
- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

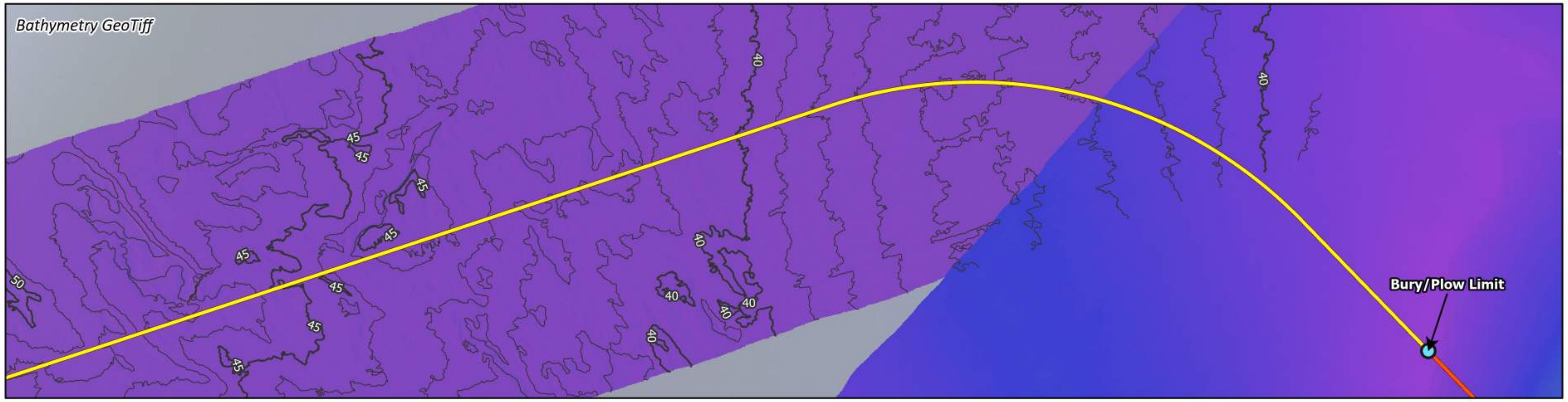
GEI Consultants

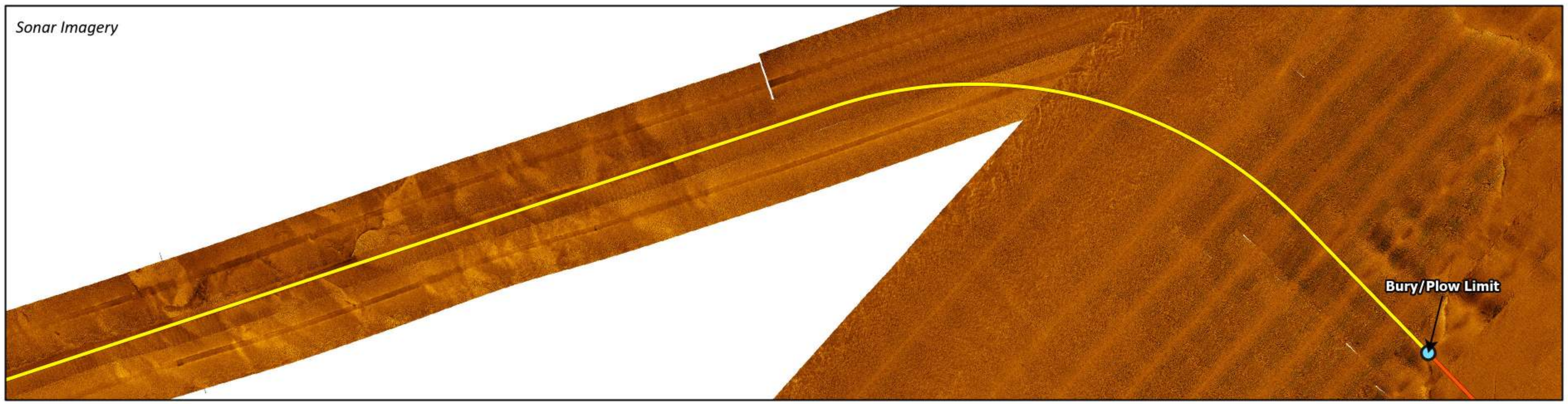
0 250 500 1,000 Feet

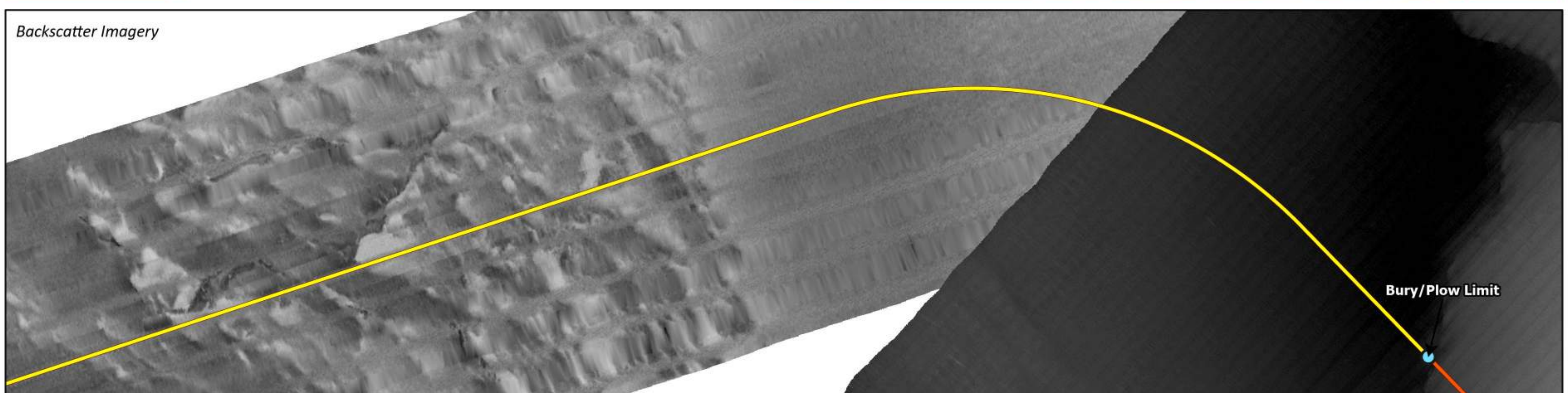
IMPACC Project 1
JSI Engineering

Berrian County, Michigan

Project 2305496 October 2025







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

- Route Features

Project 1 Proposed Route

- Bury/Plow
- Surface Lay (Double Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N
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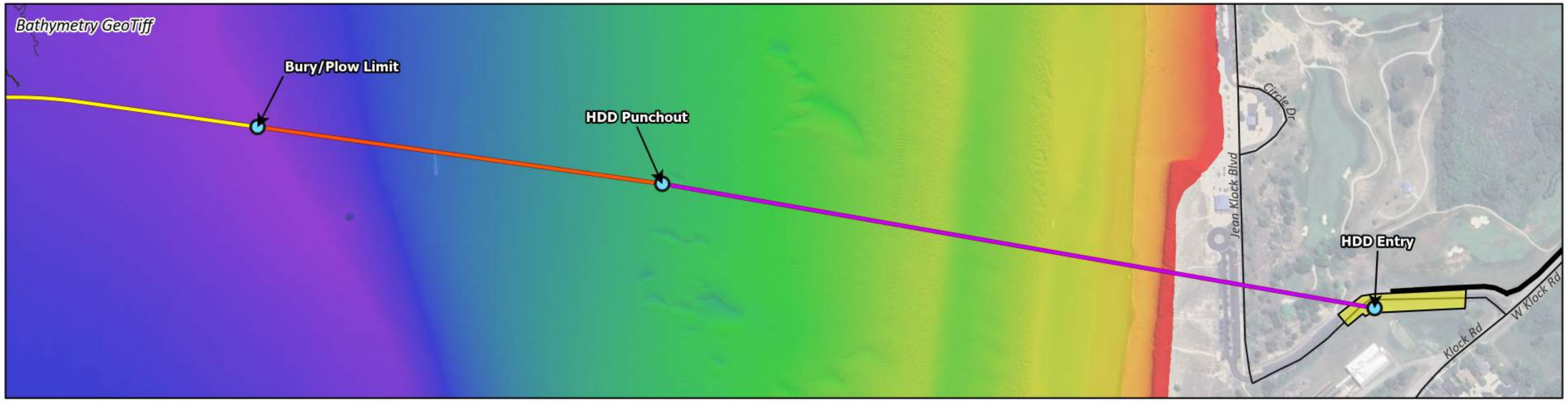
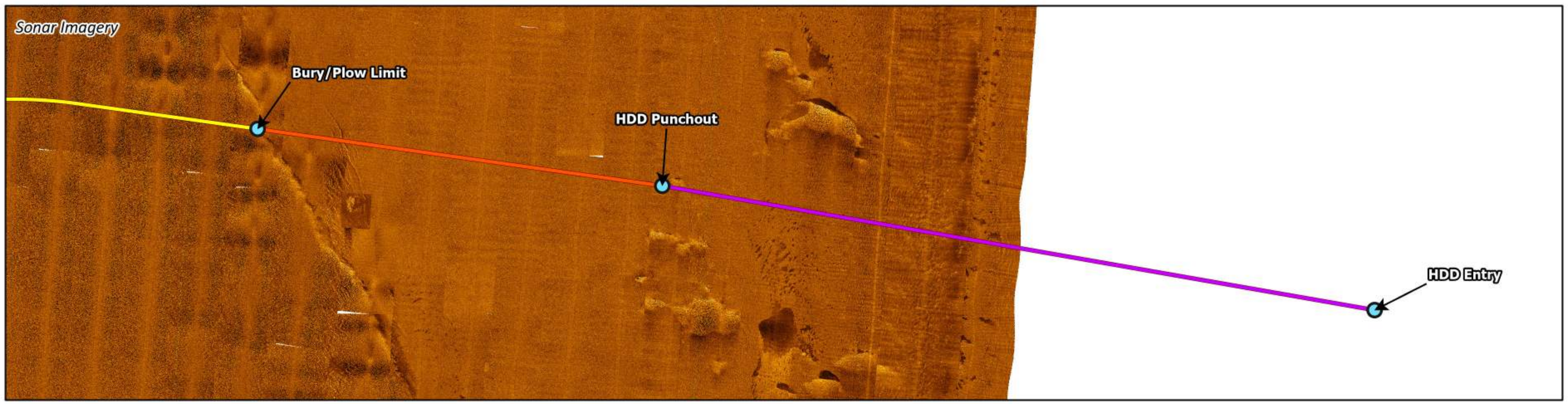
GEI Consultants

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan





NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
NORTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

- Route Features

Project 1 Proposed Route

- Bury/Plow
- HDD Bore
- Surface Lay (Double Armor)
- Terrestrial
- Bathymetry Contours (Feet Below IGLD85 LWD)
- HDD Staging Extent

N E S W

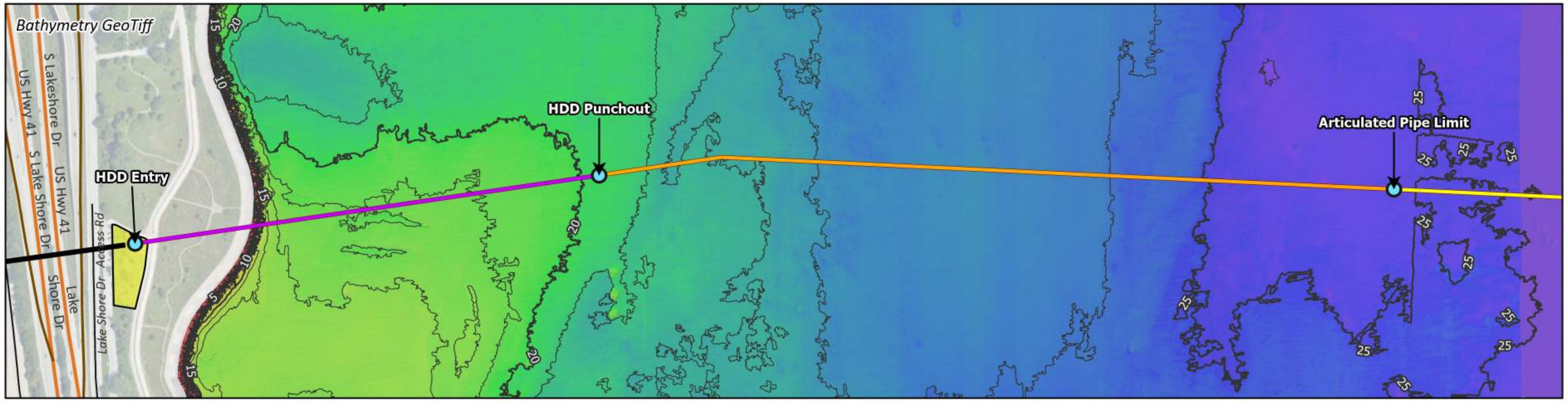
GEI Consultants

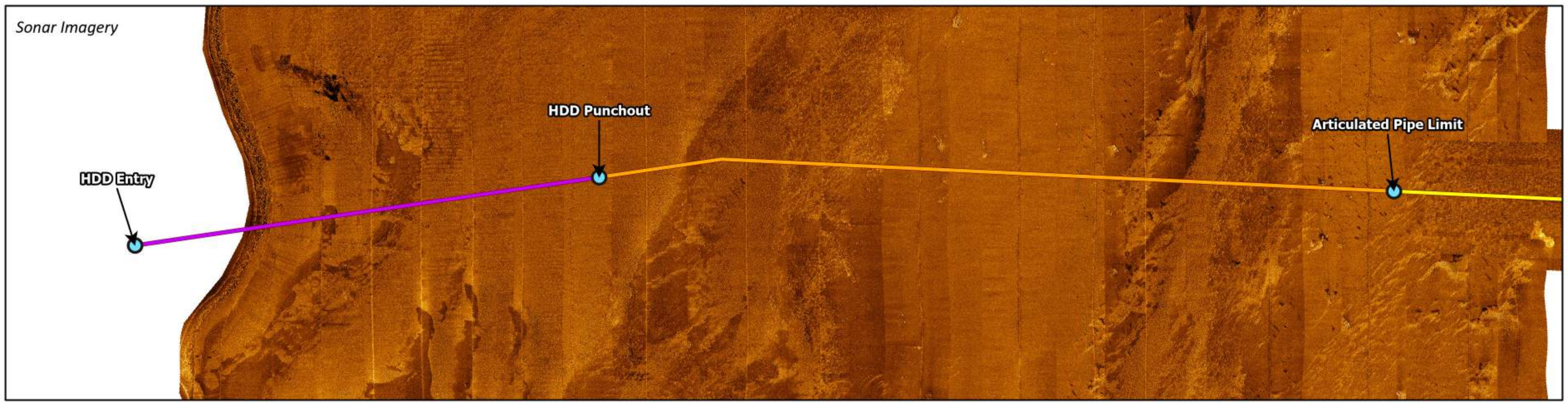
0 250 500 1,000 Feet

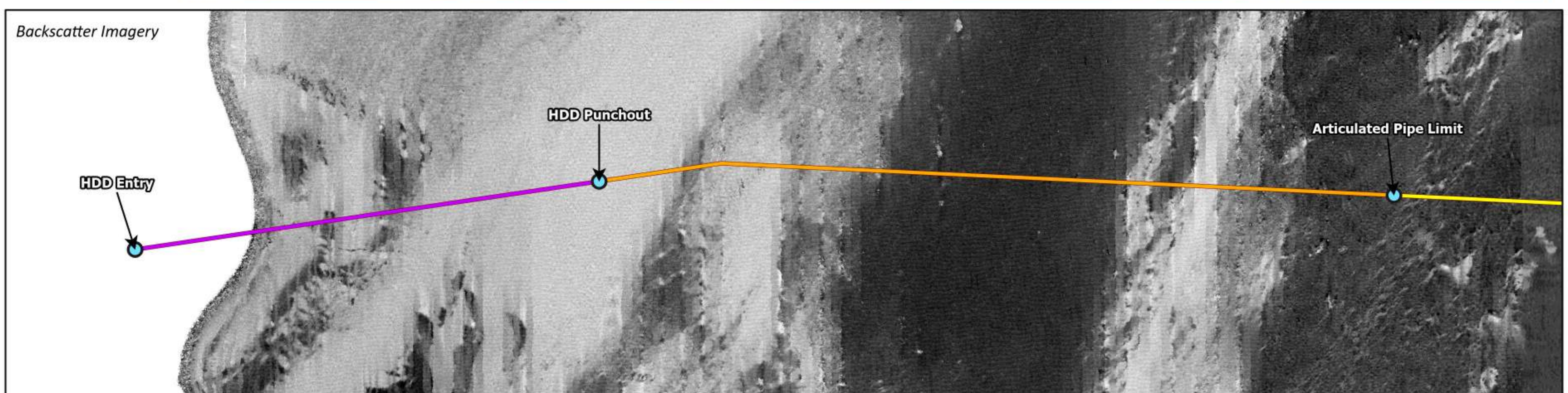
IMPACC Project 1
JSI Engineering

Berrian County, Michigan

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

LEGEND:

- Route Features
- *Project 1 Proposed Route*
- Articulated Pipe
- HDD Bore
- Surface Lay (Double Armor)
- Terrestrial
- Bathymetry Contours (Feet Below IGLD85 LWD)
- HDD Staging Extent

N W E S

GEI Consultants

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Cook County, Illinois

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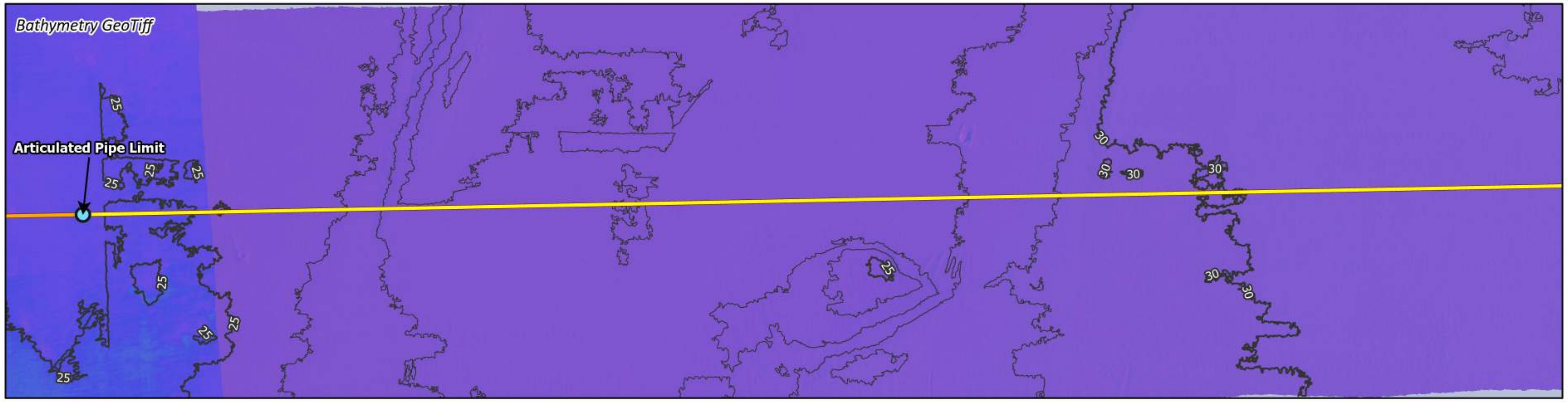
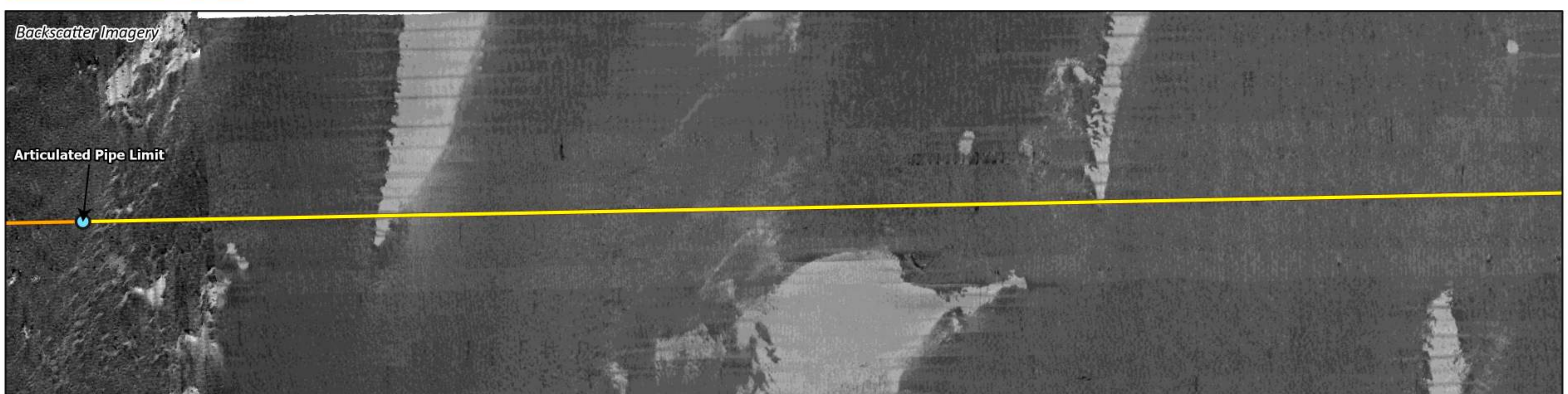




NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1 SOUTH LEG CROSSING HYDROGRAPHIC SURVEY

LEGEND:

- Route Features

Project 1 Proposed Route

- Articulated Pipe
- Surface Lay (Double Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

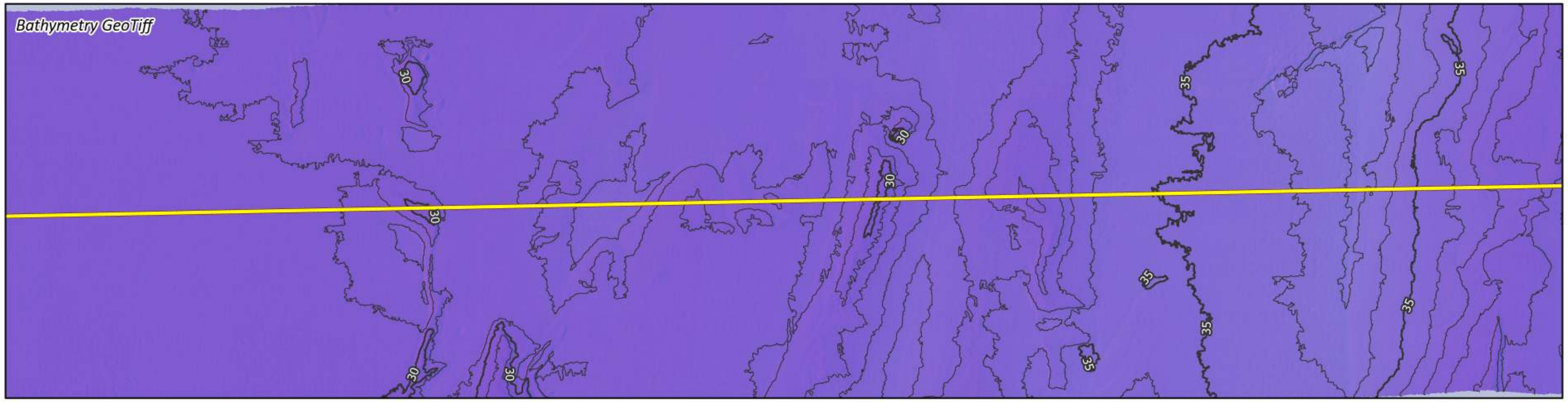
GEI Consultants

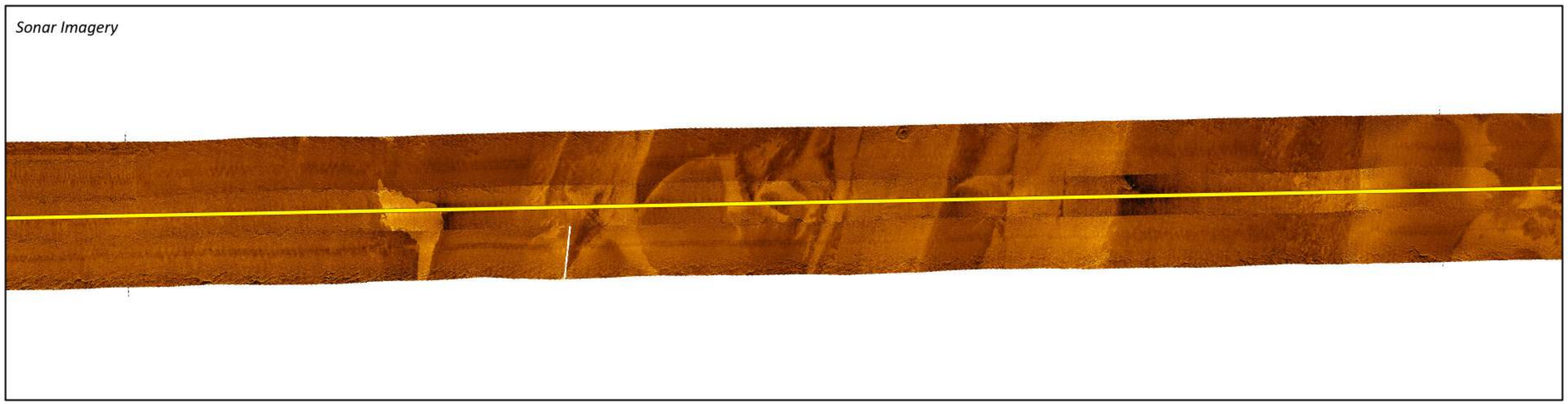
0 250 500 1,000 Feet

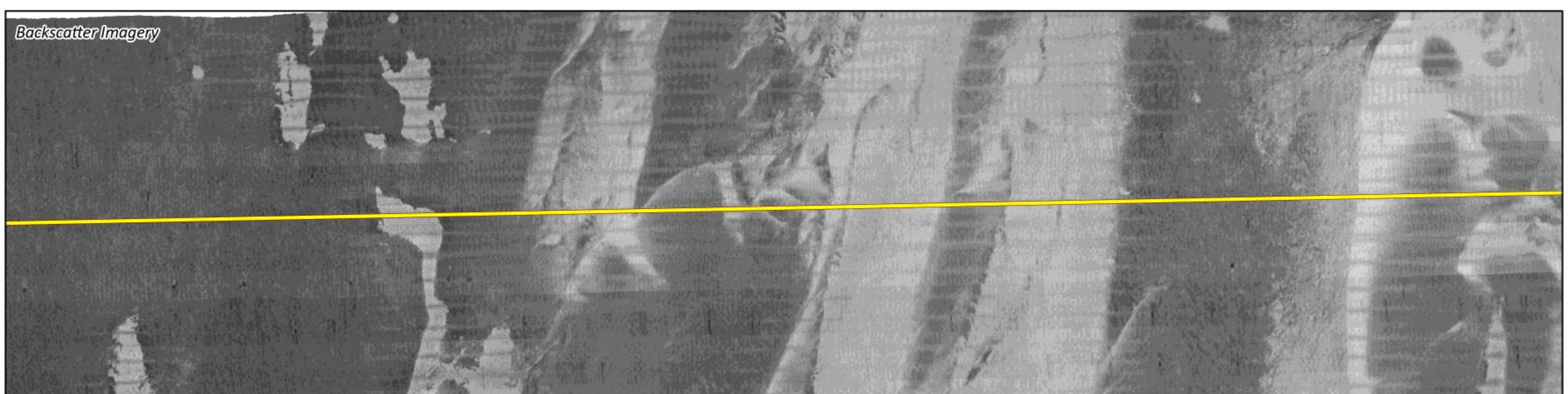
IMPACC Project 1
JSI Engineering

Cook County, Illinois

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

- Surface Lay (Double Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

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GEI Consultants

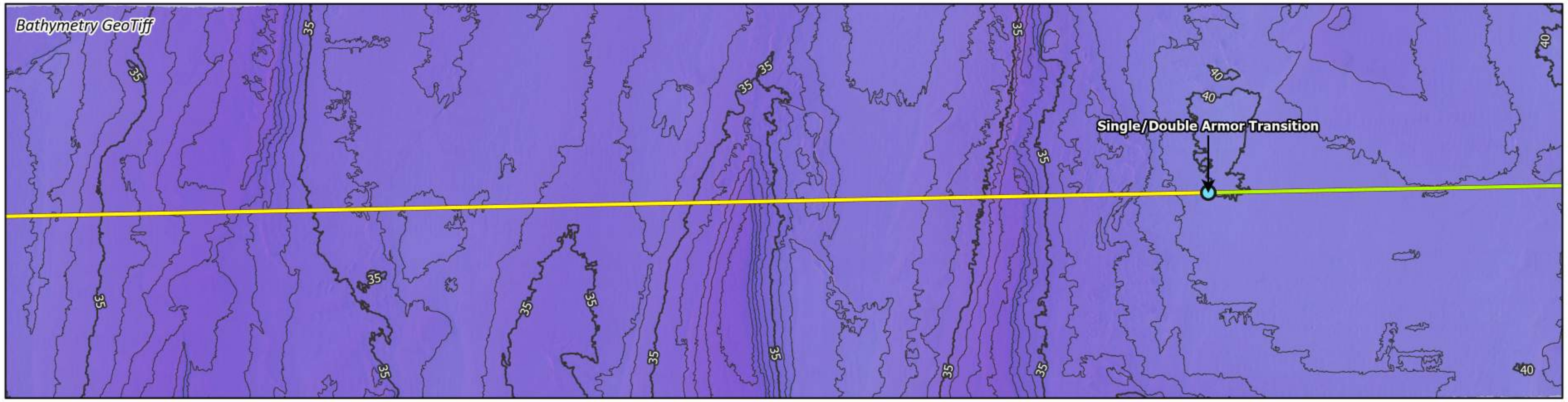
0 250 500 1,000
Feet

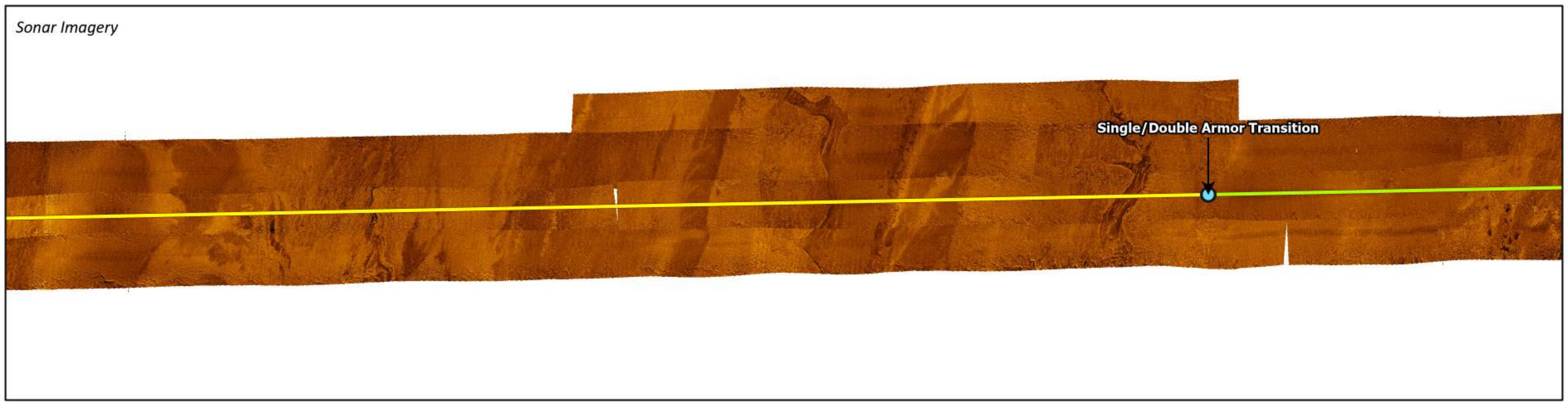
IMPACC Project 1
JSI Engineering

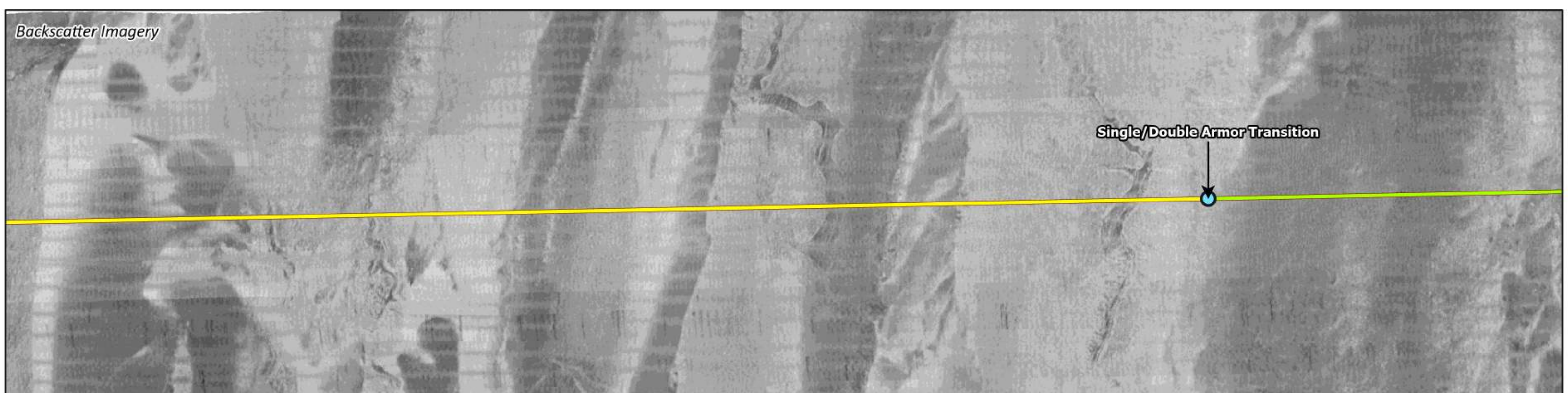
Cook County, Illinois

Project 2305496 October 2025

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

- Route Features

Project 1 Proposed Route

- Surface Lay (Double Armor)
- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

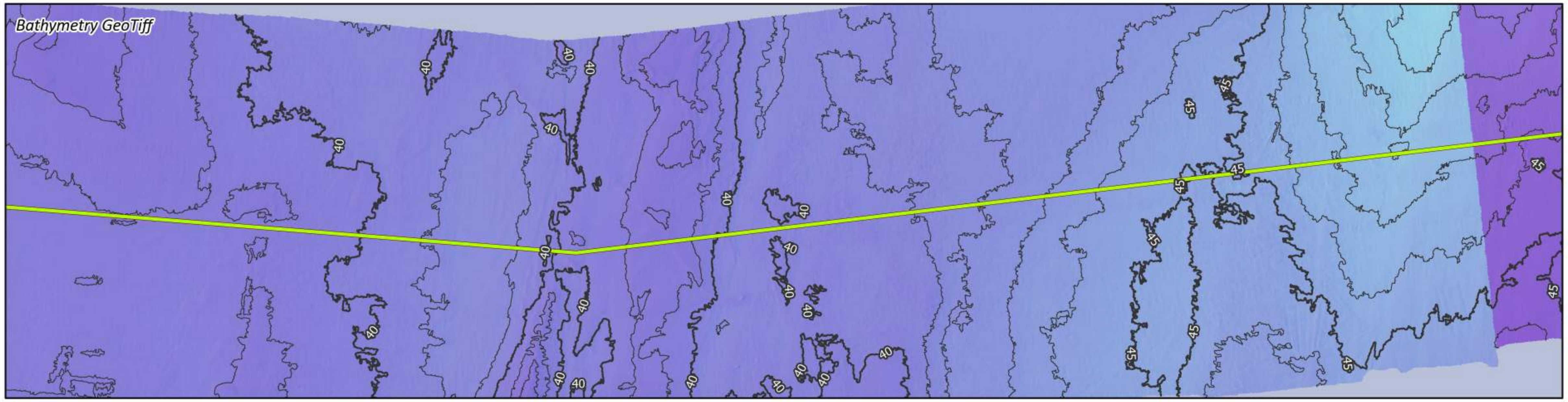
IMPACC Project 1
JSI Engineering

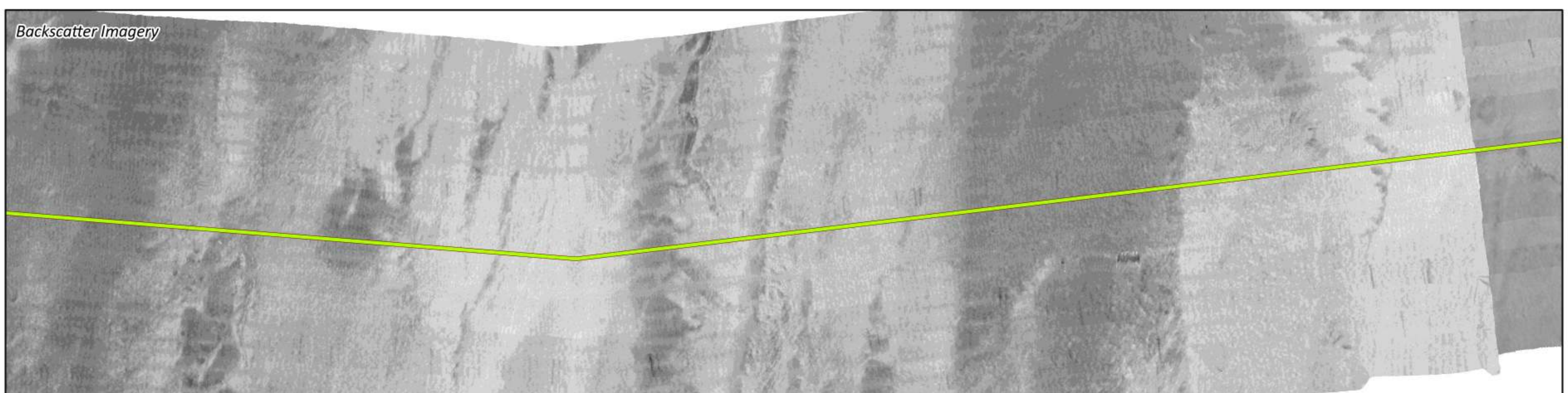
Cook County, Illinois

Project 2305496 October 2025

NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY





NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

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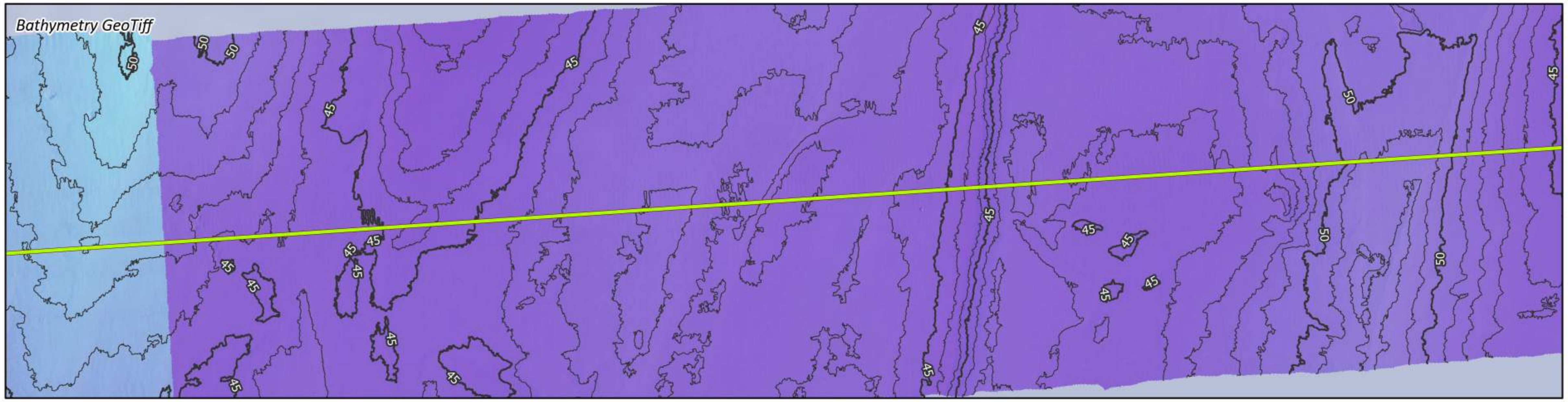
GEI Consultants

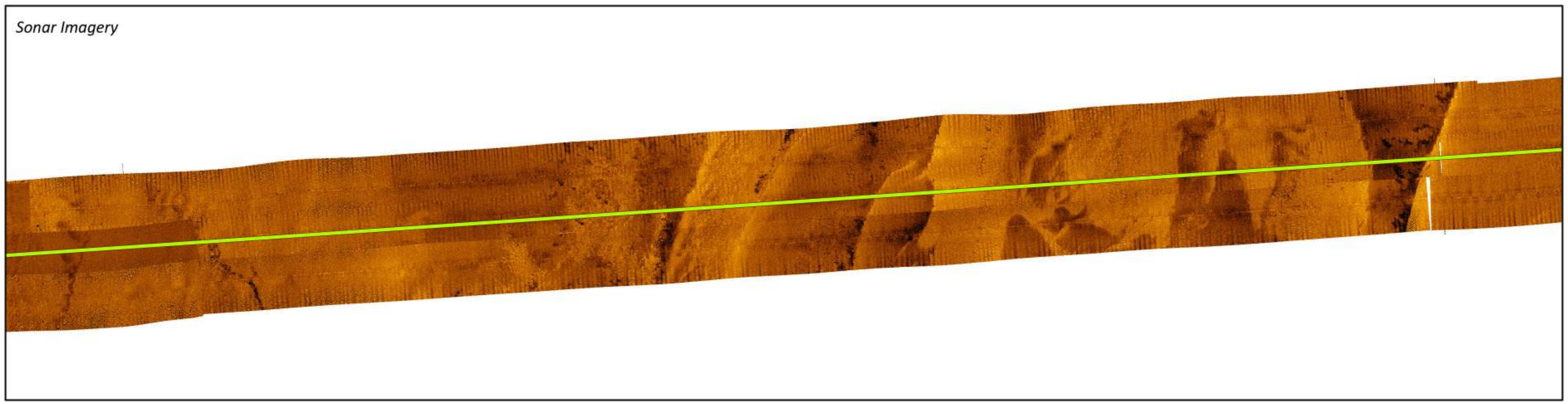
0 250 500 1,000 Feet

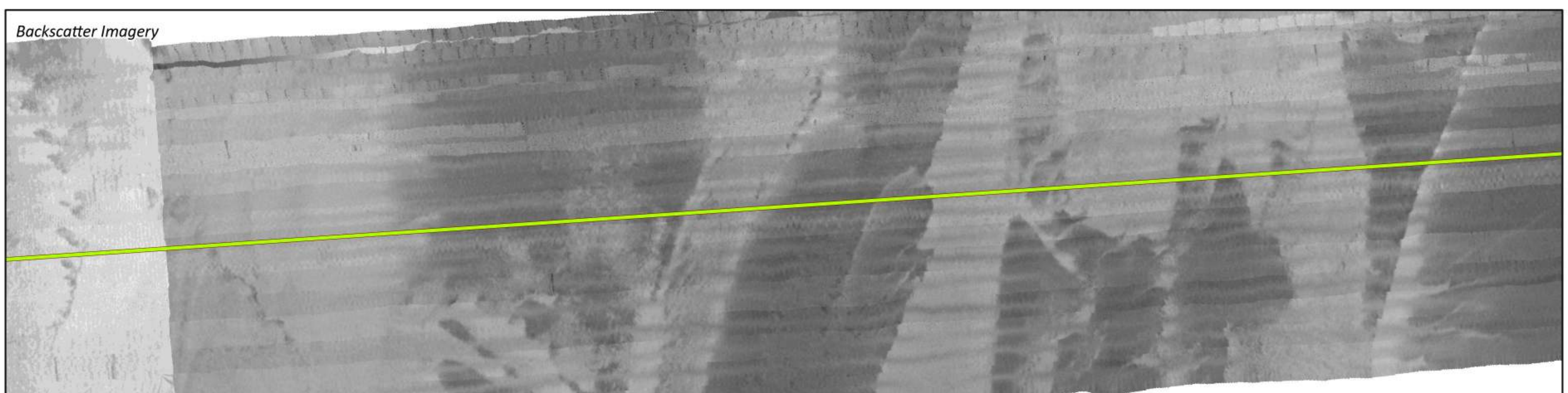
IMPACC Project 1
JSI Engineering

Cook County, Illinois

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Cook County, Illinois

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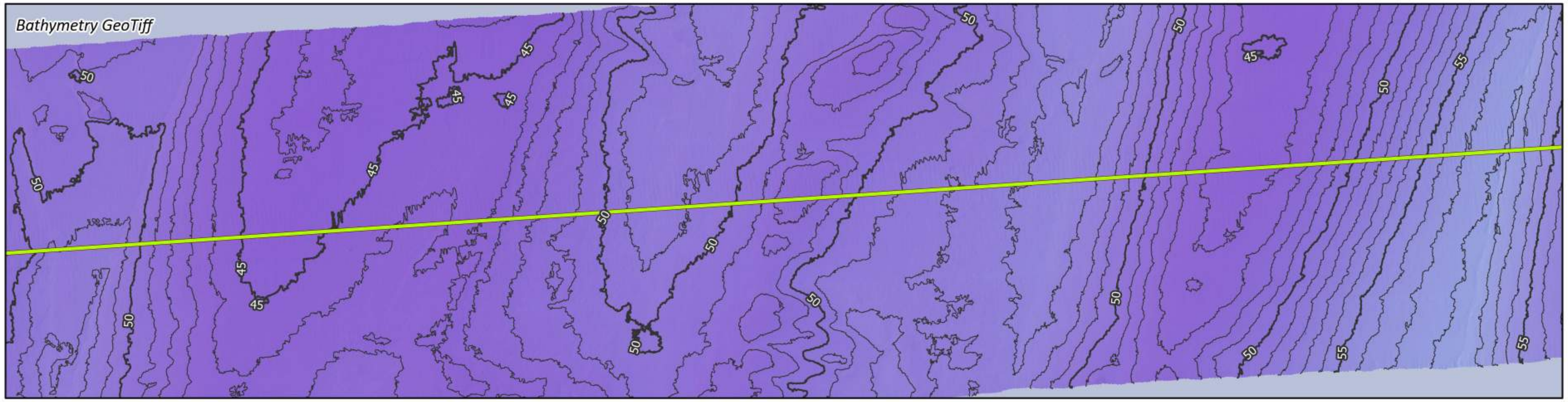
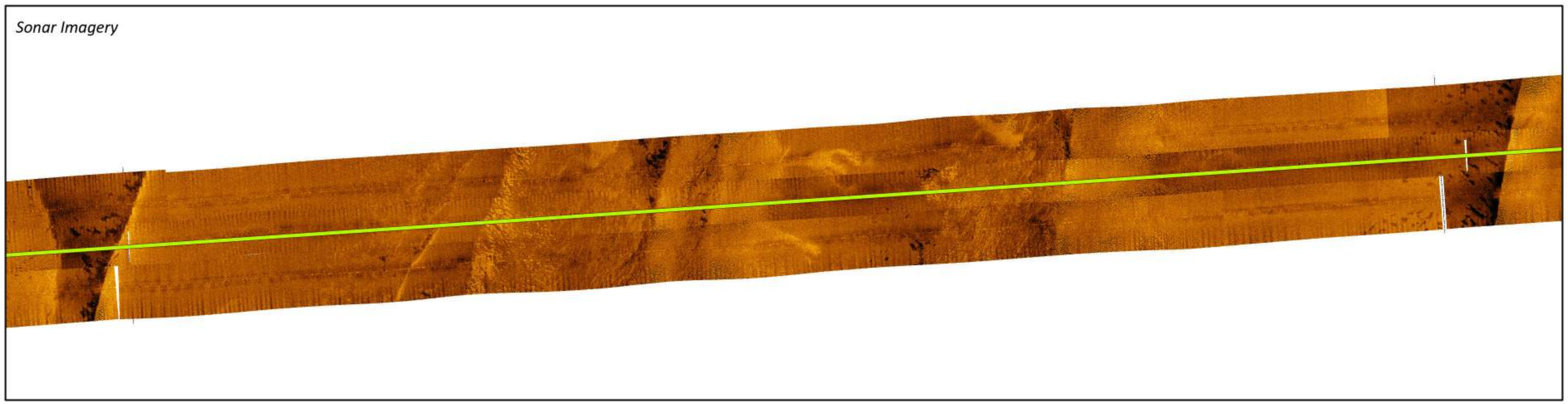
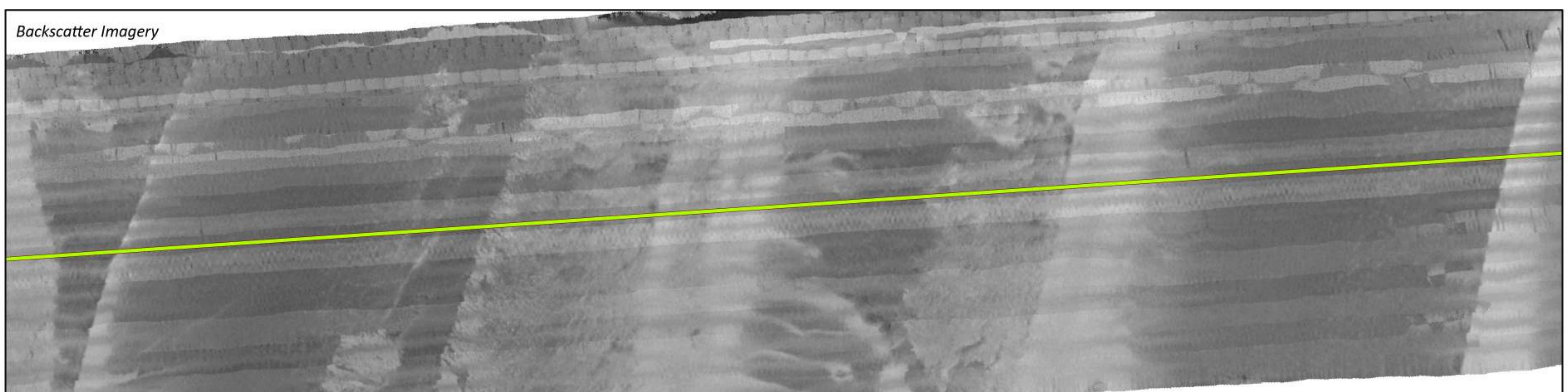
NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Cook County, Illinois

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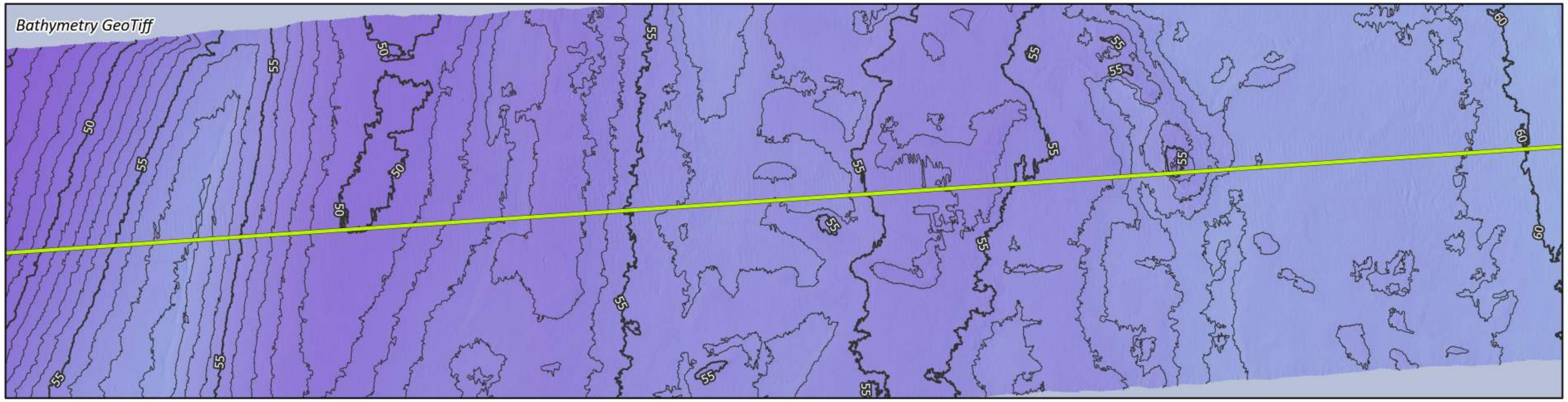

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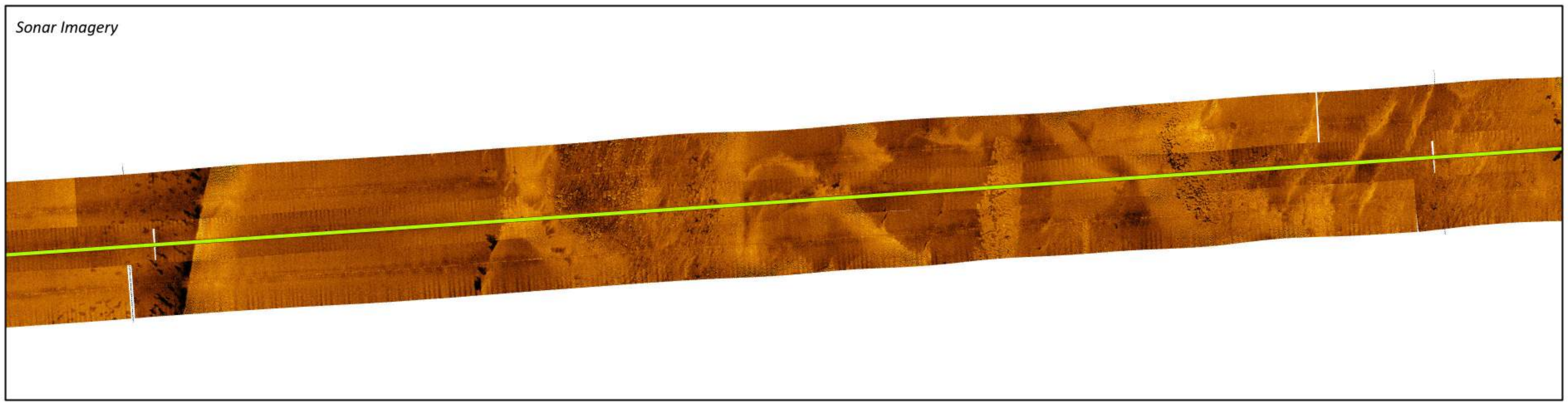
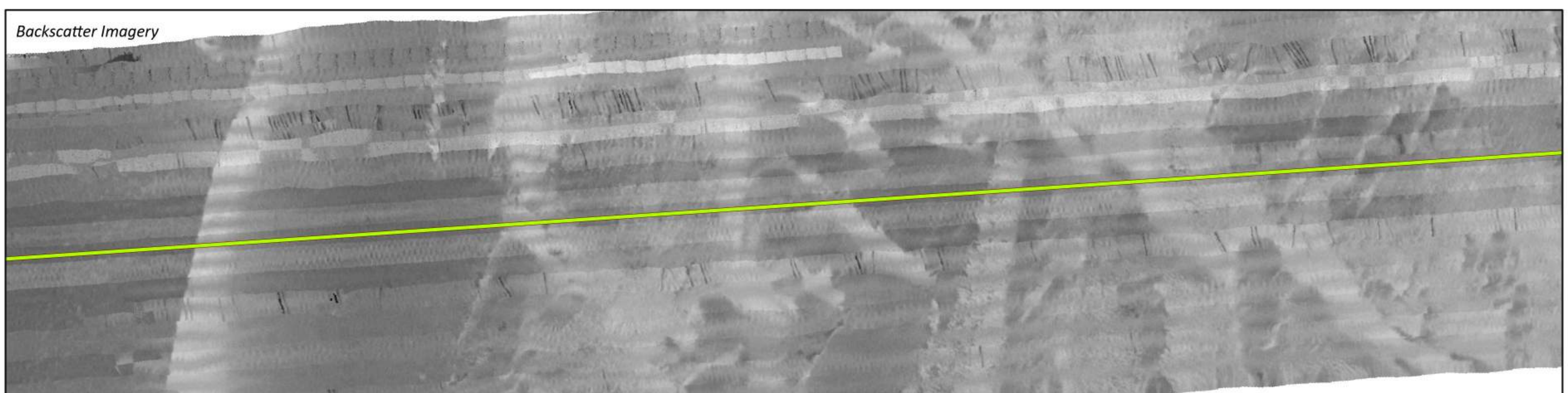


Sonar Imagery



Backscatter Imagery

NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

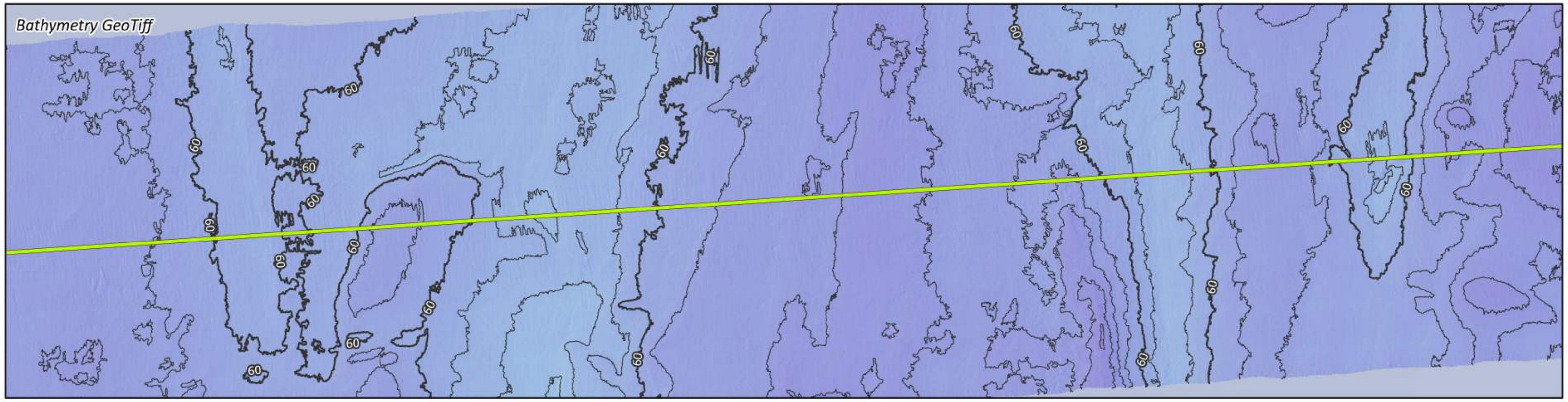
GEI Consultants

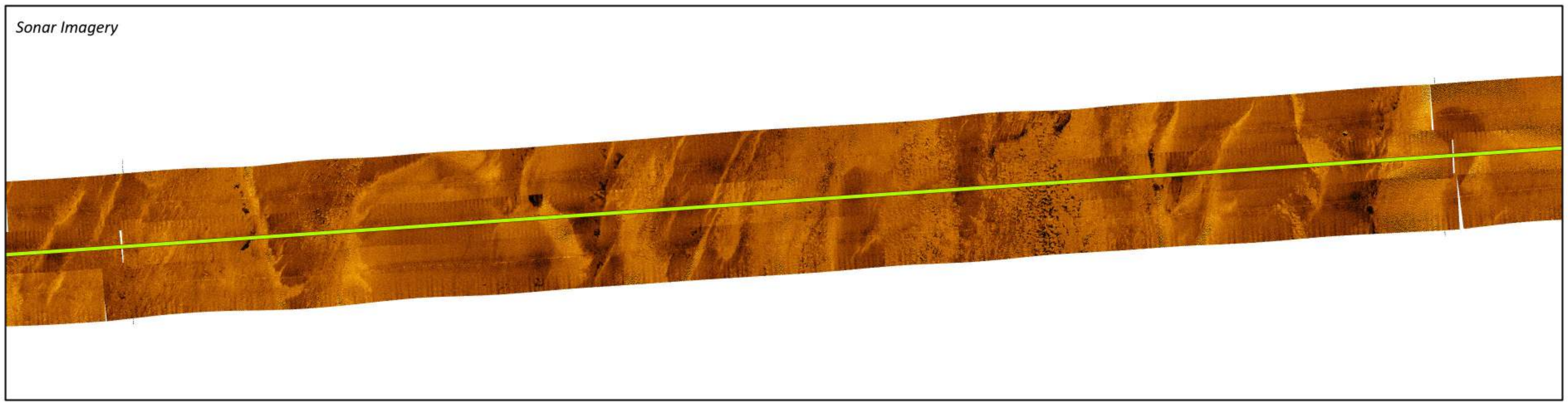
0 250 500 1,000 Feet

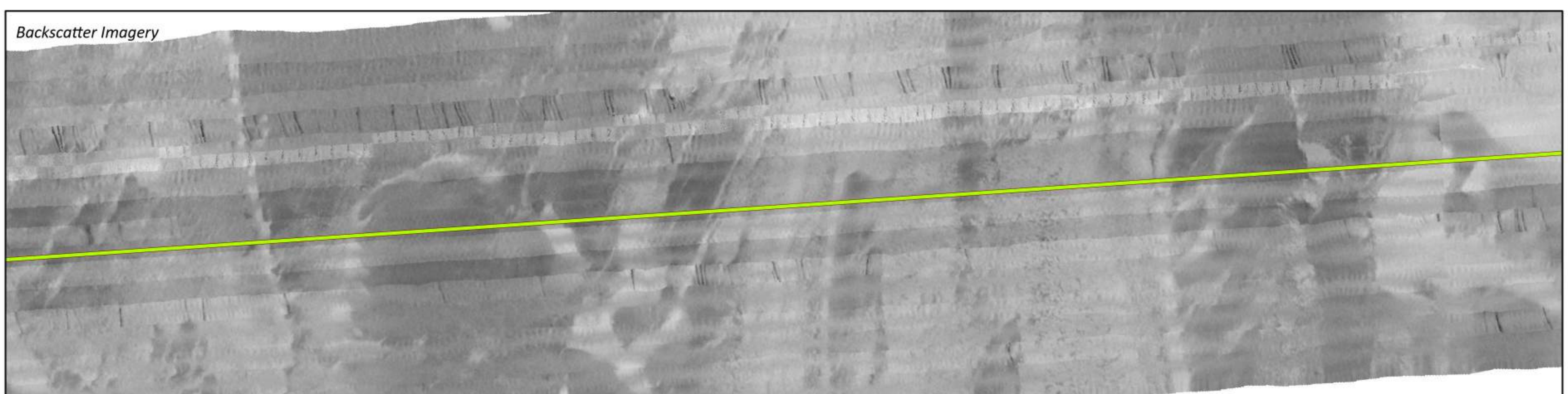
IMPACC Project 1
JSI Engineering

Cook County, Illinois

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

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W E
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GEI Consultants

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Cook County, Illinois

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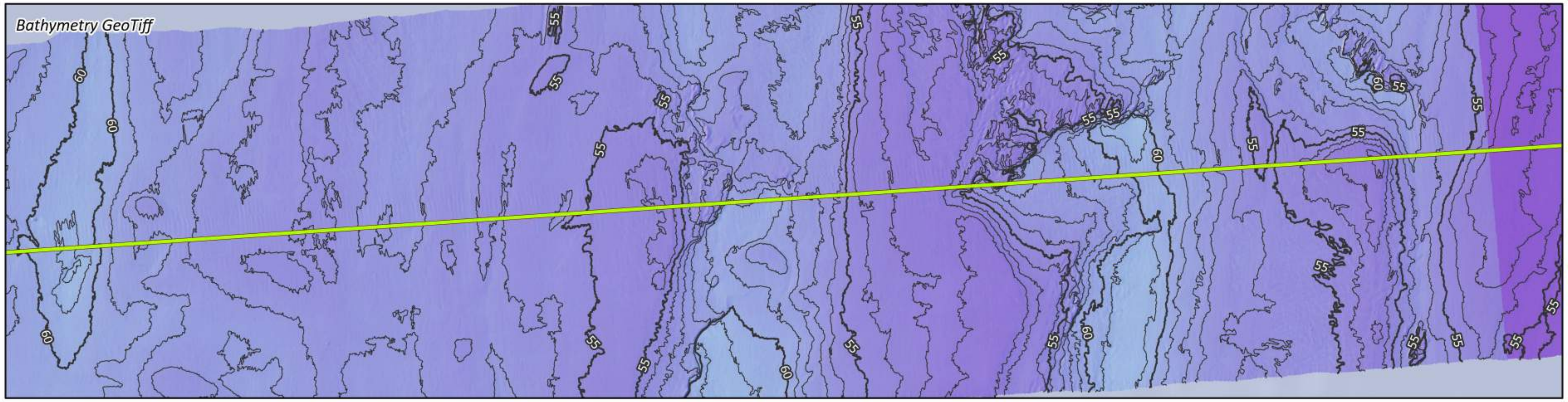

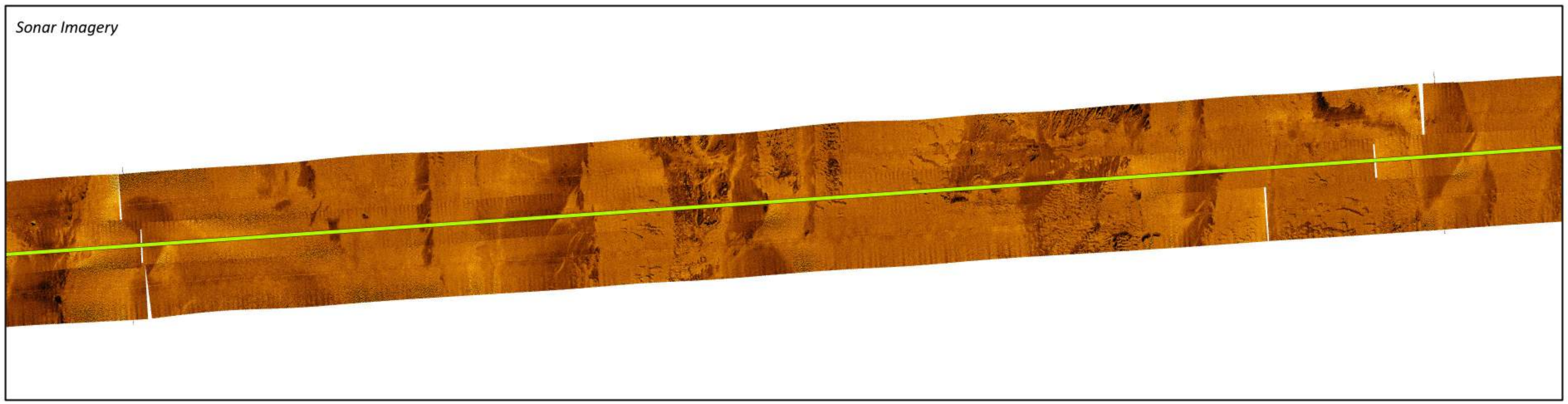

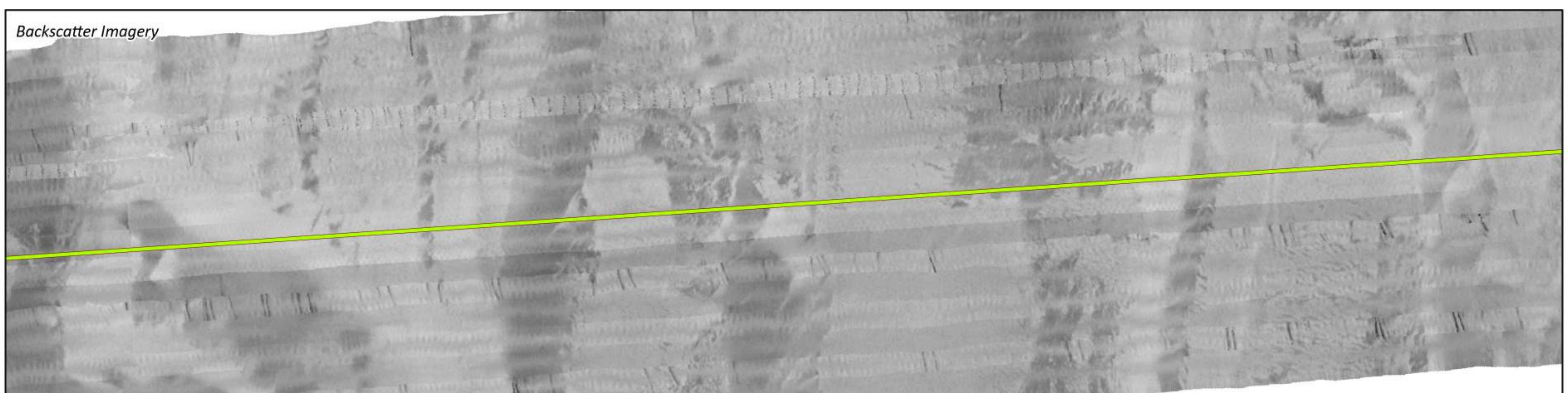

NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Cook County, Illinois

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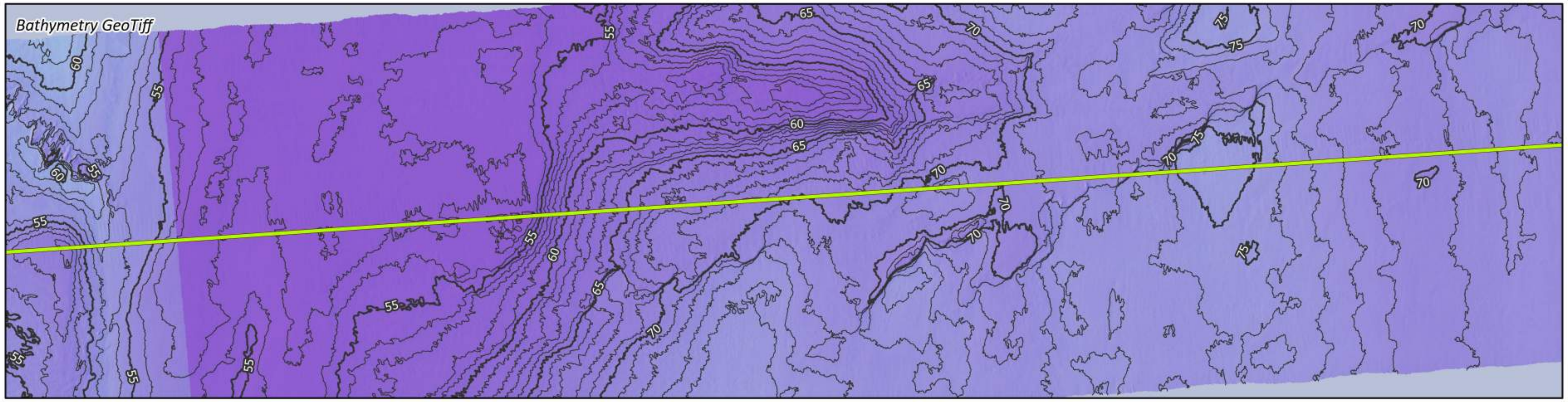

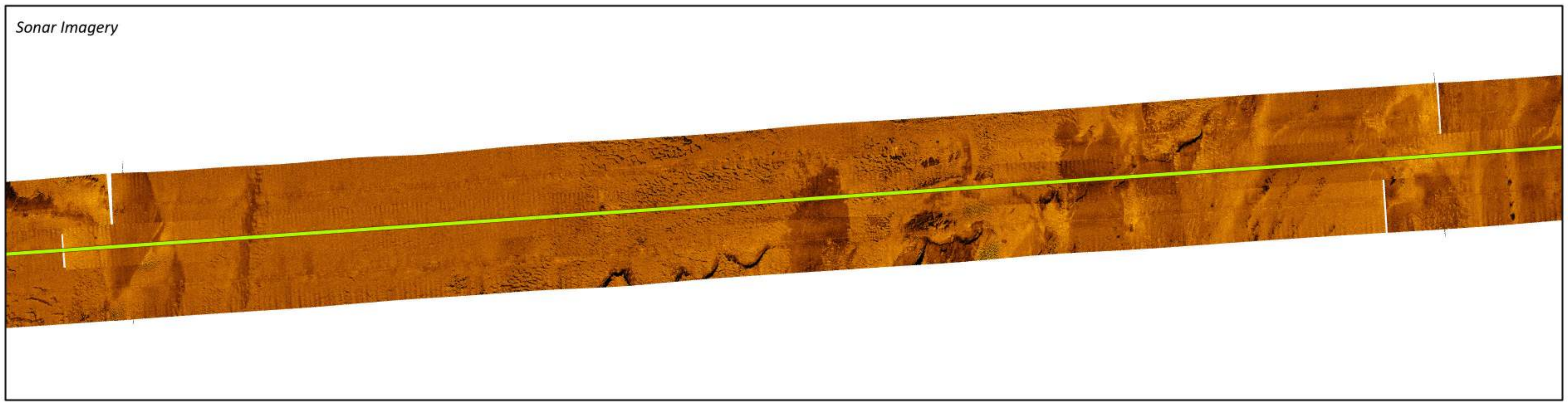

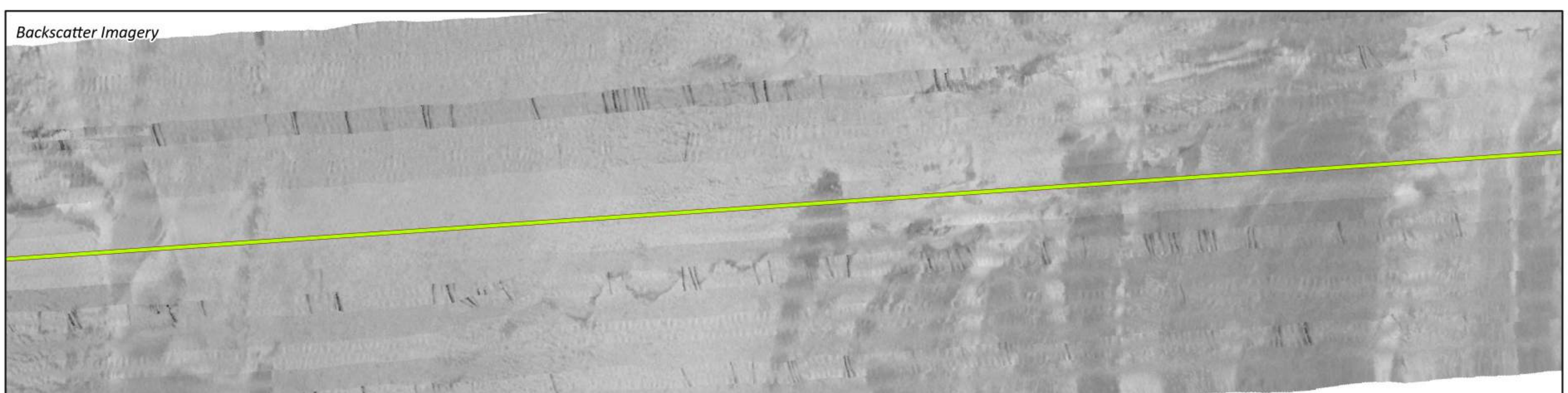

NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

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GEI Consultants

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Cook County, Illinois

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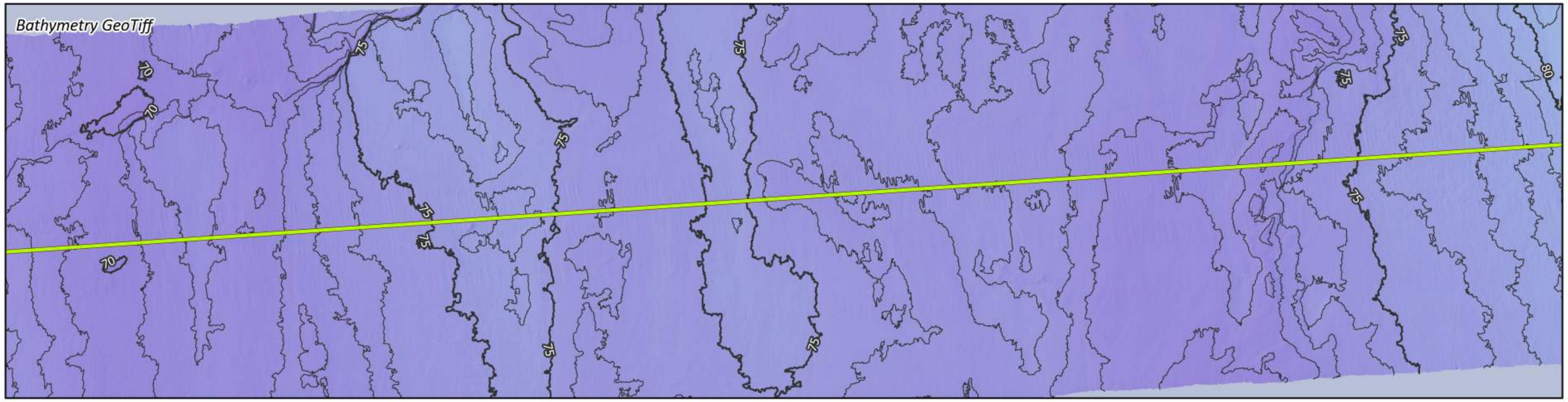
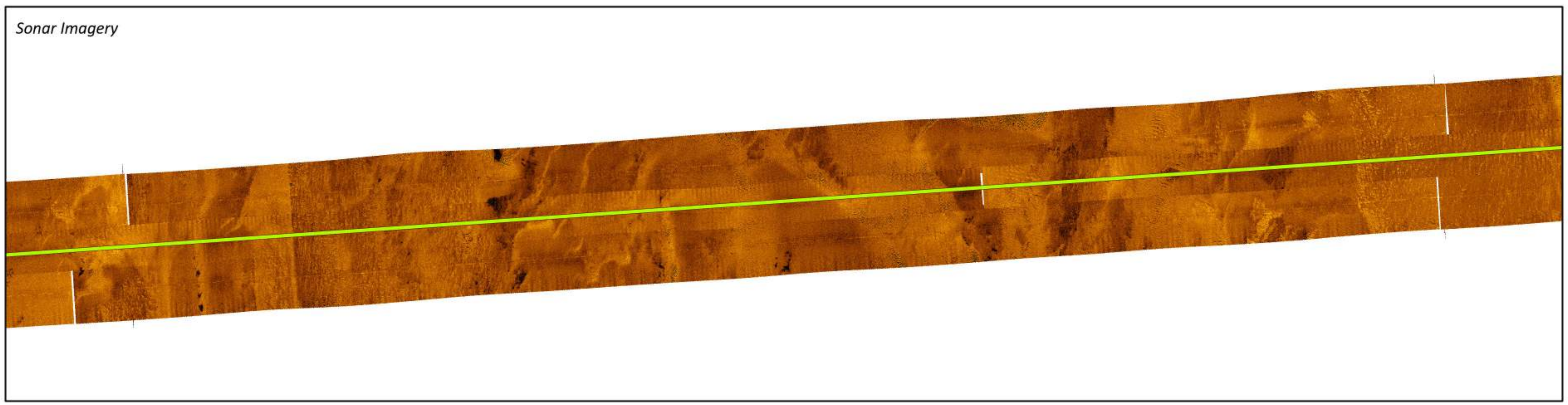
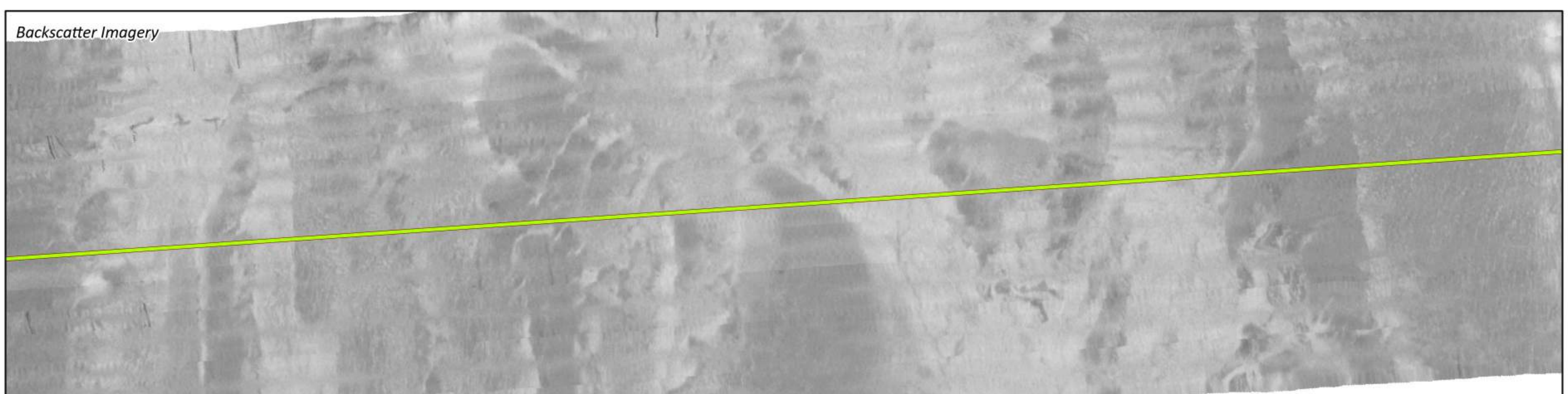






NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

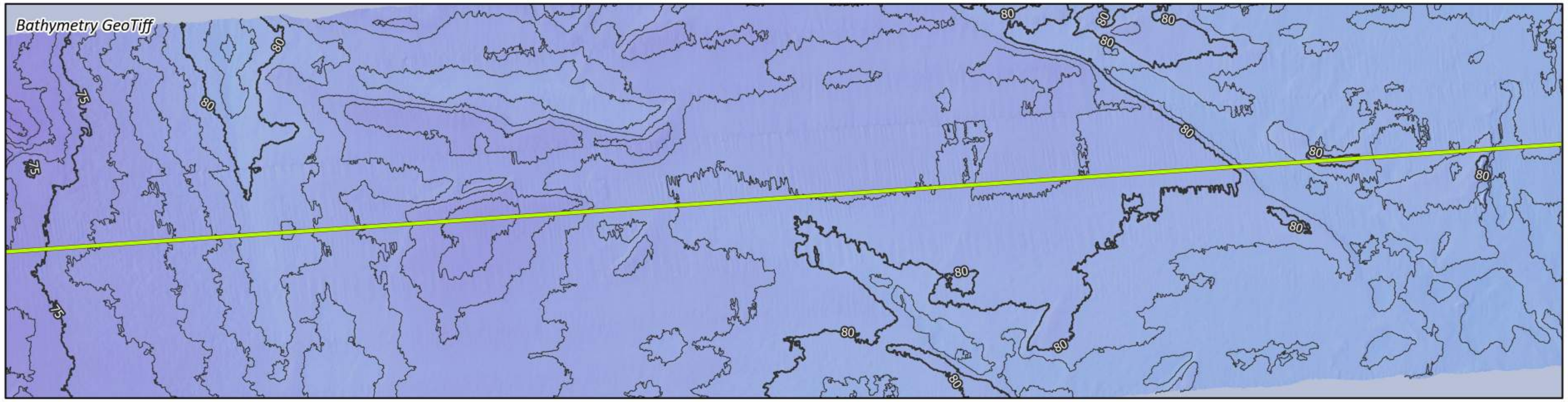
GEI Consultants

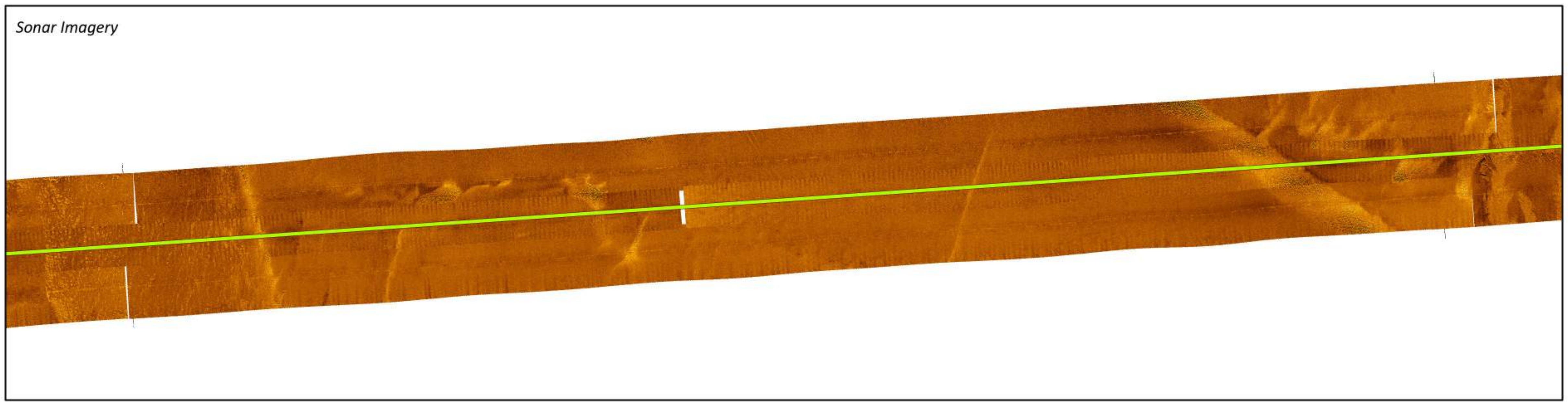
0 250 500 1,000 Feet

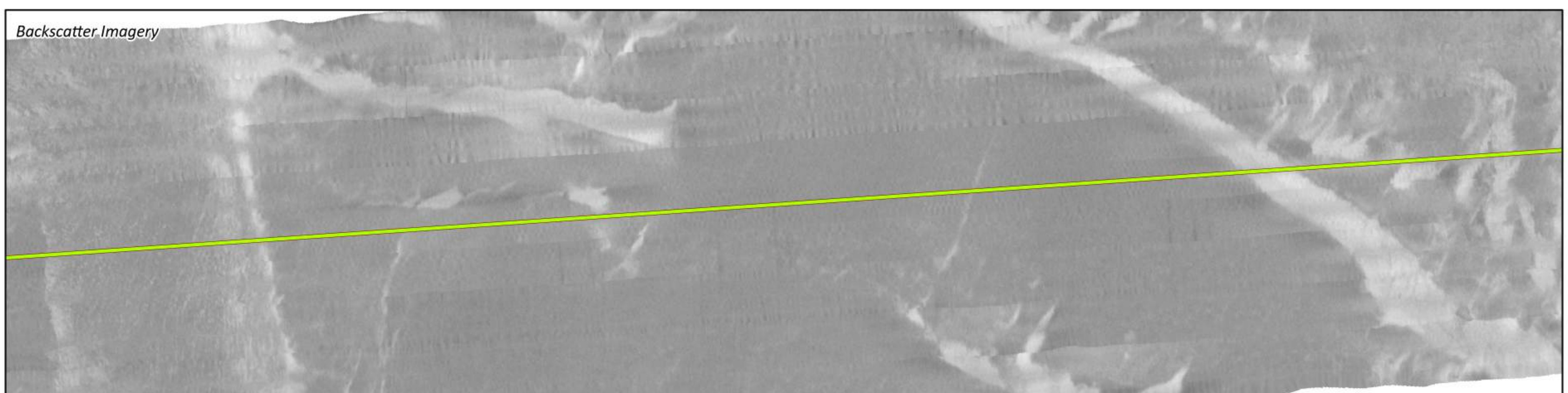
IMPACC Project 1
JSI Engineering

Cook County, Illinois

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY





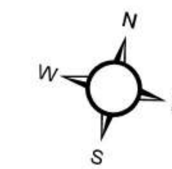


NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)



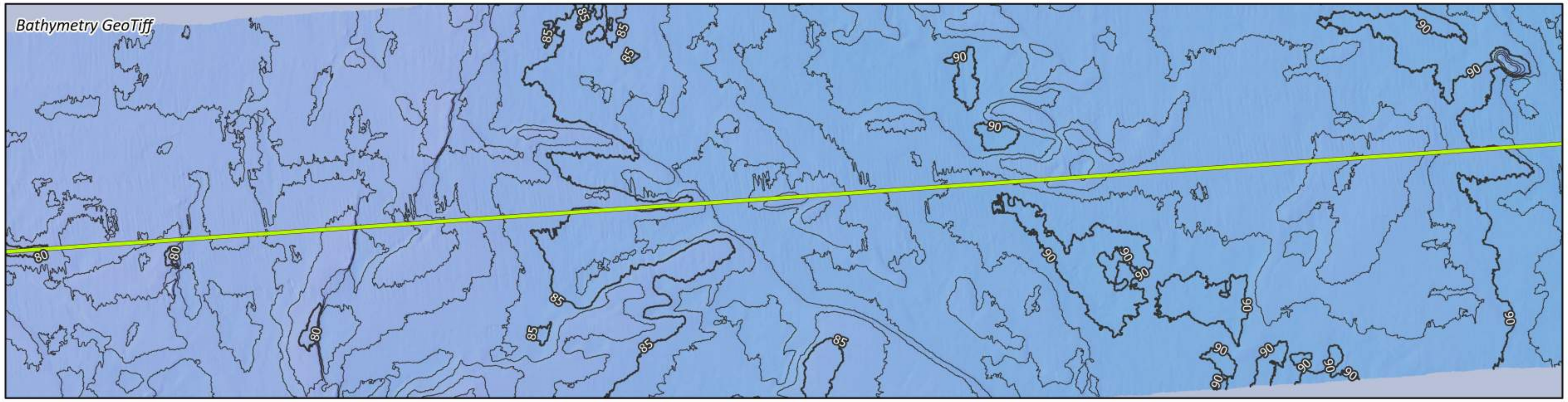
GEI Consultants

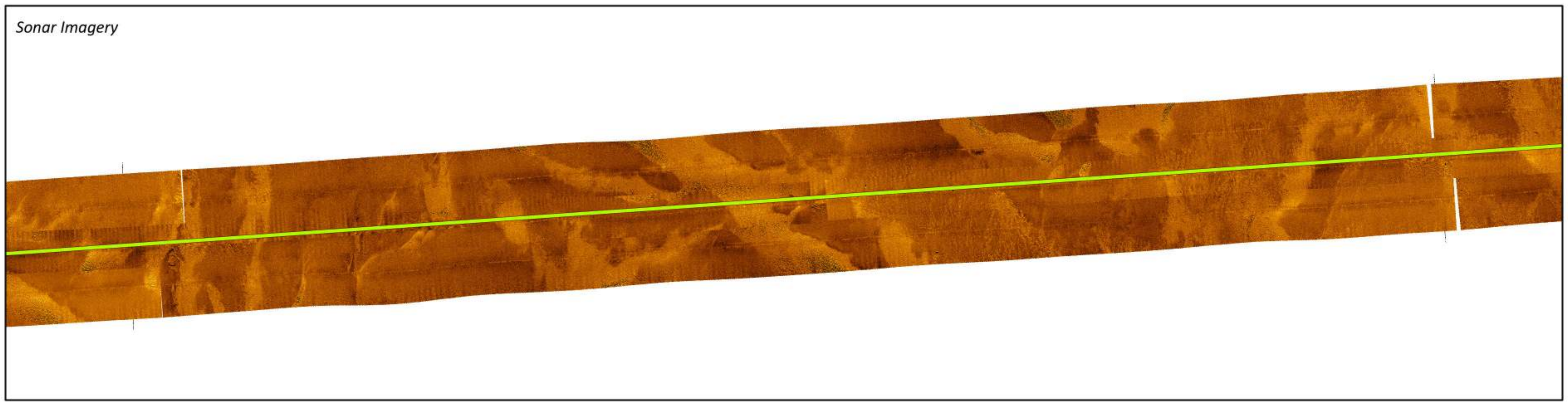
0 250 500 1,000 Feet

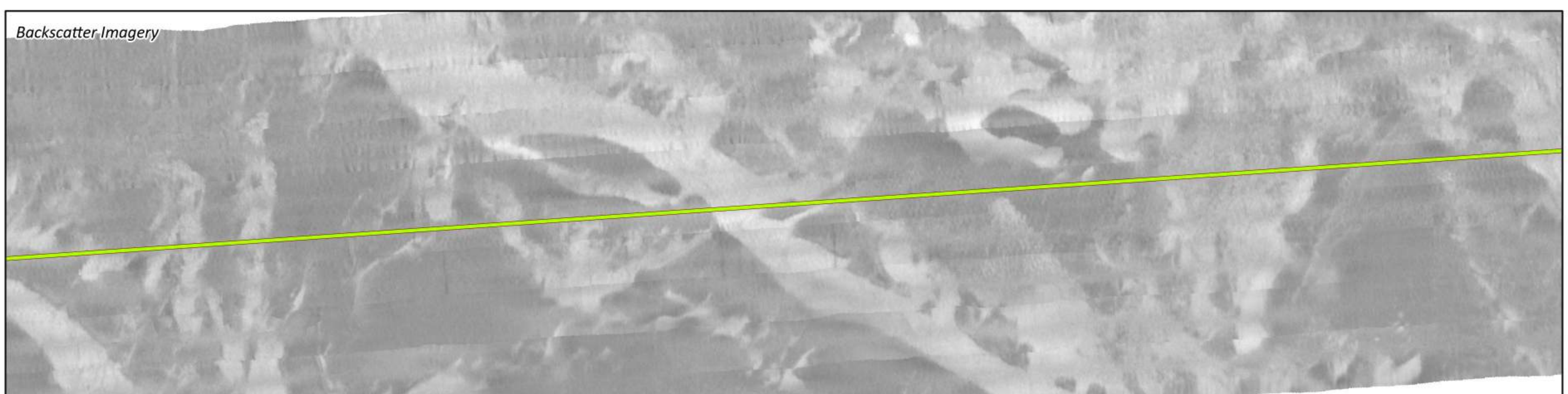
IMPACC Project 1
JSI Engineering

Cook County, Illinois

Project 2305496 October 2025







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Cook County, Illinois

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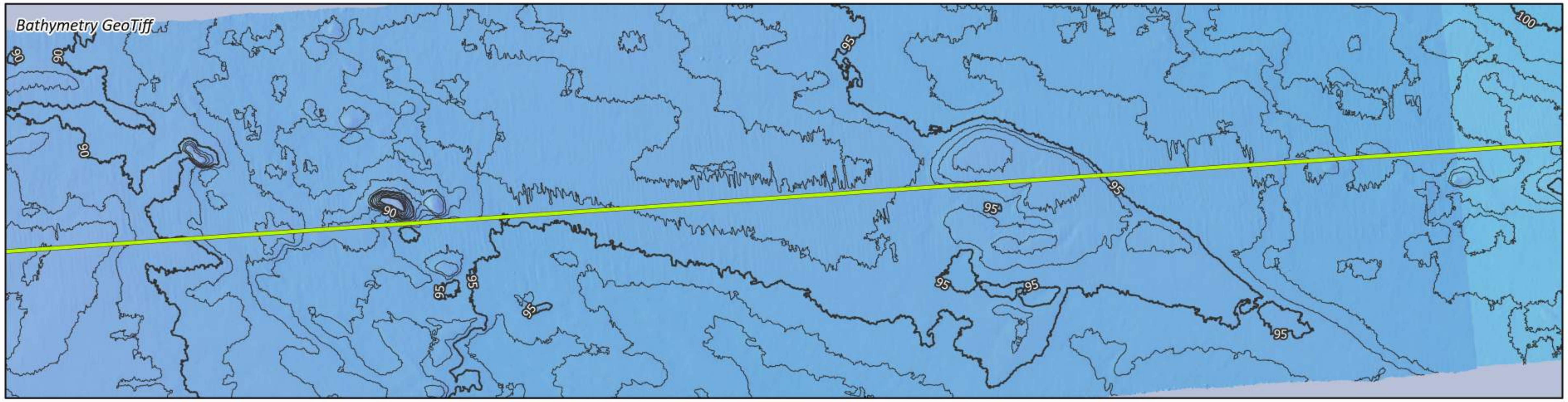
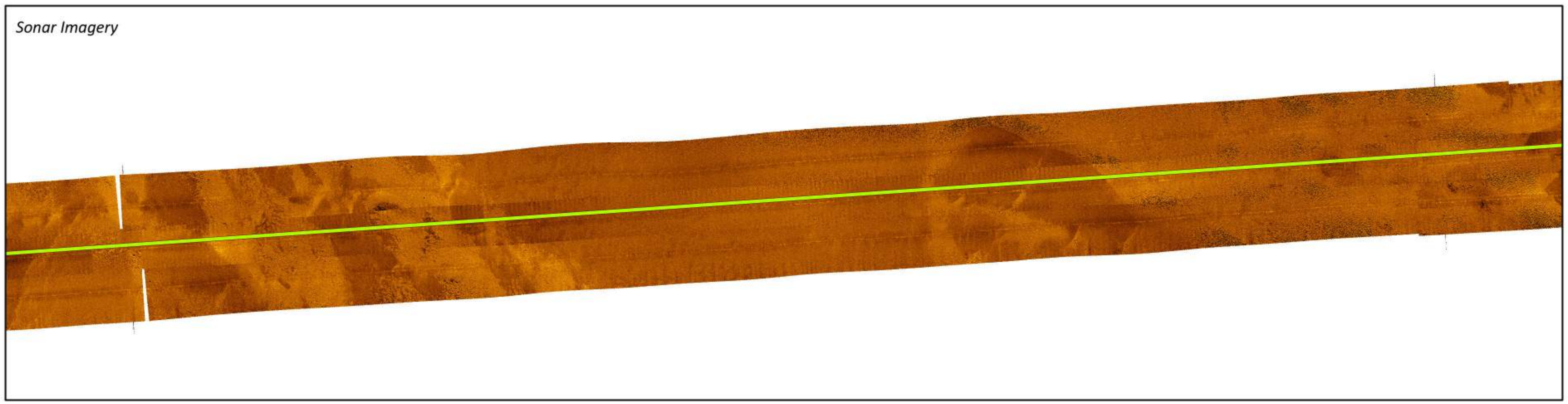
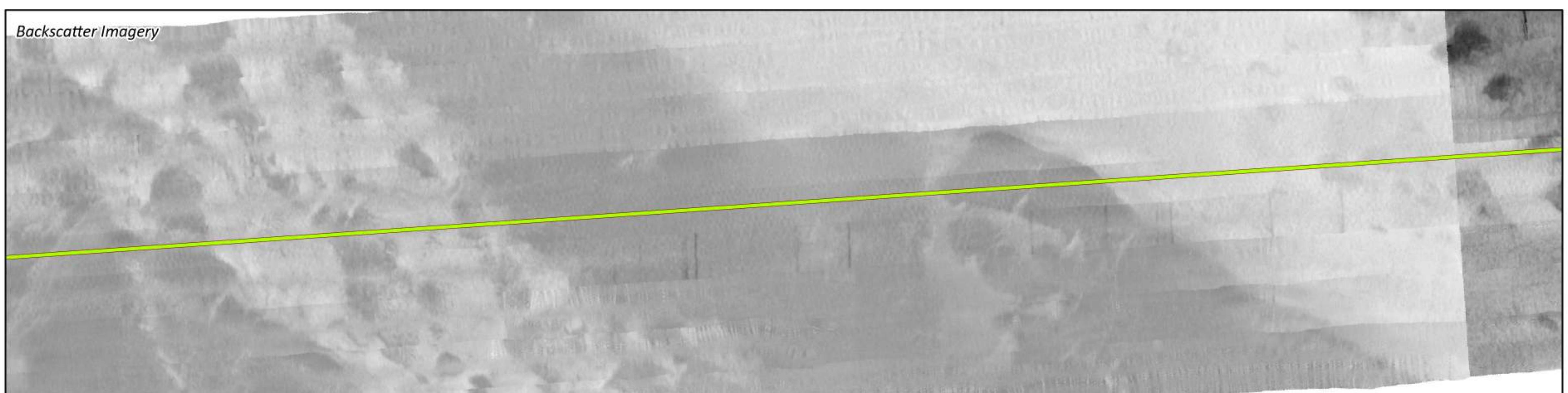
IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

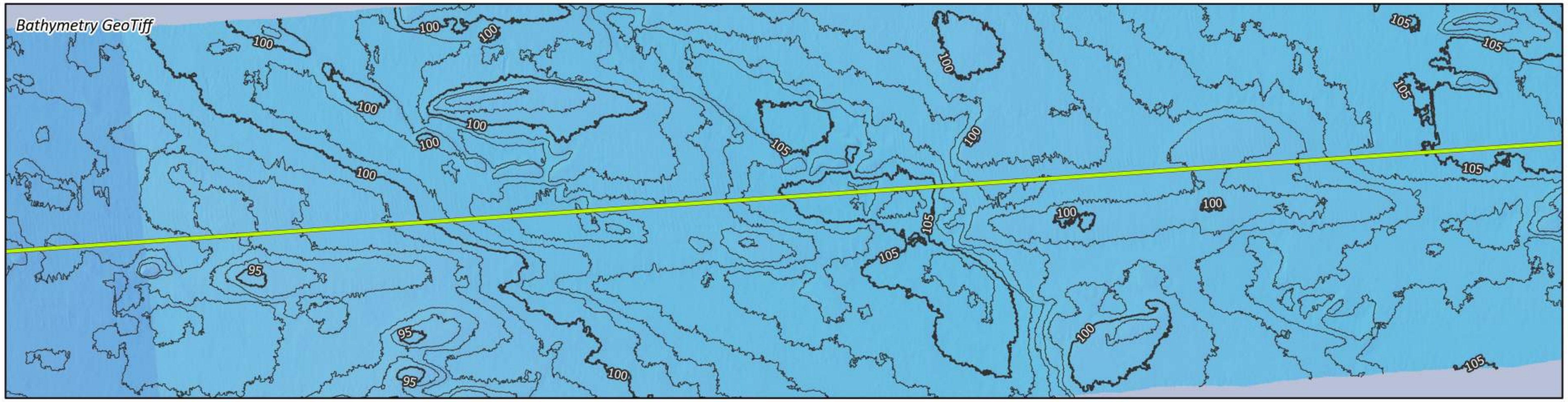
0 250 500 1,000 Feet

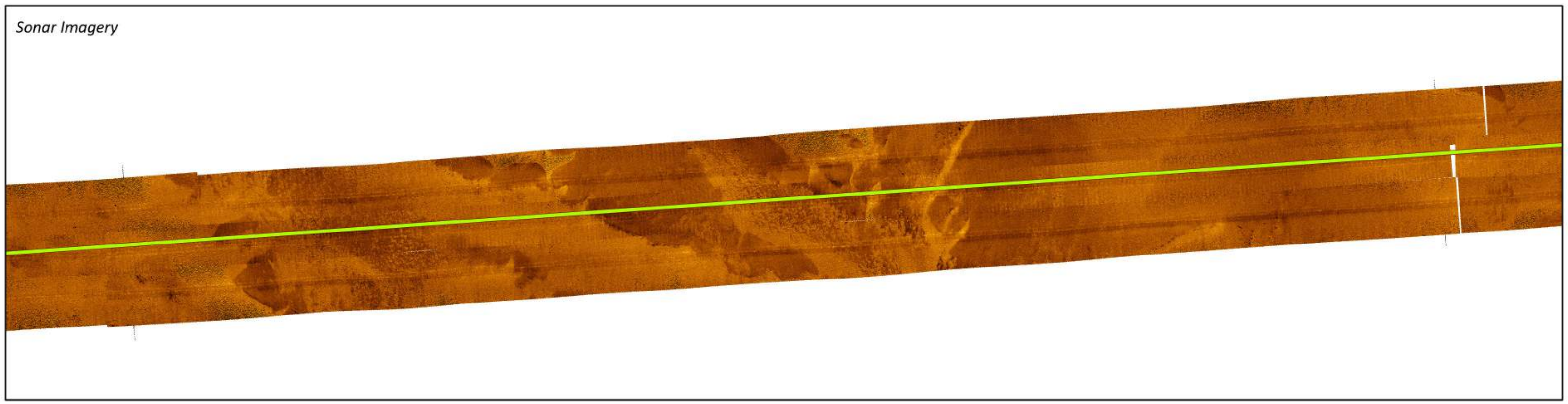
NAD 1983 BLM Zone 16N ftUS

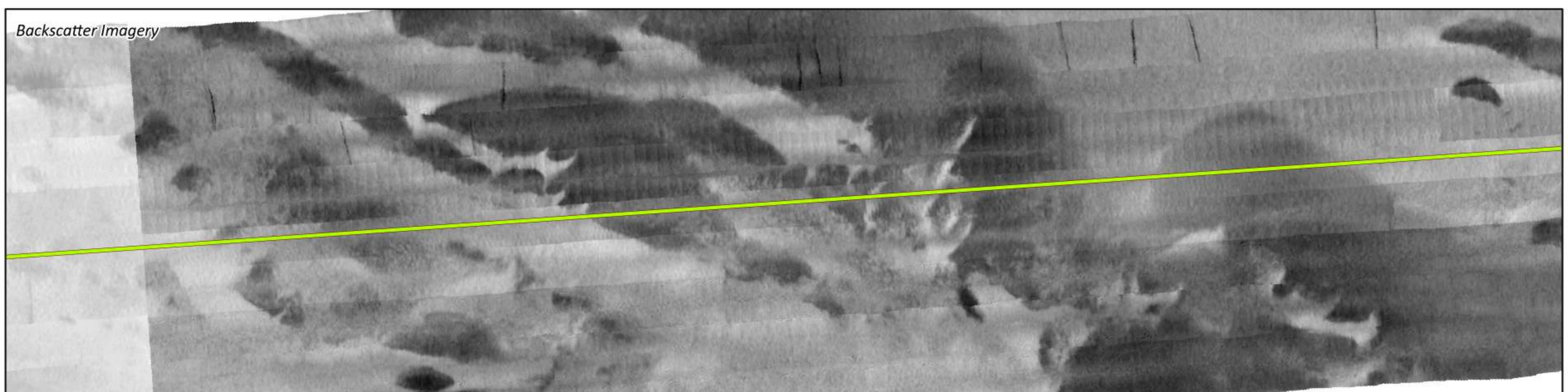
IMPACC Project 1
JSI Engineering

Cook County, Illinois

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY





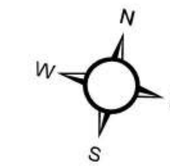


NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)



GEI Consultants

0 250 500 1,000 Feet

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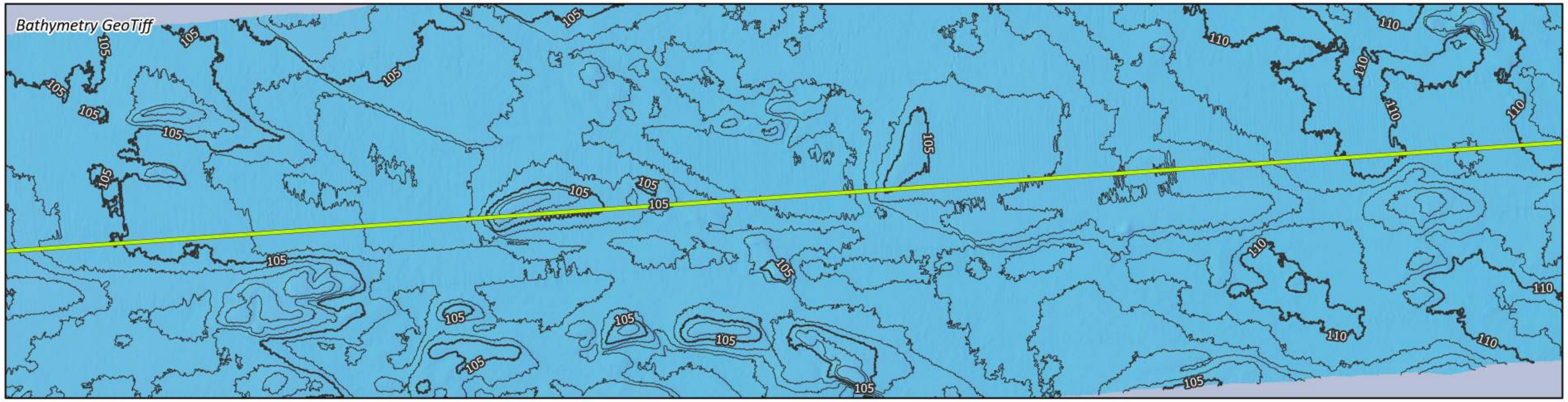
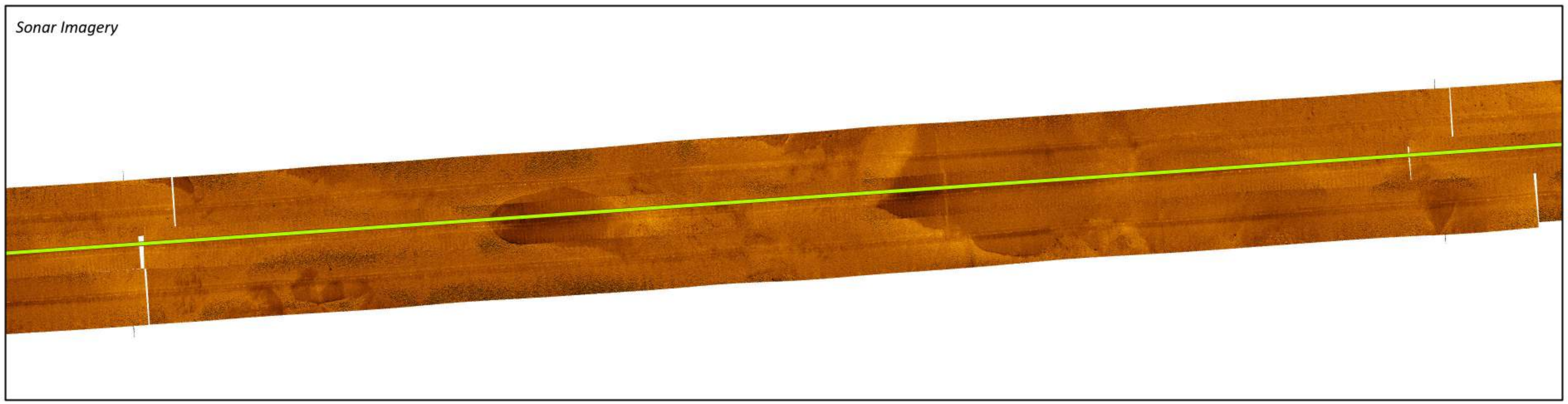
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY





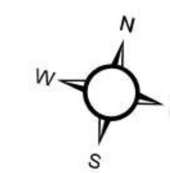
NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)



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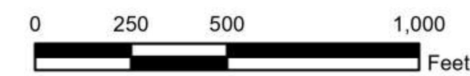

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Cook County, Illinois

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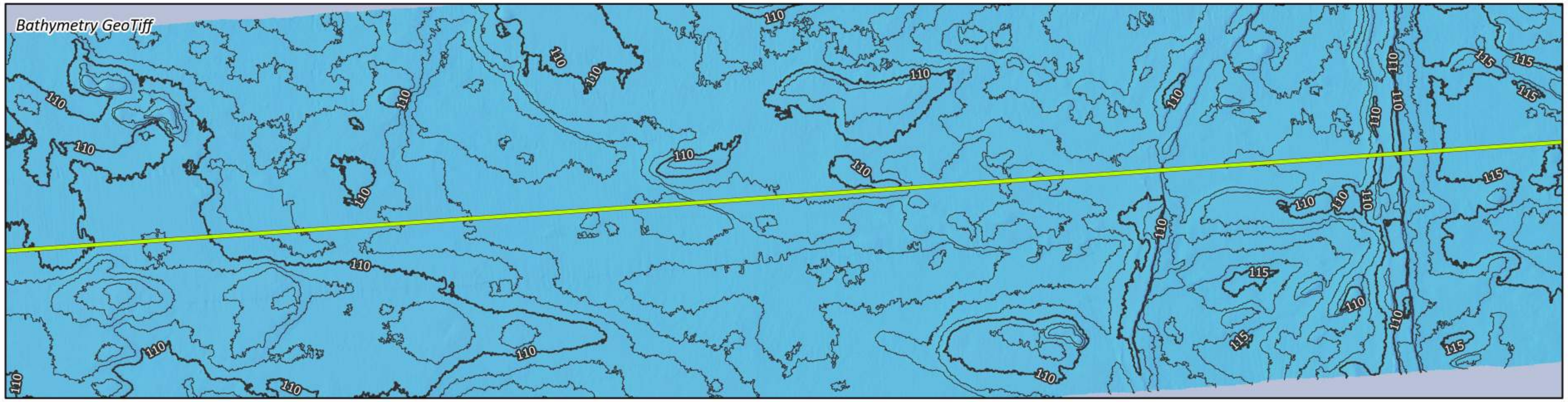
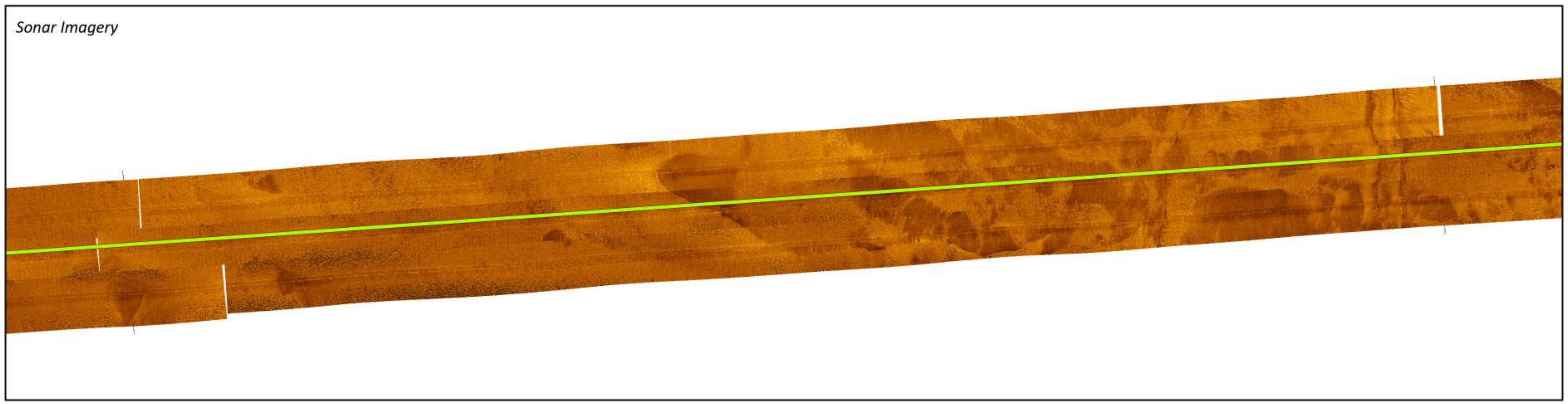
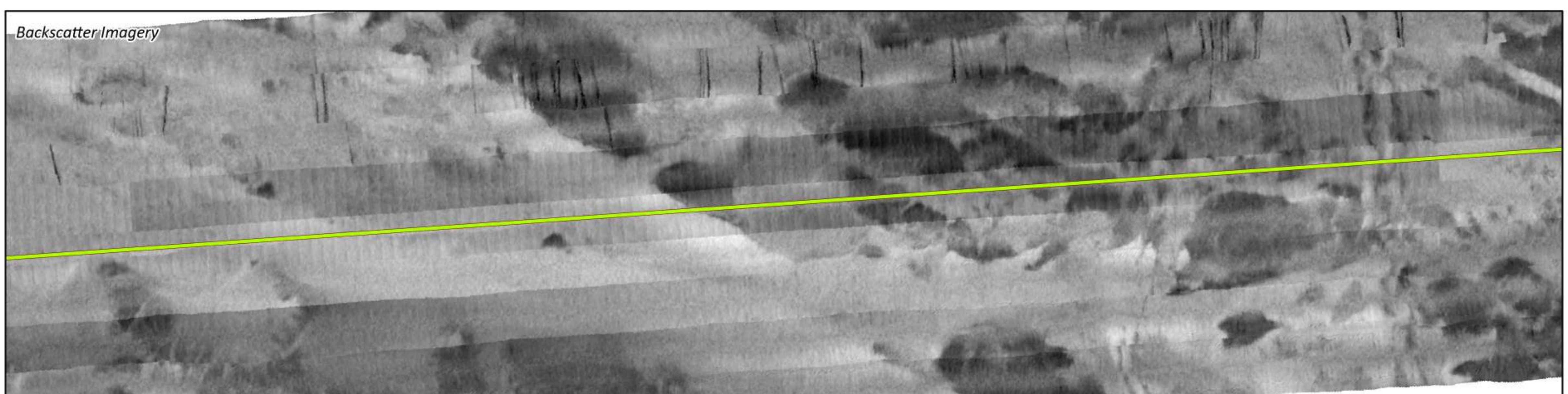
IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

0 250 500 1,000 Feet

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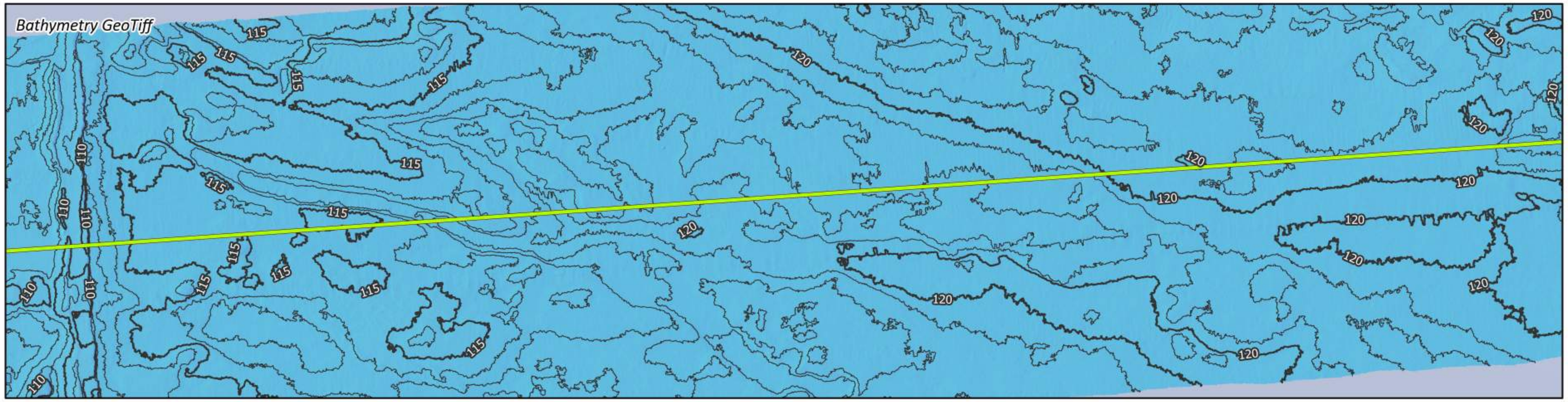
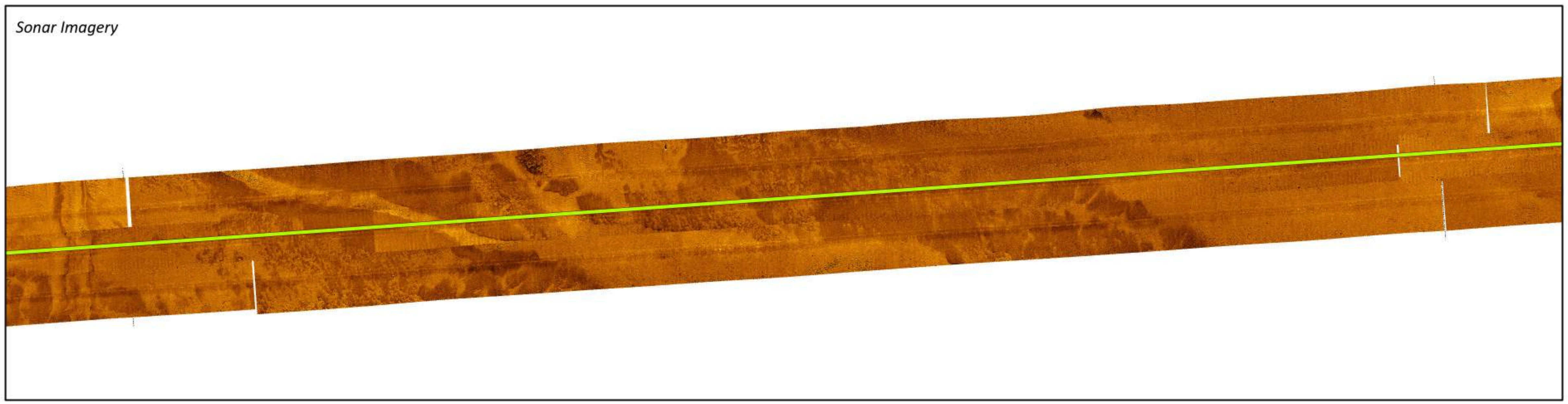
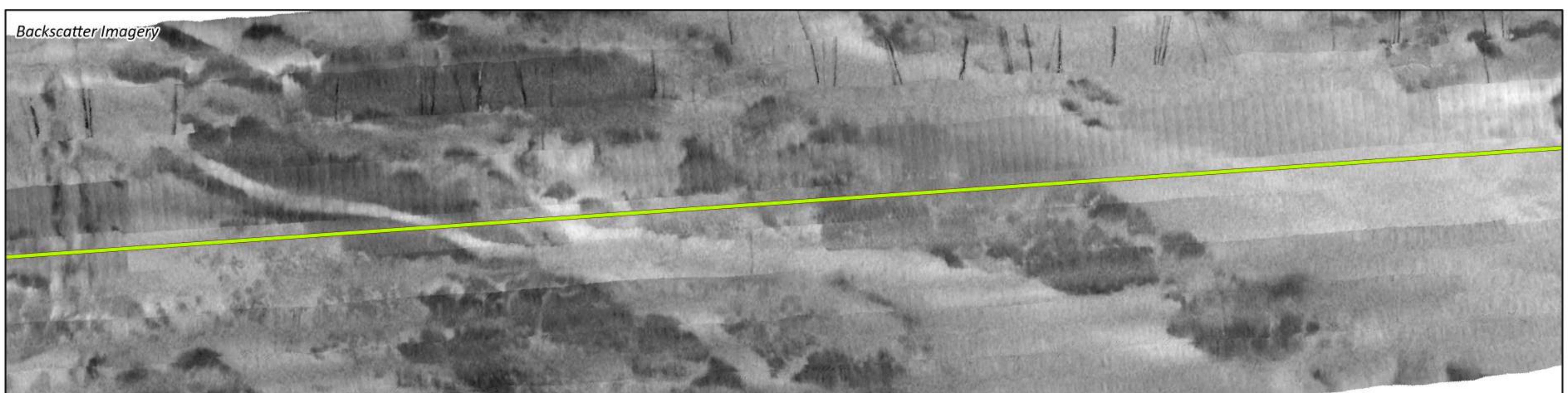






NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

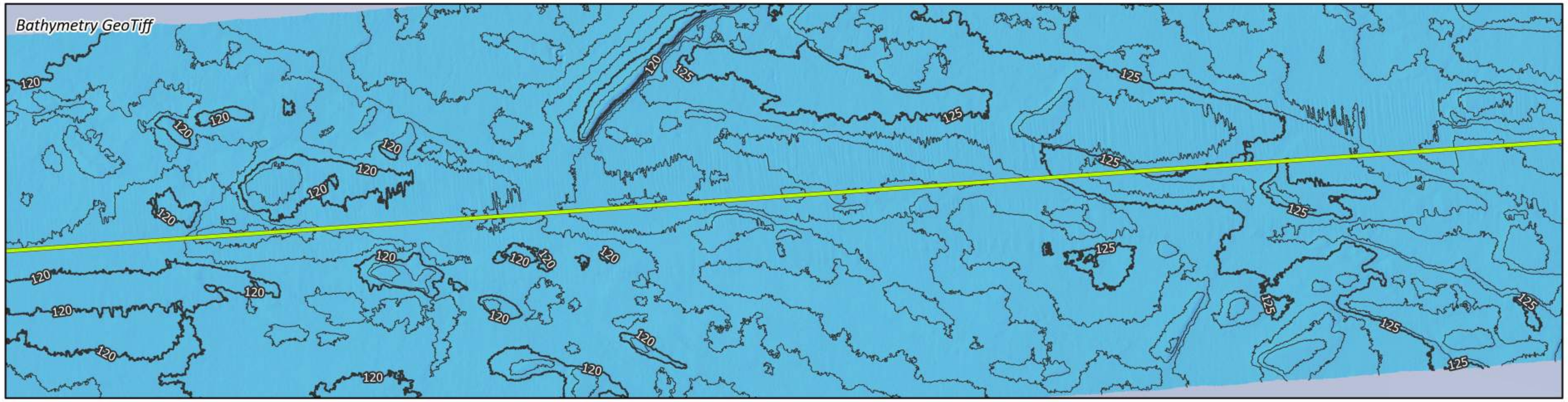
GEI Consultants

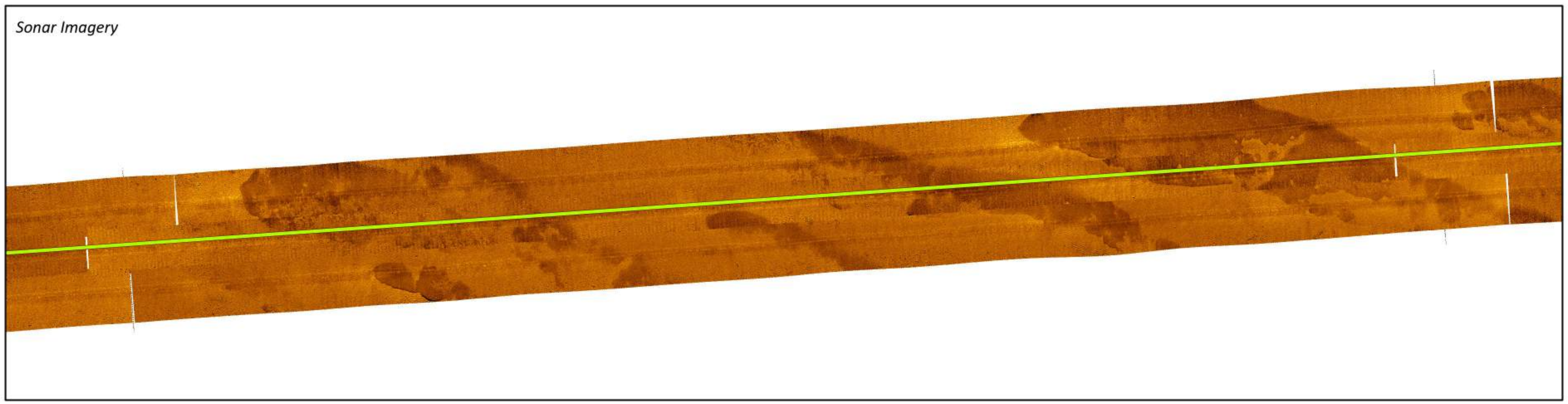
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Cook County, Illinois

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY





NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

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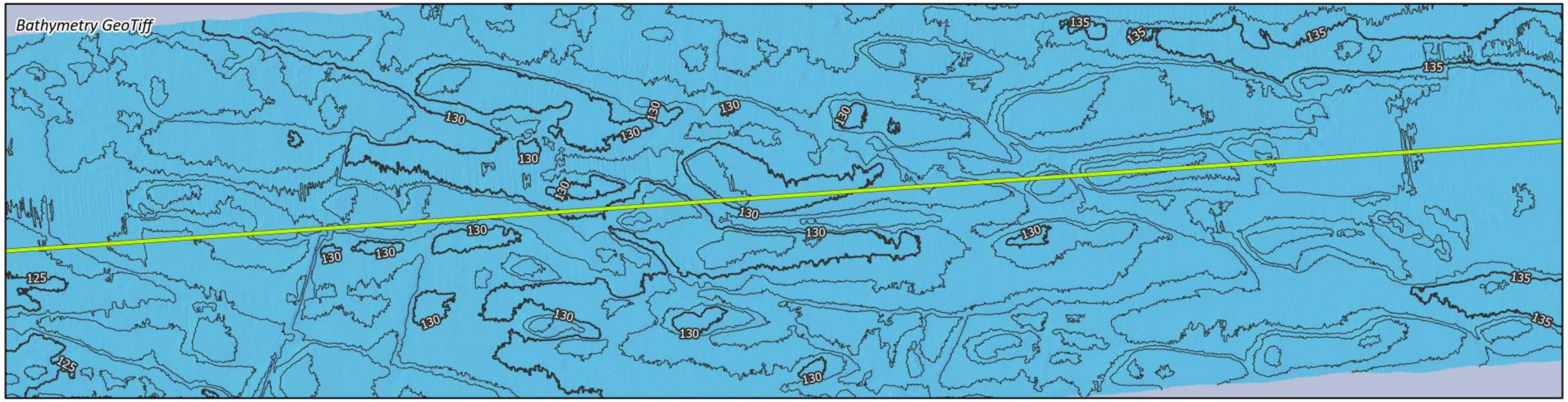

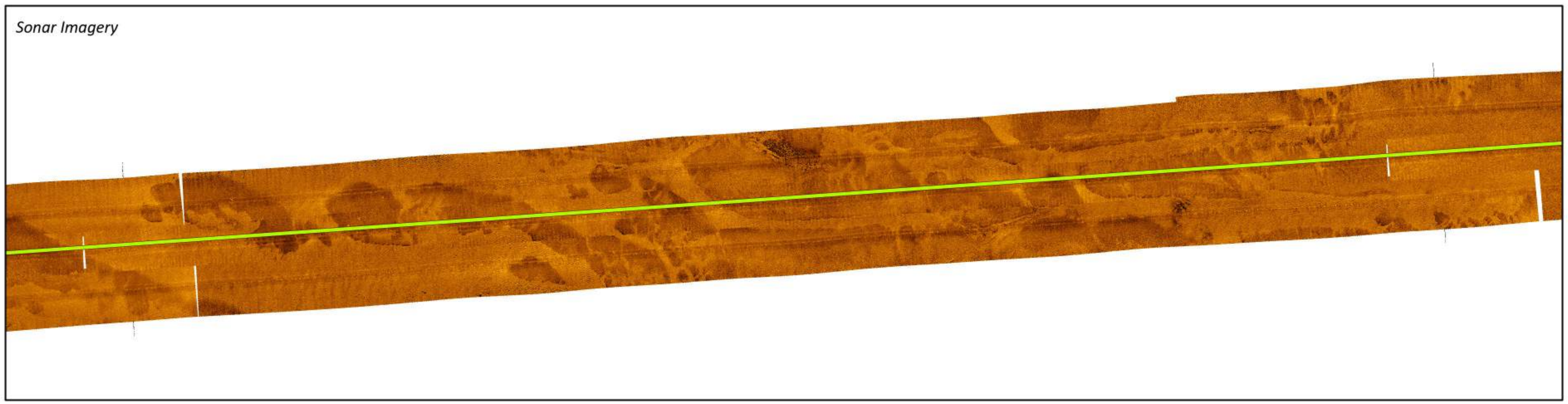

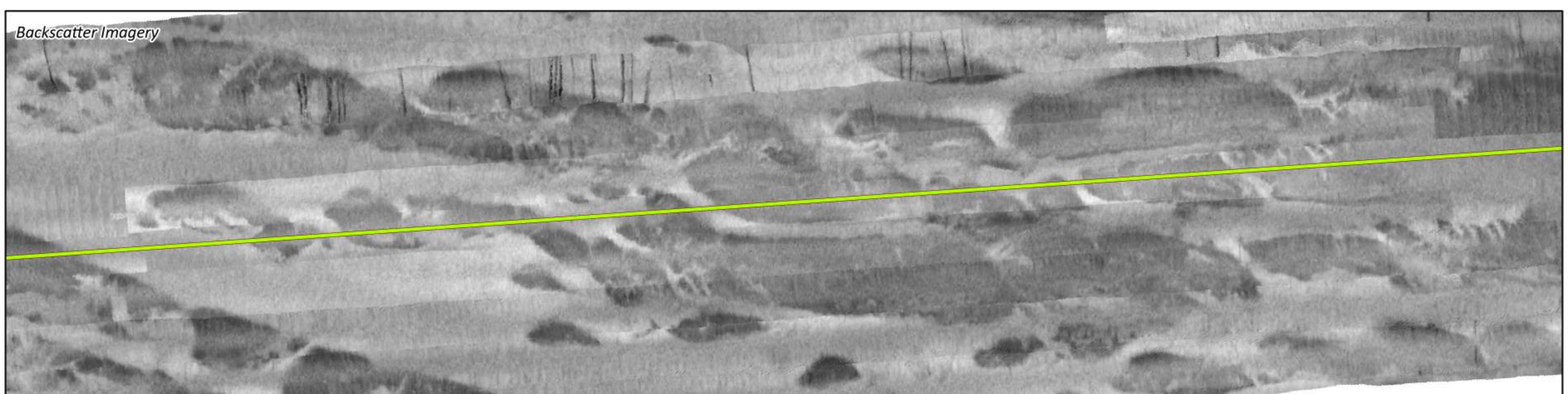

NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1 SOUTH LEG CROSSING HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

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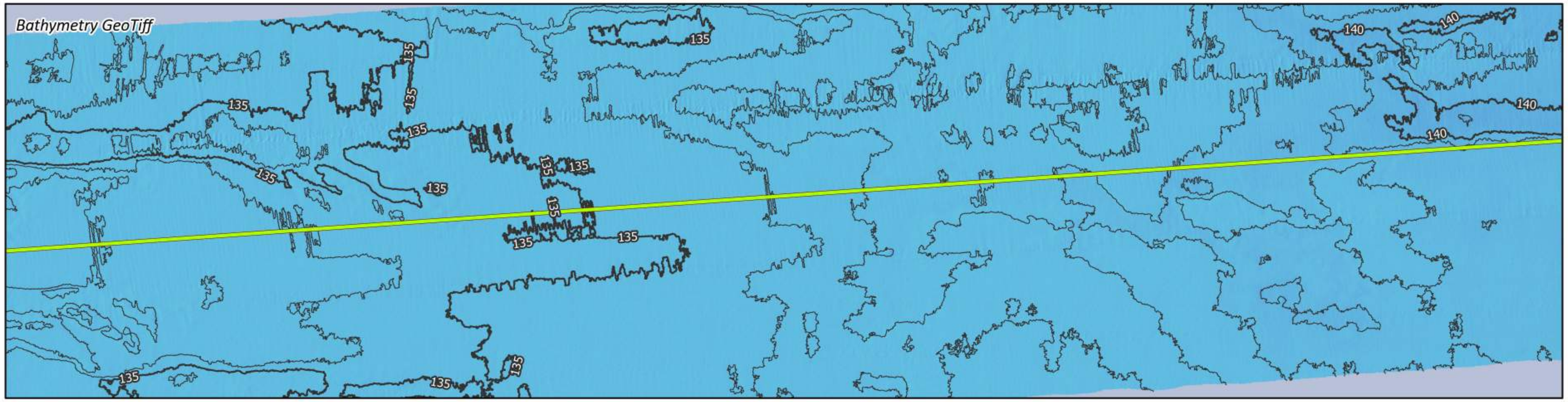

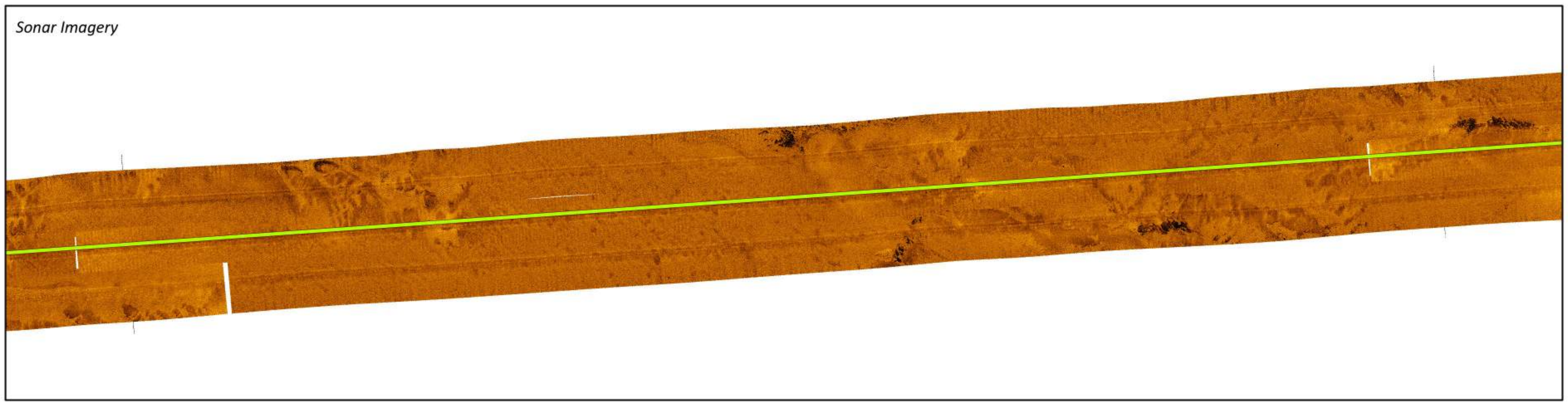

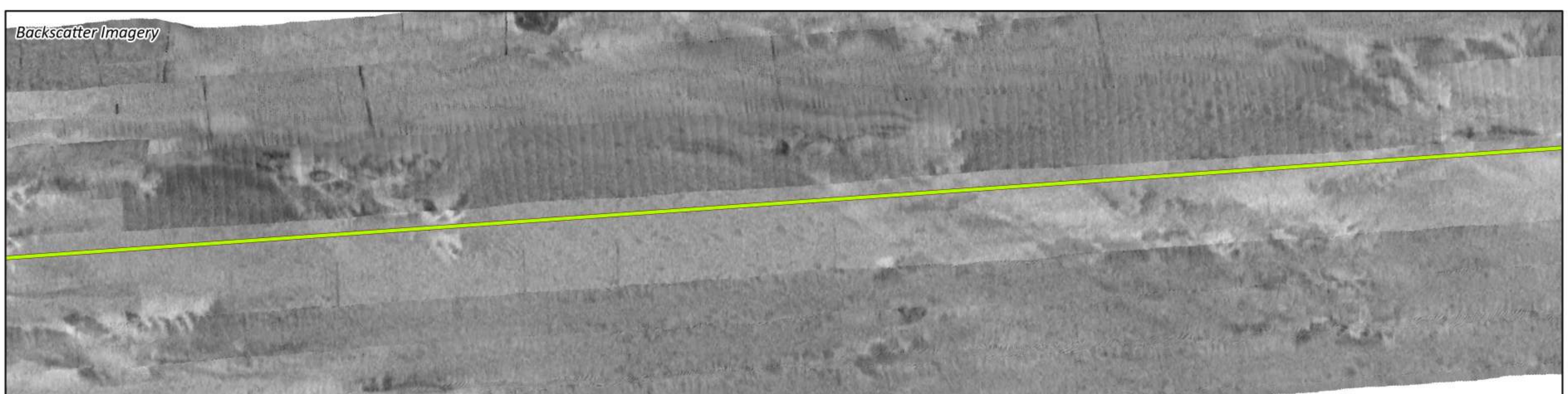

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

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JSI Engineering

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NAD 1983 BLM Zone 16N ftUS

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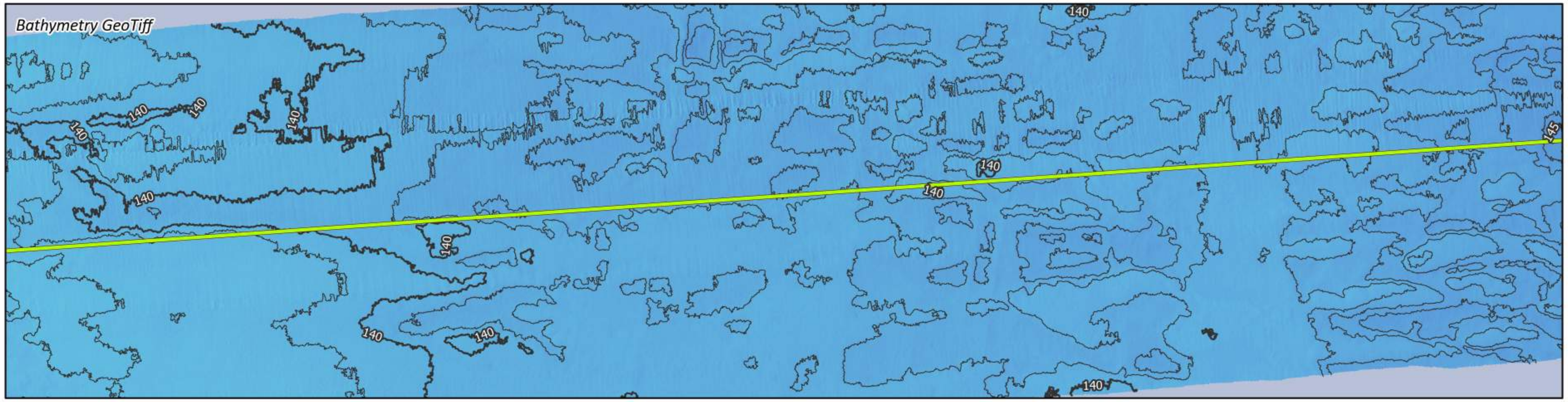
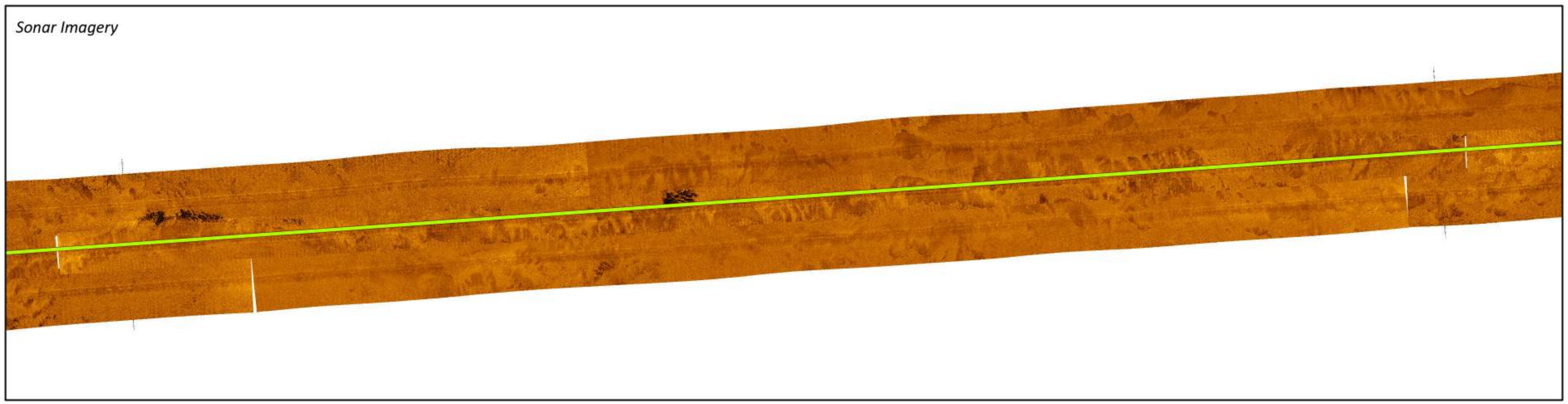
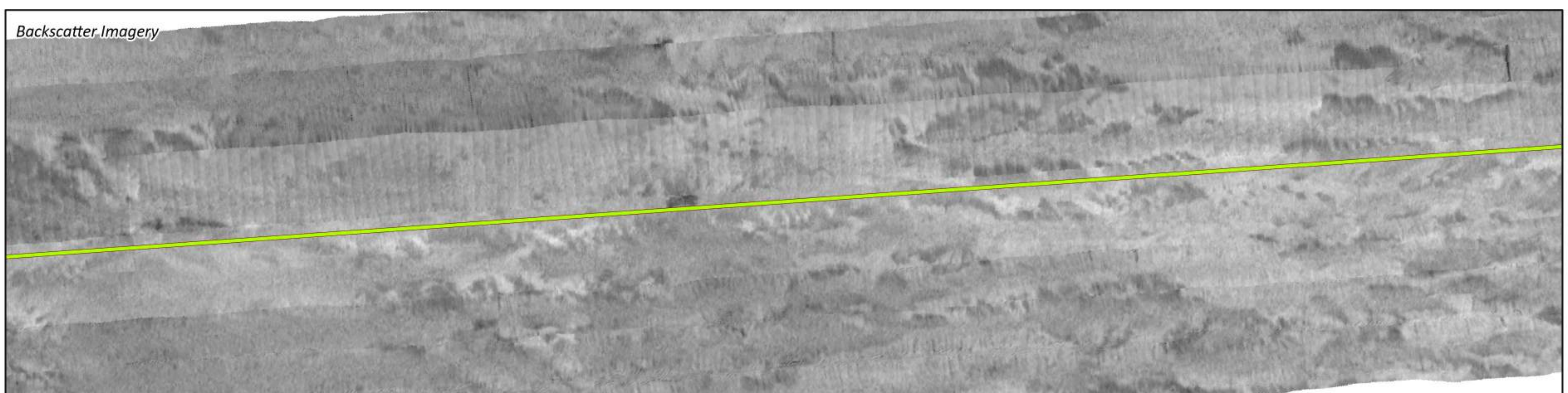
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

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0 250 500 1,000 Feet

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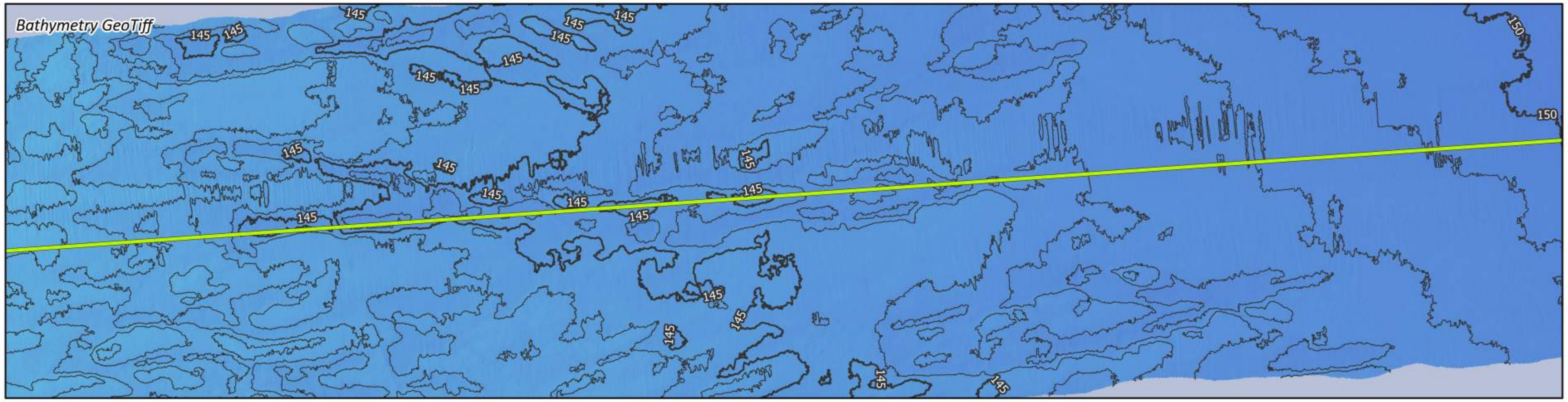
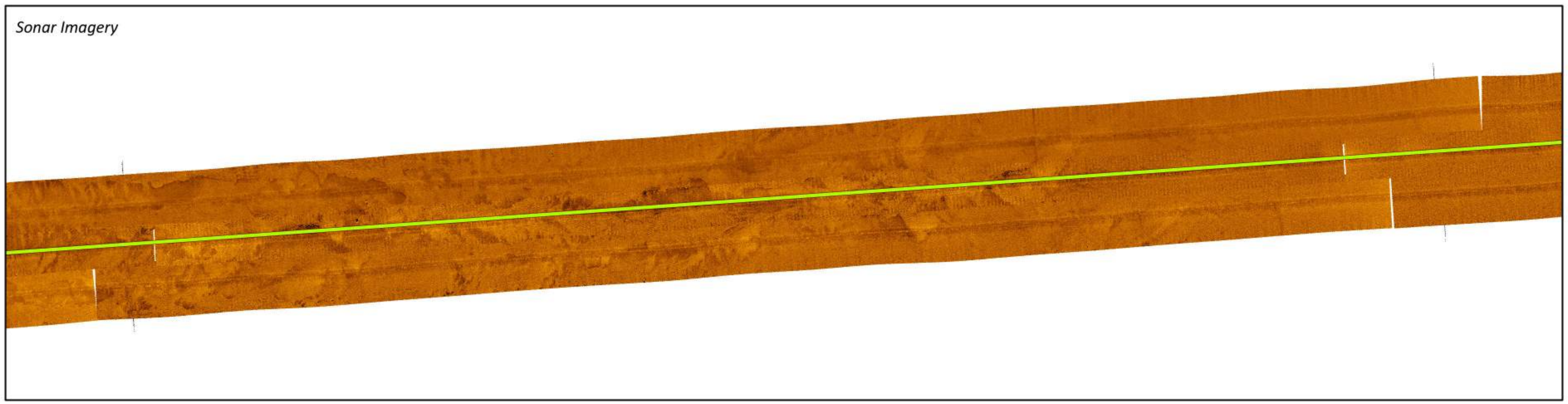
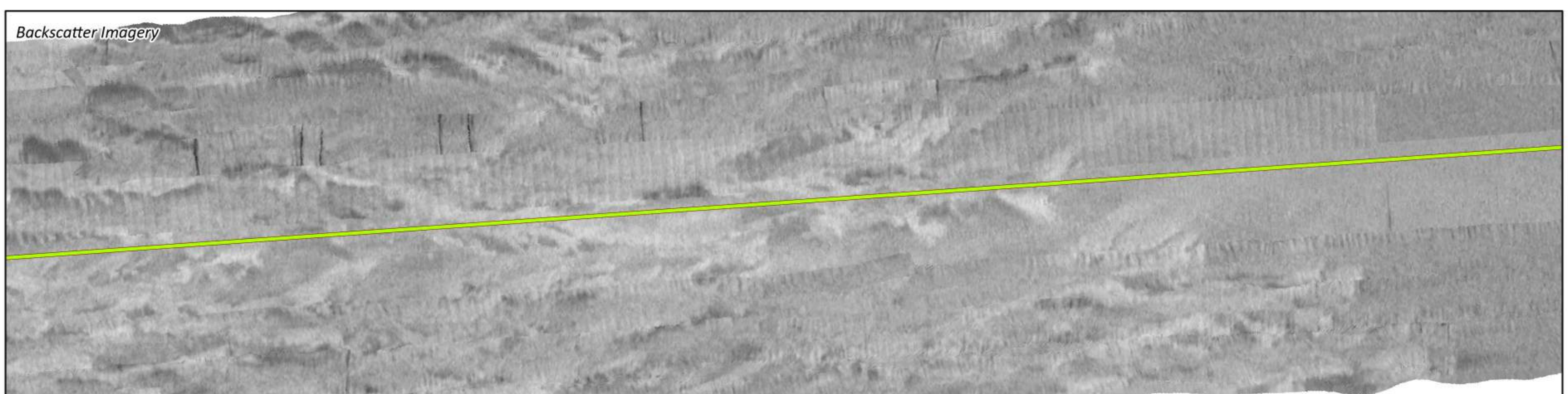
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

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0 250 500 1,000 Feet

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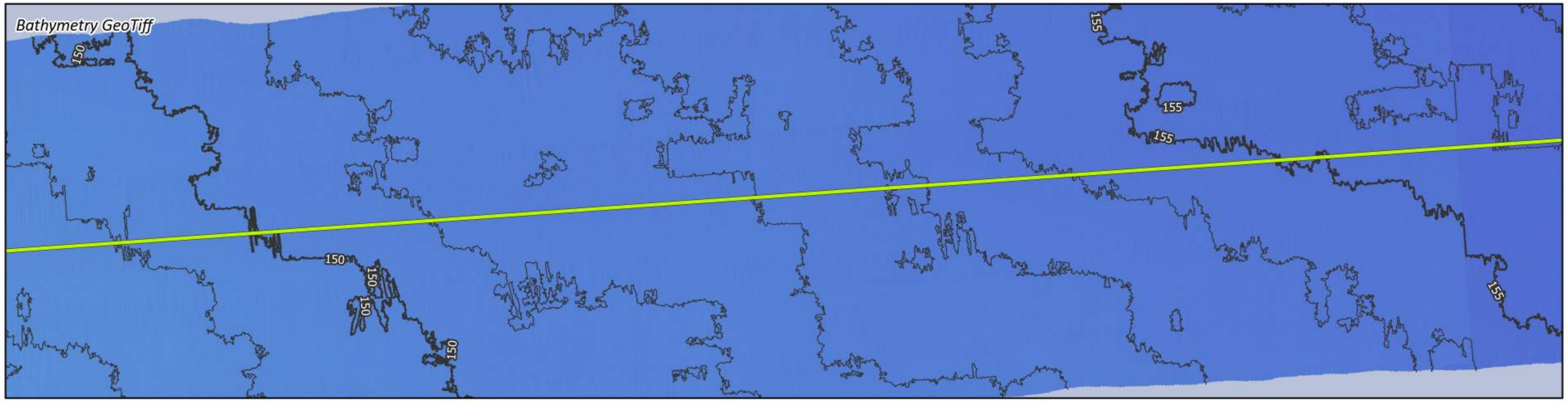
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY

Bathymetry GeoTiff



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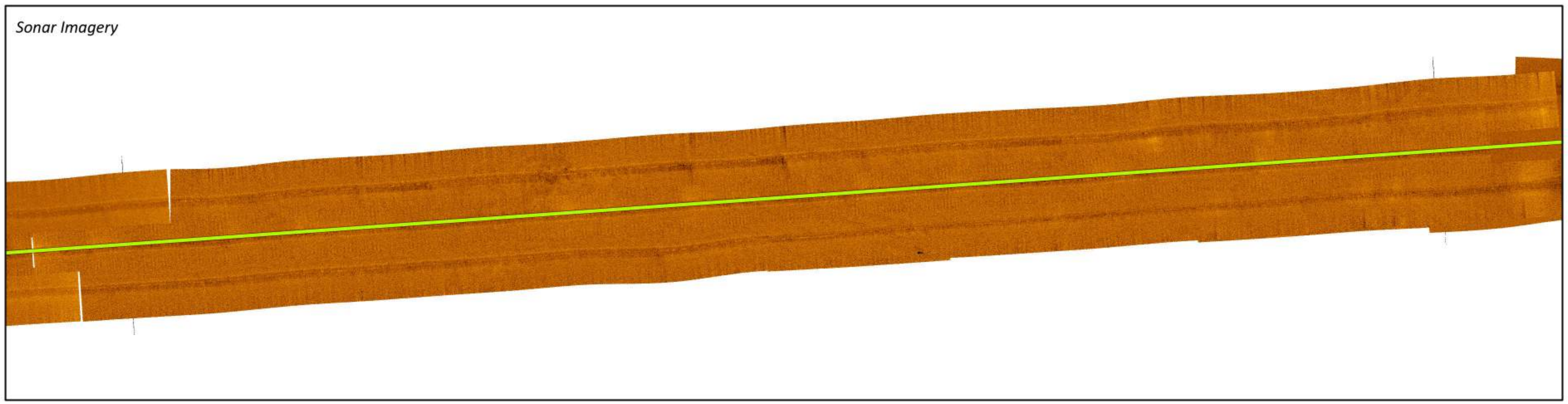

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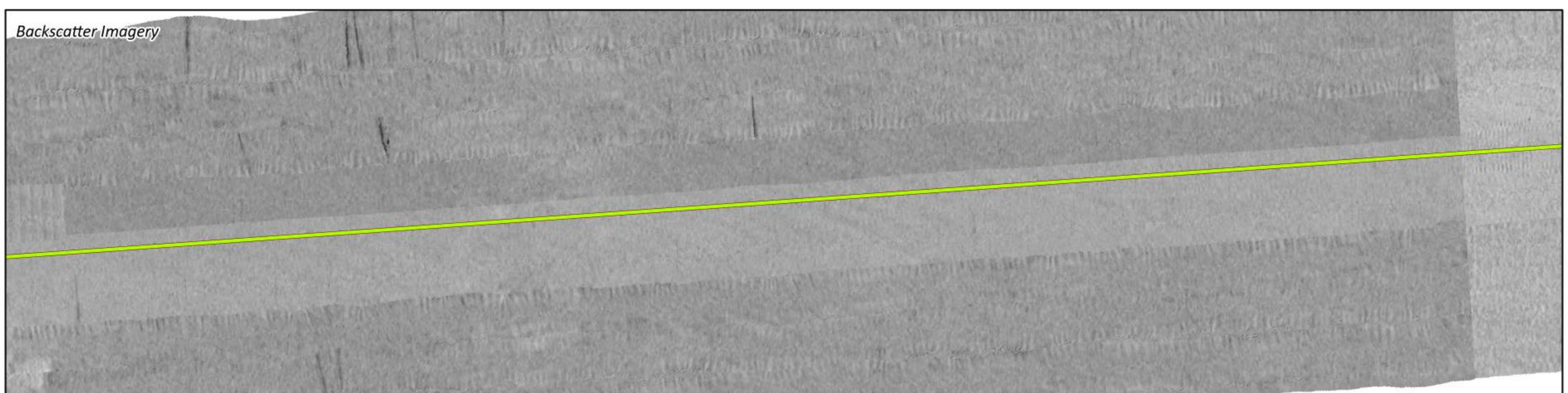

LEGEND:

Project 1 Proposed Route

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N W E S

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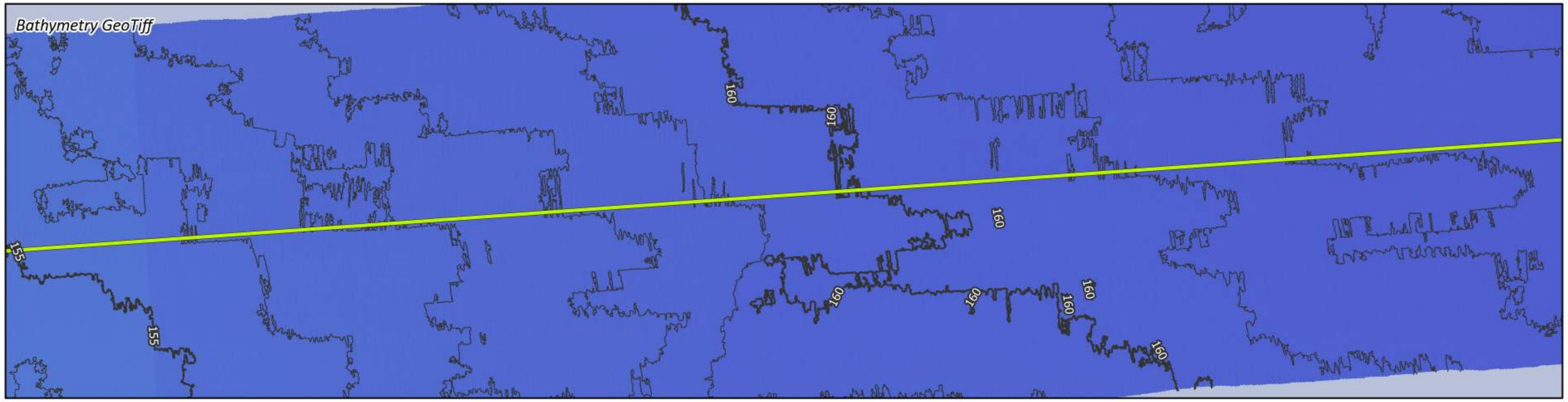
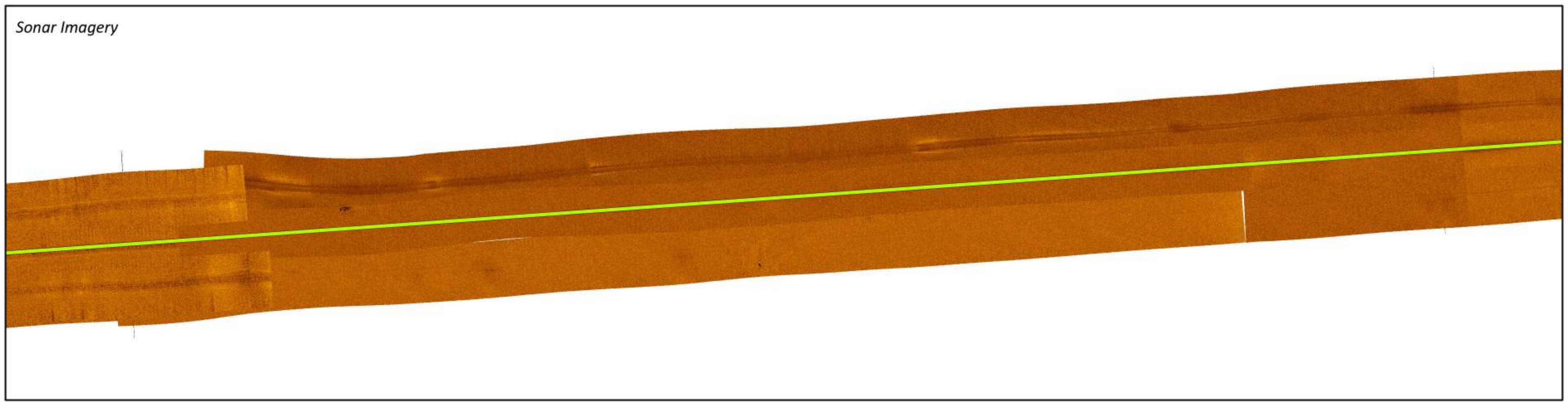
JSI Engineering

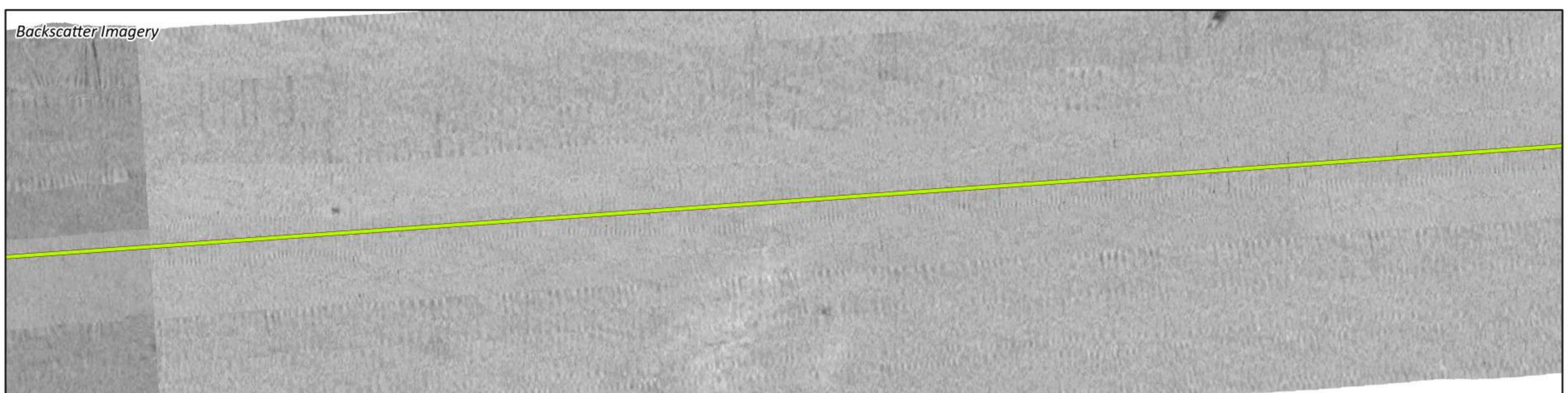
Berrian County, Michigan

NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







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Project 1 Proposed Route

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GEI Consultants

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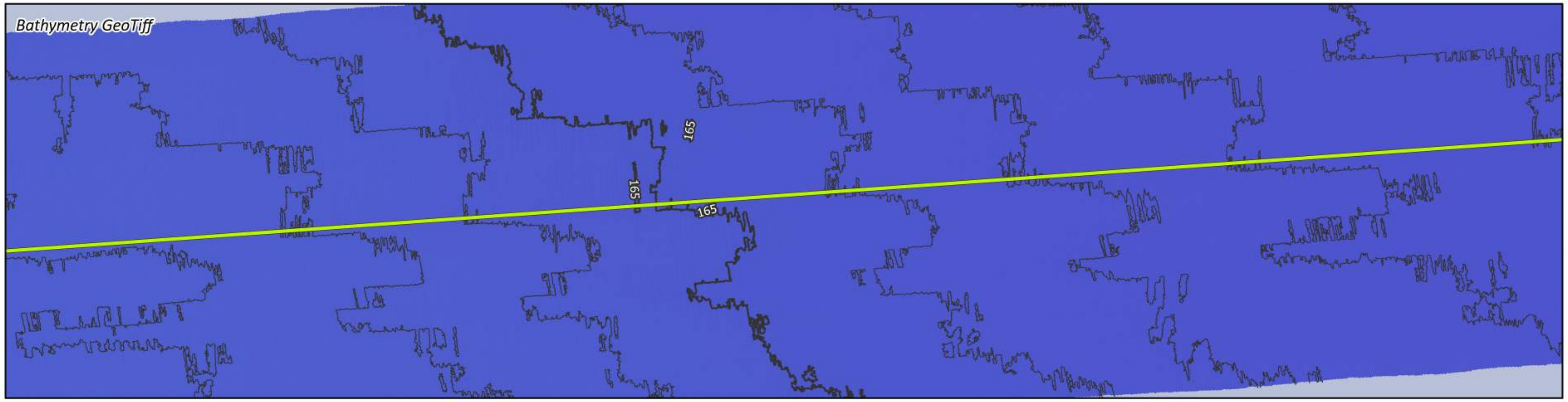
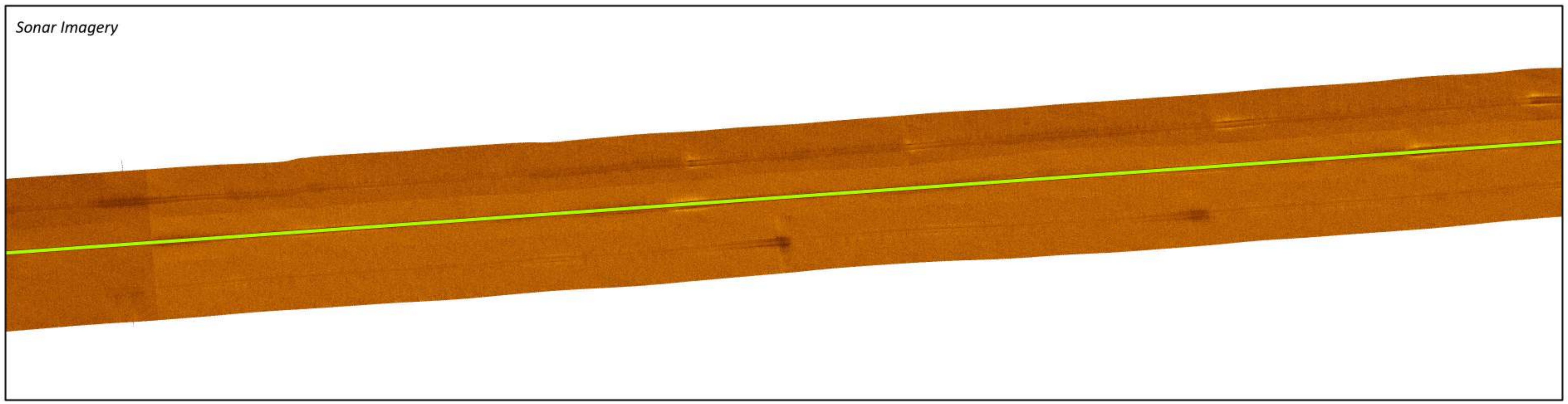
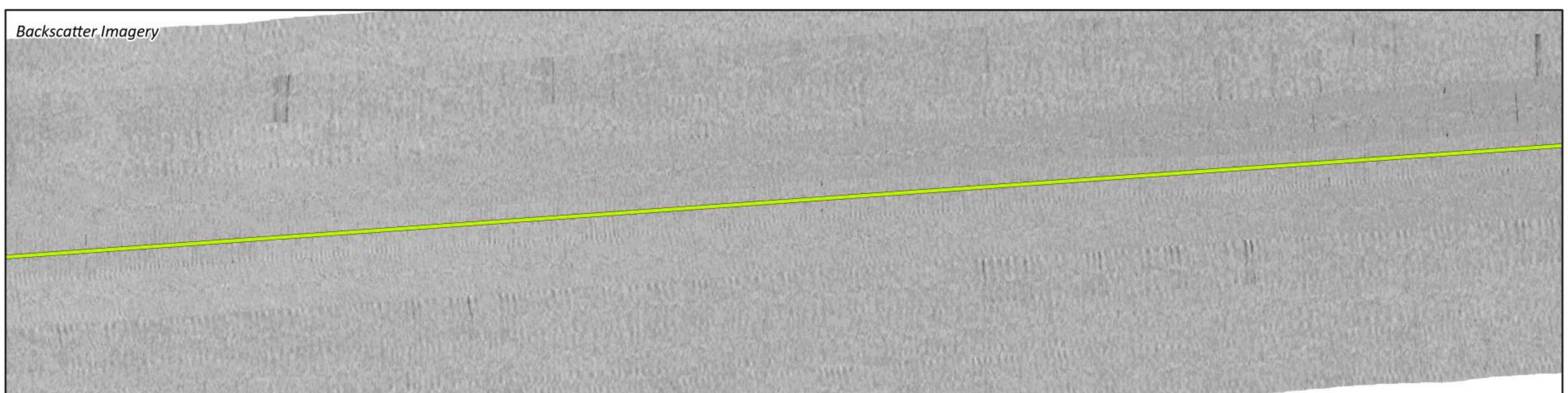
IMPACC Project 1
JSI Engineering

Berrian County, Michigan

NAD 1983 BLM Zone 16N ftUS







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan

Project 2305496 October 2025

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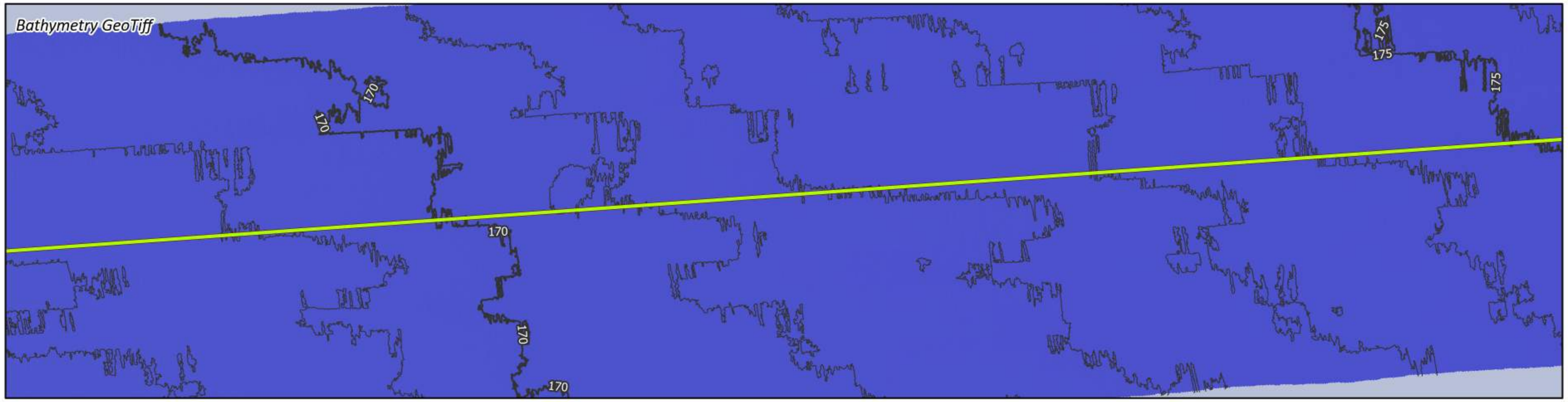
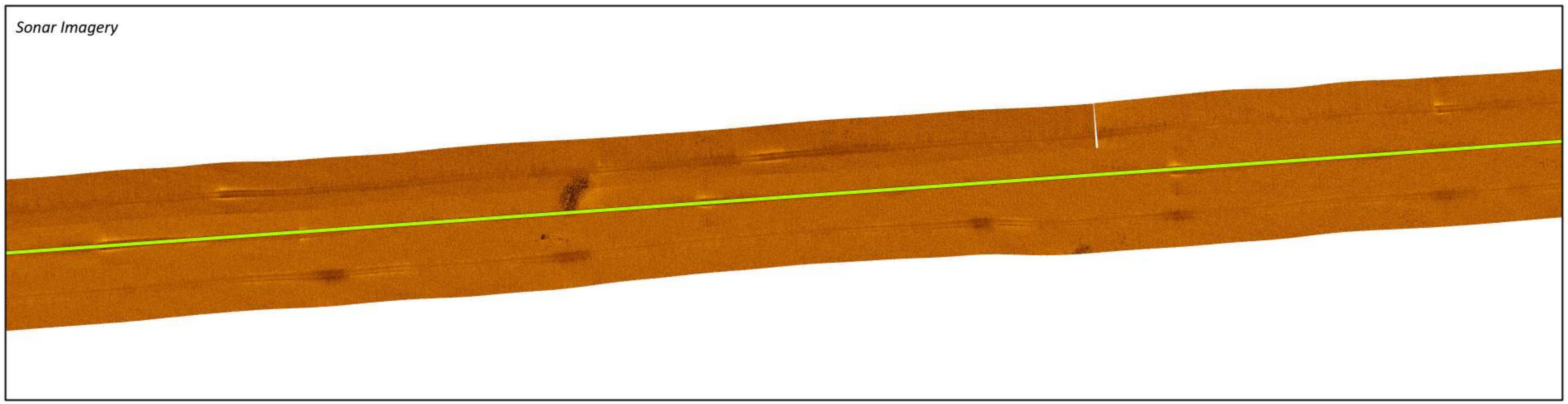
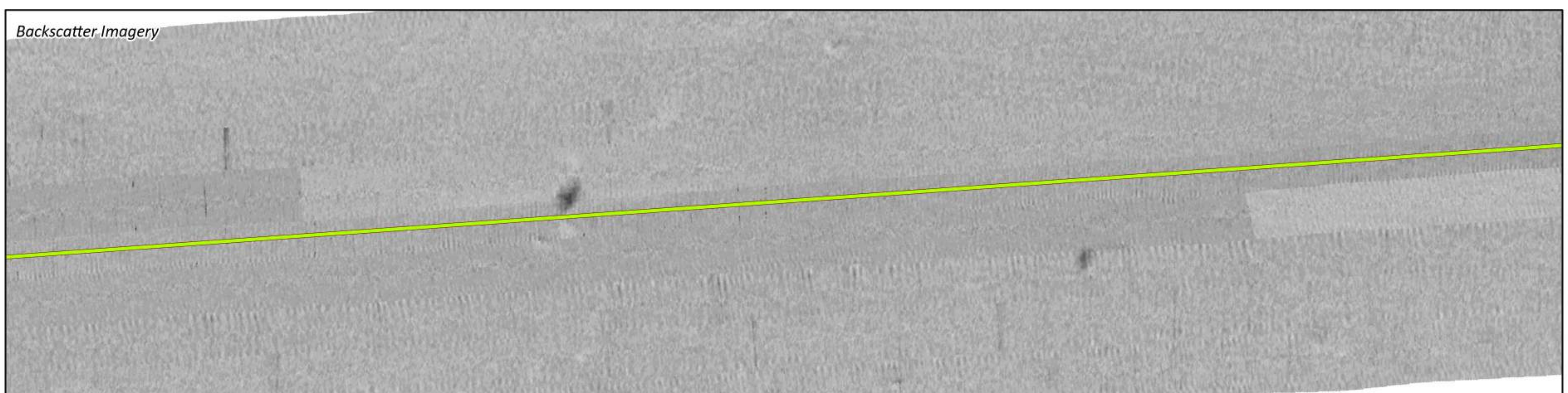
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

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0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan

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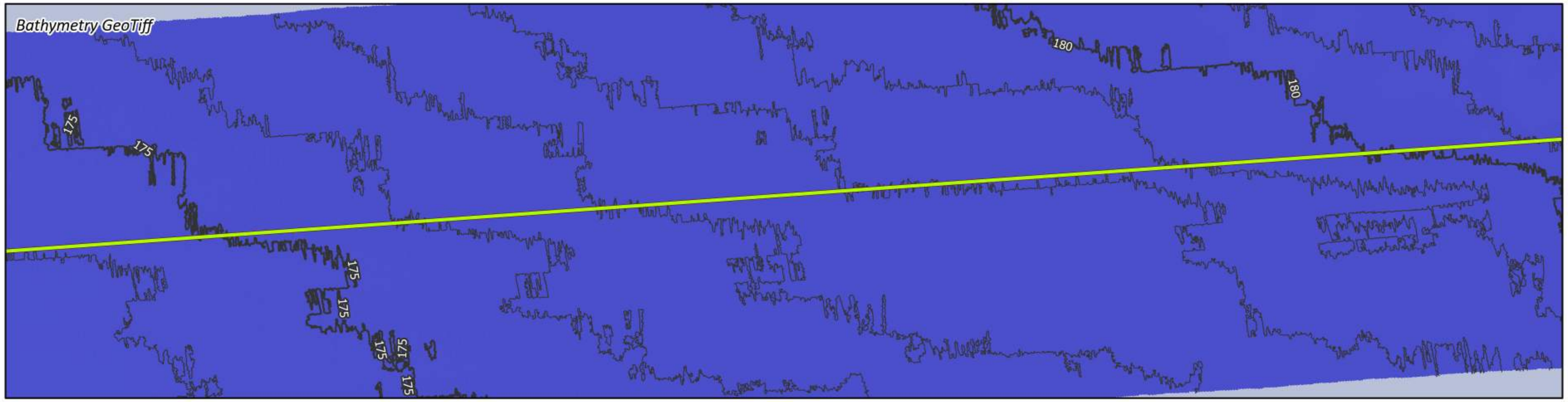
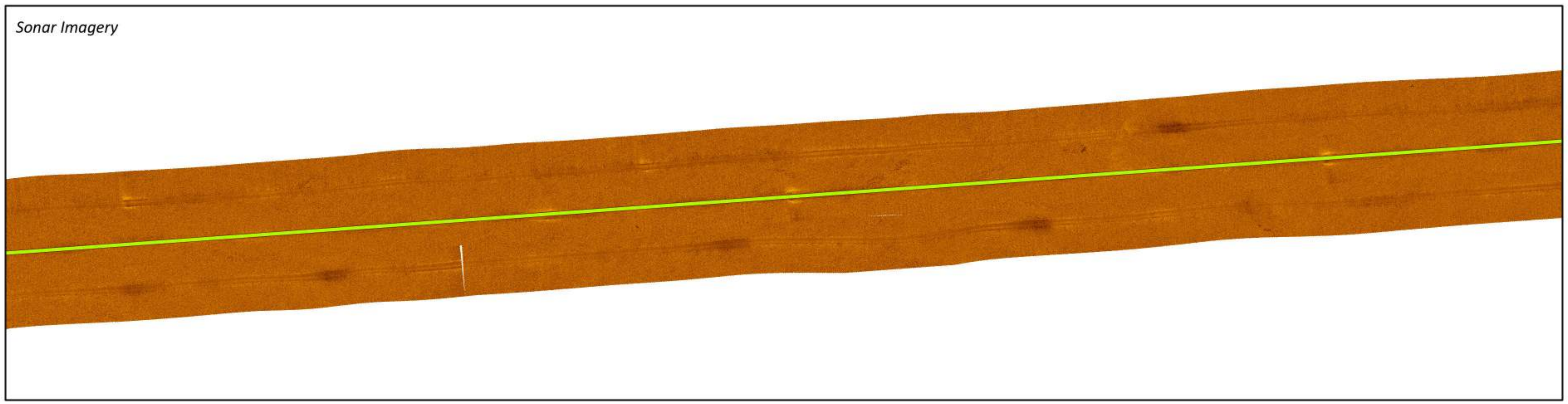
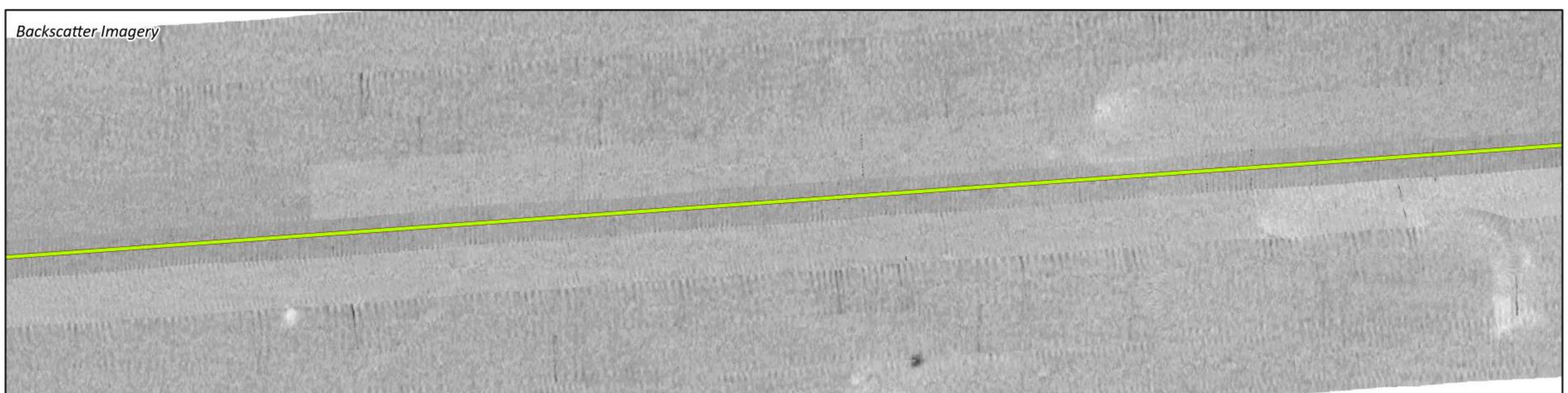
NAD 1983 BLM Zone 16N ftUS







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1 SOUTH LEG CROSSING HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

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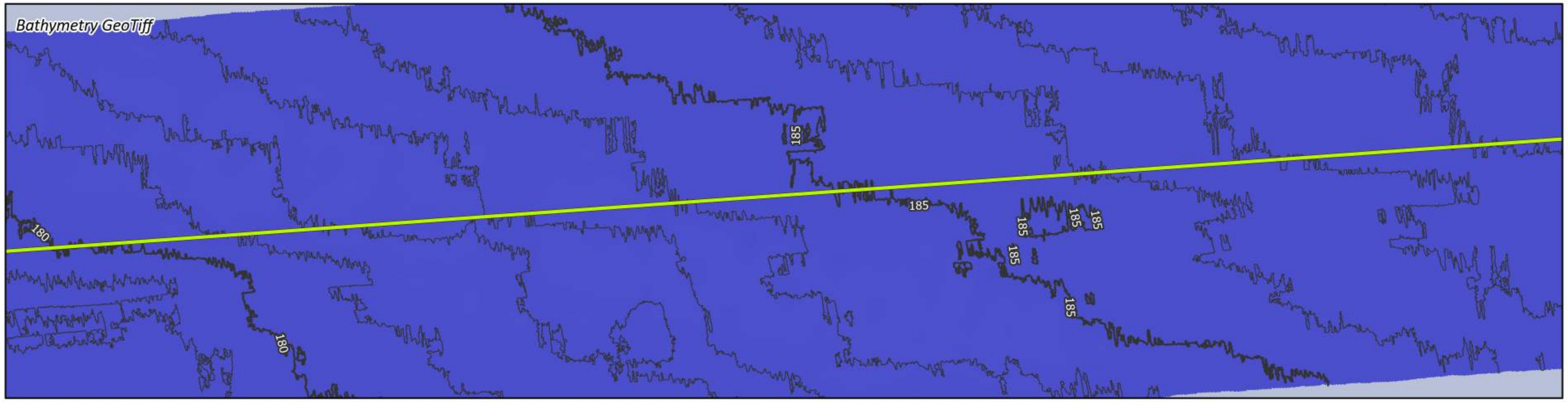
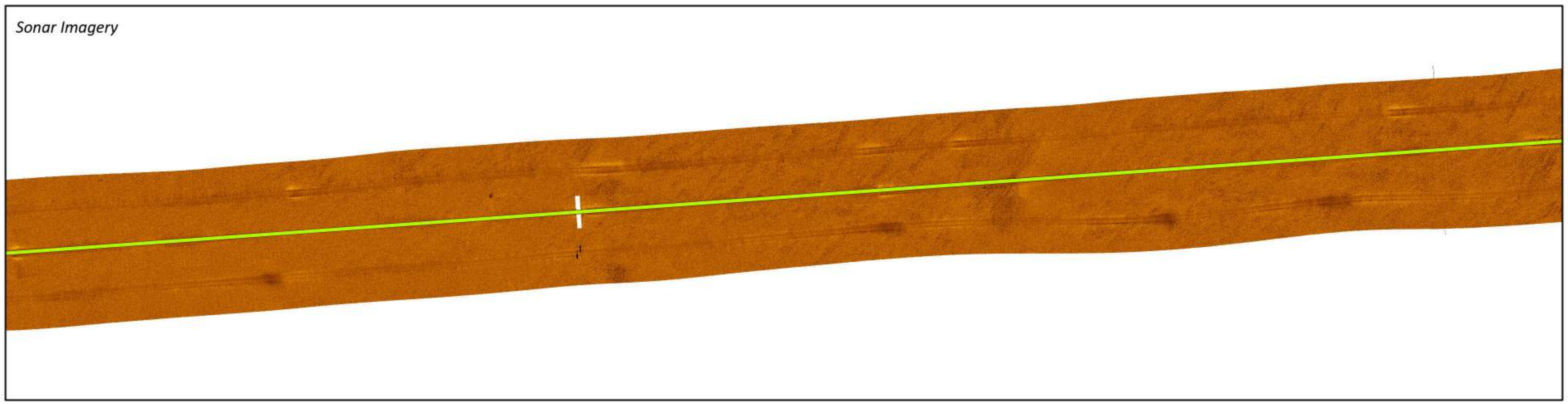
JSI Engineering

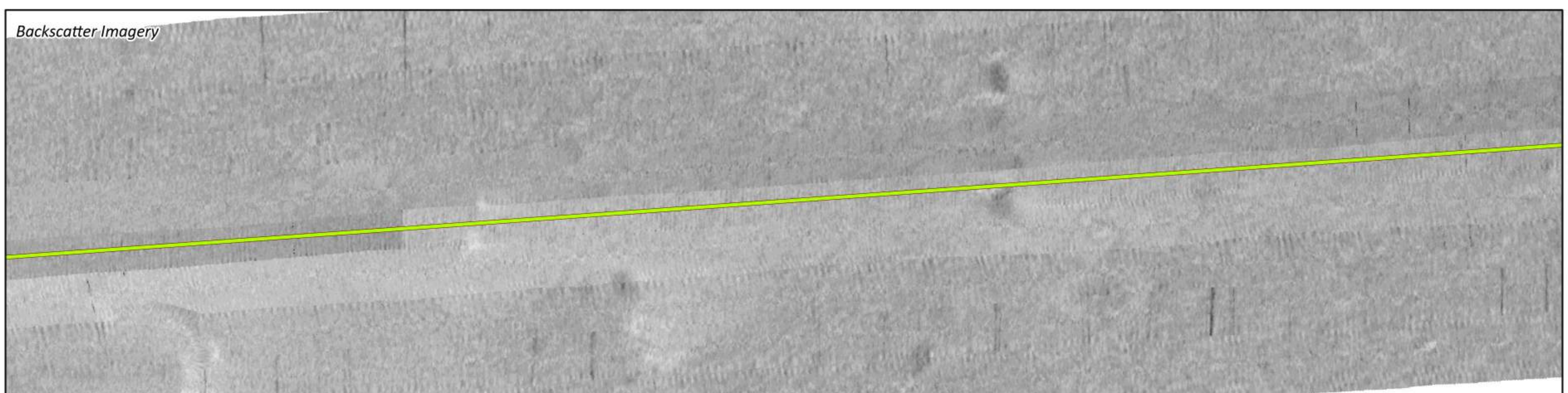
Berrian County, Michigan

Project 2305496 October 2025

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY



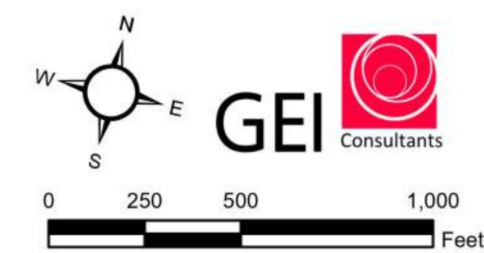




LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)



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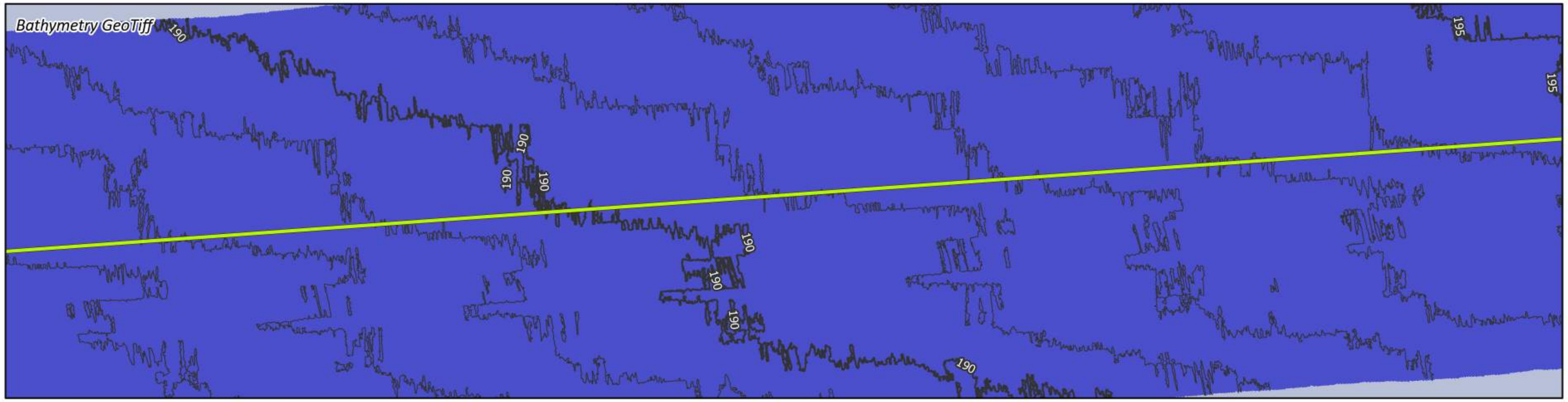
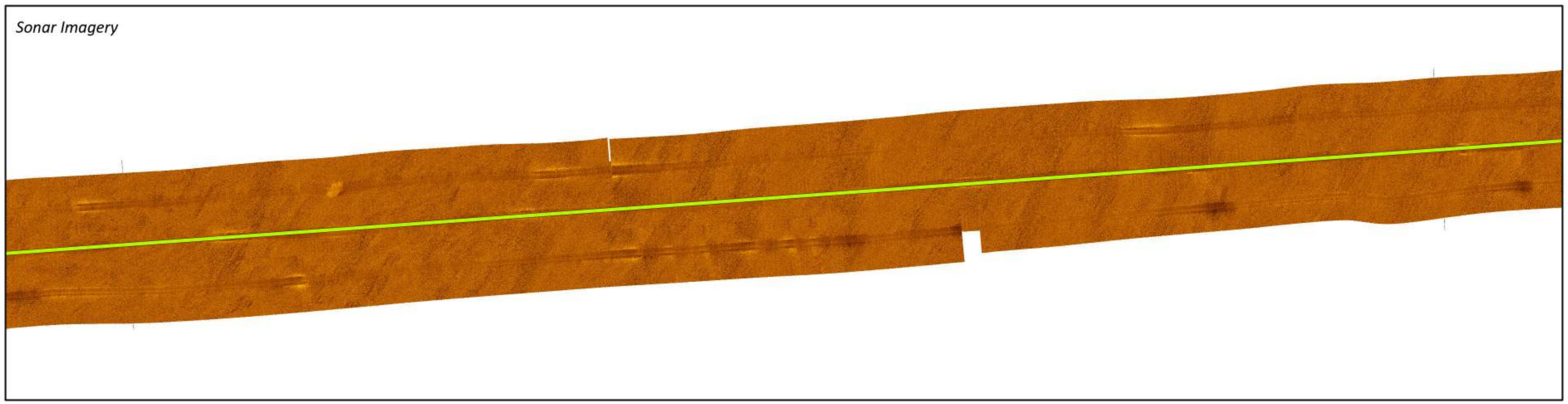
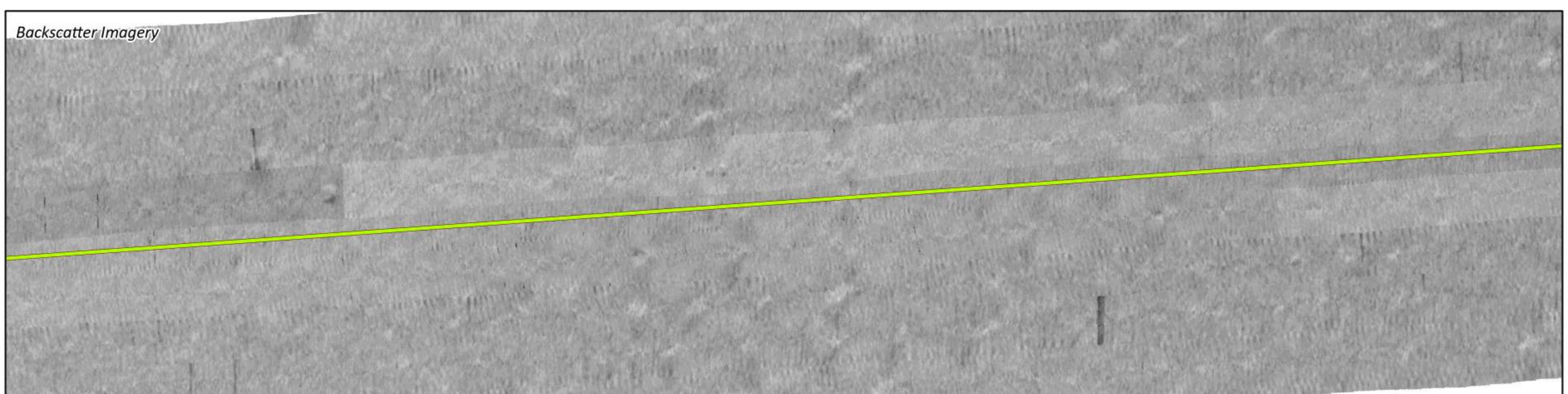
NAD 1983 BLM Zone 16N ftUS







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

GEI Consultants

0 250 500 1,000 Feet

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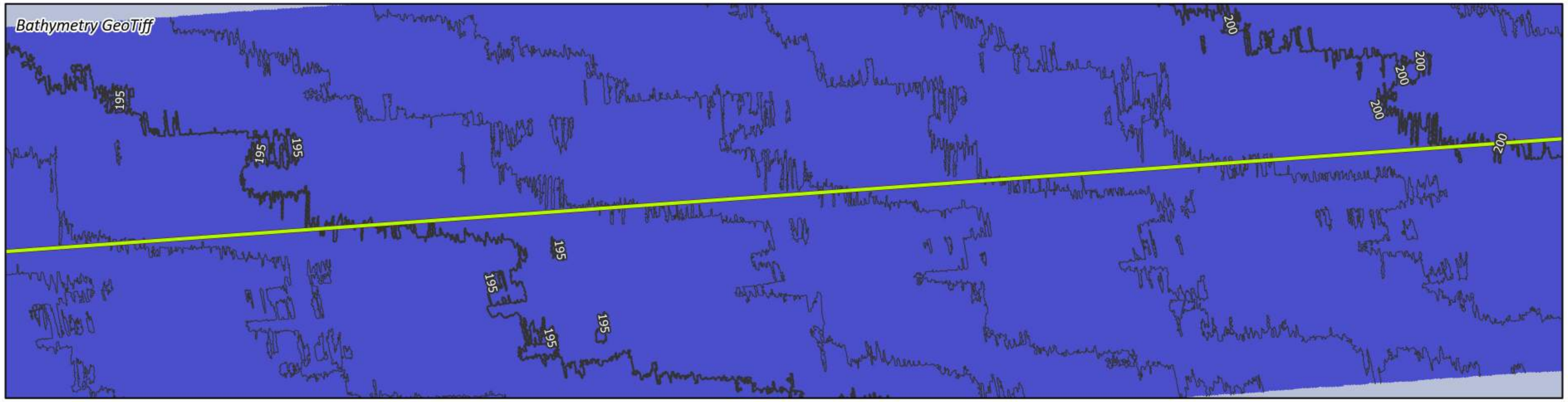

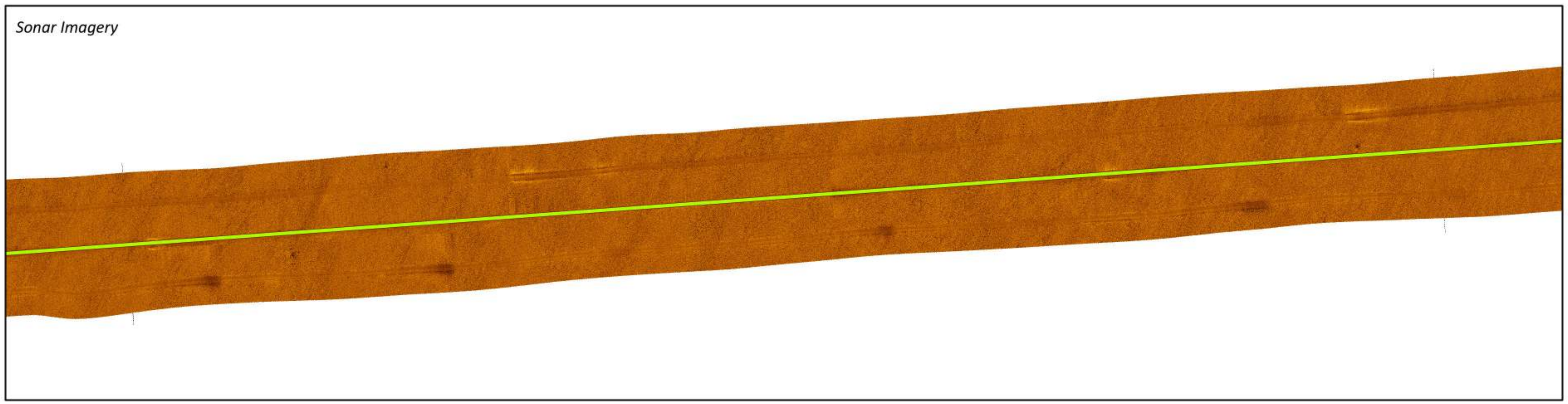

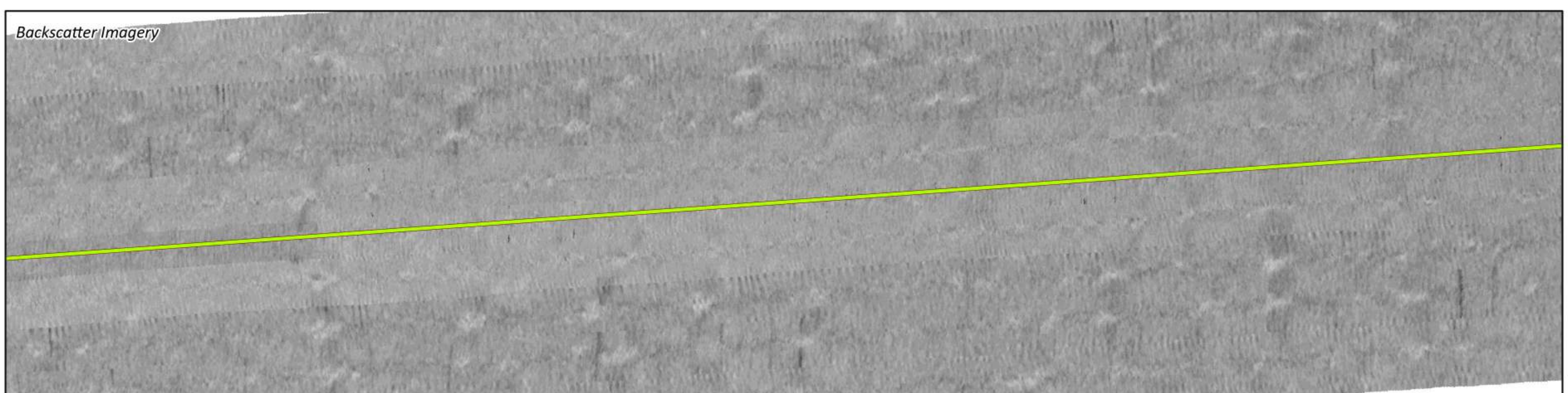

NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1 SOUTH LEG CROSSING HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

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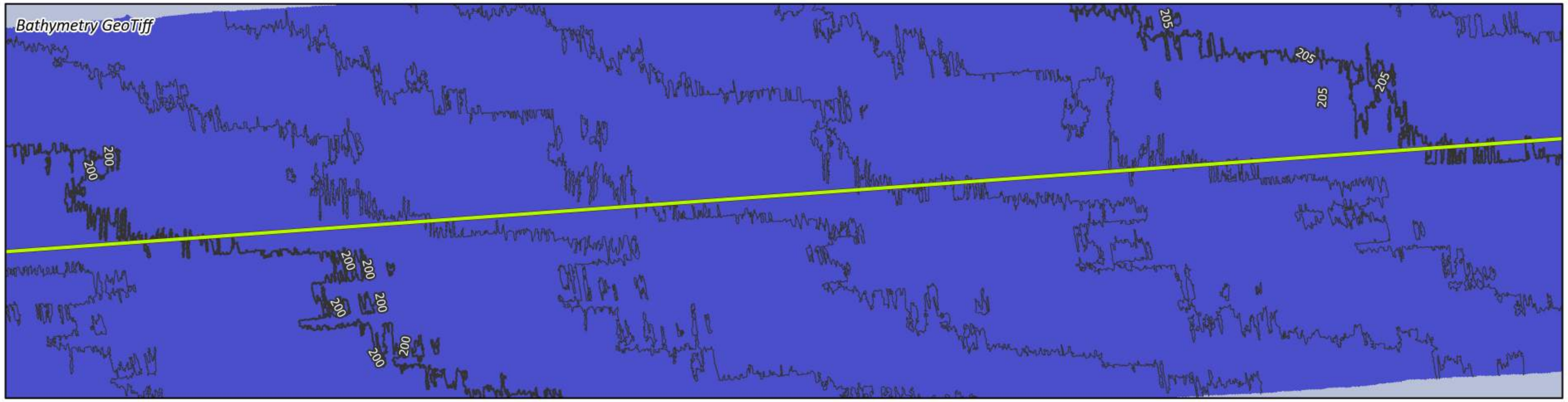
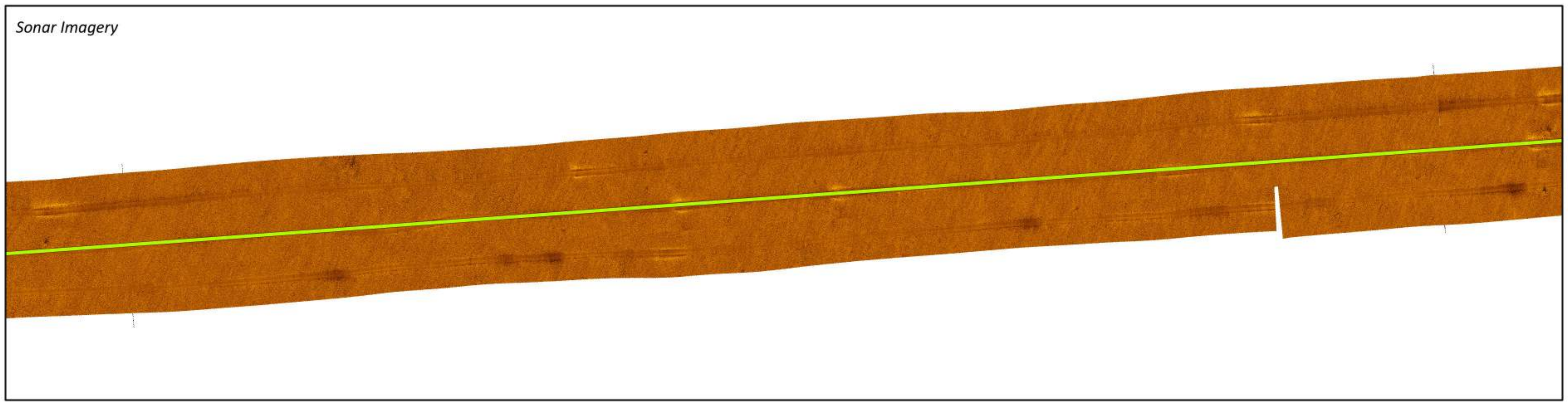
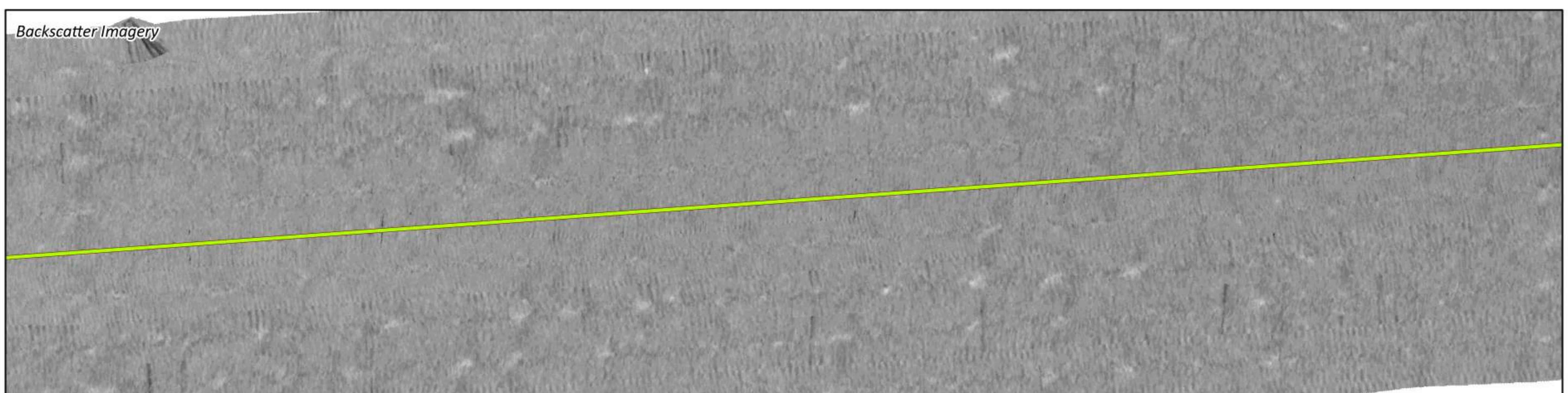
IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

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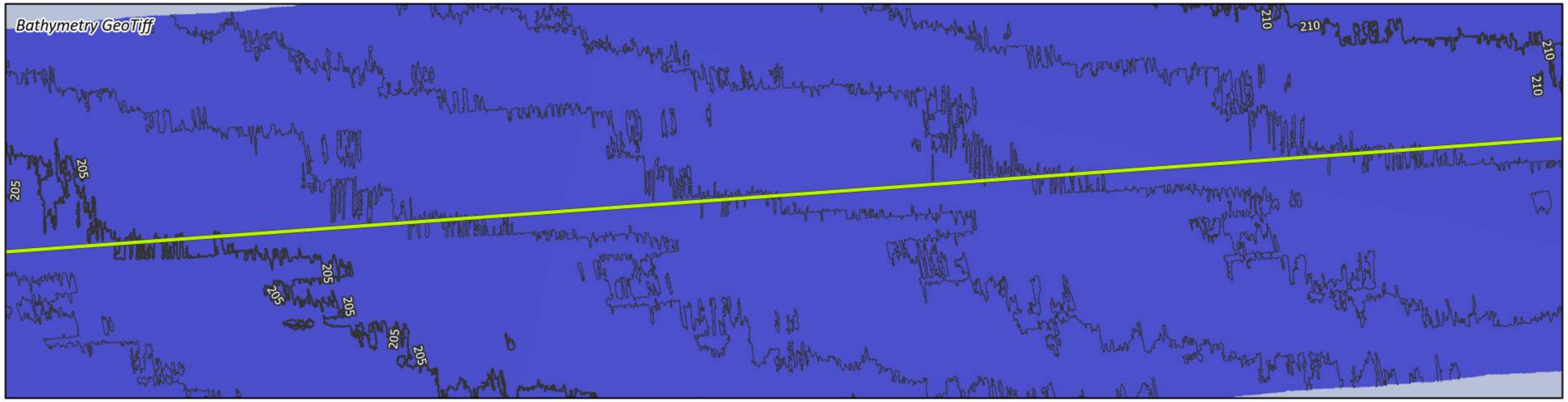
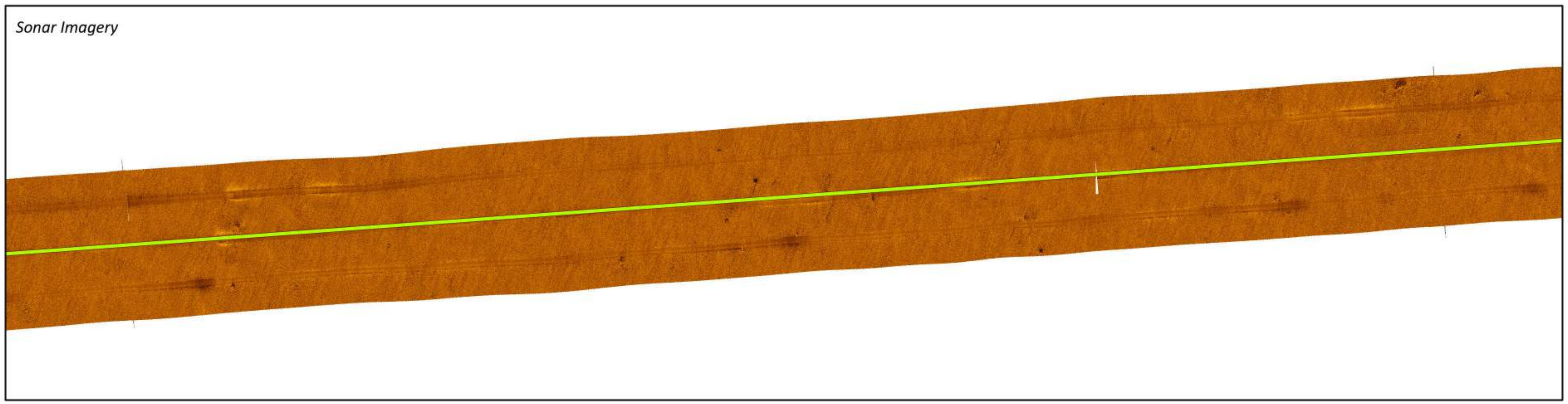
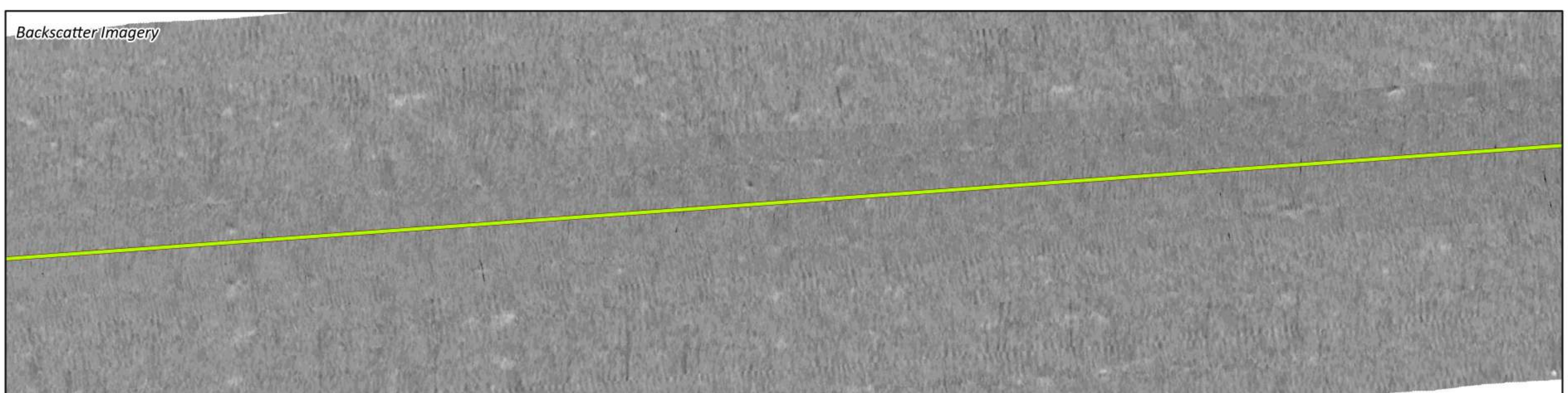
Berrian County, Michigan

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

0 250 500 1,000 Feet

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JSI Engineering

Berrian County, Michigan

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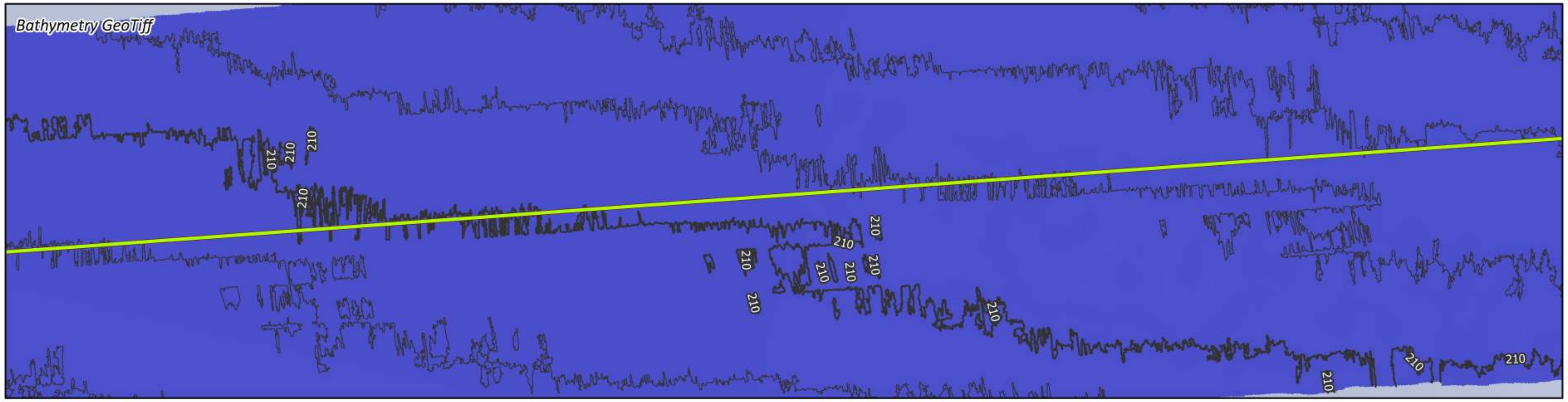
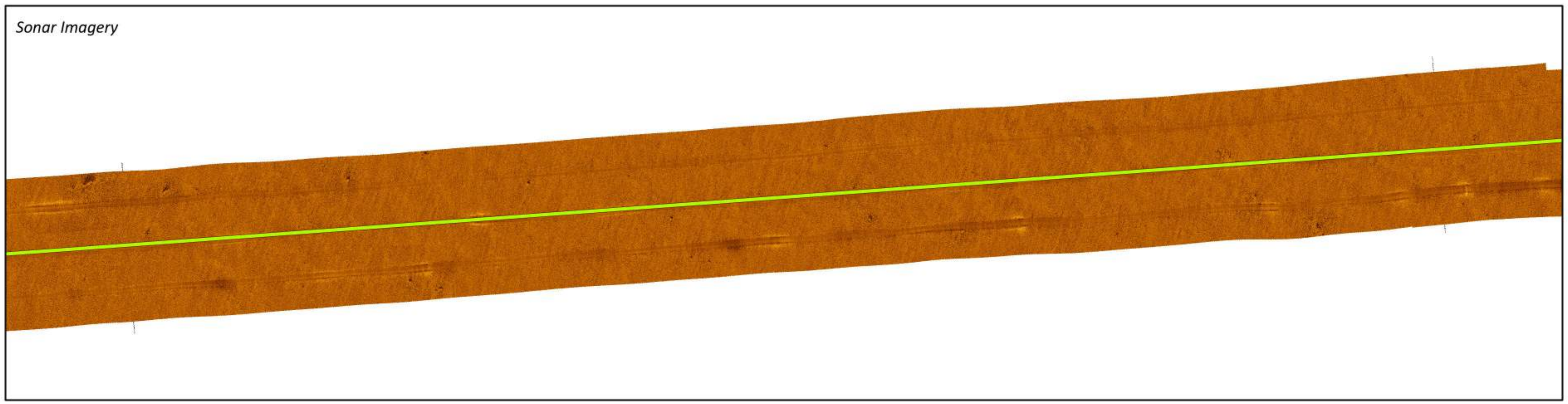
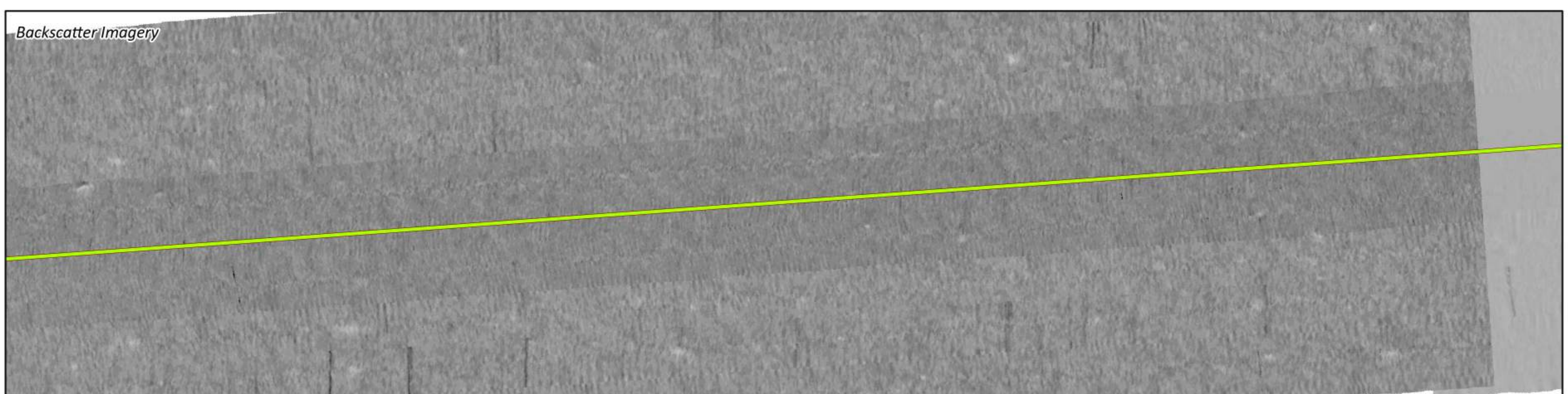






NAD 1983 BLM Zone 16N ftUS

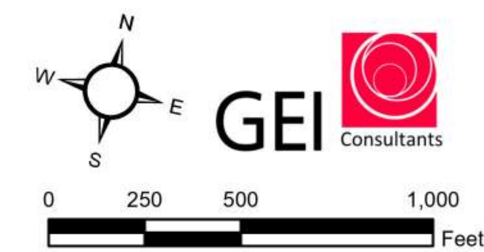
IMPACC PROJECT 1 SOUTH LEG CROSSING HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)



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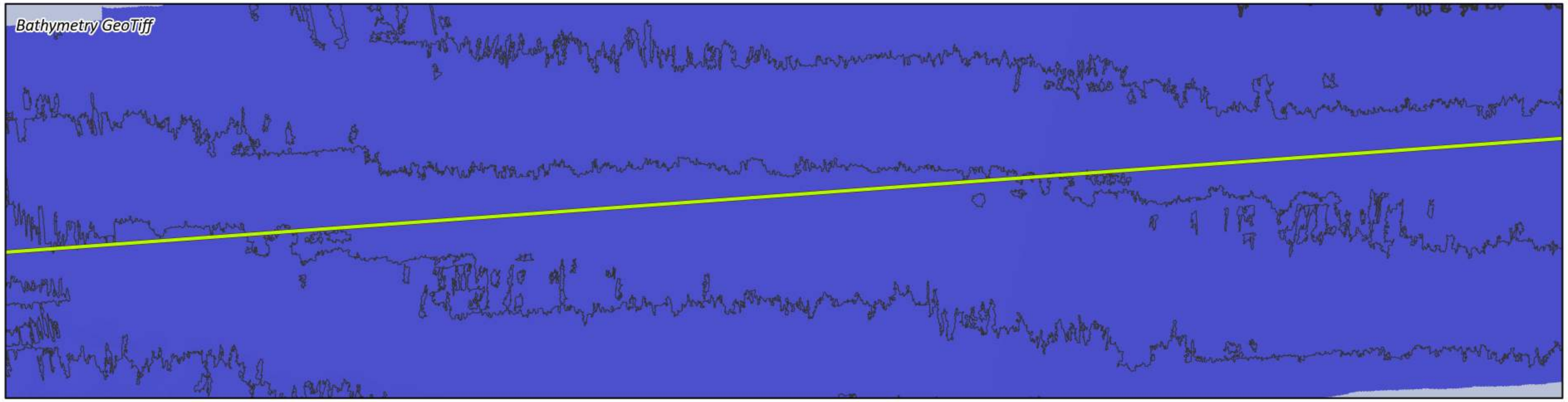

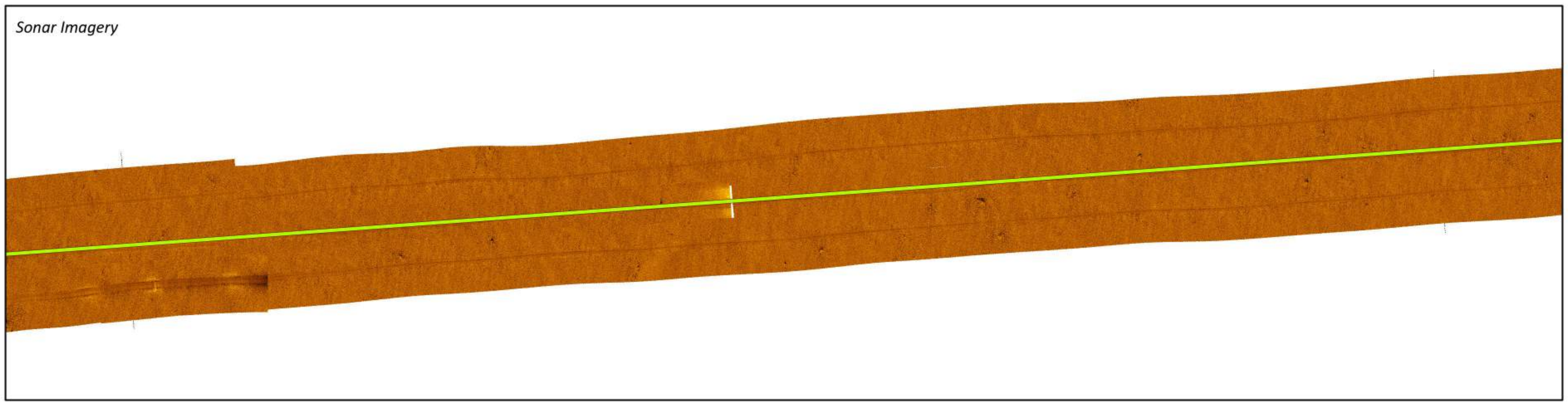

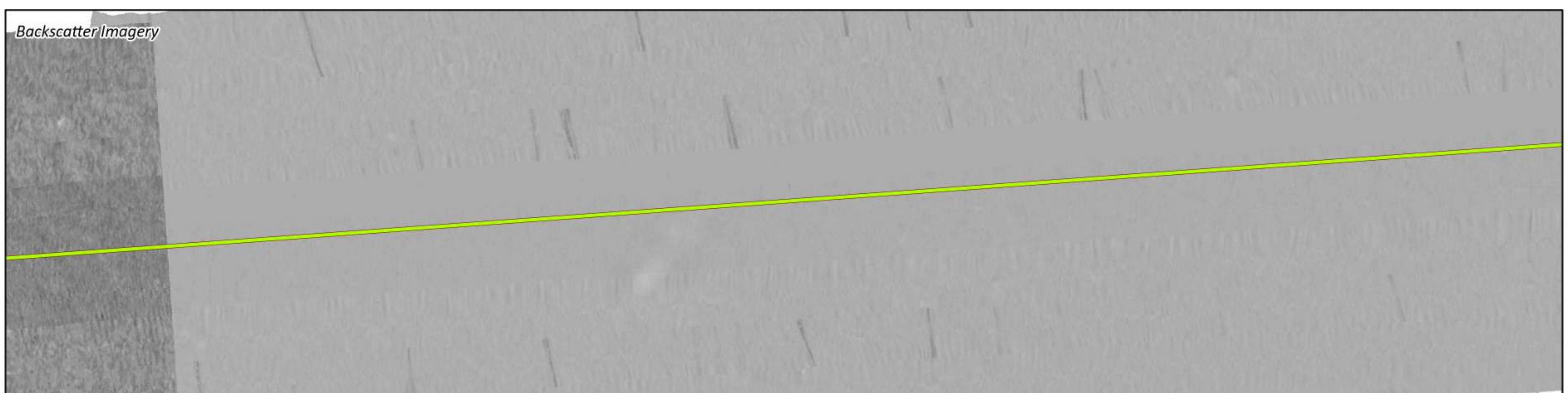

NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

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Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

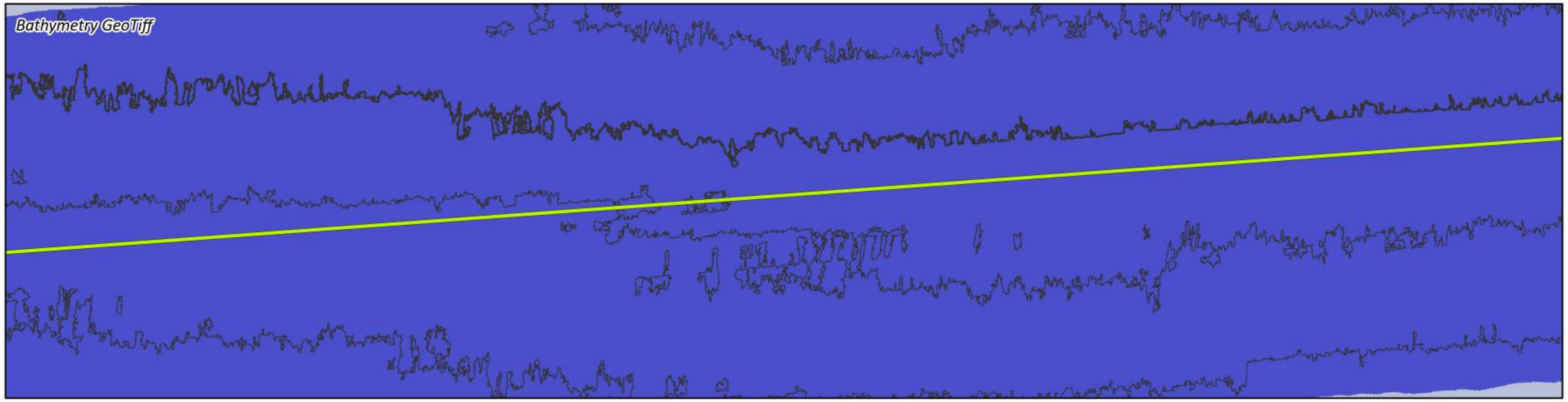
N W E S

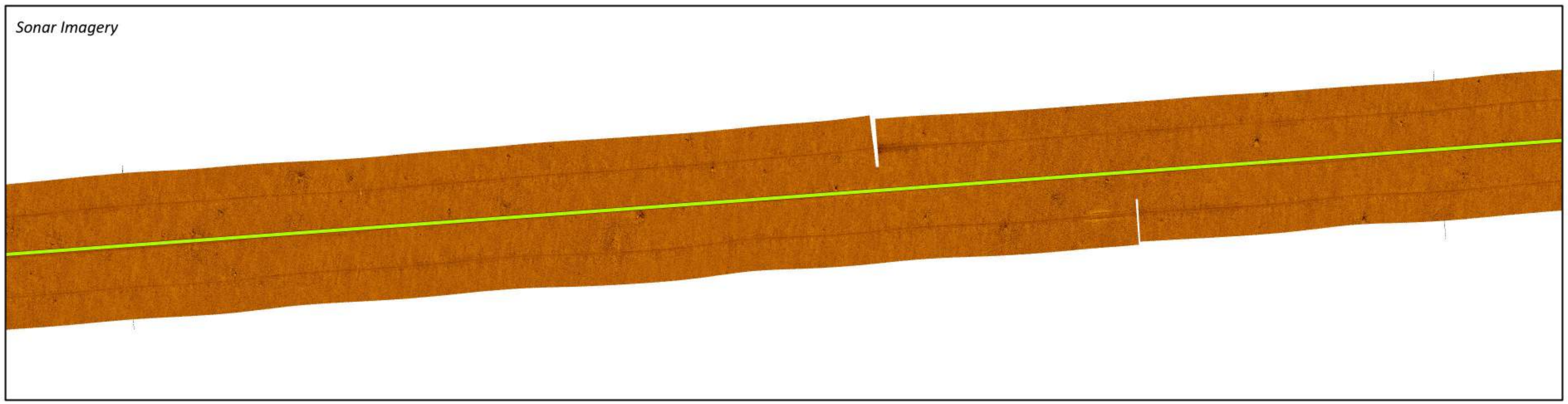
GEI Consultants

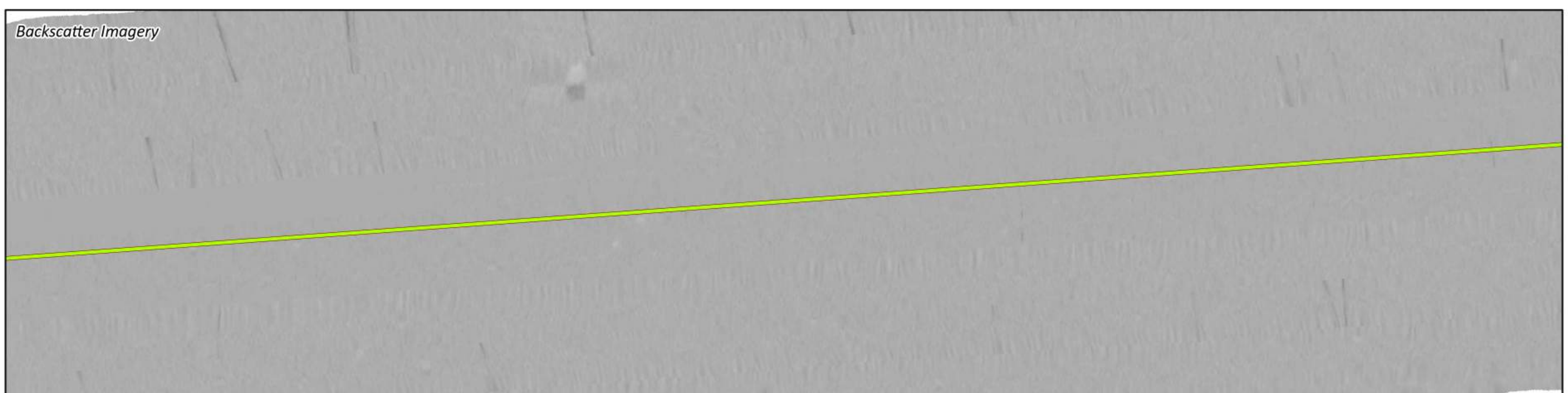
0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan







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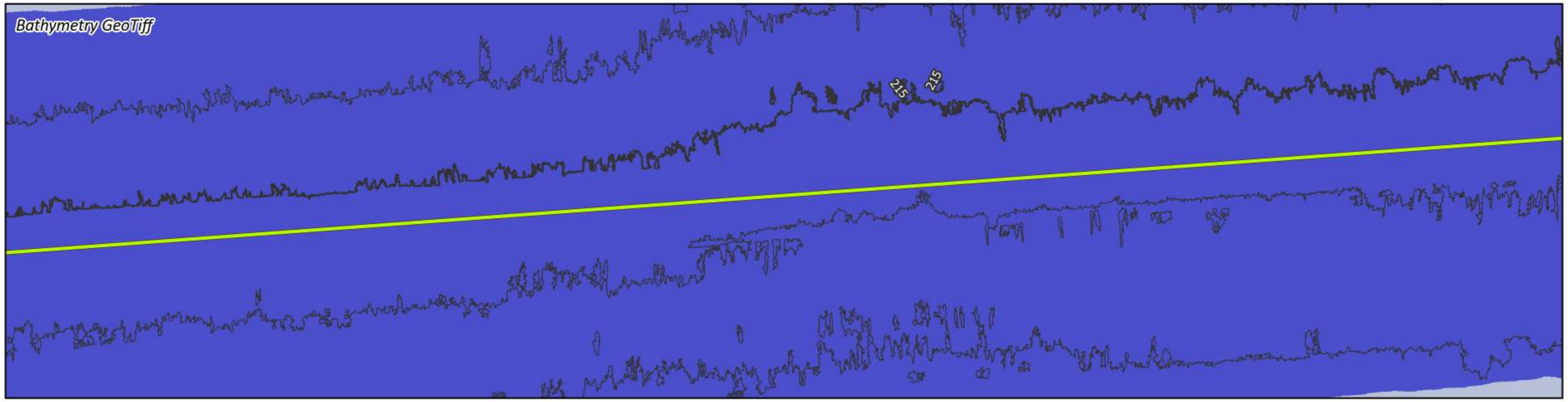

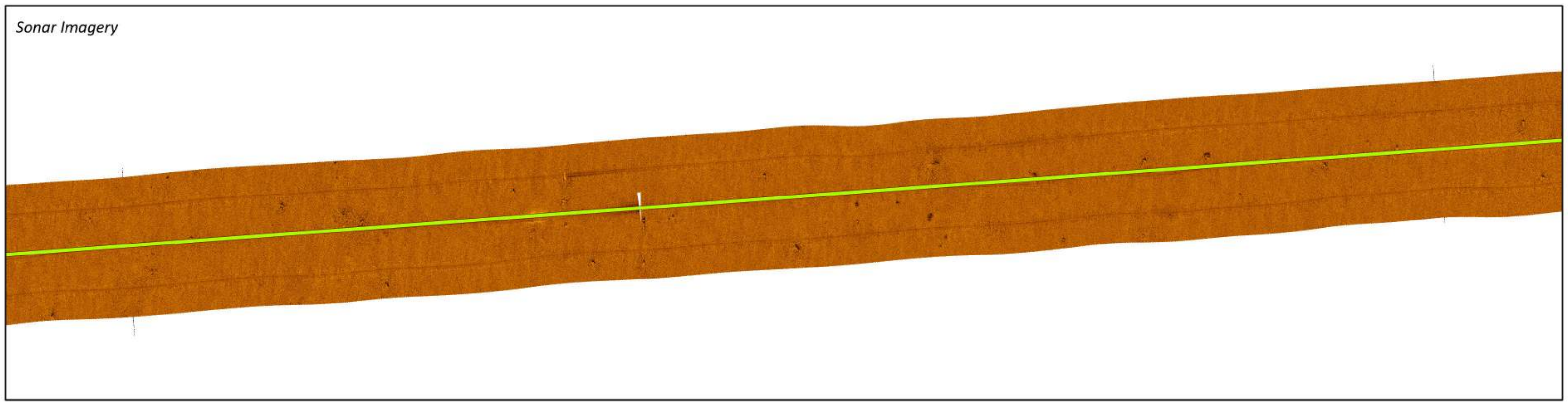

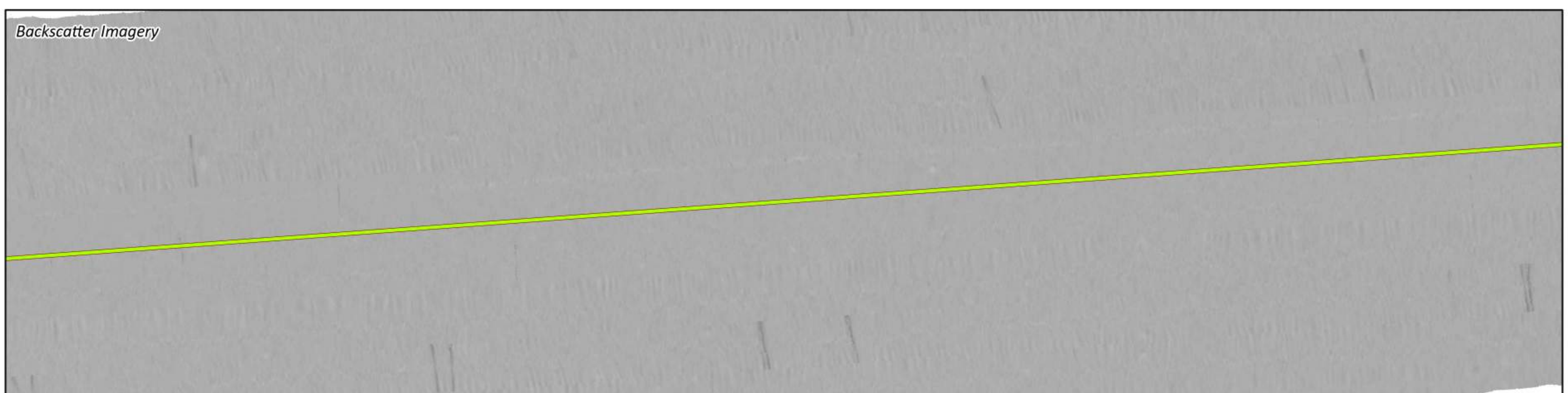

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IMPACC PROJECT 1 SOUTH LEG CROSSING HYDROGRAPHIC SURVEY

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Berrian County, Michigan

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SOUTH LEG CROSSING
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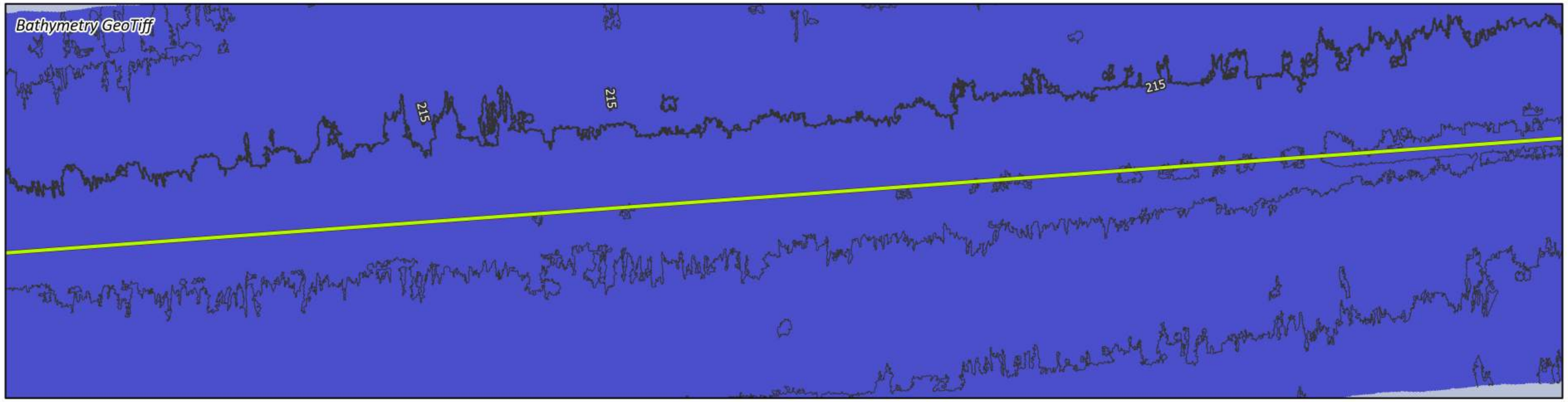

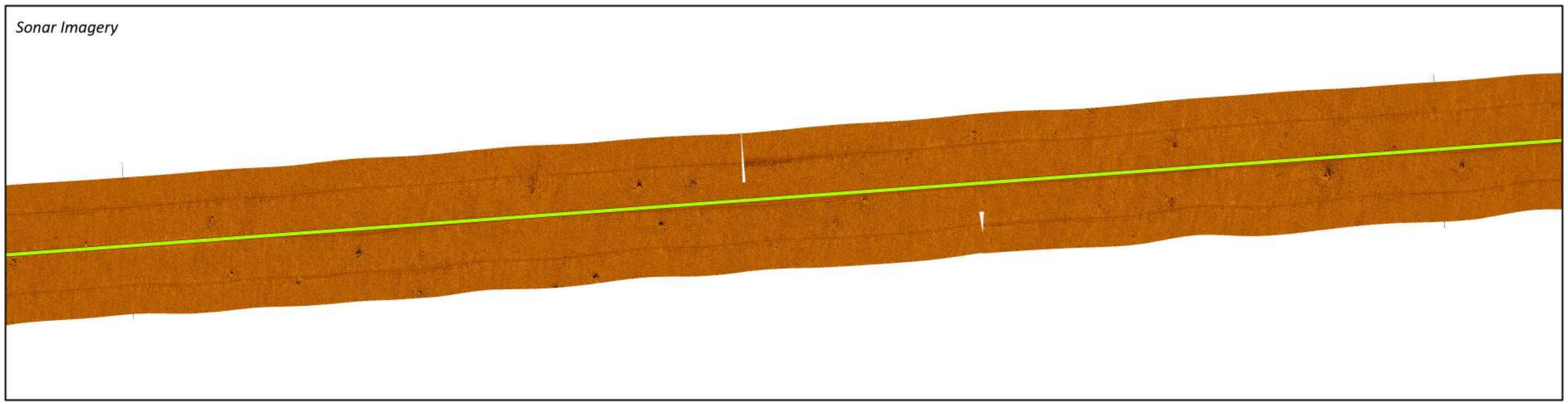

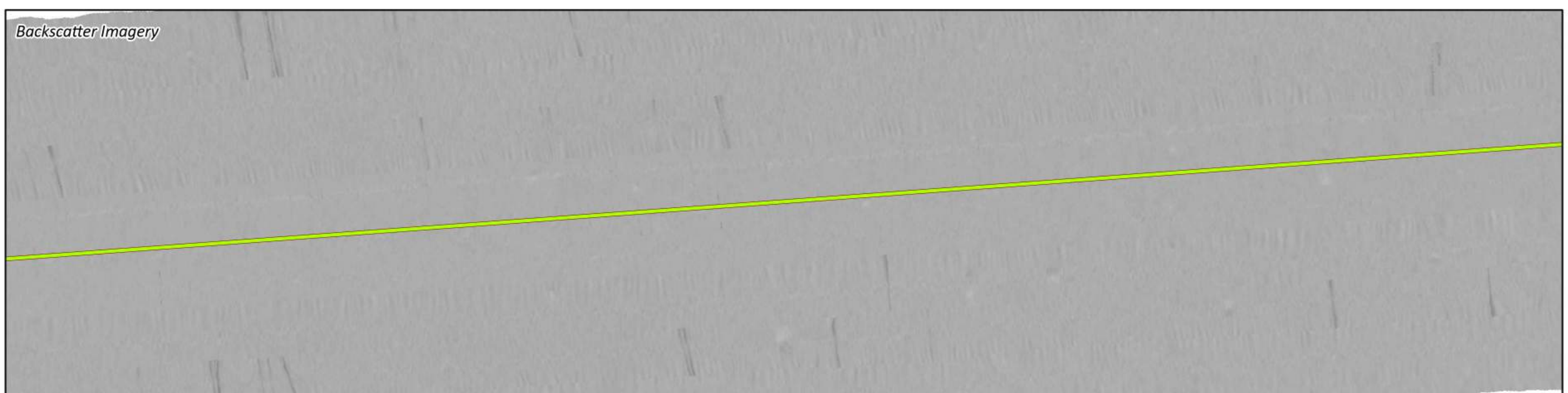

NAD 1983 BLM Zone 16N ftUS

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GEI Consultants

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JSI Engineering

Berrian County, Michigan

Project 2305496 October 2025

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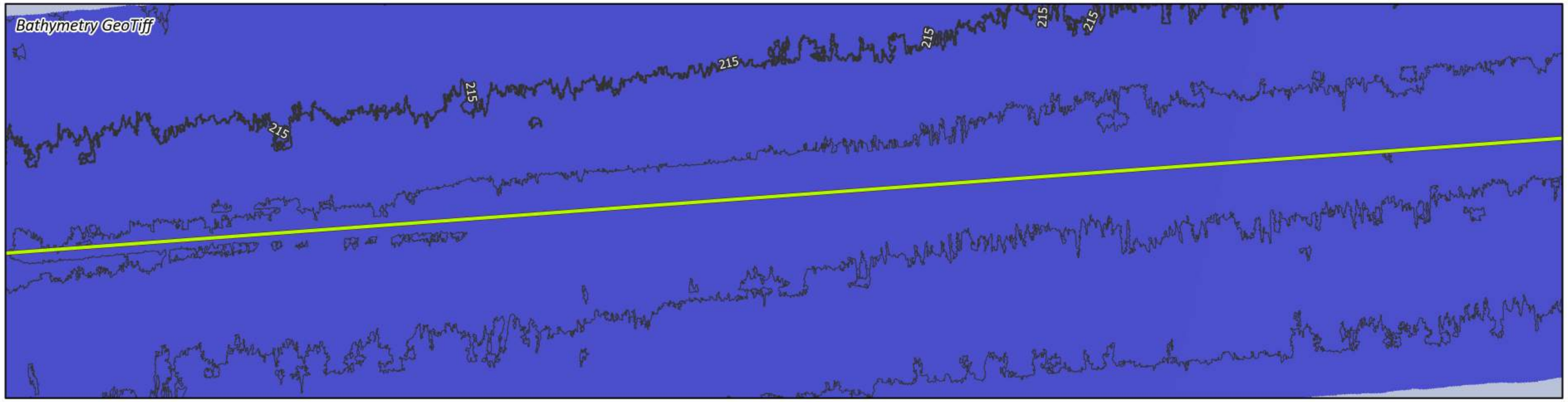
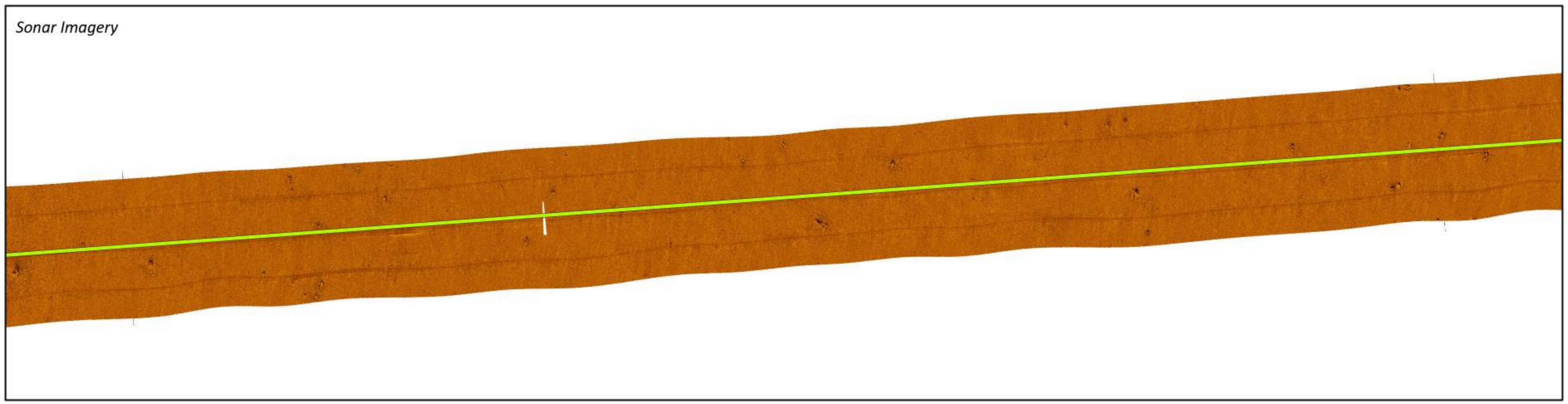
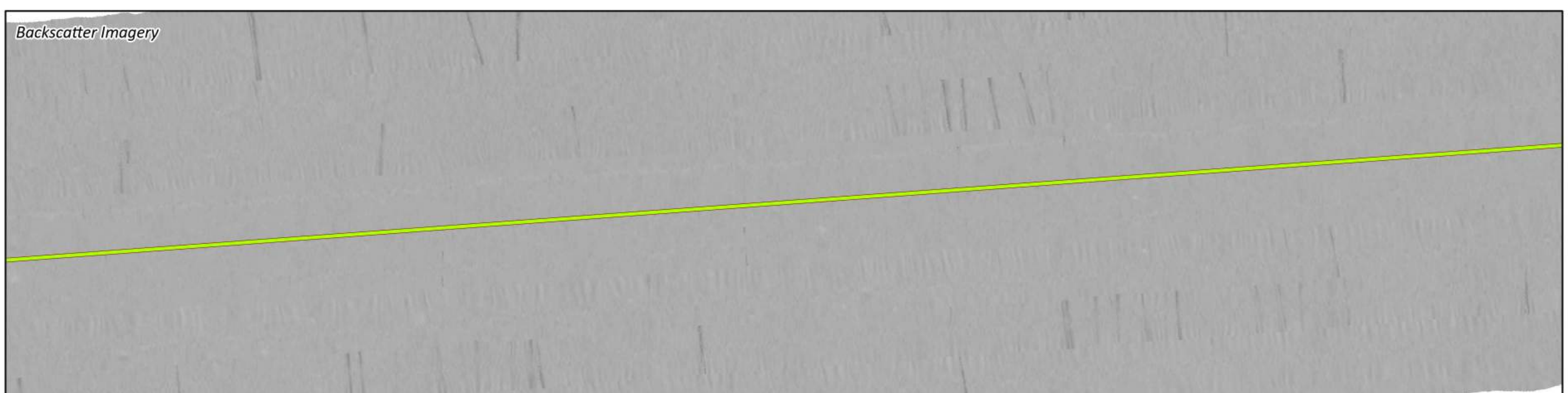
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







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Project 2305496 October 2025

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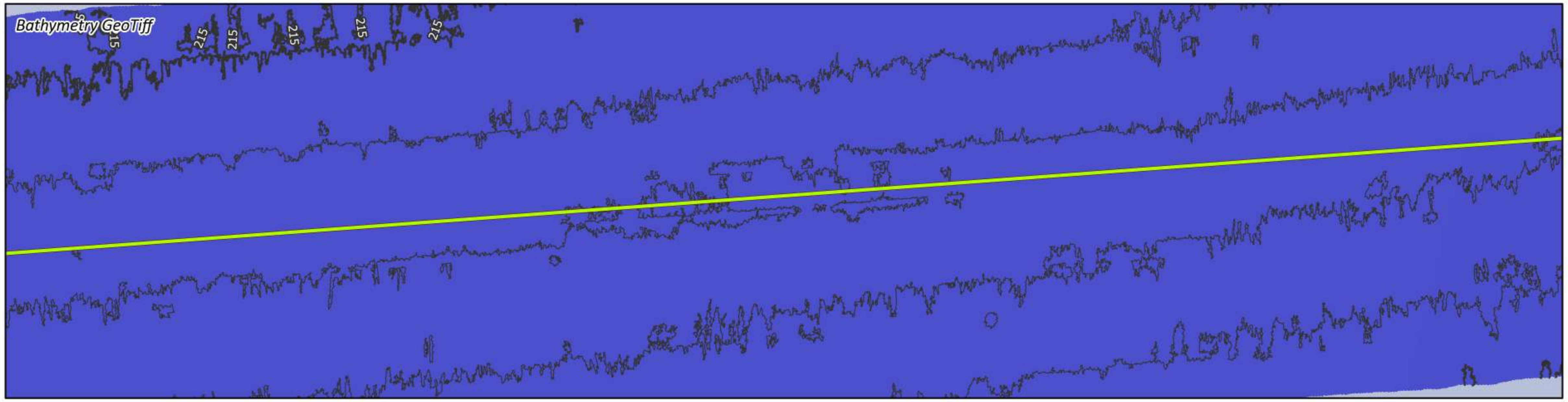

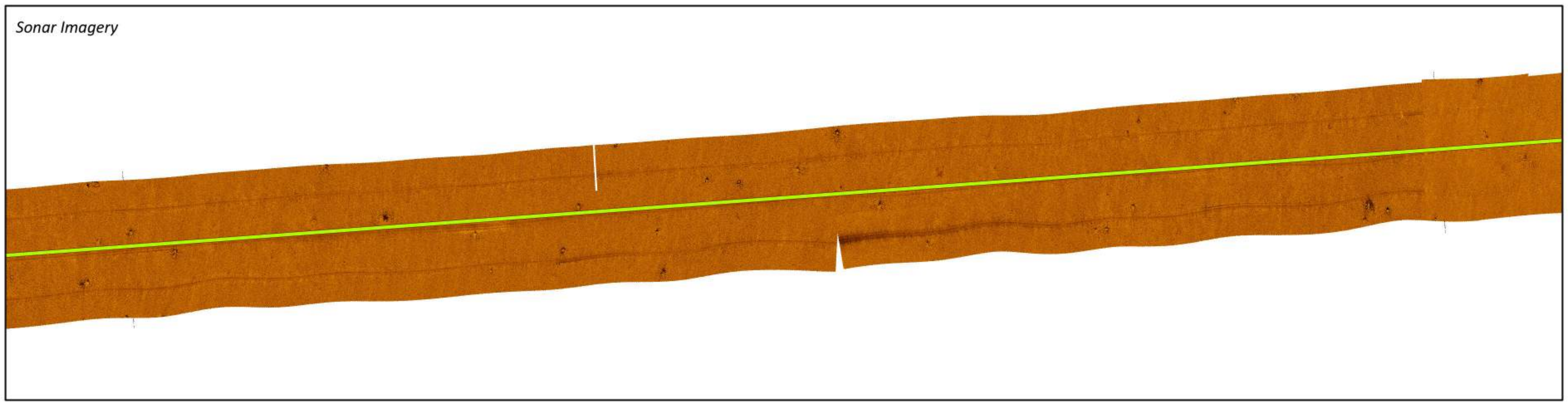

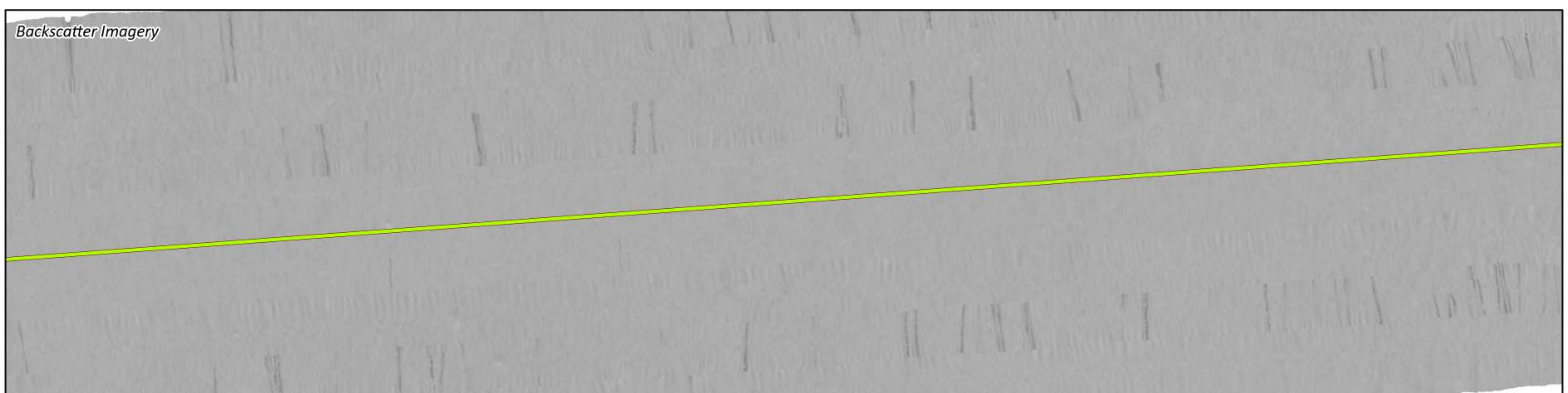

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Berrian County, Michigan

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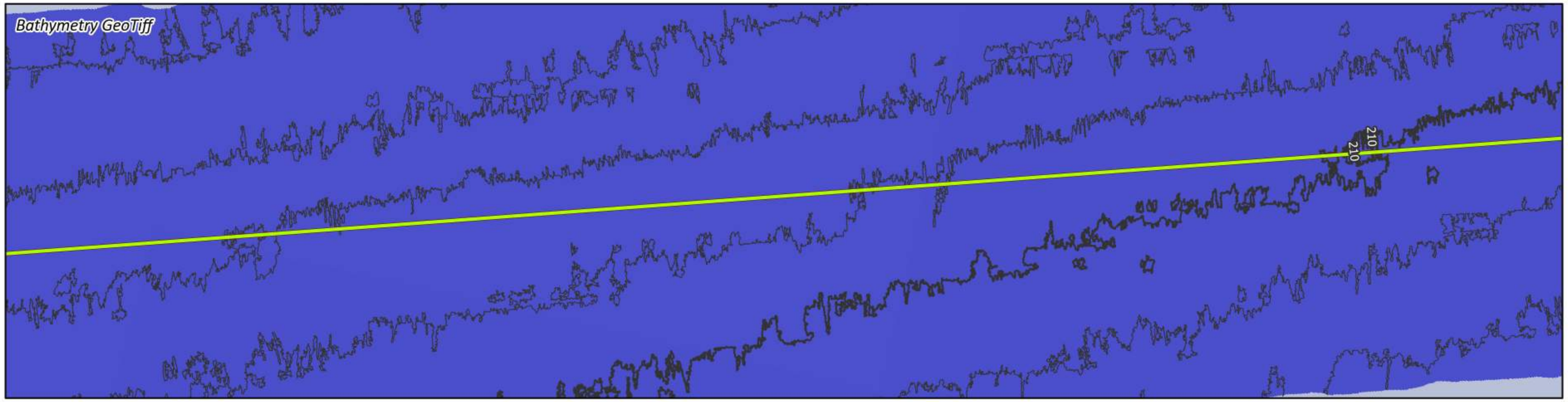

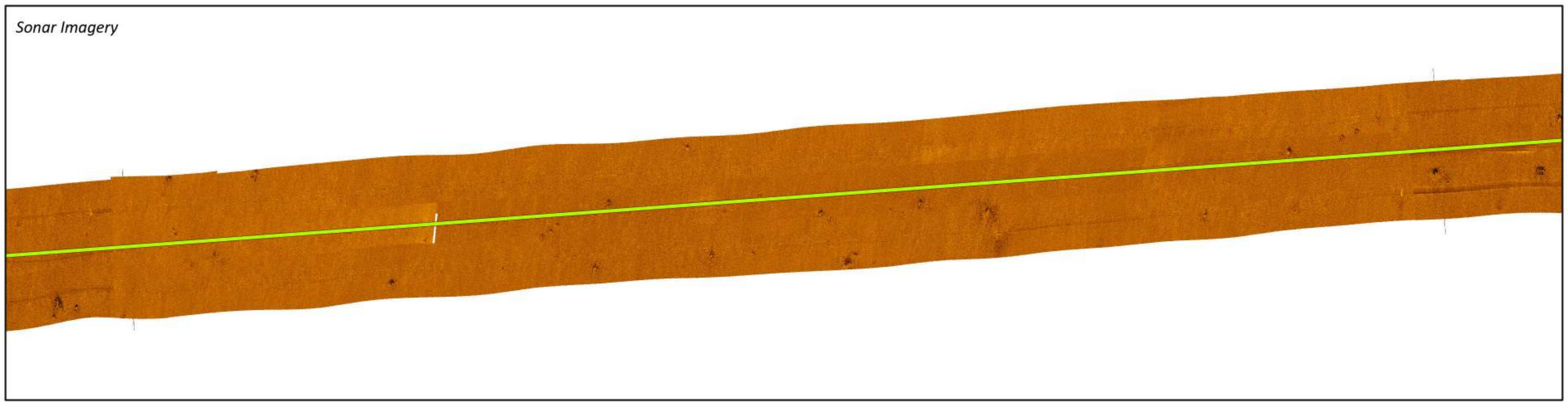

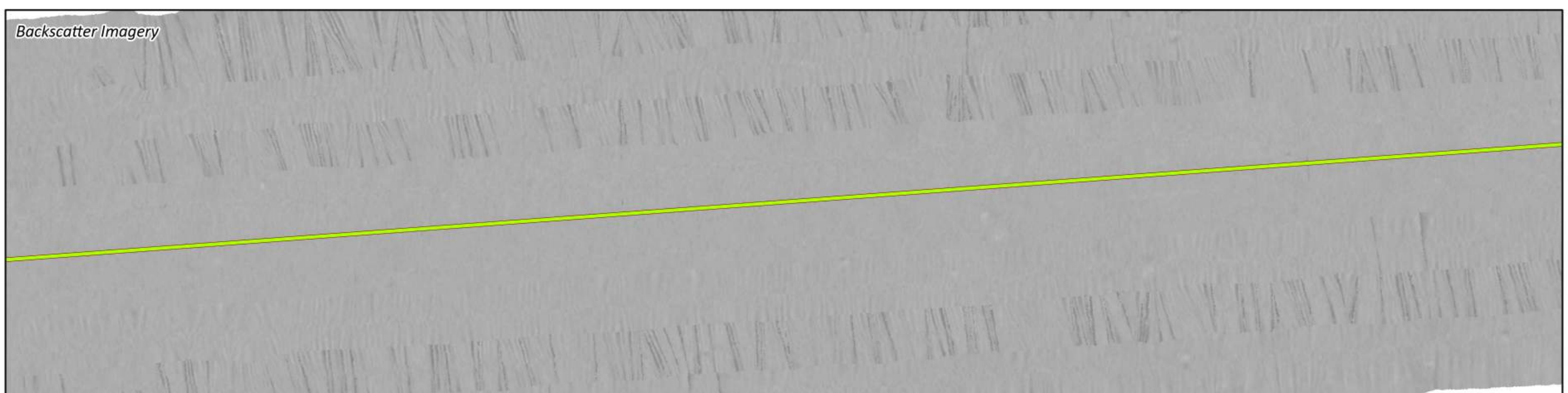

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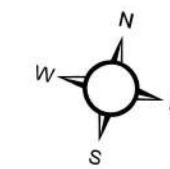

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JSI Engineering

Berrian County, Michigan

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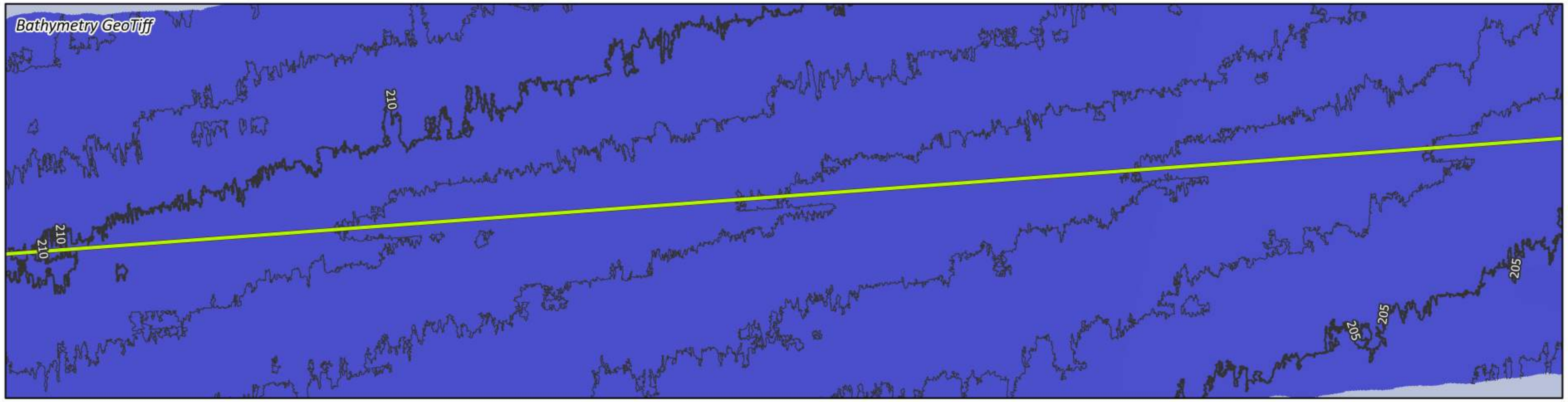

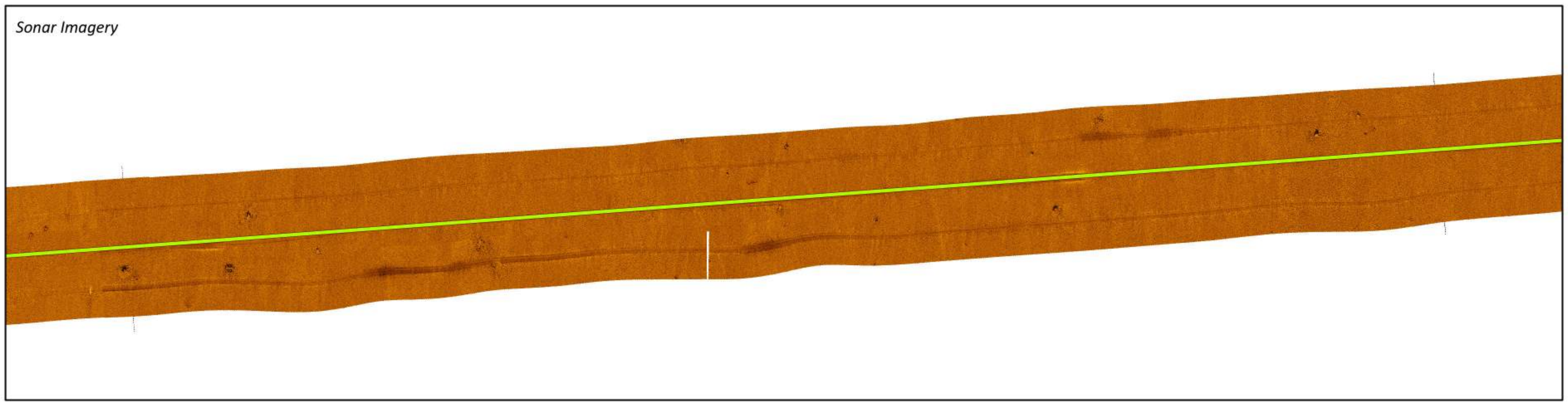

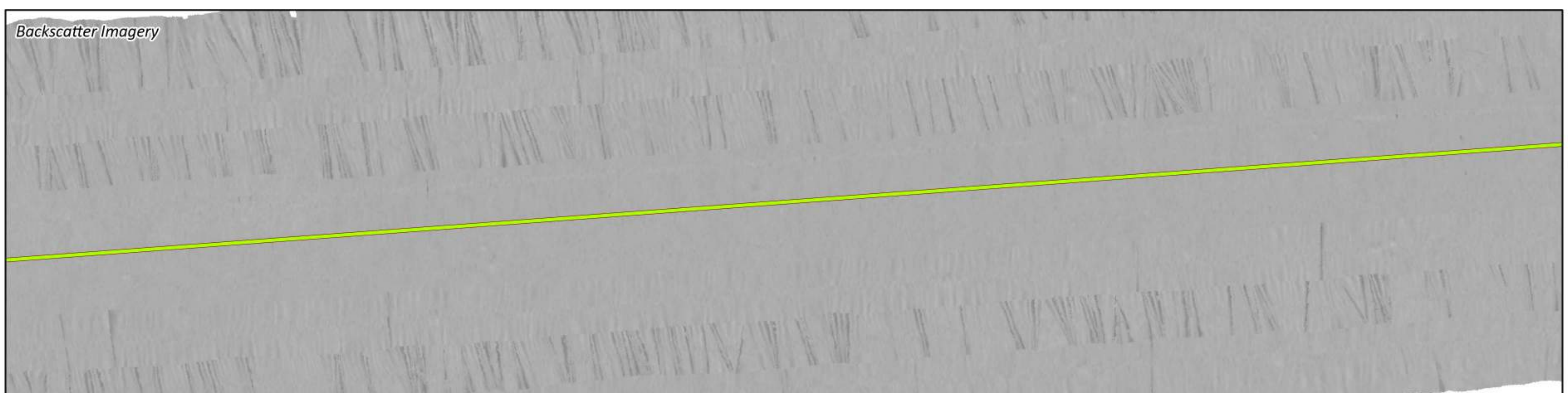

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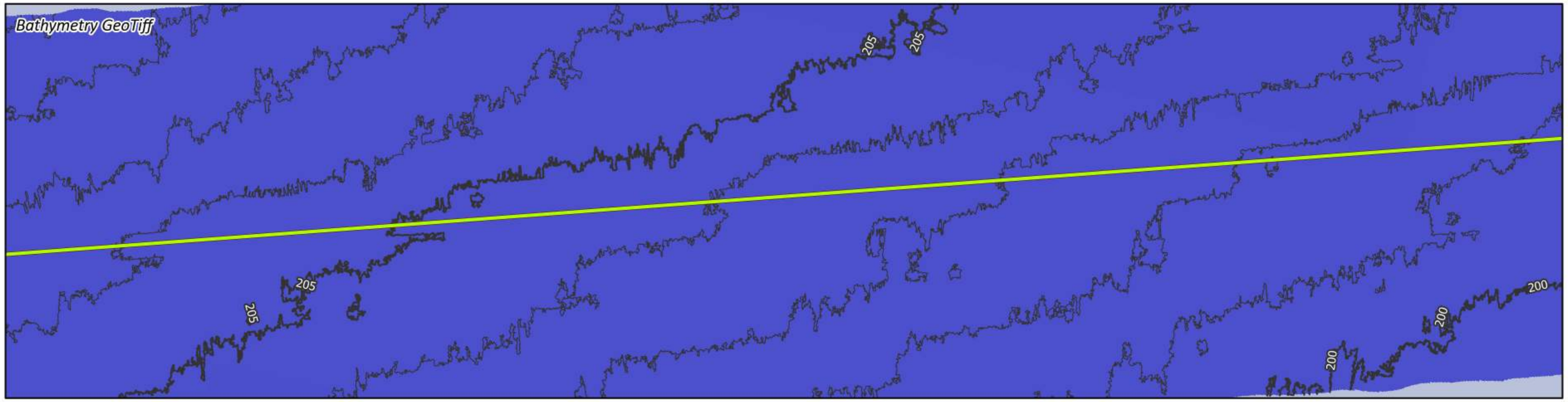
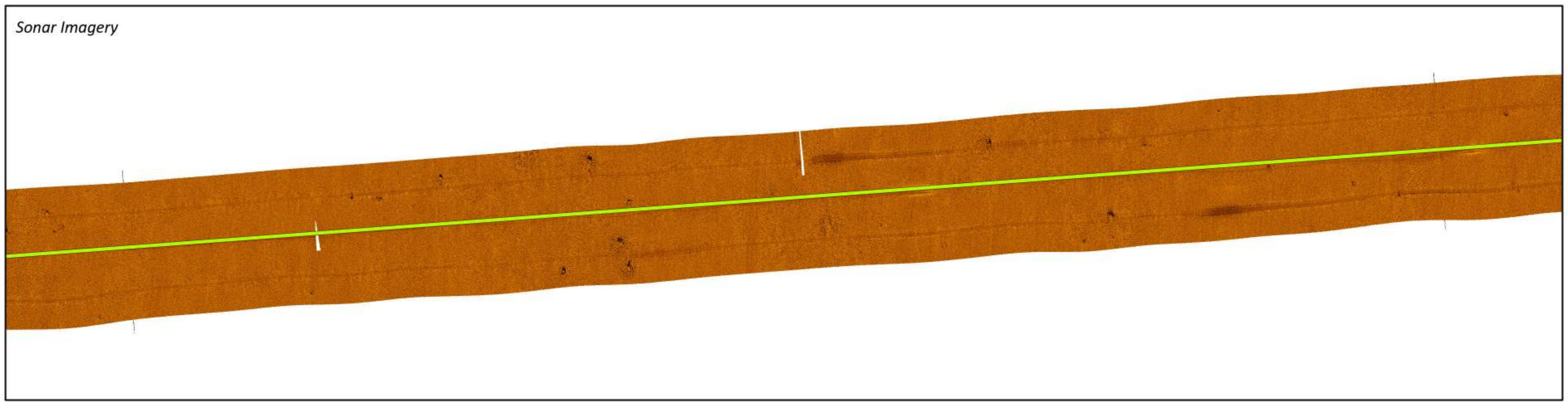
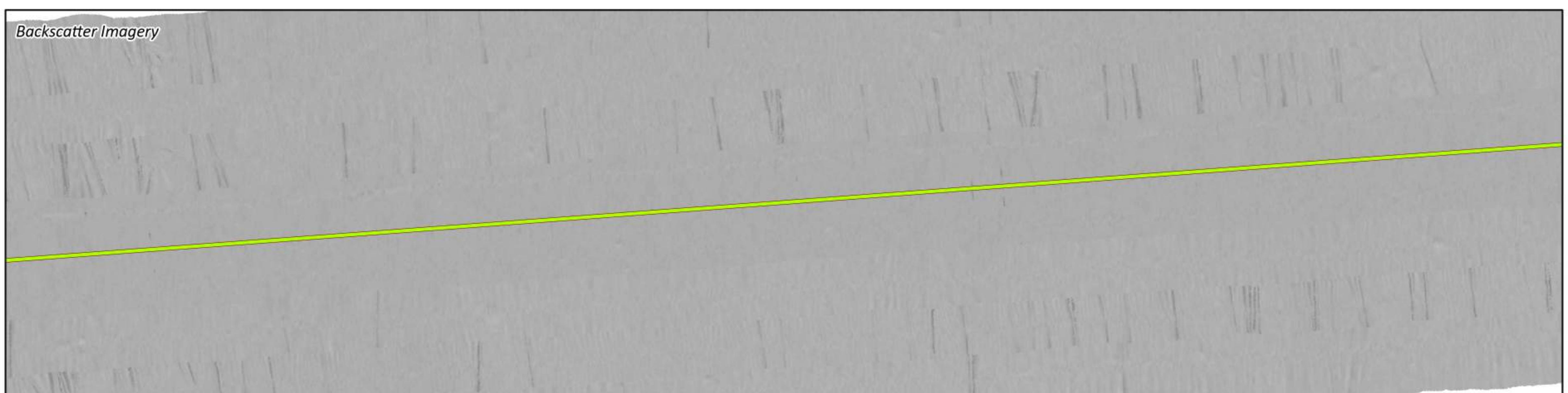
Berrian County, Michigan







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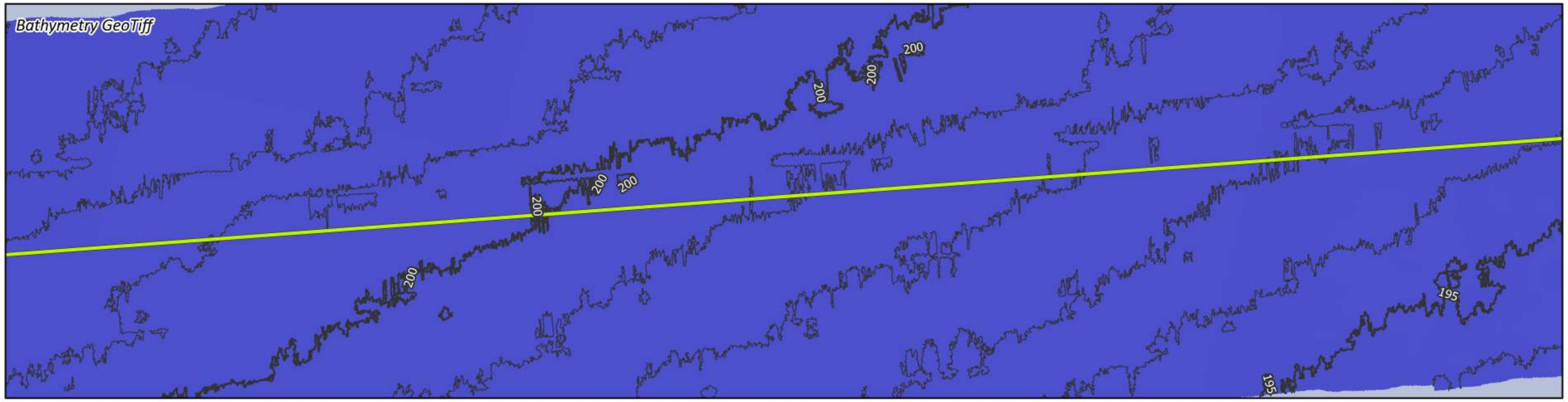
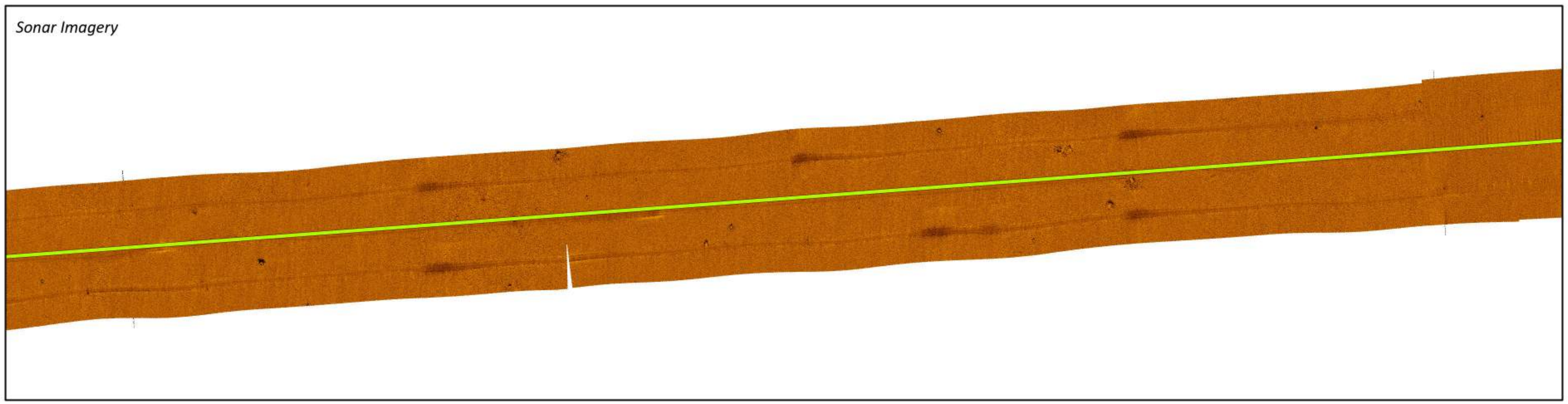
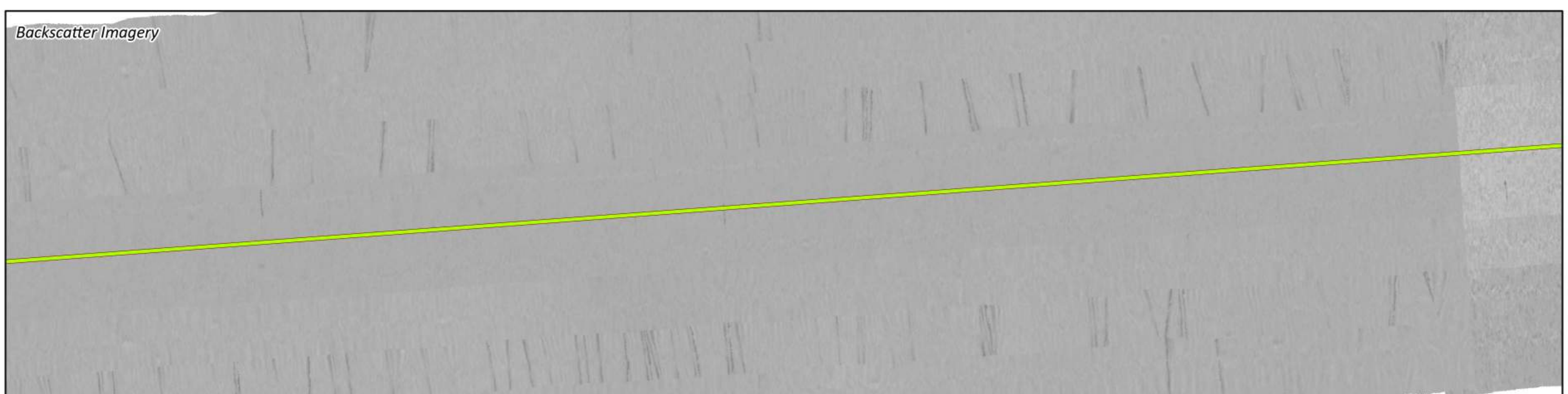
Berrian County, Michigan







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Berrian County, Michigan

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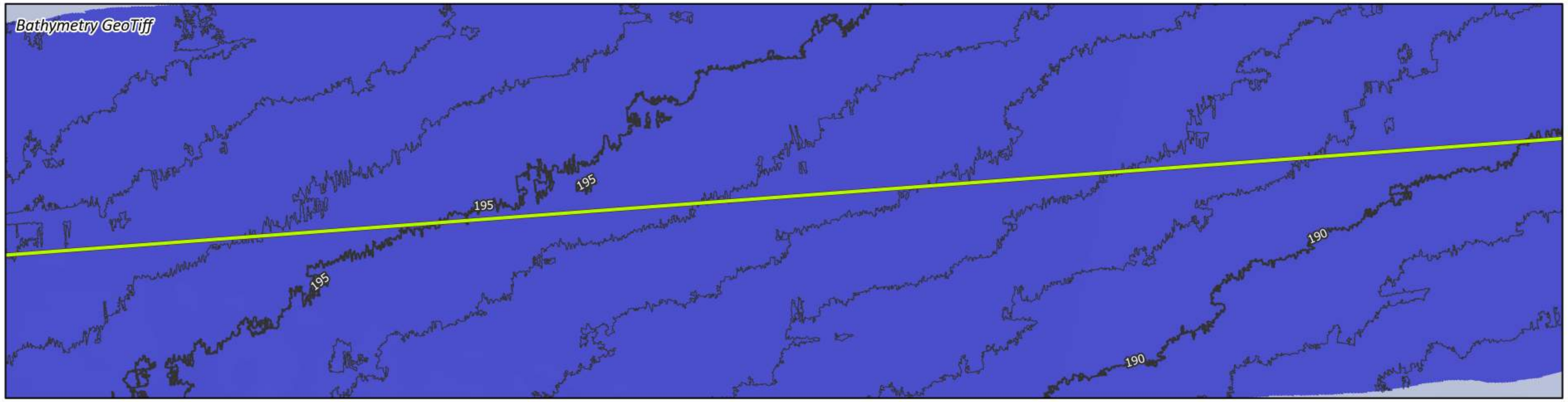

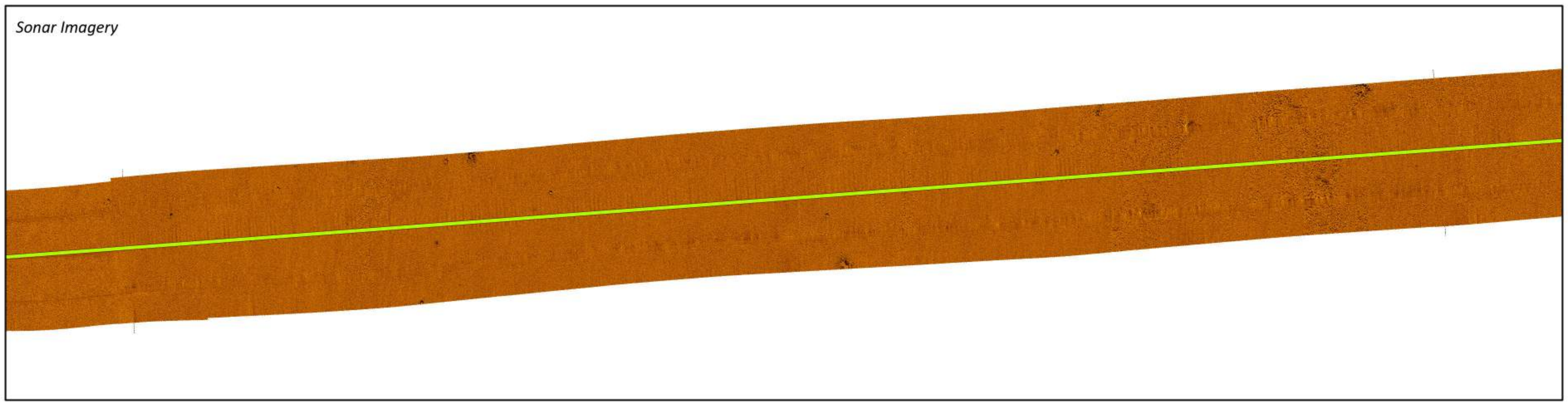

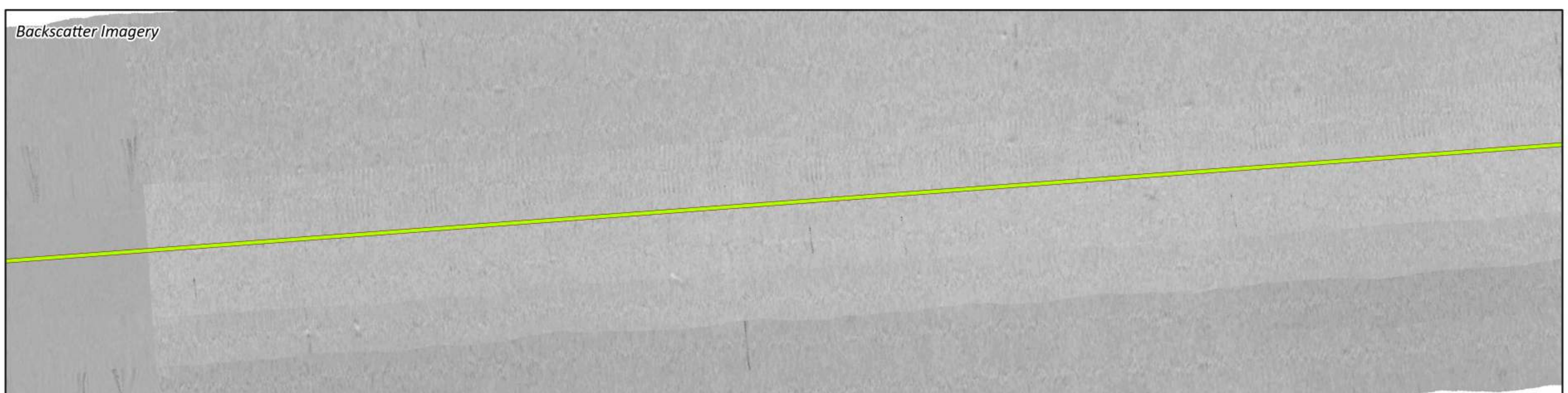

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HYDROGRAPHIC SURVEY

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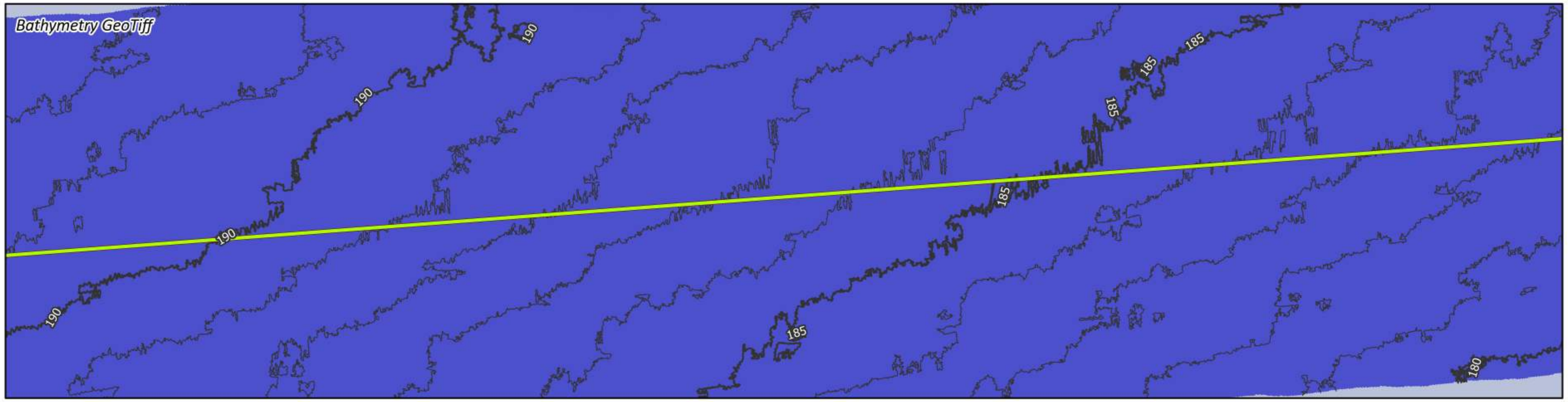
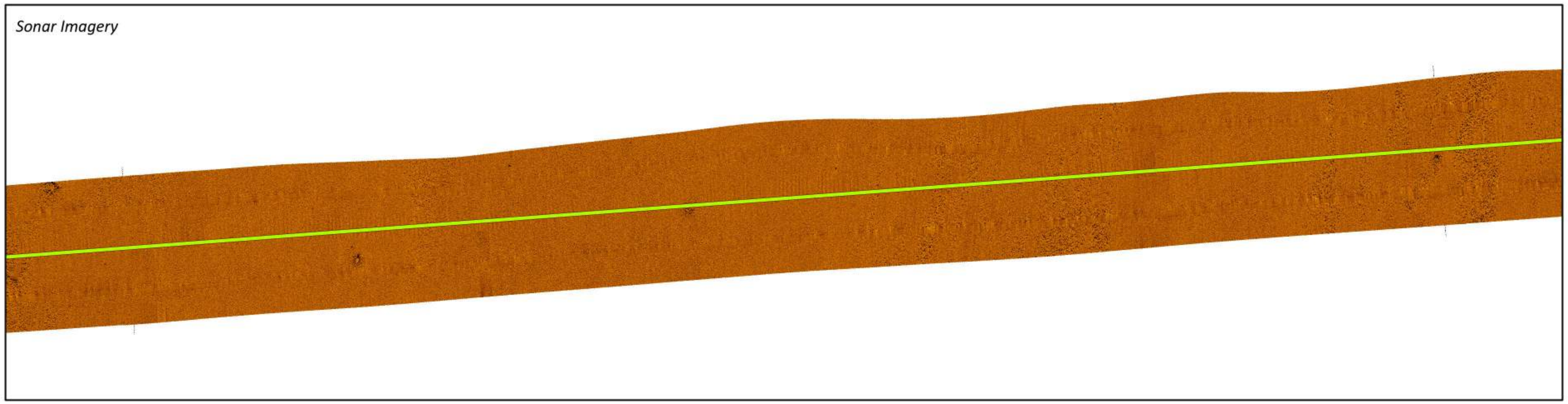
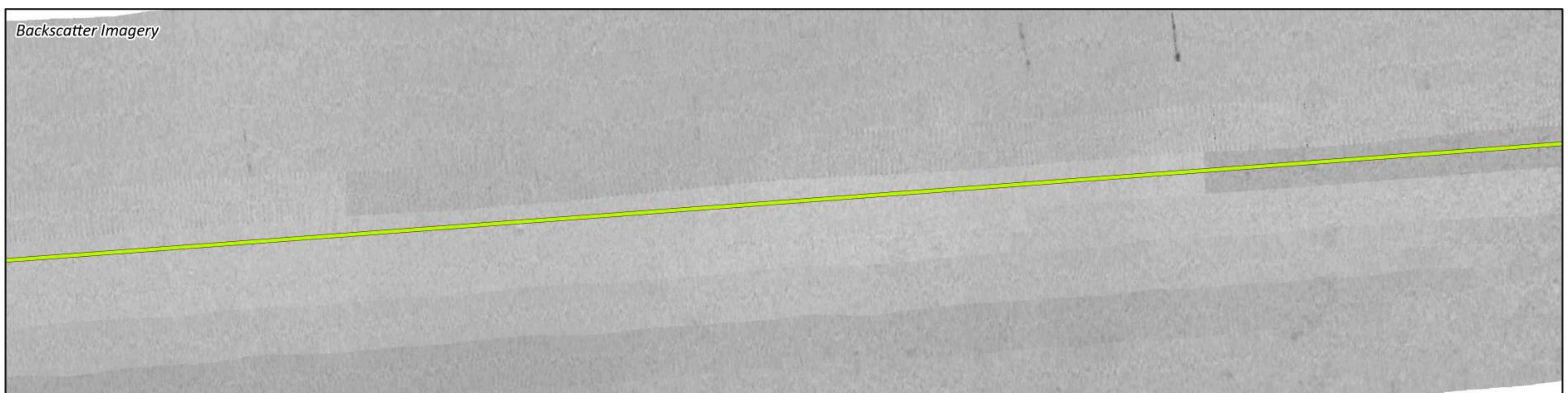
JSI Engineering

Berrian County, Michigan







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IMPACC PROJECT 1 SOUTH LEG CROSSING HYDROGRAPHIC SURVEY

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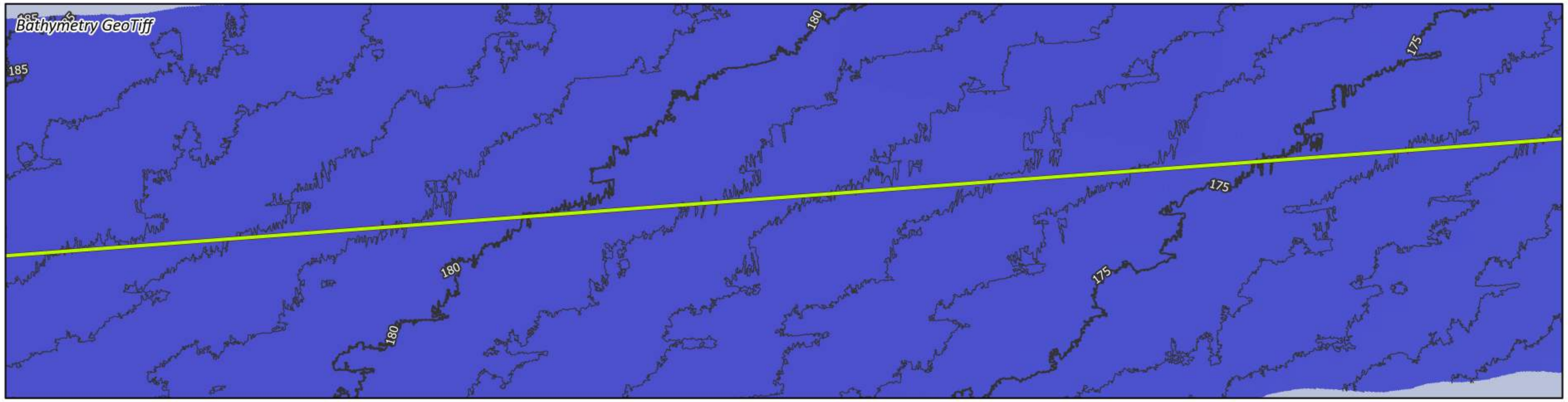

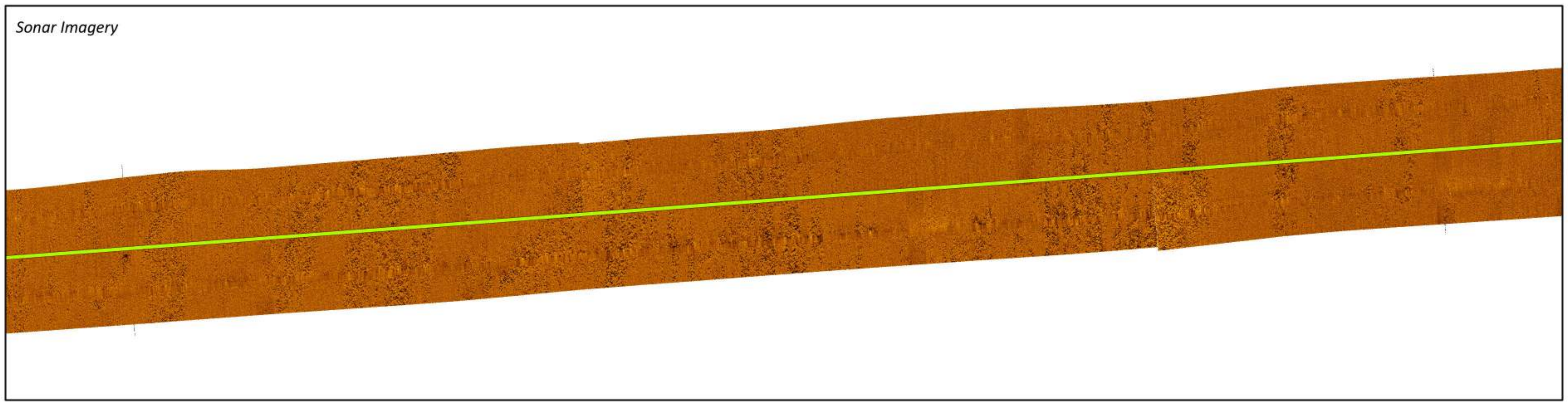

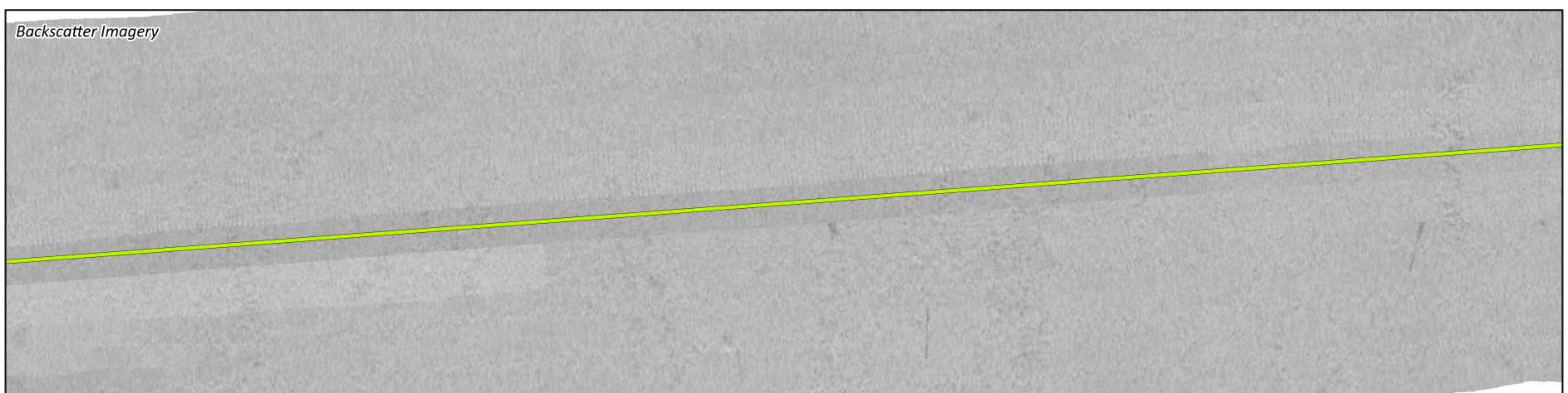

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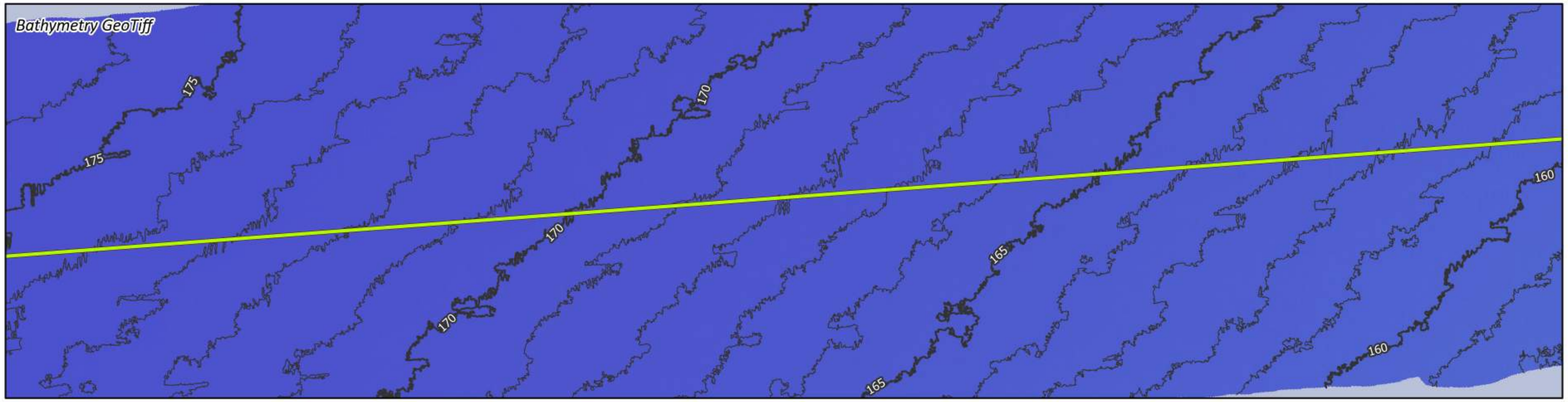
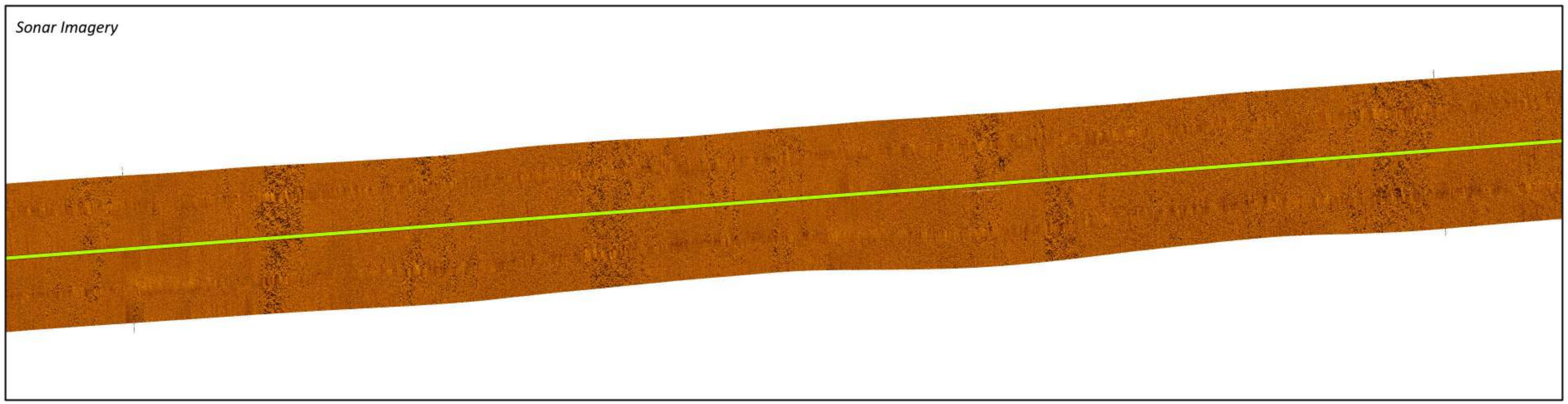
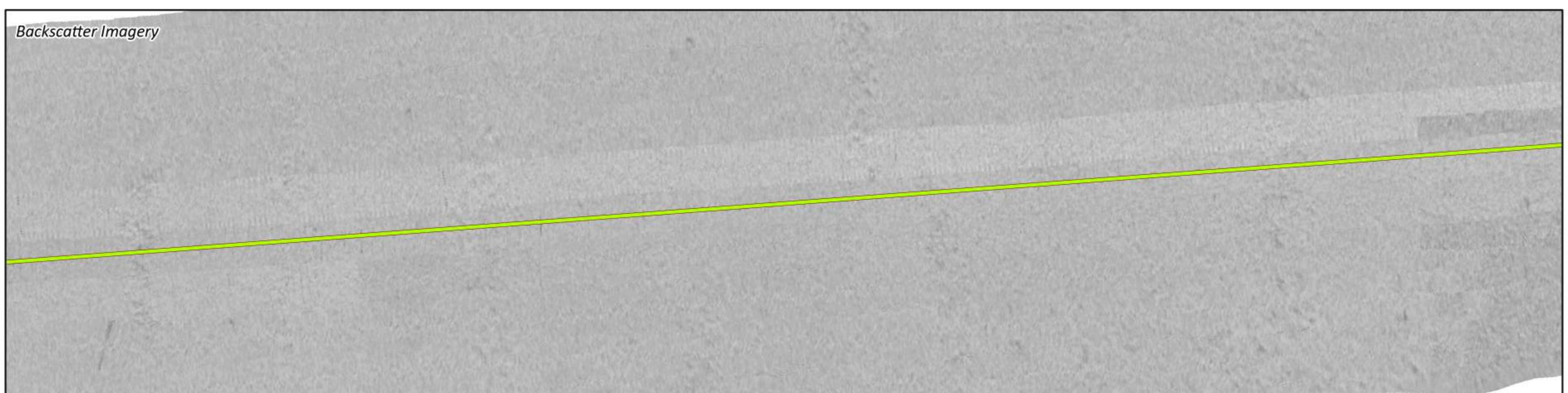
HYDROGRAPHIC SURVEY







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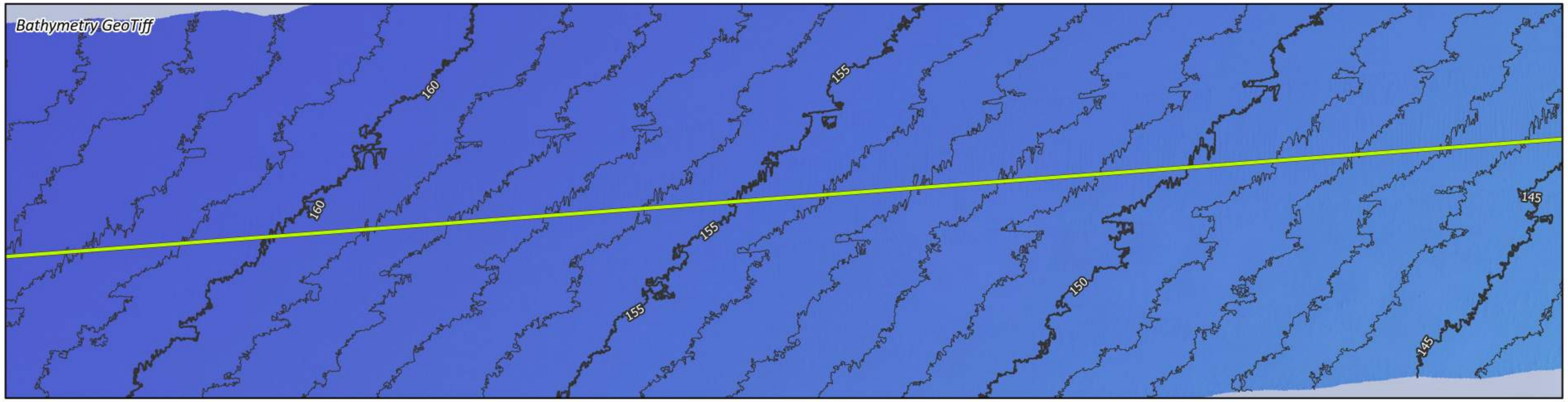

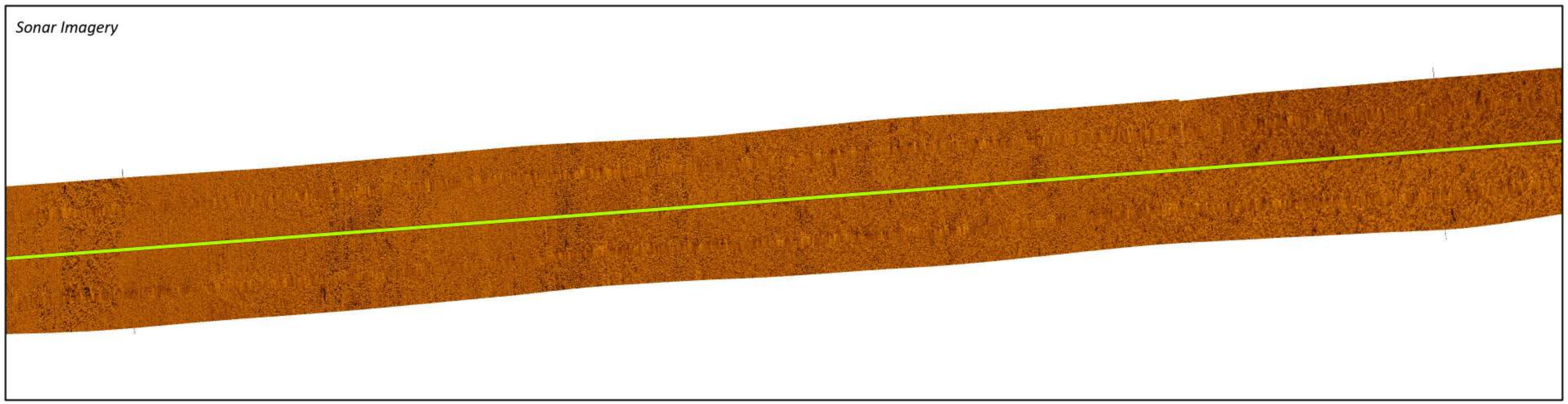

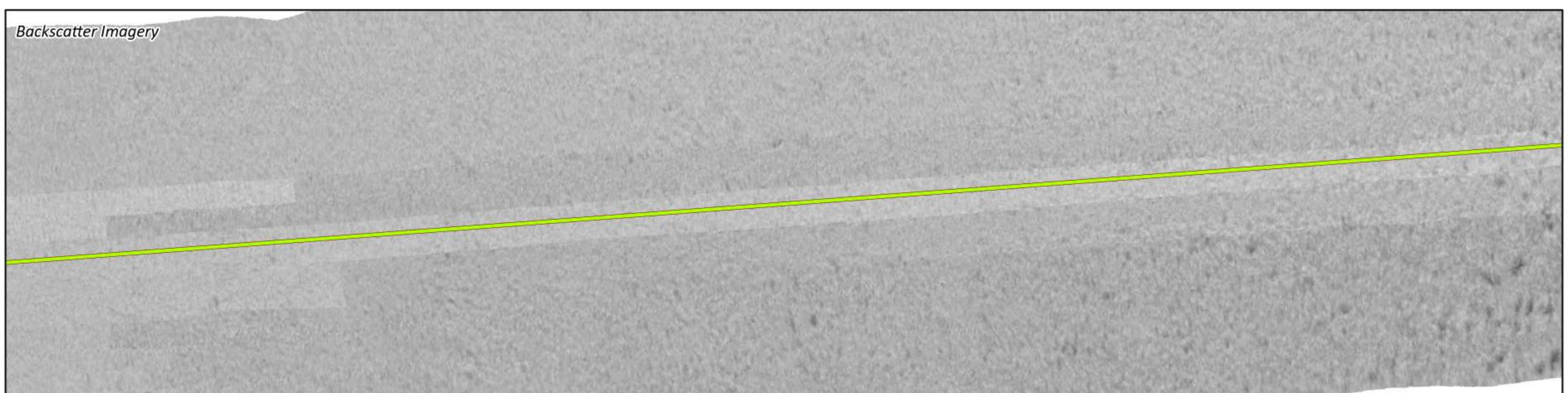

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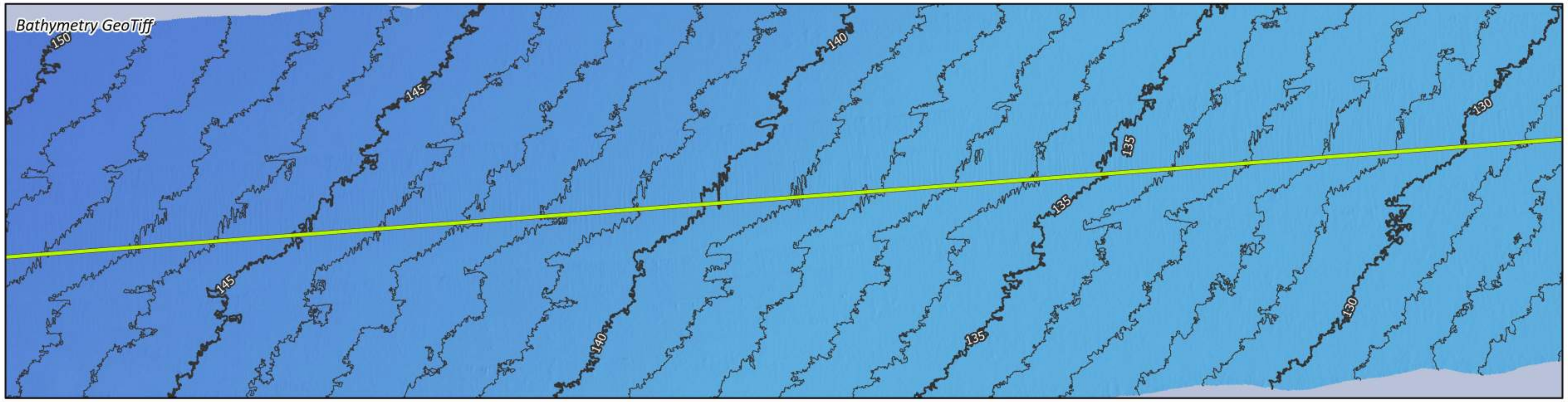

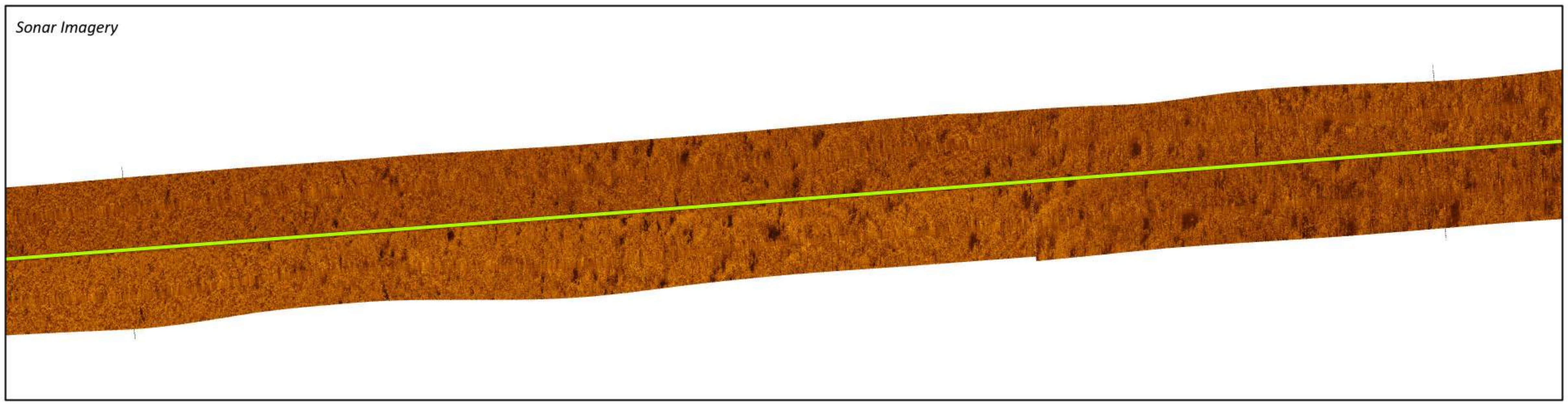

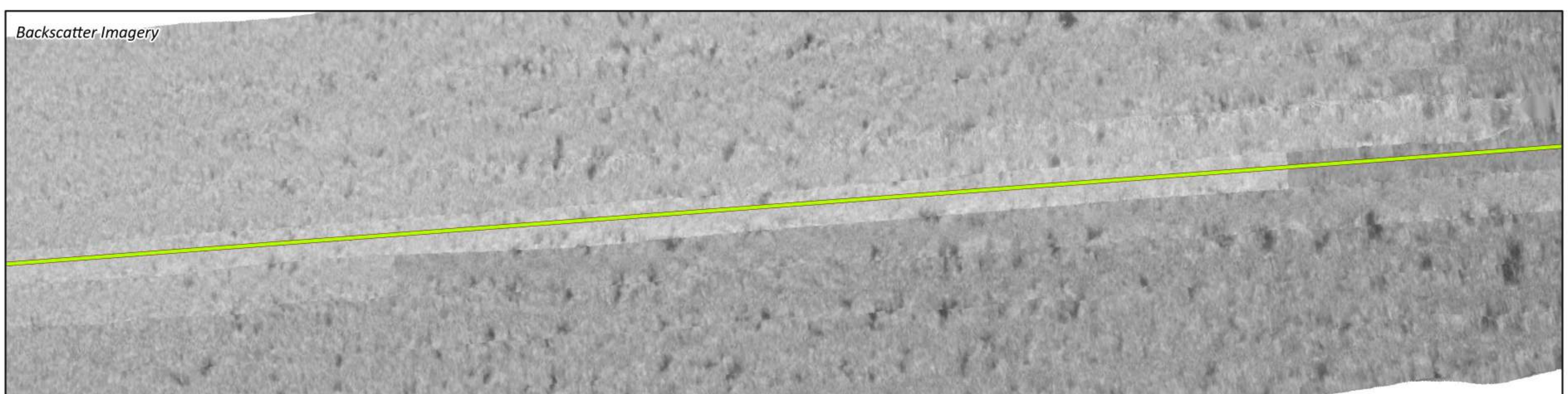

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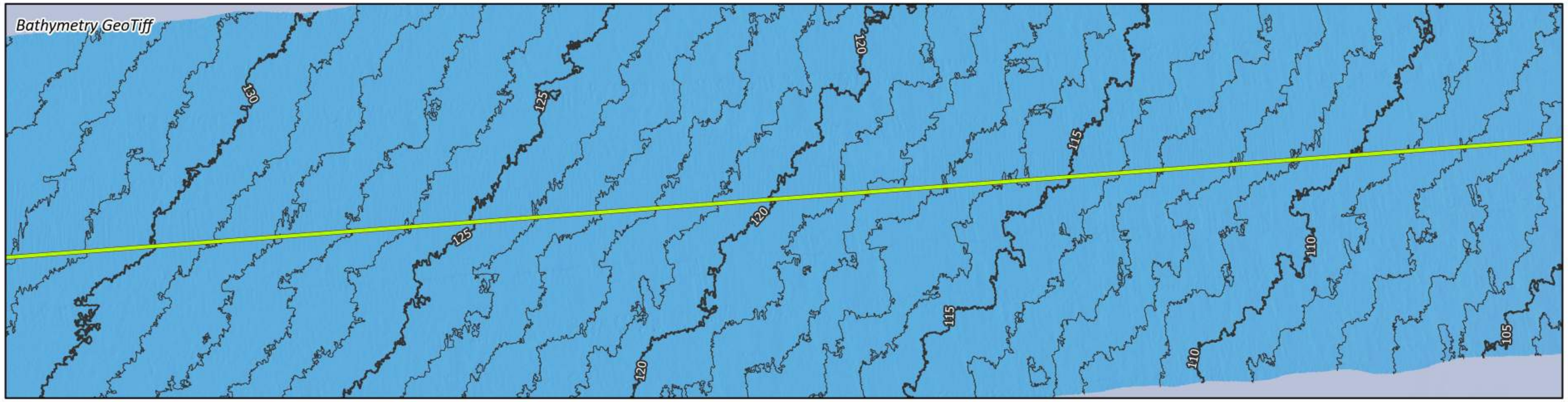
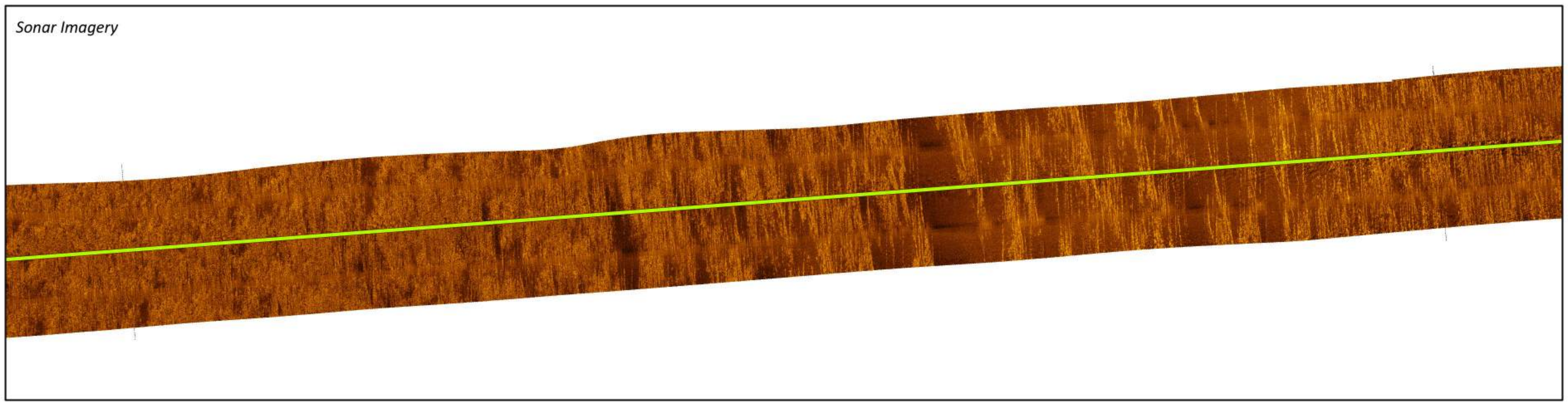
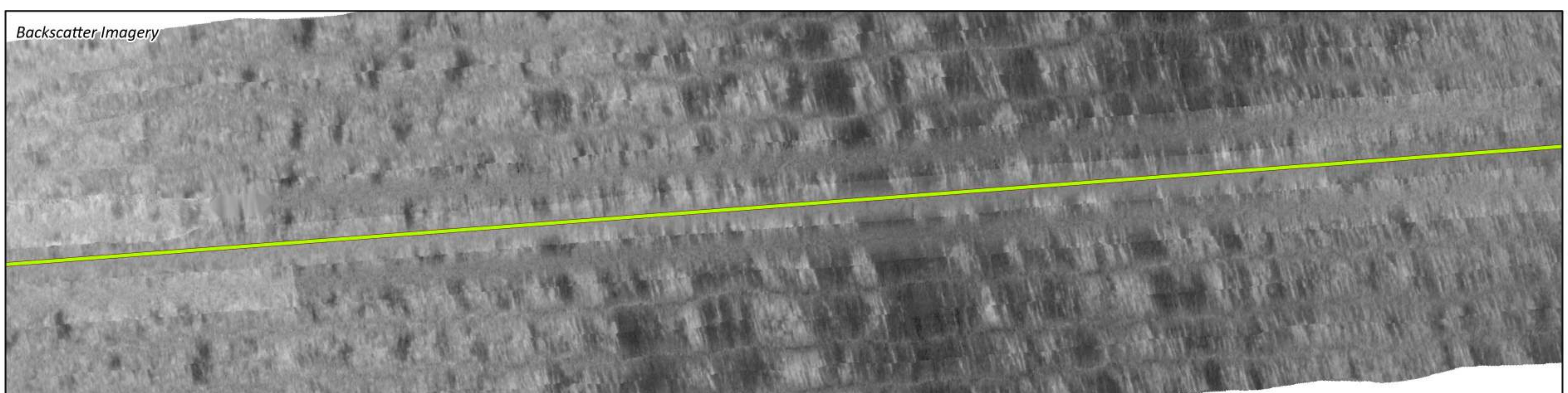
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

0 250 500 1,000 Feet

NAD 1983 BLM Zone 16N ftUS

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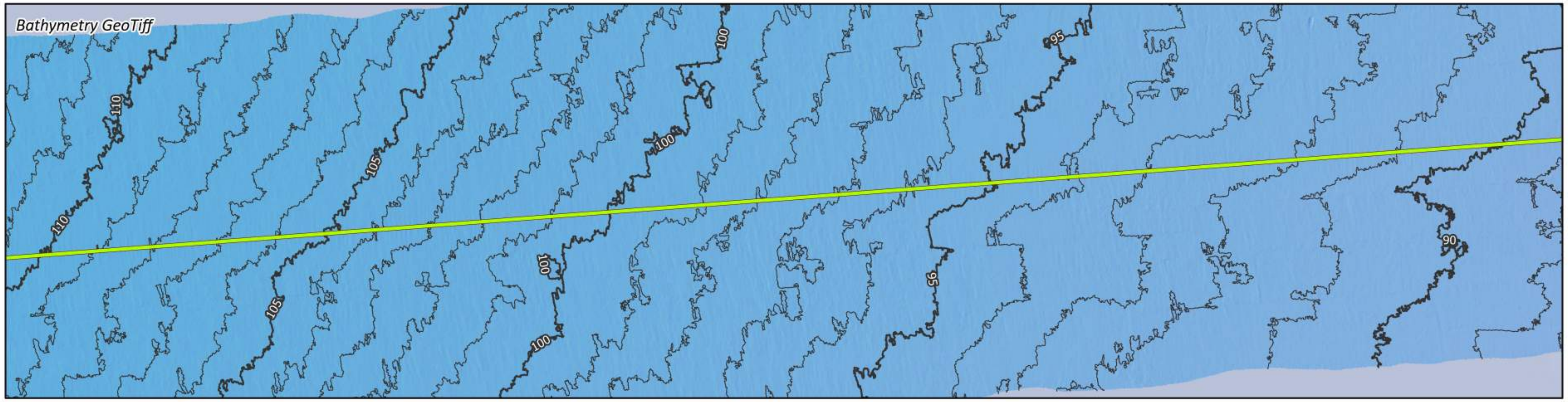
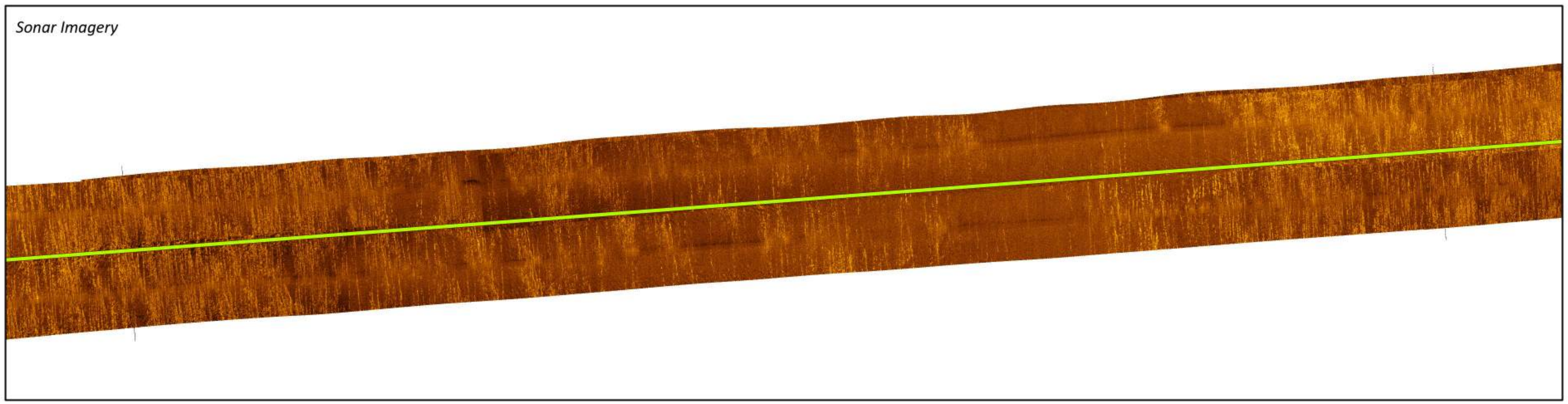
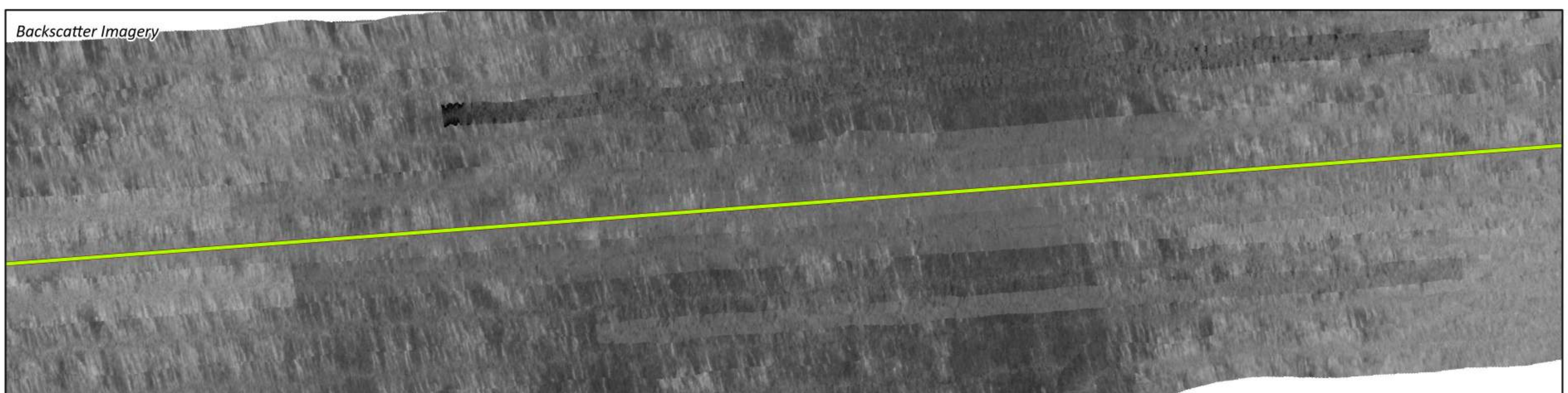
Berrian County, Michigan

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

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0 250 500 1,000 Feet

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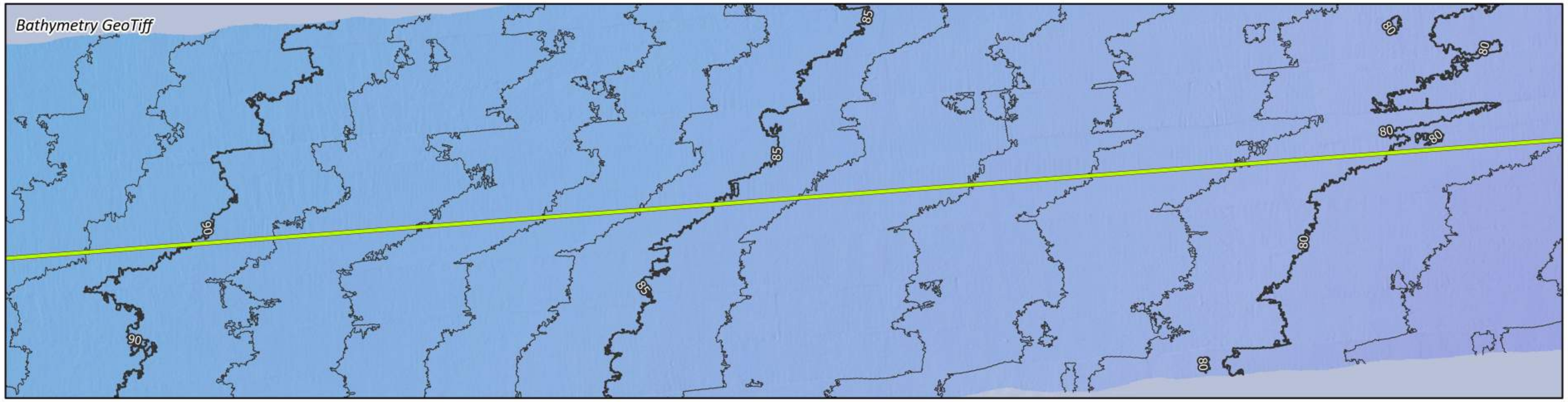
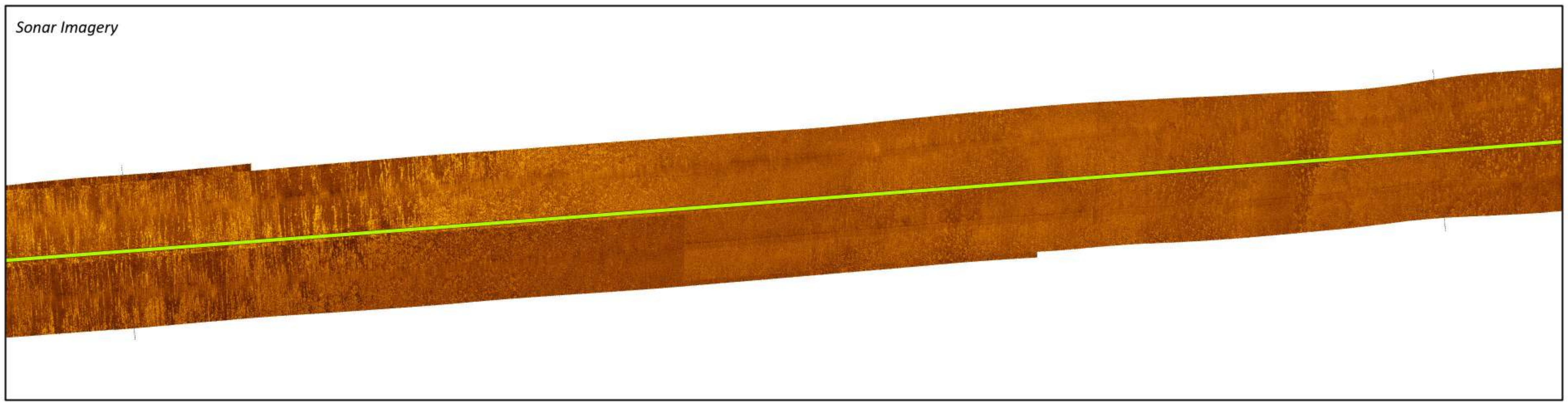
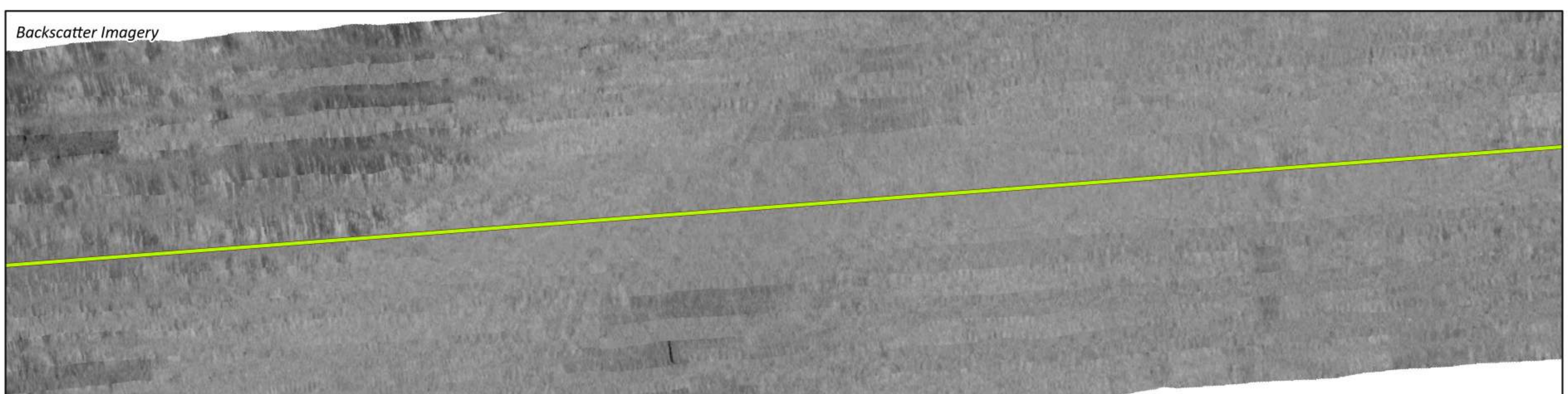
Berrian County, Michigan

Project 2305496 October 2025







NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

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Berrian County, Michigan

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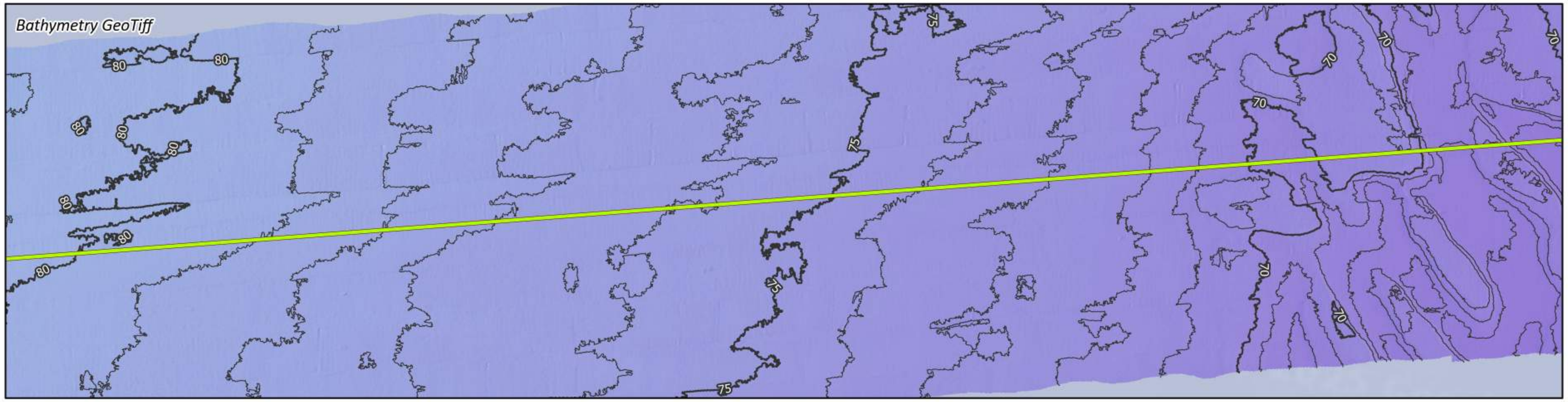
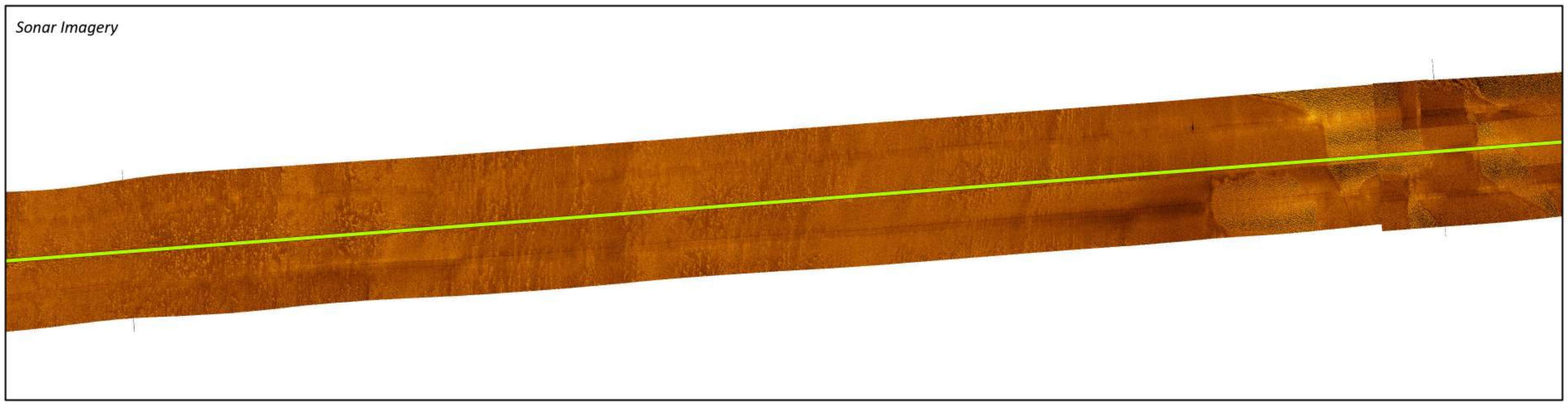
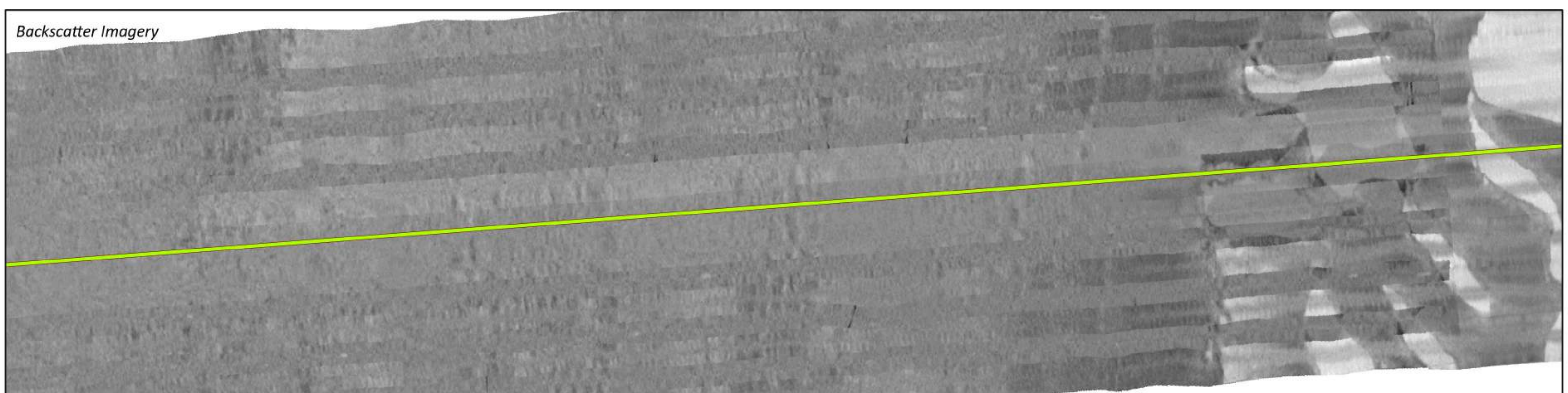
IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







NAD 1983 BLM Zone 16N ftUS

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

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Berrian County, Michigan

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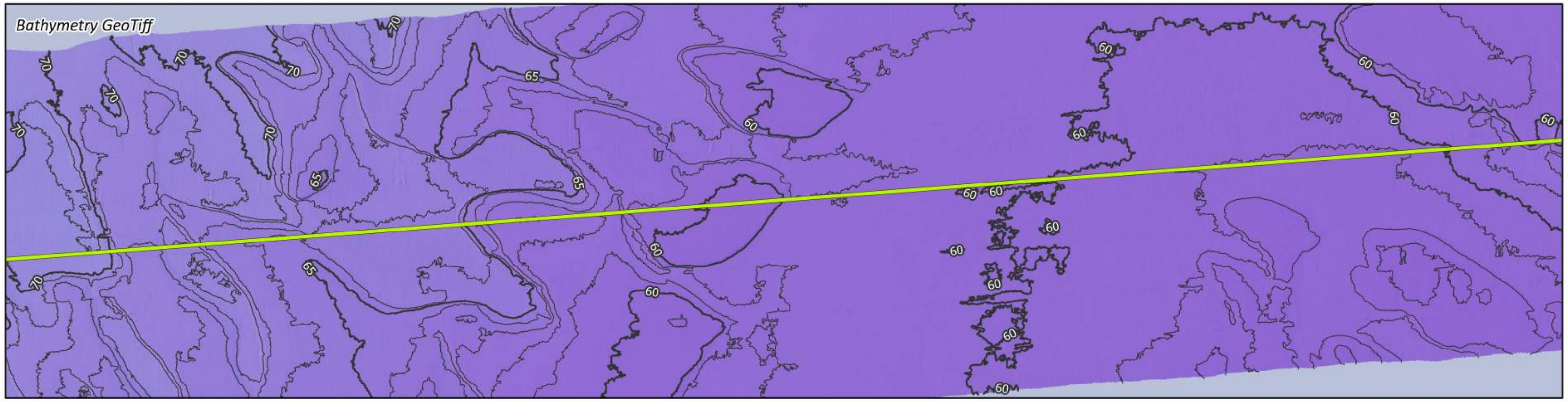
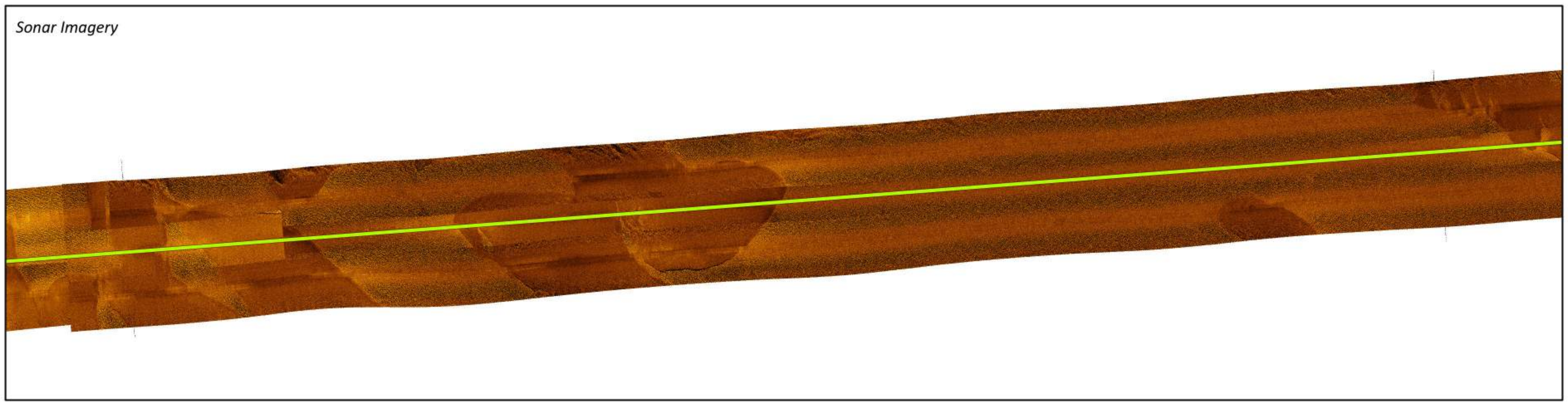
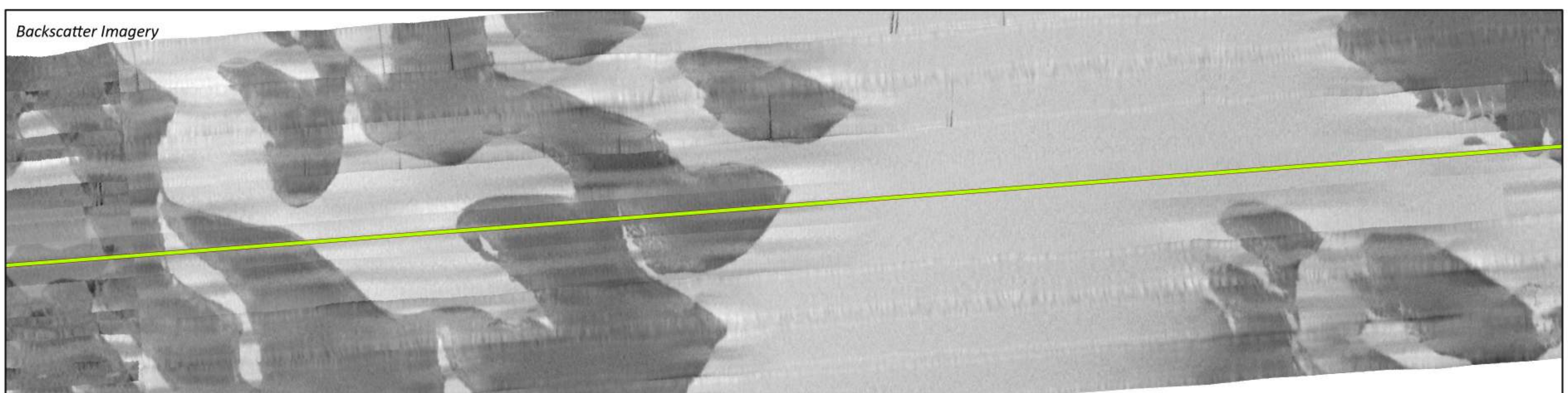
IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY





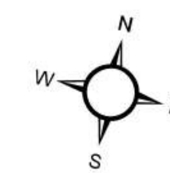


NAD 1983 BLM Zone 16N ftUS

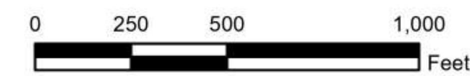
LEGEND:

Project 1 Proposed Route

- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)



GEI Consultants



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Berrian County, Michigan

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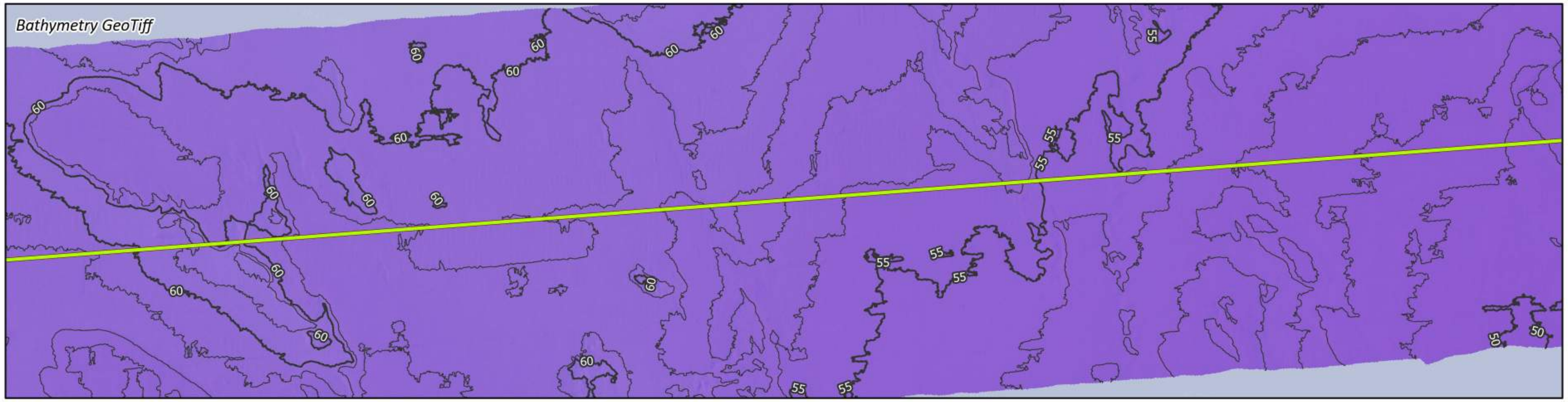
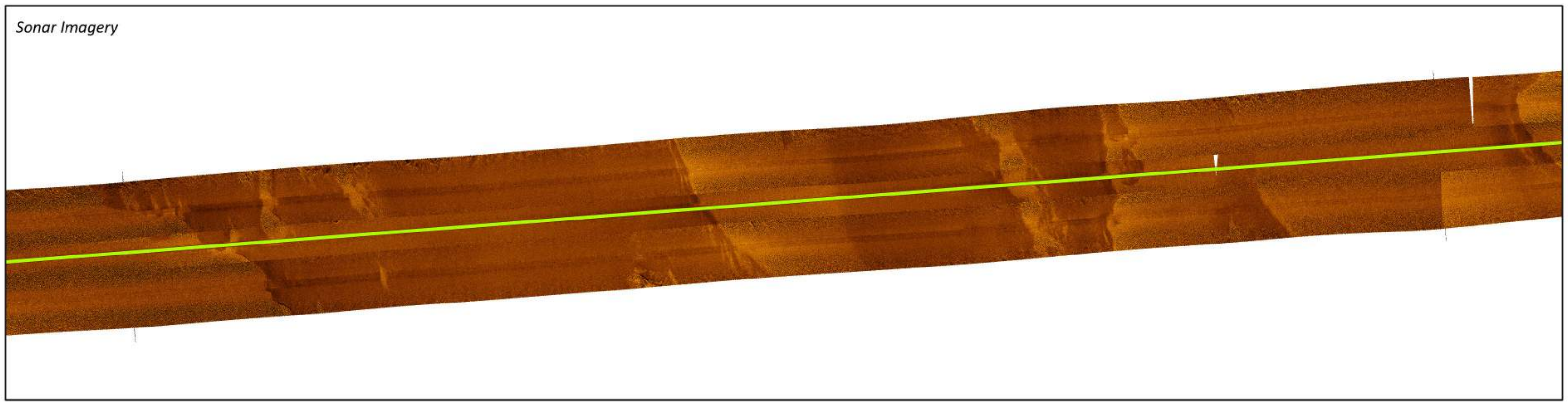
IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY

Bathymetry GeoTiff



Sonar Imagery



Backscatter Imagery

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

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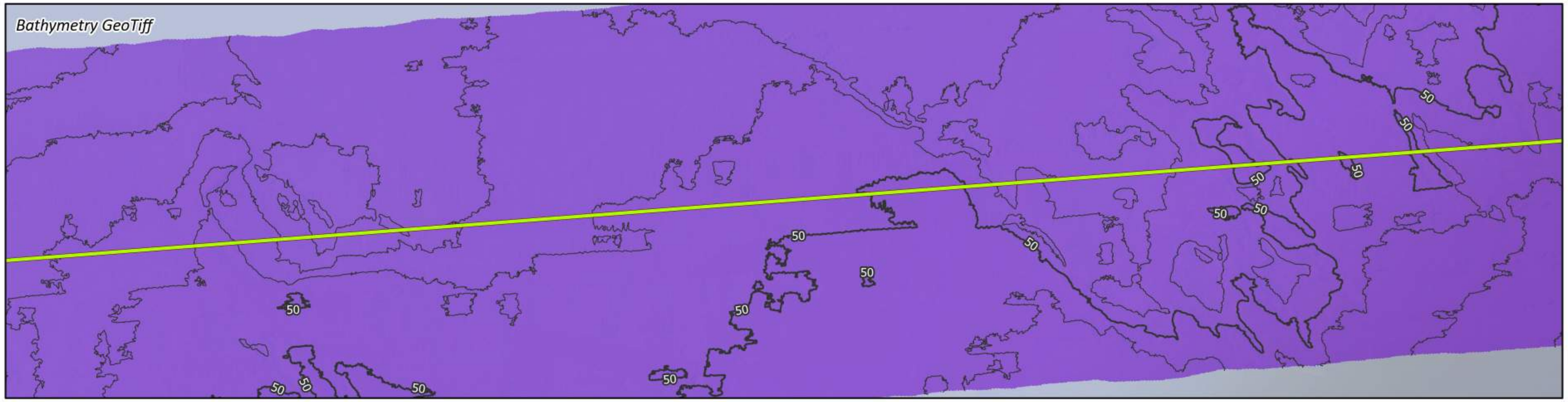
NAD 1983 BLM Zone 16N ftUS

Bathymetry GeoTiff



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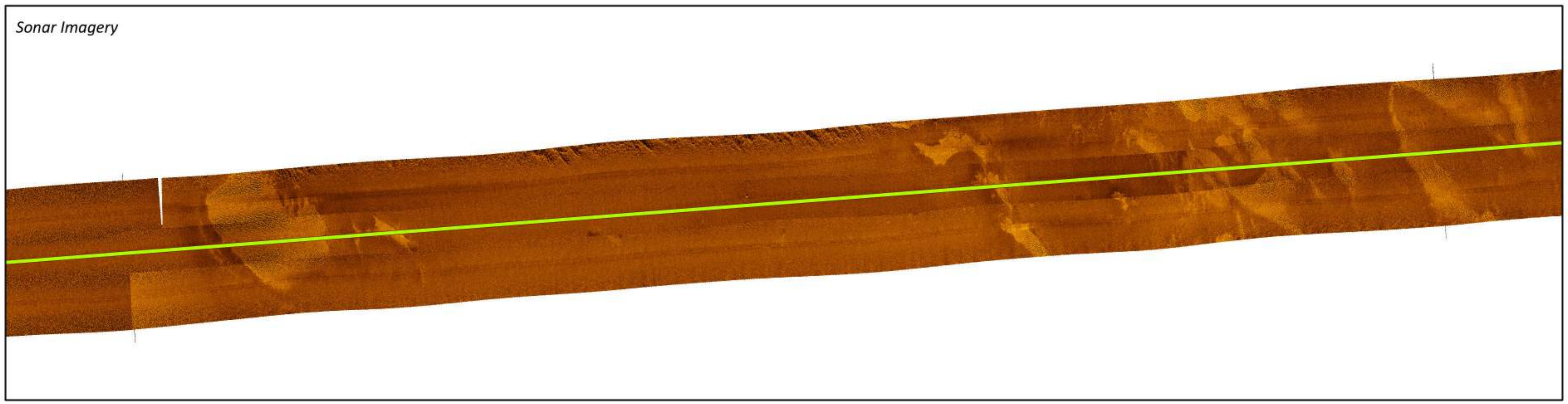
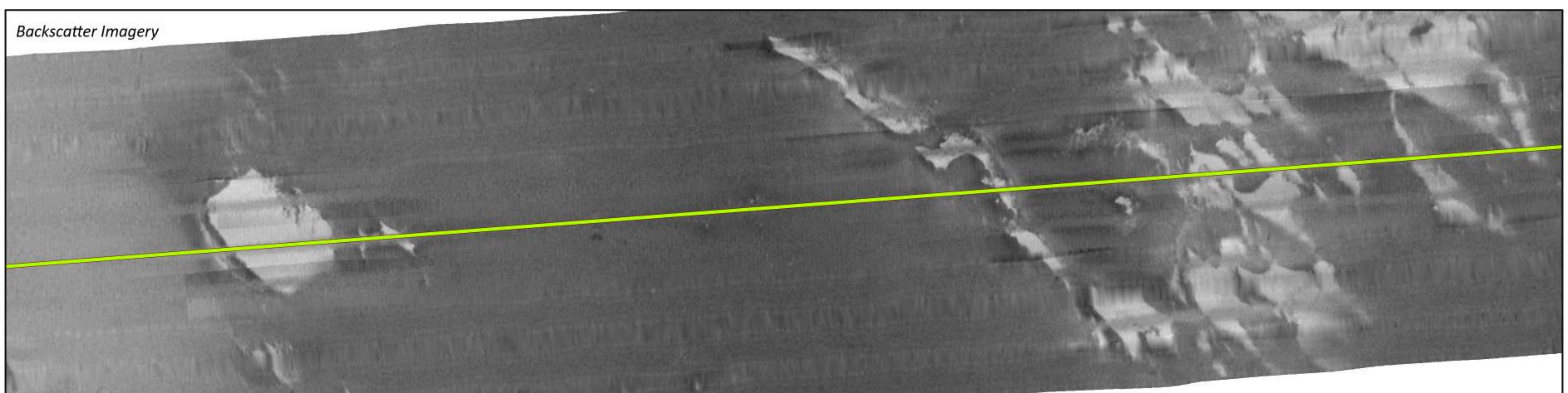


Backscatter Imagery



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IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

Project 1 Proposed Route

Surface Lay (Single Armor)

Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

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0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan

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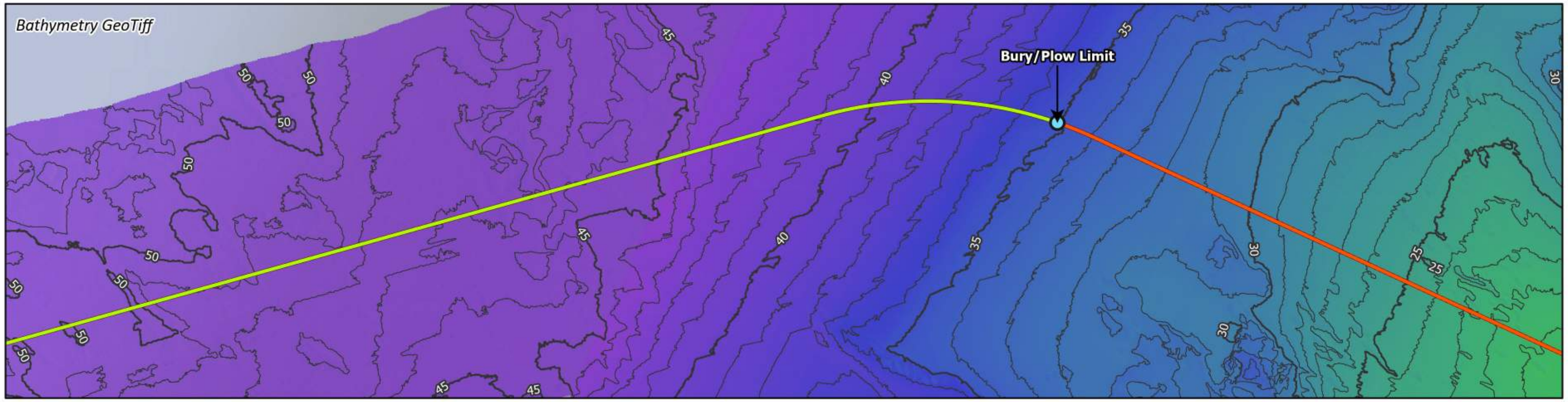
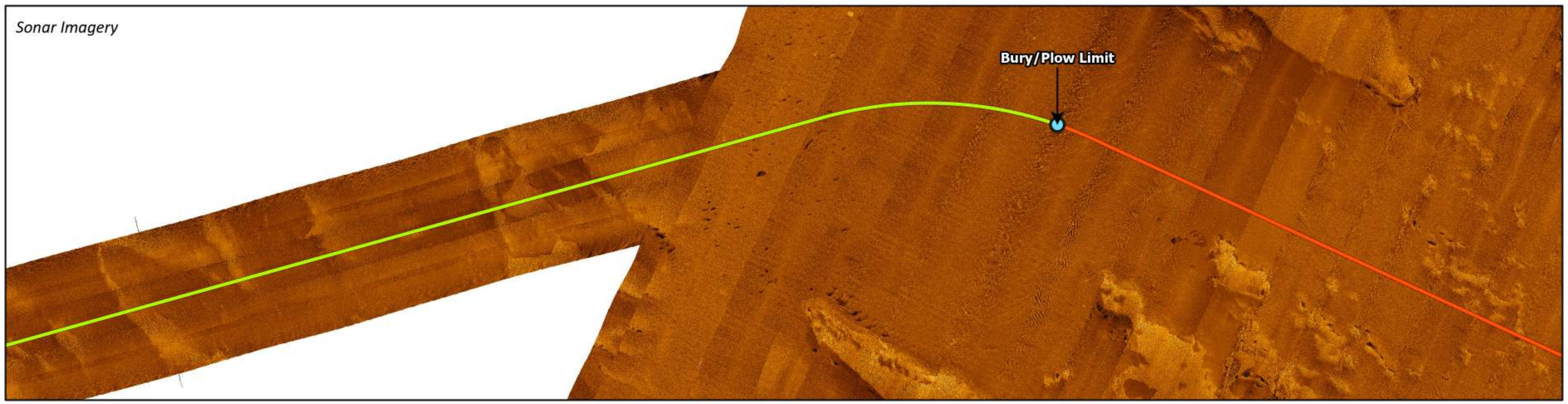
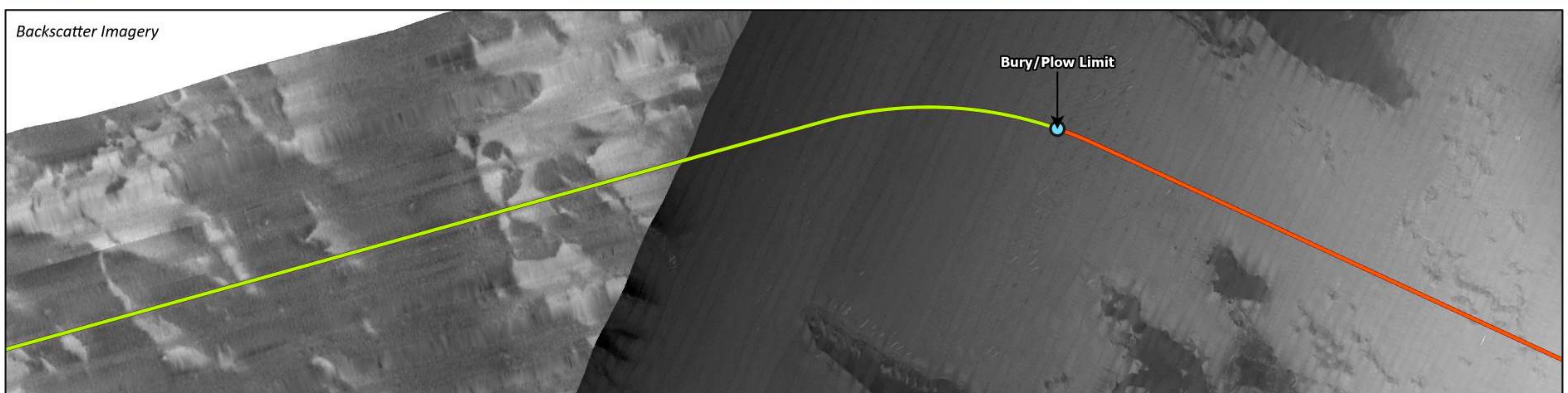
IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY







LEGEND:

- Route Features

Project 1 Proposed Route

- Bury/Plow
- Surface Lay (Single Armor)
- Bathymetry Contours (Feet Below IGLD85 LWD)

N W E S

GEI Consultants

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan

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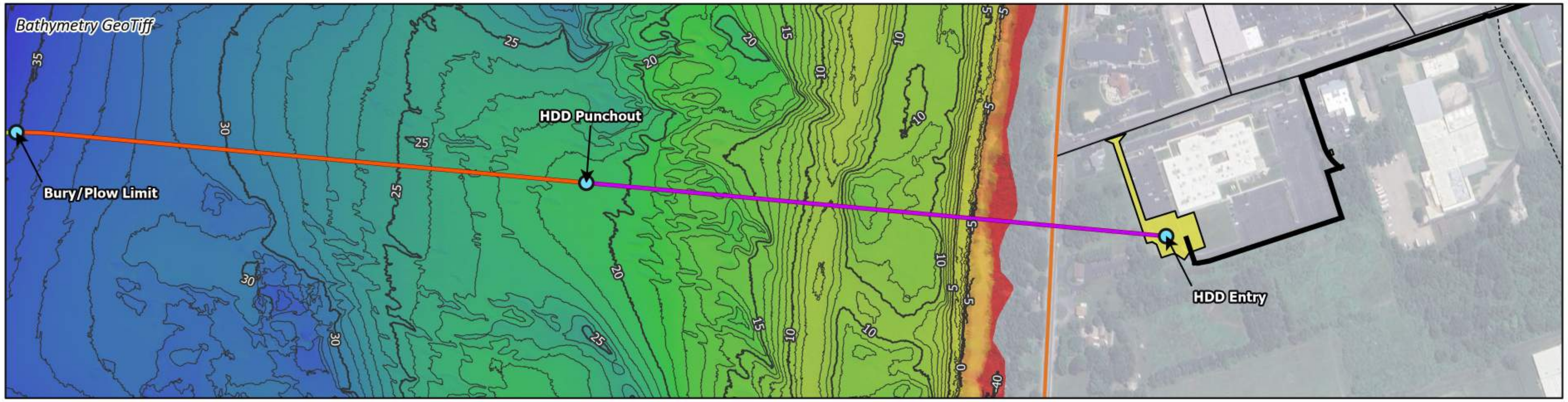

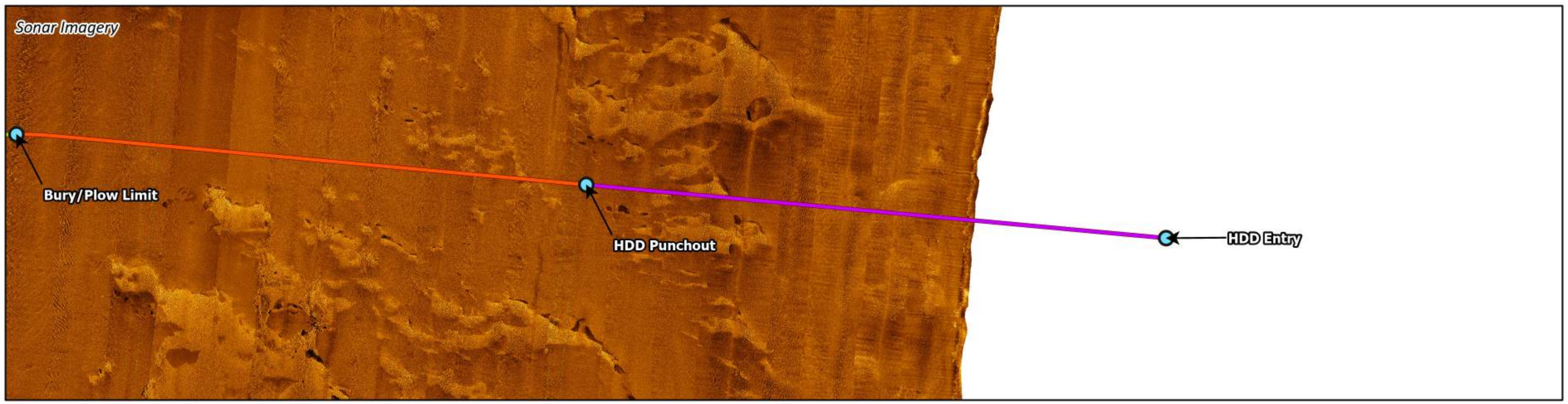

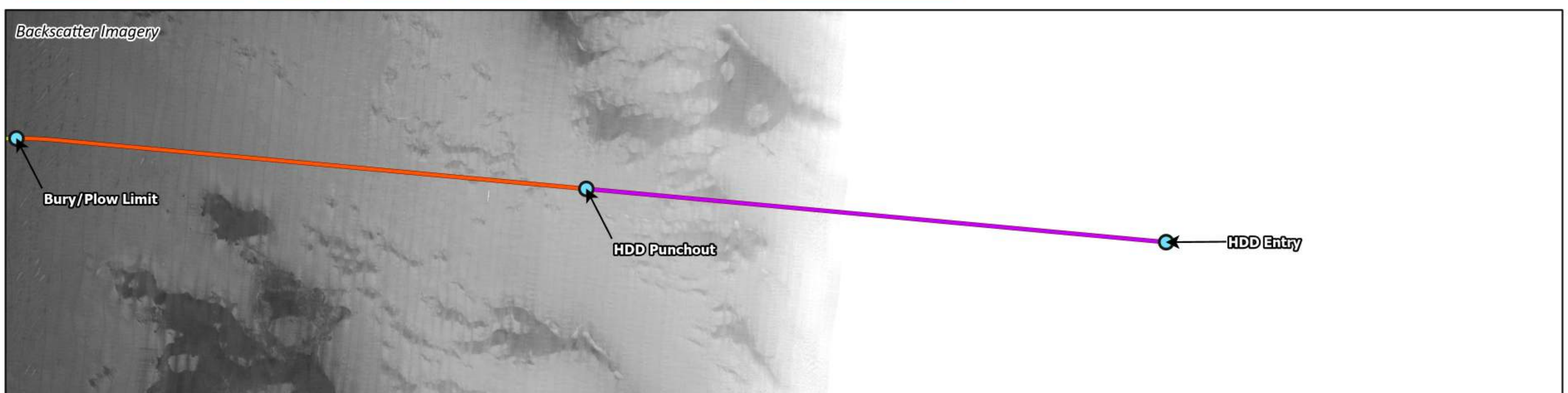

NAD 1983 BLM Zone 16N ftUS

IMPACC PROJECT 1
SOUTH LEG CROSSING
HYDROGRAPHIC SURVEY

LEGEND:

- Route Features

Project 1 Proposed Route

- Bury/Plow
- HDD Bore
- Surface Lay (Single Armor)
- Terrestrial
- Bathymetry Contours (Feet Below IGLD85 LWD)
- HDD Staging Extent

GEI Consultants

0 250 500 1,000 Feet

IMPACC Project 1
JSI Engineering

Berrian County, Michigan

Project 2305496 October 2025

February 25, 2026
Project No. 2305496

Illinois Department of Natural Resources
Steve Altman
Office of Water Resources
Michael A. Bilandic Building
160 N. LaSalle St, S-703
Chicago, IL 60601

Re: IDNR/OWR Application for Permit C20250029 IDNR Response
Peninsula Fiber Network LLC – Project 1 Illinois
Chicago, Illinois

Dear Illinois Department of Natural Resources:

GEI Consultants, Inc. (GEI) has reviewed the following information request provided by the Illinois Department of Natural Resources (IDNR) on behalf of Peninsula Fiber Network (PFN). Responses to IDNR's requests are provided immediately following each request (in bold text).

1. **The proposed marine fiber optic cables are an encroachment on Lake Michigan. To comply with Section 3704.80(b), submit the following supplemental information.**
   a. **An evaluation of the benefits to the public interest in the body of water (Lake Michigan) which would result from the activity**

      The proposed marine fiber optic cable installation constitutes a linear encroachment within Lake Michigan. In accordance with Section 3704.80(b)(1), this section evaluates the benefits to the public interest in Lake Michigan that would result from the activity.

      The proposed encroachment serves a substantial and demonstrable public interest by providing long-term, scalable, and resilient communications infrastructure while minimizing impacts to Lake Michigan. The activity advances economic opportunity, public safety, emergency preparedness, and critical service delivery. The activity therefore serves and advances the public trust in Lake Michigan.

      Lake Michigan is held in trust for the public for purposes including navigation, commerce, recreation, and the protection of natural resources. The proposed installation supports and enhances these public trust uses by strengthening critical communications infrastructure that serves communities along the Lake Michigan shoreline and throughout the region.

      Michigan's Peninsulas and Critical Crossings (IMPACC) Project or "Project" would connect middle mile broadband infrastructure to last mile networks, serve unserved and

underserved communities, provide wholesale broadband services at reasonable, carrier-neutral rates, and strengthen national security. The submerged fiber optic cables provide a secure, redundant connection between the Upper and Lower Peninsulas of Michigan and major interconnection points in Chicago. Fiber installed beneath the lakebed is less vulnerable to severe weather patterns, ice, vessel traffic, and other surface-level disturbances, enhancing network reliability and continuity of service. This redundancy improves regional emergency preparedness, protects critical communications infrastructure, and supports national security objectives.

Reliable, high-capacity communications infrastructure directly supports critical public services, including maritime and port operations, emergency response coordination, healthcare, education, and public administration, within the Lake Michigan basin. Improved network resiliency enhances the ability of federal, state, and local agencies to monitor the weather, coordinate emergency response, and protect life and property associated with Lake Michigan uses.

The project also supports economic activity tied to Lake Michigan by enabling reliable, high-capacity broadband connectivity for shoreline communities, harbor operations, tourism-dependent businesses, and industries that rely on secure data transmission. Expansion of middle mile infrastructure reduces barriers for last mile providers to serve coastal and near-coastal populations as well as inland populations, promoting equitable access to digital services that support commerce and public welfare.

Alternatives to the proposed marine route were evaluated during project planning, including upgrades to wireless technologies, satellite systems, and alternative corridors. Upgrading existing electronics would not provide sufficient long-term capacity or redundancy and would not achieve the same level of protection for communications infrastructure serving Lake Michigan communities and uses. The proposed submerged route therefore represents a reasonable and effective means of advancing public trust interests while minimizing environmental disturbance.

b. A discussion of the measures to be provided in the project design, construction and operation which would minimize and/or mitigate the negative impacts (to Lake Michigan)

Pursuant to Section 3704.80(b)(2), this section describes the measures incorporated into the Project's design, construction, and operation to minimize and mitigate adverse impacts to Lake Michigan and its lakebed.

Disturbance to the bed of Lake Michigan cannot be fully avoided in order to meet the Project purpose; however, the Project has been designed to avoid and minimize impacts to the greatest extent practicable.

Project Design Measures:

Prior to finalizing the cable alignment, PFN conducted several detailed technical investigations, including:

- Hydrographic and geophysical survey
- Lakebed sediment characterization analysis
- Maritime archaeological survey
- Threatened and endangered species review

Survey results were used to refine the cable alignment to avoid sensitive resources, including:

- Known cultural or archaeological features
- Hard substrate or complex habitat where practicable
- Existing infrastructure
- Identified ecological resources

Nearshore landings will utilize Horizontal Directional Drilling (HDD) to avoid disturbance to sensitive nearshore areas, including shallow-water habitat and dynamic shoreline zones. HDD entry points are located in uplands and outside regulated wetlands.

In Illinois water, no routine underwater burial is proposed. Surface lay installation limits disturbance to the immediate cable footprint and avoids trenching-related sediment displacement.

Targeted cable protection (articulated pipe, single armor, or double armor) will be used only where necessary to prevent abrasion or anchor-related damage, thereby reducing the likelihood of future maintenance disturbance.

Construction-Phase Minimization Measures:

Horizontal Directional Drilling/Boring (HDD)

HDD, also referred to as boring, will occur at the shoreline landing areas, to avoid open-cut trenching in nearshore waters. Measures to minimize impacts include:

- Use of bentonite-based drilling fluid to stabilize boreholes
    - Any polymer additives, if required, will be limited to products approved for use in potable water well construction and will comply with applicable state and federal standards.
- Closed-loop drilling fluid recovery and recycling systems
- Full containment and off-site disposal of residual slurry and cuttings
- Flushing of drill stem with fresh water prior to bore exit to reduce risk of inadvertent fluid release

Multiple measures to prevent inadvertent releases (frac-outs) during HDD to protect aquatic resources are summarized below:

- Daily inspection and maintenance of drilling equipment.

- Continuous pressure monitoring using annular pressure monitoring (APM) tools during drilling.
- Available spill kits and containment materials at all HDD sites.
- Immediate cessation of drilling and implementation of containment and cleanup measures if a frac-out occurs.
- Rapid recovery and clean up procedures
- Proper disposal or recycling of drilling fluids and cuttings.
- Site restoration following containment and cleanup.
- Training for all crew members on frac-out prevention, response procedures, and communication protocols.
- Documentation of all frac-out events, including agency notifications, response actions, cleanup, and restoration activities.

Detailed frac-out prevention and response procedures are fully documented in the Shore Landing Frac-Out Contingency Memo (Appendix A)

Surface Lay Installation

For offshore segments:

- Cable will be deployed from a controlled installation vessel
- Real-time positioning systems will guide alignment
- Vessel routing will avoid known obstructions and sensitive features
- No anchoring is anticipated during installation in Illinois waters

Surface lay placement limits bottom disturbance to the physical footprint of the cable itself.

Continuous monitoring of cable position and environmental conditions during installation will ensure compliance with design specifications and minimize unnecessary lakebed disturbance.

Threatened and Endangered Species

Consultation with IDNR under Title 17 Illinois Administrative Code Part 1075 (EcoCAT review) resulted in PFN committing to avoiding impacts on listed species. Specifically:

- PFN has agreed to avoid impacts to the state-listed mudpuppy (*Necturus maculosus*) by maintaining a 10-meter buffer from human-made structures on the bed of Lake Michigan during cable placement.

The Cultural and Threatened and Endangered Species Report (Appendix B) documents assessment and avoidance commitments.

Operational Measures and Long-Term Impact Reduction

Following installation:

- The cable will remain in place with no routine maintenance dredging or trenching anticipated
- Protective armoring reduces risk of cable exposure and the need for future disturbance
- The limited physical footprint and absence of continuous burial operations reduce long-term sediment displacement and habitat alteration

By minimizing trenching, avoiding anchoring, limiting disturbance to the immediate cable footprint, and incorporating protective measures to prevent future repair-related disturbance, the Project reduces both short-term and long-term impacts to Lake Michigan.

Summary

Through route refinement, avoidance of sensitive resources, HDD at shoreline crossings, frac-out prevention protocols, surface lay installation in Illinois waters, species protection commitments, and operational design features that limit future disturbance, the Project incorporates reasonable and practicable measures to minimize and mitigate adverse impacts to Lake Michigan in accordance with Section 3704.80(b)(2).

c. An analysis of the extent and permanence of the activity's encroachment on the body of water and of any impairment the activity would have on the rights, interests or uses of the public in the body of water and in the natural resources thereof. The analysis shall consider both the activity alone and the combined effects of similar activities which exist and/or could be lawfully undertaken in the locality. The analysis should be expressed in the quantitative terms to the fullest extent practicable and should be performed by persons with expertise in such impact analysis.

Pursuant to Section 3704.80(b)(3), this section evaluates the extent and permanence of the proposed encroachment within Lake Michigan as assesses whether the activity would impair public rights, interests, or uses of the lake and its natural resources. The analysis considers the activity both independently and in combination with existing and reasonably foreseeable lawful activities. Quantitative measures are provided to the fullest extent practicable.

The proposed marine fiber optic cable installation constitutes a linear encroachment on Lake Michigan within Illinois waters. The design has been specifically developed to minimize physical footprint and environmental disturbance.

Extent and Nature of Encroachment

Impacts to Great Lakes bottom lands (the bed of Lake Michigan) will be from the installation of the fiber line along the lakebed. There are four types of fiber cable installation anticipated for this project:

1. HDD Transition from Terrestrial to Marine Route:
    a. A 6-inch (0.5 ft) diameter casing will be installed beneath the lakebed at shoreline landings.

   b. The casing remains in place and represents a permanent subsurface encroachment.
   c. The 13-inch (0.67 ft) diameter borehole is temporary and will not remain open following installation.
2. Articulated Pipe Protection:
   a. 6.1 inch (0.508 ft) diameter, interlocking, hinged protective sleeves installed in limited areas to protect against localized abrasion, anchor strikes, and trawl gear.
   b. Considered permanent in place.
   c. Used only along targeted sections.
3. Surface Lay - Single Armor Cable
   a. 1.25-inch (0.104 ft) diameter installation of a single wall fiber conduit.
   b. Permanently placed on lakebed.
4. Surface Lay – Double Armor Cable
   a. 1.5-inch (0.125 ft) diameter.
   b. Permanently placed on lakebed.
   c. At the Lakeshore Trail shore landing site only, one spare cable will extend from the beach manhole through the conduit and articulated pipe and laid on the lakebed to avoid future disturbance if additional network expansion is required (under separate permit).

Quantitative Summary

Table 1. Volume of Structure (Fiber Optic Cable Structure) Installed in Lake Michigan (Illinois)

Fiberoptic Fill Type	Diameter (in)	Diameter (ft)	Length (ft)	Volume (cubic feet)	Volume (Cubic Yards)
HDD: Casing	6	0.5	3,364	660.5	24.464
Surface Lay – Double Armor Cable	1.5	0.125	25,758	316.1	11.707
Surface Lay – Single Armor Cable	1.25	0.104	221,228	1879.3	69.604
Articulated Pipe	6.1	0.508	4,429	897.7	33.248
			Totals:	**3,751.1**	**138.931**

Table 2. Permanent Impacts in Lake Michigan - Surface Area in Acres (Illinois)

Type of Fiberoptic Cable Install	Diameter (in)	Diameter (ft)	Length (mi)	Length (ft)	Permanent Impacts (acres)
HDD: Casing	6	0.5	0.60	3,364	0.039
Surface Lay – Double Armor Cable	1.5	0.125	4.83	25,758	0.073
Surface Lay – Single Armor Cable	1.25	0.104	41.90	221,228	0.528
Articulated Pipe	6.1	0.508	0.80	4,429	0.052
Totals			**48.10**	**254,579**	**0.692**

Table 3. Temporary Impacts in Lake Michigan - Surface Area in Acres (Illinois)

Type of Fiberoptic Cable Install	Width (in)	Width (ft)	Length (mi)	Length (ft)	Temporary Impacts (acres)
HDD: borehole	13	0.67	0.60	3,364	0.084
Totals			**0.60**	**3,364**	**0.084**

Permanence of Encroachment

The encroachment is permanent in location but passive and non-structural in nature. Once installed:

- The fiber optic cable, articulated pipe, and HDD casing will remain stationary.
- No required dredging, anchoring, or routine in-water maintenance.
- No vertical structures will extend into the water column.
- No changes to bathymetry, hydrodynamics, or sediment transport is expected.
- No shoreline armoring or fill placement is proposed.

Temporary impacts associated with HDD boreholes will not persist beyond construction. The boreholes will collapse or be sealed following installation, leaving only the casing in place.

The installed infrastructure does not alter lake depth, flow patterns, shoreline processes, or wave dynamics.

Impairment of Public Rights, Interests, or Uses

Lake Michigan is held in trust for the public for navigation, recreation, fishing, commerce, and natural resource protection. The proposed activity does not impair these rights for the following reasons:

Navigation

- The cable is fully submerged.
- No surface structures or markers remain.
- No long-term exclusion zones are required.
- Alignment avoids established navigation channels.

Recreation and Fishing

- Installation activities are temporary and localized.
- Post-construction, there is no restriction on boating, swimming, or fishing
- Armored cable and articulated pipe reduce risk with anchors or fishing gear.

Aesthetic and Scenic Values

- No visible surface infrastructure.
- No shoreline modification in Illinois waters.

Natural Resources

- Disturbance is limited to 0.962 acres of lakebed.
- No measurable alteration of benthic community structure is anticipated.
- No measurable change to water quality.
- No habitat fragmentation or hydrologic modification.

Given the narrow footprint and passive nature of the installation, no long-term impairment to public trust uses or natural resources is anticipated.

Cumulative Impacts

Submerged utilities, including telecommunications cables and other infrastructure, currently exist within Lake Michigan. When considered cumulatively:

- The additional 0.692-acre permanent impact is minor relative to existing infrastructure.
- The project does not create a barrier, corridor effect, or hydrologic alteration.
- The encroachment is linear and low-profile.
- No incremental loss of public access results.
- No measurable degradation of lakebed function occurs.

The incremental addition does not result in a measurable reduction in public use, navigation capacity, or ecological integrity.

Professional Expertise

This analysis was prepared by qualified environmental scientists with experience in Great Lakes permitting. Quantitative calculations were developed using engineering design specifications and GIS-based spatial analysis. The conclusions presented herein reflect professional judgment based on available survey data, installation methods, and regulatory standards applicable to Lake Michigan.

If you have any questions, please feel free to contact me at

Mike Peterson
Senior Environmental Scientist

Appendices
Appendix A Shore Landing Frac-Out Contingency Memo
Appendix B Cultural and Threatened and Endangered Species Report

Appendix A Shore Landing Frac-Out Contingency Memo

May 16, 2025
Project No. 2305496

VIA EMAIL: shughes@pfnllc.net

Steven Hughes
Peninsula Fiber Network LLC
1901 W Ridge St. #2
Marquette, MI 49855

Re: Inadvertent Return Permit Memo
IMPACC Project

Dear Mr. Hughes:

The following memorandum is intended to be used for permitting purposes and describes what an inadvertent return (IR) is, when they occur, how their risk may be reduced, and what remediation can be done should one occur.

Introduction

The Infrastructure for Michigan's Peninsulas and Critical Crossing (IMPACC) project involves the installation of fiber communication cables between Chicago and the Upper Peninsula of Michigan. This alignment includes eight shore landing installations at locations where the cable transitions from being installed on land to on the lakebed of Lake Michigan. These shore landings will be installed with Horizontal Directional Drilling (HDD) to direct the cable under environmentally sensitive areas and outside the extents of near-shore ice scour on the lakebed. The purpose of this memorandum is to describe the HDD process by which these cables will be installed, the IR risk associated with HDD installation and the methods which will be utilized to reduce IR risk, and minimum response procedures should an IR occur.

HDD Methodology: Drill and Leave

A "Drill and Leave" HDD methodology will be used for the shore landing installations. A traditional HDD installation involves an initial pilot bore, subsequent reaming passes to enlarge the pilot bore to the appropriate size, and then pulling the carrier pipe through the enlarged borehole. A "Drill and Leave" installation differs from the traditional approach in that there are no ream passes and no carrier pipe pullback through the bore. Steps involved in a "Drill and Leave" installation are as follows:

1. Pilot bore and associated drill pipe advanced from bore entry to lakebed bore exit.
2. Drill pipe is retracted back to the surface entry.
3. Original pilot bit is removed and replaced with a blunt nose push head.

   a. The drill pipe used for drilling the pilot bore may be replaced with another drill pipe to serve as the fiber optic conduit if desired.
4. The drill pipe is advanced back to lakebed bore exit location.
5. Divers remove the blunt nose push head and attach an end appurtenance.
6. Fiber optic cable is pulled back through the drill pipe (now serving as fiber optic conduit) from lakebed to land.

Inadvertent Returns (IR)

Background

During HDD, drilling fluid, primarily comprised of a mixture of bentonite (which is a non-toxic clay soil) and water, is used to return cuttings back to the borehole entry location, prevent the borehole from collapsing, and keep the tooling from overheating. This drilling fluid is pumped down the drill pipe to the drill bit and circulated out of the borehole by establishing a pressure gradient, with the pressure depending on the pumping rate, density of the drilling fluid, size of the borehole, size of drill pipe, and location within the borepath. If the pressure of the drilling fluid becomes greater than the confining pressure of the surrounding ground (a combination of inherent material strength and overburden pressure) then the ground surrounding the borehole will fracture. An inadvertent return occurs if the drilling fluid is able to travel through pressure-induced fractures (or other naturally occurring fractures or void space) and reach the surface. When an IR occurs circulation will be lost in the borehole (no more drilling fluid coming out of the hole at bore entry), downhole pressures will significantly reduce, and drilling fluid may accumulate at the location of the IR fracture.

IRs can occur during any phase of HDD construction but are most common during the pilot bore. During the pilot bore the area between the drill pipe and borehole walls is smallest, and the resulting drilling fluid velocities and pressures are at their highest. IRs also commonly occur where the depth of cover is low, such as near the borehole exit or under low spots in topography, as the overburden stress around the borehole is reduced at these locations. IR risk is influenced by formation strength and can be reduced by locating the alignment in stronger ground conditions.

IR Risk Mitigation

IR mitigation begins well before the mobilization of drilling equipment to the project site. IR risk mitigation starts with sound design and engineering practice, followed by competent HDD contractor personnel and implementation of industry best practice means and methods during HDD execution. The methods described below represent a variety of potential measures available for reducing inadvertent releases and mitigating the effects of a release should one occur.

The HDD subcontractor will be required to submit an Inadvertent Drilling Fluid Release Contingency Plan to the project design team for its review and acceptance. This plan will include a specific means and methods strategy for each HDD crossing reaffirming and detailing how the HDD subcontractor will conform with the requirements of the project specifications to prevent and to mitigate any effects of an IR should one occur. The selected HDD subcontractor will be responsible for incorporating specific permit conditions, applicable regulatory requirements, site specific environmental features, geotechnical

information, and documentation of Safety Data Sheets (SDS) for all drilling fluids and LCMs (if used) into its submittal.

IR risk can be effectively managed through a variety of methods in both the design and construction phases. Table 1 includes methods which will be implemented in the design phase while Table 2 includes methods the contractor will implement or may implement as needed during the construction phase.

Table 1. Design Phase IR Risk Mitigation Methods

Risk Mitigation	Description
Geotechnical Investigation	A geotechnical investigation will be implemented for each shore landing alignment. Each investigation will consist of borings and a laboratory testing program. Borings will be drilled both on land and from offshore barges to provide subsurface data across the entirety of each alignment. The subsurface investigation will provide information to be used in alignment selection and calculations. Key components to understand include the depths/locations and physical properties of different soil and rock units. Test pits may also be constructed to better understand the near surface ground behavior.
Borepath Alignment Selection	The borepath will be adjusted in an iterative process as additional information is received from geotechnical investigation and IR calculations. The depth of the borepath can be increased to reduce IR risk if necessary. The entry and exit angles for the borepath can be steepened to reduce the length of borehole where low cover is present. The borepath can also be shifted to be located in stronger material such as bedrock.
IR Calculations	IR calculations will be performed for each shore landing alignment and will identify the IR risk at different locations along the alignment. Depending on the results of the calculations, the borepath may be adjusted and the contractor may be advised to alter their drilling methodology in certain areas with higher IR risk.
HDD Specification	An HDD Specification will be developed which will require the contractor to submit aspects of their planned drilling methodology, materials, and equipment for review and approval by the design team prior to construction. Included in this submittal of a Drilling Fluid Release Contingency Plan which will describe the methods the contractor will take should an IR occur. The HDD specification will also require that all drilling fluid and associated additives be non-toxic.

Table 2. Construction Phase IR Risk Mitigation Methods

Risk Mitigation	Description
Reducing Pumping Rates	When the pilot bore reaches areas where a higher IR risk has been identified the contractor may be able to reduce pumping rates to reduce the drilling fluid pressure in the borehole. This will subsequently reduce the rate of production as it will take more time for cuttings to be transported to the borehole entry location. A base level of fluid pumping is required to maintain the circulation of cuttings and keep the borehole open.
Construct Relief Pit, Trench, or Well	Relief pits, trenches, or wells may be installed on the ground surface near areas where an IR has a higher likelihood of occurring. A pit, trench, or well becomes a favorable location for an IR to exit in as it represents the shortest path to intersect the surface. An IR which intersects a containment pit/trench can be easily cleaned up and managed with the use of vacuum truck or similar.
Drill with Fresh Water	Fresh water will be used to displace drilling fluid back to the borehole entry location when the pilot bore is nearing the exit location. This will ensure that if an IR were to occur on the approach to the exit location it will consist of fresh water and not drilling fluid. This also results in only fresh water exiting the borehole when the pilot bore reaches the exit location, preventing drilling fluid from impacting Lake Michigan.

Use of Additives in Drilling Fluid	An IR may occur if cuttings are insufficiently transported and clog the borehole. Additives may be introduced to the drilling fluid to improve the fluid's ability to transport cuttings and to prevent clay from clumping together.
Closely Monitor Drilling Fluid Pressures	Drilling fluid pressures will be closely monitored to quickly identify when an unexpected drop or rise in pressure occurs. A quick drop in pressure may indicate that drilling fluid is fracturing or escaping through the surrounding ground. An early detection may give the contractor time to adjust their drilling methodology prior to drilling fluid intersecting the surface as an IR. A sudden rise in pressure or back pressure in the drill pipe may indicate insufficient transport of cuttings or borehole collapse. The pilot drill string can be pulled back through the borepath a sufficient distance to break up and clear the obstruction, allowing forward drilling operations to continue with appropriate drilling fluid pressures.
Visual Observation of Drilling Fluid Flow	Drilling fluid flow rates can be visually monitored by comparing the differences between fluid rate pumped down-hole and the rate of returns flowing into the surface containment pits near the bore entry location. If more fluid is being pumped into the borehole than is returning to the surface it indicates drilling fluid is being lost to the formation. Note that if pauses in drilling occur, it may take a brief period of time to reestablish the circulation of cuttings and have drilling fluid flowing out of the borehole entry location.
Swabbing the Borehole	After fully advancing the pilot bore by the length of one drill pipe the bore can be retracted by the same length and then advanced again. This is repeated for each drill pipe added to the pipe string as the pilot bore is advanced. This process improves the removal of cuttings from the borehole and helps prevent clogging and/or borehole collapse, reducing likelihood of an IR.

IR Response Procedures

In the event that an IR occurs during drilling the contractor will be required by contract specification to take the following steps to reduce its impact:

1. Identify the IR and cease operations: An IR can be identified by documenting a spike or drop in pressure, a reduction in drilling fluid returning to the borehole entry location, and by visual observation at the surface along the borepath. If an IR is confirmed, drilling operations will stop.
2. Notification: The contractor will notify key project personnel and any relevant governing bodies of an IR.
3. Land Response: If the IR occurs on land the contractor is to contain/isolate it and remove any fluid that has collected at the surface. An IR can be contained using a combination of berms, straw wattles, silt fences, etc. and the drilling fluid can be removed using vacuum trucks, submersible pumps, and/or absorbent material which can be removed. An IR relief well could also be drilled near the site of the IR to reduce pressures at that location and direct lost drilling fluid to a location where it can be collected and removed. When resuming drilling Loss Circulation Materials (LCM) could be added to the drilling fluid to assist in sealing fractures where drilling fluid escaped from the borehole. The use of IR relief wells and LCMs would be considered on a case-by-case basis, as their effectiveness is situational.
4. Lake Response: If the IR occurs at the lakebed the contractor is to stop drilling activities for 24 hours to allow for the bentonite in the drilling mud to swell and seal potential IR pathways. Adding LCMs to the drilling fluid upon resuming drilling operations could further aid in sealing loss pathways, depending on the nature of the IR, geology, and specific location.

It is the paramount goal of the project stakeholders and the HDD contractor to minimize the potential of an IR to the surface through design and construction IR risk mitigation tactics. Further, in the unlikely event of IR to the surface the following procedures will minimize consequence of the IR:

- Provide the timely detection of an IR that could compromise or impact any sensitive surface feature,
- Facilitate notification of all appropriate agencies immediately and document the incident, and
- Facilitate proper response, containment, and cleanup in the event an IR occurs.

Closing

If you have any questions, please feel free to contact me at 630.418.0272

Sincerely,

GEI Consultants, Inc.

James Lirot
HDD Construction Engineer

Matt Peramaki, P.E.
Vice President

Appendix B Cultural and Threatened and Endangered Species Report

Cultural Resources and Threatened and Endangered Species

Peninsula Fiber Network, LLC
Infrastructure for Michigan Peninsulas and Critical Crossings (IMPACC)
Project 1

The National Telecommunications and Information Administration (NTIA) is the lead federal agency for the IMPACC Project 1, as they are funding the Project. As part of the federal action, the project requires compliance with the National Environmental Policy Act (NEPA). Project 1 requires the development of an Environmental Assessment for NEPA compliance. As part of the NEPA process, PFN is required to complete Section 106 of the National Historic Preservation Act of 1966 (NHPA) and Section 7 Consultation of the Endangered Species Act.

Cultural Resources Status

PFN is in the process of coordinating with the Illinois State Historic Preservation Office (IL SHPO) to complete the Section 106 consultation. Documentation of the correspondence with SHPO is included with this document (SHPO Log #013060525). Archaeological surveys along the terrestrial and marine routes have been conducted in coordination with the IL SHPO office. The consultation results can be provided once available. The following is a summary of the surveys conducted and coordination with IL SHPO:

- The nearshore Lake Michigan Maritime Engineering and Archaeological Survey was completed in the Fall of 2024.
- A project introduction meeting with IL SHPO occurred on February 26, 2025, which initiated the project in the SHPO system.
- An Illinois SHPO early consultation/project review request was submitted. The SHPO Log Number for both terrestrial and maritime is 013060525. Upon completion of the terrestrial and maritime surveys, the technical document will be submitted to IL SHPO for review.
- The maritime Survey Methods Review Request was submitted to IL SHPO on 6/5/2025. The formal survey request was provided by IL SHPO on 6/11/2025.
- The offshore Lake Michigan Maritime Archaeological Survey was completed during the summer of 2025.
- The analysis of the hydrographic and marine geophysical survey is ongoing and expected to be completed in fall 2025.

Threatened and Endangered Species

Federal Review - USFWS

PFN has been in coordination with the USFWS for Section 7 Consultation and is preparing a Biological Assessment. The Official Species List and Determination Key (D-Key) were completed on August 25, 2025. The Official Species List is included with this document. It was determined between the USFWS and NTIA that the D-Key was not the appropriate method for determining the impacts to species for this project, and that a Biological Assessment should be completed and submitted for USFWS review and concurrence. Once Section 7 Consultation has been completed, the results can be provided.

State Review - IDNR

The Illinois Department of Natural Resources' Natural Heritage Database (IDNR-NHD) was reviewed for state-listed threatened and endangered species, Illinois Natural Areas Inventory (INAI) sites, and Illinois Nature Preserves Commission (INPC) protected areas. The review was conducted via IDNR's Ecological Compliance Assessment Tool (EcoCAT) and was submitted for consultation under the Illinois Endangered Species Protection Act and Illinois Natural Areas Preservation Act (INPA) Part 1075. Two EcoCAT's were submitted, one for the north route and one for the south route.

The EcoCAT consultation identified three protected resources that may be within the vicinity of the Project:

- Mudpuppy (*Necturus maculosus*)
- Short-eared Owl (*Asio flammeus*)
- Mottled Sculpin (*Cottus bairdii*)

The IDNR response letters to the consultation are included in this document and included the following recommended actions to avoid adverse impacts:

- Short-eared owl and mottled sculpin
    - The Department has determined that adverse impacts to this species are unlikely.
- Mudpuppy
    - EcoCAT has indicated records for the state-listed mudpuppy in the vicinity of the project. PFN has agreed to avoid impacts to the mudpuppy by maintaining a 10-meter buffer from human made structures on the bed of Lake Michigan during cable placement. Therefore the IDNR response stated that because the cable installation nearshore will not involve burial into the lakebed, a 10-meter buffer from human-made structures on the lake bottom

will be maintained during cable placement (with the exception that HDD may pass beneath shoreline riprap at less than 10 meters depth), and HDD operations for the Chicago shore landings are anticipated to occur in late spring through summer 2026, adverse impacts are not expected.

Given the above recommendations are adopted, the IDNR has determined that impacts to these protected resources are unlikely and impacts to other protected resources in the vicinity of the project location are also unlikely.

Consultation on the part of the IDNR is closed. The EcoCAT consultation documentation is included.

Illinois Department of Natural Resources
JB Pritzker, Governor • Natalie Phelps Finnie, Director
One Natural Resources Way • Springfield, Illinois 62702-1271
www.dnr.illinois.gov

Cook County
Chicago
Lake Michigan,
St. Joseph, MI to Chicago
GEI-2305496,
NTIA
Peninsula Fiber Network LLC IMPACC Project 1

PLEASE REFER TO: SHPO LOG #013060525

SURVEY REQUEST

June 11, 2025

Jennifer M. Sanka
GEI Consultants, Inc.
8615 W. Bryn Mawr Avenue
Suite 406
Chicago, IL 60631

Thank you for requesting comments from our office concerning the possible effects of the project referenced above on cultural resources. Our comments are required by Section 106 of the National Historic Preservation Act of 1966 (16 USC 470), as amended, and its implementing regulations, 36 CFR 800: Protection of Historic Properties.

The project area may contain significant archaeological resources. Accordingly, a Phase I archaeological **survey** to locate, identify, and record all archaeological resources within the project area will be **required**. The area(s) that need(s) to be surveyed include(s) all area(s) that will be developed as a result of the issuance of the federal agency permit or the granting of the federal grants, funds, or loan guarantees that have prompted this review.

We approve of the proposed survey methods for identifying any submerged maritime resources and look forward to reviewing the results. If you have further questions, please contact Jeff Kruchten, Principal Archaeologist, at 217/785-1279 or jeff.kruchten@illinois.gov.

Sincerely,

Carey L. Mayer, AIA
Deputy State Historic Preservation Officer

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chicago Ecological Service Field Office
1511 47th Ave
Moline, IL 61265-7022
Phone: (309) 757-5800

In Reply Refer To: 08/15/2025 18:58:38 UTC
Project Code: 2025-0136689
Project Name: PFN Project 1 Maritime Illinois

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

Additionally, please note that on March 23, 2022, the Service published a proposal to reclassify the northern long-eared bat (NLEB) as endangered under the Endangered Species Act. The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing

determination for the NLEB by November 2022 (Case 1:15-cv-00477, March 1, 2021). The bat, currently listed as threatened, faces extinction due to the range-wide impacts of white-nose syndrome (WNS), a deadly fungal disease affecting cave-dwelling bats across the continent. The proposed reclassification, if finalized, would remove the current 4(d) rule for the NLEB, as these rules may be applied only to threatened species. Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). If your project may result in incidental take of NLEB after the new listing goes into effect this will first need to addressed in an updated consultation that includes an Incidental Take Statement. If your project may require re-initiation of consultation, please contact our office for additional guidance.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Note: IPaC has provided all available attachments because this project is in multiple field office jurisdictions.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chicago Ecological Service Field Office
1511 47th Ave
Moline, IL 61265-7022
(309) 757-5800

This project's location is within the jurisdiction of multiple offices. However, only one species list document will be provided for all offices. The species and critical habitats in this document reflect the aggregation of those that fall in each of the affiliated office's jurisdiction. Other offices affiliated with the project:

Michigan Ecological Services Field Office
2651 Coolidge Road Suite 101
East Lansing, MI 48823-6360
(517) 351-2555

PROJECT SUMMARY

Project Code: 2025-0136689
Project Name: PFN Project 1 Maritime Illinois
Project Type: New Constr - Below Ground
Project Description: Peninsula Fiber Network (PFN) will install fiberoptic cable in Michigan to bring broadband internet connectivity to unserved and underserved communities. 1.0 - 1.5-inch fiberoptic cable will be installed primarily underground along road rights-of-way as well as under Lake Michigan. The western terminus of the project is located in Chicago.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.89431405,-87.35160238518846,14z

Counties: Illinois and Michigan

ENDANGERED SPECIES ACT SPECIES

There is a total of 11 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered

BIRDS

NAME	STATUS
Piping Plover *Charadrius melodus* Population: [Great Lakes watershed DPS] - Great Lakes, watershed in States of IL, IN, MI, MN, NY, OH, PA, and WI and Canada (Ont.) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Endangered
Rufa Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential

REPTILES

NAME	STATUS
Eastern Massasauga (=rattlesnake) *Sistrurus catenatus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2202 General project design guidelines: https://ipac.ecosphere.fws.gov/project/SHJEIVWTJBCPPMOB6CF2AGQJIE/documents/generated/5280.pdf	Threatened

INSECTS

NAME	STATUS
Hine's Emerald Dragonfly *Somatochlora hineana* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7877	Endangered
Mitchell's Satyr Butterfly *Neonympha mitchellii mitchellii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8062	Endangered
Monarch Butterfly *Danaus plexippus*	Proposed Threatened

NAME	STATUS

There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/9743

FLOWERING PLANTS

NAME	STATUS
Eastern Prairie Fringed Orchid *Platanthera leucophaea*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/601

Leafy Prairie-clover *Dalea foliosa*	Endangered

Population:
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5498

Pitcher's Thistle *Cirsium pitcheri*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/8153

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

---

1. The Bald and Golden Eagle Protection Act of 1940.

2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper

Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

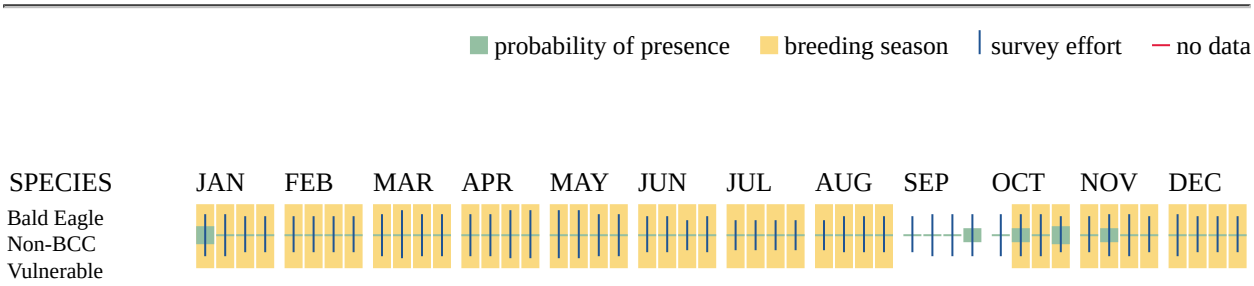
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover *Pluvialis dominica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10561	Breeds elsewhere
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9454	Breeds May 20 to Jul 31
Cerulean Warbler *Setophaga cerulea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 21 to Jul 20
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will *Antrostomus vociferus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10678	Breeds May 1 to Aug 20
Grasshopper Sparrow *Ammodramus savannarum perpallidus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8329	Breeds Jun 1 to Aug 20

NAME	BREEDING SEASON
Henslow's Sparrow *Centronyx henslowii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3941	Breeds May 1 to Aug 31
Kentucky Warbler *Geothlypis formosa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9443	Breeds Apr 20 to Aug 20
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Pectoral Sandpiper *Calidris melanotos* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9561	Breeds elsewhere
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9439	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Ruddy Turnstone *Arenaria interpres morinella* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/10633	Breeds elsewhere
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9478	Breeds elsewhere
Semipalmated Sandpiper *Calidris pusilla* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9603	Breeds elsewhere
Short-billed Dowitcher *Limnodromus griseus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere

NAME	BREEDING SEASON
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

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Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

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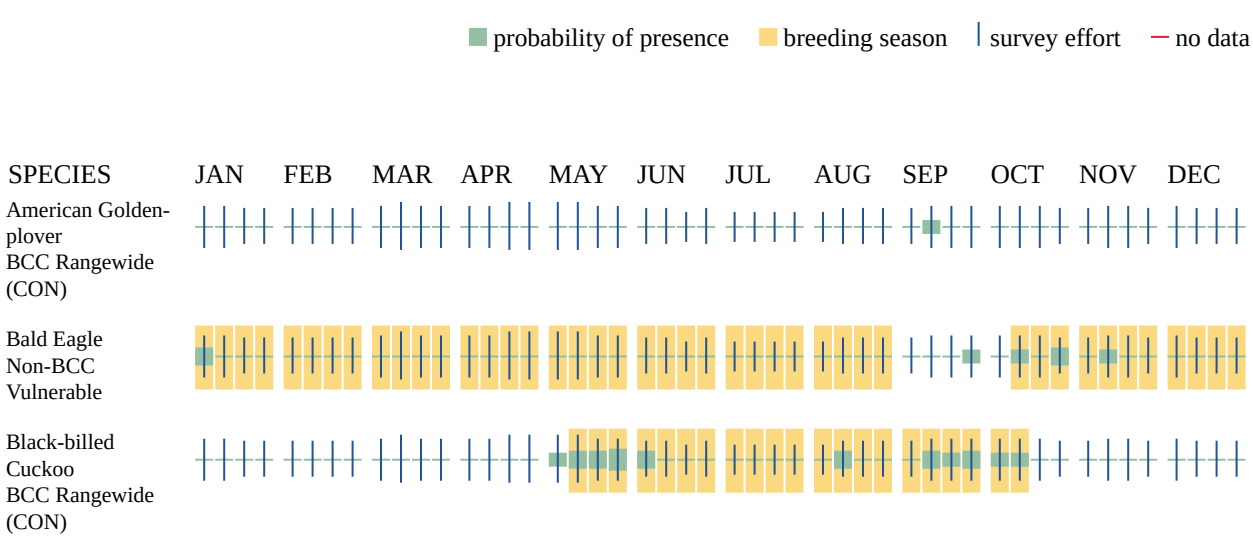

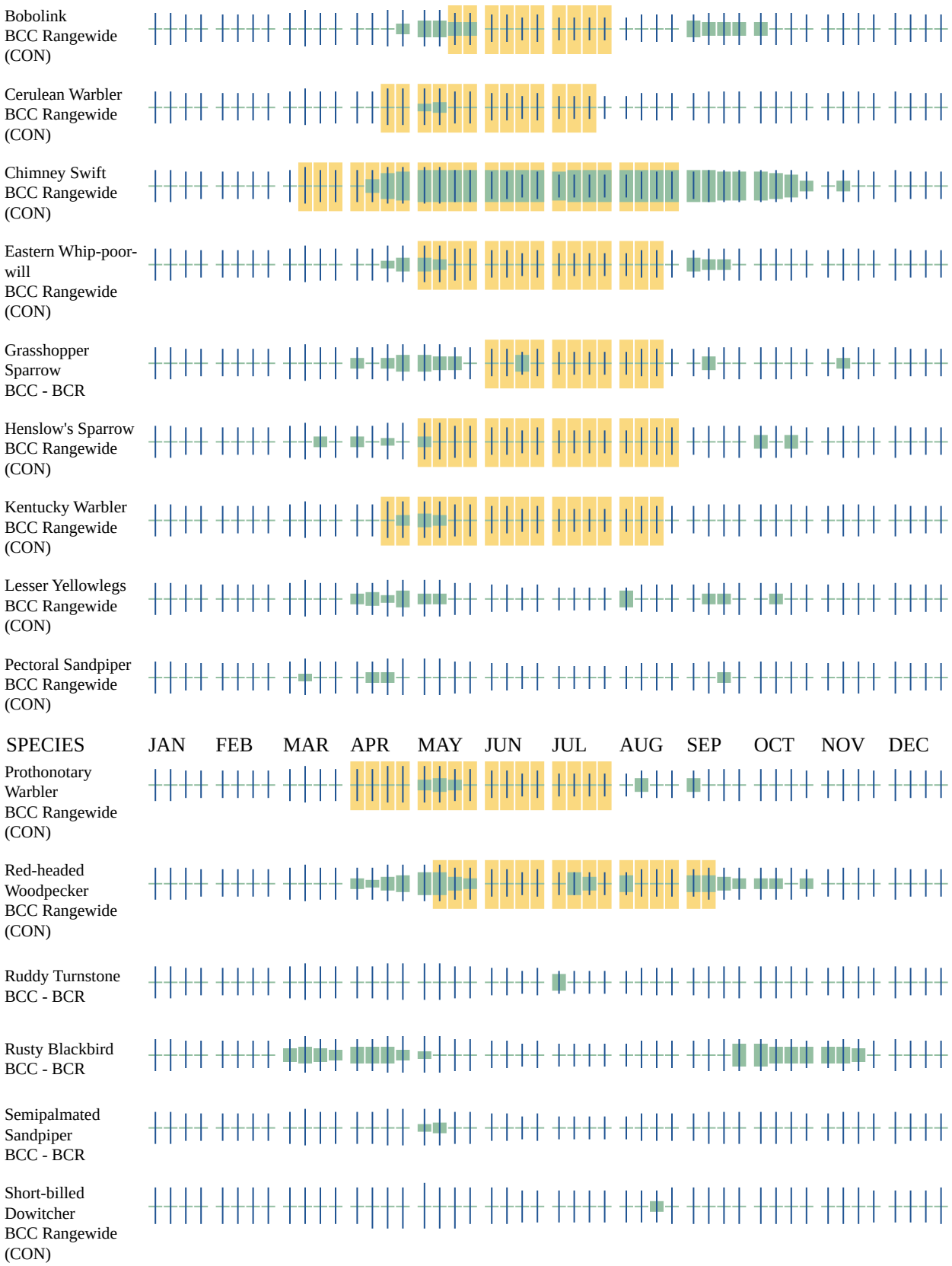
Bobolink
BCC Rangewide
(CON)
Cerulean Warbler
BCC Rangewide
(CON)
Chimney Swift
BCC Rangewide
(CON)
Eastern Whip-poor-
will
BCC Rangewide
(CON)
Grasshopper
Sparrow
BCC - BCR
Henslow's Sparrow
BCC Rangewide
(CON)
Kentucky Warbler
BCC Rangewide
(CON)
Lesser Yellowlegs
BCC Rangewide
(CON)
Pectoral Sandpiper
BCC Rangewide
(CON)
SPECIES
JAN
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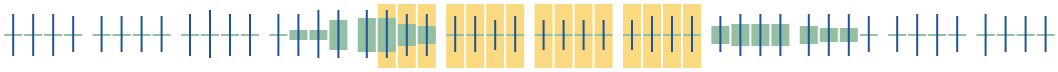
JUL
AUG
SEP
OCT
NOV
DEC
Prothonotary
Warbler
BCC Rangewide
(CON)
Red-headed
Woodpecker
BCC Rangewide
(CON)
Ruddy Turnstone
BCC - BCR
Rusty Blackbird
BCC - BCR
Semipalmated
Sandpiper
BCC - BCR
Short-billed
Dowitcher
BCC Rangewide
(CON)

Wood Thrush
BCC Rangewide
(CON)



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WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

LAKE

- L1UBH
- L2UBH
- L2UBHx

IPAC USER CONTACT INFORMATION

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State:	MN
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Email	wbehrends@geiconsultants.com
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Illinois Department of Natural Resources
JB Pritzker, Governor • Natalie Phelps Finnie, Director
One Natural Resources Way • Springfield, Illinois 62702-1271
www.dnr.illinois.gov

August 27, 2025

Wyatt Behrends
Environmental Scientist
5350 Miller Trunk Highway
Suite D
Duluth, MN 55811-5580

RE: Infrastructure for Michigan's Peninsulas and Critical Crossings Project (IMPACC)
Consultation Program
EcoCAT Review #2602408
Cook County

Dear Mr. Behrends:

The Department has received your submission for this project for the purposes of consultation pursuant to the *Illinois Endangered Species Protection Act* [520 ILCS 10/11], the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17], and Title 17 *Illinois Administrative Code* Part 1075.

GEI is supporting JSI Engineering, LLC (JSI) with Peninsula Fiber Network's (PFN's) Infrastructure for Michigan's Peninsulas and Critical Crossings (IMPACC) Project in Michigan and Illinois. The IMPACC Project includes three routes connecting unserved counties and towns to bring middle mile infrastructure into rural counties, improving the connectivity and redundancy for unserved and underserved areas of the Upper Peninsula and both eastern and western lower Michigan. Route 1 Connects Chicago, IL to St. Joseph, MI via a marine cable through Lake Michigan. The project plans to use two landing sites in Chicago and extend ~1 mile from the south site and ~2 miles from the north site to connect to the existing fiber network. This EcoCAT response specifically addresses the impacts posed by the south site.

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

[1] This species was not indicated to be in the vicinity of the project by the Illinois Natural Heritage Database, however, due to the potential suitable habitat in the project area and occurrence of records in the vicinity, it was added to the list of species being reviewed for this project.

State Threatened or Endangered Species
Mudpuppy (*Necturus maculosus*)[1]
Short-eared Owl (*Asio flammeus*)

Due to the project scope and proximity to protected resources, the Department recommends the following actions be taken to avoid adversely impacting listed species in the vicinity of the project:

Mudpuppy
Records of the state-listed Mudpuppy exist in the project vicinity. These amphibians move closer to the Lake Michigan shore in winter and can be found in cracks and crevices around human-made structures. The project proponent has indicated that the FOC installation nearshore will not involve burial into the lakebed, and that a 10-meter buffer from human-made structures on the lake bottom will be maintained during cable placement (with the exception that HDD may pass beneath shoreline riprap at less than 10 meters depth). Furthermore, HDD operations for the Chicago shore landings as a whole are anticipated to occur in late spring through summer 2026. The Department has therefore determined that adverse impacts to the Mudpuppy are unlikely.

Short-eared Owl
The Department has determined that adverse impacts to this state-listed species are unlikely.

Given the above recommendations are adopted, the Department has determined that impacts to these protected resources are unlikely. The Department has determined impacts to other protected resources in the vicinity of the project location are also unlikely.

In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

Consultation on the part of the Department is closed, unless the applicant desires additional information or advice related to this proposal. Consultation for Part 1075 is valid for two years unless new information becomes available which was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the action has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

The natural resource review reflects the information existing in the Illinois Natural Heritage Database at the time of the project submittal and should not be regarded as a final statement on the project being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are unexpectedly encountered during the project's implementation, the applicant must comply with the applicable statutes and regulations.

This letter does not serve as permission to take any listed or endangered species. As a reminder, no take of an endangered species is permitted without an Incidental Take Authorization or the required permits. Anyone who takes a listed or endangered species without an Incidental Take Authorization or required permit may be subject to criminal and/or civil penalties pursuant to the *Illinois Endangered Species Act*, the *Fish and Aquatic Life Act*, the *Wildlife Code* and other applicable authority.

Please contact Alexandra (Alex) Davis (Alexandra.Davis@illinois.gov) with any questions about this review.

Sincerely,

Bradley Hayes
Manager, Impact Assessment Section
Division of Real Estate Services and Consultation
Office of Realty & Capital Planning
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
Bradley.Hayes@Illinois.gov
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August 27, 2025

Wyatt Behrends
Environmental Scientist
5350 Miller Trunk Highway
Suite D
Duluth, MN 55811-5580

RE: Infrastructure for Michigan's Peninsulas and Critical Crossings Project (IMPACC)
Consultation Program
EcoCAT Review #2602411
Cook County

Dear Mr. Behrends:

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The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

State Threatened or Endangered Species
Mottled Sculpin (*Cottus bairdii*)

Mudpuppy (*Necturus maculosus)*
Short-eared Owl (*Asio flammeus*)

Due to the project scope and proximity to protected resources, the Department recommends the following actions be taken to avoid adversely impacting listed species in the vicinity of the project:

Mudpuppy

EcoCAT has indicated that records of the state-listed Mudpuppy exist in the project vicinity. These amphibians move closer to the Lake Michigan shore in winter and can be found in cracks and crevices around human-made structures. The project proponent has indicated that the FOC installation nearshore will not involve burial into the lakebed, and that a 10-meter buffer from human-made structures on the lake bottom will be maintained during cable placement (with the exception that HDD may pass beneath shoreline riprap at less than 10 meters depth). Furthermore, HDD operations for the Chicago shore landings as a whole are anticipated to occur in late spring through summer 2026. The Department has therefore determined that adverse impacts to the Mudpuppy are unlikely.

Mottled Sculpin & Short-eared Owl

The Department has determined that adverse impacts to these state-listed species are unlikely.

Given the above recommendations are adopted, the Department has determined that impacts to these protected resources are unlikely. The Department has determined impacts to other protected resources in the vicinity of the project location are also unlikely.

In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

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