Pembina County Drain 5 Extension

Preliminary Design Landowner Meeting

November 19, 2024
Cavalier, ND

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Scope

- **Purpose of Study**: Explore alternatives that will provide additional benefits to the upper reaches of the Drain 5 drainage area.
- Project Phases
  - Field Survey
  - Existing Conditions Hydrology and Hydraulics
  - Alternative Development and Analysis
  - Summary Report
- **Purpose of this Meeting**:
  - Discuss areas of concern in the watershed and historical flooding along the drain.
  - Present Alternatives, and develop a path forward

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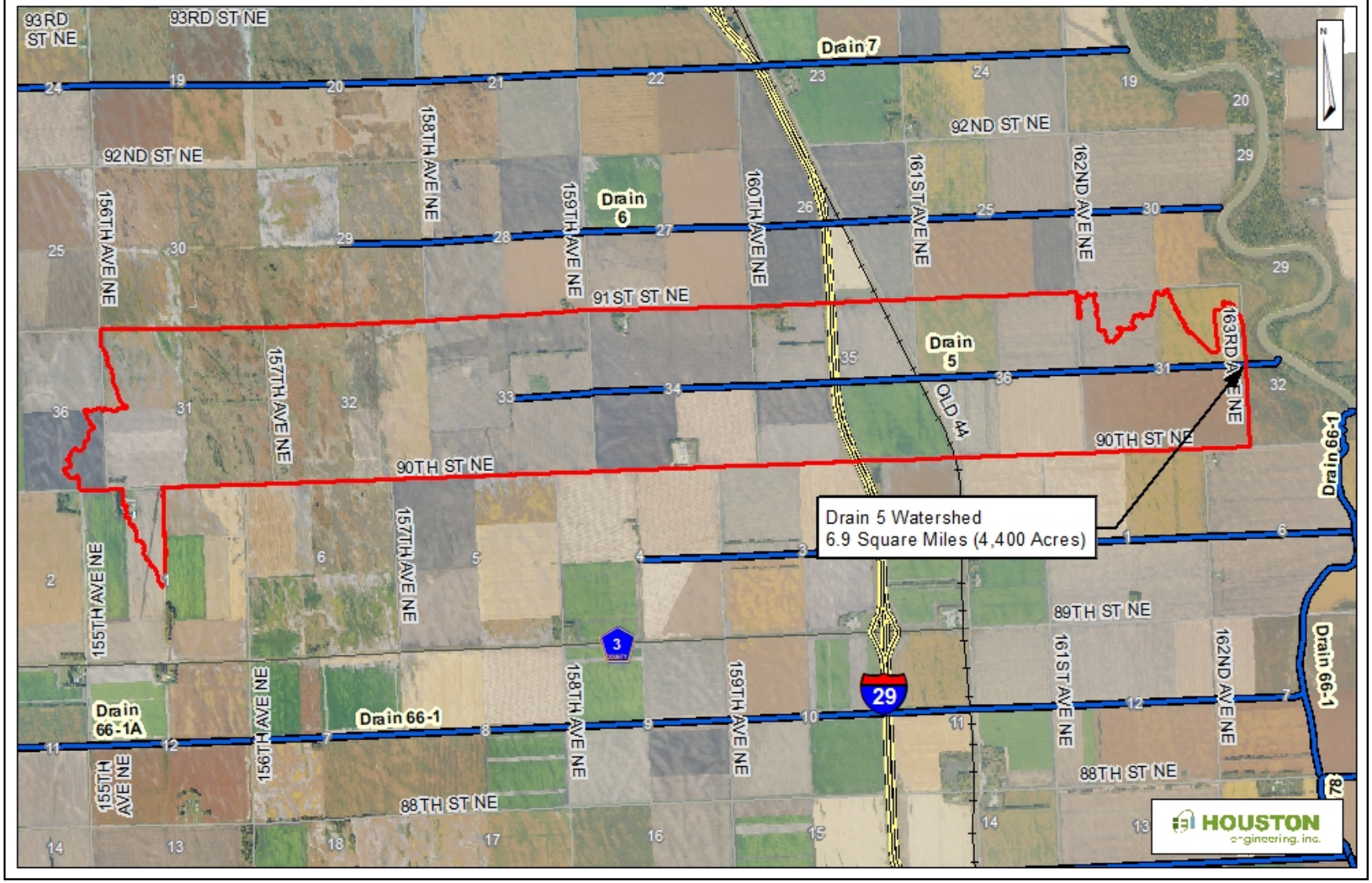
Background

Existing Drain 5 Extents



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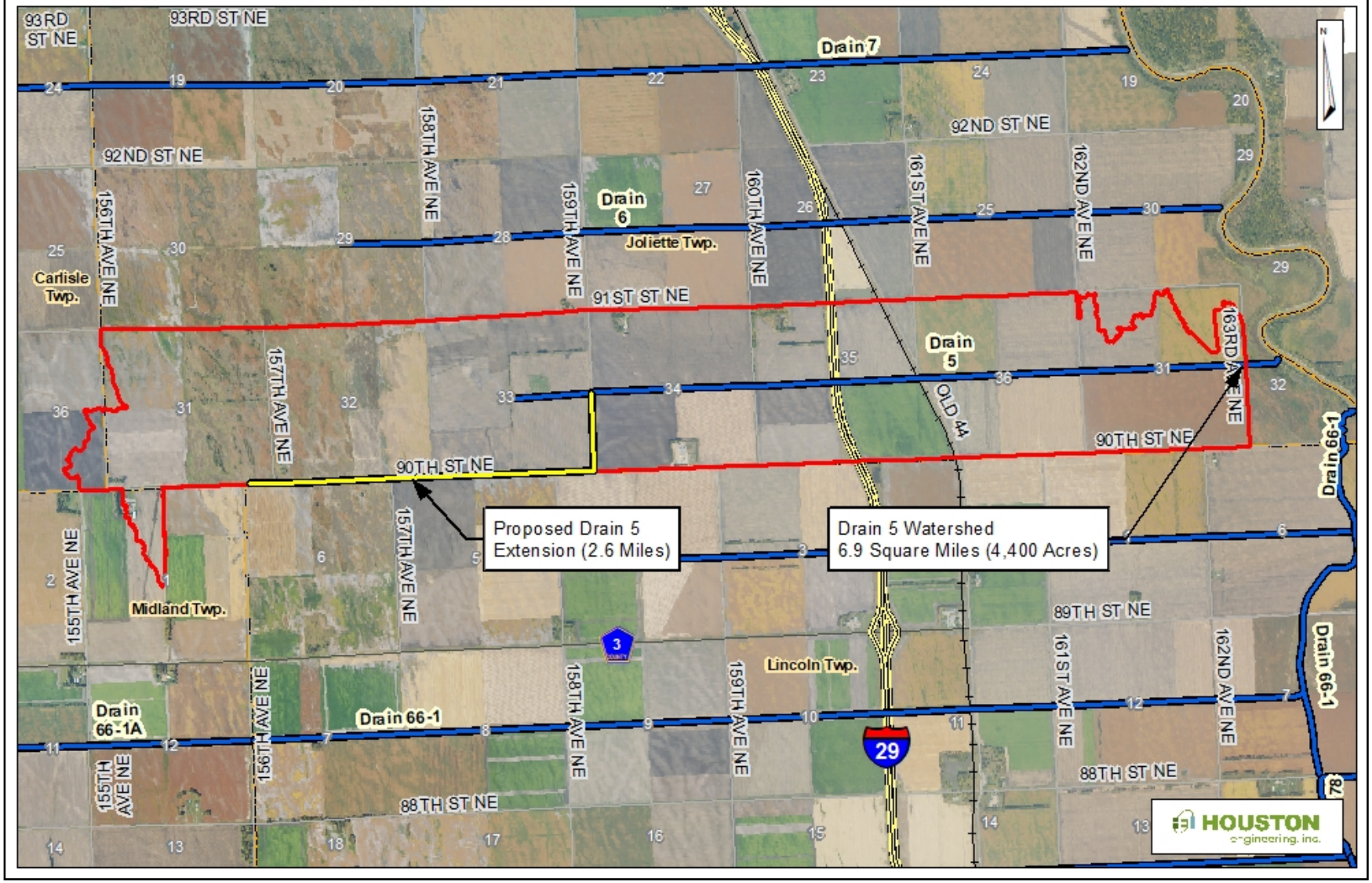
Proposed Extension

Extents



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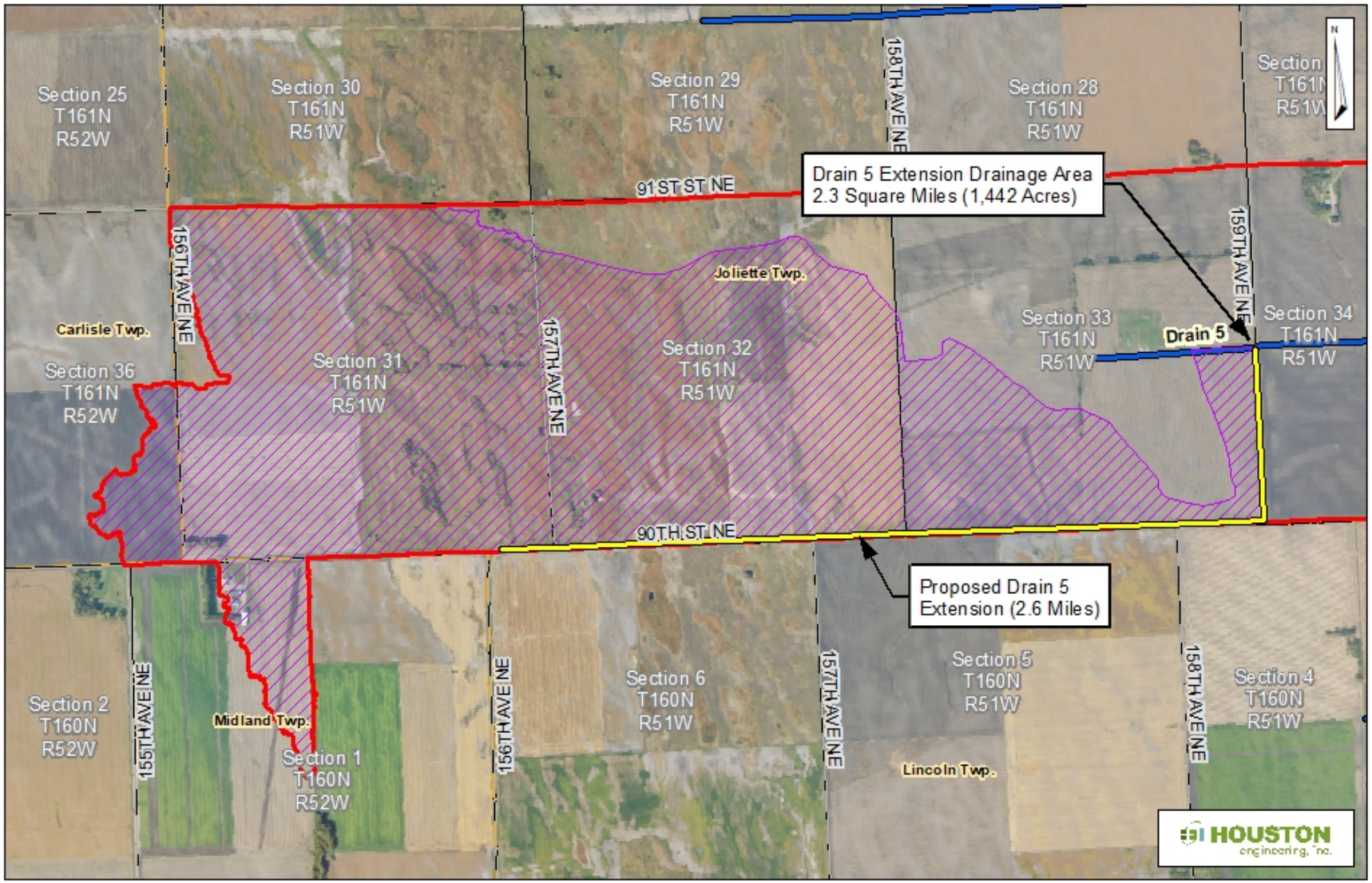
Proposed Extension

Extension Contributing Area



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Proposed Matching Capacity Alternative

- Match Extension Capacity to Existing Drain 5 Capacity of 0.25”-0.5” Runoff/Day
  - 0.5” of runoff is expected from a 2 to 5-year event.
- Existing I-29 culverts to remain

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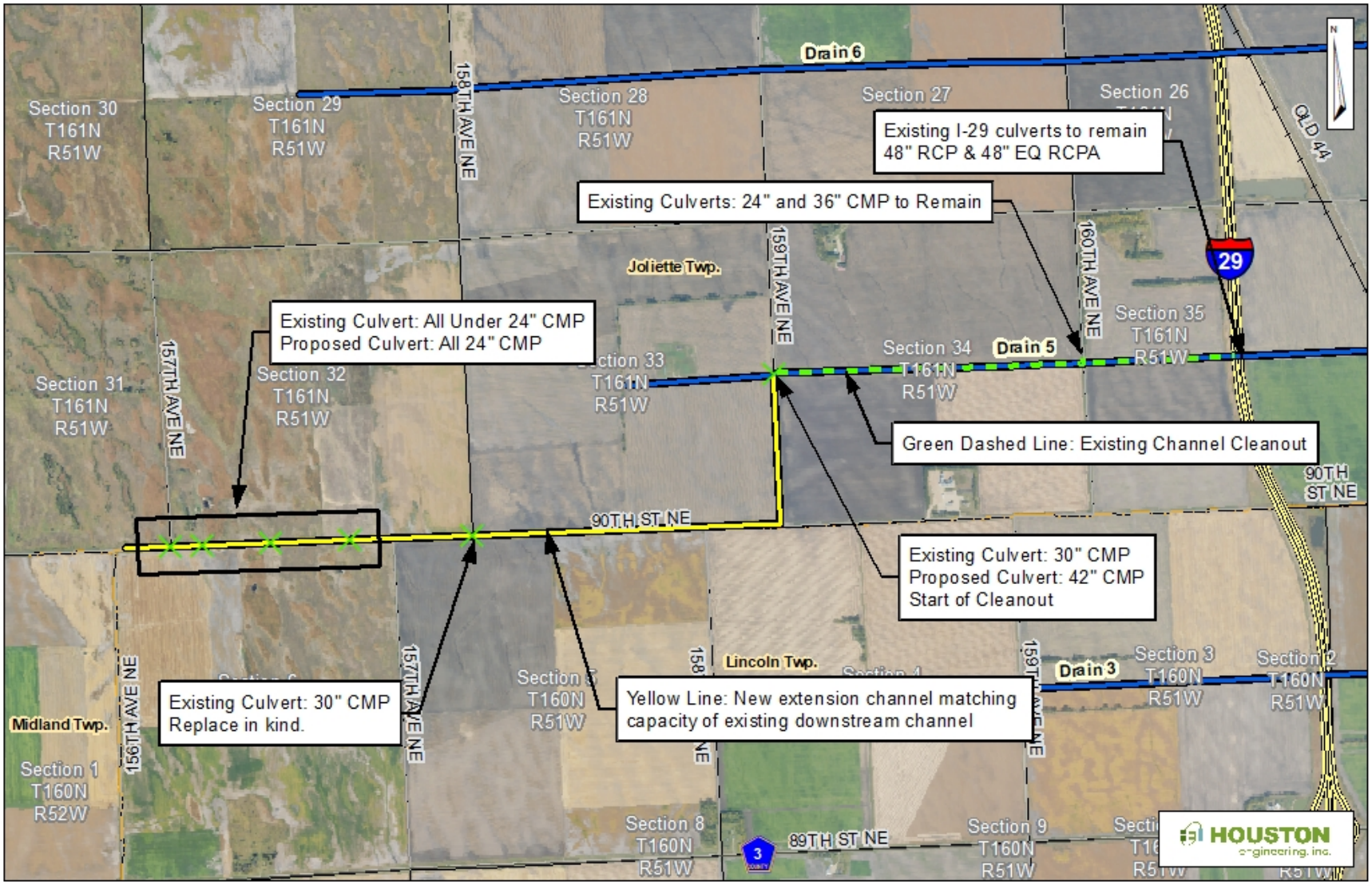
Proposed Extension

Matching Downstream Capacity Alternative



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Proposed Optimized Alternative

- Increase entire Drain 5 Capacity to 1” Runoff/Day
  - 1” of runoff is expected from a 10-year event.
- Existing I-29 culverts to remain
- Ensure all road crossings are meeting ND Stream Crossing Standards

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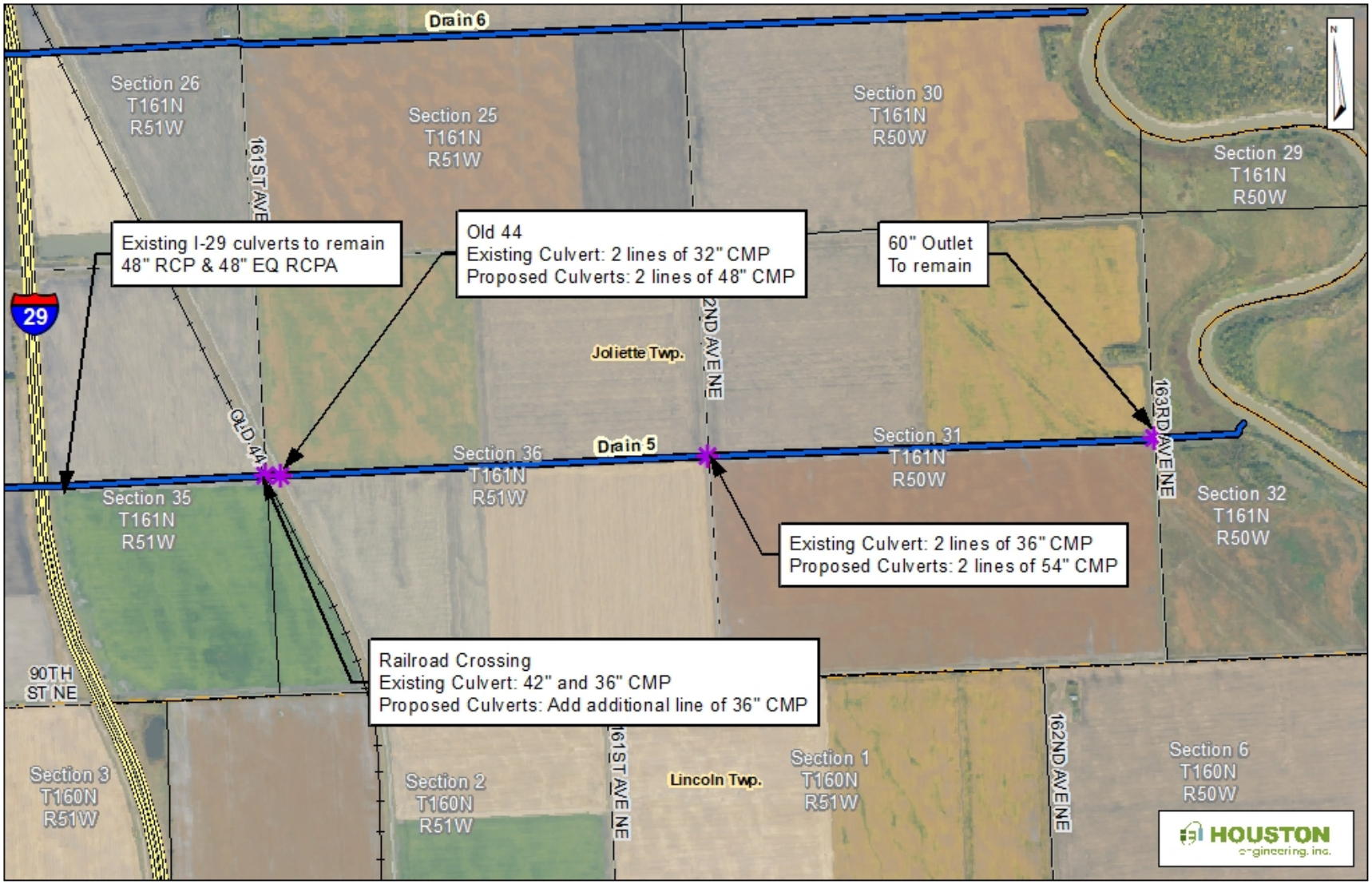
Proposed Extension

Optimized to Convey 1" Runoff/Day (East of I-29)



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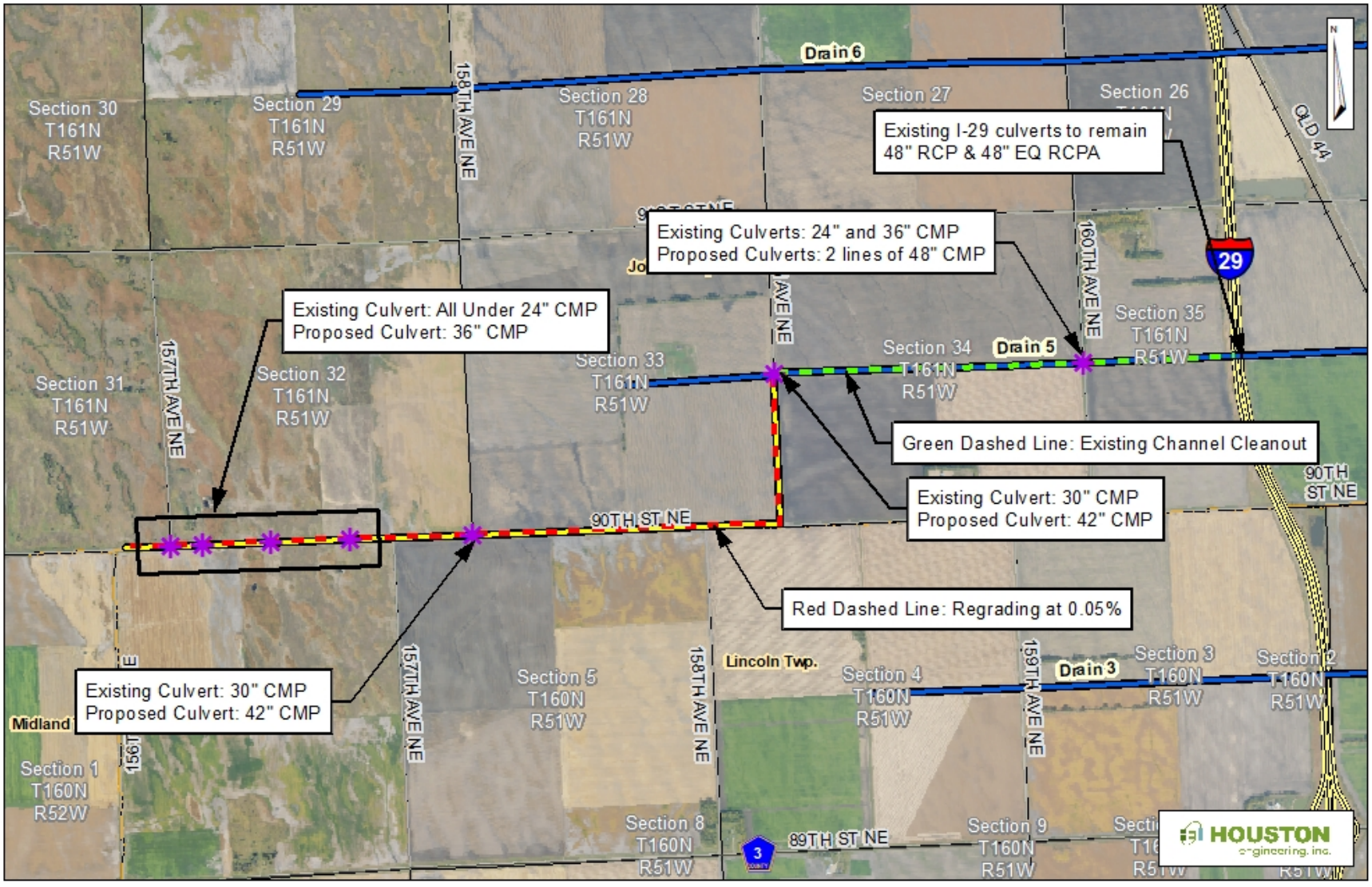
Proposed Extension

Optimized to Convey 1" Runoff/Day (West of I-29)



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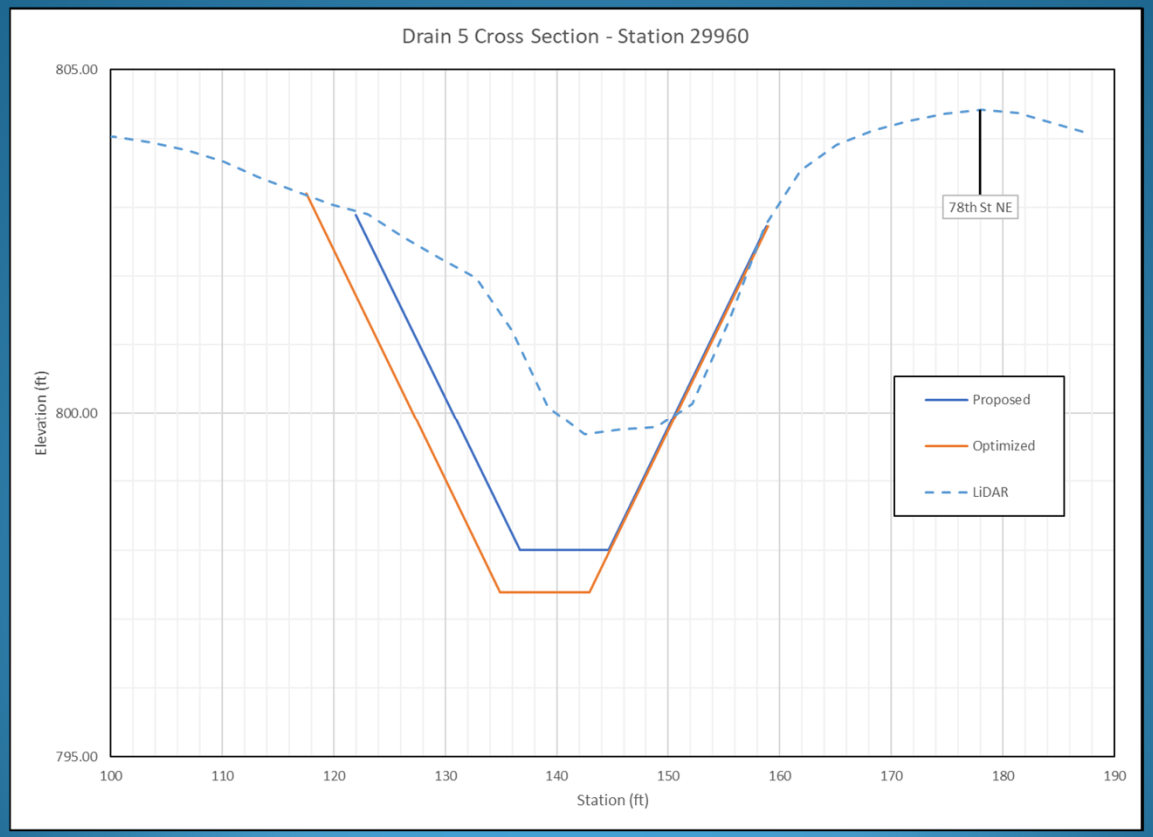
Alternative Comparison

Alternative	Project Scope	Estimated Capacity	Total Cost	Estimated Cost Share	Local Cost Share
Matching Existing Capacity	Improvements limited to West of I-29 Matching Existing Drain 5 Capacity	0.25"-0.5" Runoff/Day	$ 765,000	$ 280,000	$ 485,000
Optimized	Improve Crossings East of I-29 (Outlet to Remain) Increased Capacity	1" Runoff/Day	$ 1,315,000	$ 525,000	$ 790,000



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Discussion

- Based on your observations is the existing Drain 5 system adequate?
- Is there desire to improve the existing Drain 5 system?
  - If Yes, are there specific issues that you would like to see addressed?
  - If No, what concerns do you have with the extension alternative that matches the existing Drain 5 capacity?
- Any other items for the good of the order?

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Next Steps

- Consensus on path forward? (Today)
- Finalize concept design and cost estimate.
- Legal proceedings, public vote likely required.
- Pursue State Cost Share (Pre-construction)
- Railroad and Road Authority Coordination
- Finalize Design Plans and Specs.
- Permitting
- Land Rights
- Pursue State Cost Share (Construction)
- Contractor Procurement & Construction
- Operation and Maintenance

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Questions?

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