



# Waterway Redevelopment Project

University of Iowa CEE:4850 Senior Design Project 2021  
 Vance Davis, Connor Johnson, Luke Lesnik, and Kendall Wobig

## Location Map



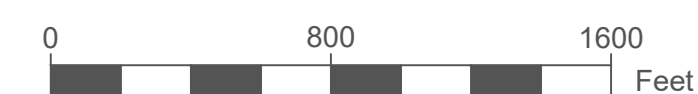
Krogmann Site

Bunting Site

Hutchison Site



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PROJECT:	CEE: 4850
DATE :	05/05/2021
DRAWN BY:	Luke Lesnik
REVISION:	

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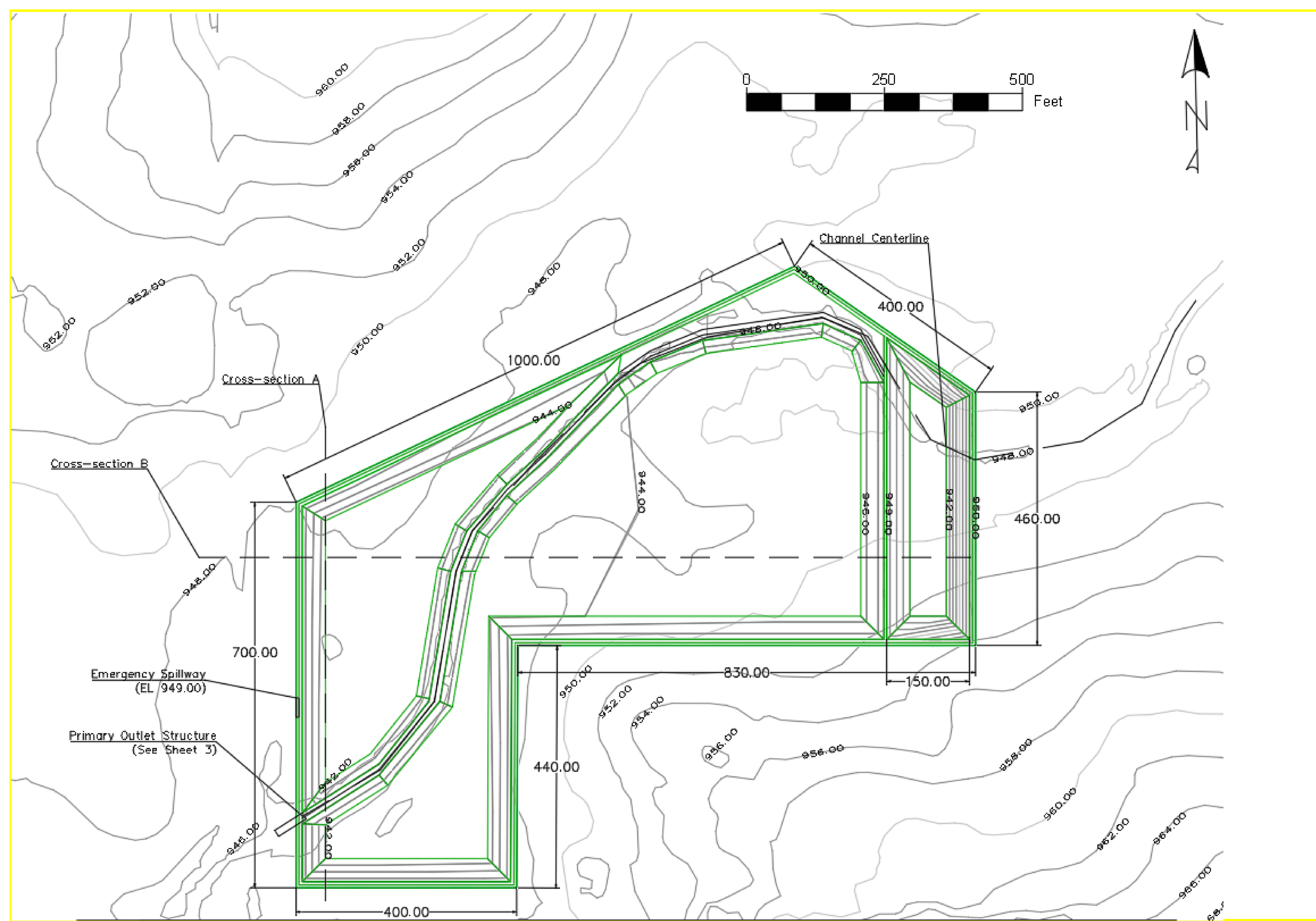
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## Waterway Redevelopment

Manchester, IA 52047

SHEET NAME  
 Title Sheet

SHEET NO.  
**01**



PROJECT: CEE: 4850  
 DATE: 05/03/2021  
 DRAWN BY: Vance Davis  
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# Waterway Redevelopment

Manchester, IA 52047  
 42°29'50.9"N 91°26'41.7"W

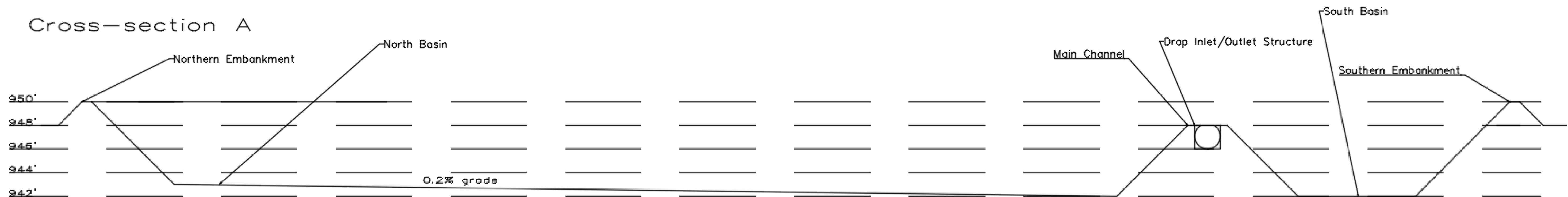
SHEET NAME  
 Krogmann Site  
 Grade & Ext. Dim.

SHEET NO.  
**02**

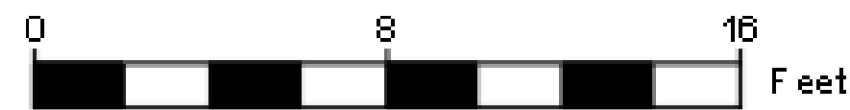
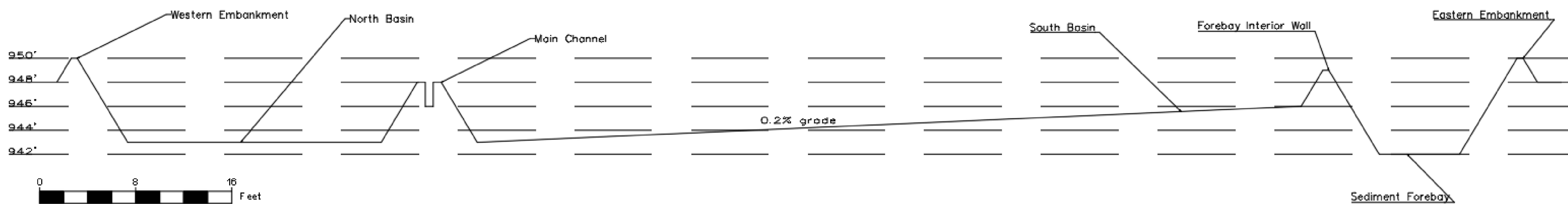
**Note:**

1. Horizontal dimensions are reduced by a factor of 6 for Cross-section A, and by a factor of 10 for Cross-section B.
2. Lines show proposed grading of basins and embankments unless otherwise specified.
3. Maximum embankment slopes are 6:1 H:V.

Cross-section A



Cross-section B



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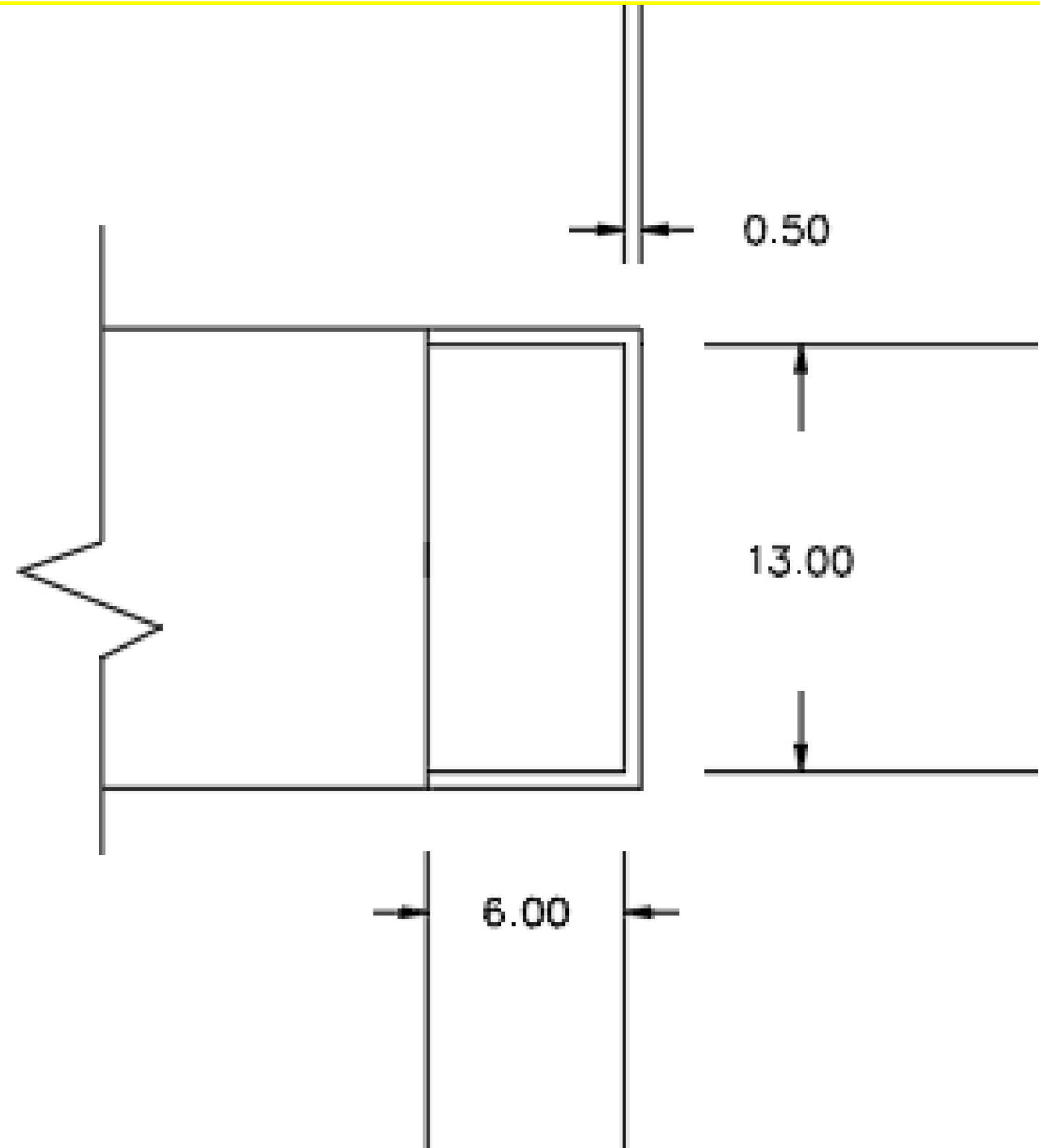
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**Waterway Redevelopment**

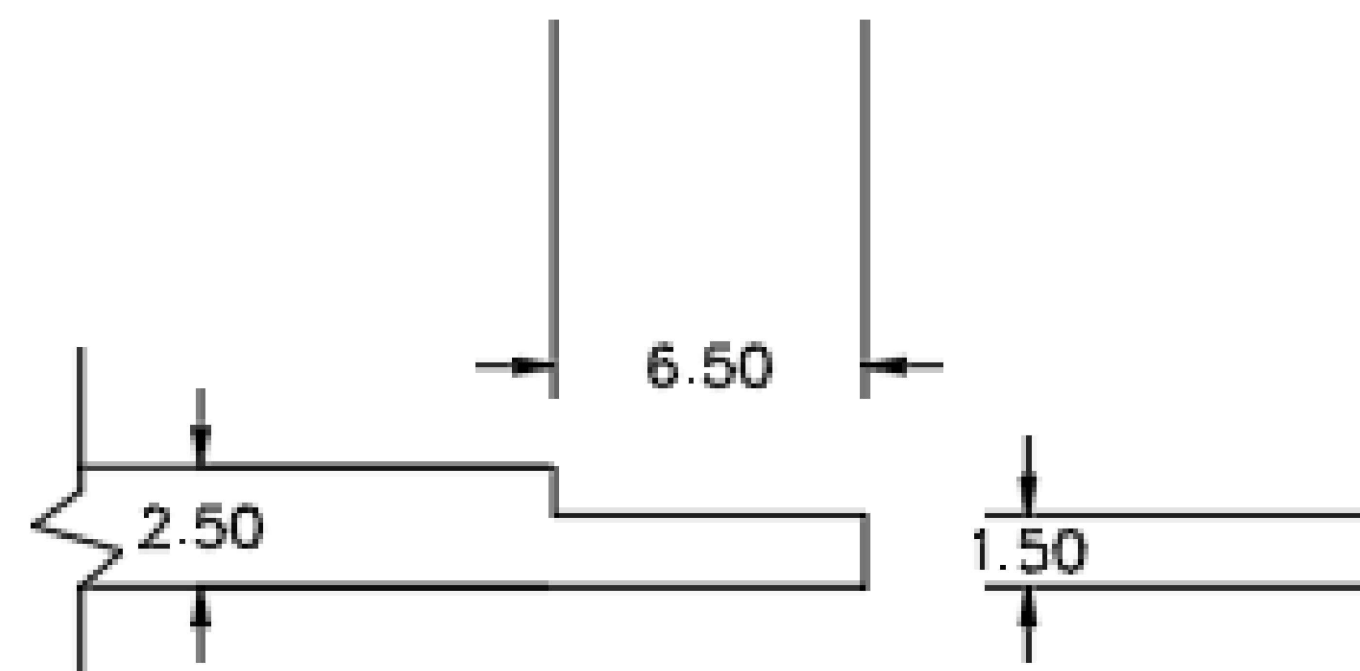
Manchester, IA 52047  
 42°29'50.9"N 91°26'41.7"W

SHEET NAME  
 Krogmann Site  
 Cross-sections

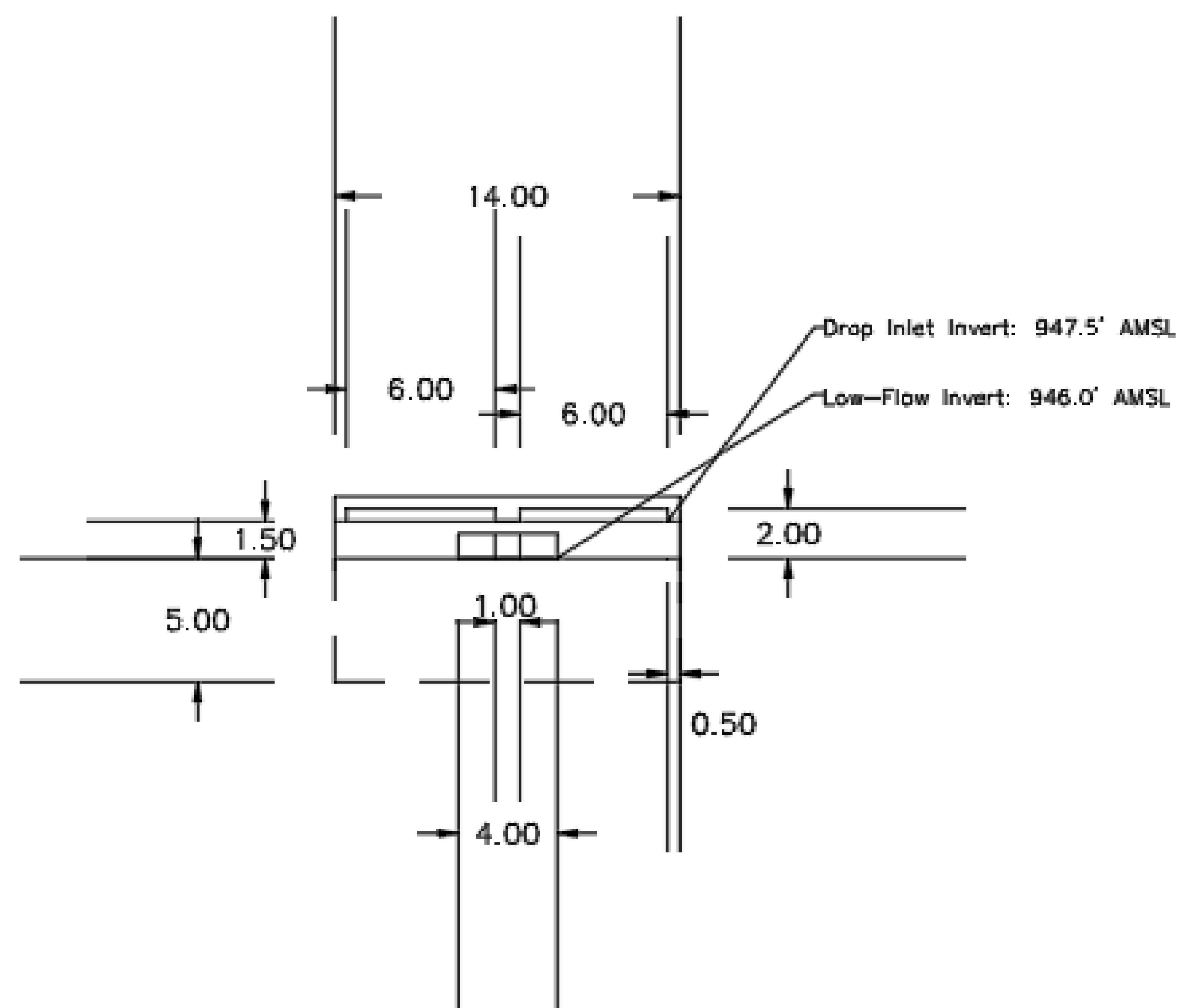
SHEET NO.  
**03**



A. Plan View



C. Side View



B. Front View

Note:

1. 4'x1' orifice (H:V) is for average low flow.
2. 13'x6' drop inlet acts as a weir for larger storm events. The structure is composed of 6" thick concrete. Its structure is also partially underground for stability, as shown by the dashed lines in the front view.
3. 2 6'x2' box culverts at 0.4% grade transmit water downstream.
4. A 35'-wide emergency spillway activates at 949.0' AMSL.

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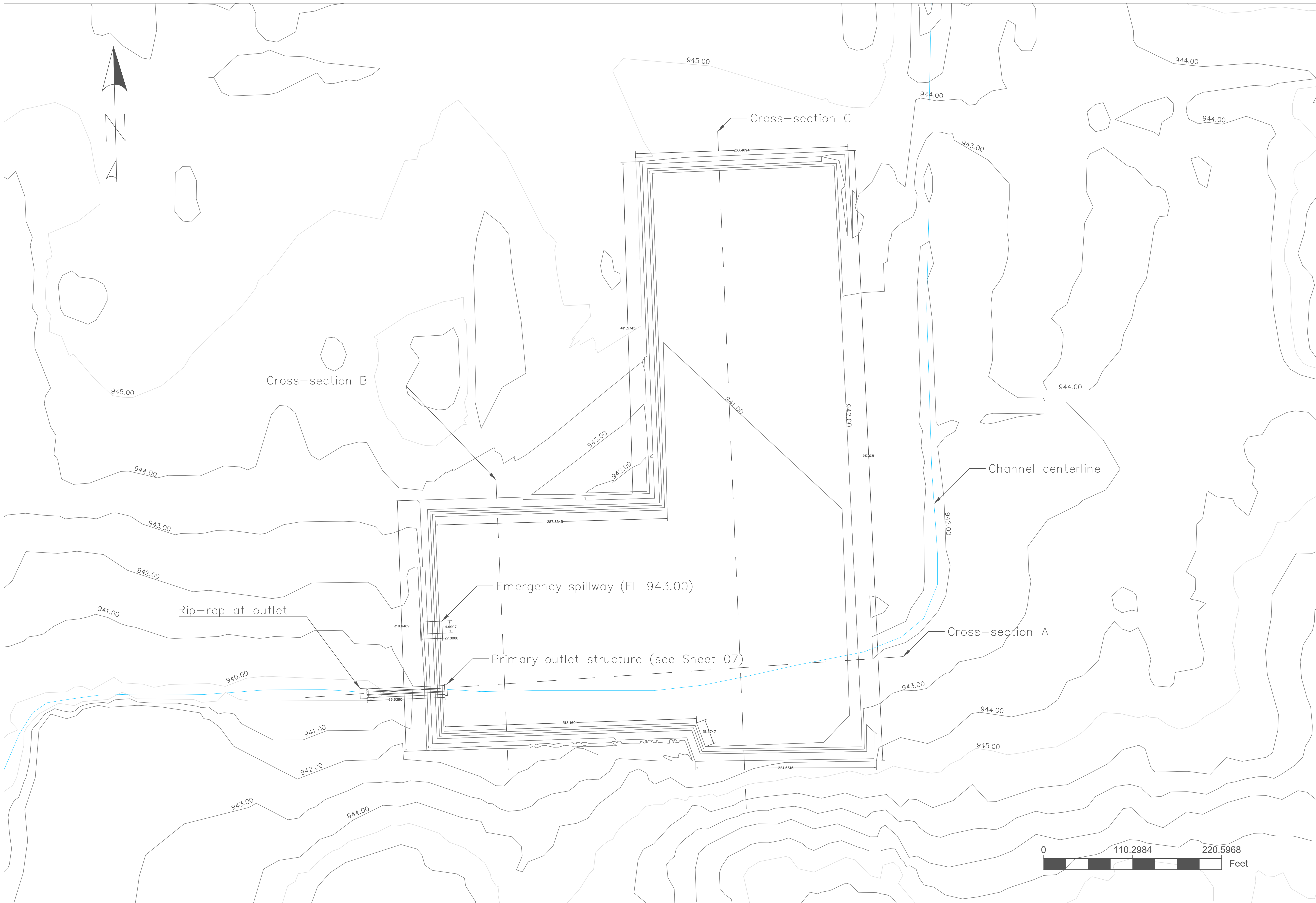
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**Waterway Redevelopment**

Manchester, IA 52047  
 42°29'50.9"N 91°26'41.7"W

SHEET NAME  
 Krogmann Site  
 Outlet Dimensions

SHEET NO.  
**04**



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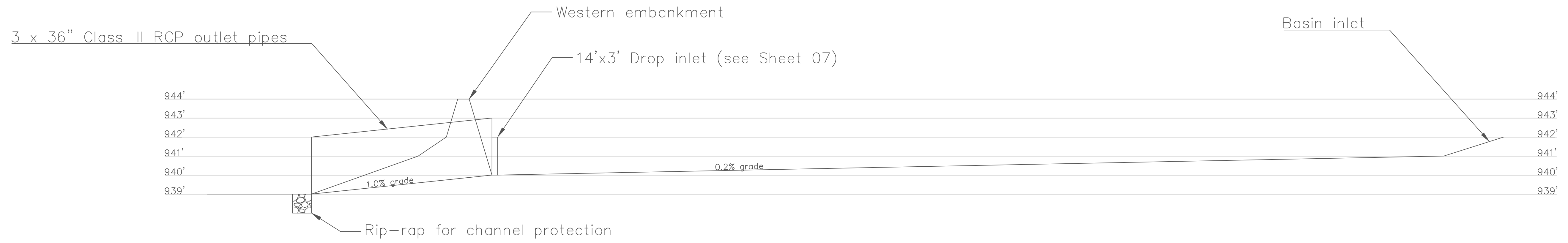
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**Waterway Redevelopment**  
 Manchester, IA 52047  
 42.491521, -91.448517

SHEET NAME  
 Bunting Site  
 Plan View

SHEET NO.  
**05**

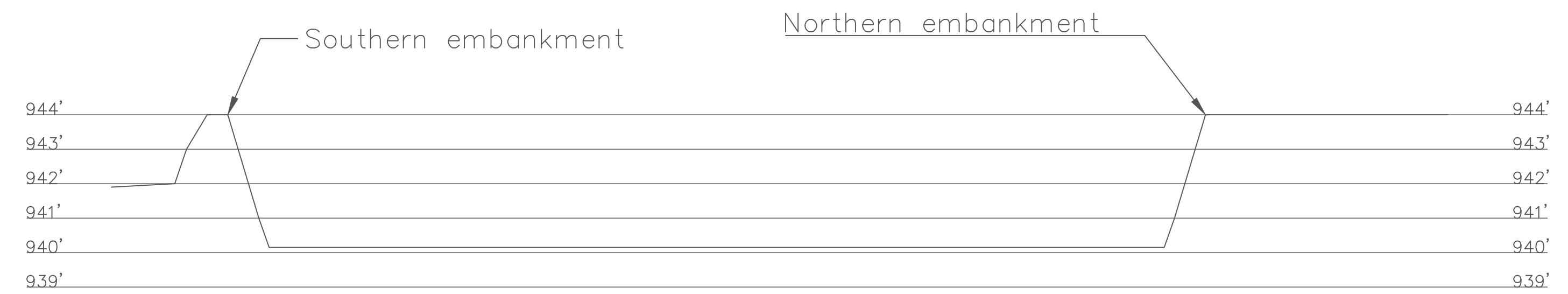
# Cross-section A



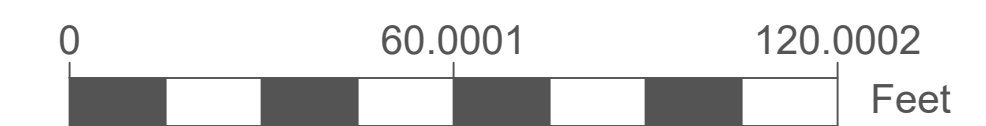
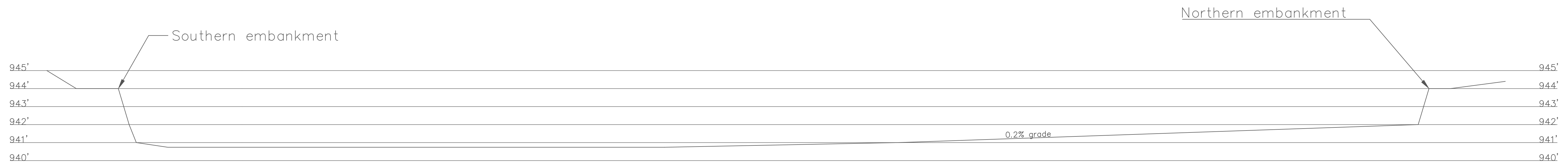
## Notes:

1. Drawings exaggerated vertically by a factor of 10.
2. Lines indicate proposed grading of the basin and embankments unless otherwise specified.
3. Maximum embankment slopes are 3:1 horizontal:vertical.

# Cross-section B



# Cross-section C



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## Waterway Redevelopment

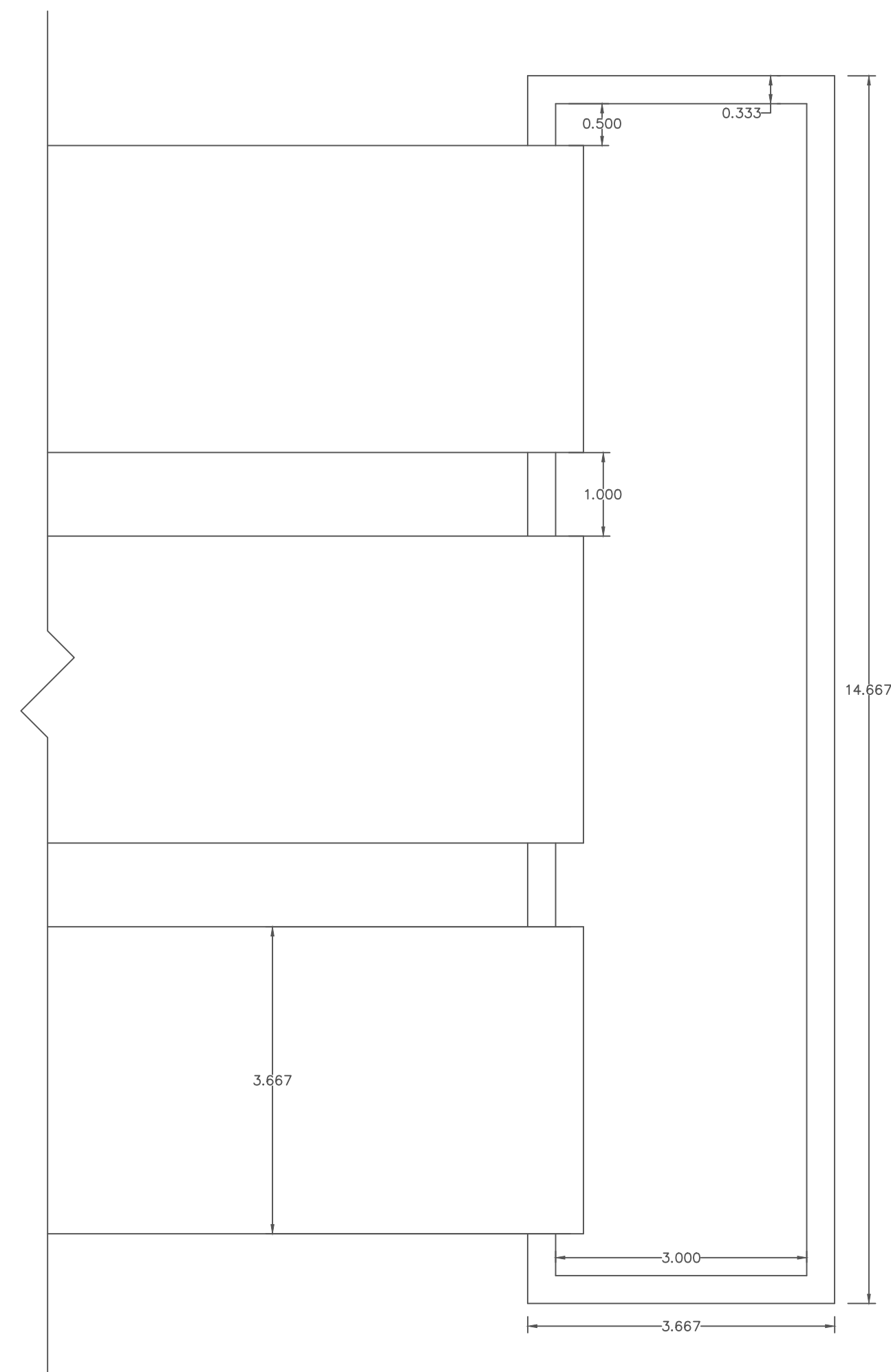
Manchester, IA 52047  
 42.491521, -91.448517

SHEET NAME

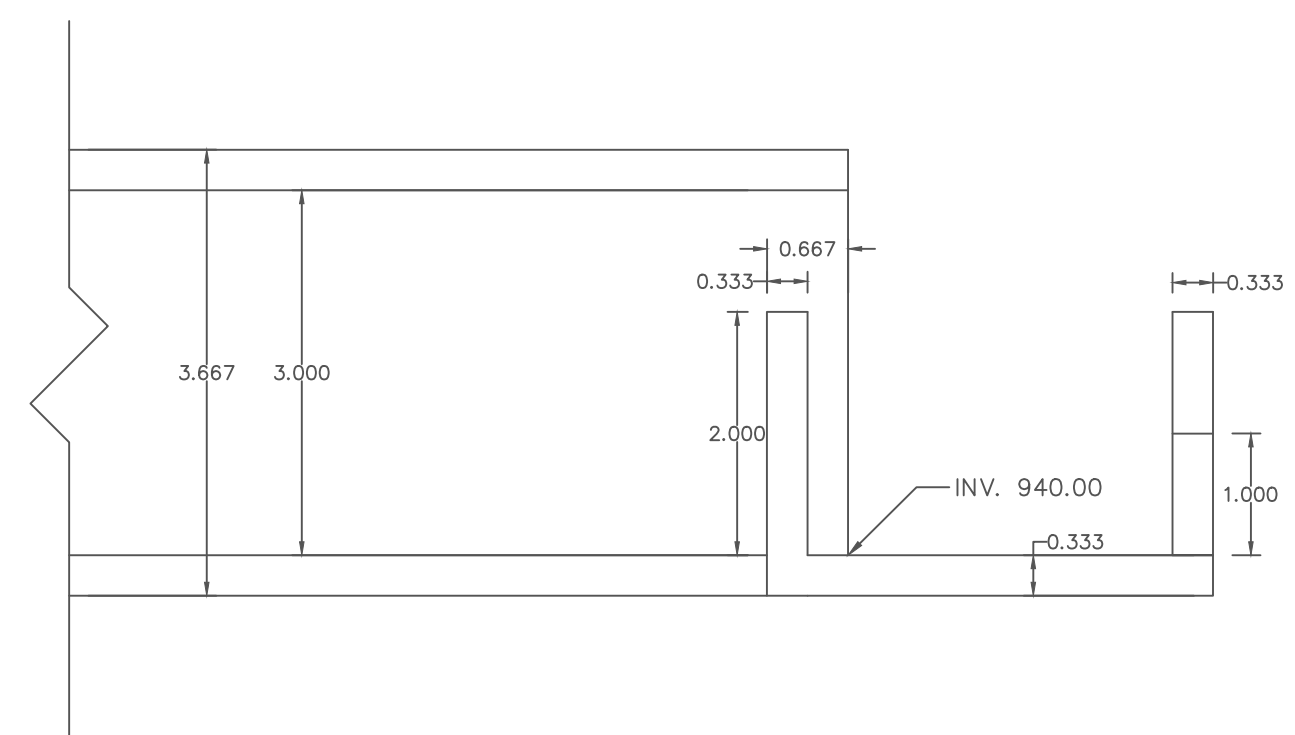
Bunting Site  
 Cross Sections

SHEET NO.

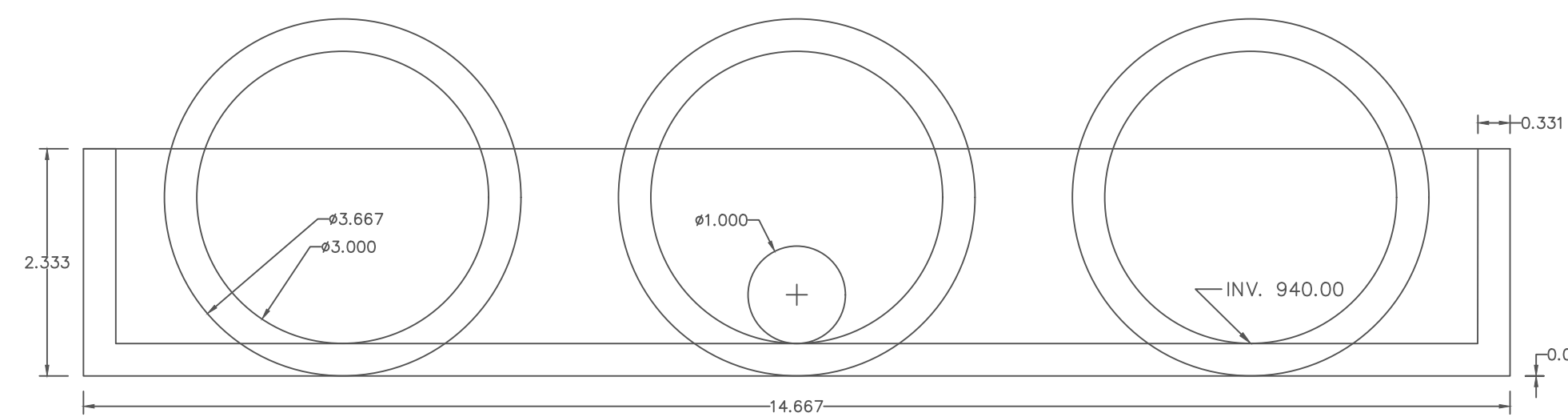
**06**



A. Plan View



B. Profile View



C. Front View

Notes:

1. Round 12" low flow orifice for average flow conditions.
2. 14'x3' drop inlet operates as a weir for larger storm events. The structure is composed of 4" thick concrete.
3. 3 x 36" Class III RCP outlet pipes at a 1.0% grade transmit water downstream.

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**Waterway Redevelopment**

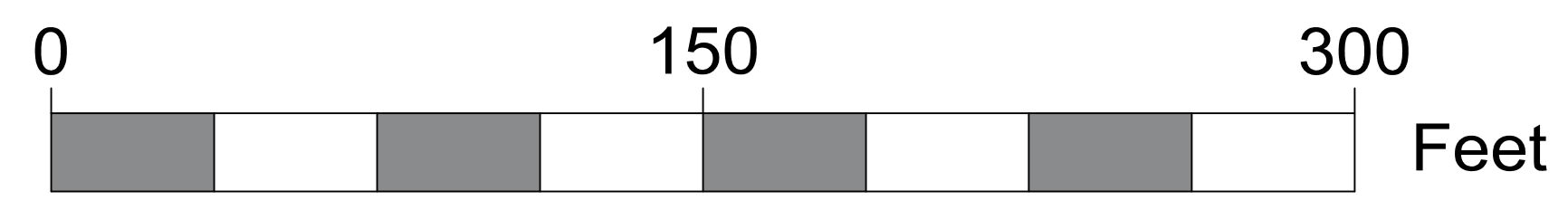
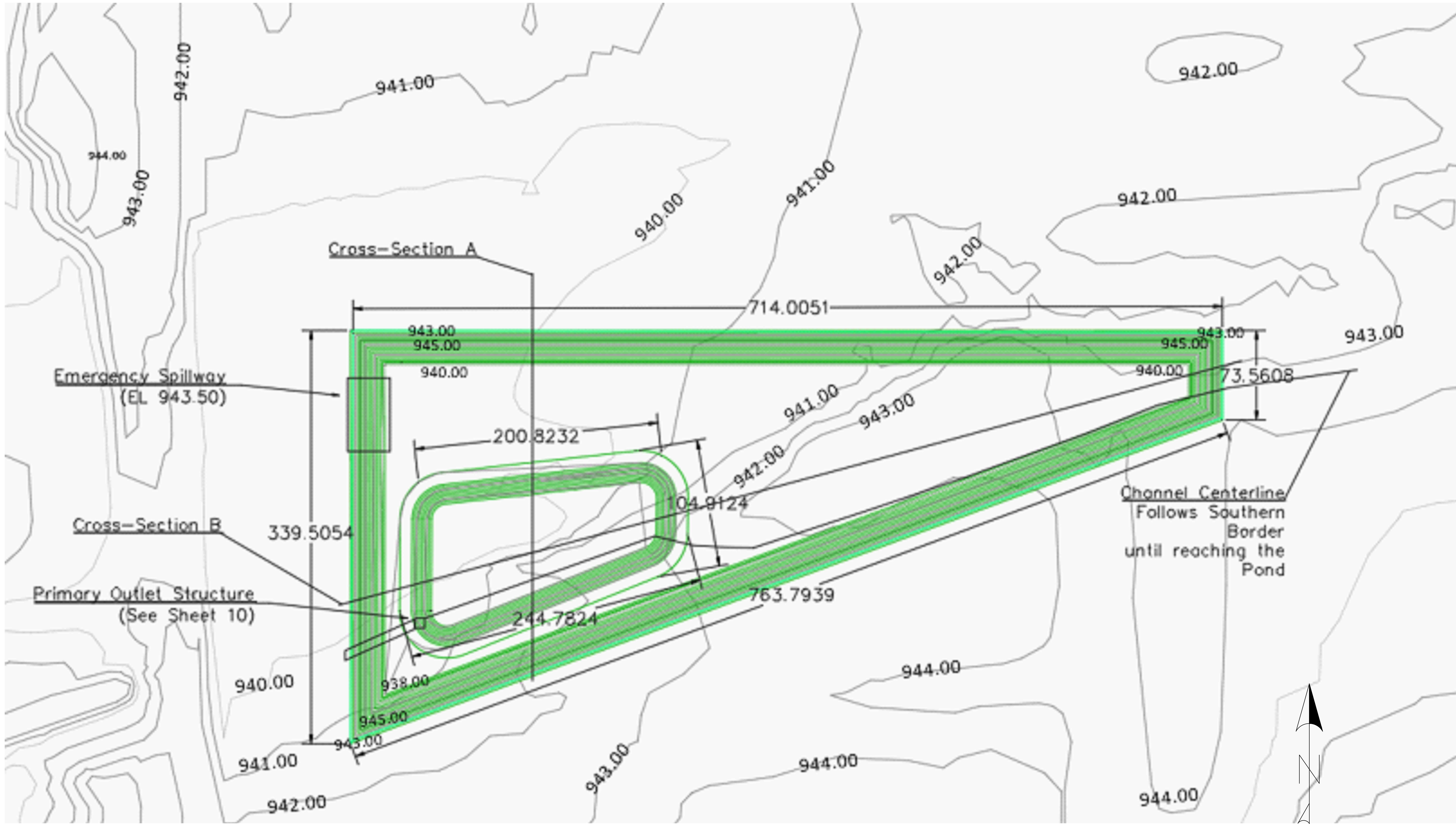
Manchester, IA 52047  
 42.491521, -91.448517

SHEET NAME

Bunting Site  
 Outlet Dimensions

SHEET NO.

**07**



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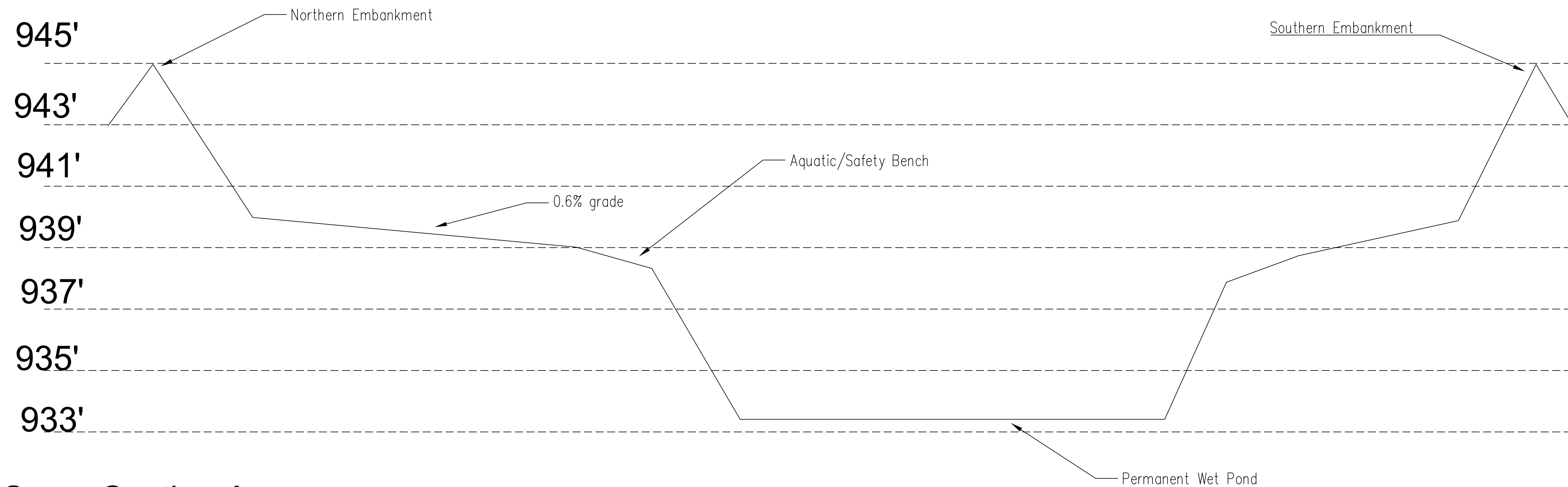
## Waterway Redevelopment

Manchester, IA 52047  
 42.4858° N, 91.4580° W

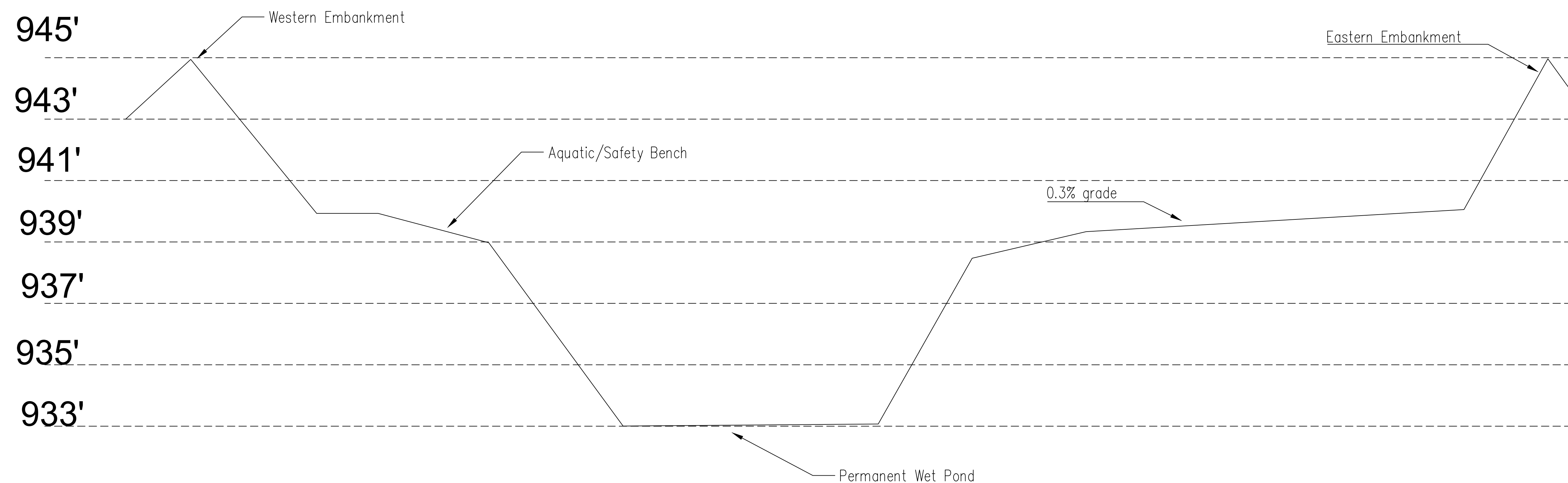
SHEET NAME  
 Hutchison Site  
 Plan View

SHEET NO.  
**08**





Cross-Section A



Cross-Section B

Notes:

- 1: Horizontal dimensions are reduced by a factor of 3 for Cross-Section A and by a factor of 7 for Cross-Section B.
- 2: Embankment slopes are at a 4:1 (H:V) ratio - this includes the embankments of the pond.
- 3: The Aquatic/Safety Bench has a 20:1 (H:V) slope
- 4: The grade specified for each cross-section is the overall slope from the base of the outer embankments to the base of the other outer embankment.

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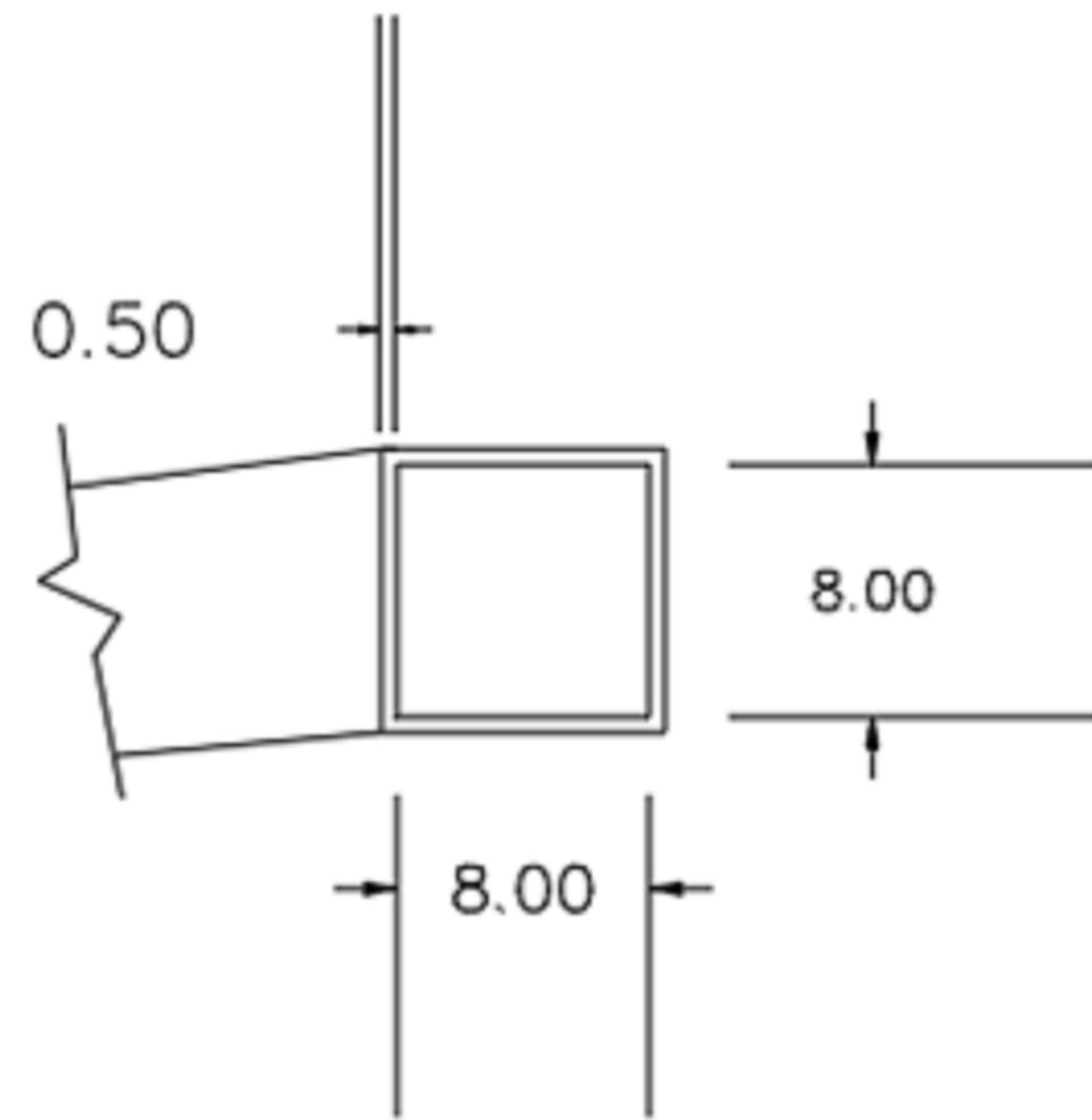
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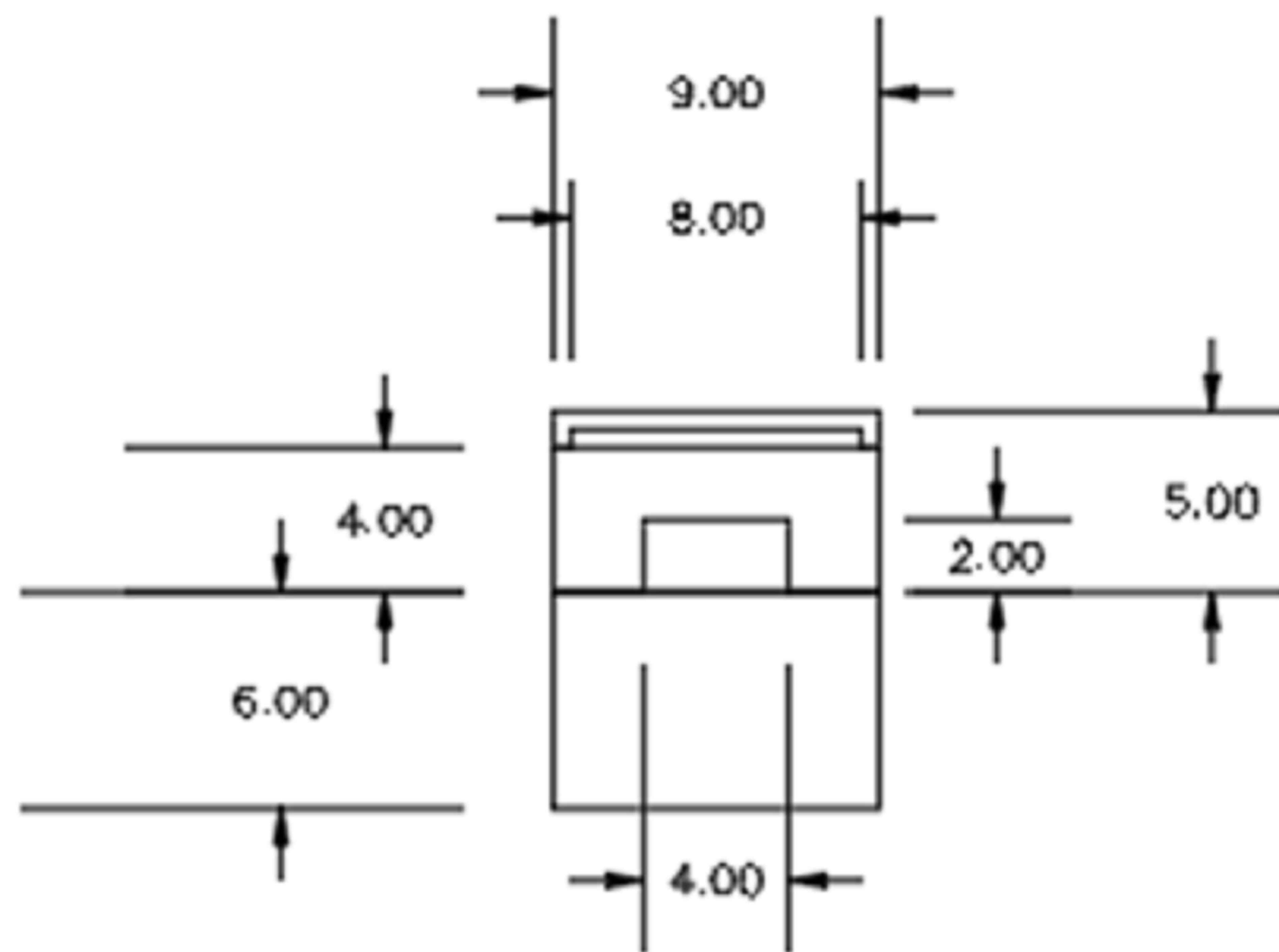
Manchester, IA 52047  
 42.4858° N, 91.4580° W

SHEET NAME  
 Hutchison Site  
 Cross Sections

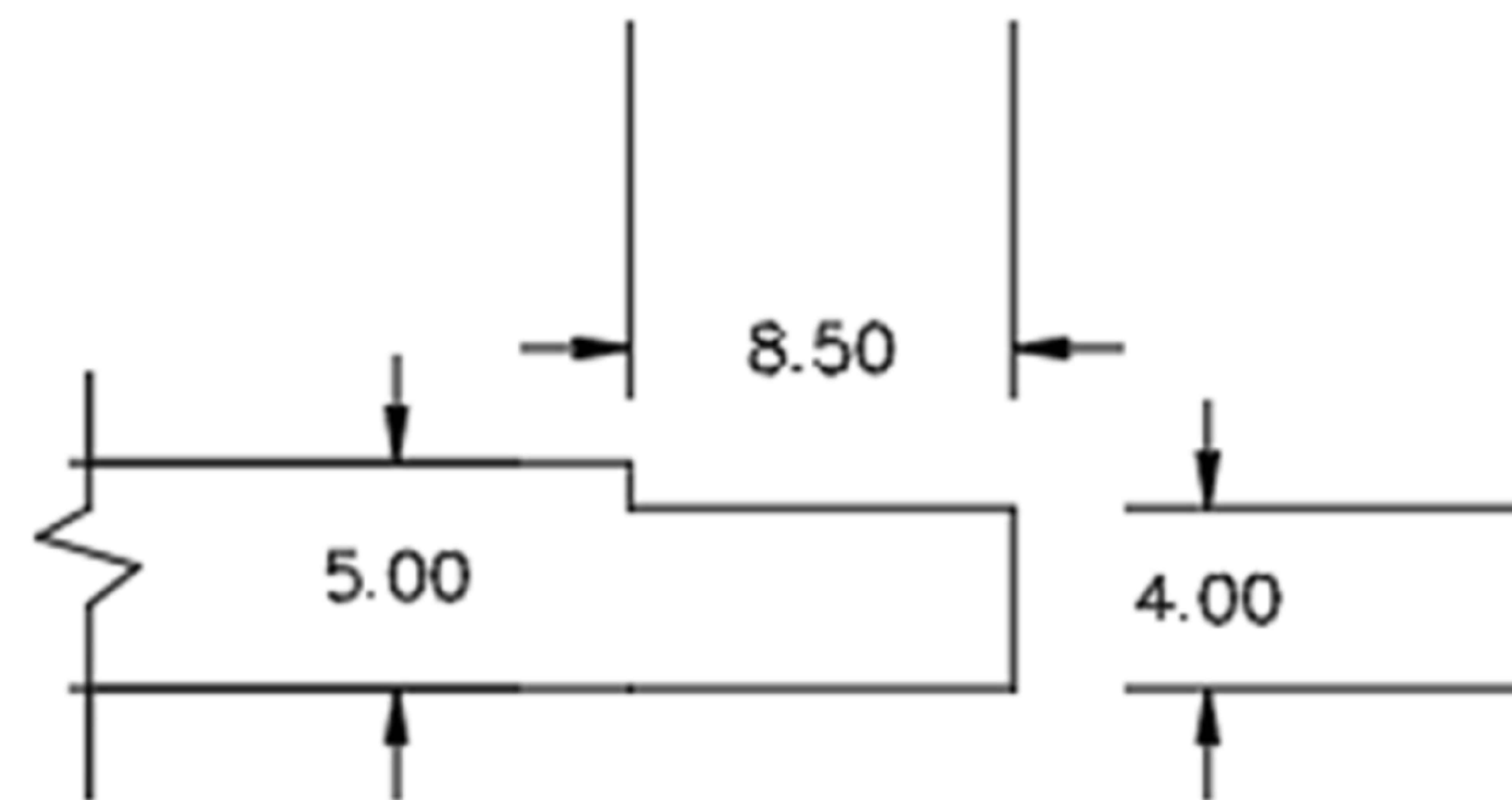
SHEET NO.  
**09**



A. Plan View



B. Front View



C. Side View

Note:

1. 4'x2' orifice (H:V) is for average low flow.
2. 8'x8' drop inlet acts a weir/orifice for larger storm events. The structure is composed of 6" thick concrete.
3. A 4.5'x7' box culvert at 0.3% grade transmits water downstream.
4. A 60'-wide emergency spillway activates at 943.0' AMSL

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**Waterway Redevelopment**

Manchester, IA 52047  
 42.4858° N, 91.4580° W

SHEET NAME  
 Hutchison Site  
 Outlet Dimensions

SHEET NO.  
**10**