Drainage Water Management Plan – Minnesota

Site Location and General Information

Cooperator Name	[Farmer]
County and Township	[County & Township]
Latitude and Longitude	[Latitude & Longitude]
Farm Number	[Farm Number]
Tract Number	[Tract Number]
Crops in Rotation	[Crops in Rotation]
Contractor Name developing plan	Michael Lehmann, Air-Row Surveying, LLC
Date of Plan Development	[Plan Date]

Drainage Water Management Plan boundary

The total project drained area is the same as the boundary line shown in the soils map below.

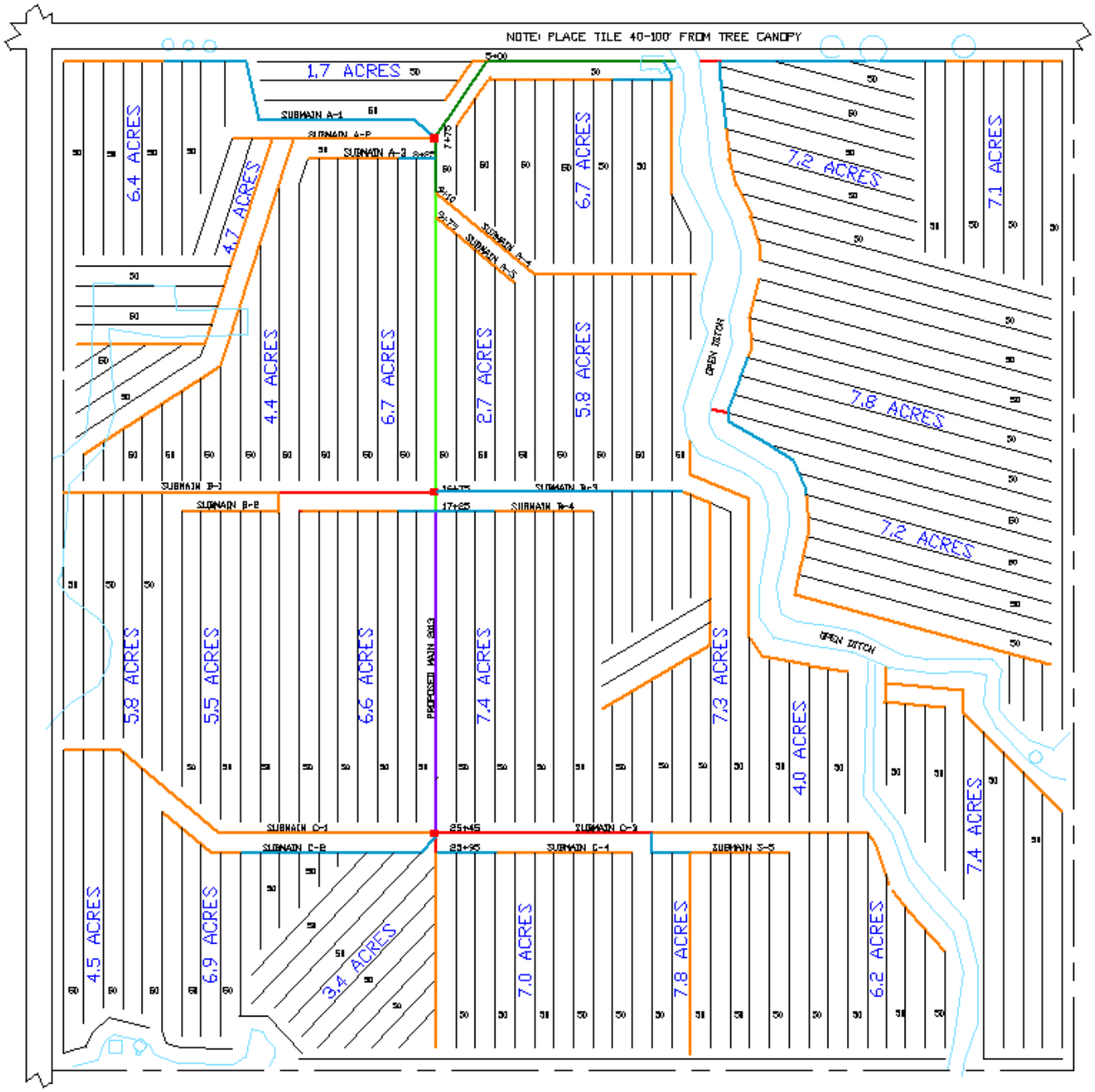
Objectives

- □ Improve water quality by reducing nitrate loading to surface waters.
- □ Improve the soil environment for vegetative growth.
- □ Reduce the rate of soil organic matter oxidation.
- □ Reduce wind and water erosion.
- □ Enable seasonal soil saturation and/or shallow flooding.
- □ Reduce drainage contribution to peak flows.

Soils Map

Map Unit Symbol	Soil Name
47	Colvin silty clay loam
698	Doran clay loam
948	McIntosh-Lindaas complex
1933	Bearden-Lindaas complex

Proposed Tile Map



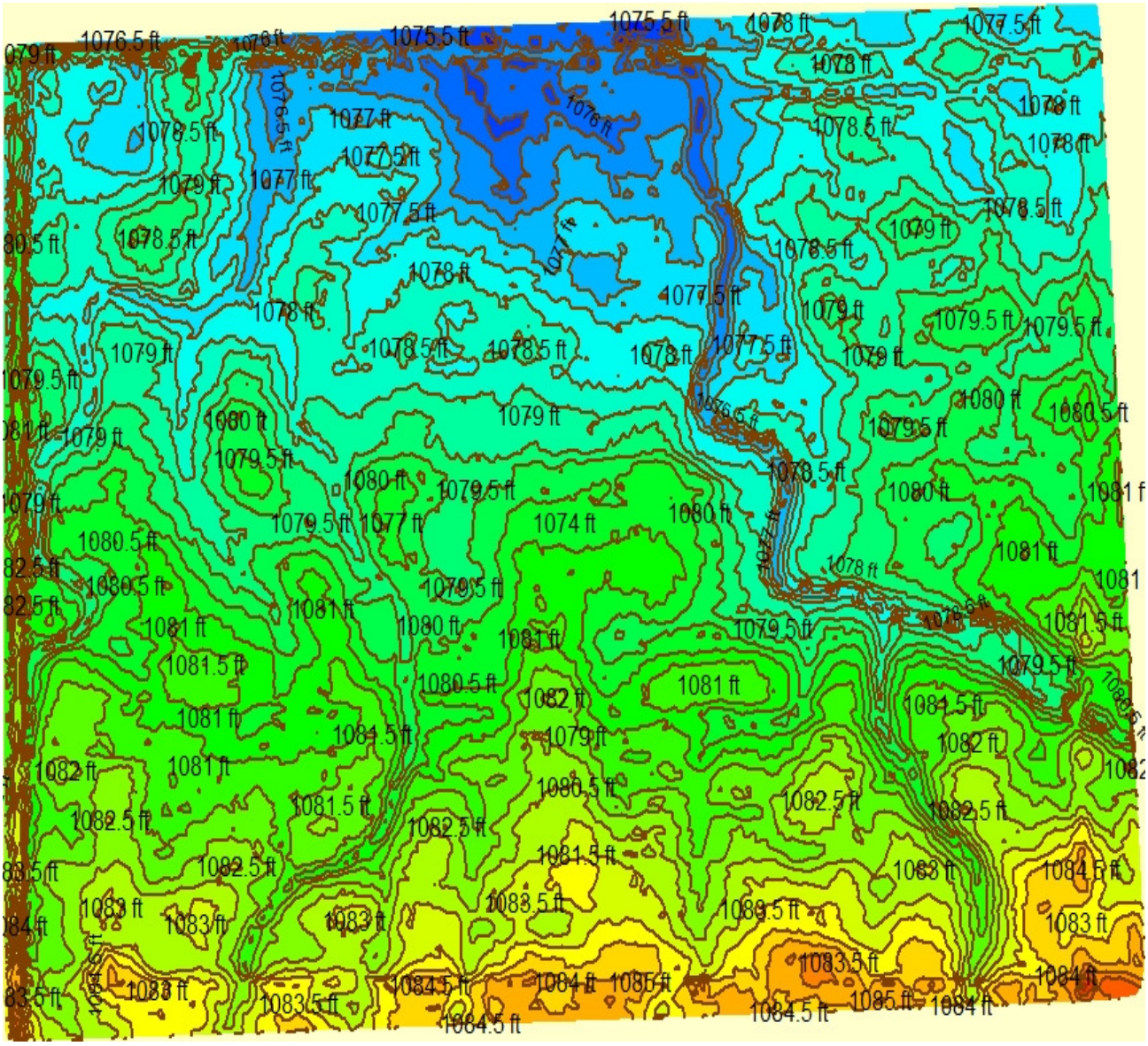
Proposed Drainage System Installation

Component	Amount	Item
4 inch – (Black)	111,110 ft	Corrugated Plastic Tubing
5 inch – (Orange)	14,220 ft	Corrugated Plastic Tubing
6 inch – (Blue)	4,055 ft	Corrugated Plastic Tubing
8 inch – (Red)	1,105 ft	Corrugated Plastic Tubing
*10 inch – (Purple)	820 ft	Corrugated Plastic Tubing
*12 inch – (Green)	815 ft	Corrugated Plastic Tubing
*18 inch – (Dark Green)	850 ft	Corrugated Plastic Tubing
Total	132,975 ft	Corrugated Plastic Tubing

*One size smaller dual wall pipe could be substituted if it helps installation but the control structures are being sized for corrugated pipe.

Topographic Map

.5 FOOT CONTOUR



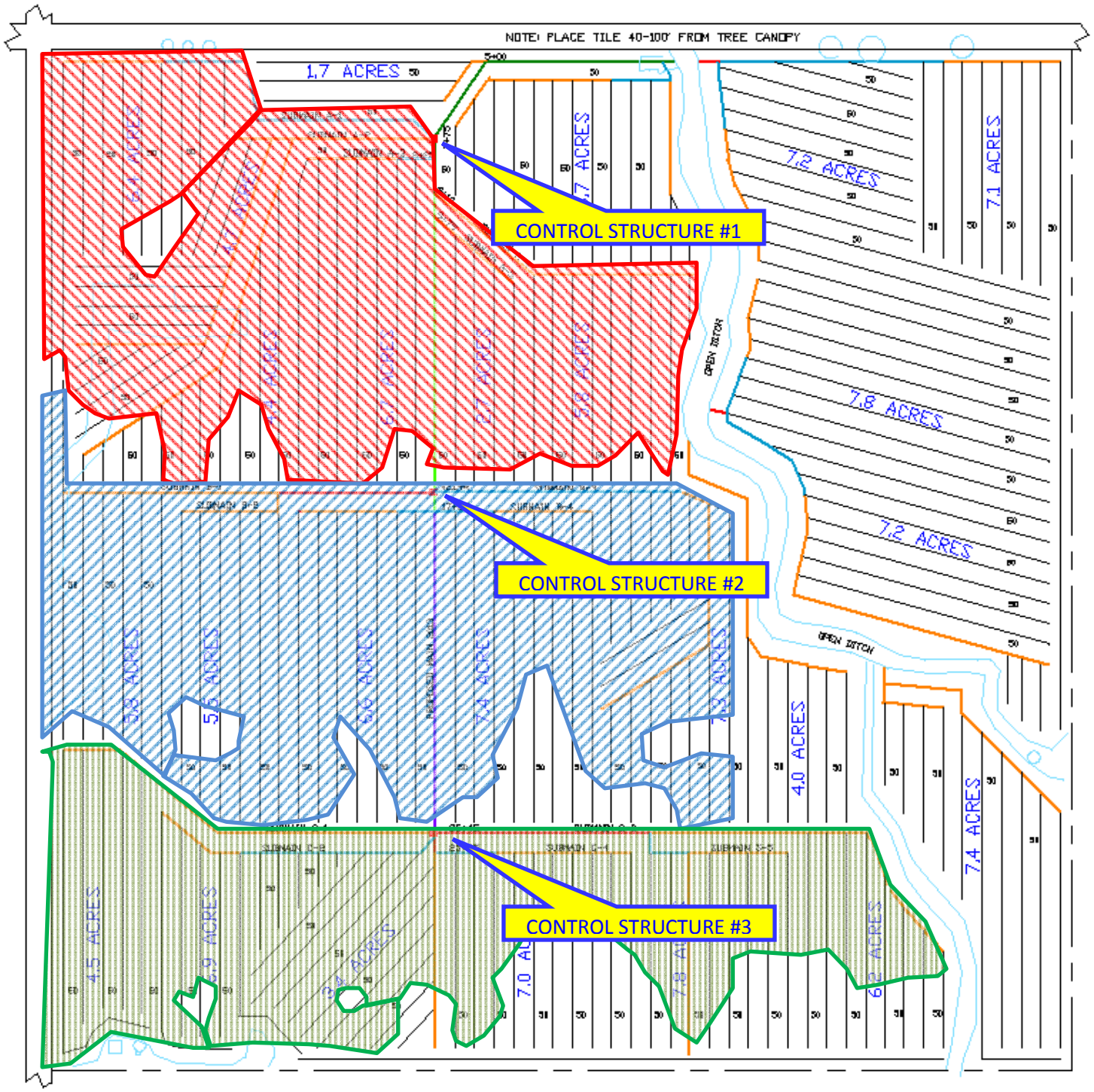
Existing Tile

This site has random clay and concrete tile.

Wetland Map

The site has no wetlands for USDA Program purposes.

Impacted Areas



Water Control Structures

Label	1	2	3
Location of Control Structure (Latitude, Longitude)	[Latitude / Longitude]	[Latitude / Longitude]	[Latitude / Longitude]
Ground Elevation at Control Structure	1077.09	1079.9.3	1081.22
Area of impact	27.6	28.6	22.9
Flow Elevation of structure *Verify Outlet Depth	1071.78	1074.21	1076.00
Location of Outlet (Lat/Long)	[Latitude / Longitude]	[Latitude / Longitude]	[Latitude / Longitude]

Water Table Management Plan – For Control Structures

Winter Management – Control # 1

Harvest Date	September 15
Starting Date for Fallow Season Water Control	September 15 or when harvest complete
Fallow Season Control Elevation1	1076.6
Spring Water Release Date	April 10
Planting Date or Range	May 1-15

Growing Season Management

Date	**Control Elevation**
May 1 or as soon as planting is done	1076.6
Summer	Remove stoplogs if large rain event occurs or add stoplogs if drought
September 1 *Verify Outlet Depth	1071.8 or lower for dry soil for harvest; allow 2-3 weeks
September 30 or when harvest done	1076.6

Winter Management – Control # 2

Harvest Date	September 15
Starting Date for Fallow Season Water Control	September 15 or when harvest complete
Fallow Season Control Elevation1	1079.3
Spring Water Release Date	April 10
Planting Date or Range	May 1-15

Growing Season Management

Date	**Control Elevation**
May 1 or as soon as planting is done	1079.3
Summer	Remove stoplogs if large rain event occurs or add stoplogs if drought
September 1 *Verify Outlet Depth	1074.2 or lower for dry soil for harvest; allow 2-3 weeks
September 30 or when harvest done	1079.3

Winter Management – Control # 3

Harvest Date	September 15
Starting Date for Fallow Season Water Control	September 15 or when harvest complete
Fallow Season Control Elevation1	1080.7
Spring Water Release Date	April 10
Planting Date or Range	May 1-15

Growing Season Management

Date	**Control Elevation**
May 1 or as soon as planting is done	1080.7
Summer	Remove stoplogs if large rain event occurs or add stoplogs if drought
September 1 *Verify Outlet Depth	1076.0 or lower for dry soil for harvest; allow 2-3 weeks
September 30 or when harvest done	1080.7

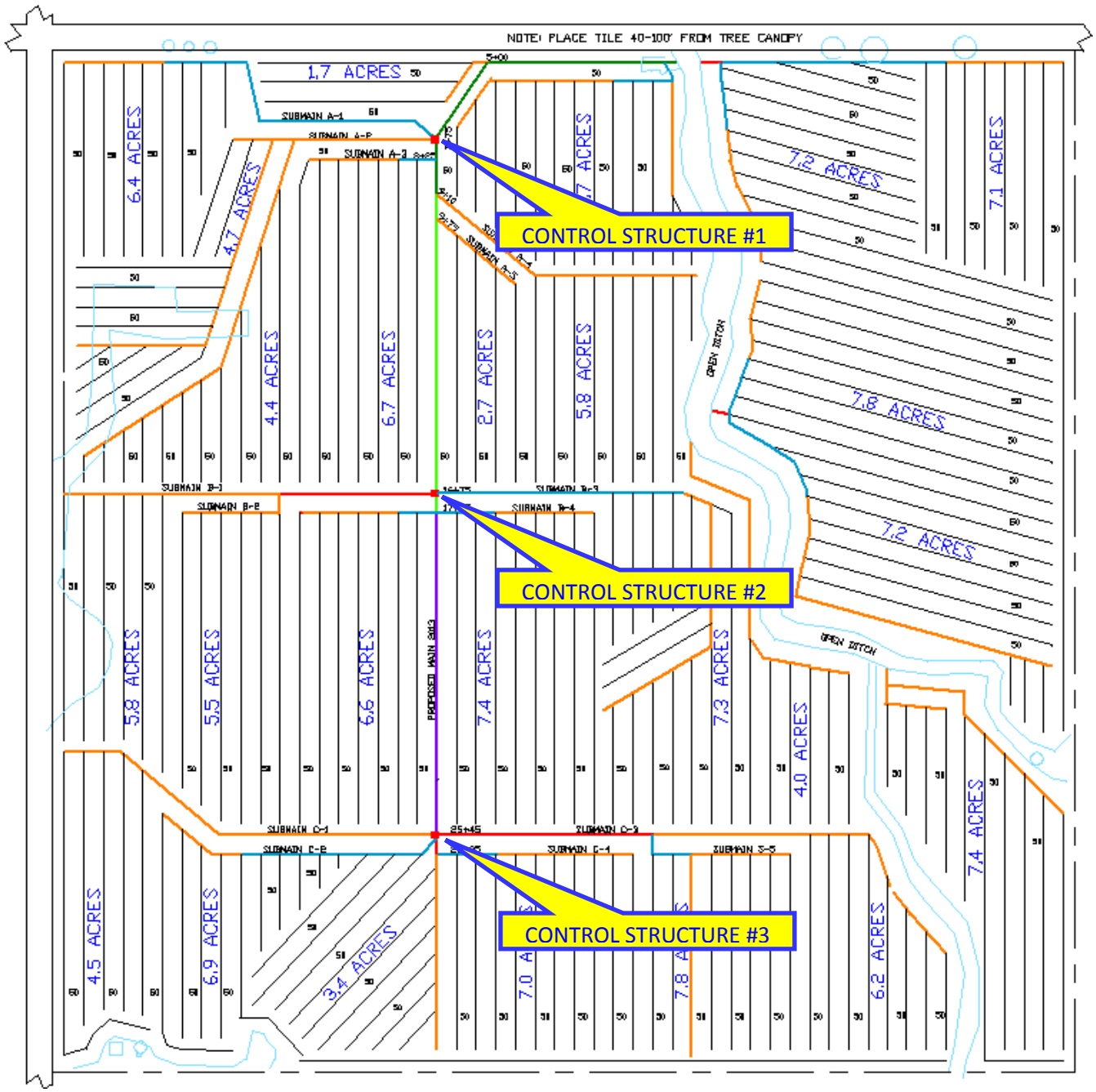
Footnotes for all zones:

1. During the fallow period, the control structure should be operated to allow the water table to rise to the soil surface or to a designated maximum control elevation (6 inches below the soil surface at the control structure or to the lowest elevation in the drained field.)
2. For some guidelines for control of drainage and the management of the water table during the growing season, review MN NRCS practice standard 554 and brochure WQ-44.

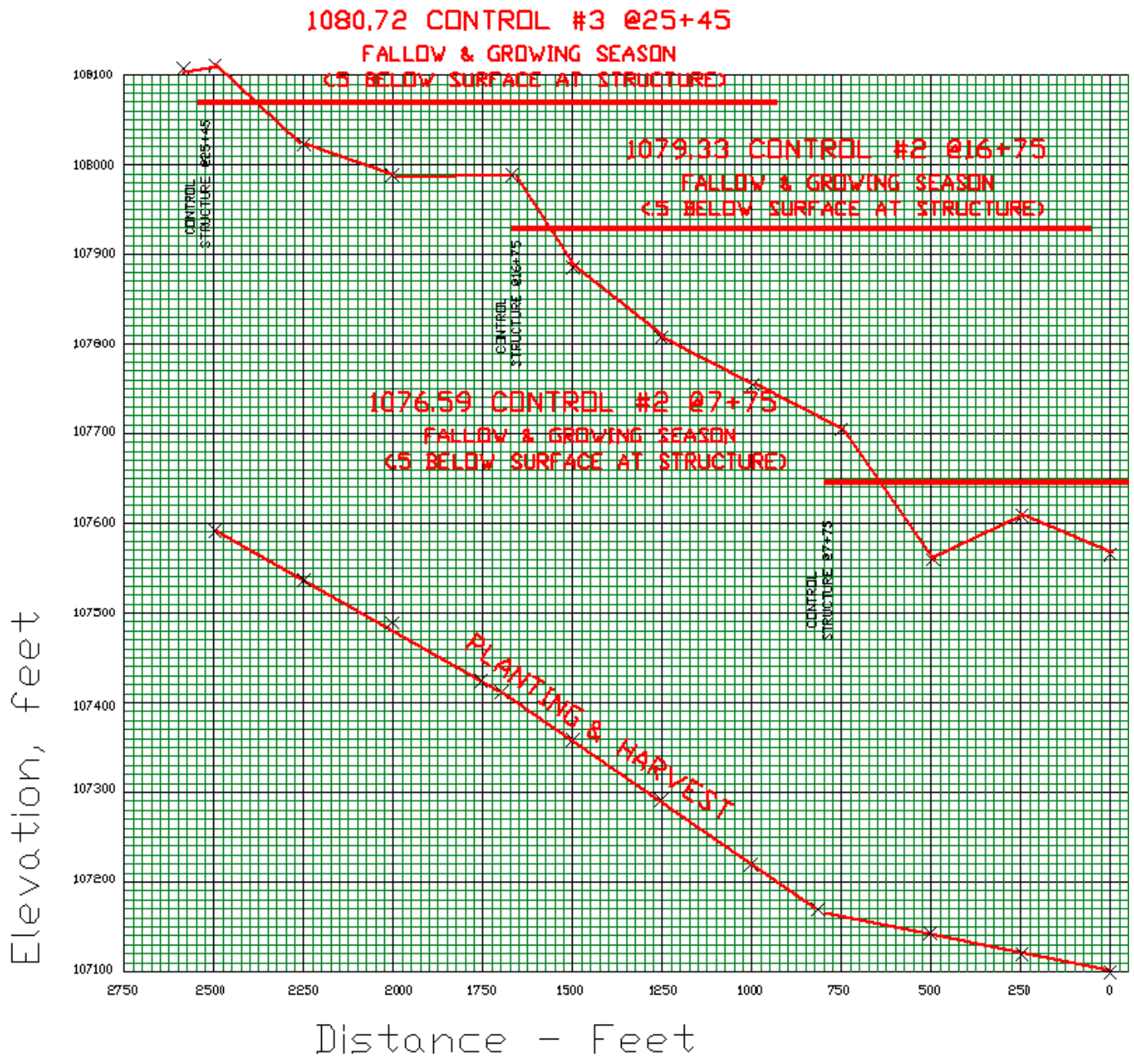
Summary of control systems

System	Pipe Diameter at Structure Inlet	Impacted Area	Ground Elevation	Depth to Tile FL *Verify Depth	Location, GPS (Lat, Long)
1	18” corrugated	27.6 acres	1077.1	5.3 ft	[Latitude/Longitude]
2	12” corrugated	28.6 acres	1079.9	5.7 ft	[Latitude/Longitude]
3	12” corrugated	22.9 acres	1081.2	5.2 ft	[Latitude/Longitude]

Overlay Map



Main Tile Profile



Signature Page

This plan meets MN NRCS Conservation Practice Standard 554 Drainage Water Management.

Signature(s) of Contract Holder(s):

_____ _____

Contract Holder Signature Date

_____ _____

Contract Holder Signature Date

_____ _____

Contract Holder Signature Date

_____ _____

Contract Holder Signature Date

This plan meets MN NRCS Conservation Practice Standard 554 Drainage Water Management.

Signature of Preparer of Drainage Water Management Plan (DWMP):

_____ _____

Plan Preparer Signature Date

The checklist is complete. Signature of NRCS:

_____ _____

NRCS Signature Date

Check List for District Conservationist

The DWM Plan includes the following components[1]:

- ❑ **Farm and field information is provided.**
- ❑ **Objectives have been provided.**
- ❑ **MN Practice Standard 554 has been provided to the landowner.**
- ❑ **A soil map with field boundaries is included in the plan.**
- ❑ **A tile map is provided in the plan.**
- ❑ **A map of wetlands in the field (if applicable) is included in the plan.**
- ❑ **Optional but highly recommended: Profile(s) of the main(s) for the tile system that have control structures on them, showing structure(s) with the water level at growing season elevation, high point and low point in the field drained by the drainage system, main tile grade.**
- ❑ **A topographic map of the field (on 0.5' contours) is included.**
- ❑ **An overlay map with field boundaries, drain location(s) and topographic contours, with a determination (location and area) of the impacted area(s) is provided.**
- ❑ **A water table management plan is included, detailing when the stoplogs will be adjusted and by how much.**
- ❑ **A summary sheet that lists the pipe diameter of each proposed control structure, control elevations, the area impacted by each structure, exact location of the structure using GPS, and the depth to tile is provided as part of this plan.**
- ❑ **Each of the above components has been reviewed with the landowner and the landowner understands the plan.**

[1] The District Conservationist will check off each item on this list before authorization of payment.