

What is HYDINFRA?



HYDINFRA

is Mn/DOT's

Hydraulic Infrastructure
Database

HYDINFRA's Purpose:

**Manage Information
about Mn/DOT's**

Storm Drainage System

HYDINFRA *(structural)* Features

- Pipes
- Structures
- Special Structures
- SPCDs (Stormwater Pollution Control Devices)
- Ponds
- Ditches

HYDINFRA *Virtual* Features

- Outfall/Infall
- Illicit Discharge

HYDINFRA and MS4

- Ponds and SPCDs (Stormwater Pollution Control Devices) for Water Quality Treatment
- Outfall/Infall and Illicit Discharge allows stormwater tracking to occur.

HYDINFRA Features

Pipes

Pipes

- Box Culverts
- Round
- Arch
- Elliptical
- Other



Structures

- Catch Basins
- Manholes
- Drop Inlets

Structure: Catchbasins



Drop Inlet with Stool Grate





Drop Inlet
“ankle
buster”

Structure: Manhole (look for near solid cover)



Is water meant to flow into grate?



Manhole vs Catchbasin or Drop Inlet

Special Structures



- Aprons
- Slotted Drain
- Headwalls
- Reducers, Increases
- Things that don't fit in the other feature categories

Special Structure -- Headwall



Aprons, Riprap

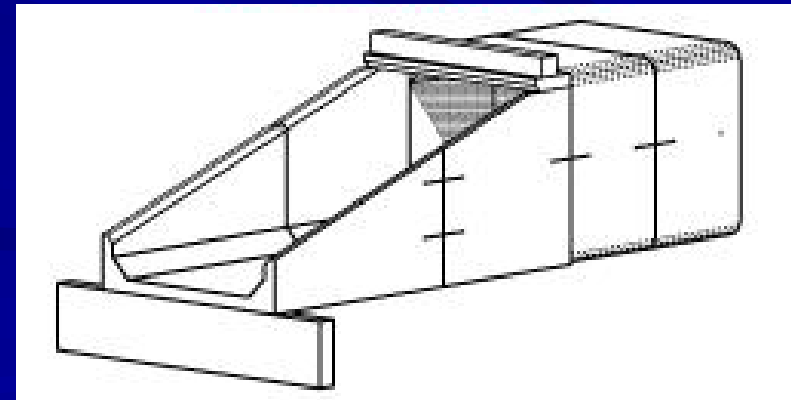


Special Structure: Trash Grate (non-standard)





Special Structure: Wingwall vs Box End Section



Special Structure: Mitered Safety Apron



Special Structure: Apron



Flared Apron with Trash Grate



New Feature:

POND



WestwoodWQ 21SEP05

Pond



Ponds may be dry

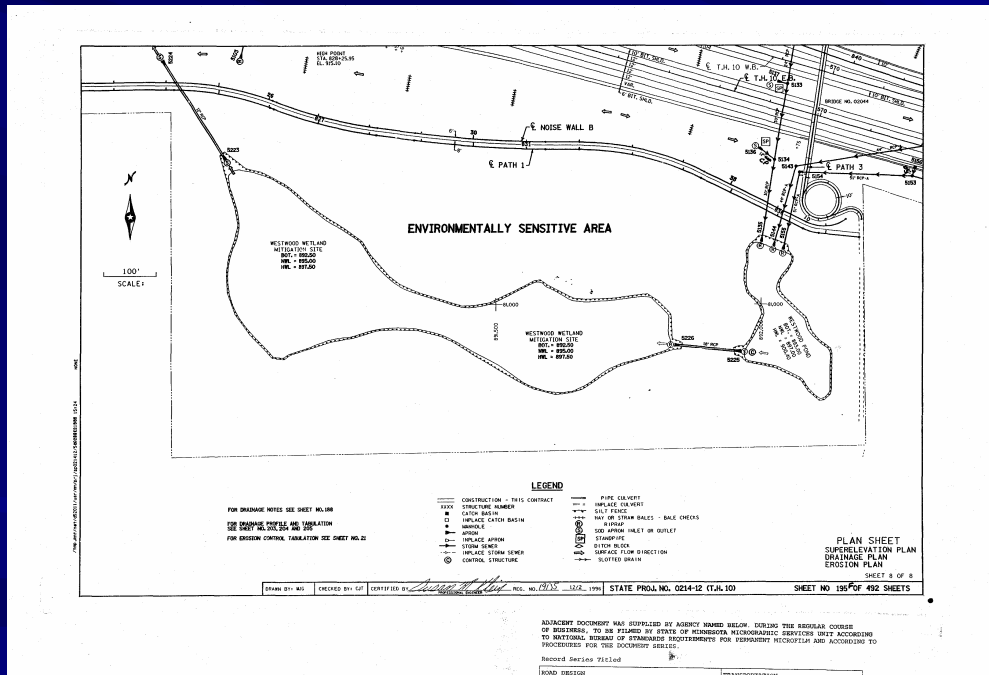
WestwoodWet 2nd Cell Wetland
21SEP05

Pond Outlet Design

- Wet
- Dry
- Infiltration
- Unknown

Need Construction Plans to do the Pond or SPCD Inventory:

- Outlet Design
- NWL
- HWL100
- Pond Bottom
- Pond Area
- And more



New Feature:

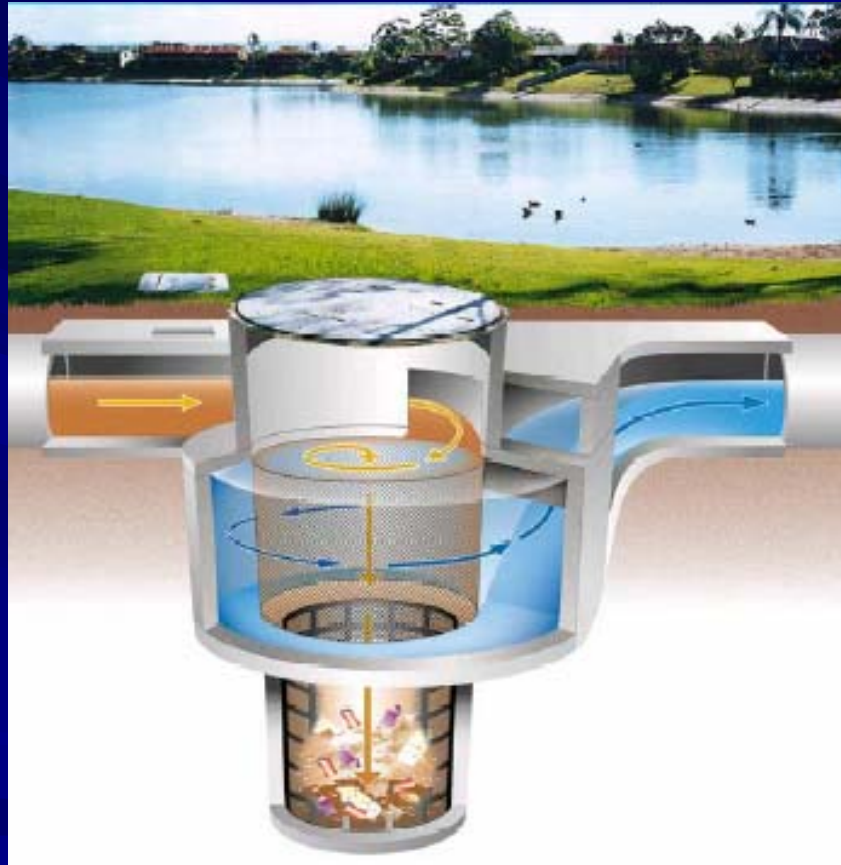
SPCD

Stormwater **P**ollution **C**ontrol **D**evice

SPCD Types

- Separator
- Grit Chamber
- Skimmer
- Filter
- Other

Separator



Example: Swirl Chamber

Grit Chamber

- Baffled box

Example: Wooden Skimmer



21SEP05



22SEP05

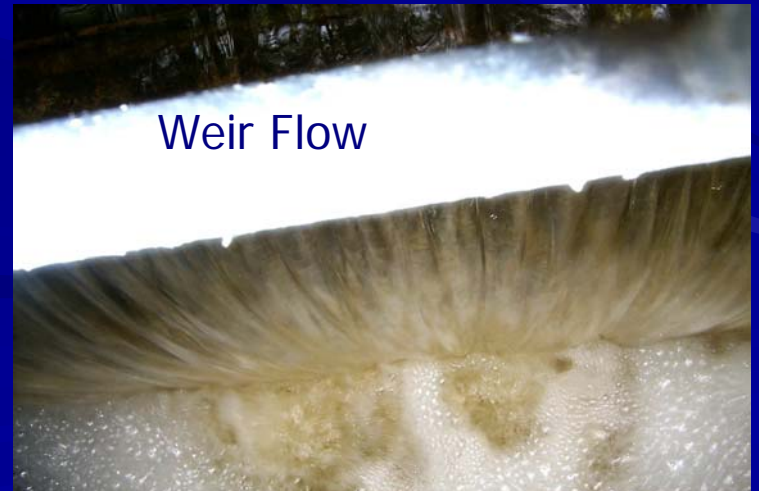
WestwoodWQ Pond Outlet Skimmer

Submerged Outflow
Pipe
Skimmer



22SEP05

Weir Flow



Filter

Example: Permanent Floating Silt Curtain

Ditch

- Ditch Feature not normally collected
- Ditch Feature was added to connect drainage systems
- Can be used to track ditch maintenance

Ditch



Each Feature has an:

- Inventory
- Inspection
- Activity

Pond **Inventory** Attributes

Define the Physical Pond:

- Outlet Design – Wet, Dry or Other
- Number of Cells
- Treatment Capabilities – Sed, Chem, Peak Reduction, etc
- Pond Lining Material
- NWL, HWL, Bottom Elevation
- Surface Area
- Drainage Easement or Wetland Credit
- And more

Pond **Inspection** Attributes

Describe the Condition:

- Condition Rating

- Flags –

 - Clean Sediment

 - Clean Debris

 - Repair Embankment

 - Repair Erosion

 - Restore Infiltration

 - Inflows Clear and Functioning

 - Outfall Clear and Functioning

- Sediment % Full

Pond **Activity** Attributes

Describe Maintenance Done and Changes Over Time:

- Sediment Cleaned
- Debris Removed
- Embankment Repaired
- Erosion Repaired
- Lining Repaired
- Erosion Mat Placed
- Weeds Removed
- And more

“Maintenance *Activity*”

- Data Dictionary for Maintenance Work –
MaintAct.ddf
- Captures repair or maintenance to a Feature
- Can be used for MS4 record keeping

GPS Data Dictionaries

- New Features are collected with NewFeat.ddf
- Features previously collected are re-inspected with ExistFeat.ddf
- Maintenance Activities are recorded with MaintAct.ddf

How it's done

Inspector Collects Data with GPS

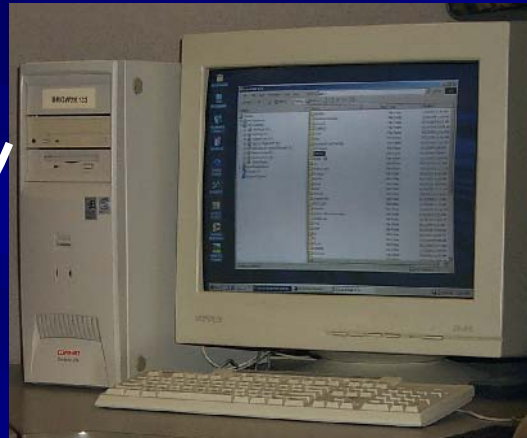


Input Data:

Transfer GPS
files to PC



Export
Data to hif
format



Upload Data
from Website



HYDINFRA
Database

Oracle Server

HYDINFRA Online Data Upload

The screenshot shows a Microsoft Internet Explorer browser window with the title "HYDINFRA File Upload - Login - Microsoft Internet Explorer". The address bar displays "http://oit-tomcat-test.dot.state.mn.us:8080/hydfinfra/". The page content includes a navigation menu on the left with links for "HYDINFRA Home", "Mn.DOT Home", "FAQ", "Site Map", "Search", and "Info@DOT". The main content area features the "HYDINFRA File Upload Service" logo and a login form. A grey banner above the form reads: "Welcome! Please enter the user name and password provided by Mn/DOT Bridge Office Hydraulics to login." The form has a "Name" field containing "hydfinfra" and a "Password (case-sensitive)" field with masked characters. A "Login" button is positioned below the password field, and a "HYDINFRA Help?" link is located below the button. The footer contains copyright information for the Minnesota Department of Transportation and a list of utility links.

HYDINFRA File Upload Service

Welcome! Please enter the user name and password provided by Mn/DOT Bridge Office Hydraulics to login.

Name
hydfinfra

Password (case-sensitive)
●●●●●●●●

Login

[HYDINFRA Help?](#)

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Using HYDINFRA Data

Pipe Inventory & Inspection Crystal Reports

Location Condition Material Size Flags

Mn/DOT Hydraulic Infrastructure Pipe Inventory and Inspection on IS 35 From MP 0.00 to 2.00

Pipe ID	UTM N	UTM E	MP	Cond	Pipe Shape	Material	Length	Length Units	Span x Rise	Clean	Repair	Water	Plug	Silt	Piping	Stalling	Pitting	Misalign	Joints Sep	Hides	Infiltrate	Distress	Insp. Cav	Rd Void	Rd Stress	Scour		
396891	4953523	477526	0.01	2	Round	Concrete	200.00	Feet	18.00 x 18.00 Inches	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N		
396893	4954035	477630	0.04	2	Round	Concrete	200.00	Feet	24.00 x 24.00 Inches	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
396885	4953760	477524	0.05	2	Round	Corrugated Metal (CMP)	100.00	Feet	12.00 x 12.00 Inches	N	N	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	
396887	4953762	477528	0.05	2	Round	Corrugated Metal (CMP)	45.00	Feet	24.00 x 24.00 Inches	N	N	Y	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	
396889	4953750	477540	0.05	2	Round	Concrete	150.00	Feet	15.00 x 15.00 Inches	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
396895	4954088	477616	0.06	2	Round	Concrete	150.00	Feet	18.00 x 18.00 Inches	N	N	N	N	Y	N	N	N	N	Y	N	Y	N	Y	N	N	N	N	
396876	4953855	477542	0.10	2	Round	Corrugated Metal (CMP)	40.00	Feet	24.00 x 24.00 Inches	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	
396878	4953853	477549	0.10	2	Round	Concrete	100.00	Feet	18.00 x 18.00 Inches	Y	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	
396880	4953871	477555	0.11	2	Round	Concrete	100.00	Feet	18.00 x 18.00 Inches	Y	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	
396882	4953844	477556	0.11		Round	Concrete	40.00	Feet	15.00 x 15.00 Inches																			
396883	4953844	477556	0.11		Round	Concrete	100.00	Feet	18.00 x 18.00 Inches																			
396874	4954008	477564	0.18	3	Round	Corrugated Metal (CMP)	100.00	Feet	12.00 x 12.00 Inches	N	N	Y	N	Y	N	N	Y	N	N	N	N	Y	N	N	N	N	N	
169540	4816700	471380	0.20	2	Round	Structural Plate	75.00	Feet	18.00 x 18.00 Inches	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	Y	N	N	N	
169577	4817322	471249	0.60	2	Round	Concrete	96.00	Feet	54.00 x 54.00 Inches	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	
169544	4817425	471370	0.65	2	Round	Concrete	110.00	Feet	54.00 x 54.00 Inches	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	Y	N	
169574	4817716	471246	0.85	2	Round	Structural Plate	188.00	Feet	36.00 x 36.00 Inches	N	N	Y	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N
169547	4817816	471414	0.90	2	Round	Structural Plate	234.00	Feet	30.00 x 30.00 Inches	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N
169551	4818402	471390	1.30	2	Round	Structural Plate	122.00	Feet	24.00 x 24.00 Inches	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N
169571	4818410	471266	1.30	2	Round	Structural Plate	128.00	Feet	24.00 x 24.00 Inches	N	N	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N
169562	4818752	471383	1.50	2	Round	Structural Plate	98.00	Feet	24.00 x 24.00 Inches	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	Y	N	N	N	N
169566	4819039	471379	1.70	2	Arch	Structural Plate	98.00	Feet	108.00 x 72.00 Inches	Y	N	Y	N	Y	N	N	N	N	N	N	N	N	N	Y	N	N	N	N
169560	4819000	471300	1.70	2	Arch	Structural Plate	126.00	Feet	108.00 x 72.00 Inches	Y	N	Y	N	Y	N	N	N	N	N	N	N	N	N	Y	N	N	N	N

Hydraulic Infrastructure Application - [Hydraulic Pipe Segment: Inspection]

File Record Help Window



Minnesota Department of Transportation
Hydraulic Infrastructure Application

20-SEP-2000
MART1THO

Hydraulic Pipe Segment: Inspection

Inspection ID: 7383 P162-012 Inspection Date: 07/27/1998
 Pipe ID: 39247 Inspectors: Louis, Manjula
 Other Dates: Lewis, Vincent

Inspection

Reason: Programmed Project
 Length Obs Meth: Complete Visual
 Circumference Obs Meth: Complete Visual

Pipe Condition Codes

% Code 1: 0 % Code 2: 0
 % Code 3: 0 % Code 4: 0
 Overall Condition: 1

Structural Observations

Yes	No	Not Obs.	Yes	No	Not Obs.	Yes	No	Not Obs.
Standing h2o? <input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pitting? <input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Piping? <input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Plugged? <input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Deformation? <input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Scour? <input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spalling? <input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Silt? <input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Joints Separated? <input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Holes? <input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Misaligned? <input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/> Video?		

Roadway Condition

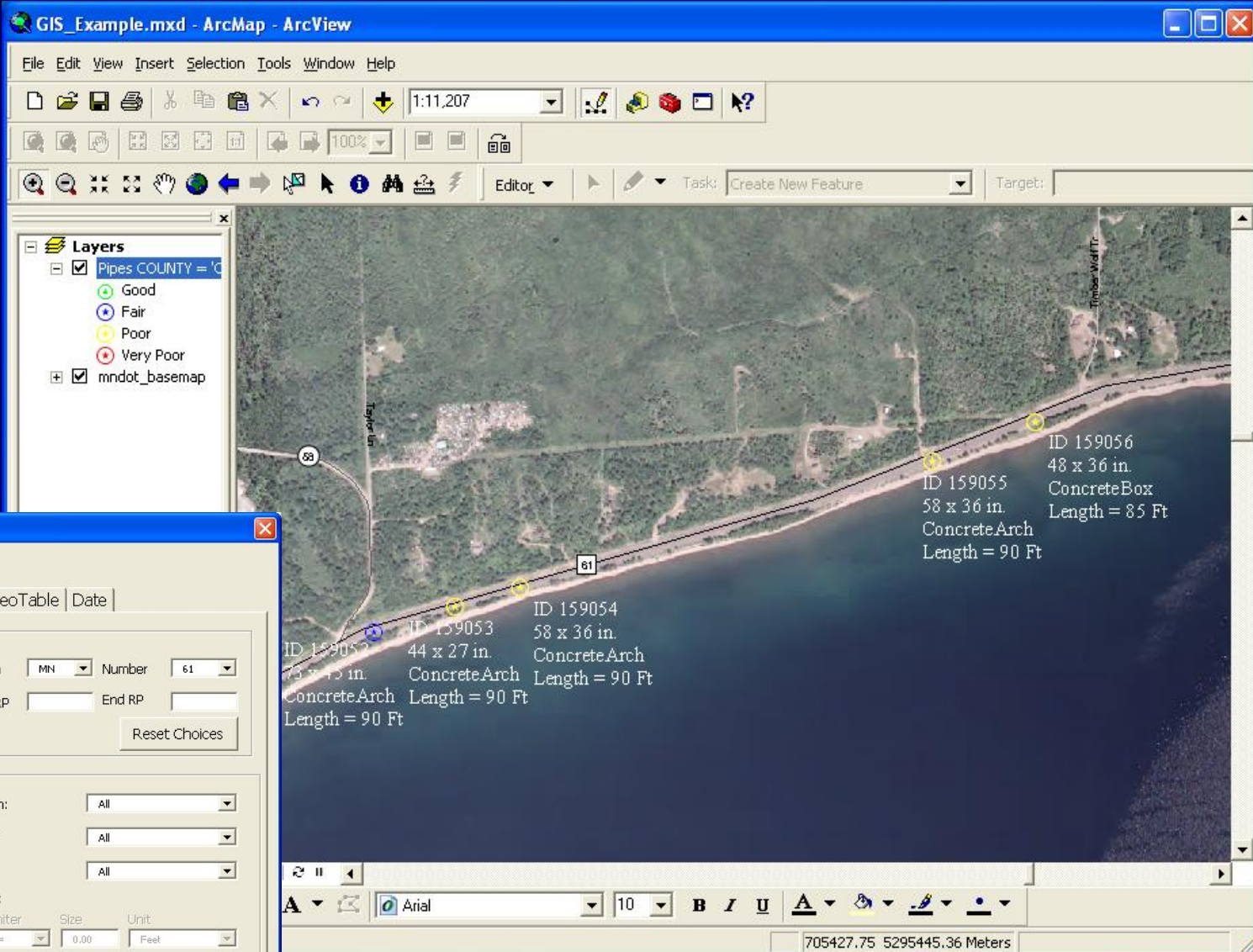
Yes	No	Not Obs.	Yes	No	Not Obs.
Void? <input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Insp Cavity? <input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Stress? <input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Signed? <input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Maintenance

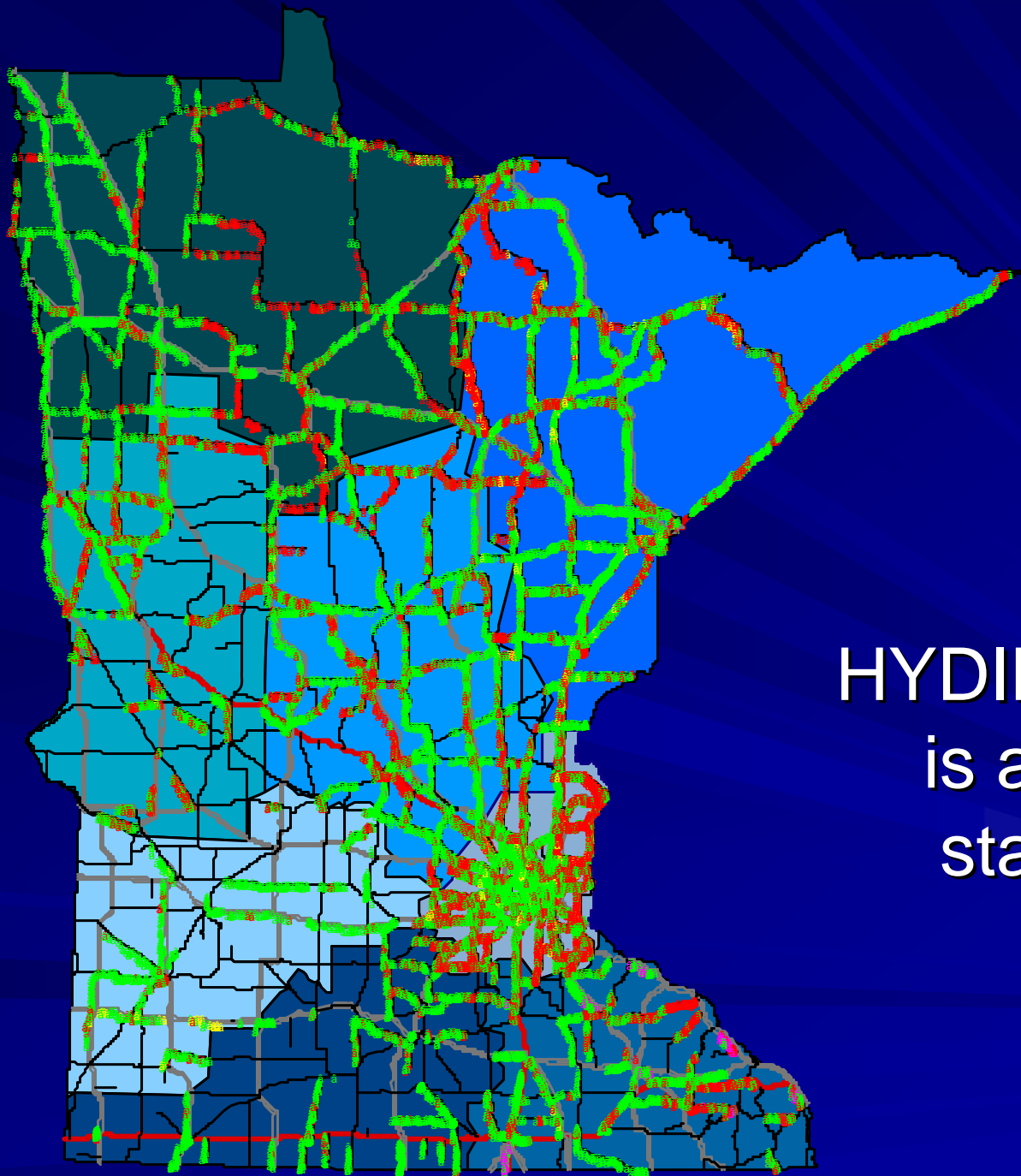
Yes	No	Not Obs.
Clean? <input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Repair? <input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

Comments...

Oracle
Forms



ArcGIS Query Tool



HYDINFRA data
is available
statewide.

End