

Materials in TAMS-HydInfra

Accurate identification of pipe material is essential to tracking material performance

- Concrete
- Brick/Masonry
- Aluminized Steel
- Corg. Steel (CSP)
- Structural Plate (Steel)
- Polymeric-Coated (Steel)
- Bituminous-Coated (Steel)
- Steel Casing
- Corg. Aluminum (CAP)
- Other
- Timber
- Vitrified Clay
- Corg. Plastic (HDPE)
- PVC
- PP - Polypropylene
- Perforated Plastic (pond drains)
- SRPE - Steel ribbed Polyethylene
- Liner HDPE
- Liner PVC
- Liner Cured in Place (CIPP)
- Liner Metal
- Liner Other

- Current Inside Material
- Concrete
- Aluminized Steel
 - Bituminous-Coated
 - Brick/Masonry
 - Concrete
 - Corg. Aluminum (CA)
 - Corg. Plastic (HDPE)
 - Corg. Steel (CSP)
 - Liner CIPP
 - Liner HDPE
 - Liner Metal
 - Liner Other
 - Liner Plastic
 - Liner PVC
 - None
 - Other
 - Perforated Plastic
 - Polymeric-Coated
 - Polypropylene
 - PVC
 - SRPE
 - Steel Casing
 - Structural Plate
 - Timber
 - Unknown
 - Vitrified Clay
 - Waterway - Concrete
 - Waterway - Riprap
 - Waterway - Vegetated

Materials are listed in TAMS in alphabetical order

Materials in TAMS-HydInfra

Metal

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- Timber
- Vitrified Clay

Materials grouped by dominant type

Plastic

- Corg. Plastic (HDPE)
- PVC
- PP - Polypropylene
- Perforated Plastic (pond drains)
- SRPE - Steel ribbed Polyethylene

Liners

- Liner HDPE
- Liner PVC
- Liner Cured in Place (CIPP)
- Liner Metal
- Liner Other



CONCRETE



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BRICK/MASONRY



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Flat-seam

Corrugated



Has a sheen like aluminum but edges may be rusty.

ALUMINIZED STEEL



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Steel ALUMINIZED STEEL TYPE 2 102 COATING MADE IN USA NUM 0
HEAT 152855 06/29/2015



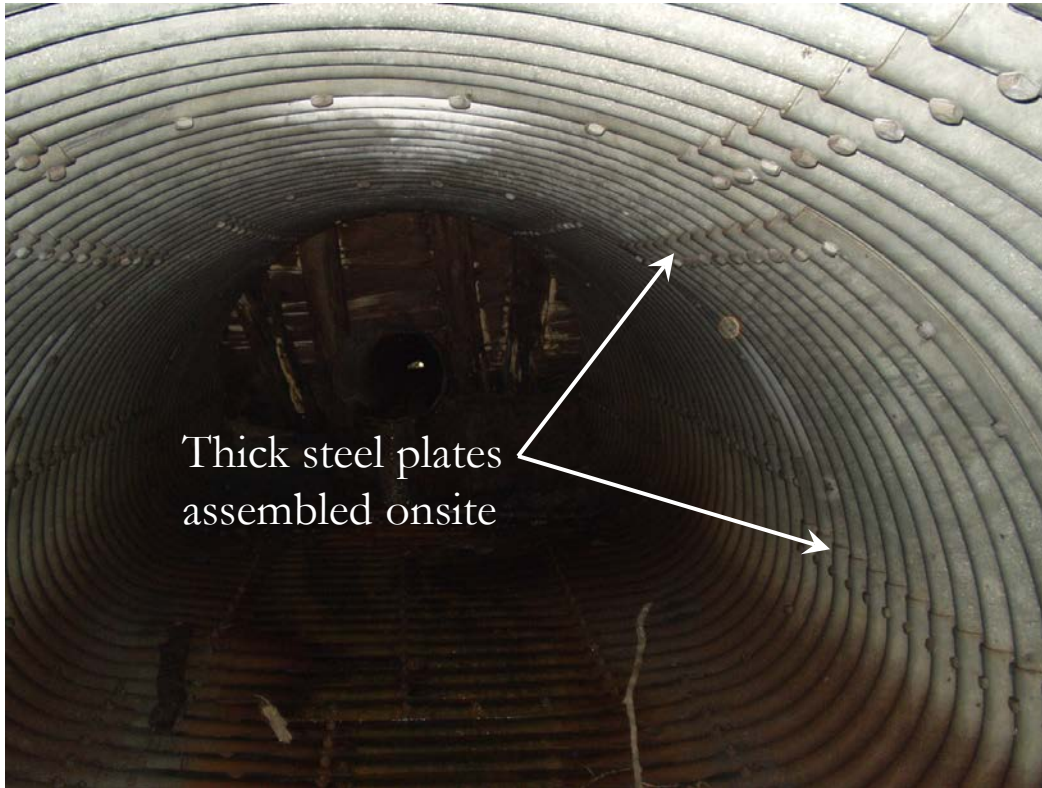
CORG. STEEL (CSP)



Zinc-galvanized steel pipe

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STRUCTURAL PLATE



US 61 Silver Bay r.p. 53.26

Structural Plate is galvanized steel plates bolted together to build large culverts, usually arch shape.

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POLYMERIC-COATED STEEL

39 year old Polymeric-coated pipes installed in 1977, D3



Photos from [Polymeric Coated Corrugated Steel Pipe Durability Update: October 27, 2016](#), Bob Moore

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Polymeric coating is thin plastic sheeting applied to CMP



May contain asbestos

BITUMINOUS- COATED

Looks like tar on CMP, often flaking and cracked
Labeled in Plans as “AB-Bonded”

Not installed since 1970’s but still exists

Before repair, test for asbestos – notify Mark Vogel



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STEEL CASING



<http://www.arntzenpipe.com/steel-casing-pipe.html>

Rarely, culverts may be steel casing.

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ALUMINUM



[Photo from http://www.lockernz.co.nz/](http://www.lockernz.co.nz/)

Aluminum pipe material is thicker and softer than steel and not magnetic, no rust

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OTHER – Cast Iron Culvert (RR)



1 inch thick culvert under Railroad, Highway 10, D4.

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OTHER – excavated rock



Excavated 20 inch box “pipe” carved from limestone provides outlet for old VCP storm drain in D6 on MN Hwy 56, Kenyon. Photo from HIVE Inspection Video



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Wooden cattle
pass in D6 on
MN 60 r.p. 185.91



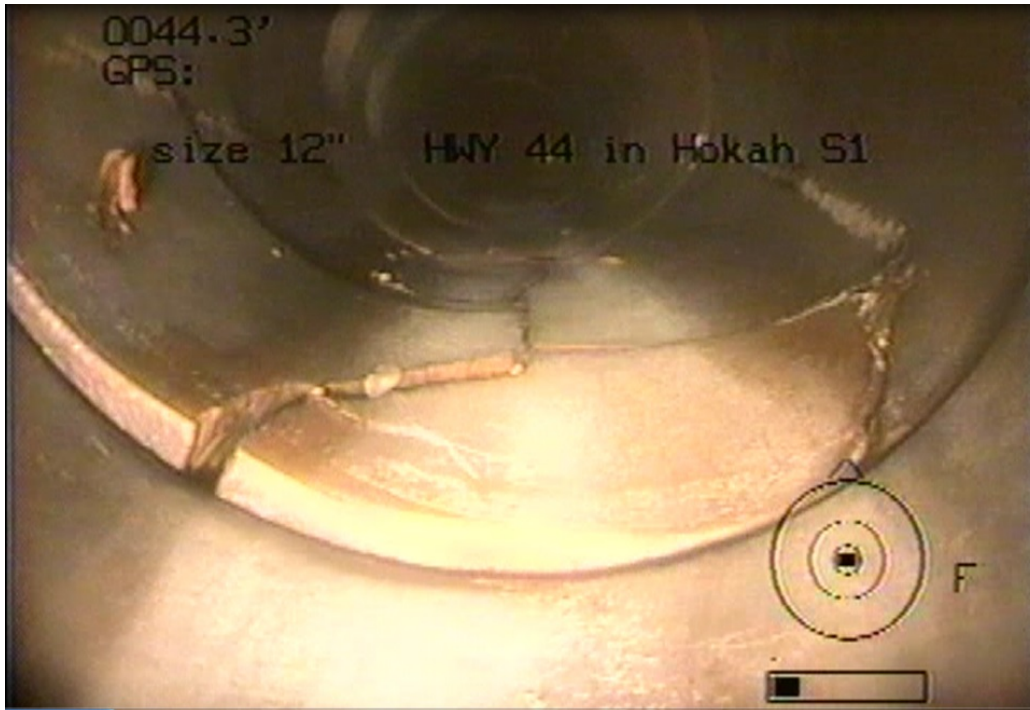
TIMBER

Wooden Pipe
on Grand Ave,
MN 23 in
Duluth



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VITRIFIED CLAY (VCP)



Red fired clay tile exists in some old small town storm drains and old farm drain tile.



[HIVE Inspection Rob Coughlin, D6](#)

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CORG. PLASTIC (HDPE)

HDPE = High Density Polyethylene is dual-wall with smooth inside and corrugated outside.

HDPE is always black.



Single wall corrugated HDPE should not be used as highway culverts or storm drain

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PVC

White or green plastic, more brittle than HDPE, especially in cold. Used in storm drains and infiltration trenches



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POLYPROPYLENE



PP = Polypropylene Pipe is grey and stiffer than HDPE

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SRPE - STEEL- REINFORCED POLYETHYLENE

Exterior flanges are steel, coated with HDPE.
Blue spiraling line inside shows it's SRPE.



Blue line
spiraling inside

12/17/2014 16:57

[Photos of Durmaxx pipe, Contech](#)

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PERFORATED PLASTIC

used in pond underdrains
to filter stormwater



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- **Perforated Plastic (pond drains)**
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LINER HDPE



Like Snap-Tite or butt-fused solid HDPE liner has grout between original pipe and liner.

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LINER PVC



Photo of PVC liner from Caltrans

<http://www.dot.ca.gov/hq/oppd/dib/dib83.pdf>

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- **Liner PVC**
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LINER CURED IN PLACE (CIPP)



CIPP Liner is resin-filled fabric, inflated and cured with hot water or steam or UV light till it's rigid. Looks like off-white fiberglass.

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LINER METAL



Steel flat-seamed pipe is sometimes used as liner

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Centrifugally Cast Concrete Pipe

LINER OTHER

Sprayed-on pipe liner



Hand sprayed application

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“OTHER” is for oddities



What is that?

Describe material in Inventory comment.

To request this document in an alternative format call 651-366-4470.

MnDOT HydInfra Phone: 651/366-4470

Send questions to bonnie.peterson@state.mn.us

Internal Webpage: <http://ihub/bridge/hydraulics/hydinfra/index.html>

External: <http://www.dot.state.mn.us/bridge/hydraulics/inspector.html>

TAMS: <https://tamsp.dot.state.mn.us>



**DEPARTMENT OF
TRANSPORTATION**