Pipe Materials & Type

- Concrete
- Aluminized Steel
- Corg. Steel (CSP)
- Structural Plate
- Polymeric-Coated
- Bituminous-Coated
- Corg. Aluminum (CAP)
- Timber
- Other

- Corg. Plastic (HDPE)
- PVC
- Perforated Plastic
- SRPE - Steel Reinforced Polyethylene
- PP - Polypropylene
- "Liner" materials describe a lined pipe:
  - Liner HDPE
  - Liner PVC
  - Liner Cured in Place
  - Liner Metal
  - Liner Other
Concrete Pipe

Material Type: Concrete
Corg. Steel (CSP)
(galvanized steel pipe)

Material Type: Steel
Galvanized steel plates are bolted together, was used in larger diameter culverts
Polymeric-coated Steel

Material Type: Steel

thin black plastic sheet inside and outside of cmp

Photos by Johnston-Fargo
Bituminous-Coated Steel  

Material Type: Steel

- Looks like tar on CMP, often flaking
- *May contain asbestos
- Labeled in Plans as “AB-Bonded”
- Not installed since 1970’s but still exists
Aluminized Steel

Material Type: Steel

Magnetic and has a sheen like the inside of a pop can but edges may be rusty

Photos at right by Johnston-Fargo
Corg. Aluminum (CAP)

Material Type: Aluminum

Photo from http://www.lockernz.co.nz/

All aluminum pipe, not steel so no rust, not magnetic, is more bendable
PVC

Material Type: Plastic

White or green, more brittle than HDPE, especially in cold weather.

Photo PVC pipe from http://www.ipexinc.com/
Corg. Plastic (HDPE)  

HDPE = High Density Polyethylene has smooth inside and corrugated outside. HDPE is always black.
Add a comment because single wall corrugated HDPE should not be used as highway culverts or storm drain.
SRPE - Steel-Reinforced PolyEthylene

Material Type: Plastic

Blue line shows it’s SRPE

Exterior flanges are steel, coated with HDPE

Photos of Durmaxx pipe by Contech
Polypropylene

Material Type: Plastic

PP = Polypropylene Pipe is grey and stiffer than HDPE
Perforated Plastic

Material Type: Plastic

used in pond underdrains
to filter stormwater
Material Type: Other

- Vitreous Clay
- Timber
- Any other material
Timber
Material Type: Other
also used in wet box culverts

Wooden Pipe on Grand Ave, MN 23 in Duluth

Wooden cattle pass in D6 on MN 60 r.p. 185.91
Vitrified Clay (VCP)  

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

Material Type: Other

HIVE Inspection Rob Coughlin, D6
Excavated 20 inch box “pipe” carved from limestone provides outlet for old VCP storm drain -- D6 Hwy 56 Kenyon
Material Type: Liner

Liner Materials:
- Liner HDPE
- Liner PVC
- Liner Cured in Place
- Liner Metal
- Liner Other
- Liner SRPE
- Liner PP
Like Snap-Tite or butt-fused HDPE liner has grout between original pipe and liner.
Liner PVC

Photo of PVC liner from Caltrans http://www.dot.ca.gov/hq/oppd/dib/dib83.pdf

Material Type: Liner
CIPP Liner is resin-filled fabric, inflated and cured with hot water or steam or UV light till it’s rigid.
Steel flat-seamed pipe is sometimes used as liner.

Photo: Johnston-Fargo
Liner Other  Material Type: Liner

Use Comments to describe this.

For example, “Sprayed on concrete liner”