Existing Water Facilities

Water Atlas Page (Received in IR)

- ❑ Understanding Atlas Page
- ❑ Water Main Location, Size, Including Larger Water Services
- ❑ Water Main Notation Standards
- ❑ Water Valve, Location, Size, Basin Detail

Water Service Plats (Received in IR)

- ❑ Understanding Service Plats

Existing Water Facilities on Applicant's Plans (DWM Standards)

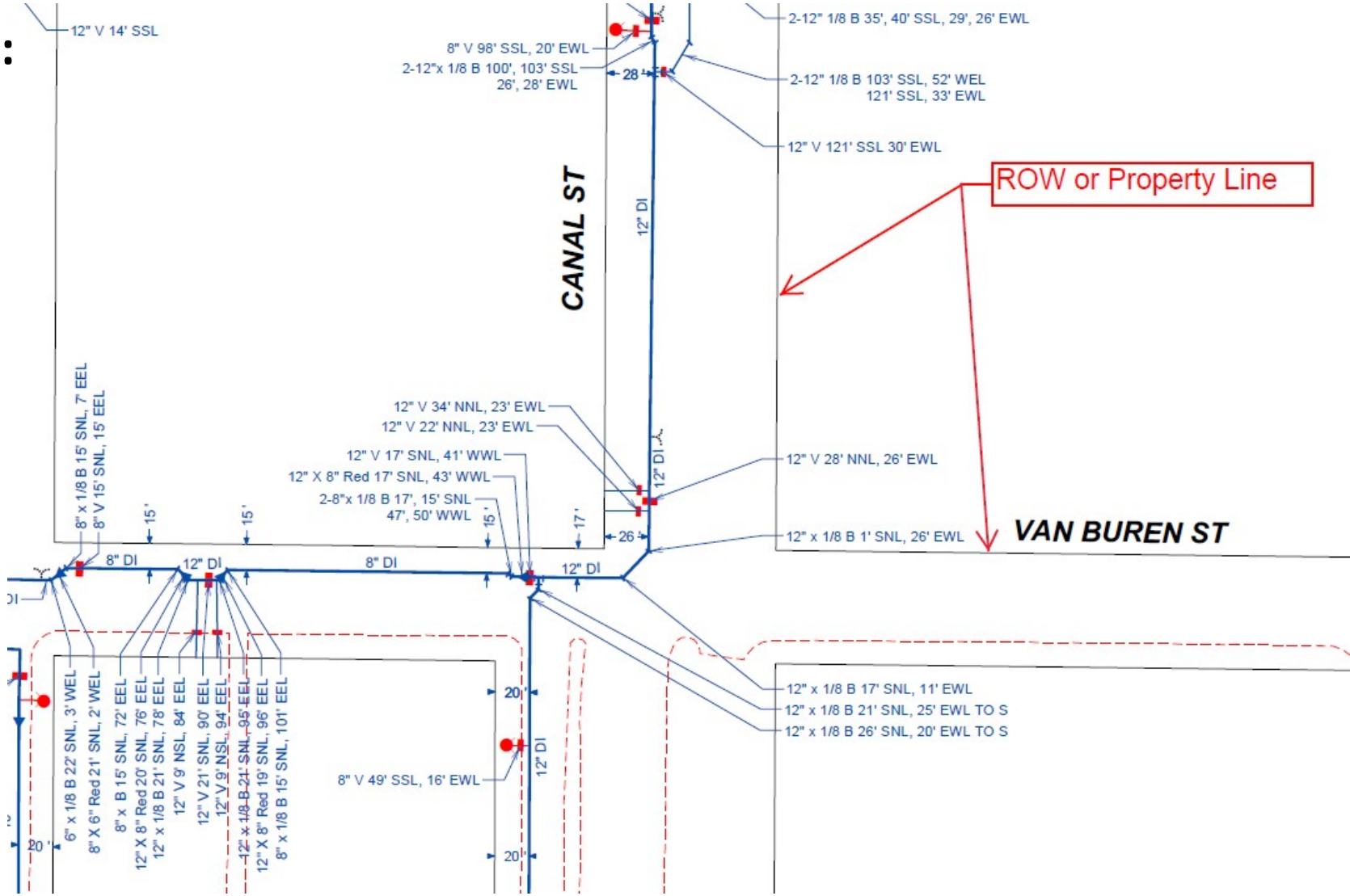
- ❑ Standard Depth of Cover
- ❑ Plan & Profile Requirements

Existing Water Facilities

Water Atlas Page

Water main notation standards:

- ❑ NNL = North of the North (Property) Line
- ❑ SSL = South of the South (Property) Line
- ❑ NSL = North of the South (Property) Line
- ❑ SNL = South of the North (Property) Line
- ❑ EEL = East of the East (Property) Line
- ❑ WEL = West of the East(Property) Line
- ❑ EWL = East of the West (Property) Line
- ❑ WWL = West of the West (Property) Line

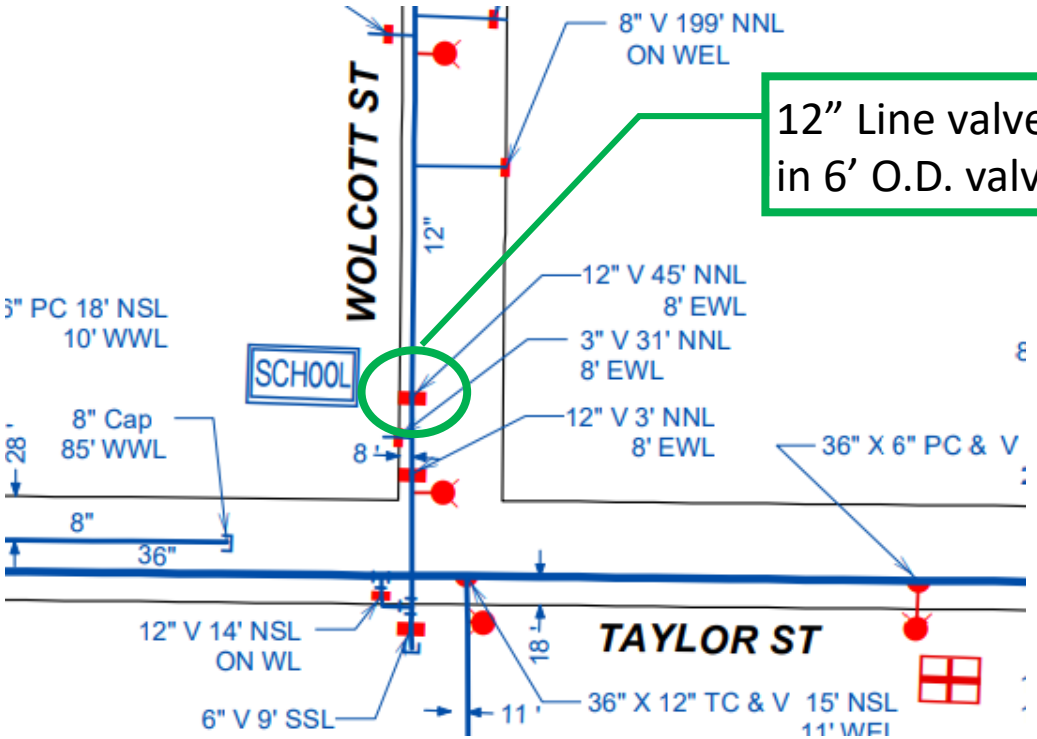


Existing Water Facilities

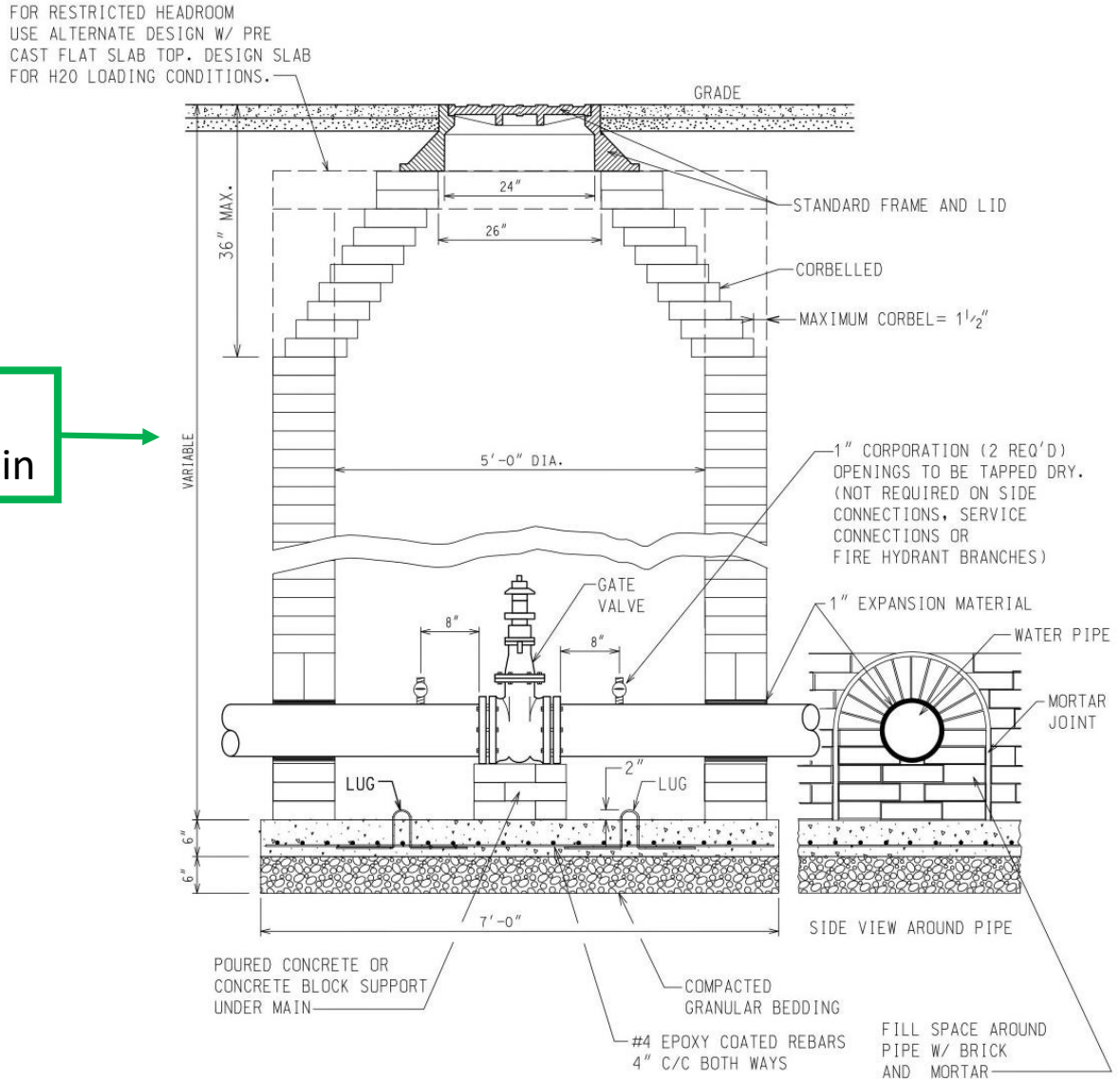
Water Atlas Page

Water Valve Basin – Line Valves

- Existing water main line valves are located in six (6) foot O.D. Valve Basins:

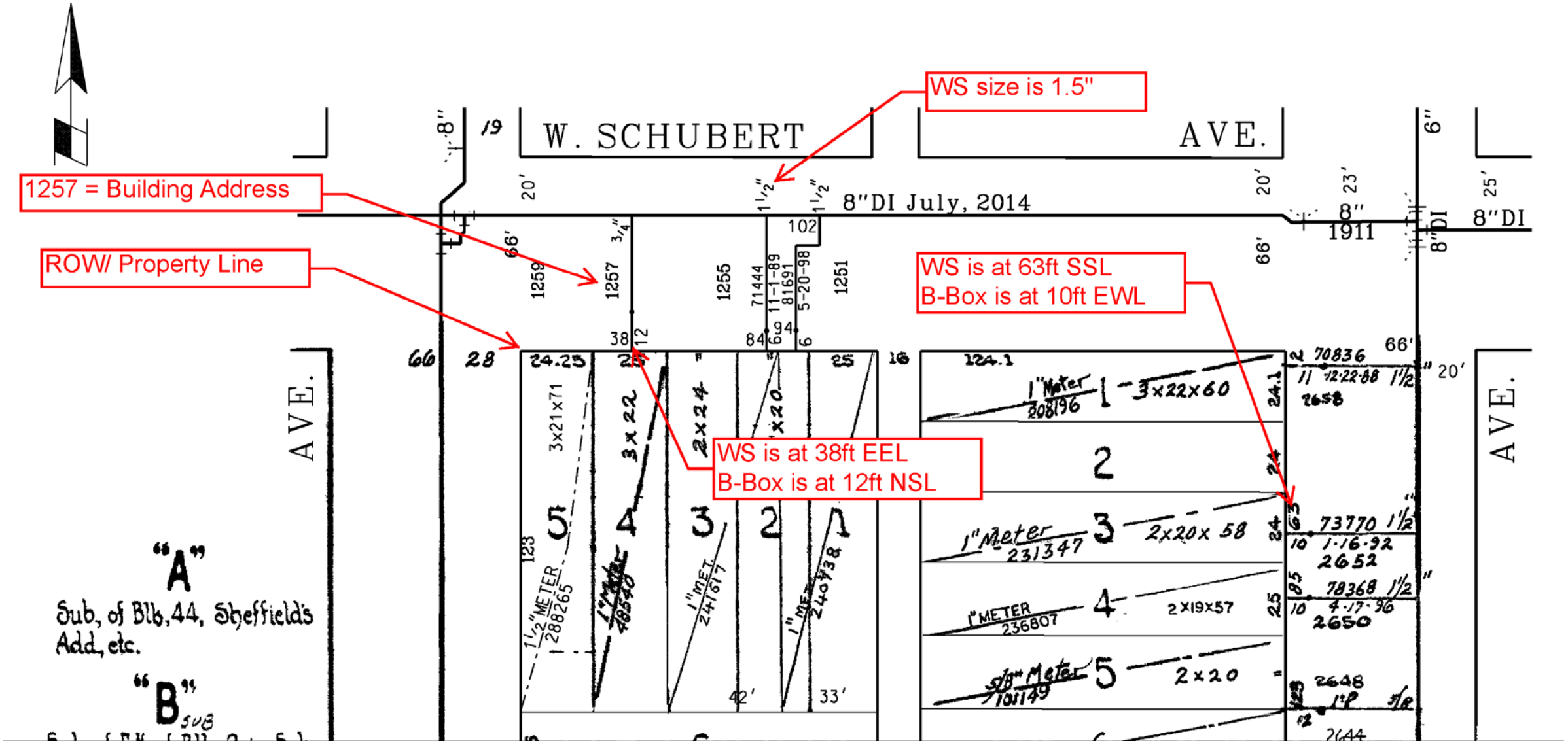


12” Line valve
in 6’ O.D. valve basin



Existing Water Facilities

Water Service Plats



Existing Water Facilities

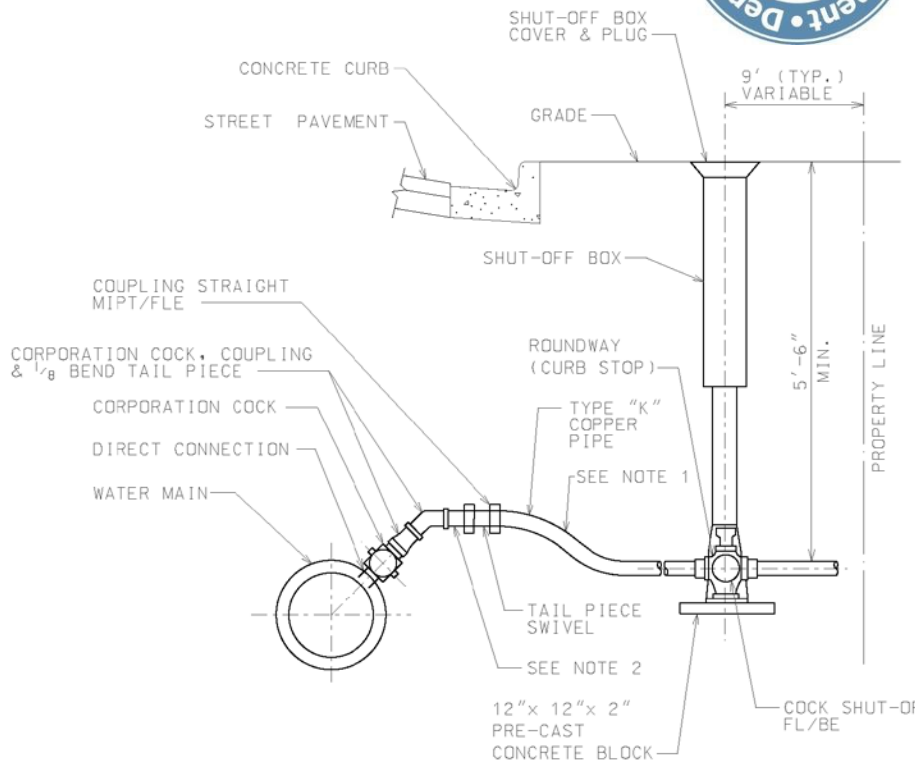
Water Service Plats

Water Service Control Valves (typical):

- ❑ Typically for water services 3-inch and larger, a valve basin is utilized
- ❑ Typically for water services 2-inches and smaller, a valve box (b-box) is utilized

Terminations Required - Building Developments ONLY:

- ❑ All live services must be terminated ***prior*** to issuance of **demolition permit**; all unused services/stubs must be terminated at the connection to the public water main prior to issuance of **construction/building permit**. This includes **all permits** issued for any new water service.
- ❑ It is the owner's responsibility to terminate all existing water services entering the site prior to construction. Notify the DWM immediately of any services entering the site not listed within DWM's records.



CORPORATION COCK		SHUT-OFF BOX
SIZE	WEIGHT	WEIGHT
IN.	LB.	LB.
1.0	3.00	7.25
1.5	10.00	7.25
2.0	16.50	7.25

NOTES:

1. IF EXISTING WATER SERVICE IS LEAD, REPLACE ENTIRE SERVICE FROM THE WATER MAIN TO THE SHUT-OFF VALVE INSIDE THE BUILDING, OR 18", WHICHEVER IS THE SHORTER DISTANCE.
2. THE FIRST THREE (3) FEET OF SERVICE CONNECTION TO WATER MAIN MUST BE ENCASED IN POLYETHYLENE WRAP.

REV:02.23 TYPICAL 1" TO 2" WATER SERVICE D-16

Existing Water Facilities

Existing Water Facilities must be shown on Applicant 's Plans per DWM Water Atlas Page and DWM Service Plats

- ❑ Under new State of Illinois requirements, partial lead service line replacements are not allowed. Therefore, if your project requires lead service line replacements (*or if this replacement is triggered by repair work undertaken as part of your project)* this work will be performed by DWM (or by DWM contractors). ***The DWM costs for this replacement shall be assigned to the applicant as part of your project costs.***

Standard Depth of Cover:

Existing **water services** and existing **fire hydrants leads**

- ❑ 5 feet of cover

Existing **grid mains** (12-inches and smaller)

- ❑ 6 feet to bottom of pipe

Existing **feeder mains** (16-inches and larger)

- ❑ As determined by as-builts (relayed by DWM PMO)
  - ❑ Feeder Mains 16-inch to 48-inch are approximately 6 feet to bottom of pipe; determined by as-builts (relayed by DWM PMO).
  - ❑ Cast Iron Feeder Mains 30-inch to 48-inch are approximately 6 feet to bottom of pipe; determined by as-builts (relayed by DWM PMO).
  - ❑ Ductile Iron Feeder Mains 16-inch to 48-inch are determined by as-builts (relayed by DWM PMO).
  - ❑ Feeder Mains 54-inch and larger are approximately 3 feet of cover

Existing Water Facilities

Existing Water Facilities must be shown on Applicant 's Plans

- **DWM Separation requirements are measured *edge-to-edge (Outside Diameters)***

Cast iron and ductile iron water mains:

- For **cast iron** and **ductile iron** water mains, DIP conforming to AWWA C150 may be used as the base for *outside diameter*

Size in.	Outside Diameter in.	Pressure Class				
		150	200	250	300	350
		Nominal Thickness in inches				
4	4.8	-	-	-	-	0.25
6	6.9	-	-	-	-	0.25
8	9.05	-	-	-	-	0.25
10	11.1	-	-	-	-	0.26
12	13.2	-	-	-	-	0.28
14	15.3	-	-	0.28	0.3	0.31
16	17.4	-	-	0.3	0.32	0.34
18	19.5	-	-	0.31	0.34	0.36
20	21.6	-	-	0.33	0.36	0.38
24	25.8	-	0.33	0.37	0.4	0.43
30	32	0.34	0.38	0.42	0.45	0.49
36	38.3	0.38	0.42	0.47	0.51	0.56
42	44.5	0.41	0.47	0.52	0.57	0.63
48	50.8	0.46	0.52	0.58	0.64	0.7
54	57.56	0.51	0.58	0.65	0.72	0.79
60	61.61	0.54	0.61	0.68	0.76	0.83
64	65.67	0.56	0.64	0.72	0.8	0.87

Pre-stressed concrete cylinder pipe (PCCP)

- For **pre-stressed concrete cylinder pipe (PCCP)** feeder mains, RCP conforming to ASTM C76 may used as the base for *outside diameter*

PIPE I.D. [inches]	BELL O.D. [inches]	WALL THICKNESS [inches]
12	20.0	2.00 0.17'
15	23.8	2.25 0.19'
18	27.6	2.50 0.21'
21	31.6	2.75 0.23'
24	35.6	3.00 0.25'
27	39.0	3.25 0.27'
30	42.5	3.50 0.29'
33	46.3	3.75 0.31'
36	50.3	4.00 0.33'
42	58.5	4.50 0.38'
48	66.3	5.00 0.42'
54	69.5	6.25 0.52'
60	75.5	6.75 0.56'
66	81.5	7.25 0.60'
72	87.5	7.75 0.65'

DWM Water Section
Excavation Below Water Facilities

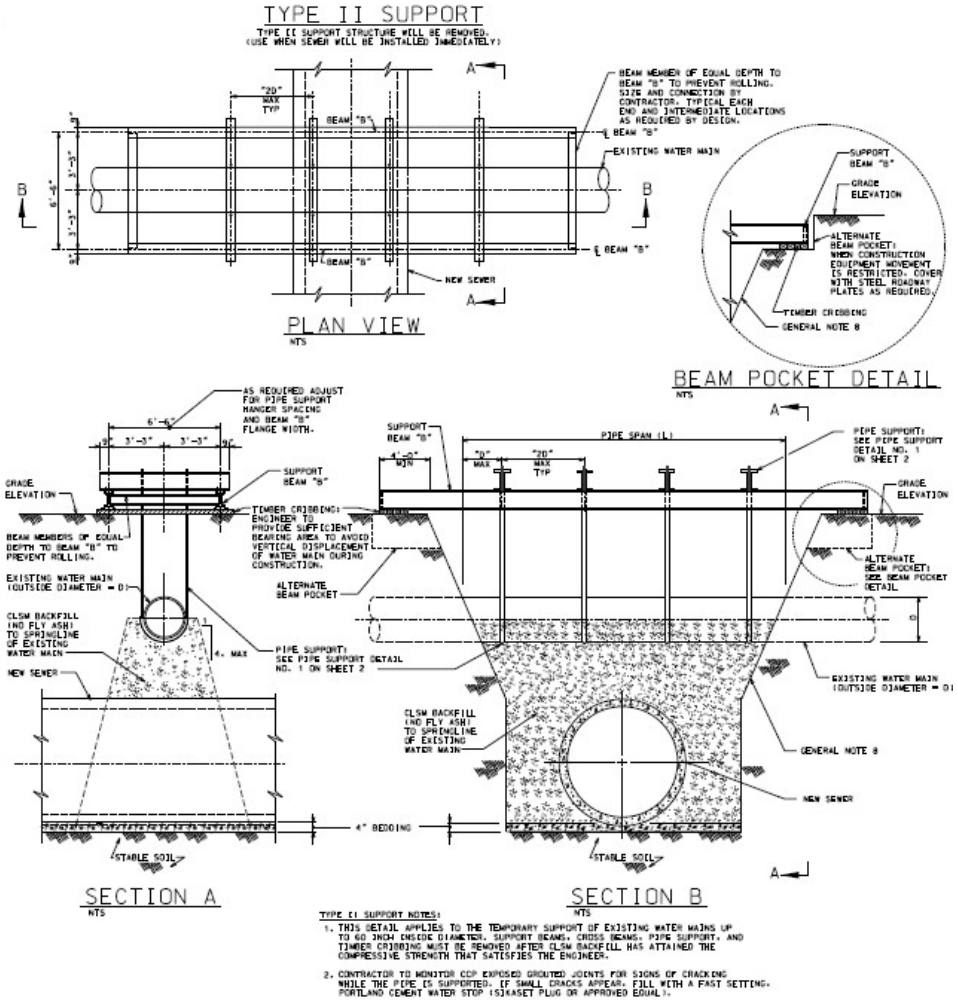
DWM Standards for Crossing Below Water Facilities

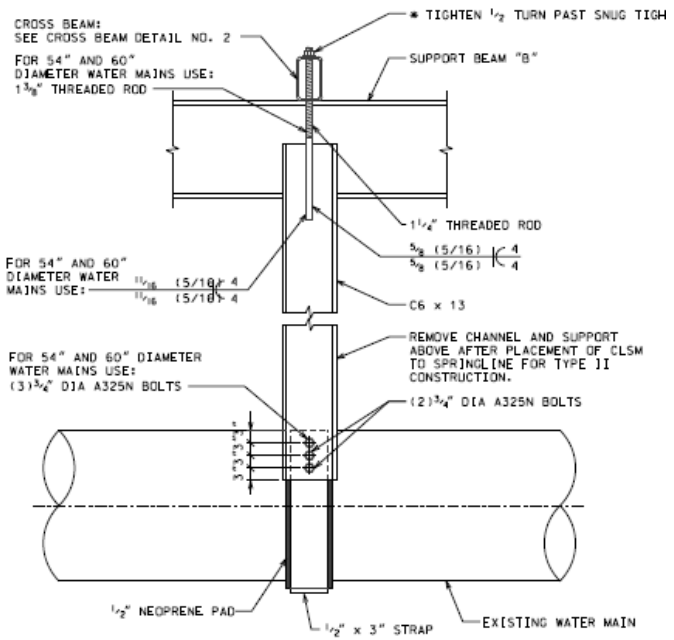
- ❑ **The proposed trench width must not exceed three (3) feet when crossing below existing DWM water facilities. Trench widths needs to be called out on applicant's plans.**
- ❑ All crossings should be **perpendicular to the main** such that only **three (3) feet** of water facilities are exposed by proposed installation.
- ❑ **18 inches** of edge-to-edge vertical separation is required

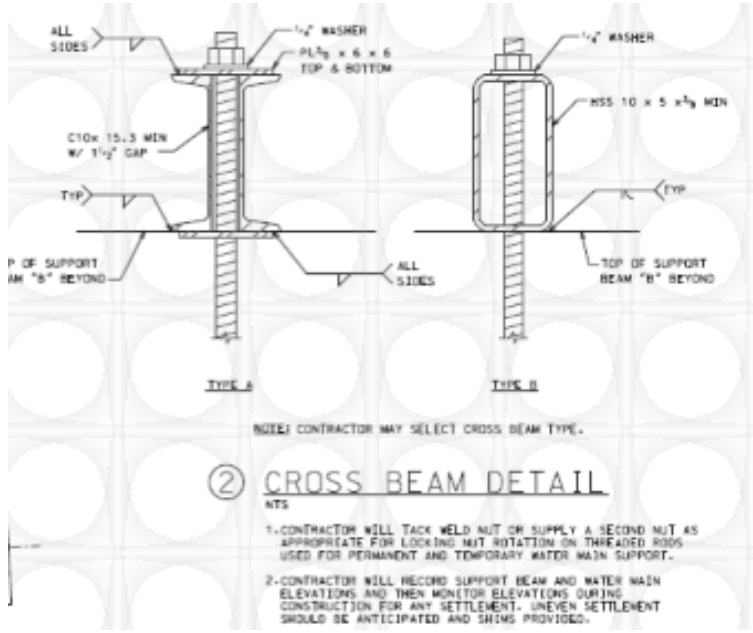
Temporary Support of Existing Water Facilities:

- ❑ When the proposed trench width ***must*** exceed three (3) feet, a type II temporary support of the existing water facility is required.
  - ❑ When a type II temporary support of an existing DWM water facility is required, the temporary support calculations and details must be signed and sealed by a **licensed structural engineer** in the state of Illinois.
  - ❑ Full calculations of the support beam, cross beams, threaded rods, channel, bolts, welds, etc.
  - ❑ These calculations and details must comply with DWM standards.
  - ❑ Steel chains and nylon straps are prohibited. Only steel straps are allowed.
  - ❑ All temporary support calculations and details must be reviewed and approved by DWM **prior** to OUC approval.
  - ❑ **No** greater than **eight (8) feet** of water main can be exposed.

DWM Water Section
Excavation Below Water Facilities
Temporary Support of Existing Water Facilities
(for reference purpose only)



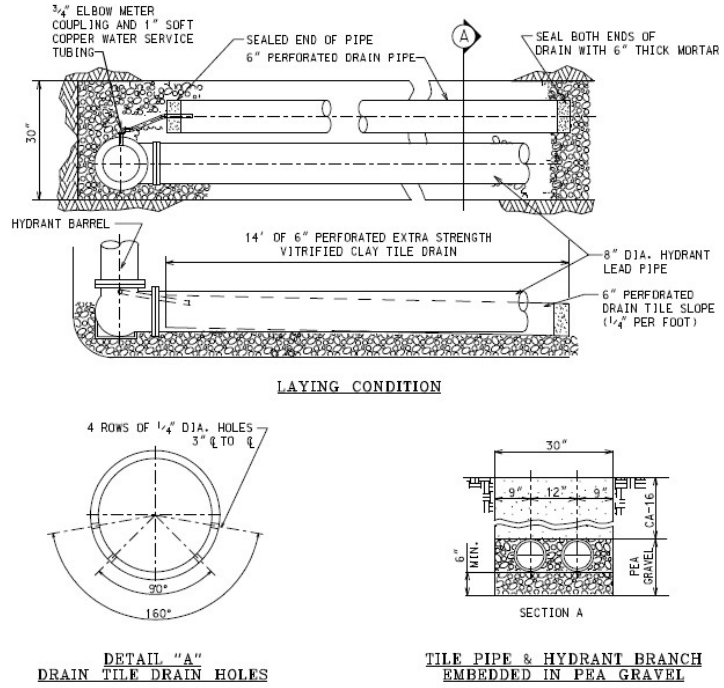




DWM Water Section
Excavation Below Water Facilities

DWM Standards for Crossing Below Fire Hydrant Leads

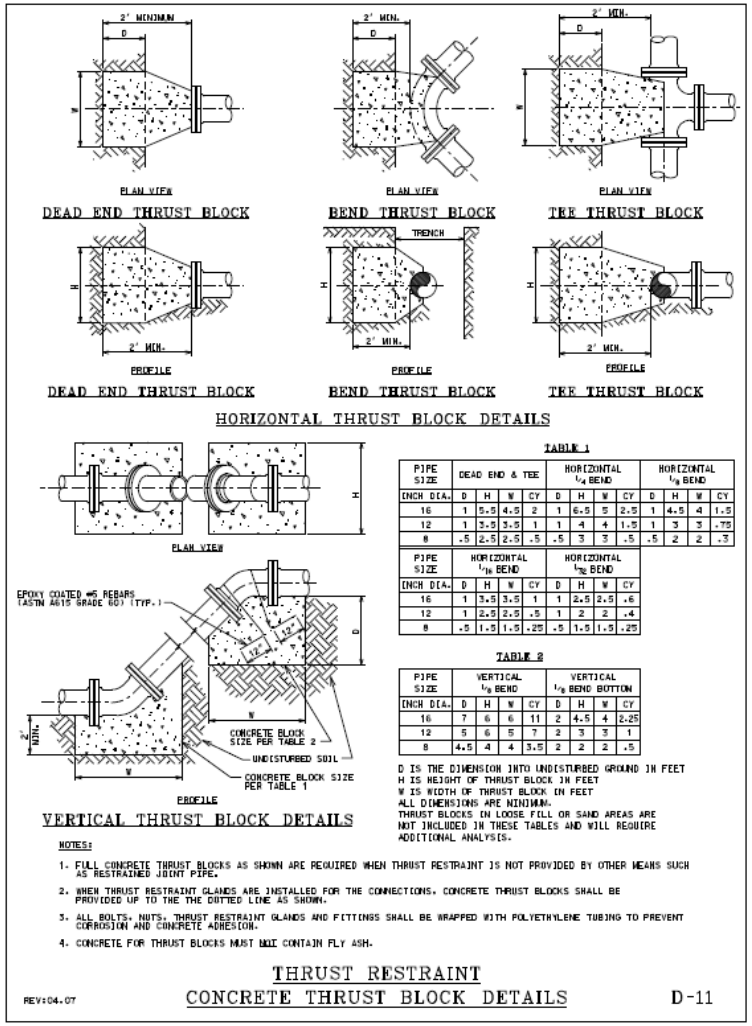
- ❑ Crossing Below Fire Hydrant Leads
  - ❑ **Cast Iron Hydrant Lead**
    - ❑ When crossing below existing **cast iron** fire hydrant leads, the **existing fire hydrant and lead must be replaced** by DWM at the applicant's cost from fire hydrant to water main in order to accommodate the proposed installation.
    - ❑ Alternatively, crossing above with 18 inches of edge-to-edge vertical separation will *not* require any DWM involvement.
  - ❑ **Ductile Iron Hydrant Lead**
    - ❑ When crossing below existing **ductile iron** fire hydrant leads, all requirements and standards apply, ***and*** the existing drain tile must be replaced by the applicant's contractor.

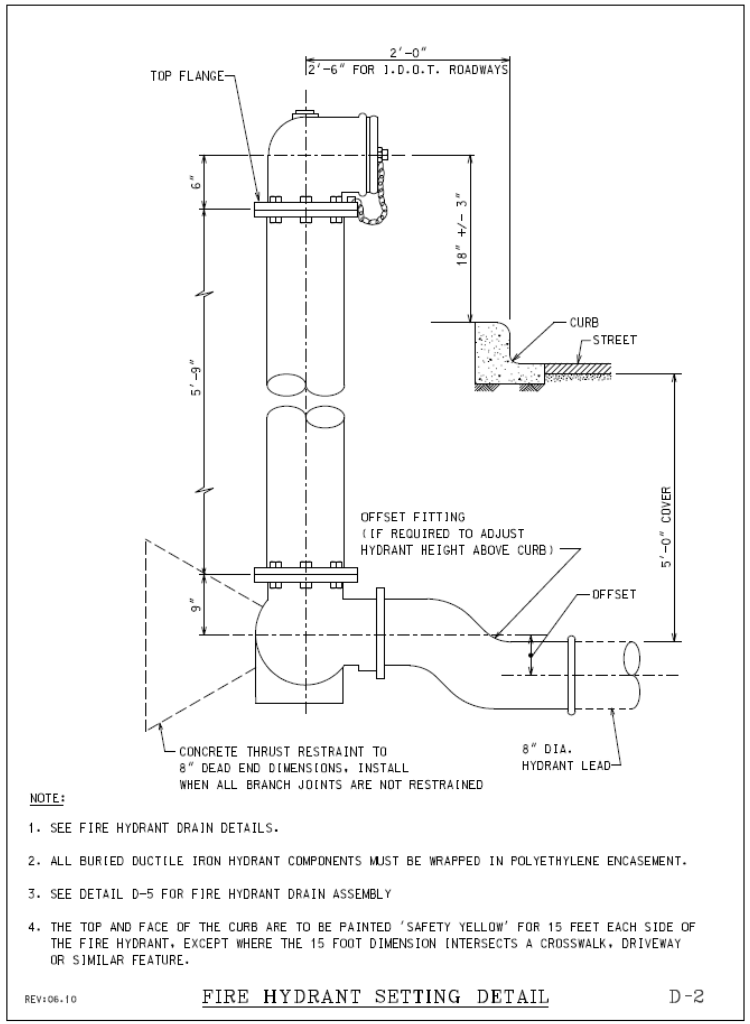


DWM Water Section
Thrust Blocks

Thrust Blocks

- General Information
  - Existing water main **fittings** including water main bends, water main plugs, water main tees, hydrants, etc. are installed with an associated **thrust block.**
  - Excavation behind the existing fittings and associated thrust block can result in **compromising** the water main facilities and leading to a **blowout.**





DWM Water Section
Thrust Blocks

Thrust Blocks – Deep Excavation

Separation Requirements for Deep Excavation

- **Deep excavations and installations behind existing water main fittings and associated thrust blocks are reviewed on a case-by-case basis.**
- The DWM ***strongly*** recommends that:
  - Excavation greater than **four (4) feet** below grade near **grid main fittings and fire hydrants** and associated thrust blocks is avoided ***in order to protect DWM water facilities***.
  - Excavation greater than **three (3) feet** below grade near **feeder main fittings and associated thrust blocks** is avoided ***in order to protect DWM water facilities.***

DWM Water Section
General Notes on Applicant's Plans

General Notes on Applicant's Plans

- ❑ **DWM Resident Engineering Notes**
- ❑ In situations that a DWM resident engineer is required to be onsite during the subject excavation and installation, the following DWM RE note must be on the plan and profile sheets:
  - ❑ **Resident Engineer note - Feeder Main crossing note – with correct FM size**
    - ❑ A representative of the DWM must be present during the excavation and installation near the existing **XX-inch feeder main**. It is required that the Force Account Construction Manager be contacted at FACM@ctrwater.net two weeks prior to the anticipated construction date so a resident engineer can be assigned to the project. The DWM representative will adhere to the schedule provided by ***Project Coordinator***, unless notified otherwise. ***Failure to comply with this requirement may result in additional expenses to the proposed project to verify that all work conforms to DWM's standards.*** Hand excavation is required to field verify the horizontal and vertical location of the existing XX**-inch feeder main** prior to construction
  - ❑ **PCCP Feeder Main note**
    - ❑ A *Use extra caution when working near PCCP feeder mains.* ***(sentence utilized for work near PCCP feeder mains)***

DWM Water Section
General Notes on Applicant's Plans

General Notes on Applicant's Plans

- **DWM Resident Engineering Notes**
  - **Prohibited – Directional Bore crossing Feeder Mains**
    - Directional boring method of installation to cross existing feeder mains is prohibited; however, the proposed facilities may be installed using a trenchless method of construction. If a trenchless method of installation is used, a minimum of four (4) feet of undisturbed soil is to remain on either side of the existing feeder main. If the proposed facility will be installed via open-cut method, the excavation must be properly shored to maintain a maximum three(3) foot trench width. The trench shall be backfilled to the springline of the feeder main with CLSM backfill (non fly ash), and CA-16 from the springline of the feeder main to grade. Use of polyethylene wrap as a bond breaker between the feeder main and the CLSM backfill is required. ***(paragraph utilized when crossing below existing water facility)***.

DWM Water Section
General Notes on Applicant's Plans

General Notes on Applicant's Plans

- **Typical DWM Resident Engineering Services Required**
  - Resident Engineering (RE) services are required for the following situations, but not limited to, and many others as reviewed on a case-by-case basis by DWM:
    - Crossing **below** 16-inch and larger water mains
    - Crossing **above** larger than 16-inch water mains
    - Crossing **below** insulated water mains
    - Crossing **below** water facilities with trench greater than three (3) feet with temporary support
    - Crossing **below** ductile iron fire hydrant lead
- Common Call Outs on Applicants' Plans and Profile Views That are Often Missed
  - When crossing below existing DWM water facilities, plans **must** call out **trench width** that will not exceed three (3) feet or that the existing water facility will be **temporarily supported.**
  - Dimension vertical separation or clearly define depth of installation such that separation requirements are met.
  - Missing Feeder Main Crossing Notes, PCCP Feeder Main Note, Resident Engineer Note, Directional Bore Notes.
  - Missing Water Mains and Water Services on applicant's plans.