FOR BIDDING PURPOSES ONLY

WATERMAIN ESTIMATE OF QUANTITIES			
	ITEM	QUANTITY	UNIT
120E7000	Select Granular Backfill	1	Ton
451E0606	6" PVC Water Main	5050	FT
451E0608	8" PVC Water Main	57	FT
451E0610	10" PVC Water Main	55	FT
451E0802	1" Copper Pipe	258	FT
451E2207	6"x6" Pipe Tee	20	EACH
451E2221	10"x6" Pipe Tee	1	EACH
451E2307	6"x6" Pipe Cross	1	EACH
451E2314	8"x8" Pipe Cross	1	EACH
451E2323	10"x10" Pipe Cross	1	EACH
451E2413	8"x6" Pipe Reducer	4	EACH
451E2421	10"x6" Pipe Reducer	2	EACH
451E3006	6" Pipe Bend	2	EACH
451E3200	1" Pipe Coupling	59	EACH
451E3206	6" Pipe Coupling	1	EACH
451E3208	8" Pipe Coupling	1	EACH
451E4206	6" Gate Valve With Box	34	EACH
451E4208	8" Gate Valve With Box	1	EACH
451E4210	10" Gate Valve With Box	2	EACH
451E4580	Standard Fire Hydrant	12	EACH
451E6050	Temporary Water Service	59	EACH
451E6100	Reconnect Water Service	59	EACH

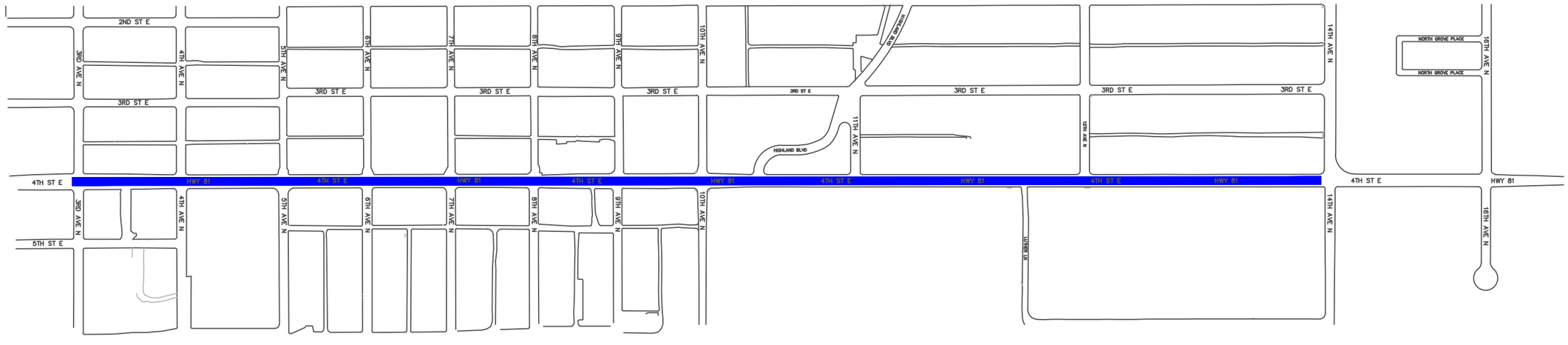
Project # 20054
PCN X04A
4TH ST NE/HWY 81
WATERTOWN, S.D.
WATER MAIN PROJECT

Proposed Project Limits

N

WATERMAIN ESTIMATE OF REMOVAL			
	ITEM	QUANTITY	UNIT
110E0370	Remove Curb Stop	22	EACH
110E1910	Remove Fire Hydrant	1	EACH
110E1960	Remove Valve Box	34	EACH
110E1965	Remove Gate Valve	20	EACH
110E1970	Remove Water Main	755'	FT
451E6099	Abandon Water Service	22	EACH

MISCELLANEOUS ESTIMATE OF QUANTITIES			
	ITEM	QUANTITY	UNIT
009E0010	Mobilization	LUMP SUM	LS



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
A1	TITLE SHEET WITH TOTAL QUANTITIES & REMOVAL
A2	ESTIMATE OF QUANTITIES & REMOVAL PER SHEET
A3–A11	4TH ST NE/HWY 81 WATER PLANS
A12	PLAN SPECIFICATIONS
A13	PLAN DETAILS

2

Prepared By
WATERTOWN MUNICIPAL UTILITIES
901 4TH AVE SW
WATERTOWN, SD 57201
Telephone 605–882–6233

THIS SHEET "FOR INFORMATION ONLY"

FOR BIDDING PURPOSES ONLY

PROJECT	SHEET NO.	TOTAL SHEETS
S.D. HWY. 81 WATER MAIN PROJECT	A2	A13

ESTIMATE OF QUANTITIES (A3)

	ITEM	QUANTITY	UNIT
451E0608	8" PVC Water Main	26	FT
451E0606	6" PVC Water Main	517	FT
451E0606	6" PVC Lateral Water Main	153	FT
451E2314	8"x8" Pipe Cross	1	EACH
451E2207	6"x6" Pipe Tee	2	EACH
451E3208	8" Pipe Coupling	1	EACH
451E2413	8"x6" Pipe Reducer	3	EACH
451E4206	6" Gate Valve With Box	4	EACH
451E4580	Standard Fire Hydrant Recov.	1	EACH
451E6100	Reconnect Water Service 1"	16	EACH

ESTIMATE OF QUANTITIES (A4)

	ITEM	QUANTITY	UNIT
451E0606	6" PVC Water Main	627	FT
451E0606	6" PVC Lateral Water Main	46	FT
451E2207	6"x6" Pipe Tee	2	EACH
451E4206	6" Gate Valve With Box	4	EACH
451E4580	Standard Fire Hydrant Recov.	1	EACH
451E6100	Reconnect Water Service 1"	15	EACH

ESTIMATE OF QUANTITIES (A5)

	ITEM	QUANTITY	UNIT
451E0606	6" PVC Water Main	628	FT
451E0606	6" PVC Lateral Water Main	111	FT
451E2207	6"x6" Pipe Tee	4	EACH
451E4206	6" Gate Valve With Box	6	EACH
451E4580	Standard Fire Hydrant Recov.	2	EACH
451E6100	Reconnect Water Service 1"	8	EACH

ESTIMATE OF QUANTITIES (A6)

	ITEM	QUANTITY	UNIT
451E0606	6" PVC Water Main	627	FT
451E0606	6" PVC Lateral Water Main	135	FT
451E2207	6"x6" Pipe Tee	3	EACH
451E2307	6"x6" Pipe Cross	1	EACH
451E4206	6" Gate Valve With Box	7	EACH
451E4580	Standard Fire Hydrant Recov.	2	EACH
451E6100	Reconnect Water Service 1"	12	EACH

ESTIMATE OF QUANTITIES (A7)

	ITEM	QUANTITY	UNIT
451E0606	6" PVC Water Main	627	FT
451E0606	6" PVC Lateral Water Main	112	FT
451E0608	8" PVC Lateral Water Main	31	FT
451E2207	6"x6" Pipe Tee	4	EACH
451E2413	8"x6" Pipe Reducer	1	EACH
451E4206	6" Gate Valve With Box	4	EACH
451E4208	8" Gate Valve With Box	1	EACH
451E4580	Standard Fire Hydrant Recov.	2	EACH
451E6100	Reconnect Water Service 1"	4	EACH

ESTIMATE OF QUANTITIES (A8)

	ITEM	QUANTITY	UNIT
451E0606	6" PVC Water Main	627	FT
451E0606	6" PVC Lateral Water Main	132	FT
451E2207	6"x6" Pipe Tee	4	EACH
451E4206	6" Gate Valve With Box	5	EACH
451E4580	Standard Fire Hydrant Recov.	2	EACH
451E6100	Reconnect Water Service 1"	3	EACH

ESTIMATE OF QUANTITIES (A9)

	ITEM	QUANTITY	UNIT
451E0606	6" PVC Water Main	627	FT
451E0606	6" PVC Lateral Water Main	65	FT
451E2207	6"x6" Pipe Tee	1	EACH
451E4206	6" Gate Valve With Box	3	EACH
451E0610	10" PVC Water Main	55	FT
451E2323	10"x10" Pipe Cross	1	EACH
451E4210	10" Gate Valve With Box	2	EACH
451E2421	10"x6" Pipe Reducer	2	EACH
451E3006	6" Pipe Bend 45°	2	EACH
451E4580	Standard Fire Hydrant Recov.	1	EACH
451E6100	Reconnect Water Service 1"	1	EACH

ESTIMATE OF QUANTITIES (A10)

	ITEM	QUANTITY	UNIT
451E0606	6" PVC Lateral Water Main	16	FT
451E4206	6" Gate Valve With Box	1	EACH
451E2221	10x10x6 Pipe Tee	1	EACH
451E4580	Standard Fire Hydrant Recov.	1	EACH

ESTIMATE OF QUANTITIES (A11)

	ITEM	QUANTITY	UNIT
	N/A	0	FT

ESTIMATE OF REMOVAL (A3)

	ITEM	QUANTITY	UNIT
110E1970	Remove Water Main 6" Cast	135	FT
110E1965	Remove Gate Valve 6"	2	EACH
110E1960	Remove Valve Box	4	EACH

ESTIMATE OF REMOVAL (A4)

	ITEM	QUANTITY	UNIT
110E1970	Remove Water Main 6" Cast	56	FT
110E1960	Remove Valve Box	3	EACH

ESTIMATE OF REMOVAL (A5)

	ITEM	QUANTITY	UNIT
110E1970	Remove Water Main 6" Cast	78	FT
110E1965	Remove Gate Valve 6"	2	EACH
110E1960	Remove Valve Box	3	EACH

ESTIMATE OF REMOVAL (A6)

	ITEM	QUANTITY	UNIT
110E1970	Remove Water Main 6" Cast	157	FT
110E1965	Remove Gate Valve 6"	4	EACH
110E1960	Remove Valve Box	6	EACH

ESTIMATE OF REMOVAL (A7)

	ITEM	QUANTITY	UNIT
110E1970	Remove Water Main 6" Cast	123	FT
110E1970	Remove Water Main 6" PVC	31	FT
110E1965	Remove Gate Valve 6"	4	EACH
110E1960	Remove Valve Box	5	EACH

ESTIMATE OF REMOVAL (A8)

	ITEM	QUANTITY	UNIT
110E1970	Remove Water Main 4" Cast	22	FT
110E1970	Remove Water Main 6" Cast	65	FT
110E1965	Remove Gate Valve 4"	1	EACH
110E1965	Remove Gate Valve 6"	3	EACH
110E1960	Remove Valve Box	8	EACH
451E6099	Abandon Water Service	6	EACH
110E0370	Remove Curb Stop	6	EACH
110E1910	Remove Fire Hydrant	1	EACH

ESTIMATE OF REMOVAL (A9)

	ITEM	QUANTITY	UNIT
110E1970	Remove Water Main 6" Cast	33	FT
110E1970	Remove Water Main 10" Cast	55	FT
110E1965	Remove Gate Valve 6"	2	EACH
110E1960	Remove Valve Box	5	EACH
110E1965	Remove Gate Valve 10"	2	EACH

ESTIMATE OF REMOVAL (A10)

	ITEM	QUANTITY	UNIT
451E6099	Abandon Water Service	9	EACH
110E0370	Remove Curb Stop	9	EACH

ESTIMATE OF REMOVAL (A11)

	ITEM	QUANTITY	UNIT
451E6099	Abandon Water Service	7	EACH
110E0370	Remove Curb Stop	7	EACH

Prepared By
WATERTOWN MUNICIPAL UTILITIES
901 4TH AVE SW
WATERTOWN, SD 57201
Telephone 605-882-6233

FOR BIDDING PURPOSES ONLY

PROJECT	SHEET NO.	TOTAL SHEETS
S.D. HWY. 81 WATER MAIN PROJECT	A3	A13

LEGEND

- Existing Water Valve
- Existing Sanitary Sewer MH
- Existing Fire Hydrant
- Existing Water Curb Stop
- Existing Sanitary Sewer Line
- Existing Storm Sewer Line
- Existing Water Main
- Existing Natural Gas Main
- Existing Water Service
- Existing Comm. Cables
- Existing Elec./St. Lt. Wires
- Proposed 6" PVC Water Main
- Proposed 8" PVC Water Main
- Proposed New Water Valve

Sta. 75+98.9 (5.5'R)
Connect Exist. 8" Cast To New 8" PVC
W/Mech. Joint Coupling

Sta. 76+24.6 (9.1'R)
Install 8" Cross W/3-6" Reducers

Sta. 76+24.6 (9.1'R To 42'R)
Install 33' 6" PVC Water Main

Sta. 76+24.6 (42'R)
Install 6" Valve W/Road Box &
Connect New 6" Valve w/Restraint Gland
To Existing 6" Cast Main

Sta. 76+24.6 (9.1'R To 55.8'L)
Install 65' 6" PVC Water Main

Sta. 76+24.6 (55.8'L)
Install 6" Valve W/Road Box &
Connect New 6" Valve w/Restraint Gland
To Existing 6" Cast Main

Sta. 76+93.6 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 77+27 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 77+30 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 77+60 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 77+92 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 77+97 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 78+33 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 78+48 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 78+91 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 78+96 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 79+61 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 79+63 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 79+77 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta 80+17 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 80+24 (9.1'R To 38'R)
Install 6" Tee, 6" Valve & Road Box,
29' 6" PVC & Reconnect Fire Hyd.

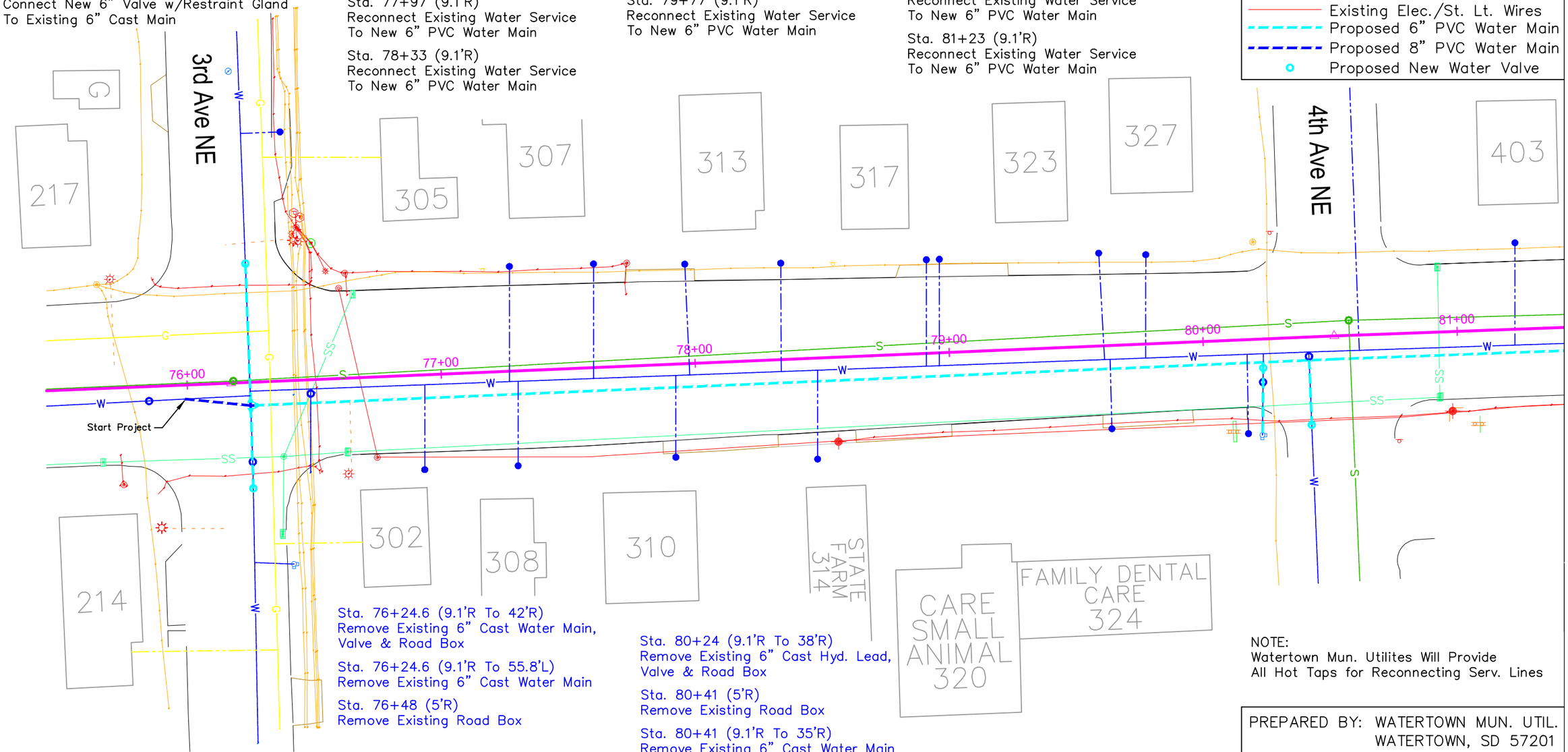
Sta. 80+41 (9.1'R)
Install 6" Tee

Sta. 80+41 (9.1' To 35'R)
Install 26' 6" PVC Water Main

Sta. 80+41 (35'R)
Install 6" Valve W/Road Box &
Connect New 6" Valve w/Restraint Gland
To Existing 6" Cast Main

Sta. 80+61 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 81+23 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main



Sta. 76+24.6 (9.1'R To 42'R)
Remove Existing 6" Cast Water Main,
Valve & Road Box

Sta. 76+24.6 (9.1'R To 55.8'L)
Remove Existing 6" Cast Water Main

Sta. 76+48 (5'R)
Remove Existing Road Box

Sta. 80+24 (9.1'R To 38'R)
Remove Existing 6" Cast Hyd. Lead,
Valve & Road Box

Sta. 80+41 (5'R)
Remove Existing Road Box

Sta. 80+41 (9.1'R To 35'R)
Remove Existing 6" Cast Water Main

NOTE:
Watertown Mun. Utilites Will Provide
All Hot Taps for Reconnecting Serv. Lines

PREPARED BY: WATERTOWN MUN. UTIL.
WATERTOWN, SD 57201
12/2012 (605) 882-6233

FOR BIDDING PURPOSES ONLY

PROJECT	SHEET NO.	TOTAL SHEETS
S.D. HWY. 81 WATER MAIN PROJECT	A4	A13

Sta. 81+47 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 82+05 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 82+62 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 82+96 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 83+13 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 83+54 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 83+67 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 84+24 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 84+59 (38'R) To
Sta. 84+78 (33'R) Install
6" Tee, 6" Valve & Road Box,
19' 6" PVC & Reconnect Fire Hyd.

Sta. 84+76 (9.1'R)
Install 6" Valve & Road Box

Sta. 84+78 (9.1'R)
Install 6" Tee

Sta. 84+78 (9.1'R To 36'R)
Install 27' 6" PVC Water Main

Sta. 84+78 (36'R)
Install 6" Valve & Road Box,
Connect New 6" Valve w/Restraint Gland
To Existing 6" Cast Main

Sta. 84+80 (9.1'R)
Install 6" Valve & Road Box

Sta. 85+08 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 86+38 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 86+86 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 86+98 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 87+20 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 87+56 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 87+67 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 84+53 (19'R)
Remove Existing Road Box

Sta. 84+59 (9.1'R To 38'R)
Remove Existing 6" Cast Hyd. Lead

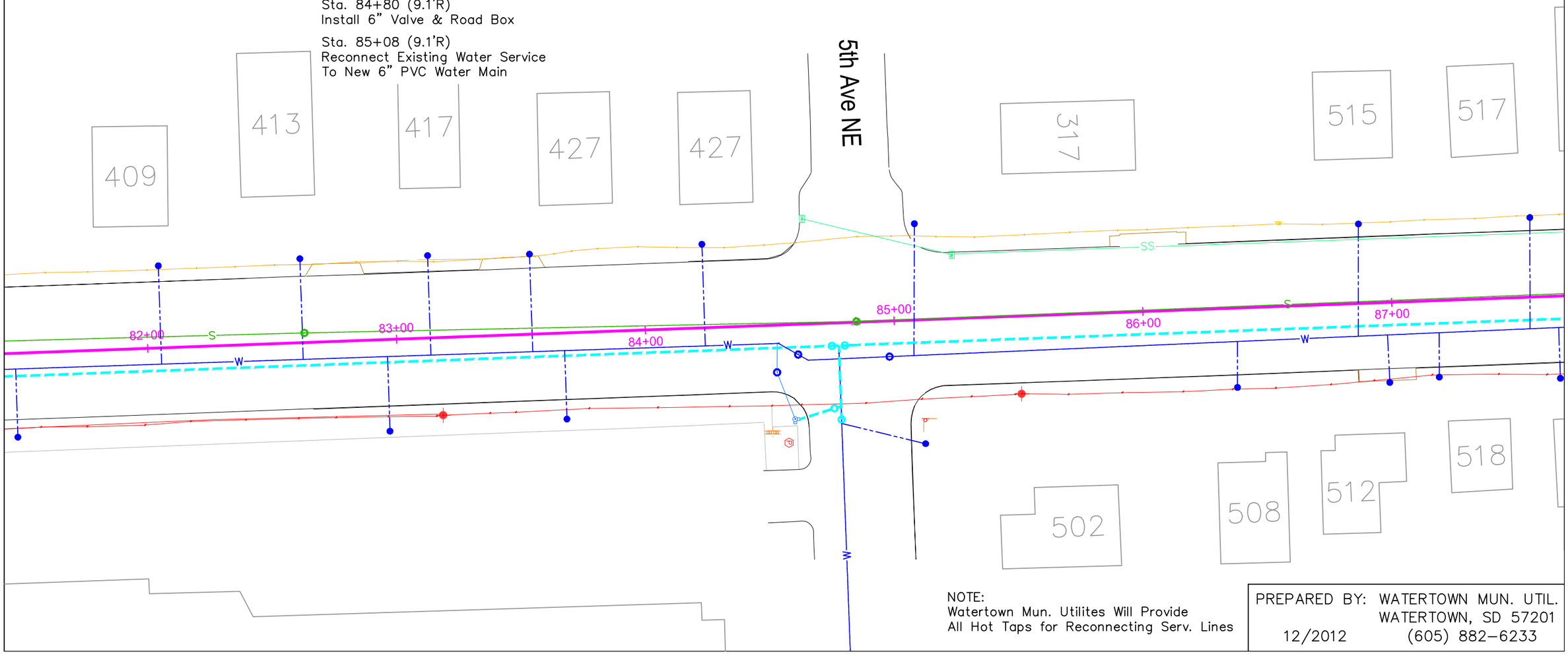
Sta. 84+62 (12'R)
Remove Existing Road Box

Sta. 84+78 (9.1'R To 36'R)
Remove Existing 6" Cast Water Main

Sta. 84+98 (14'R)
Remove Existing Road Box

LEGEND

- Existing Water Valve
- Existing Sanitary Sewer MH
- Existing Fire Hydrant
- Existing Water Curb Stop
- Existing Sanitary Sewer Line
- Existing Storm Sewer Line
- Existing Water Main
- Existing Natural Gas Main
- Existing Water Service
- Existing Comm. Cables
- Existing Elec./St. Lt. Wires
- Proposed 6" PVC Water Main
- Proposed 8" PVC Water Main
- Proposed New Water Valve



NOTE:
Watertown Mun. Utilites Will Provide
All Hot Taps for Reconnecting Serv. Lines

PREPARED BY: WATERTOWN MUN. UTIL.
WATERTOWN, SD 57201
12/2012 (605) 882-6233

FOR BIDDING PURPOSES ONLY

PROJECT	SHEET NO.	TOTAL SHEETS
S.D. HWY. 81 WATER MAIN PROJECT	A5	A13

Sta. 88+23 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 88+50 (9.1'R)
Install 6" Tee

Sta. 88+50 (32'R)
Install 6" Valve W/Road Box &
Connect New 6" Valve w/Restraint Gland
To Existing 6" Cast Main

Sta. 88+50 (9.1'R To 32'R)
Install 23' 6" PVC Water Main

Sta. 88+50 (36'R) To
Sta. 88+64 (35'R) Install
6" Tee, 6" Valve & Road Box,
14' 6" PVC & Reconnect Fire Hyd.

Sta. 88+64 (9.1'R To 38'R)
Install 6" Tee, 6" Valve & Road Box,
28' 6" PVC & Reconnect Fire Hyd.

Sta. 90+47 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 90+77 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 91+26 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 92+04 (9.1'R)
Install 6" Valve & Road Box

Sta. 92+06 (9.1'R)
Install 6" Tee

Sta. 92+06 (70'R)
Install 6" Valve W/Road Box &
Connect New 6" Valve w/Restraint Gland
To Existing 6" Cast Main

Sta. 92+06 (9.1'R To 70'R)
Install 61' 6" PVC Water Main

Sta. 92+06 (35'R) To
Sta. 92+19 (35'R) Install
6" Tee, 6" Valve & Road Box,
13' 6" PVC & Reconnect Fire Hyd.

Sta. 92+08 (9.1'R)
Install 6" Valve & Road Box

Sta. 92+54 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 92+74 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 93+27 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 93+47 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 88+50 (9.1'R To 32'R)
Remove Existing 6" Cast Water Main

Sta. 88+64 (9.1'R To 38'R)
Remove Existing 6" Cast
Hyd. Lead, Valve & Road Box

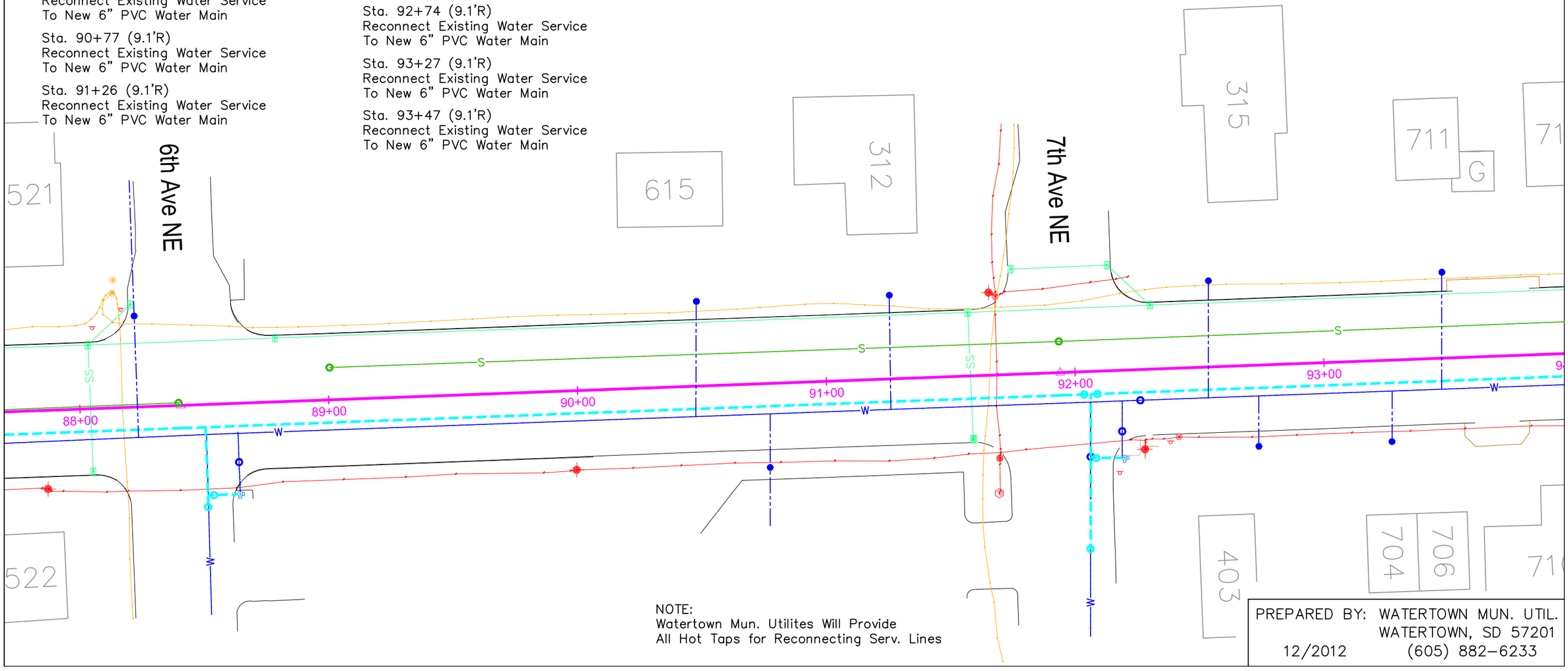
Sta. 92+06 (9.1'R To 50'R)
Remove Existing 6" Cast Water Main,
Valve & Road Box

Sta. 92+19 (9.1'R To 35'R)
Remove Existing 6" Cast Hyd. Lead,
Valve & Road Box

Sta. 92+26 (12'R)
Remove Existing Road Box

LEGEND

- Existing Water Valve
- Existing Sanitary Sewer MH
- Existing Fire Hydrant
- Existing Water Curb Stop
- Existing Sanitary Sewer Line
- Existing Storm Sewer Line
- Existing Water Main
- Existing Natural Gas Main
- Existing Water Service
- Existing Comm. Cables
- Existing Elec./St. Lt. Wires
- Proposed 6" PVC Water Main
- Proposed 8" PVC Water Main
- Proposed New Water Valve



NOTE:
Watertown Mun. Utilites Will Provide
All Hot Taps for Reconnecting Serv. Lines

PREPARED BY: WATERTOWN MUN. UTIL.
WATERTOWN, SD 57201
12/2012 (605) 882-6233

FOR BIDDING PURPOSES ONLY

PROJECT	SHEET NO.	TOTAL SHEETS
S.D. HWY. 81 WATER MAIN PROJECT	A6	A13

Sta. 94+07 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 94+10 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 94+14 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 94+36 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 94+71 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 94+90 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 95+60 (9.1'R)
Install 6" Tee

Sta. 95+60 (38"R)
Install 6" Valve W/Road Box

Sta. 95+60 (9.1'R To 38'R)
Install 29' 6" PVC Water Main

Sta. 95+60 (36'R) To
Sta. 95+70 (36'R) Install
6" Tee, 6" Valve & Road Box,
10' 6" PVC & Reconnect Fire Hyd.

Sta. 96+12 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 96+44 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 96+46 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 97+24 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 97+83 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 99+08 (9.1'R)
Install 6" Valve & Road Box

Sta. 99+10 (9.1'R)
Install 6" Cross

Sta. 99+10 (40'L)
Install 6" Valve W/Road Box &
Connect New 6" Valve w/Restraint Gland
To Existing 6" Cast Main

Sta. 99+10 (9.1' To 40'L)
Install 49' 6" PVC Water Main

Sta. 99+10 (45'R)
Install 6" Valve W/Road Box &
Connect New 6" Valve w/Restraint Gland
To Existing 6" Cast Main

Sta. 99+10 (9.1'R To 45'R)
Install 36' PVC Water Main

Sta. 99+10 (43'R) To
Sta. 99+21 (43'R) Install
6" Tee, 6" Valve & Road Box,
11' 6" PVC & Reconnect Fire Hyd.

Sta. 99+12 (9.1'R)
Install 6" Valve & Road Box

Sta. 99+34 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 95+60 (9.1'R To 38'R)
Remove Existing 6" Cast Water Main,
Valve & Road Box

Sta. 95+70 (9.1'R To 37'R)
Remove Existing 6" Cast Hyd. Lead,
Valve & Road Box

Sta. 98+67 (12'R)
Remove Existing Road Box

Sta. 99+10 (9.1'R To 40'L)
Remove Existing 6" Cast Water Main

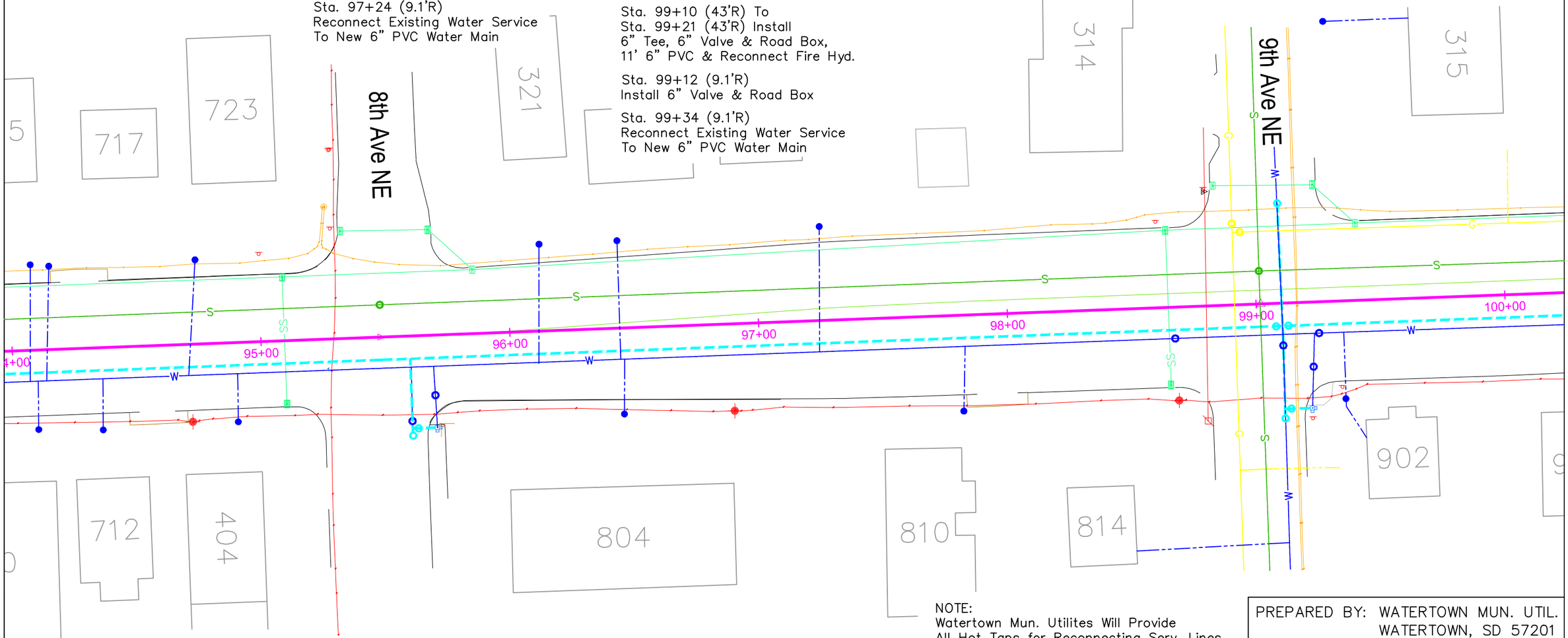
Sta. 99+10 (9.1'R To 45'R)
Remove Existing 6" Cast Water Main,
Valve & Road Box

Sta. 99+21 (9.1'R To 42'R)
Remove Existing 6" Cast Hyd. Lead,
Valve & Road Box

Sta. 99+24 (12'R)
Remove Existing Road Box

LEGEND

- Existing Water Valve
- Existing Sanitary Sewer MH
- Existing Fire Hydrant
- Existing Water Curb Stop
- Existing Sanitary Sewer Line
- Existing Storm Sewer Line
- Existing Water Main
- Existing Natural Gas Main
- Existing Water Service
- Existing Comm. Cables
- Existing Elec./St. Lt. Wires
- Proposed 6" PVC Water Main
- Proposed 8" PVC Water Main
- Proposed New Water Valve



NOTE:
Watertown Mun. Utilites Will Provide
All Hot Taps for Reconnecting Serv. Lines

PREPARED BY: WATERTOWN MUN. UTIL.
WATERTOWN, SD 57201
12/2012 (605) 882-6233

FOR BIDDING PURPOSES ONLY

PROJECT	SHEET NO.	TOTAL SHEETS
S.D. HWY. 81 WATER MAIN PROJECT	A7	A13

LEGEND

- Existing Water Valve
- Existing Sanitary Sewer MH
- Existing Fire Hydrant
- Existing Water Curb Stop
- Existing Sanitary Sewer Line
- Existing Storm Sewer Line
- Existing Water Main
- Existing Natural Gas Main
- Existing Water Service
- Existing Comm. Cables
- Existing Elec./St. Lt. Wires
- Proposed 6" PVC Water Main
- Proposed 8" PVC Water Main
- Proposed New Water Valve

Sta. 101+06 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 101+11 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 101+61 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 101+79 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 102+33 (9.1'R)
Install 6x6x8 Tee

Sta. 102+33 (40'R)
Install 8" Valve W/Road Box &
Connect New 8" Valve w/Restraint Gland
To Existing 8" Cast Main

Sta. 102+33 (9.1'R To 40'R)
Install 31' 8" PVC Water Main

Sta. 102+33 (38'R) To
Sta. 102+24 (38'R) Install
6" Tee, 8x6 Reducer, 6" Valve & Road Box,
8' 6" PVC & Reconnect Fire Hyd.

Sta. 102+66 (9.1'R)
Install 6" Tee

Sta. 102+66 (9.1'R To 36'L)
Install 45' 6" PVC Water Main

Sta. 102+66 (38'L)
Install 6" Valve & Road Box
Connect New 6" Valve w/Restraint Gland
To Existing 6" Cast Main

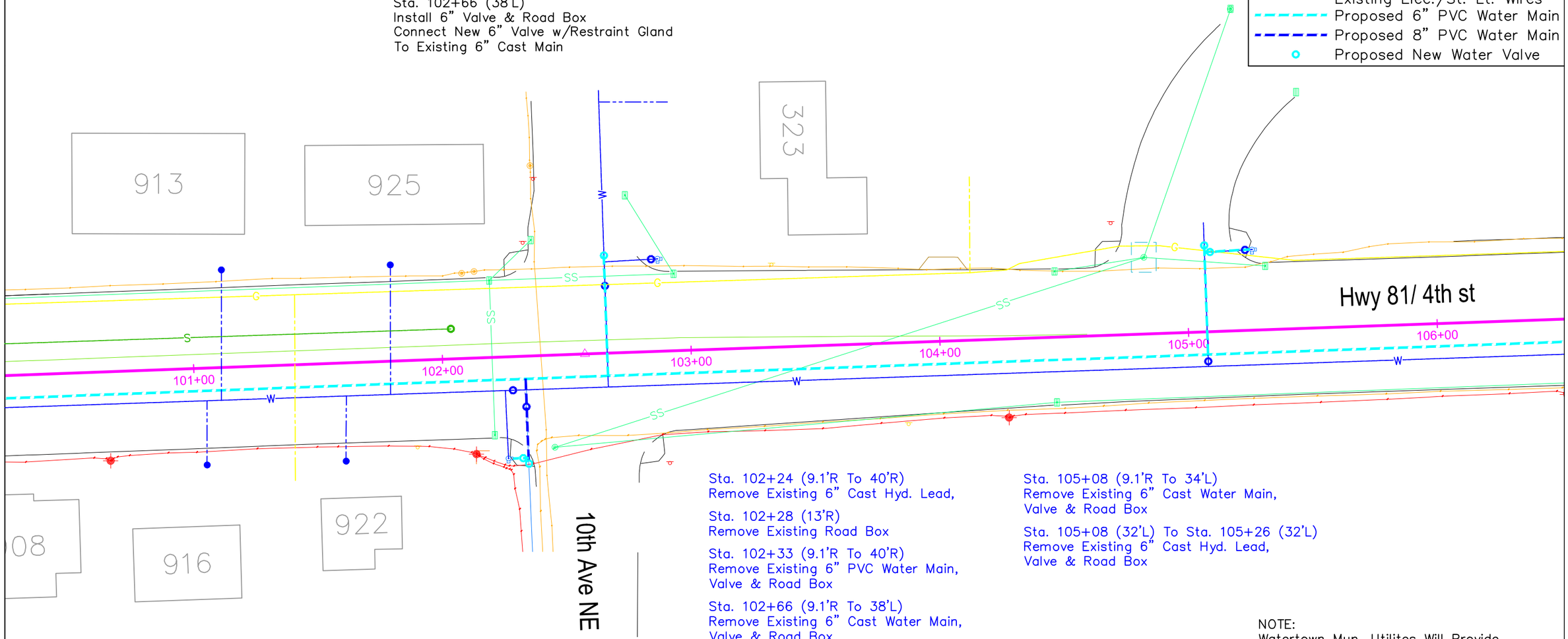
Sta. 105+08 (9.1'R)
Install 6" Tee

Sta. 105+08 (32'L)
Install 6" Tee

Sta. 105+08 (9.1'R To 32'L)
Install 41' 6" PVC Water Main

Sta. 105+08 (34'L)
Install 6" Valve W/Road Box &
Connect New 6" Valve w/Restraint Gland
To Existing 6" Cast Main

Sta. 105+08 (32'L) To Sta. 105+26 (32'L)
Install 6" Valve, Road Box., 18' 6" PVC
& Reconnect Fire Hyd.



Sta. 102+24 (9.1'R To 40'R)
Remove Existing 6" Cast Hyd. Lead,

Sta. 102+28 (13'R)
Remove Existing Road Box

Sta. 102+33 (9.1'R To 40'R)
Remove Existing 6" PVC Water Main,
Valve & Road Box

Sta. 102+66 (9.1'R To 38'L)
Remove Existing 6" Cast Water Main,
Valve & Road Box

Sta. 102+66 (36'L) To Sta. 102+86 (36'L)
Remove Existing 6" Cast Hyd. Lead,
Valve, Road Box & Fire Hyd.

Sta. 105+08 (9.1'R To 34'L)
Remove Existing 6" Cast Water Main,
Valve & Road Box

Sta. 105+08 (32'L) To Sta. 105+26 (32'L)
Remove Existing 6" Cast Hyd. Lead,
Valve & Road Box

NOTE:
Watertown Mun. Utilites Will Provide
All Hot Taps for Reconnecting Serv. Lines

PREPARED BY: WATERTOWN MUN. UTIL.
WATERTOWN, SD 57201
12/2012 (605) 882-6233

PROJECT	SHEET NO.	TOTAL SHEETS
S.D. HWY. 81 WATER MAIN PROJECT	A8	A13

FOR BIDDING PURPOSES ONLY

LEGEND

- Existing Water Valve
- Existing Sanitary Sewer MH
- Existing Fire Hydrant
- Existing Water Curb Stop
- Existing Sanitary Sewer Line
- Existing Storm Sewer Line
- Existing Water Main
- Existing Natural Gas Main
- Existing Water Service
- Proposed Water Service
- Existing Comm. Cables
- Existing Elec./St. Lt. Wires
- Proposed 6" PVC Water Main
- Proposed 8" PVC Water Main
- Proposed New Water Valve

Sta. 109+04 (9.1'R To 38'R)
Install 1" Copper Serv. & Reconnect Curb Stop

Sta. 109+06 (9.1'R To 38'R)
Install 1" Copper Serv. & Reconnect Curb Stop

Sta. 109+12 (9.1'R)
Install 6" Valve & Road Box

Sta. 109+14 (15'R)
DO NOT Reconnect Existing 6" Hydrant Lead
To New 6" PVC Water Main

Sta. 109+14 (9.1'R)
Install 6" Tee

Sta. 109+14 (9.1'R To 32'L)
Install 41' 6" PVC Water Main

Sta. 109+14 (32'L)
Install 6" Tee

Sta. 109+14 (32'L To 44'L)
Install 12' 6" PVC Water Main

Sta. 109+14 (44'L)
Install 6" Valve W/Road Box &
Connect New 6" Valve w/Restraint Gland
To Existing 6" Cast Main

Sta. 109+14 (32'L) To Sta. 109+36 (32'L)
Install 6" Valve, Road Box., 22' 6" PVC
& Reconnect Fire Hyd.

Sta. 109+16 (9.1'R)
Install 6" Valve & Road Box

Sta. 110+06 (16'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 110+24 (16'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 110+96 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 111+92 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 111+98 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 112+55 (9.1'R)
Install 6" Tee

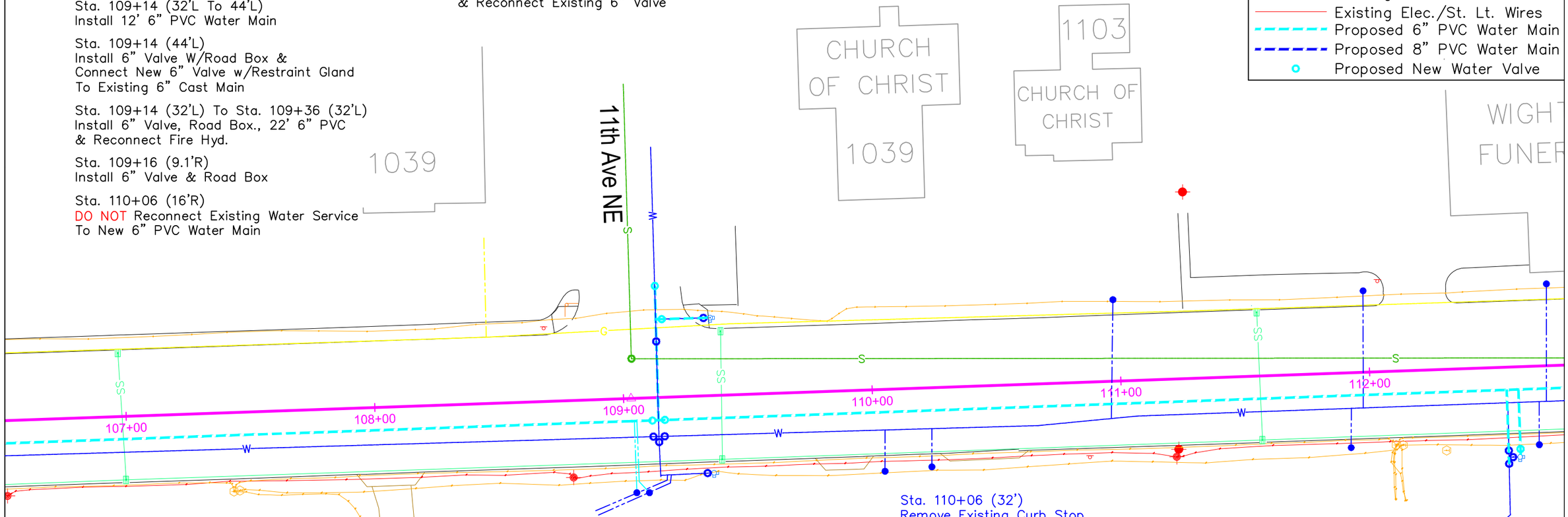
Sta. 112+55 (9.1'R To 39'R)
Install 6" PVC Water Service
& Reconnect Existing 6" Valve

Sta. 112+60 (9.1'R)
Install 6" Tee

Sta. 112+60 (9.1'R To 36'R)
Install 6" Valve, Road Box,
27' 6" PVC & Reconnect Fire Hydrant

Sta. 112+68 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 112+70 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main



Sta. 109+14 (9.1'R To 44'L)
Remove Existing 6" Cast Water Main,
Valve & Road Box

Sta. 109+14 (15'R)
Remove Existing Road Boxes (3)

Sta. 109+14 (32'L) To Sta. 109+36 (32'L)
Remove 4" Valve, Road Box.,
& 22' 4" Cast Hyd. Lead

Sta. 109+35 (31'R)
Remove Existing Fire Hyd. & Road Box

Sta. 110+06 (32')
Remove Existing Curb Stop

Sta. 110+24 (32'R)
Remove Existing Curb Stop

Sta. 111+92 (30'R)
Remove Existing Curb Stop

Sta. 111+98 (33'L)
Remove Existing Curb Stop

Sta. 112+55 (9.1'R To 39'R)
Remove Existing 6" Cast Water Service

Sta. 112+55 (35'R)
Remove Two Existing Valves and Road Boxes

Sta. 112+68 (31R')
Remove Existing Curb Stop

Sta. 112+70 (32'L)
Remove Existing Curb Stop

NOTE:
Watertown Mun. Utilites Will Provide
All Hot Taps for Reconnecting Serv. Lines

PREPARED BY: WATERTOWN MUN. UTIL.
WATERTOWN, SD 57201
12/2012 (605) 882-6233

Sta. 113+43 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 113+45 (9.1'R)
Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 114+19 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 114+21 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 114+94 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 115+10 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 115+68 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 115+71 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 115+74 (9.1'R To 30'L)
Install 6" Tee, 6" Valve & Road Box,
49' 6" PVC & Reconnect Fire Hyd.

Sta. 116+26 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 116+38 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 116+98 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 117+20 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 117+73 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 117+95 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 118+52 (14'R)
DO NOT Reconnect Existing Water Service
To New 6" PVC Water Main

Sta. 118+77 (9.1'R)
Install 45° Fitting

Sta. 118+84 (14'R)
Install 45° Fitting

Sta. 118+87 (14'R)
Install 6" Valve & Road Box

Sta. 118+89 (14'R)
Install 10"x6" Reducer

Sta. 118+91 (14'R)
Install 10" Cross

Sta. 118+91 (14'R To 41'L)
Install 55' 10" PVC Water Main

Sta. 118+91 (41'L)
Install 10" Valve W/Road Box &
Connect New 10" Valve w/Restraint Gland
To Existing 10" Cast Main

Sta. 118+91 (16'R)
Install 10x6 Reducer

Sta. 118+91 (16'R To 32'R)
Install 16' 6" PVC Water Main

Sta. 118+91 (32'R)
Install 6" Valve W/Road Box &
Connect New 6" Valve w/Restraint Gland
To Existing 6" Cast Main

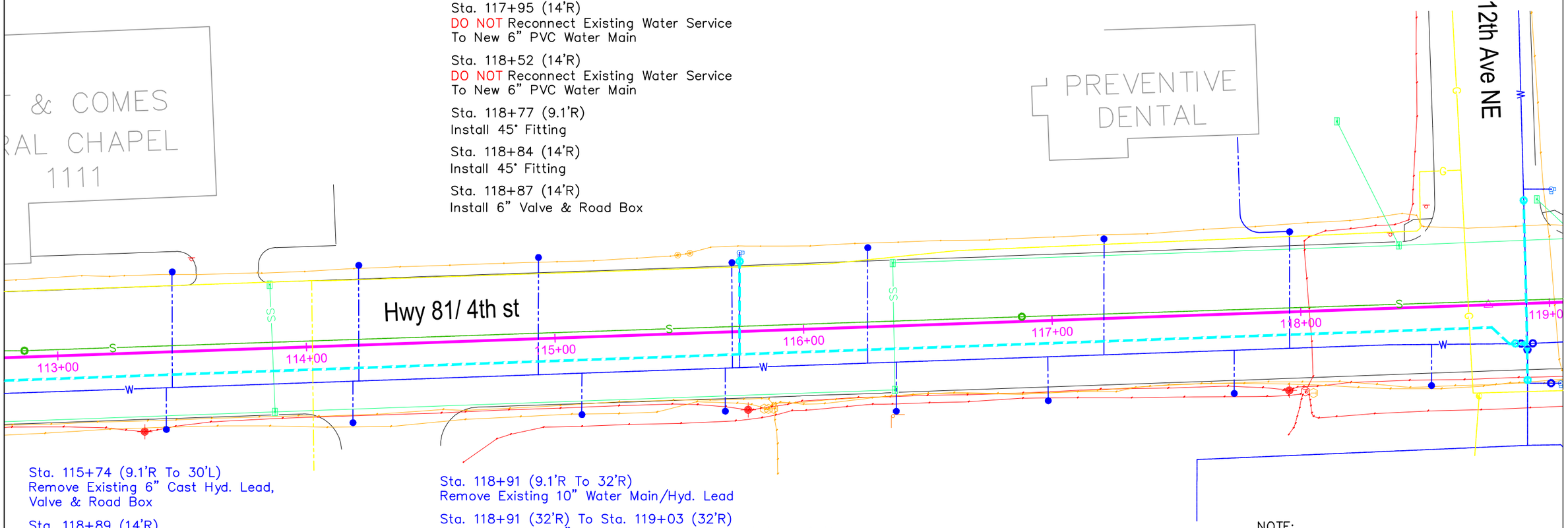
Sta. 118+93 (14'R)
Install 10" Valve & Road Box

FOR BIDDING PURPOSES ONLY

PROJECT	SHEET NO.	TOTAL SHEETS
S.D. HWY. 81 WATER MAIN PROJECT	A9	A13

LEGEND

- Existing Water Valve
- Existing Sanitary Sewer MH
- Existing Fire Hydrant
- Existing Water Curb Stop
- Existing Sanitary Sewer Line
- Existing Storm Sewer Line
- Existing Water Main
- Existing Natural Gas Main
- Existing Water Service
- Existing Comm. Cables
- Existing Elec./St. Lt. Wires
- Proposed 6" PVC Water Main
- Proposed 8" PVC Water Main
- Proposed New Water Valve



Sta. 115+74 (9.1'R To 30'L)
Remove Existing 6" Cast Hyd. Lead,
Valve & Road Box

Sta. 118+89 (14'R)
Remove Existing Road Box

Sta. 118+91 (16'R)
Remove Existing 10" Valve & Road Box

Sta. 118+91 (9.1'R To 41'L)
Remove Existing 10" Cast Water Main

Sta. 118+91 (9.1'R To 32'R)
Remove Existing 10" Water Main/Hyd. Lead

Sta. 118+91 (32'R) To Sta. 119+03 (32'R)
Remove Existing 6" Valve, Road Box, Fire Hyd. Lead & Hyd.

Sta. 118+93
Remove Existing 10" Valve & Road Box

NOTE:
Watertown Mun. Utilites Will Provide
All Hot Taps for Reconnecting Serv. Lines

PREPARED BY: WATERTOWN MUN. UTIL.
WATERTOWN, SD 57201
12/2012 (605) 882-6233

FOR BIDDING PURPOSES ONLY

PROJECT	SHEET NO.	TOTAL SHEETS
S.D. HWY. 81 WATER MAIN PROJECT	A10	A13

Sta. 119+44 (15'R)
Abandon Existing Water Service

Sta. 120+19 (15'R)
Abandon Existing Water Service

Sta. 120+94 (15'R)
Abandon Existing Water Service

Sta. 121+15 (15'R)
Abandon Existing Water Service

Sta. 121+69 (15'R)
Abandon Existing Water Service

Sta. 122+26 (32'R)
Plug Existing 6" Tee (North)

Sta. 122+27 (15'R)
Abandon Existing Water Service

Sta. 122+30 (14'R)
Install 10x10x6 Tee

Sta. 122+30 (14'R To 32'R)
Install 6" PVC, 6" Valve & Road Box,
& Reconnect Existing Fire Hyd.

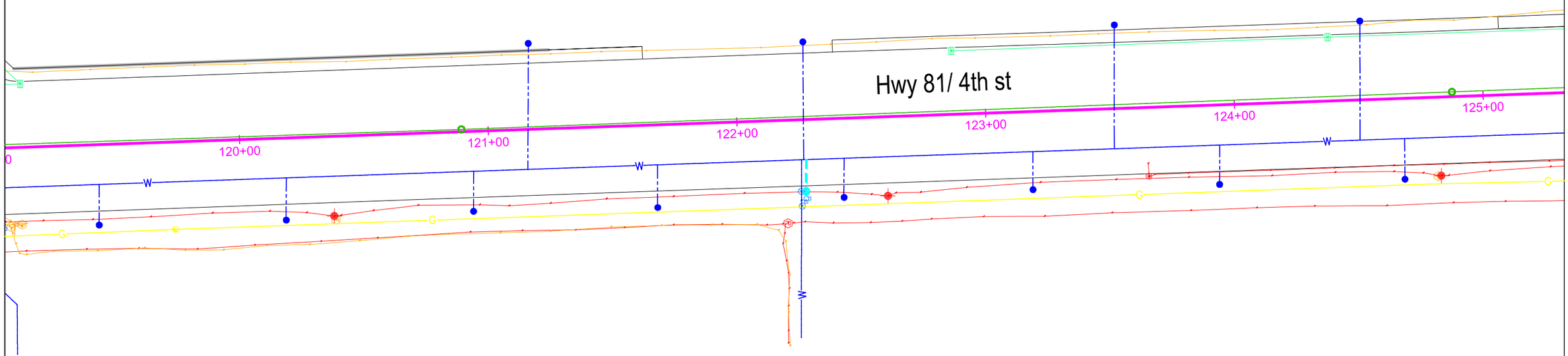
Sta. 123+18 (15'R)
Abandon Existing Water Service

Sta. 123+93 (15'R)
Abandon Existing Water Service

Sta. 124+68 (15'R)
Abandon Existing Water Service

LEGEND

- Existing Water Valve
- Existing Sanitary Sewer MH
- Existing Fire Hydrant
- Existing Water Curb Stop
- Existing Sanitary Sewer Line
- Existing Storm Sewer Line
- Existing Water Main
- Existing Natural Gas Main
- Existing Water Service
- Existing Comm. Cables
- Existing Elec./St. Lt. Wires
- Proposed 6" PVC Water Main
- Proposed 8" PVC Water Main
- Proposed New Water Valve



NOTE:
Watertown Mun. Utilites Will Provide
All Hot Taps for Reconnecting Serv. Lines

PREPARED BY: WATERTOWN MUN. UTIL.
WATERTOWN, SD 57201
12/2012 (605) 882-6233

FOR BIDDING PURPOSES ONLY

PROJECT	SHEET NO.	TOTAL SHEETS
S.D. HWY. 81 WATER MAIN PROJECT	A11	A13

Sta. 125+43 (15'R)
Abandon Existing Water Service

Sta. 126+18 (15'R)
Abandon Existing Water Service

Sta. 126+94 (15'R)
Abandon Existing Water Service

Sta. 127+26 (15'R)
Abandon Existing Water Service

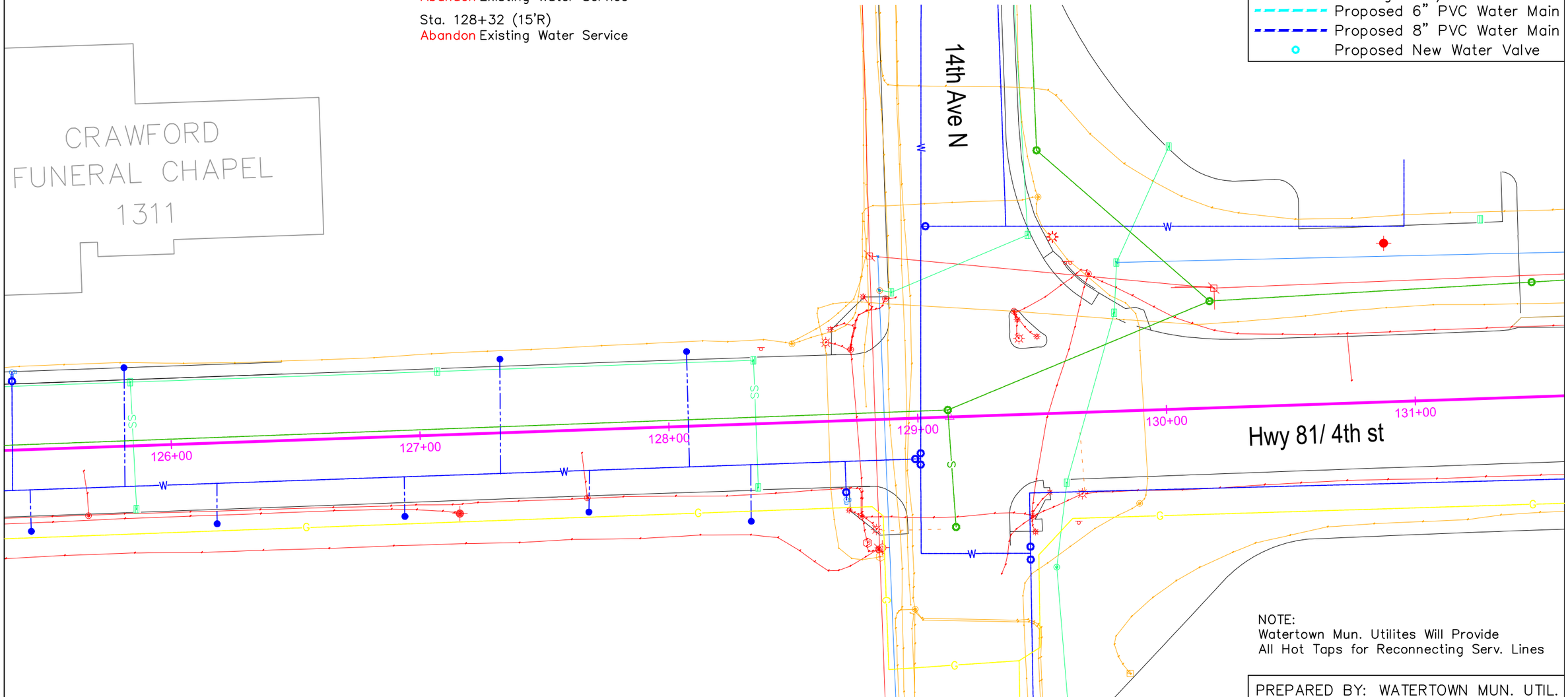
Sta. 127+68 (15'R)
Abandon Existing Water Service

Sta. 128+08 (15'R)
Abandon Existing Water Service

Sta. 128+32 (15'R)
Abandon Existing Water Service

LEGEND

- Existing Water Valve
- Existing Sanitary Sewer MH
- Existing Fire Hydrant
- Existing Water Curb Stop
- Existing Sanitary Sewer Line
- Existing Storm Sewer Line
- Existing Water Main
- Existing Natural Gas Main
- Existing Water Service
- Existing Comm. Cables
- Existing Elec./St. Lt. Wires
- Proposed 6" PVC Water Main
- Proposed 8" PVC Water Main
- Proposed New Water Valve



NOTE:
Watertown Mun. Utilites Will Provide
All Hot Taps for Reconnecting Serv. Lines

PREPARED BY: WATERTOWN MUN. UTIL.
WATERTOWN, SD 57201
12/2012 (605) 882-6233

PROJECT	SHEET NO.	TOTAL SHEETS
FOR BIDDING PURPOSES ONLY S.D. HWY. 81 WATER MAIN PROJECT	A12	A13

MUNICIPAL UTILITIES DEPARTMENT
WATERTOWN, SOUTH DAKOTA

SPECIFICATIONS FOR THE INSTALLATION OF WATER DISTRIBUTION MAINS FOR THE WATER DEPARTMENT OF THE MUNICIPAL UTILITIES DEPARTMENT ON BIDS.

The Municipal Utilities Department (hereinafter called "Department") of the City of Watertown, SD, is inviting bids for the replacement of approximately 5050 feet of 6–inch PVC main, along with other system components, all in accordance with the terms and specifications included herein.

Contractor shall furnish all pipe, fittings, valves, gaskets, lubricant, concrete, chlorine, tracing wire, and other materials necessary for the installation of the mains. Contractor shall also be responsible for any blacktop, concrete or gravel street replacement.

Pipe furnished by the Contractor shall be new PVC Class 200 SDR 21 200 PSI pressure pipe in standard lengths of 20 feet. Blue tracing wire shall be a solid #10 copper wire. Valves shall be American Flow Control series 2500 or Mueller series 2300 and conform to AWWA C515. Screw type valve boxes with lid labeled "WATER" and rubber valve box adapter shall be provided. Fittings furnished shall be C153 compact ductile iron mechanical joint type. Cor–Blue tee bolts shall be used on all mechanical joint fittings. All mechanical joint fittings shall be restrained with Smith Blair Cam–Lock or equal joint restraints. Gaskets, lubricants, chlorine, and all other materials provided by the Contractor shall be compatible for use in water distribution systems.

All copper service lines shall be type K. All copper for service lines shall be supplied by the contractor.

Service tap saddles, corporation stops and hot taps shall be supplied and performed by the Department. Contractor will expose the main at the location of the tap and coordinate taps to be made with the Department.

Contractor shall furnish all labor, supervision, tools, machinery, compaction, dewatering and any other equipment and construction facilities for the installation of the mains. Contractor shall also be responsible for cutting and disposing of any black top and concrete road surface. Contractor shall also be responsible for connection and tie–in of the new mains and other facilities with Department's existing water system and shall coordinate the same with Department.

The Contractor shall not assign this contract or any part hereof, nor shall he sub–contract any portion of this work without the prior, written approval of the Department. Partial contract payments shall be paid by Department on invoices received by the 15th of each calendar month, for any main segments completed, compacted and tested by Contractor and accepted by Department.

The Contractor shall pay all taxes of any nature required by federal regulation, or the laws or ordinances of the State of South Dakota or the City of Watertown.

The successful bidder will be required to furnish a performance and statutory bond equal to one hundred percent (100%) of his bid before commencing the work.

The insurance required hereunder shall also provide coverage at all times the contractor, or any employee, agent, assignee or subcontractor of the contractor, shall be on Municipal Utilities Department property for any reason related or connected to the contract work, included but not limited to, obtaining materials, supplies or contract documents.

Before work on the contract will be permitted to start, the successful bidder shall present to the Municipal Utilities Department, satisfactory evidence that he has taken out and will maintain during the life of the contract, statutorily required Workman's Compensation Insurance for all of his employees, directory or indirectly employed at the site of the work.

At the same time, the Contractor shall present to the Municipal Utilities Department satisfactory evidence that he has taken out and will maintain during the life of the contract, not less than an amount of $1,000,000 Public Liability Insurance per accident, not less than an amount of $100,000 Property Damage Insurance per accident, and not less than an amount of $5,000 Medical Expenses Insurance per person, to protect themselves, the City of Watertown and the Municipal Utilities Department from all claims arising from injury or damage to person or property of others as result of the performance of work covered by these specifications. The City of Watertown and the Municipal Utilities Department shall be included, by endorsement, as additional insured on Contractor's Public Liability and Property Damage Insurance.

In the event that any of the provisions of this contract are violated, or are not otherwise complied with by the Contractor, or by any of his subcontractors, the Department will serve written notice upon the contractor and the surety, of its intention to terminate such contract, such notice to contain the reasons for such intention to terminate the contract, and, unless within ten days after the service of such notice upon the contractor, such violation shall cease and satisfactory arrangement for correction be made, the contract shall, upon the expiration of said ten days, cease and terminate.

In the event of any such termination, the Department shall immediately serve notice thereof to the surety and the contractor, and the surety shall have the right to take over and perform the contract, provided, however, that if the surety does not commence performance thereof within thirty days from the date of mailing to such surety of notice of termination, the Department may take over the work and prosecute the same to completion by contract for the account and at the expense of the contractor, and the contractor and is surety shall be liable to the Department for any excess cost occasioned the owner thereby, and in such event, the Department may take possession of and utilize in completing the work, such material, appliances and plant as may be on the site of the work and necessary therefore.

During installation of the mains, trenching shall not be done more than one hundred (100) feet in advance of pipe laying and shall be covered as soon as the pipe and joints have been installed and inspected by owner. Contractor shall provide lights, barricades, and signs to adequately protect the public.

Attached to these specifications is a map showing the general areas where mains may be installed under this contract. Work may vary from the quantities and locations specified, but is generally limited to new mains and appurtenances.

Work shall proceed continuously in a reasonable manner to completion in accordance with the following specifications for workmanship:

1. DESCRIPTION: The work covered by this section consists of the construction of all pressure pipelines, placing of valves, fittings and appurtenances, complete as shown on any plans and as herein specified.

2. LINES AND GRADES: All lines shall be staked by the Department. The Contractor shall be responsible for the preservation of stakes set.

3. PIPE LAYING: All water line pipe shall be laid with a minimum of six and one–half (6 ½) feet of cover from the sub–grade over the pipe and shall be laid true to line and grade as indicated. The Contractor shall use suitable equipment for handling all pipe, fittings, valves and hydrants, and any damage caused by handling or laying shall be at the Contractor's own expense. Before the pipe is laid it shall be inspected by contractor to detect any cracks or flaws, and all dirt or foreign materials shall be removed from the inside, and all dirt, oil, grease, blisters or moisture shall be removed from the inside of the bell and from the spigot end of the pipe. All pipe shall be laid in accordance with the manufacturer's specifications. All DI fittings shall be wrapped with plastic sheeting and valve and fitting sets shall be restrained. All fittings, shall be suitably provided with concrete thrust blocks poured or set against the fitting of undisturbed earth to insure against disjointing when the piping is placed under pressure. The concrete shall be so placed that the pipe and joints will be accessible for repair. Typical drawings for hydrant and fitting installation are attached to these specifications.

All pipe, fittings, etc. shall be cleaned of all dirt and trash, and lowered into the trench by boom, or carefully rolled in with a rope. Pipe shall not be dropped into the trench. Before lowering and preferable while suspended, pipe shall be inspected to detect cracks or flaws. All fitting installation cost will be paid by the line item cost of the fitting listed on proposal sheets.

4. HYDROSTATIC TEST: The Contractor shall perform all of the work required in connection with the test and shall provide all the equipment including but not limited to a pressure gauge, water container, appropriate pump, and corporation stop connection. Compressed air will not be allowed to pressurize the main.

The Department shall fill and flush the mains and service lines. The lines shall be filled with water to activate chlorine and shall set at least 24 hours to disinfect the line. Before pressure testing the section to be tested shall be flushed by the Department.

The test section shall be placed under a constant 120 psi pressure measured at the point of lowest elevation for a minimum period of two (2) hours. All valves, shall be in full "open" position during the test period. The test shall be witnessed by Department.

No pipe installation will be accepted until the pressure change is less than 2 psi during the two (2) hour test duration. No visible leaks will be allowed.

5. DISINFECTION: Before being placed in service, the entire line shall be chlorinated. Chlorine may be applied by using calcium hypochlorite and water mixture. The chlorinating agent shall be applied evenly throughout the section of main and a dosage of 25 mg/L solution and a measurable free chlorine residual with a contact time of 24 hours in accordance with A.W.W.A. C651–05. Mains shall be filled and flushed by the Department. A residual of not less than 25 mg/L shall be produced in all parts of the lines during the chlorination process, all valves and accessories on the new main shall be operated. Extreme care shall be taken to prevent any highly chlorinated water from entering Departments existing water system. After chlorination, the water shall be flushed from the line at its extremities until the replacement water tests indicate a normal Department chlorine residual. High chlorinated water shall be de–chlorinated and discharged in a manner that will not harm any waterway, lake, or stream which may affect fish or aquatic life. Department shall arrange for any permits required for the discharge of chlorinated water.

After disinfection, a 2 consecutive bacteriological water sample shall be collected by the Department and sent to the State Health Department for analysis. The system shall be disinfected by the Contractor until negative results are obtained in the analysis.

6. EXCAVATION: All excavation of whatever substances encountered shall be performed by the Contractor to the depths indicated on any plans. To prevent slides or cave–ins the excavated materials shall be placed a sufficient distance from the banks of the excavation.

Except as otherwise shown all excavation shall be made to open cut. The banks of trenches shall be vertical to a point level with the top of the pipe. The width of the trench shall be six (6) inches minimum and twelve (12) inches maximum on each side of the pipe bell. Trench bottom shall provide uniform bearing and support for each section of pipe. If the trench is inadvertently excavated deeper than necessary, it shall be backfilled to the proper grade with approved compacted gravel to provide uniform bedding and shall be at the Contractor's own expense. Under no conditions will deleterious materials be allowed as bedding material when over–excavation occurs.

The Contractor shall plug the unfinished ends of all water lines to prevent entrance of water, earth or any foreign materials.

The Contractor shall restore all structures, culverts, fences, streets or other properties disturbed during the work to a condition similar or equal to that existing before his operations.

7. WATER REMOVAL: The Contractor shall remove and dispose of all water which collects in the trenches until the water lines and other appurtenances are in place and sealed against the entrances of water. The Contractor shall control surface water in the vicinity of the trench excavation to prevent water from flowing into the trenches. In no case shall water or foreign materials be allowed to enter the water lines. Water encountered shall be disposed of by the Contractor in a manner satisfactory to the Department. Removal of water from the trench without the use of well points shall not be considered as dewatering. Dewatering shall be construed to mean the continuous pumping of water with well points or wells where required to maintain a satisfactory trench. If the bottom of the trench becomes an unstable foundation for the pipe through neglect of the Contractor to adequately shore or dewater the trench, the Contractor will be required to remove the unstable material and backfill the trench to the proper grade with approved compacted gravel, and no extra compensation will be granted for this material or work.

8. EXCAVATION PROTECTION: Whenever necessary to provide safe working conditions in conformance with safety regulations the Contractor shall provide suitable shoring, sheathing and bracing to protect all excavations.

9. EXISTING UTILITIES PROTECTION: The Department will paint and/or flag the underground locations of all water mains in compliance with South Dakota Law Chapter 49–7A and Administrative Rules Article 20:25 when requested by the South Dakota One–Call system. The Department will attempt, to the best of our ability, to locate any service lines owned by the Customer, but will not be held responsible for any damages resulting in this practice. The Contractor shall determine the location of any existing utilities. All existing utilities shall be protected from damage during excavation and backfilling, and if damaged, shall be repaired or replaced by the Contractor at his expense.

10. SHEATHING: Whenever necessary the Contractor shall provide suitable sheathing, shoring and bracing to provide safe working conditions and to prevent injury to adjacent buildings, pipes and other property. Damage resulting from cave–ins, slides, settlement and other causes due to improper shoring, bracing or sheathing shall be repaired by the Contractor at his expense. If the Department is of the opinion that at any point sufficient supports have not been provided, he may order additional supports be provided, or order them strengthened or braced or replaced at the Contractor's expense; the execution of such orders by the Contractor shall not relieve or release the Contractor form his responsibility for the sufficiency of such supports.

The Contractor shall be responsible for any injury to persons and property, and for all damages to any pipe, conduit, sewer or other structures injuriously affected by the work, and the Department shall not be liable therefore.

11. PUBLIC SAFETY AND CONVENIENCE: The Contractor shall conduct his work to insure the least possible obstruction to traffic, inconvenience to the general public and residents in the vicinity of the work, and to insure the protection of persons and property in a manner which is satisfactory to the Department. Temporary provisions shall be provided by the Contractor to insure the use of sidewalks, sewer inlets, gutters and drainage ditches, which shall not be obstructed, except as approved by the Department. No street or road shall be closed to the general public except with the permission of the Department and the proper governmental body. All fire hydrants on or adjacent to the work shall be kept accessible to firefighting equipment.

12. WARNING SIGNS AND BARRICADES: The Contractor shall provide sufficient and adequate barricades, signs, lights, and watchmen and take all the necessary precautions to insure the protection of the work and safety of the general public. Barricades and signage shall follow the South Dakota Manual on Uniform Traffic Control Devices (MUTCD). The Contractor shall develop and submit a traffic control plan to the Watertown City Engineer for approval. The plan must be approved by the City before work can begin. A copy of the approved traffic control plan must be delivered to the Department.

No direct compensation will be made to the Contractor for furnishing, installing and maintaining barricades and warning signs and their subsequent removal, and for all other incidentals necessary for the proper direction, safety and convenience of traffic during construction.

13. BACKFILLING TRENCHES: All trenches shall be backfilled immediately after pipe is laid therein, unless other protection of pipeline is directed. Under no circumstances shall water be permitted to rise in un–backfilled trenches after pipe has been placed. No material shall be used for backfilling that contains frozen earth, debris, stones having any dimension greater than six (6) inches, or earth with an exceptionally high moisture content. Contractor shall be responsible for all compaction, along with the coordination of the compaction tests. Contractor shall not be responsible for the cost of compaction tests. Compaction shall meet the requirements established by the City of Watertown.

(a) Initial Pipe Covering: In all cases for backfill over the pipe, only selected materials shall be used. The backfilling shall be placed in uniform layers.

(b) Traveled Ways (roadways, access roads, roadway approaches and parking lots): For areas where the ditch is within the bounds of a traveled way, the backfill above the initial pipe covering shall be well tamped by mechanical means to a minimum of 95% of maximum dry density as established by standard proctor as per SD104 and AASTHO T99, before successive lifts are placed.

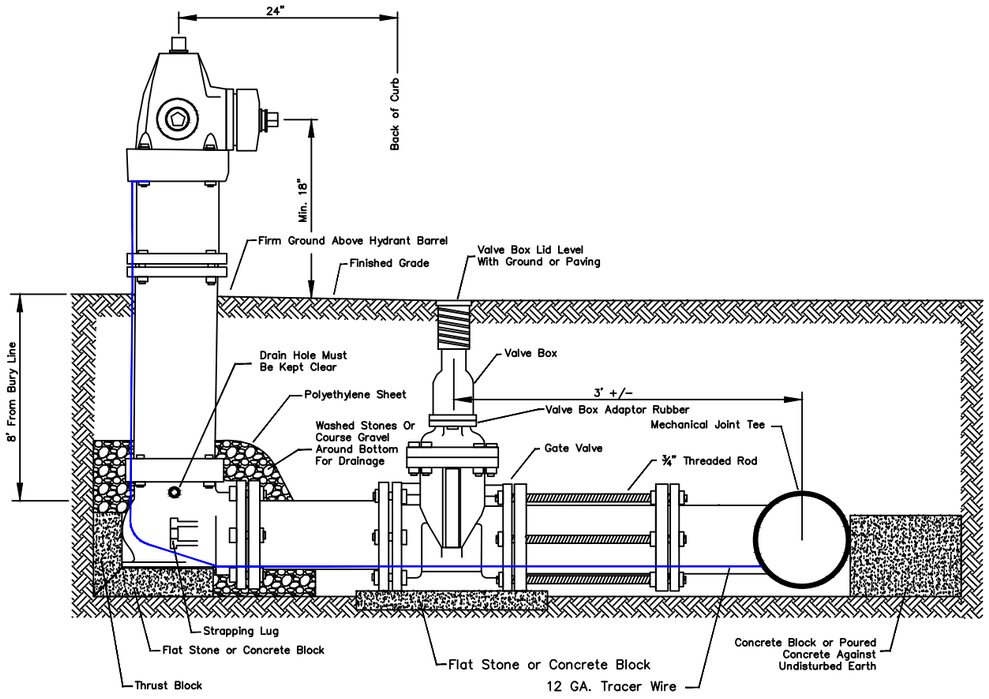
(c) Road Ditches, Right of Ways and Open Fields: Compaction in road ditches, right–of–ways and open fields shall be the same as in traveled ways which shall be compacted to 95% maximum ASTY–D698 density including the top foot which shall be SDDOT base course.

Surplus material remaining after backfill is complete, shall become the property of the Contractor, and it shall be his duty to dispose of the same at his own expense.

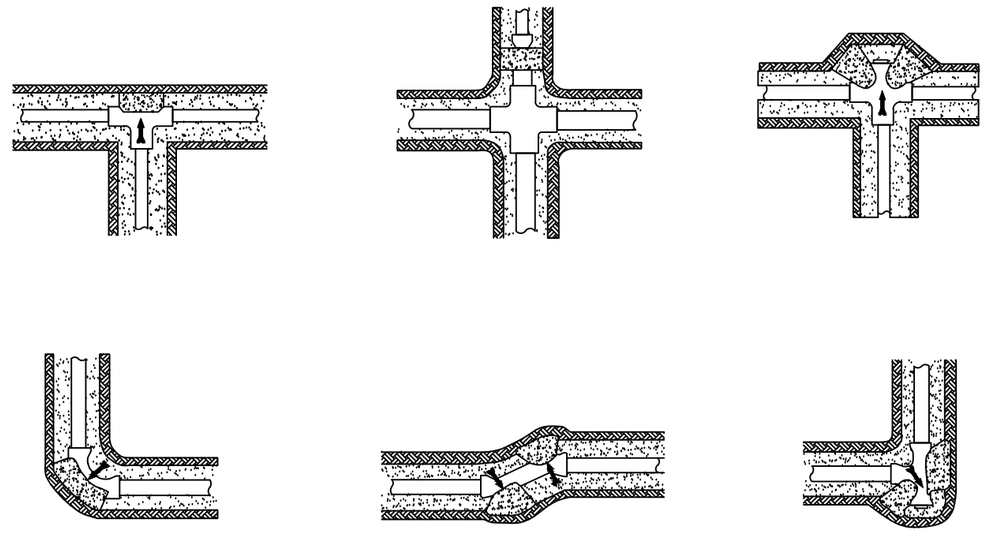
14. SEDIMENT & EROSION CONTROL MEASURE: Contractor needs to follow Sediment & Erosion Control Measures per City of Watertown Engineering Department standards.

PROJECT	SHEET NO.	TOTAL SHEETS
S.D. HWY. 81 WATER MAIN PROJECT	A13	A13

FOR BIDDING PURPOSES ONLY



FIRE HYDRANT AND VALVE DETAIL



TYPICAL DRAWINGS FOR
PIPE BLOCKING
INSTALLATION

Prepared By
WATERTOWN MUNICIPAL UTILITIES
901 4TH AVE SW
WATERTOWN, SD 57201
Telephone 605–882–6233