FOR BIDDING PURPOSES ONLY

PLANS FOR

SANITARY SEWER AND WATER MAIN REPLACEMENT (REBID)

S.D. HIGHWAY 20/47 RECONSTRUCTION

CITY PROJECT NUMBER A-5735 PCN X03F

HOVEN, SOUTH DAKOTA

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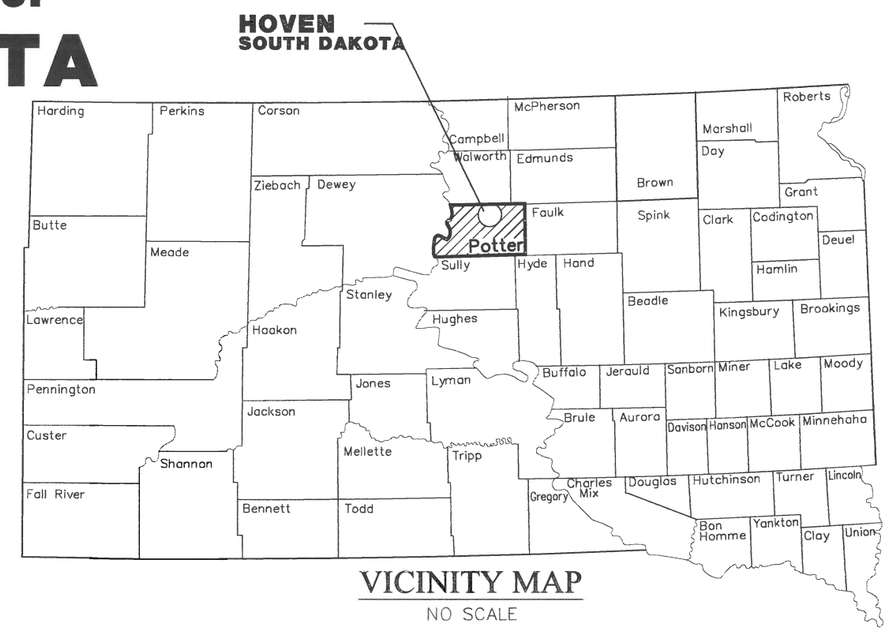
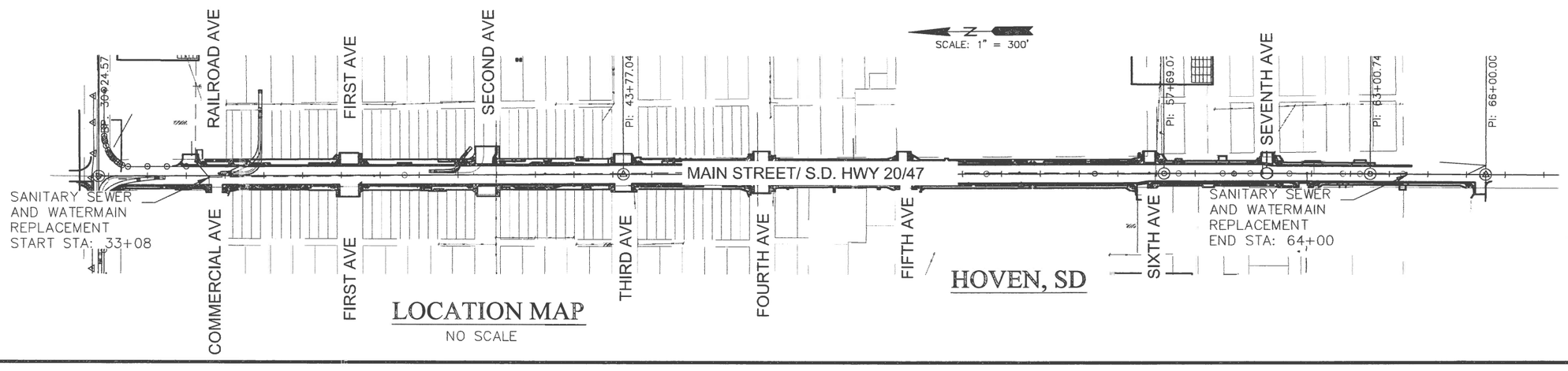


VICINITY MAP

NO SCALE



LOCATION MAP

NO SCALE

Registered Professional Engineer
REG. NO. 11124
LUCAS HOOVER
SOUTH DAKOTA
7-9-15

No.	Revisions	By	App.	Date
1	SOFTNR - SDDOT REVISIONS	TMO	LAH	12/14

I Hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the law of the State of South Dakota. Registration No.

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Chk' By: LAH
Proj. No: A-5735
Dwg. No: 5735-01
VP. No: COVER
Date: 1/20/14

COVER SHEET

2

HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS (REBID)
HOVEN, SOUTH DAKOTA

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ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	1	Lump Sum
110E0300	Remove Concrete Curb and Gutter	18	Ft
110E0460	Remove Manhole	10	Each
110E0480	Remove Manhole Frame and Lid	10	Each
110E0520	Remove Sewer Pipe	218	Ft
110E1010	Remove Asphalt Concrete Pavement	72	SqYd
110E1910	Remove Fire Hydrant	8	Each
110E1965	Remove Gate Valve	12	Each
110E1970	Remove Water Main	3716	Ft
120E0900	Contaminated Material Excavation	1,000	CuYd
260E1010	Base Course	40.0	Ton
320E1200	Asphalt Concrete Composite	18.0	Ton
451E0010	10" PVC Encasement Pipe	28	Ft
451E0012	12" PVC Encasement Pipe	220	Ft
451E0401	1" High Density Polyethylene Pipe	2,380	Ft
451E0406	1.5" High Density Polyethylene Pipe	200	Ft
451E0408	2" High Density Polyethylene Pipe	300	Ft
451E0604	4" PVC Water Main	100	Ft
451E0606	6" PVC Water Main	629	Ft
451E0608	8" PVC Water Main	3178	Ft
451E0691	4" Water Main Restraining Device	4	Each
451E0692	6" Water Main Restraining Device	46	Each
451E0693	8" Water Main Restraining Device	38	Each
451E0706	6" Ductile Iron Water Main	60	Ft
451E0708	8" Ductile Iron Water Main	300	Ft
451E1004	4" PVC Sewer Pipe	2480	Ft
451E1006	6" PVC Sewer Pipe	100	Ft
451E1008	8" PVC Sewer Pipe	3310	Ft
451E1054	4" Ductile Iron Sewer Pipe	150	Ft
451E1056	6" Ductile Iron Sewer Pipe	25	Ft
451E1058	8" Ductile Iron Sewer Pipe	250	Ft
451E1504	4" Sanitary Sewer Service Cleanout	62	Each
451E1506	6" Sanitary Sewer Service Cleanout	6	Each
451E1550	Sanitary Sewer Video Inspection	3310	Ft
451E2012	8" x 4" Pipe Wye	62	Each
451E2013	8" x 6" Pipe Wye	6	Each
451E2207	6" x 6" Pipe Tee	2	Each
451E2212	8" x 4" Pipe Tee	1	Each
451E2213	8"x 6" Pipe Tee	12	Each
451E2313	8" x 6" Pipe Cross	1	Each
451E2802	1" Corporation Stop with Tapping Saddle	60	Each
451E2806	1.5" Corporation Stop with Tapping Saddle	4	Each
451E2808	2" Corporation Stop with Tapping Saddle	6	Each
451E2902	1" Curb Stop with Box	60	Each
451E2906	1.5" Curb Stop with Box	4	Each
451E2908	2" Curb Stop with Box	6	Each
451E3008	8" Pipe Bend	1	Each
451E3106	6" Pipe Cap	1	Each
451E3108	8" Pipe Cap	2	Each
451E4204	4" Gate Valve with Box	1	Each
451E4206	6" Gate Valve with Box	11	Each
451E4208	8" Gate Valve with Box	5	Each
451E4580	Standard Fire Hydrant	8	Each
451E4590	Fire Hydrant Guard Post/Bollard	8	Each
451E4920	Pipe Bedding Material	1,638.0	Ton
451E5022	Trench Dewatering, Sewer Main	3,310	Ft
451E6080	Adjust Water Valve Box	5	Each
451E6095	Remove and Reset Valve and Box	2	Each
451E6100	Reconnect Water Service	70	Each
451E6105	Connect To Existing Watermain	9	Each
451E7010	Reconnect Sewer Service	62	Each
451E7016	Connect to Existing Sewer Main	2	Each
451E7017	Abandon Sewer Main	3,300	Ft
451E7020	Sewer Bypass Pumping	1	Lump Sum
451E7520	Exploratory Excavation	16	Hr
451E8000	PVC Pipe Deflection Test	3,310	Ft
650E0060	Type B66 Concrete Curb and Gutter	18	Ft
671E1132	48" Manhole 8' to 10' Deep	5	Each
671E1133	48" Manhole 10' to 12' Deep	6	Each
671E6007	Type A7 Manhole Frame and Lid	11	Each
671E6035	Special Manhole Frame and Lid	62	Each
671E7020	Connect Into Existing Manhole	1	Each
671E9000	Manhole Exfiltration/Vacuum Test	11	Each

Specifications
The specifications for completion of work on this project shall be the SDDOT Standard Specifications for Road and Bridges, 2015 Edition, with all required provisions, supplemental specifications, SRF requirements, and special provisions as provided in the proposal.

The designs represented in these plans are in accordance with established practices of Civil Engineering for the design functions and uses intended by the Owner. However, neither Helms and Associates, nor its personnel can or do warranty these designs or plans as constructed except in the specific cases where Helms and Associates personnel observe and control the physical construction on a contemporary basis at the site.

Testing and Inspection of Work
The State will provide inspection of the trench backfill, conduct trench compaction testing, and conduct moisture and density testing, for the City Project.

Existing Utilities
The Contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these plans are based on records of the various utility companies and, where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The Contractor shall call the appropriate utility companies at least 48 hours before any excavation to request exact field location of utilities. It is the responsibility of the Contractor to relocate or, coordinate relocation of, all utilities requiring relocation.

It is the responsibility of the Contractor to verify in the field, the locations of existing watermains, water services, sewermains, and sewer services. The Contractor shall be responsible for locating and preserving all existing utilities in their present condition. Existing utilities shown on the plans are for general information only and are to be located by the Contractor prior to the start of construction. The Contractor shall be responsible for having the existing underground utilities located in the construction area. Underground utilities damaged by the Contractor due to negligence shall be repaired at the Contractor's expense.

Local Water & Sanitary Sewer
Contact: Melvin Frost @ (605)-948-2257

All other utilize SD-ONE CALL
P.O.C. 1-800-781-7474

Project Cleanup and Safety
The general Contractor shall take all precautions necessary to avoid property damage to adjacent properties during the construction phases of this project. The Contractor will be held solely responsible for any damages to the adjacent properties occurring during the construction phases of this project.

In accordance with generally accepted construction practices, the Contractor is solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement applies continuously and is not limited to normal working hours.

The duty of the Engineer or Owner to conduct construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures, in, on, or near the construction site.

Water for Compaction
Contractor shall obtain all permits required and source shall be approved by Engineer.

No.	Revisions	By	App.	Date
1	SDDENR-SDDOT REVISIONS	LAH	LAH	12/14
2	BID ITEM DESCRIP - REVISION	LAH	LAH	1/20/15
3	REBID	LAH	LAH	7/10/15

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a Registered Professional Engineer under the law of the State of South Dakota.

Registration No.

Registered Professional Engineer
REG. No. 11124
LUCAS A. HOOVER
SOUTH DAKOTA
7-9-15

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ESTIMATE OF QUANTITIES WITH GENERAL PLAN NOTES

HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS
HOVEN SOUTH DAKOTA

FOR BIDDING PURPOSES ONLY

Water for Compaction – CONT'D
The Contractor shall obtain a Temporary Water Rights Permit to use water for construction, testing, or drilling purposes from the SD Department of Environment and Natural Resources for **all water sources**. Contact SDDENR by phone at 605-773-3352 for more information.

Waste Disposal
The Contractor will be required to dispose of construction / demolition debris generated by this project in accordance with the requirements set forth by the South Dakota Department of Environment and Natural Resources (SDDENR). Construction / demolition debris may not be disposed of within the City or State ROW.

Permitted MSW facilities in the area are the Walworth County Landfill located near Mobridge and the Brown County Landfill located near Aberdeen.

All costs associated with loading and transporting waste to the disposal site(s) shall be incidental to the various contract items.

Salvageable Materials
All materials salvaged by the Contractor that are not incorporated into the project or as noted in the plans shall remain the property of the Owner. The Contractor shall be responsible for the removal and transportation of all salvaged materials to a site selected by the Owner.

Sequence of Operations and Traffic Control
The sequence of operations for the City utility work shall be coordinated with State Project P0020(117)254 – PCN 02R9.

During construction of the project, the existing traffic control devices shall be removed, reset or relocated as necessary by the Contractor to safely control traffic through or around the project. Devices no longer needed shall be neatly stockpiled on the project at a location designated by the Engineer. Construction operations will be allowed during daylight hours only, unless otherwise allowed by the Engineer.

The Contractor shall have qualified personnel to be responsible for traffic control items 24 hours per day and 7 days per week.

Storm Drainage Provisions
The Contractor shall provide for and maintain drainage of storm waters away from existing buildings, homes, and exposed surfaces or provide immediate pumping of ponded areas on the work site. No compensation will be made for damage resulting from improper drainage during construction.

Water Quality
The contractor is advised that the South Dakota Surface Water Quality Standards, administrated by the SD Department of Environment and Natural Resources (SDDENR), apply to this project. If construction dewatering is required the contractor is required to obtain a surface water discharge permit from DENR. Contact DENR (Surface Water Quality Program) at (605)-773-3351.

Dewatering Permit
The Contractor shall be required to obtain permit coverage under the Department of Environment and Natural Resources (SDDENR) general permit for temporary dewatering if water from temporary dewatering activities will be discharged to waters of the State during construction. For more information, contact the SDDENR Surface Water Quality program at (605) 773-3351.

Contaminated Material
The Contractor shall give notice to the Engineer when contaminated soil is encountered on the project. The Engineer will contact the Environmental Engineer in the DOT Environmental Office at 605-773-3268, so they can contact the Department of Environment and Natural Resources (DENR) and consultant to inspect and monitor removal of any contaminated soil.

Petroleum contaminated soil may be located at the following site:

Description	Station	L/R
Fertilizer	34+00	L
Petroleum	37+50	L
Petroleum	39+50	L
Petroleum	40+50	L
Petroleum	43+75	L
Petroleum	46+00	L
Petroleum	47+25	L
Petroleum	52+50	R
Petroleum	61+50	L

Petroleum contaminated soil may be disposed of at the Walworth County Landfill (phone 605-762-3316). Measurement of "Contaminated Material Excavation" shall be in accordance with Section 120.4 of the Specifications. All costs for excavating and transporting the contaminated materials to the disposal site and all fees charged per cubic yard by the disposal site shall be incidental to the contract unit price per cubic yard for "Contaminated Material Excavation".

The estimated quantity of "Contaminated Material Excavation" is 1,000 cubic yards. The quantity of "Contaminated Material Excavation" may vary from the plans. No adjustment will be made to the contract unit price for variations in the quantity of "Contaminated Material Excavation".

Piping located in contamination shall require the installation of ductile iron pipe and nitrile butadiene gaskets (incidental to the ductile iron pipe).

Existing Culverts
Contractor is responsible for culverts damaged by his men or equipment through negligence.

Removal of Asphalt Concrete
Existing asphalt concrete to be removed is included in the quantity for "Remove Asphalt Concrete Pavement". The Contractor shall dispose of the asphalt concrete pavement at a site approved by the Engineer.

Table of Asphalt Concrete Removal

Station	To	Station	Quantity (SqYd)
47+10		47+33	48
50+87		50+97	24
Total			**72**

Concrete Removal and Disposal
Concrete Curb and Gutter shall be removed by saw cutting the existing concrete full depth at the nearest joint as shown on the plans or as directed in the field by the Engineer. Measurement and payment for Remove Concrete Curb and Gutter shall be to the nearest whole linear foot of curb and gutter removed and disposed of.

Table of Concrete Curb and Gutter Removal

Station	To	Station	L/R	Quantity (Ft)
47+10		47+10	R	18
Total				**18**

Table of Sanitary Sewer Manhole and Casting Removal

Station	L/R	Manhole Quantity (Each)	Manhole Depth (Ft)
33+08	R	1	8.8
37+34	R	1	9.7
41+76	L	1	9.5
46+59	L	1	7.2
50+97	L	1	10.4
53+97	L	1	10.5
57+31	L	1	9.5
60+24	R	1	10.8
61+38	L	1	11.3
63+94	L	1	8.8
Total		**10**	**96.5**

Table of Sanitary Sewer Pipe Removal

Station	To	Station	L/R	Quantity (Ft)
32+74		33+08	L/R	107
60+24		60+24	L	60
61+38		61+38	L	51
Total				**218**

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3	REBID	LAH	LAH	7/10/15

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a Registered Professional Engineer under the laws of the State of South Dakota.

Registration No. 11124

Registered Professional Engineer REGISTERED LUCAS A. HOOVER SOUTH DAKOTA 7-9-15

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PROJ. #: A-5735
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ESTIMATE OF QUANTITIES WITH GENERAL PLAN NOTES

HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS
HOVEN SOUTH DAKOTA

FOR BIDDING PURPOSES ONLY

Abandon Sewer Main

The sanitary sewer main that is not in alignment with the new sanitary sewer main will be abandoned. The Contractor will fill the abandoned pipe with a low strength Controlled Density Fill. The Controlled Density Fill will be installed after the new sanitary sewer is in operation. The mix design for the low strength Controlled Density Fill will be provided below.

Material	Rate per Cubic Yard
Portland Cement Type I, II, III, or V	200 Lb
Fine Aggregate	2600 Lb
Coarse Aggregate	None
Water	35 Gal
"W.R. Grace – Darafill" or approved equal	1 (3 oz.) capsule or equivalent *

* Shall be one 3 ounce capsule or equivalent CLSM performance additive (foaming admixture).

The fine aggregate shall be natural sand consisting of mineral aggregate particles conforming to the following gradation requirements:

Passing 3/8 Inch Sieve 100%
Passing No. 200 Sieve 0-10%

Table of Abandon Sanitary Sewer Main

Station	To	Station	L/R	Quantity (Ft)
33+08		37+34	R	426
37+34		41+76	L	441
41+76		46+59	L	483
46+59		50+97	L	439
50+97		53+97	L	299
53+97		57+31	L	334
57+31		60+24	L	293
60+24		61+38	L	115
61+38		63+94	L	256
Total				**3300**

Table of Watermain Removal

Station	To	Station	L/R	Quantity (Ft)
32+64		32+64	L	46
32+64		33+33	L	69
33+33		33+33	L/R	62
33+33		33+52	L	19
33+52		36+35	L	283
36+35		40+58	L	423
40+58		43+00	L	242
43+00		43+64	L	64

Table of Watermain Removal

Station	To	Station	L/R	Quantity (Ft)
43+64		44+10	L	46
44+10		47+22	L	312
47+22		47+22	L/R	113
47+22		50+92	L	370
50+92		50+92	L/R	65
50+92		56+99	L	607
56+99		56+99	L/R	71
56+99		57+50	L	35
57+50		61+29	L	379
61+29		61+29	L/R	51
61+29		64+12	L	283
Hydrant Leads				176
Total				**3716**

Table of Concrete Curb and Gutter

Station	To	Station	L/R	Quantity (Ft)
47+10		47+10	R	18
Total				**18**

Asphalt Concrete Composite

Asphalt concrete shall be furnished by the contractor. Mineral aggregate for asphalt concrete shall conform to the requirements of the Standard Specifications for Class E, Type I. The asphalt cement shall be PG 64-28. A job mix formula shall be provided by the contractor with the supporting mix design data prior to production.

Asphalt Concrete Composite shall be measured to the nearest 0.1 ton and payment will be made on the unit price per ton as provided in the proposal.

Asphalt Concrete Composite shall be placed on 10" of compacted base course.

The asphalt concrete composite shall be placed in two even lifts not exceeding 1 ½ inches. A bituminous tack coat (SS-1h or CSS-1h) shall be applied between each lift at a rate of 0.10 to 0.15 gallon per square yard. Bituminous tack coats shall be considered incidental to the unit price for Asphalt Concrete Composite.

Aggregate Base Course

Base Course shall be furnished by the Contractor and shall conform to the requirements of the Specifications, Section 882, Aggregate Base Course.

Table of Miscellaneous Quantities

Station	To	Station	Base Course (Tons)	Asphalt Composite (Tons)
47+10		47+33	27.0	12.0
50+87		50+97	13.0	6.0
Total			**40.0**	**18.0**

Sanitary/Storm Sewer and Water Main Separation

A. Horizontal Separation - Sewers shall be laid at least 10 feet (3.0 m) horizontally from any existing or proposed watermain. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10 foot (3.0 m) separation, the Department may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the sewer closer to a watermain, provided that the watermain is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the watermain is at least 18 inches above the top of the sewer. If it is impossible to obtain proper horizontal separation as described above, both the watermain and sewer shall be constructed of slip-on or mechanical joint pipe complying with public water supply design standards of the Department and be pressure tested in accordance with AWWA standards to assure water tightness before backfilling.

B. Vertical Separation
   1) Sewers Crossing Under Watermains - The sewer shall be laid to provide a minimum of 18 inches from the top of the sewer to the bottom of the watermain. The crossing shall be arranged so the sewer joints will be equidistant and as far as possible from the watermain.
   2) Sewers Crossing Over Watermains - Either the watermain or the sewermain must be encased in a watertight carrier pipe that extends 10 feet (3.0 m) on both sides of the crossing, measured perpendicular to the watermain. The carrier pipe shall be PVC, ABS, or HDPE, and the ends sealed with a rubber gasket or boot.

C. Special Conditions - When it is impossible to obtain the proper horizontal and vertical separation as stipulated above, one of the following methods shall be specified:
   1) Water Pipe - The sewer shall be designed and constructed equal to water pipe and shall be pressure tested in accordance with AWWA standards prior to backfilling to assure water tightness; or;
   2) Carrier Pipe - Either the watermain or the sewermain may be encased in a watertight carrier pipe that extends 10 feet (3.0 m) on both sides of the crossing, measured perpendicular to the watermain. The carrier pipe shall be PVC, ABS, or HDPE, and the ends sealed with a rubber gasket or boot.

D. Storm Sewer Requirements:
   1) A reinforced concrete pipe (RCP) storm sewer may cross below a watermain with a separation of less than 18 inches or at any height above a watermain provided the joints on the RCP within 10 feet of either side of the watermain are assembled with:
   2) Preformed butyl rubber sealant meeting federal specification #SS-S-210Aand AASHTO M 198, and each of these joints are encased with a minimum 2-foot wide by 6-inch thick concrete collar centered over the joint and reinforced with the equivalent steel area as that in the RCP. Encasement of the watermain will not be required when the RCP joints are collared within the 20-foot section.
   3) An O-ring that conforms to ASTM C 443 specifications. O-rings are manufactured for concrete pipe with diameters up to 18 inches.
   4) A strip of impermeable material held in place with stainless steel bands and tested to 5 psi prior to the storm sewer being put into use.

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1	RE-BID	LAH	LAH	7/10/15

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a Registered Professional Engineer under the laws of the State of South Dakota. Registration No. 9244

Registered Professional Engineer LUCAS A. HOFER SOUTH DAKOTA

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E. There shall be at least a 10-foot horizontal separation between watermains and sanitary sewer forcemains. There shall be an 18-inch vertical separation at crossings as required in paragraphs B and C.

Table of 8" PVC Sanitary Sewer Main

Station	To	Station	L/R	Quantity (Ft)	Pipe Bedding Material (Tons)
32+37		33+08	L	40	12.0
33+08		33+08	R	74	22.2
33+08		36+68	L	360	108.0
36+68		40+28	L	360	108.0
40+28		43+78	L	350	105.0
43+78		47+28	L	350	105.0
47+28		51+03	L	375	112.5
51+03		54+03	L	300	90.0
54+03		57+28	L	325	97.5
57+28		60+24	L	296	88.8
60+24		60+24	L	28	8.4
60+24		61+38	L	114	34.3
61+38		61+38	L/R	68	20.4
61+38		63+94	L	256	76.8
63+94		64+09	L	14	4.2
Total				**3310**	**993.1**

Connection to Existing Sewer Mains

The Contractor will connect to existing sanitary sewer lines with a reinforced rubber coupler (see Special Provision 02730). All costs associated with the connection to existing sanitary sewers will be included in the contract unit cost per each for "Connect to Existing Sewer Main".

Table of 8" PVC Watermain

Station	To	Station	L/R	Quantity (Ft)
32+64		32+64	L	46
32+64		33+33	L	69
33+33		33+52	L	19
33+52		36+35	L	283
36+35		40+58	L	423
40+58		43+00	L	242

Table of 8" PVC Watermain

Station	To	Station	L/R	Quantity (Ft)
43+00		43+64	L	64
43+64		44+10	L	46
44+10		47+22	L	312
47+22		50+92	L	370
50+92		56+99	L	607
56+99		57+50	L	35
57+50		61+29	L	379
61+29		64+12	L	283
Total				**3178**

Table of 6" PVC Watermain

Station	To	Station	L/R	Quantity (Ft)
33+33		33+33	L/R	62
33+52		33+52	L	30
36+35		36+35	L	30
40+58		40+58	L	29
43+64		43+64	L/R	52
44+10		44+10	L	40
47+06		47+19	R	13
47+22		47+22	L/R	113
50+80		50+92	R	12
50+92		50+92	L/R	65
56+97		56+97	L	36
56+99		56+99	L/R	71
61+29		61+29	L/R	51
64+12		64+12	L	25
Total				**629**

Table of 8" Water Valve Installation

Station	Offset	8" Valve Quantity (Each)
33+37	5.5' L	1
43+60	5.5' L	1
47+19	5.5' L	1

Table of 8" Water Valve Installation

Station	Offset	8" Valve Quantity (Each)
47+26	5.5' L	1
57+04	5.5' L	1
Total		**5**

Table of 6" Water Valve Installation

Station	L/R	6" Valve Quantity (Each)
33+52	9' L	1
36+35	9' L	1
40+58	9' L	1
43+64	4' L	1
44+10	9' L	1
47+19	54' R	1
50+89	56' R	1
50+92	5' L	1
56+97	9' L	1
57+50	20' L	1
64+12	9' L	1
Total		**11**

Table of Fire Hydrant Installation

Station	L/R	Hydrant Quantity (Each)
33+53	35' L	1
36+35	35' L	1
40+58	35' L	1
44+10	47' L	1
47+07	54' R	1
50+81	56' R	1
56+98	42' L	1
64+12	30' L	1
Total		**8**

No.	Revisions	By	App.	Date
2	SDDENR-SDDOT REVISIONS	LAH	LAH	12/14
1	BID ITEM DESCRIP - REVISION	LAH	LAH	1/20/15
	FOR BID	LAH	LAH	7/10/15

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a Registered Professional Engineer under the laws of the State of South Dakota.

Registration No. 11124

Registered Professional Engineer
LUCAS HOOVER
SOUTH DAKOTA
7-9-15

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Chk'd by: LAH
PROJ. #: A-5735
DWG: 5735-NOTES
DATE: 11/14

ESTIMATE OF QUANTITIES WITH GENERAL PLAN NOTES

HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS
HOVEN SOUTH DAKOTA

FOR BIDDING PURPOSES ONLY

Table of 8"x8"x6" Tee Installation

Station	L/R	Tee Quantity (Each)
33+33	6' L	1
33+52	6' L	1
36+35	6' L	1
40+58	6' L	1
43+64	6' L	1
44+10	6' L	1
50+93	6' L	1
56+97	6' L	1
57+00	6' L	1
57+50	6' L	1
61+29	6' L	1
64+12	6' L	1
Total		**12**

Table of 6" Tee Installation

Station	L/R	6" Tee Quantity (Each)
47+29	54' R	1
50+93	56' R	1
Total		**2**

Table of 12" Watermain Casing pipe

Station	To	Station	L/R	Casing Quantity (Ft)
32+80		33+20	6' L	40
37+11		37+31	6' L	20
40+67		40+87	6' L	20
44+17		44+37	6' L	20
45+68		45+88	6' L	20
47+60		47+80	6' L	20
48+71		48+91	6' L	20
56+75		56+97	6' L	20
61+01		61+21	6' L	20
63+89		64+09	6' L	20
Total				**220**

Table of 10" Watermain Casing pipe

Station	To	Station	L/R	Quantity (Ft)
47+23		47+23	L	28
Total				**28**

Table of Sanitary Sewer Manholes and Castings

Station	Offset (Ft)	L/R	Manhole Quantity (Each)	Manhole Depth (Ft)	A7 Casting Quantity (Each)
33+08	17	L	1	8.4	1
36+68	17	L	1	9.2	1
40+28	17	L	1	10.5	1
43+78	17	L	1	9.3	1
47+28	17	L	1	8.5	1
51+03	17	L	1	11.2	1
54+03	17	L	1	11.4	1
57+28	17	L	1	10.4	1
60+24	17	L	1	10.8	1
61+38	17	L	1	10.7	1
63+94	17	L	1	8.7	1
Total			**11**	**109.1**	**11**

Sanitary Sewer Services

The locations of service lines shown on the plans are from televising records and will be verified during construction. The Contractor will locate existing service lines and connect with a cleanout in the locations shown on the plans. If a service line is found during excavation in an area not shown on the plans, the Contractor will notify the Engineer to determine whether the service line is to be replaced.

A quantity of 6" PVC Sewer Pipe, 8" x 6" Pipe Wyes, and 6" Sanitary Sewer Service Cleanouts is provided in the estimate of quantities as the sewer service size in some areas is unknown. The Contractor will use 6" Sewer service piping, cleanouts, and wyes for piping uncovered in the field as 6".

All cleanouts in concrete or asphalt surfacing shall be covered with a metal casting as seen on the detail sheet.

Registered Professional Engineer
REG. No. 11124
LUCAS A. HOOVER
SOUTH DAKOTA
7-9-15

Table of Sanitary Sewer Services

Service No.	Station	L/R	8" x 4" Wye (Each)	4" PVC Service Pipe (Ft)	4" PVC Cleanout (Each)	Reconnect Sewer Service (Each)	Pipe Bedding (Tons)
1	34+74	R	1	57	1	1	14.8
2	35+31	L	1	23	1	1	6.0
3	35+38	R	1	57	1	1	14.8
4	35+83	R	1	57	1	1	14.8
5	37+62	L	1	23	1	1	6.0
6	38+07	R	1	57	1	1	14.8
7	38+67	R	1	57	1	1	14.8
8	38+90	L	1	23	1	1	6.0
9	39+15	R	1	57	1	1	14.8
10	39+23	R	1	57	1	1	14.8
11	39+64	R	1	57	1	1	14.8
12	39+74	L	1	23	1	1	6.0
13	40+70	R	1	57	1	1	14.8
14	40+82	L	1	23	1	1	6.0
15	41+13	R	1	57	1	1	14.8
16	41+29	R	1	57	1	1	14.8
17	41+37	L	1	23	1	1	6.0
18	41+45	L	1	23	1	1	6.0
19	41+65	R	1	57	1	1	14.8
20	41+85	L	1	23	1	1	6.0
21	41+91	R	1	57	1	1	14.8
22	42+01	L	1	23	1	1	6.0
23	42+13	R	1	57	1	1	14.8
24	42+62	L	1	23	1	1	6.0
25	42+98	R	1	57	1	1	14.8
26	43+18	R	1	57	1	1	14.8
27	43+21	L	1	23	1	1	6.0
28	43+90	R	1	57	1	1	14.8
29	44+13	R	1	57	1	1	14.8
30	44+46	L	1	23	1	1	6.0
31	45+24	L	1	23	1	1	6.0
32	45+31	L	1	23	1	1	6.0
33	46+13	R	1	57	1	1	14.8
34	46+23	L	1	23	1	1	6.0
35	47+87	L	1	23	1	1	6.0
36	47+89	R	1	57	1	1	14.8
37	47+95	L	1	23	1	1	6.0
38	48+97	R	1	57	1	1	14.8
39	49+62	L	1	23	1	1	6.0
40	50+06	L	1	23	1	1	6.0
41	50+12	R	1	57	1	1	14.8
42	50+25	R	1	57	1	1	14.8
43	51+55	L	1	23	1	1	6.0
44	52+56	R	1	57	1	1	14.8
45	52+61	L	1	23	1	1	6.0

No.	Revisions	By	App.	Date
1	SDDENR-SDDOT REVISIONS	LAH	LAH	12/14
2	BID ITEM DESCRIP - REVISION	LAH	LAH	1/20/15
3	REBID	LAH	LAH	7/10/15

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Helms & ASSOCIATES
CIVIL ENGINEERS & LAND SURVEYORS

Drawn By: CLB
Chk'd by: LAH
PROJ. #: A-5735
DWG: 5735-NOTES
DATE: 11/14

ESTIMATE OF QUANTITIES WITH GENERAL PLAN NOTES

HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS
HOVEN SOUTH DAKOTA

FOR BIDDING PURPOSES ONLY

Table of Sanitary Sewer Services

Service No.	Station	L/R	8" x 4" Wye (Each)	4" PVC Service Pipe (Ft)	4" PVC Cleanout (Each)	Reconnect Sewer Service (Each)	Pipe Bedding (Tons)
46	53+48	L	1	23	1	1	6.0
47	53+57	L	1	23	1	1	6.0
48	55+11	R	1	57	1	1	14.8
49	56+40	L	1	23	1	1	6.0
50	58+16	L	1	23	1	1	6.0
51	58+18	R	1	57	1	1	14.8
52	58+80	L	1	23	1	1	6.0
53	58+86	R	1	57	1	1	14.8
54	59+23	L	1	23	1	1	6.0
55	59+26	R	1	57	1	1	14.8
56	59+99	L	1	23	1	1	6.0
57	61+67	R	1	57	1	1	14.8
58	61+90	L	1	23	1	1	6.0
59	62+73	L	1	23	1	1	6.0
60	63+62	L	1	23	1	1	6.0
61	63+68	R	1	57	1	1	14.8
62	63+92	R	1	57	1	1	14.8
Total			**62.0**	**2480.0**	**62.0**	**62.0**	**644.8**

Water Services

The locations of service lines shown on the plans are from survey/town records and will be verified during construction. The Contractor will locate existing service lines and connect with a curb stop in the locations shown on the plans. If a service line is found during excavation in an area not shown on the plans, the Contractor will notify the Engineer to determine whether the service line is to be replaced.

A quantity of 1 1/2" and 2" Water Service piping, 8" Saddle w/ 1 ½" Corp. and 8" Saddle w/ 2" Corp. and 1 ½" and 2" Curb Stops are provided in the estimate of quantities as the water service sizes in some areas is unknown. The Contractor will use the appropriate water service piping, corp. stop and curb stops for services uncovered in the field.

All curb stops in concrete shall be surrounded by a 4" PVC sleeve as seen in the detail sheet.

Table of Water Services

Service No.	Station	L/R	8" x 1" Saddle (Each	1" Corp. Stop (Each)	1" Water Service Pipe (Ft)	1" Curb Stop (Each)	Connect to Existing Water Service (Each)
1	34+70	R	1	1	45	1	1
2	35+34	L	1	1	35	1	1
3	35+42	R	1	1	45	1	1
4	35+87	R	1	1	45	1	1

Table of Water Services

Service No.	Station	L/R	8" x 1" Saddle (Each	1" Corp. Stop (Each)	1" Water Service Pipe (Ft)	1" Curb Stop (Each)	Connect to Existing Water Service (Each)
5	37+66	L	1	1	35	1	1
6	38+03	R	1	1	45	1	1
7	38+71	R	1	1	45	1	1
8	38+87	L	1	1	35	1	1
9	39+19	R	1	1	45	1	1
10	39+27	R	1	1	45	1	1
11	39+68	R	1	1	45	1	1
12	39+78	L	1	1	35	1	1
13	40+85	L	1	1	35	1	1
14	40+97	R	1	1	45	1	1
15	41+33	R	1	1	45	1	1
16	41+41	L	1	1	35	1	1
17	41+48	L	1	1	35	1	1
18	41+69	R	1	1	45	1	1
19	41+88	L	1	1	35	1	1
20	41+95	R	1	1	45	1	1
21	42+05	L	1	1	35	1	1
22	42+17	R	1	1	45	1	1
23	42+65	L	1	1	35	1	1
24	43+02	R	1	1	45	1	1
25	43+22	R	1	1	45	1	1
26	43+25	L	1	1	35	1	1
27	44+17	R	1	1	45	1	1
28	44+50	L	1	1	35	1	1
29	45+27	L	1	1	35	1	1
30	45+64	L	1	1	35	1	1
31	46+17	R	1	1	45	1	1
32	46+26	L	1	1	35	1	1
33	47+91	L	1	1	35	1	1
34	47+93	R	1	1	45	1	1
35	47+99	L	1	1	35	1	1
36	49+01	R	1	1	45	1	1
37	49+65	L	1	1	35	1	1
38	50+09	L	1	1	35	1	1

Table of Water Services

Service No.	Station	L/R	8" x 1" Saddle (Each	1" Corp. Stop (Each)	1" Water Service Pipe (Ft)	1" Curb Stop (Each)	Connect to Existing Water Service (Each)
39	50+16	R	1	1	45	1	1
40	50+30	R	1	1	45	1	1
41	51+58	L	1	1	35	1	1
42	52+60	R	1	1	45	1	1
43	52+65	L	1	1	35	1	1
44	53+52	L	1	1	35	1	1
45	53+55	L	1	1	35	1	1
46	55+93	L	1	1	35	1	1
47	58+20	L	1	1	35	1	1
48	58+22	R	1	1	45	1	1
49	58+83	L	1	1	35	1	1
50	58+90	R	1	1	45	1	1
51	59+26	L	1	1	35	1	1
52	59+28	L	1	1	35	1	1
53	59+30	R	1	1	45	1	1
54	60+02	L	1	1	35	1	1
55	61+88	R	1	1	45	1	1
56	61+93	L	1	1	35	1	1
57	62+76	L	1	1	35	1	1
58	63+72	R	1	1	45	1	1
59	63+73	L	1	1	35	1	1
60	63+87	R	1	1	45	1	1
Total			**60**	**60**	**2380**	**60**	**60**

Registered Professional Engineer
REG. No. 11124
LUCAS A. HOOVER
SOUTH DAKOTA
7-9-15

No.	Revisions	By	App.	Date
1	SDDENR-SDDOT REVISIONS	LAH	LAH	12/14
2	BID ITEM DESCRIP - REVISION	LAH	LAH	1/20/15
3	REBID	LAH	LAH	7/10/15

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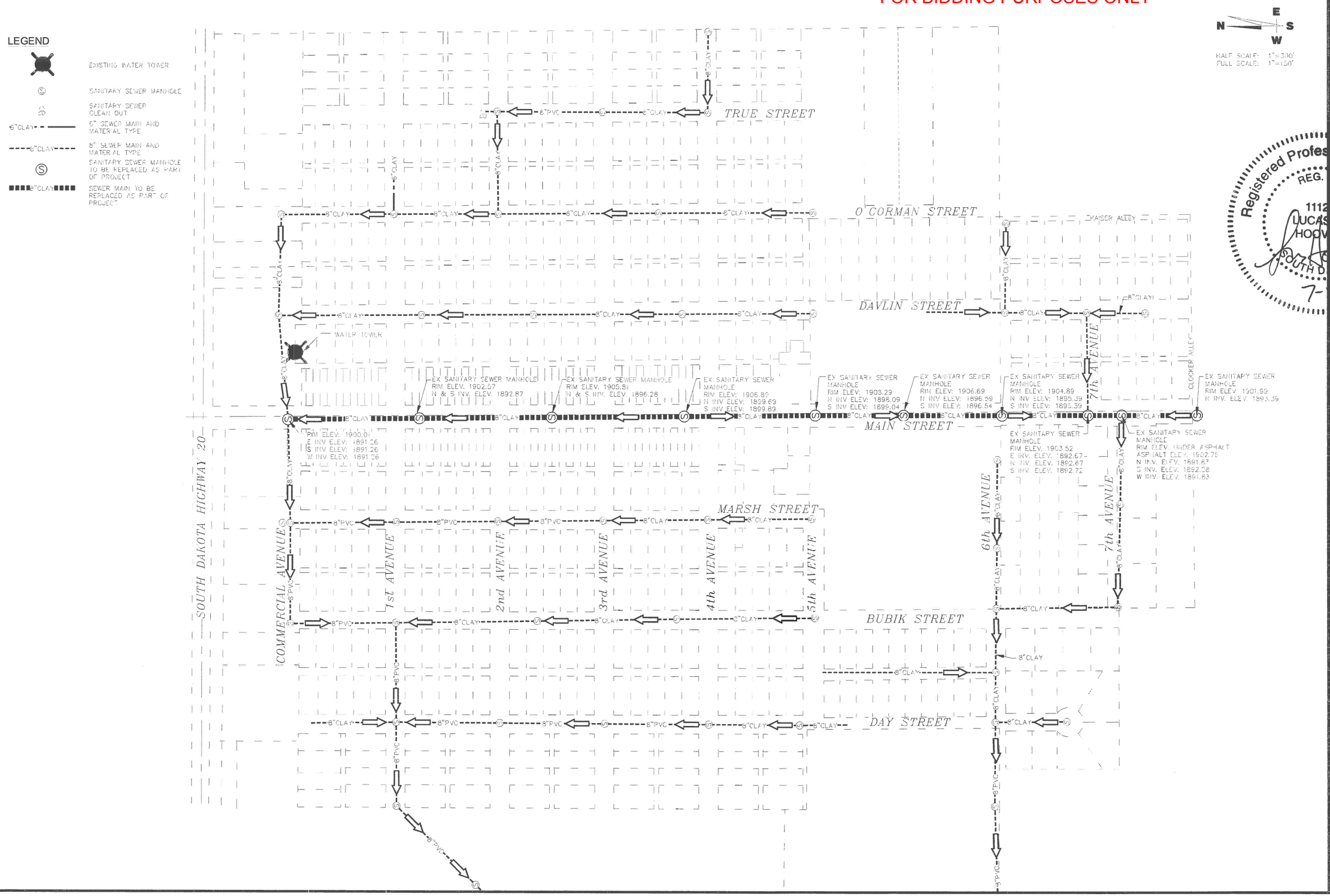
Chk'd by: LAH
PROJ. #: A-5735
DWG: 5735-NOTES
DATE: 11/14

ESTIMATE OF QUANTITIES WITH GENERAL PLAN NOTES

HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS
HOVEN SOUTH DAKOTA

FOR BIDDING PURPOSES ONLY



Revisions | By | App. | Date

I Hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of South Dakota. Registration No.

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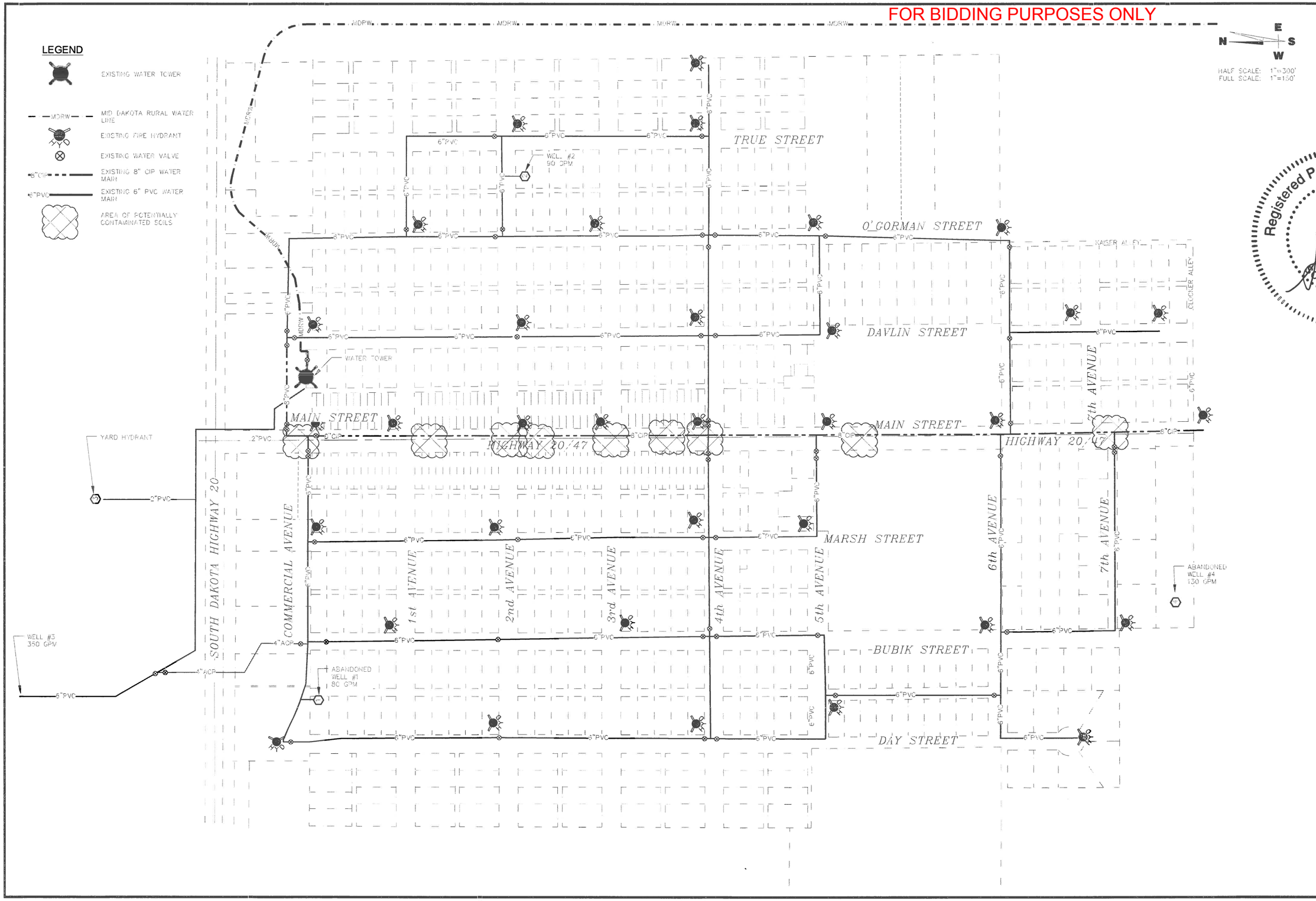
Drawn By: CLB
Chk' By: LAH
Proj. No: A-5735
Dwg. No: 5735-02
VP. No: SANITARY
Date: 11/5/14

EXISTING SEWER SYSTEM LAYOUT

HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS (REBID)
HOVEN, SOUTH DAKOTA

FOR BIDDING PURPOSES ONLY



Registered Professional Engineer
REG. No.
I hereby certify that this plan, specification, or report was prepared by me or under my supervision and that I am a Registered Professional Engineer under the law of the State of South Dakota.
Registration No.
SOUTH DAKOTA
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No.	Revisions	By	Date
1	SDDOT REVISIONS	TMC	12/14

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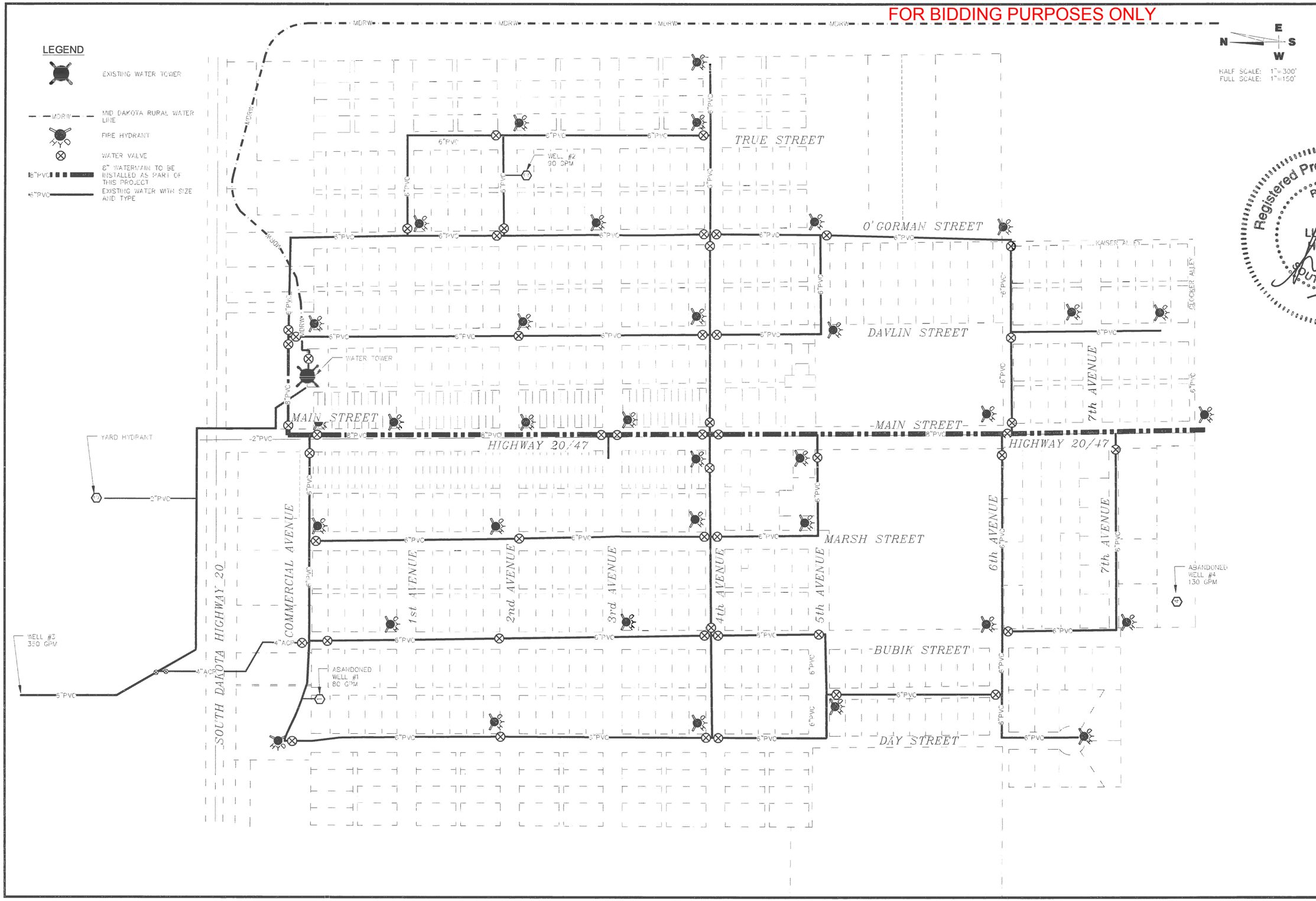
Dwg. No: 5735-02
VP. No: EX
Date: 11/5/14

EXISTING WATER SYSTEM

HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS (REBID)
HOVEN, SOUTH DAKOTA

FOR BIDDING PURPOSES ONLY



Registered Professional Engineer
REG. No. 11124
LUCAS HOOVER
SOUTH DAKOTA
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Registration No. 11124

No.	Revisions	By	App.	Date
1	30% NRCS/DOT REVISIONS	TMD	LAH	12/14

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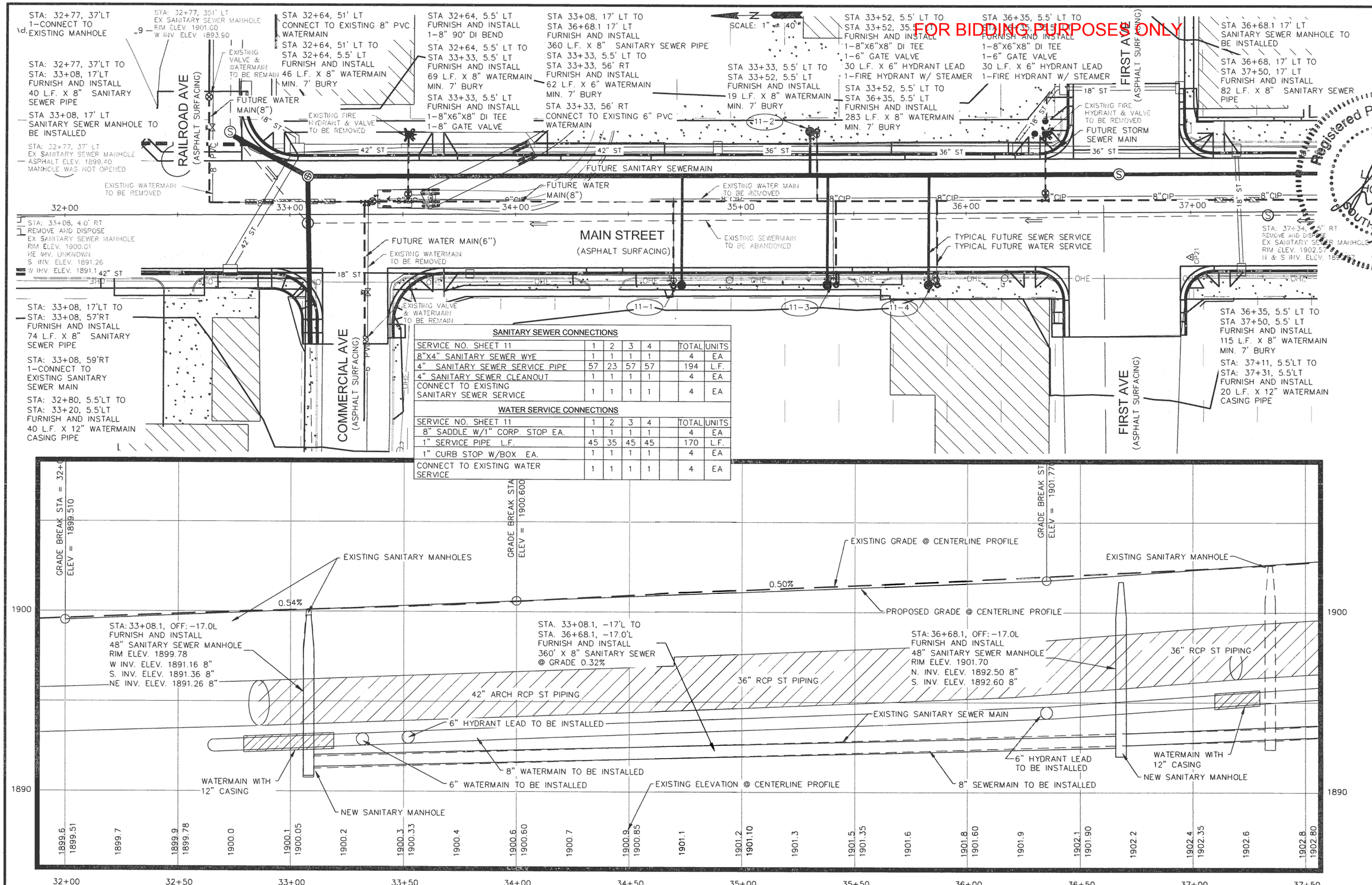
Chk' By: LAH
Proj. No: A-5735
Dwg. No: 5735-02
VP. No: PROP
Date: 11/5/14

PROPOSED WATER SYSTEM

HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS (REBID)
HOVEN, SOUTH DAKOTA



SANITARY SEWER CONNECTIONS

SERVICE NO. SHEET 11	1	2	3	4		TOTAL	UNITS
8"X4" SANITARY SEWER WYE	1	1	1	1		4	EA
4" SANITARY SEWER SERVICE PIPE	57	23	57	57		194	L.F.
4" SANITARY SEWER CLEANOUT	1	1	1	1		4	EA
CONNECT TO EXISTING SANITARY SEWER SERVICE	1	1	1	1		4	EA

WATER SERVICE CONNECTIONS

SERVICE NO. SHEET 11	1	2	3	4		TOTAL	UNITS
8" SADDLE W/1" CORP. STOP EA.	1	1	1	1		4	EA
1" SERVICE PIPE L.F.	45	35	45	45		170	L.F.
1" CURB STOP W/BOX EA.	1	1	1	1		4	EA
CONNECT TO EXISTING WATER SERVICE	1	1	1	1		4	EA

No.	Date	By	App.
	12/14	TMO	LAH

Registered Professional Engineer
C. G. No.
SOUTH DAKOTA

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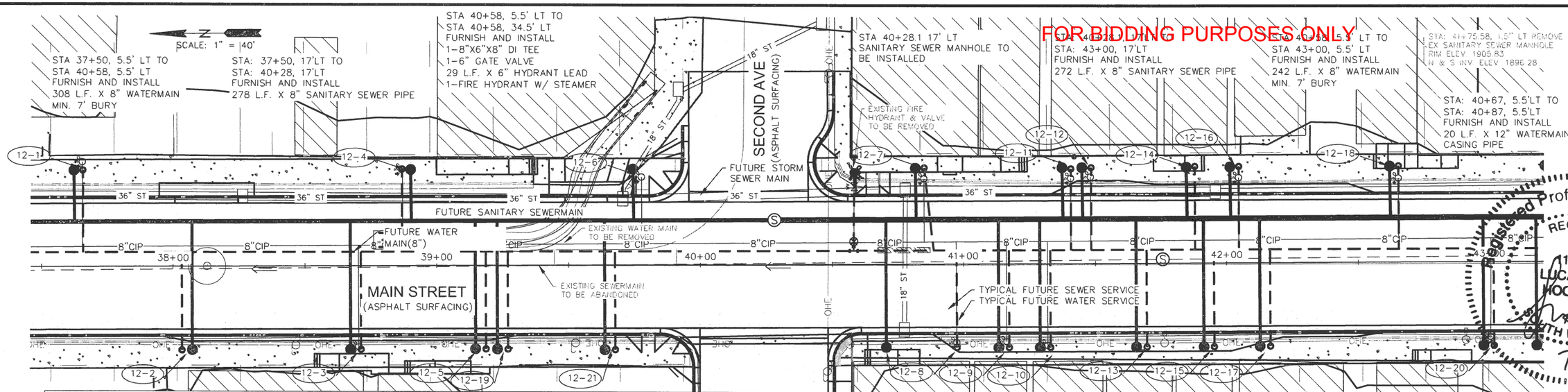
Chk' By: LAH
Proj. No: A-5735
Dwg. No: 593-01
VP. No: MAIN ST
Date: 1/20/14

MAIN STREET PLAN AND PROFILE SHEET
STA. 32+00 TO STA. 37+50
HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS (REBID)
HOVEN, SOUTH DAKOTA

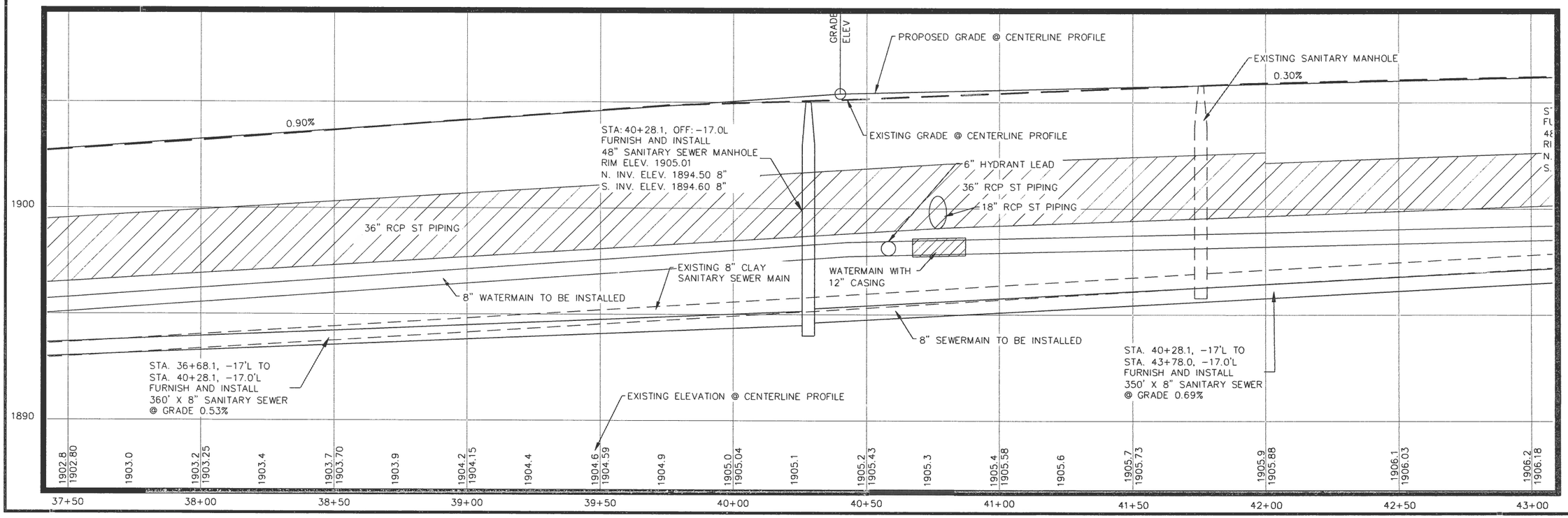


SANITARY SEWER CONNECTIONS

SERVICE NO. SHEET 12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	TOTAL	UNITS
8"X4" SANITARY SEWER WYE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	21	EA
4" SANITARY SEWER SERVICE PIPE	23	57	57	23	57	23	23	57	57	57	23	23	57	23	57	23	57	23	57	57	57	891	L.F.
4" SANITARY SEWER CLEANOUT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	21	EA
CONNECT TO EXISTING SANITARY SEWER SERVICE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	21	EA

WATER SERVICE CONNECTIONS

SERVICE NO. SHEET 12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	TOTAL	UNITS
8" SADDLE W/1" CORP. STOP EA.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	21	EA
1" SERVICE PIPE L.F.	35	45	45	35	45	35	35	45	45	45	35	35	45	35	45	35	45	35	45	45	45	855	L.F.
1" CURB STOP W/BOX EA.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	21	EA
CONNECT TO EXISTING WATER SERVICE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	21	EA



No.	Revisions	By	App.	Date
1	60% SUBMIT REVISIONS	TMO	LAH	12/14

Registered Professional Engineer
REG. No. 11
LUCAS HOOVER
SOUTH DAKOTA
7-9-15

I Hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the law of the State of South Dakota. Registration No.

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Drawn By: CLB
Chk' By: LAH
Proj. No: A-5735
Dwg. No: 575-01
VP. No: MAIN ST 1
Date: 1/20/14

MAIN STREET PLAN AND PROFILE SHEET

STA. 37+50 TO STA. 43+00

HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS (REBID)
HOVEN, SOUTH DAKOTA

FOR BIDDING PURPOSES ONLY

SCALE: 1" = 40'

STA 43+00, 5.5' LT TO
STA 43+64, 5.5' LT
FURNISH AND INSTALL
64 L.F. X 8" WATERMAIN
MIN. 7' BURY
STA 43+63, 5.5' LT
FURNISH AND INSTALL
1-8" GATE VALVE
STA 43+64, 5.5' LT
FURNISH AND INSTALL
1-8"X6"X8" DI TEE

STA 43+64, 5.5' LT TO
STA 47+22, 5.5' LT
FURNISH AND INSTALL
358 L.F. X 8" WATERMAIN
MIN. 7' BURY
STA. 43+78 17' LT
SANITARY SEWER MANHOLE TO
BE INSTALLED
STA: 44+17, 5.5'LT TO
STA: 44+37, 5.5'LT
FURNISH AND INSTALL
20 L.F. X 12" WATERMAIN
CASING PIPE

STA: 43+78, 17'LT TO
STA: 47+28.0, 17'LT
FURNISH AND INSTALL
350 L.F. X 8" SANITARY SEWER PIPE
STA 44+10, 5.5' LT TO
STA 44+10, 45' LT
FURNISH AND INSTALL
1-8"X6"X8" DI TEE
1-6" GATE VALVE
40 L.F. X 6" HYDRANT LEAD
1-FIRE HYDRANT W/ STEAMER

STA 47+28, 17' LT
SANITARY SEWER MANHOLE TO
BE INSTALLED
STA 47+22, 5.5' LT TO
STA 47+22, 55' LT
FURNISH AND INSTALL
50 L.F. X 6" WATERMAIN
MIN. 7' BURY

STA 47+22, 55' LT
CONNECT TO EXISTING 6"
PVC WATERMAIN
STA 47+22, 5.5' LT
FURNISH AND INSTALL
1-8"X6"X8"X6" DI CROSS
2-8" GATE VALVES
STA 47+22, 5.5' LT TO
STA 47+22, 58' RT
FURNISH AND INSTALL
64 L.F. X 6" WATERMAIN
MIN. 7' BURY
STA 47+22, 58' RT
CONNECT TO EXISTING 6"
PVC WATERMAIN

STA: 47+28, 17'LT TO
STA: 48+50, 17'LT
FURNISH AND INSTALL
122 L.F. X 8" SANITARY SEWER PIPE
STA 47+06, 52' RT TO
STA 47+19, 52' RT
FURNISH AND INSTALL
1-6"X6"X6" DI TEE
1-6" GATE VALVE
13 L.F. X 6" HYDRANT LEAD
1-FIRE HYDRANT W/ STEAMER

STA 47+22, 5.5' LT TO
STA 48+50, 5.5' LT
FURNISH AND INSTALL
128 L.F. X 8" WATERMAIN
MIN. 7' BURY
STA: 47+22, 7.5'LT TO
STA: 47+22, 35'LT
FURNISH AND INSTALL
28 L.F. X 12" WATERMAIN
CASING PIPE

THIRD AVE (ASPHALT SURFACING)
FOURTH AVE (ASPHALT SURFACING)
MAIN STREET (ASPHALT SURFACING)

EXISTING FIRE HYDRANT & VALVE TO BE REMOVED
EXISTING WATERMAIN & VALVE TO BE REMOVED
EXISTING VALVE & WATERMAIN TO BE REMAIN
EXISTING WATERMAIN TO BE ABANDONED
EXISTING SEWERMAIN TO BE REMOVED
FUTURE WATERMAIN(8")
TYPICAL FUTURE SEWER SERVICE
TYPICAL FUTURE WATER SERVICE
FUTURE SANITARY SEWERMAIN
FUTURE WATERMAIN(6")
FUTURE STORM SEWER MAIN
EXISTING WATERMAIN TO BE REMOVED
EXISTING VALVE TO BE REMOVED AND RELOCATED

STA: 46+59, 5.0' LT
REMOVE AND DISPOSE
EX. SANITARY SEWER MANHOLE
RIM ELEV. 1906.89
N INV. ELEV. 1899.69
S INV. ELEV. 1899.89

24' X 18' ASPHALT ROAD
REPAIR (48 SY)
18 L.F. CONCRETE CURB
AND GUTTER REMOVAL
AND REPAIR

STA: 45+68, 5.5'LT TO
STA: 45+88, 5.5'LT
FURNISH AND INSTALL
20 L.F. X 12" WATERMAIN
CASING PIPE

STA: 47+60, 5.5'LT TO
STA: 47+80, 5.5'LT
FURNISH AND INSTALL
20 L.F. X 12" WATERMAIN
CASING PIPE

STA 43+64, 5.5' LT TO
STA 43+64, 47' RT
FURNISH AND INSTALL
52 L.F. X 6" WATERMAIN
MIN. 7' BURY
1-6" GATE VALVE W/BOX
STA 43+64, 47' RT
1-6" DI CAP

STA: 43+00, 17'LT TO
STA: 43+78, 17'RT
FURNISH AND INSTALL
78 L.F. X 8" SANITARY SEWER PIPE

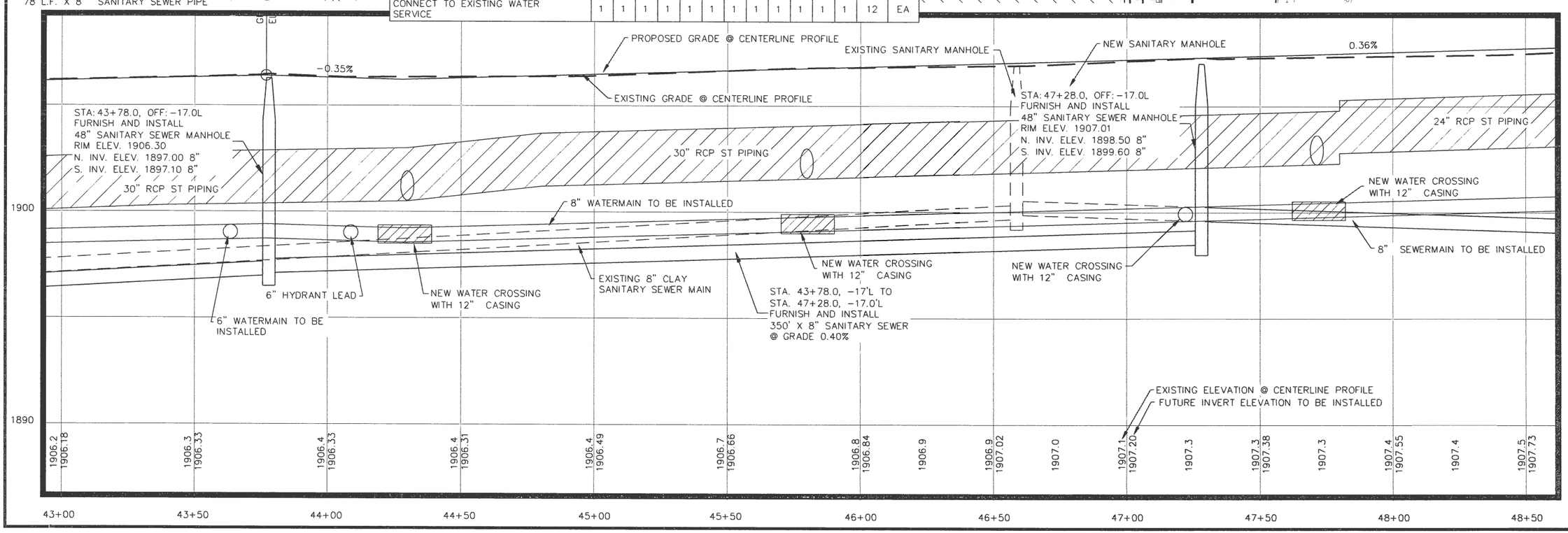
13-1 13-2 13-3 13-4 13-5 13-6 13-7 13-8 13-9 13-10 13-11 13-12

SANITARY SEWER CONNECTIONS

SERVICE NO. SHEET 13	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL	UNITS
8"X4" SANITARY SEWER WYE	1	1	1	1	1	1	1	1	1	1	1	1	12	EA
4" SANITARY SEWER SERVICE PIPE	57	57	23	57	23	23	23	57	23	23	57	23	446	L.F.
4" SANITARY SEWER CLEANOUT	1	1	1	1	1	1	1	1	1	1	1	1	12	EA
CONNECT TO EXISTING SANITARY SEWER SERVICE	1	1	1	1	1	1	1	1	1	1	1	1	12	EA

WATER SERVICE CONNECTIONS

SERVICE NO. SHEET 13	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL	UNITS
8" SADDLE W/1" CORP. STOP EA.	1	1	1	1	1	1	1	1	1	1	1	1	12	EA
1" SERVICE PIPE L.F.	45	45	35	45	35	35	35	45	35	35	45	35	470	L.F.
1" CURB STOP W/BOX EA.	1	1	1	1	1	1	1	1	1	1	1	1	12	EA
CONNECT TO EXISTING WATER SERVICE	1	1	1	1	1	1	1	1	1	1	1	1	12	EA



No.	Date	Revisions	By	App.
1	12/14	50% SUBMIT REVISIONS	TMO	LAH
2	1/15	60% SUBMIT - LETTER 1-9-15	TMO	LAH

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the law of the State of South Dakota. Registration No. 11

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Dwg. No: 5735-01
VP. No: MAIN ST 2
Date: 1/20/14

MAIN STREET PLAN AND PROFILE SHEET

STA. 43+00 TO STA. 48+50

HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS (REBID)
HOVEN, SOUTH DAKOTA

FOR BIDDING PURPOSES ONLY

STA 48+50, 5.5' LT TO
STA 50+92, 5.5' LT
FURNISH AND INSTALL
242 L.F. X 8" WATERMAIN
MIN. 7' BURY

STA 50+92, 5.5' LT
FURNISH AND INSTALL
1-8"X6"X8" DI TEE
1-6" GATE VALVE W/BOX

STA 50+92, 5.5' LT TO
STA 50+92, 60' RT
FURNISH AND INSTALL
66 L.F. X 6" WATERMAIN
MIN. 7' BURY

STA: 48+50, 17'LT TO
STA: 51+03, 17'LT
FURNISH AND INSTALL
253 L.F. X 8" SANITARY SEWER PIPE

STA 50+92, 5.5' LT TO
STA 54+00, 5.5' LT
FURNISH AND INSTALL
308 L.F. X 8" WATERMAIN
MIN. 7' BURY

STA 51+03, 17' LT
SANITARY SEWER MANHOLE TO
BE INSTALLED

SCALE: 1" = 40'

STA: 51+03, 17'LT TO
STA: 54+03, 17'LT
FURNISH AND INSTALL
300 L.F. X 8" SANITARY SEWER PIPE

FIFTH AVE
(ASPHALT SURFACING)

EXISTING FIRE
HYDRANT & VALVE
TO BE REMOVED

14-1 14-2 14-3 14-4 14-5 14-6 14-7 14-8 14-9 14-10

18" ST
24" ST

FUTURE STORM
SEWER MAIN

FUTURE SANITARY SEWERMAIN

8"CIP

EXISTING WATERMAIN TO BE ABANDONED

49+00 50+00 51+00 52+00 53+00 54+00

EXISTING SEWERMAIN
TO BE REMOVED

FUTURE WATERMAIN(8")

STA: 50+97, 3.5' LT
REMOVE AND DISPOSE
EX SANITARY SEWER MANHOLE
RIM ELEV. 1908.29
N INV. ELEV. 1898.09
S INV. ELEV. 1898.04

MAIN STREET
(ASPHALT SURFACING)

TYPICAL FUTURE SEWER SERVICE
TYPICAL FUTURE WATER SERVICE

STA: 53+97, 1.5' LT
REMOVE AND DISPOSE
EX SANITARY SEWER MANHOLE
RIM ELEV. 1906.[illegible]
N INV. ELEV. 1897.59
S INV. ELEV. 1896.[illegible]4

EXISTING VALVE TO BE
SALVAGED

FUTURE WATERMAIN(6")

STA 50+80, 56' RT TO
STA 50+92, 56' RT
FURNISH AND INSTALL
1-6"X6"X6" DI TEE
1-6" GATE VALVE
12 L.F. X 6" HYDRANT LEAD
1-FIRE HYDRANT W/ STEAMER

STA 50+92, 62' RT
FURNISH AND INSTALL
1 6" GATE VALVE
CONNECT TO EXISTING 6"
PVC WATERMAIN

STA: 48+71, 5.5'LT TO
STA: 48+91, 5.5'LT
FURNISH AND INSTALL
20 L.F. X 12" WATERMAIN
CASING PIPE

12' X 18' ASPHALT ROAD
REPAIR (24 SY)

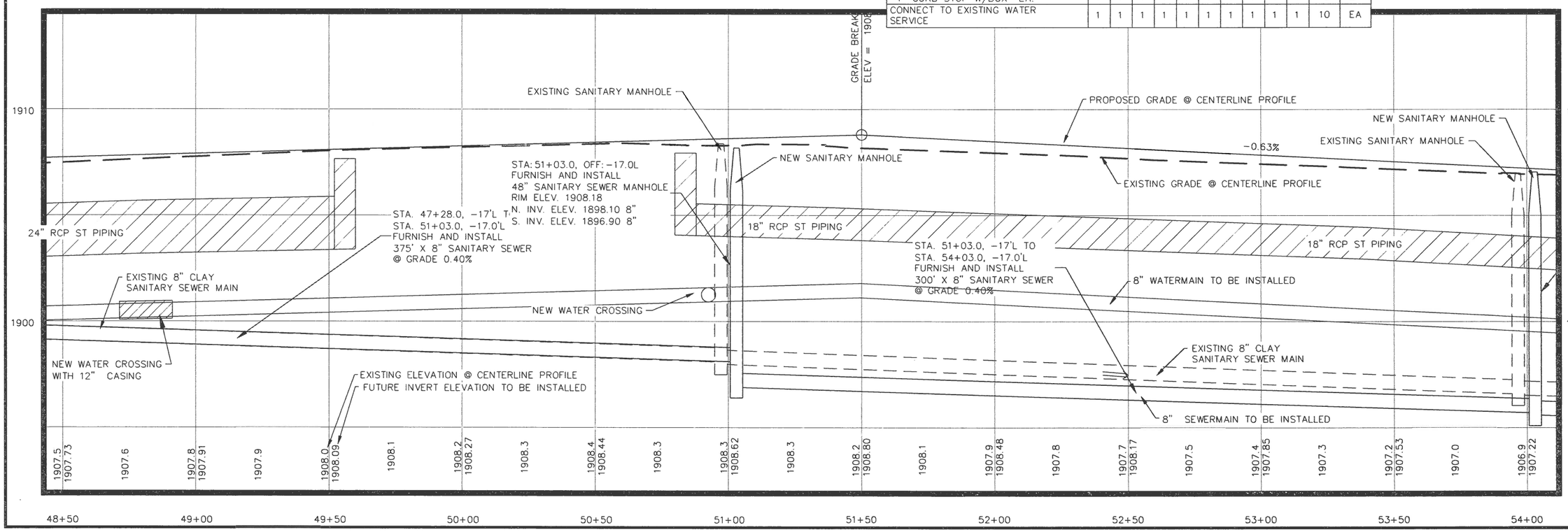
FIFTH AVE
(ASPHALT SURFACING)

SANITARY SEWER CONNECTIONS

SERVICE NO. SHEET 14	1	2	3	4	5	6	7	8	9	10	TOTAL	UNITS
8"X4" SANITARY SEWER WYE	1	1	1	1	1	1	1	1	1	1	10	EA
4" SANITARY SEWER SERVICE PIPE	57	23	23	57	23	57	23	23	23	57	366	L.F.
4" SANITARY SEWER CLEANOUT	1	1	1	1	1	1	1	1	1	1	10	EA
CONNECT TO EXISTING SANITARY SEWER SERVICE	1	1	1	1	1	1	1	1	1	1	10	EA

WATER SERVICE CONNECTIONS

SERVICE NO. SHEET 14	1	2	3	4	5	6	7	8	9	10	TOTAL	UNITS
8" SADDLE W/1" CORP. STOP EA.	1	1	1	1	1	1	1	1	1	1	10	EA
1" SERVICE PIPE L.F.	45	35	35	45	35	45	35	35	35	45	390	L.F.
1" CURB STOP W/BOX EA.	1	1	1	1	1	1	1	1	1	1	10	EA
CONNECT TO EXISTING WATER SERVICE	1	1	1	1	1	1	1	1	1	1	10	EA



Revisions	By	App.	Date
100% - SDDOT REVISIONS	TMO	LAH	12/14

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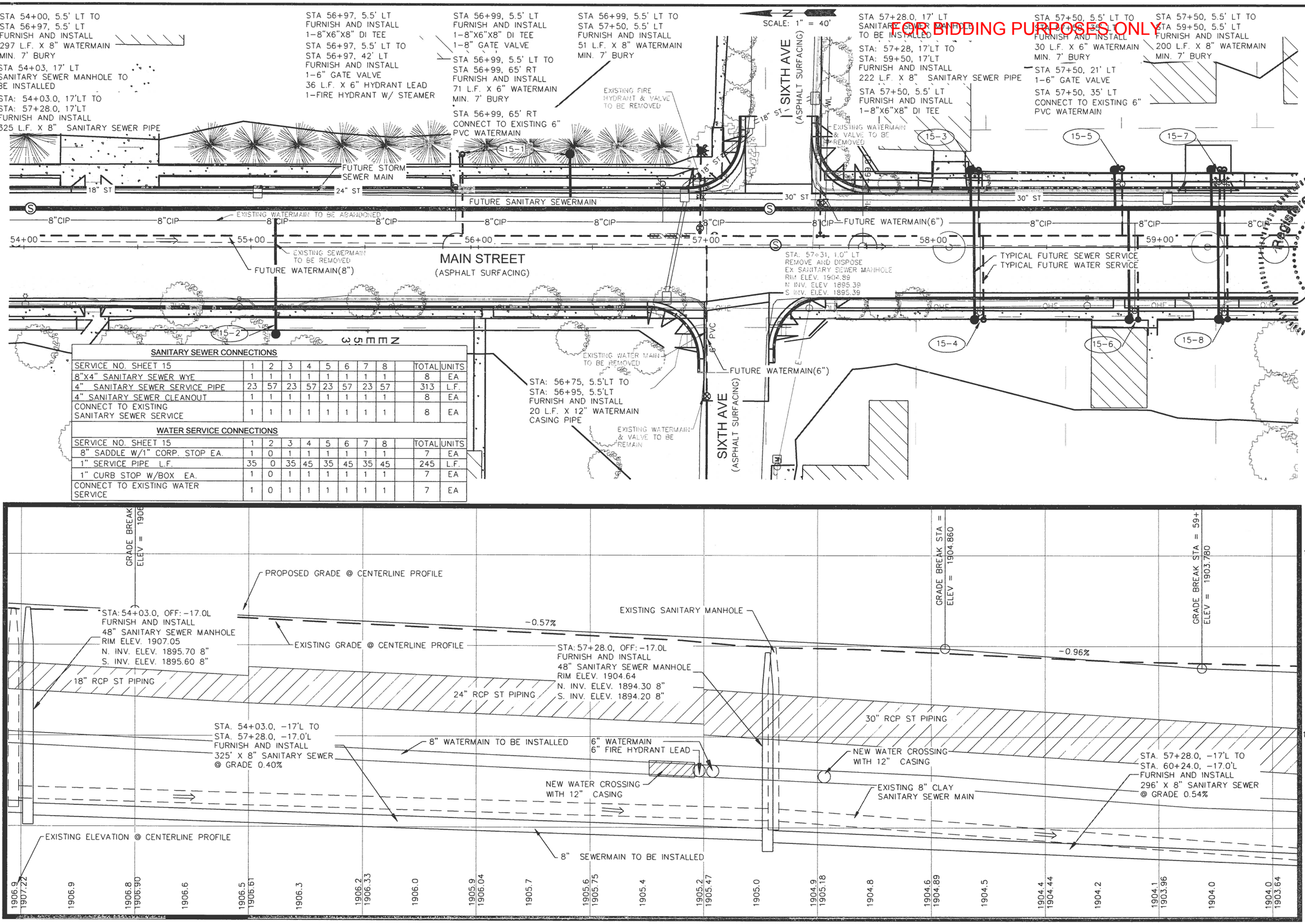
Dwg. No: 5735-01
VP. No: MAIN ST 3
Date: 1/20/14

MAIN STREET PLAN AND PROFILE SHEET
STA. 48+50 TO STA. 54+00
HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS (REBID)
HOVEN, SOUTH DAKOTA



SANITARY SEWER CONNECTIONS											
SERVICE NO. SHEET 15	1	2	3	4	5	6	7	8		TOTAL	UNITS
8"X4" SANITARY SEWER WYE	1	1	1	1	1	1	1	1		8	EA
4" SANITARY SEWER SERVICE PIPE	23	57	23	57	23	57	23	57		313	L.F.
4" SANITARY SEWER CLEANOUT	1	1	1	1	1	1	1	1		8	EA
CONNECT TO EXISTING SANITARY SEWER SERVICE	1	1	1	1	1	1	1	1		8	EA

WATER SERVICE CONNECTIONS											
SERVICE NO. SHEET 15	1	2	3	4	5	6	7	8		TOTAL	UNITS
8" SADDLE W/1" CORP. STOP EA.	1	0	1	1	1	1	1	1		7	EA
1" SERVICE PIPE L.F.	35	0	35	45	35	45	35	45		245	L.F.
1" CURB STOP W/BOX EA.	1	0	1	1	1	1	1	1		7	EA
CONNECT TO EXISTING WATER SERVICE	1	0	1	1	1	1	1	1		7	EA

No.	Revisions	By	App.	Date
	SDDOT REVISIONS	TWO	LAH	12/14

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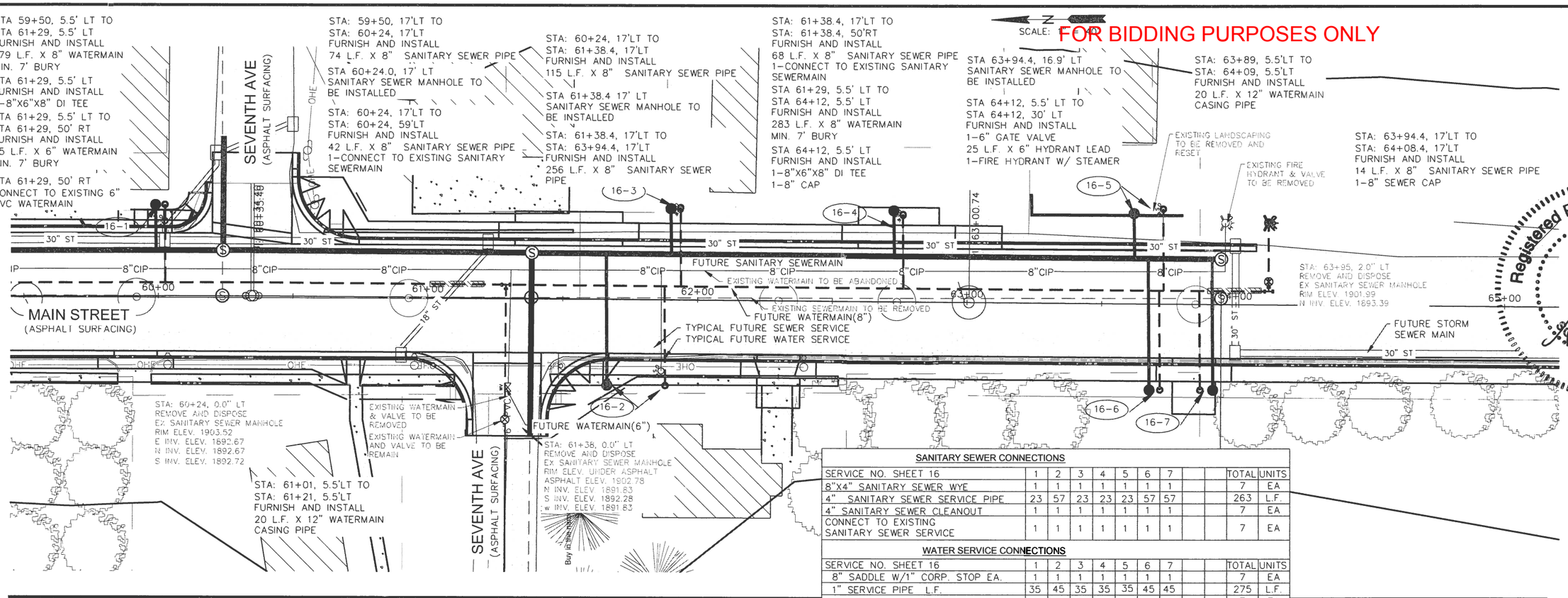
Dwg. No: 535-01
YP. No: MAIN ST 4
Date: 1/20/14

MAIN STREET PLAN AND PROFILE SHEET

STA. 54+00 TO STA. 59+50

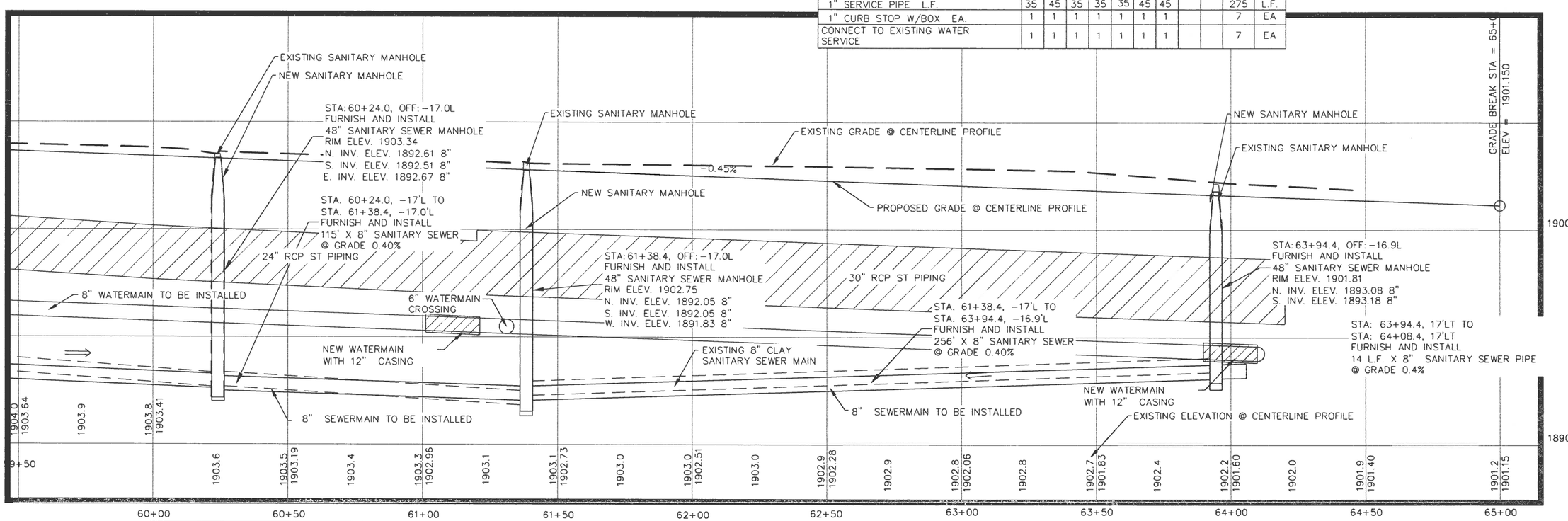
HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS (REBID)

HOVEN, SOUTH DAKOTA



SANITARY SEWER CONNECTIONS											
SERVICE NO. SHEET 16	1	2	3	4	5	6	7			TOTAL	UNITS
8"X4" SANITARY SEWER WYE	1	1	1	1	1	1	1			7	EA
4" SANITARY SEWER SERVICE PIPE	23	57	23	23	23	57	57			263	L.F.
4" SANITARY SEWER CLEANOUT	1	1	1	1	1	1	1			7	EA
CONNECT TO EXISTING SANITARY SEWER SERVICE	1	1	1	1	1	1	1			7	EA

WATER SERVICE CONNECTIONS											
SERVICE NO. SHEET 16	1	2	3	4	5	6	7			TOTAL	UNITS
8" SADDLE W/1" CORP. STOP EA.	1	1	1	1	1	1	1			7	EA
1" SERVICE PIPE L.F.	35	45	35	35	35	45	45			275	L.F.
1" CURB STOP W/BOX EA.	1	1	1	1	1	1	1			7	EA
CONNECT TO EXISTING WATER SERVICE	1	1	1	1	1	1	1			7	EA



No.	Revisions	By	App.	Date
1	2005GP - SDDOT REVISIONS	TWO	LAH	12/14

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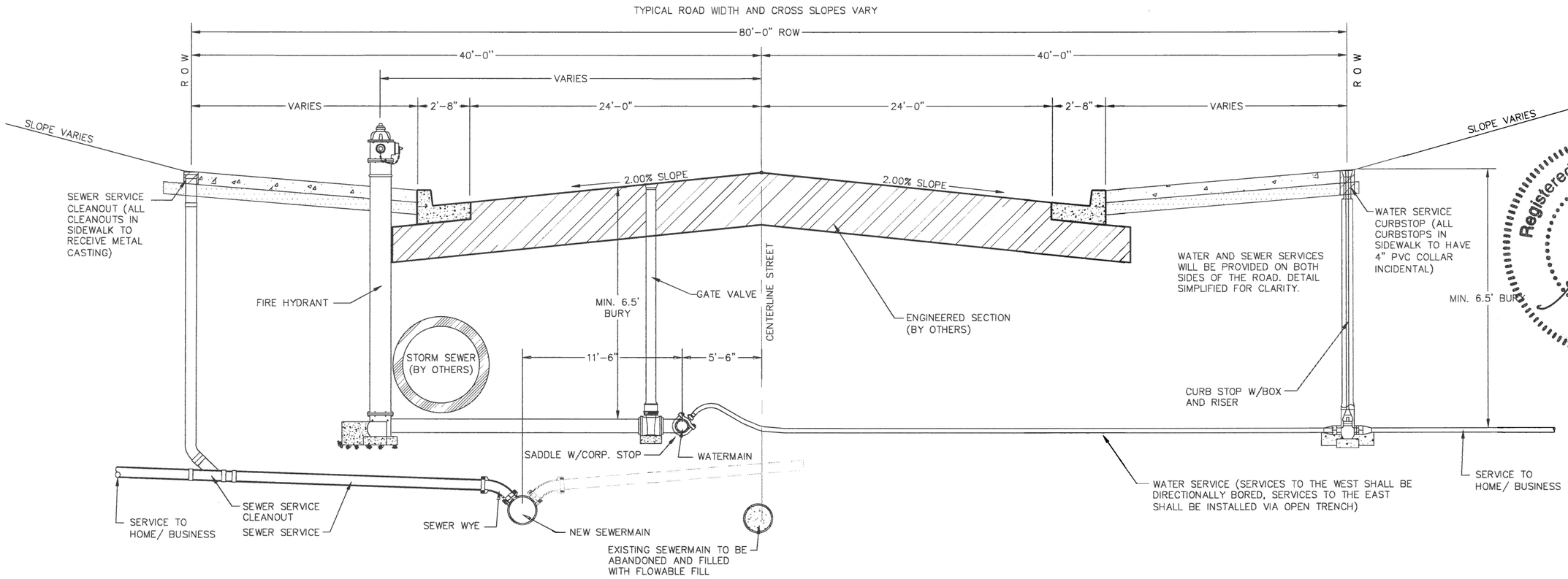
Dwg. No: 373-01
VP. No: MAIN ST 5
Date: 1/20/14

MAIN STREET PLAN AND PROFILE SHEET
STA. 59+50 TO STA. 64+50
HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS (REBID)
HOVEN, SOUTH DAKOTA

FOR BIDDING PURPOSES ONLY



TYPICAL UTILITY SECTION

NO SCALE

No.	Revisions	By	App.	Date

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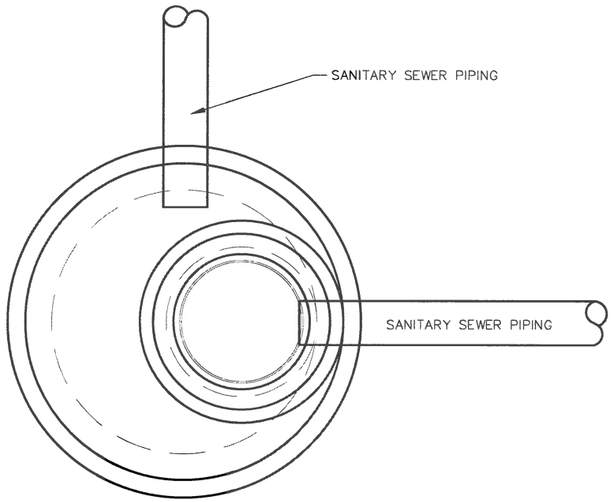
Proj. No: A-5735
Dwg. No: 5735-DET
VP. No: DETAIL (5)
Date: 11/6/14

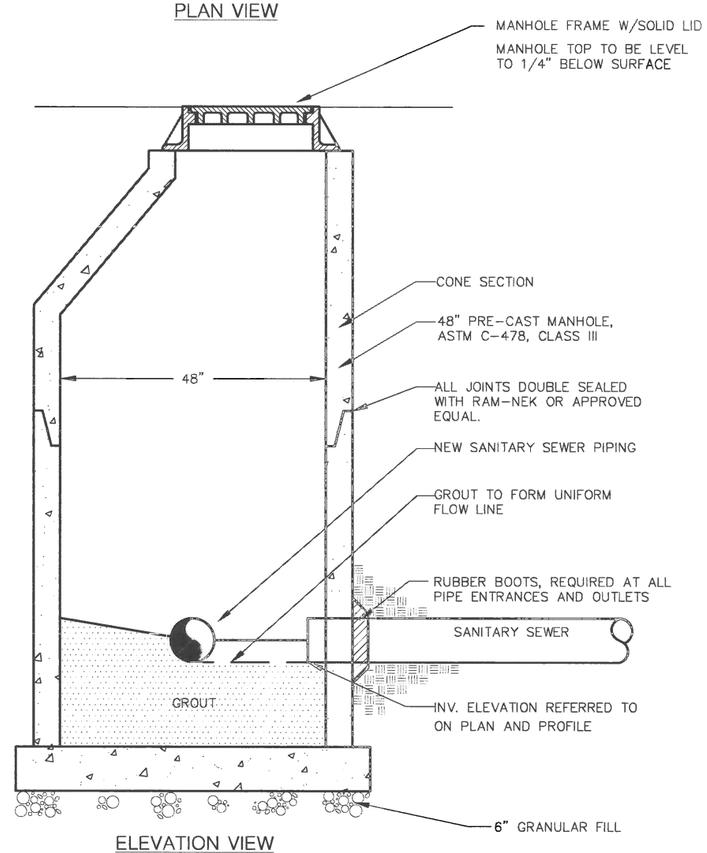
CONSTRUCTION DETAIL SHEET

HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS (REBID)
HOVEN, SOUTH DAKOTA

FOR BIDDING PURPOSES ONLY



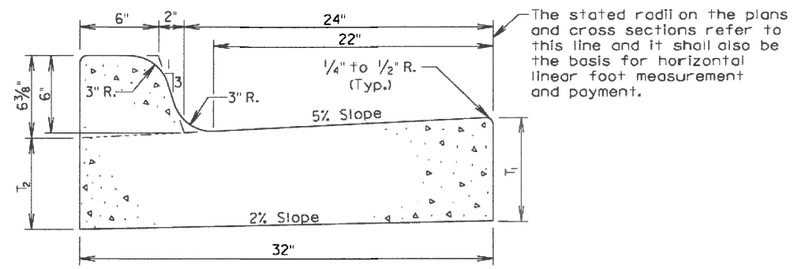
PLAN VIEW



ELEVATION VIEW

48" SANITARY SEWER MANHOLE DETAIL

NO SCALE



Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
B66	6	5 1/16	0.057	17.7
B67	7	6 1/16	0.065	15.4
B68	8	7 1/16	0.073	13.7
B68.5	8.5	7 9/16	0.077	13.0
B69	9	8 1/16	0.081	12.3
B69.5	9.5	8 9/16	0.085	11.7
B610	10	9 1/16	0.090	11.2
B610.5	10.5	9 9/16	0.094	10.7
B611	11	10 1/16	0.098	10.2
B611.5	11.5	10 9/16	0.102	9.8
B612	12	11 1/16	0.106	9.4

GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

See Standard Plate 650.90 for expansion and contraction joints in the curb and gutter.

September 6, 2008

Published Date: 2nd Qtr. 2015

SDDOT

TYPE B CONCRETE CURB AND GUTTER

PLATE NUMBER 650.01

Sheet 1 of 1

No.	Revisions	By	App.	Date

Registered Professional Engineer
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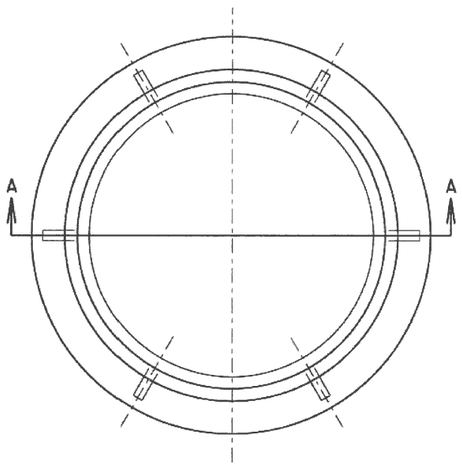
Proj. No: A-5735
Dwg. No: 5735-DET
VP. No: DETAIL (2)
Date: 11/6/14

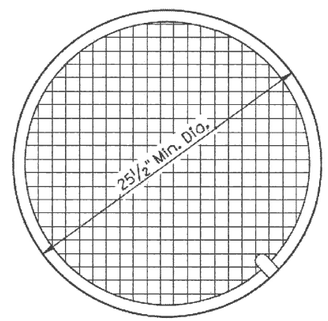
CONSTRUCTION DETAIL SHEET

HOVEN HWY 20/47 SANITARY SEWER AND WATER IMPROVEMENTS (REBID)
HOVEN, SOUTH DAKOTA

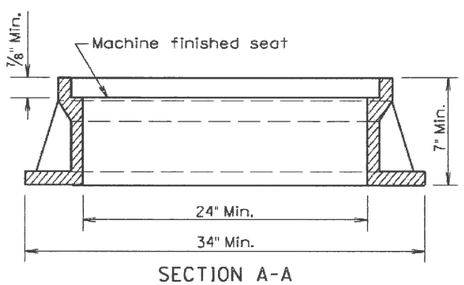
FOR BIDDING PURPOSES ONLY



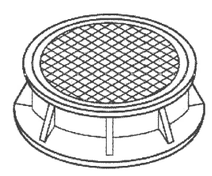
PLAN OF FRAME



PLAN OF LID



SECTION A-A



ASSEMBLED VIEW

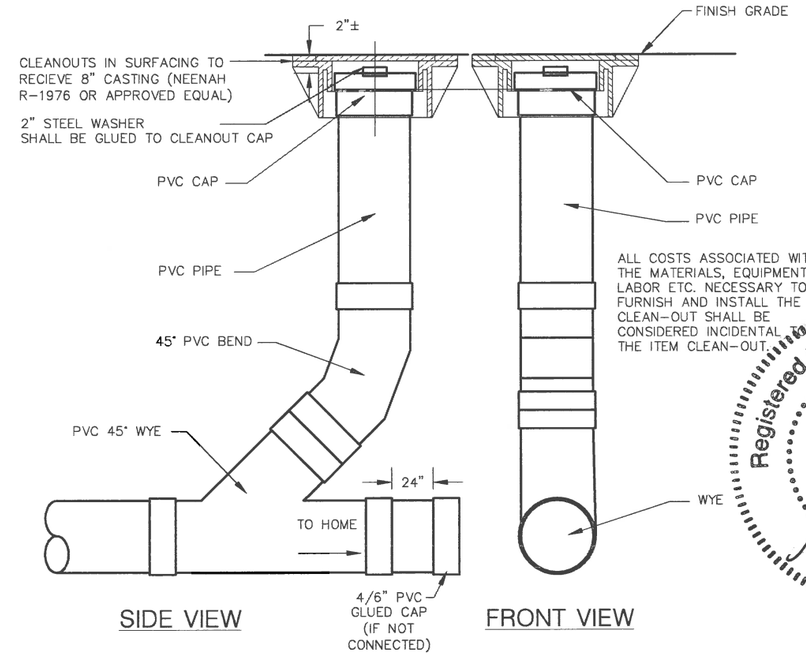
TYPE	HEIGHT	MIN. WEIGHT
A7	7"	400Lbs.
A8	8"	440Lbs.
A9	9"	470Lbs.
A10	10"	480Lbs.

GENERAL NOTE:

Geometric pattern on top of lid other than that shown shall be approved by the Engineer.

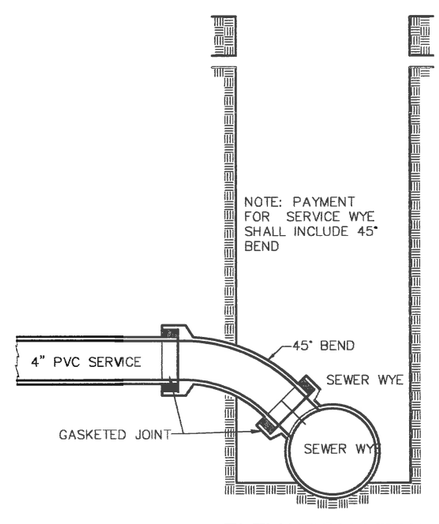
March 31, 2000

Published Date: 2nd Qtr. 2015	SDDOT	TYPE A MANHOLE FRAME AND LID	PLATE NUMBER 671.10
			Sheet 1 of 1

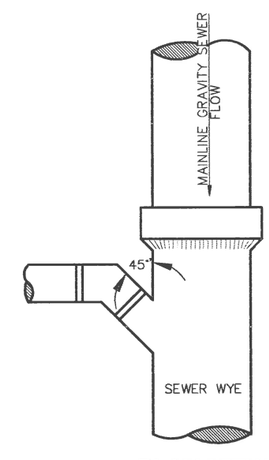


SANITARY SEWER CLEAN-OUT

NO SCALE



ELEVATION VIEW



PLAN VIEW

TYPICAL SERVICE WYE

NO SCALE

No.	Revisions	By	App.	Date

I Hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the law of the State of South Dakota. Registration No. 11124

Registered Professional Engineer
LUCAS A. LOOVER
11124
SOUTH DAKOTA

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Drawn By: CLB
Chk' By: LAH
Proj. No: A-5735
Dwg. No: 5735-DET
VP. No: DETAIL
Date: 11/6/14

CONSTRUCTION DETAIL SHEET

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HOVEN, SOUTH DAKOTA

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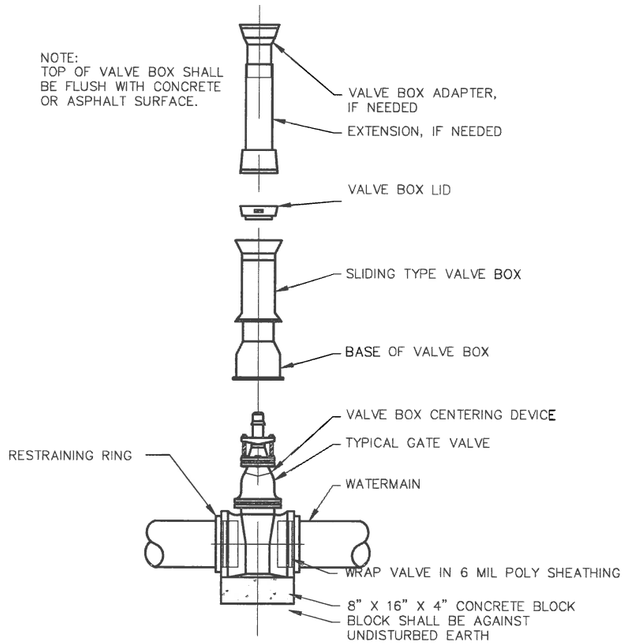
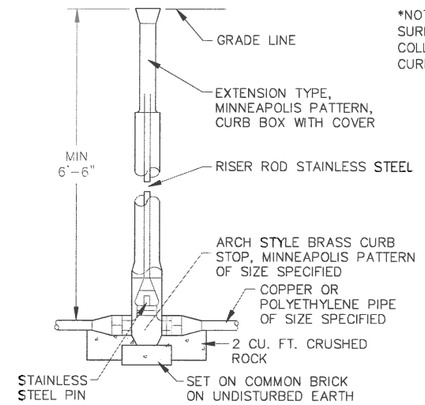
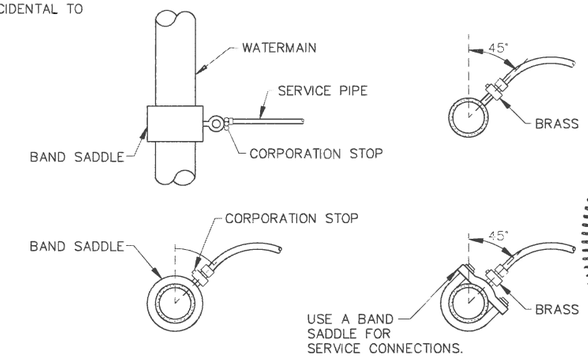


TYPICAL GATE VALVE DETAIL
NO SCALE

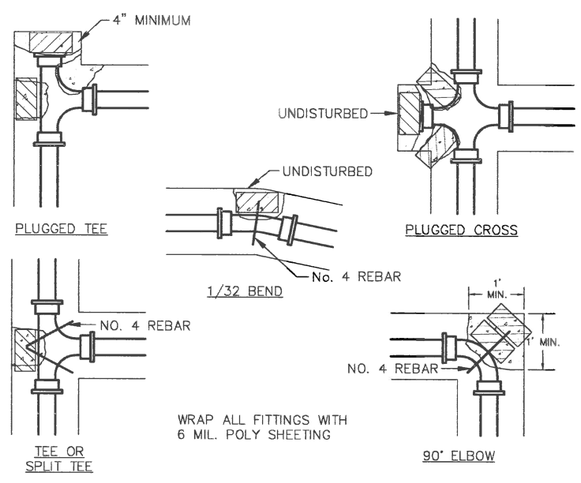


*NOTE: ALL CURBSTOPS IN SURFACING TO HAVE 4" PVC COLLAR (INCIDENTAL TO CURBSTOP)

TYPICAL CURB STOP DETAIL
NO SCALE



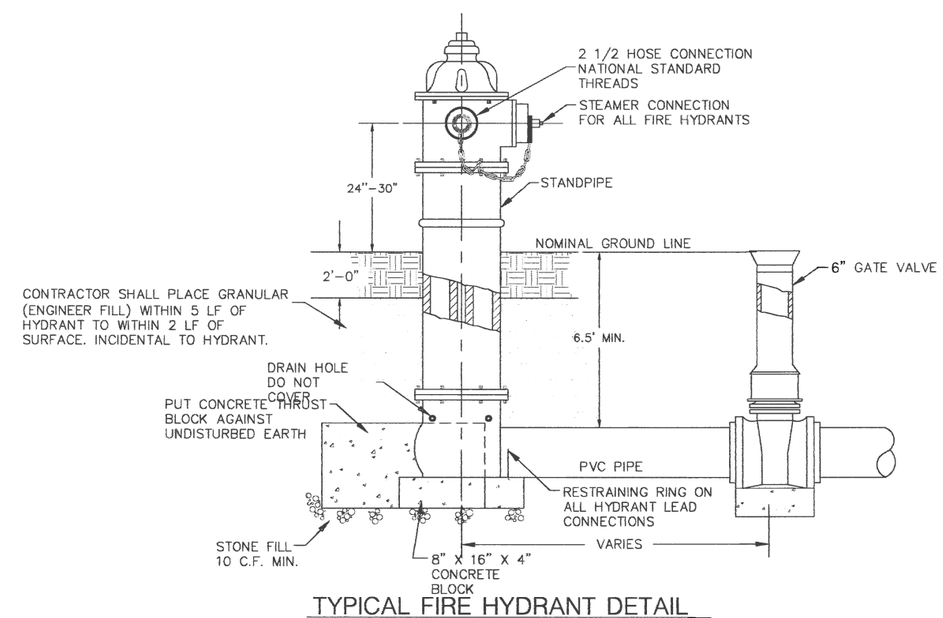
TYPICAL CORPORATION STOP DETAIL
NO SCALE



NOTE: SIZE AND TYPE OF THRUST BLOCKING SHALL BE DEPENDENT IN PART ON WATER PRESSURE, PIPE SIZE, TYPE OF FITTING, AND SOIL. CONTRACTOR SHALL DETERMINE EXISTING SOIL TYPE AND CONDITION. CONTRACTOR SHALL SIZE THRUST BLOCKING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES AND GUIDELINES.

PRECAST CONCRETE SOLID BLOCKS MAY BE USED FOR BLOCKING. ALL BLOCKS USED MUST BE 4" MINIMUM THICKNESS X 8" WIDE X 16" LONG.

TYPICAL THRUST BLOCK DETAILS
NO SCALE



TYPICAL FIRE HYDRANT DETAIL
NO SCALE

Registered Professional Engineer
REG. No.
LUCAS HOLMES
SOUTH DAKOTA
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the law of the State of South Dakota.
Registration No.

No.	Revisions	By	App.	Date

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