

COLORADO BOULEVARD (EXIT 14) 12" Water Main Extension

CITY OF SPEARFISH PROJECT NO. 2016-02

PLANS FOR PROPOSED WATER MAIN IMPROVEMENTS, SEWER MANHOLE ADJUSTMENTS, AND SIDEWALK EXTENSION

PCN X03K

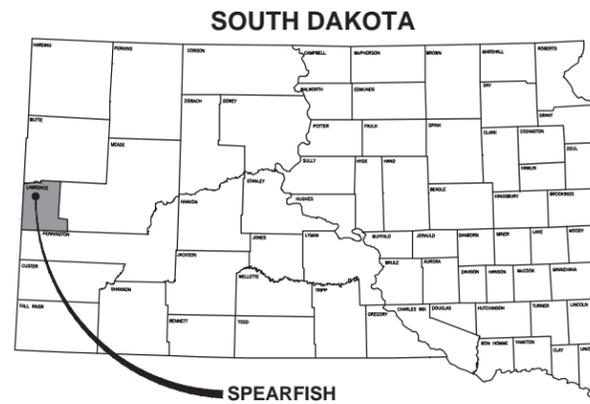
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PROJECT LOCATION MAP

PROJECT LOCATION



Drawing Indicates general utility locations only. Neither the correctness or completeness of locations are guaranteed.
 Prior to excavation contact:
 SOUTH DAKOTA ONE CALL(1-800-781-7474)



I, Jody W. Page, hereby certify that these plans were prepared by me, or under my direct supervision and that I am a duly registered engineer under the laws of the State of South Dakota.

Jody W. Page 8328 13 AUG 15
 JODY W. PAGE E.D. No. Date



703 Main St. Suite 200
 Rapid City, SD 57701

LEGEND

FOR BIDDING PURPOSES ONLY

	EXISTING FIRE HYDRANT
	EXISTING VALVE & BOX
	EXISTING TEE
	EXISTING REDUCER
	EXISTING SLEEVE
	EXISTING CROSS
	EXISTING WATER MANHOLE
	EXISTING DRINKING FOUNTAIN
	EXISTING WATER SHUTOFF
	EXISTING SPRINKLER HEAD
	EXISTING SANITARY MANHOLE
	EXISTING STORM MANHOLE/ JUNCTION BOX
	EXISTING TELEPHONE MANHOLE/ JUNCTION BOX
	EXISTING TELEPHONE PEDESTAL
	EXISTING TRAFFIC MANHOLE/ JUNCTION BOX
	EXISTING ELECTRIC MANHOLE/ JUNCTION BOX
	EXISTING ELECTRIC PEDESTAL/ TRANSFORMER
	EXISTING TRAFFIC SIGNAL LIGHT
	EXISTING STREET LIGHT
	EXISTING TRAIL LIGHT
	EXISTING GUY WIRE ANCHOR
	EXISTING POWER POLE
	EXISTING DECIDUOUS TREE & SIZE
	EXISTING TREE STUMP
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING GAS METER
	EXISTING APPROACH
	EXISTING SIDEWALK
	EXISTING DROP INLET
	EXISTING STRUCTURE

	EXISTING CONTOURS
	EXISTING WATER MAIN & SIZE
	EXISTING STORM SEWER & SIZE
	EXISTING SANITARY SEWER & SIZE
	EXISTING IRRIGATION DITCH
	EXISTING FORCE MAIN & SIZE
	EXISTING GAS LINE
	EXISTING UNDERGROUND TELEPHONE
	EXISTING FIBER OPTIC
	EXISTING CABLE TELEVISION
	EXISTING UNDERGROUND ELECTRIC
	EXISTING OVERHEAD ELECTRIC
	EXISTING TRAFFIC
	EXISTING DRAIN TILE LINE AND SIZE
	EXISTING SPLIT RAIL FENCE
	EXISTING CHAIN LINK FENCE
	EXISTING BARBED WIRE FENCE
	EXISTING CENTERLINE
	EXISTING PROPERTY LINE
	EXISTING EASEMENT
	EXISTING STORM SEWER JUNCTION BOX
	EXISTING PROPERTY CORNER MONUMENT
	EXISTING HORIZONTAL CONTROL
	EXISTING VERTICAL CONTROL
	BOTTOM SOIL BORING ELEVATION
	REFUSAL SOIL BORING ELEVATION
	WATER LINE SOIL BORING ELEVATION
	SOIL BORING, EXISTING GROUND ELEVATION, AND NUMBER
	SUB-UTILITY EXPLORATION AND UTILITY ELEVATION
	DIRECTION OF FLOW
MATERIAL FOR LINES:	
	VCP VITRIFIED CLAY PIPE
	HDPE HIGH DENSITY POLYETHYLENE PIPE
	PVC SOLID WALL POLYVINYL CHLORIDE PIPE

	PROPOSED LIFT STATION
	PROPOSED SANITARY MANHOLE
	PROPOSED CLEAN OUT
	PROPOSED VALVE & BOX
	PROPOSED TEE
	PROPOSED CROSS
	PROPOSED REDUCER OR INCREASER
	PROPOSED WATER CONNECTION
	PROPOSED PLUG
	PROPOSED CURB STOP
	PROPOSED FIRE HYDRANT
	PROPOSED 90° BEND
	PROPOSED 45° BEND
	PROPOSED 22 1/2° BEND
	PROPOSED 11 1/4° BEND
	PROPOSED S.J. PLUG
	PROPOSED M.J. PLUG
	PROPOSED WYE
	PROPOSED CATCH BASIN
	PROPOSED STORM SEWER JUNCTION BOX
	PROPOSED STORM SEWER DROP INLET
	PROPOSED STORM SEWER INTAKE
	PROPOSED STORM SEWER FLARED END
	PROPOSED TRENCHED SANITARY SEWER LINE
	PROPOSED TRENCHLESS SANITARY SEWER LINE
	PROPOSED STEEL CASING PIPE
	PROPOSED WATER MAIN
	PROPOSED STORM SEWER
	PROPOSED RIP RAP
	PROPOSED PCC
	PROPOSED ACC
	PROPOSED CONTOURS



PLANS BY:

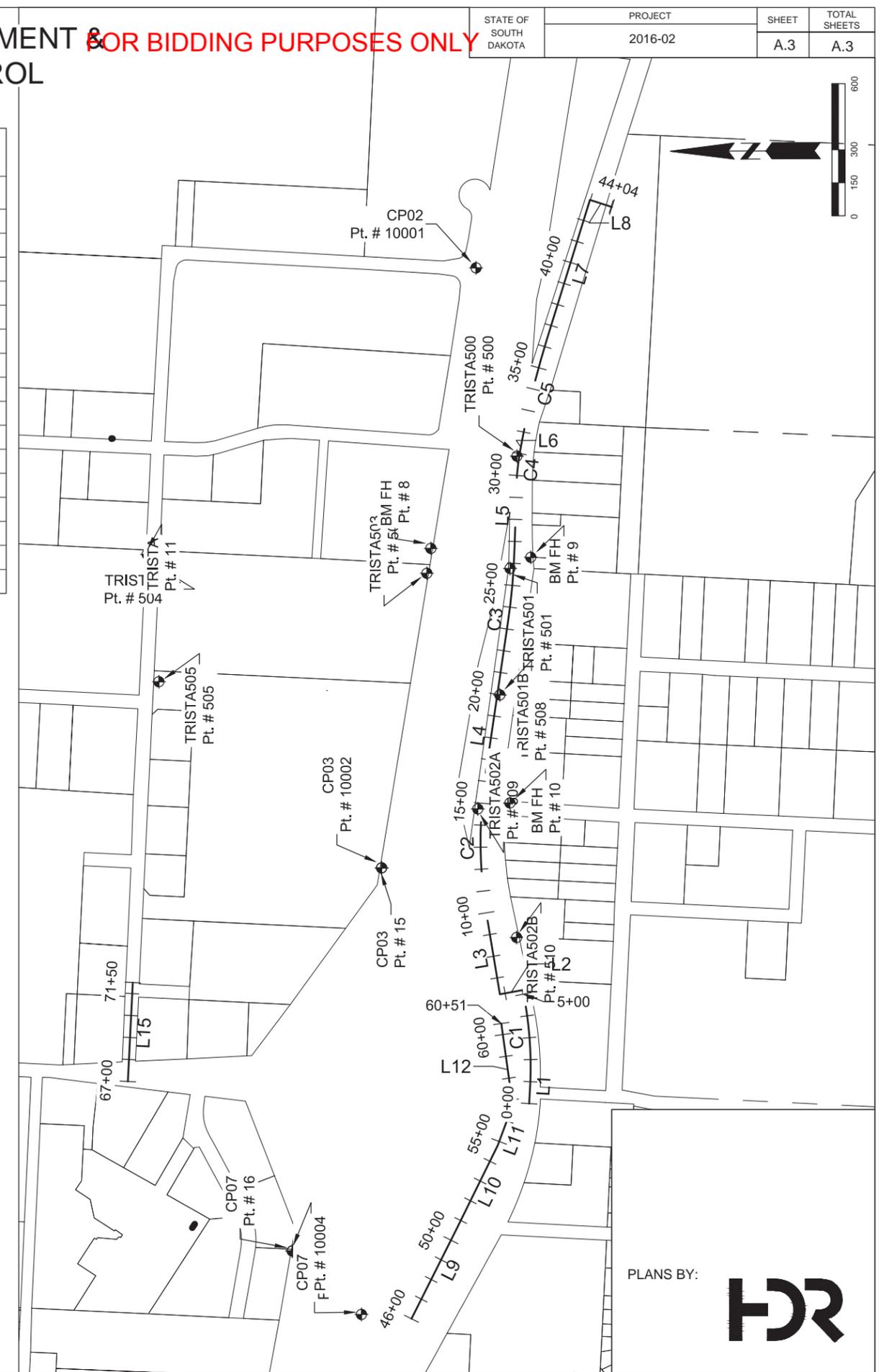
HORIZONTAL ALIGNMENT FOR BIDDING PURPOSES ONLY SURVEY CONTROL

HORIZONTAL ALIGNMENT: Proposed Water Main CL					
DESCRIPTION	STATION	LENGTH	COURSE	NORTHING	EASTING
L1	BEG:0+00.00 END:0+81.50	81.50'	S86°48'08.58"E'	BEG:257553.88 END:257549.33	BEG:973176.27 END:973257.63
C1	BEG:0+81.50 END:5+18.71	CL=435.97'	CL=N85°30'54.66"E'	BEG:257549.33 END:257583.42	BEG:973257.63 END:973692.27
L2	BEG:5+18.71 END:6+24.59	105.88'	N10°26'40.48"W'	BEG:257583.42 END:257687.55	BEG:973692.27 END:973673.08
L3	BEG:6+24.59 END:9+74.80	350.21'	N80°33'58.13"E'	BEG:257687.55 END:257744.95	BEG:973673.08 END:974018.55
C2	BEG:9+74.80 END:16+17.75	CL=640.19'	CL=N89°09'31.79"E'	BEG:257744.95 END:257754.35	BEG:974018.55 END:974658.67
L4	BEG:16+17.75 END:23+29.20	711.44'	S81°37'53.30"E'	BEG:257754.35 END:257650.81	BEG:974658.67 END:975362.54
C3	BEG:23+29.20 END:26+75.36	CL=345.98'	CL=S84°56'13.66"E'	BEG:257650.81 END:257620.27	BEG:975362.54 END:975707.16
L5	BEG:26+75.36 END:29+57.48	282.12'	S88°14'34.01"E'	BEG:257620.27 END:257611.62	BEG:975707.16 END:975989.15
C4	BEG:29+57.48 END:31+07.34	CL=149.72'	CL=S83°56'59.02"E'	BEG:257611.62 END:257595.84	BEG:975989.15 END:976138.03
L6	BEG:31+07.34 END:31+53.66	46.32'	N79°39'24.02"W'	BEG:257595.84 END:257587.53	BEG:976138.03 END:976183.60
C5	BEG:31+53.66 END:36+31.78	CL=477.83'	CL=S76°13'56.72"E'	BEG:257587.53 END:257473.81	BEG:976183.60 END:976647.71
L7	BEG:36+31.78 END:42+98.22	666.44'	S72°48'17.73"E'	BEG:257473.81 END:257276.79	BEG:976647.71 END:977284.36
L8	BEG:42+98.22 END:44+03.74	105.52'	S17°53'56.19"W'	BEG:257276.79 END:257176.38	BEG:977284.36 END:977251.93

CONTROL POINTS COORDINATES				
Point #	Northing	Easting	Elevation	Description
8	258001.6866	975699.7568	3917.62	BM FH
9	257546.2786	975659.3135	3935.37	BM FH
10	257641.4355	974542.8339	3916.80	BM FH
11	259295.3739	975673.3173	3900.87	TRISTA
500	257609.6376	976119.1041	3937.81	TRISTA500
501	257640.7762	975608.6338	3926.44	TRISTA501
503	258020.0175	975586.7957	3913.65	TRISTA503
504	259238.7837	975634.0936	3897.95	TRISTA504
505	259241.5960	975093.7626	3895.32	TRISTA505
508	257687.3028	975033.9398	3914.56	TRISTA501B
509	257787.7930	974515.7982	3911.94	TRISTA502A
510	257610.9958	973931.4031	3919.12	TRISTA502B
10001	257795.9480	976975.1060	3929.32	CP02
10002	258226.2630	974247.6210	3905.12	CP03
10003	258318.2990	972217.5660	3917.44	CP06
10004	258633.8850	972506.1130	3922.45	CP07

HORIZONTAL ALIGNMENT: Sanitary Sewer Manholes					
DESCRIPTION	STATION	LENGTH	COURSE	NORTHING	EASTING
L9	BEG:46+00.00 END:50+63.54	463.54'	S63°17'20.28"E'	BEG:258090.43 END:257882.08	BEG:972198.21 END:972612.28
L10	BEG:50+63.54 END:54+81.32	417.78'	S63°42'15.93"E'	BEG:257882.08 END:257697.00	BEG:972612.28 END:972986.83
L11	BEG:54+81.32 END:56+75.86	194.55'	S69°28'04.48"E'	BEG:257697.00 END:257628.77	BEG:972986.83 END:973169.02
L12	BEG:56+75.86 END:60+50.51	374.64'	N82°00'48.01"E'	BEG:257628.77 END:257680.82	BEG:973169.02 END:973540.03

HORIZONTAL ALIGNMENT: 1st Avenue CL					
DESCRIPTION	STATION	LENGTH	COURSE	NORTHING	EASTING
L15	BEG:67+00.00 END:71+50.00	450.00'	S87°06'42.99"E'	BEG:259383.15 END:259360.48	BEG:973276.96 END:973726.39



PLANS BY: **HR**

ESTIMATE OF QUANTITIES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET B.1	TOTAL SHEETS B.1
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ITEM NO.	DESCRIPTION	UNIT	QUANTITY
009E0010	MOBILIZATION	LS	LUMP SUM
009E3200	CONSTRUCTION STAKING	LS	LUMP SUM
110E0300	REMOVE CONCRETE CURB & GUTTER	FT	289
110E1010	REMOVE ASPHALT CONCRETE PAVEMENT	SQYD	606.0
110E1100	REMOVE CONCRETE PAVEMENT	SQYD	57.0
110E1970	REMOVE WATER MAIN	FT	111
230E0100	REMOVE & REPLACE TOPSOIL	LS	LUMP SUM
250E0020	INCIDENTAL WORK, GRADING	LS	LUMP SUM
260E1010	BASE COURSE	TON	216.4
320E1200	ASPHALT CONCRETE COMPOSITE	TON	97.1
380E4010	6" PCC FILLET SECTION	SQYD	22.4
450E7624	24" STEEL PIPE, FURNISH	FT	191
451E0024	24" PVC ENCASMENT PIPE	FT	92
451E0301	PIPE ENCASMENT	EACH	3
451E0606	6" PVC WATER MAIN	FT	104
451E0608	8" PVC WATER MAIN	FT	9
451E0610	10" PVC WATER MAIN	FT	18
451E0612	12" PVC WATER MAIN	FT	4493
451E2231	12" X 6" PIPE TEE	EACH	5
451E2234	12" X 12" PIPE TEE	EACH	3
451E2333	12" X 10" PIPE CROSS	EACH	1
451E2431	12" X 6" PIPE REDUCER	EACH	1
451E2432	12" X 8" PIPE REDUCER	EACH	1
451E3012	12" PIPE BEND	EACH	2
451E3452	12" PIPE PLUG	EACH	1
451E4206	6" GATE VALVE WITH BOX	EACH	6
451E4208	8" GATE VALVE WITH BOX	EACH	1
451E4210	10" GATE VALVE WITH BOX	EACH	2
451E4212	12" GATE VALVE WITH BOX	EACH	11
451E4580	STANDARD FIRE HYDRANT	EACH	5
451E5124	BORE AND JACK 24" PIPE	FT	191
451E6105	CONNECT TO EXISTING WATER MAIN	EACH	6
470E0120	STEEL PEDESTRIAN RAILING ON SIDEWALK	FT	29
530E0310	SPECIAL TYPE "C" CONCRETE RETAINING WALL	SQFT	57
634E0010	FLAGGING	HOURL	120
634E0110	TRAFFIC CONTROL SIGNS	SQFT	273
634E0120	TRAFFIC CONTROL, MISCELLANEOUS	LS	1
634E0280	TYPE 3 BARRICADE, 8' SINGLE SIDED	EACH	9
650E0060	TYPE B66 CONCRETE CURB & GUTTER	FT	299
651E0040	4" CONCRETE SIDEWALK	SQFT	1704
651E7000	TYPE I DETECTABLE WARNINGS	SQFT	30
671E8000	RECONSTRUCT MANHOLE	EACH	5
700E0310	CLASS C RIPRAP	TON	19
730E0210	TYPE F PERMANENT SEED MIXTURE	LB	59
731E0100	FERTILIZING	LB	2866
732E0250	FIBER MULCHING	LB	3770.0
734E0151	9" EROSION CONTROL WATTLE	FT	3805
734E0840	SEDIMENT CONTROL AT TYPE B REINFORCED CONCRETE DROP INLET	EACH	1
831E0110	TYPE B DRAINAGE FABRIC	SQYD	25

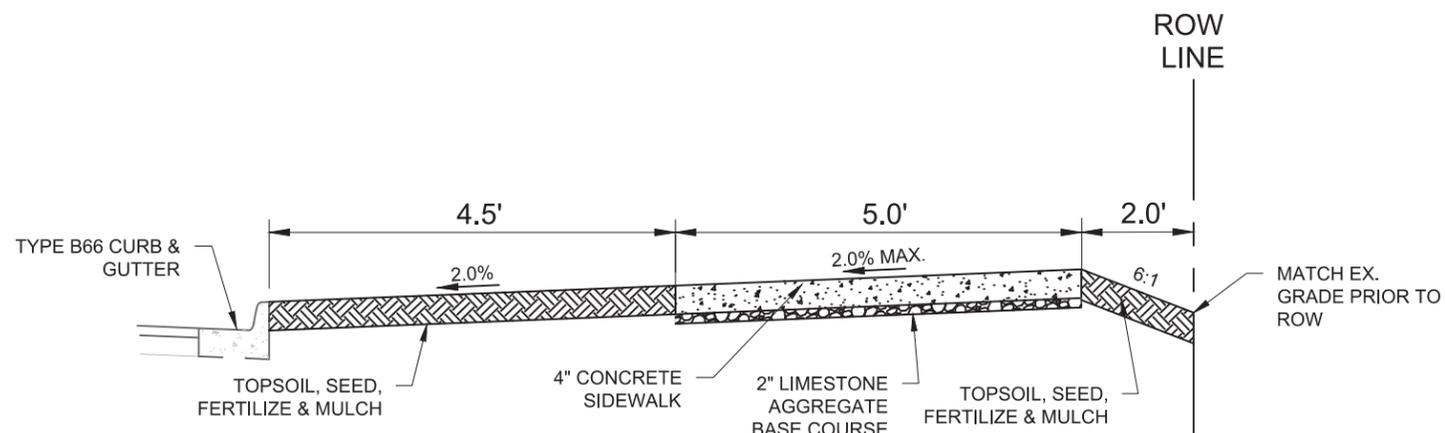


PLANS BY: **HDR**

TYPICAL SECTIONS

FOR BIDDING PURPOSES ONLY

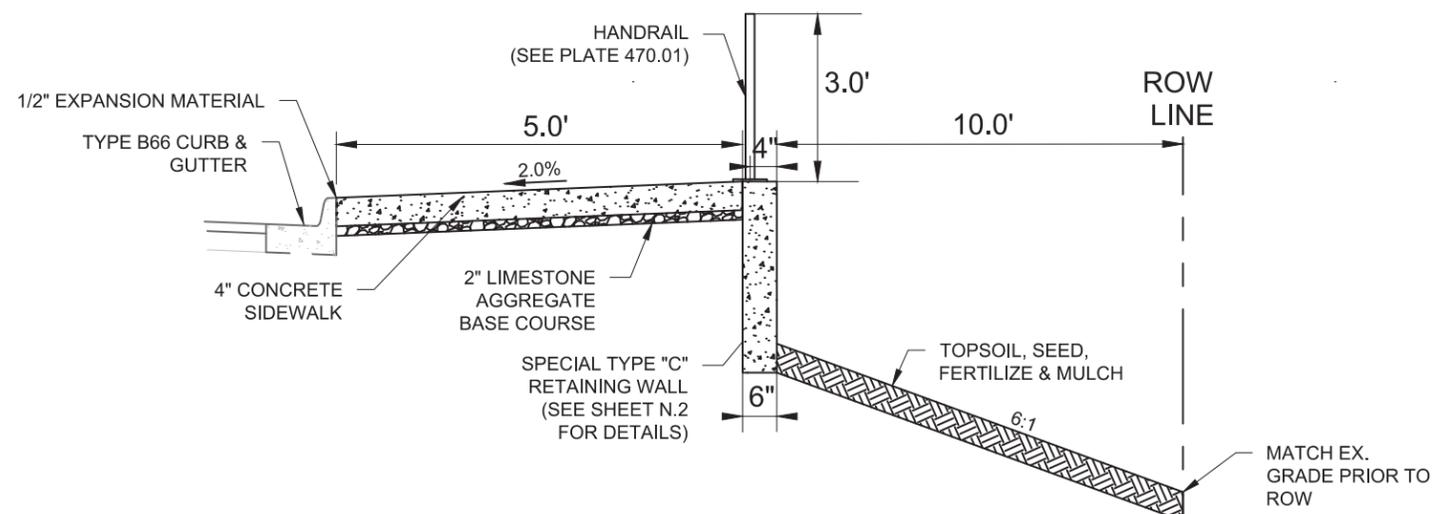
STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET C.1	TOTAL SHEETS C.1
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TYPICAL SECTION
(1ST AVE. CONCRETE SIDEWALK EXTENSION)



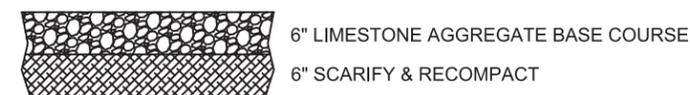
TYPICAL SECTION
(ASPHALT PATCHING FOR ROADWAYS)



TYPICAL SECTION
(1ST AVE. CURBSIDE CONCRETE SIDEWALK)



TYPICAL SECTION
(ASPHALT PATCHING FOR ACCESS DRIVES)



TYPICAL SECTION
(AGGREGATE SURFACING FOR ACCESS DRIVES)



PLANS BY:



GENERAL NOTES

SPECIFICATIONS

The specifications for this project shall be as follows and shall be used in this order of precedence for project construction as specified in these plans or in the contract documents:

1. Addendum
2. Contract Special Provisions
3. Project Plan Notes and Drawings
4. Project Specifications
5. Standard and Special Detail Drawings
6. South Dakota Department of Transportation Standard Specifications for Road and Bridge Construction, Current Edition

All portions of the specifications not modified herein shall remain and shall apply to this project as appropriate.

SUBMITTALS

The following documents shall be submitted by the Contractor:

1. Construction/Phasing Schedule
2. Asphalt job mix formula
3. Certification of Compliance for Asphalt
4. Materials Certifications
5. Shop Drawings
6. Temporary Water Main Layout
7. Excavation Plan

CONSTRUCTION SCHEDULE

A construction schedule shall be submitted to the City a minimum of one week prior to the preconstruction meeting to show the order in which the Contractor proposes to perform the work. The construction schedule shall be in bar or network diagram form and show the start and completion dates for significant items of work in their respective phases. Significant items of work include but are not limited to: erosion control, removals, sanitary sewer, water main, base course, curb and gutter, sidewalk, fillet, and asphalt patching. When applicable the schedule shall include submission dates for shop drawings, manufacturing and installation of materials, supplies, equipment, and testing for various parts of the work.

The construction schedule shall be updated on a monthly basis. Failure to submit the schedule on a monthly basis can result in the City withholding the monthly pay applications until the updated schedule is submitted. All costs, materials and labor to generate and provide the construction schedule shall be incidental to the project.

MEASUREMENT AND PAYMENT

Method of Measurement and Basis of Payment for each project bid item shall be per the Technical Specifications within the Bid Booklet, Rapid City Standard Specifications, or South Dakota Department of Transportation Standard Specifications unless otherwise stated in the plan notes and project specifications.

COORDINATION MEETINGS

The Contractor shall conduct coordination meetings with the Subcontractors, utilities, and the Engineer. These meetings shall be held weekly at a location on or near the project. The Contractor shall determine the time and location and coordinate with the Engineer.

All costs, labor and materials to conduct the coordination meetings shall be incidental to the project.

CONTRACTOR SUPERINTENDENT

Contractor shall designate a qualified and experienced construction superintendent who shall be present at the job site when any significant or controlling work is being accomplished. Superintendent shall be responsible for coordinating and directing the work of all Subcontractors. Superintendent and all Subcontractors shall be equipped with a set of project plans and specifications when present on the job site. **The contractor superintendent must attend all weekly construction coordination meetings.**

COORDINATION WITH ADJACENT CONSTRUCTION

The City of Spearfish, other Contractors or utility companies may be performing other work in or adjacent to the project area during construction. If so, the Contractor will be required to coordinate their operations and traffic control with the other project as needed to complete the work within the project schedule.

CONSTRUCTION TESTING

The Engineer and/or City representative shall have access at all times to all parts of the project site. The Engineer and/or City of Spearfish representative will be responsible for materials and compaction testing. The City will be responsible for taking density tests. If a density fails, the material will be re-worked by the Contractor until a passing density test is obtained. The Contractor will be responsible for the cost of all re-tests. Asphalt densities that do not meet the compaction requirements will be subject to pay deductions as stated within the Specifications or removed.

INCIDENTAL WORK

This work shall include all miscellaneous items not included under bid items but which must be performed in order to properly complete the contract. This work shall be performed in an approved and professional manner at such times as to properly facilitate the whole of the work as directed by the Engineer.

SITE CLEAN-UP

All paved roads adjacent to project areas shall be cleaned of construction debris at the end of each day or more frequently if needed. Sediment shall be removed from roads by shoveling or sweeping and be transported to a controlled sediment disposal area. Care shall be taken by the Contractor such that private property located adjacent to construction limits is not damaged during construction operations. Damage to private property caused by the carelessness of the Contractor shall be repaired or replaced at the Contractor's expense and to the satisfaction of the Engineer.

CONTRACTOR FURNISHED STAKING

The Construction Staking for this project shall be provided by the Contractor. The staking work to be performed includes all construction layout and reference staking as necessary for the accurate control and completion of all pipe, structures, grading, removals, paving, drainage, and all other appurtenances required for the complete construction and acceptance of the work.

As-built surveys will be completed at the end of the project and submitted to the Engineer along with point files. As-built surveys shall include the following items with coordinates (x,y,z): manholes, water valves, meter pits, curb stops, fire hydrants, horizontal & vertical bends, and surfacing centerlines. The Contractor shall also keep as-built locations of all service taps (station from downstream manhole) and utility crossings (station and offset of crossing and depths of both utilities).

The staking work shall also include establishing and/or reestablishing the project centerline, re-establish plan benchmarks, and setting additional benchmarks as needed. The centerline offsets shall be placed in an area where they will not be damaged by the construction operations. Horizontal and vertical control has been established as shown in the plans. The Contractor shall furnish all staking materials of adequate quality for the purpose intended including all stakes, lathe, nails, stake chasers, paint, field note books, and all other materials and equipment necessary to properly perform the required work.

The work shall be done under the supervision of a qualified Surveyor or Engineer who is experienced and competent in road and structure construction surveying and staking. The Surveyor or Engineer shall be available to review work, resolve problems, and make decisions in a timely manner. A crew chief, competent to perform all required surveying duties, shall supervise the staking in the absence of the Surveyor or Engineer from the project. Two weeks prior to staking, the Contractor shall submit to the Engineer for review the qualifications and work experience history of the Surveyor or Engineer who will supervise the construction survey work. Field notes shall be kept in a clear and orderly manner and shall be submitted to the Engineer & City of Spearfish on a weekly basis. The notebooks shall become property of the Owner upon completion of the project.

The Contractor shall be solely responsible for the accuracy of the staking. All errors and discrepancies found in previous surveys, plans, or specifications shall be called to the attention of the Engineer prior to proceeding with the survey work. Any staking deficiencies that result in construction errors shall be corrected by the Contractor at no additional costs.

FOR BIDDING PURPOSES ONLY

UTILITIES

All utilities shall be verified by the Contractor prior to starting work. Any time existing utilities impede the progress of work, the Contractor shall immediately notify the Engineer. The Contractor shall plan accordingly when developing a work schedule and incorporate time for potential utility conflicts so as to complete the project by the set completion date.

All utilities, whether privately or publicly owned, shall be moved, as necessary, by the utility company or companies, as the case may be, when advised by the Engineer in advance of construction and at no cost to the City of Spearfish. Any costs associated with utilities that are required to be moved and are within private easements or another entity's right-of-way, shall be borne to the Owner. Any damage done to the utilities because of the Contractors carelessness shall be repaired at the Contractors expense. When backfilling any exposed utility lines the Contractor shall place sand backfill for a minimum of 1' surrounding the line. This work shall be incidental to the water and sewer installation.

The Contractor shall call One-Call Utility Locating Services at 1-800-781-7474 to obtain utility locates prior to any excavation. Individual utility contacts are as follows:

Century Link

Attn: Doy Ousley
605-394-4224

Montana-Dakota Utilities

Attn: Toby Bordewyk
605-642-3029

Black Hills Power

Attn: Phil Gentrup
605-210-0151

Butte Electric

Attn: Adam Zvorak
605-642-4855

City of Spearfish Sewer

Attn: Tim Robison
605-642-1333

Vast

Attn: Genny Williams
605-431-9378

Mid-Continent

Attn: Terry Hofer
605-209-2113

City of Spearfish Water

Attn: Miles Burtzloff
605-642-1333

SDN Communications

Attn: Paul Lowe
605-343-1628

City of Spearfish Engineering

Attn: Bill Klapperich
605-639-9582

PAVEMENT REMOVAL

Areas of pavement removal shall be as shown on the plans or as directed by the Engineer. Payment at the contract unit price per square yard shall include all work and materials needed regardless of the depth of the pavement.

Where new pavement is placed adjacent to existing surfacing, the match line shall be cut or sawed in the existing surface to obtain a vertical, straight edge as directed by the Engineer. There will be no payment made for sawing and cost shall be incidental to the contract unit price for removal.

TRAFFIC CONTROL NOTES

SEQUENCE OF OPERATIONS

The following sequence of operation for construction shall be followed unless an alternate plan is submitted by the Contractor and approved by the Engineer prior to construction.

Construction activities shall be restricted to the work area limits as detailed in the traffic control plans and described below. Work in this area consists of removals, sanitary sewer manhole adjustments, water main, base course, and asphalt patching.



PLANS BY:



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016-02	D.1	D.7

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016-02	D.2	D.7

TRAFFIC CONTROL NOTES CONT'D

GENERAL NOTES FOR ALL CONSTRUCTION

1. Owners shall have access to their driveways at all times during construction unless otherwise agreed upon and approved by the Engineer.
2. Erosion Control measures shall be in place and approved by the Engineer after pavement removals have been completed and prior to commencement of any other activity on the site.
3. The Contractor shall perform sawing and removal operations consistent with the removal notes.
4. The removal and installation of utilities shall be performed as detailed in the appropriate sections of the plans. The Contractor shall be responsible for coordinating all water service interruptions with the Landowner, Engineer, and City Utility Department Staff.
5. Remove and replace surfacing as directed in the surfacing notes for water main installation.
6. The Contractor will be limited to closing one lane of Colorado Boulevard at one time. Temporary surfacing shall be constructed from aggregate base course or asphalt millings. If aggregate base course is used for temporary surfacing it may be reused as roadway base course at the discretion of the Engineer. No additional payment will be made for temporary surfacing.
7. Topsoiling/seeding and landscaping restoration shall be completed in a minimum of two segments/mobilizations for the project. Erosion control requirements must be met both before and after permanent seeding has been installed.
8. At the end of each working day the site will be cleaned and left in a condition approved by the Engineer.
9. Install traffic control devices in accordance with the traffic control layouts listed subsequently.

TRAFFIC CONTROL LAYOUTS

Traffic Control Layout 1 is the typical traffic control plan that shall be used for project activities outside of streets. Traffic Control Layout 2 is the typical traffic control plan that shall be used for the water main street crossings. Signs may need to be added or removed from these layouts depending on the circumstances.

LAYOUT 1 - Typical for project activities outside of streets.

LAYOUT 2 - Typical for water main street crossings.

LAYOUT 3 - For 27th Street crossing

GENERAL

Traffic control devices shall conform to the requirements of part 6 of the Manual of Uniform Traffic Control Devices (MUTCD), latest edition, issued by the Federal Highway Administration. Work included in this item shall comply with section 634 of the South Dakota Department of Transportation specifications.

The Contractor shall notify the Engineer and Owner 7 days prior to start of construction and before any substantial traffic control change so that a press release can be issued. The Contractor shall notify the Engineer and Owner 48 hours in advance of all other traffic control changes.

Traffic control devices listed are minimum requirements and, depending on exact construction sequences, may not be a complete inventory of all signs, barricades and devices required. The exact location of all traffic control devices shall be determined at the site.

Any damage to public or private property caused by the Contractor's signing shall be repaired at the Contractor's expense.

Failure to adequately follow the traffic control plan will result in the project being shut down until deficiencies are corrected.

Signs and barricades that are periodically required to be moved due to construction operations shall be placed at locations where they give sufficient warning to motorists and pedestrians of the condition ahead and shall be relocated as needed to keep signing current at required locations.

Flagger warning signs shall be installed when using flaggers to direct traffic. Flaggers shall wear appropriate safety clothing and shall use a "Stop/Slow" paddle. Payment for flagging will be at the contract unit price per hour for "Flagging".

The Contractor shall take extreme care to protect and restrict all pedestrians from work areas. Safety fence shall be installed as needed around work areas that are adjacent to pedestrian traffic and at other locations as designated by the Engineer. This will be incidental to the Traffic Control, Miscellaneous bid item.

PAYMENT

Payment for traffic control will be made following satisfactory installation of the traffic control devices per each Traffic Control Layout of the project. Payment for each traffic control device will be paid at the contract unit price per square foot of "Traffic Control SIGNS". Payment will be full compensation for installation, maintenance, relocation and removal for all layouts. In the event additional signs are needed, but not listed in the traffic control sheets. Type III barricades will be paid for at the contract unit price per each for "Type III Barricade, 8' Single Sided". Traffic control miscellaneous items will be bid separately on a lump sum basis.

The bid item "Traffic Control, Miscellaneous" shall include all costs, materials and labor for the following:

- installation, maintenance, relocation and removal of Type I and II barricades, cones, vertical panels, drums, barricade warning lights, watchmen and tubular markers.
- miscellaneous traffic control devices as shown on the plans or as deemed necessary by the Contractor, Engineer or Owner during the construction phases
- to furnish, install, maintain, relocate and remove any miscellaneous traffic control devices as shown on the plans or as deemed necessary by the Contractor, Engineer or Owner during the construction phases
- all coordination and miscellaneous traffic control devices as needed throughout the construction phases
- to remove or cover all non-applicable existing traffic signs. When the work is completed, the Contractor shall uncover or reinstall the signs to their original location
- protecting and restricting all pedestrians from work areas. Safety fence shall be installed around all work areas that are adjacent to pedestrian walkways and at other locations as designated by the Engineer.
- moving signs and barricades that are periodically required to be moved due to construction operations.
- washing and cleaning of signs throughout the project to clearly display sign messages.

UTILITY NOTES

RECONSTRUCT MANHOLE

Reconstruct manhole shall consist of the removal or addition of new manhole barrels, cone sections, and/or adjusting rings as needed for vertical adjustment. Adjustments of the frame and cover, adjusting rings, and adjustment ring grouting at reconstructed manholes are incidental to the bid item "Reconstruct Manhole".

WATER MAIN

The water main shall be furnished, installed, and tested in accordance with the project technical specifications for Domestic Water Main. All proposed waterlines shall be PVC DR-18, Class 150 pipe. The Contractor shall leave all fittings and dead-ends exposed until the pipe is measured and thrust blocking inspected. There will be no separate payment for thrust blocking and all costs shall be incidental to water main installation. City approved joint restraint devices shall be installed at all fittings. All proposed valves and fittings shall be fastened to tees and crosses using foster adapters which will be incidental to the cost of the new valves or fittings.

All water mains shall be bedded as per the standard detail. Water main bedding material shall be one-inch minus non-spec aggregate base course. Water main bedding material shall be incidental to the contract unit price per foot of "X" PVC Water Main".

Valve covers and the top riser section shall be removed at a minimum on all water valves to be removed and shall be filled in with bedding material and compacted. The area shall then be patched with the appropriate surfacing to finish grade or backfilled to the original ground surface level.

CONNECT TO EXISTING WATER MAIN

Connection to existing mains shall be paid for at the contract unit price per each. Payment shall include any fittings/couplings and other labor and incidentals required to connect the new main to the existing main.

REMOVE OR ABANDON WATER MAIN OR SERVICE

The existing main and services will be left in place except for the sections where the new main or services will intersect with the old main. Removing and abandoning water mains and services shall be incidental to water main installation costs and shall include any necessary caps, concrete, and other labor and incidentals required to remove or abandon the water mains and services so no infiltration will occur.

WATER MAINS PARALLELING OR CROSSING SEWERS

Installation of water mains parallel to sewer lines shall be completed in a manner such that the water mains shall be laid at least 10 feet horizontal distance from any existing or proposed sanitary sewer, storm sewer, or sewer manhole. Where water mains cross above storm sewers or sanitary sewers, there shall be at least 18 inches vertical distance between the bottom of the water main and the top of the sewer pipe and one full length of water pipe must be located so both joints will be as far from the sewer as possible.



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A water main may cross below a non-perforated sewer main if minimum vertical separation of 18 inches is provided and the sewer main is of acceptable water main pipe material and is continuous piece of at least 20 feet in length with the length of the water pipe located so both joints are as far as possible from the sewer main. A water main may cross either above or below a non-perforated sewer line with a vertical separation of less than 18 inches if either the water or sewer line is encased in PVC, cast iron or 6 inches of concrete for at least 10 feet each side of the crossing. If PVC or cast iron is used as encasement material, the ends shall be adequately sealed with a rubber boot.

Where water mains are to be installed in parallel with sewer or a sewer manhole that is less than 10' away horizontally and is not at least 18" below the water main, the water main shall be encased in PVC, cast iron, or with 6" of concrete backfill material for the entire distance that the sewer is too close to the water main. If PVC or cast iron is used as encasement material, the ends shall be adequately sealed with a rubber boot. Payment for crossings shall be incidental to the contract unit prices for the water main items.

BORE AND JACK 24" PIPE

The work under bid item "Bore and Jack 24" Pipe" shall include all materials, equipment, labor and other incidentals for excavation by boring or tunneling and the installation of casing pipe and the installation of spacers and end seals at the locations as shown on the plans. Measurement will be based on the lineal feet of casing pipe installed and payment will be based on the applicable unit price bid respectively for "Bore and Jack 24" Pipe" and "24" Steel Pipe, Furnish". The cost of jacking pits and carrier pipe shall be incidental to the unit price for "Bore and Jack 24" Pipe".

Steel casing pipe shall conform to AWWA C-200 with ASTM grade A36 plate steel and a minimum yield strength of 35,000 psi. The casing pipe shall be new and installed with welded joints approved by the Engineer. Carrier pipe shall be the same size and type as the pipe on either end of the boring, as shown on the plans. The openings on each end of the casing pipe shall be protected against the entrance of backfill materials. The carrier pipe shall be anchored to the casing pipe to prevent the pipe from "floating".

The Engineer will establish alignment and grade and elevation at each excavation site as requested by the Contractor. After installation of the initial pipe it shall be the responsibility of the Contractor to maintain alignment and grade as specified. The Contractor shall have an approved laser beam system to determine alignment and grade of pipe. The pipe shall be installed on a straight grade and alignment with deviations kept to a minimum. If at any other location it is deemed necessary to verify the exact alignment, as determined by the Engineer or Contractor, the cost of such work shall be borne entirely by the Contractor.

GRADING NOTES

GRADING OPERATIONS

The Contractor will be required to raze, remove and dispose of all structures and other obstructions of which any portion are in the construction limits in accordance with Section 110 of the SDDOT Specifications. Upon completion of grading, the Contractor shall be responsible to dispose of all rocks, rubble, and excess soil at the Contractor's expense. The City of Spearfish will provide the Contractor with a free pass to dump at the city rubble site. Any costs associated with these removals & disposals shall be incidental to other removal items.

Temporary drainage during construction is the Contractor's responsibility. Contractor shall be aware of existing drainage conditions and facilities, and shall provide for drainage and erosion control during all phases of construction. Damage caused by improper temporary drainage facilities shall be repaired at the Contractor's expense to the satisfaction of the Engineer.

Compaction of embankment shall be a minimum of 95% of standard proctor density. Water for compaction of earth embankments shall be incidental. The City of Spearfish will provide city water for this use at no charge. The Contractor shall coordinate with the City Water Dept. to identify an approved water source and placement of a water meter.

TRENCH LIMITS

Utility trenches for this project were estimated 12' wide for the water main. The Contractor shall determine the best method to perform the construction within these limits. The Contractor may stockpile excavated material on adjacent street right-of-ways temporarily as long as they provide traffic control devices to protect their stockpiles and do not affect traffic movements on the streets. The Contractor will be expected to remain within these trench limits throughout the project.

The Contractor shall develop a plan showing his method on how the trench material will be excavated, hauled away, hauled back to the site and re-compacted in the trench. This plan shall also include coordination efforts to be taken with the private utility companies. This plan shall be approved by the Engineer and City and shall be thoroughly discussed at the preconstruction meeting. Preparation of this plan shall be incidental to the project.

REMOVE & REPLACE TOPSOIL

Topsoil within the construction limits shall be stripped and stockpiled on the project site. The Contractor shall not remove any existing topsoil from the project site and all topsoil shall be stored and uniformly replaced on the disturbed areas where it was removed.

The topsoil shall be salvaged, stockpiled, and placed as specified in Section 230 of the SDDOT Specifications. The Contractor shall stockpile the topsoil within the project limits at locations approved by the Engineer. Payment for excavating, hauling, and stockpiling shall be incidental to the lump sum bid price for "Remove and Replace Topsoil."

Following completion of grading operations, the salvaged topsoil shall be spread evenly at four (4) inches finished depth over the disturbed areas within the work limits. Restoration of disturbed areas created during construction outside of the work limits shall be the responsibility of the Contractor.

PERMANENT SEEDING

All disturbed vegetative areas shall be seeded. Any additional areas disturbed outside of the work limits shall be restored at the Contractor's expense.

Within seasonal limitations, seeding shall be done as soon as finish grading and topsoiling has been completed. The seed used shall comply with the requirements of the South Dakota Seed Law.

In addition to the drills specified in Section 730 of the SDDOT Specifications, other types of drills including no-till drills will be allowed as long as the seed is planted at the proper depth.

Type F Permanent Seed Mixture shall consist of the following:

<u>Grass Species</u>	<u>Variety</u>	<u>Pure Live Seed (PLS) (Pounds/Acre)</u>
Western Wheatgrass	Flintlock, Rodan, Rosana	7
Green Needlegrass	Lodorm	4
Sideoats Grama	Butte, Killdeer, Pierre, Trailway	3
Blue Grama	Bad River, Willis	2
Oats or Spring Wheat (April - July)		
Winter Wheat (August - November)		10
	Total:	26

South Dakota native grown seed may be an acceptable alternative to any of the seed varieties listed above. South Dakota native grown seeds used as an alternative shall conform to the same specification and requirements for that individual seed type.

The Contractor shall apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer shall have a minimum guaranteed analysis of 4-6-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 3.2%, a minimum of 6% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer shall be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer shall have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer shall also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The all-natural slow release fertilizer shall be applied according to the manufacturer's application recommendations.

The application rate is 1,500 pounds per acre.

The all-natural slow release fertilizer shall be as shown below or an approved equal:

<u>Product</u>	<u>Manufacturer</u>
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 http://www.sustane.com/

FIBER MULCHING

Fiber mulch shall be applied in a separate operation following permanent seeding.

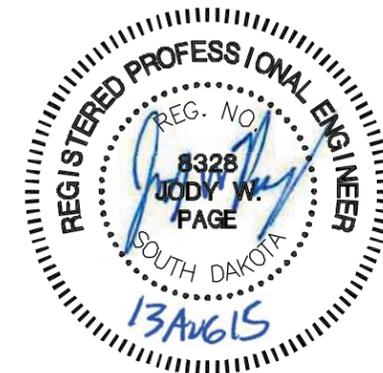
An additional 2% by weight of tackifier shall be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier shall be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier shall be synthetic.

The Contractor shall allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials shall be incidental to the contract unit price per pound for "Fiber Mulching".

The fiber mulch provided shall be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>



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SURFACING NOTES

ASPHALT CONCRETE FOR PATCHING

Placement of the asphalt concrete shall be performed with self-propelled rollers. Compaction of the asphalt concrete shall be by methods and equipment satisfactory to the Engineer. Compaction of asphalt concrete shall be by the specified density method. The minimum density requirement is 92% of specified density as used on state plans or 95% using the Marshall Test method. If the average field density fails to meet the specifications listed above, price deductions will be applied to the unit price per ton for asphalt. Refer to the table in the technical specifications for the deduction amounts.

Asphalt concrete for patching shall conform to the SDDOT Class E Type 1, Asphalt Concrete unless otherwise noted or by direction of the Engineer. The asphalt cement used in the mixture shall be Performance Graded AASHTO Designation: PG64-22 or PG58-28 and shall conform to the SDDOT Specifications.

Prior to the notice to proceed being issued written certification from the producer stating that the asphalt concrete conforms to the specifications and the job mix formula, a certificate of compliance from the refinery for the asphalt cement used in the mixture, and a scale certification shall be submitted and approved by the Engineer. The Engineer may accept the mixture on the basis of the certificate of compliance and visual inspection or may test the mixture for specification compliance.

Asphalt concrete for patching shall be paid for at the contract unit price per ton, furnished complete in place, and shall be full compensation for cement, mineral aggregate, and all other materials, equipment, labor and incidentals necessary to complete the work.

Tack Coat (SS-1h or CSS-1h) shall be applied between each lift of asphalt, on milled surfaces, and along existing concrete and asphalt faces and any areas as determined by the Engineer at a rate of 0.05 gallons per square yard. Payment for application, this work shall be incidental to the contract unit price per ton for "Asphalt Concrete Composite".

GRAVEL SURFACING

Existing gravel surfacing from driveways that will be disturbed due to utility excavation shall be replaced at the driveways after utilities are complete. The Contractor shall install a 6" depth of aggregate base course, within the noted disturbed driveway areas, as delineated within the plans (Surfacing Sheets). The existing gravel surfacing may be salvaged and used as pipe bedding if the Contractor can salvage the material cleanly.

The salvaged material shall be relatively free of sub-soil and other contaminants. The Engineer shall direct the Contractor as to which material is salvageable and which shall be considered surplus excavation. Payment at the contract unit price per ton for "Base Course" shall include all work, equipment and materials needed for hauling, placing, and compacting the base course.

EROSION CONTROL NOTES

EROSION CONTROL GENERAL NOTES

At no time shall any water from the areas of the project where the surfacing has been removed enter the storm sewer or leave the project limits without exposure to a sediment filtration device. All drop inlets, manholes, junction boxes (existing or new), and storm sewers shall have sediment control devices placed around their perimeter during all stages of construction except during the placement of the final surfacing. This may necessitate multiple installations of the sediment control devices at the same location.

The Contractor will be required to find an appropriate location for concrete washout. The location will have to have appropriate containment for the washout operations and the Engineer will approve of the site before it may be used.

The Contractor and Engineer shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event greater than 1/2".

The Contractor is responsible for notifying the Engineer when the site has reached final stabilization so that the Engineer can file a Notice of Termination with the SD DENR.

EROSION CONTROL WATTLES

Payment for "9" Diameter Erosion Control Wattles" shall be made at the contract unit price per foot and shall include all costs, materials and labor associated with installation and removal of erosion control wattles.

An additional quantity of 100 feet of erosion control wattles have been included in the project to be used as needed and as directed by the Engineer.

SEDIMENT CONTROL AT STORM SEWER INLETS

The sediment control device provided for inlets shall be from the list shown below. Refer to SDDOT Standard Plate 734.10 for details.

Sediment Control Device Product Manufacturer

True Dam Dandy Products Inc.

Dublin, OH
Phone: 1-800-591-2284
www.dandyproducts.com

Gutterbuddy SI Geosolutions

Chattanooga, TN
Phone: 1-800-621-0444
www.acfenvironmental.com/bmp_gutterbuddy.htm

SS-300 Silt-Saver, Inc.

Conyers, GA
Phone: 1-888-382-7458
www.siltsaver.com

The filter fabric used for constructing the sediment control at inlets with frames and grates is the same type of fabric that is used in high flow silt fence. The high flow silt fence fabric provided shall be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

<http://www.state.sd.us/Applications/HC54ApprovedProducts/main.asp>

SURFACE WATER QUALITY

Methods shall be implemented to minimize the spillage of petroleum, oils and lubricants used in vehicles during construction activities. The Contractor will be required to keep a spill kit on site that will be able to control any spills that may occur. Good housekeeping practices shall be required to keep potential areas where pollutants exist clean and orderly. If a discharge does occur, suitable containment procedures such as banking or diking shall be used to prevent entry of these materials into the waterway.

STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

*(The numbers right of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES)*

- ❖ **SITE DESCRIPTION (4.2 1)**
- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**

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- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
 - Clearing and grubbing
 - Excavation/borrow
 - Grading and shaping
 - Filling
 - Cutting and filling
 - Other (describe):
- **Total Project Area** 27.9 acres **(4.2 1.b.)**
- **Total Area To Be Disturbed** 1.7 acres **(4.2 1.b.)**
- **Existing Vegetative Cover (%)** 96%
- **Soil Properties:** Lean Clay (CL) **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** False Bottom Creek **(4.2 1.e.)**

❖ **ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)**
(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)

- Special traffic sequencing requirements
- Install stabilized construction entrance(s).
- Clearing and grubbing.
- Install utilities, curb and gutter.
- Complete final grading.
- Complete final paving and seeding.
- Complete traffic control installation and protection devices.

❖ **EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))**

(Check all that apply)

➤ **Stabilization Practices (See Detail Plan Sheets)**

- Temporary or Permanent Seeding
- Sodding
- Planting
- Mulching (Straw or Cellulose Fiber)
- Erosion Control Blankets or Mats
- Vegetation Buffer Strips
- Roughened Surface (e.g. tracking)
- Gabions-Gabion Mattress
- Other



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➤ **Structural Temporary Erosion and Sediment Controls**

- Silt Fence
- Straw Bale Check
- Temporary Berm
- Temporary Slope Drain
- Straw Wattles or Rolls
- Diversion Channels/Swales
- Channel Liners (TRM)
- Stone Rip Rap Sheet
- Rock Check Dams
- Sediment Traps/Basins
- Inlet Protection
- Outlet Protection
- Surface Inlet Protection
- Curb Inlet Protection
- Stabilized Construction Entrances
- Other

➤ **Wetland Avoidance**

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes No If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

➤ **Storm Water Management (4.2 2.b., (1) and (2))**

Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.

➤ **Other Storm Water Controls (4.2 2.c., (1) and (2))**

▪ **Waste Disposal**

All liquid waste materials will be collected and stored in sealed metal containers approved by the project Engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general Contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.

▪ **Hazardous Waste**

All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the Contractor's on-site representative will be responsible for seeing that these practices are followed.

▪ **Sanitary Waste**

Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management Contractor or as required by any local regulations.

❖ **Maintenance and Inspection (4.2 3. and 4.2 4.)**

➤ **Maintenance and Inspection Practices**

- Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches 1/3 of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches 1/2 the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and Contractor's site superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the Contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

❖ **Non-Storm Water Discharges (3.0)**

The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- Discharges from water line flushing.
- Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- Uncontaminated ground water associated with dewatering activities.

❖ **Materials Inventory (4.2. 2.c.(2))**

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION" (check all that apply).

- Concrete and Portland Cement
- Detergents
- Paints
- Metals
- Bituminous Materials

- Petrochemical Based Products
- Cleaning Solvents
- Wood
- Cure
- Texture
- Chemical Fertilizers
- Other

❖ **Spill Prevention (4.2 2.c.(2))**

➤ **Material Management**

- Housekeeping
- Only needed products will be stored on-site by the Contractor.
- Except for bulk materials the Contractor will store all materials under cover and in appropriate containers.
- Products must be stored in original containers and labeled.
- Material mixing will be conducted in accordance with the manufacturer's recommendations.
- When possible, all products will be completely used before properly disposing of the container off site.
- The manufacturer's directions for disposal of materials and containers will be followed.
- The Contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
- Dust generated will be controlled in an environmentally safe manner.
- Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.
- Hazardous Materials
- Products will be kept in original containers unless the container is not resealable.
- Original labels and material safety data sheets will be retained in a safe place to relay important product information.
- If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.



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- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
- Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
- Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

➤ **Product Specific Practices (6.8)**

• Petroleum Products

All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

• Fertilizers

Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

• Paints

All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.

• Concrete Trucks

Contractors will provide designated truck washout areas on the site. These areas must be self contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.

➤ **Spill Control Practices (4.2 2 c.(2))**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill clean up will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the Contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for clean up purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the

cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.

- The Contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The Contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

➤ **Spill Response (4.2 2 c.(2))**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The Contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the Contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean up will receive training by the Contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

❖ **Spill Notification**

In the event of a spill, the Contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately **if any one of the following** conditions exists:
 - The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
 - The discharge causes an immediate danger to human health or safety.
 - The discharge exceeds 25 gallons.
 - The discharge causes a sheen on surface water.

- The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:54:01.
- The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:54:01.
- The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
- The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

To report a release or spill, call DENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

❖ **Construction Changes (4.4)**

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The Engineer will modify the SWPPP plan (DOT 298) and drawings to reflect the needed changes. Copies of changes will be routed per DOT 298. Copies of forms and the SWPPP will be retained in a designated place for review over the course of the project.

❖ **CERTIFICATIONS**

➤ **Certification of Compliance with Federal, State, and Local Regulations**

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

➤ **City of Spearfish**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature (See the General Permit, Section 6.7.1.C.)



PLANS BY:



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016-02	D.7	D.7

> **Prime Contractor**

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature

❖ **CONTACT INFORMATION**

> **Contractor Information:**

- Prime Contractor Name:
- Contractor Contact Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

> **Erosion Control Supervisor**

- Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

> **City of Spearfish Project Engineer**

- Name: Kyle Mathis
- Business Address: 625 Fifth Street
- Job Office Location: Spearfish
- City: Spearfish State: SD Zip: 57783
- Office Phone: 605 642-1333 Field:
- Cell Phone: Fax:

> **SD DENR Contact Spill Reporting**

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

> **SD DENR Contact for Hazardous Materials.**

- (605) 773-3153

> **National Response Center Hotline**

- (800) 424-8802.



PLANS BY:

SUMMARY OF QUANTITIES FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016-02	E.1	E.3

TYPE F PERMANENT SEED MIXTURE		
FROM STA.	TO STA.	QUANTITY (LB)
46+08.19 - 7.80' RT	46+08.63 - 8.19' LT	1
50+55.59 - 8.11' RT	50+71.55 - 7.93' LT	1
54+73.86 - 8.51' RT	54+89.89 - 7.72' LT	1
56+66.18 - 5.85' LT	56+82.48 - 6.55' RT	1
60+41.20 - 6.10' RT	60+43.39 - 9.72' LT	1
-0+08.00 - 8.00' LT	0+21.66 - 9.98' RT	1
0+81.48 - 10.00' LT	3+35.11 - 10.46' RT	3
3+85.09 - 9.97' LT	6+85.61 - 111.38' RT	3
5+86.24 - 10.00' LT	14+09.34 - 10.00' RT	10
14+70.05 - 10.00' LT	17+20.72 - 10.00' RT	3
17+34.96 - 10.00' LT	19+96.02 - 10.00' RT	3
20+19.64 - 10.00' LT	38+98.75 - 7.98' RT	23
22+19.10 - 58.16' RT	22+39.18 - 113.48' RT	1
39+14.79 - 10.00' LT	41+31.38 - 10.00' RT	3
41+58.27 - 10.00' LT	43+15.63 - 10.00' RT	2
43.34 - 10.00' LT	43+91.05 - 22.92' RT	1
68+14.65 - 32.55' RT	70+39.70 - 28.57' RT	1
TOTAL		59

FIBER MULCHING		
FROM STA.	TO STA.	QUANTITY (LB)
46+08.19 - 7.80' RT	46+08.63 - 8.19' LT	77.0
50+55.59 - 8.11' RT	50+71.55 - 7.93' LT	77.0
54+73.86 - 8.51' RT	54+89.89 - 7.72' LT	77.0
56+66.18 - 5.85' LT	56+82.48 - 6.55' RT	77.0
60+41.20 - 6.10' RT	60+43.39 - 9.72' LT	77.0
-0+08.00 - 8.00' LT	0+21.66 - 9.98' RT	77.0
0+81.48 - 10.00' LT	3+35.11 - 10.46' RT	231.0
3+85.09 - 9.97' LT	6+85.61 - 111.38' RT	154.0
5+86.24 - 10.00' LT	14+09.34 - 10.00' RT	615.0
14+70.05 - 10.00' LT	17+20.72 - 10.00' RT	154.0
17+34.96 - 10.00' LT	19+96.02 - 10.00' RT	231.0
20+19.64 - 10.00' LT	38+98.75 - 7.98' RT	1384.0
22+19.10 - 58.16' RT	22+39.18 - 113.48' RT	77.0
39+14.79 - 10.00' LT	41+31.38 - 10.00' RT	154.0
41+58.27 - 10.00' LT	43+15.63 - 10.00' RT	154.0
43.34 - 10.00' LT	43+91.05 - 22.92' RT	77.0
68+14.65 - 32.55' RT	70+39.70 - 28.57' RT	77.0
TOTAL		3770.0

SEDIMENT CONTROL AT TYPE B REINFORCED CONCRETE DROP INLET		
STATION	QUANTITY (EACH)	
0+24.48 - 23.37' RT	1	
0+64.21 - 20.61' RT	1	
TOTAL		2

CLASS C RIPRAP		
FROM STA.	TO STA.	QUANTITY (CUYD)
13+78.83 - 26.72' LT	13+85.02 - 5.86' LT	8.7
TOTAL		8.7

REMOVE & REPLACE TOPSOIL		
FROM STA.	TO STA.	QUANTITY (CUYD)
46+05.28 - 4.72' RT	46+05.55 - 5.28' LT	1
50+58.57 - 5.09' RT	50+68.55 - 4.93' LT	1
54+76.66 - 5.32' RT	54+86.49 - 4.82' LT	1
56+69.81 - 3.65' LT	56+79.44 - 6.10' RT	1
60+45.37 - 4.86' RT	60+45.37 - 5.14' LT	1
-0+05.00 - 6.00' LT	0+22.94 - 6.00' RT	4
0+67.92 - 6.00' LT	3+37.64 - 6.00' RT	41
3+82.66 - 6.00' LT	6+80.54 - 106.39' RT	32
5+86.37 - 6.00' LT	13+95.57 - 6.00' RT	120
14+73.00 - 6.00' LT	17+21.80 - 6.00' RT	37
17+33.88 - 6.00' LT	19+98.75 - 6.00' RT	40
20+19.16 - 6.00' LT	38+99.23 - 6.00' RT	287
22+24.20 - 58.05' RT	22+34.18 - 108.48' RT	10
39+15.29 - 6.00' LT	41+35.50 - 6.00' RT	33
41+58.94 - 6.00' LT	42+99.55 - 6.00' LT	21
43+50.98 - 6.00' RT	43+81.13 - 14.17' LT	10
68+15.26 - 35.29' RT	70+83.44 - 28.73' RT	5
TOTAL		646

FERTILIZING		
FROM STA.	TO STA.	QUANTITY (LB)
46+08.19 - 7.80' RT	46+08.63 - 8.19' LT	58.00
50+55.59 - 8.11' RT	50+71.55 - 7.93' LT	58.00
54+73.86 - 8.51' RT	54+89.89 - 7.72' LT	58.00
56+66.18 - 5.85' LT	56+82.48 - 6.55' RT	58.00
60+41.20 - 6.10' RT	60+43.39 - 9.72' LT	58.00
-0+08.00 - 8.00' LT	0+21.66 - 9.98' RT	58.00
0+81.48 - 10.00' LT	3+35.11 - 10.46' RT	173.00
3+85.09 - 9.97' LT	6+85.61 - 111.38' RT	115.00
5+86.24 - 10.00' LT	14+09.34 - 10.00' RT	461.00
14+70.05 - 10.00' LT	17+20.72 - 10.00' RT	115.00
17+34.96 - 10.00' LT	19+96.02 - 10.00' RT	173.00
20+19.64 - 10.00' LT	38+98.75 - 7.98' RT	1037.00
22+19.10 - 58.16' RT	22+39.18 - 113.48' RT	58.00
39+14.79 - 10.00' LT	41+31.38 - 10.00' RT	115.00
41+58.27 - 10.00' LT	43+15.63 - 10.00' RT	155.00
43.34 - 10.00' LT	43+91.05 - 22.92' RT	58.00
68+14.65 - 32.55' RT	70+39.70 - 28.57' RT	58.00
TOTAL		2866.00

9" DIAMETER EROSION CONTROL WATTLE		
FROM STA.	TO STA.	QUANTITY (FT)
-0+70.59 - 17.71' RT	-0+65.20 - 22.83' RT	20
-0+15.13 - 0.86' RT	0+21.22 - 9.77' RT	45
0+08.20 - 21.56' RT	0+13.09 - 23.37' RT	20
0+96.34 - 20.21' RT	1+06.36 - 27.05' RT	33
3+23.95 - 3.42' RT	3+29.50 - 7.79' RT	20
3+94.39 - 3.96' LT	3+99.77 - 0.64' RT	20
5+23.38 - 5.85' RT	5+28.23 - 0.70' RT	20
6+20.82 - 14.98' LT	13+75.27 - 29.93' LT	790
13+97.38 - 4.70' LT	14+09.10 - 15.12' LT	24
14+69.46 - 12.00' LT	17+22.91 - 12.00' LT	254
17+33.80 - 12.00' LT	20+01.52 - 12.00' LT	268
20+19.85 - 12.00' LT	34+05.83 - 39.92' LT	1423
22+08.08 - 65.59' RT	22+13.17 - 70.50' RT	20
34+29.37 - 12.00' LT	38+99.44 - 12.00' LT	471
39+14.87 - 12.00' LT	41+43.24 - 12.00' LT	228
41+58.27 - 12.00' LT	42+94.48 - 12.00' LT	149
TOTAL		3805

REMOVE CONCRETE CURB & GUTTER		
FROM STA.	TO STA.	QUANTITY (FT)
0+17.81 - 7.08' LT	0+22.94 - 6.00' RT	15
0+63.30 - 6.00' RT	0+67.91 - 6.75' LT	14
68+13.37 - 26.77' RT	70+73.63 - 26.18' RT	260
TOTAL		289

REMOVE CONCRETE PAVEMENT		
FROM STA.	TO STA.	QUANTITY (SQYD)
0+05.86 - 8.19' LT	0+20.90 - 2.70' LT	10.0
0+63.30 - 6.00' RT	0+79.72 - 7.96' LT	14.0
70+33.42 - 29.46' RT	70+66.19 - 29.39' RT	12.0
70+73.63 - 26.18' RT	70+94.28 - 45.79' RT	21.0
TOTAL		57.0



PLANS BY:



SUMMARY OF QUANTITIES FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016-02	E.2	E.3

REMOVE ASPHALT CONCRETE PAVEMENT		
FROM STA.	TO STA.	QUANTITY (SQYD)
0+22.92 - 6.00' RT	0+67.89 - 6.00' LT	58.0
3+37.64 - 6.00' RT	3+82.66 - 6.00' LT	60.0
5+42.74 - 6.00' LT	5+86.64 - 6.00' RT	61.0
38+99.37 - 6.00' LT	39+16.12 - 6.00' RT	22.0
41+41.46 - 6.00' LT	41+62.55 - 6.00' RT	29.0
68+12.99 - 21.99' RT	71+01.99 - 47.55' RT	376.0
TOTAL		606.0

REMOVE WATER MAIN (INCIDENTAL)		
STA. FROM	STA. TO	QUANTITY (FT)
0+00.00 - 0.00'	0+75.89 - 9.05' RT	76
26+34.54 - 9.03' LT	26+35.25 - 9.53' RT	12
43+77.35 - 14.03' RT	43+76.34 - 9.05' LT	23
TOTAL		111

RECONSTRUCT MANHOLE		
STATION	QUANTITY (EACH)	
46+00.00 - 0.00'	1	
50+63.51 - 0.00'	1	
54+81.32 - 0.00'	1	
56+75.86 - 0.00'	1	
60+50.11 - 0.00'	1	
TOTAL		5

CONNECT TO EXISTING WATER MAIN		
STATION	QUANTITY (EACH)	
0+00.00 - 0.00'	1	
0+75.92 - 8.99' RT	1	
26+34.58 - 9.03' LT	1	
26+35.10 - 9.54' RT	1	
43+76.25 - 9.05' LT	1	
43+77.28 - 14.03' RT	1	
TOTAL		6

6" GATE VALVE WITH BOX		
STATION	QUANTITY (EACH)	
0+75.83 - 5.00' RT	1	
5+18.71 - 16.61' RT	1	
22+34.14 - 81.20' RT	1	
33+99.09 - 5.14' LT	1	
37+61.32 - 4.34' LT	1	
43+65.93 - 4.98' LT	1	
TOTAL		6

12" GATE VALVE WITH BOX		
STATION	QUANTITY (EACH)	
0+05.00 - 0.00'	1	
0+81.50 - 0.00'	1	
5+23.71 - 0.00'	1	
22+29.19 - 86.32' RT	1	
22+29.21 - 3.03' RT	1	
22+34.19 - 0.00'	1	
26+39.89 - 0.00'	1	
34+04.38 - 0.00'	1	
37+66.35 - 0.00'	1	
43+70.98 - 0.00'	1	
43+76.34 - 4.96' LT	1	
TOTAL		11

10" GATE VALVE WITH BOX		
STATION	QUANTITY (EACH)	
26+34.69 - 5.00' LT	1	
26+35.10 - 5.50' RT	1	
TOTAL		2

8" GATE VALVE WITH BOX		
STATION	QUANTITY (EACH)	
43+77.05 - 10.04' RT	1	
TOTAL		1

TYPE I DETECTABLE WARNINGS		
FROM STA.	TO STA.	QUANTITY (SQFT)
0+12.06 - 8.76' LT	0+17.02 - 6.66' LT	10.0
0+70.13 - 4.65' LT	0+72.67 - 9.40' LT	10.0
70+94.02 - 37.77' RT	70+96.25 - 42.68' RT	10.0
TOTAL		30.0

12" PIPE BEND		
STATION	QUANTITY (EACH)	
6+24.59 - 0.00'	1	
42+94.48 - 0.00'	1	
TOTAL		2

STANDARD FIRE HYDRANT		
STATION	QUANTITY (EACH)	
5+18.92 - 53.86' RT	1	
22+44.14 - 81.10' RT	1	
33+99.20 - 16.48' LT	1	
37+61.33 - 9.57' LT	1	
43+65.80 - 17.32' LT	1	
TOTAL		5

12" X 12" PIPE TEE		
STATION	QUANTITY (EACH)	
5+18.71 - 0.00'	1	
22+29.19 - 0.00'	1	
43+76.48 - 0.03' RT	1	
TOTAL		3

12" X 6" PIPE TEE		
STATION	QUANTITY (EACH)	
0+75.80 - 0.00'	1	
22+29.14 - 81.25' RT	1	
33+99.38 - 0.00'	1	
37+61.35 - 0.00'	1	
43+65.99 - 0.00'	1	
TOTAL		5

12" X 10" PIPE CROSS		
STATION	QUANTITY (EACH)	
26+34.89 - 0.00'	1	
TOTAL		1

12" X 8" PIPE REDUCER		
STATION	QUANTITY (EACH)	
43+76.77 - 5.03' RT	1	
TOTAL		1

12" PIPE PLUG		
STATION	QUANTITY (EACH)	
22+29.19 - 103.23' RT	1	
TOTAL		1

10" PVC WATER MAIN		
FROM STA.	TO STA.	QUANTITY (FT)
26+34.69 - 5.00' LT	26+34.58 - 9.03' LT	4
26+34.89 - 0.00'	26+34.69 - 5.00' LT	5
26+34.89 - 0.00'	26+35.10 - 5.50' RT	5
26+35.10 - 5.50' RT	26+35.10 - 9.54' RT	4
TOTAL		18

8" PVC WATER MAIN		
FROM STA.	TO STA.	QUANTITY (FT)
43+76.77 - 5.03' RT	43+77.05 - 10.04' RT	5
43+77.05 - 10.04' RT	43+77.28 - 14.03' RT	4
TOTAL		9



PLANS BY:



SUMMARY OF QUANTITIES FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET E.3	TOTAL SHEETS E.3
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4" CONCRETE SIDEWALK		
FROM STA.	TO STA.	QUANTITY (SQFT)
0+05.86 - 8.19' LT	0+20.88 - 2.74' LT	90.0
0+63.30 - 6.00' RT	0+79.42 - 7.96' LT	122.2
68+14.65 - 32.55' RT	70+91.33 - 47.73' RT	1492.0
TOTAL		1704.2

TYPE B66 CURB & GUTTER		
FROM STA.	TO STA.	QUANTITY (FT)
0+17.81 - 7.08' LT	0+22.94 - 6.00' RT	15
0+63.30 - 6.00' RT	0+67.91 - 6.75' LT	14
68+13.00 - 25.07' RT	70+73.90 - 18.22' RT	262
70+96.12 - 40.2' RT	70+96.33 - 47.65' RT	8
TOTAL		299

6" PVC WATER MAIN		
FROM STA.	TO STA.	QUANTITY (FT)
0+75.80 - 0.00'	0+75.83 - 5.00' RT	5
0+75.83 - 5.00' RT	0+75.92 - 8.99' RT	4
5+18.71 - 16.41' RT	5+18.92 - 53.86' RT	37
22+29.14 - 81.25' RT	22+34.14 - 81.20' RT	5
22+34.14 - 81.20' RT	22+44.14 - 81.10' RT	10
33+99.09 - 5.14' LT	33+99.20 - 16.48' LT	12
33+99.09 - 5.14' LT	33+99.38 - 0.00'	5
37+61.32 - 4.34' LT	37+61.35 - 0.00'	4
37+61.32 - 4.34' LT	37+61.33 - 9.57' LT	5
43+65.80 - 17.32' LT	43+65.93 - 4.98' LT	12
43+65.93 - 4.98' LT	43+65.99 - 0.00'	5
TOTAL		104

ASPHALT CONCRETE COMPOSITE		
FROM STA.	TO STA.	QUANTITY (TON)
0+22.92 - 6.00' RT	0+67.89 - 6.00' LT	20.4
3+37.64 - 6.00' RT	3+82.66 - 6.00' LT	14
5+42.74 - 6.00' LT	5+86.64 - 6.00' RT	20.3
38+99.37 - 6.00' LT	39+16.12 - 6.00' RT	5.1
41+41.46 - 6.00' LT	41+62.55 - 6.00' RT	6.8
68+12.99 - 21.99' RT	70+97.35 - 21.36' RT	28.1
70+98.98 - 47.60' RT	71+01.65 - 27.19' RT	2.4
TOTAL		97.1

BASE COURSE		
FROM STA.	TO STA.	QUANTITY (TON)
0+05.86 - 8.19' LT	0+20.88 - 2.74' LT	2
0+17.81 - 7.08' LT	0+22.94 - 5.03' RT	2.1
0+22.92 - 6.00' RT	0+67.89 - 6.00' LT	27.2
0+63.30 - 6.00' RT	0+67.91 - 6.75' LT	1.4
0+63.30 - 6.00' RT	0+79.42 - 7.96' LT	1.6
3+37.64 - 6.00' RT	3+82.66 - 6.00' LT	21.0
5+42.74 - 6.00' LT	5+86.64 - 6.00' RT	27.0
17+23.00 - 6.00' LT	17+33.02 - 6.00' RT	5.1
20+01.26 - 6.00' LT	20+20.14 - 6.00' RT	8.9
38+99.37 - 6.00' LT	39+16.12 - 6.00' RT	7.6
41+41.46 - 6.00' LT	41+62.55 - 6.00' RT	10.2
68+12.99 - 21.99' RT	70+97.35 - 21.36' RT	33.7
67+86.48 - 37.02' RT	70+73.90 - 18.22' RT	37.2
67+86.48 - 37.02' RT	70+91.33 - 47.73' RT	19.3
70+73.90 - 18.22' RT	70+98.86 - 40.14' RT	7.8
70+96.12 - 40.21' RT	70+96.33 - 47.65' RT	1.1
70+98.98 - 47.60' RT	71+01.65 - 27.19' RT	3.2
TOTAL		216.4

PIPE ENCASEMENT		
FROM STA.	TO STA.	QUANTITY (EACH)
8+71.05 - 0.00'	8+91.71 - 0.00'	1
10+91.96 - 0.00'	11+44.24 - 0.00'	1
19+96.71 - 0.00'	20+17.38 - 0.00'	1
TOTAL		3

REMOVE PIPE CULVERT (INCIDENTAL)		
STA. FROM	STA. TO	QUANTITY (FT)
3+26.32 - 2.60' RT	3+95.64 - 2.09' LT	70
TOTAL		70

RESET PIPE (INCIDENTAL)		
STA. FROM	STA. TO	QUANTITY (FT)
3+26.32 - 2.60' RT	3+95.64 - 2.09' LT	70
TOTAL		70

24" PVC ENCASEMENT PIPE		
STA. FROM	STA. TO	QUANTITY (FT)
5+27.75 - 0.00'	6+19.75 - 0.00'	92
TOTAL		92

24" STEEL PIPE, FURNISH		
STA. FROM	STA. TO	QUANTITY (FT)
13+95.30 - 0.00'	14+79.30 - 0.00'	84
22+29.20 - 4.58' RT	22+29.20 - 59.01' RT	54
42+98.56 - 0.00'	43+51.42 - 0.00'	53
TOTAL		191

12" PVC WATER MAIN		
FROM STA.	TO STA.	QUANTITY (FT)
0+00.00 - 0.00'	0+05.00 - 0.00'	5
0+05.00 - 0.00'	0+75.80 - 0.00'	71
0+75.80 - 0.00'	0+81.50 - 0.00'	6
0+81.50 - 0.00'	5+18.71 - 0.00'	437
5+18.71 - 0.00'	5+23.71 - 0.00'	5
5+23.71 - 0.00'	6+20.81 - 0.00'	97
6+20.81 - 0.00'	22+29.14 - 0.00'	1608
22+29.14 - 81.25' RT	22+29.19 - 86.32' RT	5
22+29.19 - 0.00'	22+29.21 - 3.03' RT	3
22+29.19 - 0.00'	22+34.19 - 0.00'	5
22+29.19 - 86.32' RT	22+29.19 - 103.23' RT	17
22+29.21 - 3.03' RT	22+29.14 - 81.25' RT	78
22+34.19 - 0.00'	26+34.89 - 0.00'	401
26+34.89 - 0.00'	26+39.89 - 0.00'	5
26+39.89 - 0.00'	33+99.38 - 0.00'	759
33+99.38 - 0.00'	34+04.38 - 0.00'	5
34+04.38 - 0.00'	37+61.35 - 0.00'	357
37+61.35 - 0.00'	37+66.35 - 0.00'	5
37+66.35 - 0.01' LT	42+94.48 - 0.00'	528
42+94.48 - 0.00'	43+65.99 - 0.00'	72
43+65.99 - 0.00'	43+70.98 - 0.00'	5
43+70.98 - 0.00'	43+76.48 - 0.03' RT	5
43+76.25 - 9.05' LT	43+76.34 - 4.96' LT	4
43+76.48 - 0.03' RT	43+76.34 - 4.96' LT	5
43+76.48 - 0.03' RT	43+76.77 - 5.03' RT	5
TOTAL		4493

BORE AND JACK 24" PIPE		
STA. FROM	STA. TO	QUANTITY (FT)
13+95.30 - 0.00'	14+79.30 - 0.00'	84
22+29.20 - 4.58' RT	22+29.20 - 59.01' RT	54
42+98.56 - 0.00'	43+51.42 - 0.00'	53
TOTAL		191

12" X 6" PIPE REDUCER	
STATION	QUANTITY (EACH)
5+18.71 - 8.23' RT	1
TOTAL	1

6" PCC FILLET SECTION		
STA. FROM	STA. TO	QUANTITY (SQYD)
70+73.90 - 18.22' RT	70+98.86 - 40.14' RT	22.4
TOTAL		22.4

SPECIAL TYPE "C" CONCRETE RETAINING WALL		
STA. FROM	STA. TO	QUANTITY (SQFT)
68+14.65 - 32.55' RT	68+42.98 - 27.49' RT	57.4
TOTAL		57.4

STEEL PEDESTRIAN RAILING ON SIDEWALK		
STA. FROM	STA. TO	QUANTITY (FT)
68+14.65 - 32.55' RT	68+42.98 - 27.49' RT	28.7
TOTAL		28.7



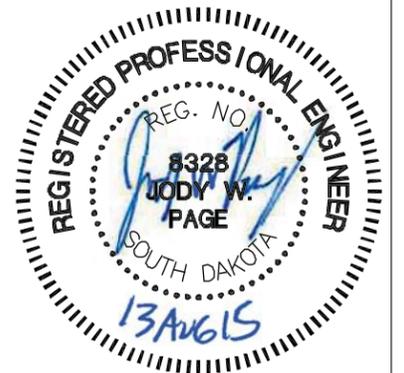
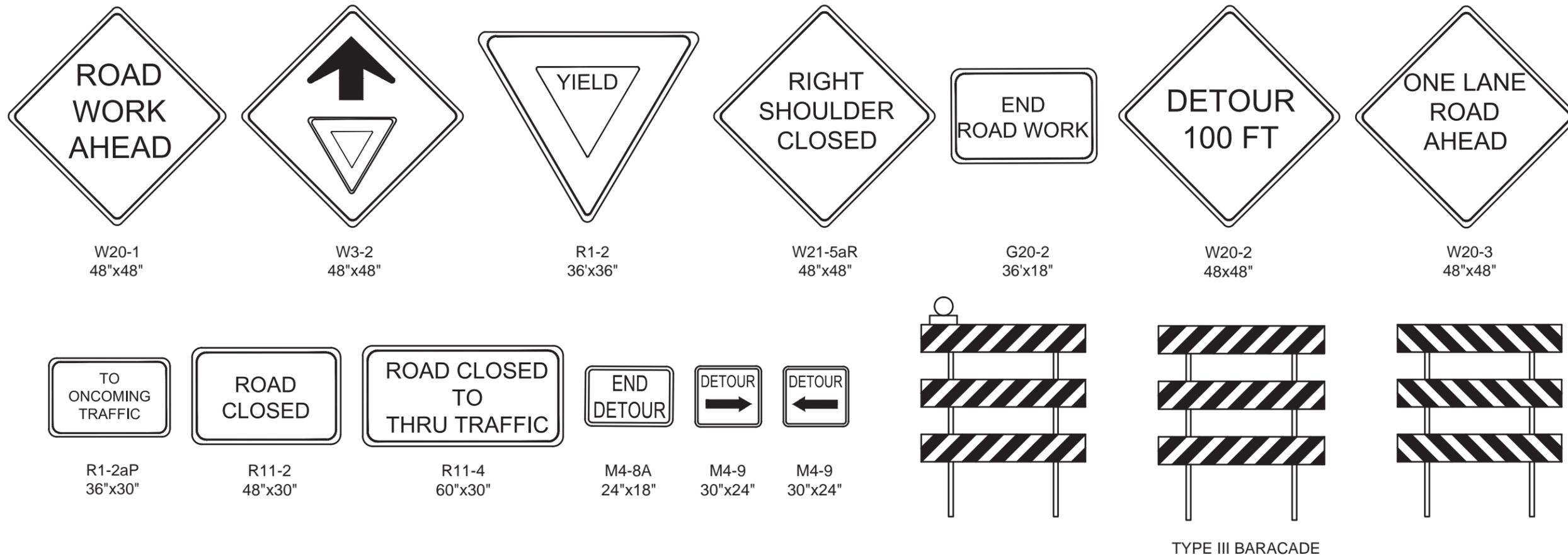
PLANS BY:



TRAFFIC CONTROL SIGN SUMMARY FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET F.1	TOTAL SHEETS F.4
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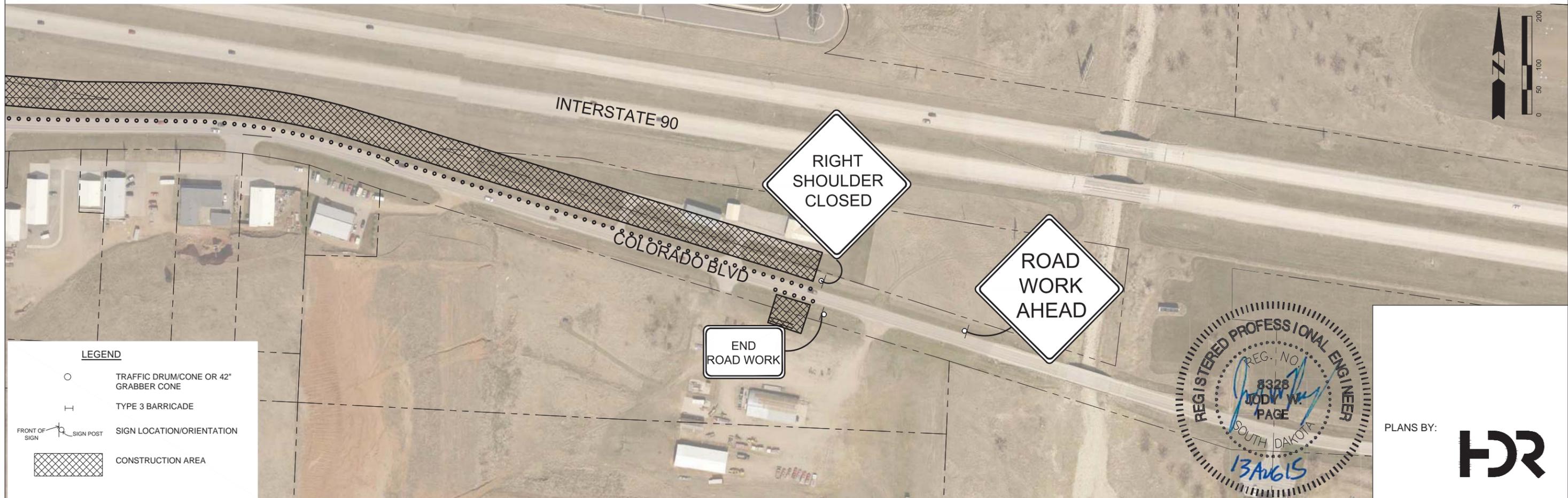
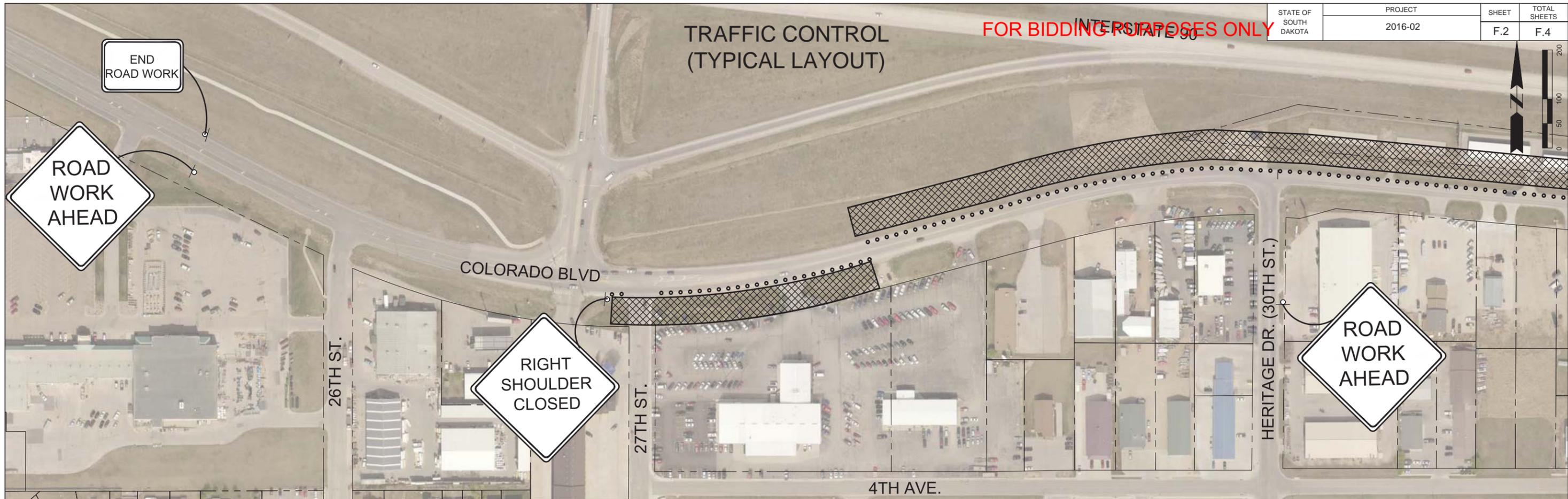
TABLE FOR TRAFFIC CONTROL SIGNING											
Sign Description	Sign Code	Width (in)	Height (in)	SqFt per Sign	Layout 1		Layout 2 (Watermain Crossings)		Layout 3 (27th Street Crossing)		Total SqFt Required
					No. of Signs	SqFt	No. of Signs	SqFt	No. of Signs	SqFt	
ROAD WORK AHEAD	W20-1	48	48	16	3	48			2	32	80
END ROAD WORK	G20-2	36	18	5	2	10					10
RIGHT SHOULDER CLOSED	W21-5aR	48	48	16	2	32					32
ONE LANE ROAD AHEAD	W20-3	48	48	16			2	32			32
YIELD AHEAD	W3-2	48	48	16			1	16			16
YIELD	R1-2	36	36	9			1	9			9
TO ONCOMING TRAFFIC	R1-2aP	36	30	8			1	8			8
ROAD CLOSED	R11-2	48	30	10					2	20	20
ROAD CLOSED TO THRU TRAFFIC	R11-4	60	30	13					1	13	13
DETOUR AHEAD	W20-2	48	48	16					2	32	32
DETOUR LEFT	M4-9	30	24	5					1	5	5
DETOUR RIGHT	M4-9	30	24	5					2	10	10
END DETOUR	M4-8A	24	18	3					2	6	6
Totals for Each Layout					7	90	5	65	12	118	
Total SqFt Required											273



PLANS BY: 

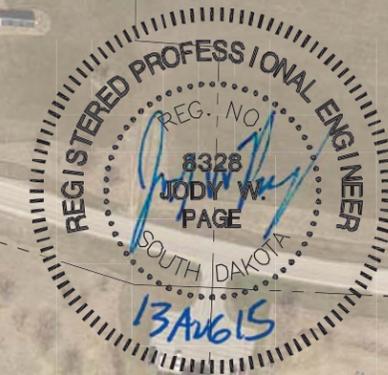
FOR BIDDING PURPOSES ONLY

TRAFFIC CONTROL
(TYPICAL LAYOUT)



LEGEND

- TRAFFIC DRUM/CONE OR 42" GRABBER CONE
- H TYPE 3 BARRICADE
- FRONT OF SIGN — SIGN POST SIGN LOCATION/ORIENTATION
- ▨ CONSTRUCTION AREA



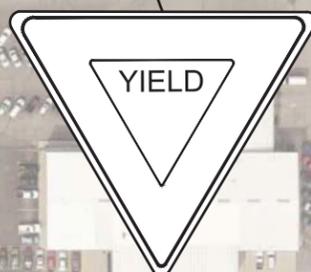
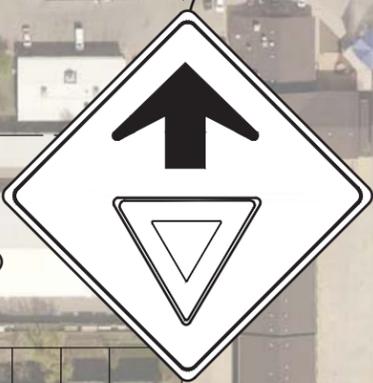
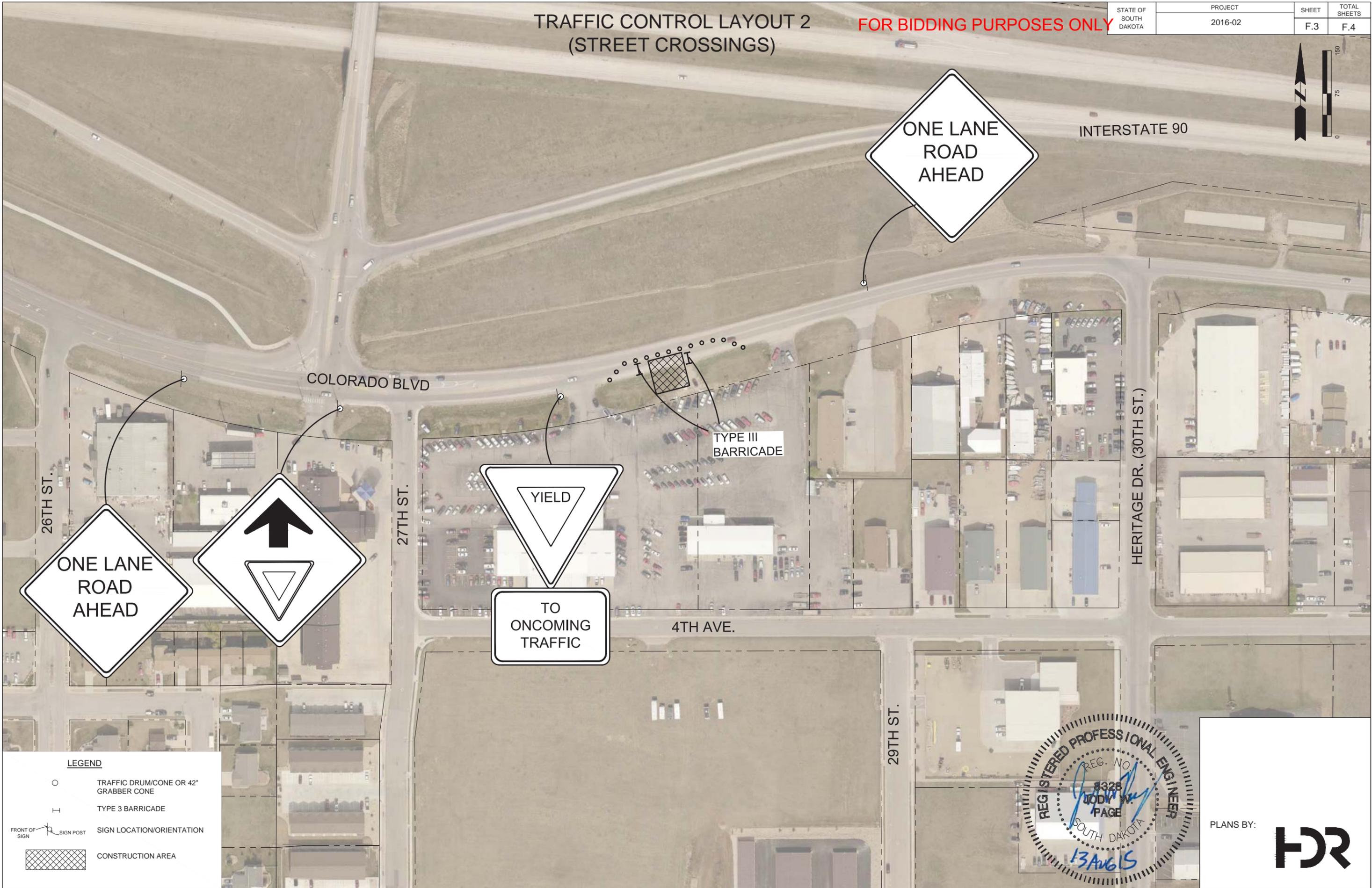
PLANS BY:



TRAFFIC CONTROL LAYOUT 2
(STREET CROSSINGS)

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET F.3	TOTAL SHEETS F.4
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TYPE III BARRICADE

LEGEND

-  TRAFFIC DRUM/CONE OR 42" GRABBER CONE
-  TYPE 3 BARRICADE
-  SIGN LOCATION/ORIENTATION
-  CONSTRUCTION AREA



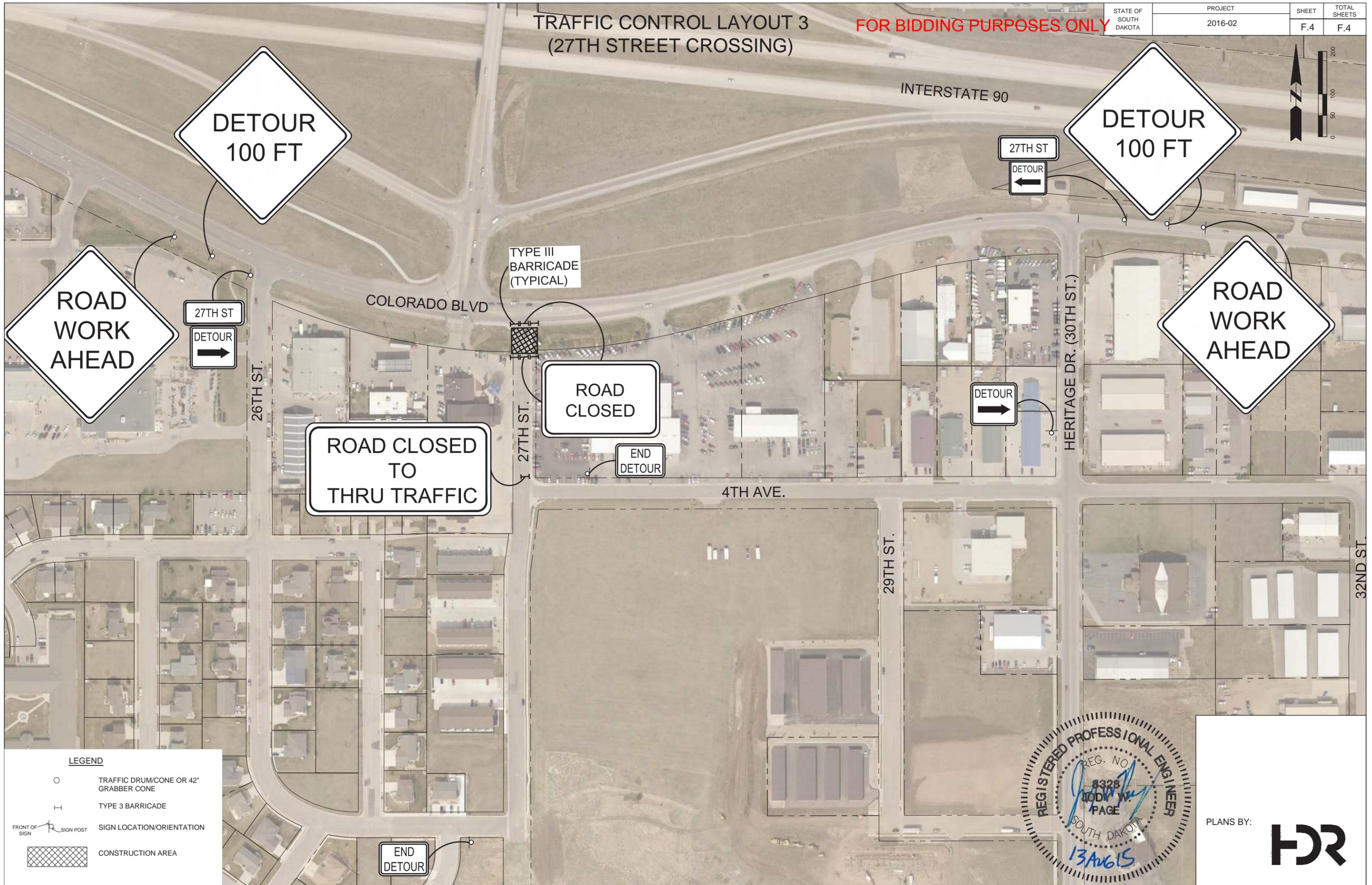
PLANS BY:



TRAFFIC CONTROL LAYOUT 3
(27TH STREET CROSSING)

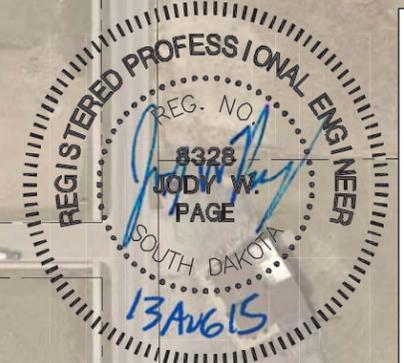
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET F.4	TOTAL SHEETS F.4
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LEGEND

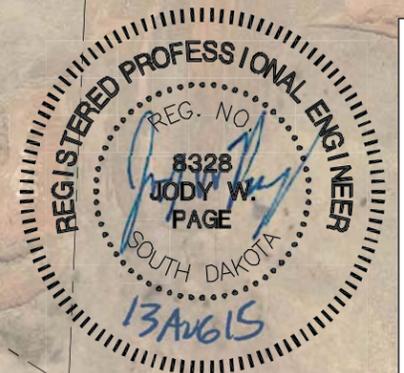
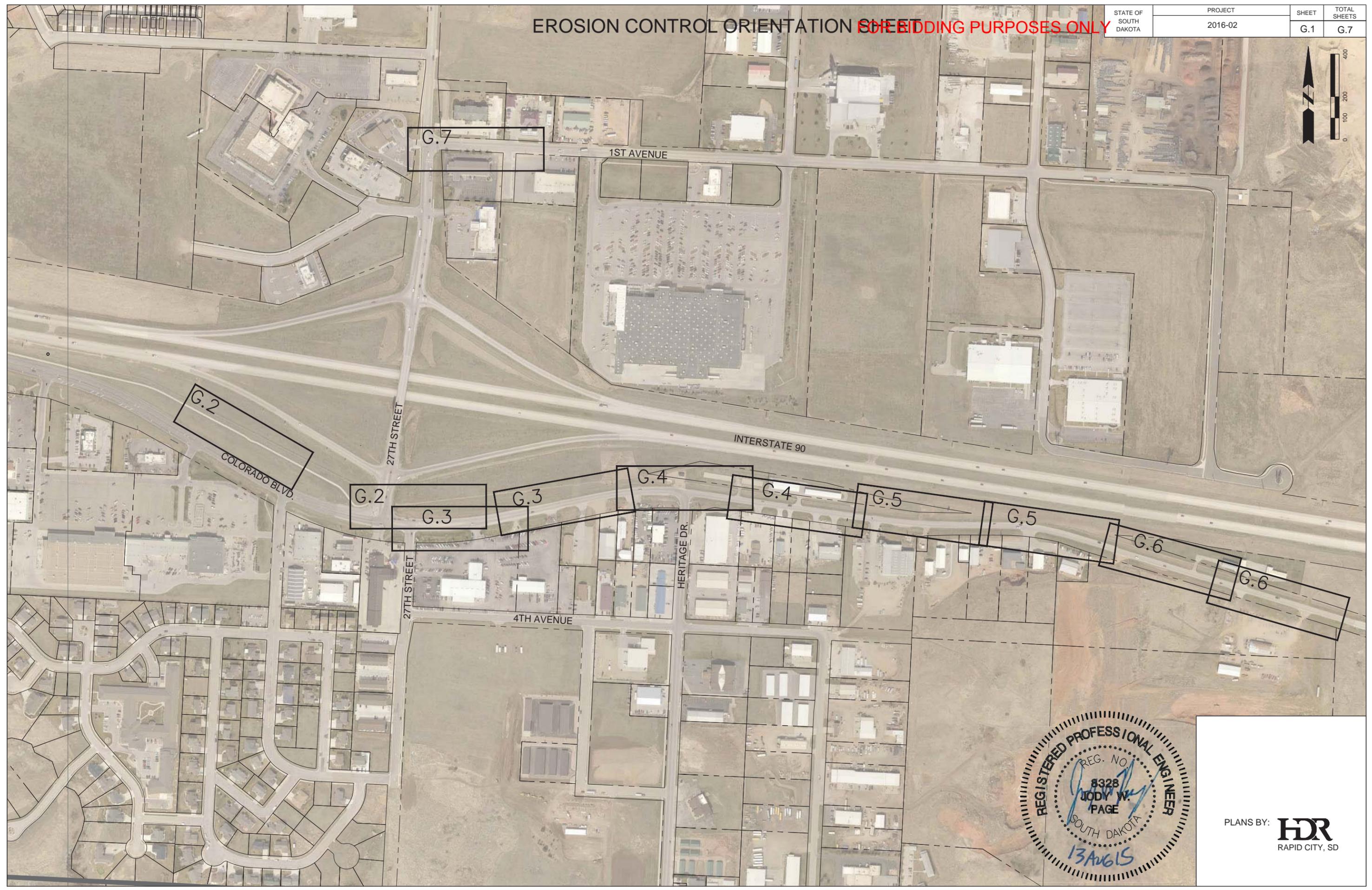
- TRAFFIC DRUM/CONE OR 42" GRABBER CONE
- TYPE 3 BARRICADE
- SIGN LOCATION/ORIENTATION
- CONSTRUCTION AREA



PLANS BY:

EROSION CONTROL ORIENTATION SHEET FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET G.1	TOTAL SHEETS G.7
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PLANS BY: **HDR**
RAPID CITY, SD

LEGEND

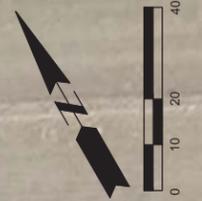
-  SEEDING
-  WTT 9" DIAMETER EROSION CONTROL WATTLE
-  R.O.W./ PROPERTY LINE
-  INLET PROTECTION

EROSION CONTROL

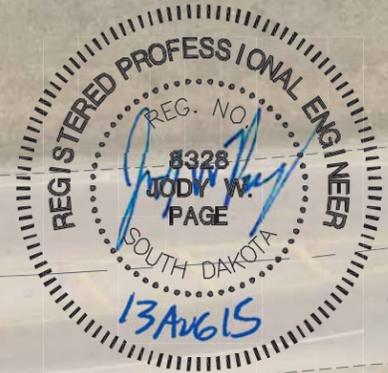
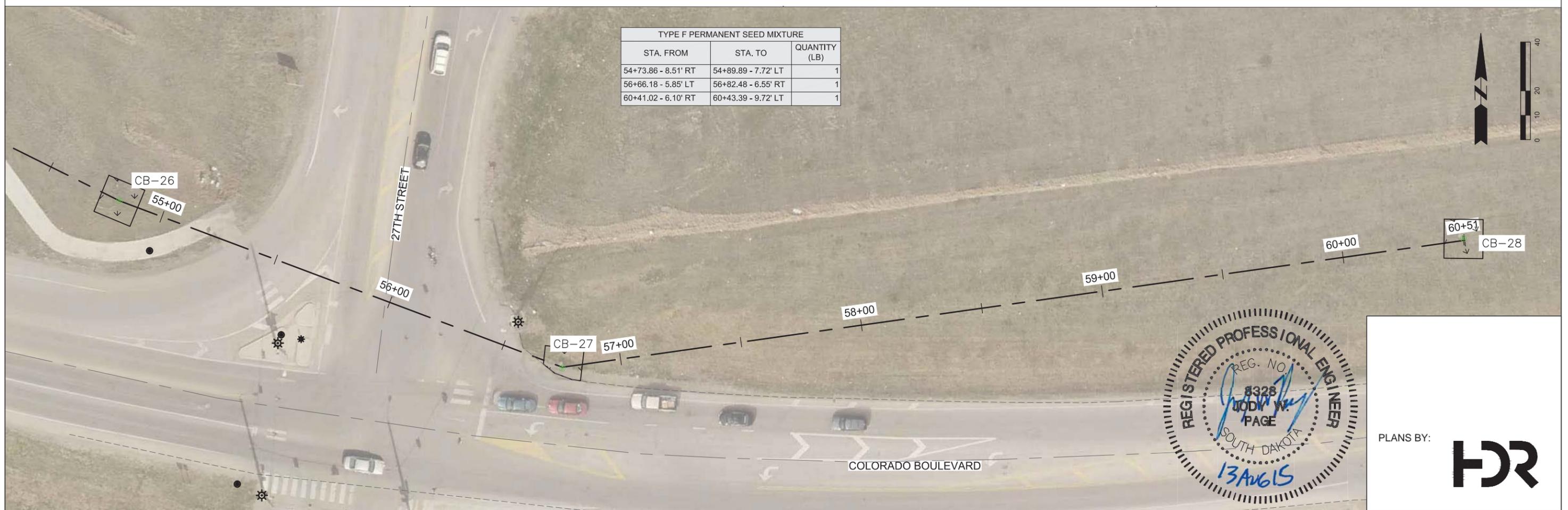
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016-02	G.2	G.7

TYPE F PERMANENT SEED MIXTURE		
STA. FROM	STA. TO	QUANTITY (LB)
46+08.19 - 7.80' RT	46+08.63 - 8.19' LT	1
50+55.59 - 8.11' RT	50+71.55 - 7.93' LT	1



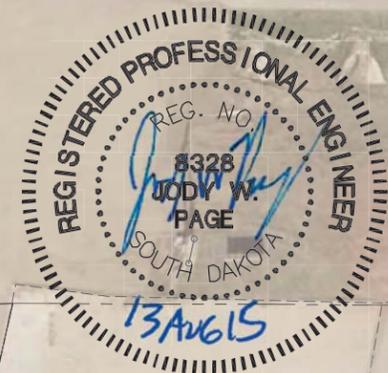
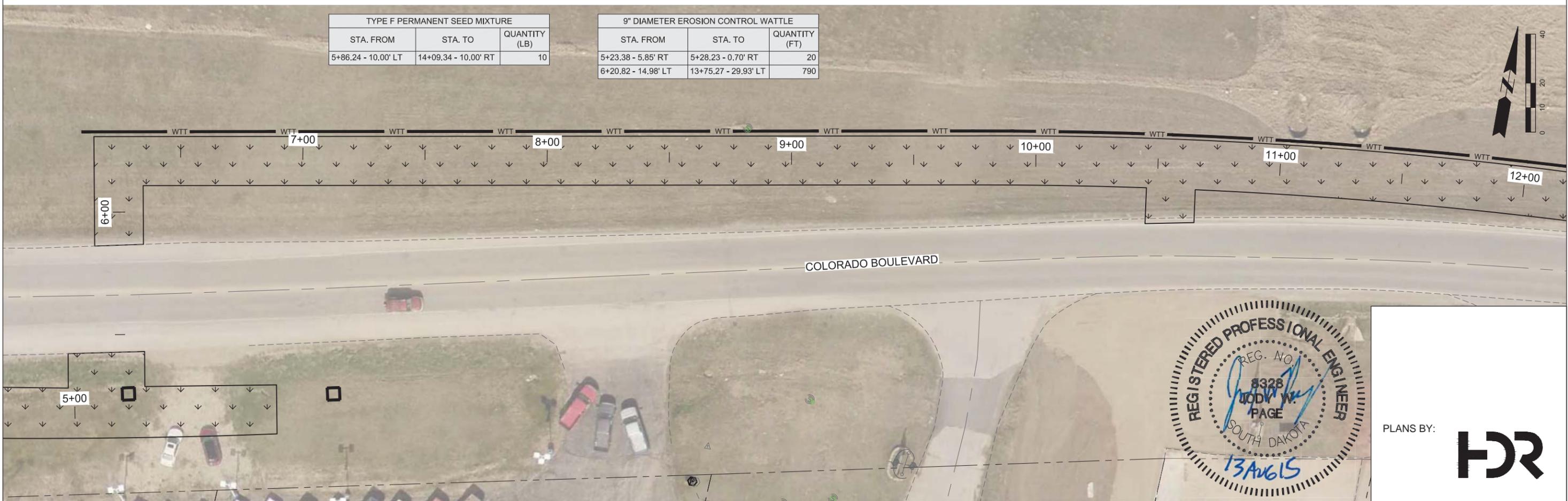
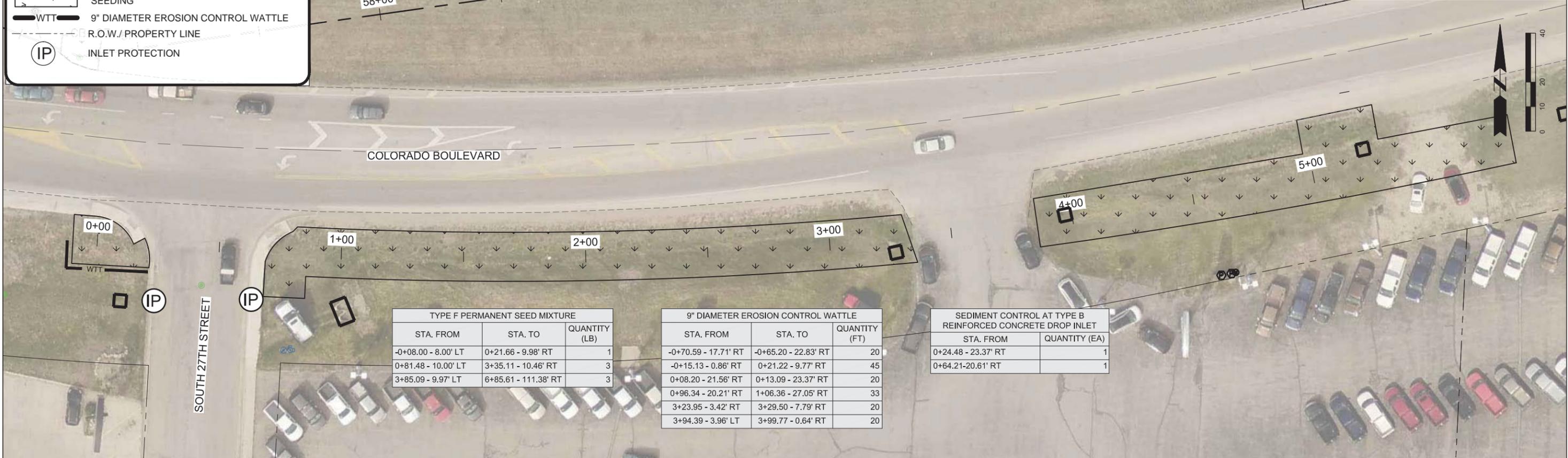
TYPE F PERMANENT SEED MIXTURE		
STA. FROM	STA. TO	QUANTITY (LB)
54+73.86 - 8.51' RT	54+89.89 - 7.72' LT	1
56+66.18 - 5.85' LT	56+82.48 - 6.55' RT	1
60+41.02 - 6.10' RT	60+43.39 - 9.72' LT	1



PLANS BY: 

LEGEND

- SEEDING
- WTT 9" DIAMETER EROSION CONTROL WATTLE
- R.O.W./PROPERTY LINE
- IP INLET PROTECTION



PLANS BY: **HDR**

LEGEND

-  SEEDING
-  9" DIAMETER EROSION CONTROL WATTLE
-  R.O.W./ PROPERTY LINE
-  INLET PROTECTION

EROSION CONTROL

FOR BIDDING PURPOSES ONLY

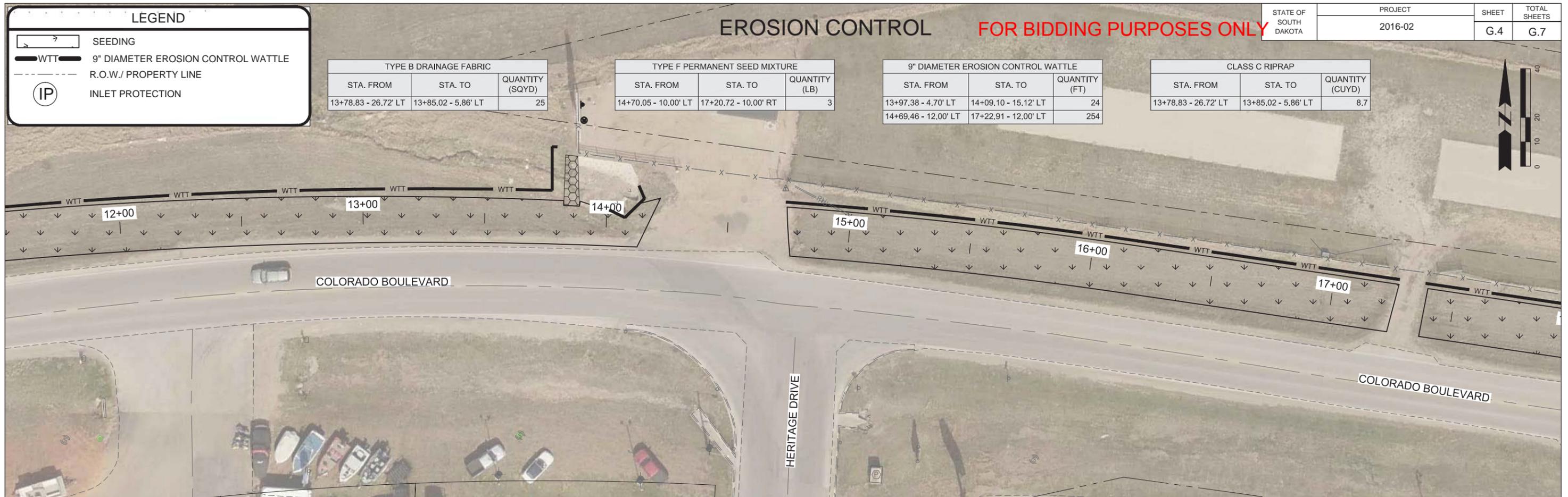
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016-02	G.4	G.7

TYPE B DRAINAGE FABRIC		
STA. FROM	STA. TO	QUANTITY (SQYD)
13+78.83 - 26.72' LT	13+85.02 - 5.86' LT	25

TYPE F PERMANENT SEED MIXTURE		
STA. FROM	STA. TO	QUANTITY (LB)
14+70.05 - 10.00' LT	17+20.72 - 10.00' RT	3

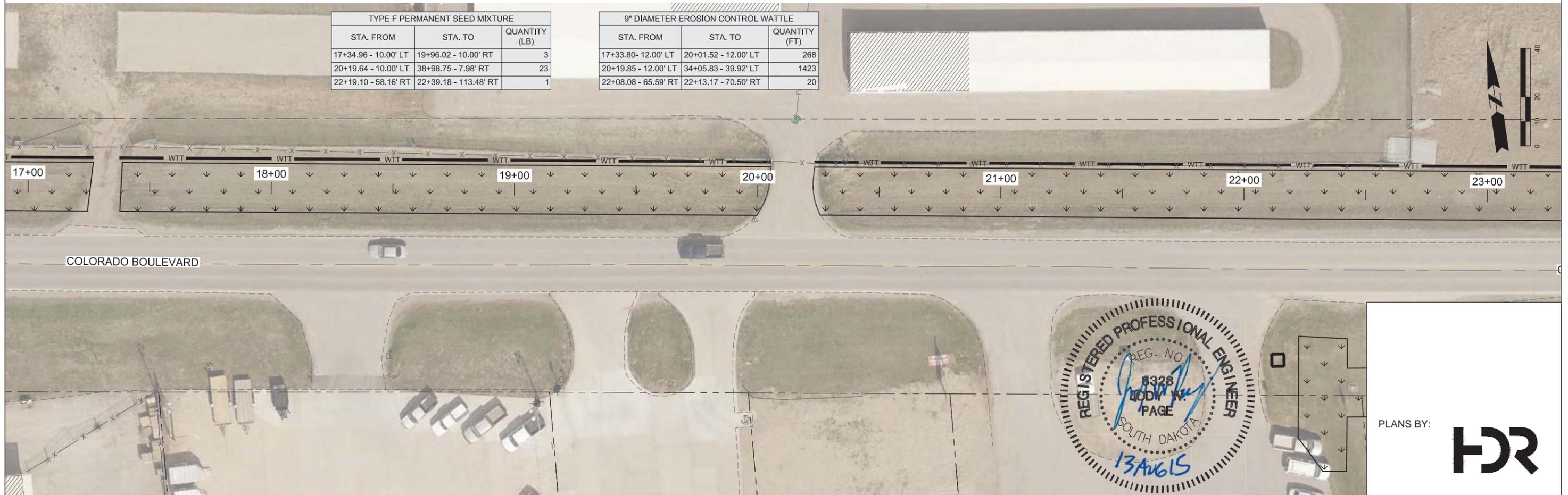
9" DIAMETER EROSION CONTROL WATTLE		
STA. FROM	STA. TO	QUANTITY (FT)
13+97.38 - 4.70' LT	14+09.10 - 15.12' LT	24
14+69.46 - 12.00' LT	17+22.91 - 12.00' LT	254

CLASS C RIPRAP		
STA. FROM	STA. TO	QUANTITY (CUYD)
13+78.83 - 26.72' LT	13+85.02 - 5.86' LT	8.7



TYPE F PERMANENT SEED MIXTURE		
STA. FROM	STA. TO	QUANTITY (LB)
17+34.96 - 10.00' LT	19+96.02 - 10.00' RT	3
20+19.64 - 10.00' LT	38+98.75 - 7.98' RT	23
22+19.10 - 58.16' RT	22+39.18 - 113.48' RT	1

9" DIAMETER EROSION CONTROL WATTLE		
STA. FROM	STA. TO	QUANTITY (FT)
17+33.80 - 12.00' LT	20+01.52 - 12.00' LT	268
20+19.85 - 12.00' LT	34+05.83 - 39.92' LT	1423
22+08.08 - 65.59' RT	22+13.17 - 70.50' RT	20



PLANS BY:



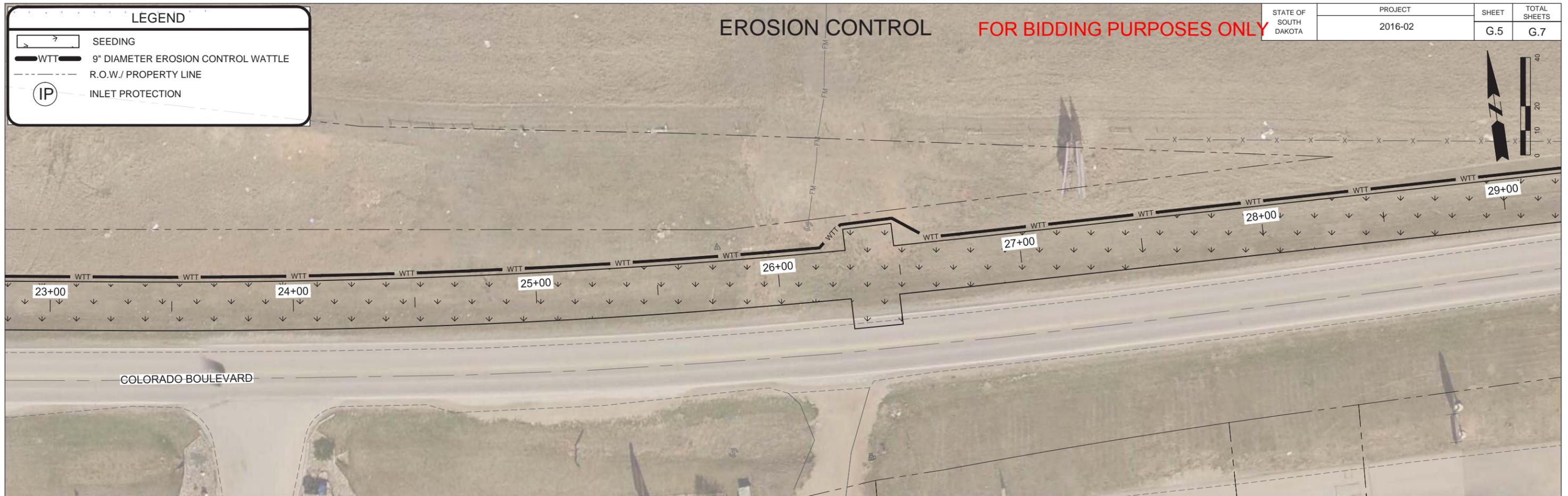
LEGEND

-  SEEDING
-  WTT 9" DIAMETER EROSION CONTROL WATTLE
-  R.O.W./ PROPERTY LINE
-  INLET PROTECTION

EROSION CONTROL

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET G.5	TOTAL SHEETS G.7
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9" DIAMETER EROSION CONTROL WATTLE		
STA. FROM	STA. TO	QUANTITY (FT)
34+29.37 - 12.00' LT	38+99.44 - 12.00' LT	471



PLANS BY: **HR**

LEGEND

-  SEEDING
-  9" DIAMETER EROSION CONTROL WATTLE
-  R.O.W./ PROPERTY LINE
-  INLET PROTECTION

EROSION CONTROL

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016-02	G.6	G.7

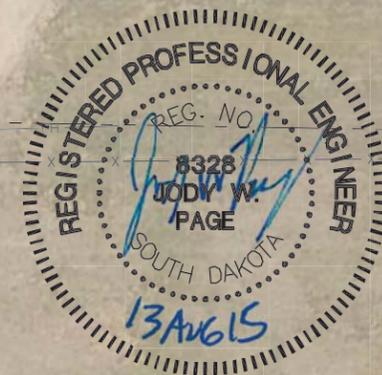
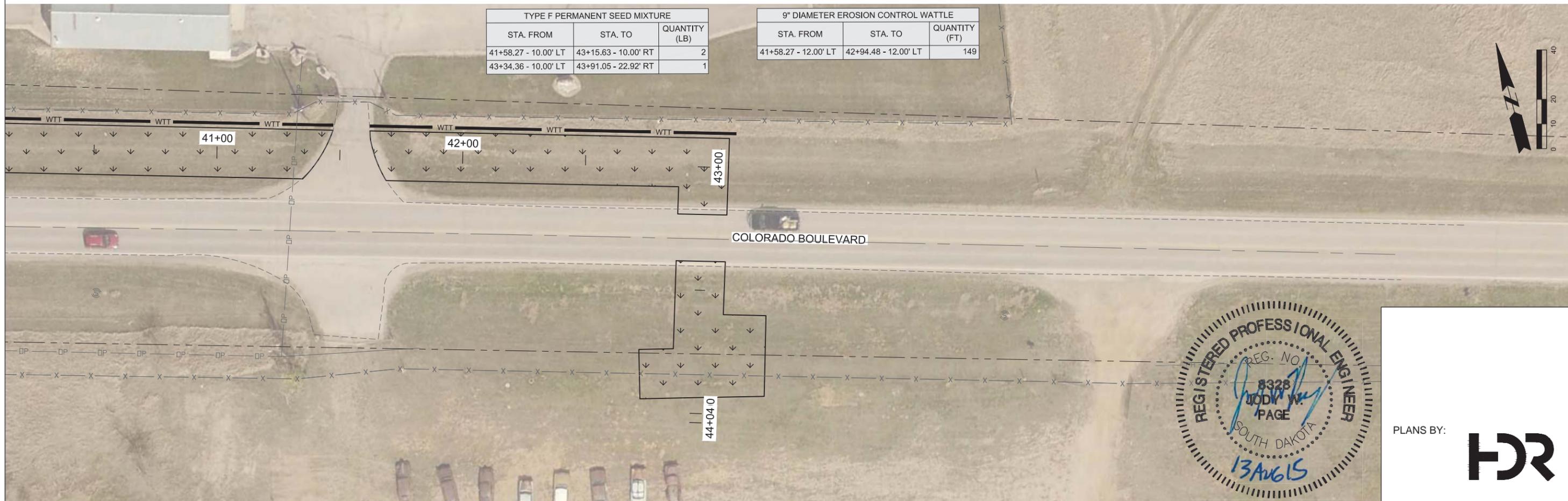
TYPE F PERMANENT SEED MIXTURE		
STA. FROM	STA. TO	QUANTITY (LB)
39+14.79 - 10.00' LT	41+31.38 - 10.00' RT	3

9" DIAMETER EROSION CONTROL WATTLE		
STA. FROM	STA. TO	QUANTITY (FT)
39+14.87 - 12.00' LT	41+43.24 - 12.00' LT	228



TYPE F PERMANENT SEED MIXTURE		
STA. FROM	STA. TO	QUANTITY (LB)
41+58.27 - 10.00' LT	43+15.63 - 10.00' RT	2
43+34.36 - 10.00' LT	43+91.05 - 22.92' RT	1

9" DIAMETER EROSION CONTROL WATTLE		
STA. FROM	STA. TO	QUANTITY (FT)
41+58.27 - 12.00' LT	42+94.48 - 12.00' LT	149



PLANS BY:



LEGEND

-  SEEDING
-  9" DIAMETER EROSION CONTROL WATTLE
-  R.O.W./ PROPERTY LINE
-  INLET PROTECTION

EROSION CONTROL

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET G.7	TOTAL SHEETS G.7
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TYPE F PERMANENT SEED MIXTURE		
STA. FROM	STA. TO	QUANTITY (LB)
68+14.65 - 32.55' RT	70+39.70 - 28.57' RT	1

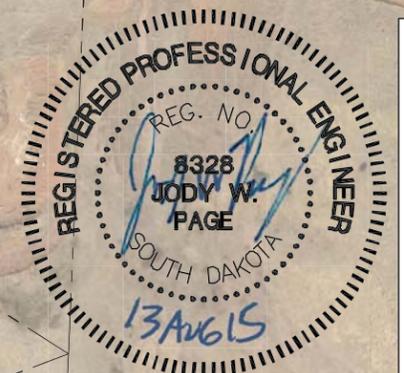
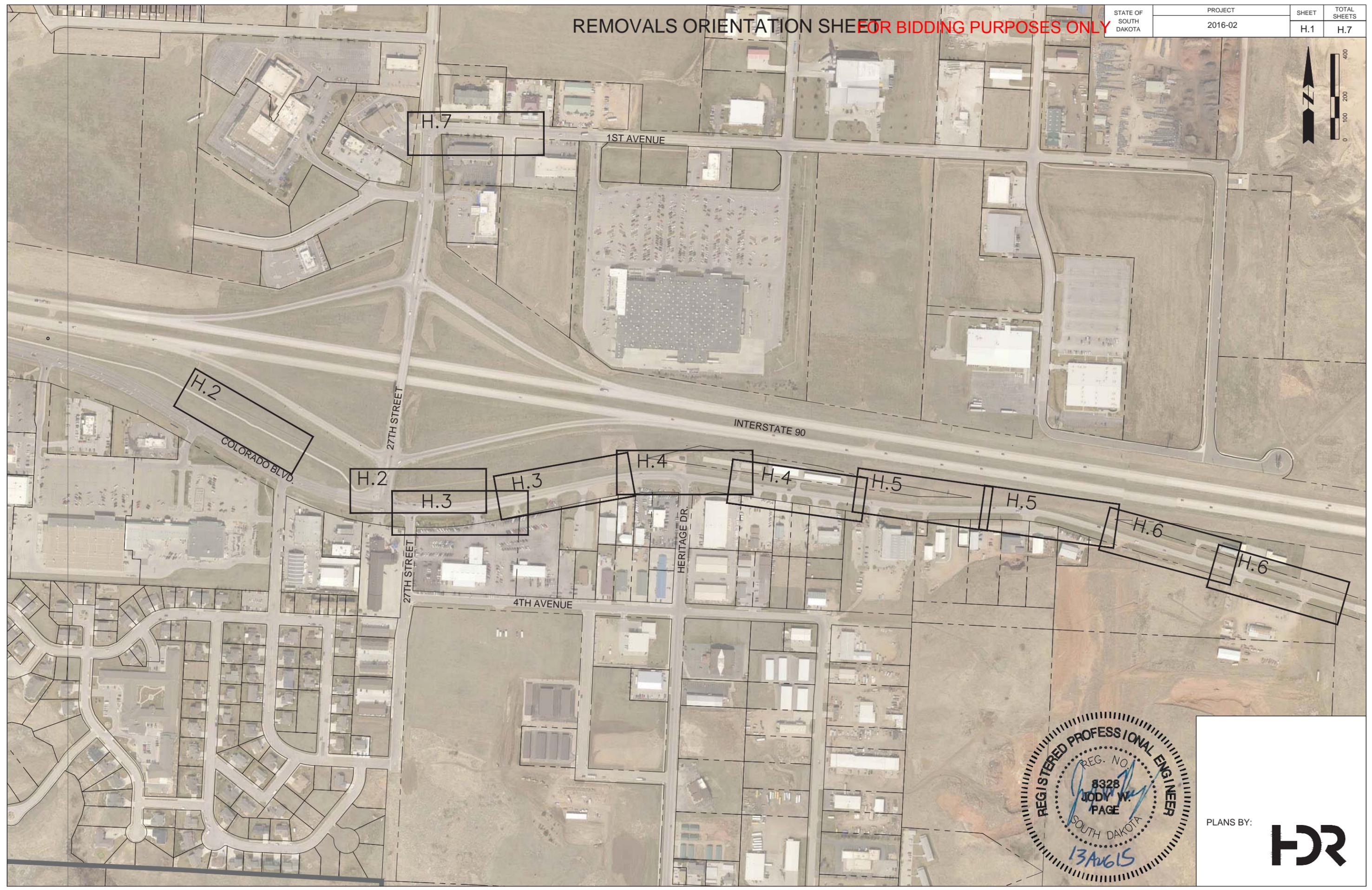


PLANS BY:



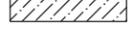
REMOVALS ORIENTATION SHEET FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET H.1	TOTAL SHEETS H.7
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PLANS BY: **HDR**

LEGEND

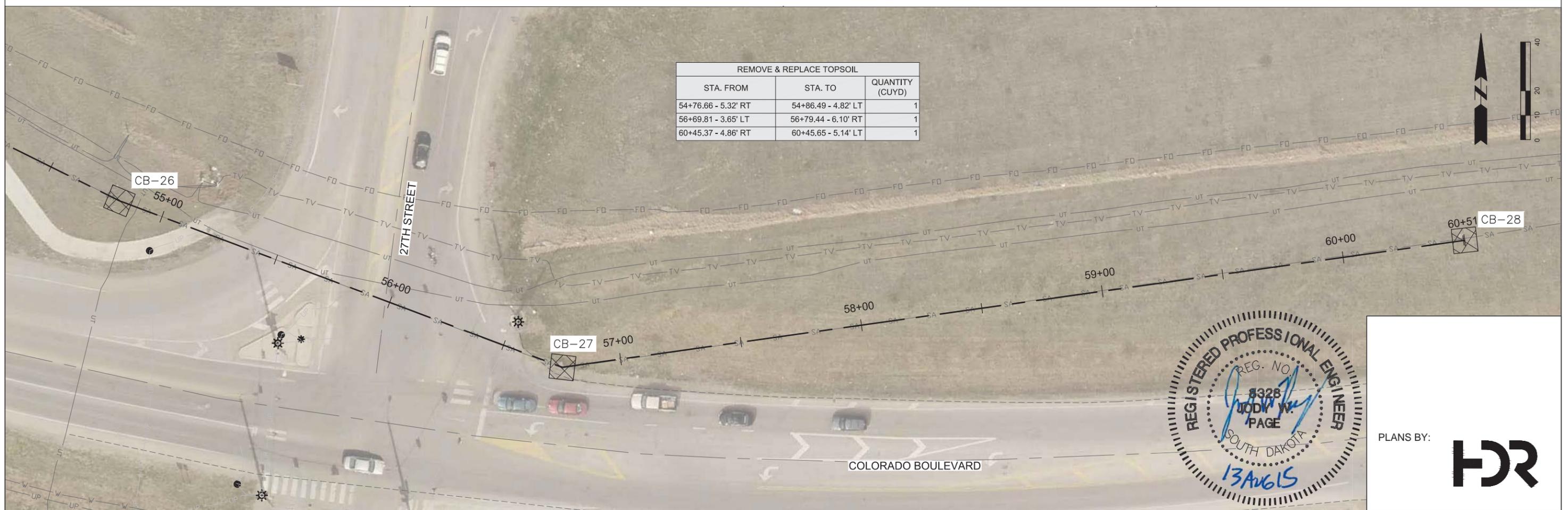
-  REMOVE CONCRETE PAVEMENT
-  REMOVE & REPLACE TOPSOIL
-  REMOVE ASPHALT CONCRETE COMPOSITE
-  REMOVE GRANULAR MATERIAL
-  REMOVE CONCRETE SIDEWALK
-  REMOVE CONCRETE CURB AND GUTTER
-  REMOVE WATER MAIN
-  R.O.W./ PROPERTY LINE

REMOVALS

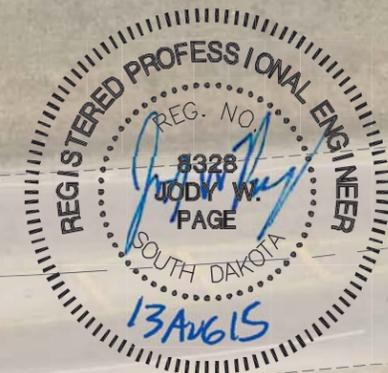
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016-02	H.2	H.7

REMOVE & REPLACE TOPSOIL		
STA. FROM	STA. TO	QUANTITY (CUYD)
46+05.28 - 4.72' RT	46+05.55 - 5.28' LT	1
50+58.57 - 5.09' RT	50+68.55 - 4.93' LT	1

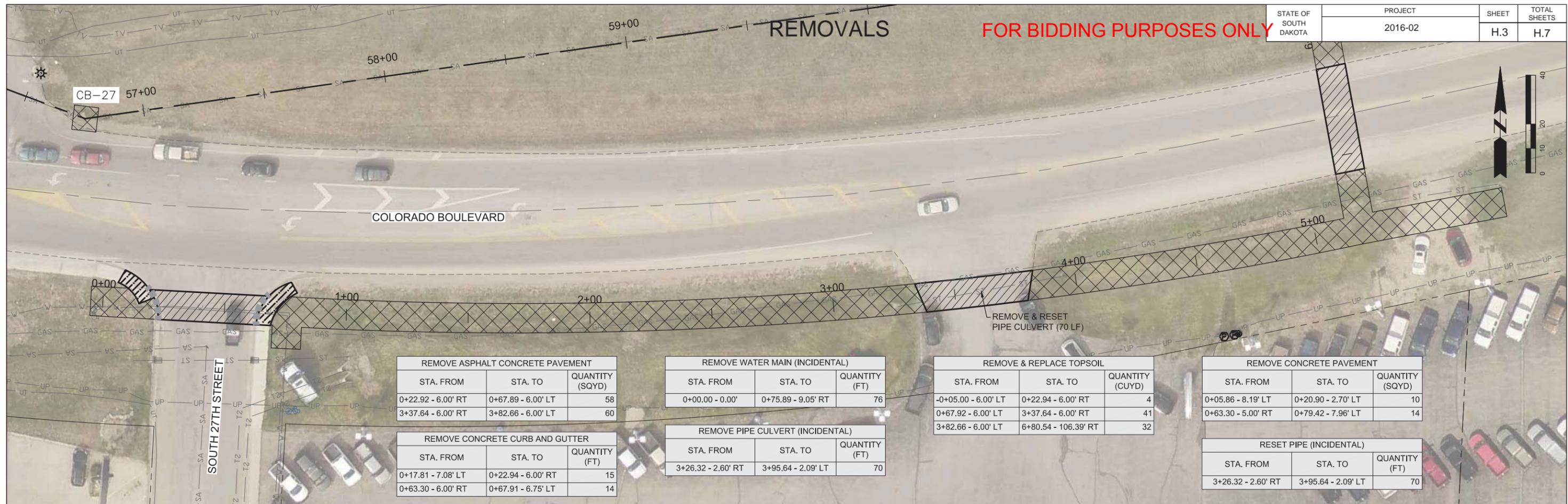


REMOVE & REPLACE TOPSOIL		
STA. FROM	STA. TO	QUANTITY (CUYD)
54+76.66 - 5.32' RT	54+86.49 - 4.82' LT	1
56+69.81 - 3.65' LT	56+79.44 - 6.10' RT	1
60+45.37 - 4.86' RT	60+45.65 - 5.14' LT	1



PLANS BY: **HR**

FOR BIDDING PURPOSES ONLY



REMOVE ASPHALT CONCRETE PAVEMENT		
STA. FROM	STA. TO	QUANTITY (SQYD)
0+22.92 - 6.00' RT	0+67.89 - 6.00' LT	58
3+37.64 - 6.00' RT	3+82.66 - 6.00' LT	60

REMOVE WATER MAIN (INCIDENTAL)		
STA. FROM	STA. TO	QUANTITY (FT)
0+00.00 - 0.00'	0+75.89 - 9.05' RT	76

REMOVE & REPLACE TOPSOIL		
STA. FROM	STA. TO	QUANTITY (CUYD)
-0+05.00 - 6.00' LT	0+22.94 - 6.00' RT	4
0+67.92 - 6.00' LT	3+37.64 - 6.00' RT	41
3+82.66 - 6.00' LT	6+80.54 - 106.39' RT	32

REMOVE CONCRETE PAVEMENT		
STA. FROM	STA. TO	QUANTITY (SQYD)
0+05.86 - 8.19' LT	0+20.90 - 2.70' LT	10
0+63.30 - 5.00' RT	0+79.42 - 7.96' LT	14

REMOVE CONCRETE CURB AND GUTTER		
STA. FROM	STA. TO	QUANTITY (FT)
0+17.81 - 7.08' LT	0+22.94 - 6.00' RT	15
0+63.30 - 6.00' RT	0+67.91 - 6.75' LT	14

REMOVE PIPE CULVERT (INCIDENTAL)		
STA. FROM	STA. TO	QUANTITY (FT)
3+26.32 - 2.60' RT	3+95.64 - 2.09' LT	70

RESET PIPE (INCIDENTAL)		
STA. FROM	STA. TO	QUANTITY (FT)
3+26.32 - 2.60' RT	3+95.64 - 2.09' LT	70



LEGEND

- REMOVE CONCRETE PAVEMENT
- REMOVE & REPLACE TOPSOIL
- REMOVE ASPHALT CONCRETE COMPOSITE
- REMOVE GRANULAR MATERIAL
- REMOVE CONCRETE SIDEWALK
- REMOVE CONCRETE CURB AND GUTTER
- REMOVE WATER MAIN
- R.O.W./ PROPERTY LINE

REMOVE ASPHALT CONCRETE PAVEMENT		
STA. FROM	STA. TO	QUANTITY (SQYD)
5+42.74 - 6.00' LT	5+86.64 - 6.00' RT	61

REMOVE & REPLACE TOPSOIL		
STA. FROM	STA. TO	QUANTITY (CUYD)
5+86.37 - 6.00' LT	13+95.57 - 6.00' RT	120



PLANS BY:

REMOVE WATER MAIN (INCIDENTAL)		
STA. FROM	STA. TO	QUANTITY (FT)
26+34.54 - 9.03' LT	26+35.25 - 9.53' RT	12

REMOVALS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET H.5	TOTAL SHEETS H.7
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LEGEND

- REMOVE CONCRETE PAVEMENT
- REMOVE & REPLACE TOPSOIL
- REMOVE ASPHALT CONCRETE COMPOSITE
- REMOVE GRANULAR MATERIAL
- REMOVE CONCRETE SIDEWALK
- REMOVE CONCRETE CURB AND GUTTER
- REMOVE WATER MAIN
- R.O.W./ PROPERTY LINE



PLANS BY:

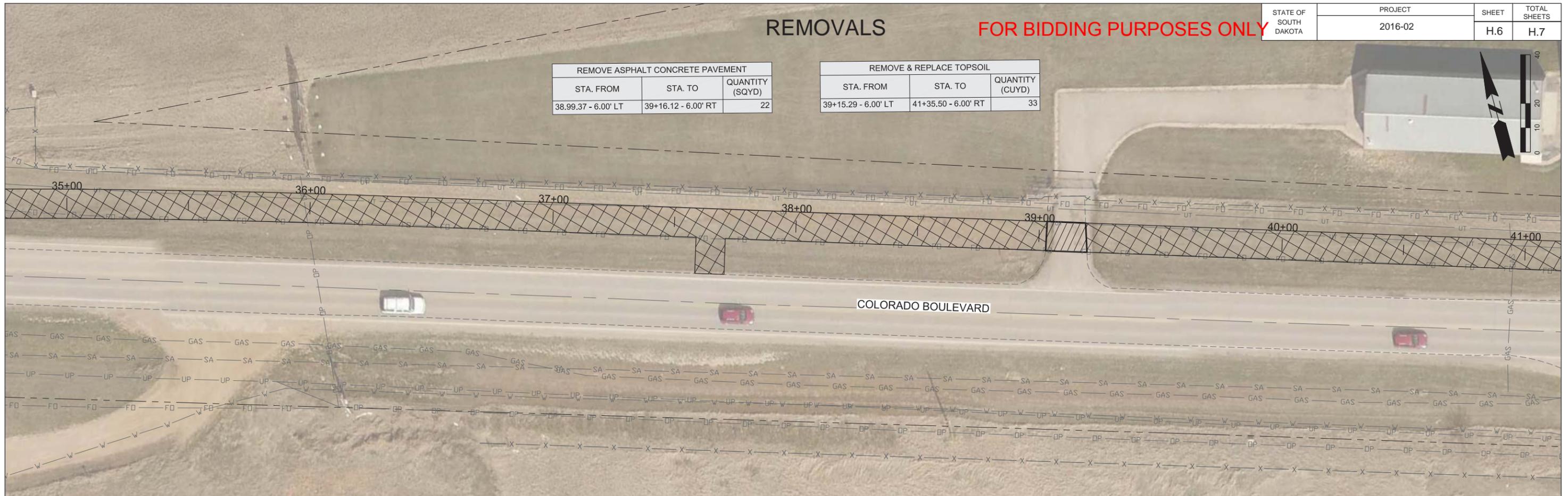
REMOVALS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016-02	H.6	H.7

REMOVE ASPHALT CONCRETE PAVEMENT		
STA. FROM	STA. TO	QUANTITY (SQYD)
38.99.37 - 6.00' LT	39+16.12 - 6.00' RT	22

REMOVE & REPLACE TOPSOIL		
STA. FROM	STA. TO	QUANTITY (CUYD)
39+15.29 - 6.00' LT	41+35.50 - 6.00' RT	33



REMOVE ASPHALT CONCRETE PAVEMENT		
STA. FROM	STA. TO	QUANTITY (SQYD)
41+41.46 - 6.00' LT	41+62.55 - 6.00' RT	29

REMOVE & REPLACE TOPSOIL		
STA. FROM	STA. TO	QUANTITY (CUYD)
41+58.94 - 6.00' LT	42+99.55 - 6.00' LT	21
43+50.98 - 6.00' RT	43+81.13 - 14.17' LT	10

REMOVE WATER MAIN (INCIDENTAL)		
STA. FROM	STA. TO	QUANTITY (FT)
43+77.35 - 14.03' RT	43+76.34 - 9.05' LT	23



LEGEND

- REMOVE CONCRETE PAVEMENT
- REMOVE & REPLACE TOPSOIL
- REMOVE ASPHALT CONCRETE COMPOSITE
- REMOVE GRANULAR MATERIAL
- REMOVE CONCRETE SIDEWALK
- REMOVE CONCRETE CURB AND GUTTER
- REMOVE WATER MAIN
- R.O.W./ PROPERTY LINE



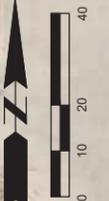
PLANS BY:



REMOVALS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET H.7	TOTAL SHEETS H.7
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LEGEND

- REMOVE CONCRETE PAVEMENT
- REMOVE & REPLACE TOPSOIL
- REMOVE ASPHALT CONCRETE COMPOSITE
- REMOVE GRANULAR MATERIAL
- REMOVE CONCRETE SIDEWALK
- REMOVE CONCRETE CURB AND GUTTER
- REMOVE WATER MAIN
- R.O.W./ PROPERTY LINE

REMOVE ASPHALT CONCRETE PAVEMENT		
STA. FROM	STA. TO	QUANTITY (SQYD)
68+12.99 - 21.99' RT	71+01.99 - 47.55' RT	376

REMOVE CONCRETE CURB & GUTTER		
STA. FROM	STA. TO	QUANTITY (FT)
68+13.37 - 26.77' RT	70+73.63 - 26.18' RT	260

REMOVE & REPLACE TOPSOIL		
STA. FROM	STA. TO	QUANTITY (CUYD)
68+15.26 - 35.29' RT	70+83.44 - 28.73' RT	5

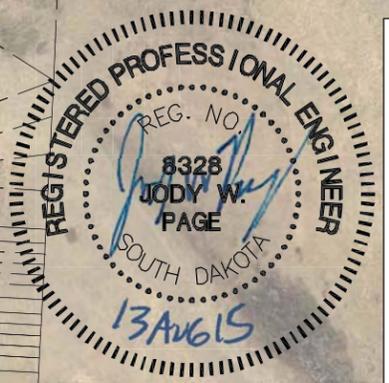
REMOVE CONCRETE PAVEMENT		
STA. FROM	STA. TO	QUANTITY (SQYD)
70+33.42 - 29.46' RT	70+66.19 - 29.39' RT	12
70+73.63 - 26.18' RT	70+94.28 - 45.79' RT	21



PLANS BY:

UTILITY ORIENTATION SHEET FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET 1.1	TOTAL SHEETS 1.11
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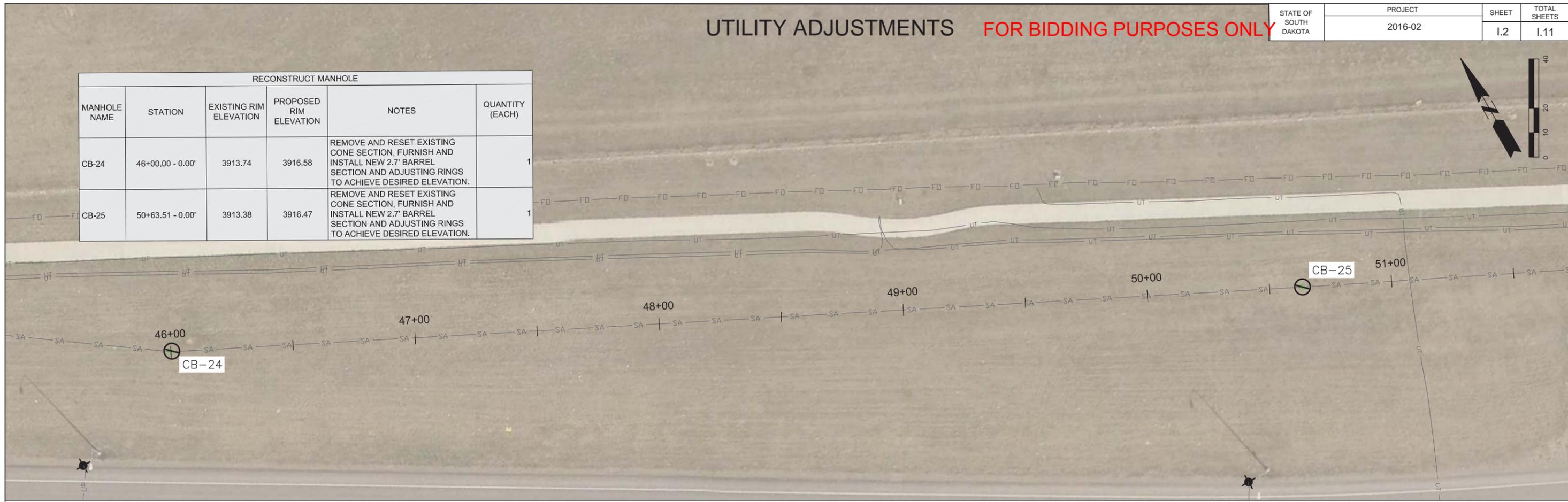


PLANS BY: **HDR**

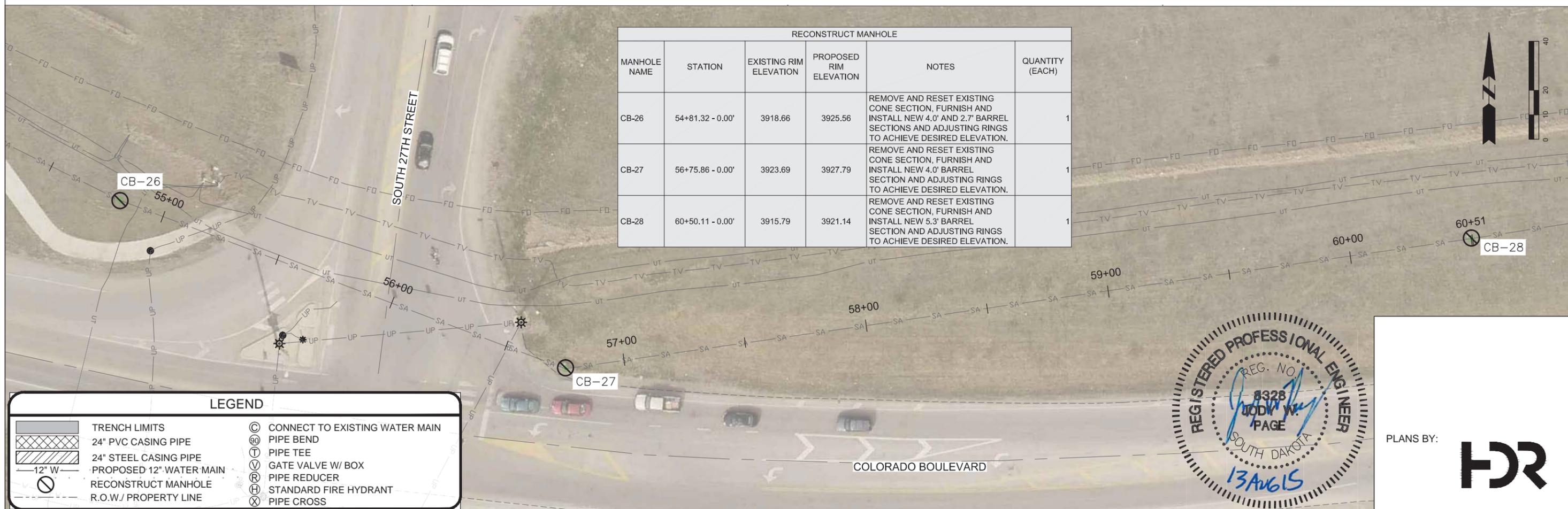
UTILITY ADJUSTMENTS FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET 1.2	TOTAL SHEETS 1.11
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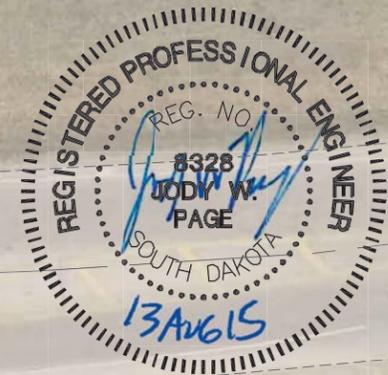
RECONSTRUCT MANHOLE					
MANHOLE NAME	STATION	EXISTING RIM ELEVATION	PROPOSED RIM ELEVATION	NOTES	QUANTITY (EACH)
CB-24	46+00.00 - 0.00'	3913.74	3916.58	REMOVE AND RESET EXISTING CONE SECTION, FURNISH AND INSTALL NEW 2.7' BARREL SECTION AND ADJUSTING RINGS TO ACHIEVE DESIRED ELEVATION.	1
CB-25	50+63.51 - 0.00'	3913.38	3916.47	REMOVE AND RESET EXISTING CONE SECTION, FURNISH AND INSTALL NEW 2.7' BARREL SECTION AND ADJUSTING RINGS TO ACHIEVE DESIRED ELEVATION.	1



RECONSTRUCT MANHOLE					
MANHOLE NAME	STATION	EXISTING RIM ELEVATION	PROPOSED RIM ELEVATION	NOTES	QUANTITY (EACH)
CB-26	54+81.32 - 0.00'	3918.66	3925.56	REMOVE AND RESET EXISTING CONE SECTION, FURNISH AND INSTALL NEW 4.0' AND 2.7' BARREL SECTIONS AND ADJUSTING RINGS TO ACHIEVE DESIRED ELEVATION.	1
CB-27	56+75.86 - 0.00'	3923.69	3927.79	REMOVE AND RESET EXISTING CONE SECTION, FURNISH AND INSTALL NEW 4.0' BARREL SECTION AND ADJUSTING RINGS TO ACHIEVE DESIRED ELEVATION.	1
CB-28	60+50.11 - 0.00'	3915.79	3921.14	REMOVE AND RESET EXISTING CONE SECTION, FURNISH AND INSTALL NEW 5.3' BARREL SECTION AND ADJUSTING RINGS TO ACHIEVE DESIRED ELEVATION.	1



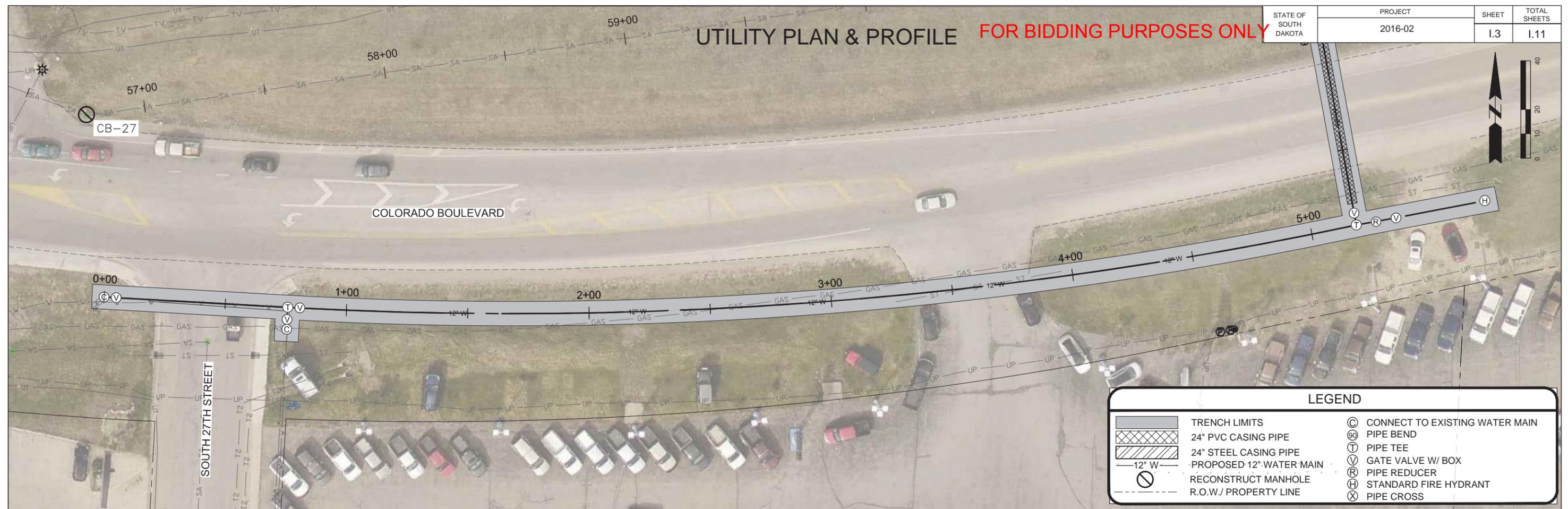
LEGEND	
	TRENCH LIMITS
	24" PVC CASING PIPE
	24" STEEL CASING PIPE
	PROPOSED 12" WATER MAIN
	RECONSTRUCT MANHOLE
	R.O.W./ PROPERTY LINE
	CONNECT TO EXISTING WATER MAIN
	PIPE BEND
	PIPE TEE
	GATE VALVE W/ BOX
	PIPE REDUCER
	STANDARD FIRE HYDRANT
	PIPE CROSS



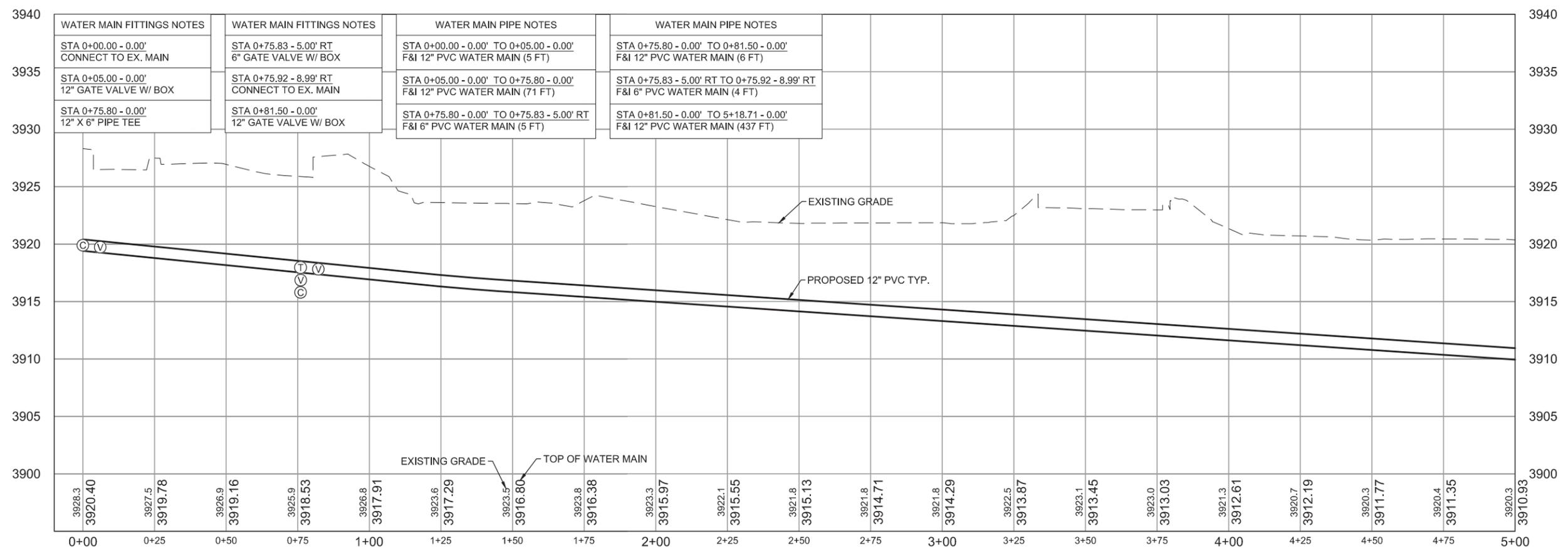
PLANS BY:

UTILITY PLAN & PROFILE FOR BIDDING PURPOSES ONLY

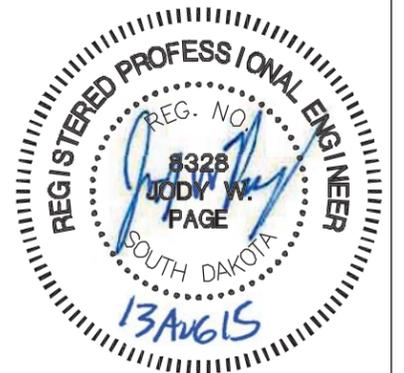
STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET 1.3	TOTAL SHEETS 1.11
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SCALE VERT: 1"=10'



Station	Notes
STA 0+00.00 - 0.00'	CONNECT TO EX. MAIN
STA 0+05.00 - 0.00'	12" GATE VALVE W/ BOX
STA 0+75.80 - 0.00'	12" X 6" PIPE TEE
STA 0+75.83 - 5.00' RT	6" GATE VALVE W/ BOX
STA 0+75.92 - 8.99' RT	CONNECT TO EX. MAIN
STA 0+81.50 - 0.00'	12" GATE VALVE W/ BOX
STA 0+00.00 - 0.00' TO 0+05.00 - 0.00'	F&I 12" PVC WATER MAIN (5 FT)
STA 0+05.00 - 0.00' TO 0+75.80 - 0.00'	F&I 12" PVC WATER MAIN (71 FT)
STA 0+75.80 - 0.00' TO 0+75.83 - 5.00' RT	F&I 6" PVC WATER MAIN (5 FT)
STA 0+75.80 - 0.00' TO 0+81.50 - 0.00'	F&I 12" PVC WATER MAIN (6 FT)
STA 0+75.83 - 5.00' RT TO 0+75.92 - 8.99' RT	F&I 6" PVC WATER MAIN (4 FT)
STA 0+81.50 - 0.00' TO 5+18.71 - 0.00'	F&I 12" PVC WATER MAIN (437 FT)

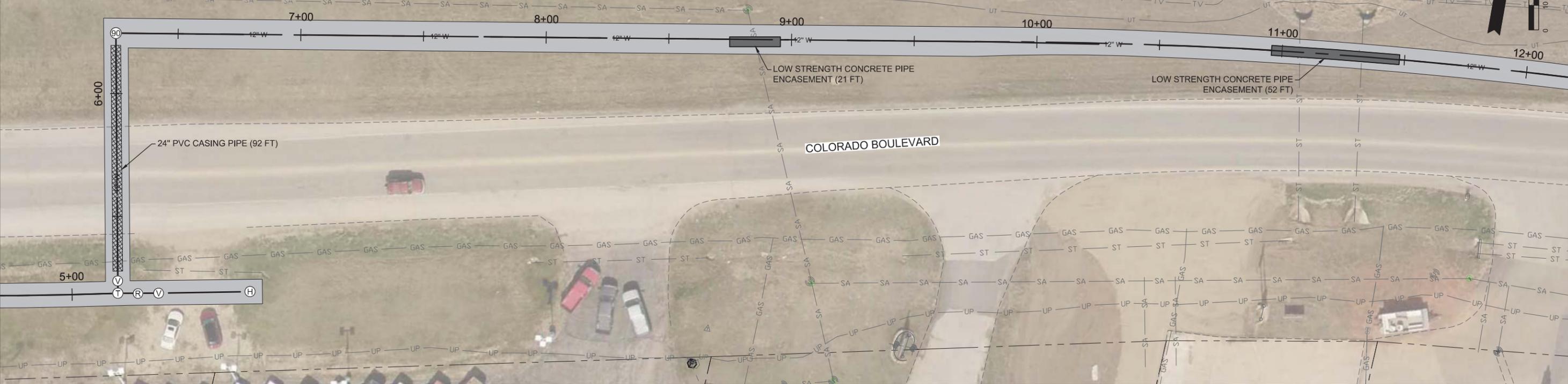


PLANS BY: **HDR**

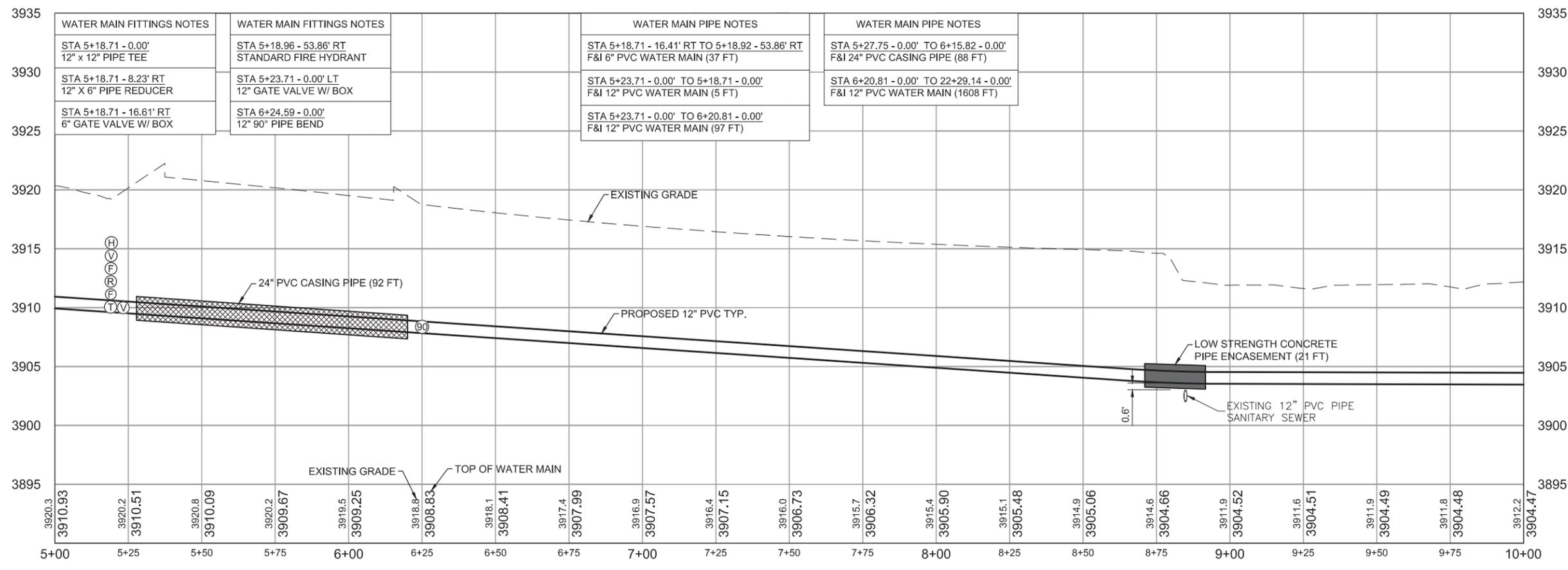
UTILITY PLAN & PROFILE FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET 1.4	TOTAL SHEETS 1.11
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LEGEND	
	TRENCH LIMITS
	24" PVC CASING PIPE
	24" STEEL CASING PIPE
	PROPOSED 12" WATER MAIN
	RECONSTRUCT MANHOLE
	R.O.W./ PROPERTY LINE
	CONNECT TO EXISTING WATER MAIN
	PIPE BEND
	PIPE TEE
	GATE VALVE W/ BOX
	PIPE REDUCER
	STANDARD FIRE HYDRANT
	PIPE CROSS



SCALE VERT: 1"=10'

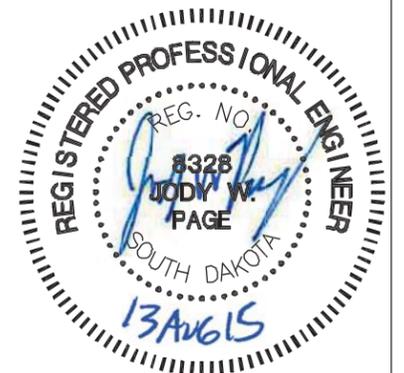


WATER MAIN FITTINGS NOTES
STA 5+18.71 - 0.00' 12" x 12" PIPE TEE
STA 5+18.71 - 8.23' RT 12" X 6" PIPE REDUCER
STA 5+18.71 - 16.61' RT 6" GATE VALVE W/ BOX

WATER MAIN FITTINGS NOTES
STA 5+18.96 - 53.86' RT STANDARD FIRE HYDRANT
STA 5+23.71 - 0.00' LT 12" GATE VALVE W/ BOX
STA 6+24.59 - 0.00' 12" 90° PIPE BEND

WATER MAIN PIPE NOTES
STA 5+18.71 - 16.41' RT TO 5+18.92 - 53.86' RT F&I 6" PVC WATER MAIN (37 FT)
STA 5+23.71 - 0.00' TO 5+18.71 - 0.00' F&I 12" PVC WATER MAIN (5 FT)
STA 5+23.71 - 0.00' TO 6+20.81 - 0.00' F&I 12" PVC WATER MAIN (97 FT)

WATER MAIN PIPE NOTES
STA 5+27.75 - 0.00' TO 6+15.82 - 0.00' F&I 24" PVC CASING PIPE (88 FT)
STA 6+20.81 - 0.00' TO 22+29.14 - 0.00' F&I 12" PVC WATER MAIN (1608 FT)



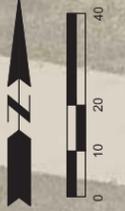
PLANS BY:

LEGEND

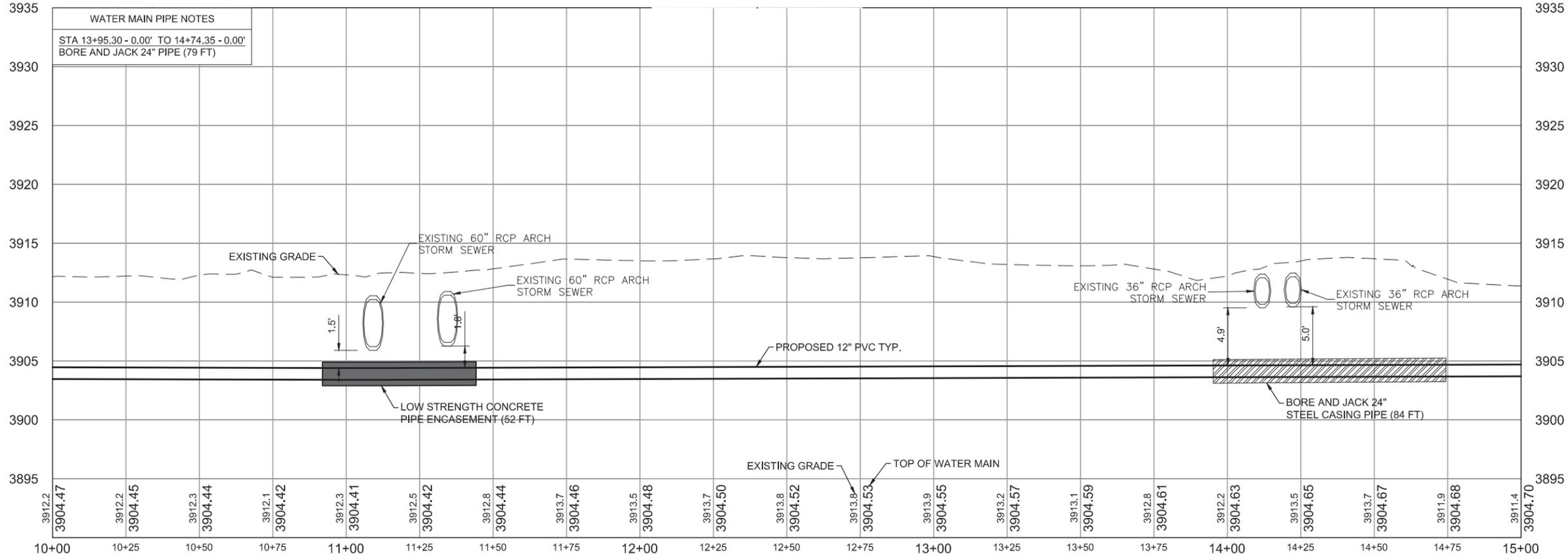
-  TRENCH LIMITS
-  24" PVC CASING PIPE
-  24" STEEL CASING PIPE
-  PROPOSED 12" WATER MAIN
-  RECONSTRUCT MANHOLE
-  R.O.W./ PROPERTY LINE
-  CONNECT TO EXISTING WATER MAIN
-  PIPE BEND
-  PIPE TEE
-  GATE VALVE W/ BOX
-  PIPE REDUCER
-  STANDARD FIRE HYDRANT
-  PIPE CROSS

UTILITY PLAN & PROFILE FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET 1.5	TOTAL SHEETS 1.11
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SCALE VERT: 1"=10'



WATER MAIN PIPE NOTES
 STA 13+95.30 - 0.00' TO 14+74.35 - 0.00'
 BORE AND JACK 24" PIPE (79 FT)



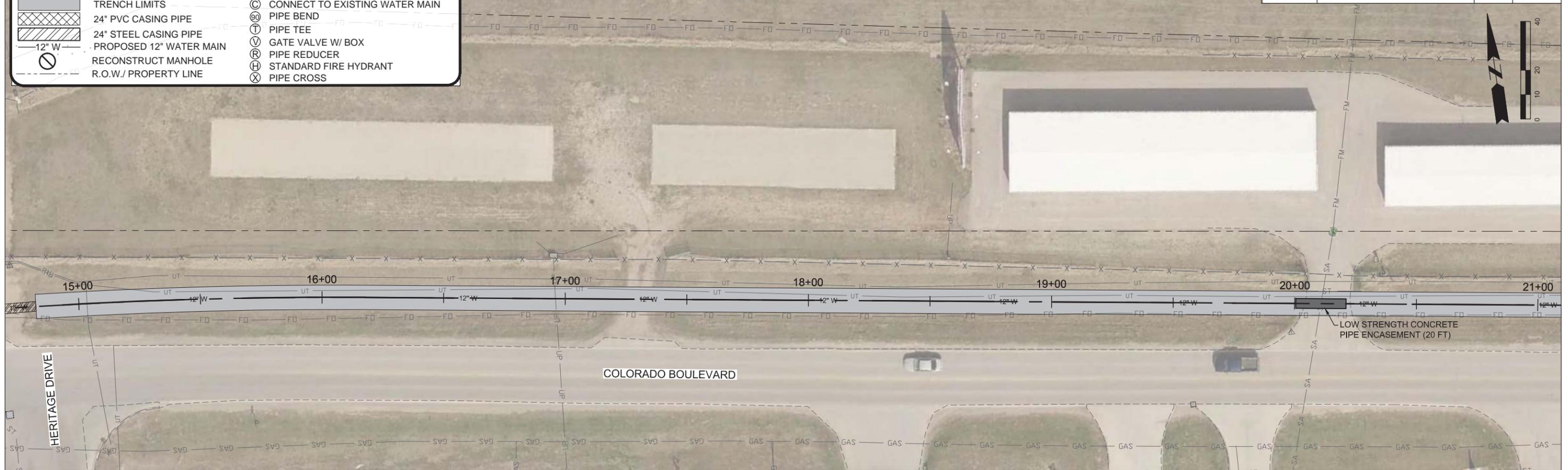
PLANS BY:


UTILITY PLAN & PROFILE FOR BIDDING PURPOSES ONLY

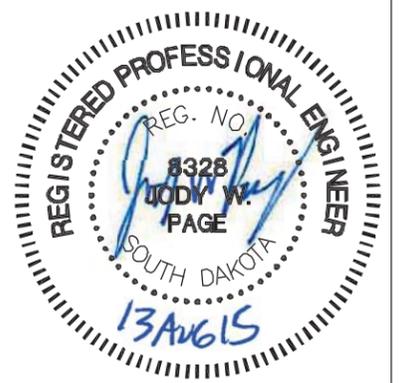
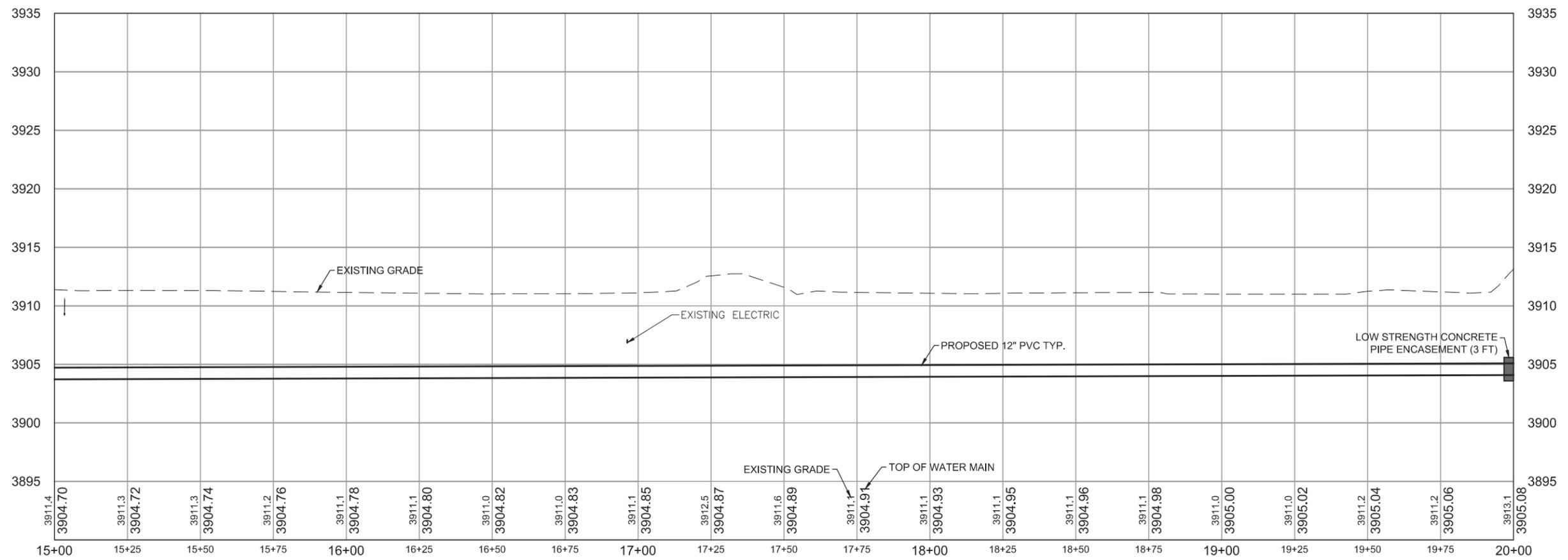
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016-02	1.6	1.11

LEGEND

	TRENCH LIMITS		CONNECT TO EXISTING WATER MAIN
	24" PVC CASING PIPE		PIPE BEND
	24" STEEL CASING PIPE		PIPE TEE
	PROPOSED 12" WATER MAIN		GATE VALVE W/ BOX
	RECONSTRUCT MANHOLE		PIPE REDUCER
	R.O.W./ PROPERTY LINE		STANDARD FIRE HYDRANT
			PIPE CROSS



SCALE VERT: 1"=10'



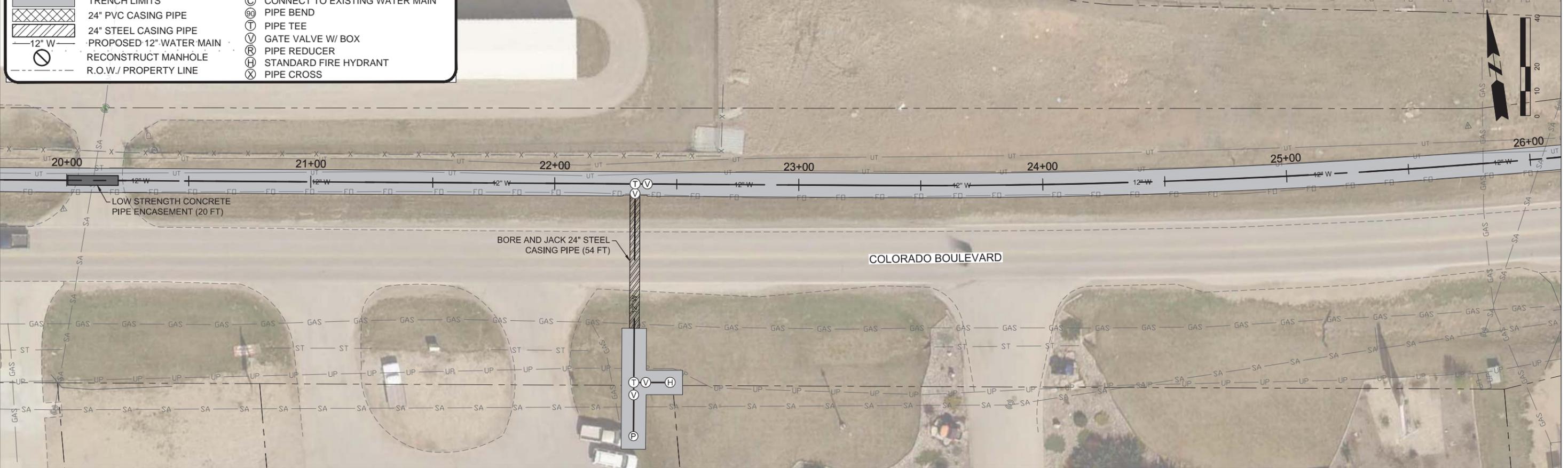
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UTILITY PLAN & PROFILE - FOR BIDDING PURPOSES ONLY

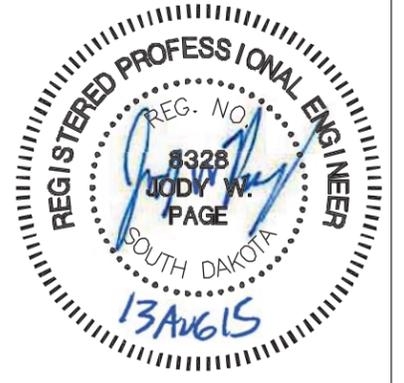
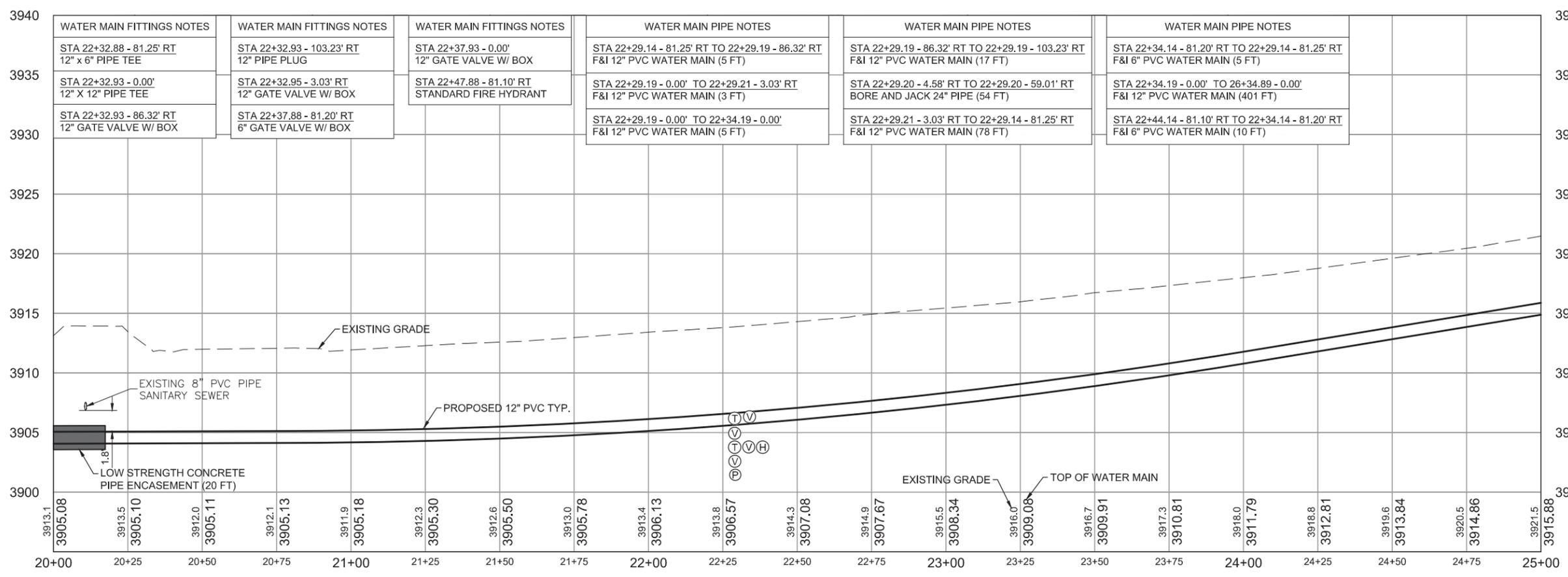
STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET 1.7	TOTAL SHEETS 1.11
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LEGEND

	TRENCH LIMITS		CONNECT TO EXISTING WATER MAIN
	24" PVC CASING PIPE		PIPE BEND
	24" STEEL CASING PIPE		PIPE TEE
	PROPOSED 12" WATER MAIN		GATE VALVE W/ BOX
	RECONSTRUCT MANHOLE		PIPE REDUCER
	R.O.W./ PROPERTY LINE		STANDARD FIRE HYDRANT
			PIPE CROSS



SCALE VERT: 1"=10'



PLANS BY:

UTILITY PLAN & PROFILE FOR BIDDING PURPOSES ONLY

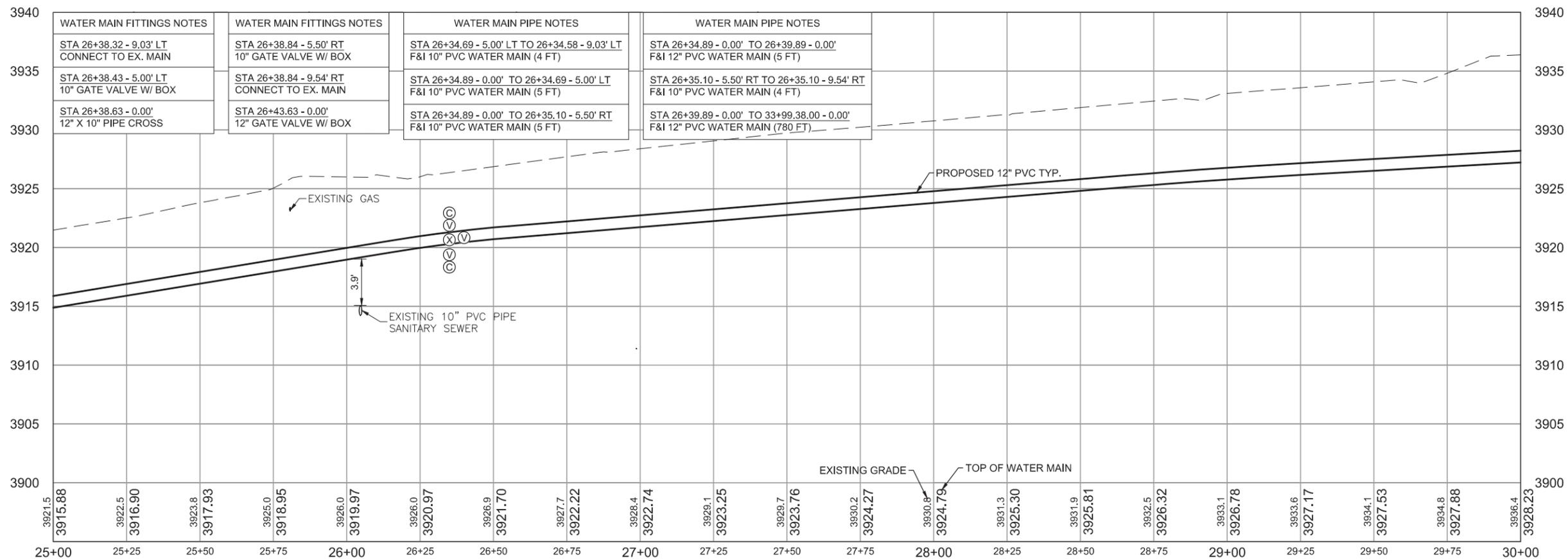
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016-02	1.8	1.11

LEGEND

	TRENCH LIMITS		CONNECT TO EXISTING WATER MAIN
	24" PVC CASING PIPE		PIPE BEND
	24" STEEL CASING PIPE		PIPE TEE
	PROPOSED 12" WATER MAIN		GATE VALVE W/ BOX
	RECONSTRUCT MANHOLE		PIPE REDUCER
	R.O.W./PROPERTY LINE		STANDARD FIRE HYDRANT
			PIPE CROSS



SCALE VERT: 1"=10'



PLANS BY:

UTILITY PLAN & PROFILE FOR BIDDING PURPOSES ONLY

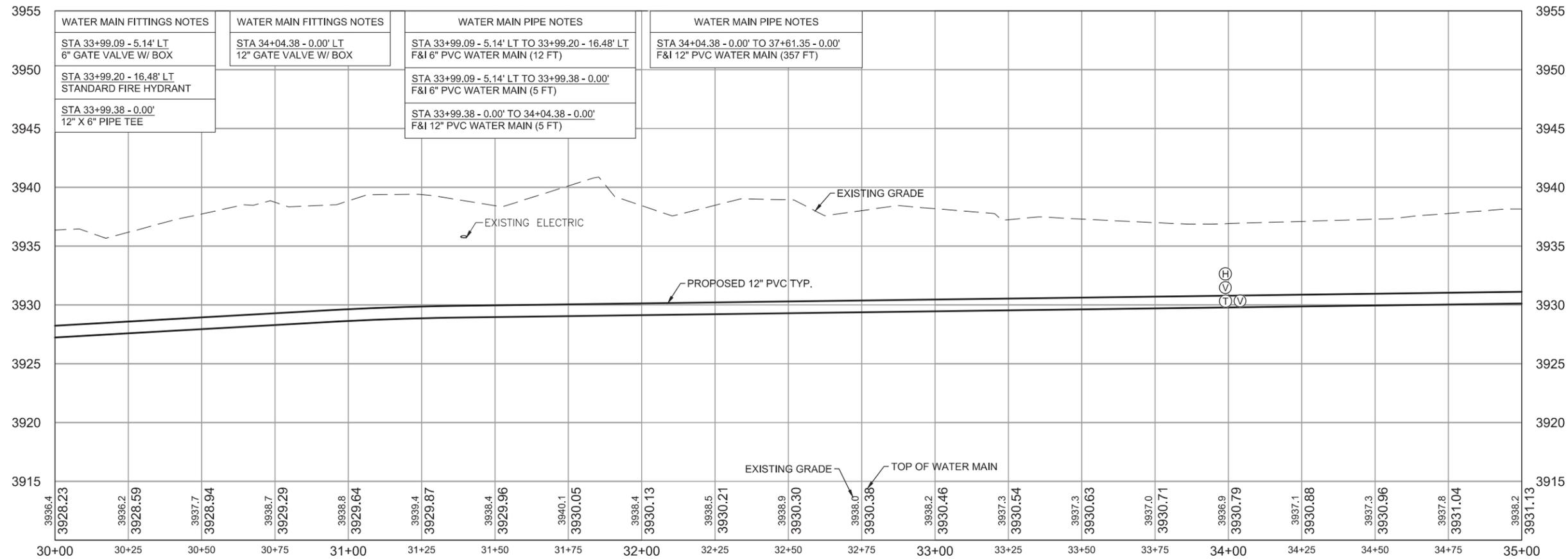
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016-02	1.9	1.11

LEGEND

	TRENCH LIMITS		CONNECT TO EXISTING WATER MAIN
	24" PVC CASING PIPE		PIPE BEND
	24" STEEL CASING PIPE		PIPE TEE
	PROPOSED 12" WATER MAIN		GATE VALVE W/ BOX
	RECONSTRUCT MANHOLE		PIPE REDUCER
	R.O.W./ PROPERTY LINE		STANDARD FIRE HYDRANT
			PIPE CROSS



SCALE VERT: 1"=10'



PLANS BY:

UTILITY PLAN & PROFILE FOR BIDDING PURPOSES ONLY

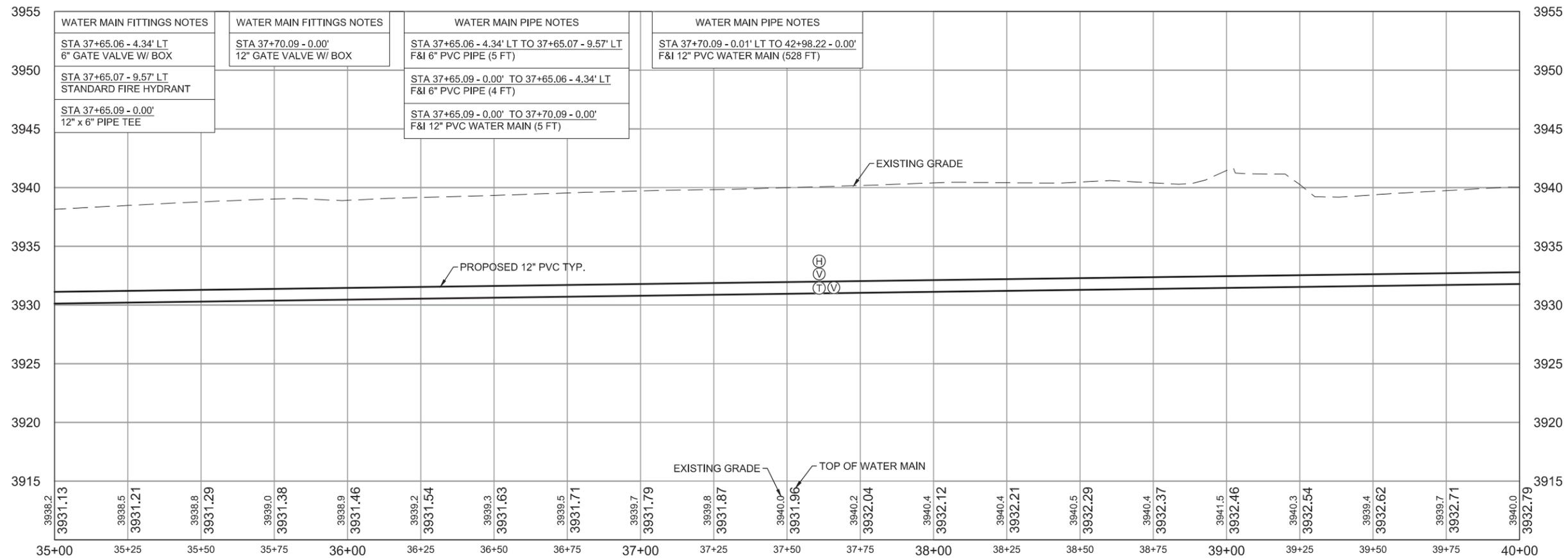
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2016-02	I.10	I.11

LEGEND

	TRENCH LIMITS		CONNECT TO EXISTING WATER MAIN
	24" PVC CASING PIPE		PIPE BEND
	24" STEEL CASING PIPE		PIPE TEE
	PROPOSED 12" WATER MAIN		GATE VALVE W/ BOX
	RECONSTRUCT MANHOLE		PIPE REDUCER
	R.O.W./ PROPERTY LINE		STANDARD FIRE HYDRANT
			PIPE CROSS



SCALE VERT: 1"=10'



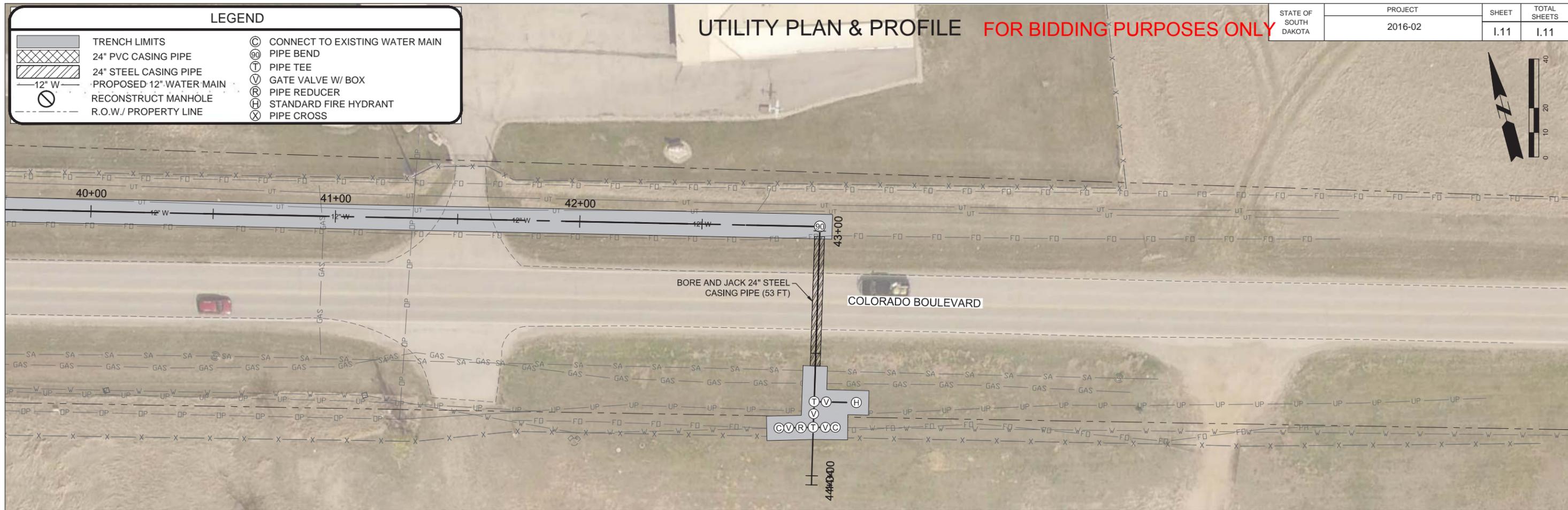
PLANS BY:

LEGEND

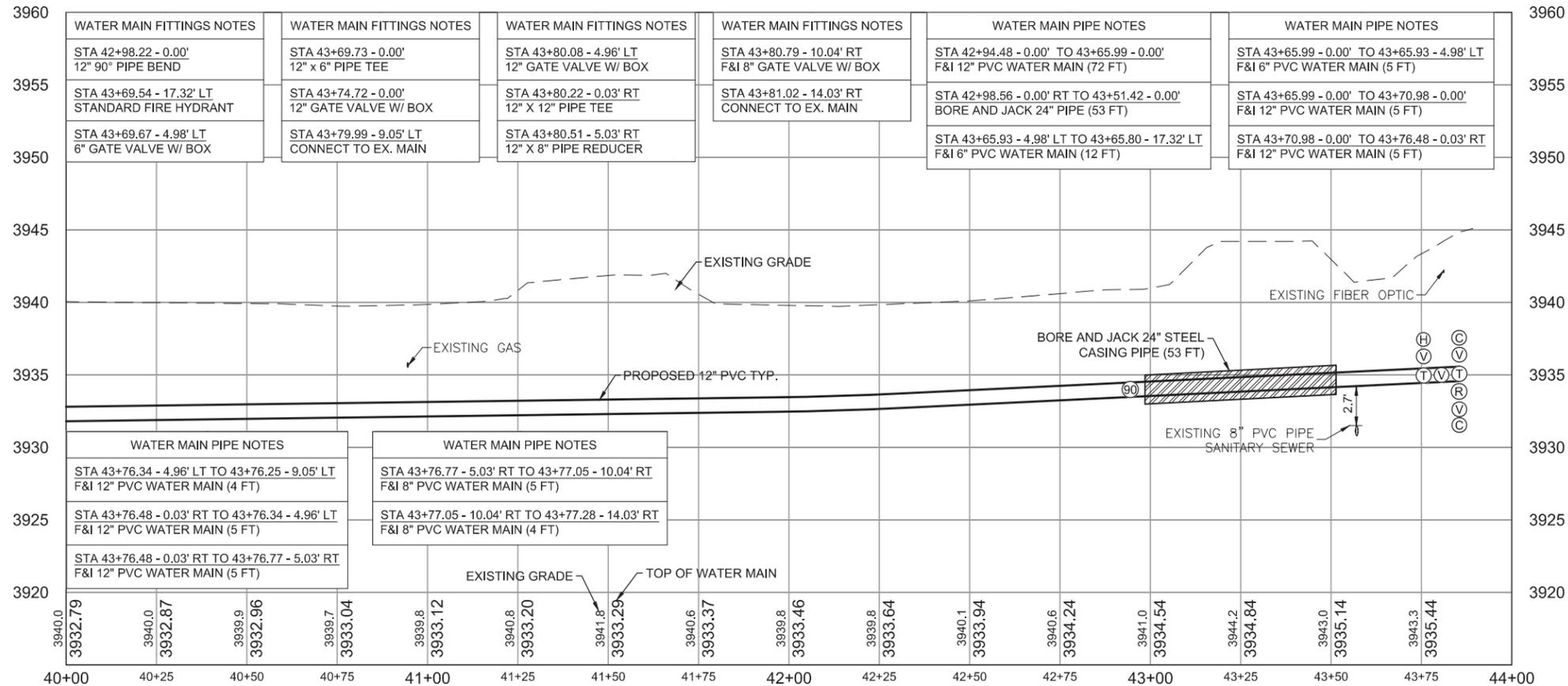
-  TRENCH LIMITS
-  24" PVC CASING PIPE
-  24" STEEL CASING PIPE
-  PROPOSED 12" WATER MAIN
-  RECONSTRUCT MANHOLE
-  R.O.W./ PROPERTY LINE
-  CONNECT TO EXISTING WATER MAIN
-  PIPE BEND
-  PIPE TEE
-  GATE VALVE W/ BOX
-  PIPE REDUCER
-  STANDARD FIRE HYDRANT
-  PIPE CROSS

UTILITY PLAN & PROFILE FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET I.11	TOTAL SHEETS I.11
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SCALE VERT: 1"=10'



NOTE:

UTILITIES SHOWN ON THE PLAN SHEETS ARE APPROXIMATE BASED ON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ACTUAL LOCATION. ANY UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.



PLANS BY:



SURFACING ORIENTATION SHEET FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET J.1	TOTAL SHEETS J.3
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J.3

1ST AVENUE

27TH STREET

INTERSTATE 90

COLORADO BLVD.

J.2

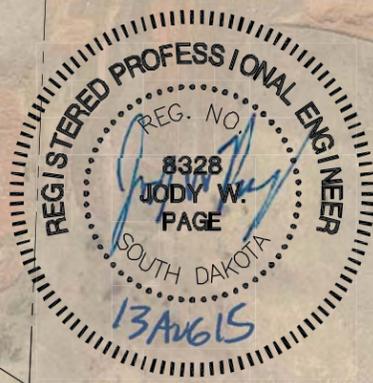
J.2

HERITAGE DR.

J.3

27TH STREET

4TH AVENUE



PLANS BY: **HDR**

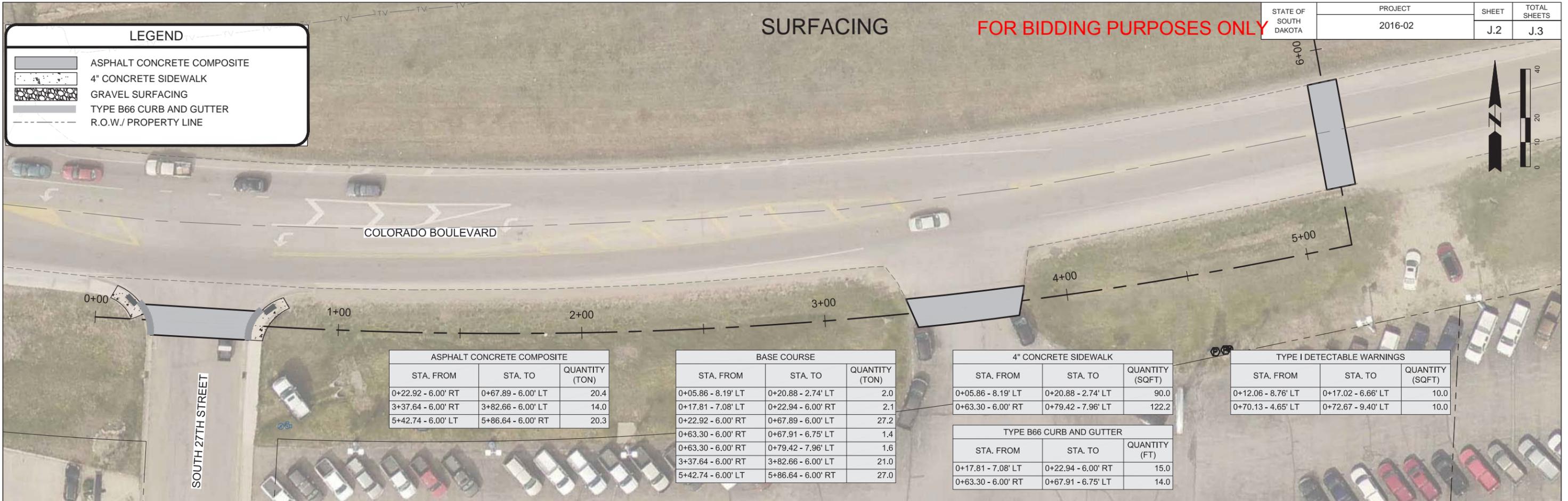
SURFACING

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET J.2	TOTAL SHEETS J.3
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LEGEND

- ASPHALT CONCRETE COMPOSITE
- 4" CONCRETE SIDEWALK
- GRAVEL SURFACING
- TYPE B66 CURB AND GUTTER
- R.O.W./ PROPERTY LINE



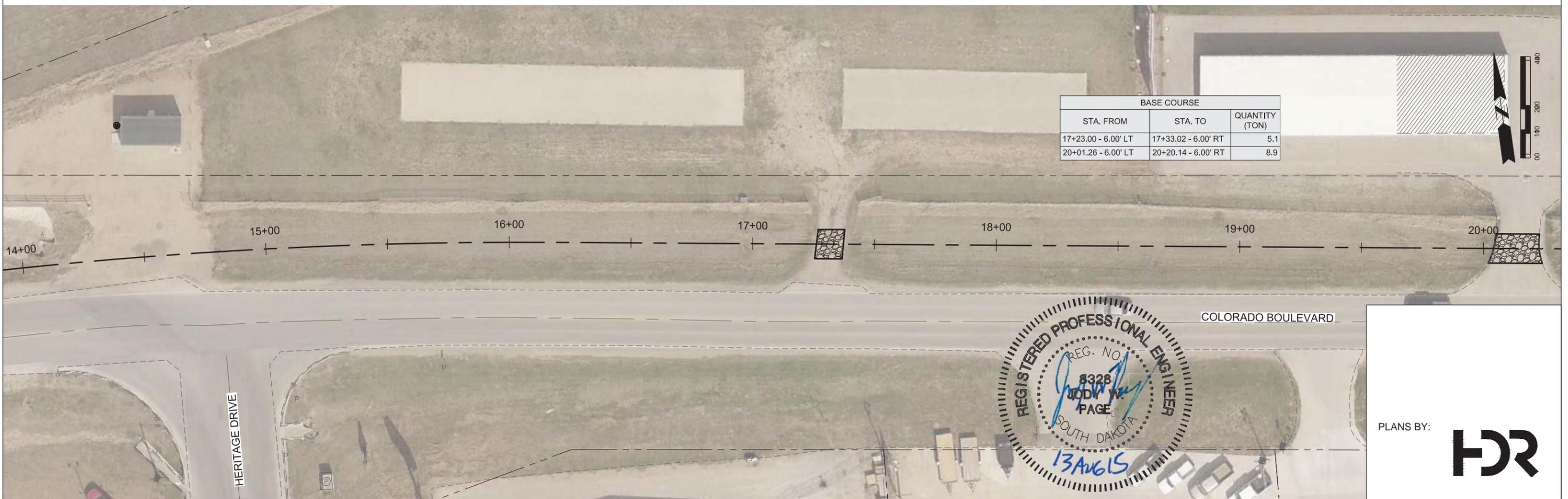
ASPHALT CONCRETE COMPOSITE		
STA. FROM	STA. TO	QUANTITY (TON)
0+22.92 - 6.00' RT	0+67.89 - 6.00' LT	20.4
3+37.64 - 6.00' RT	3+82.66 - 6.00' LT	14.0
5+42.74 - 6.00' LT	5+86.64 - 6.00' RT	20.3

BASE COURSE		
STA. FROM	STA. TO	QUANTITY (TON)
0+05.86 - 8.19' LT	0+20.88 - 2.74' LT	2.0
0+17.81 - 7.08' LT	0+22.94 - 6.00' RT	2.1
0+22.92 - 6.00' RT	0+67.89 - 6.00' LT	27.2
0+63.30 - 6.00' RT	0+67.91 - 6.75' LT	1.4
0+63.30 - 6.00' RT	0+79.42 - 7.96' LT	1.6
3+37.64 - 6.00' RT	3+82.66 - 6.00' LT	21.0
5+42.74 - 6.00' LT	5+86.64 - 6.00' RT	27.0

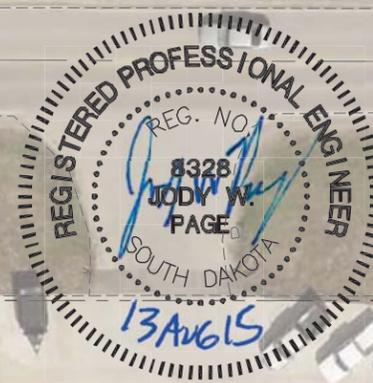
4" CONCRETE SIDEWALK		
STA. FROM	STA. TO	QUANTITY (SQFT)
0+05.86 - 8.19' LT	0+20.88 - 2.74' LT	90.0
0+63.30 - 6.00' RT	0+79.42 - 7.96' LT	122.2

TYPE I DETECTABLE WARNINGS		
STA. FROM	STA. TO	QUANTITY (SQFT)
0+12.06 - 8.76' LT	0+17.02 - 6.66' LT	10.0
0+70.13 - 4.65' LT	0+72.67 - 9.40' LT	10.0

TYPE B66 CURB AND GUTTER		
STA. FROM	STA. TO	QUANTITY (FT)
0+17.81 - 7.08' LT	0+22.94 - 6.00' RT	15.0
0+63.30 - 6.00' RT	0+67.91 - 6.75' LT	14.0



BASE COURSE		
STA. FROM	STA. TO	QUANTITY (TON)
17+23.00 - 6.00' LT	17+33.02 - 6.00' RT	5.1
20+01.26 - 6.00' LT	20+20.14 - 6.00' RT	8.9

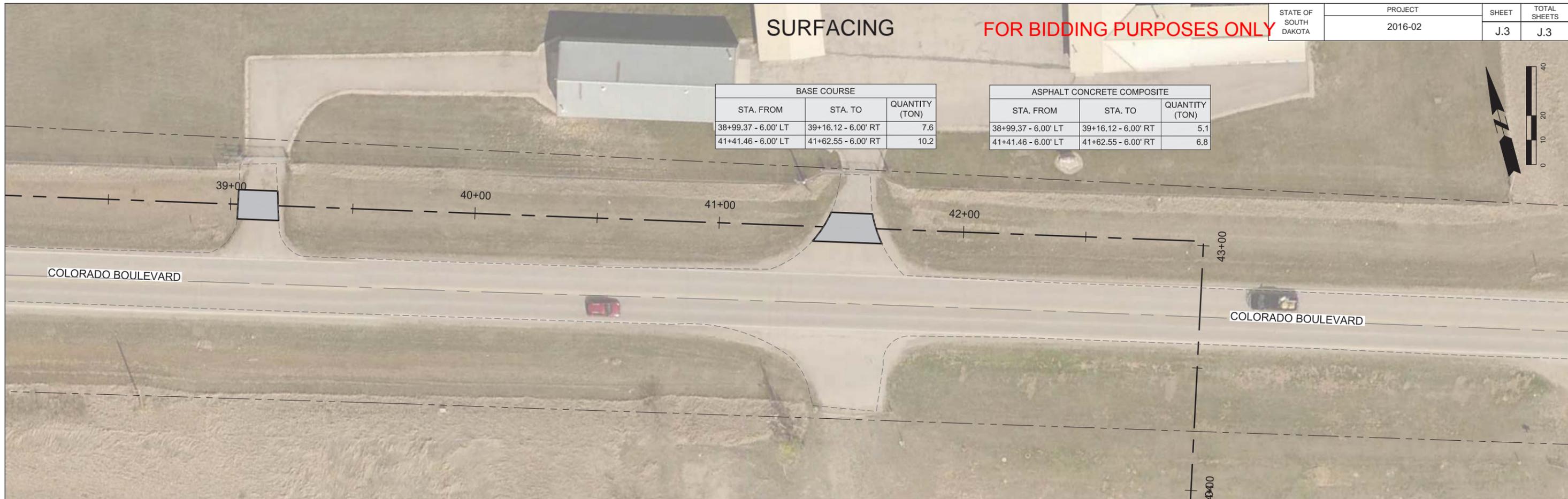


PLANS BY:

SURFACING

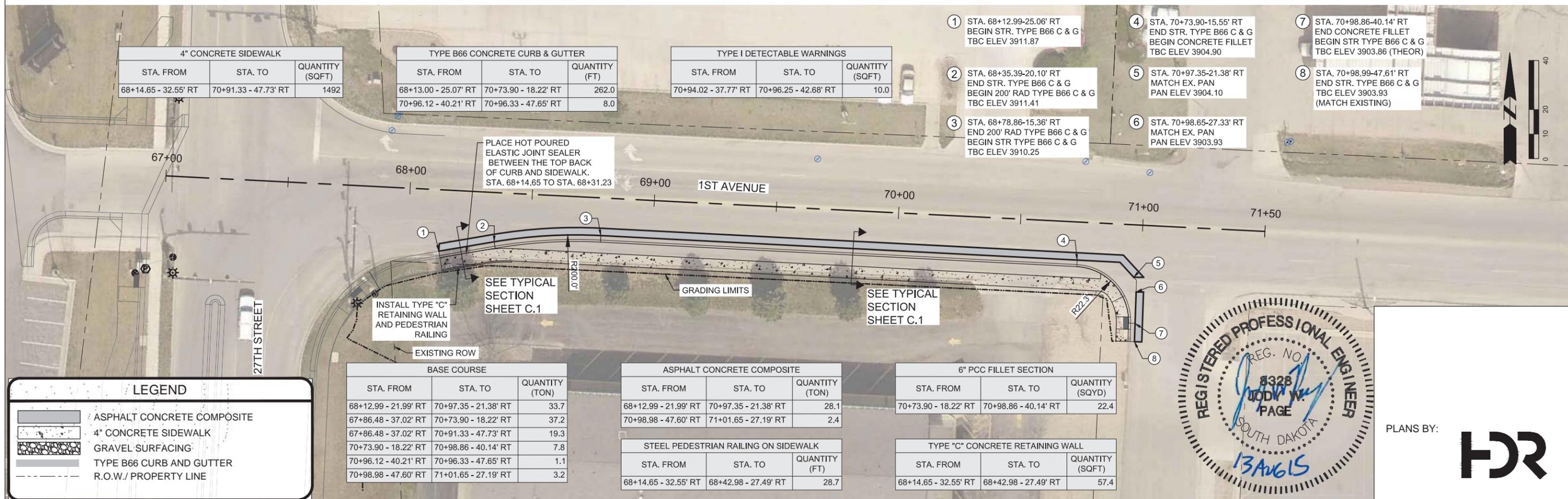
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT 2016-02	SHEET J.3	TOTAL SHEETS J.3
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BASE COURSE		
STA. FROM	STA. TO	QUANTITY (TON)
38+99.37 - 6.00' LT	39+16.12 - 6.00' RT	7.6
41+41.46 - 6.00' LT	41+62.55 - 6.00' RT	10.2

ASPHALT CONCRETE COMPOSITE		
STA. FROM	STA. TO	QUANTITY (TON)
38+99.37 - 6.00' LT	39+16.12 - 6.00' RT	5.1
41+41.46 - 6.00' LT	41+62.55 - 6.00' RT	6.8



4" CONCRETE SIDEWALK		
STA. FROM	STA. TO	QUANTITY (SQFT)
68+14.65 - 32.55' RT	70+91.33 - 47.73' RT	1492

TYPE B66 CONCRETE CURB & GUTTER		
STA. FROM	STA. TO	QUANTITY (FT)
68+13.00 - 25.07' RT	70+73.90 - 18.22' RT	262.0
70+96.12 - 40.21' RT	70+96.33 - 47.65' RT	8.0

TYPE I DETECTABLE WARNINGS		
STA. FROM	STA. TO	QUANTITY (SQFT)
70+94.02 - 37.77' RT	70+96.25 - 42.68' RT	10.0

- ① STA. 68+12.99-25.06' RT
BEGIN STR. TYPE B66 C & G
TBC ELEV 3911.87
- ② STA. 68+35.39-20.10' RT
END STR. TYPE B66 C & G
BEGIN 200' RAD TYPE B66 C & G
TBC ELEV 3911.41
- ③ STA. 68+78.86-15.36' RT
END 200' RAD TYPE B66 C & G
BEGIN STR TYPE B66 C & G
TBC ELEV 3910.25
- ④ STA. 70+73.90-15.55' RT
END STR. TYPE B66 C & G
BEGIN CONCRETE FILLET
TBC ELEV 3904.90
- ⑤ STA. 70+97.35-21.38' RT
MATCH EX. PAN
PAN ELEV 3904.10
- ⑥ STA. 70+98.65-27.33' RT
MATCH EX. PAN
PAN ELEV 3903.93
- ⑦ STA. 70+98.86-40.14' RT
END CONCRETE FILLET
BEGIN STR TYPE B66 C & G
TBC ELEV 3903.86 (THEOR)
- ⑧ STA. 70+98.99-47.61' RT
END STR. TYPE B66 C & G
TBC ELEV 3903.93
(MATCH EXISTING)

BASE COURSE		
STA. FROM	STA. TO	QUANTITY (TON)
68+12.99 - 21.99' RT	70+97.35 - 21.38' RT	33.7
67+86.48 - 37.02' RT	70+73.90 - 18.22' RT	37.2
67+86.48 - 37.02' RT	70+91.33 - 47.73' RT	19.3
70+73.90 - 18.22' RT	70+98.86 - 40.14' RT	7.8
70+96.12 - 40.21' RT	70+96.33 - 47.65' RT	1.1
70+98.98 - 47.60' RT	71+01.65 - 27.19' RT	3.2

ASPHALT CONCRETE COMPOSITE		
STA. FROM	STA. TO	QUANTITY (TON)
68+12.99 - 21.99' RT	70+97.35 - 21.38' RT	28.1
70+98.98 - 47.60' RT	71+01.65 - 27.19' RT	2.4

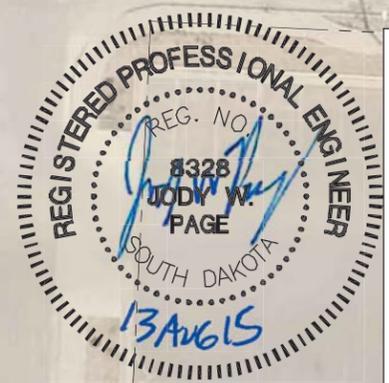
6" PCC FILLET SECTION		
STA. FROM	STA. TO	QUANTITY (SQYD)
70+73.90 - 18.22' RT	70+98.86 - 40.14' RT	22.4

STEEL PEDESTRIAN RAILING ON SIDEWALK		
STA. FROM	STA. TO	QUANTITY (FT)
68+14.65 - 32.55' RT	68+42.98 - 27.49' RT	28.7

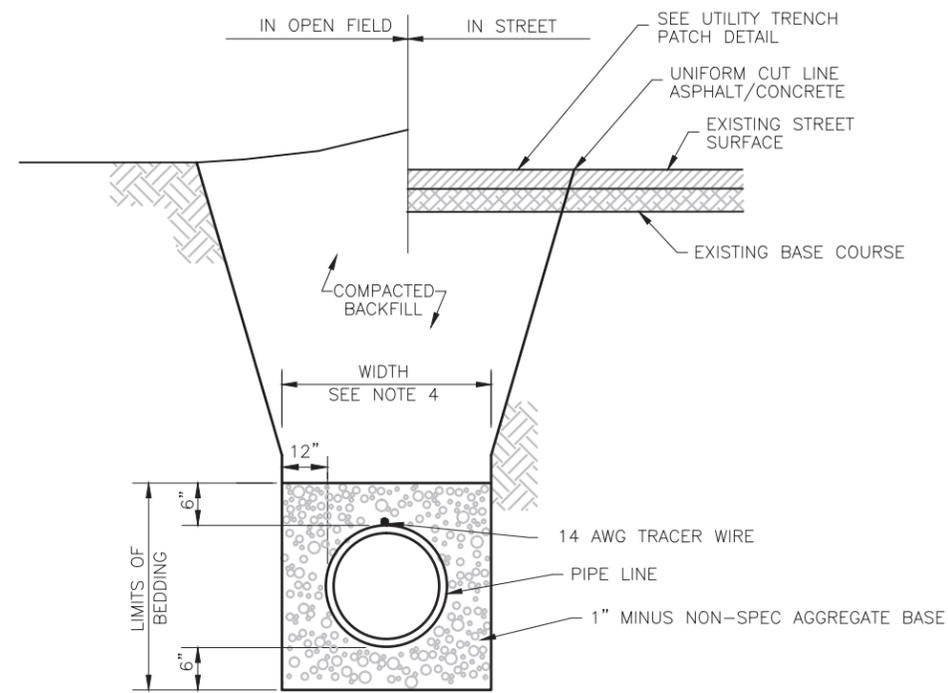
TYPE "C" CONCRETE RETAINING WALL		
STA. FROM	STA. TO	QUANTITY (SQFT)
68+14.65 - 32.55' RT	68+42.98 - 27.49' RT	57.4

LEGEND

- ASPHALT CONCRETE COMPOSITE
- 4" CONCRETE SIDEWALK
- GRAVEL SURFACING
- TYPE B66 CURB AND GUTTER
- R.O.W./PROPERTY LINE



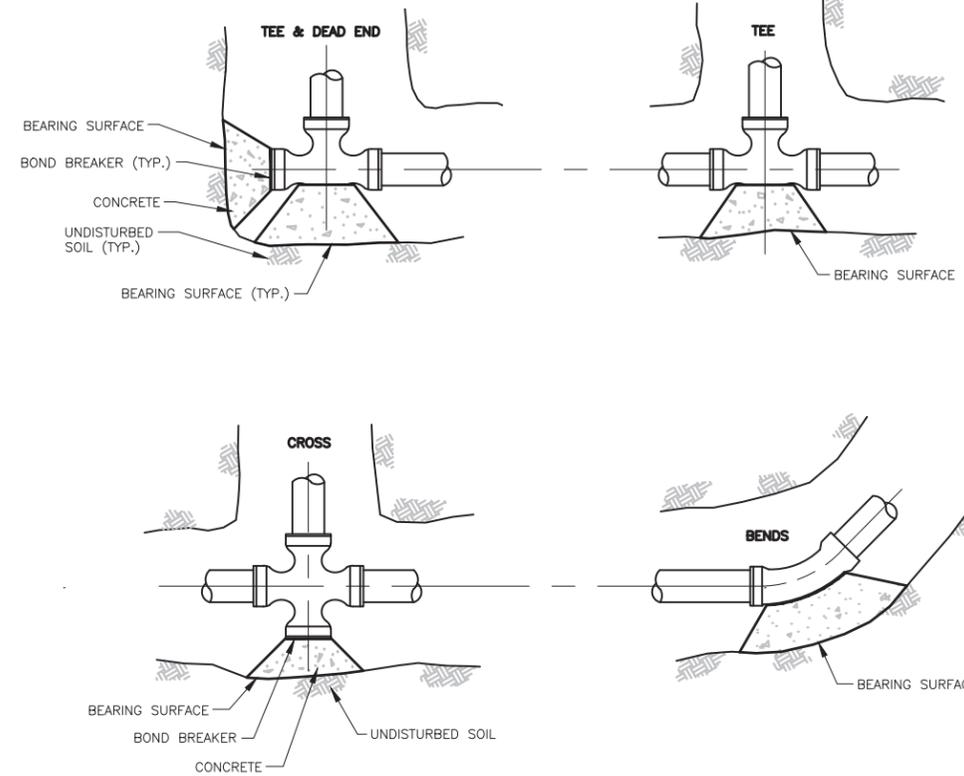
PLANS BY:



TYPICAL TRENCH SECTION

NOTES:

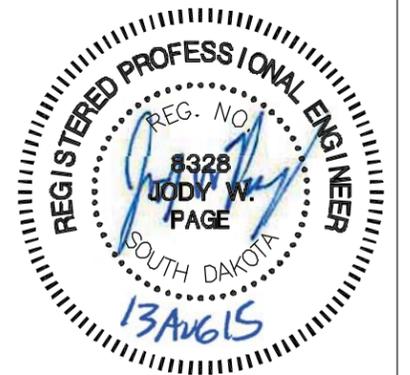
1. MINIMUM COVER TO BE 6' BELOW OFFICIAL STREET GRADE.
2. TRENCH TO BE BRACED OR SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMEN AND PROTECTION OF OTHER UTILITIES IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL SAFETY REGULATIONS.
3. PIPE SHALL BE BEDDED FROM 6" BELOW THE BOTTOM OF THE PIPE TO 6" ABOVE THE TOP OF THE PIPE.
4. TRENCH WIDTH SHALL NOT BE MORE THAN 16" NOR LESS THAN 12" WIDER THAN THE LARGEST OUTSIDE DIAMETER OF THE PIPE.
5. SHOULD THE TRENCH BE EXCAVATED WIDER THAN ALLOWED, A CONCRETE CRADLE SHALL BE PLACED WITH 2500 P.S.I. CONCRETE FROM TRENCH BOTTOM TO PIPE SPRINGLINE.
6. INSTALLATION OF BEDDING AND PIPE: AFTER COMPLETION OF THE TRENCH EXCAVATION AND PROPER PREPARATION OF THE FOUNDATION, SIX INCHES (6") OF BEDDING MATERIAL SHALL BE PLACED ON THE TRENCH BOTTOM FOR SUPPORT UNDER THE PIPE. BELL HOLES SHALL BE DUG DEEP ENOUGH TO PROVIDE A MINIMUM OF TWO INCHES (2") OF CLEARANCE BETWEEN THE BELL AND BEDDING MATERIAL. ALL PIPE SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE FULL SUPPORT OF THE PIPE BARREL OVER ITS ENTIRE LENGTH. AFTER THE PIPE IS ADJUSTED FOR LINE AND GRADE, AND THE JOINT IS MADE, THE BEDDING MATERIAL SHALL BE CAREFULLY PLACED AND TAMPED UNDER THE HAUNCHES OF THE PIPE AND IN THE PREVIOUSLY DUG BELL HOLES.



PLAN VIEW

NOTES:

1. THRUST BLOCKS MUST BE CAST IN PLACE CONCRETE
2. BEARING SURFACE BASED ON BEARING STRENGTH OF 3000 P.S.F. AND MAIN PRESSURE OF 200 P.S.I..
3. BOND BREAKER TO BE MINIMUM OF 8 MIL POLYETHYLENE PLASTIC.



City of Spearfish

STANDARD WATER MAIN
BEDDING DETAIL

DATE	01/01/09
REVISED	00/00/00
SECTION	SHEET



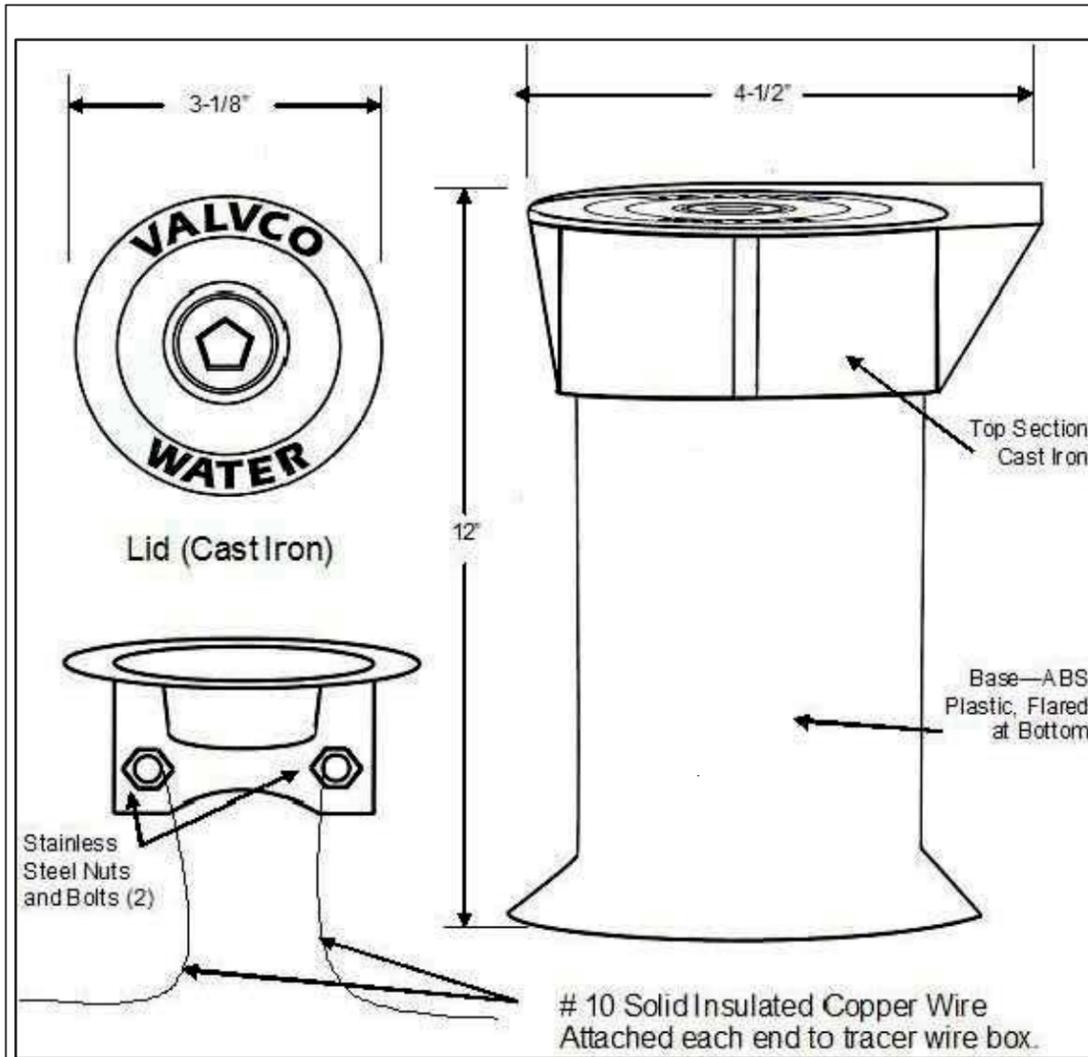
City of Spearfish

THRUST BLOCK DETAIL

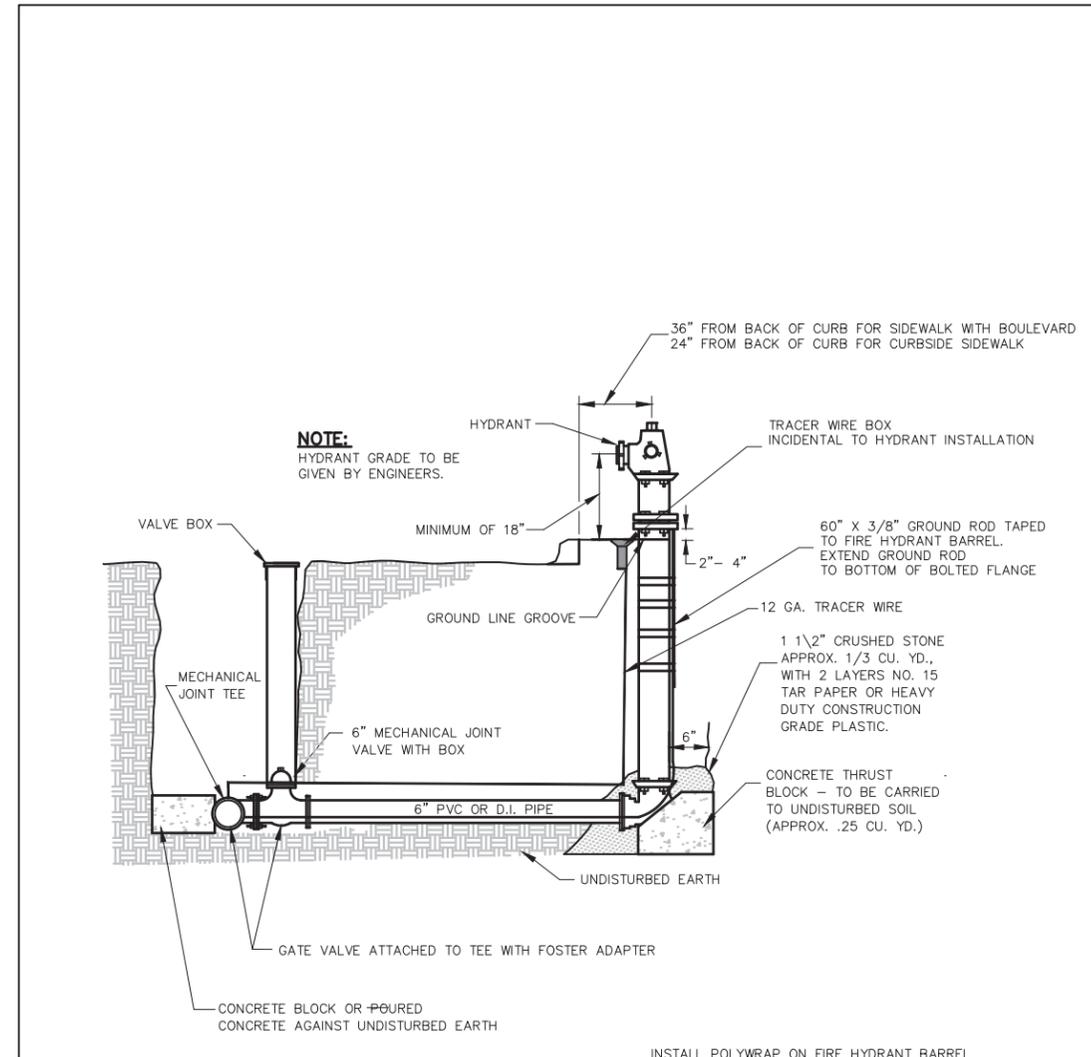
DATE	01/01/09
REVISED	00/00/00
SECTION	SHEET

PLANS BY:





TRACER WIRE SHALL BE TERMINATED AT EACH END IN A FLUSH MOUNT ACCESS BOX. ACCESS BOX SHALL HAVE A CAST IRON LID THAT CAN BE LOCKED AND OPENED WITH A STANDARD PENTAGON HEAD KEY WRENCH. TRACER WIRES SHALL BE STRIPPED AND ATTACHED TO STAINLESS STEEL SCREWS MOUNTED TO THE UNDERSIDE OF THE LID. SUFFICIENT SLACK SHALL BE LEFT IN WIRE LENGTH SO COVER CAN BE LIFTED WITH WIRE INTACT. TRACER WIRE ACCESS BOX SHALL BE LOCATED DIRECTLY IN FRONT OF FIRE HYDRANTS OR WHERE INDICATED ON DRAWINGS AND BE SET TO GRADE. TRACER WIRE ACCESS BOX SHALL BE OF DOMESTIC MANUFACTURE AND BE EQUAL TO VALVCO TWAB. WIRE SHALL BE TIED TO BARREL WITH STAINLESS STEEL CLAMPS.



HYDRANT CONNECTION

INSTALL POLYWRAP ON FIRE HYDRANT BARREL TO THE GROUND SURFACE BEFORE INSTALLING TRACER WIRE SYSTEM. DO NOT COVER WEEP HOLES WITH POLYWRAP.

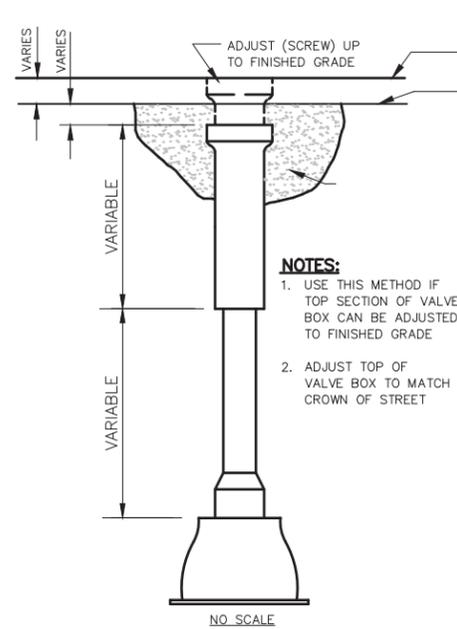


 City of Spearfish Public Works Department	City of Spearfish	DATE 01/01/09 REVISED 00/00/00 SECTION SHEET
	TRACER WIRE ACCESS BOX	

 City of Spearfish Public Works Department	City of Spearfish	DATE 01/01/09 REVISED 00/00/00 SECTION SHEET
	HYDRANT CONNECTION	

PLANS BY: 

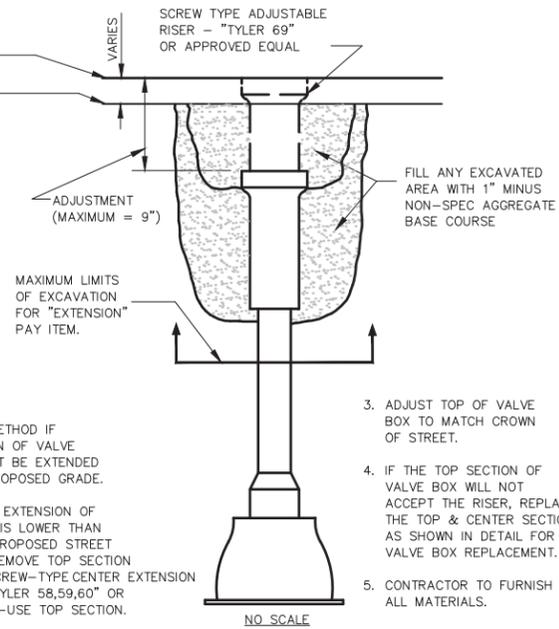
FOR BIDDING PURPOSES ONLY



VALVE BOX ADJUSTMENT

- NOTES:**
1. USE THIS METHOD IF TOP SECTION OF VALVE BOX CAN BE ADJUSTED TO FINISHED GRADE
 2. ADJUST TOP OF VALVE BOX TO MATCH CROWN OF STREET

NO SCALE

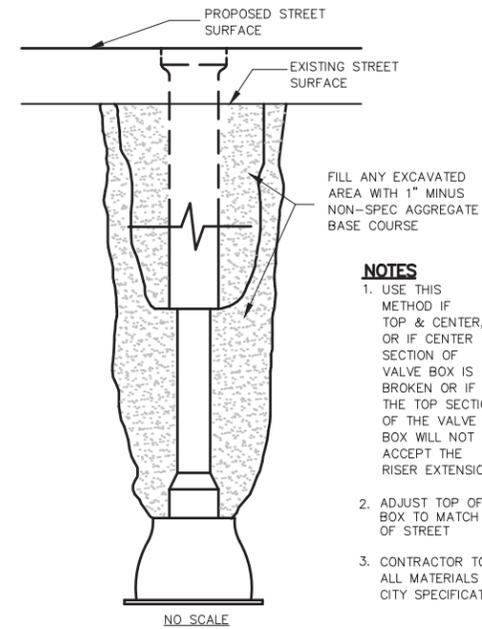


VALVE BOX EXTENSION
(OR REPLACEMENT OF TOP SECTION)

NOTES:

1. USE THIS METHOD IF TOP SECTION OF VALVE BOX CANNOT BE EXTENDED TO MEET PROPOSED GRADE.
2. IF MAXIMUM EXTENSION OF VALVE BOX IS LOWER THAN 9" BELOW PROPOSED STREET SURFACE, REMOVE TOP SECTION & ADD A SCREW-TYPE CENTER EXTENSION SECTION; "TYLER 58,59,60" OR EQUAL. RE-USE TOP SECTION.
3. ADJUST TOP OF VALVE BOX TO MATCH CROWN OF STREET.
4. IF THE TOP SECTION OF VALVE BOX WILL NOT ACCEPT THE RISER, REPLACE THE TOP & CENTER SECTION AS SHOWN IN DETAIL FOR VALVE BOX REPLACEMENT.
5. CONTRACTOR TO FURNISH ALL MATERIALS.

NO SCALE



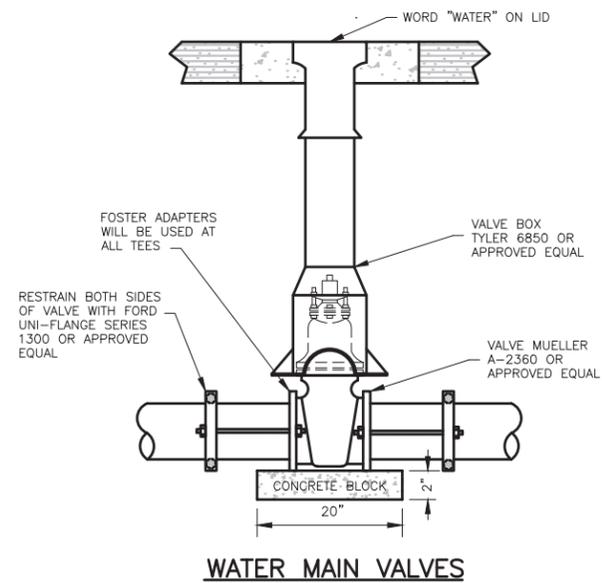
VALVE BOX INSTALLATION

NOTES:

1. USE THIS METHOD IF TOP & CENTER, OR IF CENTER SECTION OF VALVE BOX IS BROKEN OR IF THE TOP SECTION OF THE VALVE BOX WILL NOT ACCEPT THE RISER EXTENSION.
2. ADJUST TOP OF VALVE BOX TO MATCH CROWN OF STREET
3. CONTRACTOR TO FURNISH ALL MATERIALS TO MEET CITY SPECIFICATIONS.

NO SCALE

VALVE BOX ADJUSTMENT / REPLACEMENT



WATER MAIN VALVES



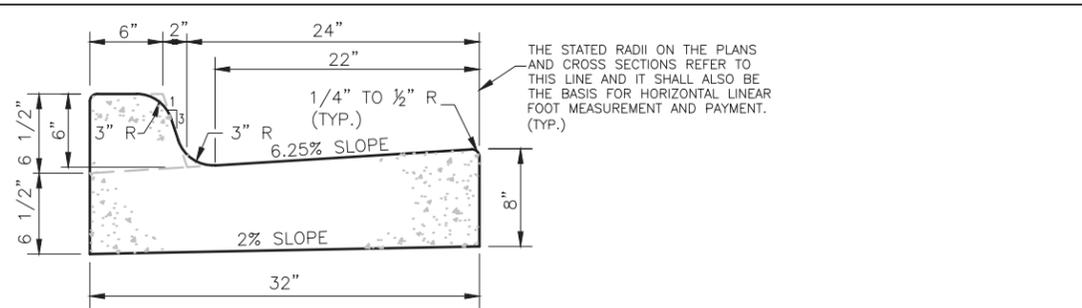
City of Spearfish
REINFORCED PORTLAND CEMENT
CONCRETE FILLET & PAN

DATE	01/01/09
REVISED	00/00/00
SECTION	SHEET

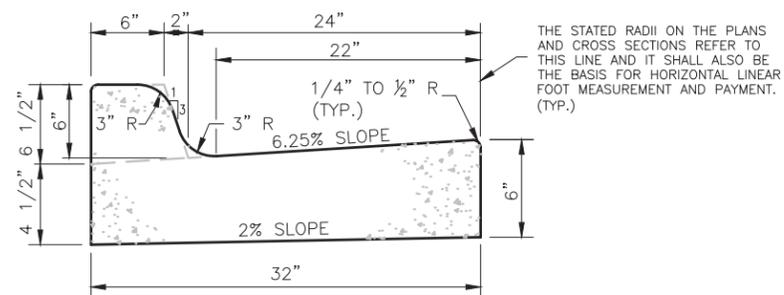


PLANS BY:

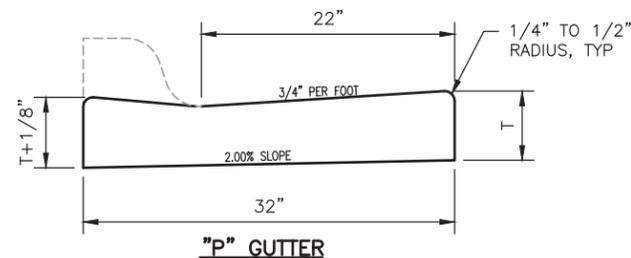




TYPE B68 CONCRETE CURB & GUTTER



TYPE B66 CONCRETE CURB & GUTTER

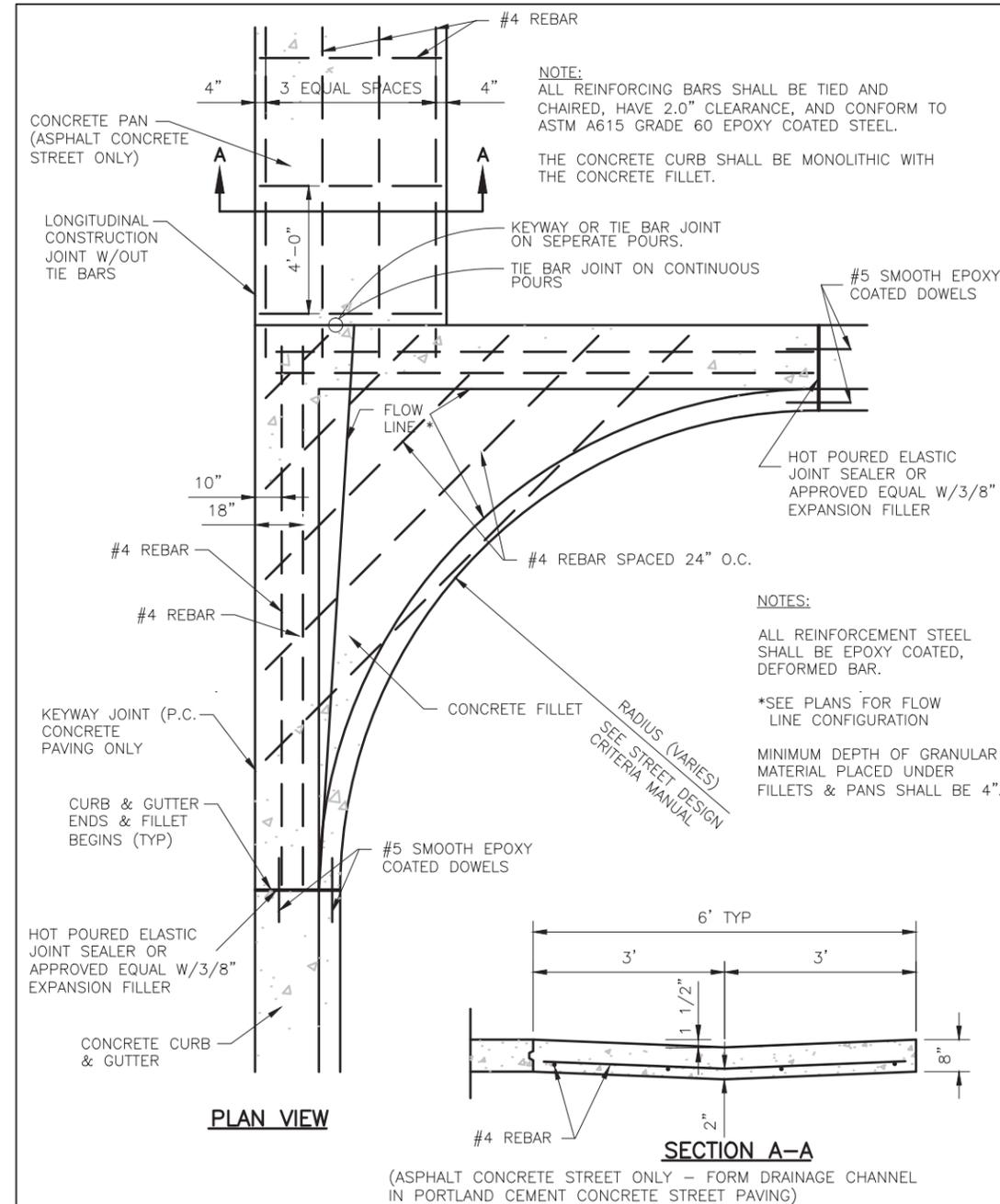


"P" GUTTER
WHERE T IS EQUAL TO 6" IN RESIDENTIAL AREAS & 8" ALONG JACKSON AND MAIN

NOTES:

ALL CURB & GUTTER SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 P.S.I. & AIR ENTRAINED 6% ± 1.5% (4.5% TO 7.5%). ALL DESIGN GRADES ARE TOP OF CURB ELEVATIONS UNLESS OTHERWISE INDICATED ON PLANS. EXPANSION JOINT FILLER IS TO BE PLACED IN THE CURB & GUTTER AT EACH JUNCTION OF A RADIUS. IT SHALL BE PLACED AS PER DETAIL. 60-7, TRANSVERSE EXPANSION JOINT OR CONTRACTION JOINTS SHALL BE PLACED IN THE CURB & GUTTER AT 15' MAXIMUM INTERVALS OR MATCH JOINTS OF CONCRETE PAVEMENT. DOWELS WHEN REQUIRED SHALL BE #5 SMOOTH EPOXY COATED.

MINIMUM DEPTH OF GRANULAR MATERIAL PLACED UNDER CURB & GUTTER SHALL BE 4".



PLAN VIEW

SECTION A-A

(ASPHALT CONCRETE STREET ONLY - FORM DRAINAGE CHANNEL IN PORTLAND CEMENT CONCRETE STREET PAVING)



City of Spearfish

CURB & GUTTER

DATE	01/01/09
REVISED	00/00/00
SECTION	SHEET



City of Spearfish

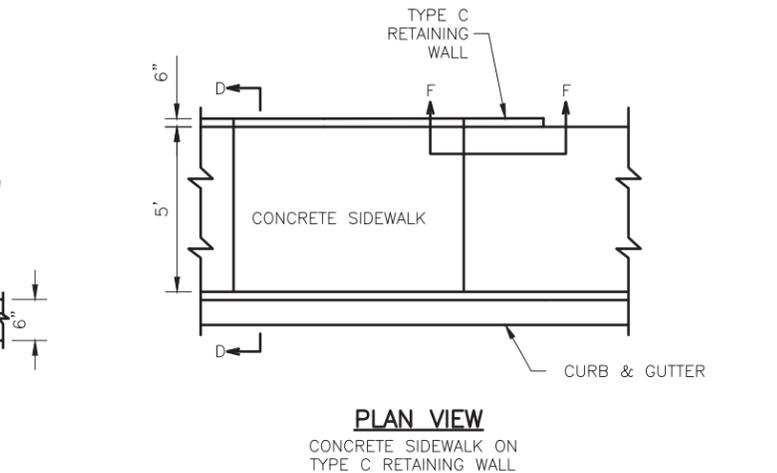
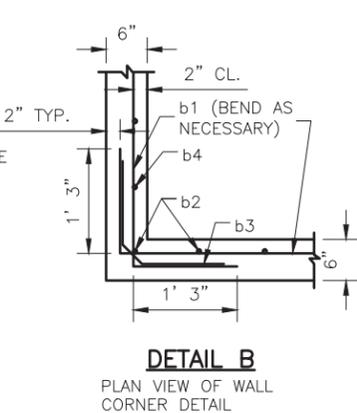
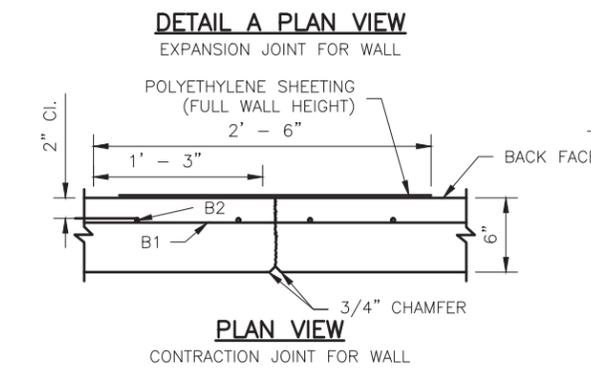
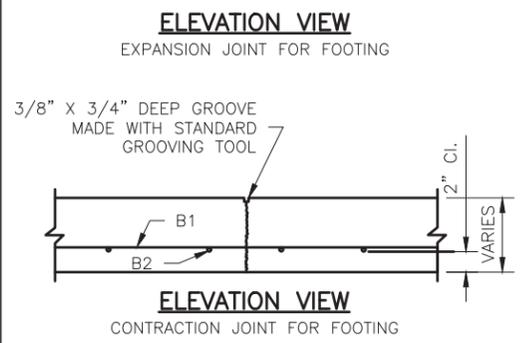
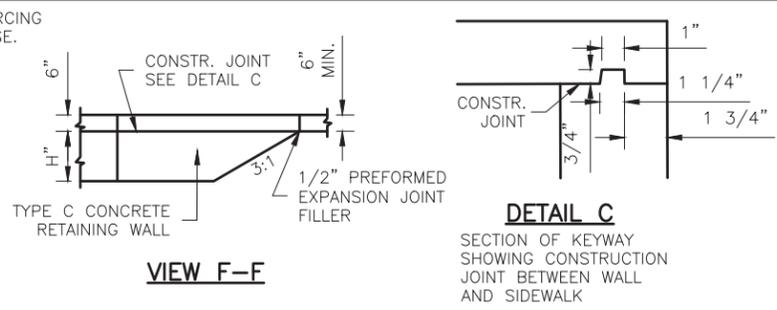
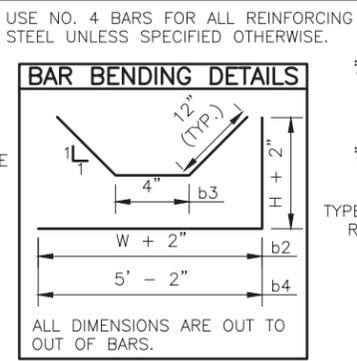
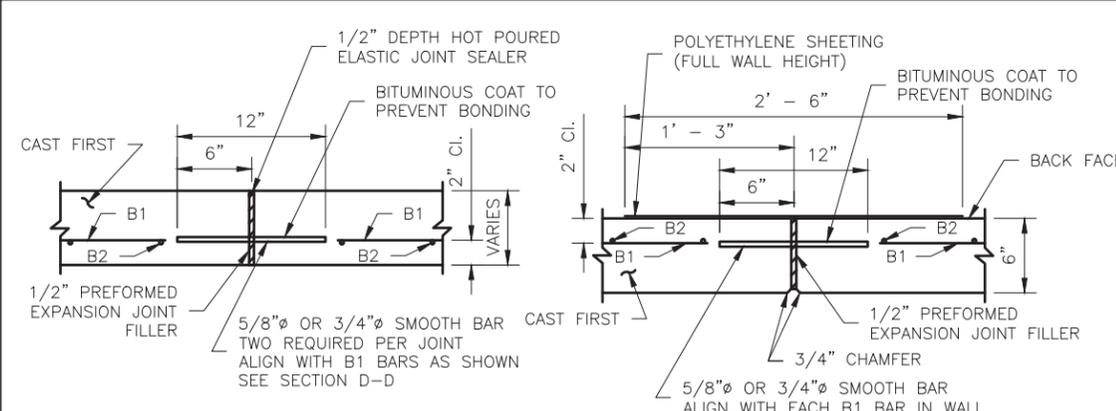
REINFORCED PORTLAND CEMENT CONCRETE FILLET & PAN

DATE	01/01/09
REVISED	00/00/00
SECTION	SHEET

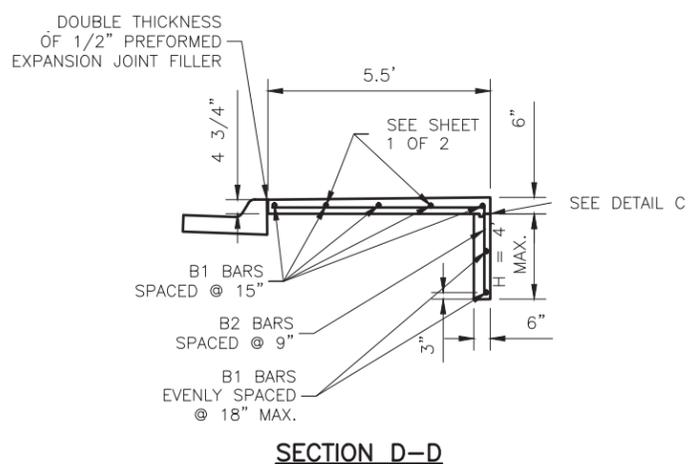


PLANS BY:





- GENERAL NOTES:**
- The Type C Concrete Retaining Wall shall be placed adjacent to pavement or curb and gutter as shown in Section D-D
 - The sidewalk width of the Type C Concrete Retaining Wall shall not be wider than 8 feet or narrower than 5 feet. See plans for specified width.
 - In the areas where the retaining wall foot is to be placed, a 2 inch thickness of cushion material shall be placed and compacted. The cushion material shall conform to Section 651.2 C. of the SDDOT Specifications.
 - All concrete shall be Class M6 and conform to Section 462 of the SDDOT Specifications.
 - All reinforcing steel shall be epoxy coated and shall conform to ASTM A615, Grade 60. The smooth bar may conform to ASTM A615, Grade 40. The epoxy coating shall conform to ASTM A775.
 - For variable height walls, the bottom b1 bar shall be placed parallel to the bottom of the wall. The b1 bars shall be lapped a minimum of 12 inches.
 - A 3/4 inch chamfer shall be provided on all exposed retaining wall edges.
 - Use Detail B for constructing corners in the retaining wall.
 - The maximum expansion joint spacing shall be 90 feet and the maximum contraction joint spacing shall be 30 feet. The contraction and expansion joints shall be placed to match pavement or curb joints where possible.
 - The exposed retaining wall surfaces shall receive a finish in accordance with 460.3 M. of the SDDOT Specifications. The exposed surface of the retaining wall footing, when used as a sidewalk, shall receive a broom finish.
 - The Type C Concrete Retaining Wall shall be measured to the nearest square foot of front face area.
 - All costs for excavation, furnishing and placing backfill and cushion material, labor, equipment, preformed expansion joint filler, all reinforcing steel including the smooth bars, and all concrete except in the area of PCC sidewalk, shall be incidental to the contract unit price per square foot for "Type C Concrete Retaining Wall".
 - The concrete used for the retaining wall footing that extends into the PCC sidewalk shall be paid for at the contract unit price per square foot for the corresponding "4" Concrete Sidewalk".

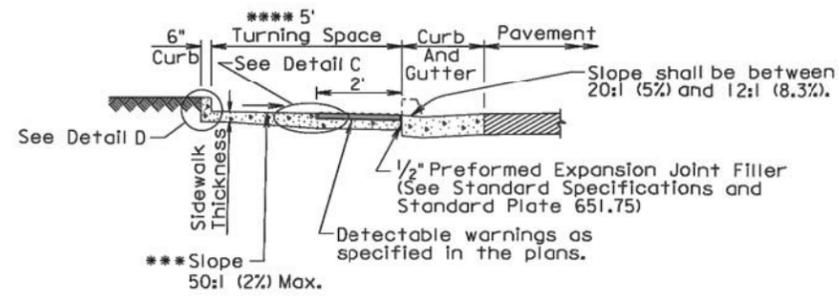


 <p>Public Works Department</p>	<p>City of Spearfish</p> <p>TYPE "C" RETAINING WALL</p>		DATE 01/01/09
			REVISED 00/00/00
			SECTION SHEET

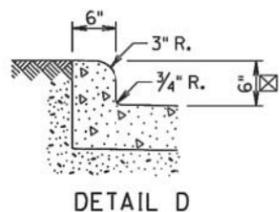


PLANS BY: 

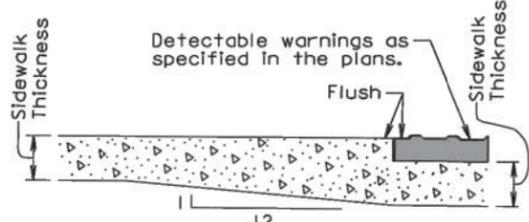
- * The curb transition slope shall match the ramp slope. The ramp slope, at any location of the ramp, shall be 12:1 (8.3%) maximum. The ramp length shall not exceed 15' unless stated otherwise in the plans. Ramp slopes are designed at 12:1 (8.3%) unless stated otherwise in the plans. The minimum length of the curb transition shall be 6'.
- ** The ramp cross slope shall not be steeper than a 50:1 (2%) and the ramp width is 5' unless stated otherwise in the plans.
- *** The slope in the turning space shall not be steeper than 50:1 (2%) in any direction of pedestrian travel.
- **** The turning space is 5' x 5' unless stated otherwise in the plans.
- ☒ The curb height shall be 6" unless stated otherwise in the plans.



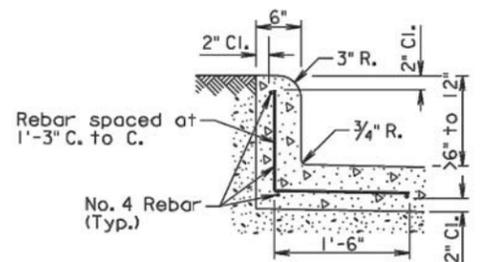
SECTION A-A



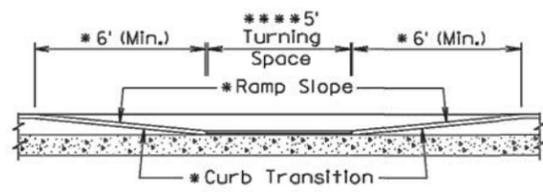
DETAIL D



DETAIL C



DETAIL D
(Use this detail when the curb height is greater than 6" and less than 12")



SECTIONAL VIEW B-B

September 6, 2013

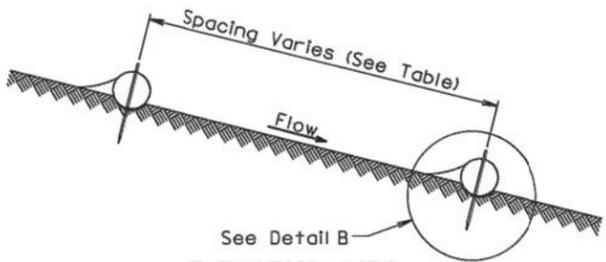
Published Date: 3rd Qtr. 2015	S D D O T	TYPE 3 CURB RAMP (PARALLEL CURB RAMP)	PLATE NUMBER 651.03
			Sheet 2 of 3

GENERAL NOTES:

- For illustrative purpose only, type 1 detectable warnings are shown in the drawings.
- For illustrative purpose only, a PCC fillet section is shown in one of the drawings. The curb ramp depicted on this standard plate may be used with a PCC fillet section, with curved curb and gutter, or with straight curb and gutter.
- The curb ramp shall be placed at the location stated in the plans.
- Sidewalk adjacent to the curb ramp shall be as shown in the plans.
- Care shall be taken to ensure a uniform grade on the ramp, free of sags and short grade changes.
- Surface texture of the ramp shall be obtained by coarse brooming transverse to the slope of the ramp.
- The normal gutter line profile shall be maintained through the area of the ramp.
- Joints shall be sawed or tooled into the concrete adjacent to the detectable warnings to alleviate possible corner cracking (see plan view for joint location).
- Care shall be taken to ensure that the surface of the detectable warnings are clean and maintains a uniform color.
- The detectable warnings shall be cut as necessary to fit the plan specified limits of the detectable warnings. Cost for cutting the detectable warnings shall be incidental to the corresponding detectable warning bid item.
- When curb height is greater than 6" and less than 12", reinforcing steel is required in accordance with the detail on sheet 2 of 3. The reinforcing steel shall conform to ASTM A615, Grade 60. Cost for furnishing and installing the reinforcing steel shall be incidental to the contract unit price per square foot for the corresponding concrete sidewalk bid item.
- There will be no separate payment for curb ramps. The curb ramp shall be measured and paid for at the contract unit price per square foot for the corresponding concrete sidewalk bid item. The square foot area of the detectable warnings and the curb along the short radius shall be included in the measured and paid for quantity of sidewalk.
- The curb transitions and ramp opening shall be measured and paid for at the contract unit price per foot for the corresponding curb and gutter bid item when curb and gutter is used. The curb transitions and ramp opening shall be measured and paid for at the contract unit price per square yard for the corresponding PCC fillet section bid item when a PCC fillet section is used.
- The type 1 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 1 detectable warnings including labor, equipment, materials, and incidentals shall be paid for at the contract unit price per square foot for "Type 1 Detectable Warnings".
- The type 2 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 2 detectable warnings including labor, equipment, and materials, including adhesive, necessary sealant or grout, and necessary grinding shall be paid for at the contract unit price per square foot for "Type 2 Detectable Warnings".

September 6, 2013

Published Date: 3rd Qtr. 2015	S D D O T	TYPE 3 CURB RAMP (PARALLEL CURB RAMP)	PLATE NUMBER 651.03
			Sheet 3 of 3



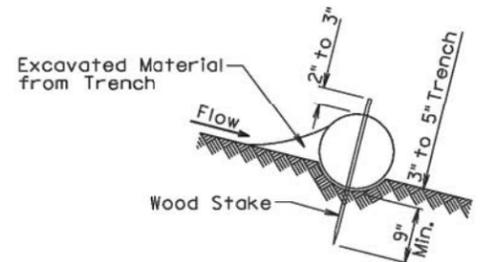
Spacing Varies (See Table)

Flow

See Detail B

**ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION**

CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



Excavated Material from Trench

Flow

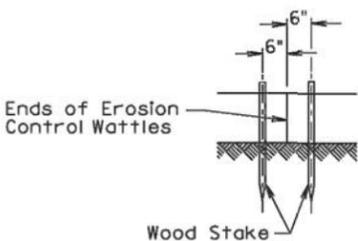
2" to 3" Trench

3" to 5" Wattle

9" Min.

Wood Stake

**DETAIL B
(TYPICAL OF ALL INSTALLATIONS)**



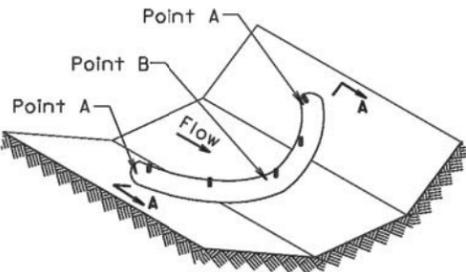
Ends of Erosion Control Wattles

6"

6"

Wood Stake

DETAIL C



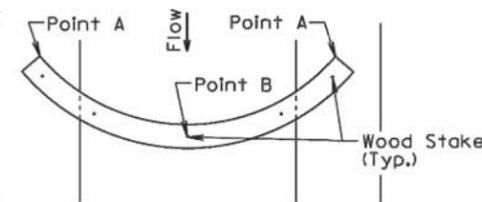
Point A

Point B

Point A

Flow

**ISOMETRIC VIEW
DITCH INSTALLATION**



Point A

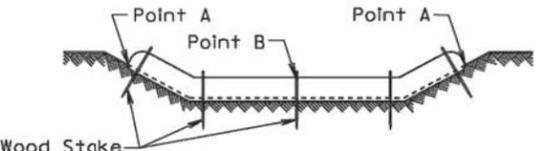
Flow

Point A

Point B

Wood Stake (Typ.)

**PLAN VIEW
DITCH INSTALLATION**



Point A

Point B

Point A

Wood Stake

SECTION A-A

DITCH INSTALLATION	
Grade	Spacing (Ft)
2%	150
3%	100
4%	75
5%	50

December 23, 2004

Published Date: 3rd Qtr. 2015	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

GENERAL NOTES:

At cut or fill slope installations, wattles shall be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor shall dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes shall be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' to 4'.

When installing running lengths of wattles, the Contractor shall butt the second wattle tightly against the first and shall not overlap the ends. See Detail C.

The Contractor and Engineer shall inspect the erosion control wattles once every week and within 24 hours after every rainfall event greater than 1/2". The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping shall be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

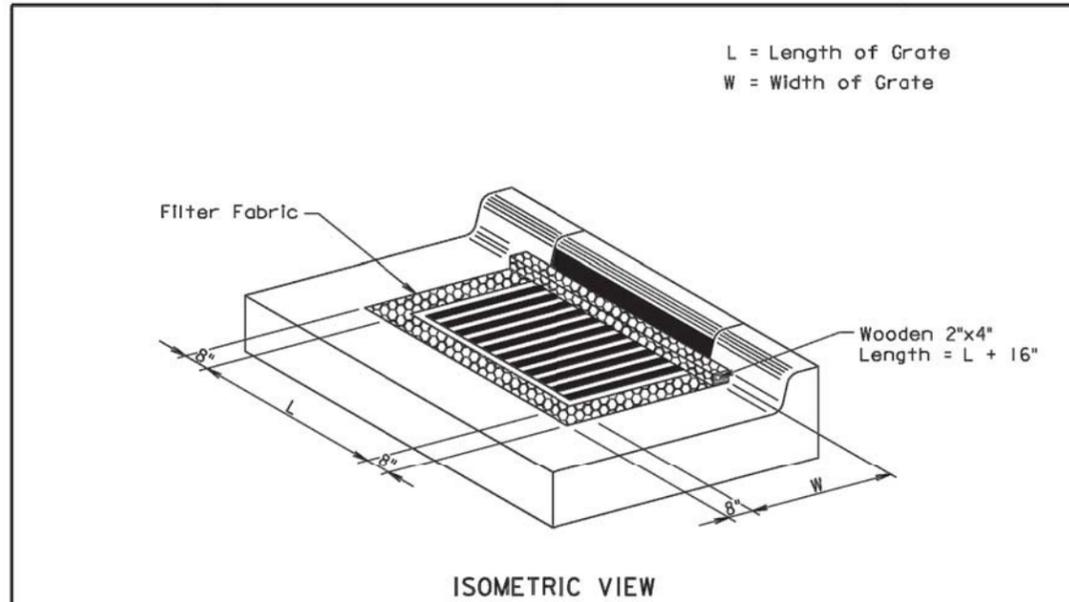
All costs for removing the erosion control wattle from the project including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

December 23, 2004

Published Date: 3rd Qtr. 2015	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

PLANS BY:





GENERAL NOTES:

The grate and curb and gutter shown are for illustrative purposes only.

The sediment control at inlet with frame and grate shall be placed at locations stated in the plans or at locations determined by the Engineer.

The filter fabric shall be the type specified in the plans.

The filter fabric shall be placed in the inlet opening prior to placing the grate. Approximately 18 inches of excess filter fabric shall be wrapped around the 2"x4" and stapled securely to the 2"x4" after the grate has been placed.

The Contractor shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event. The Contractor shall maintain the sediment control device by removing accumulated sediment and replacing torn filter fabric with new filter fabric.

The removed sediment shall be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

All costs for furnishing, installing, inspecting, maintaining, removing, and replacing the sediment control device at the inlet including labor, equipment, and materials shall be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

September 14, 2005

<i>Published Date: 3rd Qtr. 2015</i>	S D D O T	SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES	PLATE NUMBER 734.10
			Sheet 1 of 1

PLANS BY:

