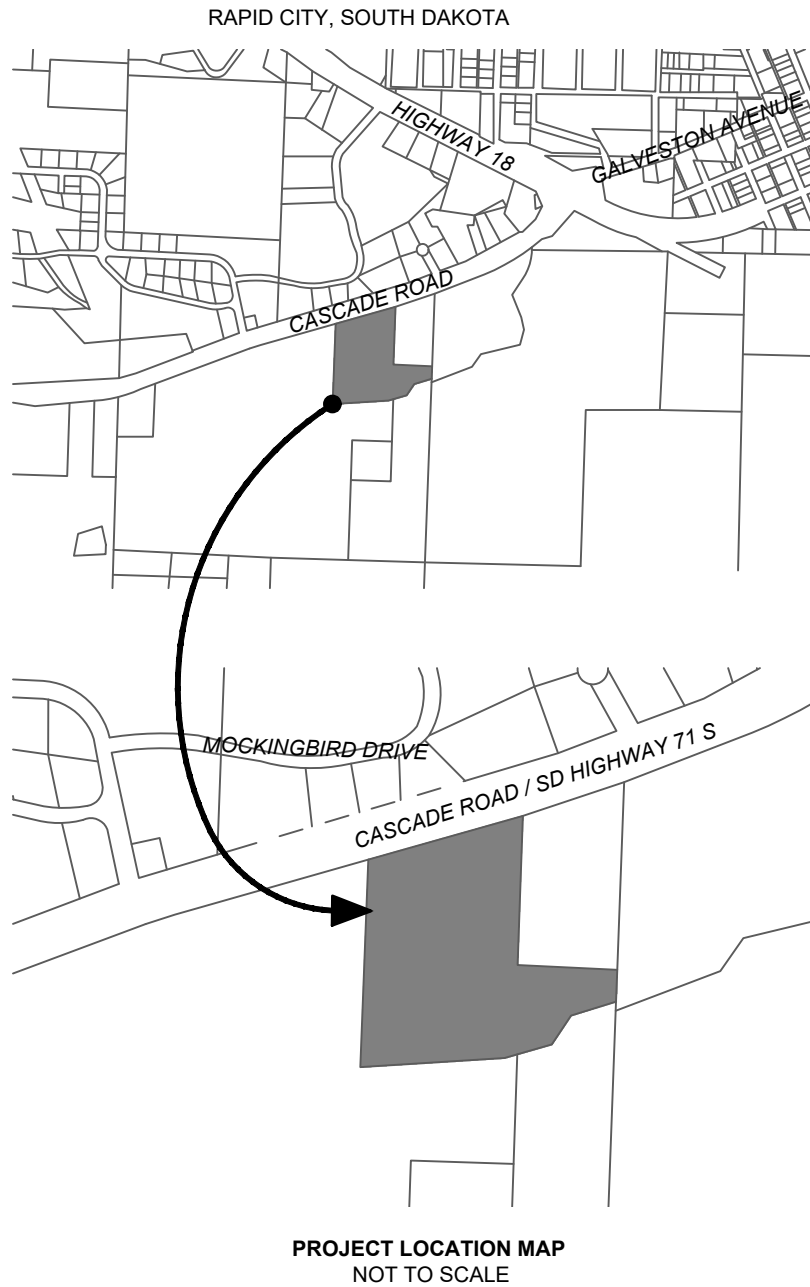
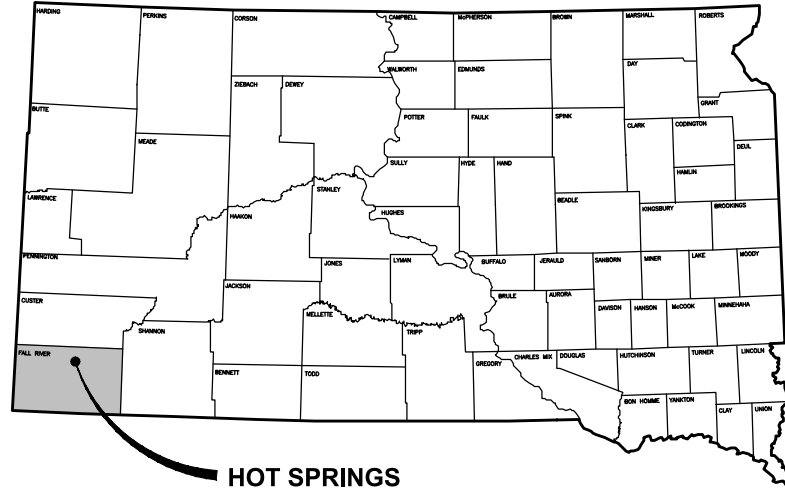


CASCADE HILLS SUBDIVISION STREET AND UTILITIES IMPROVEMENTS HOT SPRINGS, SOUTH DAKOTA TDG PROJECT NO. 25-099

ONE CALL
BEFORE DIGGING
1-800-781-7474

SOUTH DAKOTA



PROJECT LOCATION MAP
NOT TO SCALE

INDEX OF SHEETS

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- 14 SITE PLAN
- 15 SANITARY SEWER AND WATER OVERVIEW
- 16 STORM SEWER OVERVIEW
- 17-18 CASCADE HILLS DRIVE PLAN AND PROFILE STA 0+00 TO 7+80
- 19 BROWNSTONE COURT PLAN AND PROFILE STA 0+20 TO 4+20
- 20-22 STONE RIDGE DRIVE PLAN AND PROFILE STA 0+00 TO 11+80
- 23-24 HWY 71 PLAN AND PROFILE
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- 27-30 STORM SEWER PLAN AND PROFILES
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- 32-35 POINTS PLAN
- 36-40 DETAILS

Project Name:
CASCADE HILLS SUBDIVISION

Current Address:
SD HIGHWAY 71 S

Legal Description:
FRMS TRACT 1, SEC 26, T7S, R5E

Description:
SUBDIVISION IMPROVEMENTS FOR
FRMS TRACT 1 PROPERTY.
INCLUDES WATER, SANITARY SEWER,
STORM, AND STREET IMPROVEMENTS

Lot Line Setbacks:
EXCEPTION TO SETBACKS
REFERENCE PUD #3 CASCADE
HILLS SUBDIVISION.

GENERAL SETBACKS:
FRONT: 25'
SIDE: 10' - PUD#3 8'
REAR: 25'
14' (LOT 9)
20' (LOT 21)

Right-of-Way
SD HIGHWAY 71 S = 160'

PLANS FOR

PLANS BY

TDG
Towey Design Group
P.O. BOX 67
147 Chishom Dr.
Box Elder, SD 57719
605.600.3758

CITY APPROVAL

SD DANR APPROVAL



I, BRANDON KRUSE, CERTIFY THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF SOUTH DAKOTA.

B.M. Kruse
ENGINEER:

05/26/2026
DATE:

SHEET NAME:
TITLE

SHEET NO:

1

P:\25-099 - FRHS Tract 1 Development\25-099-E01 Drawings\Sheets\LEGEND NOTES.dwg 5/28/2026 7:31am COLOR PLANS - GREY TOPO CTB

Specifications to Be Used

All work shall be constructed in accordance with the Hot Springs Code of Ordinances. Where the Hot Springs Code of Ordinances is deficient, the City of Rapid City Standard Specifications for Public Works Construction, 2022 Edition (Standard Specifications) with all current updates, except as modified in the bid documents.

Where work is to be completed within Rapid Valley Sanitary Districts (RVSD) boundaries, the Contractor shall reference RVSD's Standard Specifications which are then further supplemented by Rapid City's.

The Contractor shall notify the engineer of conflicts between drawings, detailed specifications, and the Standard Specifications.

Project Construction Staking

TDG will be responsible for construction staking on the project per the standard specifications. TDG will provide a staking proposal to bidding each contractor outlying the terms and scope of construction staking for this project.

Project Note

This project is the Street and Utility plan for the Cascade Hills Subdivision. Work includes minor dirt moving operations, asphalt paving, curb and gutter, installation of water main, sanitary sewer, storm sewer, dry utility trenching.

Geotechnical Investigation

The geotechnical evaluation entitled "Report of Geotechnical Exploration Single and Multi-Family Residential Development FRMS Tract 1 - SD Highway 71 - AET Project No. P-0040382" was completed March 06, 2025 by American Engineering Testing, Inc. An addendum was added to the geotechnical recommendations for the retaining wall on March 2, 2026. The geotechnical evaluation is included in the Project Manual for the bidder's information.

Erosion and Sediment Control

Reference Section 18 of the Standard Specifications. A state permit may or may not be required for this project however, a City permit is required. The Contractor shall provide an erosion and water pollution control plan that complies with the current edition of the City of Rapid City Storm Water Quality Manual and SDDANR, as required.

The Contractor is advised that several agencies have the authority to "Stop Work" if the pollution prevention control is not implemented or is not effective. No compensation will be forthcoming for "Time Lost" due to a "Stop Work" order.

Maintenance and repair of erosion control devices shall be the responsibility of the Contractor. Inspect erosion control devices at least once a week and after each rainfall. Maintenance and repair of the erosion control devices shall be incidental to the unit price bid for the appropriate bid item.

As construction may deviate from the design plan, additional erosion and sediment control shall be used to prevent sediment from being transported from the disturbed construction areas. The Contractor shall have personnel on-site during rain events to monitor the effectiveness of the project best management practices (BMPs).

Erosion & sediment control devices shall be submitted to the project manager as shop drawings for approval.

The Contractor shall be responsible for removing erosion control devices when directed by the Engineer.

Contractor Furnished Staking

Construction staking will be completed by the Engineer under the direct supervision of a South Dakota Registered Land Surveyor.

Upon signing a CAD waiver release form, TDG will provide the Prime Contractor with electronic copies of the civil engineering design files. It will be the Prime Contractor's responsibility to distribute the electronic design files to their Subcontractors as necessary

Pre-construction Meeting

Reference Section 7.70 of the Standard Specifications. A pre-construction meeting will be scheduled and will require attendance by the Contractor working on the project. The pre-construction meeting will not be scheduled until all required submittals have been received and approved.

- Detailed Construction Schedule;
- Traffic Control Plan;
- Copy of the Contractor Authorization Form to accompany the Notice of Intent to the SDDANR;
- Other permits as required;
- List of subcontractors and suppliers associated with the project;
- List of licensed pipe installers, or other key personnel who will be on the project;

Permits

Unless noted otherwise, the General Contractor shall obtain and pay for all permits, tests, inspections, etc., required by agencies that have jurisdiction over the project. The Contractor is responsible for all bonds, letters of credit, or cash sureties related to the work if applicable. Execute and inspect work in accordance with all local and state codes, rules, ordinances, or regulations pertaining to the particular type of work involved.

The Contractor shall be responsible for obtaining all necessary permits for this project including, but not limited to, the following:

	NOT REQ. D	BY CITY	BY CONT.	NOTES
City Air Quality Permit			X	
City Grading Permit			X	
City Floodplain Development Permit	X			
City Right-to-Work Permit from U.M.	X			
City R.O.W. Permit	X			
City Erosion Control Permit			X	
Pennington County Permits	X			
SDDANR Water/Wastewater Approval				1
SDDANR SWPPP			X	2
SDDANR Temporary Discharge Permit			X	2
SDDOT ROW Permit			X	
SDDOT Occupy Permit			X	
Other permits	X			

1. Previously acquired by Owners Engineer.
2. If required for the project.

Materials Testing

Materials Testing for this project will be completed by the owner/ engineer.

Utility Company Notification

The Contractor shall utilize the South Dakota one call notification process to provide advance notice of at least 48 hours, excluding weekends and holidays, to inform all South Dakota underground facility operators of intended excavation. The Contractor shall contact all utility companies before work has commenced.

South Dakota 811 (One call)
1-800-781-7474 or 811

If utility locations are sufficiently identified within the time frame required any excavator damaging or injuring the underground facilities is strictly liable for damages to the utility.

If in the course of excavation, the excavator is unable to locate the underground facility or discovers that the operator of the underground facility has incorrectly located the underground facility, he shall promptly notify the utility operator, or, if the utility operator is unknown, the one-call notification center. The excavator shall also notify the Engineer.

Existing Utilities

Location of existing utilities shown on these drawings are approximate and were taken from best available records. Prior to excavation, the Contractor shall field verify exact location of all utilities whether or not shown on these drawings. Contractor shall protect all utilities during construction. Excavators shall maintain a minimum horizontal clearance of eighteen inches between a marked underground facility and the cutting edge of any mechanical equipment. If excavation is required within eighteen inches, horizontally, the excavator shall expose the facility with hand tools or approved noninvasive methods and shall protect and support the facility prior to further excavation with mechanical equipment.

Unless explicitly otherwise noted, any disturbance or replacement of existing utilities shall be incidental to the project. If required, the Contractor shall coordinate relocation of utility with the utility owner. All utilities are to be adjusted and/or relocated by the respective utility companies unless other provisions are explicitly called for within these drawings.

Contractor Provided Water

There will be no separate payment for water. The Contractor shall be responsible for providing water for compaction of earthen and granular materials used for, but not limited to, grading, subgrade preparation, and trench backfill. Water needed for sod and seed irrigation, street cleaning, and other miscellaneous items shall also be provided by the Contractor. The costs for purchasing, loading, transporting, and applying/ incorporating water shall be incidental to the various items where water is required.

The Contractor will be required to pay for meter fees and installation onto a fire hydrant if the water is purchased from:

- Hot Springs
- to arrange for meter hook-ups to be added to fire hydrants and to obtain the current rate that will be charged.

Traffic Control

The Contractor is required to maintain traffic in accordance with the Specifications. Reference SDDOT lane closure plates and truck turning and entering signs will have to be placed on Highway 71 either side of the construction entrances

Provide traffic control plan as necessary to Engineer for review and approval. The Contractor is required to have a person available 24 hours/day, 7 days/week to maintain traffic control devices.

Record Documents

Reference Section 7.65 of the Standard Specifications. The Contractor shall measure and record any horizontal or vertical deviations from the contract drawings. The changes shall be recorded in an accurate, neat fashion on the drawings and furnished to the Engineer upon completion of the project. Specifically, all service taps, connections, anodes and buried fittings shall be recorded for the work. The record drawings shall be on-site and available for review by the Engineer upon request.

Asphalt

Estimated quantities were based upon an assumed in place density of 150 lb./cu ft

Base Course

Estimated quantities were based upon an assumed in place density of 150 lb./cu ft

Material Testing

All material testing on the project shall be in accordance with the Standard Specifications.

Grading Quantities

Quantities are based upon a top of surface to top of surface comparison. A fill factor of 1.2 has been applied to the listed quantities on the plan set to account for shrinkage.

Homes Shown on this Plan Set

The homes/ buildings shown on this plan set are for reference only. The contractor is not responsible for the construction of any building shown on this plan set as part of this contract.

Utilities:

- South Dakota One Call office - (800) 781-7474
- City of Rapid City (Utility Main.) office - (605) 394-4163
- City of Rapid City (Traffic Ops) office - (605) 394-4118
- Rapid Valley Sanitary District office - (605) 393-1050
Contact - Rusty Schmidt cell - (605) 381-2904
- West River Electric Association office - (605) 393-1500
Contact - Matt Schmahl cell - (605) 391-1956
- Black Hills Energy office - (605) 721-3200
Contact - Kelsey Peterson cell - (605) 415-2751
- Montana Dakota Utility office - (605) 342-0160
Contact - Andrew Morse cell - (605) 484-9839
- Midcontinent office - (800) 888-1300
Contact - Darin McIntosh cell - (605) 323-7354
- Bluepeak (Vast) office - (605) 721-2000
Contact - Patrick Strasburger cell - (605) 430-8554
- Century Link office - (605) 863-0497
Contact - Arthur Turner cell - (605) 645-3757
- SDN Communication office - (605) 341-2518
Contact - Ryan Smith cell - (605) 209-2338



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LOGO:



CASCADE HILLS SUBDIVISION
STREET AND UTILITIES IMPROVEMENTS
HOT SPRINGS, SOUTH DAKOTA

REVISIONS:

- 2026.04.24 - 95% DESIGN
- 2026.05.26 - 100% DESIGN

JOB NUMBER: 25-099

DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:

GENERAL NOTES

SHEET NO:

2


EXISTING

	BORE HOLE		ASPHALT
	TRANSFORMER		BUILDING
	ELECTRIC / COMM BOX		CENTERLINE
	FIRE HYDRANT		COMMUNICATION LINE
	GATE VALVE		CONCRETE
	SANITARY SEWER CLEANOUT		CURB & GUTTER
	SANITARY SEWER MANHOLE		GAS LINE
	SIGN		EDGE OF GRAVEL
	STREET LIGHT		FENCE - BARB
	TYPE B		FENCE - CHAINLINK
	TYPE E		FENCE - WOOD
	TYPE S		MAJOR CONTOUR
	TREE		MINOR CONTOUR
	GUY		OVERHEAD POWER LINE
			POWER CONDUIT
			PROPERTY LINE
			RIGHT OF WAY LINE
			RIPRAP
			SANITARY SEWER MAIN
			SANITARY SEWER SERVICE
			SECTION LINE
			SIDEWALK
			STORM SEWER
			WATER MAIN
			WATER SERVICE

PROPOSED

	BEND		ASPHALT
	BORE HOLE		COMMUNICATION LINE
	CAP		CONCRETE
	CROSS		CURB & GUTTER
	DEFLECTION COUPLING		DEMOLITION
	FIRE HYDRANT		DIRECTION OF FLOW
	GATE VALVE		DRAINAGE LINE
	LEFT TURN LANE		EXCAVATION LIMITS
	POST INDICATOR VALVE		EXISTING PROPERTY LINE
	REDUCER		EXISTING SANITARY SEWER MAIN
	RIGHT TURN LANE		EXISTING WATER MAIN
	SANITARY SEWER CLEANOUT		FOUNDATION DRAIN
	SANITARY SEWER MANHOLE		GAS LINE
	SIGN		GRAVEL FILTER SOCKS
	STREET LIGHT		MAJOR CONTOUR
	TEE		MINOR CONTOUR
	TYPE B		PAVEMENT MARKING
	TYPE E		PERIMETER PROTECTION
	TYPE S		POWER CONDUIT
			PROPERTY LINE
			ROOF DRAIN
			RIGHT OF WAY LINE
			RIPRAP
			SANITARY SEWER MAIN
			SANITARY SEWER SERVICE
			SECTION LINE
			SETBACK LINE
			SIDEWALK
			SILT FENCE
			STORM SEWER
			STRAW WATTLE
			TOP SOIL BERM
			WATER MAIN
			WATER SERVICE

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LOGO:



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STREET AND UTILITIES IMPROVEMENTS
HOT SPRINGS, SOUTH DAKOTA

REVISIONS:

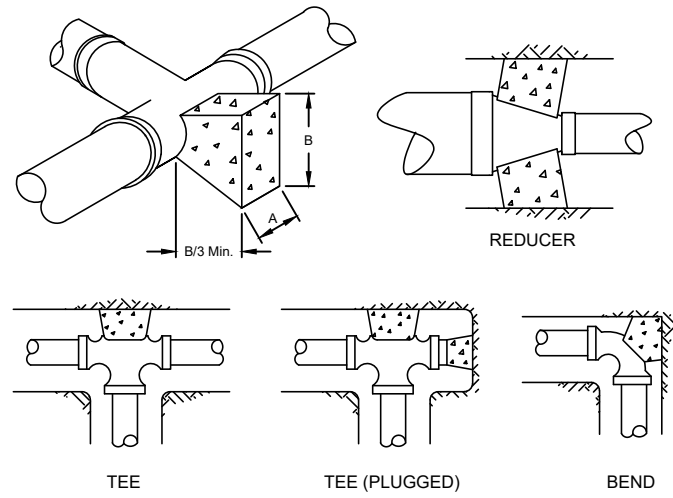
2026.04.24 - 95% DESIGN
2026.05.26 - 100% DESIGN

JOB NUMBER: 25-099

DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME: **LEGEND**

SHEET NO: **3**



THRUST BLOCKING FOR WATER MAIN FITTINGS

12" PVC		8" PVC		6" PVC	
FITTINGS	RESTRAINED LENGTHS	FITTINGS	RESTRAINED LENGTHS	FITTINGS	RESTRAINED LENGTHS
BENDS					
11 1/4"	3'	11 1/4"	2'	11 1/4"	2'
22 1/2"	5'	22 1/2"	3'	22 1/2"	3'
45°	9'	45°	6'	45°	5'
90°	21'	90°	15'	90°	11'
TEE'S					
12"x12"	28'	8"x8"	10'	6"x6"	1'
12"x8"	1'	8"x6"	1'		
12"x6"	1'				
VALVE/CAP 62'		VALVE/CAP 43'		VALVE/CAP 33'	
REDUCERS/INCREASERS		REDUCERS/INCREASERS		REDUCERS/INCREASERS	
12"x8"	33'	8"x6"	18'		--
12"x6"	45'		--		--
VERTICAL OFFSETS					
45°		45°		45°	
UPPER BEND	35'	UPPER BEND	--	UPPER BEND	--
LOWER BEND	7'	LOWER BEND	--	LOWER BEND	--

RESTRAINING REQUIREMENTS
ALL FITTINGS, VALVES, AND PIPE JOINTS WITHIN THE SPECIFIED RESTRAINED LENGTHS LISTED BELOW SHALL BE RESTRAINED.

INSTALLATION CONDITIONS USED FOR CALCULATIONS:
1. SOIL TYPE = CL, GRAN, FILL
2. TRENCH TYPE = 5
3. TEST PRESSURE = 150 PSI
4. SAFETY FACTOR = 1.5:1
5. DEPTH BURY = 6.0 FT.
6. TEE RESTRAINTS WERE CALCULATED W/RESTRAINT LENGTHS OF 5' IN EACH DIRECTION ALONG THE RUN OF TEE.

NOTE:
CALCULATIONS FOR RESTRAINED LENGTHS WERE DERIVED FROM EBAA IRON INC. SOFTWARE. WHERE RESTRAINT LENGTHS CAN NOT BE ACHIEVED THRUST BLOCKS SHALL BE UTILIZED.

OPERATING PRESSURE (psi)	150
SOIL BEARING CAPACITY (psf)	1500
FACTOR OF SAFETY	2

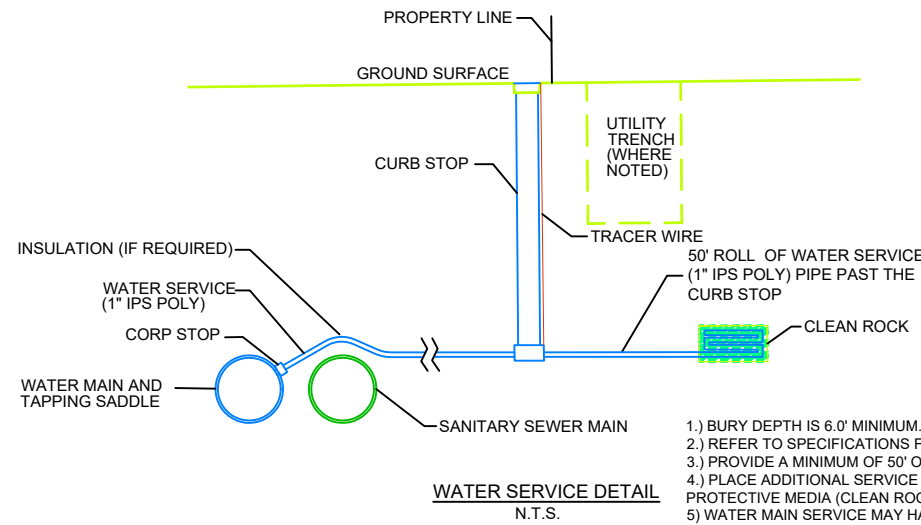
TEES AND DEAD ENDS					
MIN. AREA (ft2)	A (ft)	B (ft)	T (ft)	MIN. VOL. (cy)	
4	3.70	2.70	1.40	1.50	0.21
6	7.50	4.00	1.90	1.50	0.42
8	12.90	5.20	2.50	1.50	0.72
10	19.40	6.30	3.10	1.50	1.09
12	27.40	7.50	3.70	1.50	1.54
14	36.80	8.60	4.30	1.50	2.05
16	47.60	9.80	4.90	2.00	3.56
18	59.80	10.90	5.50	2.00	4.44
20	73.30	12.10	6.10	2.00	5.47
24	104.60	14.60	7.20	2.00	7.79

90 DEGREE BENDS					
MIN. AREA (ft2)	A (ft)	B (ft)	T (ft)	MIN. VOL. (cy)	
4	5.20	3.30	1.60	1.50	0.29
6	10.60	4.70	2.30	1.50	0.60
8	18.20	6.10	3.00	1.50	1.02
10	27.40	7.50	3.70	1.50	1.54
12	38.80	8.90	4.40	1.50	2.18
14	52.10	10.30	5.10	1.50	2.92
16	67.30	11.70	5.80	2.00	5.03
18	84.50	13.00	6.50	2.00	6.26
20	103.70	14.50	7.20	2.00	7.73
24	147.90	17.20	8.60	2.00	10.96

45 DEGREE BENDS					
MIN. AREA (ft2)	A (ft)	B (ft)	T (ft)	MIN. VOL. (cy)	
4	2.80	2.40	1.20	1.50	0.16
6	5.80	3.50	1.70	1.50	0.33
8	9.90	4.50	2.20	1.50	0.55
10	14.90	5.60	2.70	1.50	0.84
12	21.00	6.60	3.20	1.50	1.17
14	28.20	7.50	3.80	1.50	1.58
16	36.40	8.50	4.30	2.00	2.71
18	45.80	9.60	4.80	2.00	3.41
20	56.10	10.60	5.30	2.00	4.16
24	80.10	12.80	6.30	2.00	5.97

22.5 DEGREE BENDS					
MIN. AREA (ft2)	A (ft)	B (ft)	T (ft)	MIN. VOL. (cy)	
4	1.4	1.80	0.80	1.50	0.08
6	2.9	2.50	1.20	1.50	0.17
8	5.0	3.20	1.60	1.50	0.28
10	7.6	4.00	1.90	1.50	0.42
12	10.7	4.70	2.30	1.50	0.60
14	14.3	5.40	2.70	1.50	0.81
16	18.6	6.20	3.00	2.00	1.38
18	23.3	6.90	3.40	2.00	1.74
20	28.6	7.60	3.80	2.00	2.14
24	40.8	9.10	4.50	2.00	3.03

11.25 DEGREE BENDS AND HD COUPLINGS					
MIN. AREA (ft2)	A (ft)	B (ft)	T (ft)	MIN. VOL. (cy)	
4	0.7	1.20	0.60	1.50	0.04
6	1.5	1.70	0.90	1.50	0.09
8	2.5	2.30	1.10	1.50	0.14
10	3.8	2.80	1.40	1.50	0.22
12	5.4	3.40	1.60	1.50	0.30
14	7.2	3.80	1.90	1.50	0.40
16	9.3	4.50	2.10	2.00	0.70
18	11.7	4.90	2.40	2.00	0.87
20	14.4	5.40	2.70	2.00	1.08
24	20.5	6.50	3.20	2.00	1.54



- 1.) BURY DEPTH IS 6.0' MINIMUM.
- 2.) REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- 3.) PROVIDE A MINIMUM OF 50' OF SERVICE LINE FROM CURB STOP.
- 4.) PLACE ADDITIONAL SERVICE LINE (BEYOND THE UTILITY TRENCH IN A PROTECTIVE MEDIA (CLEAN ROCK).
- 5.) WATER MAIN SERVICE MAY HAVE TO BE INSULATED WHEN CROSSING THE PROPOSED 8" SANITARY SEWER MAIN.



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LOGO:



CASCADE HILLS SUBDIVISION
STREET AND UTILITIES IMPROVEMENTS
HOT SPRINGS, SOUTH DAKOTA

REVISIONS:

- 2026.04.24 - 95% DESIGN
- 2026.05.26 - 100% DESIGN

JOB NUMBER: 25-099

DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:

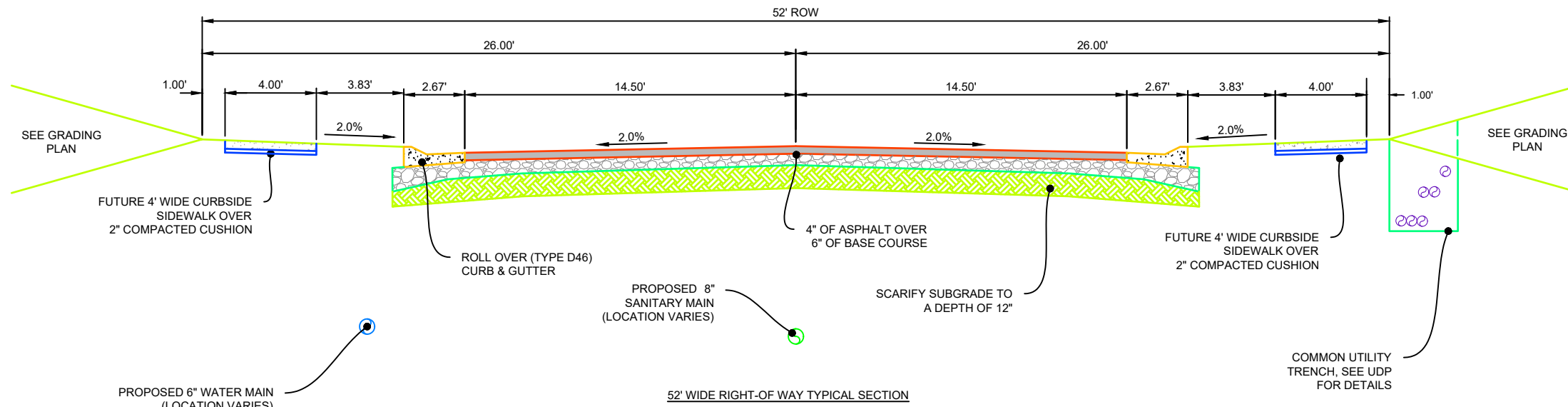
TYPICAL SECTIONS

SHEET NO:

4

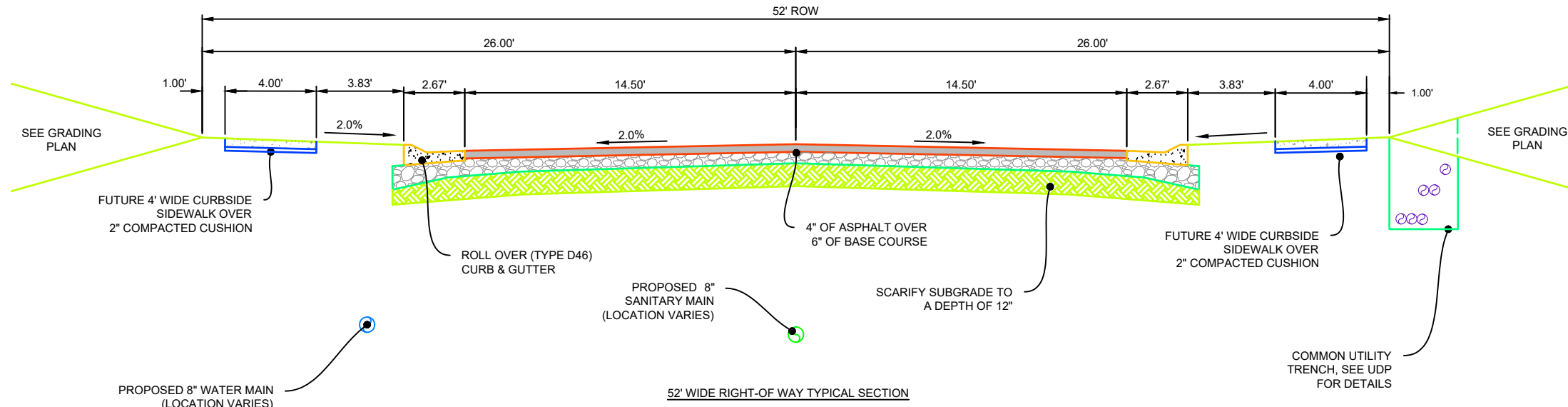
COLOR PLANS - GREY TOPO.CTB

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52' WIDE RIGHT-OF WAY TYPICAL SECTION

STONE RIDGE DRIVE
 STA. 0+35.00 TO 6+88.14
 BROWNSTONE COURT
 STA. 0+92.17 TO 3+64.34



52' WIDE RIGHT-OF WAY TYPICAL SECTION

CASCADE HILLS ROAD
STA. 1+75.35 TO 6+49.86



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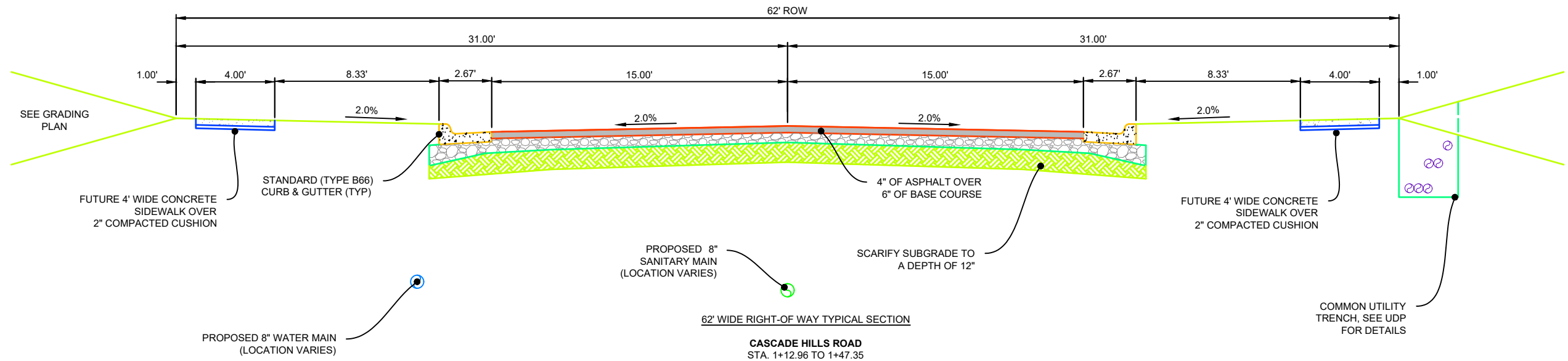
TYPICAL SECTIONS

SHEET NO:

5

COLOR PLANS - GREY.TPOD.CTB

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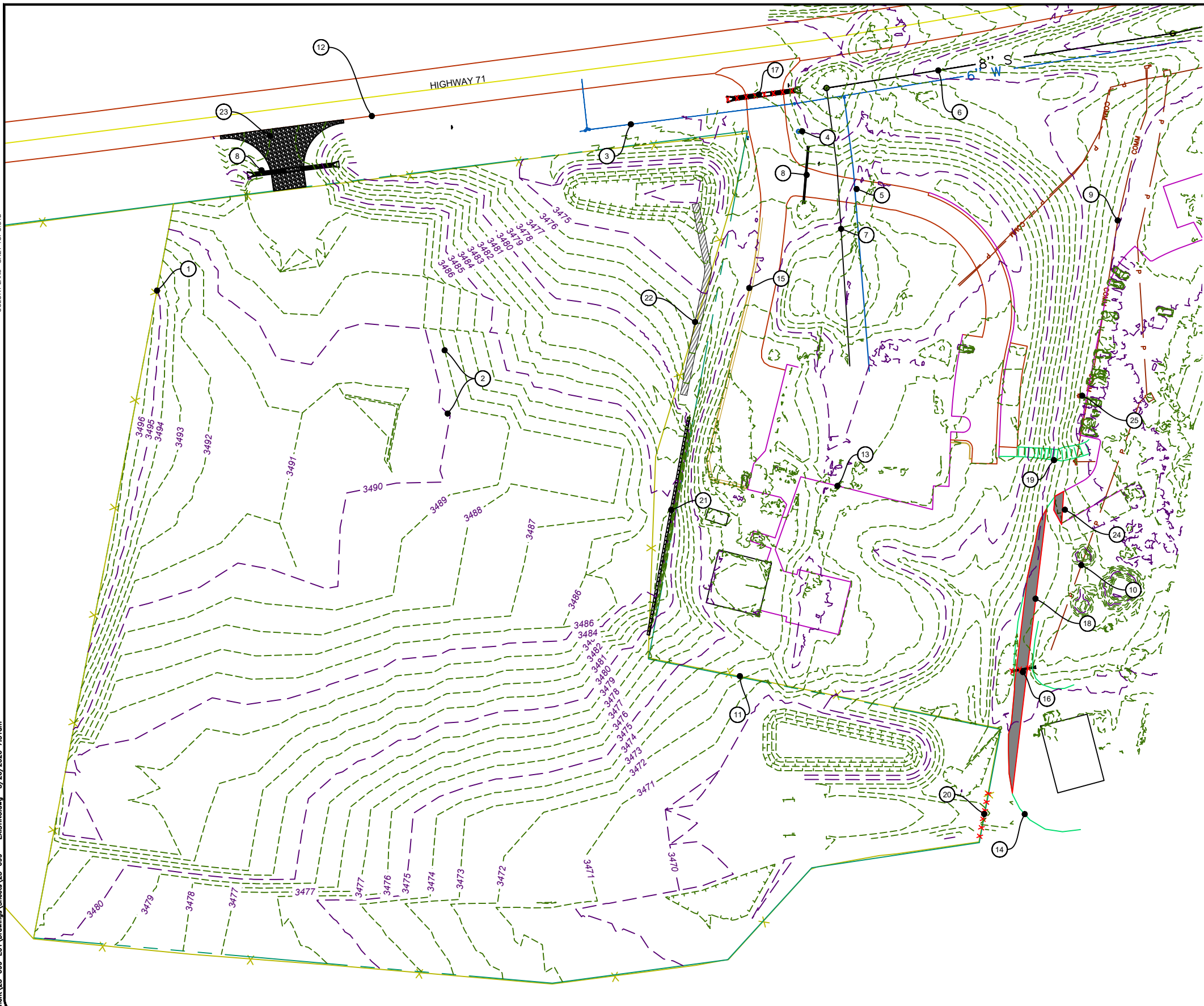
TYPICAL SECTIONS

SHEET NO:

6

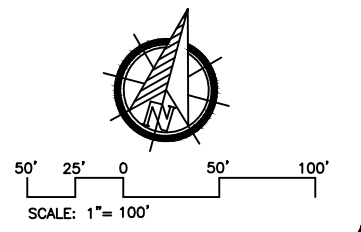
COLOR PLANS - GREY TOPOGCTB

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- ① PROPERTY LINE
- ② EXISTING 1' CONTOURS
- ③ EXISTING 6" WATER MAIN
- ④ EXISTING FIRE HYDRANT
- ⑤ EXISTING WATER SERVICE
- ⑥ EXISTING 8" SANITARY SEWER
- ⑦ EXISTING SANITARY SEWER SERVICE
- ⑧ EXISTING STORM SEWER
- ⑨ EXISTING COMMUNICATION LINES
- ⑩ EXISTING POWER LINE
- ⑪ EXISTING BARBWIRE FENCE - FIELD VERIFY LOCATION OF THE EXISTING FENCE
- ⑫ EXISTING ASPHALT
- ⑬ EXISTING CONCRETE
- ⑭ EXISTING GRAVEL
- ⑮ EXISTING CURB AND GUTTER
- ⑯ REMOVE AND REPLACE EXISTING 15" CULVERT
- ⑰ REMOVE AND REPLACE 36" STORM SEWER
- ⑱ REMOVE AND REPLACE 2,153 SF GRAVEL
- ⑲ REMOVE GRAVEL STAIR PATH
- ⑳ REMOVE 40 LF OF FENCING
- ㉑ EXISTING RETAINING WALL
- ㉒ EXISTING TURF REINFORCEMENT MAT
- ㉓ EXISTING GRAVEL APPROACH
- ㉔ REMOVE AND REPLACE 170 SF OF PAVEMENT
- ㉕ REMOVE AND REPLACE EXISTING LIGHT FIXTURE

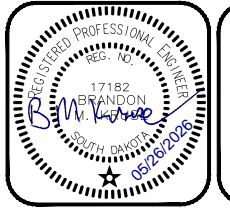
CONTRACTOR TO FIELD VERIFY AND LOCATE EXISTING UTILITIES



TDG

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 Box Elder, SD 57719
 605.600.3758

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CASCADE HILLS SUBDIVISION

STREET AND UTILITIES IMPROVEMENTS

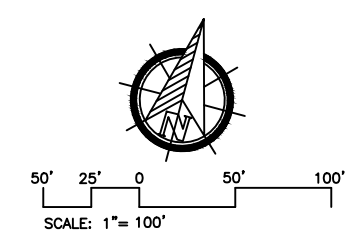
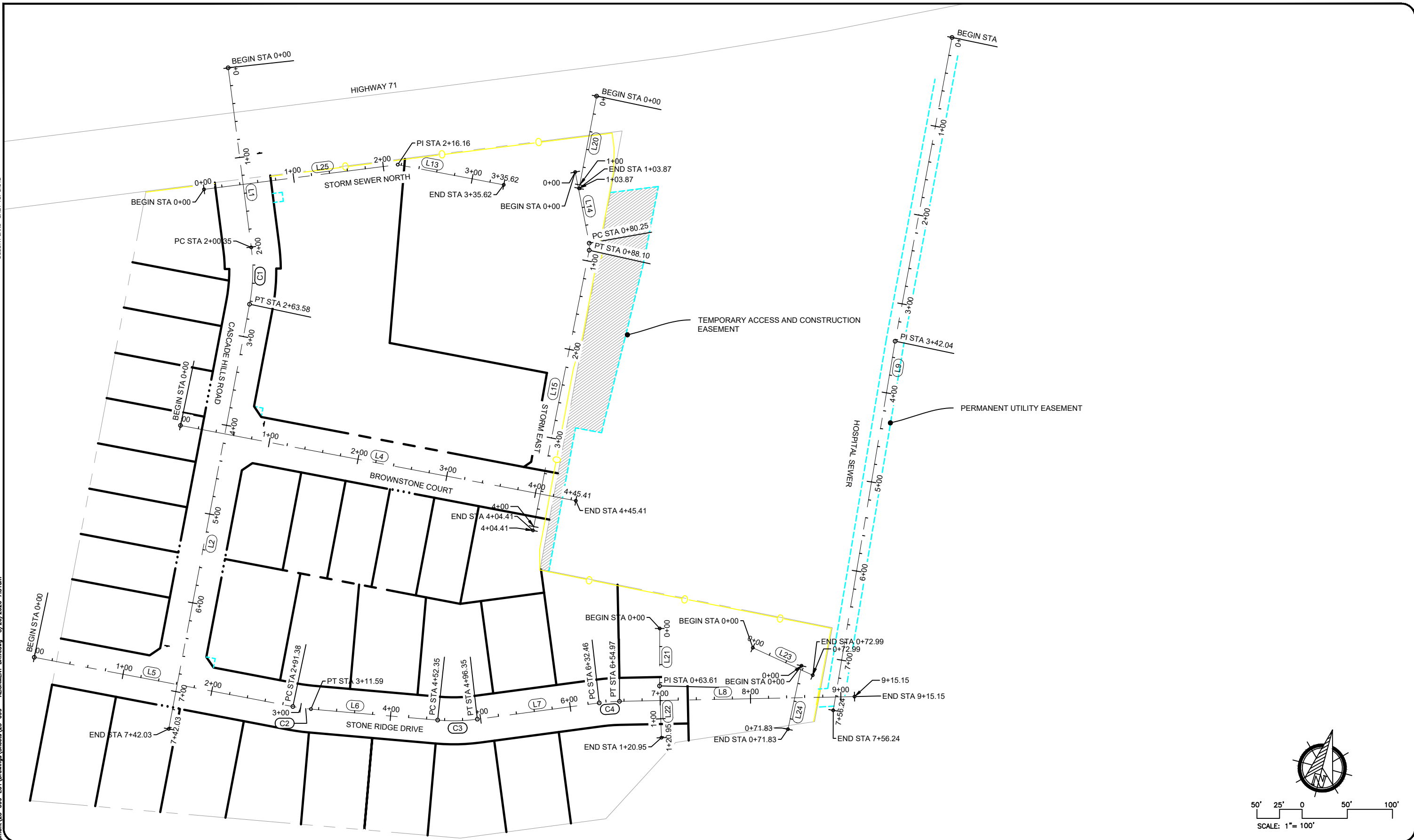
HOT SPRINGS, SOUTH DAKOTA

REVISIONS:
2026.04.24 - 95% DESIGN
2026.05.26 - 100% DESIGN

JOB NUMBER: 25-099
DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME: EXISTING CONDITIONS
SHEET NO: 7

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STREET AND UTILITIES IMPROVEMENTS
HOT SPRINGS, SOUTH DAKOTA

REVISIONS:
2026.04.24 - 95% DESIGN
2026.05.26 - 100% DESIGN

JOB NUMBER: 25-099
DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME: ALIGNMENT DATA
SHEET NO: 8

COLOR PLANS - GREY TOPOCUT

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NUMBER	START STATION	NORTHING	EASTING	BEARING	END STATION	END NORTHING	END EASTING	Δ	T	R	L	PI STATION
L1	0+00.00	411076.19	1131643.31	S15° 55' 38.02"E	2+00.35	410883.53	1131698.29				200.35	
C1		410852.87	1131707.04					018° 06' 56"	31.884	200.00	63.235	2+32.23
L2	2+63.58	410821.01	1131705.82	S02° 11' 17.77"W	7+42.03	410342.91	1131687.56				478.45	

ALIGNMENT - BROWNSTONE COURT								
NUMBER	START STATION	NORTHING	EASTING	LENGTH	END STATION	END NORTHING	END EASTING	BEARING
L4	0+00.00	410676.92	1131650.28	445.41	4+45.41	410659.91	1132095.37	S87° 48' 42.23"E

ALIGNMENT - STONE RIDGE DRIVE												
NUMBER	START STATION	NORTHING	EASTING	BEARING	END STATION	END NORTHING	END EASTING	Δ	T	R	L	PI STATION
L5	0+00.00	410399.02	1131528.58	S87° 48' 42.23"E	2+91.38	410387.90	1131819.75				291.38	
C2		410387.51	1131829.86					005° 47' 28"	10.116	200.00	20.215	3+01.49
L6	3+11.59	410388.15	1131839.95	N86° 23' 49.35"E	4+52.35	410396.99	1131980.44				140.76	
C3		410398.38	1132002.48					012° 36' 14"	22.087	200.00	43.996	4+74.44
L7	4+96.35	410404.55	1132023.69	N73° 47' 35.18"E	6+32.46	410442.54	1132154.39				136.11	
C4		410445.68	1132165.21					006° 27' 02"	11.270	200.00	22.517	6+43.73
L8	6+54.97	410447.59	1132176.32	N80° 14' 37.10"E	9+15.15	410491.68	1132432.73				260.18	

ALIGNMENT - HOSPITAL SEWER								
NUMBER	START STATION	NORTHING	EASTING	LENGTH	END STATION	END NORTHING	END EASTING	BEARING
L9	3+42.04	410887.27	1132418.42	414.20	7+56.24	410473.12	1132411.68	S00° 55' 55.97"W

ALIGNMENT - STORM SEWER NORTH								
NUMBER	START STATION	NORTHING	EASTING	LENGTH	END STATION	END NORTHING	END EASTING	BEARING
L25	0+00.00	410939.23	1131636.98	216.16	2+16.16	410998.25	1131844.93	N74° 09' 24.22"E
L13	2+16.16	410998.25	1131844.93	119.45	3+35.62	410993.69	1131964.30	S87° 48' 42.23"E

ALIGNMENT - STORM EAST								
NUMBER	START STATION	NORTHING	EASTING	LENGTH	END STATION	END NORTHING	END EASTING	BEARING
L14	0+00.00	411019.51	1132040.36	80.25	0+80.25	410943.97	1132067.45	S19° 43' 53.61"E
L15	0+88.10	410936.26	1132068.60	316.31	4+04.41	410620.31	1132053.36	S02° 45' 45.17"W

ALIGNMENT - NORTH POND OUTLET								
NUMBER	START STATION	NORTHING	EASTING	LENGTH	END STATION	END NORTHING	END EASTING	BEARING
L20	0+00.00	411106.14	1132051.22	103.87	1+03.87	411002.34	1132047.28	S02° 10' 22.43"W

ALIGNMENT - SOUTHEAST STORM								
NUMBER	START STATION	NORTHING	EASTING	LENGTH	END STATION	END NORTHING	END EASTING	BEARING
L21	0+00.00	410534.01	1132208.25	63.61	0+63.61	410471.10	1132217.60	S08° 26' 53.38"E
L22	0+63.61	410471.10	1132217.60	57.34	1+20.95	410414.74	1132228.21	S10° 40' 03.28"E

ALIGNMENT - SOUTH POND OUTLET								
NUMBER	START STATION	NORTHING	EASTING	LENGTH	END STATION	END NORTHING	END EASTING	BEARING
L23	0+00.00	410528.33	1132313.34	72.99	0+72.99	410508.16	1132383.49	S73° 57' 50.12"E

ALIGNMENT - SOUTH ROAD CULVERT								
NUMBER	START STATION	NORTHING	EASTING	LENGTH	END STATION	END NORTHING	END EASTING	BEARING
L24	0+00.00	410516.65	1132369.69	71.83	0+71.83	410444.95	1132365.28	S03° 30' 59.11"W



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CASCADE HILLS SUBDIVISION
STREET AND UTILITIES IMPROVEMENTS
HOT SPRINGS, SOUTH DAKOTA

REVISIONS:
2026.04.24 - 95% DESIGN
2026.05.26 - 100% DESIGN

JOB NUMBER: 25-099
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DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME: ALIGNMENT TABLES
SHEET NO: 9

Owner Representative:

Company: TBD
 Contact:
 Address:
 Address:
 Email:
 Phone:

Contractor:

Company: **TBD**
 Contact:
 Address:
 Address:
 Email:
 Phone:

Design Engineer:

Company: **Towey Design Group, Inc.**
 Contact: **Brandon Kruse, PE #17182**
 Address: **147 Chisholm Drive, PO Box 67**
 Address **Box Elder, SD 57719**
 Email: **engineers@toweydesigngroup.com**
 Phone: **605.600.3758**

Project Description:

This project is the grading of the future Cascade Hills Subdivision. Work includes dirt moving operations, installation of storm sewer, retaining wall installation and fencing.

Existing Site Conditions:

The existing site generally consists of grassed open fields.

- Are wetlands an issue? **No major concern for wetlands on the property. There is a creek located to the south of the site. Proper containment and sediment control should be practiced to avoid major issues.**
- If wetlands are an issue, has a determination been made by the US Army Corps of Engineers? **NA**
- Does the State Historical Preservation Office (SHPO) need to review these plans? **No**
- Does the SD Game, Fish, and Parks need to review these Plans? **No**
- Does the US Fish and Wildlife Service need to review these plans? **No**

Adjacent Areas:

There is highway 71 to the north of the project site. Grazed grass land to the west of the site, undeveloped valley/ channel to the south of the site and a hospital and ambulance infrastructure to the east of the site.

Soils:

Underlying a layer of topsoil, the subsurface geology encountered within the borings consisted of alluvium overlying medium dense weathers sandstone and hard shale bedrock, associated with the Spearfish Formation.

Area Disturbed:

The total surface area to be disturbed is approximately 10.31 acres.

Area for Stockpile and Storage:

Any excavated materials to be reused may be stockpiled within the project limits at a location chosen by the Contractor and approved by the Owner and Engineer. Excess excavated materials are to be hauled off site. Stockpiles of excavated materials shall be protected by a silt fence where the silt fence shall be placed at a minimum of 8' from the toe of the pile and seeded with a temporary cover crop.

Schedule:

The following is a proposed order of project sequencing. If the Contractor proposes to utilize a different sequencing, they shall submit that to the Engineer and Owner for approval.

- June of 2026 – Install erosion control components and perimeter protection. Commence construction, remove gravel surfacing, site grading and pave street.
- April of 2027 –Place topsoil, seed, fertilize, and mulch remaining disturbed areas.
- Seeding and topsoil may be delayed due to the future development project.
- Erosion control measures installed within the project will remain in place and only be removed once the site has become stabilized.

Sediment Control Measures:

Silt fence, wattles, inlet protection, vehicle tracking control, temporary sediment trap, surface roughing, mulching, routine cleanup of adjacent streets.

Erosion and Sediment Control Sequencing:

The following erosion and sediment control sequencing shall be followed by the Owner /Contractor involved in this construction site activity. Changes in the project's construction plans and timelines may require this sequence to be changed. Any changes to this this erosion and sediment control plan (ESCP) must be approved by the Engineer prior to making modifications in the field.

Prior to grading operations:

- Owner shall review all erosion and sediment control measures in this ESCP.
- ESCP shall be approved and accepted by the City of Hot Springs
- Contractor shall obtain a grading/construction permit from the City of Hot Springs.
- Contact information sign must be posted.
- All erosion and sediment control measures shall be installed as specified on the plans.

All erosion and sediment control practices shall be in accordance with the most current standards and details of the City of Rapid City Standard Construction Specifications. Any variation from the above referenced design standards shall not be allowed unless formally approved in advance from the Engineer.

During site grading phase

- Upon issuance of a grading permit, the Contractor may proceed with site grading in compliance with the grading plan and approved ESCP
- The installation of all sediment control facilities shall begin before major grading activities in accordance with the ESCP.
- During all phases of grading, the erosion and sediment control measures shall be maintained while in service.
- Additional ES&C measures may be needed to meet permit requirements.

Permanent Stabilization Measures:

All disturbed areas from construction operations that are not paved or graveled shall be seeded with a temporary cover crop, stabilized by other interim measures or install permanent seeding, fertilized and mulched.

Stormwater Management Considerations:

Stormwater will generally flow from the center of the site outward and eastward. Two ponds are proposed to the north and south of the site.

Maintenance:

All paved streets adjacent to the site shall be cleaned at the end of each working day. All construction traffic leaving the site shall exit via the vehicle tracking control.

The Prime Contractor shall assure that qualified personnel inspect the site at least once every 7 calendar days and within 24 hours of the end of a storm that is one-half (0.5) inch or greater to confirm plan compliance. A report summarizing the areas inspected, name(s) and title(s) of personnel making the inspection, the date(s) of the inspection, major observations, and corrective actions taken shall be made and retained as part of the plan for at least three (3) years. Such reports shall identify any incidents of non-compliance. Where an inspection does not identify incidents of non-compliance, the report shall contain a certification that the site is in compliance with the plan and permit.

Soil Stabilization:

After construction begins, soil stabilization shall be applied within 14 days to all disturbed areas that may not be final grade but will remain dormant (undisturbed) for periods longer than an additional 21 calendar days. Within 14 days after final grade is reached on any portion of the site, permanent or temporary soil stabilization shall be applied to disturbed areas and soil stockpiles.

Maximum time limits of land exposures for selection of erosion controls:

Erosion Control	Method	Maximum Allowable Period of Exposure (months)
Surface Roughening*		1
Mulching		12
Temporary Revegetation		12-24
Permanent Revegetation		24 or more
Soil Stockpile Revegetation		2
Early Application of Road Base		1

*The surface roughening erosion control may be extended to a maximum of three (3) months on a case basis if the City Inspector has determined that the site demonstrates the following:

- Appropriate soil conditions exist for the methods of control.
- Disturbed areas will be seeded and mulched within three (3) months.
- Seasonal planting limitations exist.
- Soil stabilization method has demonstrated its effectiveness.

Notice of Intent:

The Contractor will be required to submit the Notice of Intent (NOI) to SDDANR. The Contractor will submit copies of the approved permit to the Owner and Engineer. The Contractor will also be responsible for submitting the Notice of Termination (NOT) once stabilization is complete.

Dewatering:

Dewatering operations are not expected, if needed, a general dewatering permit will be required from SD DANR.

Erosion and Sediment Control Measures

Perimeter Protection (PP):

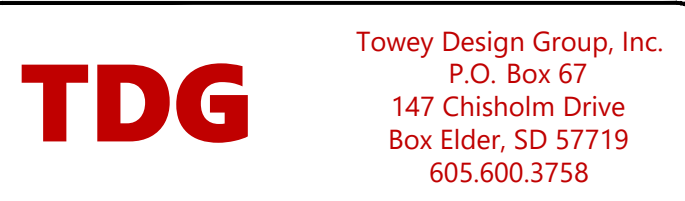
Perimeter protection shall be installed at locations shown on the drawings or as directed by the Engineer, to retain sediment from being transported off the project site. Perimeter protection may be constructed with silt fence or sediment control wattles. Perimeter protection shall be inspected in accordance with the SWPPP.

Silt Fence (SF):

Silt fence (Low Flow: 20-70 gal/min/sf or High Flow 71-145 g/min/sf) shall be placed at the locations noted in the drawings and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction.

Mucking Silt Fence:

Mucking silt fence shall consist of removing muck trapped by the silt fence and spreading the material evenly over the adjacent area to conform to the existing grade. The Contractor shall remove muck when the surface of the muck is at approximately 1/3 the height of the silt fence.



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HOT SPRINGS, SOUTH DAKOTA

REVISIONS:

2026.04.24 - 95% DESIGN
2026.05.26 - 100% DESIGN

JOB NUMBER: 25-099

DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:
EROSION CONTROL NOTES

SHEET NO:
10

Sediment Control Wattles (SCW):

Sediment control wattles can be used for perimeter control, inlet protection, check dams, slope protection, etc. and shall be installed at locations as shown on the drawings and at locations determined by the Engineer during construction.

The Contractor shall provide certification that the sediment control wattles do not contain noxious weed seeds. For compost socks the contractor shall also provide certification that the compost used is free from noxious weed seeds.

The Contractor shall remove sediment trapped by the wattle when the surface of the sediment reaches one-half the height of the exposed wattle. Damaged areas should be repaired immediately until the vegetation is established and growing through the material.

Erosion Control Blanket (ECB):

Erosion control blanket shall be installed at locations as shown on the drawings and at locations determined by the Engineer during construction.

Erosion control blankets are placed into the following categories:

- Type 1 – used for temporary stabilization of slopes of less than 10H:1V, Not allowed in channel applications;
- Type 2 – used for temporary stabilization of slopes of 3H:1V or less, can be used in low gradient ditches and channels;
- Type 3 – used for temporary stabilization of slopes of 2H:1V or less, used in ditches and channels; and
- Type 4 – used for temporary stabilization of slopes of 1H:1V or less, used in ditches and channels.

Vehicle Tracking Control (VTC):

The Contractor shall install vehicle tracking control measures at locations as shown on the drawings.

The Contractor shall maintain the vehicle tracking control pads such that mud tracking and sediment flow will not enter the roadway or adjacent drainage areas. The vehicle tracking control pads shall be routinely inspected and the Contractor shall repair or replace material as deemed necessary by the Engineer.

Spill Prevention/Control Practices:

- 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 clean-up supplies.
- Appropriate clean-up materials and equipment will be maintained by the Contractor in the material storage area onsite. As appropriate, materials and equipment 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 any hazardous substances.
- After a spill, a report will be prepared describing the spill, what caused it, and the clean-up 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 clean-up coordinator. The Contractor is responsible for ensuring that the Site Superintendent has had appropriate training for hazardous materials handling, spill management, and clean-up.

Erosion and Sediment Control Plan Certification:

This erosion and sedimentation control narrative and attached erosion and sediment plan appears to fulfill the local technical criteria. I understand that additional erosion and sediment control measures may be needed if unforeseen erosion problems occur or if the submitted plan does not function as intended. The requirements of this plan shall run with the land and be the obligation of the owner until such time as the plan is properly completed, modified, or voided.

Owner Representative

Date



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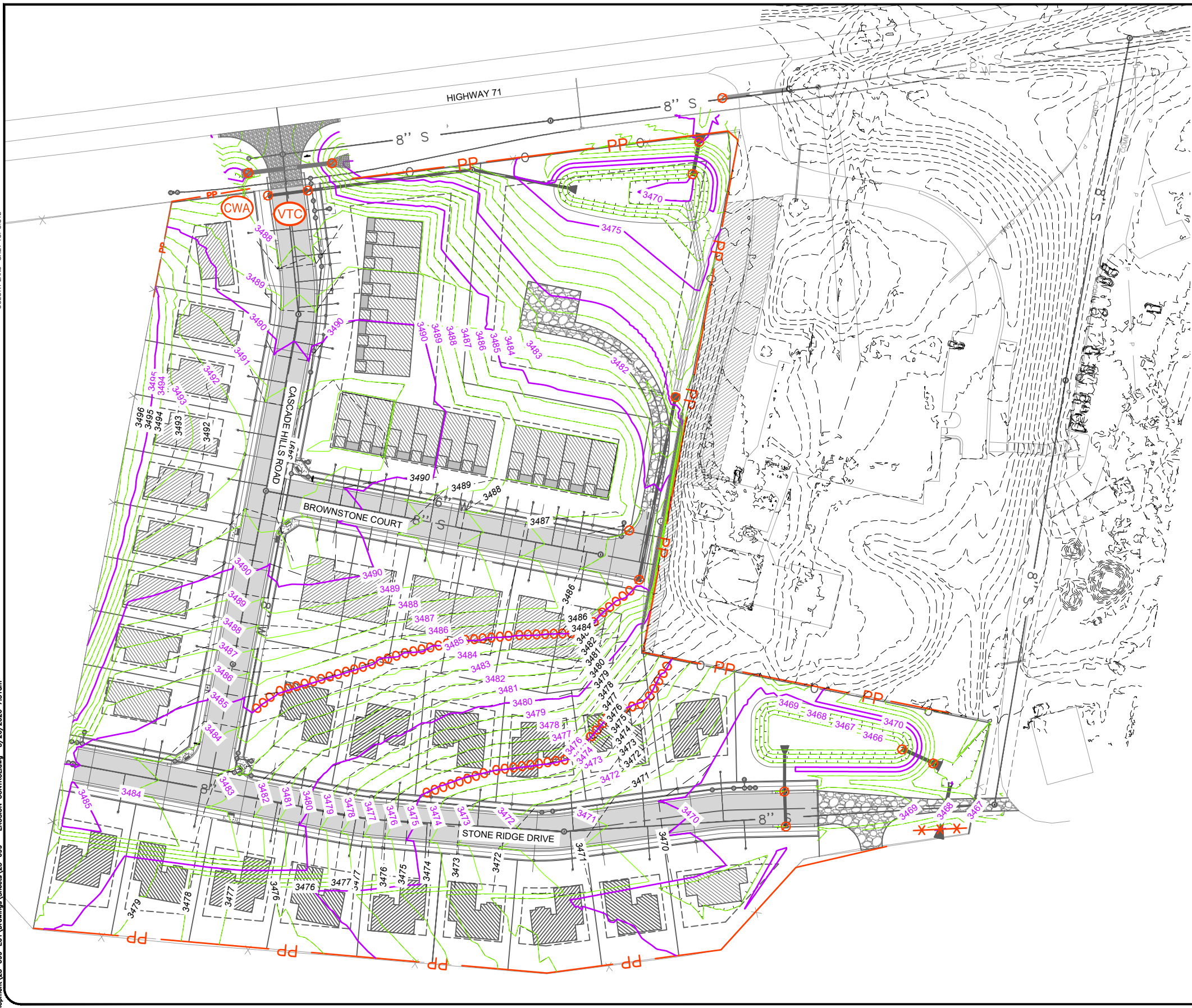
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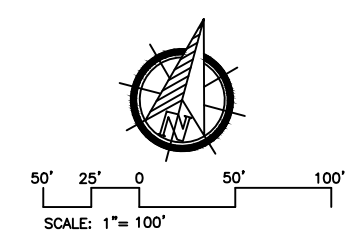
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SHEET NO: 11

COLOR PLANS - GREY TOPOGRT
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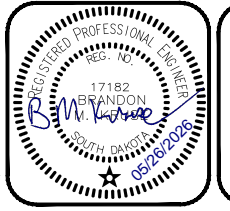
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--- 3104 ---	EXISTING MINOR CONTOUR
— 3105 —	FINISH GRADE MAJOR CONTOUR
— 3104 —	FINISH GRADE MINOR CONTOUR
	DRAINAGE ROUTING

— PP —	PERIMETER PROTECTION
00000000000000000000	STRAW WATTLE
))))))))))))))))))))))))))	TOP SOIL BERM
>>>>>>>>>>>>>>>>>>	GRAVEL FILTER SOCK
— X —	SILT FENCE
	VEHICLE TRAFFIC CONTROL
	CONCRETE WASHOUT AREA
	INLET PROTECTION



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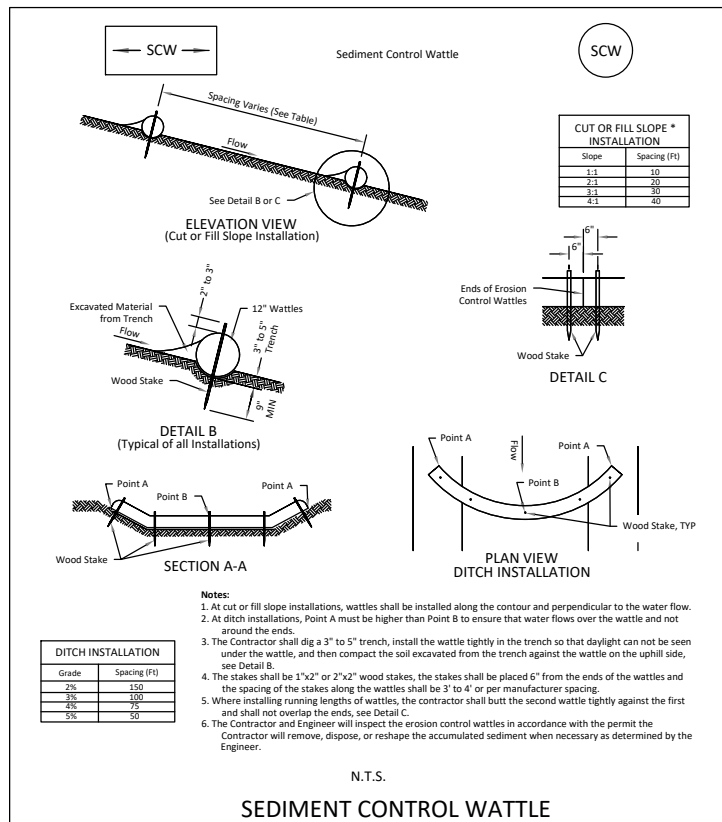
CASCADE HILLS SUBDIVISION
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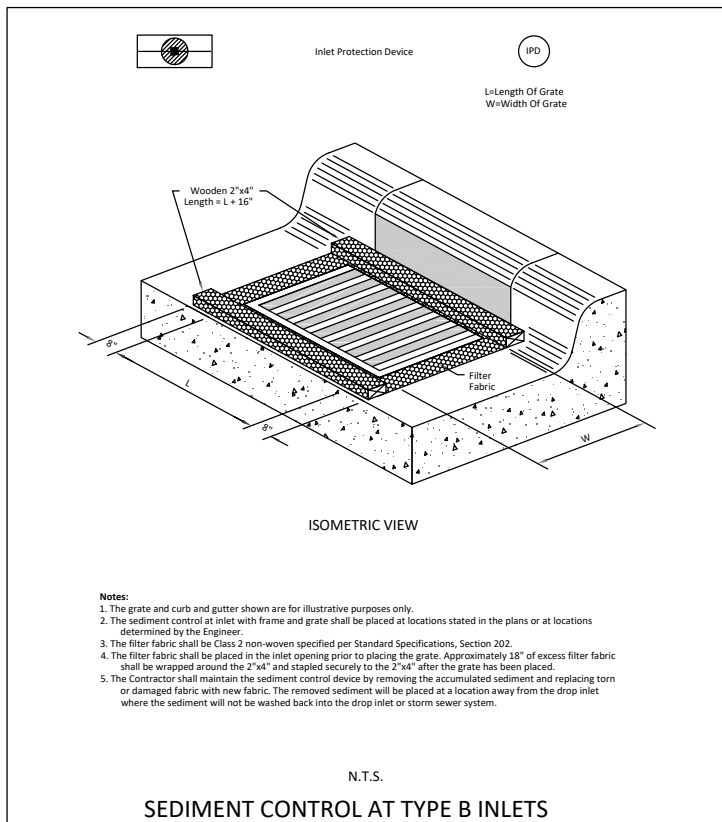
JOB NUMBER: 25-099
DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:	EROSION CONTROL PLAN
SHEET NO:	12

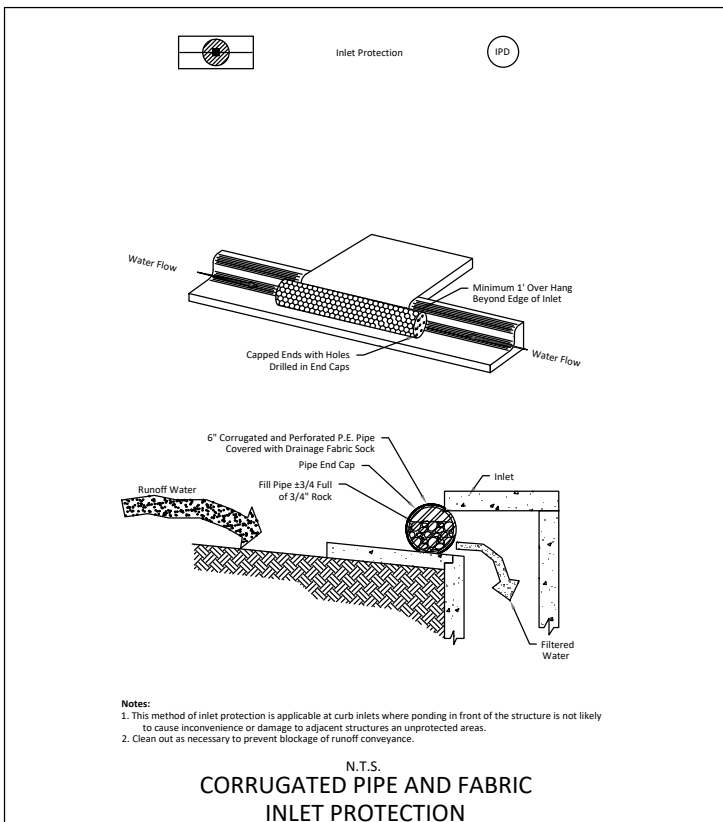
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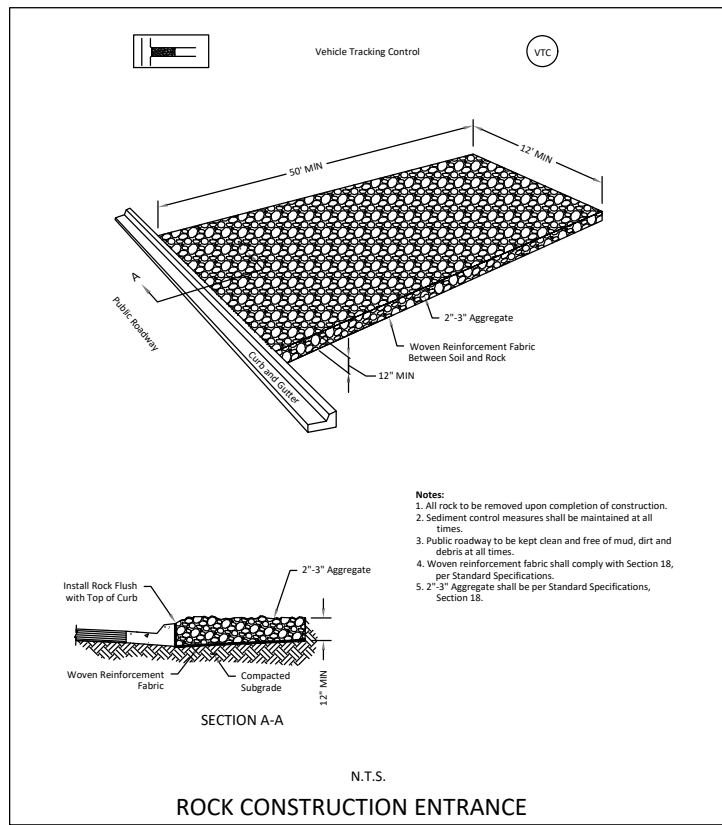
N.T.S.
SEDIMENT CONTROL WATTLE



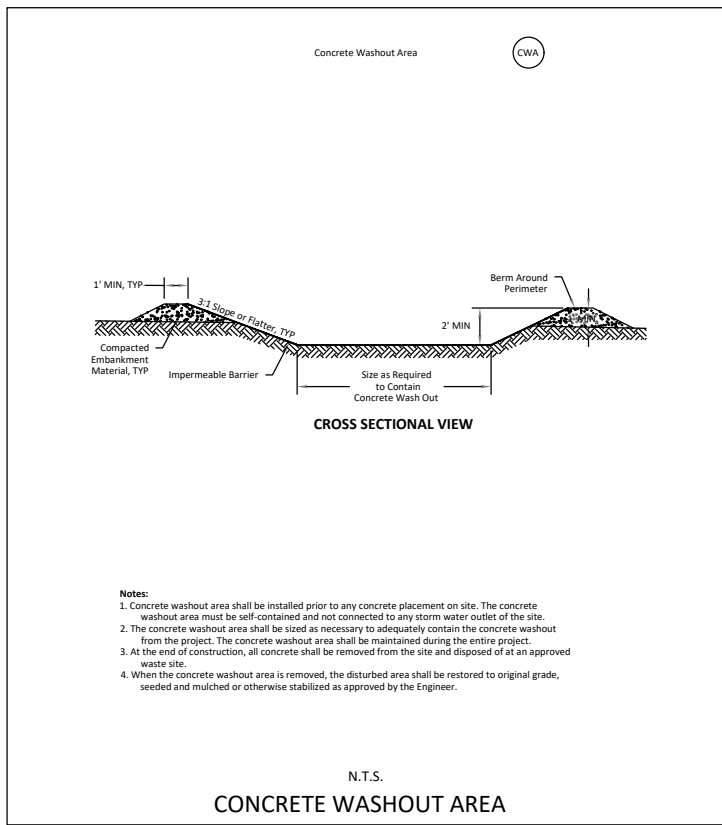
N.T.S.
SEDIMENT CONTROL AT TYPE B INLETS



N.T.S.
CORRUGATED PIPE AND FABRIC INLET PROTECTION



N.T.S.
ROCK CONSTRUCTION ENTRANCE



N.T.S.
CONCRETE WASHOUT AREA



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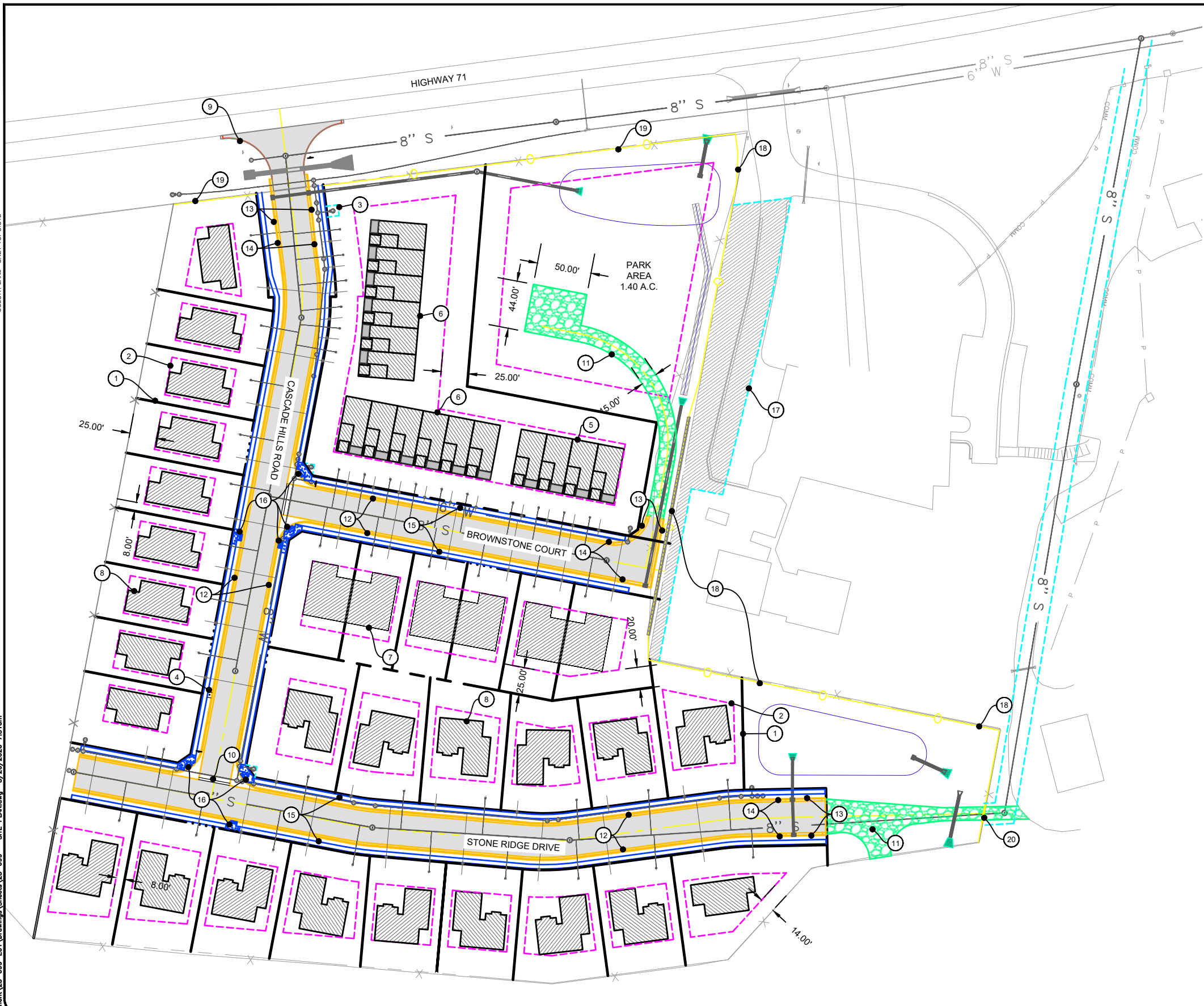
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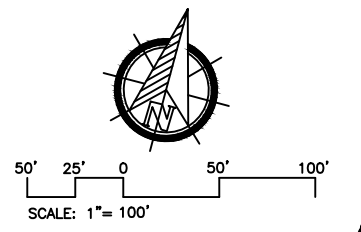
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EROSION CONTROL DETAILS
SHEET NO:
13

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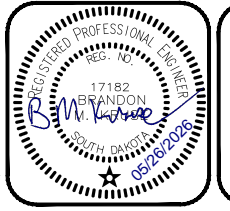


- ① PROPERTY LINE
- ② SETBACK LINE
- ③ EASEMENT LINE
- ④ MAIL BOX CLUSTER WITH CONCRETE PAD
- ⑤ 4 - PLEX (BY OTHERS)
- ⑥ 6 - PLEX (BY OTHERS)
- ⑦ TWINHOME (BY OTHERS)
- ⑧ SINGLE FAMILY HOME (BY OTHERS)
- ⑨ ASPHALT
- ⑩ CONCRETE PAN
- ⑪ GRAVEL ROAD
- ⑫ ROLL CURB AND GUTTER TYPE D
- ⑬ STANDARD CURB AND GUTTER TYPE BL
- ⑭ CURB TRANSITION
- ⑮ FUTURE 4' SIDEWALK
- ⑯ HANDICAP RAMP
- ⑰ TEMPORARY CONSTRUCTION EASEMENT
- ⑱ 6-FOOT BLACK CHAIN LINK FENCE VERIFY STYLE WITH OWNER
- ⑲ 4-FOOT BLACK CHAIN LINK FENCE (HIGHWAY 71 FRONTAGE) VERIFY STYLE WITH OWNER
- ⑳ CHAIN LINK FENCE GATE VERIFY STYLE WITH OWNER



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LOGO:



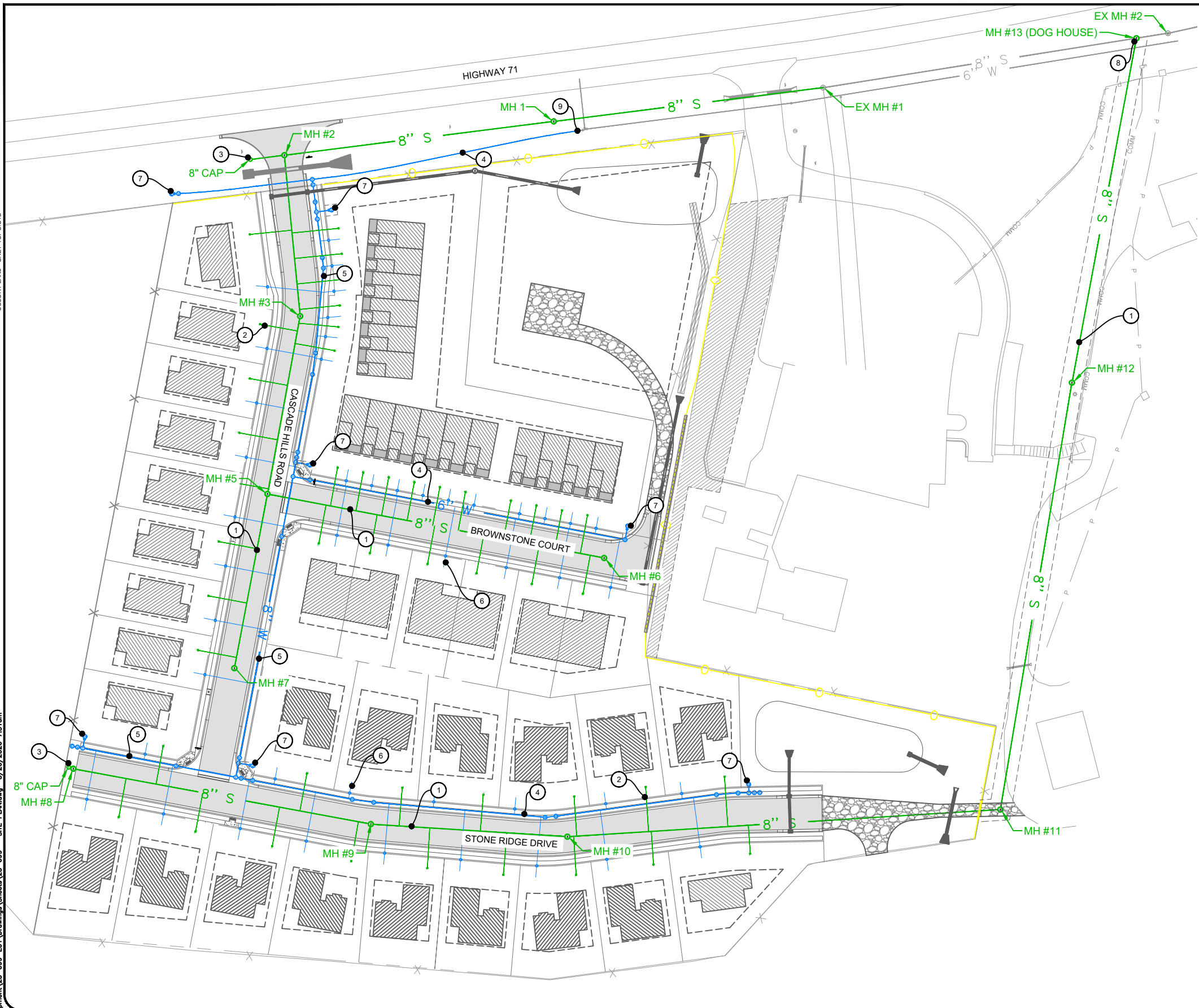
CASCADE HILLS SUBDIVISION
STREET AND UTILITIES IMPROVEMENTS
HOT SPRINGS, SOUTH DAKOTA

REVISIONS:
2026.04.24 - 95% DESIGN
2026.05.26 - 100% DESIGN

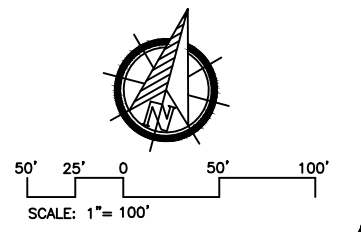
JOB NUMBER: 25-099
DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:
SITE PLAN
SHEET NO:
14

P:\25-099 - FRHS Tract 1 Development\25-099-E01 Drawings\Sheets\25-099 - SITE PLAN.dwg 5/26/2026 7:31am
 COLOR PLANS - GREY TOPOCTB



- ① 8" SANITARY SEWER MAIN
- ② SANITARY SEWER SERVICE
- ③ SANITARY SEWER CAP
- ④ 6" WATER MAIN
- ⑤ 8" WATER MAIN
- ⑥ 1" WATER SERVICE
- ⑦ FIRE HYDRANT
- ⑧ CONNECT TO EXISTING SANITARY SEWER MAIN
- ⑨ CONNECT TO EXISTING WATER MAIN



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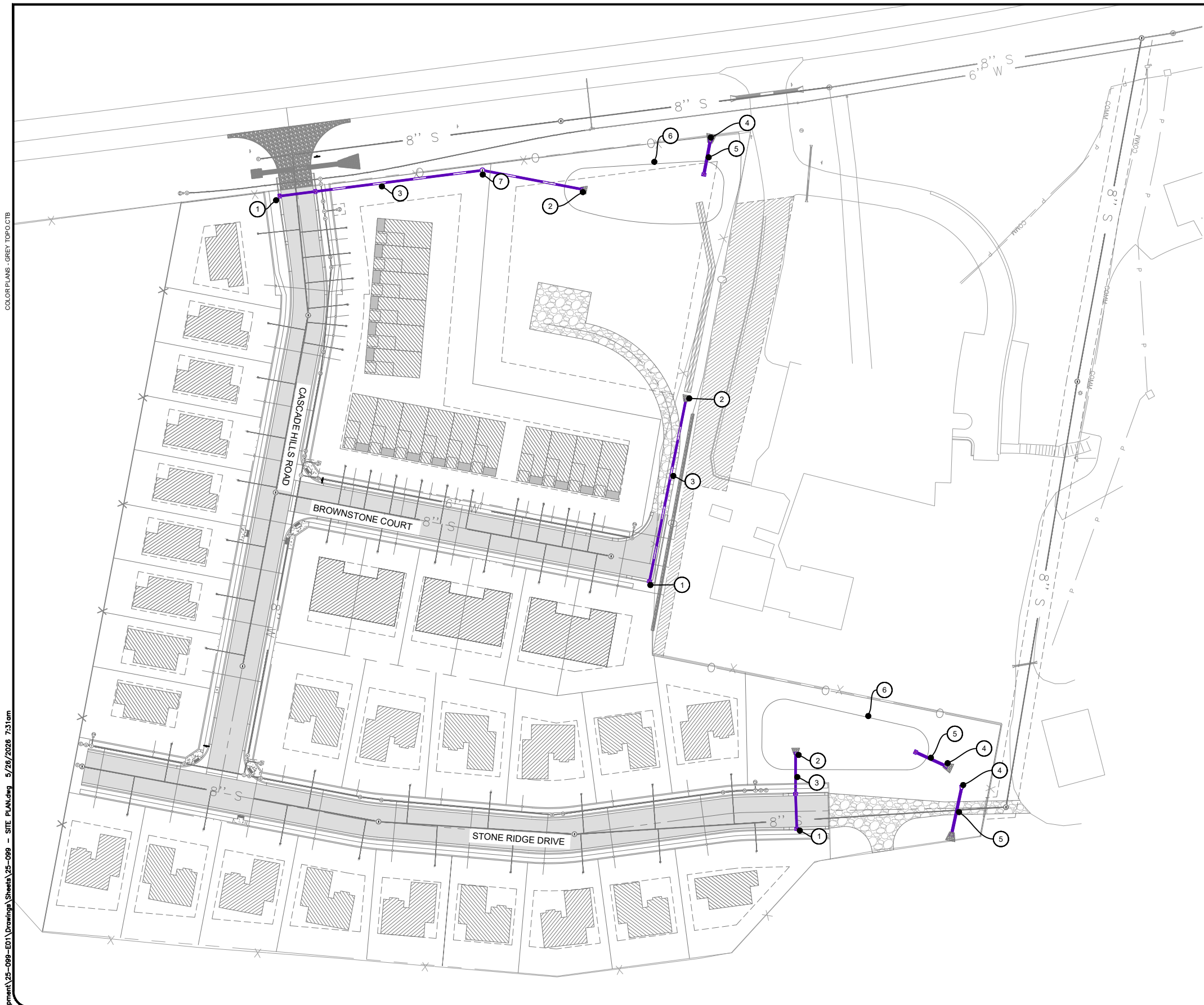
CASCADE HILLS SUBDIVISION
 STREET AND UTILITIES IMPROVEMENTS
 HOT SPRINGS, SOUTH DAKOTA

REVISIONS:
2026.04.24 - 95% DESIGN
2026.05.26 - 100% DESIGN

JOB NUMBER: 25-099
DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME: SANITARY SEWER AND WATER OVERVIEW
SHEET NO: 15

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- ① 2' X 3' TYPE B INLET
- ② 18" FLARED END SECTION
- ③ 18" STORM SEWER
- ④ 24" FLARED END SECTION
- ⑤ 24" STORM SEWER
- ⑥ DETENTION POND
- ⑦ 48" STORM SEWER MANHOLE



50' 25' 0 50' 100'
SCALE: 1" = 100'



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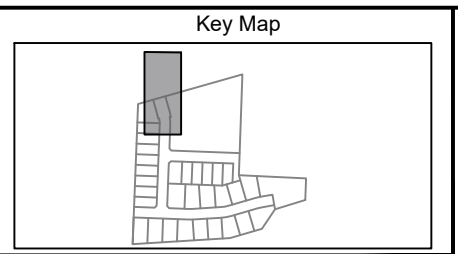
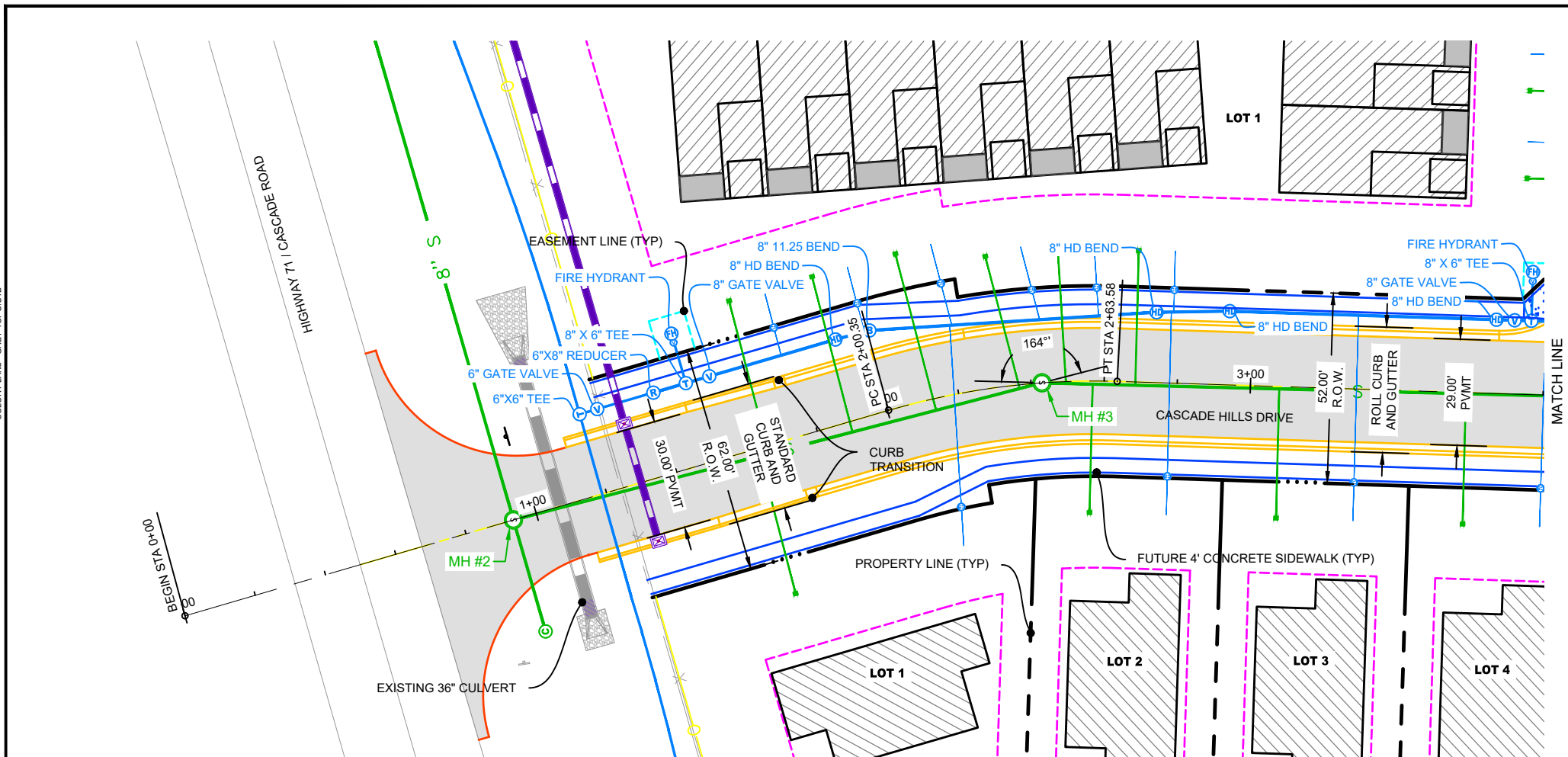
CASCADE HILLS SUBDIVISION
STREET AND UTILITIES IMPROVEMENTS
HOT SPRINGS, SOUTH DAKOTA

REVISIONS:
2026.04.24 - 95% DESIGN
2026.05.26 - 100% DESIGN

JOB NUMBER: 25-099
DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:
STORM SEWER OVERVIEW
SHEET NO:
16

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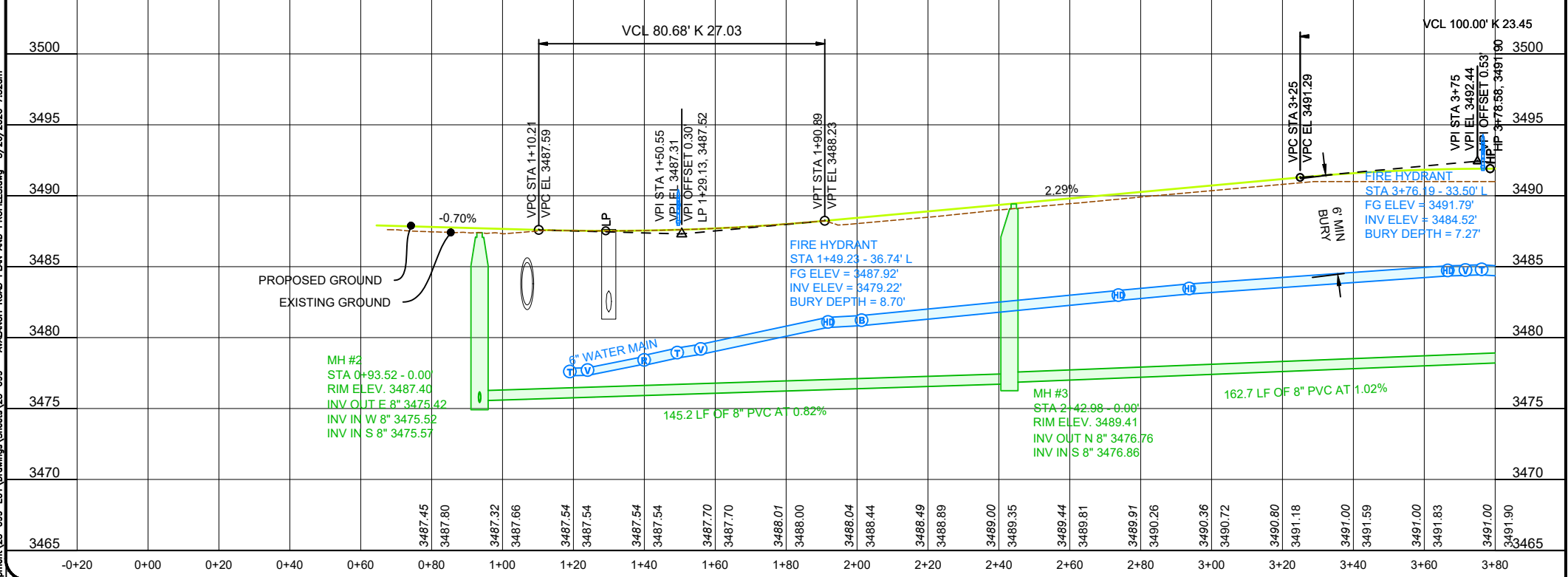


SANITARY SEWER MAIN		
STATION	OFFSET	ITEM DESC
0+93.52	0.00'	MH #2
2+42.98	0.00'	MH #3

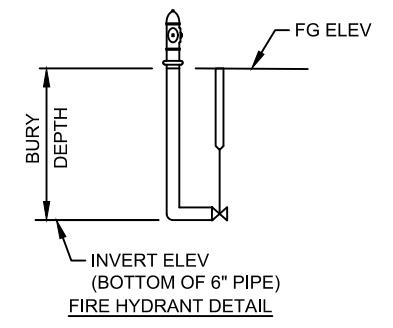
SANITARY SEWER SERVICES		
STATION	OFFSET	LOT #
1+61.87	41.05'R	LOT 1
1+66.87	41.05'L	LOT 1
1+90.49	41.05'L	LOT 1
2+11.76	41.05'L	LOT 1
2+31.95	36.05'L	LOT 1
2+48.84	36.05'L	LOT 1
2+55.71	36.05'R	LOT 2
2+68.32	36.05'L	LOT 1
3+08.13	36.05'R	LOT 3
3+59.15	36.05'R	LOT 4

WATER MAIN NOTES			
STATION	OFFSET	T.O.P. ELEV	ITEM DESC
1+23.98	22.67'L	3477.85	6" GATE VALVE
1+39.97	22.67'L	3478.65	6"X8" REDUCER
1+49.27	22.67'L	3479.24	8" X 6" TEE
1+55.90	22.67'L	3479.51	8" GATE VALVE
1+91.80	22.67'L	3481.41	8" HD BEND
2+01.29	22.44'L	3481.53	8" 11.25 BEND
2+73.73	19.22'L	3483.30	8" HD BEND
2+93.69	20.17'L	3483.76	8" HD BEND
3+66.60	20.17'L	3485.04	8" HD BEND
3+71.60	20.17'L	3485.07	8" GATE VALVE
3+76.19	20.17'L	3485.11	8" X 6" TEE

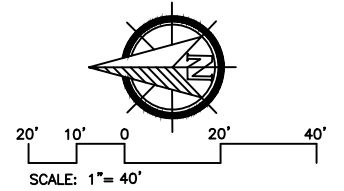
WATER MAIN SERVICES		
STATION	OFFSET	LOT #
1+76.55	30.50'L	LOT 1
2+00.35	30.50'L	LOT 1
2+14.11	30.50'R	LOT 1
2+20.70	30.50'L	LOT 1
2+42.13	25.50'L	LOT 1
2+57.89	25.50'L	LOT 1
2+78.06	25.50'R	LOT 2
2+78.38	25.50'L	LOT 1
3+29.11	25.50'R	LOT 3



INSTALL FIRE HYDRANT	
DESCRIPTION	DETAILS
FIRE HYDRANT STA 1+49.23 - 36.74' L	FG ELEV = 3487.92' INV ELEV = 3479.22' BURY DEPTH = 8.70'
FIRE HYDRANT STA 3+76.19 - 33.50' L	FG ELEV = 3491.79' INV ELEV = 3484.52' BURY DEPTH = 7.27'



- NOTE:
1. WATER SERVICE OFFSETS ARE MEASURED TO CURB STOP.
 2. FIRE HYDRANT ASSEMBLY BURY DEPTH: (CONTRACTOR TO VERIFY FIRE HYDRANTS DEPTHS PRIOR TO ORDERING MATERIALS.)
 3. CONTRACTOR TO FIELD VERIFY DEPTH AND LOCATION OF UTILITIES BEFORE START OF CONSTRUCTION



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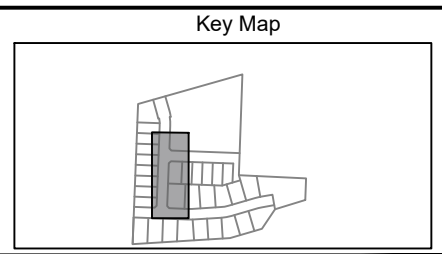
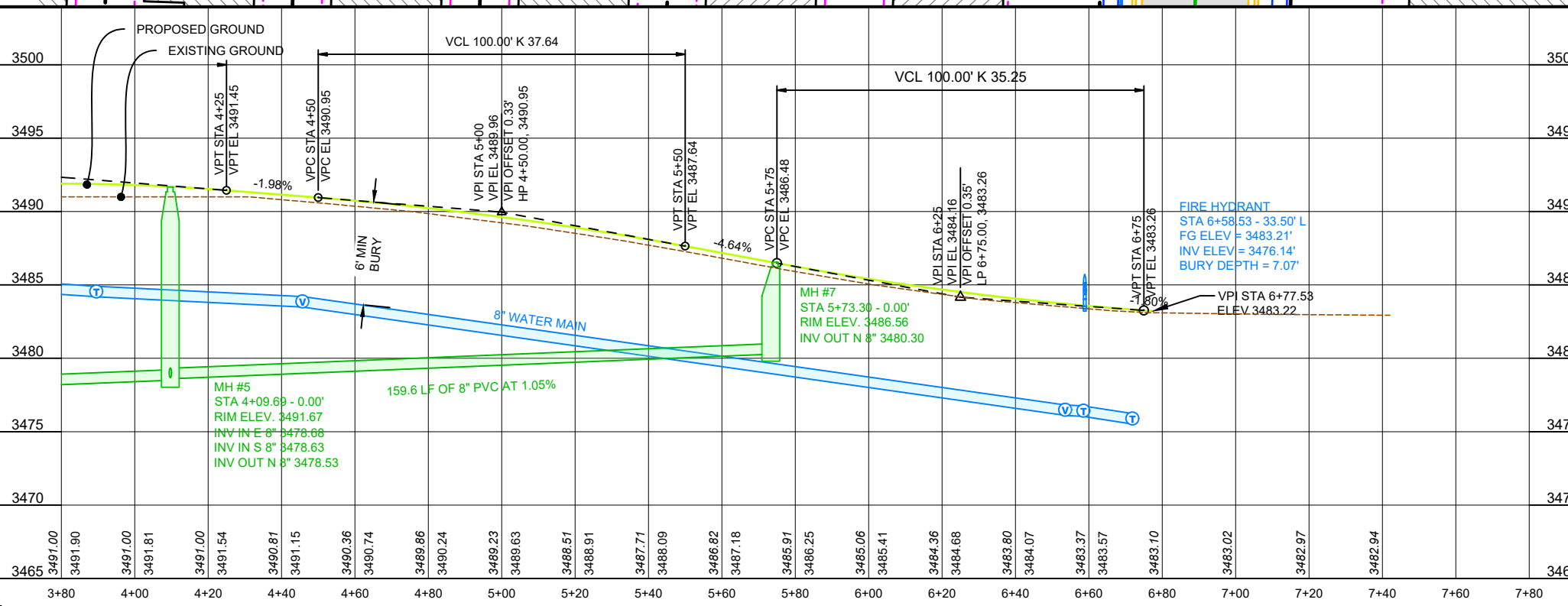
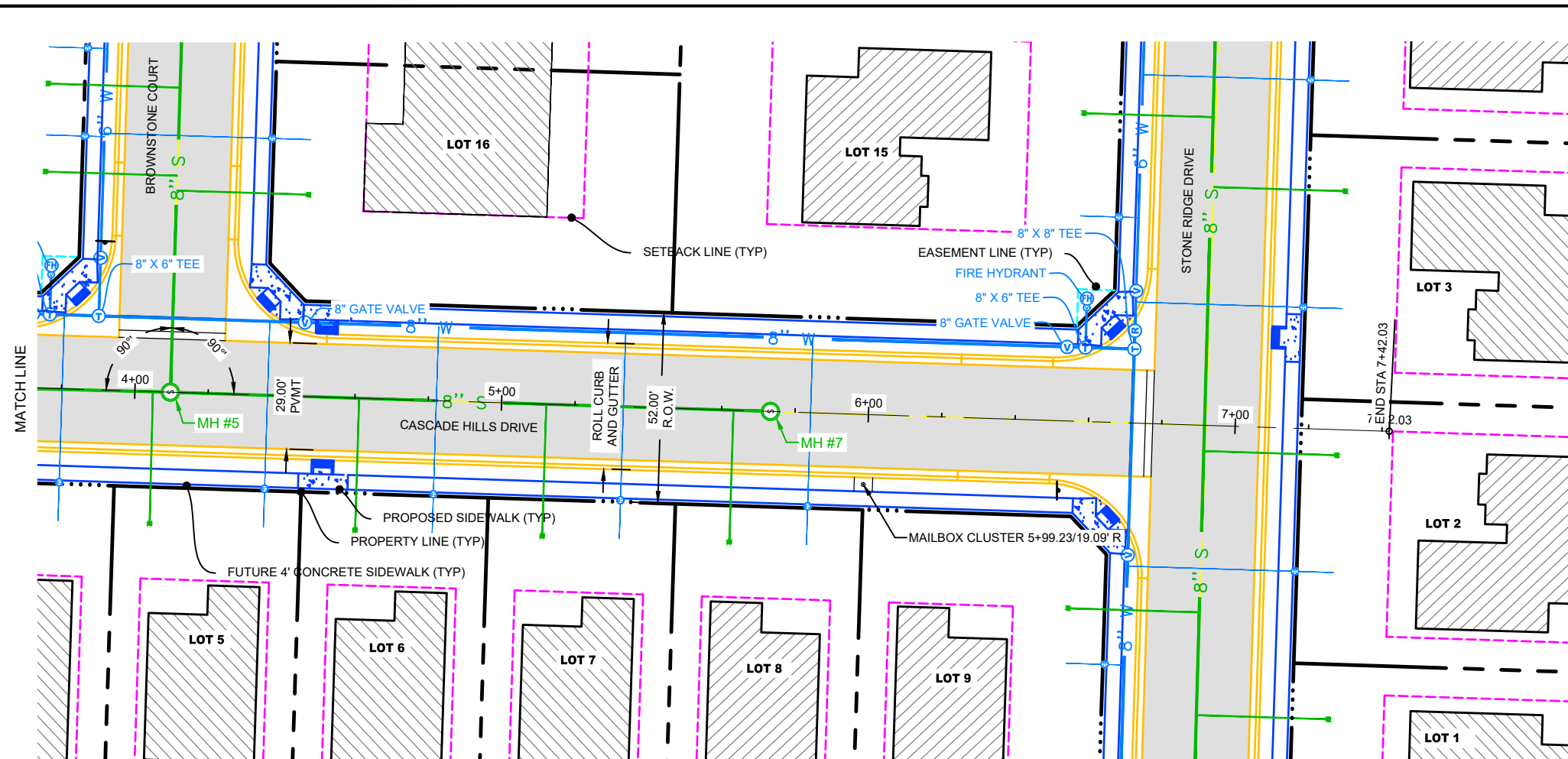
CASCADE HILLS SUBDIVISION
STREET AND UTILITIES IMPROVEMENTS
HOT SPRINGS, SOUTH DAKOTA

REVISIONS:
2026.04.24 - 95% DESIGN
2026.05.26 - 100% DESIGN

JOB NUMBER: 25-099
DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME: CASCADE HILLS DRIVE PLAN AND PROFILE STA 0+00 TO 3+80
SHEET NO: 17

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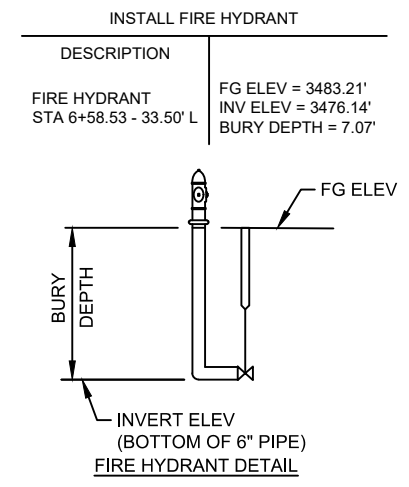


SANITARY SEWER MAIN		
STATION	OFFSET	ITEM DESC
4+09.69	0.00'	MH #5
5+73.30	0.00'	MH #7

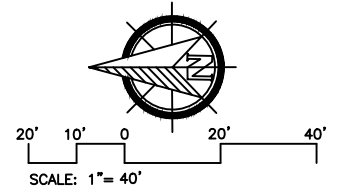
WATER MAIN NOTES			
STATION	OFFSET	T.O.P. ELEV	ITEM DESC
3+89.52	20.17'L	3484.88	8" X 6" TEE
4+45.69	20.17'L	3484.18	8" GATE VALVE
6+53.53	20.17'L	3476.80	8" GATE VALVE
6+58.53	20.17'L	3476.73	8" X 6" TEE
6+71.86	20.17'L	3476.21	8" X 8" TEE

SANITARY SEWER SERVICES		
STATION	OFFSET	LOT #
4+05.16	36.05'R	LOT 5
4+61.18	36.05'R	LOT 6
5+12.20	36.05'R	LOT 7
5+63.22	36.05'R	LOT 8

WATER MAIN SERVICES		
STATION	OFFSET	LOT #
3+80.16	25.50'R	LOT 4
4+36.18	25.50'R	LOT 5
4+82.20	25.50'R	LOT 6
5+33.22	25.50'R	LOT 7
5+84.23	25.50'R	LOT 8



- NOTE:
1. WATER SERVICE OFFSETS ARE MEASURED TO CURB STOP.
 2. FIRE HYDRANT ASSEMBLY BURY DEPTH: (CONTRACTOR TO VERIFY FIRE HYDRANTS DEPTHS PRIOR TO ORDERING MATERIALS.)
 3. CONTRACTOR TO FIELD VERIFY DEPTH AND LOCATION OF UTILITIES BEFORE START OF CONSTRUCTION



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CASCADE HILLS SUBDIVISION
STREET AND UTILITIES IMPROVEMENTS
HOT SPRINGS, SOUTH DAKOTA

REVISIONS:

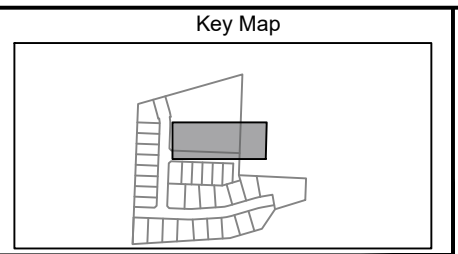
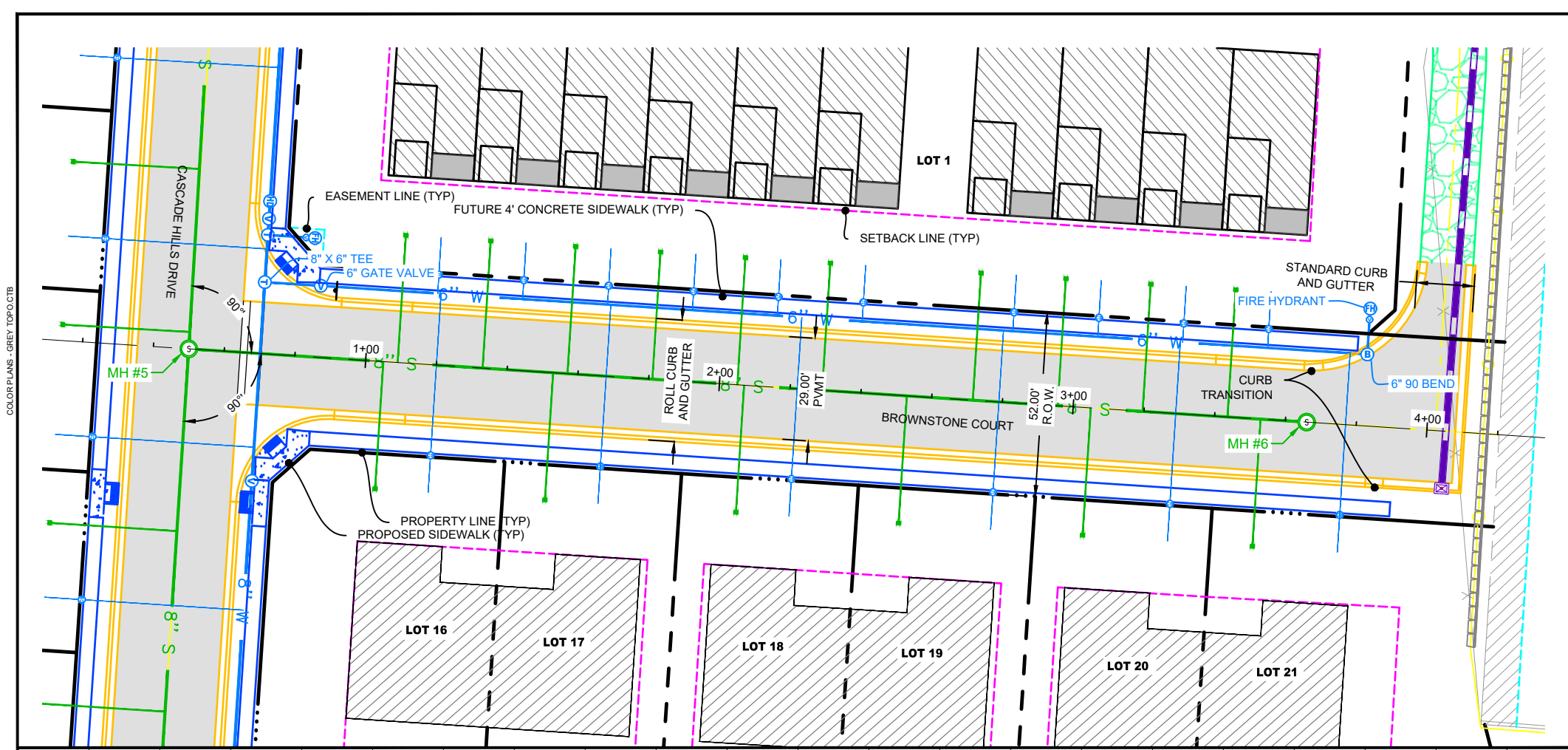
2026.04.24 - 95% DESIGN
2026.05.26 - 100% DESIGN

JOB NUMBER: 25-099

DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:
CASCADE HILLS DRIVE PLAN AND PROFILE STA 3+80 TO 7+80

SHEET NO: **18**

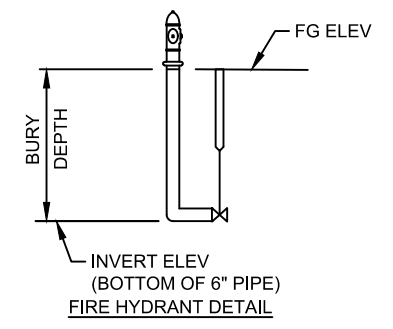


SANITARY SEWER MAIN		
STATION	OFFSET	ITEM DESC
3+66.00	0.00'	MH #6

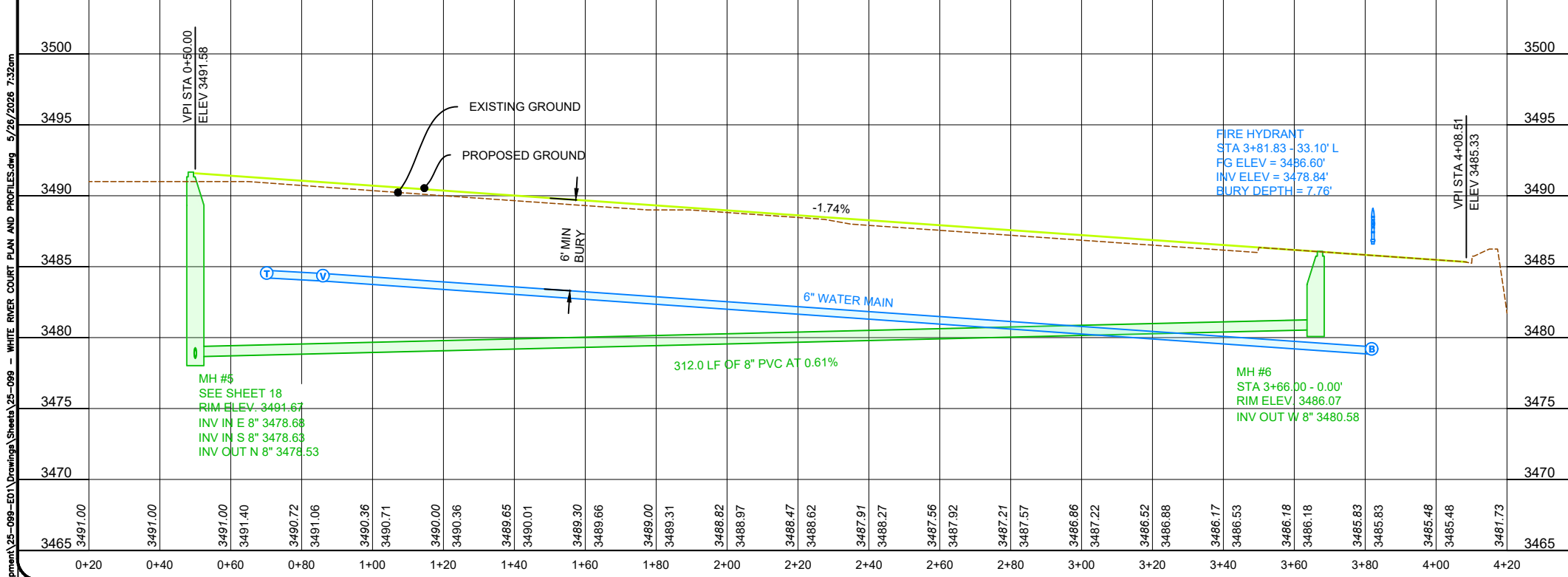
WATER MAIN NOTES			
STATION	OFFSET	T.O.P. ELEV	ITEM DESC
0+86.00	20.17'L	3484.50	6" GATE VALVE
3+81.83	20.17'L	3479.34	6" 90 BEND

SANITARY SEWER SERVICES		
STATION	OFFSET	LOT #
1+05.00	36.05'R	LOT 16
1+09.02	36.05'L	LOT 1
1+33.02	36.05'L	LOT 1
1+53.00	36.05'R	LOT 17
1+57.02	36.05'L	LOT 1
1+81.02	36.05'L	LOT 1
2+05.02	36.05'L	LOT 1
2+07.00	36.00'R	LOT 18
2+29.02	36.05'L	LOT 1
2+53.00	36.05'R	LOT 19
2+71.61	36.05'L	LOT 1
2+95.61	36.05'L	LOT 1
3+05.00	36.05'R	LOT 20
3+19.61	36.05'L	LOT 1
3+43.61	36.05'L	LOT 1
3+53.00	36.05'R	LOT 21

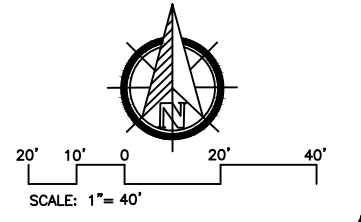
INSTALL FIRE HYDRANT	
DESCRIPTION	
FIRE HYDRANT STA 3+81.83 - 33.10' L	FG ELEV = 3486.60' INV ELEV = 3478.84' BURY DEPTH = 7.76'



WATER MAIN SERVICES		
STATION	OFFSET	LOT #
1+19.02	25.50'L	LOT 1
1+20.00	25.50'R	LOT 16
1+43.02	25.50'L	LOT 1
1+67.02	25.50'L	LOT 1
1+68.00	25.50'R	LOT 17
1+91.02	25.50'L	LOT 1
2+15.02	25.50'L	LOT 1
2+22.00	25.50'R	LOT 18
2+39.02	25.50'L	LOT 1
2+79.00	25.50'R	LOT 19
2+81.61	25.50'L	LOT 1
3+05.61	25.50'L	LOT 1
3+29.00	25.50'R	LOT 20
3+29.61	25.50'L	LOT 1
3+53.61	25.50'L	LOT 1
3+77.00	25.50'R	LOT 21



- NOTE:
1. WATER SERVICE OFFSETS ARE MEASURED TO CURB STOP.
 2. FIRE HYDRANT ASSEMBLY BURY DEPTH: (CONTRACTOR TO VERIFY FIRE HYDRANTS DEPTHS PRIOR TO ORDERING MATERIALS.)
 3. CONTRACTOR TO FIELD VERIFY DEPTH AND LOCATION OF UTILITIES BEFORE START OF CONSTRUCTION



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HOT SPRINGS, SOUTH DAKOTA

REVISIONS:

2026.04.24 - 95% DESIGN
2026.05.26 - 100% DESIGN

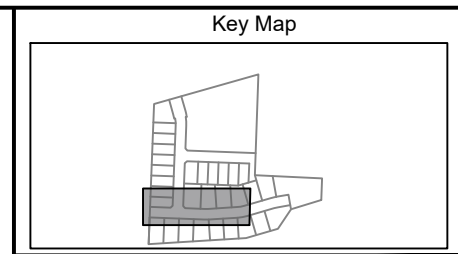
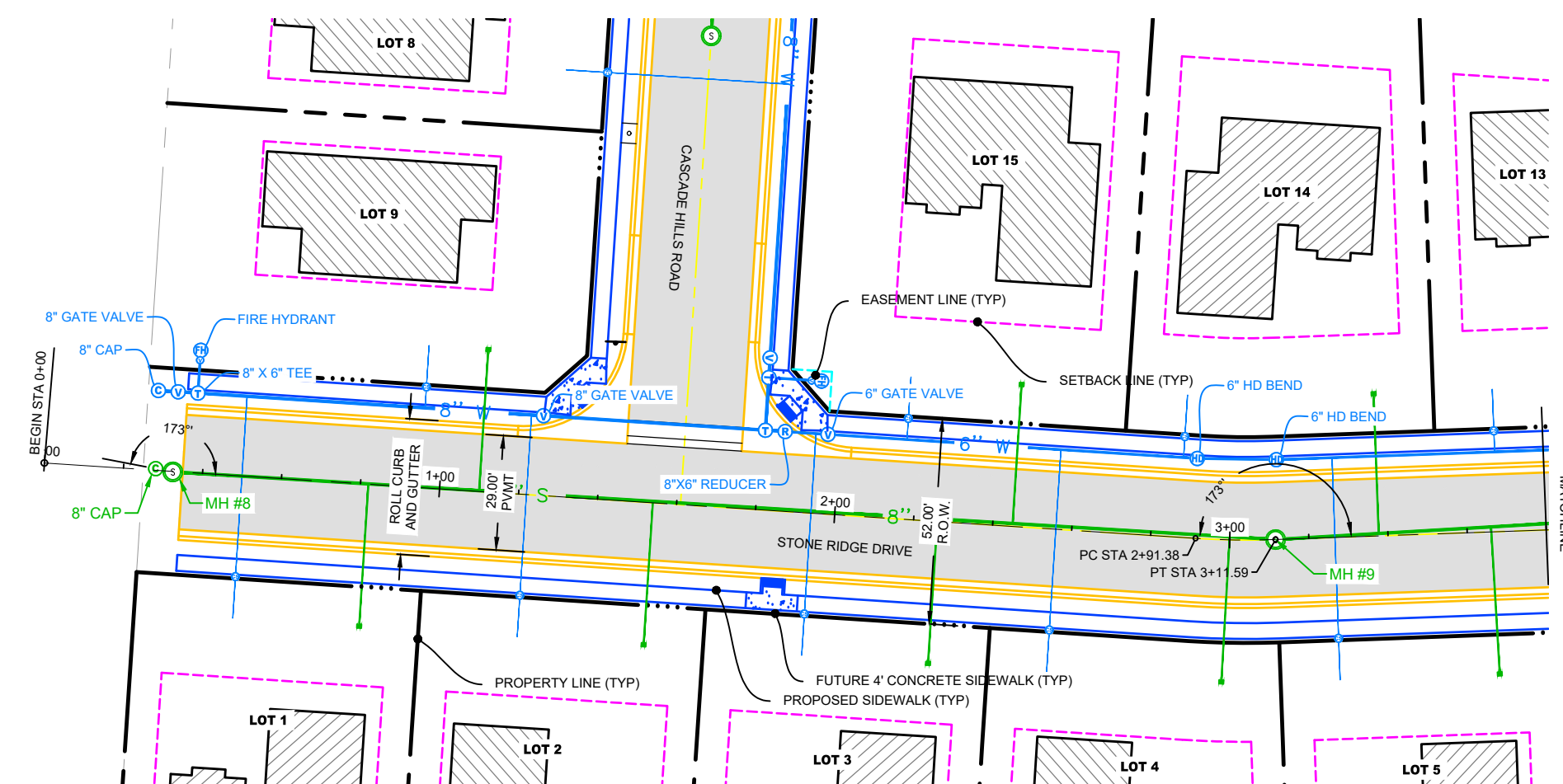
JOB NUMBER: 25-099

DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:
BROWNSTONE COURT PLAN AND PROFILE STA 0+20 TO 4+20

SHEET NO:
19

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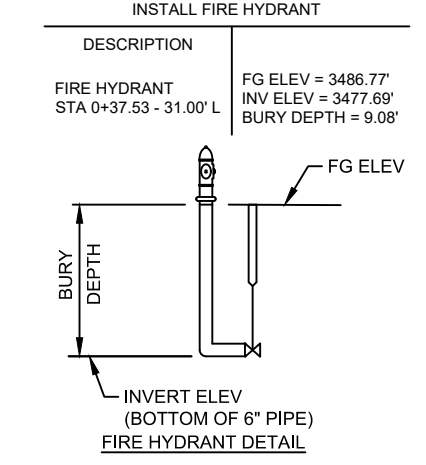


SANITARY SEWER MAIN		
STATION	OFFSET	ITEM DESC
0+28.12	0.41'L	8" CAP
0+32.50	0.12'R	MH #8
3+11.59	0.00'	MH #9

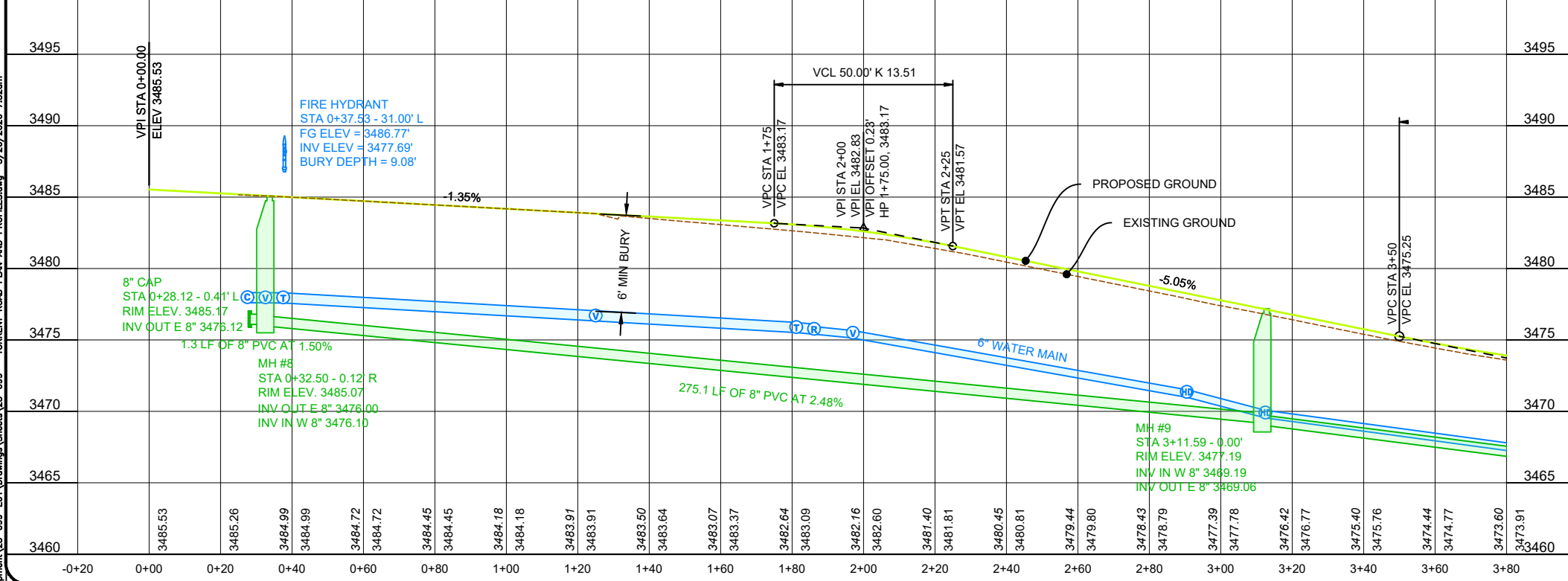
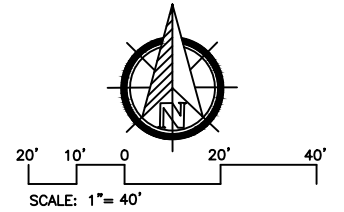
SANITARY SEWER SERVICES		
STATION	OFFSET	LOT #
0+82.00	36.05'R	LOT 1
1+10.00	36.05'L	LOT 9
1+54.00	36.05'R	LOT 2
2+26.00	36.05'R	LOT 3
2+45.00	36.05'L	LOT 15
2+98.87	36.05'R	LOT 4
3+37.65	36.05'L	LOT 14
3+66.97	36.05'R	LOT 5

WATER MAIN NOTES			
STATION	OFFSET	T.O.P. ELEV	ITEM DESC
0+27.53	20.17'L	3478.30	8" CAP
0+32.53	20.17'L	3478.29	8" GATE VALVE
0+37.53	31.00'L	3478.19	FIRE HYDRANT
0+37.53	20.17'L	3478.28	8" X 6" TEE
1+25.00	20.17'L	3477.02	8" GATE VALVE
1+86.17	20.17'L	3476.08	8"X6" REDUCER
1+97.00	20.17'L	3475.65	6" GATE VALVE
2+90.47	20.17'L	3471.50	6" HD BEND
3+12.50	20.17'L	3470.06	6" HD BEND

WATER MAIN SERVICES		
STATION	OFFSET	LOT #
0+50.00	25.50'R	LOT 1
0+95.00	25.50'L	LOT 9
1+22.00	25.50'R	LOT 2
1+94.00	25.50'R	LOT 3
2+17.00	25.50'L	LOT 15
2+87.00	25.50'L	LOT 14
3+26.59	25.50'R	LOT 5
3+67.65	25.50'L	LOT 13



- NOTE:
1. WATER SERVICE OFFSETS ARE MEASURED TO CURB STOP.
 2. FIRE HYDRANT ASSEMBLY BURY DEPTH: (CONTRACTOR TO VERIFY FIRE HYDRANTS DEPTHS PRIOR TO ORDERING MATERIALS.)
 3. CONTRACTOR TO FIELD VERIFY DEPTH AND LOCATION OF UTILITIES BEFORE START OF CONSTRUCTION



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HOT SPRINGS, SOUTH DAKOTA

REVISIONS:

2026.04.24 - 95% DESIGN
2026.05.26 - 100% DESIGN

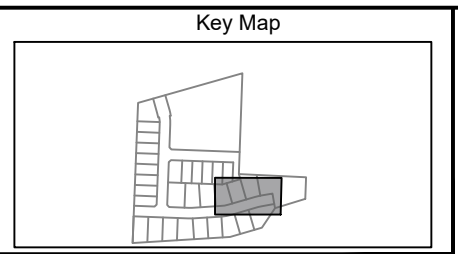
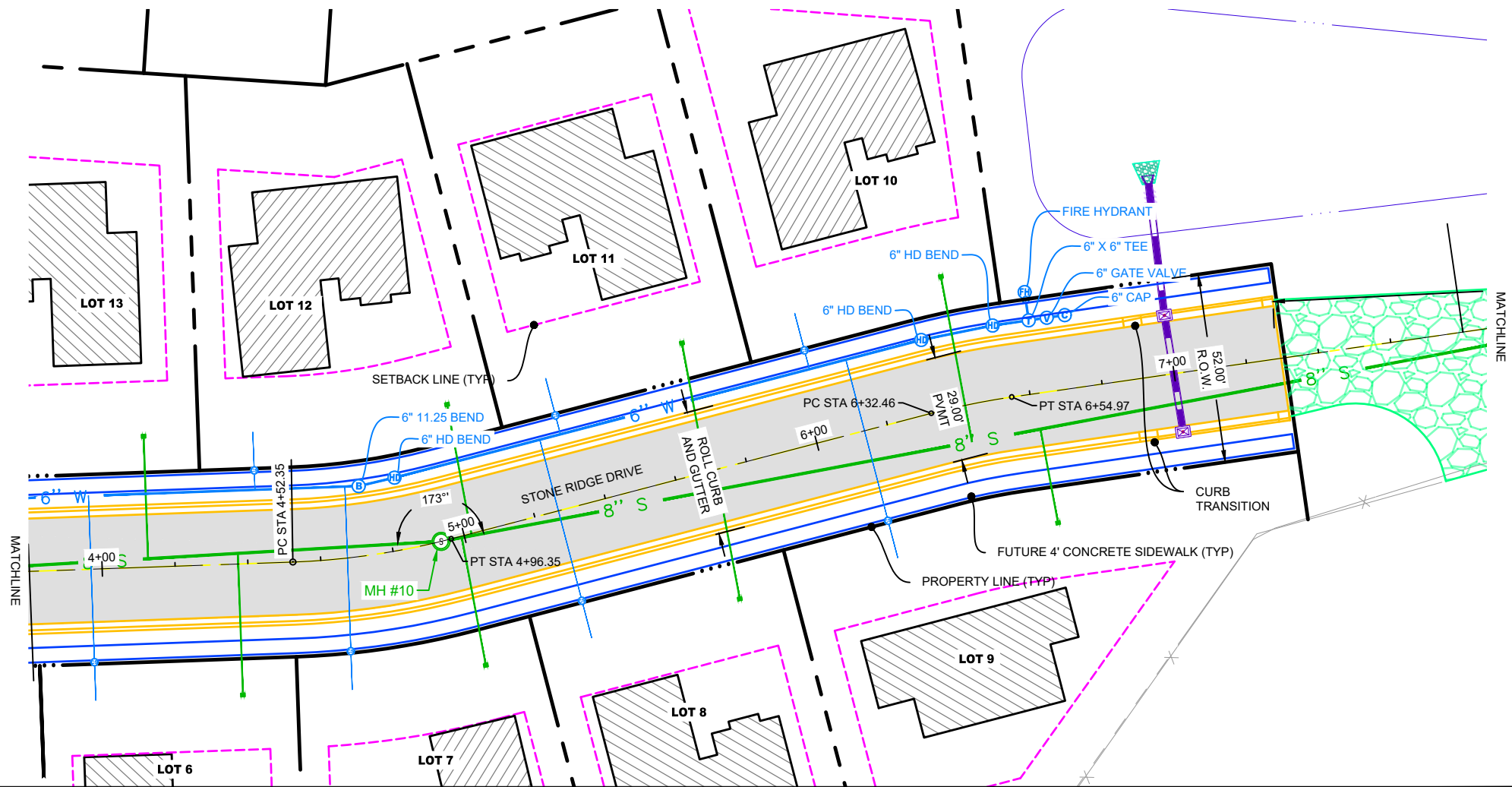
JOB NUMBER: 25-099

DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:
STONE RIDGE DRIVE PLAN AND PROFILE STA 0+00 TO 3+80

SHEET NO:
20

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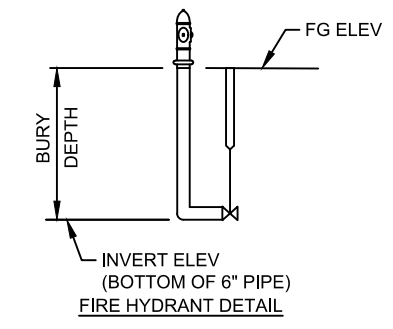
SANITARY SEWER MAIN		
STATION	OFFSET	ITEM DESC
4+93.47	0.00'	MH #10

WATER MAIN NOTES			
STATION	OFFSET	T.O.P. ELEV	ITEM DESC
4+73.15	19.19'L	3464.64	6" 11.25 BEND
4+84.31	19.84'L	3464.48	6" HD BEND
6+34.64	20.18'L	3463.30	6" HD BEND
6+52.79	20.18'L	3463.09	6" HD BEND
6+62.57	28.00'L	3463.08	FIRE HYDRANT
6+62.57	20.17'L	3463.08	6" X 6" TEE
6+67.57	20.17'L	3463.02	6" GATE VALVE
6+72.57	20.17'L	3463.04	6" CAP

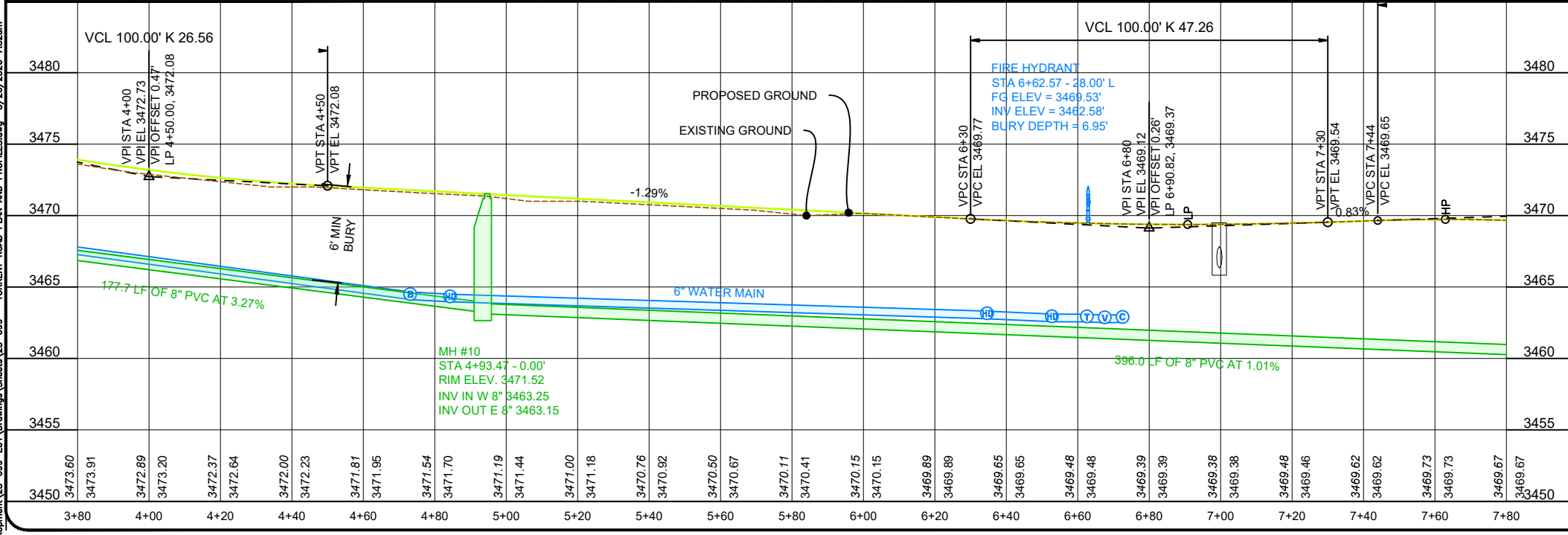
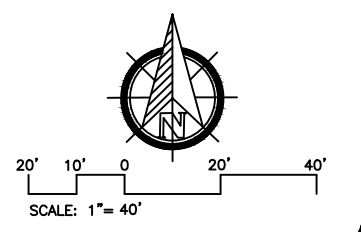
SANITARY SEWER SERVICES		
STATION	OFFSET	LOT #
4+12.65	36.05'L	LOT 13
4+37.36	36.05'R	LOT 6
4+96.73	36.05'R	LOT 7
5+04.55	36.05'L	LOT 12
5+68.73	36.05'R	LOT 8
5+71.15	36.05'L	LOT 11
6+42.66	36.05'L	LOT 10
6+62.63	36.05'R	LOT 9

WATER MAIN SERVICES		
STATION	OFFSET	LOT #
3+96.97	25.50'R	LOT 6
4+42.65	25.50'L	LOT 12
4+65.67	25.50'R	LOT 7
5+26.74	25.50'R	LOT 8
5+32.55	25.50'L	LOT 11
6+03.15	25.50'L	LOT 10
6+13.51	25.50'R	LOT 9

INSTALL FIRE HYDRANT	
DESCRIPTION	
FIRE HYDRANT STA 6+62.57 - 28.00' L	FG ELEV = 3469.53' INV ELEV = 3462.58' BURY DEPTH = 6.95'



- NOTE:
1. WATER SERVICE OFFSETS ARE MEASURED TO CURB STOP.
 2. FIRE HYDRANT ASSEMBLY BURY DEPTH: (CONTRACTOR TO VERIFY FIRE HYDRANTS DEPTHS PRIOR TO ORDERING MATERIALS.)
 3. CONTRACTOR TO FIELD VERIFY DEPTH AND LOCATION OF UTILITIES BEFORE START OF CONSTRUCTION



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LOGO:

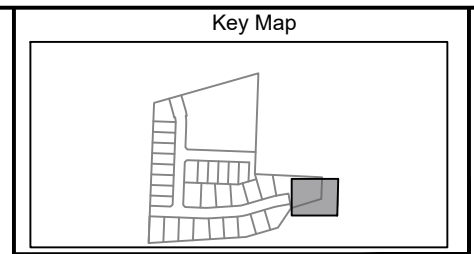
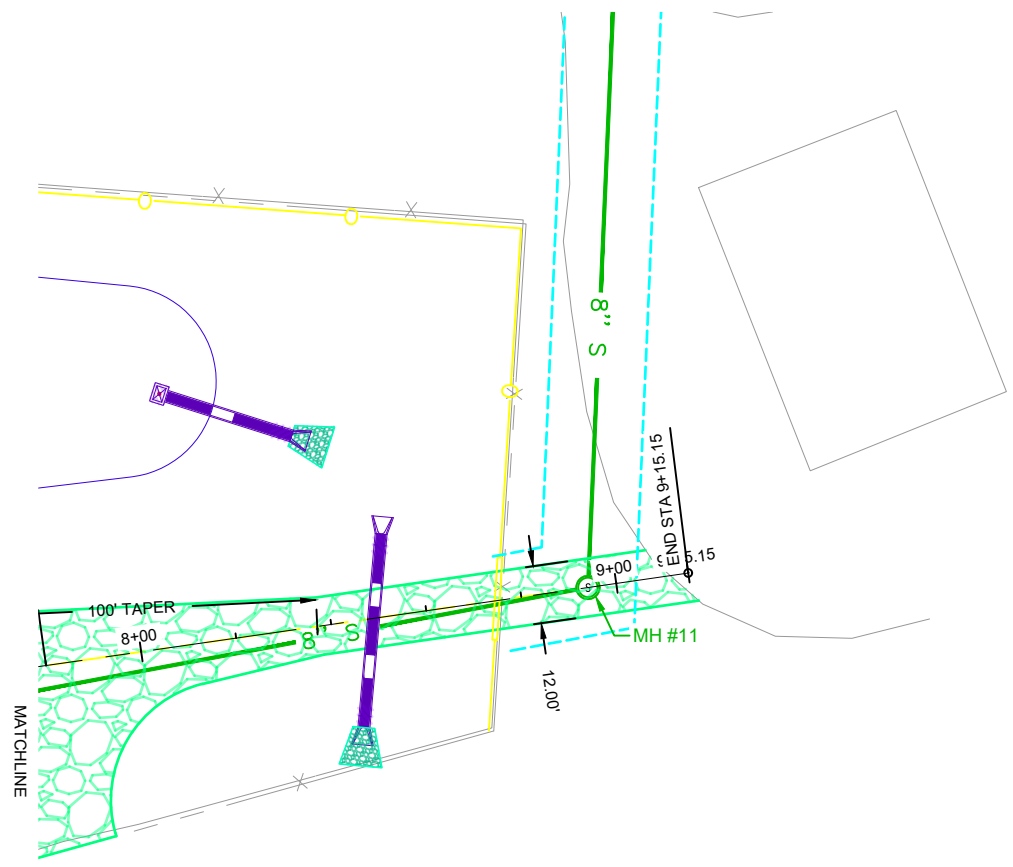
CASCADE HILLS SUBDIVISION
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REVISIONS:
 2026.04.24 - 95% DESIGN
 2026.05.26 - 100% DESIGN

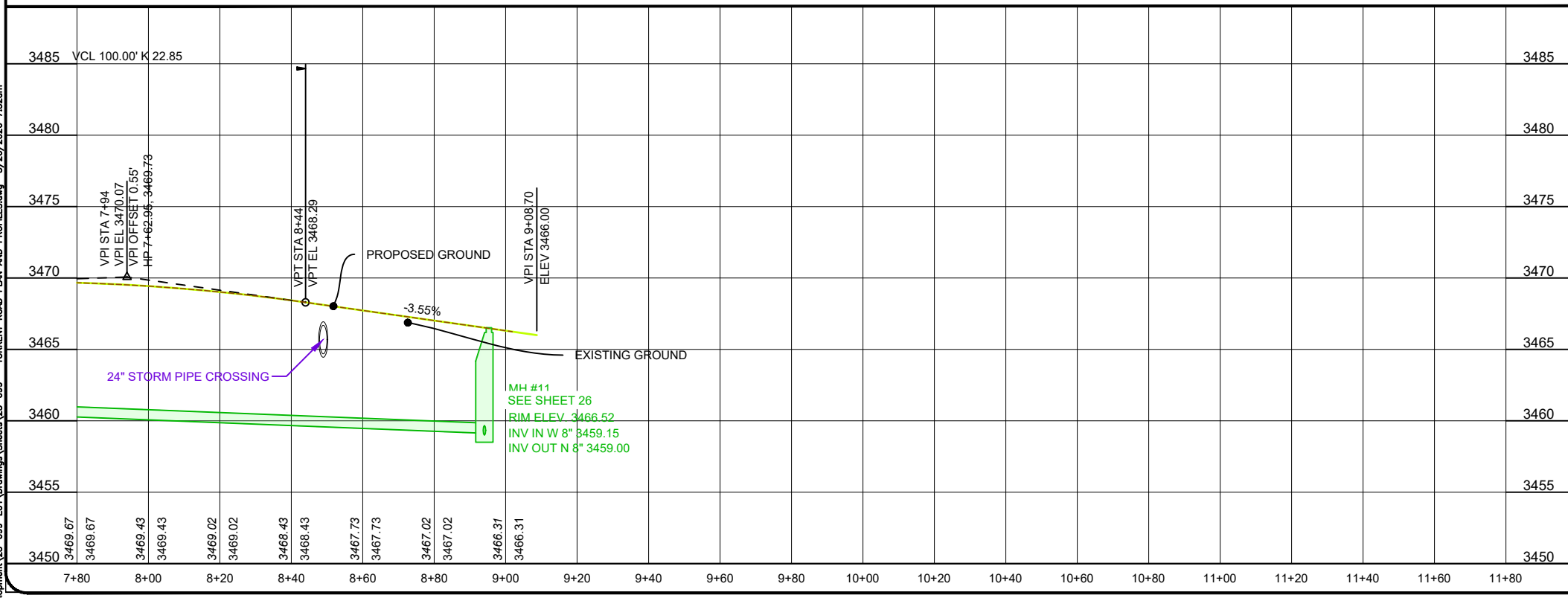
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 DESIGNED BY: BK
 DRAWN BY: BK / NR
 SURVEYED BY: TDG
 SURVEY DATE: 2026.01.05

SHEET NAME:
STONE RIDGE DRIVE PLAN AND PROFILE STA 3+80 TO 7+80
 SHEET NO:
21

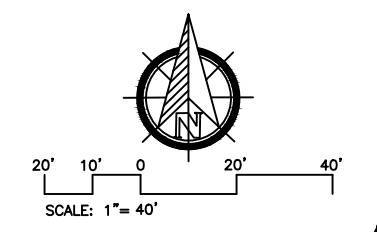
COLOR PLANS - GREY TOPOCTB



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- NOTE:
1. WATER SERVICE OFFSETS ARE MEASURED TO CURB STOP.
 2. FIRE HYDRANT ASSEMBLY BURY DEPTH: (CONTRACTOR TO VERIFY FIRE HYDRANTS DEPTHS PRIOR TO ORDERING MATERIALS.)
 3. CONTRACTOR TO FIELD VERIFY DEPTH AND LOCATION OF UTILITIES BEFORE START OF CONSTRUCTION



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REVISIONS:

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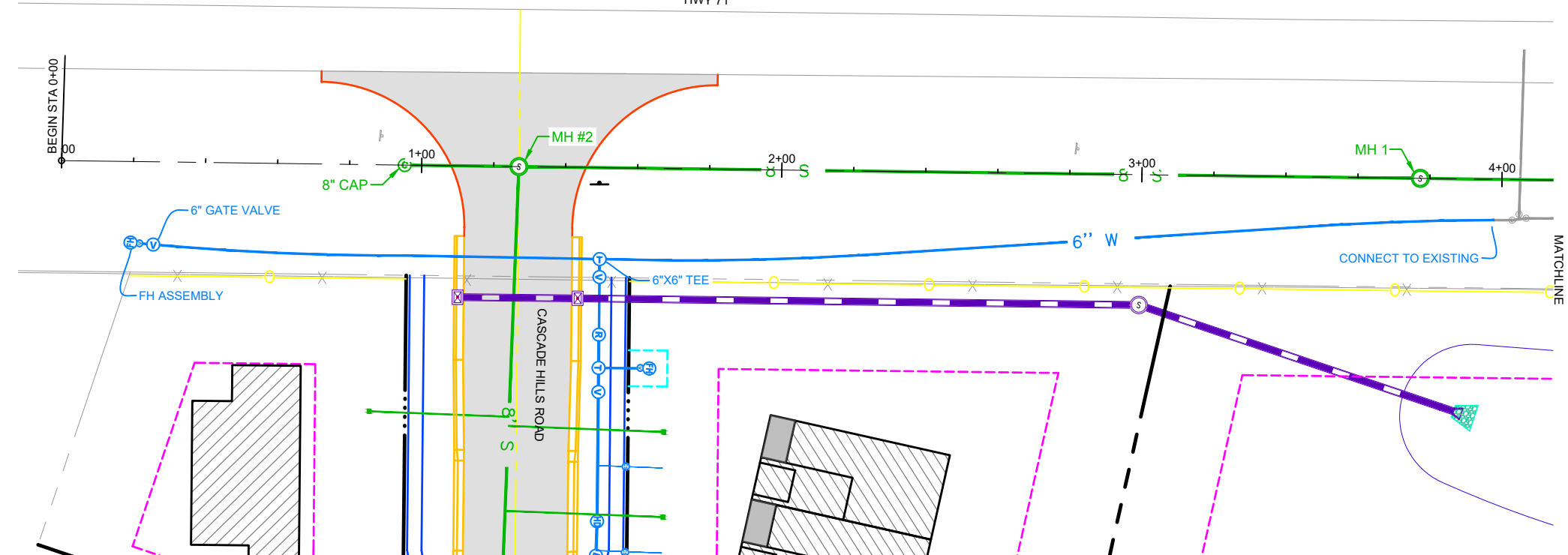
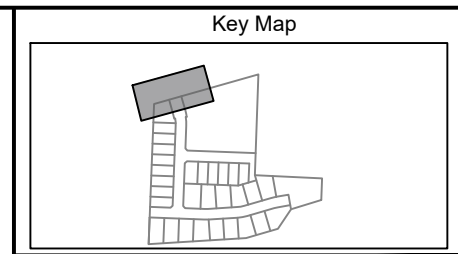
JOB NUMBER: 25-099

DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:
STONE RIDGE DRIVE PLAN AND PROFILE STA 7+80 TO 11+80

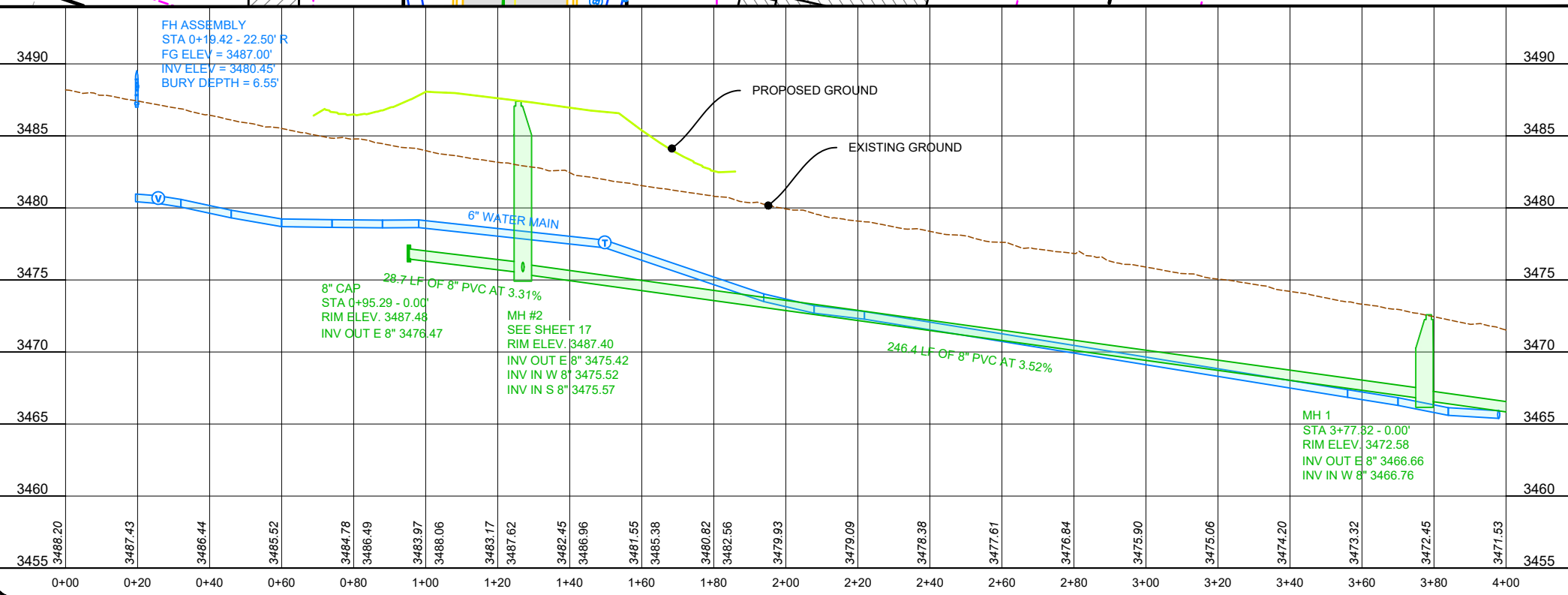
SHEET NO:
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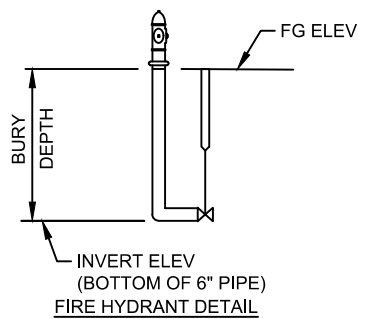


SANITARY SEWER MAIN		
STATION	OFFSET	ITEM DESC
SEE SHEET 17		MH #2
0+95.29	0.00'	8" CAP
3+77.32	0.00'	MH 1

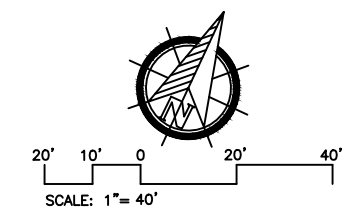
WATER MAIN NOTES			
STATION	OFFSET	T.O.P. ELEV	ITEM DESC
0+25.72	22.98'R	3480.82	6" GATE VALVE
0+32.03	23.46'R	3480.57	OFFSET
0+46.01	24.26'R	3479.82	OFFSET
0+60.00	24.83'R	3479.22	OFFSET
0+74.00	25.15'R	3479.17	OFFSET
0+87.99	25.23'R	3479.14	OFFSET
0+98.06	25.11'R	3479.15	OFFSET
1+49.74	25.39'R	3477.75	6"X6" TEE
1+93.86	24.96'R	3474.01	OFFSET
2+07.84	24.31'R	3473.20	OFFSET
2+21.81	23.41'R	3472.79	OFFSET
3+56.00	13.07'R	3467.36	OFFSET
3+69.98	12.24'R	3466.81	OFFSET
3+83.96	11.66'R	3466.12	OFFSET
3+97.96	11.31'R		CONNECT TO EXISTING



INSTALL FIRE HYDRANT	
DESCRIPTION	
FH ASSEMBLY STA 0+19.42 - 22.50' R	FG ELEV = 3487.00' INV ELEV = 3480.45' BURY DEPTH = 6.55'



- NOTE:
1. WATER SERVICE OFFSETS ARE MEASURED TO CURB STOP.
 2. FIRE HYDRANT ASSEMBLY BURY DEPTH: (CONTRACTOR TO VERIFY FIRE HYDRANTS DEPTHS PRIOR TO ORDERING MATERIALS.)
 3. CONTRACTOR TO FIELD VERIFY DEPTH AND LOCATION OF UTILITIES BEFORE START OF CONSTRUCTION
 4. CONTRACTOR TO CONNECT TO EXISTING WATER MAIN USING CONTRACTOR MEANS AND METHODS



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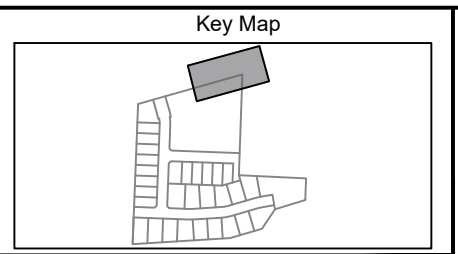
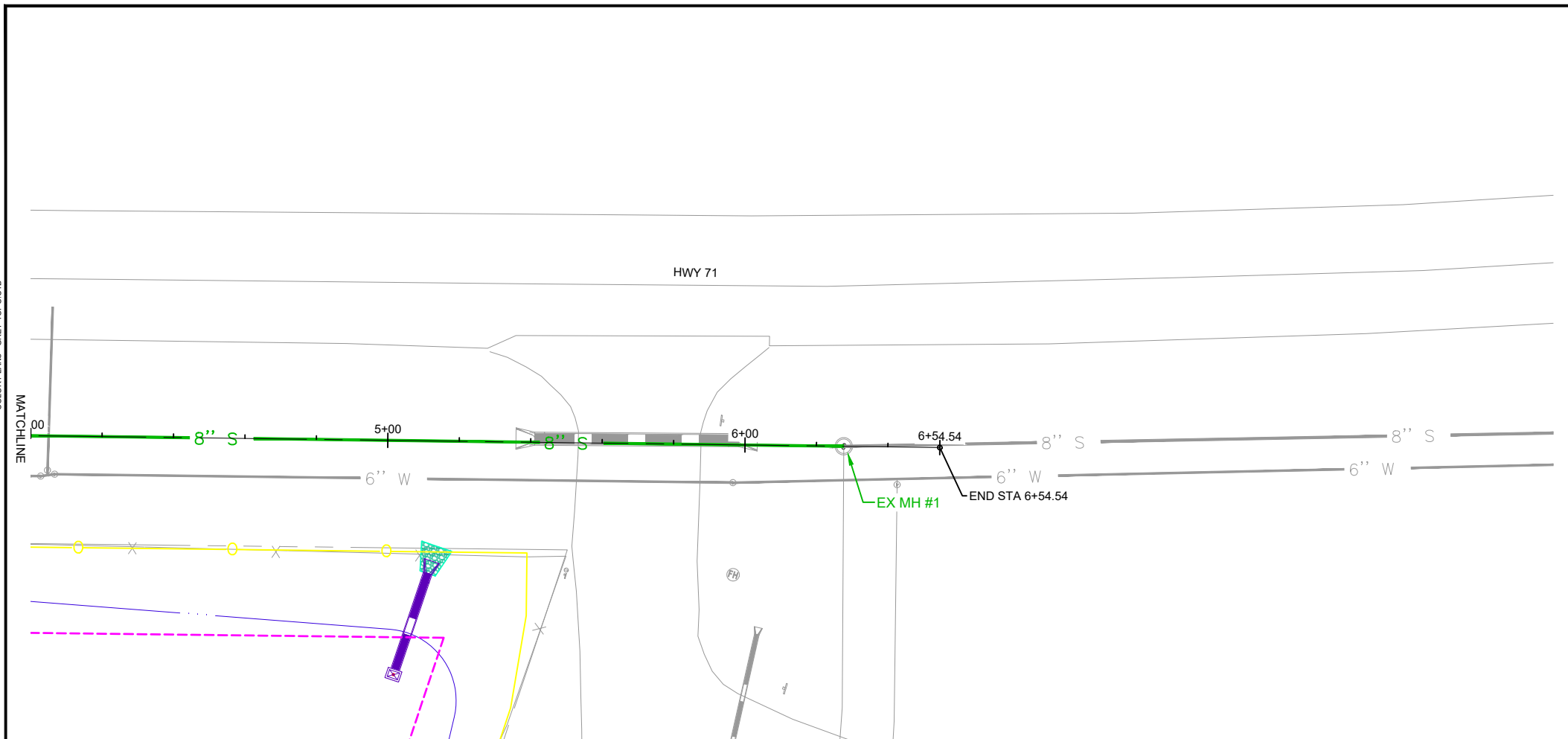
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SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

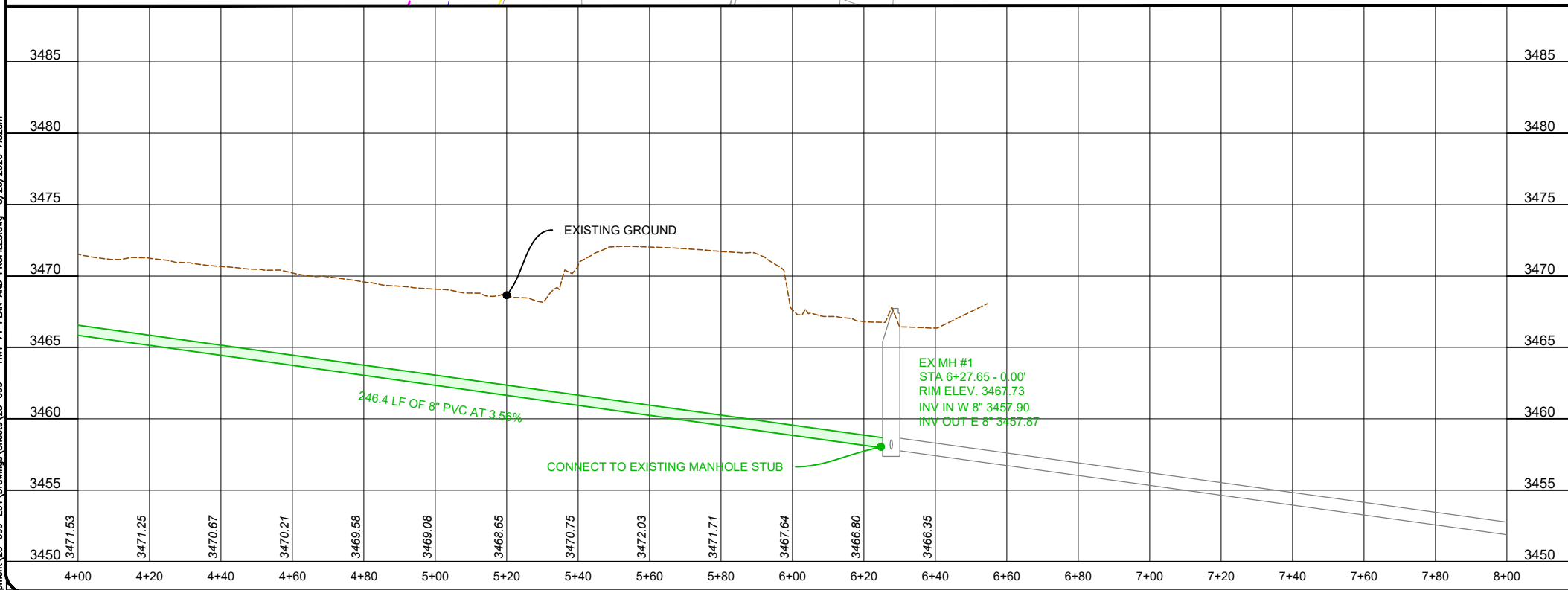
SHEET NAME:
HWY 71 PLAN AND PROFILE

SHEET NO:
23

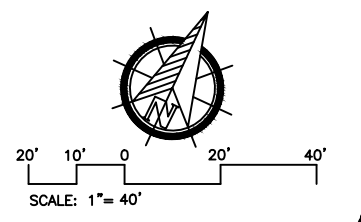
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SANITARY SEWER MAIN		
STATION	OFFSET	ITEM DESC
6+27.65	0.00'	EX MH #1



NOTE:
1. CONTRACTOR TO FIELD VERIFY DEPTH AND LOCATION OF UTILITIES BEFORE START OF CONSTRUCTION



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REVISIONS:

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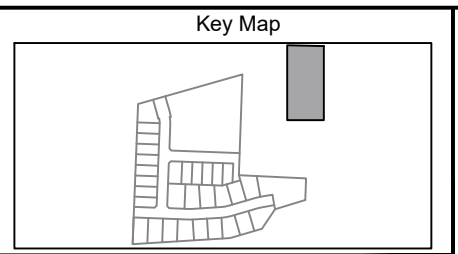
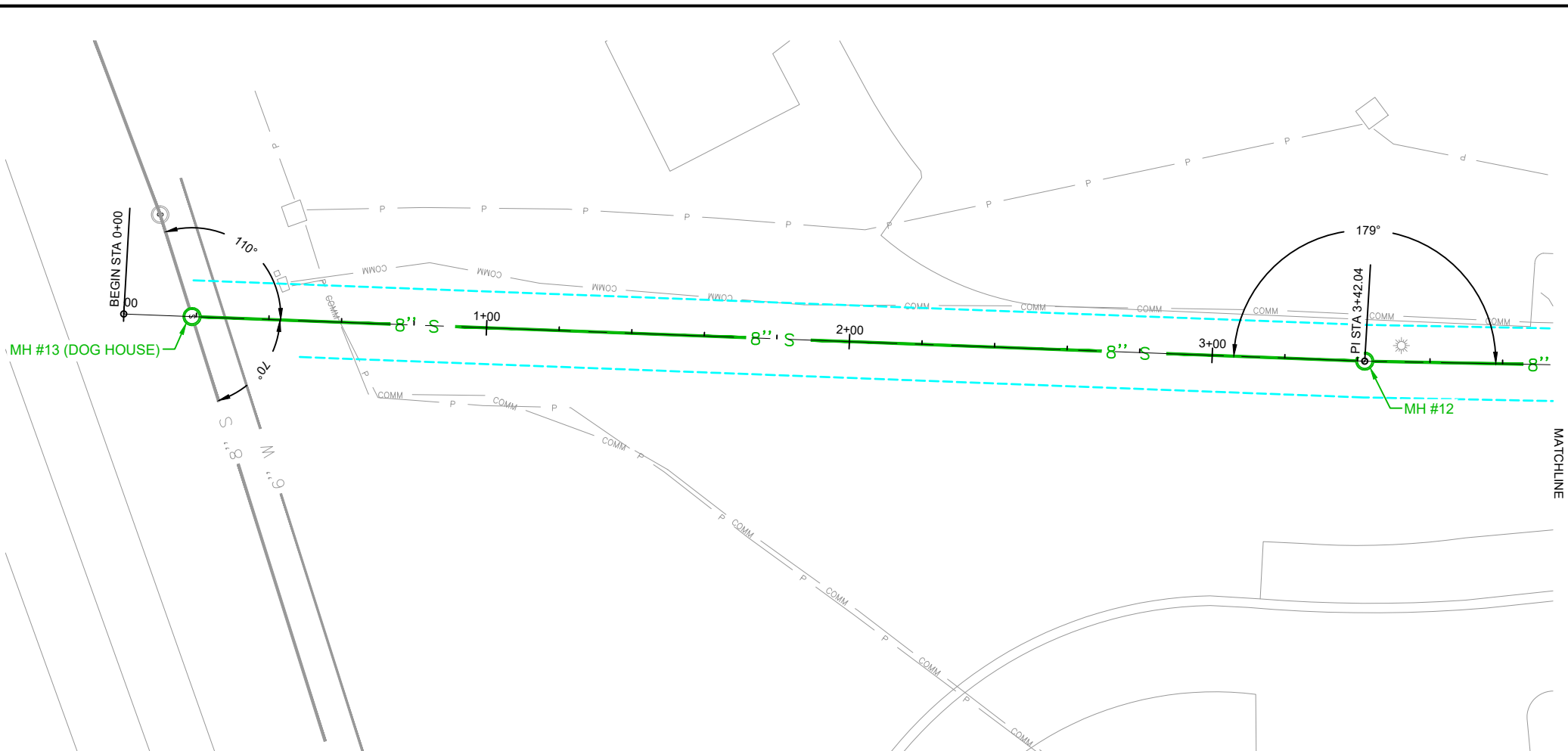
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DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:
HWY 71 PLAN AND PROFILE

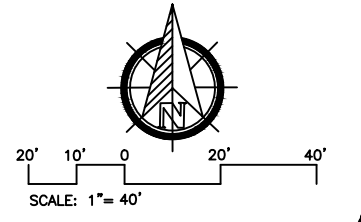
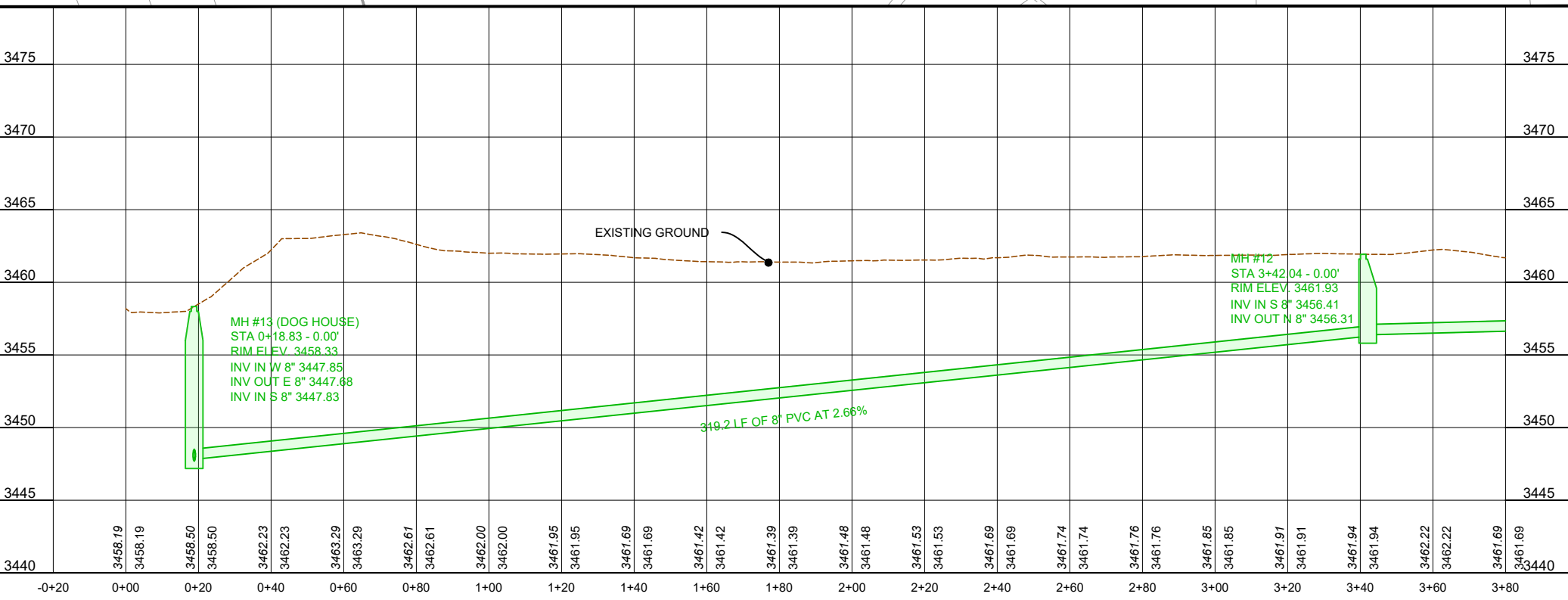
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SANITARY SEWER MAIN		
STATION	OFFSET	ITEM DESC
0+18.83	0.00'	MH #13 (DOG HOUSE)
3+42.04	0.00'	MH #12

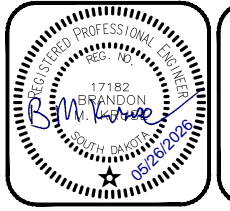
- NOTE:
1. CONTRACTOR TO FIELD VERIFY DEPTH AND LOCATION OF UTILITIES BEFORE START OF CONSTRUCTION
 2. CONNECT TO EXISTING SEWER MAIN WITH DOG HOUSE MANHOLE. BYPASS PUMP OR COORDINATE SEWER SHUTDOWN WITH AMBULANCE DISTRICT WHILE INSTALLING DOG HOUSE MANHOLE.
 3. CONTRACTOR TO ADD FILL ABOVE SEWER MAIN TO MAINTAIN AT LEAST 4.5' FEET OF COVER.



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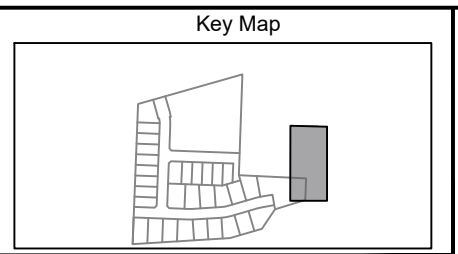
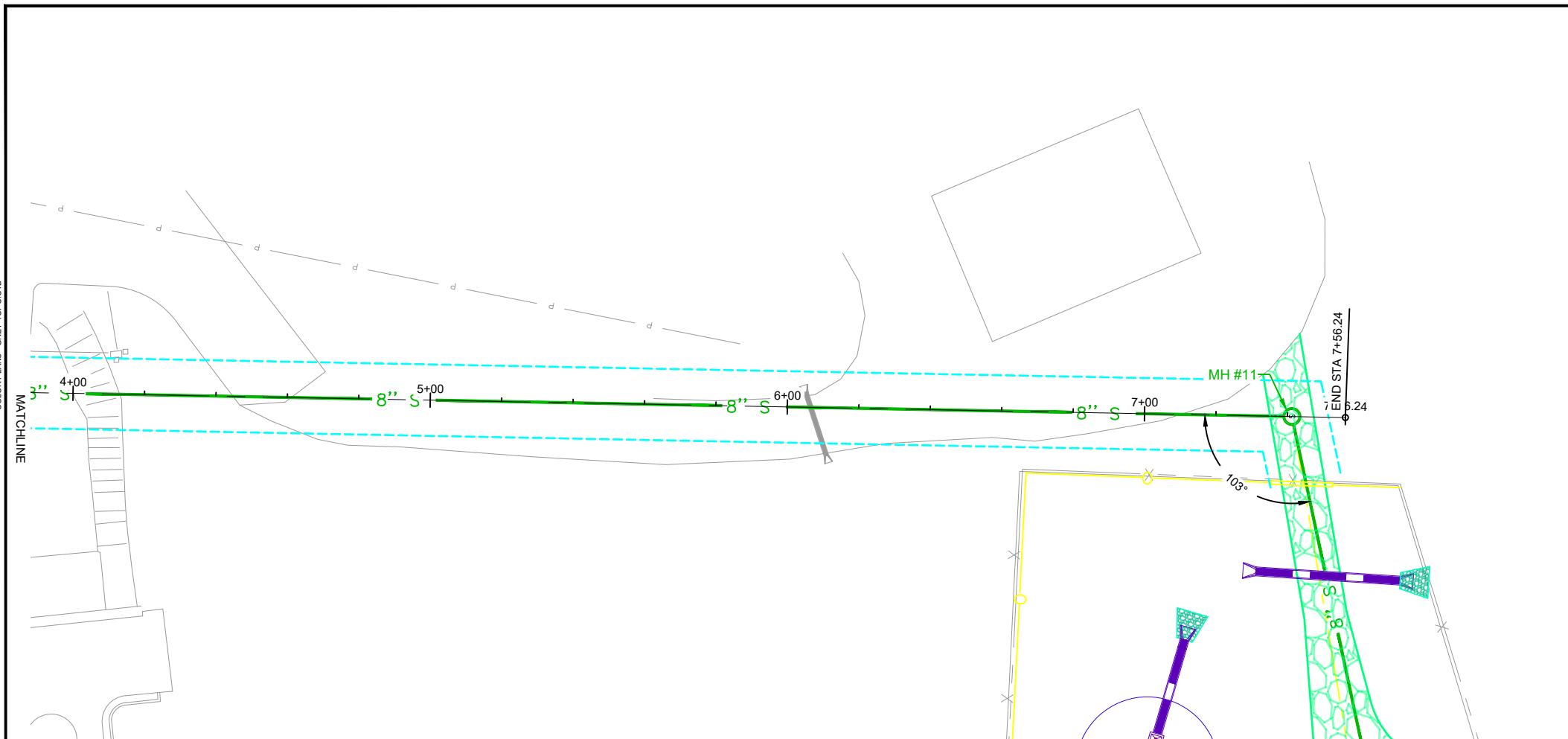
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DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:
HOSPITAL SEWER PLAN AND PROFILE

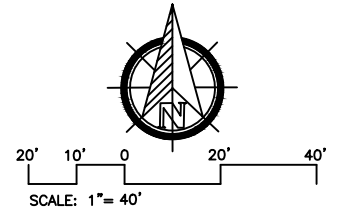
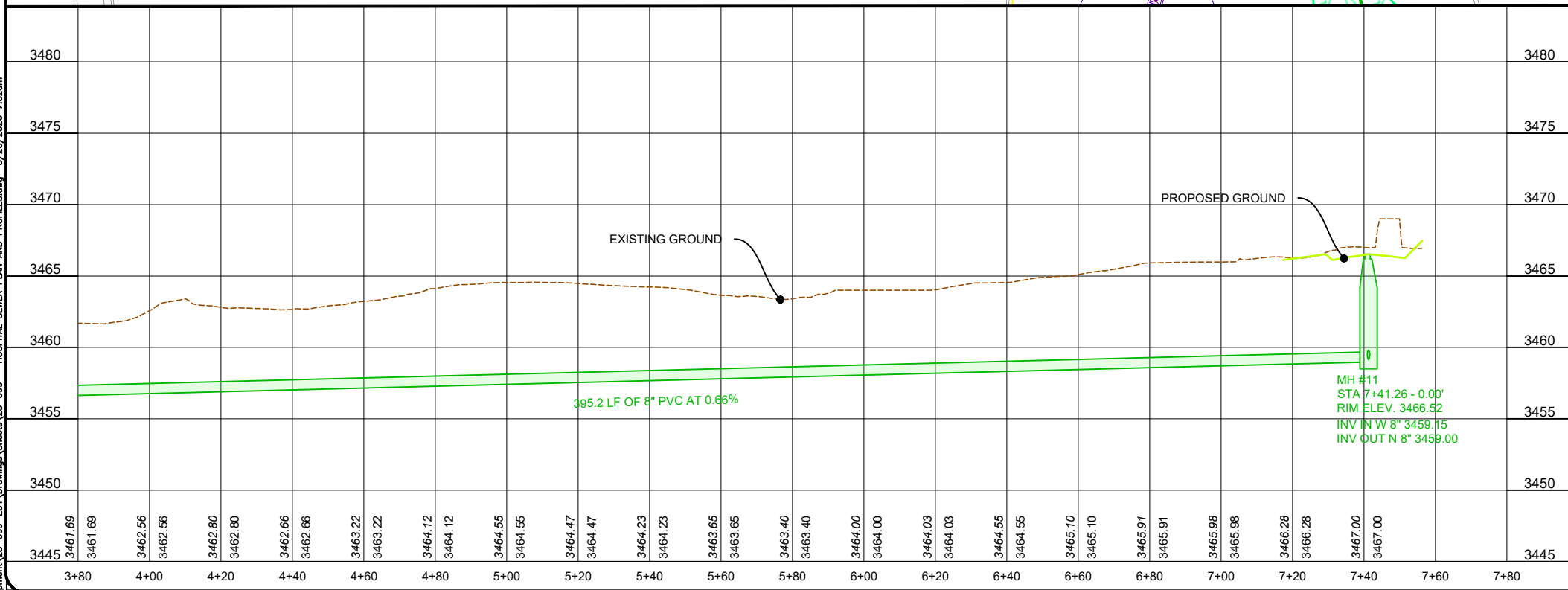
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SANITARY SEWER MAIN		
STATION	OFFSET	ITEM DESC
7+41.26	0.00'	MH #11

- NOTE:
- CONTRACTOR TO FIELD VERIFY DEPTH AND LOCATION OF UTILITIES BEFORE START OF CONSTRUCTION
 - CONTRACTOR TO ADD FILL ABOVE SEWER MAIN TO MAINTAIN AT LEAST 4.5' OF COVER



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REVISIONS:

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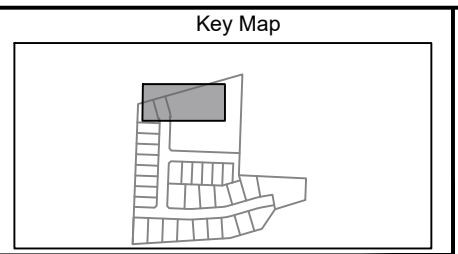
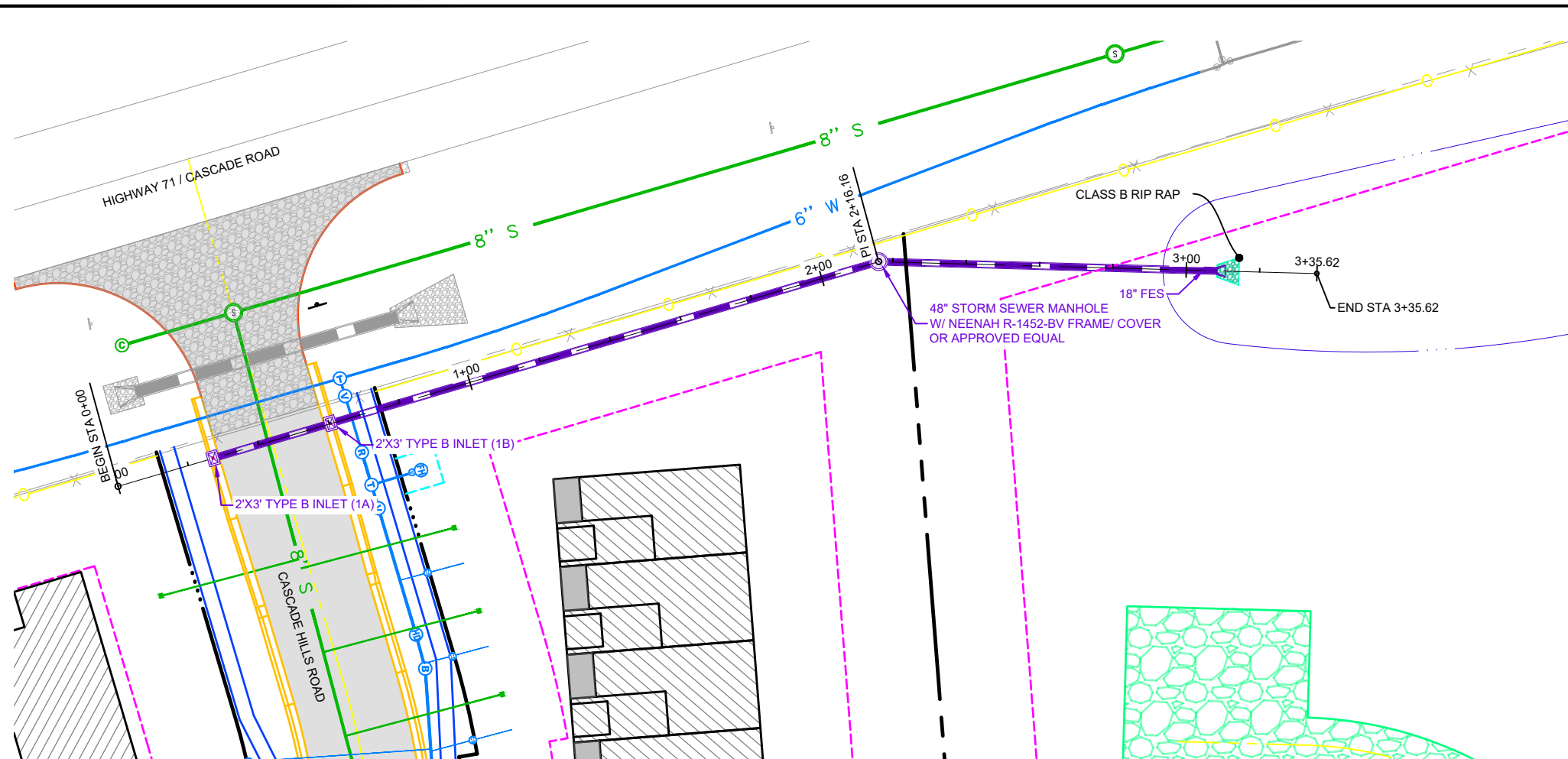
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DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

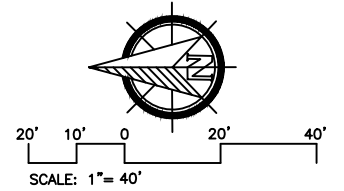
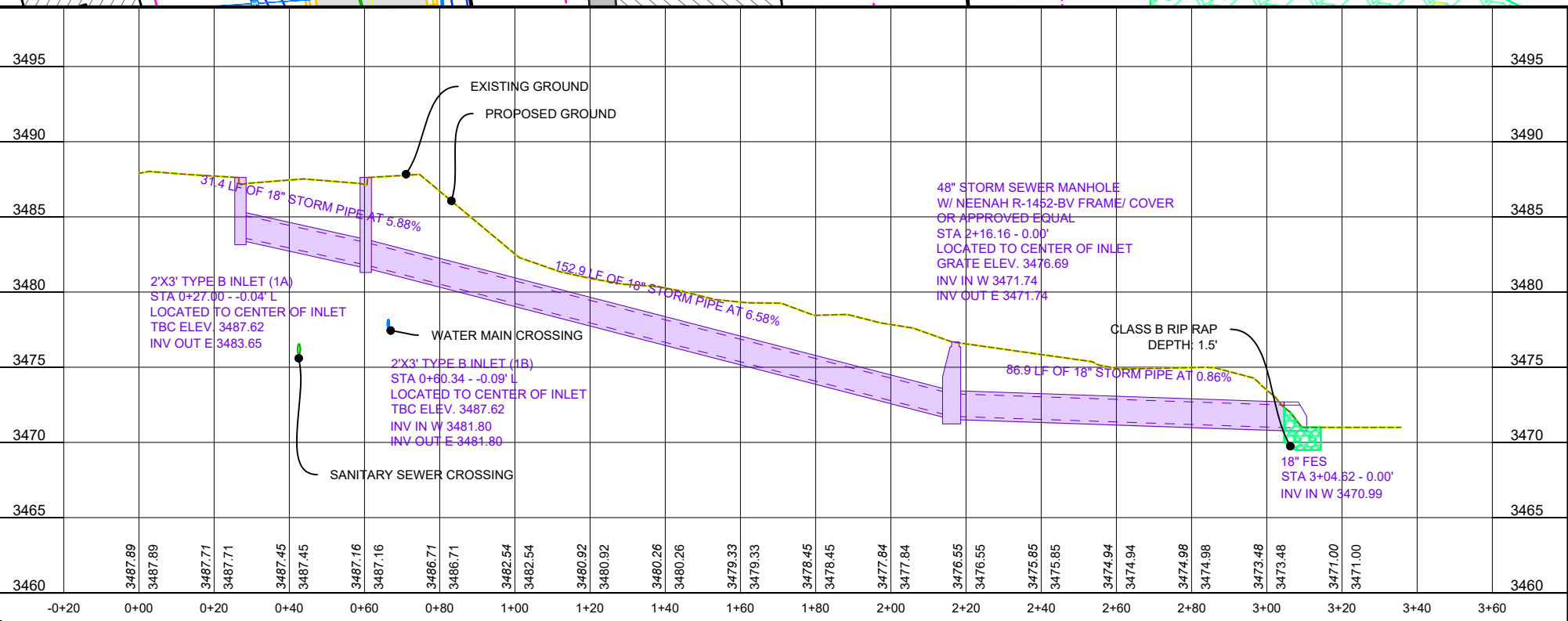
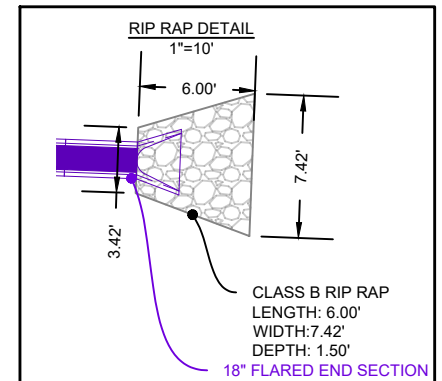
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HOSPITAL SEWER PLAN AND PROFILE


SHEET NO:
26

COLOR PLANS - GREY TOPOCUT
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STORM SEWER NOTES			
STATION	OFFSET	INV. ELEV	ITEM DESC
0+27.00	0.04'L	Pipe - (279): 3483.65' - Out	2'X3' TYPE B INLET (1A)
0+60.34	0.09'L	Pipe - (279): 3481.80' - In Pipe - (281): 3481.80' - Out	2'X3' TYPE B INLET (1B)
2+16.16	0.00'	Pipe - (281): 3471.74' - In Pipe - (282): 3471.74' - Out	48" STORM SEWER MANHOLE W/ NEENAH R-1452-BV FRAME/ COVER OR APPROVED EQUAL
3+04.62	0.00'	Pipe - (282): 3470.99' - In	18" FES




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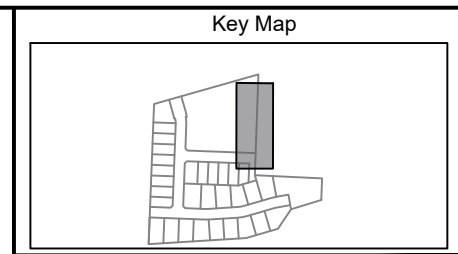
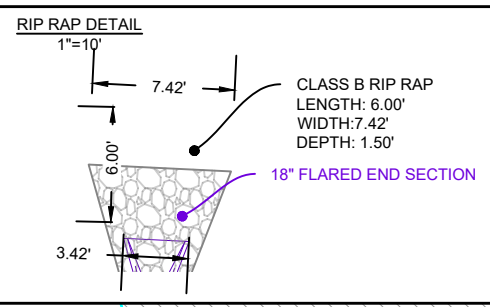
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DESIGNED BY: BK
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SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

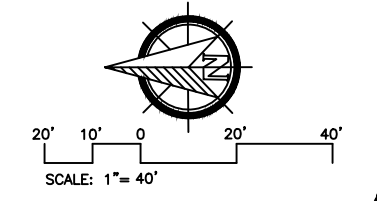
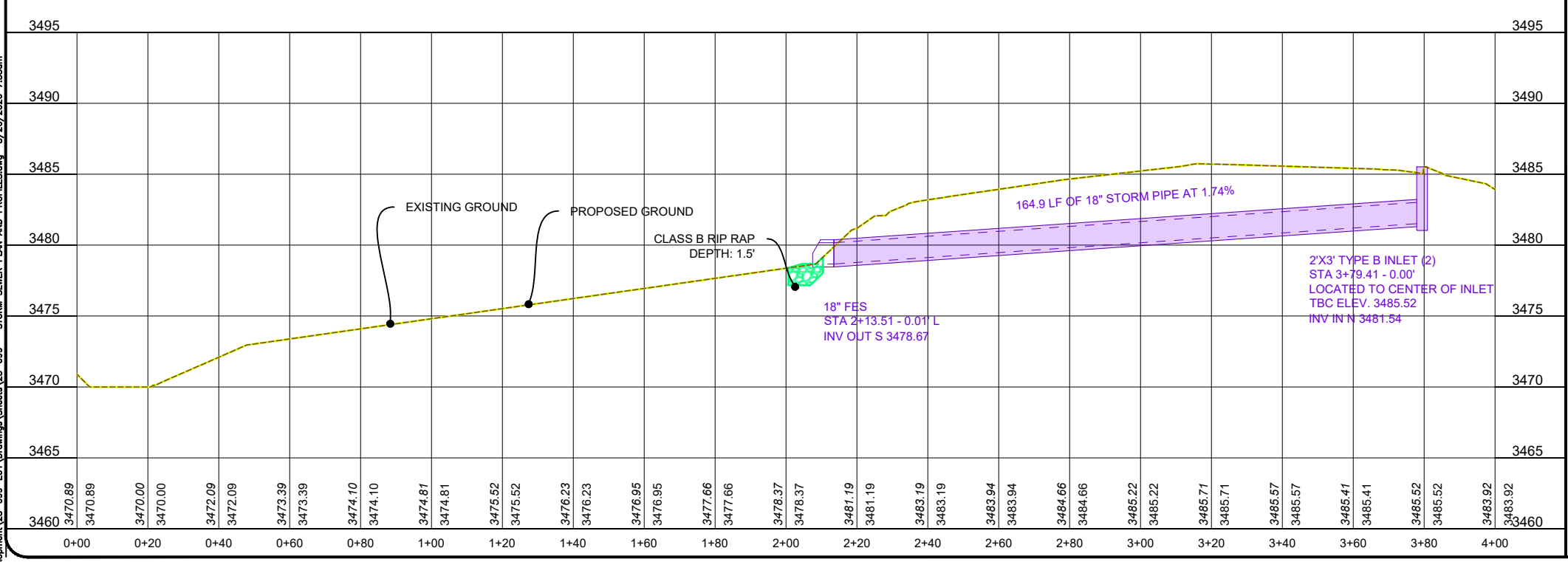
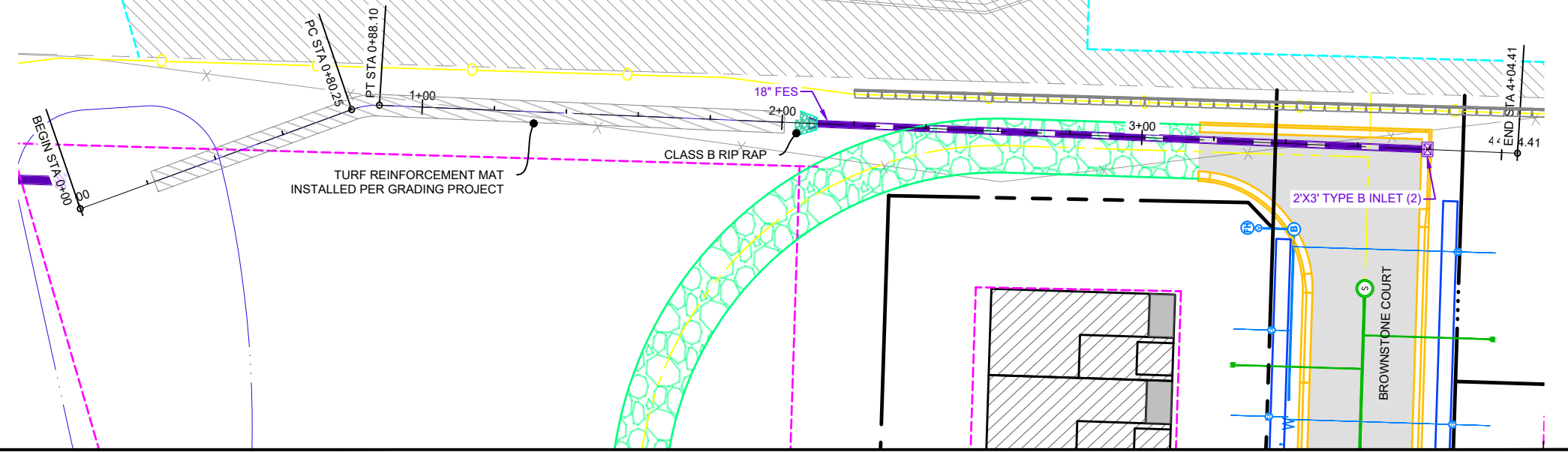
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SHEET NO: **27**



STORM SEWER NOTES

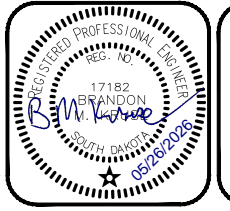
STATION	OFFSET	INV: ELEV	ITEM DESC
2+13.51	0.01'L	Pipe - (286): 3478.67' - Out	18" FES
3+79.41	0.00'	Pipe - (286): 3481.54' - In	2'X3' TYPE B INLET (2)



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REVISIONS:

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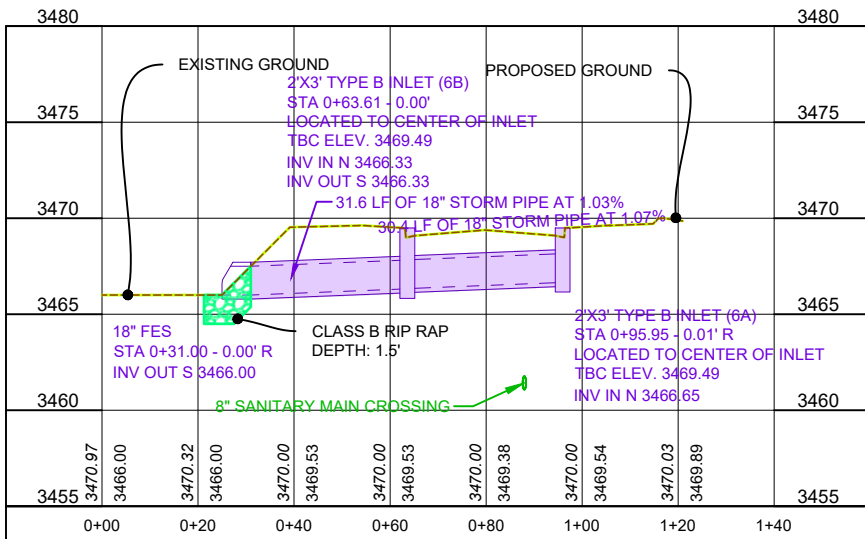
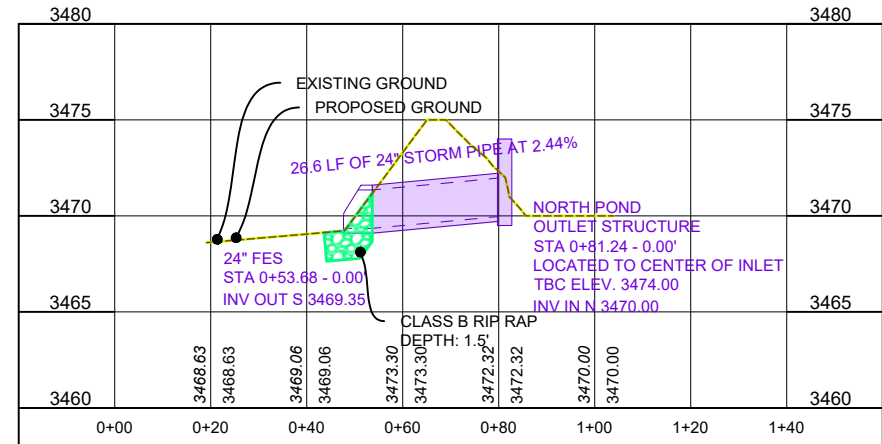
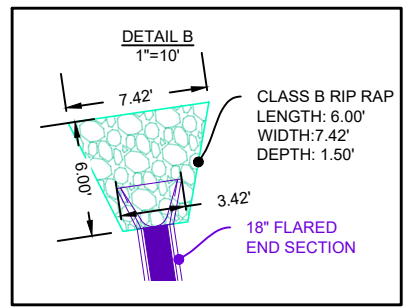
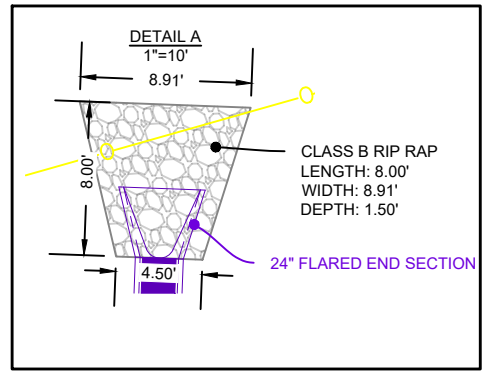
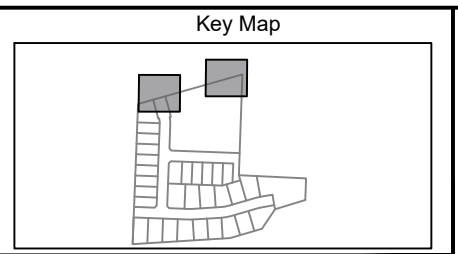
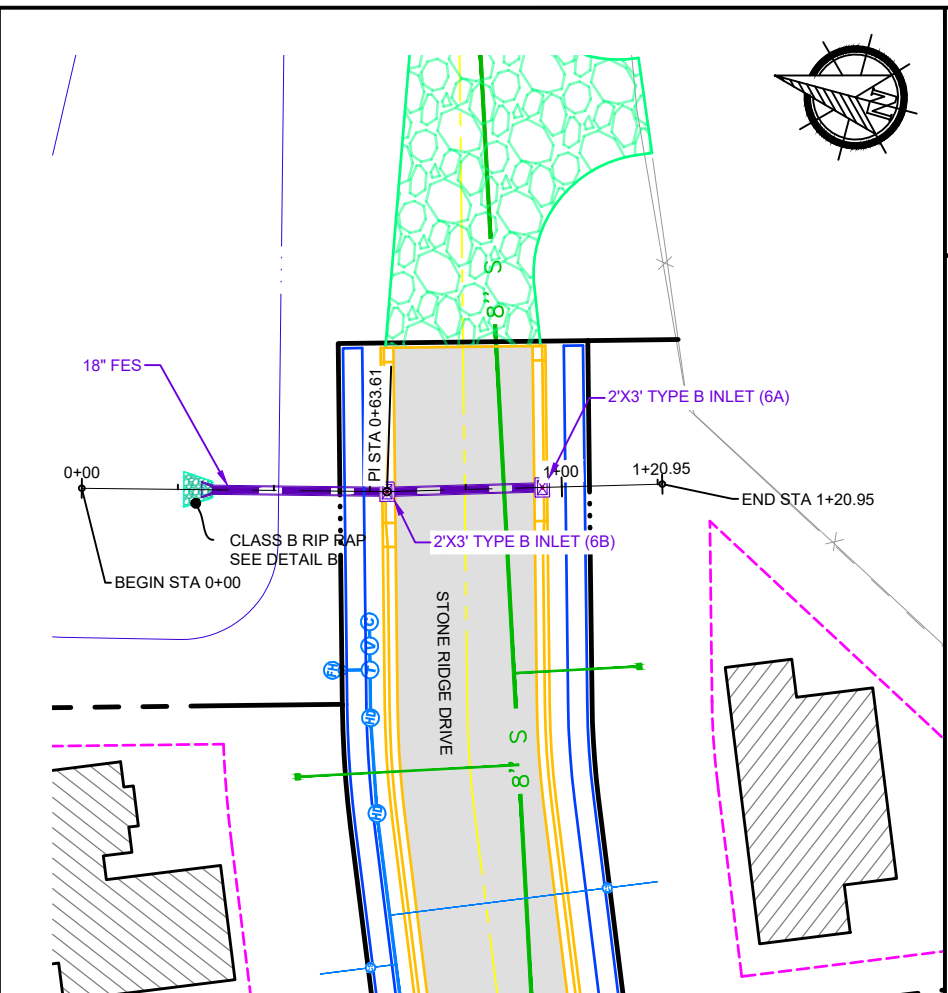
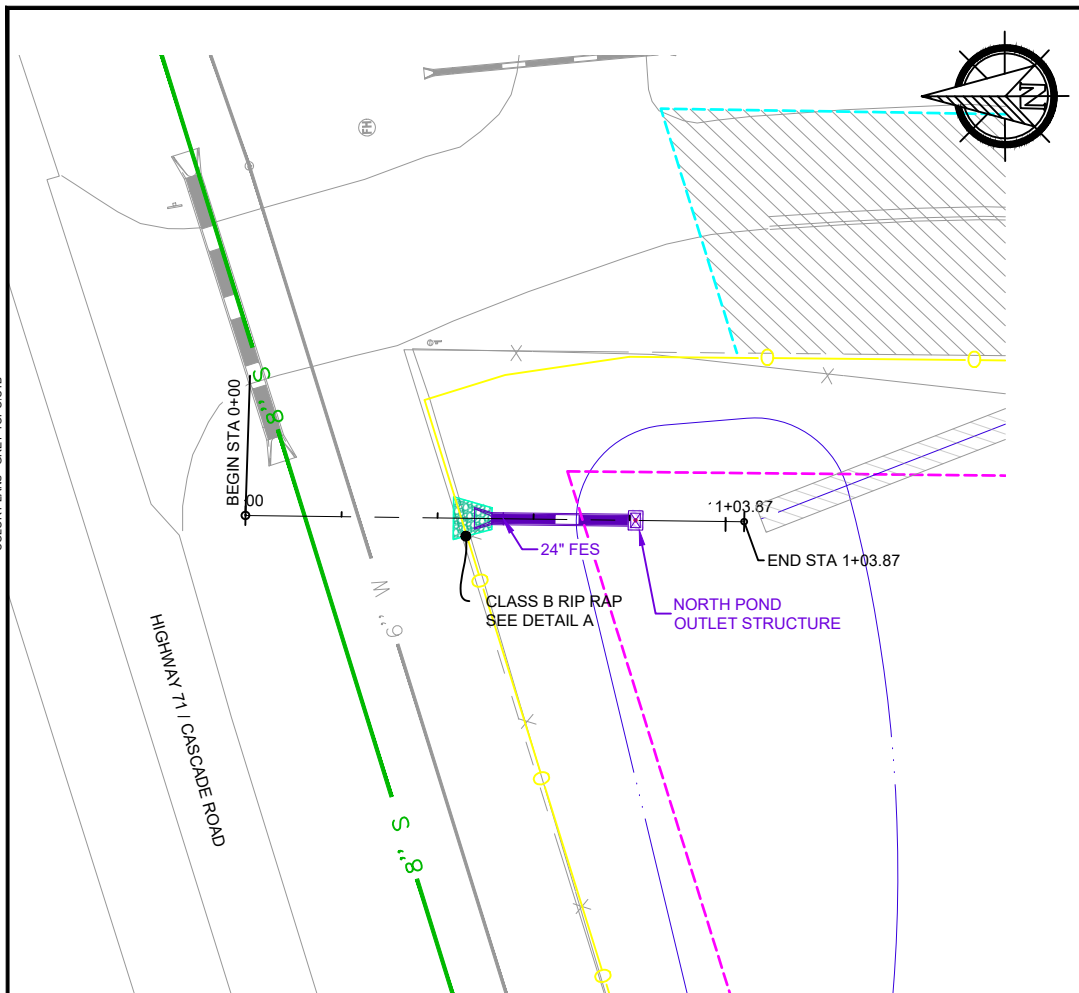
JOB NUMBER: 25-099

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DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:
STORM SEWER PLAN AND PROFILES

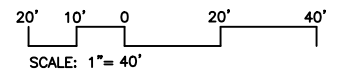
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STORM SEWER NOTES			
STATION	OFFSET	INV: ELEV	ITEM DESC
0+53.68	0.00'	Pipe - (293): 3469.35' - Out	24" FES
0+81.24	0.00'	Pipe - (293): 3470.00' - In	NORTH POND OUTLET STRUCTURE

STORM SEWER NOTES			
STATION	OFFSET	INV: ELEV	ITEM DESC
0+31.00	0.00'R	Pipe - (290): 3466.00' - Out	18" FES
0+63.61	0.00'	Pipe - (290): 3466.33' - In Pipe - (291): 3466.33' - Out	2'X3' TYPE B INLET (6B)
0+95.95	0.01'R	Pipe - (291): 3466.65' - In	2'X3' TYPE B INLET (6A)



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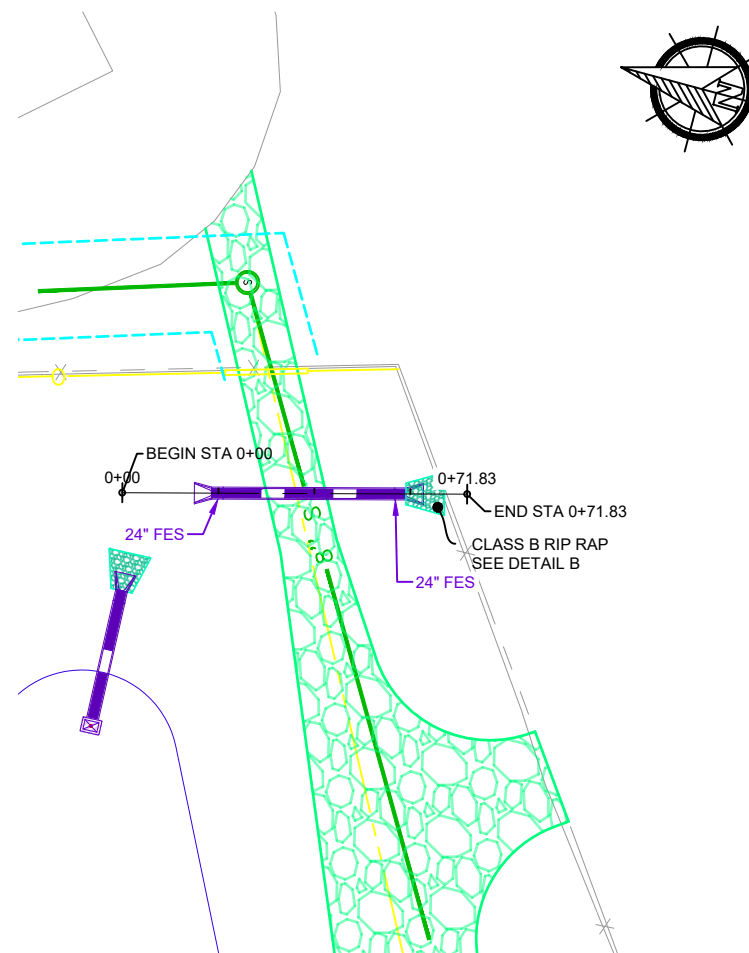
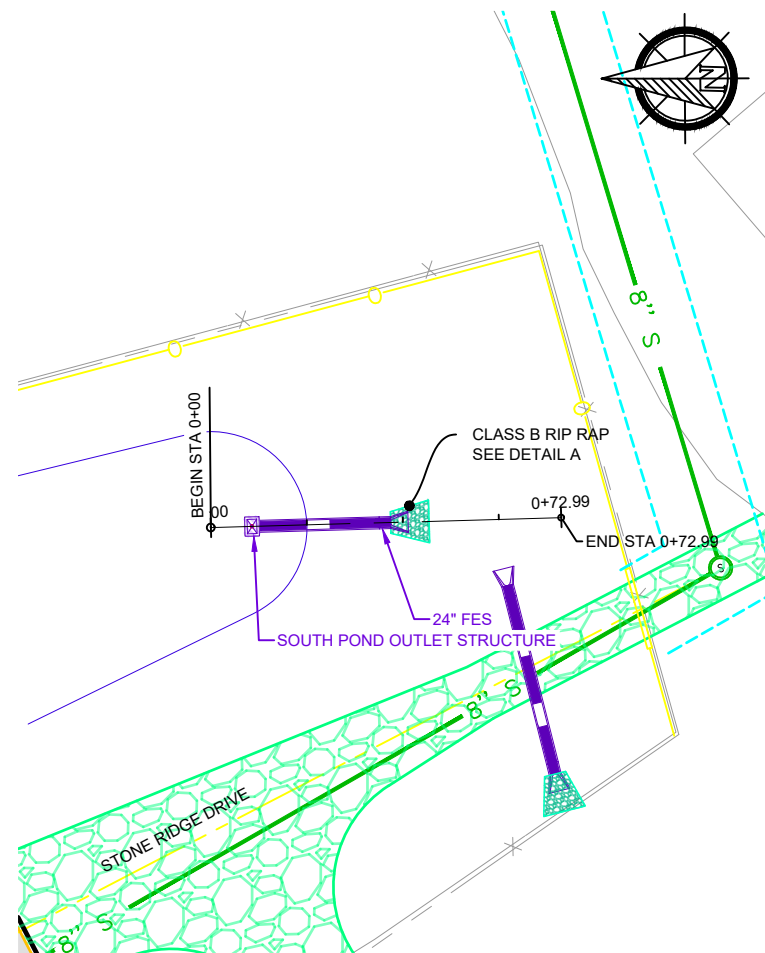
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REVISIONS:
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2026.05.26 - 100% DESIGN

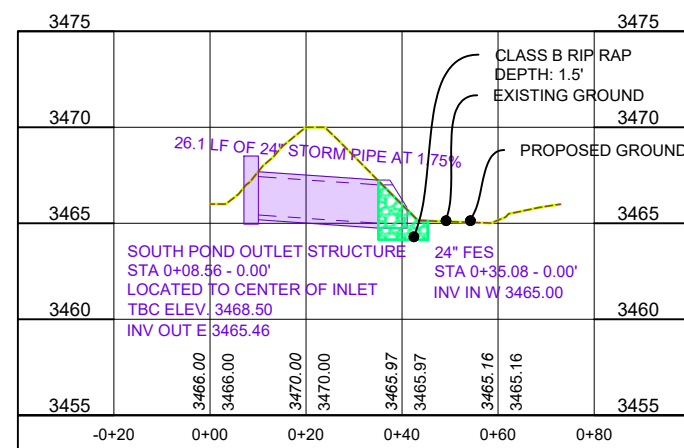
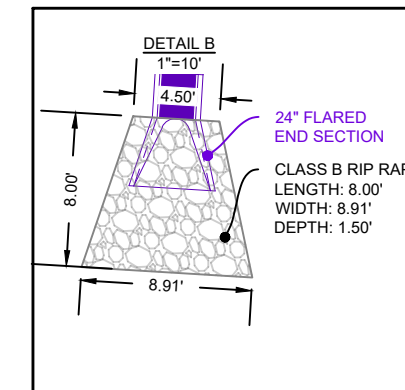
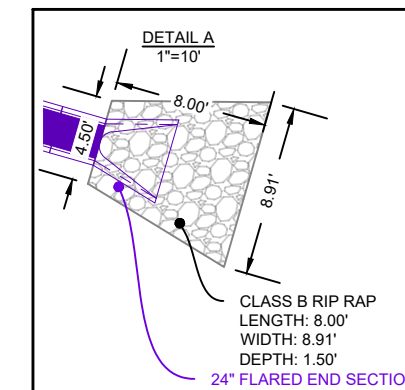
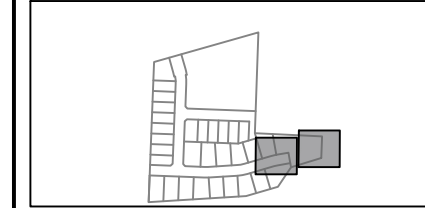
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DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME: STORM SEWER PLAN AND PROFILES
SHEET NO: 29

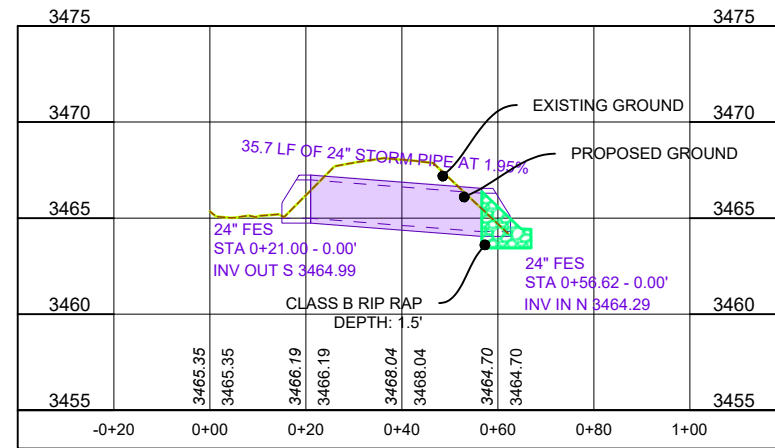
COLOR PLANS - GREY TOPOCTB



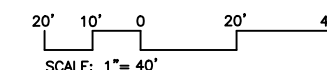
Key Map



STORM SEWER NOTES			
STATION	OFFSET	INV: ELEV	ITEM DESC
0+08.56	0.00'	Pipe - (292): 3465.46' - Out	SOUTH POND OUTLET STRUCTURE
0+35.08	0.00'	Pipe - (292): 3465.00' - In	24" FES



STORM SEWER NOTES			
STATION	OFFSET	INV: ELEV	ITEM DESC
0+21.00	0.00'	Pipe - (295): 3464.99' - Out	24" FES
0+56.62	0.00'	Pipe - (295): 3464.29' - In	24" FES



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LOGO:



CASCADE HILLS SUBDIVISION
STREET AND UTILITIES IMPROVEMENTS
HOT SPRINGS, SOUTH DAKOTA

REVISIONS:
 2026.04.24 - 95% DESIGN
 2026.05.26 - 100% DESIGN

JOB NUMBER: 25-099
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 SURVEYED BY: TDG
 SURVEY DATE: 2026.01.05

SHEET NAME:
STORM SEWER PLAN AND PROFILES

SHEET NO:
30

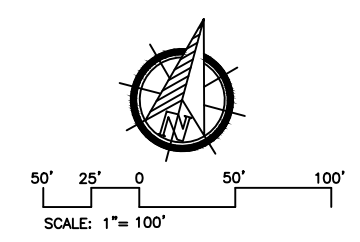
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 COLOR PLANS - GREY TOPOG



--- 3105 ---	EXISTING MAJOR CONTOUR
--- 3104 ---	EXISTING MINOR CONTOUR
— 3105 —	FINISH GRADE MAJOR CONTOUR
— 3104 —	FINISH GRADE MINOR CONTOUR
	DRAINAGE ROUTING

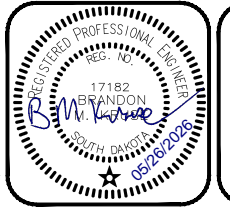
187	CUT (CU. YD.)
2,329	FILL (CU. YD.)
2,142	NET FILL (CU. YD.)
	*FILL FACTOR OF 120%

* CUT/FILL VALUES ARE BASED ON SURFACE TO SURFACE COMPARISON



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JOB NUMBER: 25-099

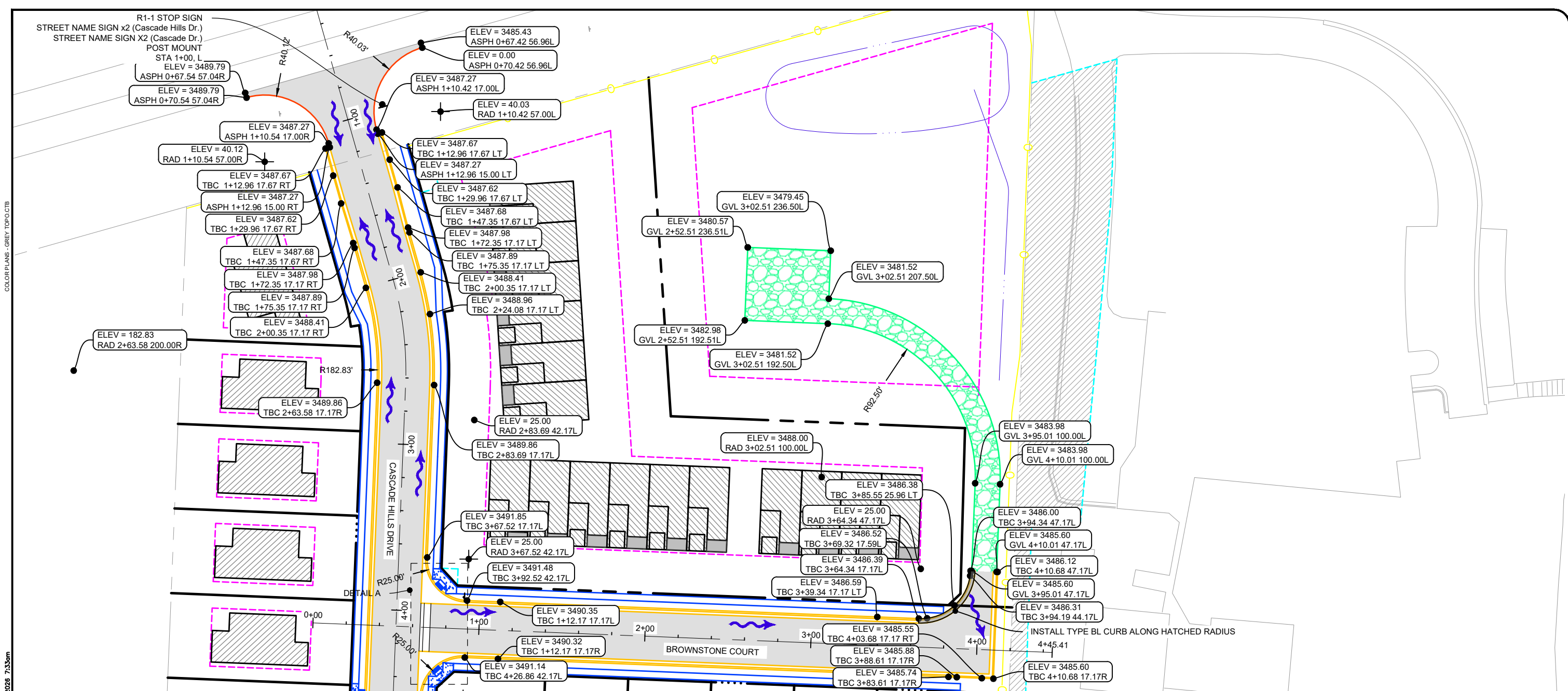
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SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:

MASTER GRADING PLAN

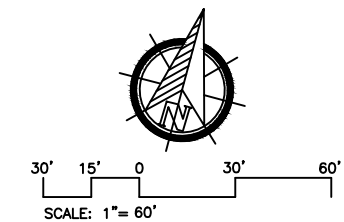
SHEET NO:

31




MATCHLINE

TYPE BL CURB AND GUTTER



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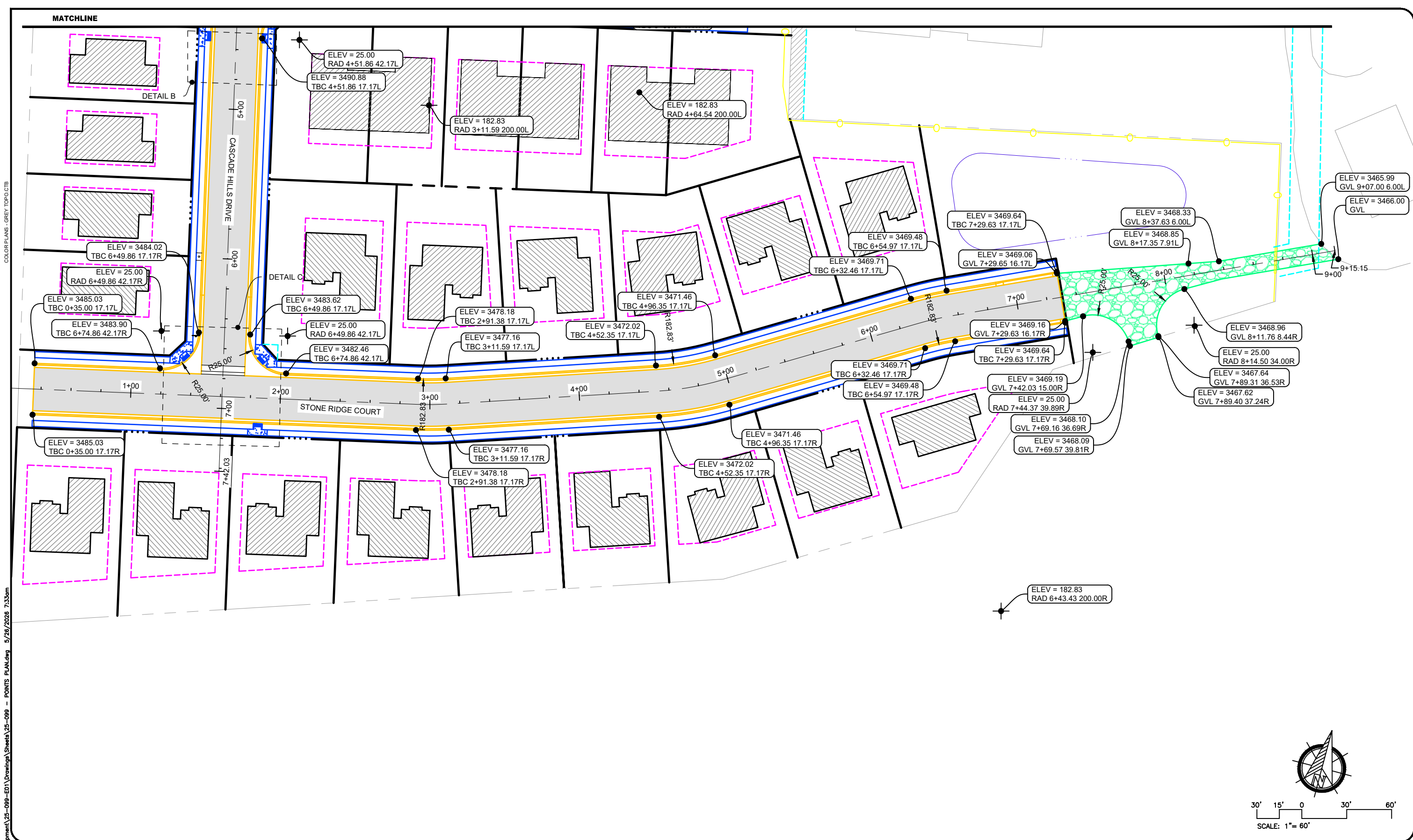
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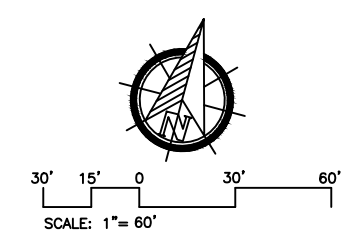
POINTS PLAN

SHEET NO:

32



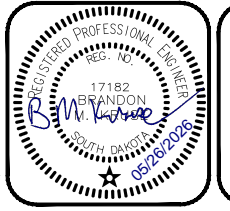
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TDG

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HOT SPRINGS, SOUTH DAKOTA

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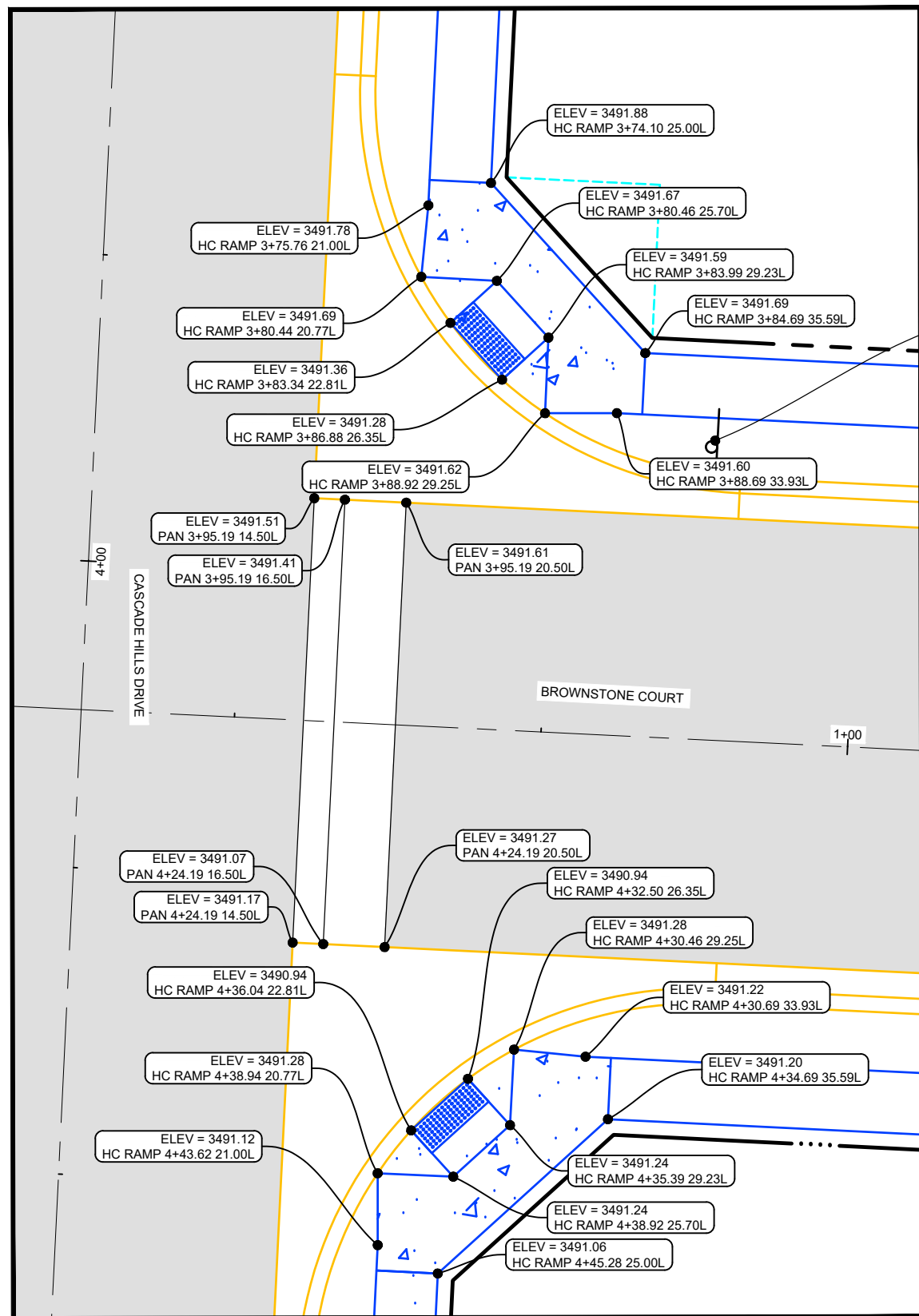
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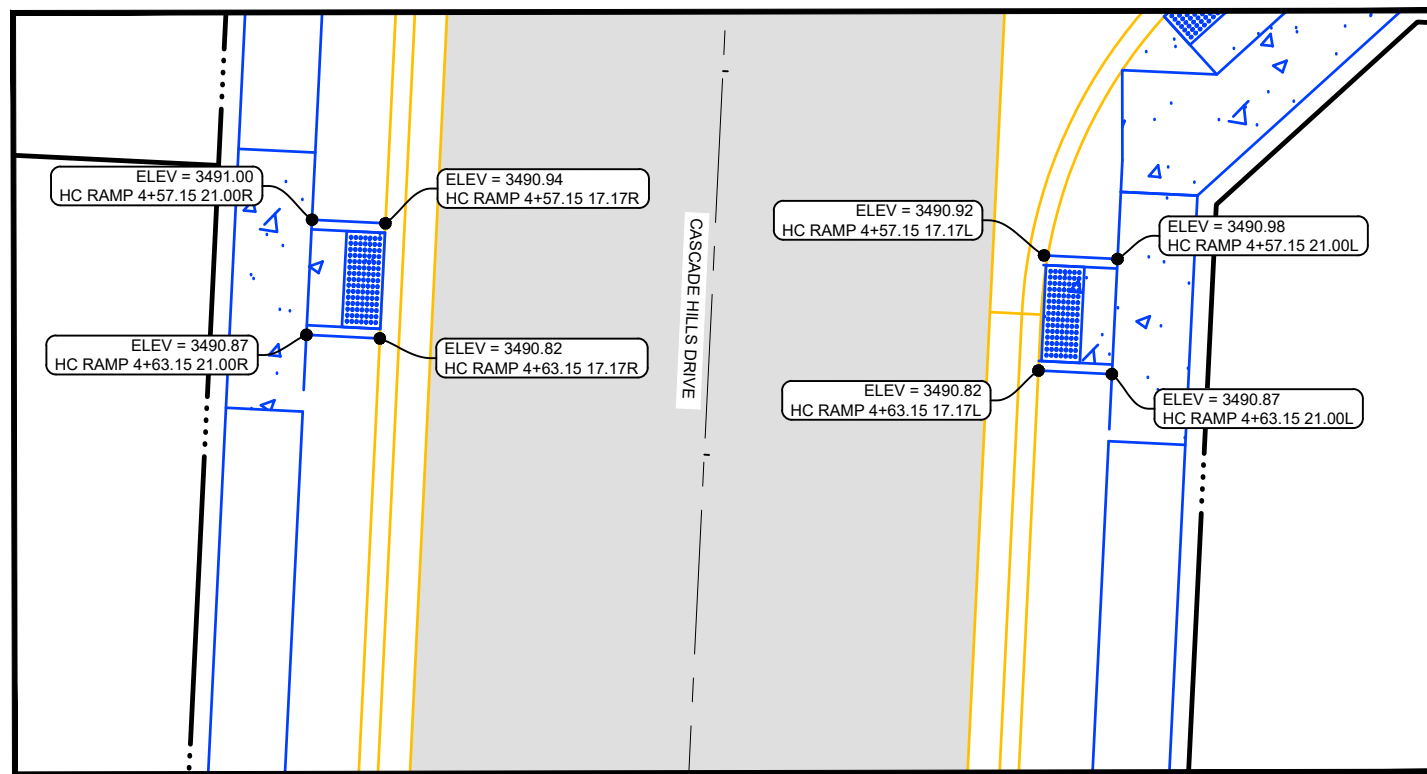
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COLOR PLANS - GREY TOPOCTB

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CASCADE HILLS DRIVE AND BROWNSTONE COURT INTERSECTION
 STATIONING FROM CASCADE HILLS DRIVE
 DETAIL 'A'
 SCALE: 1"=10'



CASCADE HILLS DRIVE
 STATIONING CASCADE HILLS DRIVE
 DETAIL 'B'
 SCALE: 1"=10'

R1-1 STOP SIGN
 STREET NAME SIGN x2 (Cascade Hills Dr.)
 STREET NAME SIGN X2 (Brownstone Ct.)
 POST MOUNT
 STA 0+90, L



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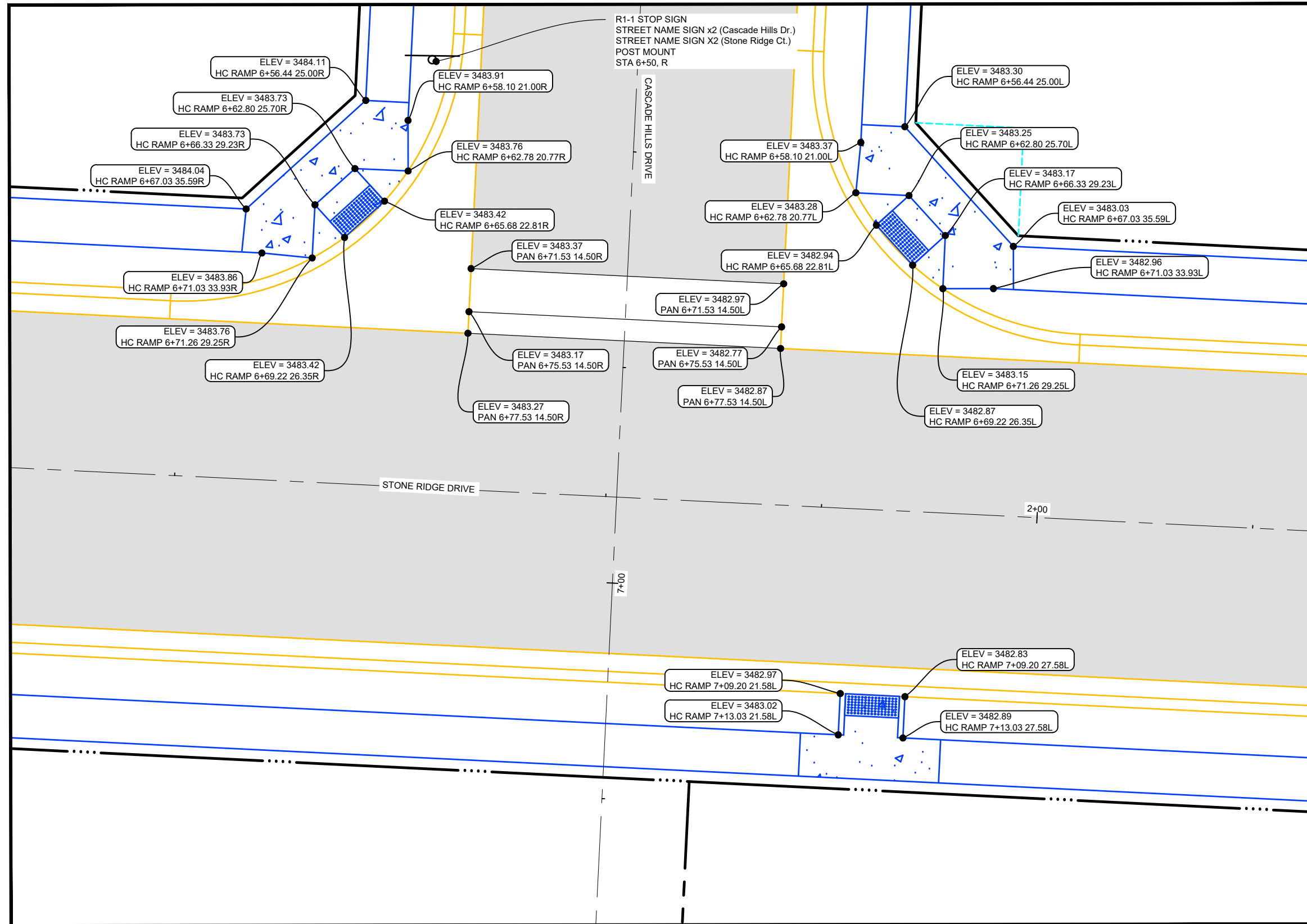
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HOT SPRINGS, SOUTH DAKOTA

REVISIONS:
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JOB NUMBER: 25-099
 DESIGNED BY: BK
 DRAWN BY: BK / NR
 SURVEYED BY: TDG
 SURVEY DATE: 2026.01.05

SHEET NAME:
POINTS PLAN - INTERSECTIONS
 SHEET NO:
34

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 COLOR PLANS - GREY TOPOG



CASCADE HILLS DRIVE AND STONE RIDGE DRIVE INTERSECTION
 STATIONING FROM CASCADE HILLS DRIVE
 DETAIL 'C'
 SCALE: 1"=10'



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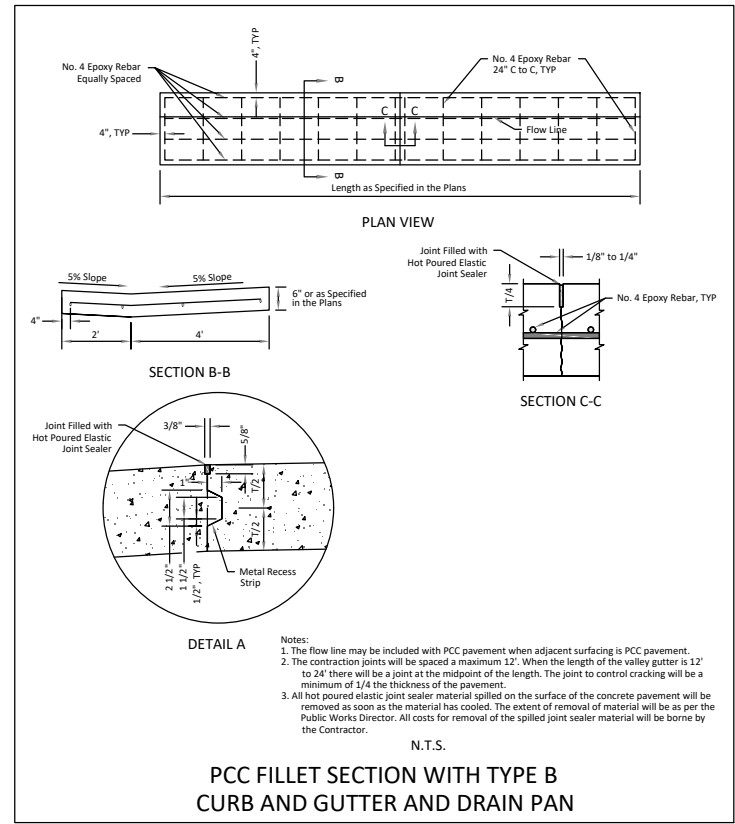
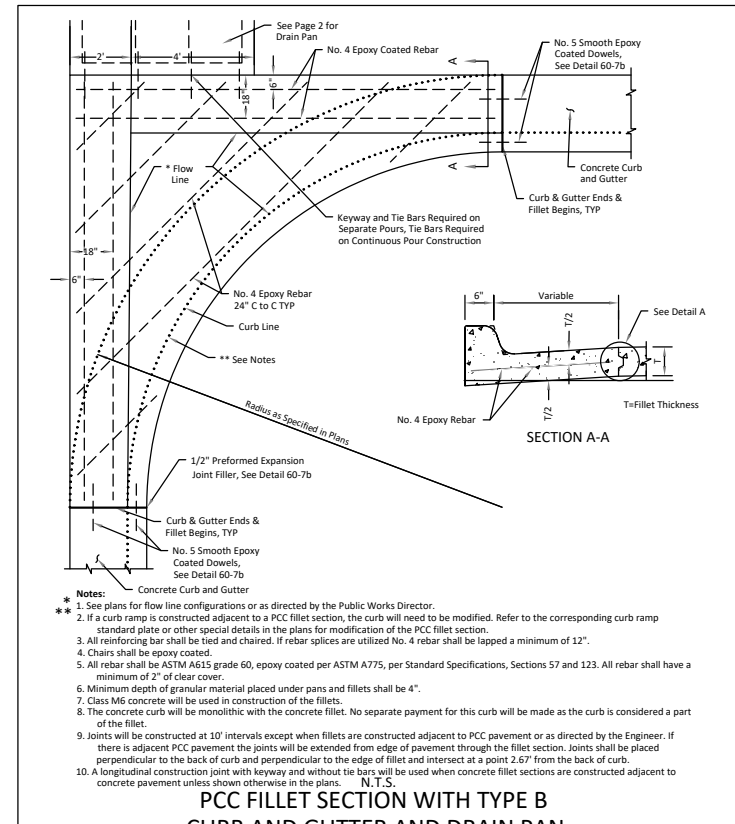
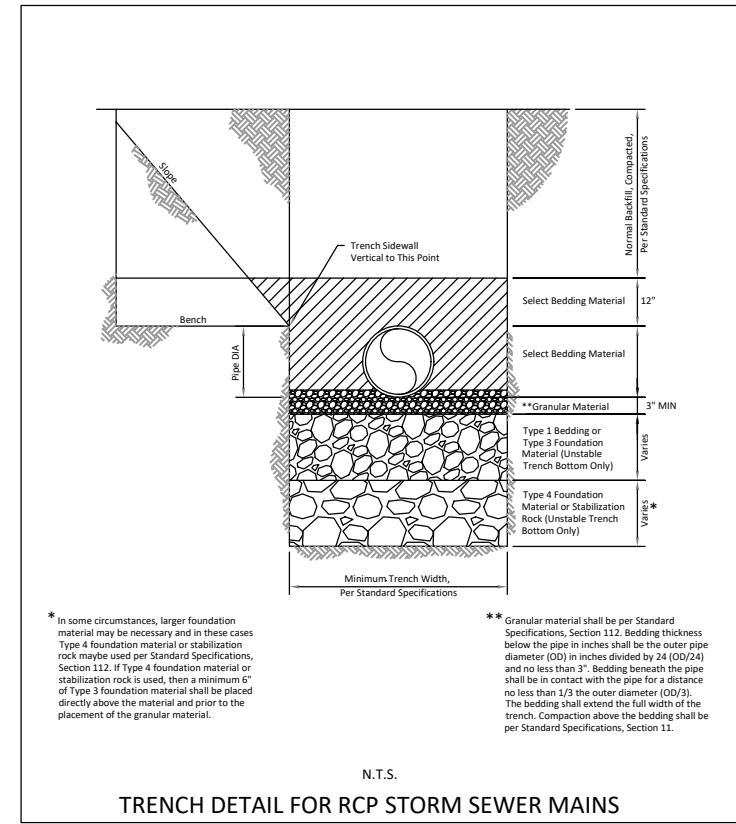
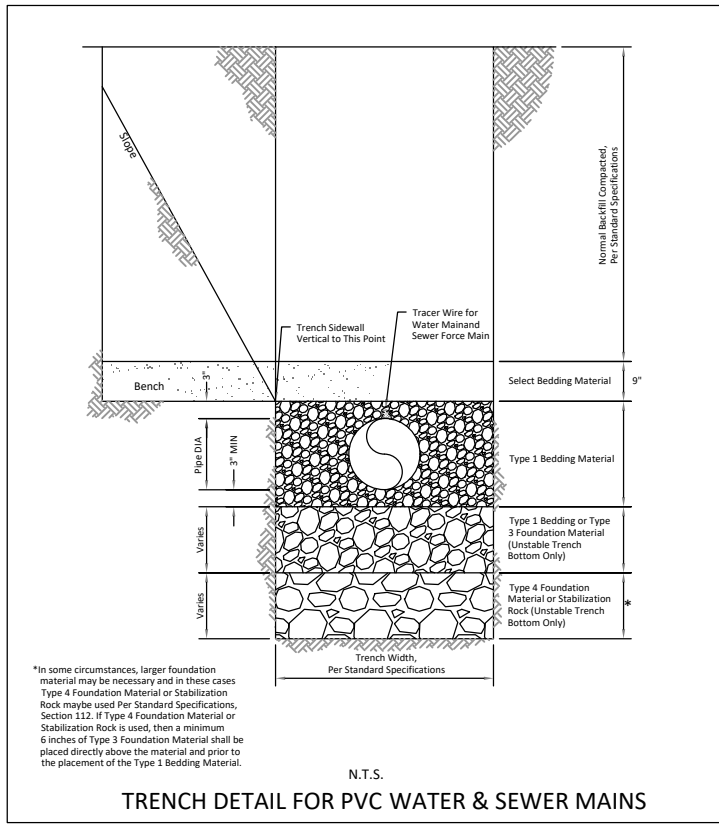
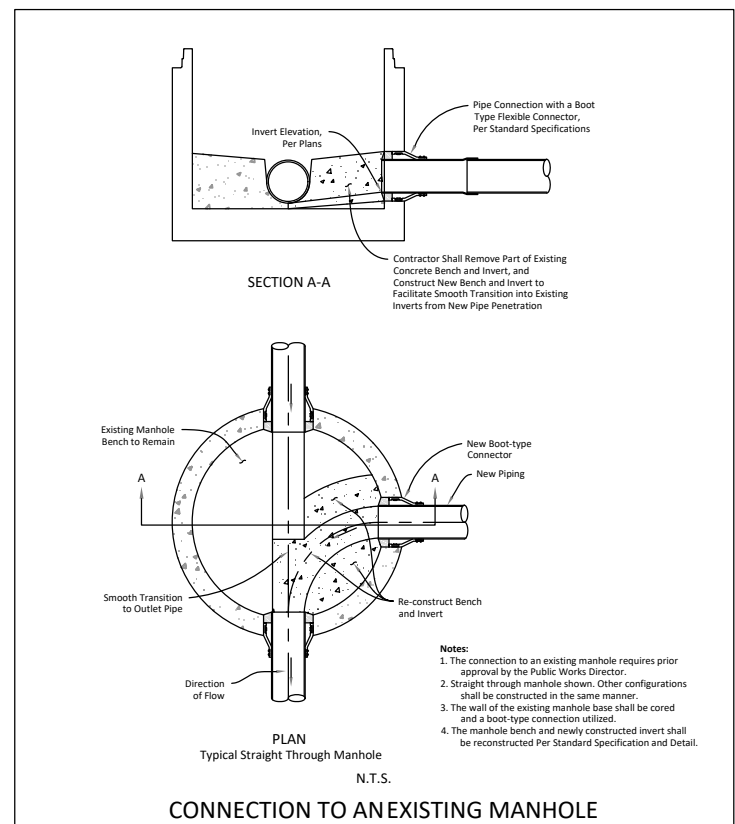
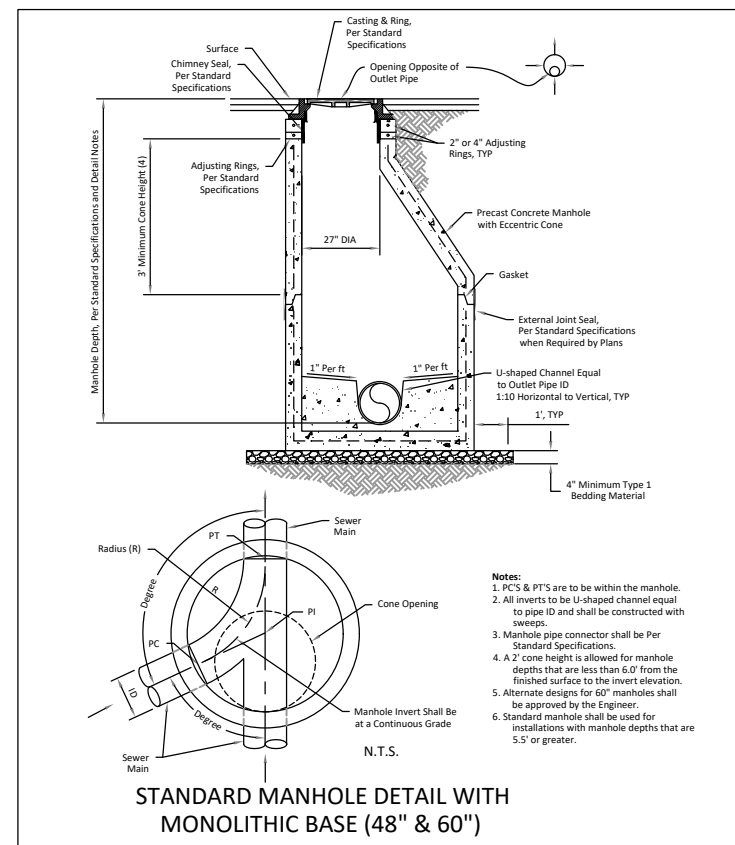
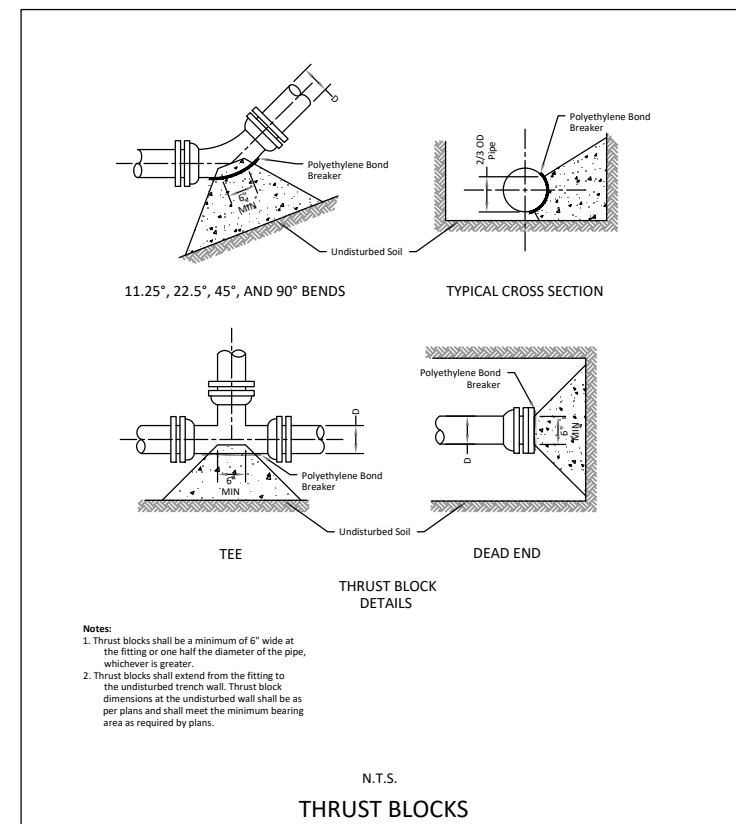
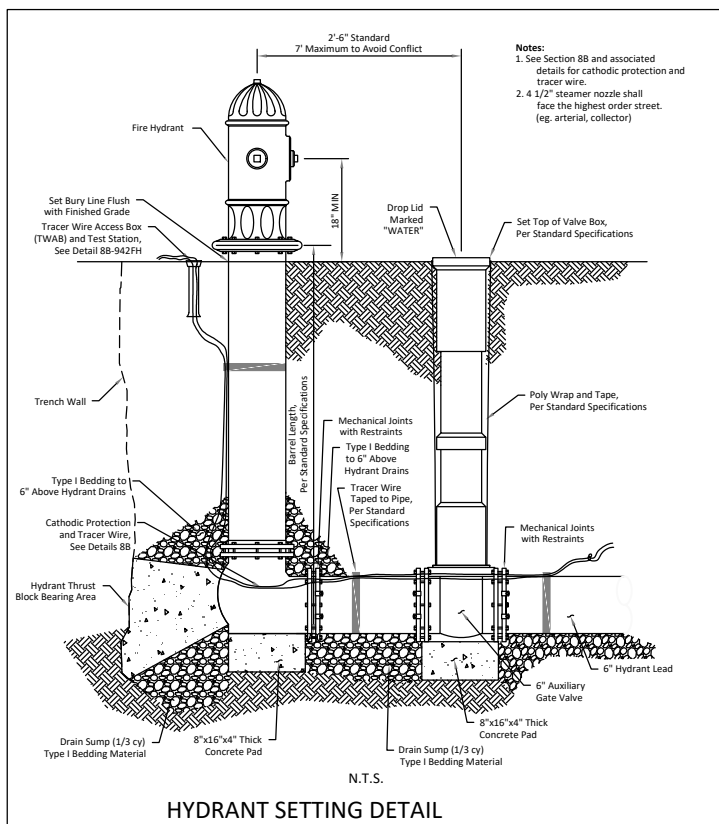


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STREET AND UTILITIES IMPROVEMENTS
HOT SPRINGS, SOUTH DAKOTA

REVISIONS:
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2026.05.26 - 100% DESIGN

JOB NUMBER: 25-099
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SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:
POINTS PLAN - INTERSECTIONS
SHEET NO:
35



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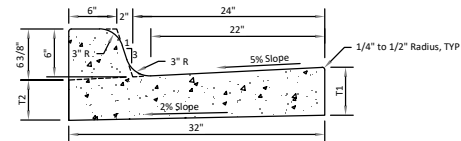
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HOT SPRINGS, SOUTH DAKOTA

REVISIONS:
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JOB NUMBER: 25-099
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 DRAWN BY: BK / NR
 SURVEYED BY: TDG
 SURVEY DATE: 2026.01.05

SHEET NAME: DETAILS
 SHEET NO: 36



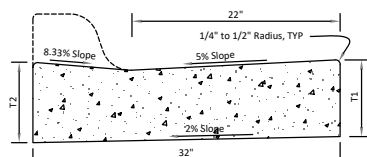
TRANSVERSE SECTION

Type	T1 (Inches)	T2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
B66	6	5 1/16	0.057	17.7
B67	7	6 1/16	0.085	15.4
B68	8	7 1/16	0.073	13.7
B68.5	8.5	7 9/16	0.077	13.0
B69	9	8 1/16	0.081	12.3
B69.5	9.5	8 9/16	0.085	11.7
B610	10	9 1/16	0.090	11.2
B610.5	10.5	9 9/16	0.094	10.7
B611	11	10 1/16	0.098	10.2
B611.5	11.5	10 9/16	0.102	9.8
B612	12	11 1/16	0.106	9.4

N.T.S.

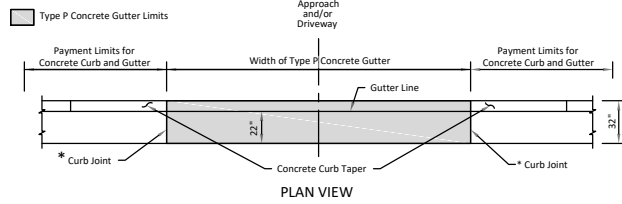
TYPE B CONCRETE CURB AND GUTTER

- Notes:
- T1 is equal to pavement thickness, in no case shall T1 be less than 6".
 - All design elevations are top of curb elevations unless otherwise indicated on the plans.
 - A 1/2-inch preformed expansion joint filler will be placed transversely in the curb and gutter as per Detail 60-7a.
 - Transverse contraction joints shall be placed in the curb and gutter at 10' maximum intervals. Curb joints adjacent to PCC pavement shall match PCC pavement joints and shall be sawed and sealed the same as the mainline PCC pavement joints.
 - No. 5 smooth epoxy coated bars and installed as per Detail 60-7b.
 - Road subgrade cross slope shall continue to a point one foot behind the curb and gutter section. Minimum depth of granular material placed under curb and gutter shall be 4".



TRANSVERSE SECTION

Type	T1 (Inches)	T2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
P6	6	5 1/4	0.047	21.2
P7	7	6 1/4	0.055	18.1
P8	8	7 1/4	0.064	15.7
P8.5	8.5	7 3/4	0.068	14.8
P9	9	8 1/4	0.072	13.9
P9.5	9.5	8 3/4	0.076	13.2
P10	10	9 1/4	0.080	12.5
P10.5	10.5	9 3/4	0.084	11.9
P11	11	10 1/4	0.088	11.3
P11.5	11.5	10 3/4	0.092	10.8
P12	12	11 1/4	0.096	10.4



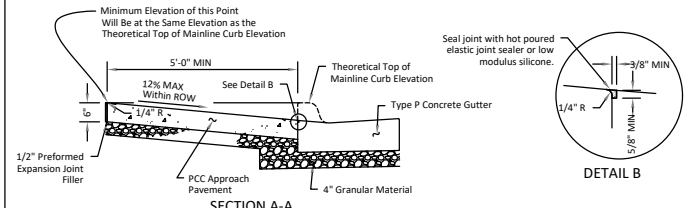
PLAN VIEW

- *Curb Joints
- Adjacent to AC Pavement
 - Adjacent to PCC Pavement
- Joints shall be placed at both sides of the Type P concrete gutter. If Type P concrete gutter is greater than 10' additional joints shall be placed in the Type P concrete gutter as shown on the plans or as directed by the Engineer. Type P concrete gutter installed against previously placed concrete curb and gutter shall have expansion joint filler placed as per Detail 60-7a. If Type P concrete gutter is placed at the same time as the adjacent curb and gutter joints shall be contraction joints.
- Curb joints adjacent to PCC pavement shall match PCC pavement joints and shall be sawed and sealed the same as the mainline PCC pavement joints.

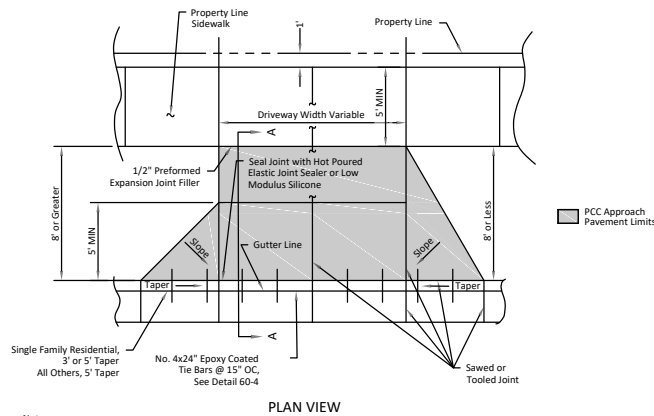
- Notes:
- T1 is equal to pavement thickness, in no case shall T1 be less than 6".
 - All design elevations are top of curb elevations unless otherwise indicated on the plans.
 - A 1/2-inch preformed expansion joint filler will be placed transversely in the curb and gutter as per Detail 60-7a.
 - Transverse contraction joints shall be placed in the curb and gutter at 10' maximum intervals. Curb joints adjacent to PCC pavement shall match PCC pavement joints and shall be sawed and sealed the same as the mainline PCC pavement joints.
 - Dowels when required shall be No. 5 smooth epoxy coated bars and installed as per Detail 60-7b.
 - Road subgrade cross slope shall continue to a point one foot behind the curb and gutter section. Minimum depth of granular material placed under curb and gutter shall be 4".

N.T.S.

TYPE P CONCRETE CURB AND GUTTER



SECTION A-A

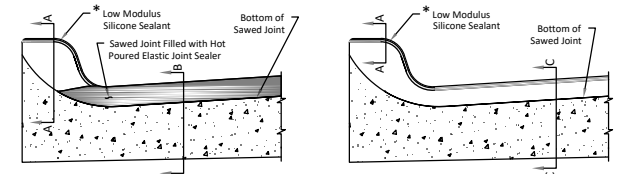


PLAN VIEW

- Notes:
- Driveway widths shall be per Rapid City Infrastructure Design Criteria Manual.
 - Contraction joints in the PCC approach pavement shall be a minimum of 1/4" the thickness of the approach pavement. Additional contraction joints not shown in the Plan View will be spaced as follows:
 - Joints shall be equally spaced across the driveway. Driveways up to 35' in width shall have a maximum joint spacing of 12'.
 - Driveways greater than 35' in width and up to 40' in width shall have 4 equally spaced joints.
 - All costs for furnishing and placing the PCC approach pavement and constructing the expansion and contraction joints including labor, equipment, excavation, and materials including the earthen backfill will be incidental to the contract unit price per square yard for the corresponding PCC Approach Pavement contract item.
 - The sidewalk width through the full width of the driveway opening shall be 5' wide minimum.

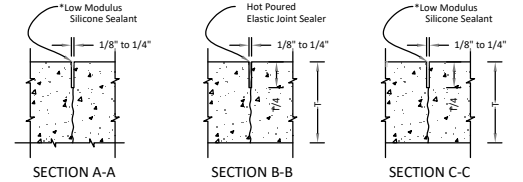
N.T.S.

RESIDENTIAL DRIVEWAY APPROACH (PROPERTY LINE SIDEWALK)



SECTIONAL VIEW
Curb and Gutter Placed Monolithically with Adjacent Mainline PCC Pavement

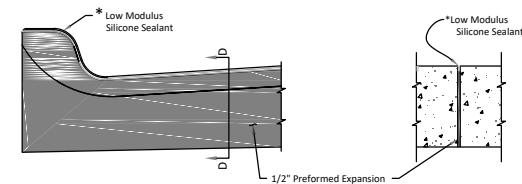
SECTIONAL VIEW
Curb and Gutter not Placed with Adjacent Mainline PCC Pavement



SECTION A-A

SECTION B-B

SECTION C-C



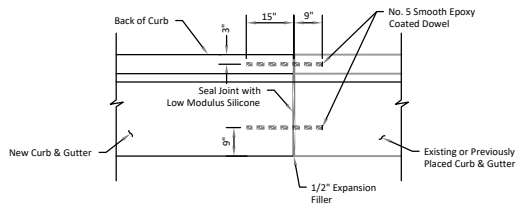
SECTIONAL VIEW
Curb and Gutter at 1/2" Preformed Expansion Joint Filler Location

SECTION D-D

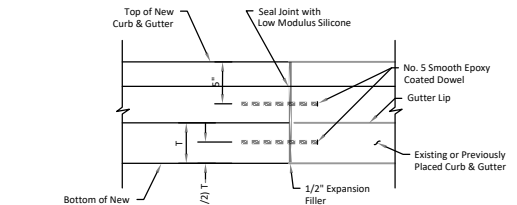
*The silicone sealant will be placed such that it completely seals the joint and is bonded to the sides of the clean joint as approved by the Public Works Director.

N.T.S.

JOINTS IN CONCRETE CURB & GUTTER



PLAN

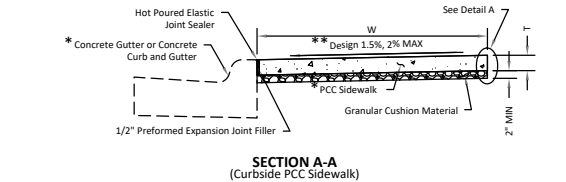


PROFILE

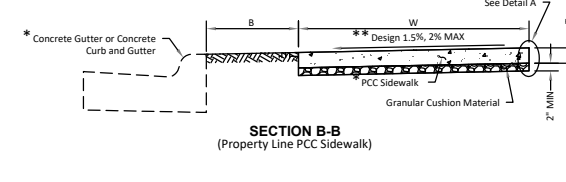
- Notes:
- For illustrative reason, only the Type B curb and gutter is shown.
 - A 1/2-inch preformed expansion joint filler will be placed transversely in the curb and gutter at the following locations:
 - At both ends of intersection radii curb and gutter, and transition points where curb and gutter is not parallel to the project centerline.
 - At each junction between new curb and gutter and existing curb and gutter. Existing curb and gutter includes curb and gutter previously placed on the same project.
 - Transverse contraction joints shall be placed in the curb and gutter at 10' maximum intervals. Curb joints adjacent to PCC pavement shall match PCC pavement joints and shall be sawed and sealed the same as the mainline PCC pavement joints. Curb joints adjacent to curbside sidewalk shall match the sidewalk joints.
 - When concrete curb and gutter is not placed monolithically with the mainline PCC pavement or when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete curb and gutter will be 1 1/2 inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint will be at least 1/4 the thickness of the concrete and the joint will be sealed in accordance with the details shown above.
 - Curb and gutter contraction joints adjacent to asphalt pavement shall not be sealed. Expansion joints in curb and gutter adjacent to asphalt pavement shall be sealed in accordance with the details shown above.

N.T.S.

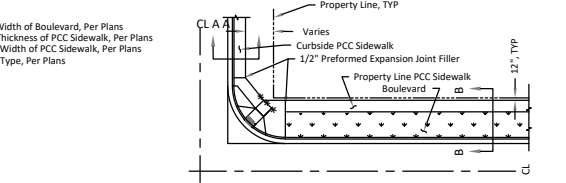
JOINTS IN CONCRETE CURB & GUTTER



SECTION A-A
(Curbside PCC Sidewalk)



SECTION B-B
(Property Line PCC Sidewalk)

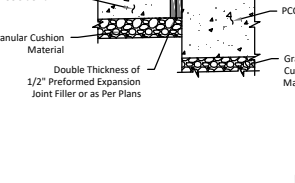
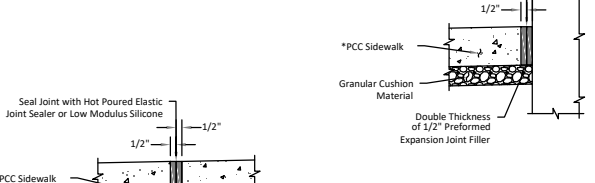
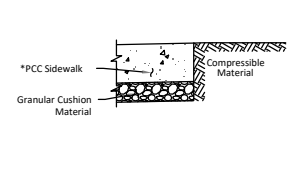
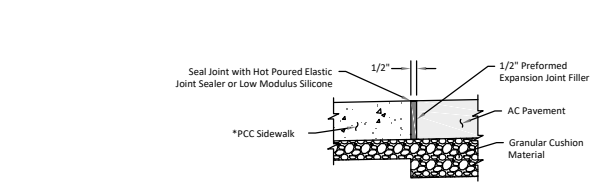


PLAN VIEW

- Notes:
- The PCC sidewalk will be constructed in accordance per Standard Specifications, Section 61.
 - The cross slope of the sidewalk is designed at 1.5% and the maximum slope allowed is 2% unless specified otherwise in the plans.
 - An expansion joint in the PCC sidewalk will consist of a 1/2-inch thick preformed expansion joint filler material placed full depth and width of the PCC sidewalk. The maximum length between expansion joints in the PCC sidewalk is 100'. For curb ramps with detectable warning surfaces see Details 61-2, 61-3, 61-4.
 - Sidewalks adjacent to driveways shall be 5' wide minimum through the entire width of the driveway opening.
 - Tooled or sawed joints spaced to match sidewalk width. Curb side sidewalk joints to match curb and gutter joints where possible.

N.T.S.

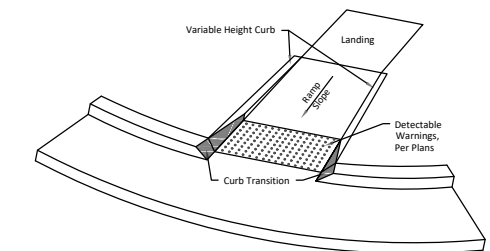
SIDEWALKS



N.T.S.

SIDEWALKS

- Notes:
- For illustrative purpose only, PCC fillet sections are shown in the drawings. The curb ramp depicted on this standard plate may be used with a PCC fillet section or curb and gutter.
 - For illustrative purpose only, the curb ramp location is shown at the center of a PCC fillet section. The curb ramp will be placed at the location stated in the plans.
 - Care will be taken to ensure a uniform grade on the curb ramp, free of sags and short grade changes.
 - Surface texture of the curb ramp will be obtained by brooming transverse to the slope of the curb ramp.
 - Joints will be sawed or tooled into the concrete adjacent to the detectable warnings to alleviate possible corner cracking.
 - Care will be taken to ensure that the surface of the detectable warning surface is clean and maintains a uniform color.
 - There will be no separate payment for curb ramps. The curb ramp will be measured and paid for at the contract unit price per square foot for the corresponding concrete sidewalk contract item. The square foot area of concrete beneath the detectable warnings will be included in the measured and paid for quantity of sidewalk.
 - If rebar is placed in the turning space as depicted in detail E, the cost of the materials, labor, and equipment to furnish and install the rebar will be incidental to the contract unit price per square foot for the corresponding concrete sidewalk contract item.
 - The curb transitions and ramp opening will be measured and paid for at the contract unit price per foot for the corresponding curb and gutter contract item when curb and gutter is used. The curb transitions and ramp opening will be measured and paid for at the contract unit price per square yard for the corresponding PCC fillet section contract item when a PCC fillet section is used.
 - Detectable warning surface will be measured to the nearest square foot. All costs for furnishing and installing the detectable warning surface including labor, equipment, materials, and incidentals will be paid for at the contract unit price per square foot for "Detectable Warning".



ISOMETRIC VIEW
(Without Curb Transition)

N.T.S.

TYPE 1 PERPENDICULAR CURB RAMP



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CASCADE HILLS SUBDIVISION
STREET AND UTILITIES IMPROVEMENTS
HOT SPRINGS, SOUTH DAKOTA

REVISIONS:

- 2026.04.24 - 95% DESIGN
- 2026.05.26 - 100% DESIGN

JOB NUMBER: 25-099

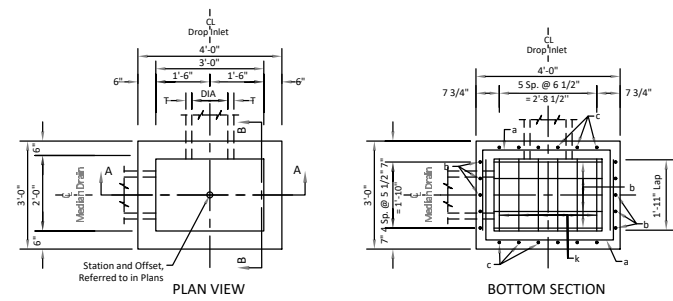
DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME:

DETAILS

SHEET NO:

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ESTIMATED QUANTITIES			
Item	Unit	Constant Quantity	Variable Quantity
Class M6 Concrete	Cu. Yd.	0.26	0.23H
Reinforcing Steel	Lb.	83.03	28.97H
Frame and Grate Assembly	Each		

DROP INLETS FOR 12" TO 24" DIAMETER PIPE

Specifications:

- Design Specifications: AASHTO LRFD Bridge Design Specifications 2012 Edition.
- Construction Specifications: City of Rapid City Standard Specifications, Current Edition.

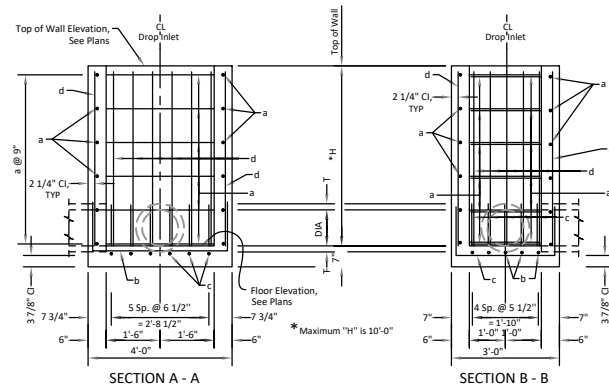
Notes:

- Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
- Inlet may be precast. If precast inlet is used, and details differ from that shown, the precast inlet shall receive prior approval by the City.
- To qualify for alternate design approval, submit: prior SDDOT approval, checked design by a South Dakota Registered Professional Engineer, and shop plans to the City of Rapid City. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
- Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
- Maximum R.C. pipe diameter shall not exceed 18" entering perpendicular on the 2' wide side and shall not exceed 24" (24" for R.C. arch pipe) on the 3' wide side of the drop inlet.
- Reinforcing steel shall conform to ASTM A615 grade 60. The ϕ bars shall be lapped 12" with the b and c bars. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.
- Use minimum 1 1/2" clear cover on all reinforcing steel unless otherwise noted.
- The dimension of H is in feet. Maximum H is 10'.

PIPE DISPLACEMENT REDUCTIONS		
Diameter (Inches)	Wall T (Inches)	Class M6 Concrete (Cu. Yd.)
12	2	0.03
15	2 1/4	0.04
18	2 1/2	0.05
24	3	0.09
18	2 1/2	0.05
24	3 1/2	0.09

N.T.S.

2' x 3' TYPE B REINFORCED CONCRETE DROP INLET

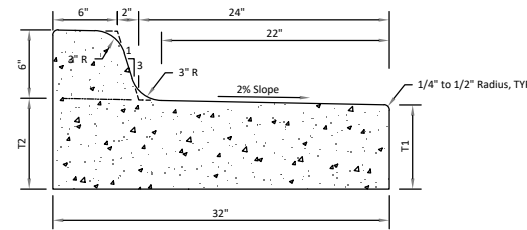


REINFORCING SCHEDULE			
Mk.	No.	Size	Length Type
a	2-6#7	#7	8'-0" 17
b	5	#5	6'-3" 17
c	6	#4	5'-3" 17
d	2-2	#4	H-2" Str.

Note: All dimensions are out to out of bars.

N.T.S.

2' x 3' TYPE B REINFORCED CONCRETE DROP INLET



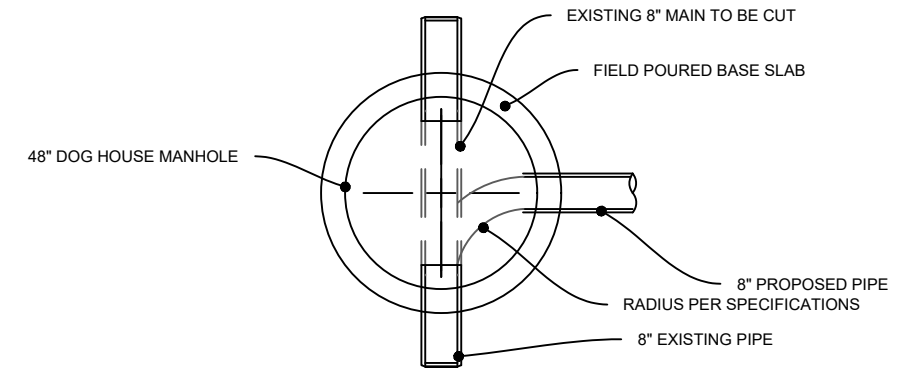
TYPE BL CONCRETE CURB AND GUTTER				
Type	T1 (Inches)	T2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
BL66	6	4 1/4	0.063	15.9
BL67	7	4 1/4	0.071	14.1
BL68	8	4 1/4	0.080	12.5
BL68.5	8.5	4 1/4	0.084	11.9
BL69	9	4 1/4	0.088	11.4
BL69.5	9.5	10 1/4	0.092	10.9
BL610	10	10 1/4	0.096	10.4
BL610.5	10.5	11 1/4	0.100	10.0
BL611	11	11 1/4	0.104	9.6
BL611.5	11.5	12 1/4	0.108	9.3
BL612	12	12 1/4	0.112	8.9

Notes:

- T1 is equal to pavement thickness, in no case shall T1 be less than 6".
- All design elevations are top of curb elevations unless otherwise indicated on the plans.
- A 1/2-inch preformed expansion joint filler will be placed transversely in the curb and gutter as per Detail 60-7a.
- Transverse contraction joints shall be placed in the curb and gutter at 10' maximum intervals. Curb joints adjacent to PCC pavement shall match PCC pavement joints and shall be sawed and sealed the same as the mainline PCC pavement joints.
- Dowels when required shall be No. 5 smooth epoxy coated bars and installed as per Detail 60-7b.
- Road subgrade cross slope shall continue to a point one foot behind the curb and gutter section. Minimum depth of granular material placed under curb and gutter shall be 4".

TYPE BL CONCRETE CURB AND GUTTER

N.T.S.



DOGHOUSE MANHOLE DETAIL

Sanitary Sewer Doghouse manhole shall be vacuum tested in accordance with Chapter 9.3 Construction Requirements, Section 1. Manhole Tests, prior to cutting the existing sewer main. If the vacuum test fails, the Contractor shall determine whether the failure was caused by any leak(s) in the existing sewer. The Contractor will not be responsible for fixing any leak(s) in the existing sewer but any other leaks shall be repaired in a manner satisfactory to the Engineer and retested until leakage is within the allowable limits or limited solely to existing sewer.

All new pipe connections to the manhole shall be constructed with a compression-type flexible gasket cast into the manhole wall, as manufactured by A-Lok products, Inc., or equal, or a boot-type flexible connector consisting of rubber gasket or boot, stainless steel expansion ring, two stainless steel metal clamps, as manufactured by Press Seal Gasket Corporation, or equal, and all gasketed connections shall comply with the project specifications and requirements,

All doghouse block-out connections shall be sealed with non-shrink, watertight grout, interior and exterior, for the full thickness of the manhole wall. Prior to placement of grout and formed concrete, a bentonite water stop gasket shall be placed around the circumference of the pipe and all grouted connections against the precast block-out and poured base surfaces. A water stop gasket or a suitable sealant shall be installed at the floor to barrel junction prior to placement of the internal plug. (concrete riser). The water stop gaskets shall be American Colloid "Waterstop" - RX, Sika Hydrotite DSS, or approved equal, and installed in accordance with the manufacturer's recommendations.



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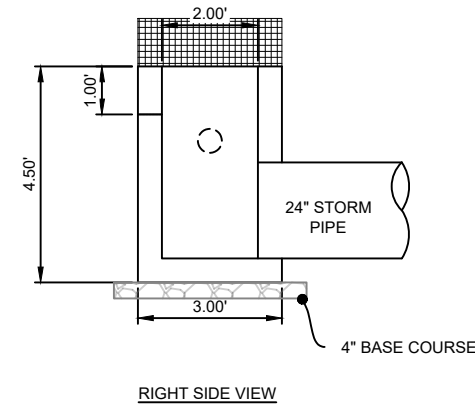
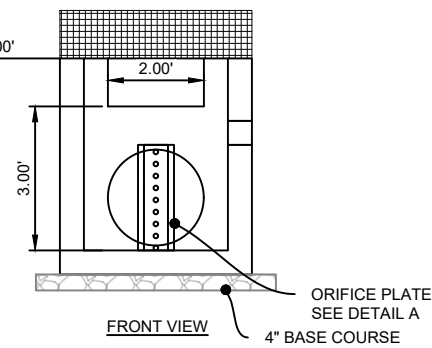
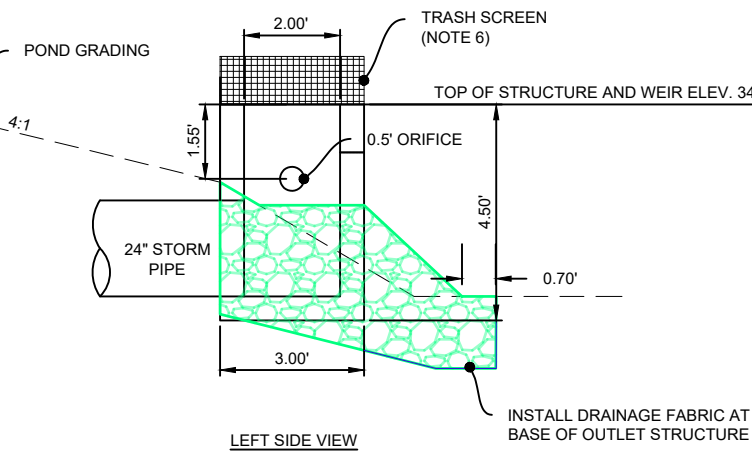
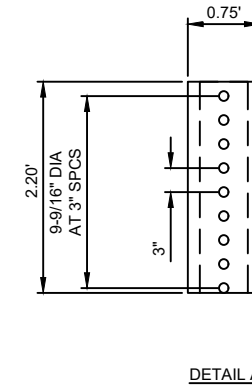
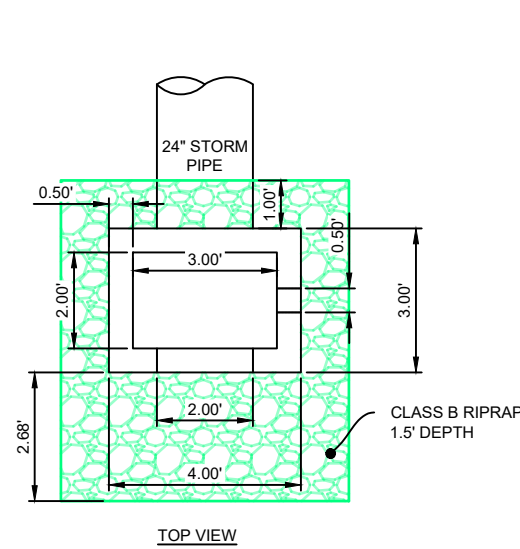
SHEET NO:

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NORTH POND OUTLET STRUCTURE

GENERAL NOTES

1. WATER QUALITY CONTROL STRUCTURE SHALL BE BUILT IN CONFORMANCE WITH CURRENT CITY OF RAPID CITY SPECIFICATIONS.
2. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 A36.
3. REINFORCED STRUCTURE WITH #4 BARS AT 12" O.C. EA. DIRECTION. USE MINIMUM 3" CLEAR COVER ON ALL REINFORCING STEEL EXCEPT AS SHOWN.
4. THE CONCRETE DESIGN MIX SHALL USE TYPE II CEMENT AND PROVIDE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
5. ALL EXPOSED EDGES SHALL BE CHAMFERED 1/4".
6. TRASH SCREEN: U.S. FILTER (OR EQUAL) STAINLESS STEEL WELL SCREEN WITH #93 VEE WIRE, 0.139" OPENINGS BETWEEN WIRES, TE 0.074" X 0.50" SUPPORT RODS WITH 1.0" ON CENTER SPACING. TOTAL SCREEN THICKNESS OF 0.655" WITH A 1/2" X 1" CARBON STEEL ANGLE.
7. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO PERFORMING ANY WORK. CARE SHALL BE TAKEN TO ESTABLISH ELEVATION CONTROL POINTS AS DETAILED ON THE PLANS.



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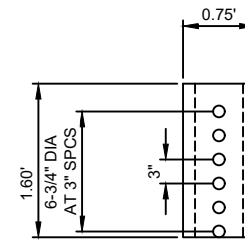
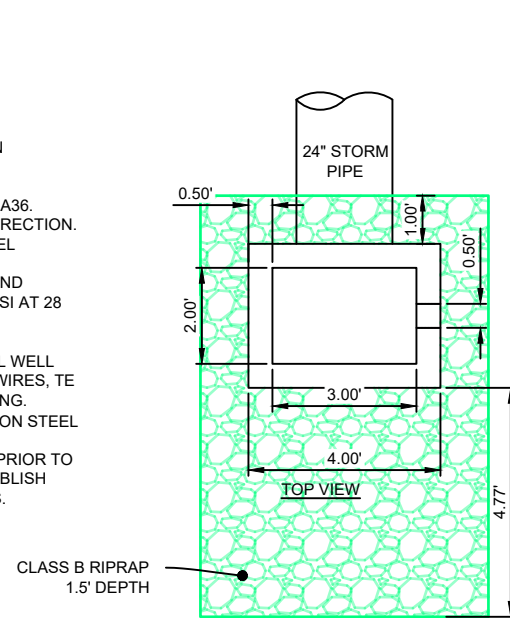
JOB NUMBER: 25-099
DESIGNED BY: BK
DRAWN BY: BK / NR
SURVEYED BY: TDG
SURVEY DATE: 2026.01.05

SHEET NAME: DETAILS
SHEET NO: 39

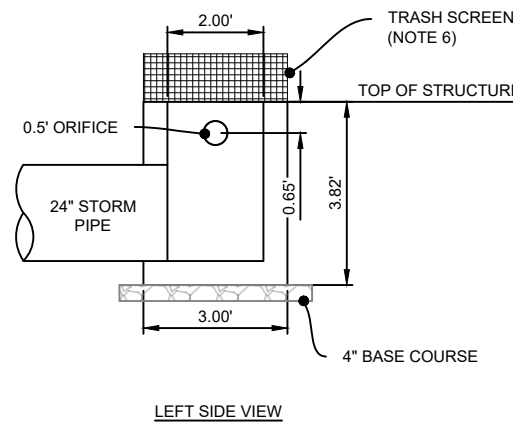
SOUTH POND OUTLET STRUCTURE

GENERAL NOTES

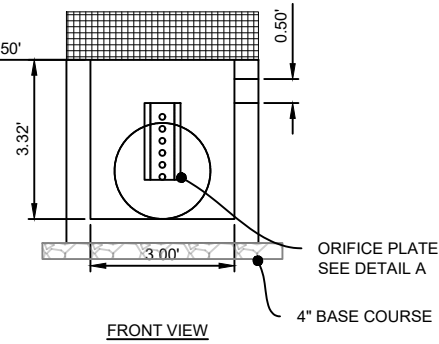
1. WATER QUALITY CONTROL STRUCTURE SHALL BE BUILT IN CONFORMANCE WITH CURRENT CITY OF RAPID CITY SPECIFICATIONS.
2. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 A36.
3. REINFORCED STRUCTURE WITH #4 BARS AT 12" O.C. EA. DIRECTION. USE MINIMUM 3" CLEAR COVER ON ALL REINFORCING STEEL EXCEPT AS SHOWN.
4. THE CONCRETE DESIGN MIX SHALL USE TYPE II CEMENT AND PROVIDE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
5. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
6. TRASH SCREEN: U.S. FILTER (OR EQUAL) STAINLESS STEEL WELL SCREEN WITH #93 VEE WIRE, 0.139" OPENINGS BETWEEN WIRES, TE 0.074" X 0.50" SUPPORT RODS WITH 1.0" ON CENTER SPACING. TOTAL SCREEN THICKNESS OF 0.655" WITH A 3/4" X 1" CARBON STEEL ANGLE.
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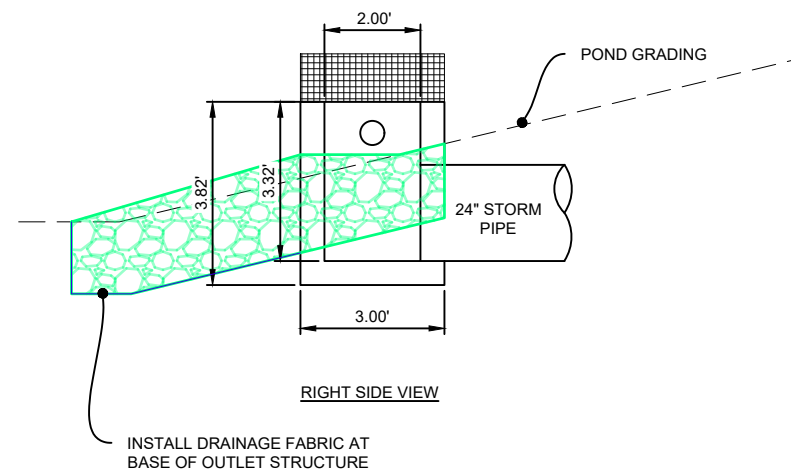
DETAIL A



LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW



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40