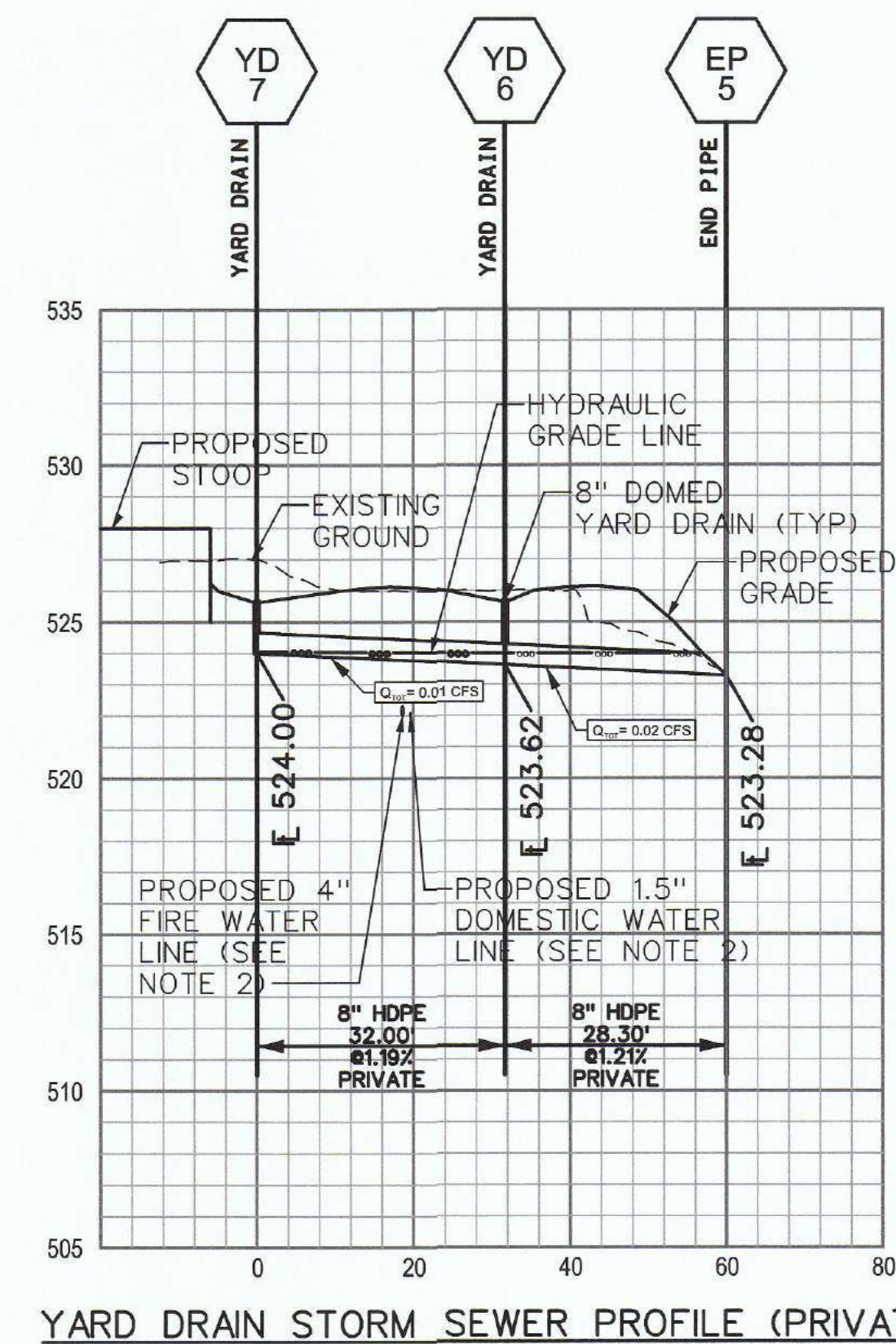


15 Year-20 Minute Storm Calculations																				
LineNo.	LineID	Pipe Length (ft)	Pipe Size (in)	Invert Down (ft)	Invert Up (ft)	Slope (%)	n Value	Top El Down (ft)	Top El Up (ft)	HGL (Down) (ft)	HGL (Up) (ft)	Juntn Loss	Velocity Average (ft/s)	Deflec. Angle (Deg)	Energy Loss (ft)	Known Q (cfs)	Flow Rate (cfs)	Minor Loss (ft)	Capacity (Full) (cfs)	Free-board (ft)
1	EX. MH-MH1	11	12	504.56	506.41	16.82	0.013	512.78	514.90	505.56	506.64	0.43	1.26	130.00	0.03	0.00	0.29	0.03	14.60	8.26
2	MH1-MH2	98	12	506.41	512.96	6.68	0.013	514.90	519.15	506.67	513.19	0.70	1.97	-39.90	0.40	0.00	0.29	0.05	9.21	5.96
3	MH2-MH3	55	12	512.96	517.66	8.55	0.013	519.15	526.70	513.24	517.89	0.66	1.88	-90.00	0.20	0.00	0.29	0.05	10.41	8.81
4	MH3-GI4	26	12	517.66	522.07	16.96	0.013	526.70	526.57	517.94	522.30	0.00	1.90	82.40	0.10	0.29	0.29	0.00	14.67	4.27

15 Year-20 Minute Storm Calculations																				
LineNo.	LineID	Pipe Length (ft)	Pipe Size (in)	Invert Down (ft)	Invert Up (ft)	Slope (%)	n Value	Top El Down (ft)	Top El Up (ft)	HGL (Down) (ft)	HGL (Up) (ft)	Juntn Loss	Velocity Average (ft/s)	Deflec. Angle (Deg)	Energy Loss (ft)	Known Q (cfs)	Flow Rate (cfs)	Minor Loss (ft)	Capacity (Full) (cfs)	Free-board (ft)
1	EP5-YD6	28	8	523.28	523.62	1.21	0.013	523.95	525.65	523.95	523.95	0.12	0.17	169.30	0.00	0.02	0.04	0.00	1.33	1.70
2	YD6-YD7	32	8	523.62	524.00	1.19	0.013	525.65	525.65	523.95	524.07	0.00	0.60	11.30	0.10	0.02	0.02	0.00	1.32	1.58



NOTES:  
 1. CONTRACTOR TO FIELD VERIFY EXACT ROUTE, SIZE AND LOCATION OF EXISTING SEWER LATERAL. SEWER LATERAL INSTALLATION AND CONNECTION TO BE COMPLETED PER UTILITY COMPANY SPECIFICATIONS.  
 2. CONTRACTOR TO REFERENCE ARCHITECTURAL PLANS FOR WATER LINE ELEVATIONS ENTERING BUILDING. WATER LINE ELEVATIONS SHOWN FOR REFERENCE ONLY. SUBJECT TO CHANGE PER ARCHITECTURAL INTERIOR CONFIGURATION AS NEEDED.

REVISED  
 #1 - 04 /12 /18  
 #2 - 06 /12 /18  
 #3 - 08 /09 /18

CALL MISSOURI ONE CALL SYSTEMS INC. TWO FULL WORKING DAYS IN ADVANCE OF STARTING  
 UTILITY DISCLAIMER  
 THE UNDERGROUND UTILITIES SHOWN HEREIN WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, OR NONEXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE OR OTHER UTILITIES. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITIES IN THE FIELD, SHOWN OR NOT SHOWN, PRIOR TO ANY GRADING, EXCAVATION, OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319, RSMO.

PROJECT TITLE  
**KNIGHTS OF COLUMBUS - O'FALLON**

ENGINEERING COMPANY'S INFORMATION  
**VOLZ Incorporated**  
 ENGINEERS LAND PLANNING LAND SURVEYING TRANSPORTATION CONSULT. MANAGEMENT  
 10849 Indian Head Indl. Blvd. St. Louis, Missouri 63132  
 314.426.6212 Main 314.890.1250 Fax  
 www.volzinc.com Authority #203

ORDER # 11344  
 ENGINEER SIGNATURE BLOCK  
  
 RYAN L. HOLMES  
 PROFESSIONAL ENGINEER  
 PE-2017018988  
 8-13-18

Ryan L. Holmes  
 Professional Engineer  
 PE-2017018988

DEVELOPER / OWNER INFORMATION:  
 Knights of Columbus - O'Fallon  
 202 W. 3rd St.  
 O'Fallon, MO 63366

P&Z NO. 17-011060  
 CITY NO.  
 DATE: 02/16/2018  
 PAGE NO.  
**C10**

SITE ADDRESS: 202 W. 3RD ST., O'FALLON, MO 63366  
 PERMIT NO. CSP18-000025

**STORM & SANITARY SEWER PROFILES**