JOHNSON COUNTY BENCHMARK:

2" DIA. DOME TOP ALUMINUM MONUMENT STAMPED "JO CO PUBLIC WORKS BM 316, LOCATED 0.9 MILES SOUTH OF INTERSECTION OF 159TH AND QUIVIRA, 2' NORTH OF SOUTH END OF EAST CURB.

ELEV. 967.07

PROJECT BENCHMARK:

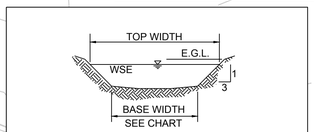
2" ALUM. CAP STAMPED "JOHNSON COUNTY PUBLIC WORKS" BM 898, LOCATED ON SOUTH EAST CORNER OF HEADWALL, 0.67 MILES NORTH OF INTERSECTION OF QUIVIRA RD. AND 175TH ST.

ELEV. 963.087

Kansas811
Know what's below. Call 811 before you dig.

100-YEAR OVERFLOW SWALE CHANNEL

SECTION	DRAINAGE AREA (AC.)	Q100 (CFS)	Q10 (CFS)	DESIGN OVERFLOW (CFS)	BED SLOPE (%)	BASE WIDTH (FT.)	SIDE SLOPE	TOP WIDTH (FT.)	NORMAL DEPTH (FT.)	VELOCITY (FPS)	VELOCITY HEAD (FT.)	EGL (FT.)	SHEAR STRESS (LB/FT²)
XA	1.66	10.92	6.22	4.70	2.66	8	3:1	9.92	0.18	3.00	0.14	0.32	0.305
XB	1.01	6.64	3.78	2.86	3.33	8	3:1	9.44	0.13	2.66	0.11	0.24	0.266



100-YR OVERFLOW SWALE SECTIONS

RUNOFF CALCULATIONS:
$Q = K * C * I * A$
$K_{10} = 1.0$ $K_{100} = 1.25$ $C = 0.51$ I = INTENSITY
DESIGN OVERFLOW=$Q_{OVERFLOW} = Q_{100} - Q_{10}$
MANNINGS "n" = .030 FOR SWALES

NOTES:

1. MLO = MINIMUM LOW OPENING FOR HOUSES ADJACENT TO ENGINEERED OVERFLOW SWALES SHALL BE MINIMUM 1 FOOT ABOVE ENERGY GRADE LINE (NORMAL DEPTH + VELOCITY HEAD + 1' FREEBOARD). APPROVED INDIVIDUAL LOT PLOT PLANS MAY ALTER THE CONSTRUCTED SWALES IN ELEVATION (CONTOUR) FROM THE GRADING PLAN AS LONG AS THE MLO IS ADJUSTED ACCORDING TO THE ABOVE CRITERIA.
2. EGL = ENERGY GRADE LINE (100 YR)
3. WSE = WATER SURFACE ELEVATION (100 YR)
4. ENGINEERED SWALES TO BE GRADED TO NORMAL DEPTH OF FLOW (WATER SURFACE ELEVATION). ADJACENT LOW OPENINGS SHALL BE AT LEAST 1.0 FOOT ABOVE ENERGY GRADE LINE (EGL). MINIMUM SLOPE OF ENGINEERED SWALES SHALL BE AS NOTED.
5. MLO'S ADJACENT TO SUMPED INLETS SHALL BE A MINIMUM OF 1' ABOVE TOP OF ADJACENT BERM.

Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
EARTH CALCULATIONS	1.00	1.15	675462.69 Sq. Ft.	14261.17 Cu. Yd.	25398.65 Cu. Yd.	11137.48 Cu. Yd.<Fill>
Totals			675462.69 Sq. Ft.	14261.17 Cu. Yd.	25398.65 Cu. Yd.	11137.48 Cu. Yd.<Fill>

"AS-BUILT"
DATED: 09/02/21 BY: AJC

As-Built Grading Plan Holds Key

- Foundation Investigation Required
- Minimum Low Opening (MLO) Inspection Required
- Elevation Certificate Required
- Drainage Swale
- Public Sidewalk Required
- Public Sidewalk Ramp Required
- Site Grading Inspection Required
- Storm Structure on Lot
- Not Released for Permits
- Berm

NOTE: Lot 124 will be on hold until all sidewalk ramps have been constructed and have approved as-built plans

NOTE: Building Permits will not be issued until applicant produces a Sanitary Sewer Connection Permit from Johnson County Wastewater

NOTE: Driveway inspections required on all Lots

NOTE: Prior to beginning the 2 year contractor maintenance period, as built grading plans of all sidewalk ramps will need to be submitted for review and approval by Engineering Services.

SCHLAGEL
ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS
14920 W. 107th Street • Lenexa, KS 66215
(913) 492-5158 • Fax (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Kansas State Certificates of Authority
#E-296 #LA-29 #LS-64

PREPARED BY:

MARK ALLEN BREJER LICENSED 20329 10.01.2021 KANSAS PROFESSIONAL ENGINEER

SCHLAGEL & ASSOCIATES, P.A.

CENTURY FARMS, 3RD PLAT
STREET, STORM & STREET LIGHTING PLANS
W. 167TH STREET OVERLAND PARK, KANSAS

REVISION DATE	DESCRIPTION
10/6/2020	OVERLAND PARK COMMENTS
11/18/2020	OVERLAND PARK COMMENTS
7/27/2021	OP SPEED LIMIT SIGNS
8/30/2021	STREET LIGHT REVISIONS

DRAWN BY: PW
CHECKED BY: MAB
DATE PREPARED: 7/23/2020
PROJ. NUMBER: 20-033

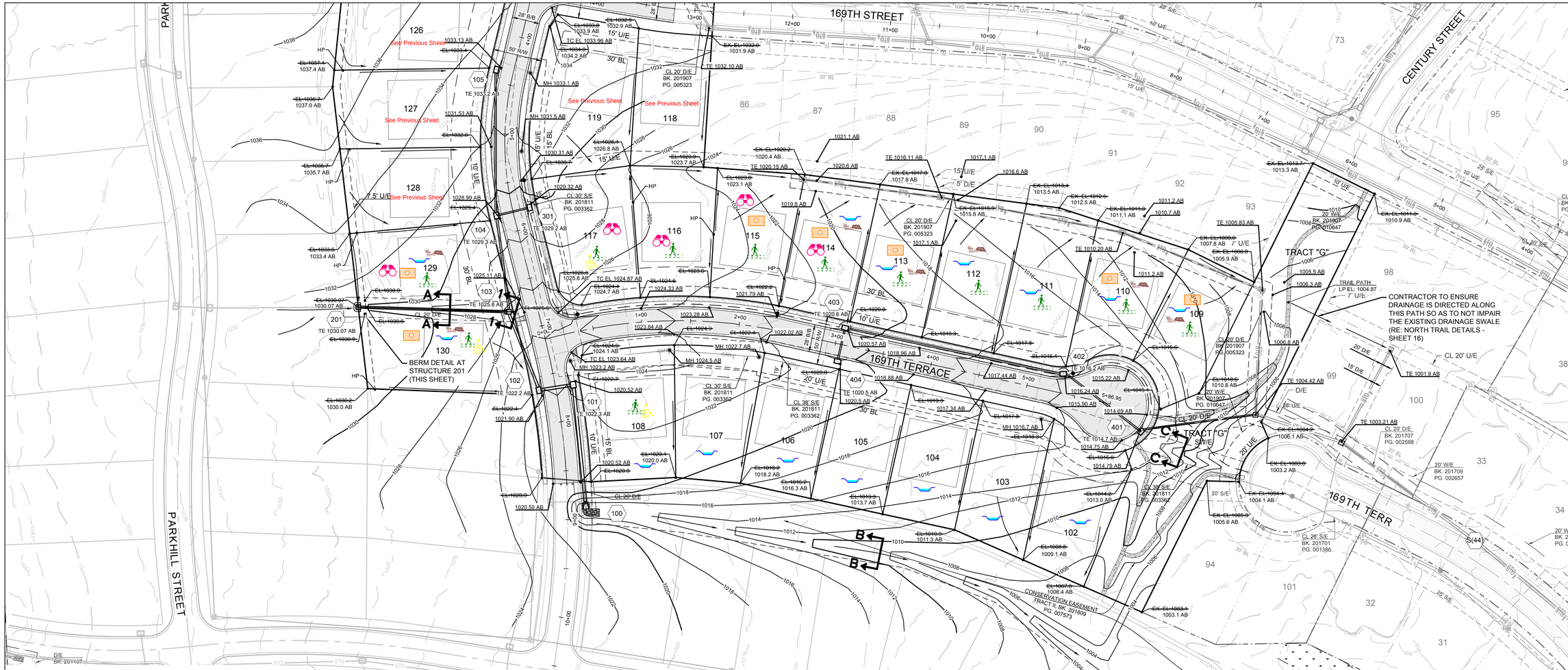
GRADING PLAN - NORTH

SHEET 3

ENGINEERING SERVICES DIVISION
PLANNING AND DEVELOPMENT SERVICES DEPARTMENT
DATE: 10/07/21
REVIEWED BY: JEFFREY
APPROVED / APPROVED AS NOTED / REJECTED

SCALE: 1" = 50'

I:\PROJECTS\2020\20-033\3.0 Design\3.0 DWG Plans\6.0 SS\20-033-SS-GRAD.dwg, 10/1/2021 12:05:19 PM, 1:1



JOHNSON COUNTY BENCHMARK:

2" DIA. DOME TOP ALUMINUM MONUMENT STAMPED "JO CO PUBLIC WORKS BM 316, LOCATED 0.9 MILES SOUTH OF INTERSECTION OF 159TH AND QUIVIRA, 2' NORTH OF SOUTH END OF EAST CURB.

ELEV. 967.07

PROJECT BENCHMARK:

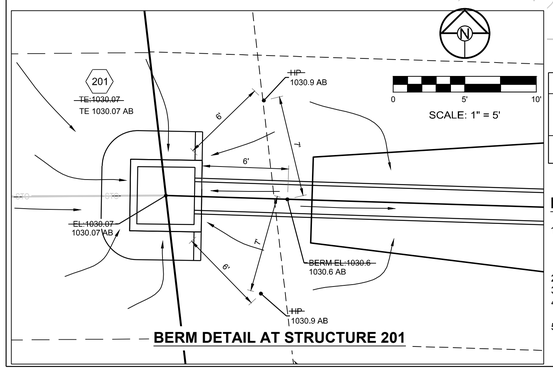
2" ALUM. CAP STAMPED "JOHNSON COUNTY PUBLIC WORKS" BM 898, LOCATED ON SOUTH EAST CORNER OF HEADWALL, 0.67 MILES NORTH OF INTERSECTION OF QUIVIRA RD. AND 175TH ST.

ELEV. 963.087

"AS-BUILT"
DATED: 09/02/21 BY: AJC

Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
EARTH CALCULATIONS	1.00	1.15	675462.69 Sq. Ft.	14261.17 Cu. Yd.	25398.65 Cu. Yd.	11137.48 Cu. Yd.<Fill>
Totals			675462.69 Sq. Ft.	14261.17 Cu. Yd.	25398.65 Cu. Yd.	11137.48 Cu. Yd.<Fill>

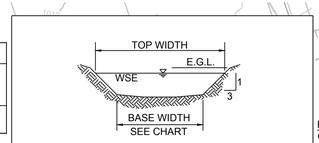


BERM DETAIL AT STRUCTURE 201

WEIR CALCULATIONS (Q = CLH^(3/2))									
SECTION	DRAINAGE AREA (AC.)	Q100 (CFS)	Q10 (CFS)	DESIGN OVERFLOW (CFS)	WEIR ELEVATION	WEIR COEFFICIENT	LENGTH	HEAD REQ'D	WSE
1	4.24	27.89	15.89	12.00	1025.60	3.33	20'-0"	0.32'	1025.92

NOTES:

1. MLO = MINIMUM LOW OPENING FOR HOUSES ADJACENT TO ENGINEERED OVERFLOW SWALES SHALL BE MINIMUM 1 FOOT ABOVE ENERGY GRADE LINE (NORMAL DEPTH + VELOCITY HEAD + 1' FREEBOARD). APPROVED INDIVIDUAL LOT PLOT PLANS MAY ALTER THE CONSTRUCTED SWALES IN ELEVATION (CONTOUR) FROM THE GRADING PLAN AS LONG AS THE MLO IS ADJUSTED ACCORDING TO THE ABOVE CRITERIA.
2. EGL = ENERGY GRADE LINE (100 YR)
3. WSE = WATER SURFACE ELEVATION (100 YR)
4. ENGINEERED SWALES TO BE GRADED TO NORMAL DEPTH OF FLOW (WATER SURFACE ELEVATION). ADJACENT LOW OPENINGS SHALL BE AT LEAST 1.0 FOOT ABOVE ENERGY GRADE LINE (EGL). MINIMUM SLOPE OF ENGINEERED SWALES SHALL BE AS NOTED.
5. MLO'S ADJACENT TO SUMPED INLETS SHALL BE A MINIMUM OF 1' ABOVE TOP OF ADJACENT BERM.



100-YR OVERFLOW SWALE SECTIONS

RUNOFF CALCULATIONS:
Q = K * C * I * A
K_{10} = 1.0 K_{100} = 1.25 C = 0.51 I = INTENSITY
DESIGN OVERFLOW=$Q_{OVERFLOW}$ = Q_{100} - Q_{10}
MANNINGS "n" = .030 FOR SWALES

100-YEAR OVERFLOW SWALE CHANNEL													
SECTION	DRAINAGE AREA (AC.)	Q100 (CFS)	Q10 (CFS)	DESIGN OVERFLOW (CFS)	BED SLOPE (%)	BASE WIDTH (FT.)	SIDE SLOPE	TOP WIDTH (FT.)	NORMAL DEPTH (FT.)	VELOCITY (FPS)	VELOCITY HEAD (FT.)	EGL (FT.)	SHEAR STRESS (LB/FT²)
A	3.73	24.54	13.98	10.56	2.85	6	3:1	15.71	0.38	3.92	0.24	0.62	0.672
B	8.04	52.90	30.14	22.76	2.50	8	3:1	19.05	0.52	4.55	0.32	0.84	0.815
C	1.59	10.46	5.96	4.50	15.77	5	3:1	14.57	0.15	5.35	0.44	0.59	1.156

Kansas811 Know what's below. Call 811 before you dig.

SCALE: 1" = 50'

SCHLAGEL
ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS
14920 W. 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Kansas State Certificates of Authority
#E-296 #LA-29 #LS-54

PREPARED BY:

MARK ALLEN BREUER LICENSED 20329 10.01.2021 KANSAS PROFESSIONAL ENGINEER

SCHLAGEL & ASSOCIATES, P.A.

CENTURY FARMS, 3RD PLAT
STREET, STORM & STREET LIGHTING PLANS
W. 167TH STREET OVERLAND PARK, KANSAS

REVISION DATE	DESCRIPTION
10/6/2020	OVERLAND PARK COMMENTS
11/18/2020	OVERLAND PARK COMMENTS
7/27/2021	DP SPEED LIMIT SIGNS
8/30/2021	STREET LIGHT REVISIONS

DRAWN BY: PW
CHECKED BY: MAB
DATE PREPARED: 7/23/2020
PROJ. NUMBER: 20-033

GRADING PLAN - SOUTH

SHEET 4

I:\PROJECTS\2020\20-033\3.0 Design\3.0 DWG Plans\6.0 SS\20-033-SS-GRAD.dwg, 10/1/2021 12:04:17 PM, 1:1