

#### Prepared and Submitted By:

George Butler Associates, Inc. 9801 Renner Boulevard Lenexa, Kansas 66219 Phone: 913-492-0400 Fax: 913-577-8312 Contact: Jay Healy, P.E. Email: jhealy@gbateam.com

According to FEMA Flood Insurance Rate Map (FIRM) Community
Panel No. 29095C0404G, effective Date 1/20/17, the tract lies
partially within an area designated as Special Flood Hazard Areas.
Special Flood Hazard Areas defined on portions of the site include regulatory floodway, Zone AE (with depths identified on site from 810 to 811), and 0.2% Annual Chance Flood Hazard Areas.

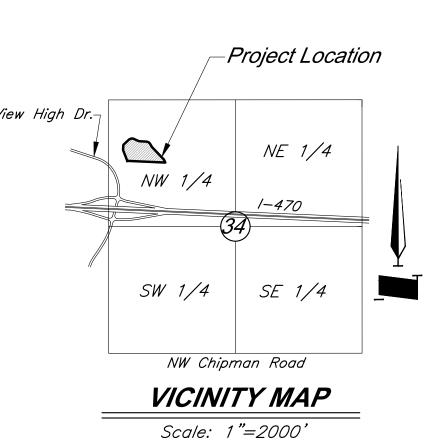
A CLOMR has been issued for this project, case number 20–07–0520R, dated 2/14/20. Proposed Floodplain/ Floodway refers to boundary set by this CLOMR.

<u>Zoning:</u>

PMIX - Planned Mixed Use

No oil or gas wells are located on site per Missouri Department of Natural Resources.

Land Use	
Total Site Area (AC)	19.63
Total Impervious Area(SF)	202,990 (23.74
Lot 5 Area (AC)	14.20
Lot 6 Area (AC)	0.72
Lot 7A Area (AC)	1.11
Lot 7B Area (AC)	0.69
Lot 7C Area (AC)	1.78
Lot 8 Area (AC)	1.13
Residential Building Area (SF)	344,995
Retail Building Area (SF)	35,232
Garage Area (SF	168,460
Use	Mixed Use
Zoning	PMIX
Setback	0
Dwelling Units	374
Bedroom Count	426
Total Parking Spaces	660
Regular Parking Spaces	647
ADA Parking Spaces	13



Tree Deciduous Fire Hydrant Water Meter

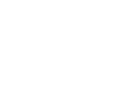
Proposed Floodway

Proposed Floodplain

**—** Stream Corridor

#### <u>Legend</u>

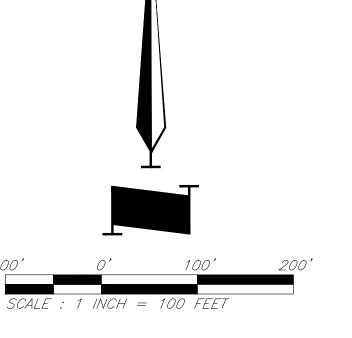
P.P.	Power Pole	X	Barbed Wire Fence Centerline
	Guy Anchor	— FO — — — —	Fiber Optic Line
E.M.	Electric Meter	G	Gas Line
	Electrical Transformer	.0 0 0 0 0 0 .	Guard Rail
lec. Ped.	Electric Pedestal	——————————————————————————————————————	Over Head Electric
P.P./T.P.	Power Pole/Telephone Pole	— — — OHT — — OHT —	Over Head Telephone
P.P./L.P.	Power Pole/Light Pole		Property Line
G. M.	Gas Meter		Right-of-Way Line
G. V.	Gas Valve		Sanitary Sewer Line
]	Curb Inlet	>	Stream
	Junction Box	— UGE— — — UGE— — —	Underground Electric
	Sanitary Sewer Manhole	—— UGT —— —— ——	Underground Telephone
<i>L.P.</i>	Light Pole	UGTV	Underground Cable TV
B-1	Boring Hole	W	Water Line
_	Sign	<del>(1010)</del>	Proposed Grades
- TMH	Property Corner		•
мп Tel. Ped.	Telephone Manhole		Proposed Storm Sewers
	Telephone Pedestal	1008	Existing Grades
T.P.	Telephone Pole	==\( \)	Existing Storm Sewers
	Proposed Building		Tree Deciduous



## PROJECT BENCHMARK

BM #11 - Chiseled "L" on top Northeast corner of concrete guardrail at the Northeast corner of I470 bridge spanning View High Drive. Coordinates: N=1008590.33', E=2803864.07', EL=833.80

BM #13 — Chiseled "L" on NE corner of Interstate 470 and Cedar Creek Bridge Coordinates:N=1008342.79', E=2806758.22', EL=852.04'



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PROJECT:

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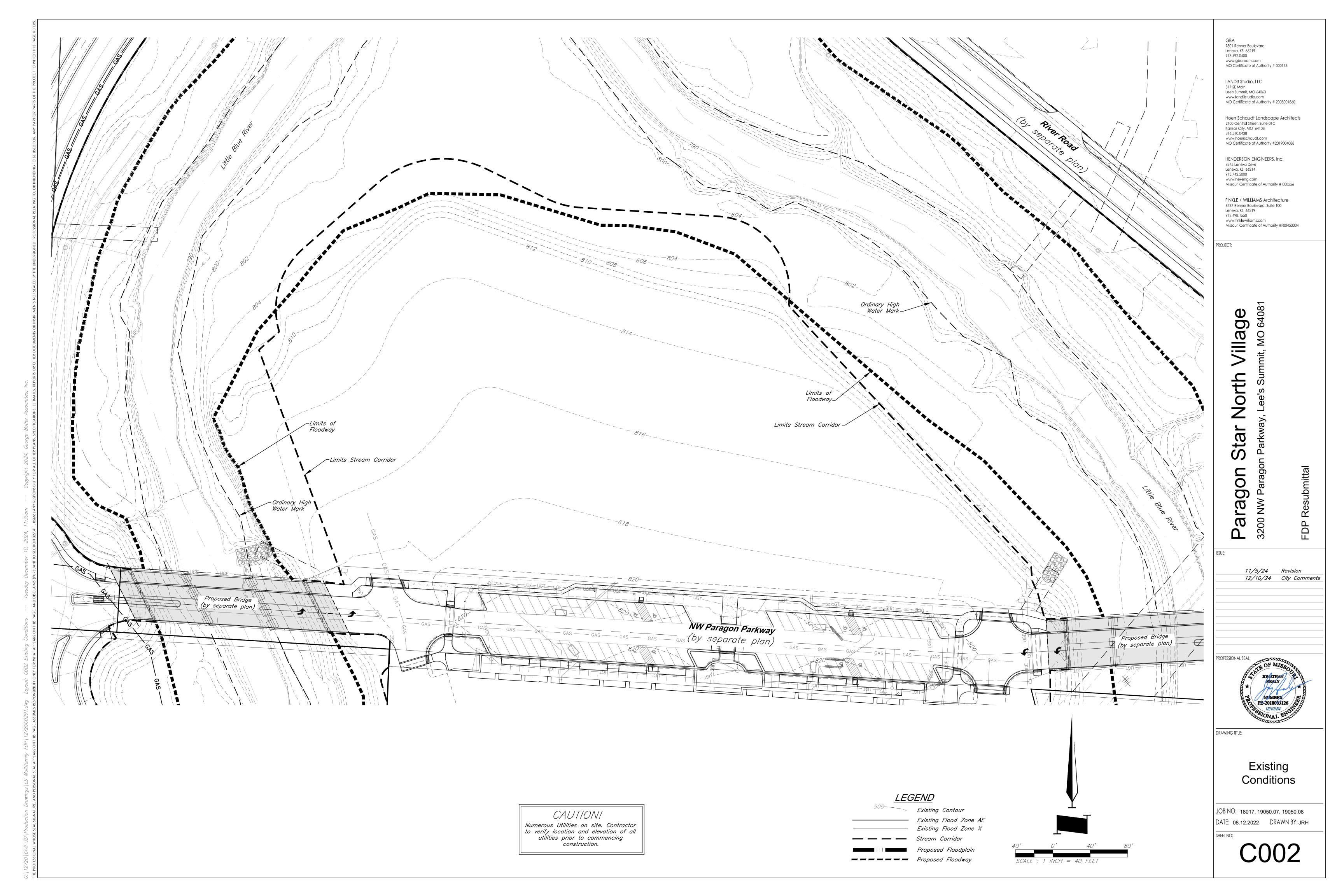
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11/5/24 Revision 12/10/24 City Comments

General Site Plan



Coordinates Shown Hereon:

FDP BOUNDARY DESCRIPTION

Modified State Plane (Project Ground Coordinates, ORA) 83 JA - 96 2403 - Missouri West, U.S. Feet Vertical - NAVD88, U.S. Feet

CAF=0.99990648 Coordinates x CAF = State Plane

 $CP \#100 - \frac{1}{2}$ " rebar with GBA cap on South side of View High Drive, 18' West of asphalt field entrance, approximately 975' North along the centerline of View High Drive from the ramp to West bound 1-470.

<u>Coordinates:</u> N: 1009568.88 E: 2803498.54 EL: 819.37'

1) North 4.15' to the South edge of asphalt of View High Drive 2) East 18.00' to West edge of asphalt field

3) South 27.50' to west end of 18" cmp culvert for field entrance

CP  $\#102 - \frac{1}{2}$ " rebar with GBA cap along South side of East bound 1-470, East of Bridge spanning View High Drive. <u>Coordinates.</u> N: 1008463.46

E: 2803878.88' EL: 829.94'

1) ENE 38.90' to centerline of steel highway reflector post, 1st post E. of bridge 2) North 9.50' to South edge of asphalt shoulder of East bound 1-470

3) WNW 53.65' to top SE corner of concrete guardrail for 1-470 bridge spanning View High Drive

CP #104 -  $\frac{1}{2}$ " rebar with GBA cap along South edge of off ramp from East bound 1-470 to View High Drive.

A tract of land being all of Lot 2, Paragon Star First Plat, a subdivision in the North Half of Northwest Quarter of Section 34, Township 48 North, Range 32 West of the Fifth Principal Meridian,

Commencing at the Northwest Corner of the Northwest Quarter of said Section 34; thence South 02°25'47" West, along the West line of said Section, a distance of 895.66 feet, to a point on a

non-tangent curve, said point also being the Point of Beginning; thence Northeasterly, departing

54°41'08", and an initial tangent bearing of North 15°06'40" East, a distance of 618.48 feet, to a

thence Northeasterly and Southeasterly, along a curve to the right, having a radius of 84.00 feet,

19°02'03" East, a distance of 13.19 feet, to a point of curvature; thence Southeasterly, along a

curve to the left, having a radius of 616.00 feet, a central angle of 18°21'00", a distance of

197.28 feet, to a point of compound curvature; thence Southeasterly, along a curve to the left,

having a radius of 540.00 feet, a central angle of 13°19'41", a distance of 125.61 feet, to a

thence Southeasterly, along a curve to the right, having a radius of 370.00 feet, and a central

Southeasterly and Southerly, along a curve to the right, having a radius of 264.00 feet, and a

central angle of 12°30'46", a distance of 57.65 feet, to a point of compound curvature; thence

13°59'23", a distance of 89.85 feet; thence South 01°25'13" East, a distance of 3.16 feet, to a

having a radius of 48.98 feet, a central angle of 56°47'34", and whose initial tangent bearing is

86°41'02" West, a distance of 214.11 feet; thence North 78°36'20" West, a distance of 41.68 feet;

thence Westerly and Northwesterly, along a curve to the right, having a radius of 111.50 feet, and

a central angle of 33°14'40", a distance of 64.69 feet, to a point of compound curvature; thence

16°00'54", a distance of 23.48 feet, to a point of reverse curvature; thence Northwesterly, along a

having a radius of 84.00 feet, a central angle of 12°03'20", a distance of 17.67 feet, to a point

on said West line; thence North 02°25'47" East, along said West line, a distance of 280.21 feet, to

thence North 86°20'31" West, a distance of 743.41 feet; thence South 83°16'48" West, a distance

of 64.46 feet; thence North 84°23'47" West, a distance of 159.95 feet, to a point of curvature;

Northeasterly, along a curve to the right, having a radius of 84.00 feet, a central angle of

14.75 feet, to a point of reverse curvature; thence Northwesterly, along a curve to the right,

the Point of Beginning, containing 854,869.97 square feet or 19.63 acres, more or less.

Southwesterly and Westerly, along a curve to the right, having a radius of 112.00 feet, and a

Southerly, along a curve to the right, having a radius of 368.00 feet, and a central angle of

point on a non-tangent curve; thence Southerly and Southwesterly, along a curve to the right,

South 01°25'22" East, a distance of 48.55 feet, to a point of compound curvature; thence

central angle of 31°18'53", a distance of 61.21 feet, to a point of tangency; thence South

angle of 21°49'29", a distance of 140.94 feet, to a point of compound curvature; thence

and a central angle of 91°10'09", a distance of 133.66 feet, to a point of tangency; thence South

point of tangency: thence South 50°42'44" East, a distance of 438.70 feet, to a point of curvature:

point of tangency; thence North 69°47'48" East, a distance of 235.03 feet, to a point of curvature;

said West line, along a curve to the right, having a radius of 648.00 feet, a central angle of

in the City of Lee's Summit, Jackson County, Missouri, more particularly described as follows:

Coordinates: N: 1008447.60 E: 2803180.41 EL: 822.96'

1) North 3.10' to South edge of asphalt of

2) WNW 3.00' to SE corner of concrete pad around state lighting control box 3) North 47.20' to SE corner of concrete

pad around state lighting control box, North side of off ramp 4) East 530'± to centerline of View High

 $CP \#105 - \frac{1}{2}$ " rebar with GBA cap in grass between South edge of asphalt of East bound 1-470 and the North edge of asphalt of East bound on ramp from View High Drive, at East end of grass area.

N: 1008400.01' E: 2804608.18'

EL: 833.34'

EL: 944.66'

1) SW 8.64' to centerline of reflector post, North side of on ramp 2) East 52.40' to centerline of reflector post, South side of I-470, East end of grass area

CP #106 - Set 17" rebar with GBA cap, West of View High Drive, South of entrance to substation at 10528 View High Drive N: 1006295.09' E: 2803203.41'

<u>lies:</u> 1) NE 62.75' to front face of curb inlet

2) N 28'± to center of gravel substation

3) E 20' $\pm$  to West edge of sidewalk CP #120 -  $\frac{1}{2}$ " rebar with GBA cap at NW corner of View High Drive and access road "Future View High Drive Pkwy"

N: 1009573.66' E: 2803729.57' EL: 811.46'

1) NW 3.60' to East edge of asphalt 2) West 51.44' to back of curb at nose of

3) NE 56.30' to center of MH lid

 $CP \#121 - \frac{1}{2}$ " rebar with GBA cap approximately 1430'± ENE of access road "Future View High Drive Pkwy" from View High Drive, near MH #1055 <u>Coordinates:</u> N: 1009788.28' E: 2805047.90' EL: 806.65'

1) SW 3.65' to center of MH lid 2) WNW 14' $\pm$  to power pole 3) NW 35.65' to NE corner of chain link fence area

 $CP \#122 - \frac{1}{2}$ " rebar with GBA cap approximately 1380'± NE of access road "Future View High Drive Pkwy" from View High Drive <u>Coordinates:</u> N: 1010126.48' E: 2804884.88' EL: 813.20'

─ ) West 298'± to center of MH lid CP #305  $-\frac{1}{2}$ " rebar South of dead end of 2) South 199'± to center of MH lid

 $CP \# 302 - \frac{5}{8}$ " rebar on North end of gravel construction parking area, at NE quadrant of intersection of Interstate 470 and View High

N: 1008855.67 E: 2804291.58' EL: 813.83'

 $CP \# 303 - \frac{1}{2}$ " rebar at E. end of gravel

construction parking area <u>Coordinates:</u> N: 1008733.32' E: 2804645.61' EL: 811.78'

<u>Coordinates:</u>

N: 1010251.92'

1) South 5.00' to North edge of high voltaae OHP 2) West 34.00' to East edge of gravel 3) SW 57.85' to steel R/W post at fence

CP #304 -  $\frac{1}{2}$ " rebar West of future View High Pkwy at top of hill near tree line, approximately 732'± North of access road "Future View High Drive Pkwy" from View High

E: 2803699.53' EL: 839.39' 1) NNE 23.10' to South face of twin 10" oak tree 2) SW 5.30' to East face of 10" oak tree 3) NW 14.60' to East face of 9" oak tree gravel driveway, which connects to Easterly end of E. 97th Street, on top of hill. N: 1010784.43

E: 2804698.47' EL: 888.55'

1) SE 4.00' to great break at ridge line  $CP #306 - \frac{1}{2}$ " rebar on South side of gravel

drive leading to lift station, near bend in road. <u>Coordinates:</u> N: 1009431.99' E: 2806165.47' EL: 810.46'

EL: 951.45'

E: 2803864.07'

EL: 833.80'

EL: 852.04'

1) North 4.00' to South edge of gravel drive 2) SE 18.80' to North face of power pole

BM #10 - Chiseled "L" on top SW corner of concrete curb inlet at NE Quadrant of intersection of View High Drive and Chipman Road, 1st inlet East of View High Drive. <u>Coordinates:</u> N: 1005584.32 E: 2803334.61

BM #11 - Chiseled "L" cut on NE corner of concrete guard rail at NE corner of Interstate 470 and View High Drive <u>Coordinates:</u> N: 1008590.33'

BM #13 - Chiseled "L" on NE corner of Interstate 470 and Cedar Creek Bridge N: 1008342.79' E: 2806758.22'

BM #16 - Chiseled "U" on top centerline of West side of curb inlet, at North end of island for View High Drive, 1st inlet South of Meers Road. <u>Coordinates:</u> N: 1007918.62' E: 2803553.77'

EL: 830.12'

ARFA TABLE

		AKEA TADLE			
ADDRESS	LOT	AREA	BUILDING SETBACK TO PERIMETER PROPERTY	PARKING SETBACK	FLOOR—AREA RATIO
3290 NW Paragon Pkwy	LOT 5	618,315.40 sqft or 14.20 acres	N/A	N/A	N/A
3280 NW Paragon Pkwy	LOT 6	31,334.95 sqft or 0.72 acres	O FT	O FT	N/A
3200 NW Paragon Pkwy	LOT 7A	48,455.77 sqft or 1.11 acres	O FT	O FT	0.86
3260 NW Paragon Pkwy	LOT 7B	30,055.22 sqft or 0.69 acres	O FT	O FT	1.00
3240 NW Paragon Pkwy	LOT 7C	77,652.57 sqft or 1.78 acres	O FT	O FT	0.54
3220 NW Paragon Pkwy	LOT 8	49,056.06 sqft or 1.13 acres	O FT	O FT	N/A
	Total	854,869.97 sqft or 19.63 acres			

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PROJECT:

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11/5/24 Revision

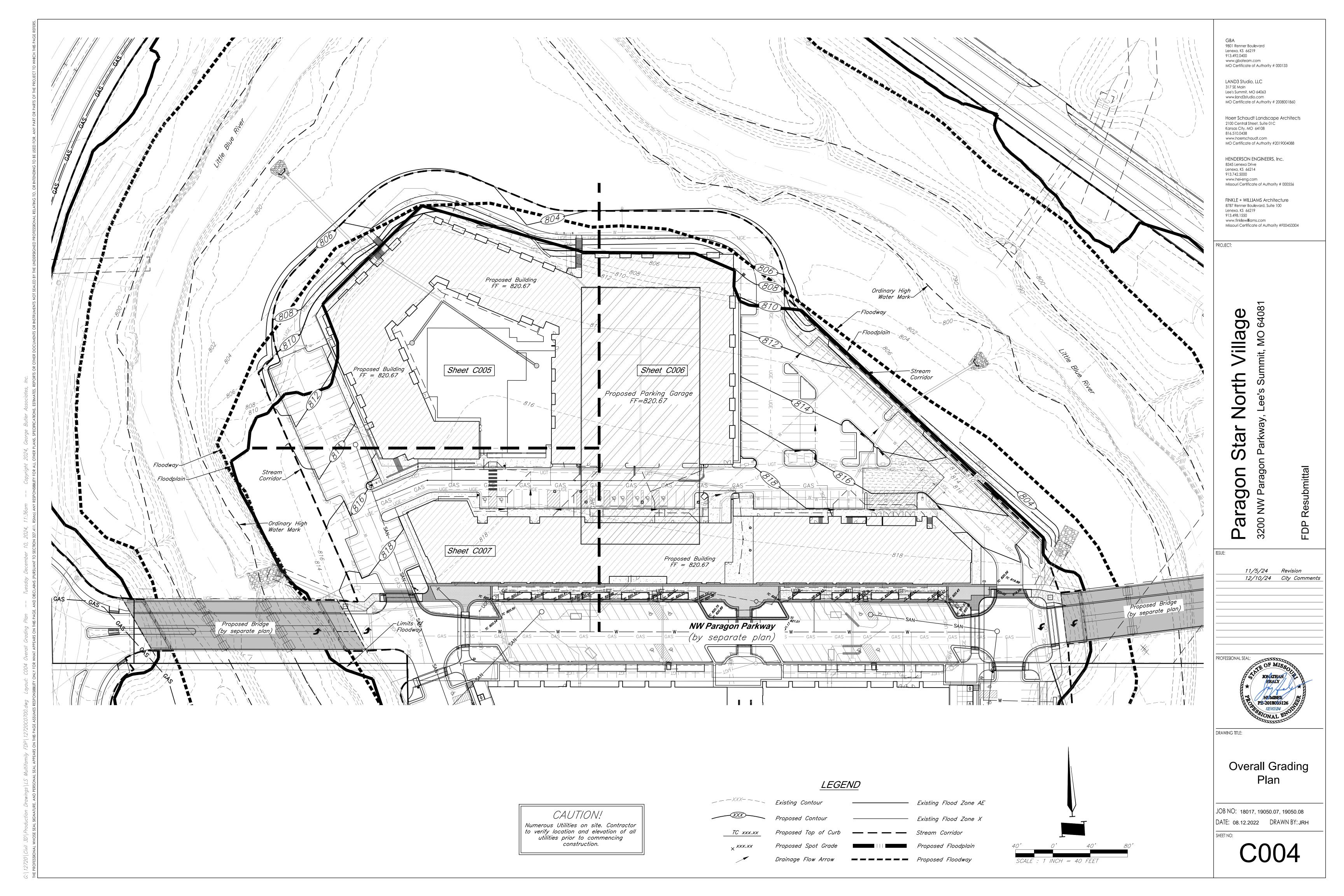
12/10/24 City Comments

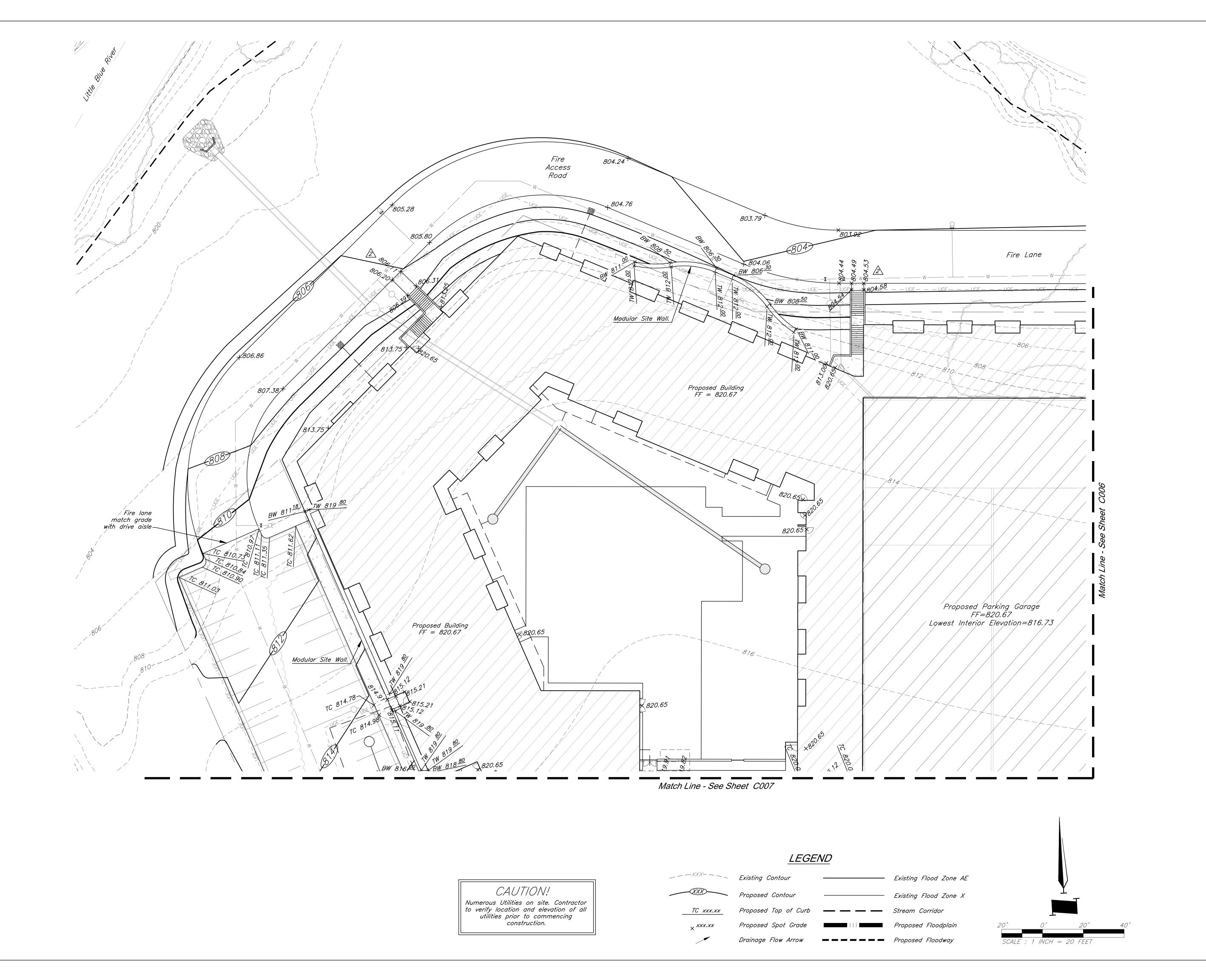


DRAWING TITLE:

SE Corner, NE  $\frac{1}{4}$ , NW  $\frac{1}{4}$ , Sec. 34-T48N-R32W-/ (Found 1/2" rebar)

FDP Lot Plan





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PROJECT:

Village North tar

aragon 3200 NW

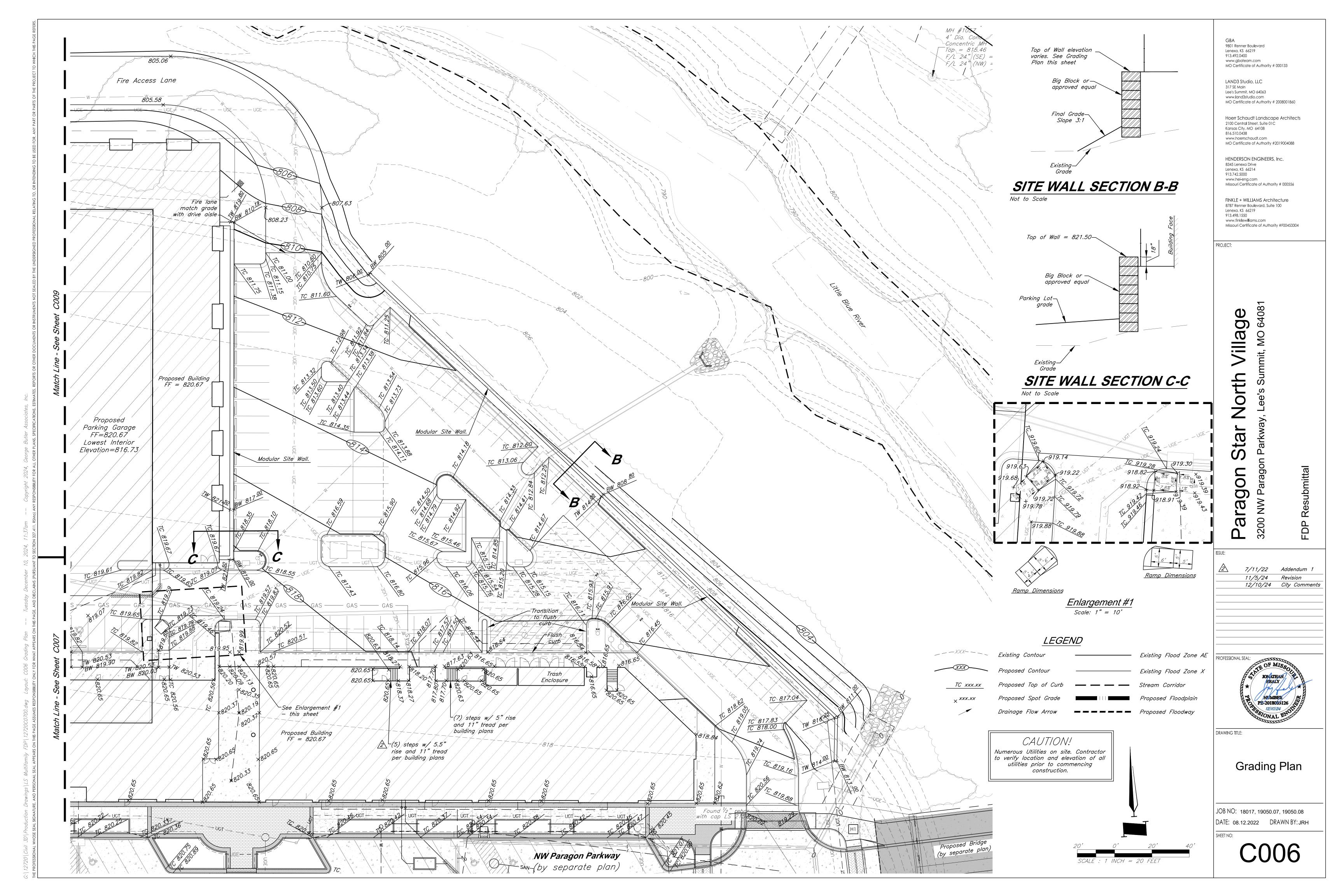
7/11/22 Addendum 1 11/5/24 Revision 12/10/24 City Comments

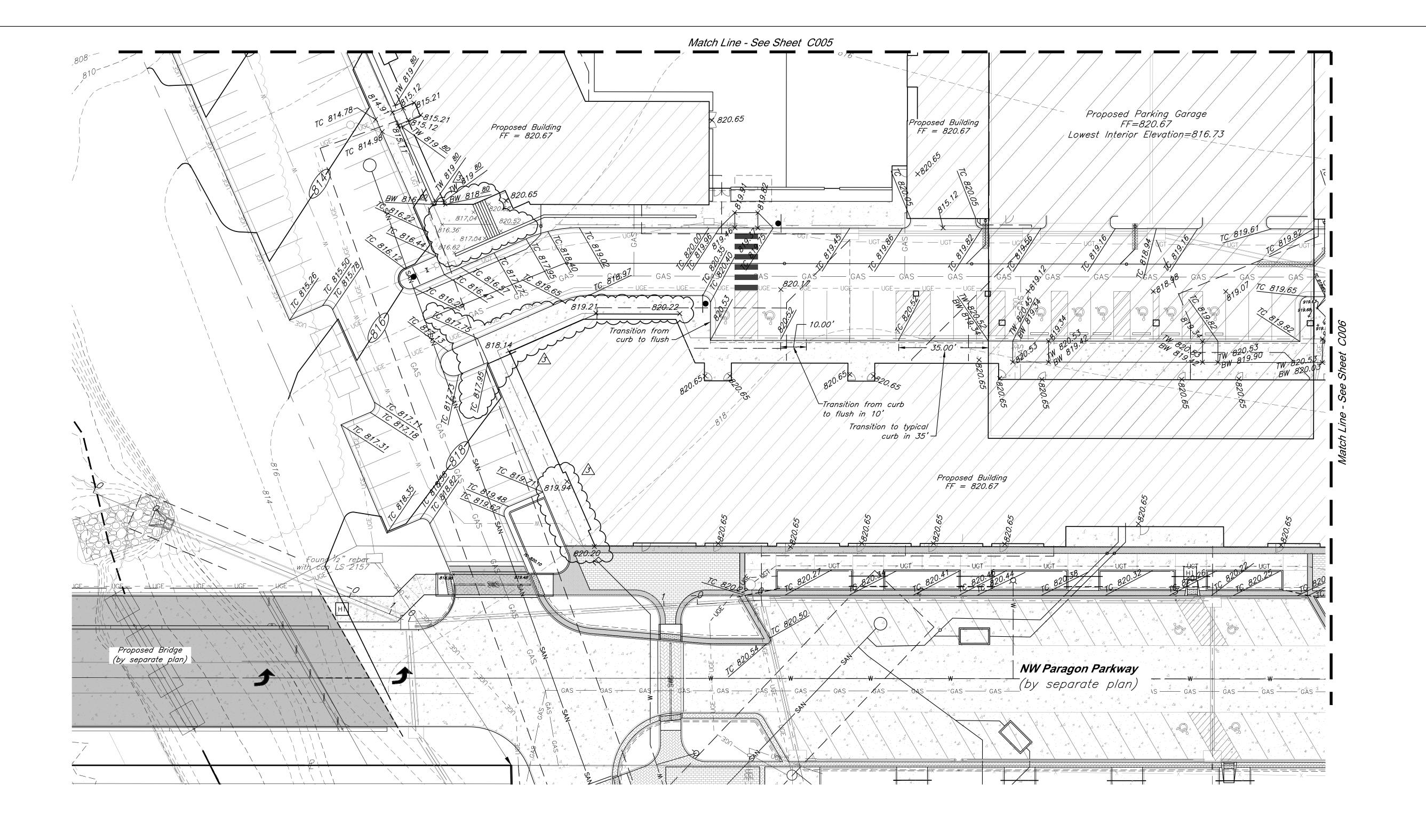


DRAWING TITLE:

**Grading Plan** 

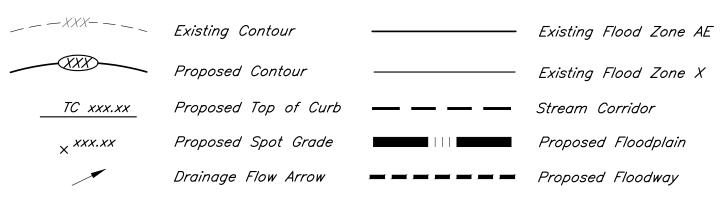
JOB NO: 18017, 19050.07, 19050.08 DATE: 08.12.2022 DRAWN BY: JRH

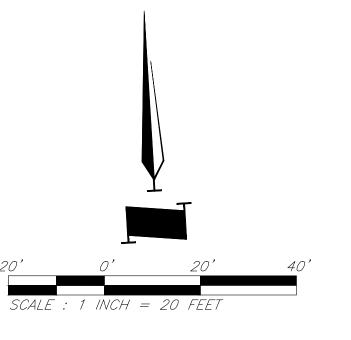






CAUTION! Numerous Utilities on site. Contractor to verify location and elevation of all utilities prior to commencing construction.





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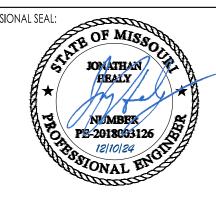
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PROJECT:

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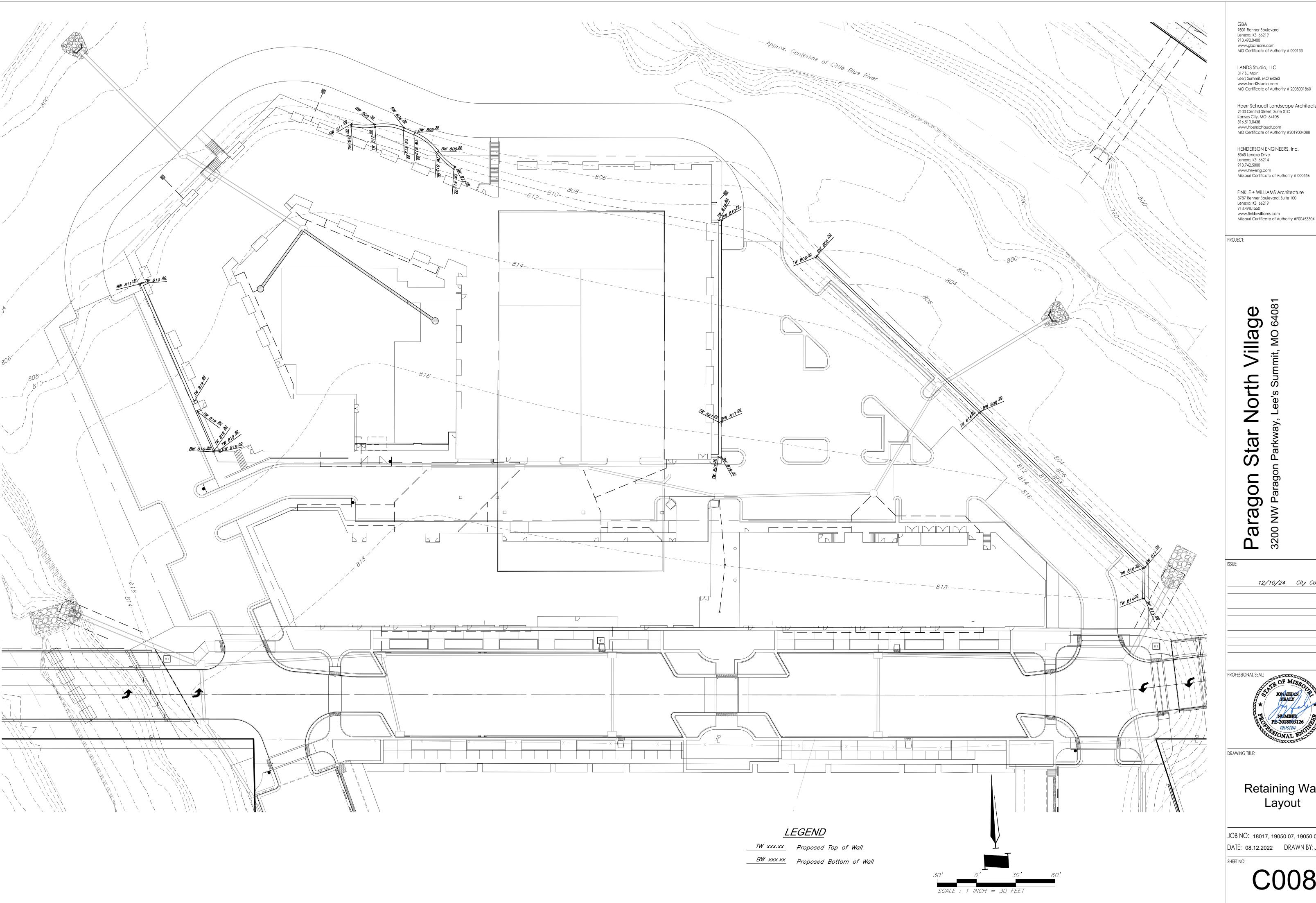
7/20/22 Addendum 2 11/5/24 Revision 12/10/24 City Comments



DRAWING TITLE:

**Grading Plan** 

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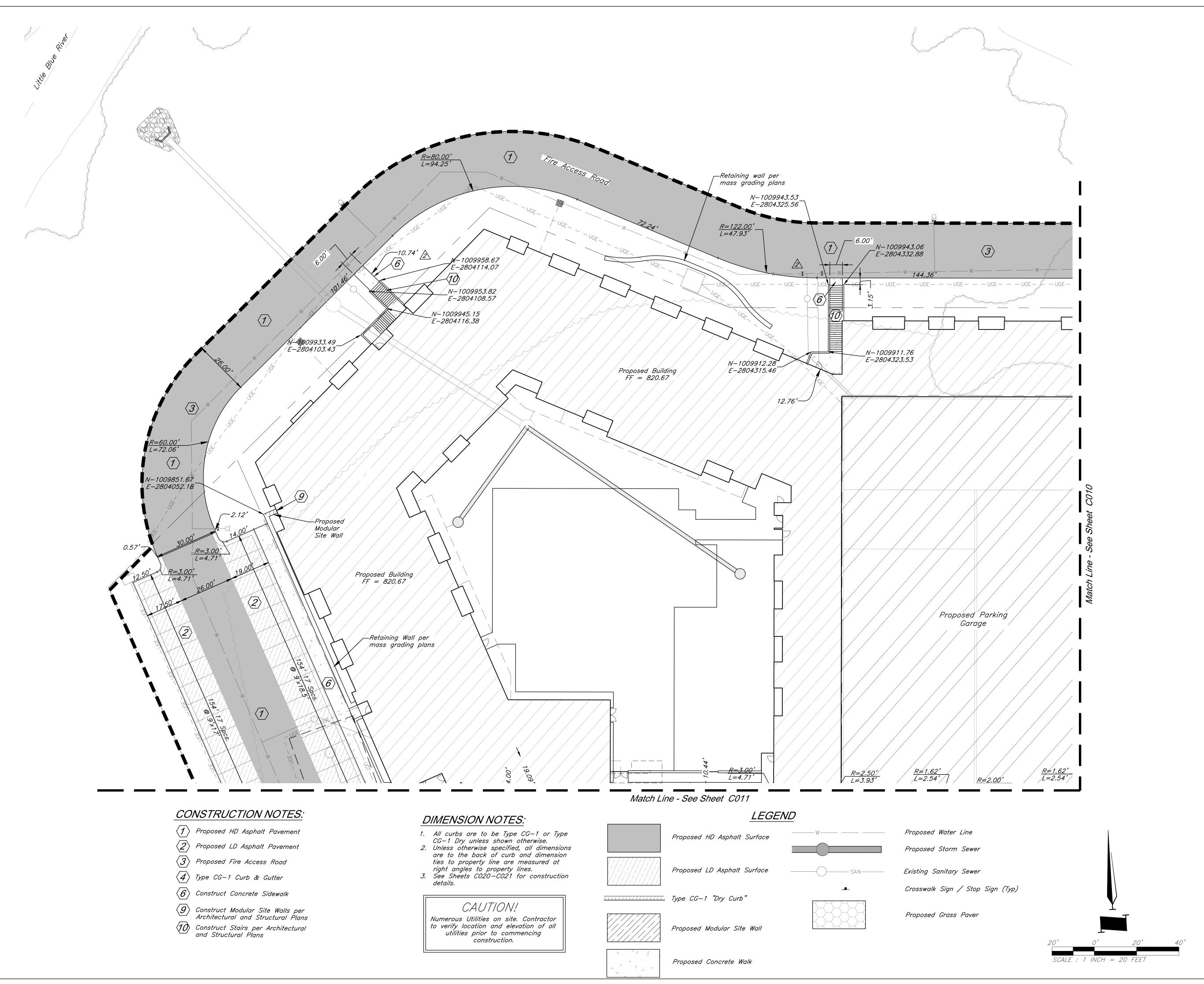
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12/10/24 City Comments



Retaining Wall Layout

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PROJECT:

Village North tar aragon

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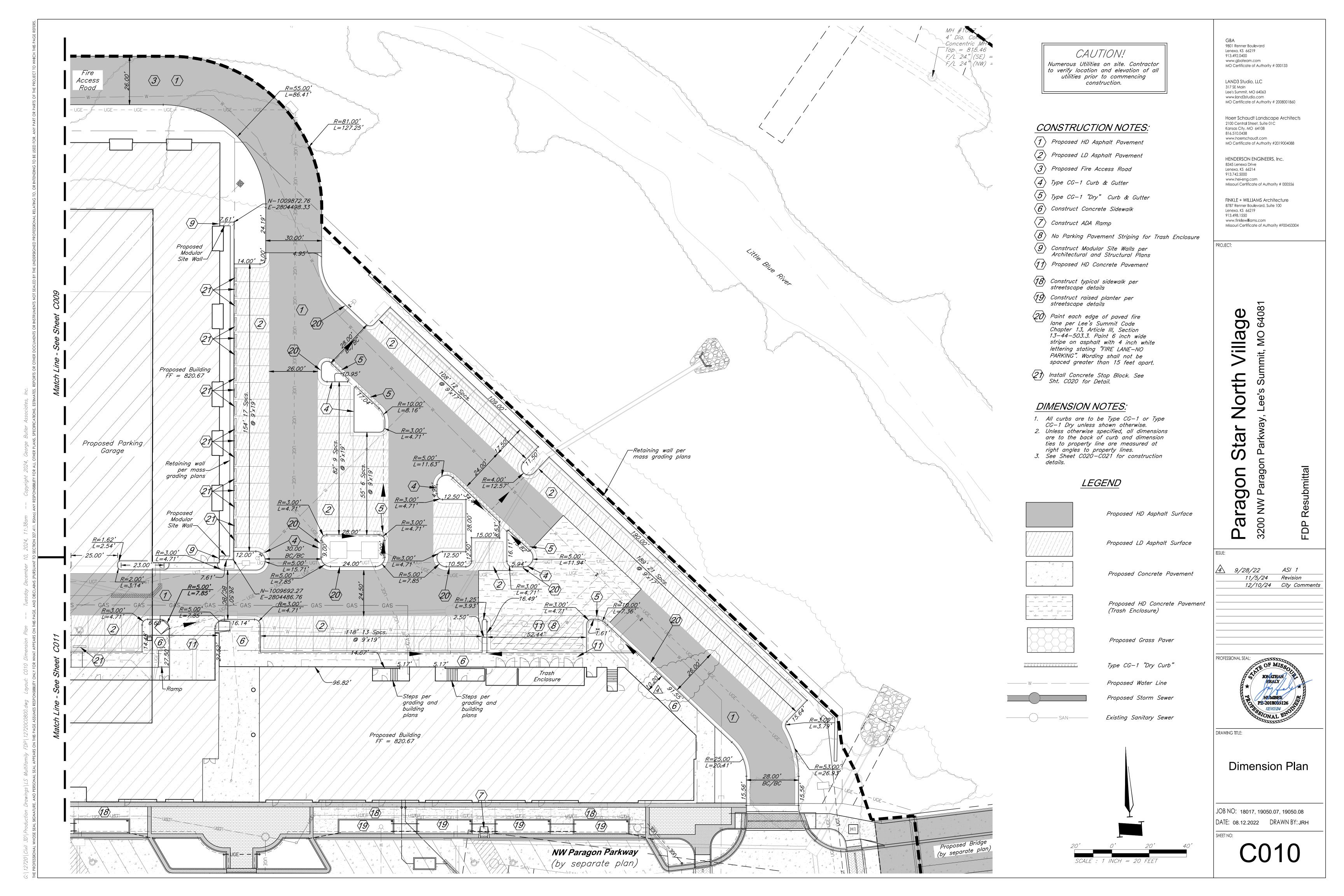
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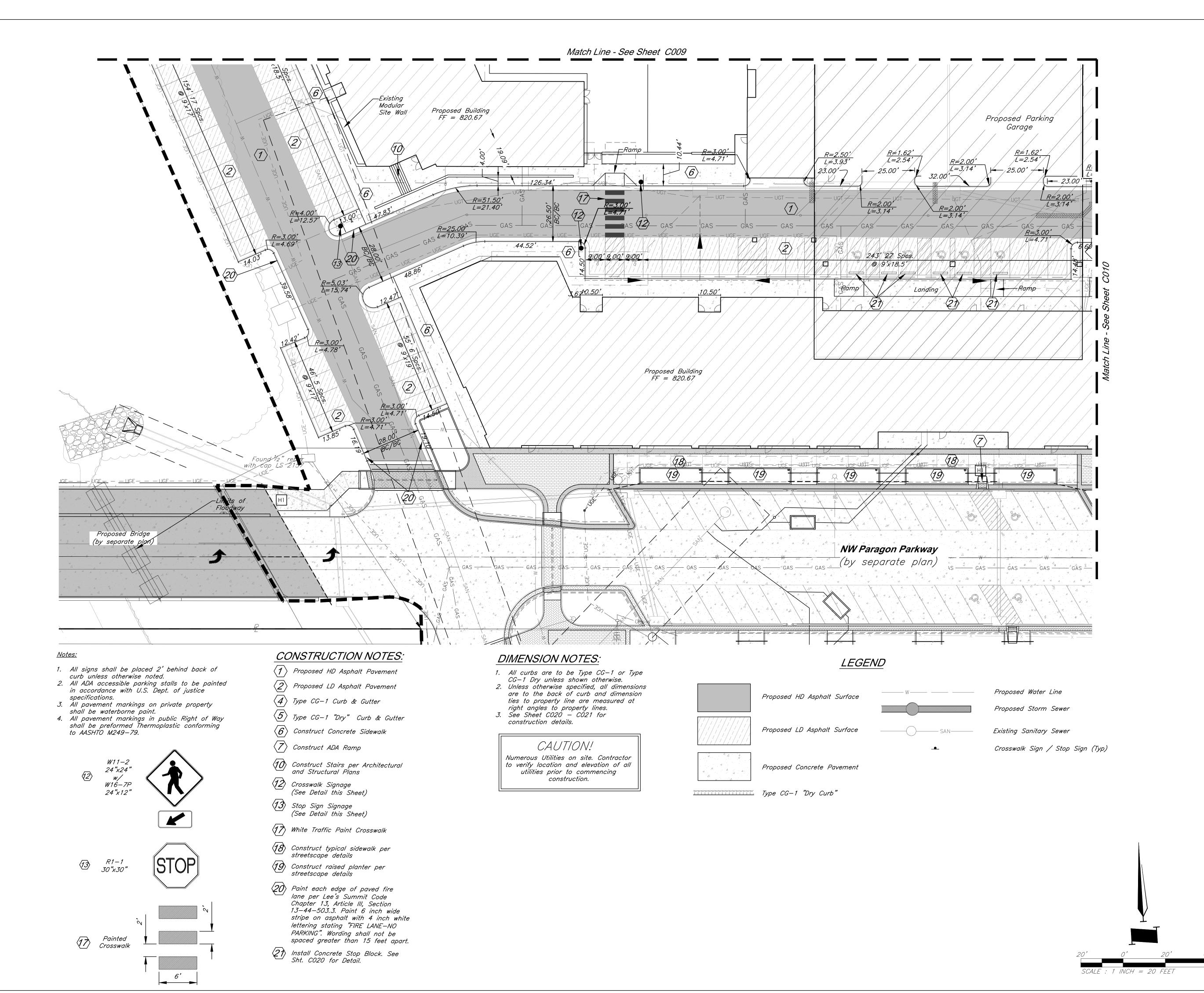
PROFESSIONAL SEAL:



DRAWING TITLE:

Dimension Plan





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PROJECT:

**ge** 64081

Paragon Star North Villa 3200 NW Paragon Parkway, Lee's Summit, MO

11/5/24 Revision 12/10/24 City Comments

PROFESSIONAL SEAL:

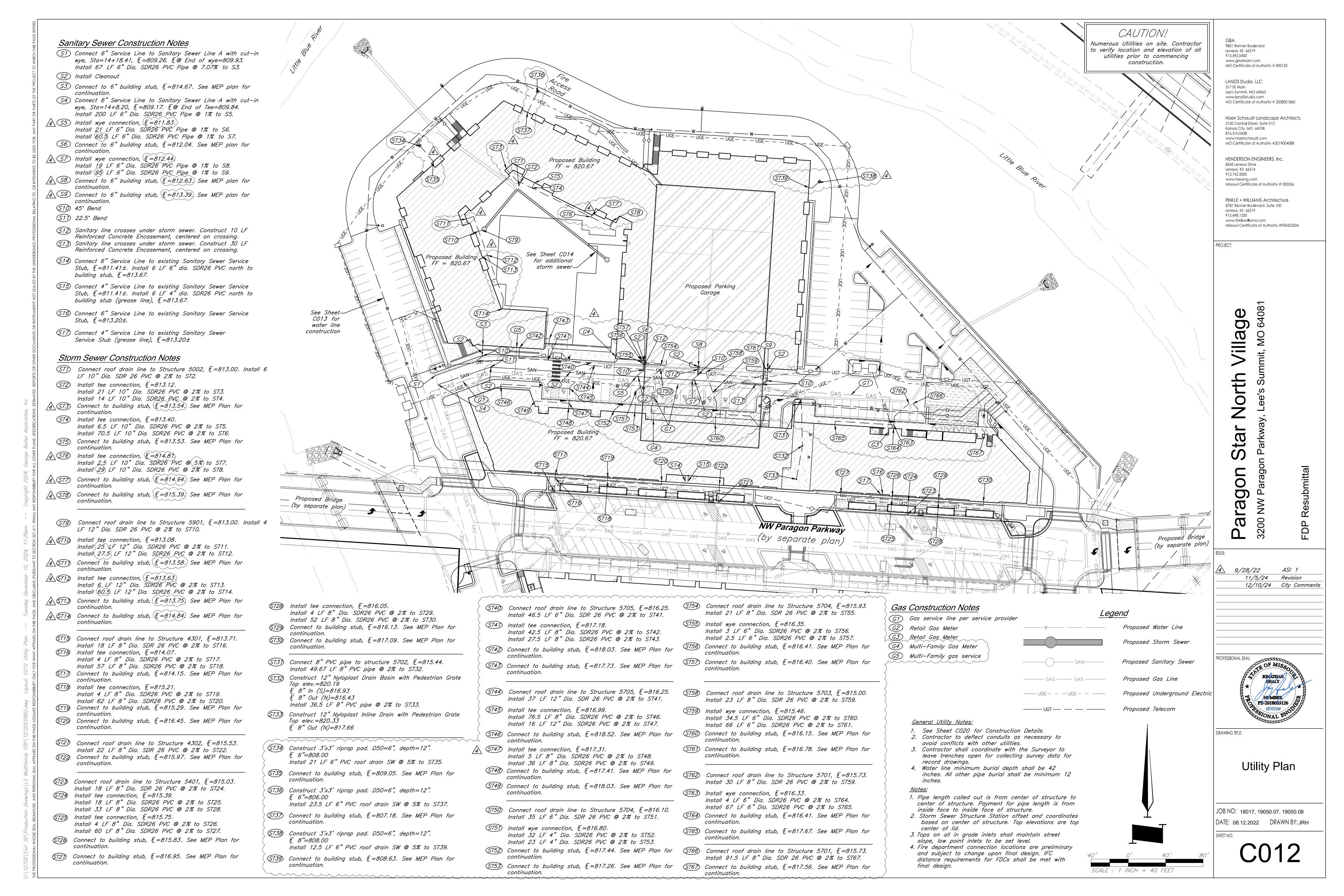
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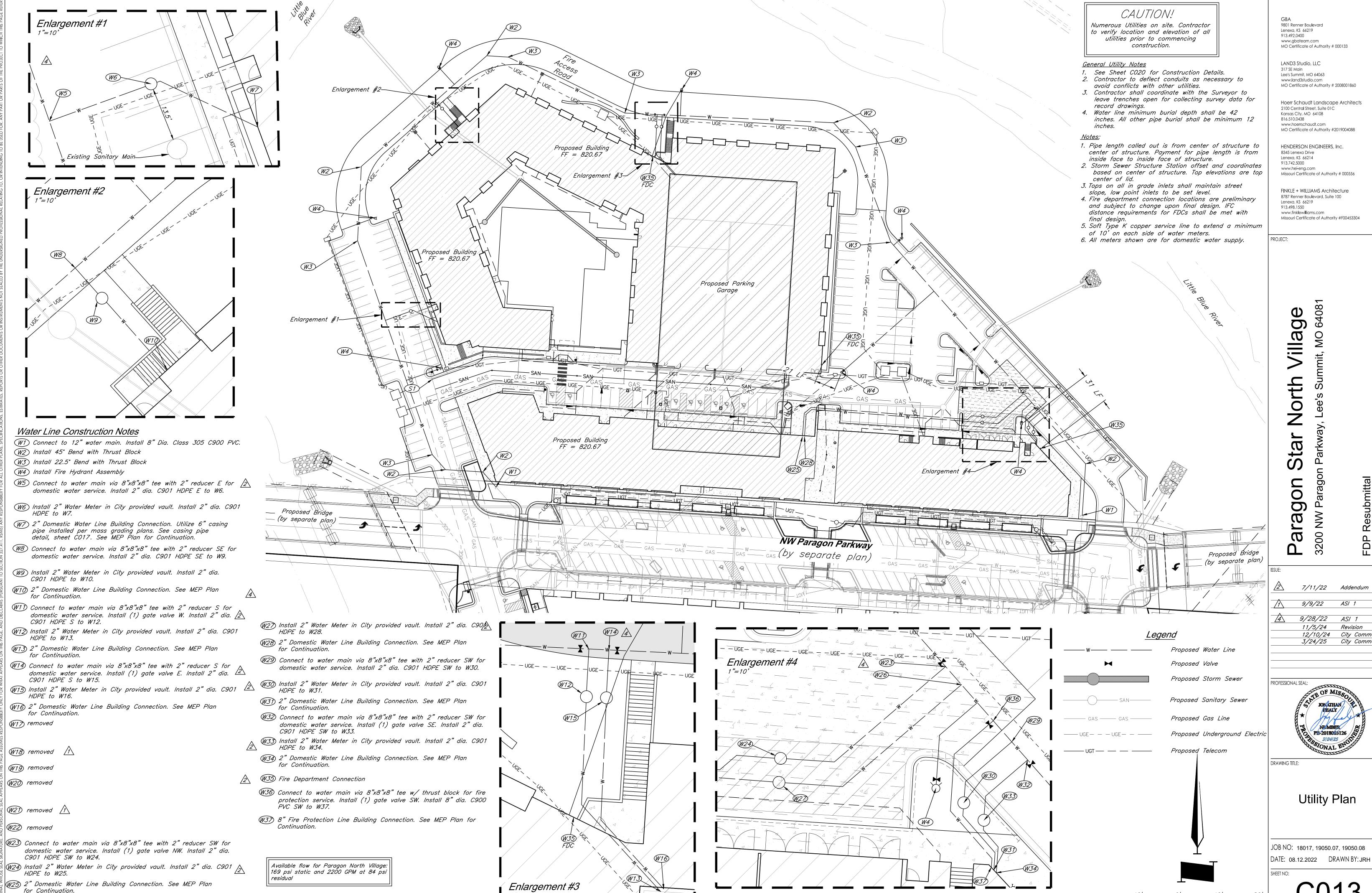
DRAWING TITLE:

Dimension Plan

JOB NO: 18017, 19050.07, 19050.08

DATE: 08.12.2022 DRAWN BY: JRH





W26) Connect to water main via 8"x8"x8" tee with 2" reducer SW for domestic water service. Install 2" dia. C901 HDPE SW to W27.

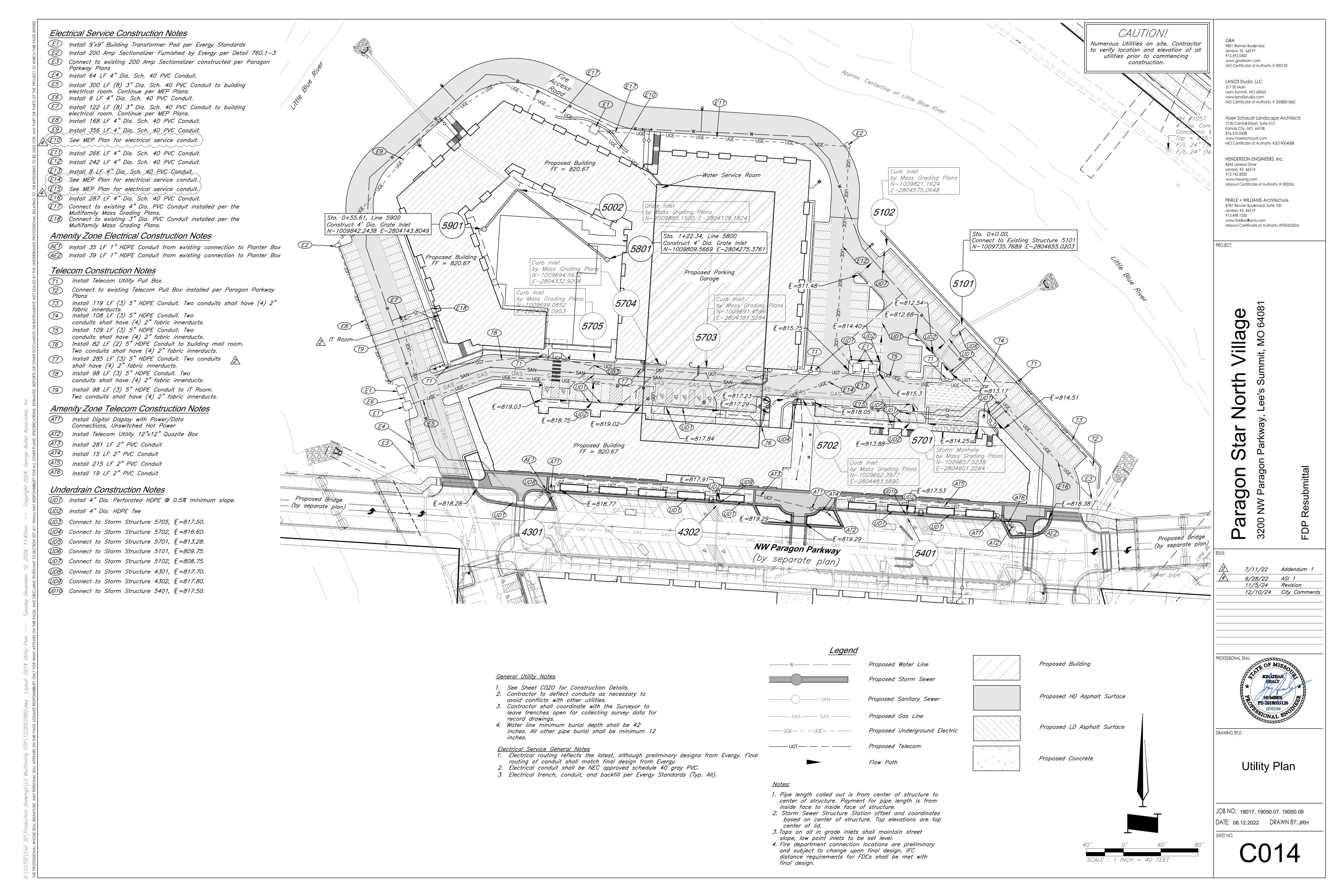
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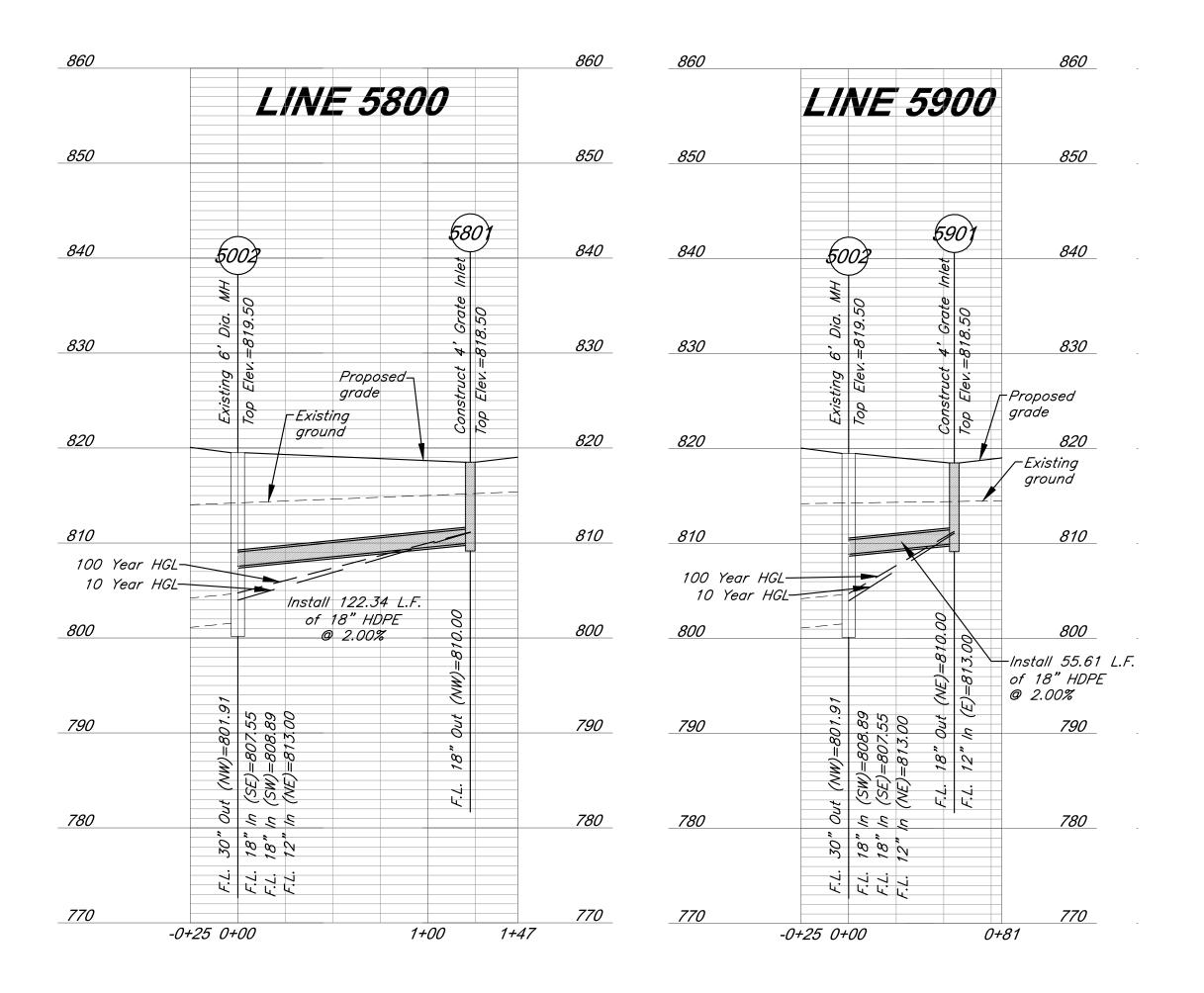
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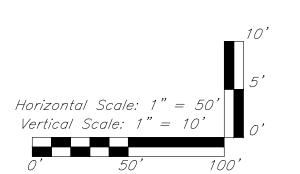
JOB NO: 18017, 19050.07, 19050.08

C013

SCALE: 1 INCH = 40 FEET







	Struct	ures				R	lunoff (	Calcula	ations							Pipe Design											Design	Checks					
			Direct	Line	Total																									Downstream	Hydraulic	Hydraulic	
	From	То	Area	ln	Area	С	K	. T	c Flo	ow Time	Intensity	Design	Q Description	Pipe lengt	h Pipe Slop	e Pipe dia (in	) Manning'	s Q full	Pipe	V full	Design V	/ Hw/D	outlet	HW, Inlet	HW, Outle	t Inlet Top	Upstream	Downstream	Inlet	Water	Grade Elev.	Grade	Comments
			(acre)	(acre)	(acre)			(m	iin)	(min)	(in/hr)	(cfs)		(lin ft)	Slope, %	)	n Value	(cfs)	Area, s	fps	fps		head, H	Control, (ft)	Control, (ft	) Elevation	flowline	flowline	Drop (ft)	Elevation	(Calculated)	(Allowable)	
	5801		0.25			0.90	1.0	0 5.0	00		7.35	1.7	Curb Inlet								T					818.50				1	811.04	818.00	
800		5002			0.25	0.90	1.0	0 5.0	00	0.36	7.35	1.7	RCP	122.34	2.00	18	0.013	14.90	1.77	8.43	5.59	0.7	0.08	811.04	808.38		810.00	807.55		808.30			
																															808.30		
		· ·		·		1	'	•	·		ı	ı	•	<u>'</u>		\ <b>I</b> \		1	1		1			•	•		•	•		•	1	1	
$\Box$	5901		0.14	0.32		0.90	1.0	0 5.0	00		7.35	0.9	Curb Inlet													818.50					811.13	818.00	
900		5002			0.46	0.90				0.14	7.35	3.0	RCP	55.61	2.00	18	0.013	14.90	1.77	8.43	6.58	0.7	0.16	811.13	809.80		810.00	808.89		809.64			
						1	1														1	1	<b>†</b>								809.64		

	Structu	ures				Ru	ınoff Ca	lculation	าร					Pip	e Design											Design	Checks					
<u> </u>			Dire	ect Line	Total				***************************************								T												Downstream	Hydraulic	Hydraulic	
	From	То	Are	ea In	Area	С	K	Tc	Flow Time	Intensity	Design C	Description	Pipe length	Pipe Slope	Pipe dia (in)	Manning's	Q full	Pipe	V full [	Design V	Hw/D	outlet		HW, Outlet			Downstream	Inlet	Water	Grade Elev.	Grade	Comments
			(acr	re) (acre)	(acre)			(min)	(min)	(in/hr)	(cfs)		(lin ft)	Slope, %		n Value	(cfs)	Area, sf	fps	fps		head, H	Control, (ft)	) Control, (ft)	Elevation	flowline	flowline	Drop (ft)	Elevation	(Calculated)	(Allowable)	
	5801		0.2	25		0.90	1.25	5.00		10.32	2.9	Curb Inlet	1			<u> </u>	<u> </u>								818.50	<u> </u>		<u> </u>		811.11	818.00	
e 5800		50	002		0.25	0.90	1.25	5.00	0.36	10.32	2.9	RCP	122.34	2.00	18	0.013	14.90	1.77	8.43	5.59	0.7	0.26	811.11	808.56		810.00	807.55		808.30			
							<u></u>																							808.30		
	5901		0.1	4 0.32		0.90	1.25	5.00		10.32	1.6	Curb Inlet					<u> </u>								818.50					811.37	818.00	
9 5900		50	002		0.46	0.90	1.25	5.00	0.14	10.32	5.3	RCP	55.61	2.00	18	0.013	14.90	1.77	8.43	6.58	0.9	0.49	811.37	810.13		810.00	808.89		809.64			
																	1													809.64		

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FINKLE + WILLIAMS Architecture 8787 Renner Boulevard, Suite 100 Lenexa, KS 66219 913.498.1550 www.finklewilliams.com Missouri Certificate of Authority #F00453304

PROJECT:

Village

North Star

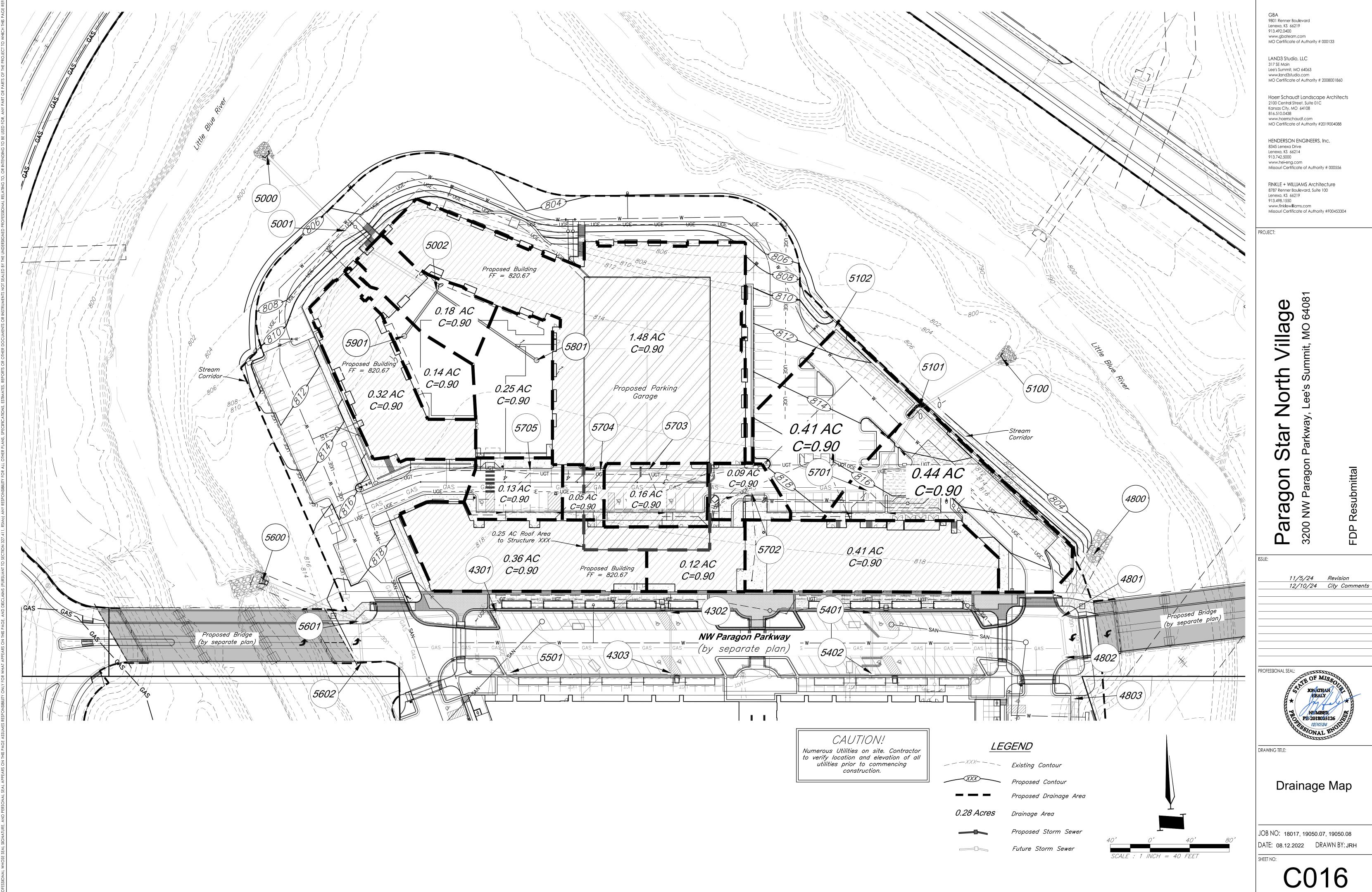
Paragon 3200 NW Paragor

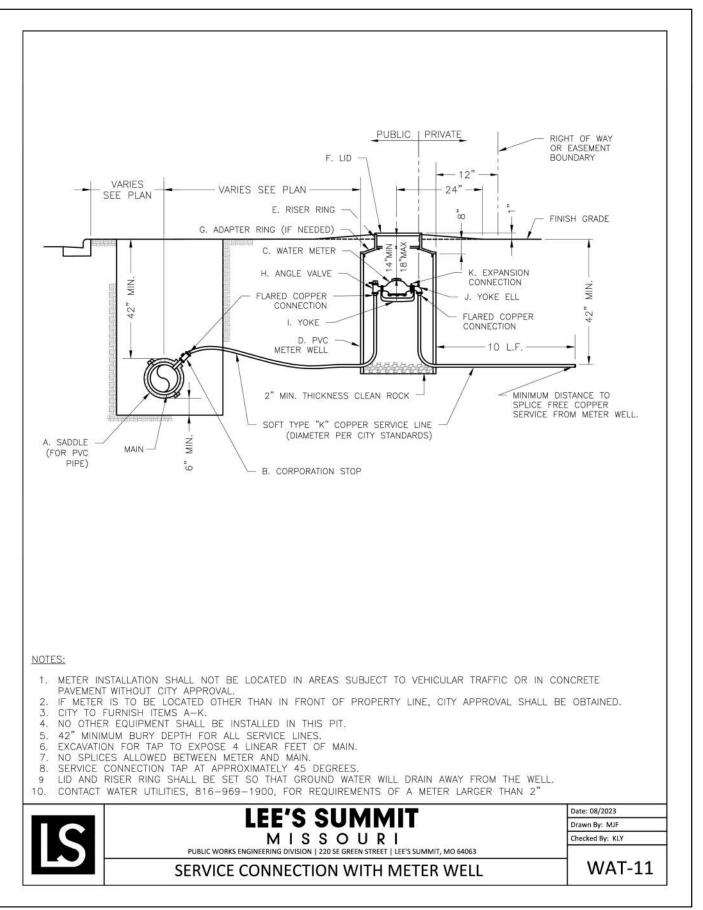
11/5/24 Revision 12/10/24 City Comments



Storm Sewer **Profiles** 

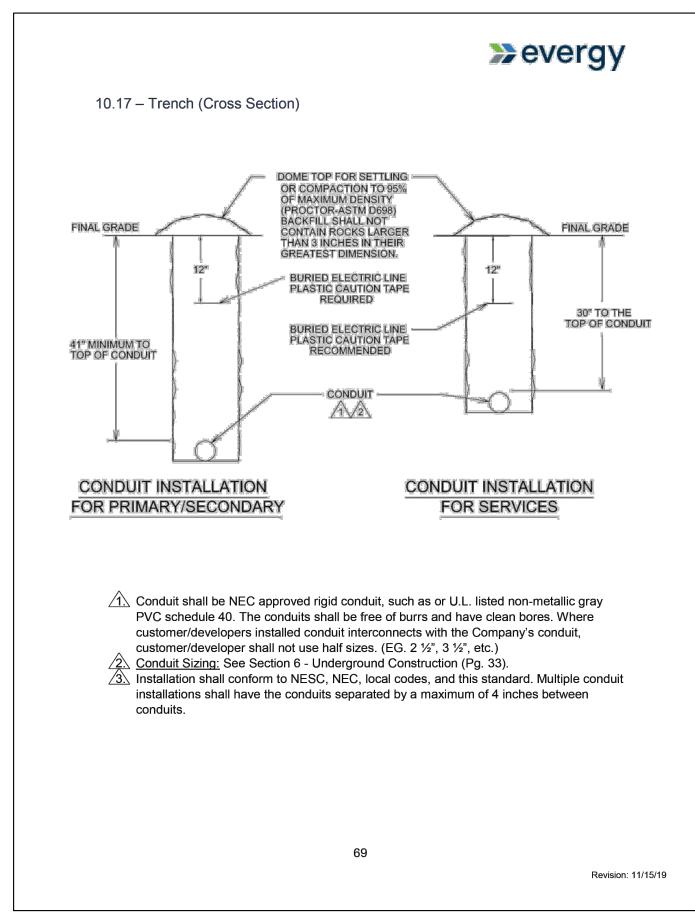
JOB NO: 18017, 19050.07, 19050.08 DATE: 08.12.2022 DRAWN BY: JRH





## WATER METER VAULT DETAIL

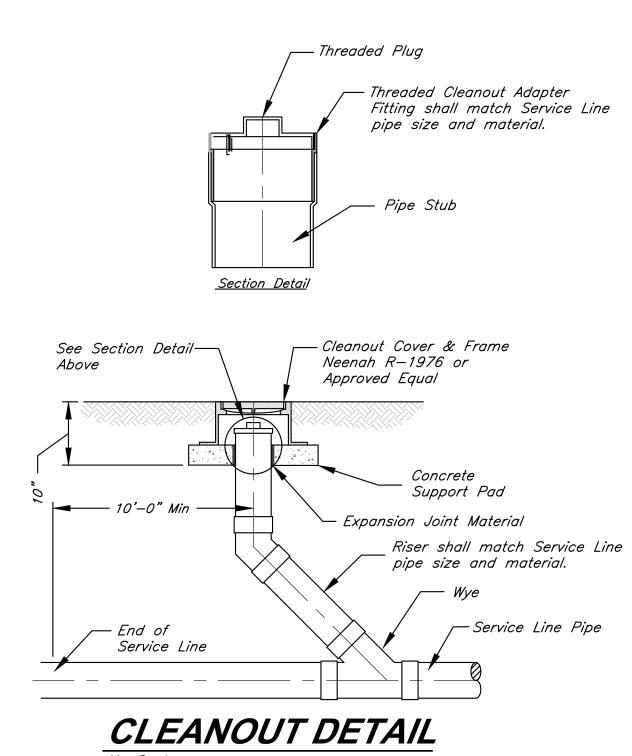
Not to Scale

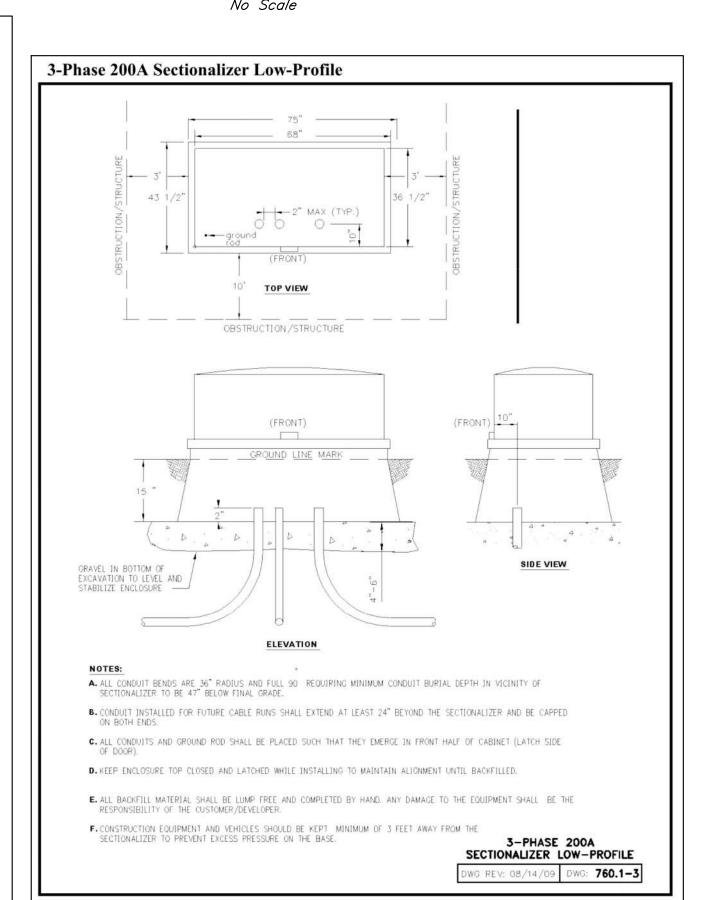


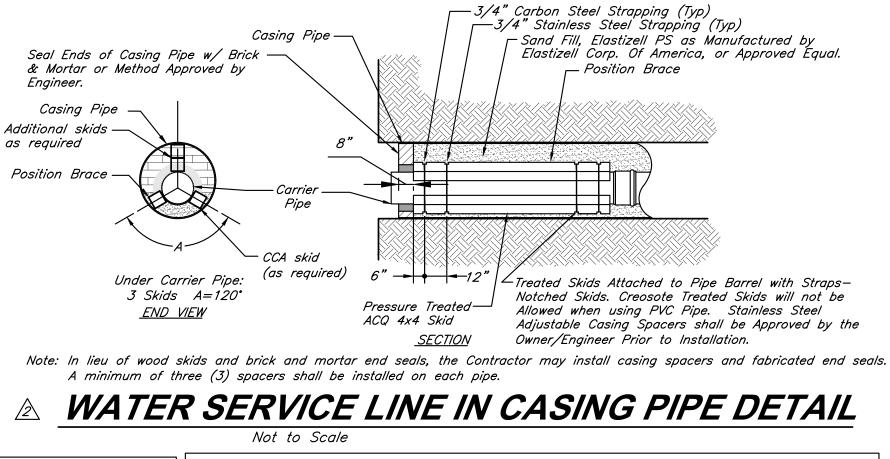
EVERGY STANDARD TRENCH DETAIL

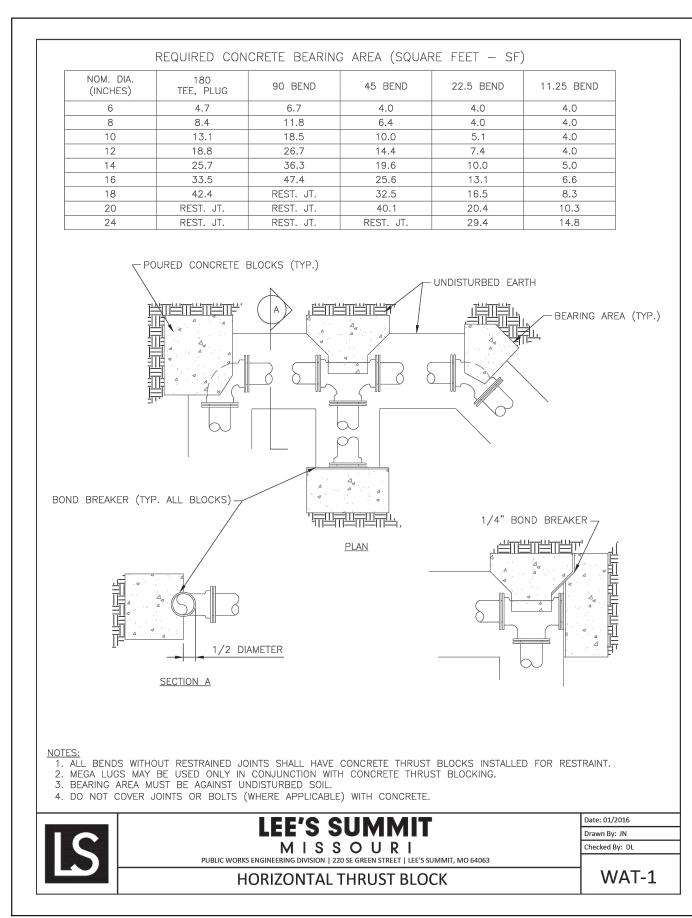


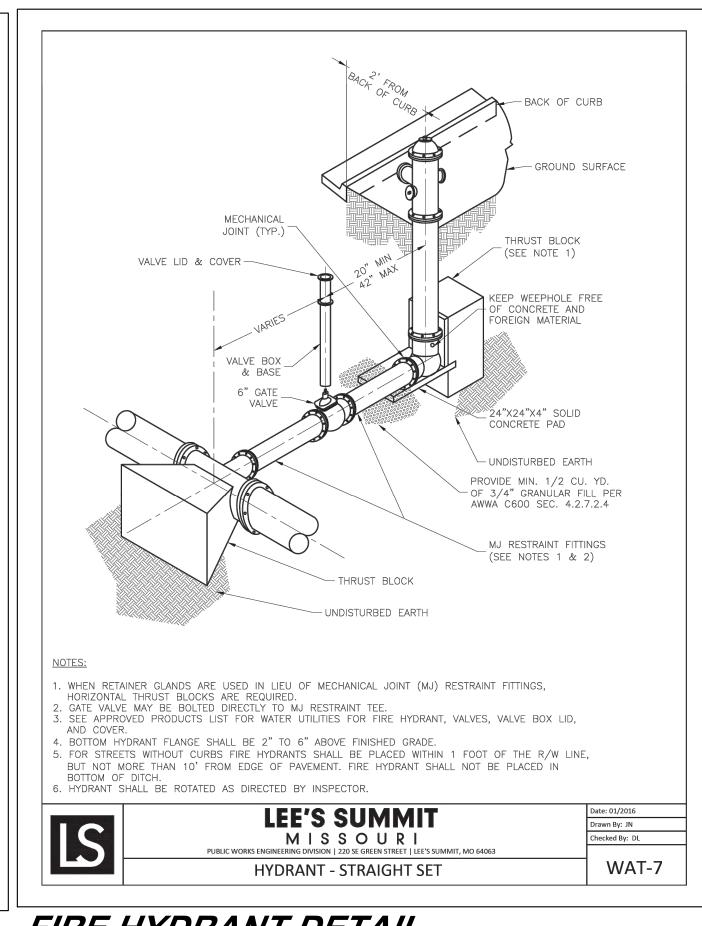
Not to Scale





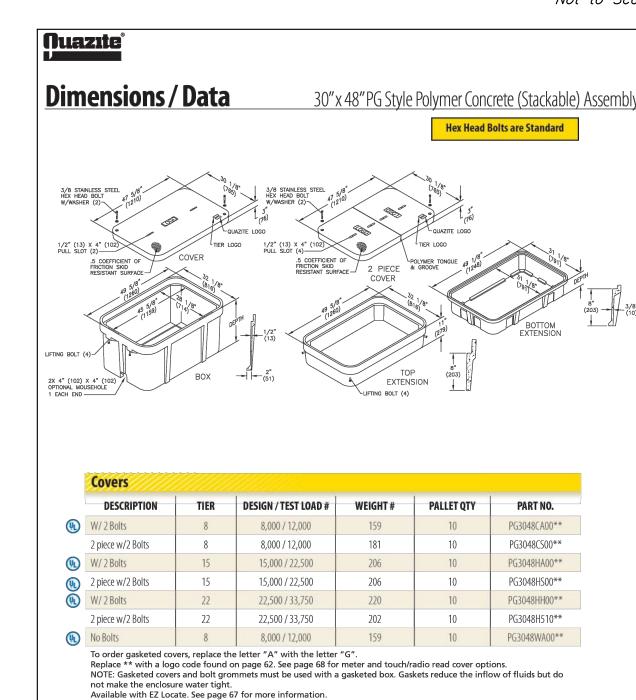






#### THRUST BLOCK DETAIL Not to Scale

#### FIRE HYDRANT DETAIL Not to Scale



				8"PG Style Polyme		lex Head Bolts a	
					-		- 1
	Boxes (Box dep	ths 24" th	ru 48" mu	st be used as bott	om of any	stack)	
	DESCRIPTION	DEPTH	TIER	DESIGN / TEST LOAD #	WEIGHT#	PALLET QTY	PART NO.
)		18"		22,500 / 33,750	185	4	PG3048BA18
)	Standard Open Bottom	24"	22	22,500 / 33,750	236	3	PG3048BA24
)		36"		22,500 / 33,750	343	2	PG3048BA36
		48"		22,500 / 33,750	450	1	PG3048BA48
)		18 1/2"		22,500 / 33,750	220	4	PG3048DA18
)	Solid Bottom	24 1/2"	22	22,500 / 33,750	287	3	PG3048DA24
١		36 1/2"		22,500 / 33,750	394	2	PG3048DA36
,		20 1/2		22,500   55,150	371	Δ.	P030400A30
,	To order gasketed box NOTE: Gasketed cover	48" standard mous es, replace the s and bolt gror	letter "A" wit	22,500 / 33,750 e the letter "A" with the l	501 etter "B".	1	PG3048DA48
,	To order gasketed box	48" standard mous es, replace the s and bolt gror	letter "A" wit	22,500 / 33,750 e the letter "A" with the letter "G".	501 etter "B".	1	PG3048DA48
,	To order gasketed box NOTE: Gasketed cover not make the enclosur	48" standard mous es, replace the s and bolt gror	letter "A" wit	22,500 / 33,750 e the letter "A" with the letter "G".	501 etter "B".	1	PG3048DA48
,	To order gasketed box NOTE: Gasketed cover not make the enclosur	48" standard mous tes, replace the ses, and bolt gron re water tight.	letter "A" with	22,500 / 33,750  The letter "A" with the letter "G".  Used with a gasketed boo	501 etter "B". c. Gaskets redu	1 ce the inflow of	PG3048DA48
,	To order gasketed box NOTE: Gasketed cover not make the enclosur	standard mouses, replace the s and bolt grore water tight.	letter "A" with nmets must be	22,500 / 33,750  The letter "A" with the lift the letter "G".  Used with a gasketed box	501 etter "B". c. Gaskets redu	ce the inflow of	PG3048DA48  fluids but do  PART NO.
	To order gasketed box NOTE: Gasketed cover not make the enclosur	standard mouses, replace the s and bolt grore water tight.	letter "A" with nmets must be	22,500 / 33,750  The letter "A" with the letter "G".  Used with a gasketed boo	501 etter "B". c. Gaskets redu	ce the inflow of	PG3048DA48  fluids but do  PART NO.
	To order gasketed box NOTE: Gasketed cover not make the enclosure of the e	standard mouses, replace the sand bolt grore water tight.	TIER	22,500 / 33,750  The letter "A" with the letter "G".  Used with a gasketed boo	501 etter "B".  Gaskets redu  WEIGHT #	ce the inflow of	PG3048DA48  fluids but do  PART NO.
	To order gasketed box NOTE: Gasketed cover not make the enclosure of the e	standard mouses, replace the sand bolt grore water tight.	TIER	22,500 / 33,750  The the letter "A" with the letter "G".  Used with a gasketed box  DESIGN / TEST LOAD #  22,500 / 33,750	501 etter "B".  Gaskets redu  WEIGHT #	ce the inflow of	PG3048DA48  fluids but do  PART NO.
	To order gasketed box NOTE: Gasketed cover not make the enclosure of the e	standard mouses, replace the sand bolt grore water tight.  DEPTH  11"	TIER  22  se under 1	22,500 / 33,750  The letter "A" with the letter "G".  Used with a gasketed box  DESIGN/TEST LOAD #  22,500 / 33,750	501 etter "B".  Gaskets redu  WEIGHT#  100	pallet QTY	PG3048DA48  fluids but do  PART NO. PG3048EA11

TELECOM PULL BOX

9801 Renner Boulevard Lenexa, KS 66219 913.492.0400 www.gbateam.com MO Certificate of Authority # 000133 LAND3 Studio, LLC

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2100 Central Street, Suite 01C Kansas City, MO 64108 816.510.0438 www.hoerrschaudt.com MO Certificate of Authority #2019004088

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FINKLE + WILLIAMS Architecture 8787 Renner Boulevard, Suite 100 Lenexa, KS 66219 913,498,1550

www.finklewilliams.com Missouri Certificate of Authority #F00453304

PROJECT:

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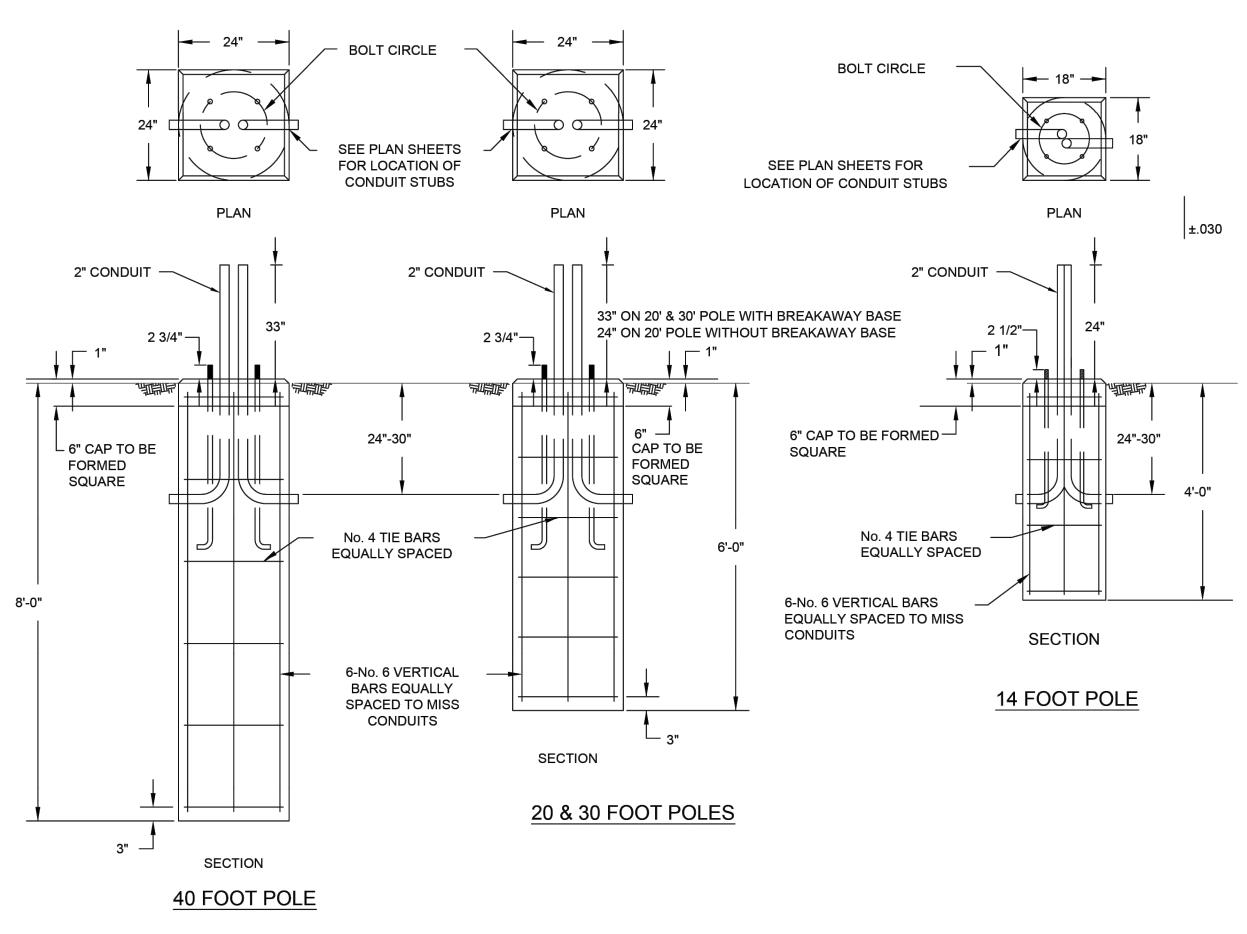
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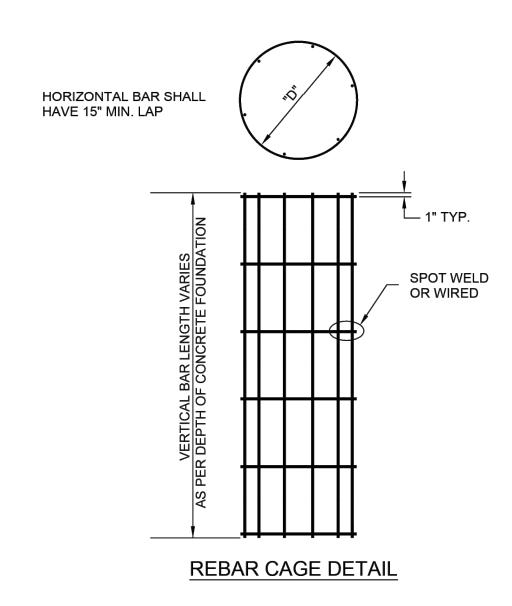
7/11/22 Addendum 1 11/5/24 Revision

*12/10/24 City Comments* 

**Utility Details** 



#### **CONCRETE FOUNDATION DETAILS**



		REBAR SCH	EDULE	
FDN. DIA.	FDN. LENGTH	REBAR CIRCLE "D"	VERTICAL REBAR LENGTH	HORIZONTAL REBAR SPACING
18"	4'	14"	3'-6"	14" MAX.
24"	6'	20"	5'-6"	14" MAX.
24"	8'	20"	7'-6"	14" MAX.
36"	8'	30"	7'-8"	12" MAX.
36"	10'	30"	9'-8"	12" MAX.
36"	12'	30"	11'-8"	9" MAX.

TYPE	MOUNTING HEIGHT	ARM SPECIFICATION	MAXIMUM TORQUE RATING (lbs ft)	A SHAFT DIA.	B SHAFT LENGTH	C HELIX DIA.	D PLATE SIZE	E PLATE THICKNESS	F BOLT CIRCLE	G SLOT LOCATION
1	14', 20'	_	15,000	6"	48"	12"	10"	0.75"	9.5"	12"
2A	30'	SINGLE/TWIN	15,000	6"	60"	12"	12"	1.0"	11.0"	18"
2B	40'	SINGLE/40-A-8-8	20,000	8"	60"	14"	14.5"	1.0"	11.5"	18"
3	40'	TWIN	20,000	8"	60"	14"	15"	1.25"	14.5"	18"

## NOTES:

- 1. FINISH: HOT DIP GALVANIZE PER ASTM-A153 (LATEST REVISION). UNLESS OTHERWISE SPECIFIED IN THE PLANS.
- 2. BASEPLATE TO BE PERPENDICULAR TO SHAFT AXIS (±1) AND HOLE AND CONCENTRIC (±.188 I.D. FIM) TO SHAFT AXIS
- 3. ALL BASES SHALL BE IDENTIFIED BY THE MANUFACTURER'S INITIALS AND THE ANCHOR TYPE (1,2 & 3) PERMANENTLY STAMP INTO THE TOP PLATE WITH 1/2" LETTERS. THE JULIAN DATE OF MANUFACTURE SHALL BE PERMANENTLY STAMPED IN 1/4" NUMERALS.
- 4. PILOT POINT AND SHAFT AXES TO BE CONCENTRIC (±.125 FIM) AND IN LINE (±2\*)
- 5. TAP 1" HOLES ON THE SPECIFIED BOLT CIRCLE PERPENDICULAR TO THE BASEPLATE. CLEAN AND CHASE THE THREADS AFTER HOT-DIP GALVANIZING SO THAT A BOLT MAY BE HAND INSTALLED.
- 6. PREHEAT (ROOM TEMPERATURE 70°F), TUMBLEBLAST, HANDGRIND, AND CLEAN BASEPLATE, HELIX, AND CORE ON ALL WELD AREAS.
- 7. FLAMECUT IRREGULARITIES PERMISSIBLE:

(1) VALLEYS NOT TO EXCEED 3/32 IN. BELOW NOMINAL SURFACE LEVEL.
(2) PEAKS OR POSITIVE IRREGULARITIES NOT TO EXCEED 1/32 IN. ABOVE NOMINAL SURFACE LEVEL OR INTERSECTIONS OF NOMINAL SURFACES.

8. MANUFACTURER TO HAVE IN EFFECT INDUSTRY RECOGNIZED WRITTEN QUALITY CONTROL FOR ALL MATERIALS AND MANUFACTURING PROCESSES.

9. ALL MATERIAL IS TO BE NEW, UNUSED AND MILL TRACEABLE MEETING THE FOLLOWING SPECIFICATIONS:

BASEPLATE: ASTM A36-(LATEST REVISION) HOT ROLLED STEEL PLATE
SHAFT: STEEL PIPE PILES, SEAMLESS OR STRAIGHT WELDED, GRADE 2 PER ASTM A252. ALTERNATE MATERIAL PIPE TYPE E OR S,
GRADE B PER ASTM A53.
HELIX: ASTM A635-(LATEST REVISION) HOT ROLLED STEEL PLATE
PILOT POINT: ASTM A575-(LATEST REVISION) HOT ROLLED STEEL

- 10. ALL 30' AND 40' ALUMINUM LIGHT POLES SHALL BE FURNISHED WITH BREAKAWAY BASES.
- 11. THE DESIGN AND PERFORMANCE INTEGRITY OF THE FOUNDATION SHALL BE VERIFIED BY FULL-SCALE TESTS BY QUALIFIED ENGINEERS INDEPENDENT OF THE MANUFACTURER. CERTIFIED TEST REPORTS SHALL BE PROVIDED UPON REQUEST.
- 12. FLAME CUT NOTCH OR PROJECTION WILL BE ON BASE PLATE TO INDICATE SLOT ORIENTATION.
- 13. ALL CONDUITS AND ANCHOR BOLTS FOR CONTROL PADS AND POLE FOUNDATIONS SHALL BE RIGIDLY INSTALLED BEFORE CONCRETE IS PLACED. ANCHOR BOLTS SHALL BE SPACED BY MEANS OF A TEMPLATE, THE CENTER OF WHICH SHALL COINCIDE WITH THE CENTER OF THE BASE.
- 14. ALL CONCRETE POLE BASES SHALL BE PLACED IN TWO SEPARATE PLACEMENTS. THE FINAL 6 INCHES SHALL BE PLACED AFTER THE POLE IS SET AND FINAL ADJUSTMENTS HAVE BEEN MADE.

LIGHT POLE BASE FOUNDATION

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PROJECT:

Village

Paragon Star North

12/10/24 City Comments

PROFESSIONAL SEAL:

OF MISSO

ONATHAN

HEALY

NUMBER

PE-201803126

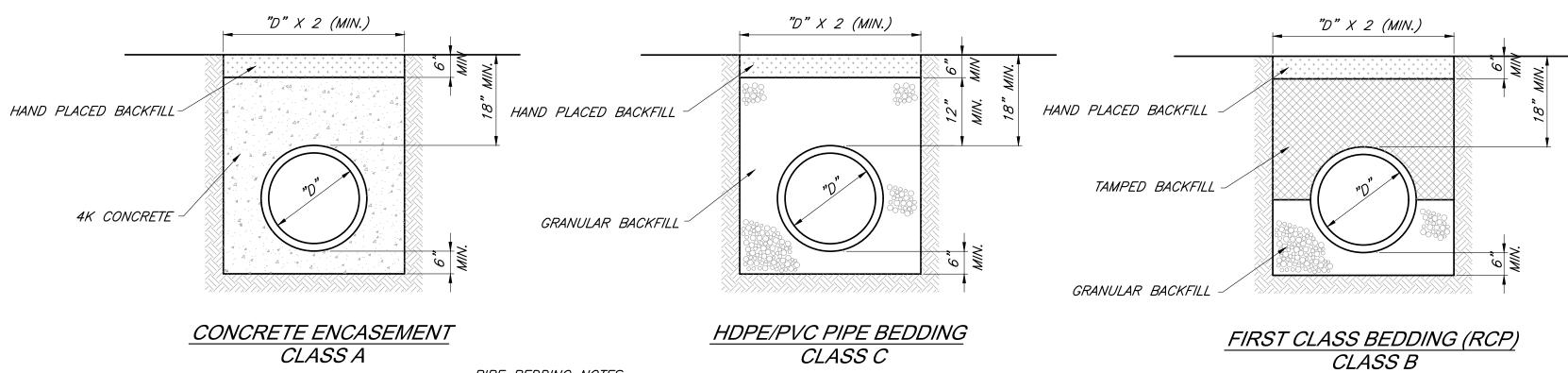
DRAWING TI

**Utility Details** 

JOB NO: 18017, 19050.07, 19050.08

DATE: 08.12.2022 DRAWN BY: JRH

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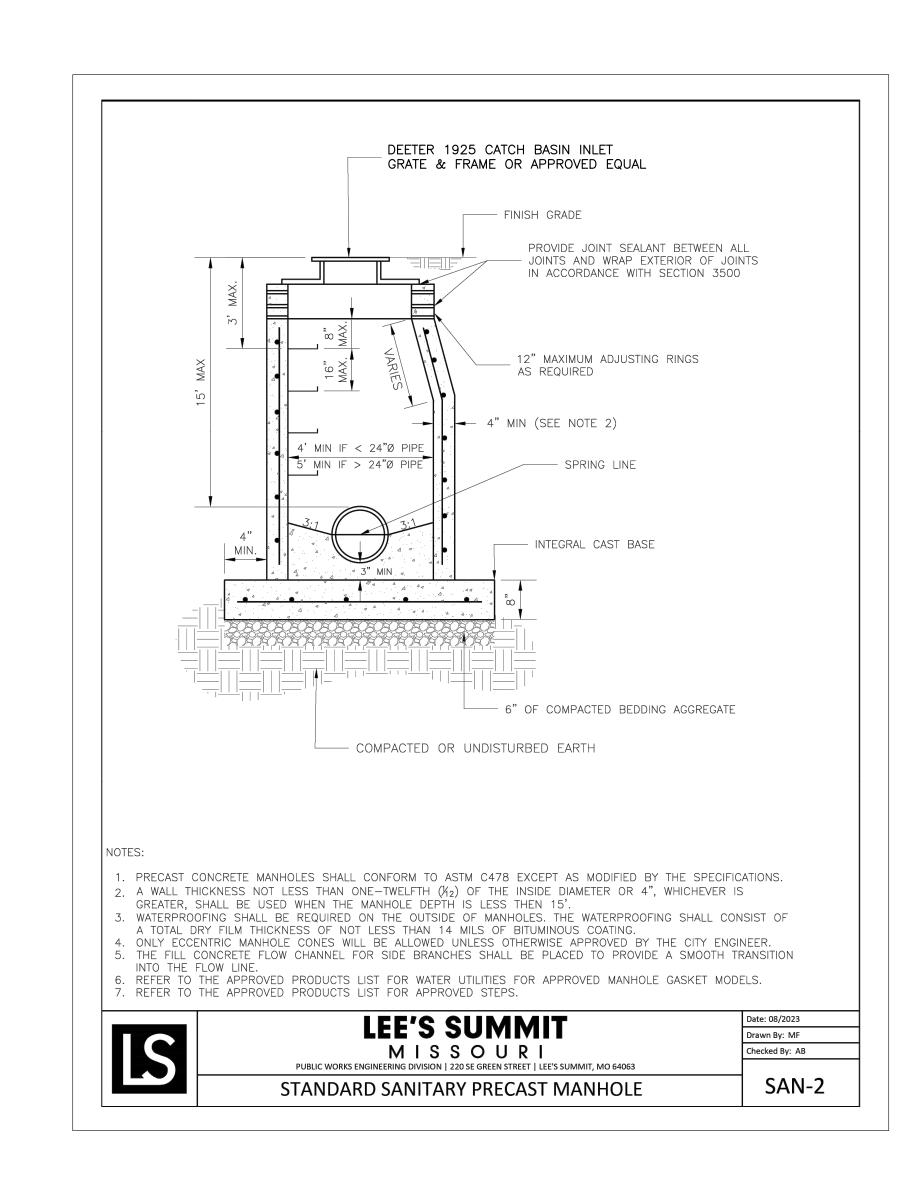


#### <u>PIPE BEDDING NOTES:</u>

- 1. GRANULAR FILL SHALL BE 1/2" CLEAN ROCK, PLACED IN 6" LIFTS AND COMPACTED BY SLICING WITH A SHOVEL.
- 2. TAMPED FILL SHALL BE FINELY DIVIDED, JOB EXCAVATED MATERIAL FREE OF DEBRIS, ORGANIC MATERIAL, AND STONES, COMPACTED TO TYPE AA MR-5 COMPACTION.
- 3. HAND PLACED FILL SHALL BE FINELY DIVIDED MATERIAL, FREE OF DEBRIS AND STONES, COMPACTED TO TYPE 95%.

## PIP BEDDING DETAILS

Not to Scale



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PROJECT:

on Star North Village

Pal

11/5/24 Revision 12/10/24 City Comments

ONAL SFAL:



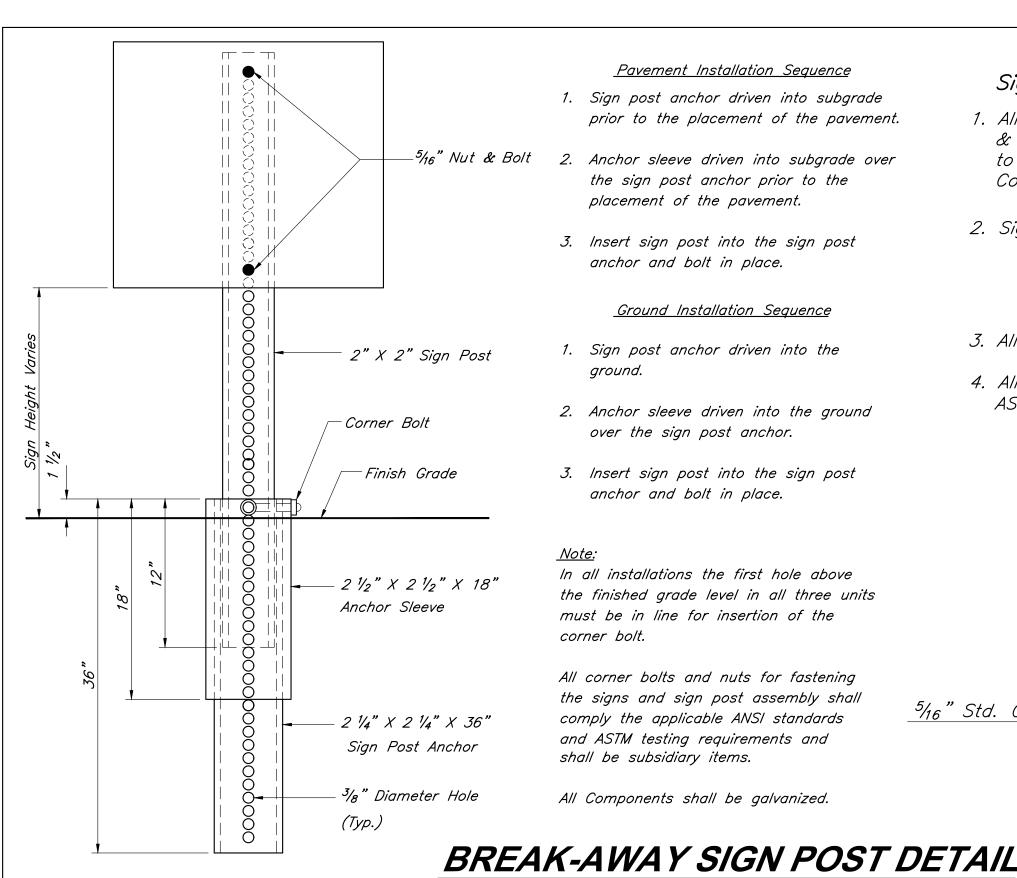
DRAWING TITLE:

Storm Sewer Details

JOB NO: 18017, 19050.07, 19050.08

DATE: 08.12.2022 DRAWN BY: JRH

HEET NO:



## Pavement Installation Sequence

- 1. Sign post anchor driven into subgrade prior to the placement of the pavement.
- $-\frac{5}{16}$ " Nut & Bolt 2. Anchor sleeve driven into subgrade over the sign post anchor prior to the placement of the pavement.
  - 3. Insert sign post into the sign post anchor and bolt in place.

#### Ground Installation Sequence

- 1. Sign post anchor driven into the ground.
- 2. Anchor sleeve driven into the ground over the sign post anchor.
- 3. Insert sign post into the sign post anchor and bolt in place.

Not to Scale

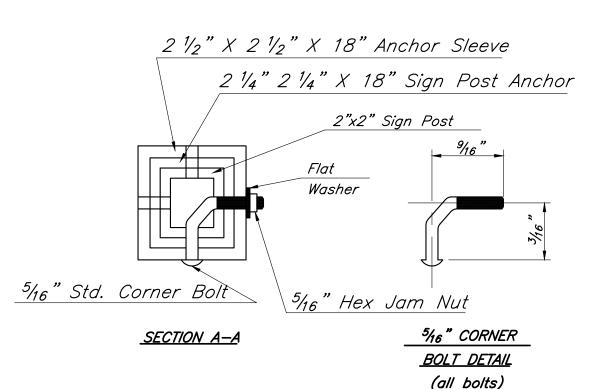
In all installations the first hole above the finished grade level in all three units must be in line for insertion of the corner bolt.

All corner bolts and nuts for fastening the signs and sign post assembly shall comply the applicable ANSI standards and ASTM testing requirements and shall be subsidiary items.

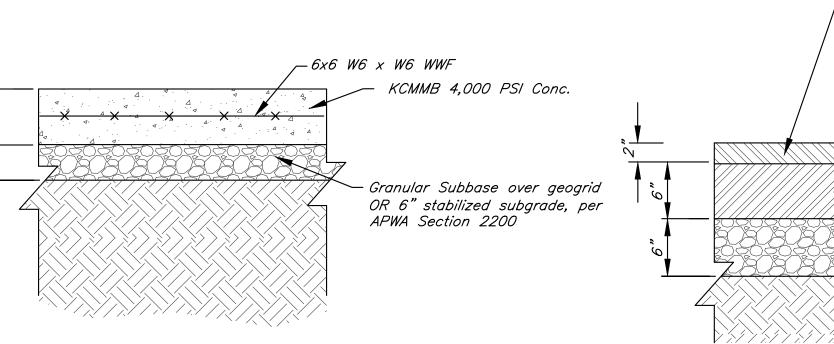
All Components shall be galvanized.

#### Sign Notes:

- 1. All letter, number & symbol sizes, spacing & colors, and the sign colors shall conform to the current "Manual On Uniform Traffic Control Devices."
- 2. Sign blank material shall be as follows: Signs 36"X36" or greater 0.100" thick 0.125" thick Guide Signs 0.080" thick All other signs
- 3. All sign mounting hardware shall be galvanized.
- 4. All sign faces shall be fabricated using ASTM Type III Prismatic reflective sheeting.



## CONCRETE PAVEMENT SECTION



-6x6 W6 x W6 WWF

KCMMB 4,000 PSI Conc.

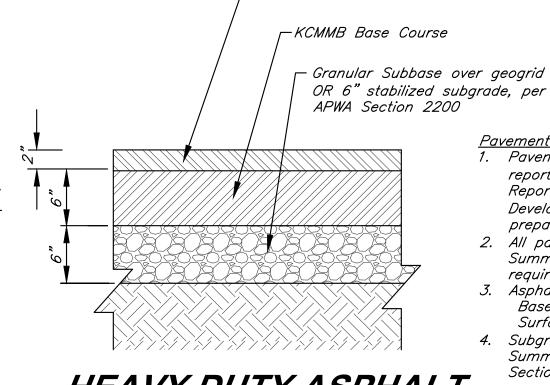
Granular Subbase over geogrid

OR 6" stabilized subgrade, per

APWA Section 2200

## HEAVY DUTY CONCRETE PAVEMENT SECTION Not To Scale

# HEAVY DUTY ASPHALT PAVEMENT SECTION



Not To Scale

Base: 1-01, 2-01 or 5-01 Surface: 2-01, 3-01 or 5-01 4. Subgrade stabilization shall be per Lee's Summit Standard Specifications - APWA Section 2200.

<u>Pavement Notes:</u>

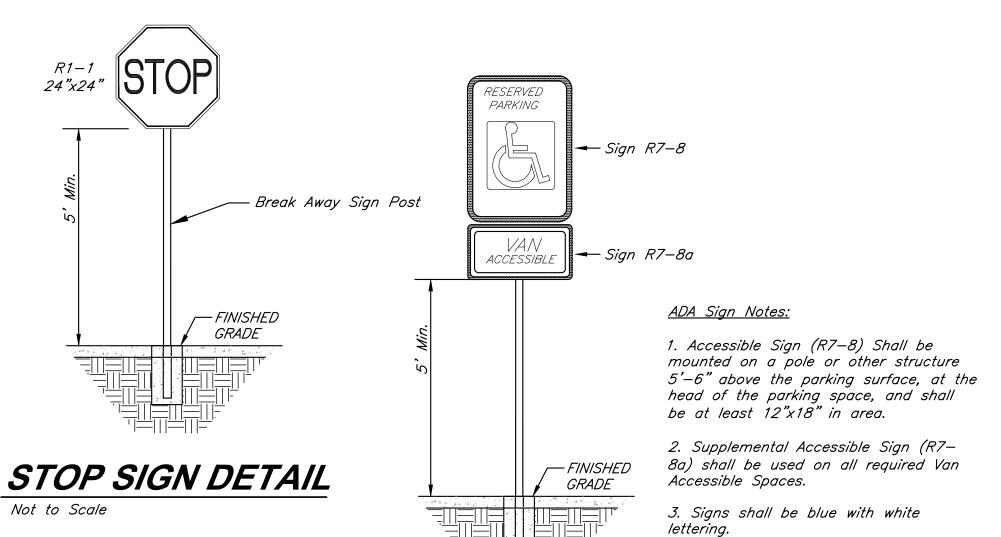
requirements.

LIGHT DUTY ASPHALT

PAVEMENT SECTION

-KCMMB Surface Course

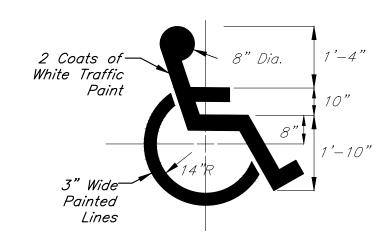
# Not To Scale



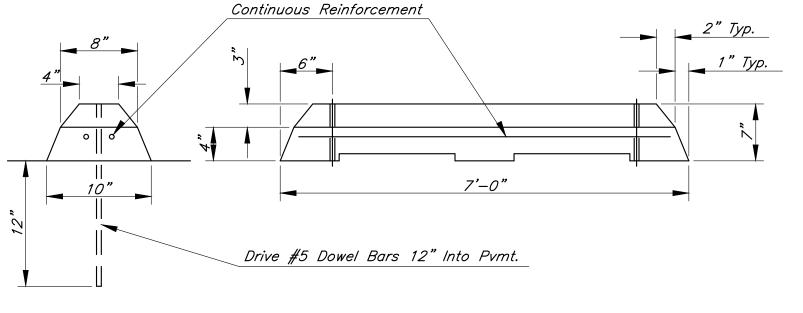
Not to Scale

Not To Scale

# TYPICAL ACCESSIBLE SIGNAGE

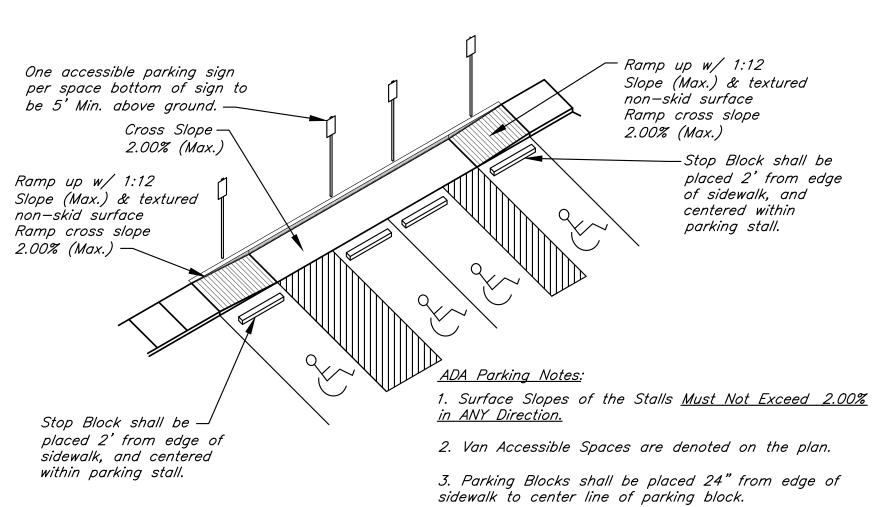


ACCESSIBLE PARKING SYMBOL DETAIL Not to Scale



## PRECAST CONCRETE STOP BLOCK

Not to Scale



# ADA PARKING DETAIL

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- KCMMB Surface Course

KCMMB Base Course

APWA Section 2200

1. Pavement sections from geotechnical report title "Geotechnical Engineering

Development", dated August 11, 2021,

prepared by Terracon Consultants, Inc.

2. All pavement shall meet City of Lee's

Report - Paragon Multi-Family

Summit UDO Section 8.620

3. Asphalt mix shall be APWA

Granular Subbase over geogrid

OR 6" stabilized subgrade, per

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Missouri Certificate of Authority # 000556 FINKLE + WILLIAMS Architecture

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PROJECT:

ge Villa 0 tar

aragon

3200

11/5/24 Revision 12/10/24 City Comments

PE-2018003126

DRAWING TITLE:

Construction Details

JOB NO: 18017, 19050,07, 19050,08 DATE: 08.12.2022 DRAWN BY: JRH

C020

-Aggregate per APWA Section 2203.3.A 10" aggregate APWA Section 2203.3.A –6" Perforated N–12 High Density Polyethylene Pipe (HDPE) Laid @ .50% Min. ADS Proplex— 401 Nonwoven

**UNDERDRAIN DETAIL** Not To Scale

**CONCRETE FLUME** Not To Scale

Section

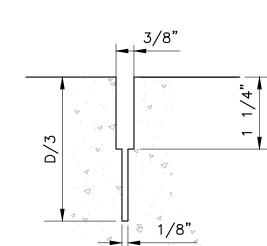
6"x6" w2.9xw2.9

Not to Scale

#### SIDEWALK NOTES:

- 1. All vertical form expansion and construction joints must fall in groove.
- 2. Joint spacing 4'-0" center to center or width of sidewalk.
- 3. Install 3/4" expansion joint where walk abuts junction of existing walk, concrete curb, driveways, and similar structures, and 250' centers maximum.
- 4. All Concrete in exterior site work shall be KCMMB 4K.
- 5. Key all construction joints.

#### SIDEWALK DETAILS Not to Scale



CONCRETE PAVEMENT JOINT NOTES:

recommendations.

6.  $d = Depth \ of \ Slab$ 

side of the joint.

placed within 3" of joint.

Specification TT-S1543.

1. All joints and saw cuts shall be sealed

2. Hot-Pour Sealants shall conform to ASTM D-3405. Material shall be applied in

accordance with the manufacturer's

3. Silicone joint sealing material shall be

4. Installation of Silicone Sealant shall be

Silicone Pavement Sealants" or per manufactures requirements of the

5. All Silicone Sealant materials shall be

manufacturer's recommendations.

approved equal silicone sealant to be

pressure machine applied in accordance with the appropriate sealing material

7. Dowel bars called out for lubrication shall

be lubricated every other bar on each

8. Reinforcement is not continuous through

9. Cold-applied Sealant shall be 3/8" below

surface and minimum 1/2" Thick.

joints. Woven Wire Fabric shall not be

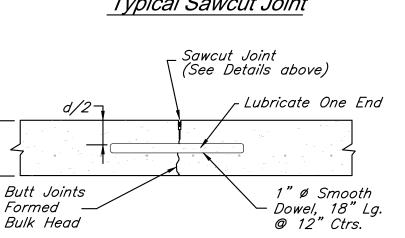
per "Installation Guide-Dow Corning Brand

cold-applied. Silicone component shall conform to requirement of Federal

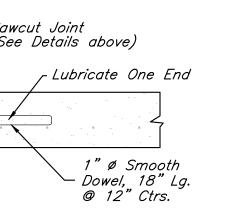
applied sealant per these plans.

using either a hot-pour sealant or a cold

- 1. The 1/8" Saw Cut (D/3 Depth) shall be done initially; the 3/8" saw cut shall be accomplished in a separate operation after the concrete has gained sufficient strength to avoid spalling.
- 2. D = Slab Thickness (Depth)



# Typical Sawcut Joint



#### Transverse Contraction Joint

## -Dow 888 Silicone Joint Sealant or approved equal w/ 1/8" Tooled Radius 1/2" Expan. — Joint Material Building

Typical Joint Sealant

Notes: Joints to be equally spaced

hereon. Maximum Joint Spacing shall

where not dimensioned as shown

be 12' Maximum in Either Direction

#### Typical Section Thickened Edge Isolation Joint At Building or Structure

(D) Depth x 6.0

Dow Corning 888 Cold Applied

Silicone Joint Sealant or Hot

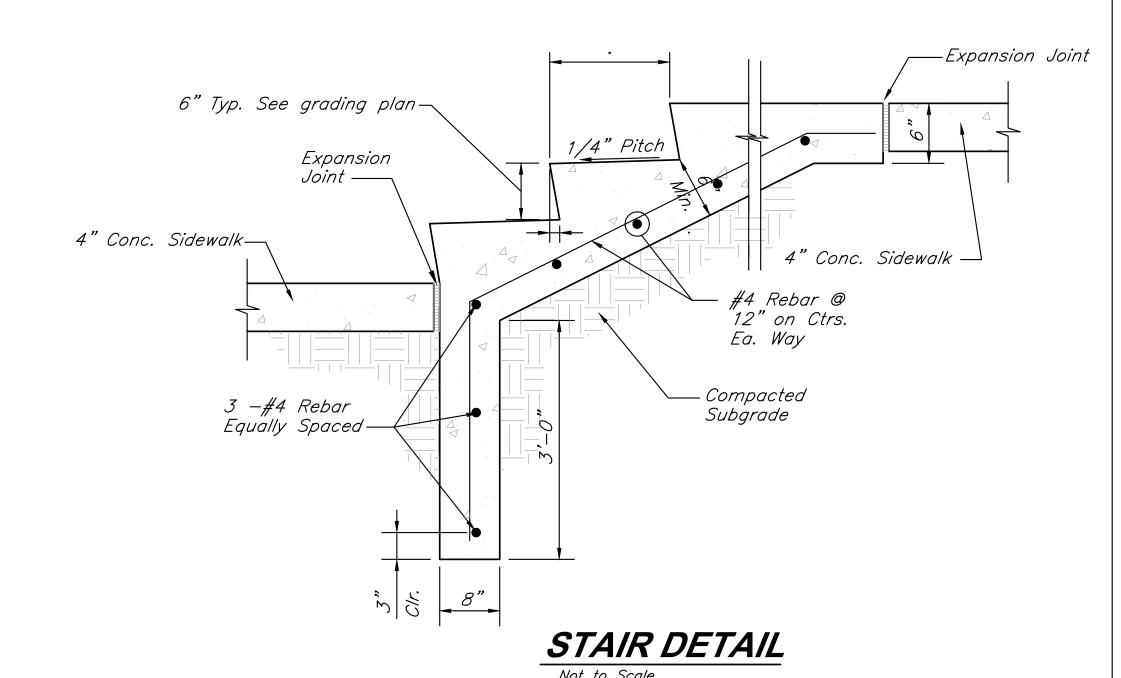
Pour sealant per ASTM-3405

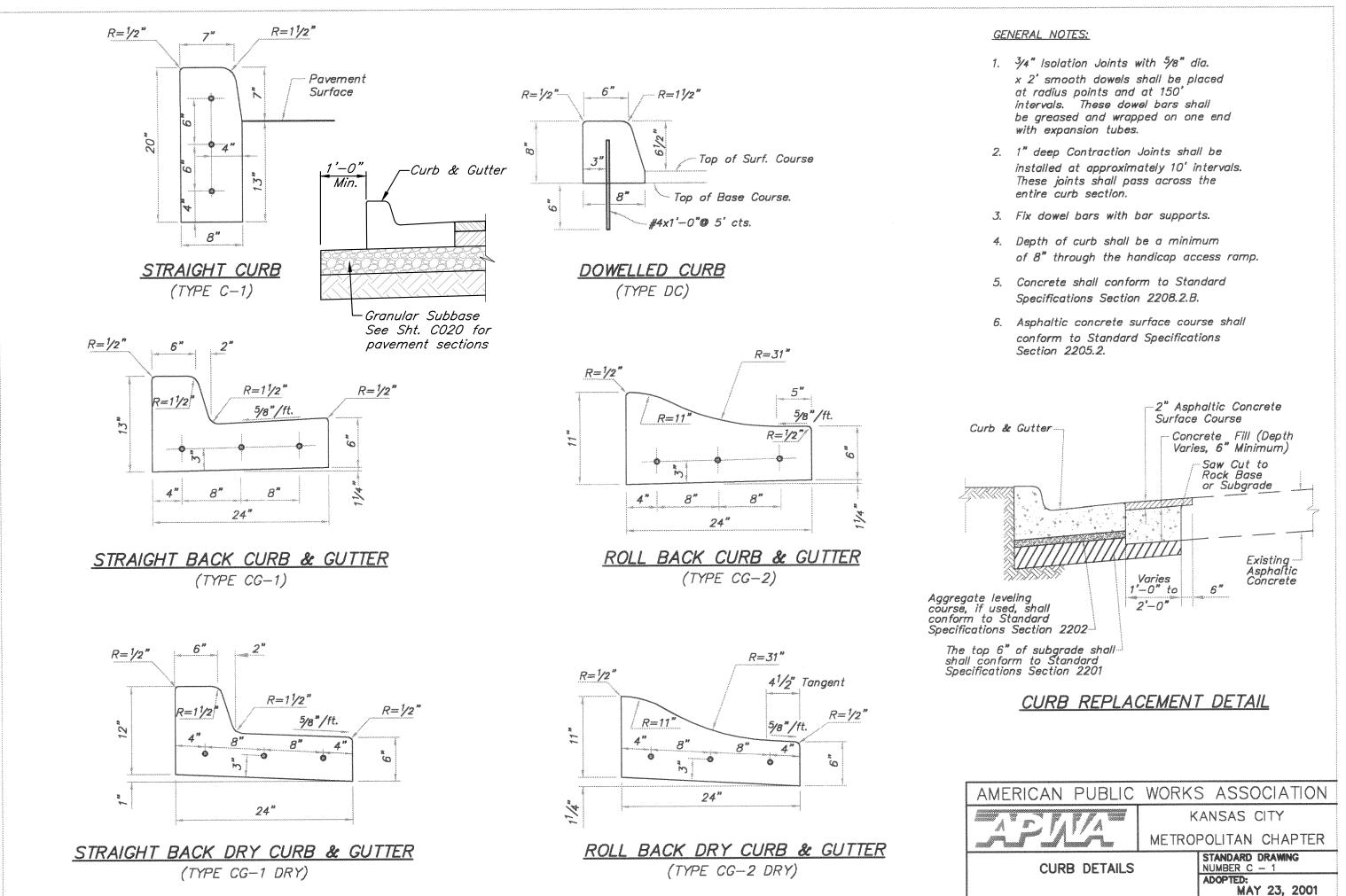
or approved equals.

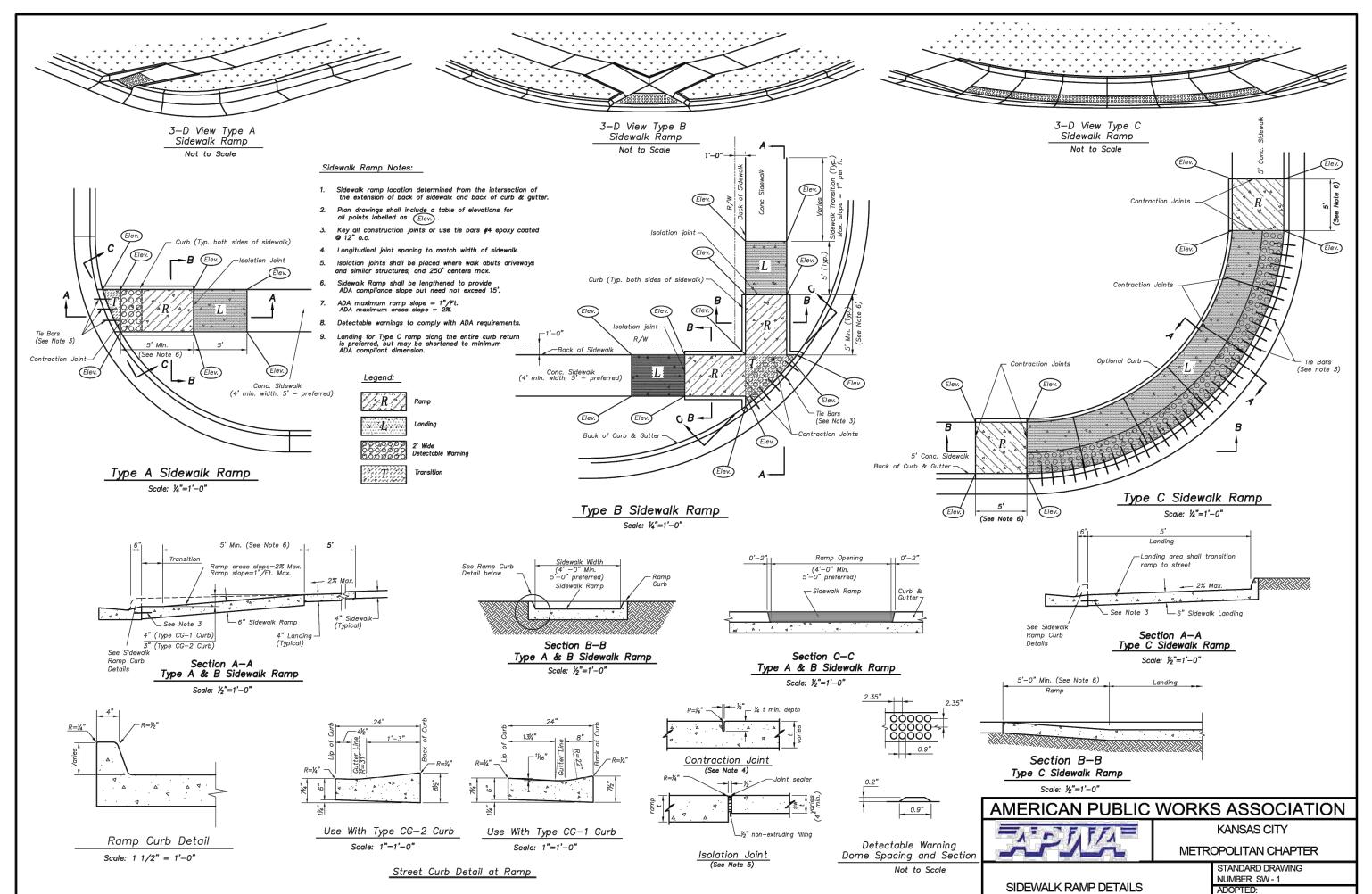
1<u>/2" Backer-rod</u>

# CONCRETE PAVEMENT JOINT DETAILS

Not to Scale







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12/10/24 City Comments

Construction

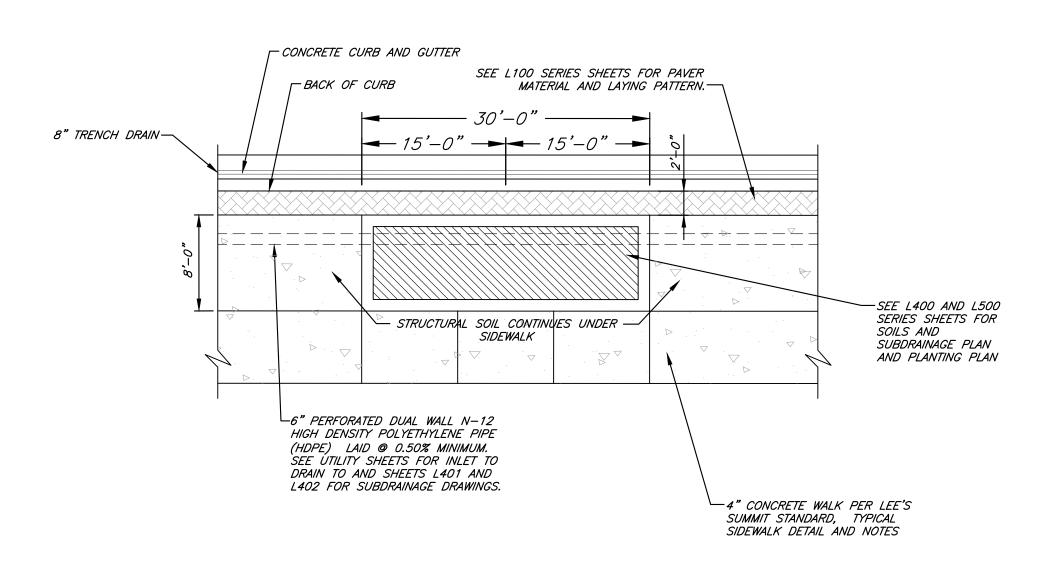
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DECEMBER 18, 2002

JOB NO: 18017, 19050.07, 19050.08 DATE: 08.12.2022 DRAWN BY: JRH

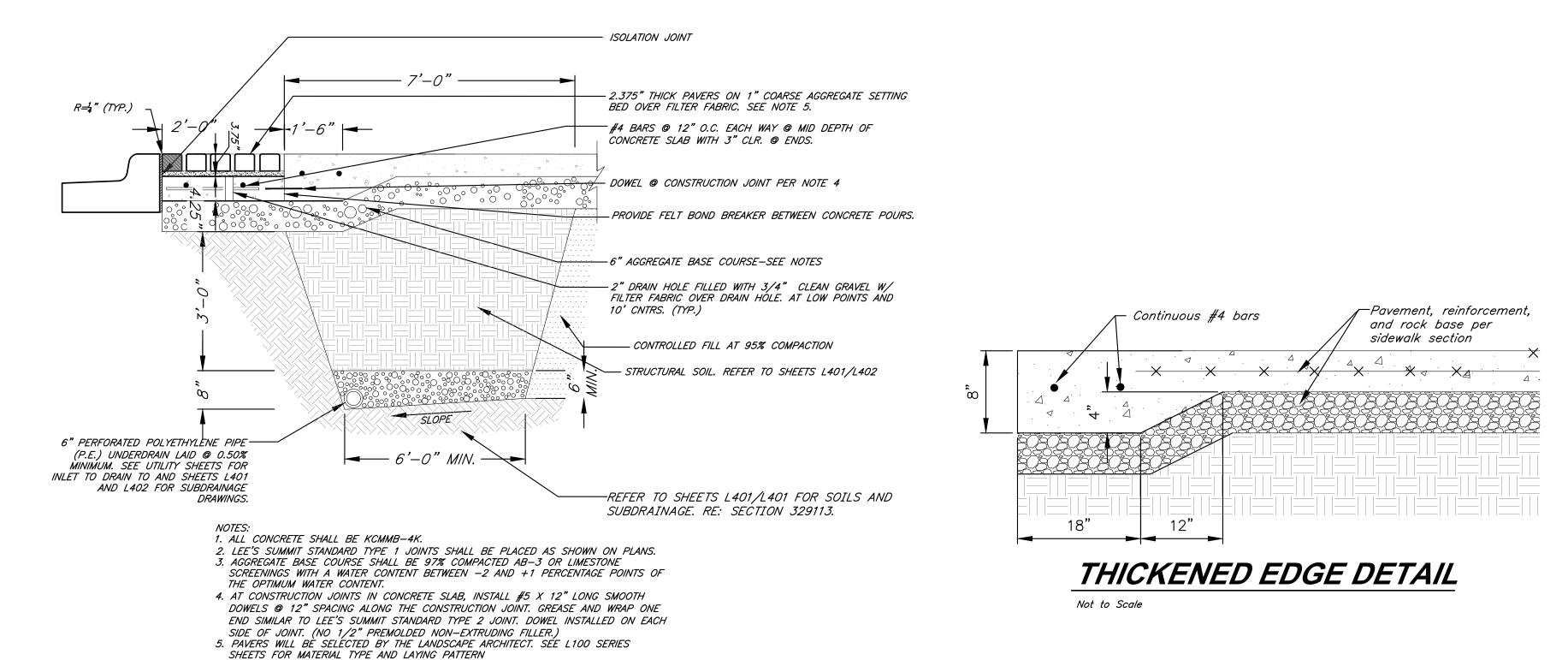
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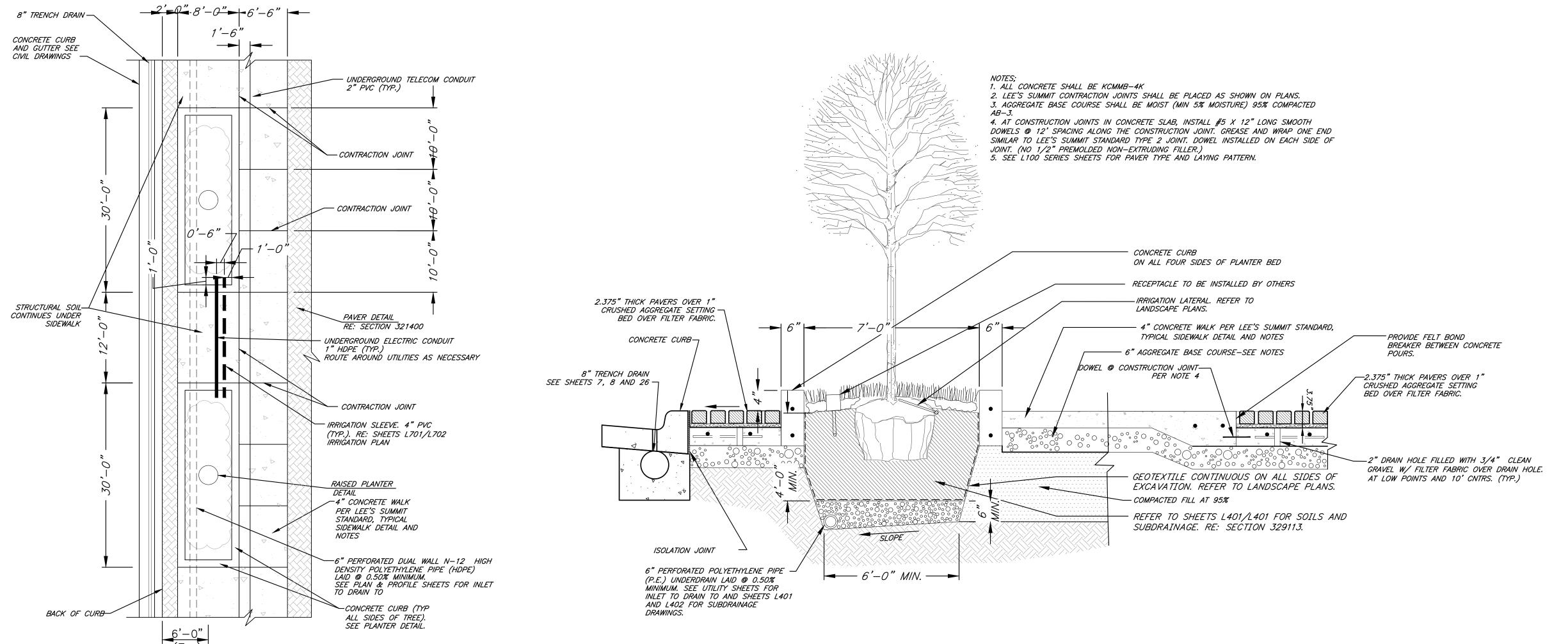


Not to Scale

RAISED PLANTER PLAN



# AMENITY ZONE PAVER DETAIL



TYPICAL SIDEWALK LAYOUT Not to Scale

TREE PLANTER DETAIL Not to Scale

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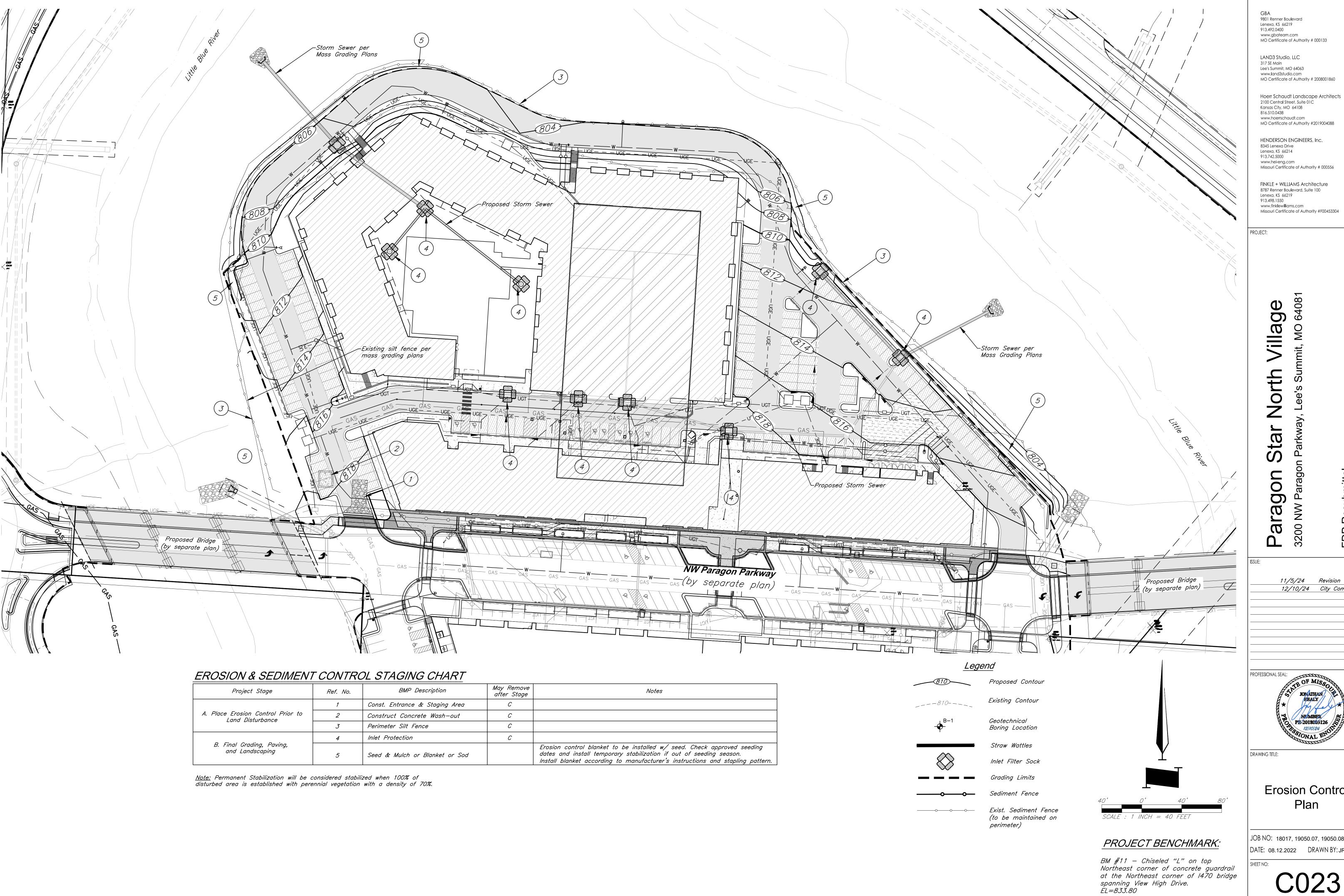
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11/5/24	Revision
12/10/24	City Comments

PROFESSIONAL SEAL:

DRAWING TITLE:

Streetscape Details



11/5/24 Revision 12/10/24 City Comments

**Erosion Control** 

JOB NO: 18017, 19050.07, 19050.08 DATE: 08.12.2022 DRAWN BY: JRH

#### EROSION AND SEDIMENT CONTROL NOTES

The layout of erosion control best management practices (BMPs) shown on the engineering plans is intended to control erosion and minimize, if not eliminate, the transport of sediment from the disturbed areas. The Contractor shall be responsible for the evaluation of existing surface drainage patterns and for making adjustments to the BMP locations to best control erosion and minimize, if not eliminate, the transport of sediment from the disturbed areas. The following are measures to achieve the control of erosion and sediment.

- 1. Stabilization Practices Stabilization practices are very effective at preventing erosion by shielding the soil surface from the impact of rain, slowing the velocity of runoff, holding soils in place, and increasing infiltration of runoff and allowing the soil to absorb more rainfall.
  - a. Temporary Seeding Stabilization During acceptable growing periods (see Table 1 below); temporary seeding of annual vegetation with a straw mulch cover shall be used as a temporary cover until permanent vegetation is established. If there is a possibility that a vegetative cover will be required to control erosion for more than 1 year, then consider the addition of a perennial/permanent grass species as part of a seeding mixture.

Table 1. Temporary Seeding Dates and Minimum Application Rates

Seeding Dates	Temporary Seed Species	Minimum Application Rates (pure live seed lbs. per acre)	Straw Mulch (tons per acre)
Jan. 1 – Jan. 31	None	Not Applicable	2.5
Feb. 1 - May 31	Annual Ryegrass	<i>120</i>	1.5
June 1 - Aug.4	None	Not Applicable	<i>2.5</i>
Aug. 15 - Nov. 15	Cereal/Winter Rye	120	1.5
Nov. 16 - Dec. 31	None	Not Applicable	2.5

Seedbed Preparation — For broadcast seeding or drilling, loosen soil to depth of 3 inches. For no till drilling, loosen soil if it is compacted. Loosen compacted, hard or crusted soil surfaces with a disk, ripper, chisel, harrow or other tillage equipment. Avoid preparing the seedbed under excessively wet conditions. For establishment and long—term growth, apply a complete fertilizer at rates recommended by soil tests or as specified in plans and specifications. If soil pH is less than 6.0, apply lime according to soil tests. Incorporate necessary lime and fertilizer to a depth of 3 to 6 inches of soil.

Installation — For the best results use certified seed. Apply seed uniformly using a cyclone seeder, drop—type spreader, drill, cultipacker seeder or hydroseeder. When using a drill seeder, plant rye or other grains about 1 inch deep and plant grasses no more than ½ inch. A vegetative straw mulch cover shall be applied over the seed mixture to help germinate and establish plant cover, control weeds, and protect seed mixture against temperature extremes. Follow straw mulch preparation and application procedures described herein.

b. Temporary Mulch Stabilization — During non—growing periods, a straw mulch cover shall be applied in unseeded areas to protect against erosion until temporary or permanent vegetation is established.

Site Preparation — Divert runoff water from areas above the site that will be mulched. Remove stumps, roots and other debris from the construction area. Grade area as needed to permit the use of equipment for seeding, mulching and maintenance. Shape area so that it is relatively smooth.

Application — Spread straw mulch uniformly over the area with a power blower, hydroseeder, or by hand. No more than 25% of the ground surface should be visible after spreading. Apply straw mulch at a rate of 1.5 tons per acre as a seed cover or 2.5 tons per acre as a stand alone cover. The straw should be dry, unchopped, unweathered; free of weed seeds and rot. In areas of steep slopes or high winds, or in critical areas such as swales, mulching may need to be secured to the ground with a binder, netting, or tacking.

c. Permanent Seeding Stabilization — All disturbed areas shall be permanently seeded with a cool season grass mixture as specified in the Standards and Specifications of the City of Lee's Summit, Missouri.

Seedbed Preparation — loosen soil to depth of 3 inches. For no till drilling, loosen soil if it is compacted. Loosen compacted, hard or crusted soil surfaces with a disk, ripper, chisel, harrow or other tillage equipment. Avoid preparing the seedbed under excessively wet conditions. For establishment and long—term growth, apply a complete fertilizer at rates recommended by soil tests or as specified in plans and specifications. If soil pH is less than 6.0, apply lime according to soil tests. Incorporate necessary lime and fertilizer to a depth of 3 to 6 inches of soil.

Installation — For the best results use certified seed. Apply seed uniformly using a hydroseeder. A vegetative straw mulch cover shall be applied over the seed mixture to help germinate and establish plant cover, control weeds, and protect seed mixture against temperature extremes. Follow straw mulch preparation and application procedures described in the Standards and Specifications of the City of Lee's Summit, Missouri.

#### 2. Structural Practices

a. Silt Fence — A temporary sediment barrier consisting of a geotextile fabric shall be installed as shown on the attached engineering plans and details. Silt fencing shall be installed to maintain sediment onsite.

#### Minimum Requirements:

Location — Fence should be built on a nearly level grade and at least 10 feet from the toe of the slope to provide a broad shallow sediment pool. Install on the contour, where fence can intercept runoff as a sheet flow; not located crossing channels, waterways or other concentrated flow paths; not attached to existing trees.

Spacing of Support Posts — 10 feet maximum for fence supported by wire; 6 feet maximum for high strength fabric without supportive wire backing. Support posts should be driven into the ground a minimum of 10 inches deep.

Trench - Bottom 1 foot of fence must be buried minimum of 4 inches deep.

- b. Inlet Protection When installation of the storm drainage system is complete, gravel curb inlet sediment traps will be placed at the drainage system inlets. Construction shall be in accordance with attached engineering plans and details.
- c. Stockpiles The toe of stockpiles shall be placed a minimum of 10 feet from erosion control measures. If stockpiles are to remain for more than 14 days, they shall be temporarily stabilized with vegetative mulch and temporary seeding.
- 3. Maintenance The contractor shall repair all erosion control measures or re—seed areas that are disturbed or damaged as a result of weather or other situations, within 2 days after the occurrence. This will include all areas bare of vegetation.

#### EROSION CONTROL GENERAL NOTES

- 1. The Contractor is responsible for erosion control during construction and until the Owner and City accepts the work as complete. The erosion control measures shown on this plan are a typical minimum installation. The Contractor shall be responsible for adjusting or adding to these measures as necessary during the phasing of the construction to assure adequate control.
- 2. Clearing and grubbing within 50' of a defined drainage course should be avoided when possible. Where changes to a defined drainage course occur, work should be delayed until all materials and equipment necessary to protect and complete the drainage change are on site. Changes shall be completed as quickly as possible once the work has been initiated. The area impacted by the construction activities shall be revegetated or protected from erosion as soon as possible, areas within 50' of a defined drainage ways should be recontoured as needed or otherwise protected within five (5) working days after grading has ceased.
- 3. Where soil disturbing activities cease in an area for more than 14 days, the disturbed areas shall be protected from erosion by stabilizing the area with mulch or other similarly effective erosion control measures. If the slope of the area is greater than 3:1 or if the slope is greater than 3% and greater than 150 feet in length, then the disturbed areas shall be protected from erosion by stabilizing the area with mulch or other similarly effective erosion control measures if activities cease for more than seven (7) days.
- 4. Existing vegetation shall be preserved to the extent and where practical. In no case shall disturbed areas remain without vegetative ground cover for a period in excess of 60 days.
- 5. Additional site management practices which shall be adhered to during the construction process shall include:

—Solid and hazardous waste management including providing trash containers and regular site clean up for proper disposal of solid waste such as building and construction material, product/material shipping waste, food containers and cups, and providing containers for the proper disposal of waste paints solvents, and cleaning compounds.

-Provisions of portable toilets for proper disposal of sanitary sewage.

-Storage of construction materials away from drainage courses and low areas.

-Installation of containment berms and use of drip pans at petroleum product and liquid storage tanks and containers.

6. All disturbed areas shall be seeded, fertilized and mulched, or sodded, in accordance with the Standards and Specifications adopted by the City of Lee's Summit, Missouri and good engineering

practices. This shall be completed within fourteen (14) days after completing the work, in any area. If this is outside of the seeding period, silt barriers or other similarly effective measures shall be provided until such time that the areas can be seeded.

- 7. All erosion control measures, temporary or permanent, require maintenance to preserve their effectiveness. All erosion control devices shall be inspected immediately after each heavy rainstorm and at least daily during prolonged rainfall. Any required repairs should be made immediately. All costs associated with the repair work including related incidentals will be the contractor's responsibility and shall be included in the Contractor's bid for the proposed work. Only after the project is complete and accepted can the erosion control be removed.
- 8. Seeding shall be done before the proposed seedbed becomes eroded, crusted over, or dried out and shall not be done when the ground is frozen, or covered with snow. The seed shall comply with requirements of the Missouri Seed Law and the Federal Seed Act. Also, it shall contain no seed of any plant on the Federal Noxious Weed List. Other weed seed shall not exceed one percent by weight of mix.
- 9. During the dates Dec. 15 through May 30 ALL lime, fertilizer, seed, and mulch shall be applied to finished slopes of disturbed areas. During the months of June, July, October, and November 1st through December 15th, lime, fertilizer, seed, and mulch shall be applied at the following rates:

Lime — 100% of the specified quantity
Fertilizer — 75% of the specified quantity
Seed — 50% of the specified quantity
Mulch — 100% of the specified quantity

10. Mulch shall be Vegetative type, cereal straw form stalks of oats, rye, or barley, or approved equal. The straw shall be free of prohibited weed seed and relatively free of all other noxious and undesirable seed. Apply straw mulch at a rate of 1.5 tons per acre as a seed cover or 2.5 tons per acre as a stand alone cover. Mulch shall be embedded by a mulch anchoring tool or disk type roller having flat serrated disks spaced not more than 10 inches apart and cleaning scrapers shall be provided.

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PROJECT:

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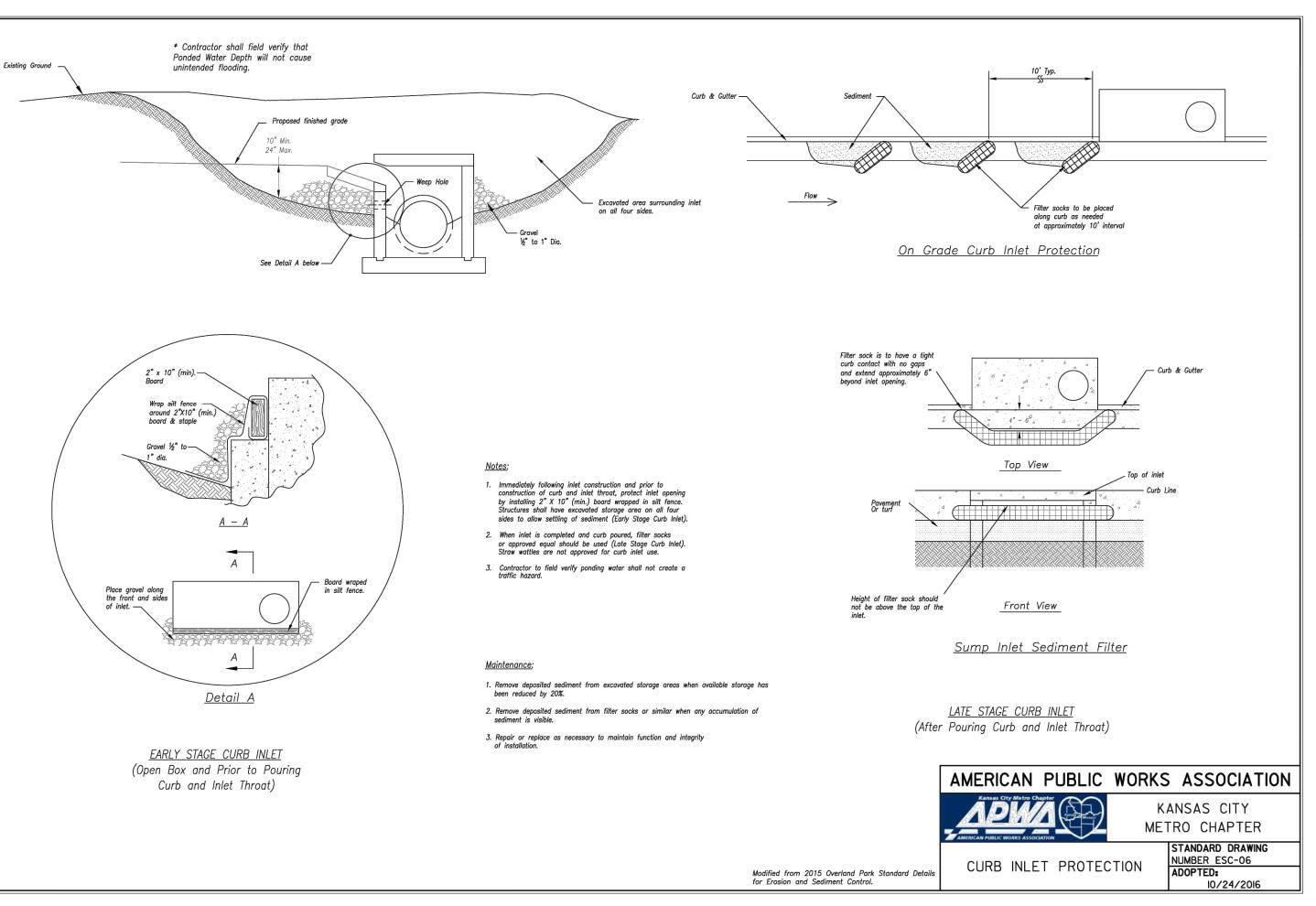
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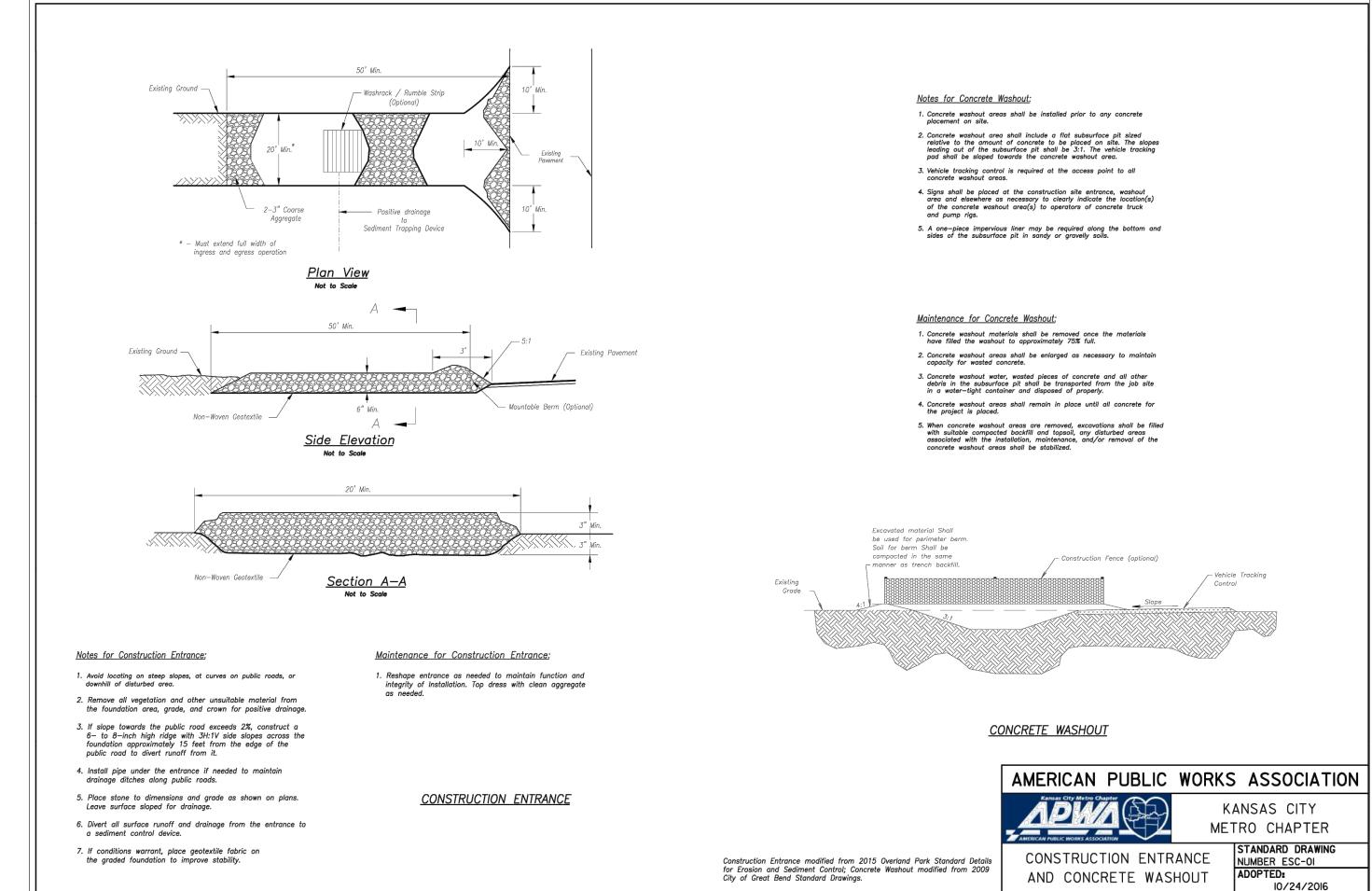
Erosion Control Notes

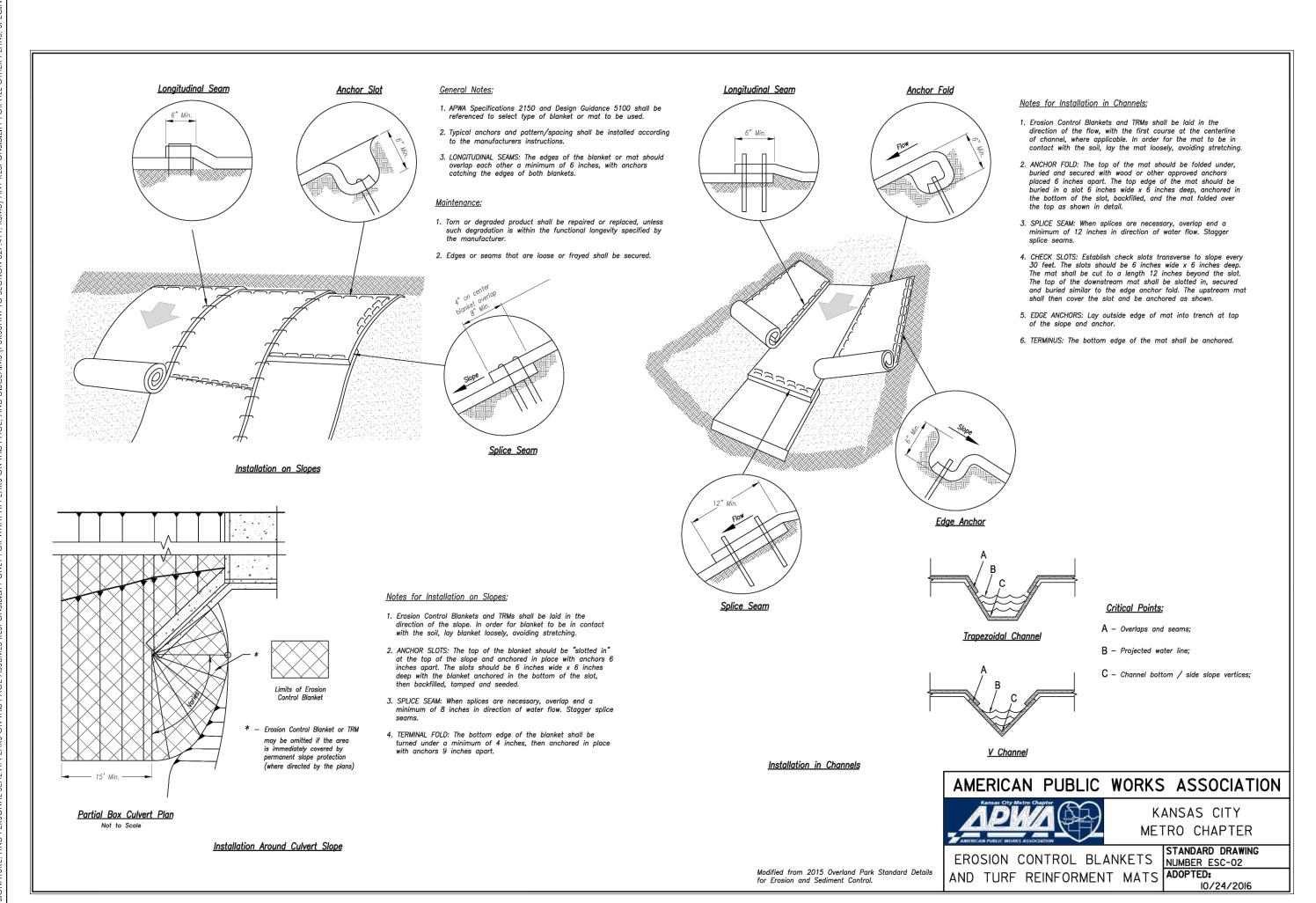
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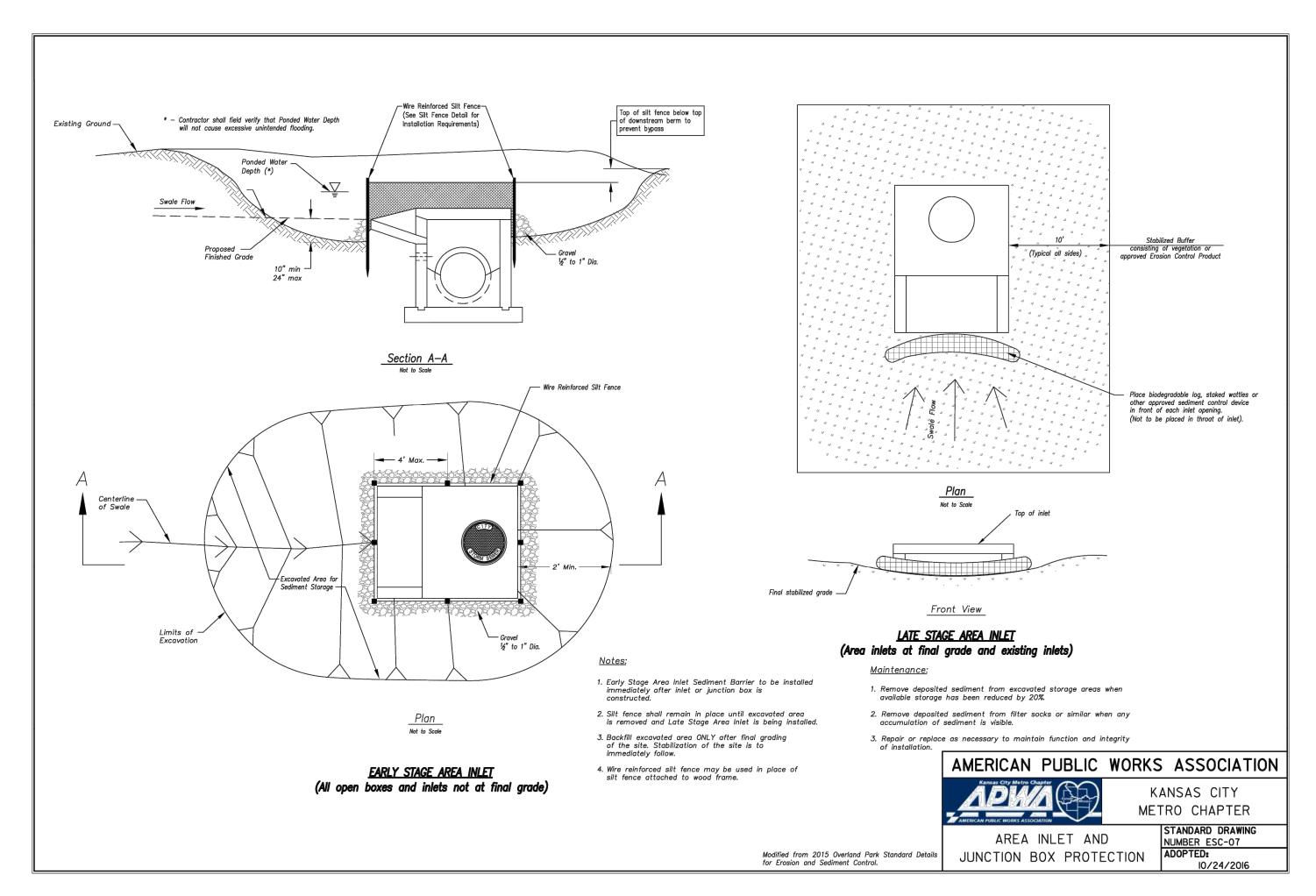
DATE: 08.12.2022 DRAWN BY: JRH

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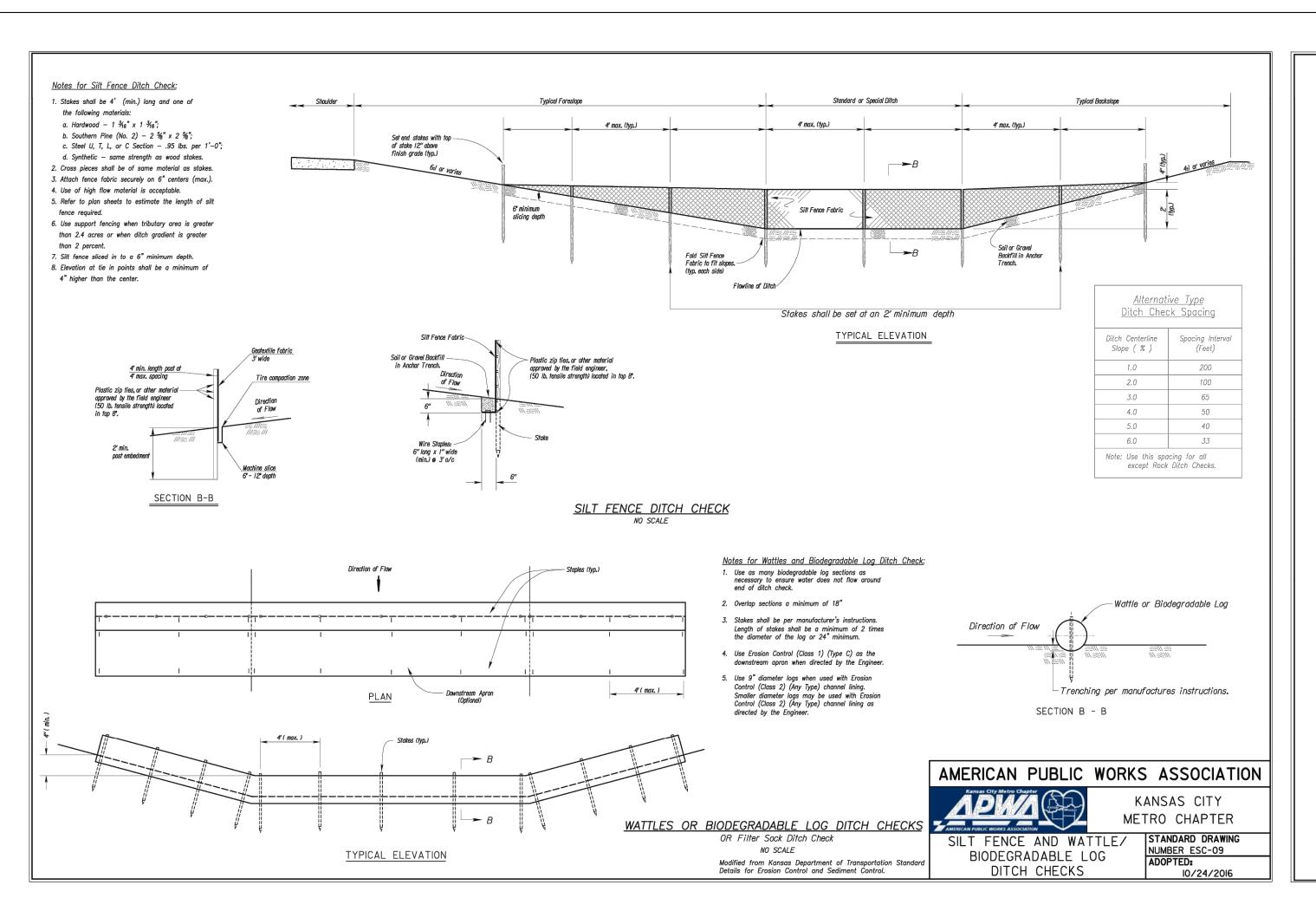
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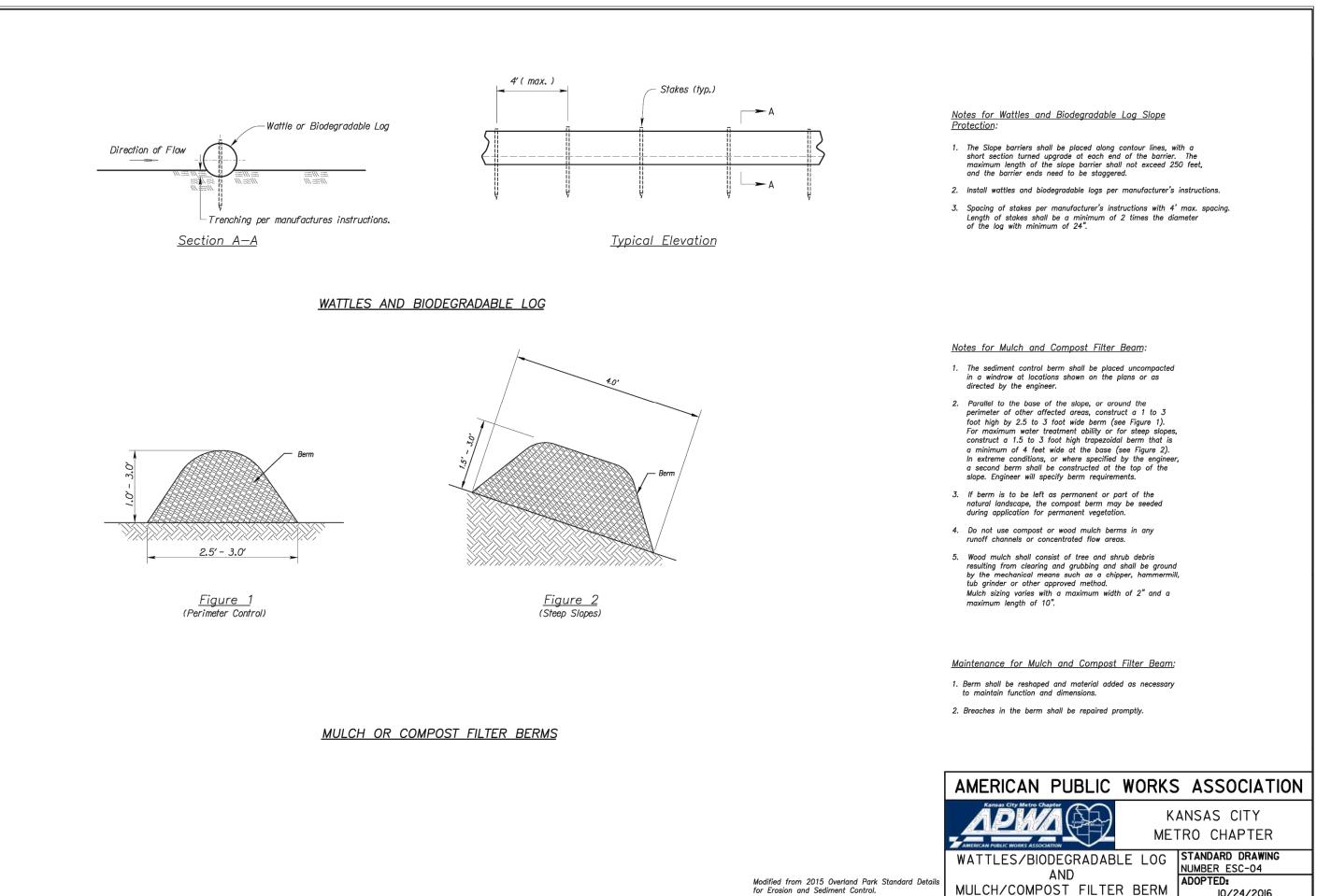
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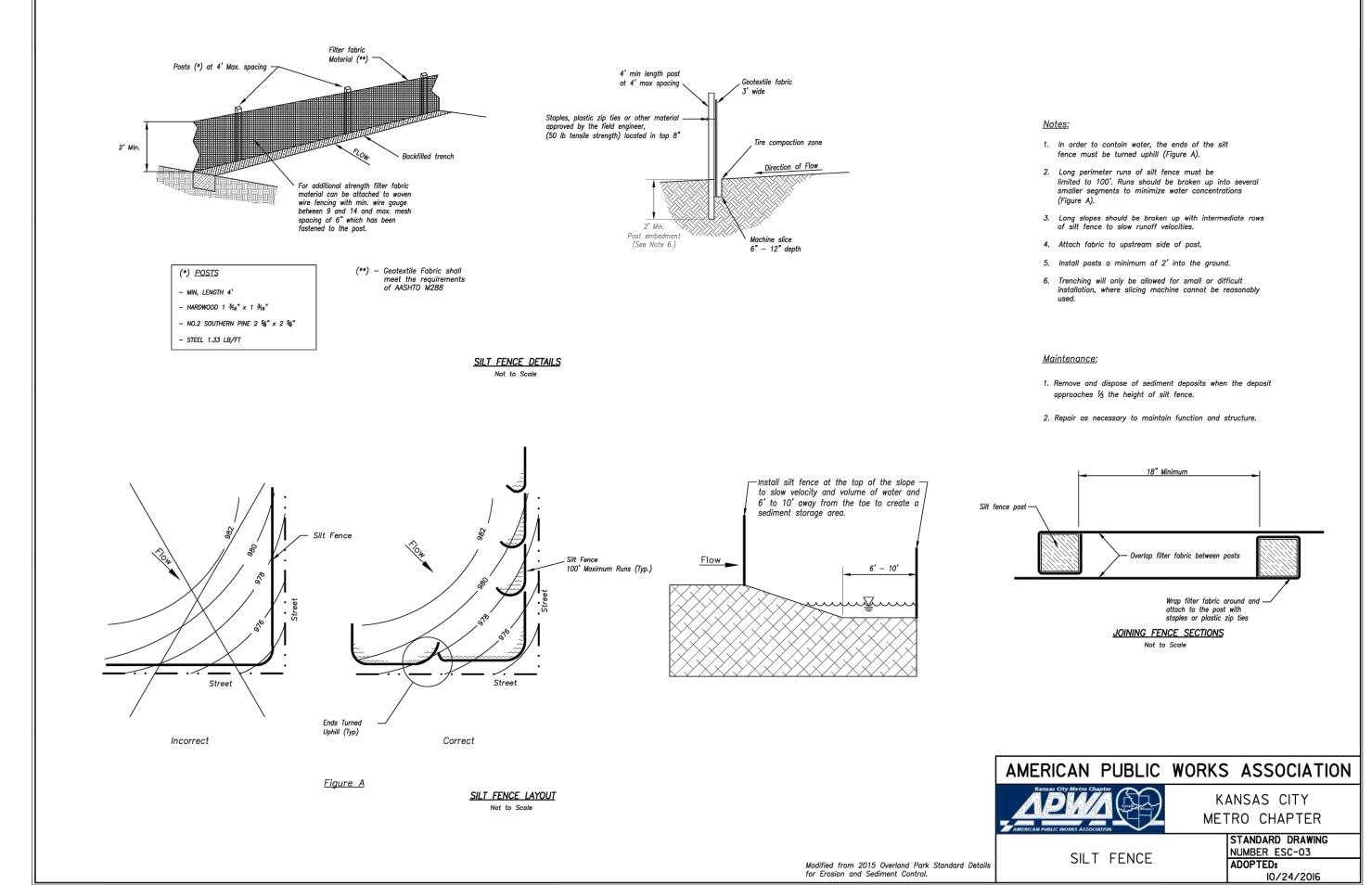
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**Erosion Control Details** 







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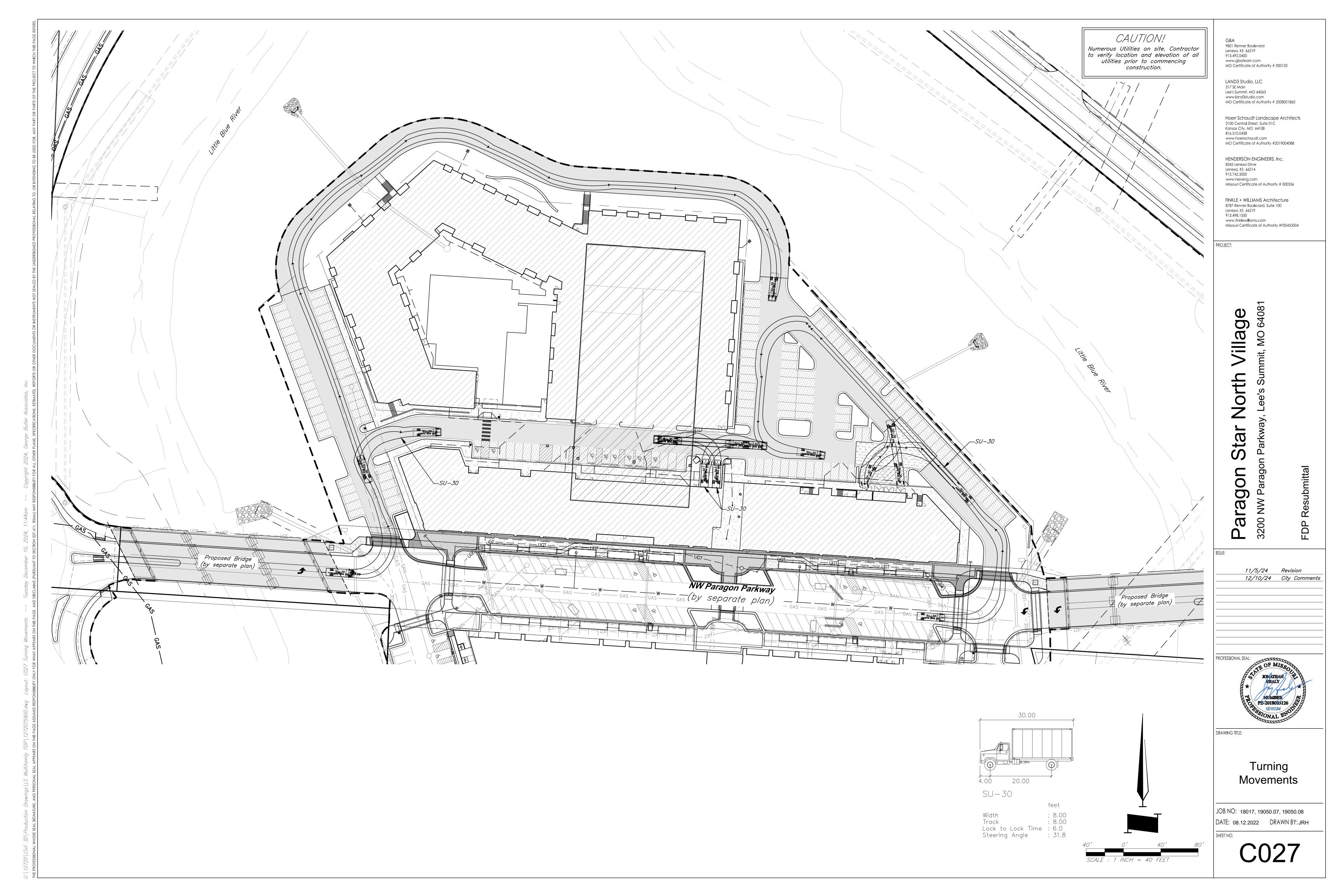
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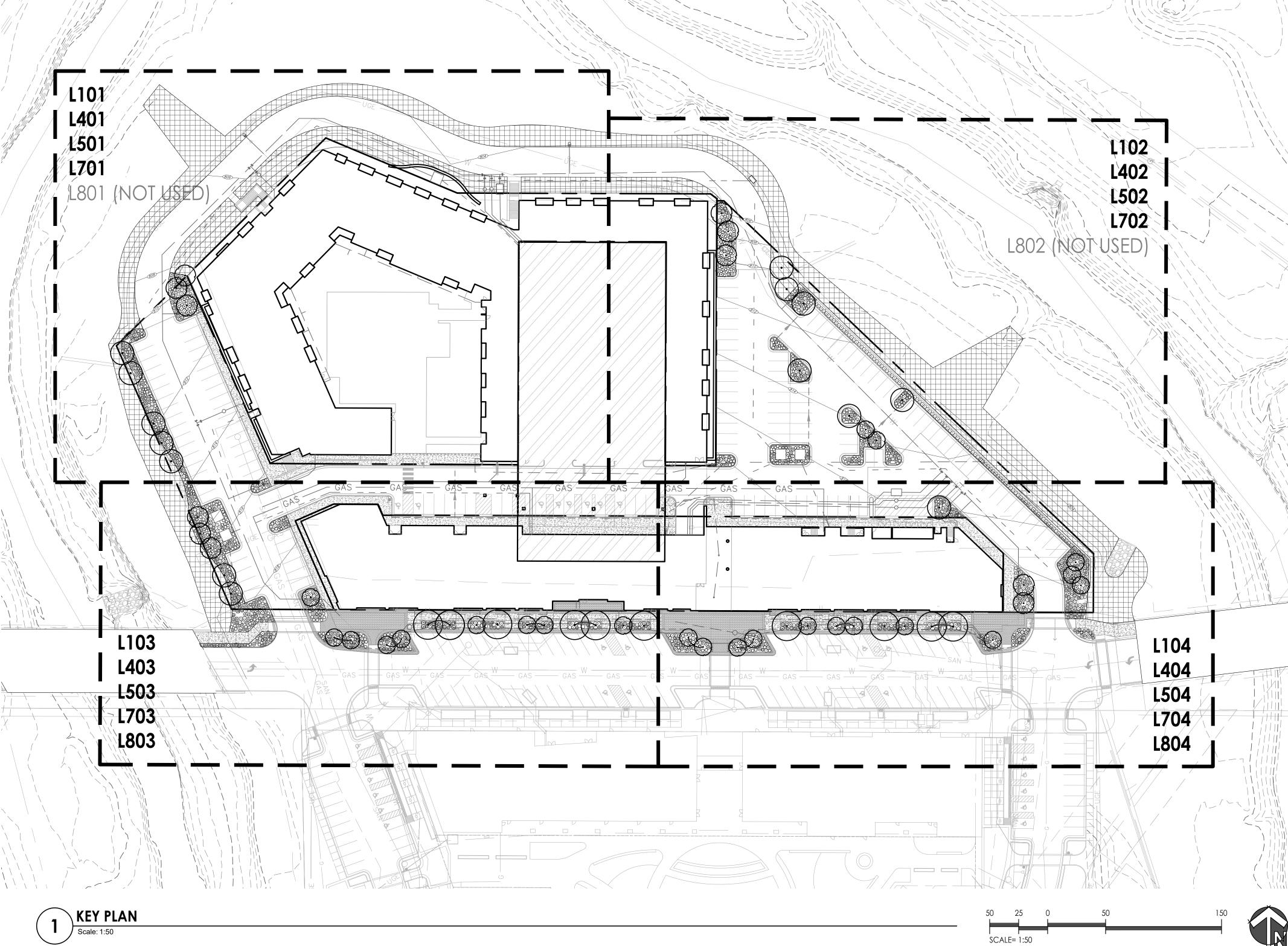
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PROFESSIONAL SEAL:

DRAWING TITLE:

**Erosion Control** Details





LANDSCAPE REQUIREMENTS - Paragon Star North Village Final Development Plan

street frontage

One (1) tree shall be planted for each 30lf of

Any parking or laoding visible from a street

One (1) shrub shall be provided for each 20ft

Provide two (2) shrubs per 5,000 square feet of

All portions of the site not covered with paving

In addition to trees required based upon street

frontage, provide one (1) tree for every 5,000

Landscape islands, strips or other planting

areas shall constitute 5% of the entire area

Landscape island shall be located at the end of

every parking bay. The island shall be planted

Tree planting areas shall be no less than ten

feet in width. No tree shall be located less than Northeast and West

in trees, shrubs, grass, or ground cover.

four feet from the back of curb.

or buildings shall be landscaped.

buildings/structures.

driveways.

square feet of lot area not covered by

devoted to parking spaces, aisles and

total lot area excluding building footprint area. North Village Lot

shall be separated with a 20 ft wide landscape

Location

Paragon Parkway

East & West Ends of

Paragon Parkway

Paragon Parkway

North Village Lot

North Village Lot

Northeast Parking

West Parking Lot

Northeast and West

Parking Lots

Required

25 Trees

20 FT

25 Shrubs

48 Shrubs

24 Trees

2117 SF

1116 SF

743 LF

743 LF

120683 SF

N/A

120683 SF

42346 SF

22310 SF

N/A

N/A

Provided

20 FT

2538 SF

1368 SF

Additional Notes

236,554 SF of lot area

236,554 SF of lot area

115,871 SF building footprint

Refer to site landscape beds

115,871 SF building footprint

Refer to site landscape beds

Refer to site landscape beds

Trees part of streetscape designs

Provided as part of streetscape design

CITY: LEE'S SUMMIT, MISSOURI

8.790.A.1 Street Frontage

8.790.A.2 Street Frontage

8.790.A.3 Street Frontage

8.790.B.1 Open Yard Areas

8.790.B.2 Open Yard Areas

8.790.B.3 Open Yard Areas

8.810.A Parking Lot

8.810.B Parking Lot

8.810.C Parking Lot

Landscaping & Trees

Landscaping & Trees

Landscaping & Trees

Green Strip

#### **GENERAL NOTES**

ALL SITE AND UTILITY INFORMATION SHOWN IS BASED UPON INFORMATION AVAILABLE AT THE TIME OF DESIGN. VERIFY ALL SITE CONDITIONS, ELEVATIONS, UTILITY LOCATIONS AND DIMENSIONS INCLUDING NEW IMPROVEMENTS PRIOR TO COMMENCEMENT OF WORK. NOTIFY OWNER REPRESENTATIVE OF ANY DISCREPANCIES OR IRREGULAR CONDITIONS. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES BY CONTACTING ALL OF THE RESPECTIVE UTILITY COMPANIES AND/ OR THE LOCAL "ONE-CALL"/"CALL-BEFORE-YOU-DIG" SYSTEM AND BY EXCAVATING TEST PITS IF

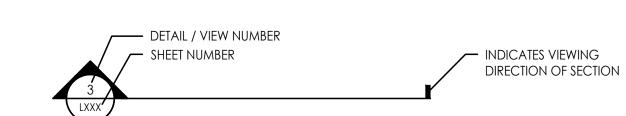
2. ALL DIMENSIONS SHOWN ARE REPRESENTED USING U.S. SURVEY DIMENSION STANDARDS.

#### **COMMON ABBREVIATIONS**

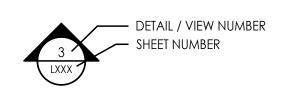
APPROX	APPROXIMATE	MH	MANHOLE
ARCH	ARCHITECT	MIN	MINIMUM
AVG	AVERAGE	MISC	MISCELLANEOUS
B&B	BALLED AND BURLAPPED	Ν	NORTH
ВС	BOTTOM OF CURB	NIC	NOT IN CONTRACT
BLDG	BUILDING	NO	NUMBER
BM	BENCHMARK	NOM	NOMINAL
BOC	BACK OF CURB	NTS	NOT TO SCALE
BW	BOTTOM OF WALL	OC	ON CENTER
CAL	CALIPER	OD	OUTSIDE DIAMETER
CB	CATCH BASIN	PC	POINT OF CURVATURE
CF	CUBIC FEET	PE	POLYURETHANE
CIP	CAST IN PLACE	PERF	PERFORATED
CL	CENTERLINE	PI	POINT OF INTERSECTION
CLR	CLEAR, CLEARANCE	PL	PROPERTY LINE
CJ	CONTROL JOINT	PT	POINT, POINT OF TANGEN
CM	CENTIMETER	PVC	POLYVINYL CHLORIDE
CO	CLEAN OUT	QTY	QUANTITY
CONT	CONTINUOUS	R	RADIUS
CY	CUBIC YARD	RE	REFERENCE, REFER TO
DEG	DEGREE	REINF	REINFORCED
DEMO	DEMOLISH, DEMOLITION	REQ'D	REQUIRED
DIA	DIAMETER	REV	REVISION, REVISED
DIM	DIMENSION	ROW	RIGHT OF WAY
DTL	DETAIL	S	SOUTH
DWG	DRAWING	SAN	SANITARY
E	EAST	SEC	SECTION
EA	EACH	SF	SQUARE FOOT (FEET)
EJ	EXPANSION JOINT	SHT	SHEET
EL	ELEVATION	SIM	SIMILAR
ENG	ENGINEER	SPECS	SPECIFICATIONS
EQ	EQUAL	STM	STORM SEWER
EST	ESTIMATE	SY	SQUARE YARD
E.W.	EACH WAY	STA	STATION
EXIST	EXISTING	STD	STANDARD
EXP	EXPANSION, EXPOSED	SYM	SYMMETRICAL
FFE	FINISHED FLOOR ELEVATION	T&B	TOP AND BOTTOM
FG	FINISHED GRADE	TBC	TOP OF BACK CURB
FL	FLOW LINE	TC	TOP OF CURB
FT	FOOT (FEET)	TF	TOP OF FOOTING
FTG	FOOTING	TH	THICK
GA	GAUGE	TOPO	TOPOGRAPHY
GEN	GENERAL	TW	TOP OF WALL
GR	GRADE ELEVATION	TYP	TYPICAL
HDPE	HIGH-DENSITY POLYURETHANE	VAR	VARIES
HORIZ	HORIZONTAL	VOL	VOLUME
HP	HIGH POINT	W/	WITH
HT	HEIGHT	W/O	WITHOUT
ID	INSIDE DIAMETER	WT	WEIGHT
INV	INVERT ELEVATION	WL	WATER LEVEL
IN	INCH(ES)	WWF	WELDED WIRE FABRIC
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	INCLUDE(D)		
JT LF	JOINT LINEAR FEET	@	AT

## SYMBOLS LEGEND

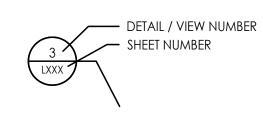
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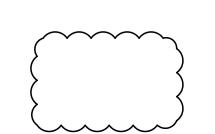
SECTION / DETAIL REFERENCE



**ELEVATION REFERENCE** 



DETAIL REFERENCE



REVISION CLOUD

**REVISION TAG** 

DRAWING TITLE:

PROFESSIONAL SEAL:

CIVIL ENGINEERING

9801 Renner Boulevard Lenexa, KS 66219

LAND3 Studio, LLC

Lee's Summit, MO 64063

www.land3studio.com

MO Certificate of Authority # 000133 LANDSCAPE ARCHITECTURE

MO Certificate of Authority # 2008001860

Hoerr Schaudt Landscape Architects

MO Certificate of Authority #2019004088

Missouri Certificate of Authority # 000556

FINKLE + WILLIAMS Architecture 8787 Renner Boulevard, Suite 100

Missouri Certificate of Authority #F00453304

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LANDSCAPE ARCHITECTURE

2100 Central Street, Suite 01C

Kansas City, MO 64108

MEP ENGINEERING HENDERSON ENGINEERS, Inc.

8345 Lenexa Drive

Lenexa, KS 66214 913.742.5000

www.hei-eng.com

ARCHITECTURE

Lenexa, KS 66219 913.498.1550 www.finklewilliams.com

816.510.0438 www.hoerrschaudt.com

913.492.0400 www.gbateam.com

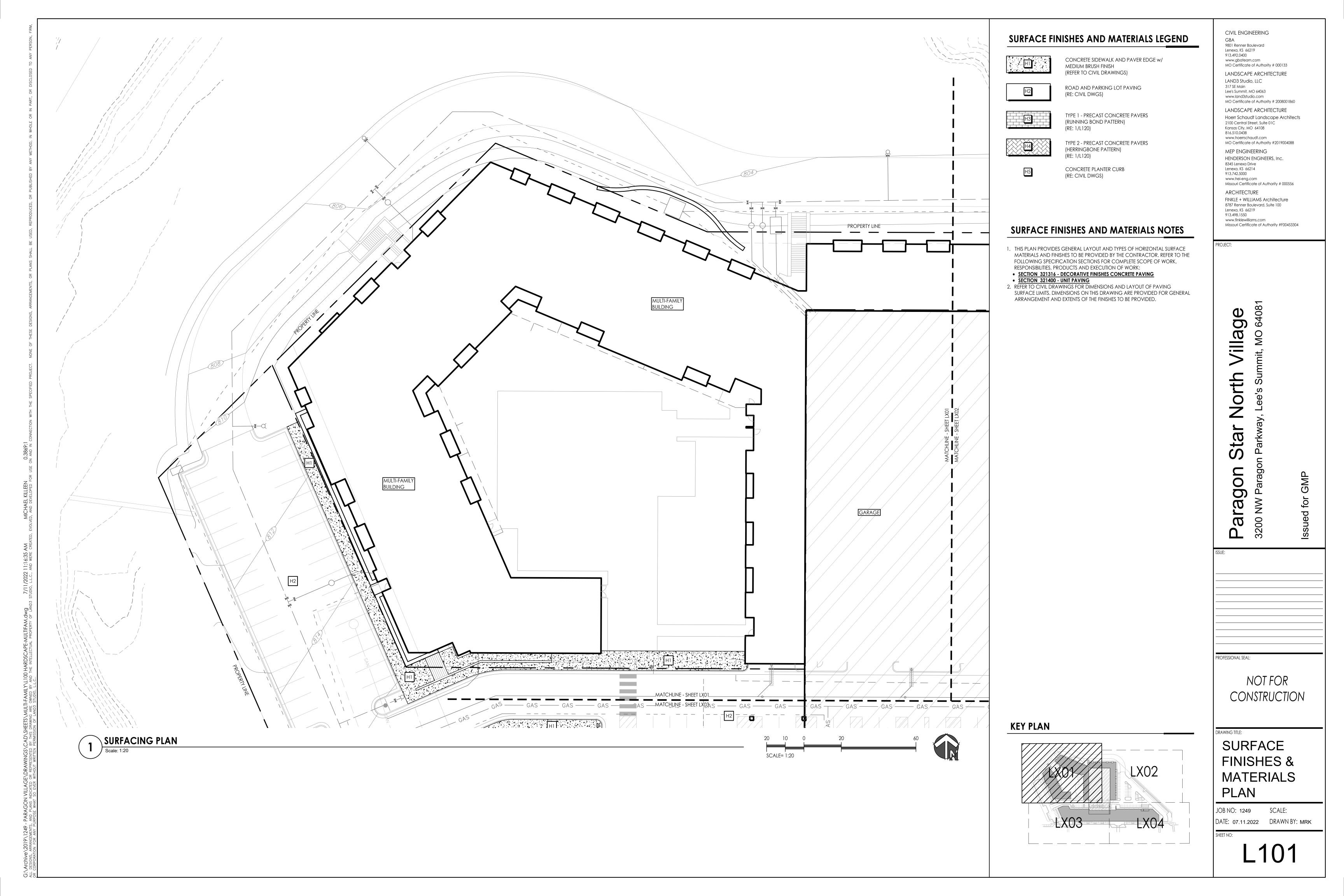
317 SE Main

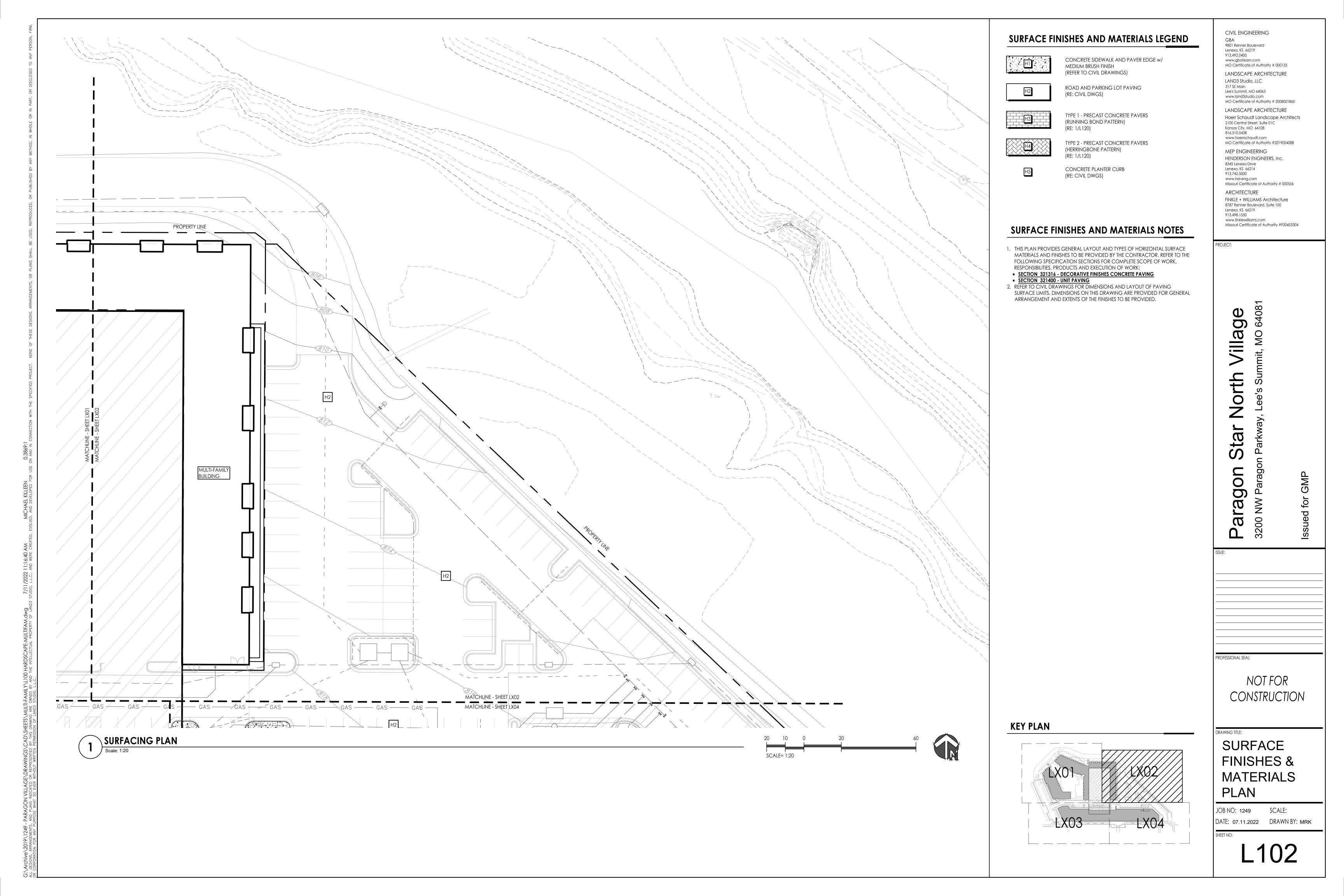
**KEY PLAN & GENERAL** INFORMATION

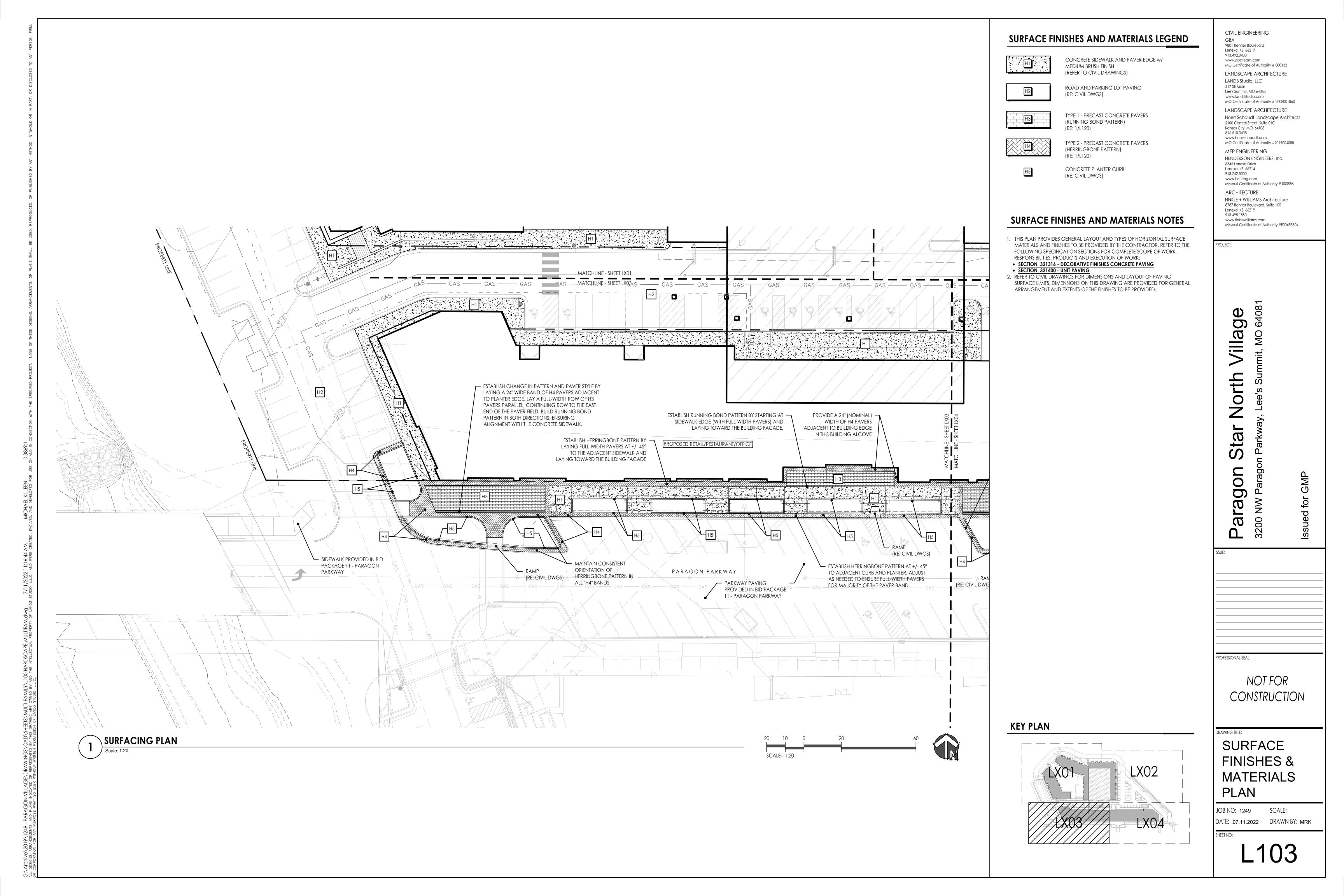
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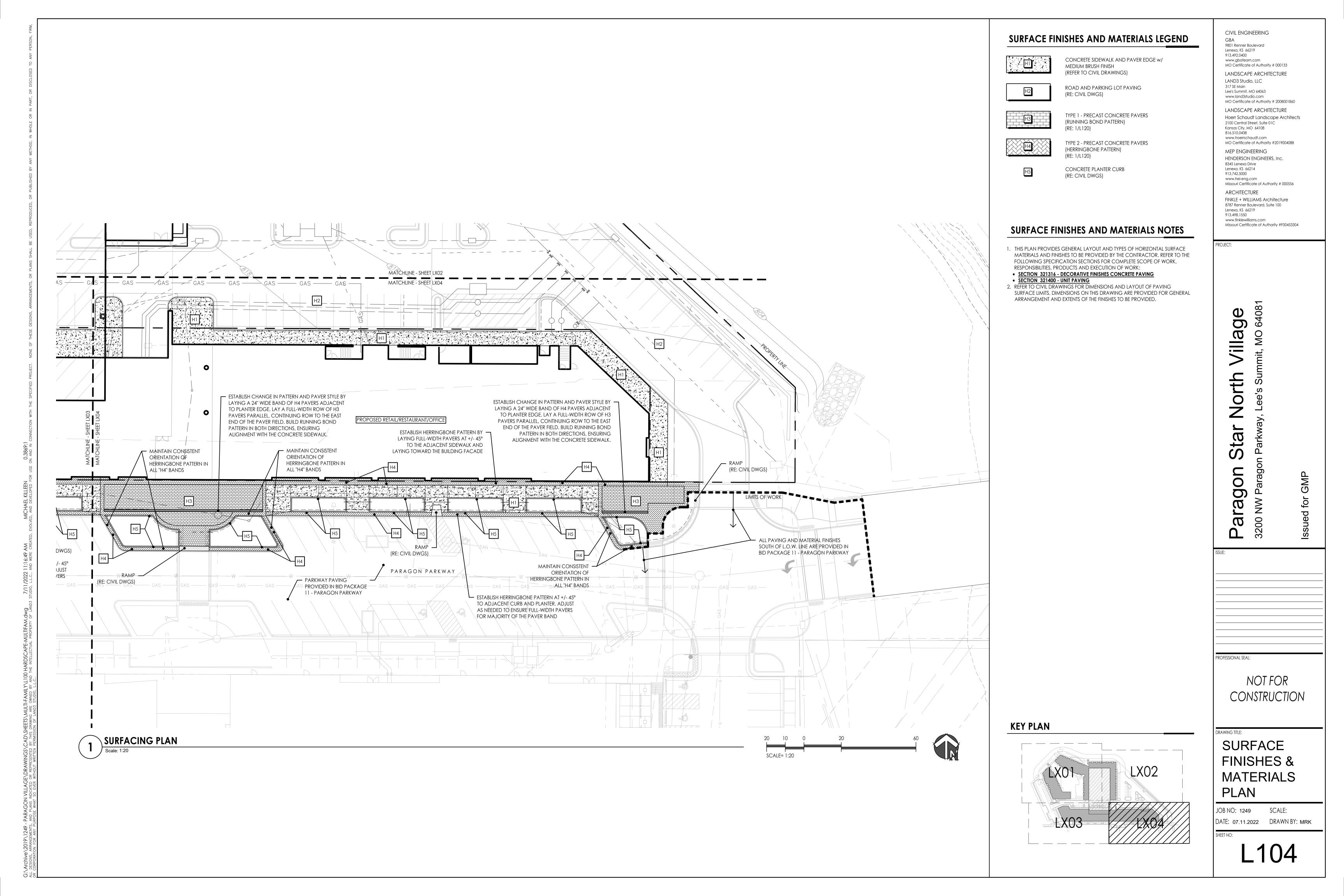
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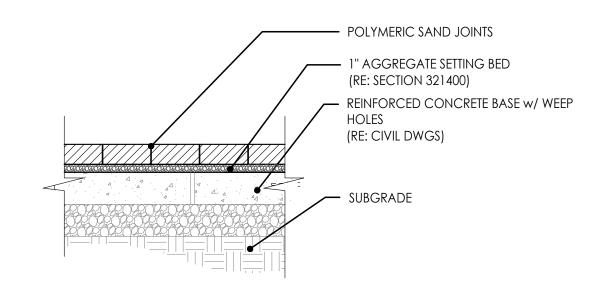
JOB NO: 1249 SCALE: DATE: 07.11.2022 DRAWN BY: MRK





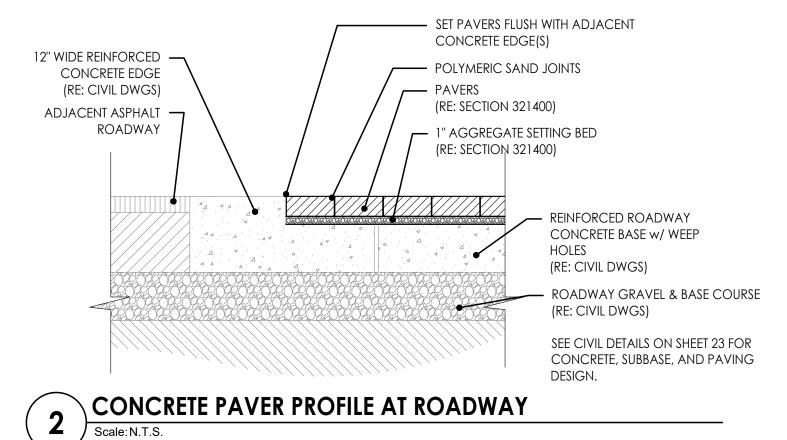






CONCRETE PAVER PROFILE (TYP.)

Scale: N.T.S.



CIVIL ENGINEERING

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MEP ENGINEERING HENDERSON ENGINEERS, Inc. 8345 Lenexa Drive Lenexa, KS 66214 913.742.5000

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913.498.1550 www.finklewilliams.com Missouri Certificate of Authority #F00453304

PROJECT:

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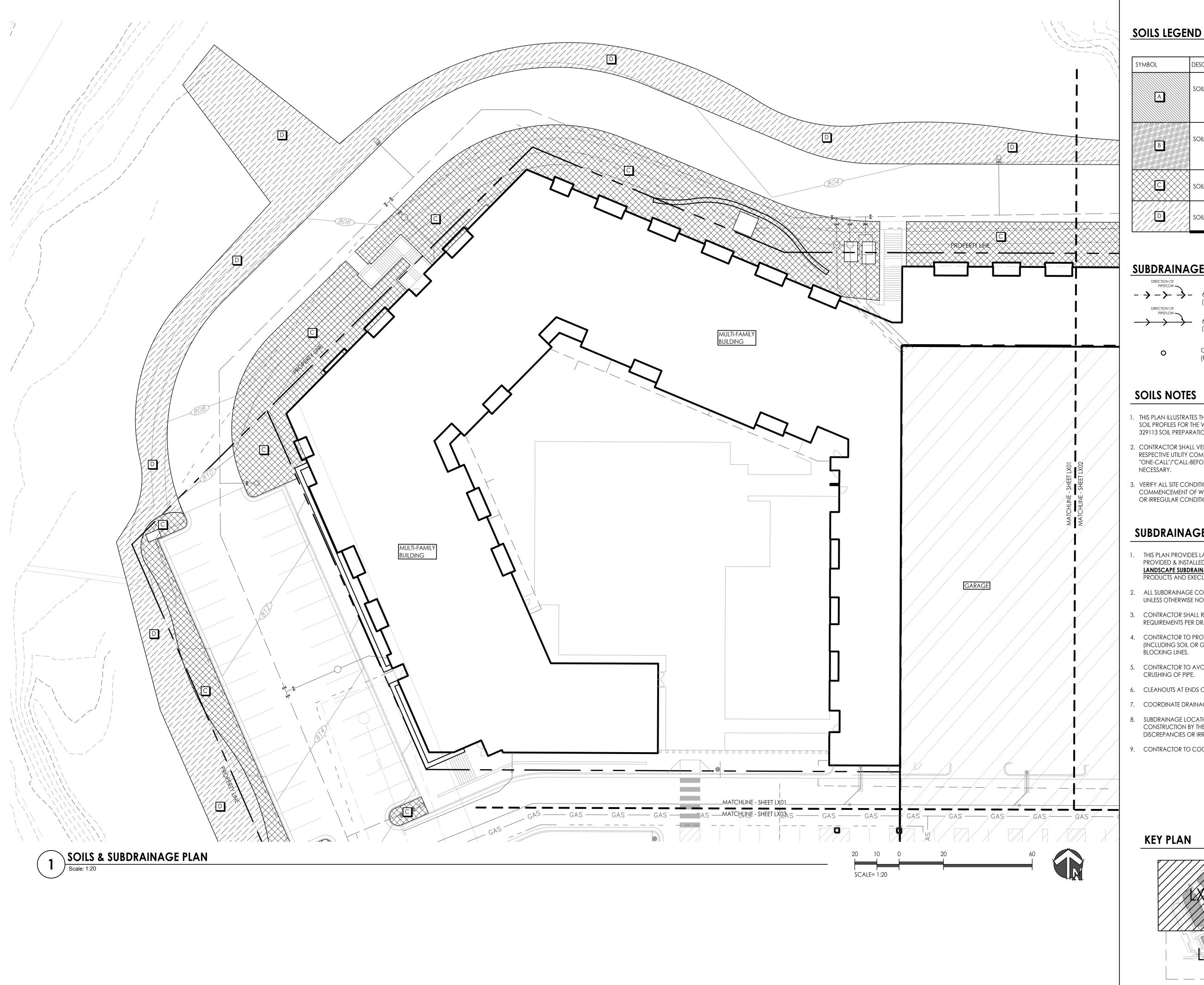
PROFESSIONAL SEAL:

NOT FOR CONSTRUCTION

HARDSCAPE **DETAILS** 

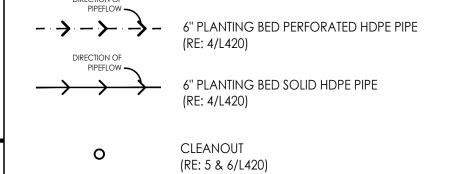
JOB NO: 1249 SCALE: DATE: 07.11.2022 DRAWN BY: MRK

L120



SYMBOL	DESCRIPTION	NOTES		
A	SOIL TYPE A	PLANTING SOIL MIX (48" MIN. DEPTH) OVER DRAINAGE GRAVEL (6"-12" DEPTH) AND SUBDRAINAGE LINES CONNECTED TO STORM DRAIN SYSTEM. (RE: 3/L420; SECTION 329113)		
	SOIL TYPE B	STRUCTURAL SOIL (48" MIN DEPTH) OVER DRAINAGE GRAVEL (6" MIN DEPTH) AND SUBDRAINAGE LINES CONNECTED TO STORM DRAIN SYSTEM. (RE: 2/L420; SECTION 329113)		
	SOIL TYPE C	NATIVE TOPSOIL STRIPPED FROM SITE (12" MINIMUM)		
D	SOIL TYPE D	TOPSOIL STRIPPED FROM SITE; PLACED PER EARTHWORK SPEC		

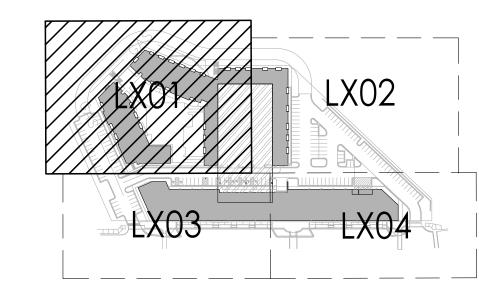
#### SUBDRAINAGE LEGEND



- SOIL PROFILES FOR THE VILLAGE AT PARAGON STAR. REFER TO SPECIFICATION SECTION
- RESPECTIVE UTILITY COMPANIES AND/ OR THE LOCAL "ONE-CALL"/"CALL-BEFORE-YOU-DIG" SYSTEM AND BY EXCAVATING TEST PITS IF
- OR IRREGULAR CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

- 4. CONTRACTOR TO PROTECT DRAIN LINES DURING CONSTRUCTION FROM DEBRIS (INCLUDING SOIL OR GRAVEL MATERIAL OR OTHER TRASH) FROM ENTERING OR
- 8. SUBDRAINAGE LOCATION, LAYOUT, AND SITE CONDITIONS TO BE VERIFIED PRIOR TO CONSTRUCTION BY THE CONTRACTOR. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR IRREGULAR CONDITIONS ENCOUNTERED DURING CONSTRUCTION.
- 9. CONTRACTOR TO COORDINATE DRAINAGE LINES WITH ALL UNDERGROUND UTILITIES.

#### **KEY PLAN**



CIVIL ENGINEERING

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Missouri Certificate of Authority #F00453304

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#### **SOILS NOTES**

- 1. THIS PLAN ILLUSTRATES THE SCHEMATIC SCOPE OF WORK FOR THE CONSTRUCTION OF 329113 SOIL PREPARATION FOR SOIL TYPOLOGY AND PLACEMENT REQUIREMENTS..
- 2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES BY CONTACTING ALL OF THE
- 3. VERIFY ALL SITE CONDITIONS AND DIMENSIONS SHOWN ON THE PLAN PRIOR TO COMMENCEMENT OF WORK. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES

## SUBDRAINAGE NOTES

- 1. THIS PLAN PROVIDES LAYOUT AND TYPES OF ALL LANDSCAPE SUBDRAINAGE TO BE PROVIDED & INSTALLED BY THE LANDSCAPE CONTRACTOR. REFER TO **SECTION 334610 LANDSCAPE SUBDRAINAGE** FOR COMPLETE SCOPE OF WORK, RESPONSIBILITIES, PRODUCTS AND EXECUTION OF WORK,
- 2. ALL SUBDRAINAGE COLLECTOR PIPE SHALL BE INSTALLED AT A MINIMUM 0.5% SLOPE UNLESS OTHERWISE NOTED.
- 3. CONTRACTOR SHALL RESTORE SUBGRADE TO MEET GRADING AND COMPACTION REQUIREMENTS PER DRAWINGS AND SPECIFICATIONS.
- BLOCKING LINES.
- 5. CONTRACTOR TO AVOID TRAFFIC OVER INSTALLED DRAINAGE TRENCHES TO PREVENT CRUSHING OF PIPE.
- 6. CLEANOUTS AT ENDS OF SUBDRAINAGE COLLECTORS ARE TYPICAL.
- 7. COORDINATE DRAINAGE CONNECTION AND INVERTS WITH AS-BUILT CONDITIONS.

NOT FOR CONSTRUCTION

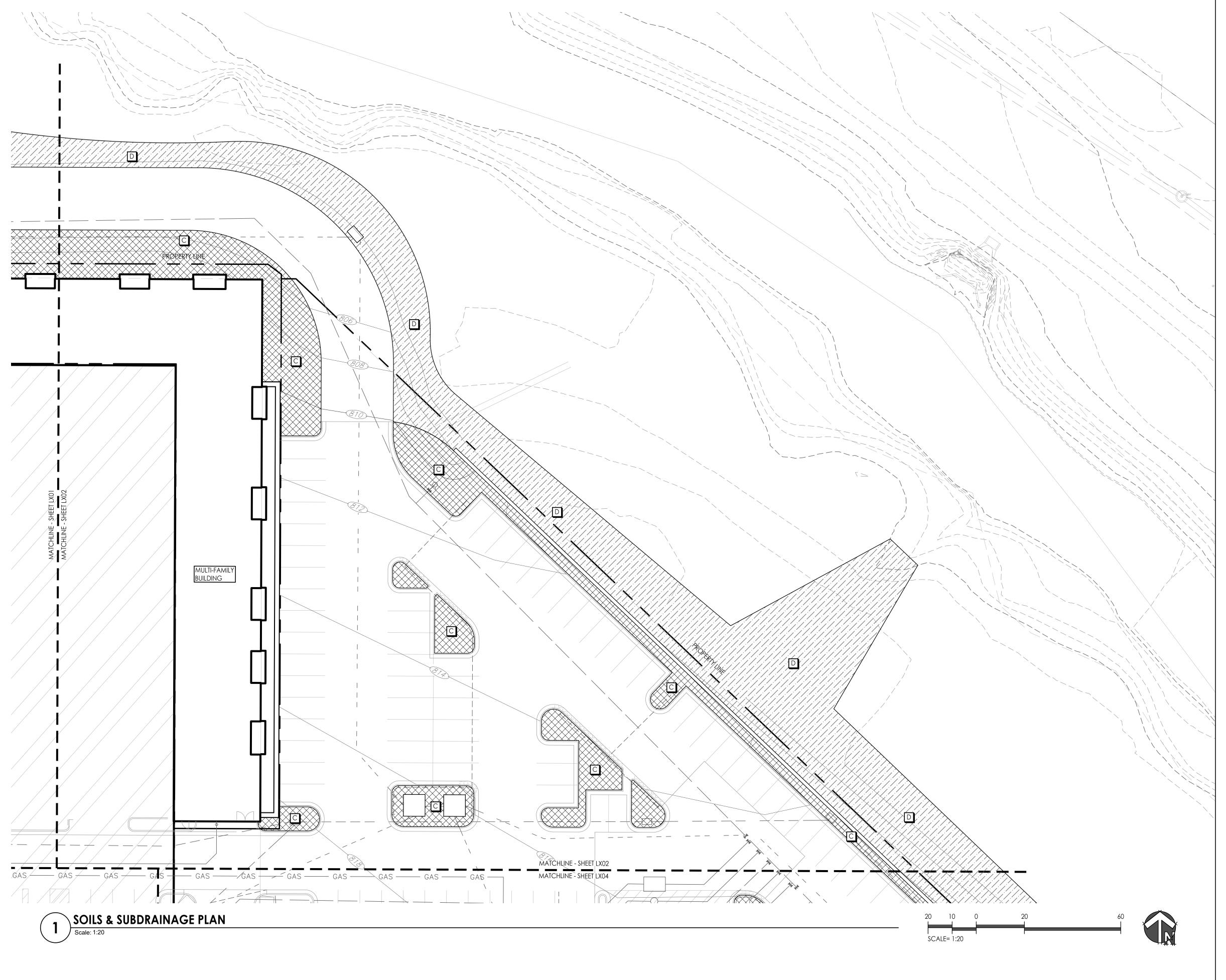
DRAWING TITLE:

PROFESSIONAL SEAL:

SOILS & SUBDRAINAGE PLAN

JOB NO: 1249 SCALE: DATE: 07.11.2022 DRAWN BY: MRK

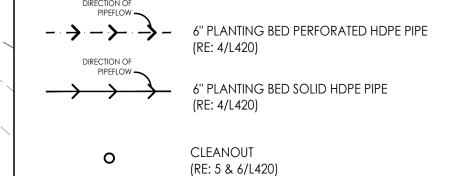
L401



#### **SOILS LEGEND**

SYMBOL	DESCRIPTION	NOTES		
A	SOIL TYPE A	PLANTING SOIL MIX (48" MIN. DEPTH) OVER DRAINAGE GRAVEL (6"-12" DEPTH) AND SUBDRAINAGE LINES CONNECTED TO STORM DRAIN SYSTEM. (RE: 3/L420; SECTION 329113)		
	SOIL TYPE B	STRUCTURAL SOIL (48" MIN DEPTH) OVER DRAINAGE GRAVEL (6" MIN DEPTH) AND SUBDRAINAGE LINES CONNECTED TO STORM DRAIN SYSTEM. (RE: 2/L420; SECTION 329113)		
	SOIL TYPE C	NATIVE TOPSOIL STRIPPED FROM SITE (12" MINIMUM)		
D	SOIL TYPE D	TOPSOIL STRIPPED FROM SITE; PLACED PER EARTHWORK SPEC		

#### SUBDRAINAGE LEGEND



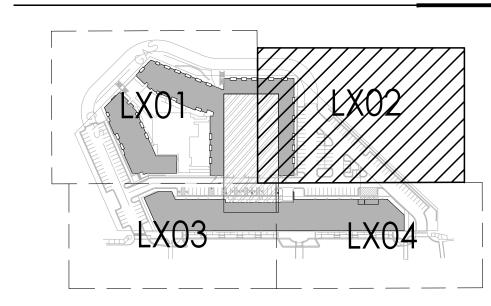
#### **SOILS NOTES**

- . THIS PLAN ILLUSTRATES THE SCHEMATIC SCOPE OF WORK FOR THE CONSTRUCTION OF SOIL PROFILES FOR THE VILLAGE AT PARAGON STAR. REFER TO SPECIFICATION SECTION 329113 SOIL PREPARATION FOR SOIL TYPOLOGY AND PLACEMENT REQUIREMENTS..
- 2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES BY CONTACTING ALL OF THE RESPECTIVE UTILITY COMPANIES AND/ OR THE LOCAL "ONE-CALL"/"CALL-BEFORE-YOU-DIG" SYSTEM AND BY EXCAVATING TEST PITS IF
- B. VERIFY ALL SITE CONDITIONS AND DIMENSIONS SHOWN ON THE PLAN PRIOR TO COMMENCEMENT OF WORK. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR IRREGULAR CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

## **SUBDRAINAGE NOTES**

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- ALL SUBDRAINAGE COLLECTOR PIPE SHALL BE INSTALLED AT A MINIMUM 0.5% SLOPE UNLESS OTHERWISE NOTED.
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- 4. CONTRACTOR TO PROTECT DRAIN LINES DURING CONSTRUCTION FROM DEBRIS (INCLUDING SOIL OR GRAVEL MATERIAL OR OTHER TRASH) FROM ENTERING OR BLOCKING LINES.
- 5. CONTRACTOR TO AVOID TRAFFIC OVER INSTALLED DRAINAGE TRENCHES TO PREVENT CRUSHING OF PIPE.
- 6. CLEANOUTS AT ENDS OF SUBDRAINAGE COLLECTORS ARE TYPICAL.
- 7. COORDINATE DRAINAGE CONNECTION AND INVERTS WITH AS-BUILT CONDITIONS.
- 8. SUBDRAINAGE LOCATION, LAYOUT, AND SITE CONDITIONS TO BE VERIFIED PRIOR TO CONSTRUCTION BY THE CONTRACTOR. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR IRREGULAR CONDITIONS ENCOUNTERED DURING CONSTRUCTION.
- 9. CONTRACTOR TO COORDINATE DRAINAGE LINES WITH ALL UNDERGROUND UTILITIES.

#### **KEY PLAN**



## CIVIL ENGINEERING

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Missouri Certificate of Authority #F00453304

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PROFESSIONAL SEAL:

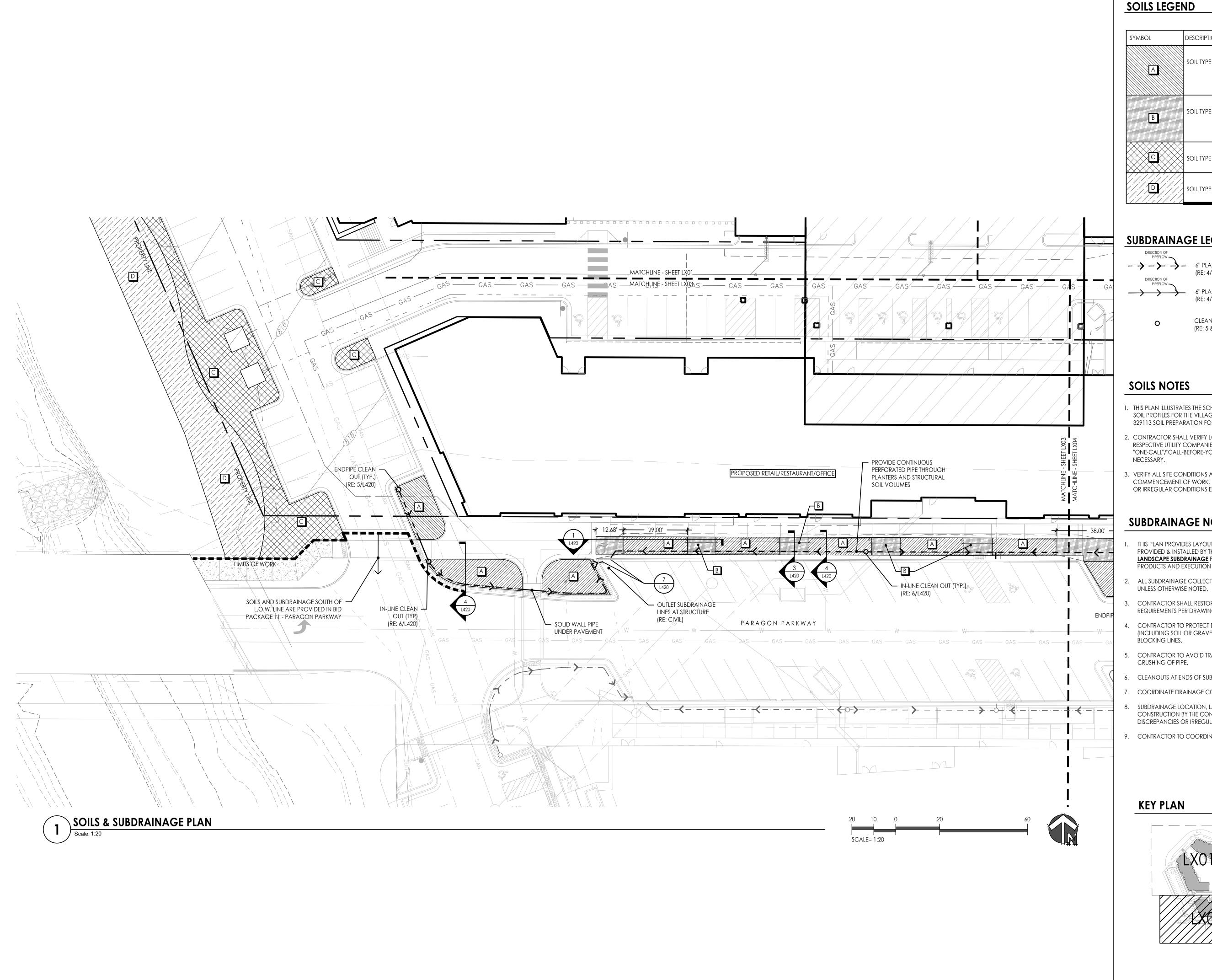
NOT FOR CONSTRUCTION

DRAWING TITLE:

SOILS & SUBDRAINAGE PLAN

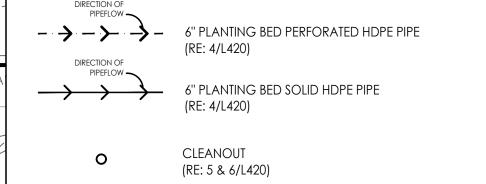
JOB NO: 1249 SCALE: DATE: 07.11.2022 DRAWN BY: MRK

L402



SYMBOL	DESCRIPTION	NOTES
A	SOIL TYPE A	PLANTING SOIL MIX (48" MIN. DEPTH) OVER DRAINAGE GRAVEL (6"-12" DEPTH) AND SUBDRAINAGE LINES CONNECTED TO STORM DRAIN SYSTEM. (RE: 3/L420; SECTION 329113)
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C	SOIL TYPE C	NATIVE TOPSOIL STRIPPED FROM SITE (12" MINIMUM)
D	SOIL TYPE D	TOPSOIL STRIPPED FROM SITE; PLACED PER EARTHWORK SPEC

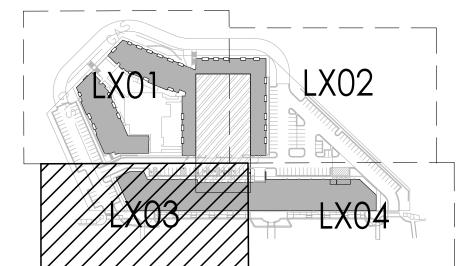
#### SUBDRAINAGE LEGEND



- . THIS PLAN ILLUSTRATES THE SCHEMATIC SCOPE OF WORK FOR THE CONSTRUCTION OF SOIL PROFILES FOR THE VILLAGE AT PARAGON STAR. REFER TO SPECIFICATION SECTION 329113 SOIL PREPARATION FOR SOIL TYPOLOGY AND PLACEMENT REQUIREMENTS...
- 2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES BY CONTACTING ALL OF THE RESPECTIVE UTILITY COMPANIES AND/ OR THE LOCAL "ONE-CALL"/"CALL-BEFORE-YOU-DIG" SYSTEM AND BY EXCAVATING TEST PITS IF
- 3. VERIFY ALL SITE CONDITIONS AND DIMENSIONS SHOWN ON THE PLAN PRIOR TO COMMENCEMENT OF WORK. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR IRREGULAR CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

#### **SUBDRAINAGE NOTES**

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CIVIL ENGINEERING

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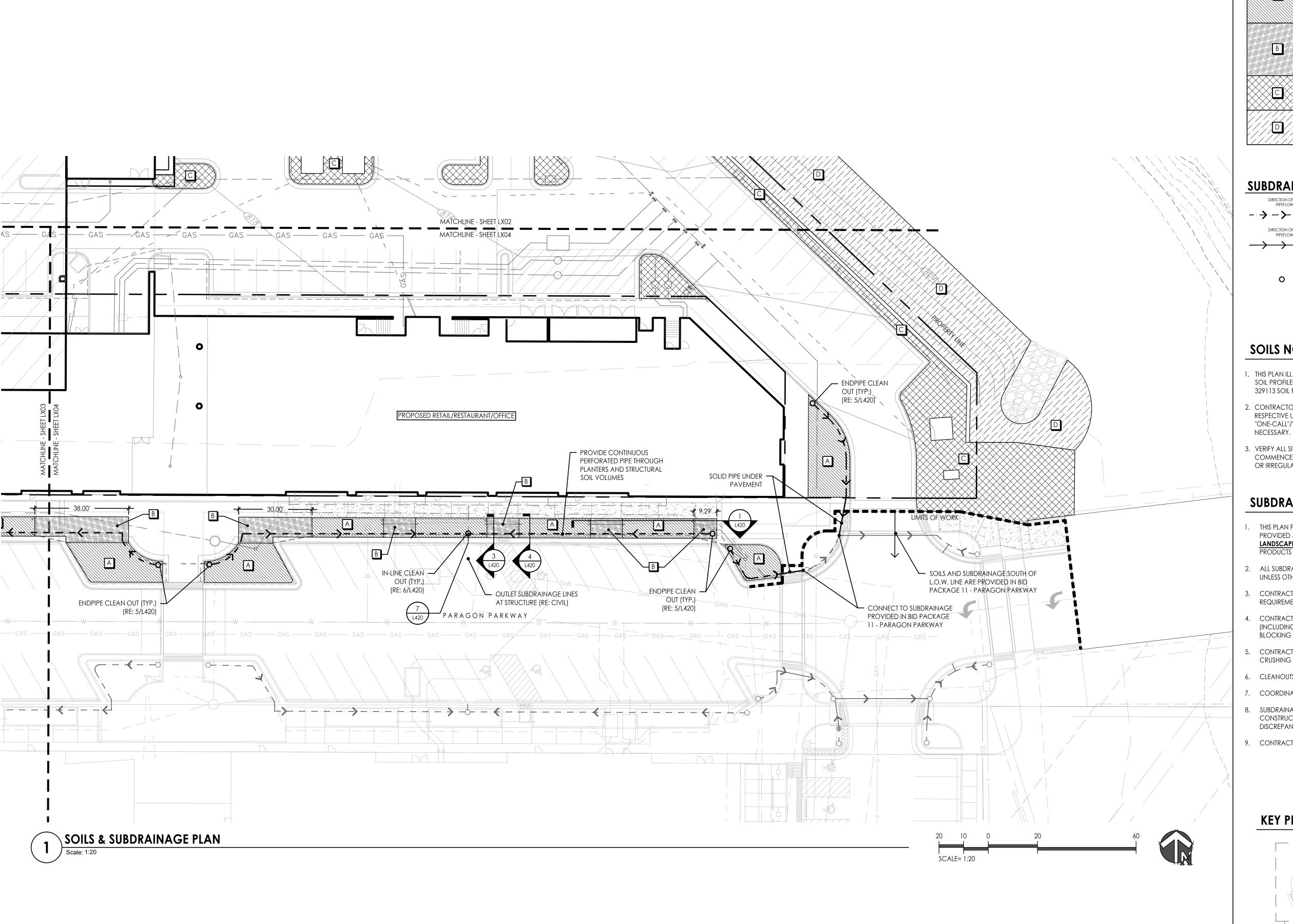
PROFESSIONAL SEAL:

NOT FOR CONSTRUCTION

DRAWING TITLE:

SOILS & SUBDRAINAGE PLAN

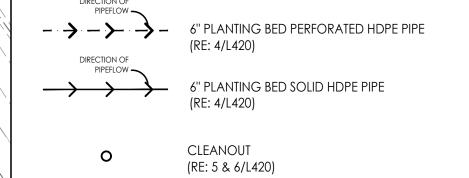
JOB NO: 1249 SCALE: DATE: 07.11.2022 DRAWN BY: MRK



# **SOILS LEGEND**

SYMBOL	DESCRIPTION	NOTES
A	SOIL TYPE A	PLANTING SOIL MIX (48" MIN. DEPTH) OVER DRAINAGE GRAVEL (6"-12" DEPTH) AND SUBDRAINAGE LINES CONNECTED TO STORM DRAIN SYSTEM. (RE: 3/L420; SECTION 329113)
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	SOIL TYPE D	TOPSOIL STRIPPED FROM SITE; PLACED PER EARTHWORK SPEC

# SUBDRAINAGE LEGEND



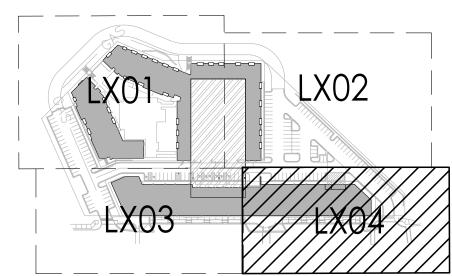
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- 9. CONTRACTOR TO COORDINATE DRAINAGE LINES WITH ALL UNDERGROUND UTILITIES.

# **KEY PLAN**



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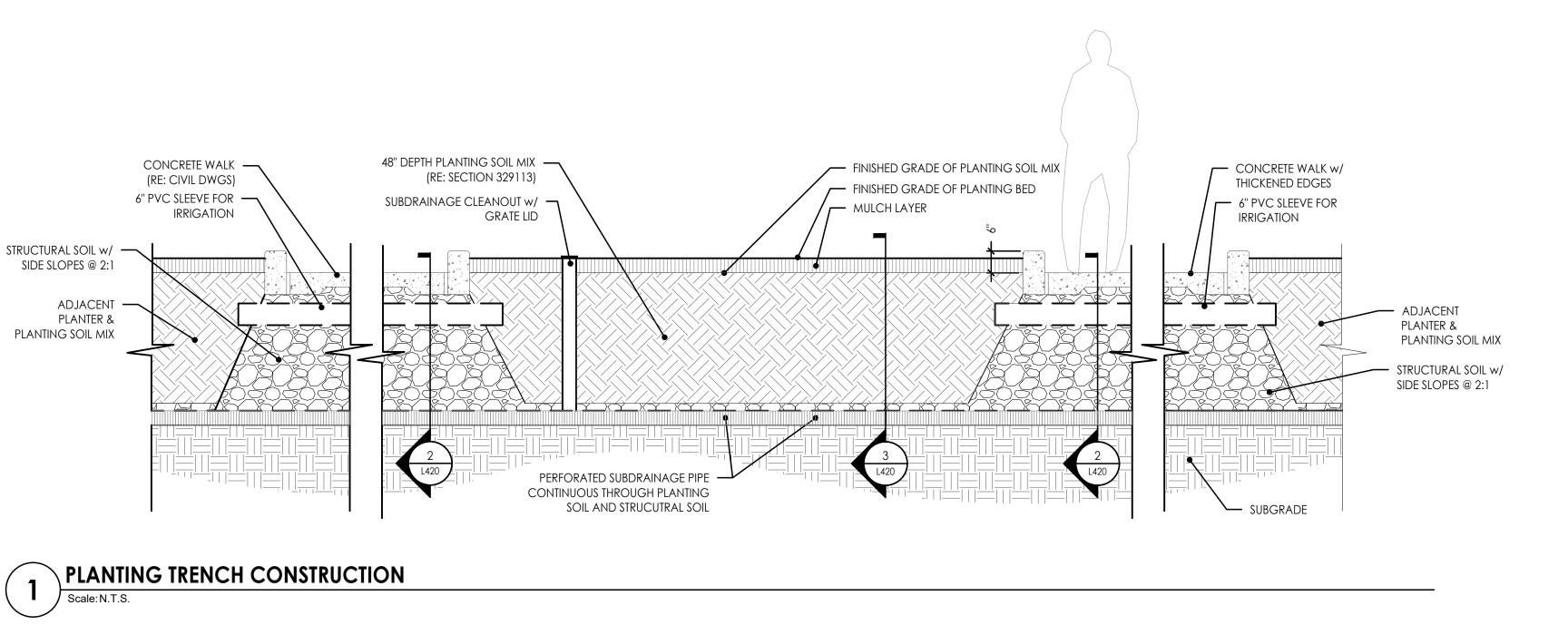
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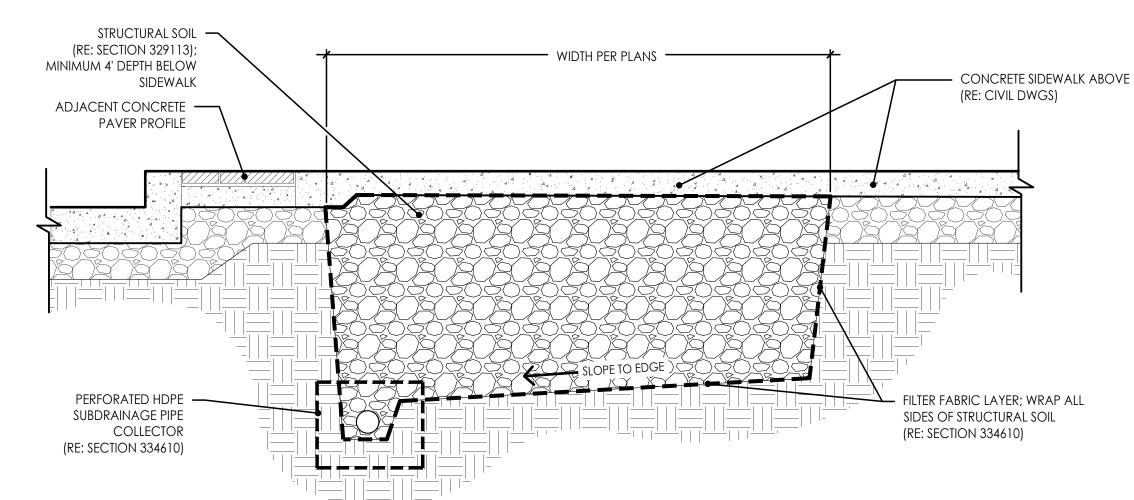
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DRAWING TITLE:

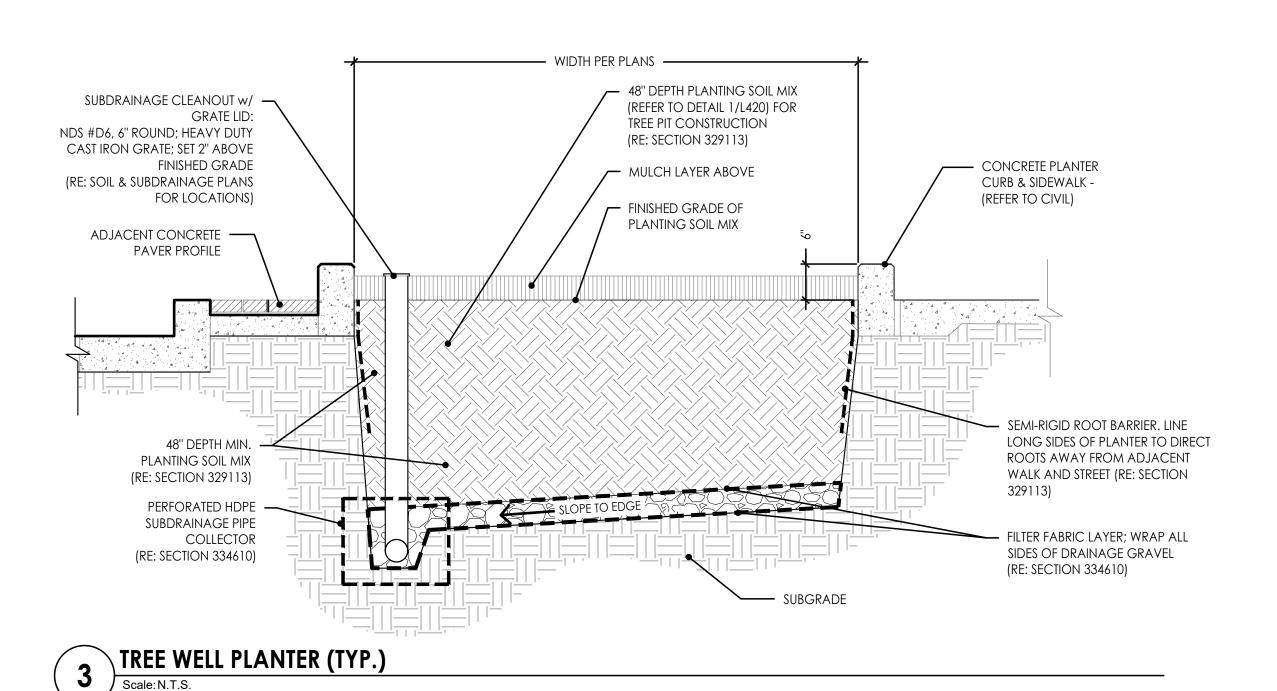
SOILS & SUBDRAINAGE PLAN

JOB NO: 1249 SCALE: DATE: 07.11.2022 DRAWN BY: MRK



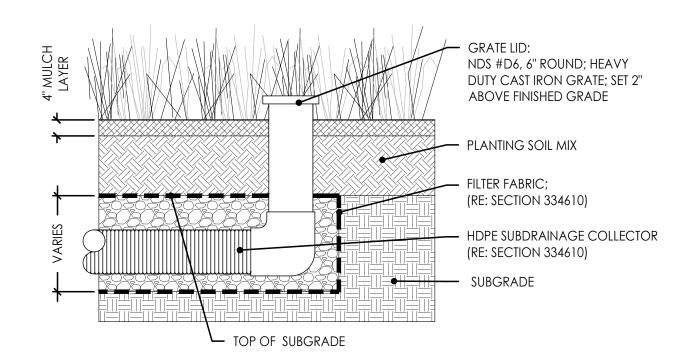


STRUCTURAL SOIL TRENCH BELOW CONCRETE SLAB

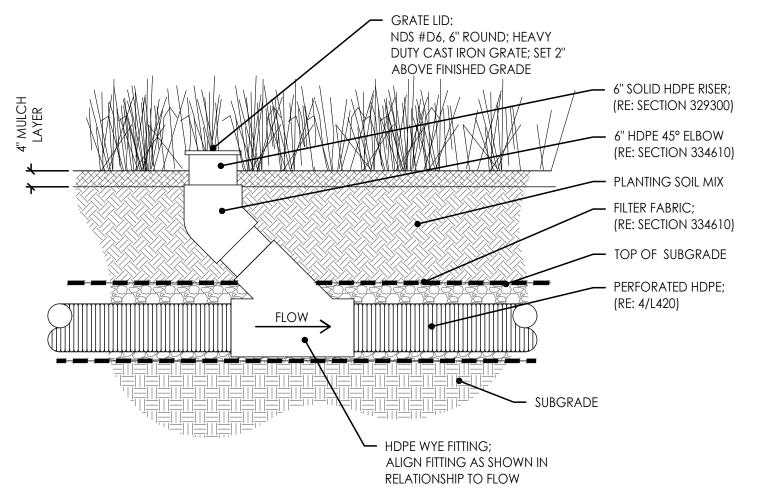


 TOP OF SUBGRADE - PERFORATED OR SOLID HDPE PIPE; SLOPE ALL PIPE MIN 0.5% (RE: SECTION 334610) DRAINAGE GRAVEL (RE: SECTION 334610) FILTER FABRIC; (RE: SECTION 334610) --- SUBGRADE

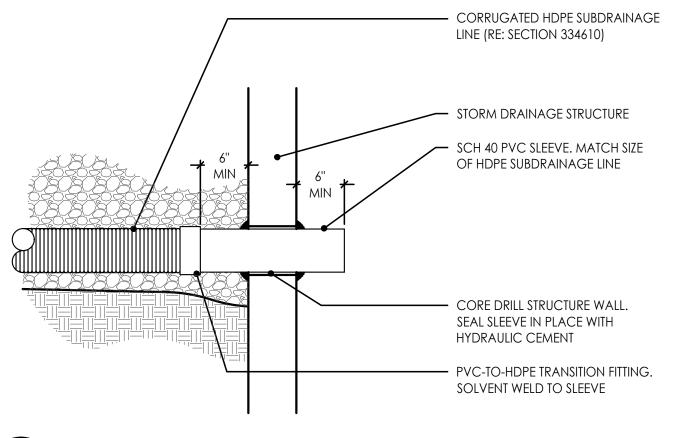
PLANTING SUBDRAINAGE PIPE



PLANTING SUBDRAINAGE ENDPIPE CLEANOUT



**\ PLANTING SUBDRAINAGE INLINE CLEANOUT** Scale: N.T.S.



**SUBDRAINAGE OUTLET CONNECTION** Scale: N.T.S.

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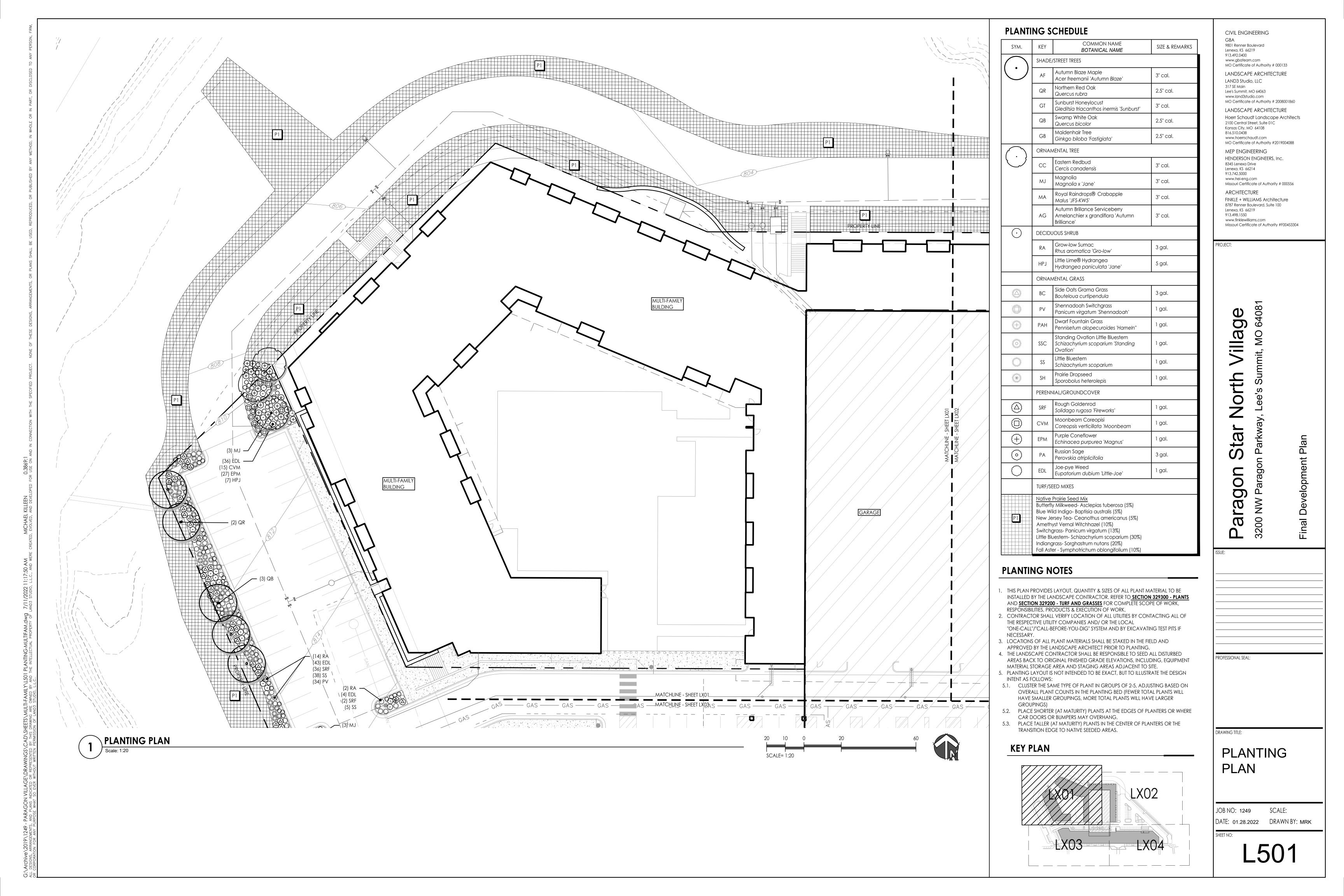
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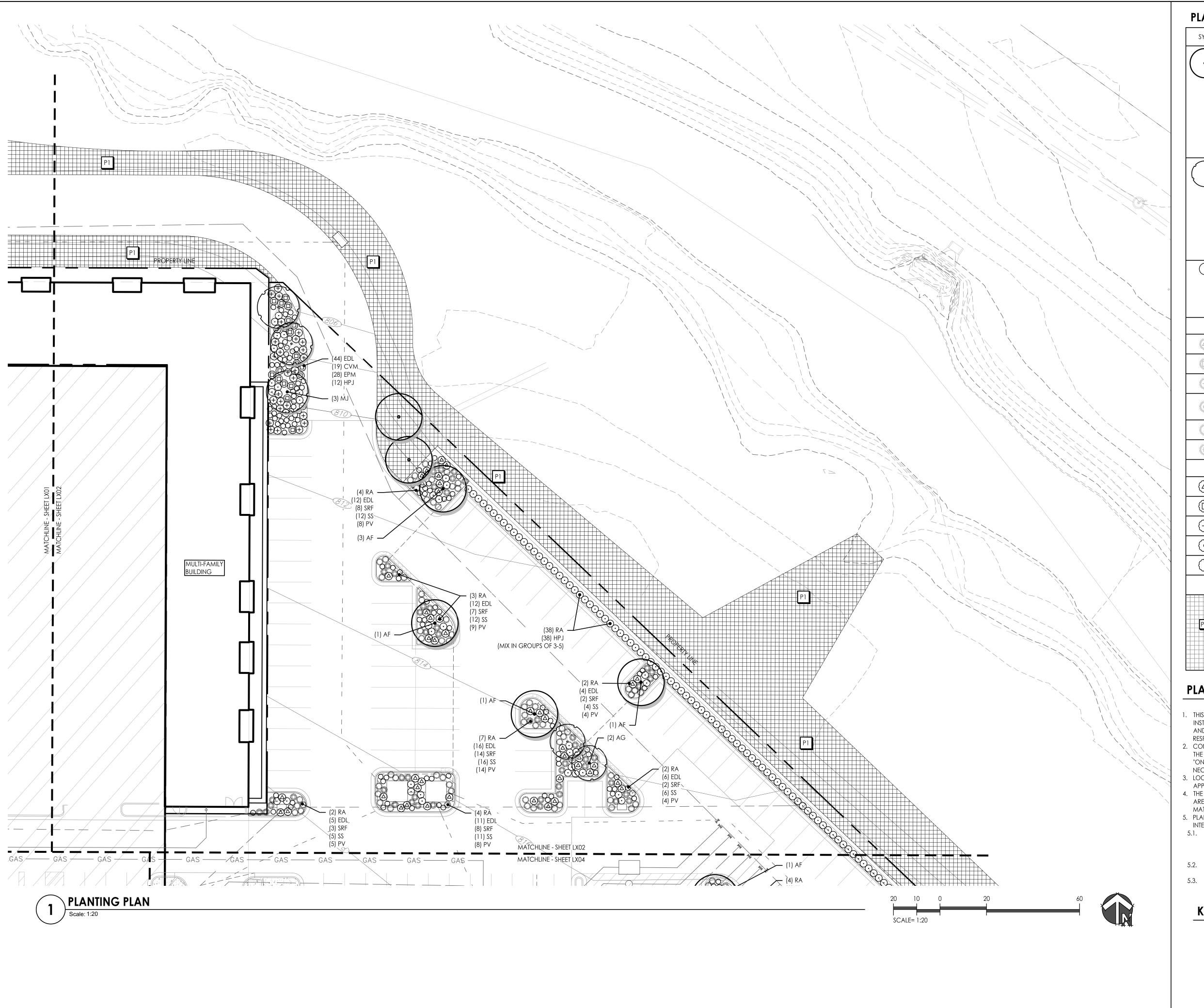
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DRAWING TITLE:

SOILS & SUBDRAINAGE **DETAILS** 

JOB NO: 1249 SCALE: DATE: 07.11.2022 DRAWN BY: MRK





#### DI ANTINO COUEDINE

SYM.	KEY	COMMON NAME BOTANICAL NAME	SIZE & REMARK
$\overline{\bigcap}$	SHADE	E/STREET TREES	-
$\overline{}$	AF	Autumn Blaze Maple Acer freemanii 'Autumn Blaze'	3" cal.
	QR	Northern Red Oak Quercus rubra	2.5" cal.
	GT	Sunburst Honeylocust Gleditsia triacanthos inermis 'Sunburst'	3" cal.
	QB	Swamp White Oak Quercus bicolor	2.5" cal.
	GB	Maidenhair Tree Ginkgo biloba 'Fastigiata'	2.5" cal.
	ORNA	MENTAL TREE	•
	СС	Eastern Redbud Cercis canadensis	3" cal.
	MJ	Magnolia Magnolia x 'Jane'	3" cal.
	MA	Royal Raindrops® Crabapple Malus 'JFS-KW5'	3" cal.
	AG	Autumn Brillance Serviceberry Amelanchier x grandiflora 'Autumn Brilliance'	3" cal.
$\odot$	DECID	uous shrub	
	RA	Grow-low Sumac Rhus aromatica 'Gro-low'	3 gal.
	HPJ	Little Lime® Hydrangea Hydrangea paniculata 'Jane'	5 gal.
	ORNA	MENTAL GRASS	-
	ВС	Side Oats Grama Grass Bouteloua curtipendula	3 gal.
	PV	Shennadoah Switchgrass Panicum virgatum 'Shennadoah'	1 gal.
	PAH	Dwarf Fountain Grass Pennisetum alopecuroides 'Hameln''	1 gal.
	SSC	Standing Ovation Little Bluestem Schizachyrium scoparium 'Standing Ovation'	1 gal.
	SS	Little Bluestem Schizachyrium scoparium	1 gal.
***************************************	SH	Prairie Dropseed Sporobolus heterolepis	1 gal.
	PEREN	NIAL/GROUNDCOVER	•
	SRF	Rough Goldenrod Solidago rugosa 'Fireworks'	1 gal.
	CVM	Moonbeam Coreopisi Coreopsis verticillata 'Moonbeam	1 gal.
$\oplus$	EPM	Purple Coneflower Echinacea purpurea 'Magnus'	1 gal.
<u></u>	PA	Russian Sage Perovskia atriplicifolia	3 gal.
$\bigcirc$	EDL	Joe-pye Weed Eupatorium dubium 'Little-Joe'	1 gal.
	TURF/S	EED MIXES	<b>'</b>
P1	Butterf Blue W New Jo Ameth Switch Little B	Prairie Seed Mix Ily Milkweed- Asclepias tuberosa (5%) Vild Indigo- Baptisia australis (5%) ersey Tea- Ceanothus americanus (5%) hyst Vernal Witchhazel (10%) hgrass- Panicum virgatum (13%) luestem- Schizachyrium scoparium (30%) grass- Sorghastrum nutans (20%)	

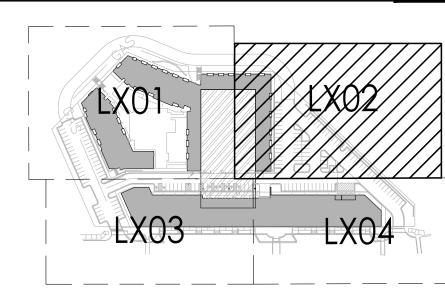
Indiangrass- Sorghastrum nutans (20%)
Fall Aster - Symphotrichum oblongifolium (10%)

# **PLANTING NOTES**

- . THIS PLAN PROVIDES LAYOUT, QUANTITY & SIZES OF ALL PLANT MATERIAL TO BE INSTALLED BY THE LANDSCAPE CONTRACTOR. REFER TO SECTION 329300 - PLANTS
  AND SECTION 329200 - TURF AND GRASSES FOR COMPLETE SCOPE OF WORK,
  RESPONSIBILITIES, PRODUCTS & EXECUTION OF WORK.

  2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES BY CONTACTING ALL OF
- THE RESPECTIVE UTILITY COMPANIES AND/ OR THE LOCAL "ONE-CALL"/"CALL-BEFORE-YOU-DIG" SYSTEM AND BY EXCAVATING TEST PITS IF
- 3. LOCATIONS OF ALL PLANT MATERIALS SHALL BE STAKED IN THE FIELD AND
- APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.
- 4. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE TO SEED ALL DISTURBED AREAS BACK TO ORIGINAL FINISHED GRADE ELEVATIONS, INCLUDING, EQUIPMENT MATERIAL STORAGE AREA AND STAGING AREAS ADJACENT TO SITE. 5. PLANTING LAYOUT IS NOT INTENDED TO BE EXACT, BUT TO ILLUSTRATE THE DESIGN
- INTENT AS FOLLOWS: 5.1. CLUSTER THE SAME TYPE OF PLANT IN GROUPS OF 2-5, ADJUSTING BASED ON OVERALL PLANT COUNTS IN THE PLANTING BED (FEWER TOTAL PLANTS WILL HAVE SMALLER GROUPINGS, MORE TOTAL PLANTS WILL HAVE LARGER
- 5.2. PLACE SHORTER (AT MATURITY) PLANTS AT THE EDGES OF PLANTERS OR WHERE CAR DOORS OR BUMPERS MAY OVERHANG.
- 5.3. PLACE TALLER (AT MATURITY) PLANTS IN THE CENTER OF PLANTERS OR THE TRANSITION EDGE TO NATIVE SEEDED AREAS.

# **KEY PLAN**



CIVIL ENGINEERING

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ARCHITECTURE FINKLE + WILLIAMS Architecture 8787 Renner Boulevard, Suite 100

913.498.1550 www.finklewilliams.com Missouri Certificate of Authority #F00453304

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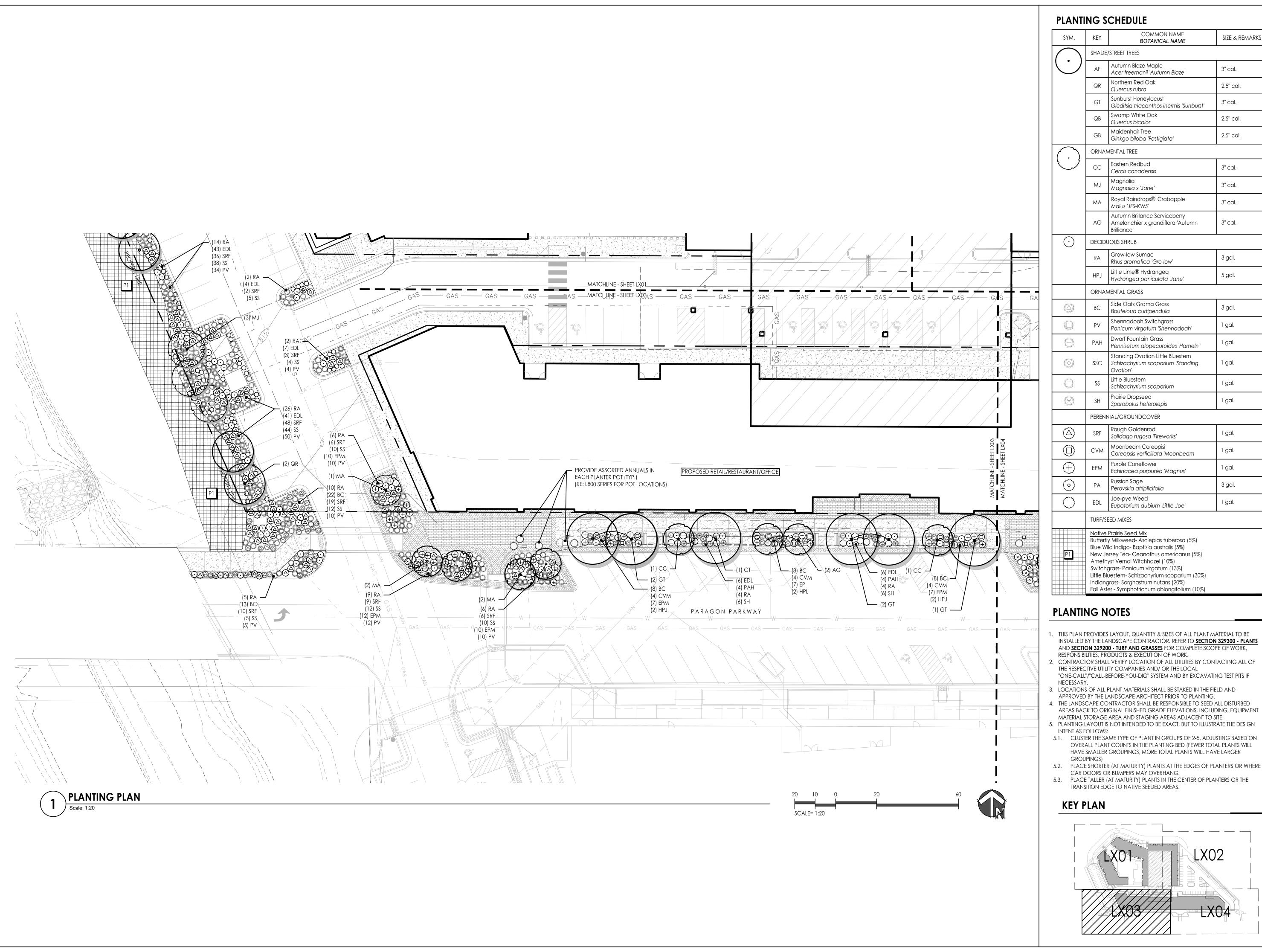
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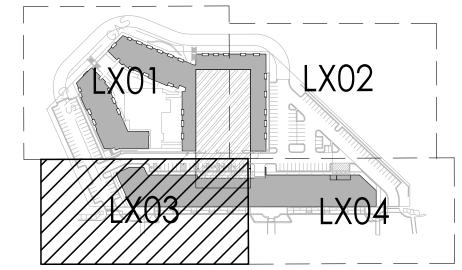
PLANTING PLAN

JOB NO: 1249 SCALE: DATE: 01.28.2022 DRAWN BY: MRK



SYM.	KEY	COMMON NAME BOTANICAL NAME	SIZE & REMARKS				
$\overline{\bigcap}$	SHADE	E/STREET TREES	<u>'</u>				
$\bigcirc$	AF	Autumn Blaze Maple Acer freemanii 'Autumn Blaze'	3" cal.				
	QR	Northern Red Oak Quercus rubra	2.5" cal.				
	GT	Sunburst Honeylocust Gleditsia triacanthos inermis 'Sunburst'	3" cal.				
	QB	Swamp White Oak Quercus bicolor	2.5" cal.				
	GB	Maidenhair Tree Ginkgo biloba 'Fastigiata'	2.5" cal.				
	ORNA	MENTAL TREE					
	СС	Eastern Redbud Cercis canadensis	3" cal.				
	MJ	Magnolia Magnolia x 'Jane'	3" cal.				
	MA	Royal Raindrops® Crabapple Malus 'JFS-KW5'	3" cal.				
	AG	Autumn Brillance Serviceberry Amelanchier x grandiflora 'Autumn Brilliance'	3" cal.				
$\odot$	DECID	uous shrub					
	RA	Grow-low Sumac Rhus aromatica 'Gro-low'	3 gal.				
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	ORNA	MENTAL GRASS					
	ВС	Side Oats Grama Grass Bouteloua curtipendula	3 gal.				
	PV	Shennadoah Switchgrass Panicum virgatum 'Shennadoah'	1 gal.				
	PAH	Dwarf Fountain Grass Pennisetum alopecuroides 'Hameln'	1 gal.				
	SSC	Standing Ovation Little Bluestem Schizachyrium scoparium 'Standing Ovation'	1 gal.				
	SS	Little Bluestem Schizachyrium scoparium	1 gal.				
***************************************	SH	Prairie Dropseed Sporobolus heterolepis	1 gal.				
	PEREN	PERENNIAL/GROUNDCOVER					
	SRF	Rough Goldenrod Solidago rugosa 'Fireworks'	1 gal.				
	CVM	Moonbeam Coreopisi Coreopsis verticillata 'Moonbeam	1 gal.				
(+)	EPM	Purple Coneflower Echinacea purpurea 'Magnus'	1 gal.				
<u></u>	PA	Russian Sage Perovskia atriplicifolia	3 gal.				
$\bigcirc$	EDL	Joe-pye Weed Eupatorium dubium 'Little-Joe'	1 gal.				
	TURF/S	EED MIXES	•				
P1	Butterf Blue W New J Ameth	Prairie Seed Mix  ly Milkweed- Asclepias tuberosa (5%)  lid Indigo- Baptisia australis (5%)  ersey Tea- Ceanothus americanus (5%)  nyst Vernal Witchhazel (10%)  ngrass- Panicum virgatum (13%)					

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Lenexa, KS 66219 913.498.1550 www.finklewilliams.com Missouri Certificate of Authority #F00453304

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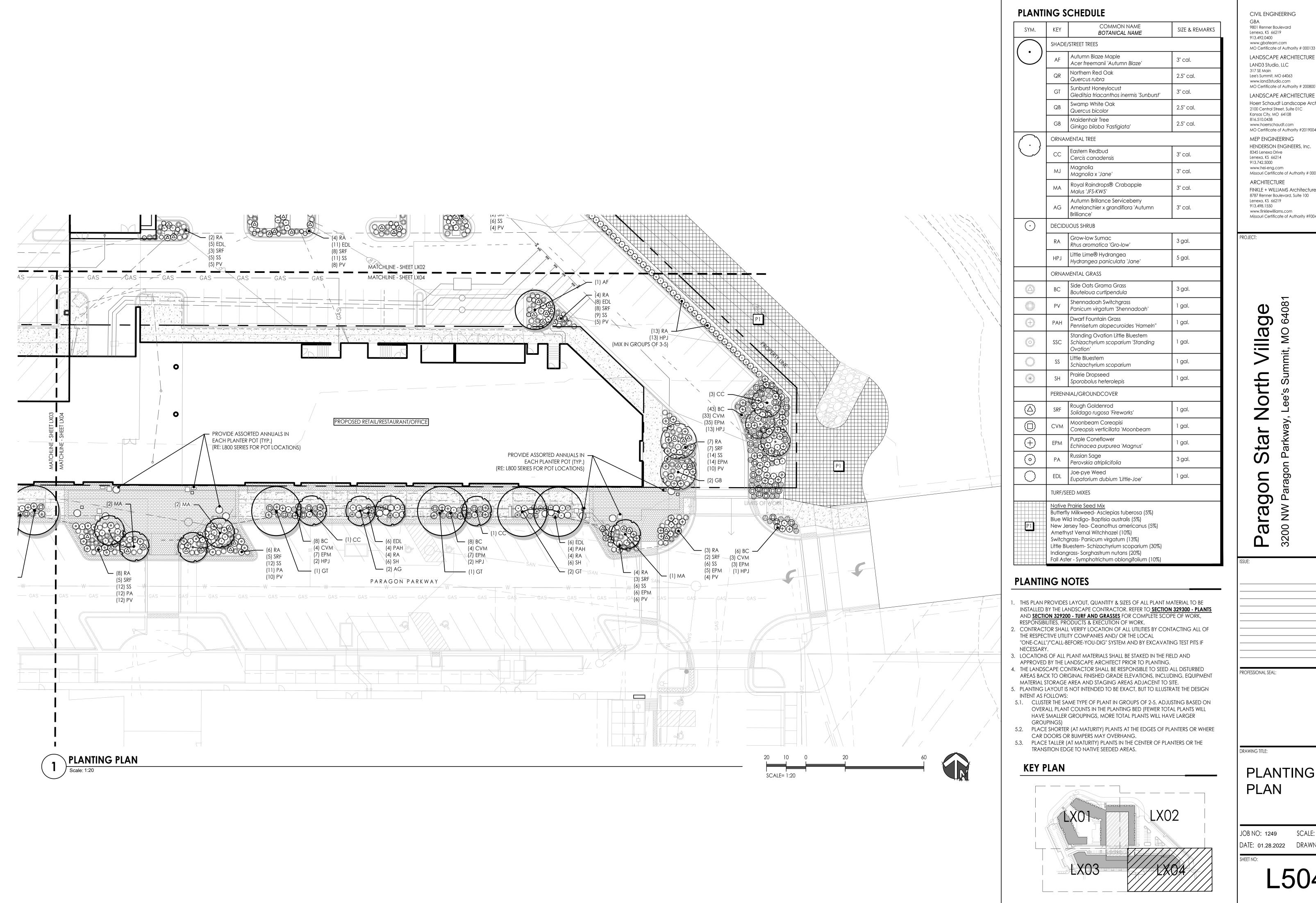
PROFESSIONAL SEAL:

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DRAWING TITLE:

PLANTING PLAN

JOB NO: 1249 SCALE: DATE: 01.28.2022 DRAWN BY: MRK



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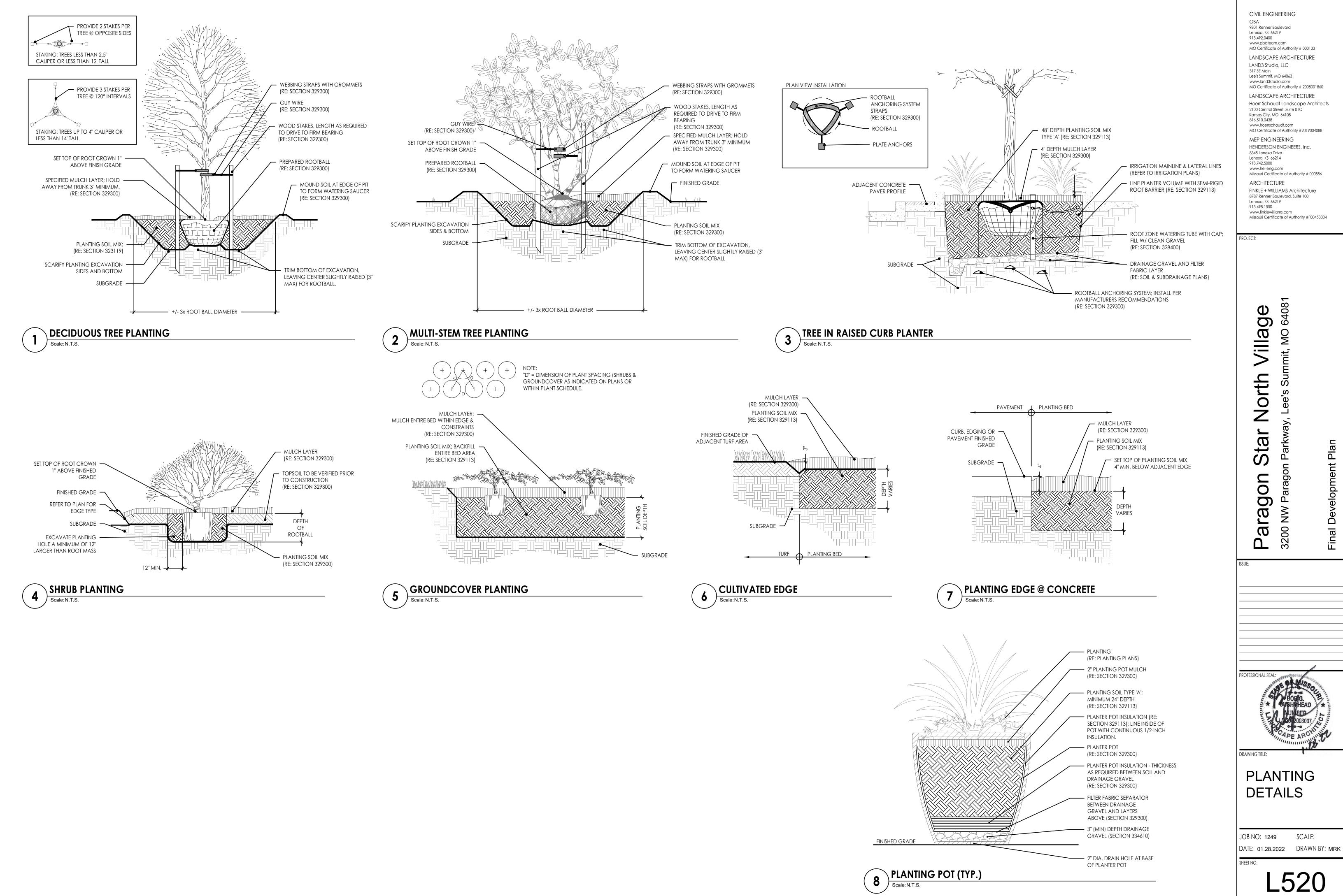
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DRAWING TITLE:

PLANTING

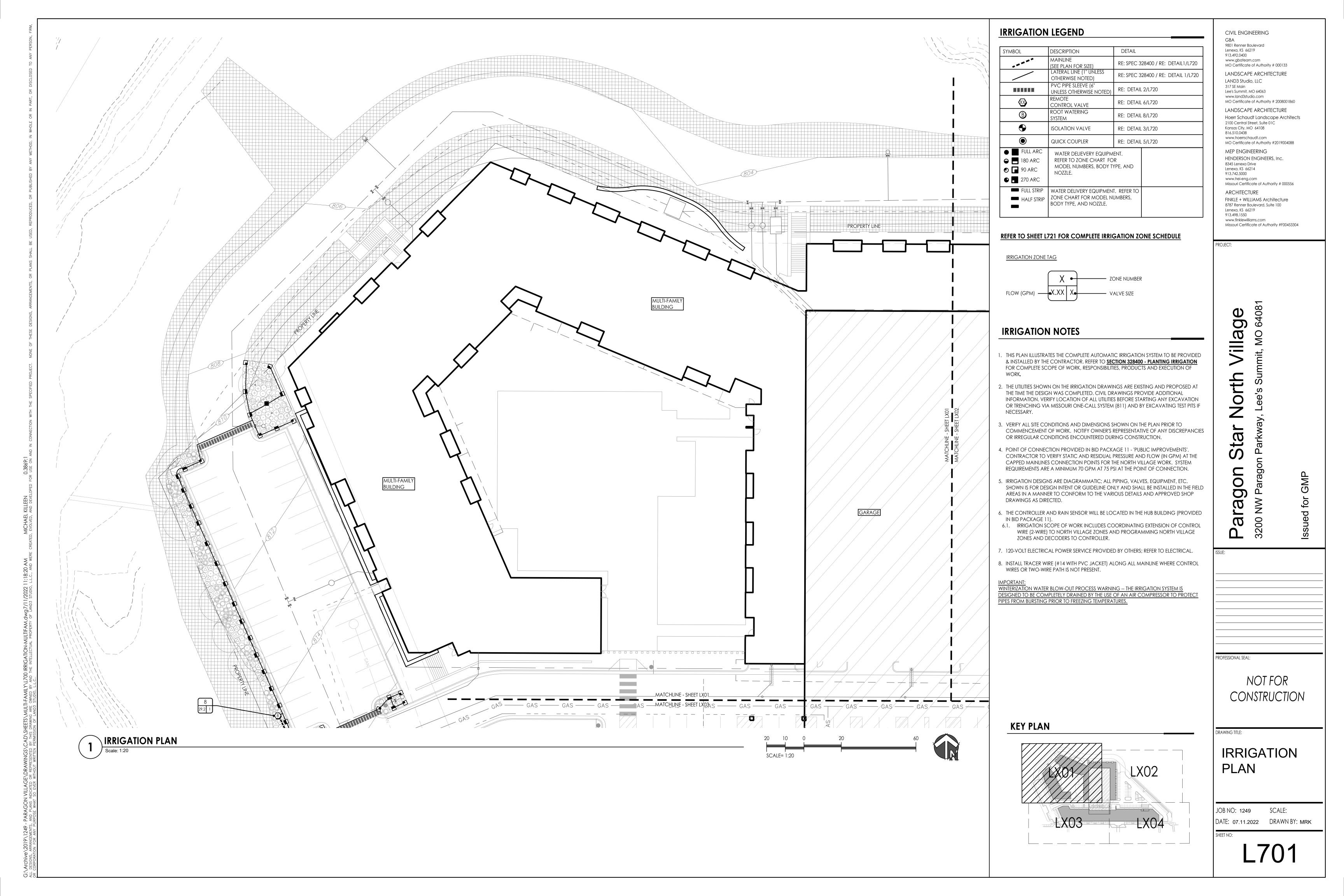
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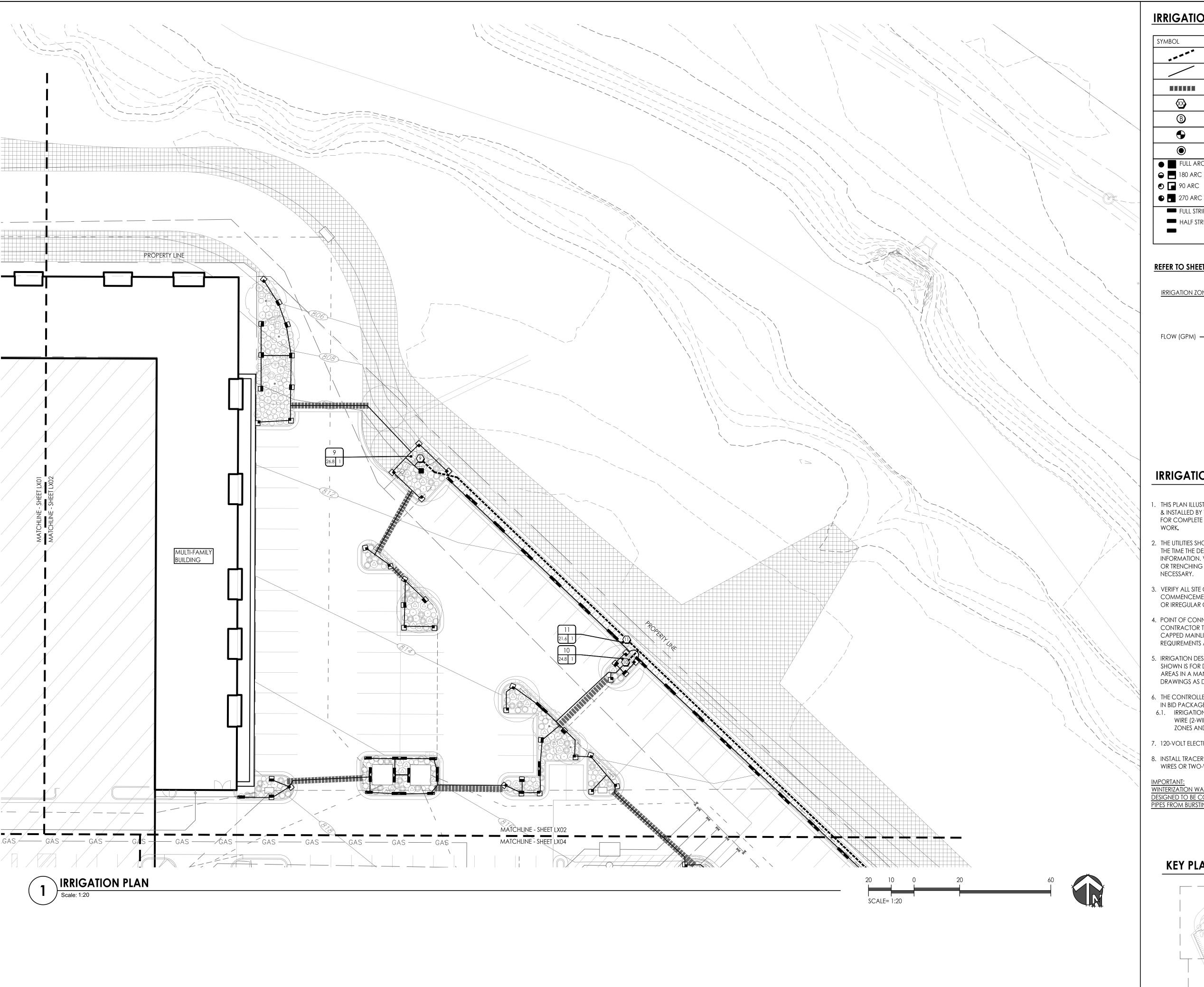
DATE: 01.28.2022 DRAWN BY: MRK



Missouri Certificate of Authority # 000556

FINKLE + WILLIAMS Architecture





# **IRRIGATION LEGEND**

SYMBOL	DESCRIPTION	DETAIL
****	MAINLINE (SEE PLAN FOR SIZE)	RE: SPEC 328400 / RE: DETAIL1/L72
	LATERAL LINE (1" UNLESS OTHERWISE NOTED)	RE: SPEC 328400 / RE: DETAIL 1/L72
	PVC PIPE SLEEVE (6" UNLESS OTHERWISE NOTED)	RE: DETAIL 2/L720
⊗	REMOTE CONTROL VALVE	RE: DETAIL 6/L720
B	ROOT WATERING SYSTEM	RE: DETAIL 8/L720
•	ISOLATION VALVE	RE: DETAIL 3/L720
•	QUICK COUPLER	RE: DETAIL 5/L720
FIII ARC		

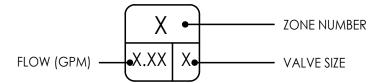
WATER DELIEVERY EQUIPMENT. REFER TO ZONE CHART FOR MODEL NUMBERS, BODY TYPE, AND

FULL STRIP WATER DELIVERY EQUIPMENT. REFER TO HALF STRIP ZONE CHART FOR MODEL NUMBERS,

#### REFER TO SHEET L721 FOR COMPLETE IRRIGATION ZONE SCHEDULE

BODY TYPE, AND NOZZLE.

#### IRRIGATION ZONE TAG

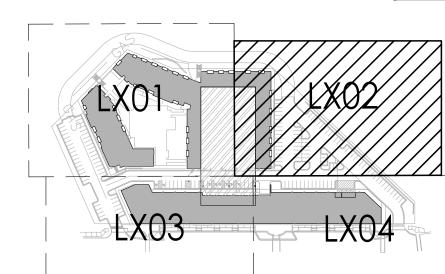


# **IRRIGATION NOTES**

- 1. THIS PLAN ILLUSTRATES THE COMPLETE AUTOMATIC IRRIGATION SYSTEM TO BE PROVIDED & INSTALLED BY THE CONTRACTOR. REFER TO **SECTION 328400 - PLANTING IRRIGATION** FOR COMPLETE SCOPE OF WORK, RESPONSIBILITIES, PRODUCTS AND EXECUTION OF
- 2. THE UTILITIES SHOWN ON THE IRRIGATION DRAWINGS ARE EXISTING AND PROPOSED AT THE TIME THE DESIGN WAS COMPLETED. CIVIL DRAWINGS PROVIDE ADDITIONAL INFORMATION. VERIFY LOCATION OF ALL UTILITIES BEFORE STARTING ANY EXCAVATION OR TRENCHING VIA MISSOURI ONE-CALL SYSTEM (811) AND BY EXCAVATING TEST PITS IF
- 3. VERIFY ALL SITE CONDITIONS AND DIMENSIONS SHOWN ON THE PLAN PRIOR TO COMMENCEMENT OF WORK. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR IRREGULAR CONDITIONS ENCOUNTERED DURING CONSTRUCTION.
- 4. POINT OF CONNECTION PROVIDED IN BID PACKAGE 11 'PUBLIC IMPROVEMENTS'. CONTRACTOR TO VERIFY STATIC AND RESIDUAL PRESSURE AND FLOW (IN GPM) AT THE CAPPED MAINLINES CONNECTION POINTS FOR THE NORTH VILLAGE WORK. SYSTEM REQUIREMENTS ARE A MINIMUM 70 GPM AT 75 PSI AT THE POINT OF CONNECTION.
- 5. IRRIGATION DESIGNS ARE DIAGRAMMATIC; ALL PIPING, VALVES, EQUIPMENT, ETC. SHOWN IS FOR DESIGN INTENT OR GUIDELINE ONLY AND SHALL BE INSTALLED IN THE FIELD AREAS IN A MANNER TO CONFORM TO THE VARIOUS DETAILS AND APPROVED SHOP DRAWINGS AS DIRECTED.
- 6. THE CONTROLLER AND RAIN SENSOR WILL BE LOCATED IN THE HUB BUILDING (PROVIDED IN BID PACKAGE 11).
- 6.1. IRRIGATION SCOPE OF WORK INCLUDES COORDINATING EXTENSION OF CONTROL WIRE (2-WIRE) TO NORTH VILLAGE ZONES AND PROGRAMMING NORTH VILLAGE ZONES AND DECODERS TO CONTROLLER.
- 7. 120-VOLT ELECTRICAL POWER SERVICE PROVIDED BY OTHERS; REFER TO ELECTRICAL.
- 8. INSTALL TRACER WIRE (#14 WITH PVC JACKET) ALONG ALL MAINLINE WHERE CONTROL WIRES OR TWO-WIRE PATH IS NOT PRESENT.

IMPORTANT:
WINTERIZATION WATER BLOW-OUT PROCESS WARNING -- THE IRRIGATION SYSTEM IS
DESIGNED TO BE COMPLETELY DRAINED BY THE USE OF AN AIR COMPRESSOR TO PROTECT
PIPES FROM BURSTING PRIOR TO FREEZING TEMPERATURES.

# **KEY PLAN**



CIVIL ENGINEERING

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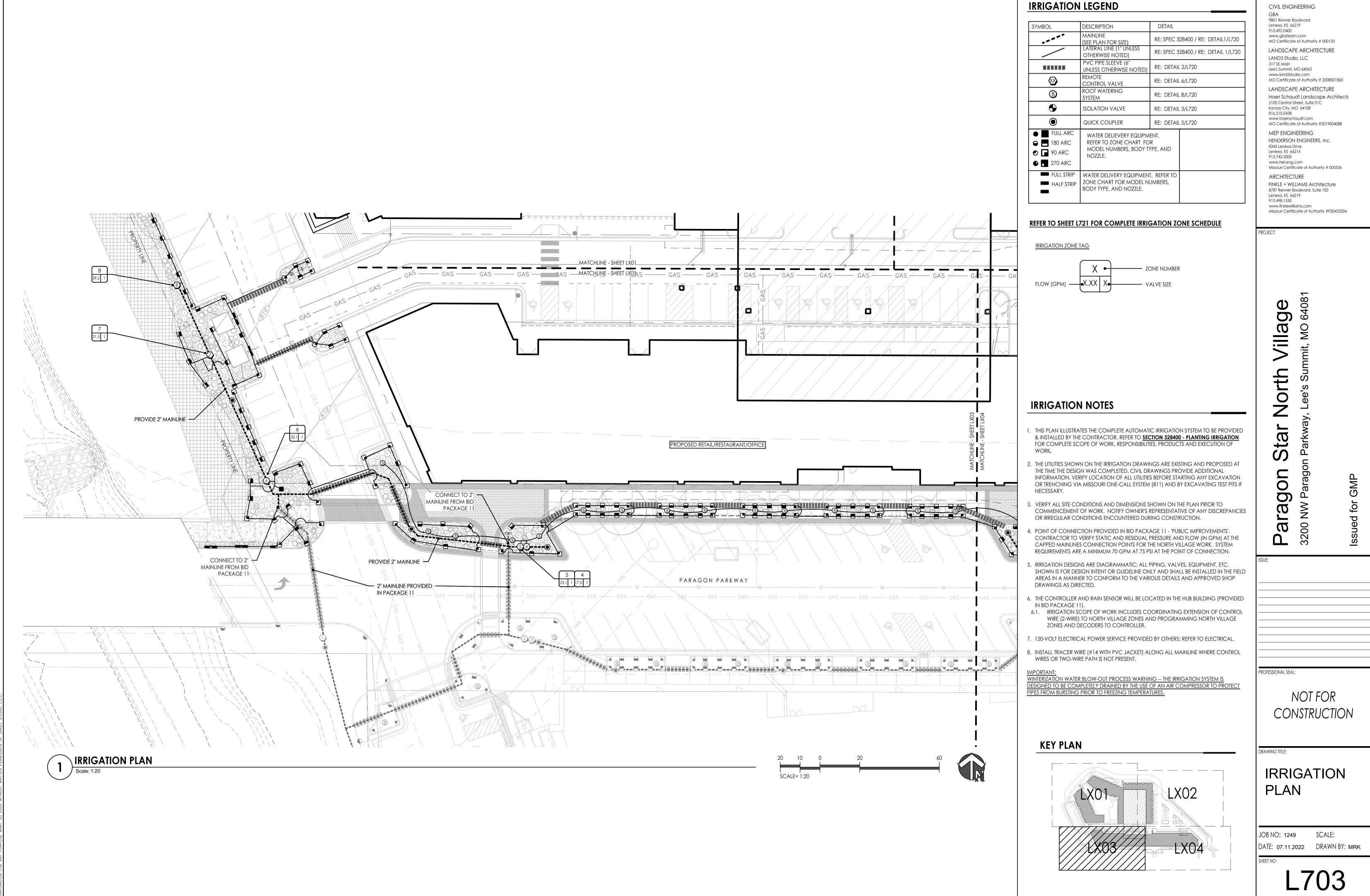
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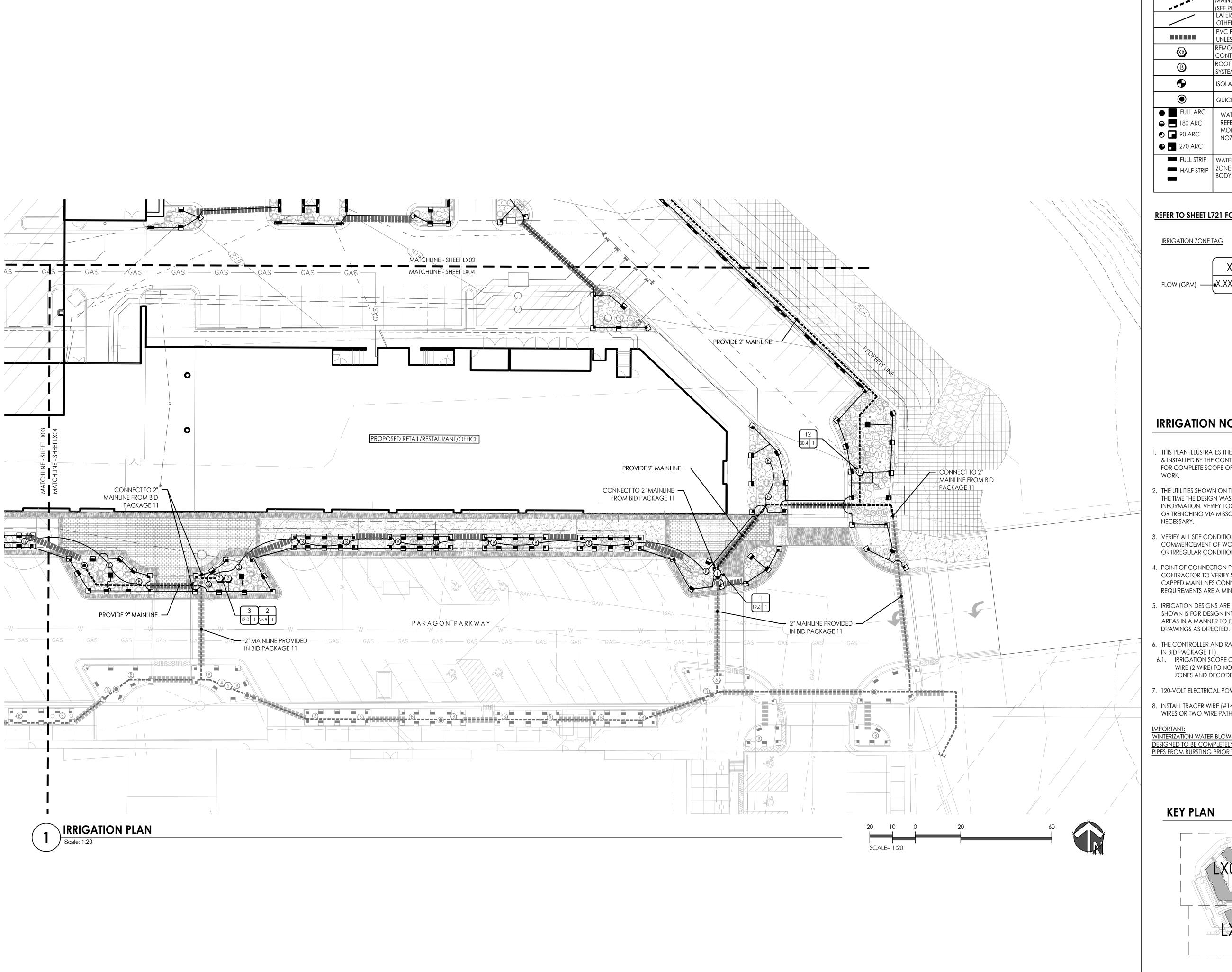
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DRAWING TITLE:

IRRIGATION PLAN

JOB NO: 1249 SCALE: DATE: 07.11.2022 DRAWN BY: MRK





# **IRRIGATION LEGEND**

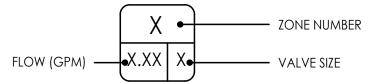
			_
SYMBOL	DESCRIPTION	DETAIL	
****	MAINLINE (SEE PLAN FOR SIZE)	RE: SPEC 3	28400 / RE: DETAIL1/L720
	LATERAL LINE (1" UNLESS OTHERWISE NOTED)	RE: SPEC 3	28400 / RE: DETAIL 1/L720
	PVC PIPE SLEEVE (6" UNLESS OTHERWISE NOTED)	RE: DETAIL	_ 2/L720
$\otimes$	REMOTE CONTROL VALVE	RE: DETAIL	_ 6/L720
B	ROOT WATERING SYSTEM	re: Detail	_ 8/L720
•	ISOLATION VALVE	re: Detail	_ 3/L720
•	QUICK COUPLER	RE: DETAIL	_ 5/L720
• FULL ARC	WATER DELIEVERY EQUIPM	ENT.	

REFER TO ZONE CHART FOR MODEL NUMBERS, BODY TYPE, AND

FULL STRIP WATER DELIVERY EQUIPMENT. REFER TO HALF STRIP ZONE CHART FOR MODEL NUMBERS, BODY TYPE, AND NOZZLE.

#### REFER TO SHEET L721 FOR COMPLETE IRRIGATION ZONE SCHEDULE

#### IRRIGATION ZONE TAG



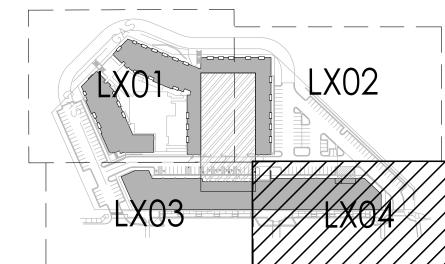
# **IRRIGATION NOTES**

- 1. THIS PLAN ILLUSTRATES THE COMPLETE AUTOMATIC IRRIGATION SYSTEM TO BE PROVIDED & INSTALLED BY THE CONTRACTOR. REFER TO **SECTION 328400 - PLANTING IRRIGATION** FOR COMPLETE SCOPE OF WORK, RESPONSIBILITIES, PRODUCTS AND EXECUTION OF
- 2. THE UTILITIES SHOWN ON THE IRRIGATION DRAWINGS ARE EXISTING AND PROPOSED AT THE TIME THE DESIGN WAS COMPLETED. CIVIL DRAWINGS PROVIDE ADDITIONAL INFORMATION. VERIFY LOCATION OF ALL UTILITIES BEFORE STARTING ANY EXCAVATION OR TRENCHING VIA MISSOURI ONE-CALL SYSTEM (811) AND BY EXCAVATING TEST PITS IF
- 3. VERIFY ALL SITE CONDITIONS AND DIMENSIONS SHOWN ON THE PLAN PRIOR TO COMMENCEMENT OF WORK. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR IRREGULAR CONDITIONS ENCOUNTERED DURING CONSTRUCTION.
- 4. POINT OF CONNECTION PROVIDED IN BID PACKAGE 11 'PUBLIC IMPROVEMENTS'. CONTRACTOR TO VERIFY STATIC AND RESIDUAL PRESSURE AND FLOW (IN GPM) AT THE CAPPED MAINLINES CONNECTION POINTS FOR THE NORTH VILLAGE WORK. SYSTEM REQUIREMENTS ARE A MINIMUM 70 GPM AT 75 PSI AT THE POINT OF CONNECTION.
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- 7. 120-VOLT ELECTRICAL POWER SERVICE PROVIDED BY OTHERS; REFER TO ELECTRICAL.
- 8. INSTALL TRACER WIRE (#14 WITH PVC JACKET) ALONG ALL MAINLINE WHERE CONTROL WIRES OR TWO-WIRE PATH IS NOT PRESENT.

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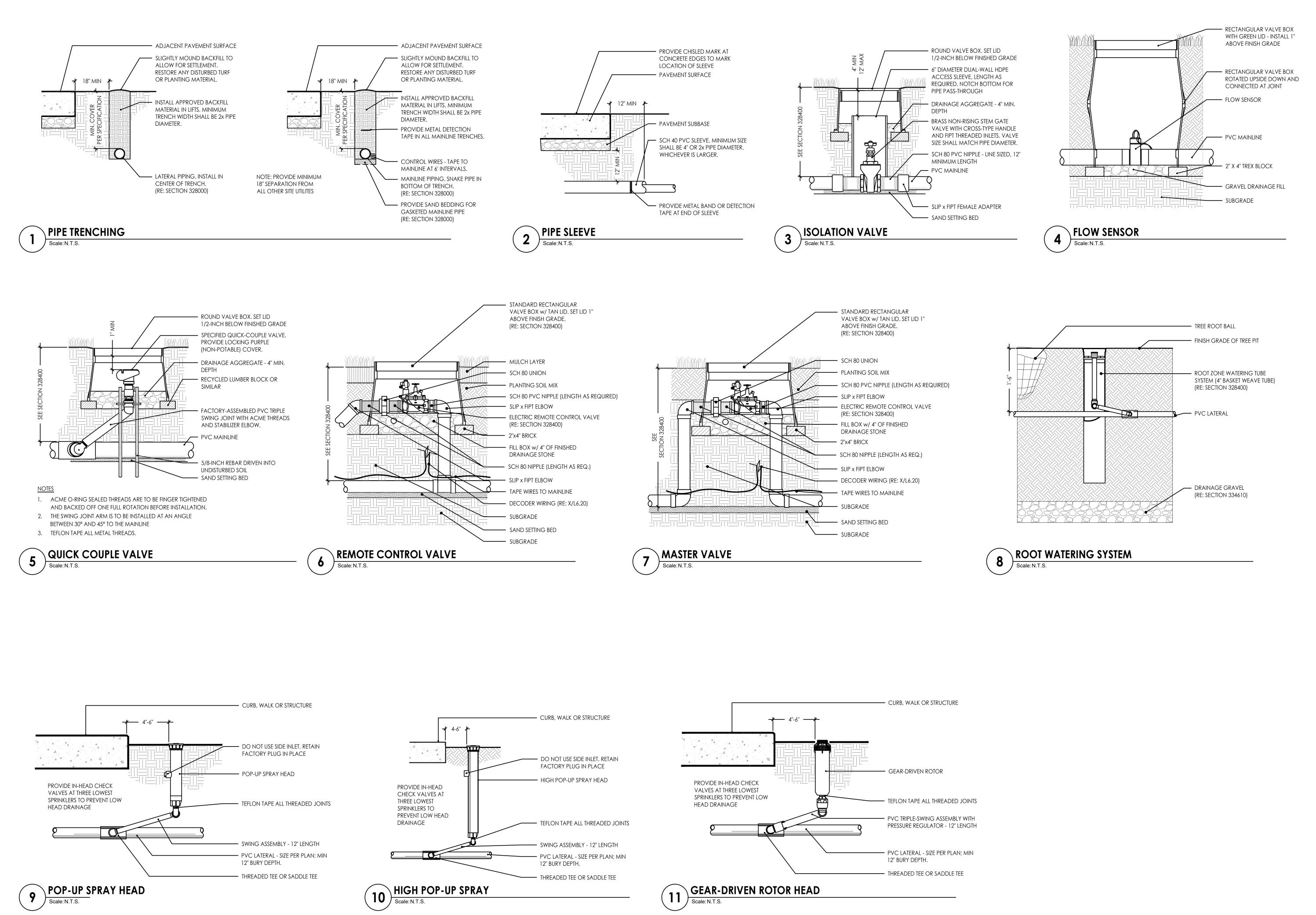
PROFESSIONAL SEAL:

NOT FOR CONSTRUCTION

DRAWING TITLE:

IRRIGATION **PLAN** 

JOB NO: 1249 SCALE: DATE: 07.11.2022 DRAWN BY: MRK



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ARCHITECTURE FINKLE + WILLIAMS Architecture

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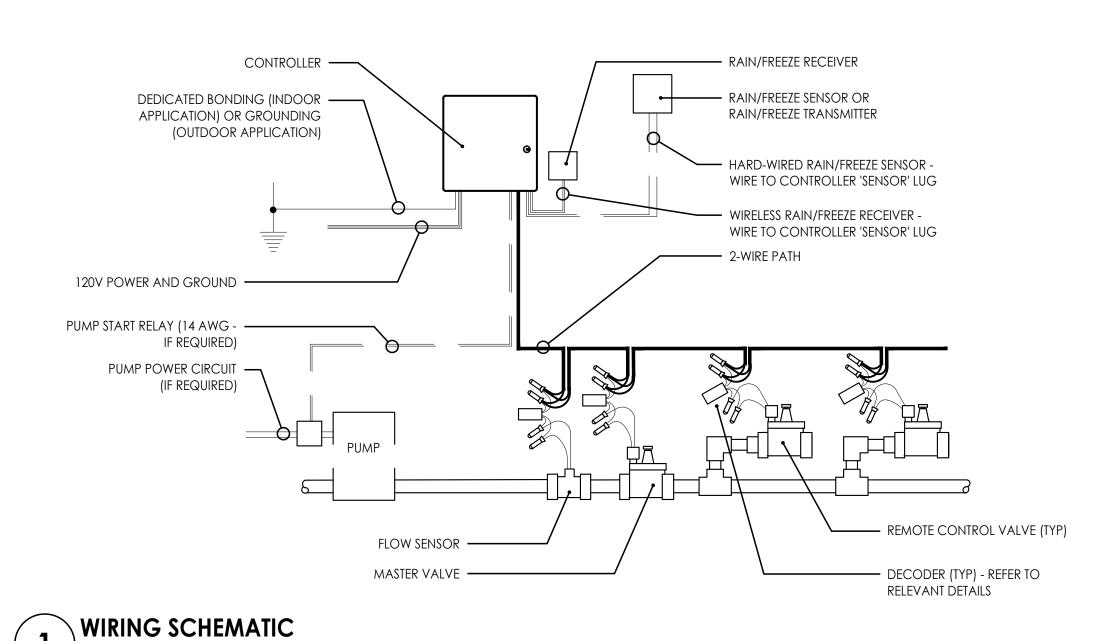
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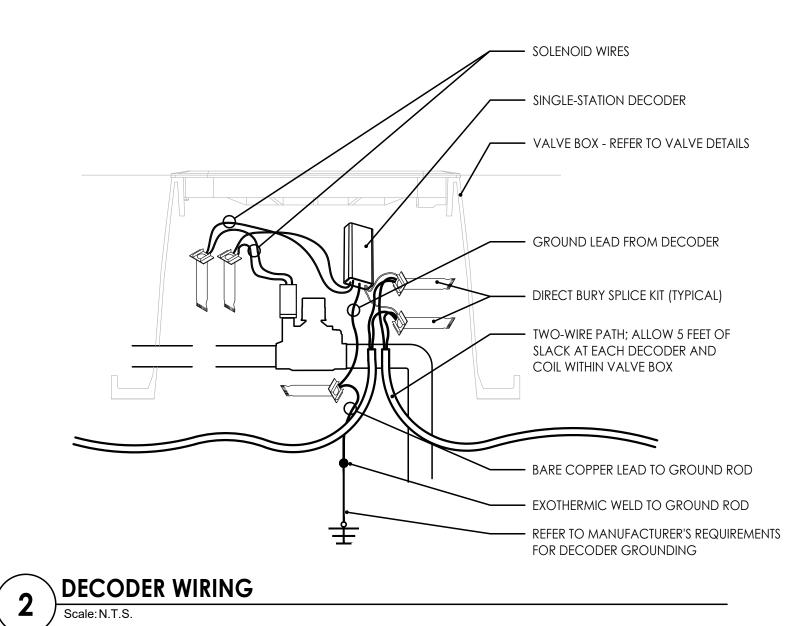
NOT FOR CONSTRUCTION

DRAWING TITLE:

IRRIGATION **DETAILS** 

SCALE: JOB NO: 1249 DATE: 07.11.2022 DRAWN BY: MRK





# IRRIGATION SCHEDULE

7015	70NE TVDE		HEAD / LINE INFORMATION						FLOW	OPERATING	VALVE
ZONE	ZONE TYPE	360°	270°	180°	90°	SST	RCS/LCS	CST	(GPM)	PRESSURE (PSI)	SIZE
1	BED SPRAY		HEAD:	RAINBIRD	1812/ NOZZ	LE: RAINBI	RD MPR		20.36	30	1"
		0	0	17	14	0	0	0	1		
2	BED SPRAY HEAD: RAINBIRD 1812/ NOZZLE: RAINBIRD MPR							25.85	30	1"	
		2	0	29	20	0	0	0	1		
3	TREE DRIP	TRE	DRIP: (13)	RWS-B-140	)4; ROOT ZC	ONE WATE	RING @ 1.0 g	pm	13.0	30	1"
4	TREE DRIP	TRE	E DRIP: (13)	RWS-B-140	)4; ROOT ZC	ONE WATE	RING @ 1.0 g	pm	17.0	30	1"
5	BED SPRAY		HEAD: RAINBIRD 1812/ NOZZLE: RAINBIRD MPR						23.10	30	1"
		0	0	26	19	0	0	0			
6	BED SPRAY HEAD: RAINBIRD 1812/ NOZZLE: RAINBIRD MPR						32.01	30	1"		
		1	0	13	11	2	1	0			
7	BED SPRAY		HEAD:	RAINBIRD	1812/ NOZZ	'le: Rainbi	RD MPR		21.51 30	1"	
		0	0	17	8	1	0	0			
8	BED SPRAY		HEAD: RAINBIRD 1812/ NOZZLE: RAINBIRD MPR					29.24 30	1"		
		1	0	21	5	0	0	0	]		
9	BED SPRAY	BED SPRAY HEAD: RAINBIRD 1812/ NOZZLE: RAINBIRD MPR						26.84	30	1"	
		1	0	9	12	0	0	0	1		
10	BED SPRAY		HEAD:	RAINBIRD	1812/ NOZZ	LE: RAINBI	RD MPR		24.82	30	1"
		0	0	8	12	7	5	0	1		
11	BED SPRAY	RAINBIRD	D 1812/ NOZZLE: RAINBIRD MPR				21.55	30	1"		
		0	0	0	0	17	2	0	1		
12	BED SPRAY		HEAD:	RAINBIRD	1812/ NOZZ	LE: RAINBI	RD MPR		29.57	30	1"
		1	0	11	6	0	0	0	1		

CIVIL ENGINEERING

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PROJECT:

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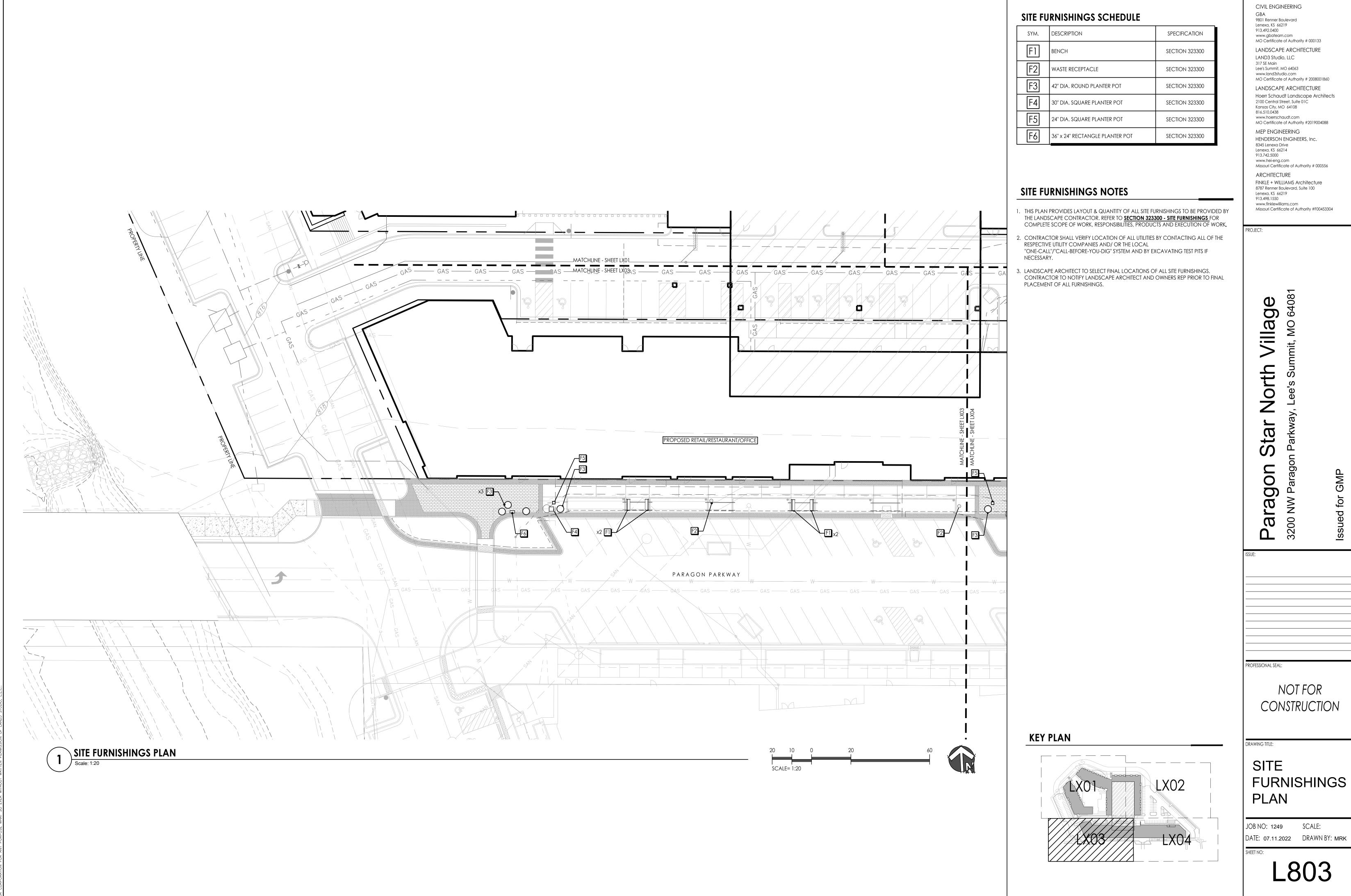
PROFESSIONAL SEAL:

NOT FOR CONSTRUCTION

DRAWING TITLE:

IRRIGATION **DETAILS** 

JOB NO: 1249 SCALE: DATE: 07.11.2022 DRAWN BY: MRK



# NECESSARY. MATCHLINE - SHEET LX02 — GAS ———/GAS ——— GAS ———— GAS ———— GAS ———— GAS — MATCHLINE - SHEET LX04 PROPOSED RETAIL/RESTAURANT/OFFICE F2 PARAGON PARKWAY **KEY PLAN** SITE FURNISHINGS PLAN SCALE= 1:20

# SITE FURNISHINGS SCHEDULE

SYM.	DESCRIPTION	SPECIFICATION
F1	BENCH	SECTION 323300
F2	WASTE RECEPTACLE	SECTION 323300
F3	42" DIA. ROUND PLANTER POT	SECTION 323300
F4	30" DIA. SQUARE PLANTER POT	SECTION 323300
F5	24" DIA. SQUARE PLANTER POT	SECTION 323300
F6	36" x 24" RECTANGLE PLANTER POT	SECTION 323300
F2 F3 F4	WASTE RECEPTACLE  42" DIA. ROUND PLANTER POT  30" DIA. SQUARE PLANTER POT  24" DIA. SQUARE PLANTER POT	SECTION 3233 SECTION 3233 SECTION 3233 SECTION 3233

# SITE FURNISHINGS NOTES

- . THIS PLAN PROVIDES LAYOUT & QUANTITY OF ALL SITE FURNISHINGS TO BE PROVIDED BY THE LANDSCAPE CONTRACTOR. REFER TO **SECTION 323300 - SITE FURNISHINGS** FOR COMPLETE SCOPE OF WORK, RESPONSIBILITIES, PRODUCTS AND EXECUTION OF WORK.
- 2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES BY CONTACTING ALL OF THE RESPECTIVE UTILITY COMPANIES AND/ OR THE LOCAL "ONE-CALL"/"CALL-BEFORE-YOU-DIG" SYSTEM AND BY EXCAVATING TEST PITS IF
- 3. LANDSCAPE ARCHITECT TO SELECT FINAL LOCATIONS OF ALL SITE FURNISHINGS. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT AND OWNERS REP PRIOR TO FINAL PLACEMENT OF ALL FURNISHINGS.

#### CIVIL ENGINEERING

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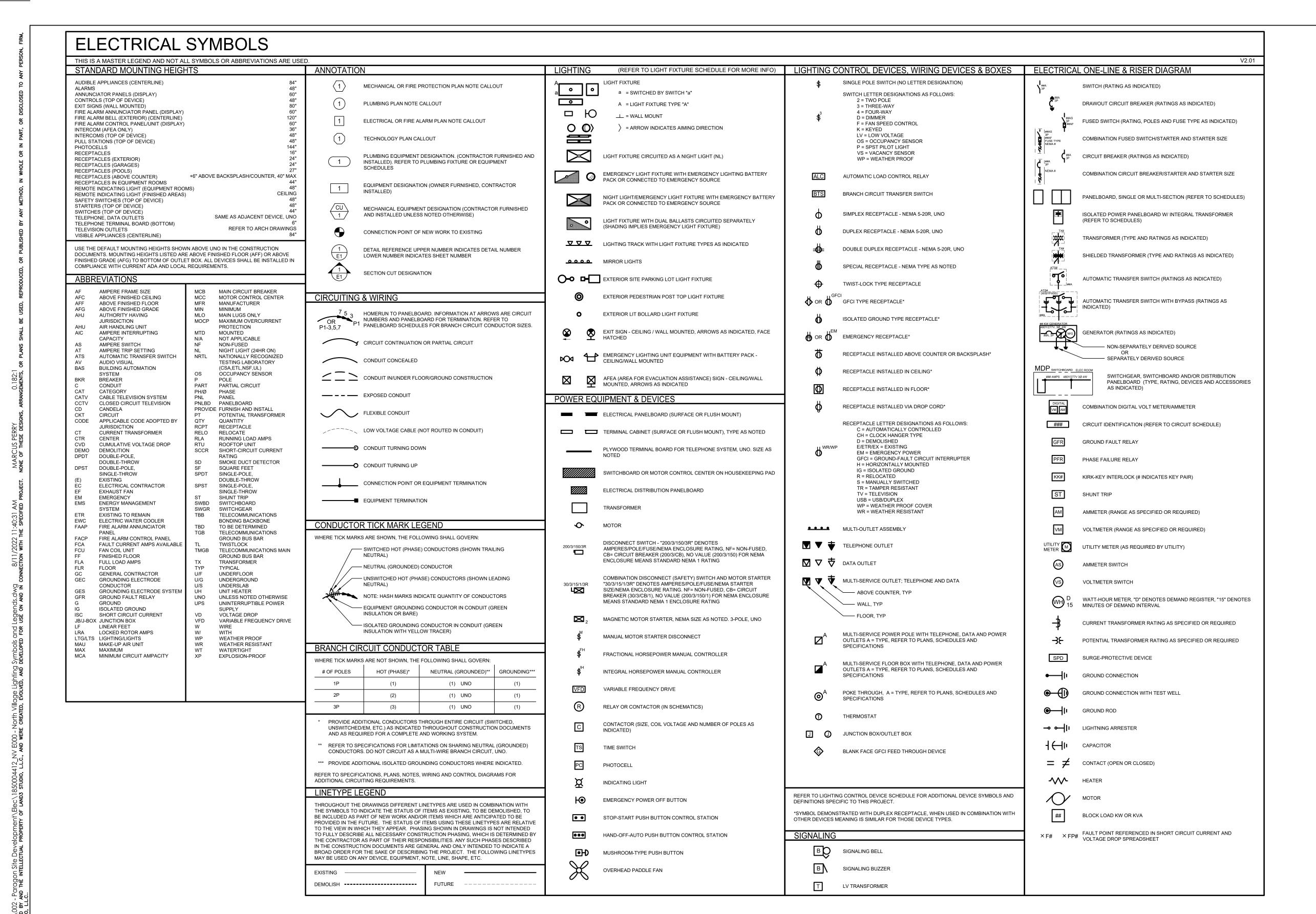
PROFESSIONAL SEAL:

NOT FOR CONSTRUCTION

LX02

SITE **FURNISHINGS** PLAN

JOB NO: 1249 SCALE: DATE: 07.11.2022 DRAWN BY: MRK



HENDERSON 1801 MAIN STREET, SUITE 300 KANSAS CITY, MO 64108 TEL 816.663.8700 FAX 816.663.8701 WWW.HENDERSONENGINEERS.COM

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PROJECT:

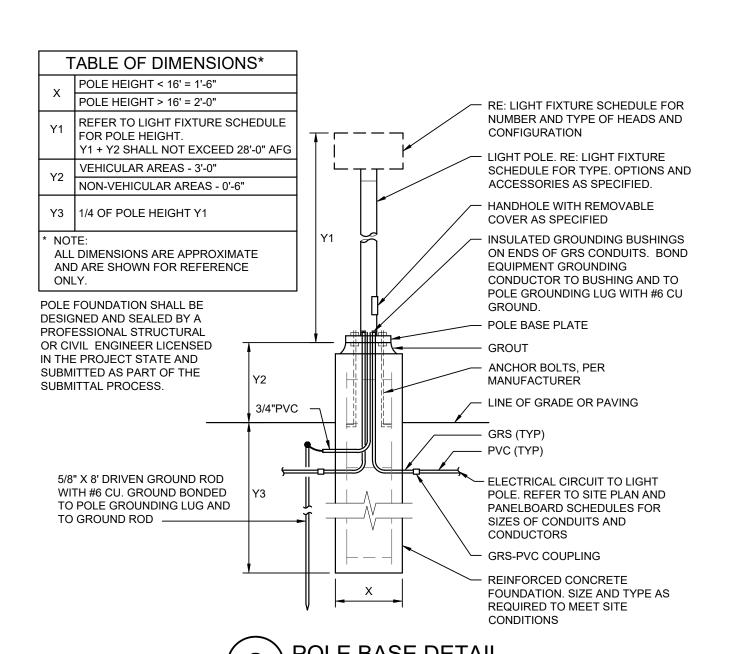
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1 FDP RESUBMITTAL 08.12.2022

Indru muli ans NUMBER PE-2013039892 LICENSE # PE-2013039892 08/11/2022

# LIGHTING SYMBOLS AND **LEGENDS**

JOB NO: 1249 SCALE: DATE: 08.12.2022 DRAWN BY: MAP



TYPE	INAANUJEAOTUDED/MODEL #				I		
	MANUFACTURER/MODEL #		LAMPS		INPUT	INPUT	DESCRIPTION
		NO.	TYPE	VOLT	WATTS	VA	
S1	MCGRAW-EDISON	-	LED BY	480	166	166	LED PARKING LOT FIXTURE. PROVIDE WITH 25' ROUND ALUMINUM POLE
	GLNA-AF-03-LED-T4W-BK		MANUFACTURER				ON 3' BASE.
	W/KWINDUSTRIES RAP-25-6.0-X-BLK-DM10		4000K, 70 CRI				
			17,984 LUMENS				
			400,000 HRS				
			B2-UO-G2				
S1A	MCGRAW-EDISON	-	LED BY	480	166	166	LED PARKING LOT FIXTURE. PROVIDE WITH 25' ROUND TAPERED
	GLNA-AF-03-LED-T4FT-BK		MANUFACTURER				CURVED ALUMINUM POLE ON 3' BASE. LOWER LUMEN OUTPUT LIGHT
			4000K, 70 CRI				FIXTURE MOUNTED ON OPPOSITE SIDE AT +10' FROM BASE OF POLE.
			18,220				HIGHER LUMEN OUTPUT LIGHT FIXTURE MOUNTED AT TOP OF POLE.
			400,000 HRS				
			B2-UO-G2				
	GLNA-AF-01-LED-T2-BK		4,015 LUMENS	480	34	34	
			B1-U0-G1				
	W/VALMONT IDYLINE CURVES						
	c5-03-DCG-DCG-DCG						
S2	MCGRAW-EDISON	-	LED BY	480	332	332	LED PARKING LOT FIXTURE. PROVIDE (2) HEADS PER POLE AT 180
	(2) GLNA-AF-03-LED-480-T4W-BK		MANUFACTURER				DEGREES. PROVIDE WITH 25' ROUND ALUMINUM POLE ON 3' BASE.
	W/ KW INDUSTRIES RAP-25-6.0-X-BLK-DM2180		4000K, 70 CRI				
			35,968 LUMENS				
			40,000 HRS				
			, В2-UO-G2				

GENERAL NOTES:

REFER TO SHEET E000 FOR GENERAL NOTES.

**KEYNOTES**:

1 REFER TO DETAIL 2, SHEET E100 FOR POLE BASE DETAIL.

PARKING LOT LIGHTING CIRCUIT. ROUTE CONDUIT AND CIRCUIT TO BUILDING #1 ELECTRICAL ROOM. CIRCUIT SHALL BE CONTROLLED VIA LIGHTING CONTROL PANEL WITH PHOTOCELL ON/OFF CONTROL IN SEPARATE BUILDING PACKAGE. PROVIDE (2) #10 AWG WITH (1) #10 GROUND IN 1" CONDUIT FOR WIRING FROM POLE TO POLE AND POLE. WIRE SIZE FOR HOME RUN TO FUTURE PANELBOARD WILL BE DETERMINED TO ACCOUNT FOR VOLTAGE DROP.

HENDERSON ENGINEERS

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ARCHITECTURE
FINKLE + WILLIAMS Architecture
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Lenexa, KS 66219

913.498.1550 www.finklewilliams.com Missouri Certificate of Authority #F00453304

PROJECT:

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on Star North Vi aragon Parkway, Lee's Summit,

200 NW Paragon Park

FDP RESUBMITTAL 08.12.2022

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MULVANY

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PE-2013039892

C. MULVANY 08/11/2

NORTH VILLAGE

SITE LIGHTING PLAN

JOB NO: 1249 SCALE:
DATE: 08.12.2022 DRAWN BY: MAP

E100

NORTH VILLAGE SITE LIGHTING PLAN
SCALE: 1" = 64'

#### A. GENERAL REQUIREMENTS

All requirements under Division 01 and the general and supplementary conditions of these specifications apply to this section and division. Where the requirements of this section and division exceed those of Division 01, this section and division take precedence. Become thoroughly familiar with all its contents as to requirements that affect this division, section, or both. Work required under this division includes all material, equipment, appliances, transportation, services, and labor required to complete the entire system as required by the drawings and specifications, or reasonably inferred to be necessary to facilitate the function of each system as implied by the design and the equipment specified.

The specifications and drawings for the project are complementary, and any portion of work described in one shall be provided as if described in both. In the event of discrepancies, notify the Engineer and request clarification prior to proceeding with the Work involved.

Drawings are graphic representations of the work upon which the contract is based. They show the materials and their relationship to one another, including sizes, shapes, locations, and connections. They convey the scope of work, indicating the intended general arrangement of the systems without showing all of the exact details as to elevations, offsets, control lines, and other installation requirements. Use the drawings as a guide when laying out the work and to verify that materials and equipment will fit into the designated spaces, and which when installed per manufacturers' requirements, will ensure a complete, coordinated, satisfactory, and properly operating system.

#### B. DEFINITIONS

Division: References contained in this specification follow the numbering system defined in the Construction Specifications Institute (CSI) MasterFormat 2004 Edition. Specification Divisions 01 through 13 provided with this project may reference the CSI MasterFormat 1995 Edition. The corresponding division references between the 2004 Edition and 1995 Edition are as follows: 2004 Edition

Division 21 - Fire Suppression Division 15 Division 22 - Plumbing Division 15 Division 23 - HVAC Division 15 Division 26 - Electrical Division 16 Division 27 - Communications Division 16

Division 28 - Electronic Safety and Security

Furnish: "to supply and deliver to the project site, ready for unloading, unpacking, assembling, installing, and similar operations."

Division 16

Install: "to perform all operations at the project site including, but not limited to, the actual unloading. unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, testing, commissioning, starting up and similar operations, complete, and ready for

#### Provide: "to furnish and install."

Furnished by Owner (or Owner-Furnished) or Furnished by Others: "an item furnished by the Owner or under other divisions or contracts, and installed under the requirements of this division, complete, and ready for the intended use. including all items and services incidental to the work necessary for proper installation and operation. Include the installation under the warranty required by this division.

Engineer: Where referenced in this Division, "Engineer" is the Engineer of Record and the Design professional for the work under this division, and is a consultant to, and an authorized representative of the Architect, as defined in the General and/or Supplementary Conditions. When used in this division, Engineer means increased involvement by and obligations to the Engineer, in addition to involvement by and obligations to the Architect.

#### AHJ: The local code and/or inspection agency (Authority) Having Jurisdiction over the Work.

NRTL: Nationally Recognized Testing Laboratory, as defined and listed by OSHA in 29 CFR 1910.7 (e.g., UL, ETL, CSA), and acceptable to the AHJ over this project. Nationally recognized testing laboratories and standards listed are used only to represent the characteristics required and are not intended to restrict the use of other NRTLs that are acceptable to the AHJ and standards that meet the specified

Homerun: That portion of an electrical circuit originating at a junction box, termination box, receptacle, or switch with termination at an electrical panelboard. Note: Where MC cable is utilized for receptacle and/or lighting branch circuiting loads, the originating point of the homerun shall be at the first load in the circuit or at a junction box located in an accessible ceiling space as close as possible to the first load.

- Substitution: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor. Substitutions include Value
- Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.
- The terms "approved equal", "equivalent", or "equal" are used synonymously and shall mean "accepted by or acceptable to the Engineer as equivalent to the item or manufacturer specified". The term approved" shall mean labeled, listed, certified, or all three, by an NRTL, and acceptable to the AHJ over

#### C. PRE-BID SITE VISIT

Prior to submitting bid, visit the site of the proposed work and become fully informed as to the conditions under which the work is to be done. Failure to comply with this requirement shall not be considered sufficient justification to request or obtain extra compensation over and above the contract price.

#### D. MATERIAL AND WORKMANSHIP

Provide new material, equipment, and apparatus under this contract unless otherwise stated herein of best quality normally used for the purpose in good commercial practice, and free from defects. Model umbers listed in the specifications or shown on the drawings are not necessarily intended to designate the required trim, written descriptions of the trim govern model numbers.

Provide markings or a nameplate for all material and equipment identifying the manufacturer and providing sufficient reference to establish quality, size, and capacity. All workmanship shall be of the finest possible by experienced mechanics of the proper trade. In general, provide the following quality grade(s) for all materials and equipment.

#### Commercial specification grade:

Provide all hoists, scaffolds, staging, runways, tools, machinery, and equipment required for the performance of the electrical work. Store and maintain material and equipment in clean condition, and protected from weather, moisture, and physical damage.

Furnish only material and equipment that are listed, labeled, certified, or all three, by an NRTL whenever any listing or labeling exists for the types of material and equipment specified.

At a minimum, general work practices for electrical construction shall be in accordance with NECA 1 (latest edition), "Standard Practices for Good Workmanship in Electrical Construction".

#### E. MANUFACTURERS

In other articles where lists of manufacturers are introduced, subject to compliance with requirements provide products by one of the manufacturers specified

Where a list is provided, manufacturers are listed alphabetically and not in accordance with any ranking

Where manufacturers are not listed, provide products subject to compliance with requirements from manufacturers that have been actively involved in manufacturing the specified product for no less than 5

#### F. COORDINATION

Coordinate all work with other divisions and trades so that various components of the systems are installed at the proper time, fit the available space, and allow proper service access to those items requiring maintenance. Components which are installed without regard to the above shall be relocated at no additional cost to the Owner.

Unless otherwise indicated, the General Contractor shall provide chases and openings in building construction required for installation of the systems specified herein. Contractor shall furnish the General Contractor with information where chases and openings are required. Contractor shall keep informed as to the work of other trades engaged in the construction of the project and shall execute work in a manner as to not interfere with or delay the work of other trades.

Figured dimensions shall be taken in preference to scale dimensions. Contractor shall take his own measurements at the building, as variations may occur. Contractor shall be held responsible for errors that could have been avoided by proper checking and inspection.

Provide materials with trim that will properly fit the types of ceiling, wall, or floor finishes actually installed. Model numbers listed in the specifications or shown on the drawings are not intended to designate the

Make all offsets required to clear equipment, beams, and other structural members, and to facilitate concealing raceways in the manner anticipated in the design. Provide materials with trim that will fit properly the types of ceiling, wall, or floor finishes actually installed.

#### G. ORDINANCES AND CODES

Work performed under this contract shall, at a minimum, be in conformance with applicable national. state and local codes having jurisdiction. Equipment furnished and associated installation work performed under this contract shall be in strict compliance with current applicable codes adopted by the local AHJ, ncluding any amendments and standards as set forth by the following:

- National Fire Protection Association (NFPA) Underwriters Laboratories (UL)
- Occupational Safety and Health Administration (OSHA)
- American National Standards Institute (ANSI) American Society of Testing Materials (ASTM)

6. Rules and regulations of public utilities and municipal departments affected by connection of 7. Other national standards and codes where applicable.

and regulations exist, comply with the most stringent. Promptly bring all conflicts observed between codes, ordinances, rules, regulations, referenced standards, and these documents to the attention of the Architect and Engineer for final resolution.

Where the contract documents exceed the requirements of the referenced codes, standards, etc., the

contract documents shall take precedence. Where conflicts between various codes, ordinances, rules

Procure and pay for permits and licenses required for the accomplishment of the work herein described. Where required, obtain, pay for, and furnish certificates of inspection to Owner. Provide all safety lights, guards, and warning signs required for the performance of the work and for the safety of the public.

#### H. PROTECTION OF EQUIPMENT AND MATERIALS

Contractor will be held responsible for any violation of the law.

Store and protect from damage equipment and materials delivered to job site. For materials and equipment susceptible to changing weather conditions, dampness, or temperature variations, store inside in conditioned spaces. For materials and equipment not susceptible to these conditions, cover with waterproof, tear-resistant, heavy tarp or polyethylene plastic as required to protect from plaster, dirt, paint, water, or physical damage. Equipment and material damaged by construction activities shall be rejected, and Contractor shall furnish new equipment and material of a like kind at his own expense.

Keep premises broom clean of foreign material created during work performed under this contract. Conduit, equipment, etc. shall have a neat and clean appearance at the termination of the work.

Plug or cap open ends of conduits while stored and installed during construction when not in use to prevent the entrance of debris into the systems.

#### I. SUBSTITUTIONS

Materials, products, equipment, and systems described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by the proposed substitution. The base bid shall include only the products from manufacturers specifically named in the drawings and specifications. To request a substitution, request the Substitution Request Form from the Architect or Engineer. Complete and send the Substitution Request From for each material, product, equipment, or system that is proposed to be substituted. The burden of proof of the merit of the proposed substitution is upon the proposer.

Unless stated otherwise in writing to the Engineer by the Contractor, Contractor warrants to the Engineer Architect, and Owner the following: Proposed substitution has been fully investigated and determined to meet or exceed the specified

- Work in all respects unless stated otherwise in the substitution request. Proposed substitution is consistent with the Contract Documents and will produce indicated results, including functional clearances, maintenance service, and sourcing of replacement parts. Proposed substitution has received necessary approvals of authorities having jurisdiction.
- Same warranty will be furnished for proposed substitution as for specified Work. If accepted substitution fails to perform as required, Contractor shall replace substitute material or system with that originally specified and bear costs incurred thereby. Coordination, installation and changes in the Work as necessary for accepted substitution will be

No substitutions will be considered unless the Substitution Request Form is completed and attached with the appropriate substitution documentation. No substitution will be considered prior to receipt of bids unless written request for approval to bid has been received by the Engineer at least ten (10) calendar days prior to the date for receipt of bids.

If the proposed substitution is approved prior to receipt of bids, such approval will be stated in an addendum. Bidders shall not rely upon approvals made in any other way. Verbal approval will not be given. No substitutions will be considered after the contract is awarded unless specifically provided in the contract documents

Provide factory generated point-by-point calculations for all exterior light fixtures (photometric files supplied so the engineer can generate a point-by-point do not suffice for the point-by-point calculations). Provide interior point-by-point calculations at the discretion of the engineer.

#### J. SUBMITTALS

complete in all respects.

Assemble and submit for review shop drawings, material lists, manufacturer product literature for equipment to be furnished, and items requiring coordination between contractors under this contract. Provide submittals in sufficient detail so as to demonstrate compliance with these Contract Documents and the design concept. Prior to transmitting submittals, verify that the equipment submitted is mutually compatible with and suitable for the intended use, will fit the available space, and maintain manufacturer recommended service clearances. If the size of equipment furnished makes necessary any change in location or configuration, submit a shop drawing showing the proposed layout.

Transmit submittals as early as required to support the project schedule. Allow two weeks for Engineer review time, plus to/from mailing time via the Architect, plus a duplication of this time for resubmittals, if required. Only resubmit those sections requested for resubmittal.

Submittals shall contain the project name, applicable specification section, submittal data, equipment identifications acronym as used on the drawings, and the Contractor's stamp. The stamp shall certify that the submittal has been checked by the Contractor, complies with the drawings and specifications, and is coordinated with other trades. Manufacturer product literature shall include shop drawings, product data. performance sheets, samples, and other submittals required by this division. Highlight, mark, list, or indicate the materials, performance criteria, and accessories that are being proposed. General product catalog data not specifically noted to be part of the specified product will be rejected and returned without

Submittals and shop drawings shall not contain firm name, logo, the seal, or signature of the Engineer. They shall not be copies of the work product of the Engineer. If the Contractor desires to use elements of such product, refer to paragraph "Electronic Drawing Files" for procedures to be used.

Separate submittals according to individual specification sections. Illegible submittals will be rejected and returned without review. Catalog data shall be properly bound, identified, indexed and tabbed in a 3-ring binder. Each item or model number shall be clearly marked and accessories indicated. Label the catalog data with the equipment identification acronym or number as used on the drawings and include performance curves, capacities, sizes, weights, materials, finishes, wiring diagrams, electrical requirements and deviations from specified equipment or materials. Mark out inapplicable items. Shop drawings will be returned without review if the above mentioned requirements are not met. Provide the quantity of submittals required by Division 01. If not indicated and hard-copy sets are provided, submit a minimum of six (6) copies. Refer to Division 01 for acceptance of electronic submittals for this project. For electronic submittals, Contractor shall submit the documents in accordance with the procedures specified in Division 01. Contractor shall notify the Architect and Engineer that the submittals have been posted. If electronic submittal procedures are not defined in Division 01, Contractor shall include the website, user name, and password information needed to access the submittals. For

submittals sent by e-mail, Contractor shall copy the designated representatives of the Architect and Engineer. Contractor shall allow for the Engineer review time as specified above in the construction schedule. Contractor shall submit only the documents required to purchase the materials and/or equipment in the submittal. the Contractor from responsibility for deviations from the drawings and specifications, errors in

The checking and subsequent acceptance of submittals by the Engineer and/or Architect shall not relieve dimensions, details, sizes of equipment, or quantities, omissions of components or fittings, coordination of electrical requirements, and not coordinating items with actual building conditions and adjacent work. Contractor shall request and secure written acceptance from the Engineer and Architect prior to

#### K. ELECTRONIC DRAWING FILES

In preparation of shop drawings or record drawings, Contractor may, at his option, obtain electronic drawing files in AutoCAD or DXF format on CD-ROM disk, DVD disk, flash drive, or direct download, as desired, from the Engineer for a shipping and handling fee of \$200 for a drawing set up to 12 sheets and \$15 per sheet for each additional sheet. Contact the Architect for written authorization and Engineer for the necessary agreement form and to specify shipping method and drawing format. In addition to payment, the written authorization from the Architect and release agreement form from the Engineer must be received before electronic drawing files will be sent.

#### L. RECORD DRAWINGS (AS-BUILT DRAWINGS)

During progress of the work in this division, Contractor shall maintain an accurate record of all changes made during the installation of the system. Upon completion of the work, accurately transfer all record information to three identical sets of the approved shop drawings. Insert one set into each copy of the manual described below.

## See Division 01 and General Conditions for additional information.

M. OPERATION AND MAINTENANCE INSTRUCTIONS

During the course of construction, collect and compile a complete brochure of equipment furnished and installed on this project. Include operational and maintenance instructions, manufacturer's catalog sheets. wiring diagrams, parts lists, approved submittals and shop drawings, warranties, and descriptive literature as furnished by the equipment manufacturer. Include an inside cover sheet that lists the project name, date, Owner, Architect, Engineer, General Contractor, Sub-Contractor, and an index of contents.

Submit three copies of literature bound in approved binders with index and tabs separating equipment types to the Architect, for Engineer's review, at the termination of the work. Paper clips, staples, rubber bands, loose-leaf binding, and mailing envelopes are not considered approved binders. Final approval of systems installed under this contract shall be withheld until this equipment brochure is received and deemed complete by the Architect and Engineer. Instruct workmen to save required literature shipped with the equipment itself for inclusion in this brochure.

#### Include Record Drawings as described above.

Refer to Division 01 for acceptance of electronic manuals for this project. For electronic manuals, refer to paragraph "Submittals" for requirements.

#### N. WARRANTIES

Warrant each system and each element thereof against all defects due to faulty workmanship, design, or material for a period of 12 months from date of Substantial Completion, unless specific items are noted to carry a longer warranty in these construction documents or manufacturer's standard warranty exceeds 12 months. Remedy all defects occurring within the warranty period(s) as stated in the General Conditions

# Warranties shall include labor and material, including travel expenses. Make repairs or replacements

without any additional costs to the Owner, and to the satisfaction of the Owner, Architect, and Engineer. Perform the remedial work promptly, upon written notice from the Engineer or Owner.

Also warrant the following additional items:

All raceways are free from obstructions, holes, crushing, or breaks of any nature. All raceway seals are effective.

At the time of Substantial Completion, deliver to the Owner all warranties, in writing and properly executed, including term limits for warranties extending beyond the one year period and any actions the Owner must take in order to maintain warranty status. Each warranty instrument shall be addressed to

The entire electrical system is free from all short circuits and unwanted open circuits and grounds.

#### 2. GENERAL MATERIALS AND INSTALLATION

#### A. EXCAVATION AND BACKFILLING

Perform excavation and backfill required for installation of underground work under this contract. Trenches shall be of sufficient width. Crib or brace trenches to prevent cave-in or settlement. Do not excavate trenches close to columns and walls of new building without prior consultation with the Architect. Use pumping equipment if required to keep trenches free of water. Backfill trenches in maximum 6-inch layers of well tamped dry earth in a manner to prevent future settlement.

Excavation as specified herein shall be classified as common excavation. Common excavation shall comprise the satisfactory removal and disposition of material of whatever substances and of every description encountered, including rock, if any, within the limits of the work as specified and shown on the drawings. Excavation shall be performed to the lines and grades indicated on the drawings. Dispose of excavated materials that are considered unsuitable for backfill, and surplus of excavated material, which is not required for backfill, all to the satisfaction of the Engineer.

#### B. COINCIDENTAL DAMAGE

Repair streets, sidewalks, drives, paving, walls, finishes, and other facilities damaged in the course of this Work. Repair materials shall match existing construction. [Repair materials shall generally match existing construction.] Repair work shall meet all requirements of the Owner, local authorities having jurisdiction, and meet the satisfaction of the Architect. Repair work shall be thoroughly first class. [Conform to requirements of Division 02 of this specifications.]

#### C. CUTTING AND PATCHING

Conform to the requirements in Division 01. Cut walls, floors, ceilings, and other portions of the facility as required to install work under this division. Obtain permission of the Architect prior to cutting. Do not cut or disturb structural members without prior approval from the Architect. Cut holes as small as possible. Patch walls, floors, and other portions of the facility as required by work under this division. Patching shall match the original material and construction including fire ratings, if applicable. Repair and refinish areas

disturbed by work to the condition of adjoining surfaces in a manner satisfactory to the Architect.

#### D. ROUGH-IN

Coordinate without delay all roughing-in with other divisions. Conceal all conduit and raceways except in unfinished areas and where otherwise indicated on the drawings.

#### E. CONCRETE BASES

Provide concrete bases (e.g., housekeeping pads) for equipment where indicated on the drawings and as specified herein. Concrete bases shall have chamfered edges. Size of base shall be a minimum of 4 inches greater than the footprint of the equipment that it is supporting and shall have a minimum height

Construct equipment bases of a minimum 28-day, 4000-psi concrete conforming to American Concrete Institute Standard Building Code for Reinforced Concrete (ACI 318) and the latest applicable recommendations of the ACI standard practice manual. Concrete shall be composed of cement conforming to ASTM C 150 Type I, aggregate conforming to ASTM C33, and potable water. Exposed exterior concrete shall contain 5 to 7 percent air entrainment.

Unless otherwise specified or shown on the structural drawings, reinforce equipment bases with No. 4 reinforcing bars conforming to ASTM A615 or 6x6 - W2.9 x W2.9 welded wire mesh conforming to ASTM A185. Place reinforcing bars 24 inches on center with a minimum of two bars each direction.

Provide galvanized anchor bolts for equipment placed on concrete bases or on concrete slabs. Anchor bolts size, number, and placement shall be as recommended by the manufacturer of the equipment.

#### F. SUPPORT SYSTEMS

Steel Slotted Support Systems (Slotted Channel): Comply with MFMA-3, factory-fabricated components for field assembly; 12-gauge, 1-5/8-inch by 1-5/8-inch.

1. Stainless Steel: Type 304, per ASTM A240.

Aluminum Slotted Support Systems (Slotted Channel): Comply with MFMA-3, Type 6063-T6, per ASTM B221; factory-fabricated components for field assembly; 12-gauge, 1-5/8-inch by 1-5/8-inch.

Where field cutting of standard lengths of channel are required, make cuts straight and perpendicular to

Manufacturers: Cooper B-Line, ERICO International, Hilti, Power-Strut, Thomas and Betts, or Unistrut. Field Fabrication:

manufactured surfaces For field-cut or damaged surfaces of coated channels, dress cut ends, damaged surfaces, or both, with an abrasive material (e.g., file, grinding stone, or similar) and cleanser to remove oils, rust, sharp edges,

For channel with a factory-applied coating, re-finish cut edges with a coating compatible with the factory finish and as recommended by the manufacturer (e.g., manufacturer's touch-up paint or zinc-rich cold-galvanizing compound, as applicable).

#### G. EQUIPMENT FURNISHED BY OTHERS

Provide necessary equipment and accessories that are not provided by the equipment supplier or Owner to complete installation of equipment furnished by others in locations as indicated on the drawings. specified herein, or both. Equipment and accessories not provided by the equipment supplier may include, but not be limited to, flexible cords and plugs as required for proper operation of the complete system, in accordance with the manufacturers' instructions.

Contractor shall be responsible for correct rough-in dimensions, and verify them with Architect and/or equipment supplier prior to rough-in and service installations.

#### H. SYSTEM TESTING AND ADJUSTING

Adjust, align, and test all electrical equipment on this project provided under this division and all electrical equipment furnished by others for installation or wiring under this division for proper operation

Test all systems and equipment according to the requirements in NETA ATS (latest edition) and all additional requirements specified in following sections.

Maintain the following on the project premises at all times: a true RMS reading voltmeter, a true RMS

reading ammeter, and a megohmmeter insulation resistance tester. Provide test data readings as

## I. EQUIPMENT IDENTIFICATION

requested or as required by the Engineer.

Provide equipment identification nameplates on all electrical equipment enclosures, transformers, disconnect switches.

Engraved, contrasting color, three-layer, laminated plastic, indicating the name of the equipment, load, or circuit as designated on the drawings and in the specifications:

Attachment method shall be acceptable to the manufacturers of the equipment to which the nameplates are being applied. Nameplate Color: Black background with white letters for Normal Power;

#### Letter height: 3/8-inch minimum . J. SYSTEM START UP

Perform the following prior to starting up the electrical systems: Check all components and devices and lubricate items accordingly. Tighten screws and bolts for connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in

Adjust taps on each transformer for rated secondary voltage when the transformer is at minimum 4. Check and record building's service entrance voltage, grounding conditions, grounding resistance,

and proper phasing. 5. Replace all burned-out lamps and lamps used for temporary construction lighting in permanent After all systems have been inspected and adjusted, confirm all operating features required by the drawings and specifications and make final adjustments as necessary.

# **END OF SECTION 26**

UL 486A and UL 486B

#### **Division 26: BASIC ELECTRICAL MATERIALS AND METHODS**

#### 1. RACEWAYS

A. NON-METALLIC CONDUIT AND TUBING

Rigid Nonmetallic Conduit (RNC): Schedule 40 PVC, 90 deg C rated, NEMA TC-2, UL 651

Fittings: NEMA TC 3, TC 6; UL 651, compatible with conduit/tubing type and material, NRTL listed. Manufacturers: AFC Cable, American International, Anamet Electrical, Amco, Cantex, Certainteed, Condux International, Elecsys, Electri-Flex, Lamson and Sessions, Manhattan/CDT/Cole-Flex, Prime Conduit, Raco, Spiralduct, Superflex Ltd, or Thomas and Betts.

#### 2. RACEWAY INSTALLATION

A. GENERAL RACEWAY INSTALLATION REQUIREMENTS

Install raceways parallel and perpendicular to building lines.

all openings, depressions, pipes, ducts, reinforcing steel, and other immovable obstacles

Install raceways set in forms for concrete structure in such a manner that installation will not affect the

Install raceways to requirements of structure, to requirements of all other work on the project, and to clear

Except where approved in writing by the Engineer, install no raceway in a slab-on-grade. Locate raceway

manufactured elbows for all 45- and 90-degree bends, unless approved by the Engineer in advance. Make

other bends smooth and even and without flattening raceway or flaking galvanizing or enamel. Radii of

below granular fill below slabs-on-grade. Install raceways continuous between connections to outlets, boxes, and cabinets with a minimum possible number of bends and not more than the equivalent of four 90-degree bends between connections. Use

bends shall be as long as possible and never shorter than the corresponding trade elbow. Use long radius elbows for all underground installations, where necessary, or where otherwise indicated.

Securely fasten raceways in place with approved straps, hangers, and steel supports as required. Attach raceway supports to the building structure. Hang single raceways for feeders with malleable split ring hangers with rod and turnbuckle suspension from inserts spaced not over 10 feet apart in construction above. Clamp groups of horizontal feeder raceways to steel channels that are suspended from inserts spaced not over 10 feet apart in construction above. Securely clamp vertical feeder raceways to structural steel members attached to structure. Install cable clamps for support of vertical feeders where required. Add raceway supports within 12 inches of all bends, on both sides of the bends. Do not support raceways from suspended ceiling components.

Ream raceway ends, thoroughly clean raceways before installation, and keep clean after installation. Plug or cover openings and boxes as required to keep raceways clean during construction and fish all raceways clear of obstructions before pulling conductor wires. Provide raceways of ample size for pulling of wire, not smaller than code requirements and not less than 1/2-inch in size, unless indicated otherwise on Drawings. Homeruns containing more than one branch circuit shall not be less than 3/4-inch in size.

Protect all raceway installations against damage during construction. Repair all raceways damaged or moved out of line after roughing-in to meet Engineer's approval without additional cost to the Owner. Align and install true and plumb all raceway terminations at panelboards, switchboards, motor control

Install approved expansion/deflection fittings where raceways pass through (if embedded) or across (if exposed) expansion joints, and when using RNC or RAC in exposed environments in accordance with NFPA 70 and expansion/contraction properties of RNC or RAC.

Install a pull wire in each empty raceway that is left for installation of conductors or cables under other divisions or contracts. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 24 inches of slack at each end of pull wire.

Make all joints and connections in a manner that will ensure mechanical strength and electrical continuity. B. ABOVE GROUND RACEWAY USE: Install all circular raceways concealed above suspended ceilings or concealed in walls or floors wherever

Unless noted otherwise, all other raceway may be EMT where approved by local code. Use compression type fittings for EMT, with all fittings NRTL listed for the environment in which they are used. Unless noted

possible except where otherwise indicated. Provide GRS for all conduits exposed to weather or other

#### C. UNDERGROUND RACEWAY USE:

from below to above grade or above slab.

3. BUSHINGS AND LOCKNUTS

otherwise, set-screw type fittings are not allowed.

RNC conduit may be used underground where permitted by local code and where not specifically restricted by these documents. When used, provide plastic-coated GRS, as specified above, for all bends greater than 30 degrees, including the 90-degree elbows below grade and the entire vertical risers for transitions

This shall include the 90-degree elbow below grade and the entire vertical transition to above grade.

Provide GRS installed below grade with a corrosion-resistant bonded-plastic or approved mastic coating

# D. EQUIPMENT CONNECTIONS

Use FMC for final connection to each motor, transformer, and any device that would otherwise transmit motion, vibration, or noise. Use LFMC where exposed to liquids, vapors, or sunlightProvide all FMC and LFMC with an insulated bonding conductor.

#### Provide bushings and locknuts made of galvanized malleable iron with sharp, clean-cut threads.

Rigidly terminate conduits entering sheet metal enclosures to the enclosure with a bushing and locknut on

the inside and a locknut or an approved hub on the outside. Conduit shall enter the enclosure squarely.

#### Use insulated, grounding, or combination bushings wherever connection is subject to vibration or moisture, when required by NFPA 70

Where EMT enters a box, provide approved EMT compression connectors.

4. CONDUCTORS AND CABLES

Annealed (soft) copper complying with ICEA S-95-658/NEMA WC70 and UL standards 44 or 83 as Conductor Insulation Types: 90-degree C-rated, Type THHN/THWN-2 or XHHW-2 complying with ICEA

Sizes of conductors and cables indicated or specified are in American Wire Gage (AWG - Brown and

All feeder and branch circuit conductors No. 8 AWG and larger: Stranded.

All conductors, No. 10 AWG and smaller: Solid copper. All Branch Circuit Wiring: Not smaller than No. 12 AWG. If no conductor size is indicated on the Drawings for a branch circuit, provide conductors and conduit sized per NFPA 70 and based on the indicated branch circuit overcurrent protective device (OCPD) rating and number of poles. Where no circuit size (i.e., conductors and OCPD) is indicated on the drawings for a branch circuit, provide three No. 12 AWG

conductors, in 3/4-inch raceway, and a 20A circuit breaker Control Wiring: Stranded copper conductors, 600V insulation, of the proper type, size, and number as

required to accomplish specified function. Minimum size: No. 14 AWG, unless noted otherwise. Flexible Cords and Cables: Stranded copper conductors for all, unless noted otherwise.

Special Purpose Conductors And Cables, Such As Low Voltage Control And Shielded Instrument Wiring: As recommended by the system equipment manufacturer unless indicated otherwise. Copper Conductor Manufacturers: Advance Wire and Cable, AFC Cable, Alan Wire, Alflex, American

Insulated Wire, Encore Wire, Northern Cables, Okonite, or Southwire. Connections: Apply a zinc based anti\_oxidizing compound to connections. Do not use terminals on wiring devices to feed through to the next device.

# 5. CONDUCTORS AND CABLES INSTALLATION

Install all wiring in approved raceway and enclosures, except where specified or indicated for low-voltage wiring, where specified or indicated for direct-buried cables, or where type MC cable is indicated or specified as acceptable.

Install all conductors and cables in raceways continuous without taps or splices. Splice or tap only in

approved boxes and enclosures with approved solderless connectors, or crimp connectors and terminal

blocks for control wiring, and keep to the minimum required. Insulate all splices, taps, and joints as required All materials used to terminate, splice, or tap conductors: designed for, properly sized for, and NRTL listed

for the specific application and conductors involved, and installed in strict accordance with the

manufacturer's recommendations, using the manufacturer's recommended tools.

panelboard, as though "circuit runs" were indicated in their entirety.

Where wiring is indicated as installed, but the connection is indicated "FUTURE" or "BY OTHER DIVISION, TRADES, OR CONTRACTS", leave a minimum 3-foot "Pigtail" at the box, tape the ends of the conductors,

circuit numbers and panelboard designation. Continue all such "home run" wiring to the designated

In general, the direction of branch circuit "home run" routing is indicated on the drawings, complete with

Common or shared neutrals are not allowed unless shown on the drawings to be used or specifically noted

Where multi-wire branch circuits (i.e., shared neutral) are allowed, they shall be provided with a means that

will simultaneously disconnect all ungrounded conductors at the point the branch circuit originates Multi-pole breakers or 3 single-pole breakers with a handle tie are two examples.

When multiple home runs are combined into a single raceway such that the number of conductors exceeds four (conductor count is made up of any combination of phase and neutral conductors), the following restrictions apply, which are in addition to those in NFPA:

Normal or Non-Essential circuits:

1. Maximum of 16 conductors in a single raceway. For up to eight conductors in a raceway, minimum raceway size: 3/4-inch. For greater than eight conductors, minimum raceway size: 1-inch. Do not install any other type of circuit in this raceway

2. Minimum wire size for all conductors in this raceway: No. 10 AWG.

3. Only 15A and 20A branch circuit homeruns may be combined into one raceway.

Properly identify all terminal blocks and wire terminals for control wiring with vinyl stick-on markers or equivalent. Provide Engineer with a list of proposed identifying numbers for review prior to installing

Provide an equipment-grounding conductor or bonding jumper, as applicable, in all feeders and branch circuits, sized in accordance with NFPA 70 Tables 250.66 or 250.122, as applicable, unless indicated as larger on the drawings.

#### Voltage drop in branch circuits shall not exceed 3 percent.

Wiring shall have insulation of the proper color to match color code system in the table below unless there is a color system currently in use by the facility, in which case the colors are to match the existing system. In larger sizes where properly colored insulation is not available, use vinyl plastic electrical tape of the appropriate color around each conductor at all termination points, junctions, and pull boxes.

# System Voltage:

480V and 480Y/277V

Phase A: Brown Phase B: Orange

Phase C: Yellow Neutral: Gray Equipment ground: green

# 6. JUNCTION BOXES, PULL BOXES, CABINETS, AND WIREWAYS

Provide junction boxes, pull boxes, cabinets, and wireways wherever necessary for proper installation of various electrical systems according to NFPA 70 and where indicated on the drawings. Size as required for the specific function or as required by NFPA 70, whichever is larger. Construction shall be of a NEMA design suitable for the environment installed

#### 7. GROUNDING

A. GROUNDING

Drawings.

Permanently and effectively ground and bond the electrical installation in a thorough and efficient manner, and in conformance, at a minimum, with NFPA 70, or these documents, where they exceed code requirements. Use bare or insulated conductors as specified herein, and other materials indicated on the

#### 8. LIGHT FIXTURES, LAMPS AND BALLASTS

additional costs for freight, lamps, and installation of light fixture and lamps.

# A. LIGHT FIXTURE LOCATIONS

Light fixtures shown on the drawings represent general arrangements only. Coordinate location with all other trades before installation to avoid conflicts. B. LIGHT FIXTURES

Provide light fixtures as scheduled on drawings, including all necessary accessories, material and labor to

make light fixtures completely ready for use. Light fixture model numbers scheduled on the drawings show

miscellaneous hardware required to install light fixtures, proper trim to fit each ceiling condition actually encountered, and additional tie wires connected to structure to conform to seismic requirements where required by the applicable building code. Packaging of light fixtures will be allowed. Only those luminaires listed in the Light Fixture Schedule or

Schedule indicates an allowance for a specific light fixture, the price is a Contractor price. Include all

approved in accordance with substitutions of these specifications will be accepted. Where the Light Fixture

only the manufacturer, grade, and style of light fixtures required. Provide all hangers, supports, and

# C. LAMPS

Refer to lighting consultant specifications and light fixture schedule for all lamp requirements.

Provide lamps and color temperatures as indicated on the drawings for all light fixtures.. Lamps shall be by the same manufacturer for color consistency. Lamps shall be compatible with the specified light fixture. LED Lamps and Luminaires: Comply with ANSI C78.377 for white light LED color range; minimum CRI of 80 unless noted otherwise; LED binning specification tolerance to be within 3 macadam ellipses of rated values: all LEDs used for same fixture type throughout the project must originate from the same production bin: minimum average rated life of 20,000 hours for LED lamps and 50,000 hours for LED luminaires; Rohs

# compliant. LED lamp manufacturers: Bridgelux, Cree, Nichia, Osram, or Xicato.

accordance with the drawings and specifications.

D. EXTERIOR AREA LIGHTING Provide all components of the outdoor lighting system, including pole assemblies as detailed on the drawings and described below. All material furnished shall be of the best quality and workmanship, and the manufacturer may be required to furnish satisfactory evidence of the ability to supply the material in

Poles and light fixtures shall be as noted on the drawings. If Contractor desires to substitute other than the specified manufacturer(s), refer to Article "Substitutions" in this division, for requirements. No alternate manufacturers will be considered for approval without this prior submittal.

Furnish all poles with hand holes and no less than four high-strength steel anchor bolts for pole mounting.

#### Each anchor bolt shall be threaded at the top, fitted with hexagon nuts, and shall have an "L" bend on the bottom of the bolt. All anchor bolts and nuts shall be hot-dip galvanized. All other small hardware required (bolts, nuts, washers, shims, etc.) shall be galvanized. Provide pole finishes as noted on the drawings.

E. PHOTO CONTROL The photo control shall:

built\_in delay to ensure that the controlled lighting does not switch off due to ambient light or lightning Have a rating based on NRTL testing at 50 percent power factor for ballast loads, be NRTL listed, and meet all applicable agency requirements

Be stem-mounting type with all necessary mounting hardware and instructions; have a housing constructed

Provide automatic switching (or dimming, as specified) for lighting loads using a thermal design with

warranted operation. Photo control shall be 100 percent factory tested for function within manufacturer's specified light levels.

encapsulated cadmium sulfide photocell, and silver alloy contacts to ensure reliable 5 year manufacturer

of high impact poly-carbonate; photo control components consisting of a metal film resistor, dual

Be from the same manufacturer of and totally compatible with the time switches specified above.

temperature compensating bi\_metal blades, snap action contact blades, chemically treated/polymer

# **END OF SECTION 26**

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PROJECT:

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1 FDP RESUBMITTAL 08.12.2022

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Plan

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MULVAN in muy NUMBER PE-2013039892

ELECTRICAL SPECIFICATIONS

ANDREA C. MULVANY

ICENSE # PE-2013039892

JOB NO: 1249 SCALE: N/A DATE: 08.12.2022 DRAWN BY: MAP

