

WINTERSET VALLEY, 13TH PLAT

IN THE CITY OF LEE'S SUMMIT
JACKSON COUNTY, MISSOURI

I:\PROJECTS\2018\18-230\3.0 DWG Plans\6.0 SS-EROS CONT PLAN.dwg, 9/4/2019 9:35:13 AM, 1:1

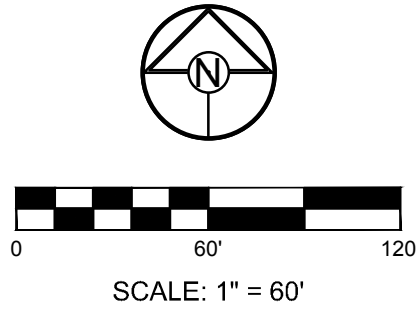
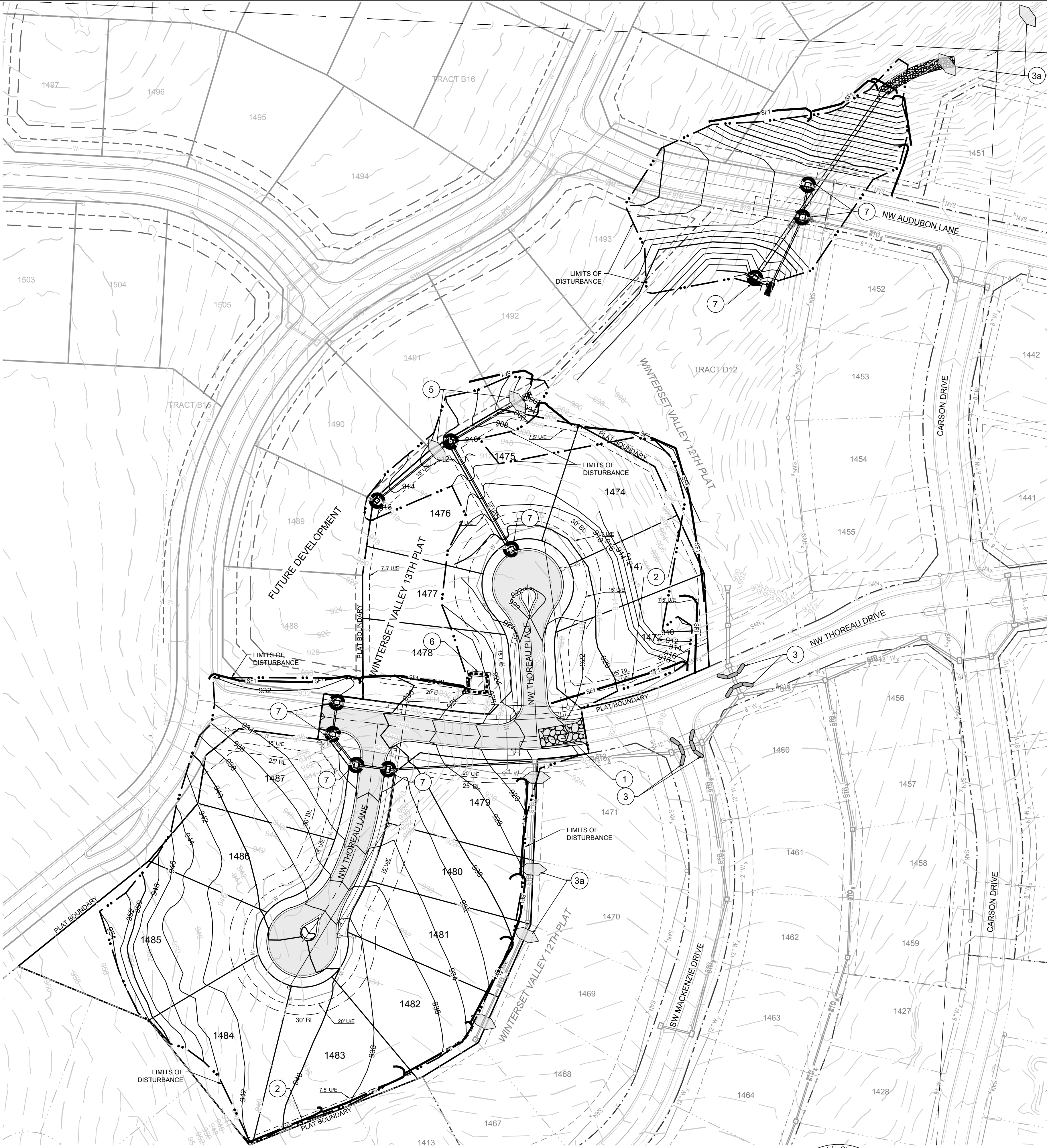
LEGEND			
	TEMPORARY STORAGE AREA FOR EXCESS MATERIAL		SILT FENCE (PRIOR TO LAND DISTURBANCE)
	TEMP. CONSTRUCTION ENTRANCE AND STAGING AREA		SILT FENCE (DURING CONSTRUCTION)
	CONCRETE WASHOUT AREA		SILT SOCK / ROCK SOCK / SOCK WATTLE
	SILT FOAM DIKE - STAKED & INSTALL PER MFR'S RECOMMENDATIONS		LIMITS OF DISTURBANCE
	ROCK DITCH CHECK		EXISTING CONTOURS
			PROPOSED CONTOURS
			GRAVEL FILTER FOR STORM SEWER STRUCTURES ONLY
			BMP PLAN REF. NO.

EROSION AND SEDIMENT CONTROL STAGING CHART					
PROJECT STAGE		BMP PLAN REF. NO.	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
A - PRIOR TO LAND DISTURBANCE		1	CONSTRUCTION ENTRANCE & STAGING AREA	D	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		2	SILT FENCE 1 (PRIOR TO LAND DISTURBANCE)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		3	EXISTING INLET PROTECTION	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		3a	FOAM SILT DIKE OR ROCK DITCH CHECK AND SEDIMENT TRAPS	E	PLACE WHERE INDICATED AT EXISTING SWALES AND DRAINAGE COURSES
B - MASS GRADING		4	SILT FENCE 2 (DURING CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		5	FOAM SILT DIKE OR ROCK DITCH CHECK AND SEDIMENT TRAPS	E	PLACE WHERE INDICATED AS SOON AS SWALE IS ESTABLISHED, REPAIR OR REPLACE AS NECESSARY
C - UTILITY CONSTRUCTION		6	CONCRETE WASHOUT AREA	E	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		7	INLET PROTECTION (SILT FENCE)	D/E	PLACE SILT FENCE AROUND ALL STORM SEWER STRUCTURES / YARD AREA STORM STRUCTURES TO HAVE SILT FENCE REMOVED ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
D - AFTER PAVING OPERATIONS		8	INLET PROTECTION (GRAVEL FILTER BAGS)	E	BOARDS SHALL BE PLACED IN FRONT OF INLET OPENING FROM THE TIME SILT FENCE IS REMOVED UNTIL SUCH TIME THAT THE CURB / THROAT IS POURED. PLACE GRAVEL FILTER BAGS AT THE OPENING OF ALL CURB INLETS IMMEDIATELY AFTER THE INLET THROATS ARE POURED
		9	SILT FENCE 2 (AFTER CURB CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		10	SEEDING AND MULCHING	E	ALL DISTURBED AREAS AFTER 14 DAYS OF CONSTRUCTION INACTIVITY
E - UNTIL CLOSURE OF LAND DISTURBANCE PERMIT					ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES MAY BE REQUIRED ANY TIME CURRENT MEASURES ARE FOUND TO BE INEFFECTIVE.

DISTURBED AREA = 6.77 A.C.

SITE SPECIFIC NOTES:

- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
- THERE ARE NO WETLANDS, NATURAL OR ARTIFICIAL WATER STORAGE DETENTION AREAS IN THE PROJECT AREA.
- NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBER 29095C0412G DATED JANUARY 20, 2017.
- ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED ACCORDING TO THE BMP STAGING CHART.
- ADDITIONAL EROSION CONTROL MAY BE REQUIRED BY THE CITY ENGINEER AT ANY TIME EXISTING MEASURES ARE FOUND TO BE INEFFECTIVE OR PROBLEMATIC AREAS ARE NOTED IN THE FIELD.
- STABILIZATION OF DISTURBED AREAS MUST, AT A MINIMUM, BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING, OR OTHER SOIL DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. THE DISTURBED AREAS SHALL BE PROTECTED FROM EROSION BY STABILIZING THE AREA WITH MULCH OR OTHER SIMILARLY EFFECTIVE SOIL STABILIZING BMPs. INITIAL STABILIZATION ACTIVITIES MUST BE COMPLETED WITHIN 14 DAYS AFTER SOIL DISTURBING ACTIVITIES CEASE.
- ALL PERIMETER SILT FENCE, EARTH DIKES, SEDIMENT BASINS, AND ROCK CONSTRUCTION ENTRANCES WILL BE INSTALLED BEFORE GRADING OPERATIONS BEGIN.
- SILT FENCE AND EARTH DIKES THAT ARE PLACED BEFORE GRADING BEGINS WILL BE MAINTAINED BY THE GRADING CONTRACTOR.
- AREAS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE SODDED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE.



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WINTERSET VALLEY, 13TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND
EROSION AND SEDIMENT CONTROL
NW THOREAU DRIVE AND AUDUBON LANE
LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
1 4-10-19	CITY COMMENTS
2 8-11-19	CITY COMMENTS
3 8-21-19	CITY COMMENTS
4	
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DRAWN BY: KSC	CHECKED BY: MAB	DATE PREPARED: 2-15-19	PROJ. NUMBER: 18-230
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ECP-CONSTRUCTION

SHEET
3
OF 24

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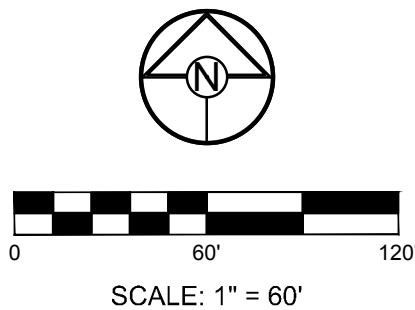
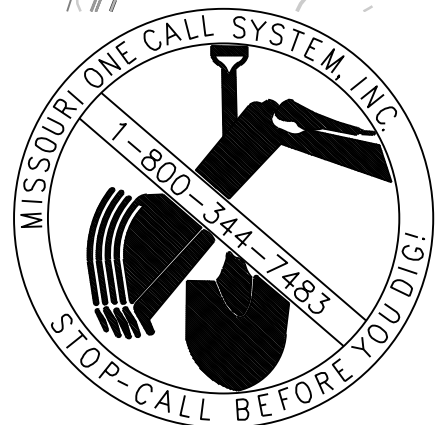
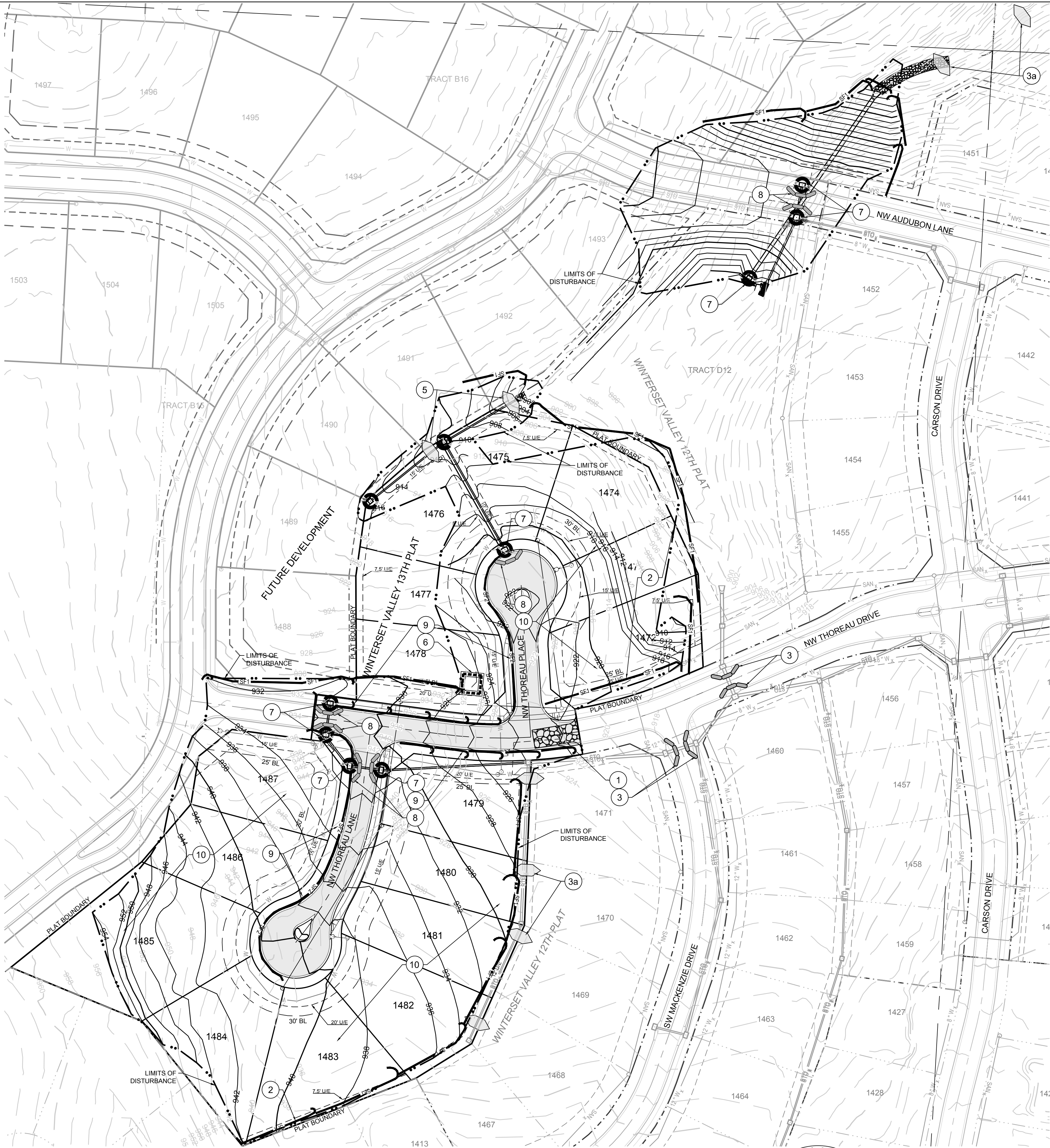
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			BMP PLAN REF. NO.

		EROSION AND SEDIMENT CONTROL STAGING CHART			
		PROJECT STAGE	BMP PLAN REF. NO	BMP DESCRIPTION	REMOVE AFTER STAGE
PRE-CLEARING PHASE	A - PRIOR TO LAND DISTURBANCE	1	CONSTRUCTION ENTRANCE & STAGING AREA	D	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
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CONSTRUCTION PHASE	B - MASS GRADING	4	SILT FENCE 2 (DURING CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
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FINAL STABILIZATION PHASE	C - UTILITY CONSTRUCTION	6	CONCRETE WASHOUT AREA	E	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		7	INLET PROTECTION (SILT FENCE)	D/E	PLACE SILT FENCE AROUND ALL STORM SEWER STRUCTURES / YARD AREA STORM STRUCTURES TO HAVE SILT FENCE REMOVED ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
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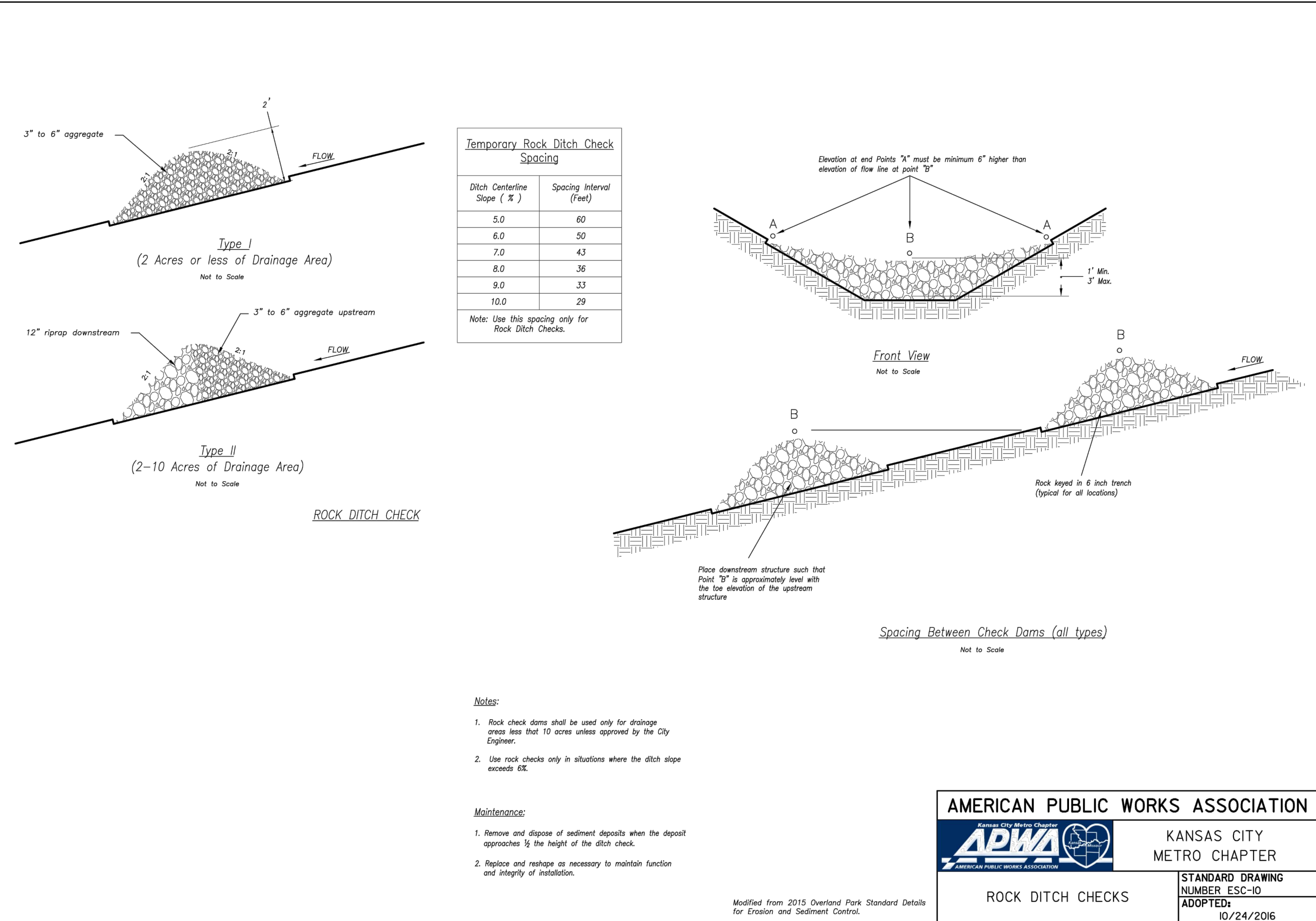
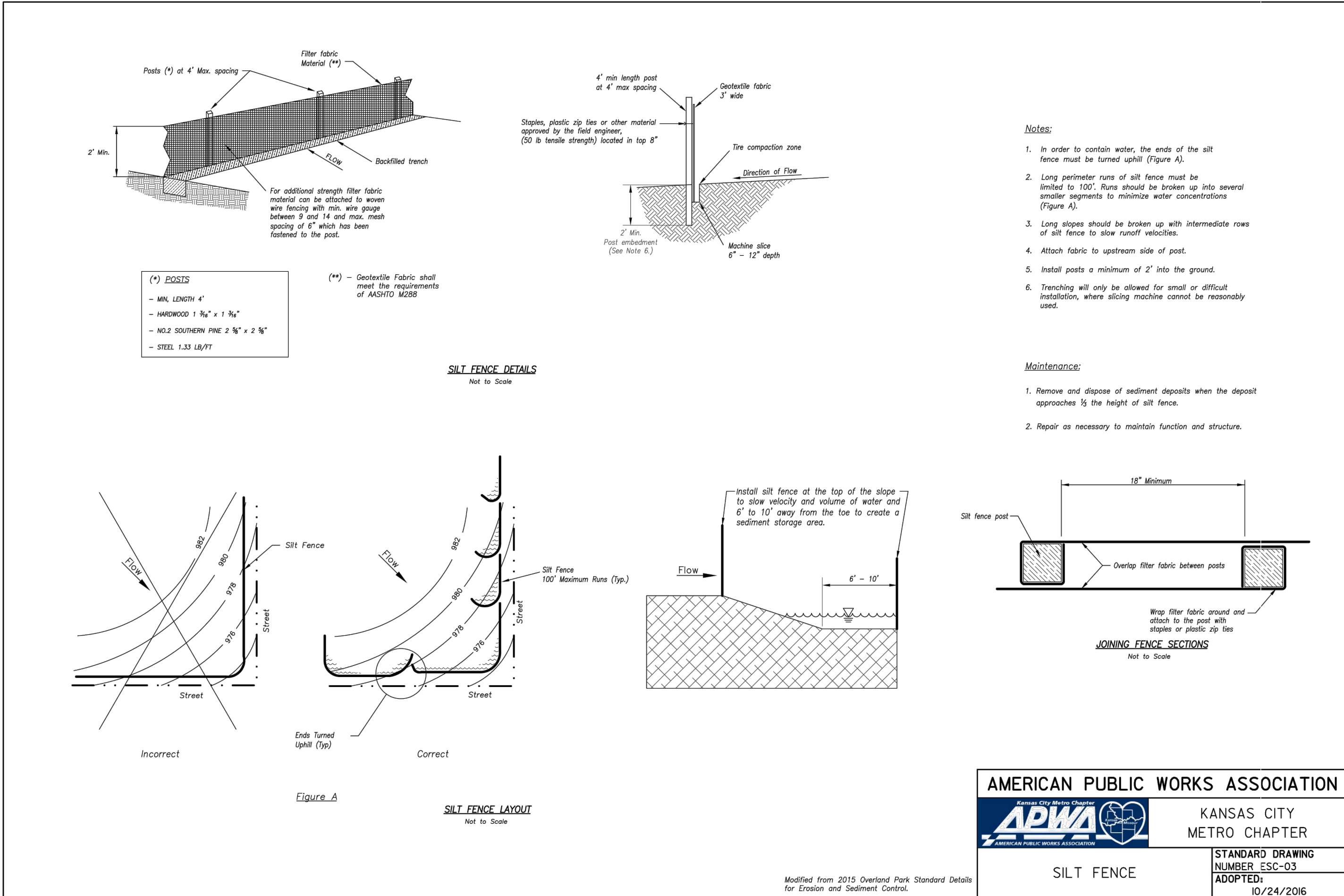
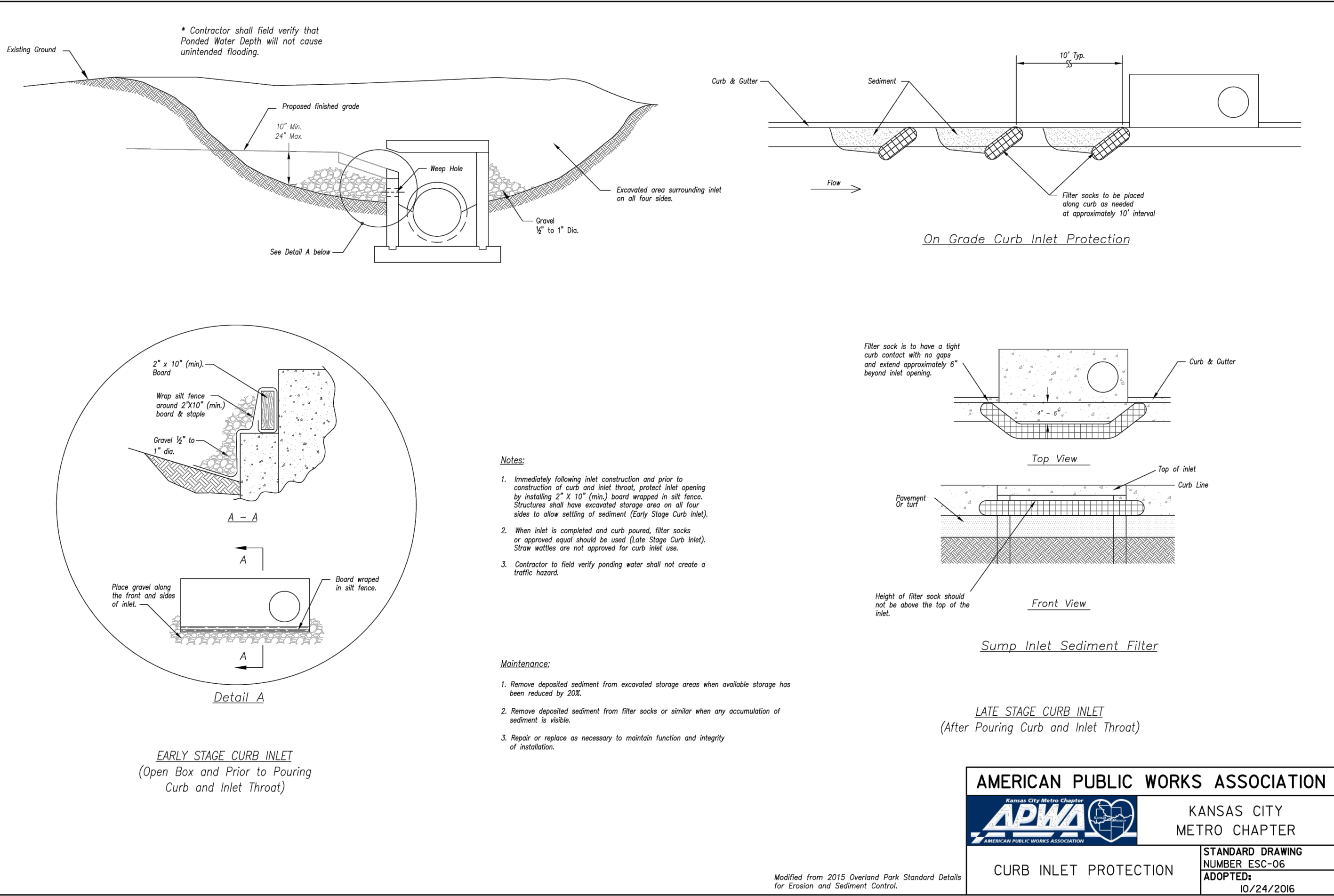
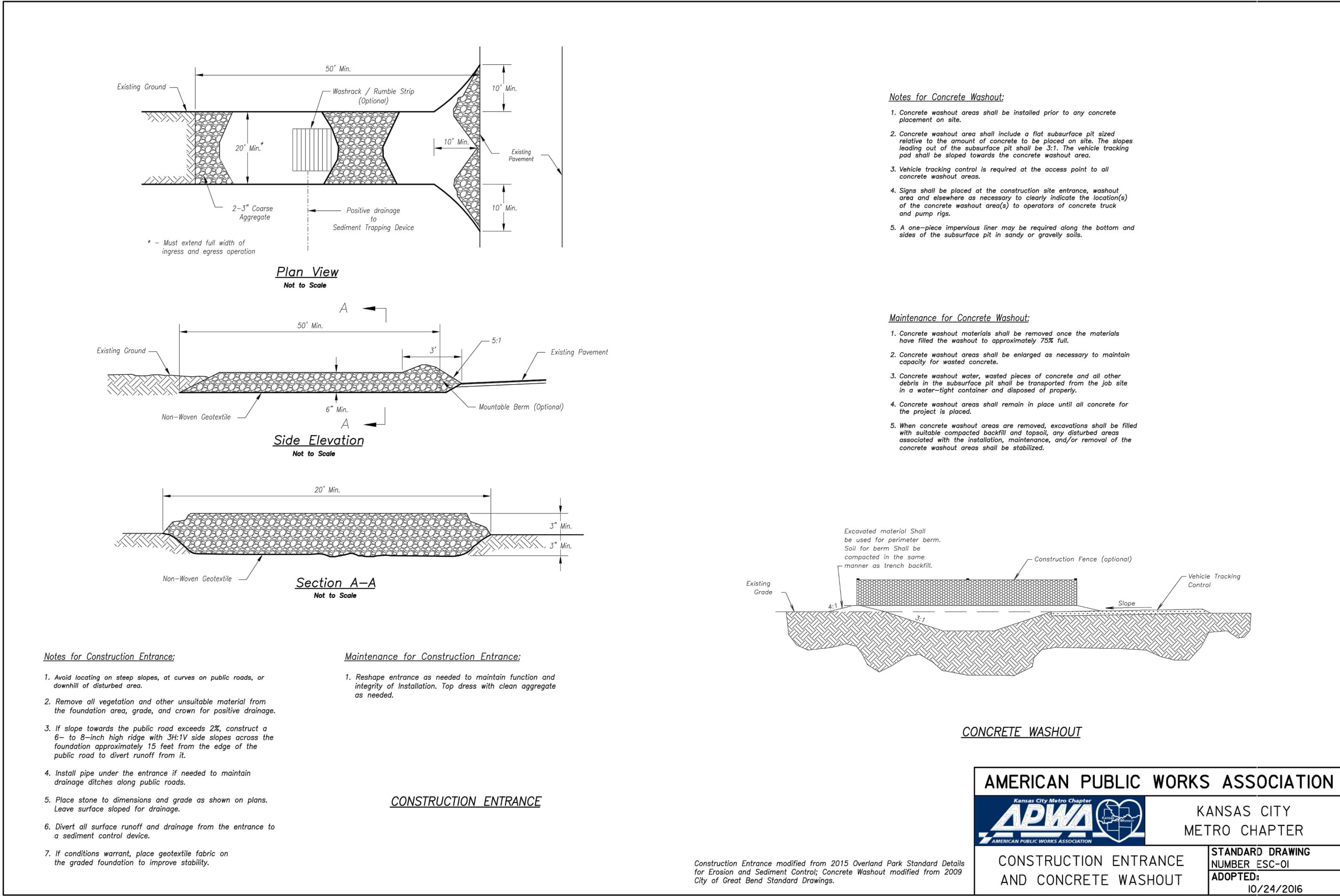
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STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2005007268
09.04.19

**WINTERSET VALLEY, 13TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND
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NW THOREAU DRIVE AND AUDUBON LANE
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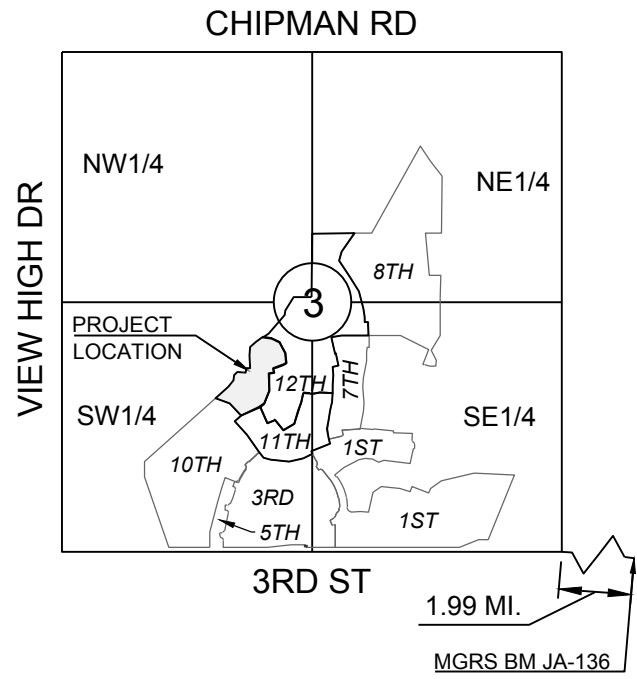
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**FINAL
STABILIZATION
PLAN**



REVISION DATE	DESCRIPTION
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SECTION 3-47N-32W
LOCATION MAP
SCALE 1" = 2000'

NOTE:
THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATIONS.

- DENOTES LIMITS OF DISTURBANCE
- DENOTES PROPOSED MAJOR CONTOUR
- DENOTES PROPOSED MINOR CONTOUR
- DENOTES EXISTING MAJOR CONTOUR
- DENOTES EXISTING MINOR CONTOUR

MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:

BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.
ELEV. 993.11'

PROJECT BENCH MARK:

SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.
ELEV. 935.45'



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DRAWN BY:	KSC
CHECKED BY:	MAB
DATE PREPARED:	2-15-19
PROJ. NUMBER:	18-230

MASTER DRAINAGE PLAN - GRADING PLAN	
SHEET	
8	
OF 24	

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LOT TYPE TABLE	
LOT #	BASEMENT TYPE
1472	WALKOUT
1473	WALKOUT
1474	WALKOUT
1475	WALKOUT
1476	WALKOUT
1477	DAYLIGHT
1478	STANDARD
1479	DAYLIGHT
1480	DAYLIGHT
1481	DAYLIGHT
1482	DAYLIGHT
1483	DAYLIGHT
1484	STANDARD
1485	STANDARD
1486	STANDARD
1487	STANDARD

- NOTE:**
- DAYLIGHT BASED ON ADJACENT GRADE 4 FT BELOW TOP OF FOUNDATION WHILE MAINTAINING 2.5% (MIN) GRADE TO LOT CORNERS
 - WALKOUT BASED ON ADJACENT GRADE AT BASEMENT FLOOR ELEVATION WHILE MAINTAINING 2.5% (MIN) GRADE TO LOT CORNERS.

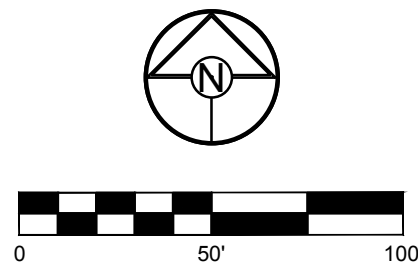
NOTES:

- MBOE = MINIMUM BUILDING OPENING ELEVATION FOR HOUSES ADJACENT TO ENGINEERED OVERFLOW SWALES SHALL BE MINIMUM 2 FEET ABOVE THE 100 YR WATER SURFACE ELEVATION.
- EGL = ENERGY GRADE LINE (100 YR)
- WSE = WATER SURFACE ELEVATION (100 YR)
- ENGINEERED SWALES TO BE GRADED TO NORMAL DEPTH OF FLOW (WATER SURFACE ELEVATION) OR 1.0 FT, WHICHEVER IS GREATER. MINIMUM SLOPE OF ENGINEERED SWALES SHALL BE AS NOTED.
- MBOE'S ADJACENT TO SUMPED INLETS SHALL BE A MINIMUM OF 1' ABOVE TOP OF ADJACENT BERM

EL-933.8 EX DENOTES EXISTING GRADE ELEVATION
EL-936.48 FG DENOTES FINISHED GRADE ELEVATION

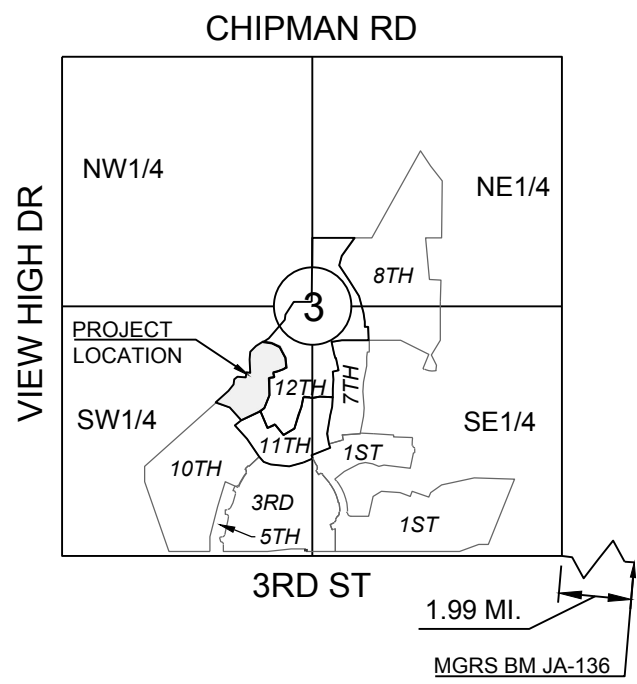


DENOTES CONCEPTUAL BUILDING FOOTPRINT



100 YEAR OVERFLOW SWALES												
SECTION	DRAINAGE AREA (AC.)	Q100 (CFS)	Q10 (CFS)	DESIGN OVERFLOW (CFS)	BED SLOPE (%)	BASE WIDTH (FT.)	SIDE SLOPE	TOP WATER SURFACE WIDTH (FT.)	NORMAL DEPTH (FT.)	VELOCITY (FPS)	VELOCITY HEAD (FT.)	EGL (FT.)
A-A	1.61	10.59	7.00	3.59	2.60	8	3:1	9.1	0.18	2.36	0.09	0.27
B-B	0.91	5.99	3.96	2.03	2.50	8	3:1	8.8	0.13	1.88	0.05	0.18
C-C	1.14	7.50	4.96	2.54	2.50	8	3:1	8.9	0.15	2.02	0.06	0.21
D-D	0.51	3.36	2.39	3.36	8.34	8	3:1	8.7	0.12	3.35	0.17	0.29
E-E	0.99	6.51	4.31	2.21	5.64	8	3:1	8.7	0.11	2.43	0.09	0.20
F-F	0.52	3.42	2.26	1.16	7.66	8	3:1	8.4	0.07	2.03	0.06	0.13
G-G	0.11	0.72	0.48	0.72	2.38	8	3:1	8.4	0.07	1.25	0.02	0.09

* EMERGENCY OVERFLOW SWALE - ASSUME INLET CLOGGED, Q_{DESIGN}=100YR



SECTION 3-47N-32W
LOCATION MAP
SCALE 1" = 2000'

MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:

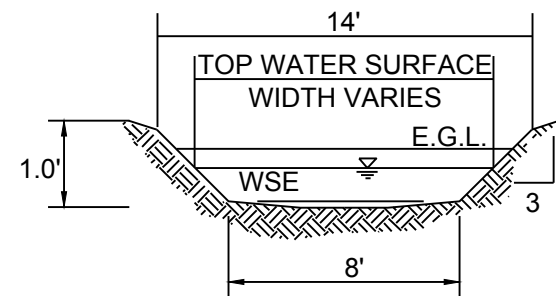
BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

ELEV. 993.11'

PROJECT BENCH MARK:

SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.

ELEV. 935.45'



100 YR OVERFLOW SWALE SECTIONS
SECTION A-A, B-B, C-C, D-D, E-E, F-F
(SEE ADJACENT CHART)

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

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Missouri State Certificates of Authority
#E2002003600-F #LAC201005237 #LS200200859-F

WINTERSET VALLEY, 13TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT CONTROL
NW THOREAU DRIVE AND AUDUBON LANE
LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
1 4-10-19	CITY COMMENTS
2 8-1-19	CITY COMMENTS
3 8-21-19	CITY COMMENTS
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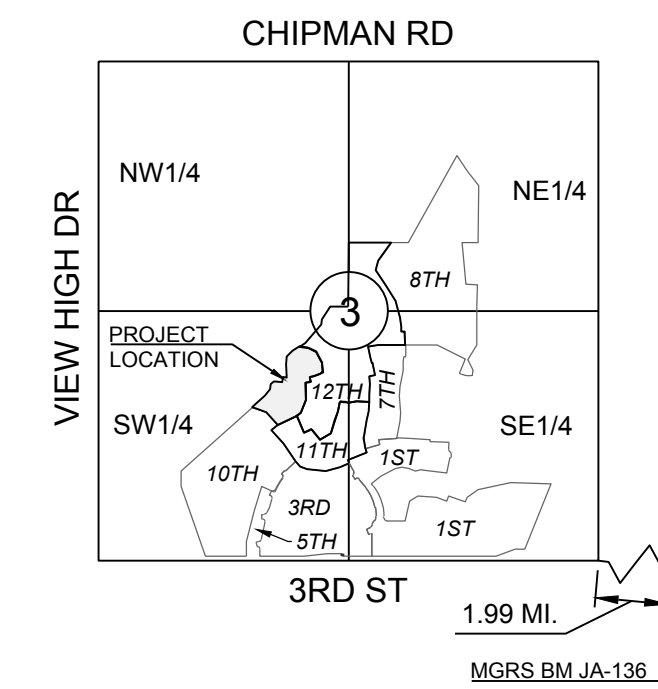
DRAWN BY:	KSC
CHECKED BY:	MAB
DATE PREPARED:	2-15-19
PROJ. NUMBER:	18-230

MASTER DRAINAGE PLAN - SPOT ELEVATIONS

SHEET

9

OF 24



SECTION 3-47N-32W
LOCATION MAP
SCALE 1" = 2000'

MISSOURI GEOGRAPHIC REFERENCE SYSTEM
BENCH MARK:

BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

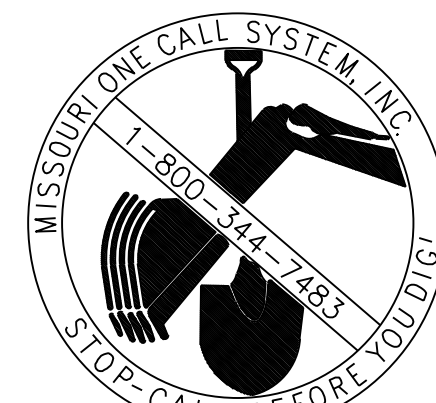
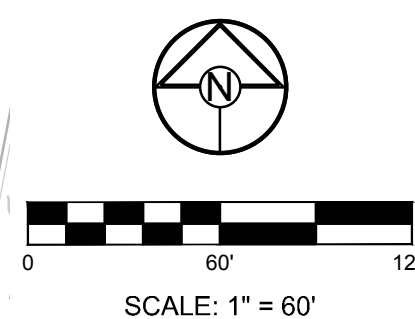
ELEV. 993.11'

PROJECT BENCH MARK:

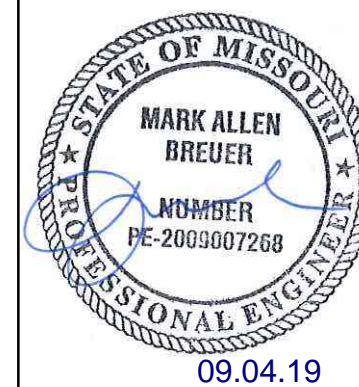
SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.

ELEV.935.45

10 YR STORM SEWER CALCULATIONS																										
Runoff Calculations													Pipe Properties													
Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. Cx/A	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap	Pipe Vel	Up Piped Inlet 1	Up Piped Inlet 2	Up Area (acres)	Up Cx/A	Up Inlet	Down Inlet	Pipe Type	"n" Value	Pipe Size	Pipe Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Tow	HGL Elev
DS TAILWATER @ STR #EX502																										
101	0.47	0.51	4.22	2.15	5.2	7.30	1.75	15.71	24.87	7.92			0.00	0.00	101	EX502	HDPE	0.012	24	160.03	1.03	0.50	920.15	918.50	931.32	921.91
102	1.51	0.51	3.75	1.91	5.1	7.31	5.63	13.98	52.56	16.73			0.00	0.00	102	101	HDPE	0.012	24	35.00	4.00	0.50	922.26	920.65	931.32	923.90
103	0.51	0.51	2.24	1.14	5.1	7.34	3.40	8.38	16.09	9.11			0.00	0.00	103	102	HDPE	0.012	18	42.40	2.00	0.50	923.81	922.76	931.88	925.00
104	1.33	0.51	1.33	0.68	5.0	7.35	4.99	4.99	13.09	10.67			0.00	0.00	104	103	HDPE	0.012	15	35.00	3.50	N/A	925.33	924.11	931.88	926.45
DS TAILWATER @ STR #200																										
201	0.52	0.51	1.07	0.55	5.2	7.30	1.94	3.98	13.59	11.07			0.00	0.00	201	200	HDPE	0.012	15	88.31	3.77	0.50	905.50	902.17	909.74	906.48
202	0.55	0.51	0.55	0.28	5.0	7.35	2.06	2.06	15.70	12.79			0.00	0.00	202	201	HDPE	0.012	15	134.61	5.03	N/A	912.77	906.00	920.76	913.45
Drop in Inlet 201																										
301	0.99	0.51	0.99	0.50	5.0	7.35	3.71	3.71	16.18	13.18			0.00	0.00	301	201	HDPE	0.012	15	102.91	5.34	N/A	911.50	906.00	915.00	912.44
DS TAILWATER @ STR #400																										
401	0.86	0.51	9.05	4.62	5.0	7.34	30.27	33.87	42.73	13.60			0.00	0.00	401	400	HDPE	0.012	24	74.07	3.04	1.50	894.25	892.00	905.75	897.15
402	0.99	0.51	9.06	0.49	5.0	7.35	3.60	3.60	14.89	12.14			0.00	0.00	402	401	HDPE	0.012	15	36.00	4.53	N/A	897.38	895.00	905.75	898.31
DS TAILWATER @ STR #500																										
501	39.85	0.51	39.85	20.32	5.0	7.35	149.44	149.44	270.87	21.56			0.00	0.00	501	500	HDPE	0.012	48	237.26	3.03	N/A	878.00	870.81	895.50	882.82
100 YR STORM SEWER CALCULATIONS																										
Runoff Calculations													Pipe Properties													
Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. Cx/A	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap	Pipe Vel	Up Piped Inlet 1	Up Piped Inlet 2	Up Area (acres)	Up Cx/A	Up Inlet	Down Inlet	Pipe Type	"n" Value	Pipe Size	Pipe Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Tow	HGL Elev
DS TAILWATER @ STR #EX502																										
101	0.47	0.51	4.22	2.15	5.2	10.25	3.07	27.58	24.87	7.92			0.00	0.00	101	EX502	HDPE	0.012	24	160.03	1.03	0.50	920.15	918.50	931.32	922.99
102	1.51	0.51	3.75	1.91	5.1	10.27	9.88	24.55	52.56	16.73			0.00	0.00	102	101	HDPE	0.012	24	35.00	4.00	0.50	922.26	920.65	931.32	924.56
103	0.51	0.51	2.24	1.14	5.1	10.30	5.98	14.71	16.09	9.11			0.00	0.00	103	102	HDPE	0.012	18	42.40	2.00	0.50	923.81	922.76	931.88	925.81
104	1.33	0.51	1.33	0.68	5.0	10.32	8.75	8.75	13.09	10.67			0.00	0.00	104	103	HDPE	0.012	15	35.00	3.50	N/A	925.33	924.11	931.88	926.91
DS TAILWATER @ STR #200																										
201	0.52	0.51	1.07	0.55	5.2	10.25	3.40	6.99	13.59	11.07			0.00	0.00	201	200	HDPE	0.012	15	88.31	3.77	0.50	905.50	902.17	909.74	906.87
202	0.55	0.51	0.55	0.28	5.0	10.32	3.62	3.62	15.70	12.79			0.00	0.00	202	201	HDPE	0.012	15	134.61	5.03	N/A	912.77	906.00	920.76	913.70
Drop in Inlet 201																										
301	0.99	0.51	0.99	0.50	5.0	10.32	6.51	6.51	16.18	13.18			0.00	0.00	301	201	HDPE	0.012	15	102.91	5.34	N/A	911.50	906.00	915.00	912.81
DS TAILWATER @ STR #400																										
401	0.86	0.51	9.05	4.62	5.0	10.30	53.13	59.44	42.73	13.60			0.00	0.00	401	400	HDPE	0.012	24	74.07	3.04	1.50	894.25	892.00	905.75	901.13
402	0.99	0.51	9.06	0.49	5.0	10.32	6.32	6.32	14.89	12.14			0.00	0.00	402	401	HDPE	0.012	15	36.00	4.53	N/A	897.38	895.00	905.75	901.63
DS TAILWATER @ STR #500																										
501	39.85	0.51	39.85	20.32	5.0	10.32	262.24	262.24	270.87	21.56			0.00	0.00	501	500	HDPE	0.012	48	237.26	3.03	N/A	878.00	870.81	895.50	885.38



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#E2000020380067 #LA20001095237 #LS20002008559 F



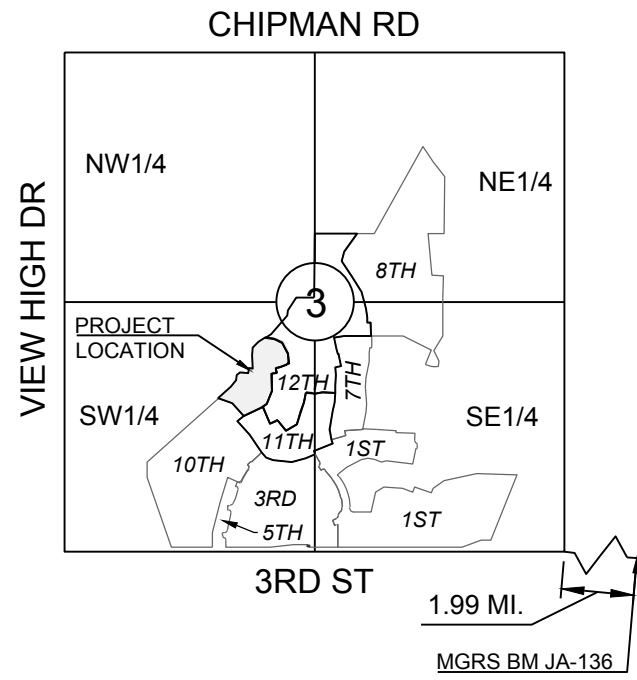
WINTERSET VALLEY, 13TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT CONTROL
NW THOREAU DRIVE AND AUDUBON LANE
LEE'S SUMMIT, MISSOURI

DRAWN BY:	REVISION DATE	DESCRIPTION
KSC	4-10-19	CITY COMMENTS
	8-1-19	CITY COMMENTS
CHECKED BY:	8-21-19	CITY COMMENTS
MAB		
DATE PREPARED:		
2-15-19		
PROJ. NUMBER:		

MASTER
DRAINAGE PLAN
- DRAINAGE MAP

SHEET

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24



SECTION 3-47N-32W
LOCATION MAP
SCALE 1" = 2000'

**MISSOURI GEOGRAPHIC REFERENCE SYSTEM
BENCH MARK:**

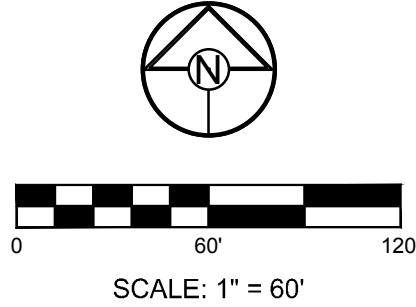
BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

ELEV. 993.11'

PROJECT BENCH MARK:

SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.

ELEV. 935.45'



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WINTERSET VALLEY, 13TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT CONTROL
NW THOREAU DRIVE AND AUDUBON LANE
LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
1 4-10-19	CITY COMMENTS
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MASTER
DRAINAGE
PLAN-DRAINAGE
MAP CONT'D

SHEET

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OF 24

MISSOURI GEOGRAPHIC REFERENCE SYSTEM
BENCH MARK:

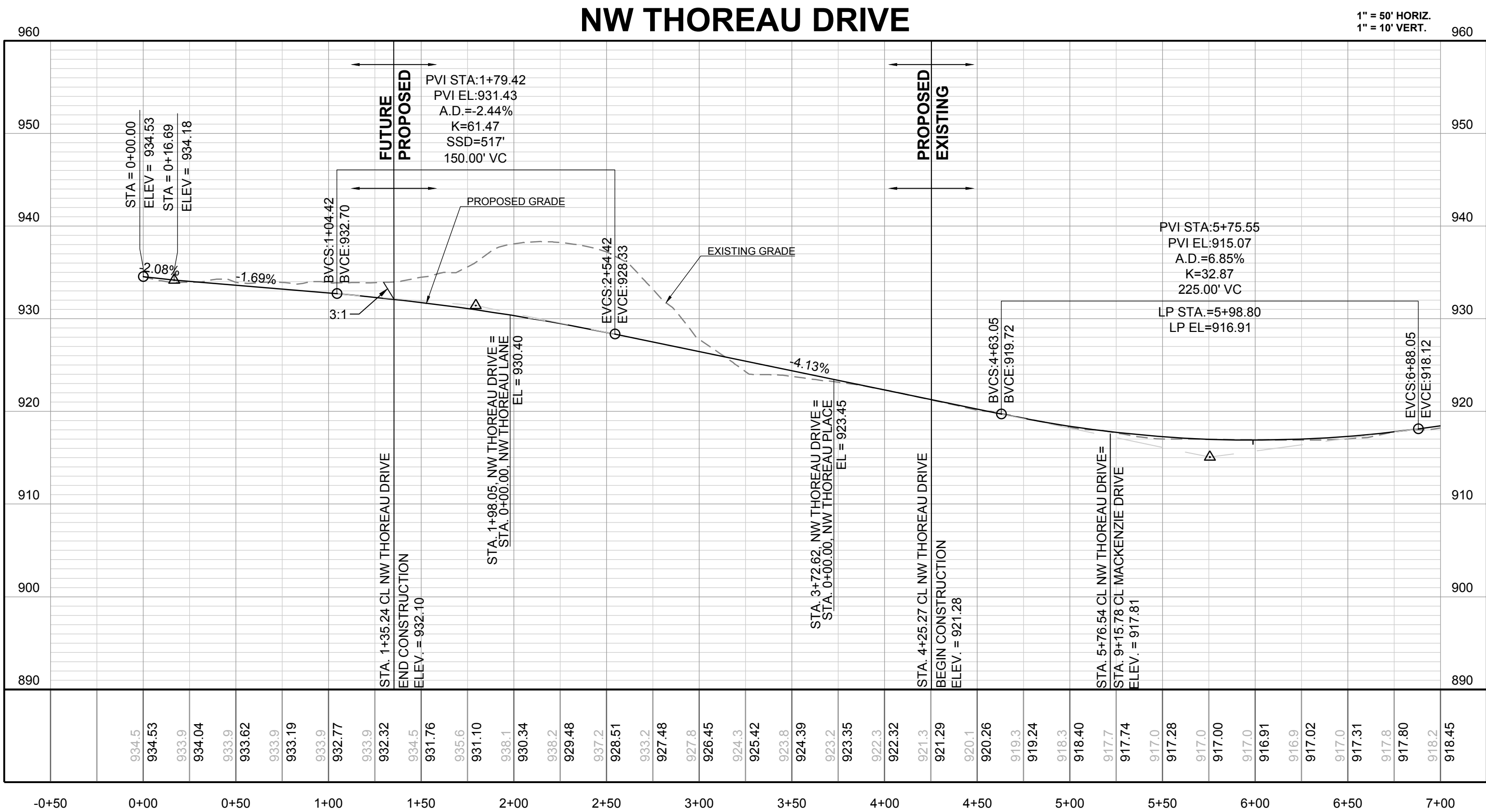
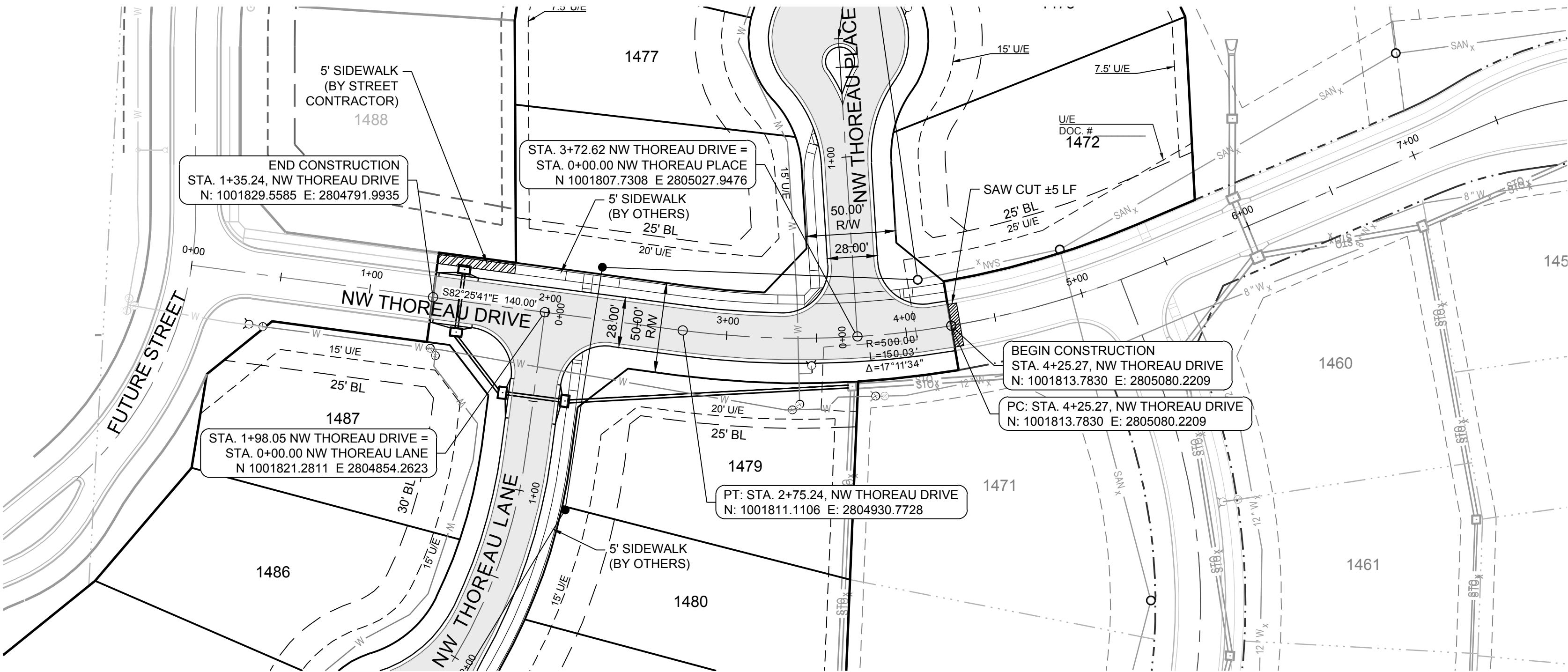
BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

ELEV. 993.11'

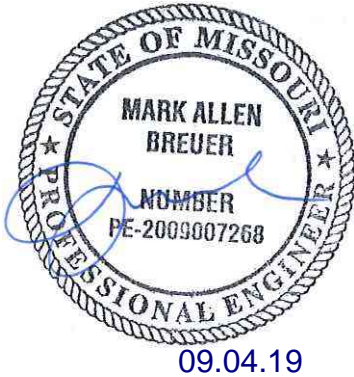
PROJECT BENCH MARK:

SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.

ELEV. 935.45'



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WINTERSET VALLEY, 13TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT CONTROL
NW THOREAU DRIVE AND AUDUBON LANE
LEE'S SUMMIT, MISSOURI

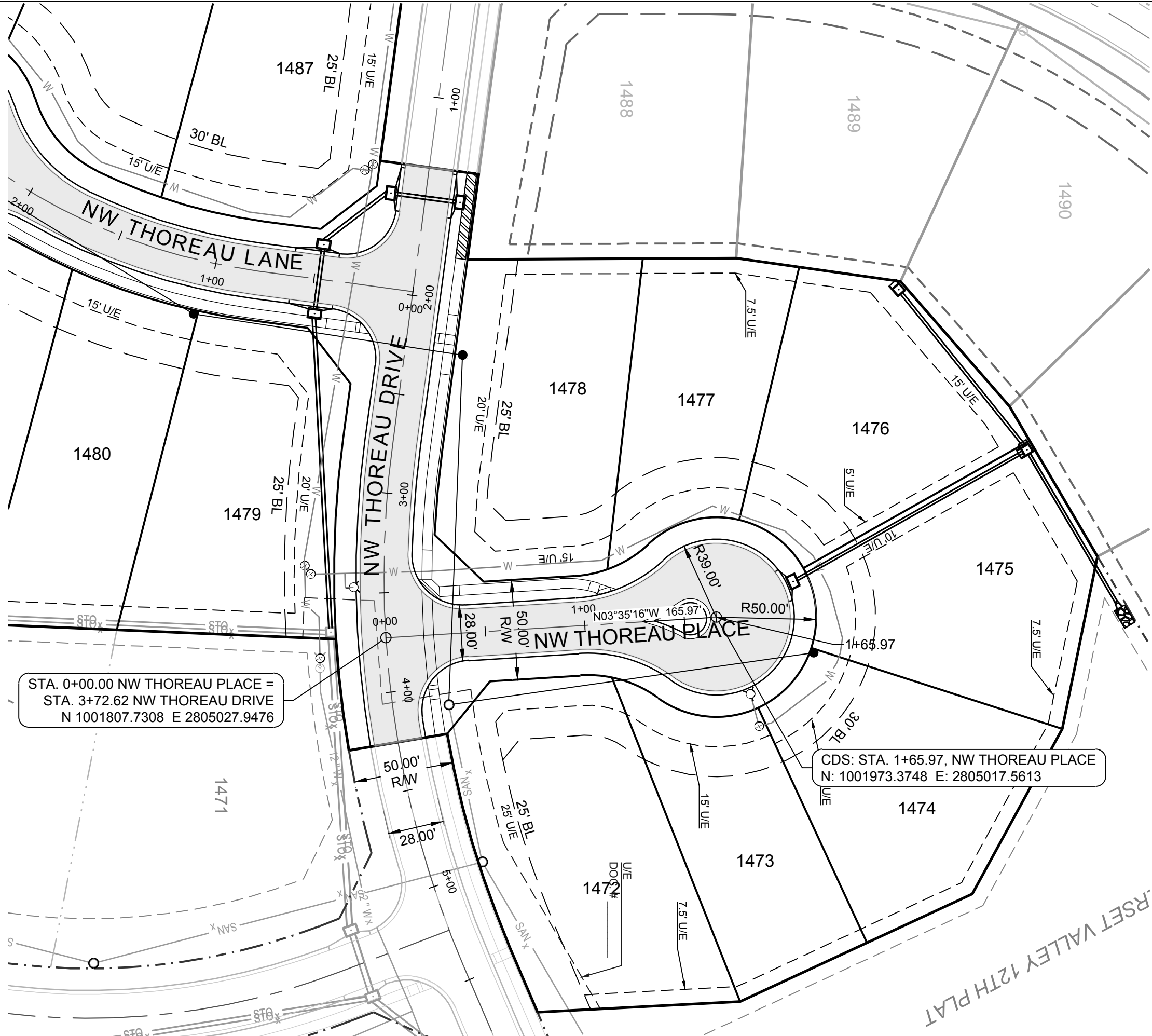
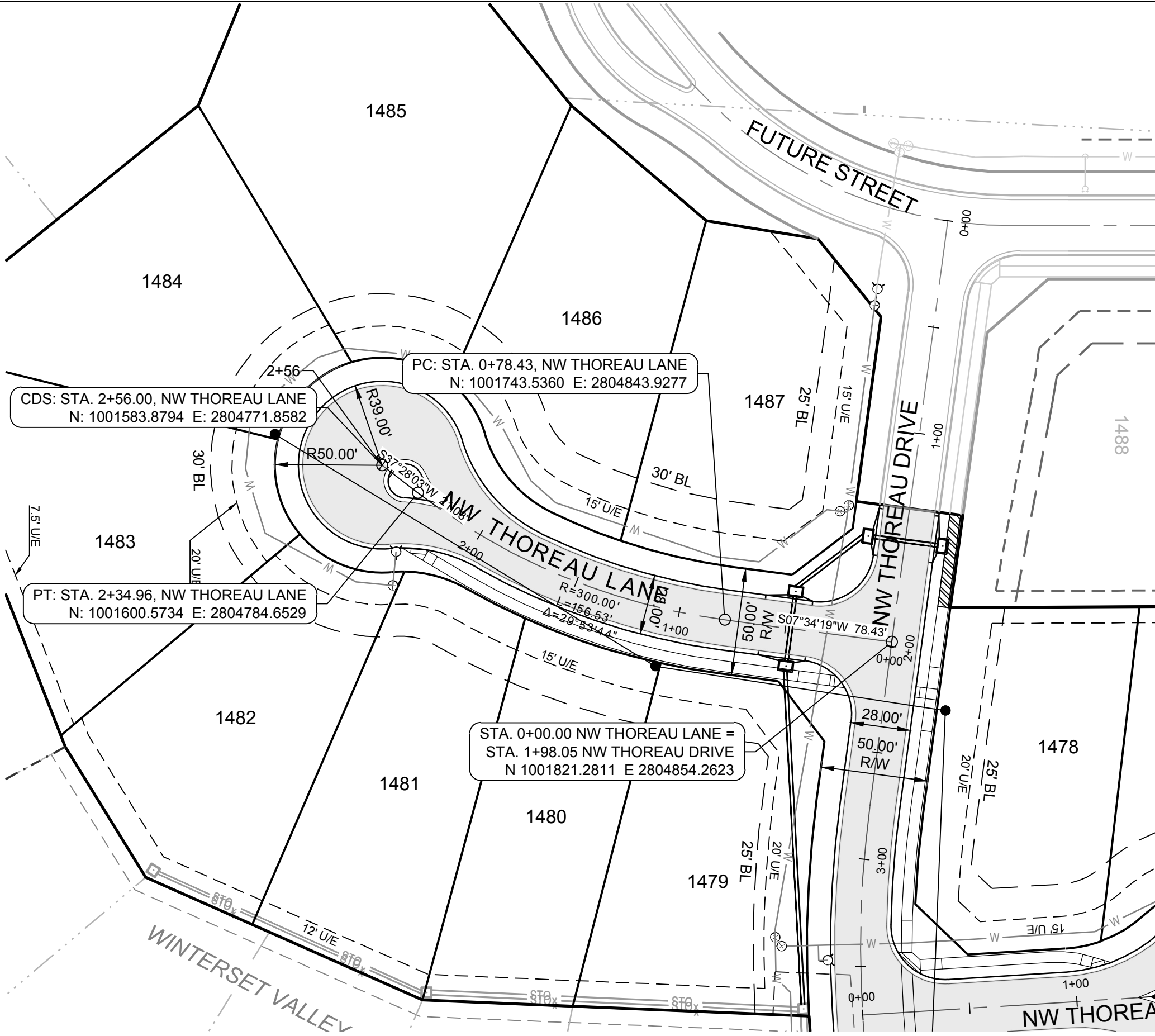
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MAB	3 8-21-19	CITY COMMENTS
DATE PREPARED:	4	
2-15-19	5	
PROJ. NUMBER:	6	
18-230	7	
	8	

NW THOREAU
DRIVE PLAN AND
PROFILE

SHEET

12
OF 24

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**MISSOURI GEOGRAPHIC REFERENCE SYSTEM
BENCH MARK:**

BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

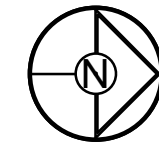
ELEV. 993.11'

PROJECT BENCH MARK:

SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.

ELEV. 935.45'

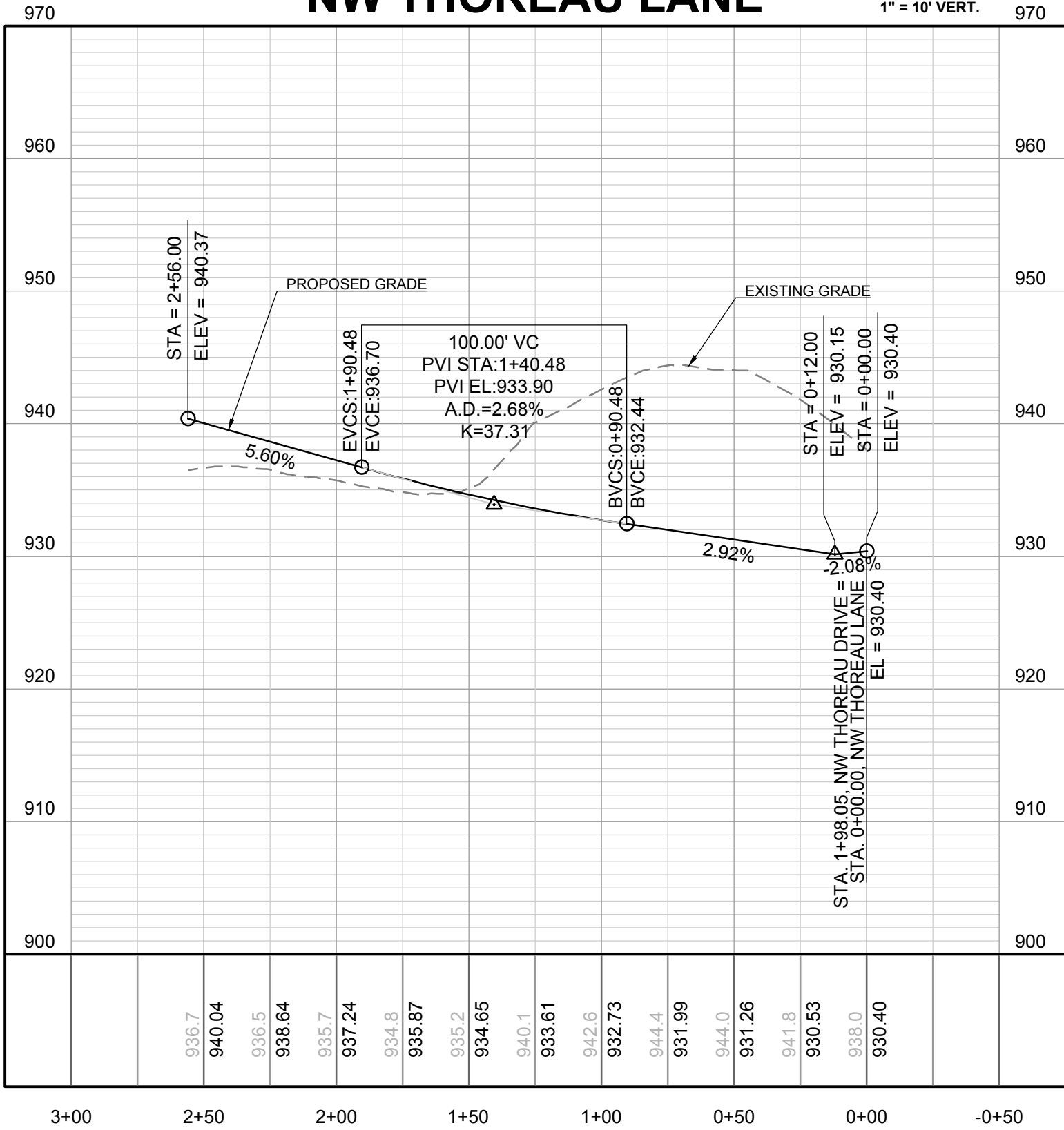
////// DENOTES SIDEWALK TO BE BUILT BY STREET CONTRACTOR



SCALE: 1" = 50'

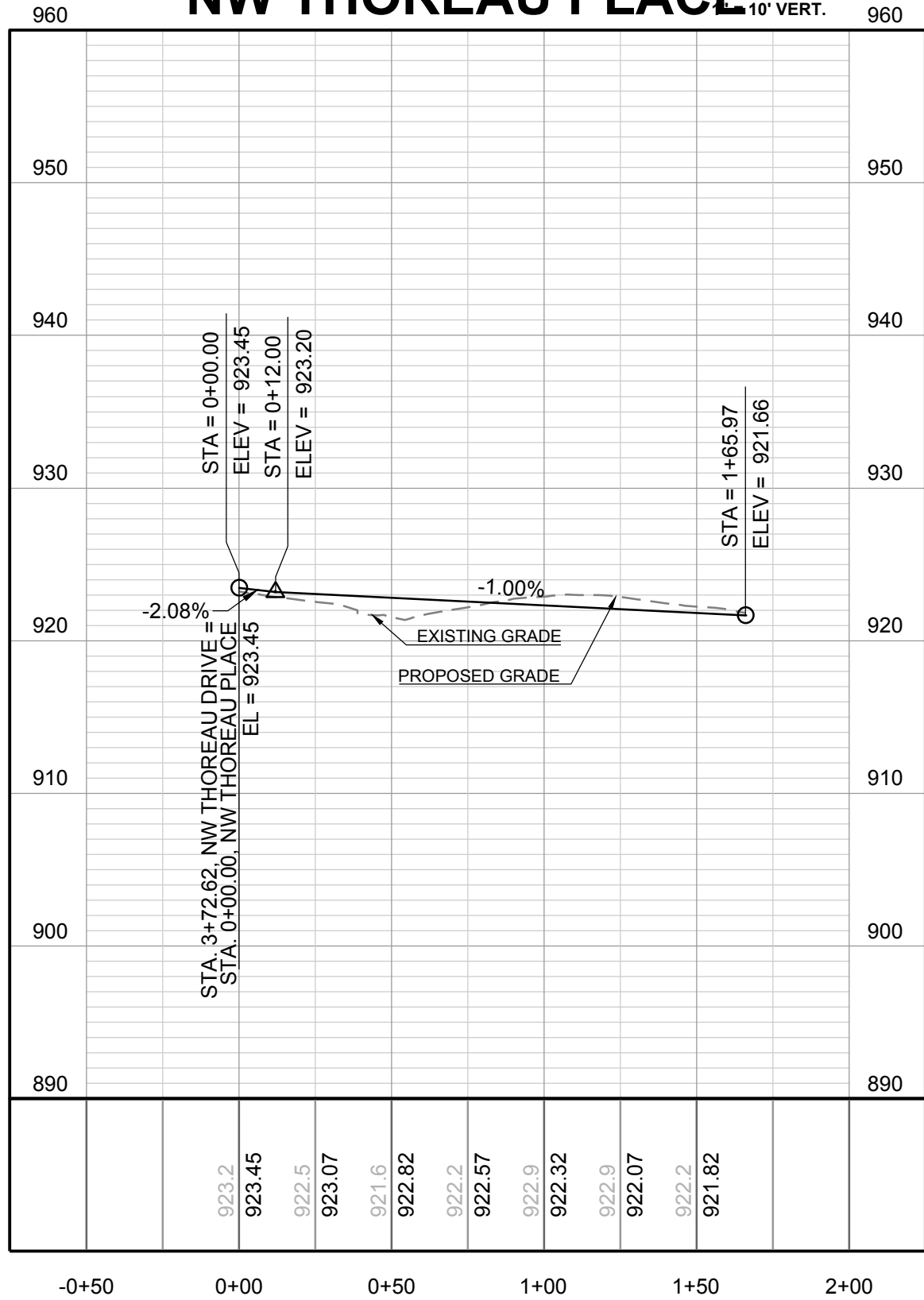
NW THOREAU LANE

1" = 50' HORIZ.
1" = 10' VERT.



NW THOREAU PLACE

1" = 50' HORIZ.
1" = 10' VERT.

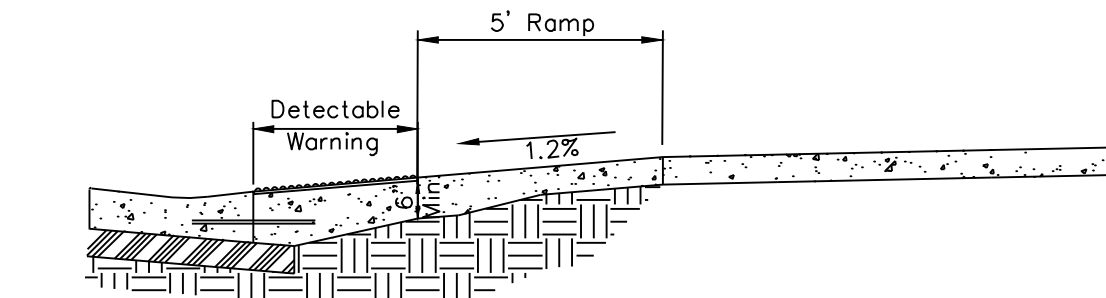
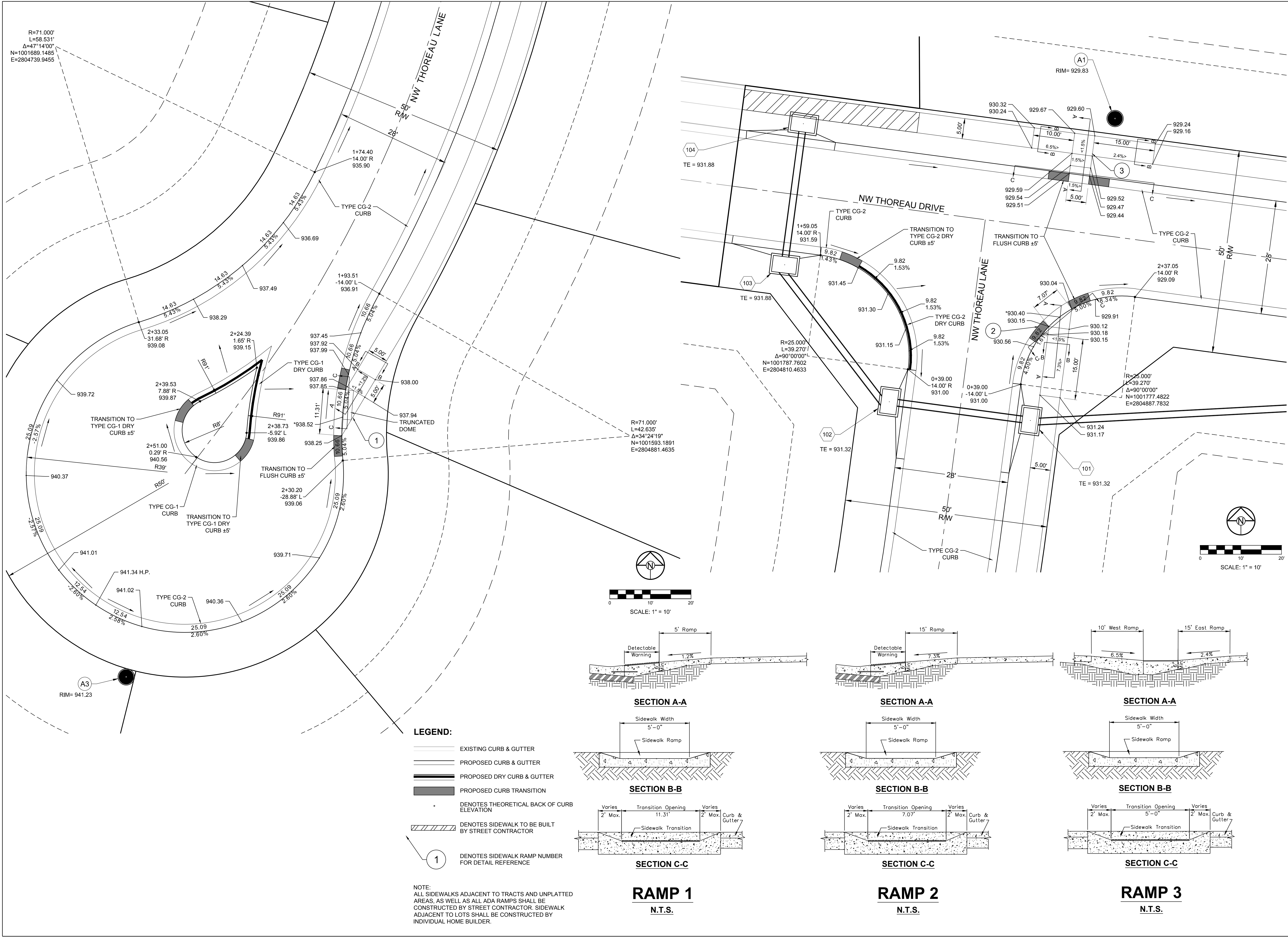


REVISION DATE	DESCRIPTION
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3/8/19	CITY COMMENTS
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7/8/19	CITY COMMENTS
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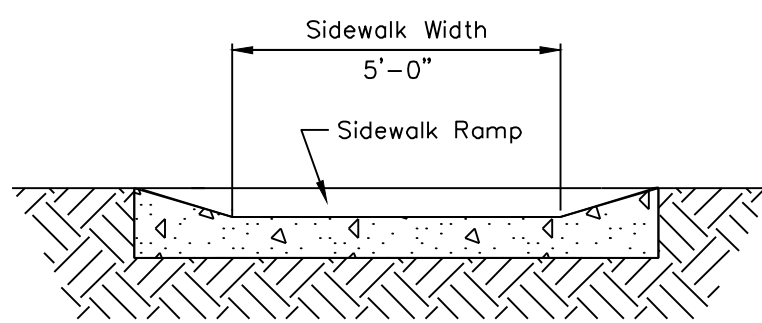
DRAWN BY:	CHECKED BY:	DATE PREPARED:	PROJ. NUMBER:
KSC	MAB	2-15-19	18-230

**NW THOREAU
PLACE AND NW
THOREAU LANE
PLAN AND
PROFILE**

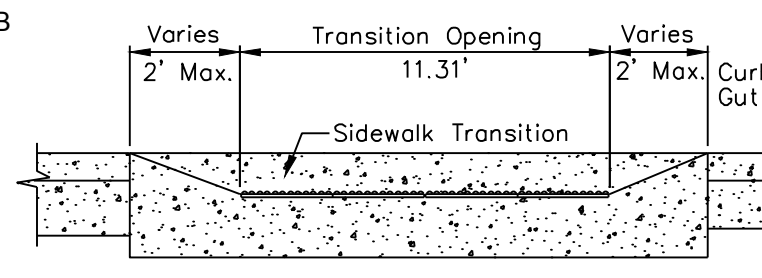
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SECTION A-A

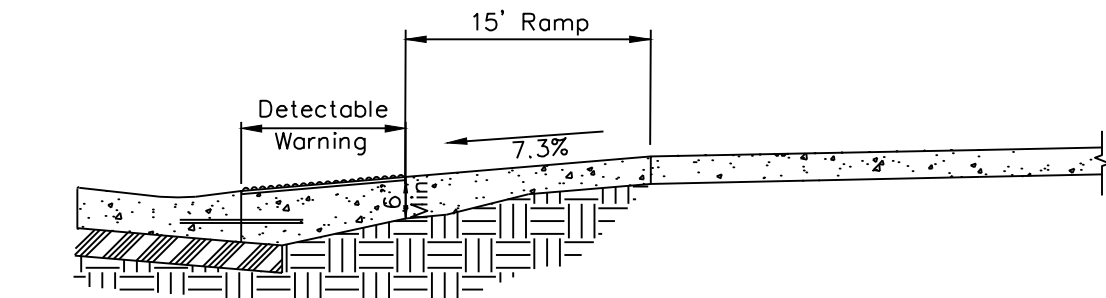


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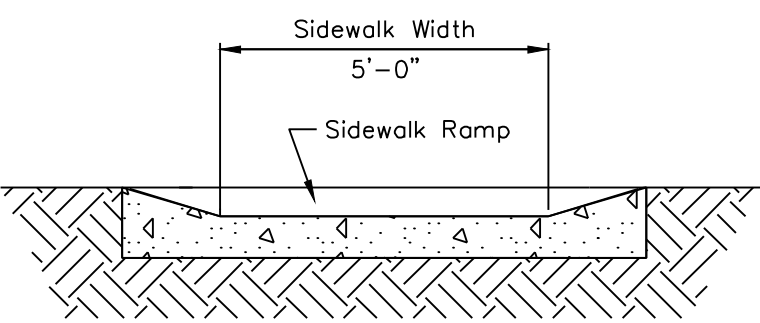


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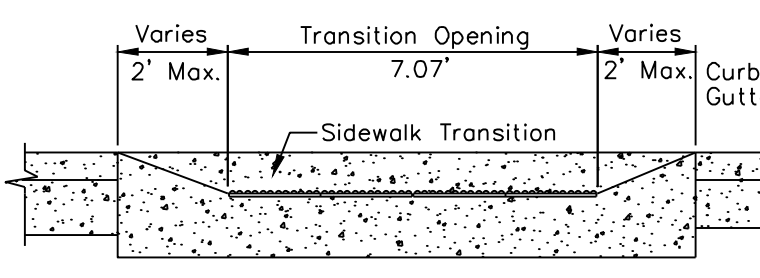
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N.T.S.



SECTION A-A

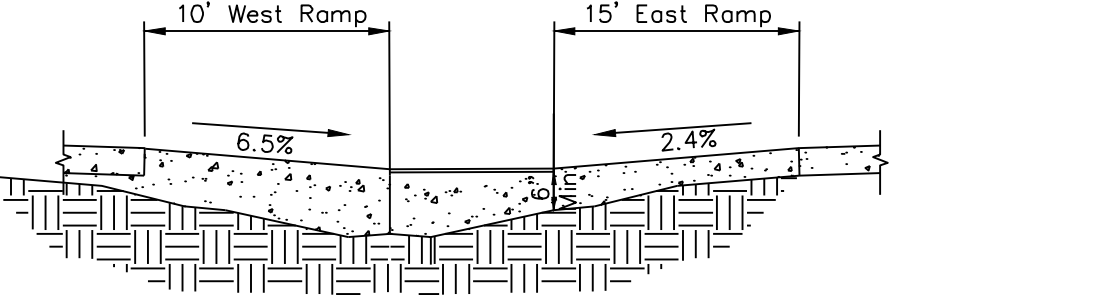


SECTION B-B

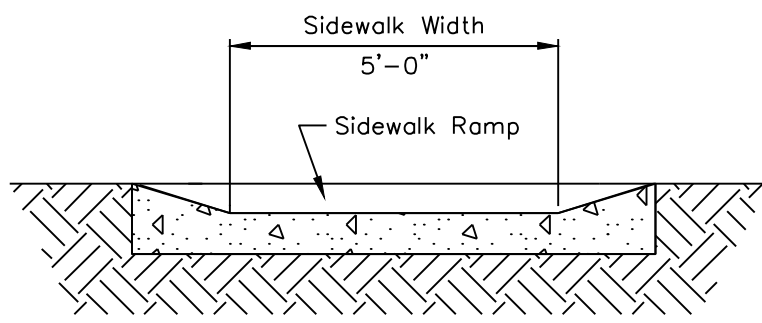


SECTION C-C

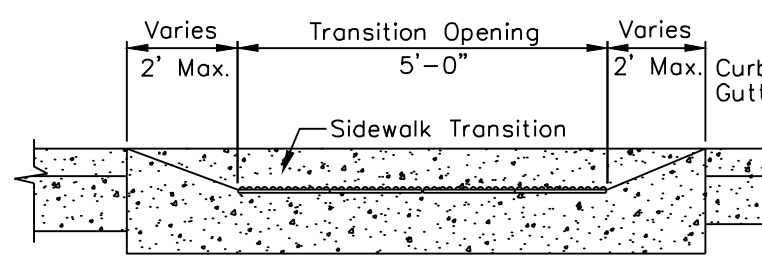
RAMP 2
N.T.S.



SECTION A-A



SECTION B-B



SECTION C-C

RAMP 3
N.T.S.

- LEGEND:**
- EXISTING CURB & GUTTER
 - PROPOSED CURB & GUTTER
 - PROPOSED DRY CURB & GUTTER
 - PROPOSED CURB TRANSITION
 - DENOTES THEORETICAL BACK OF CURB ELEVATION
 - DENOTES SIDEWALK TO BE BUILT BY STREET CONTRACTOR
 - DENOTES SIDEWALK RAMP NUMBER FOR DETAIL REFERENCE

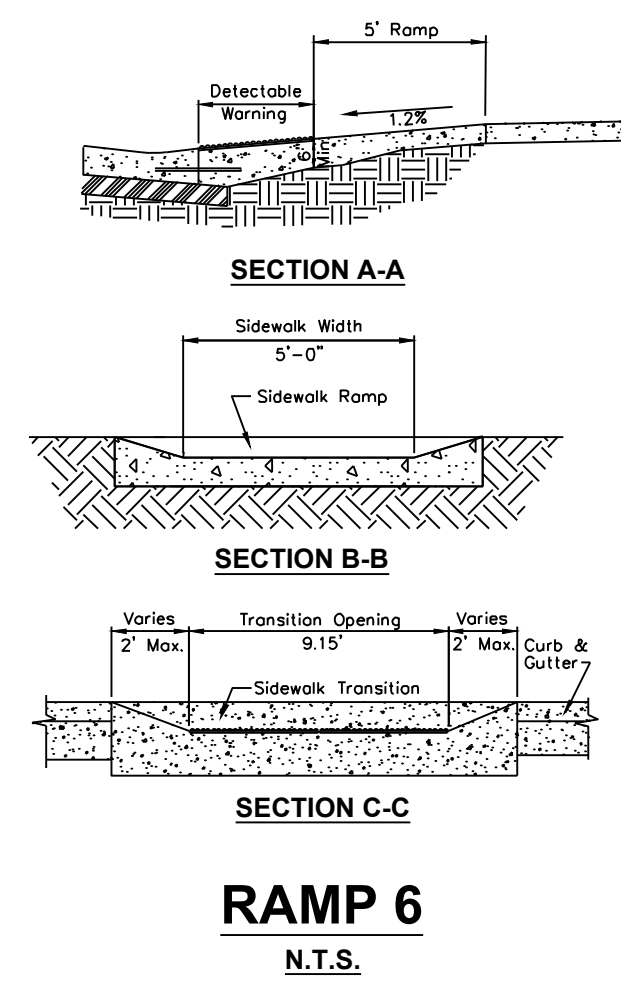
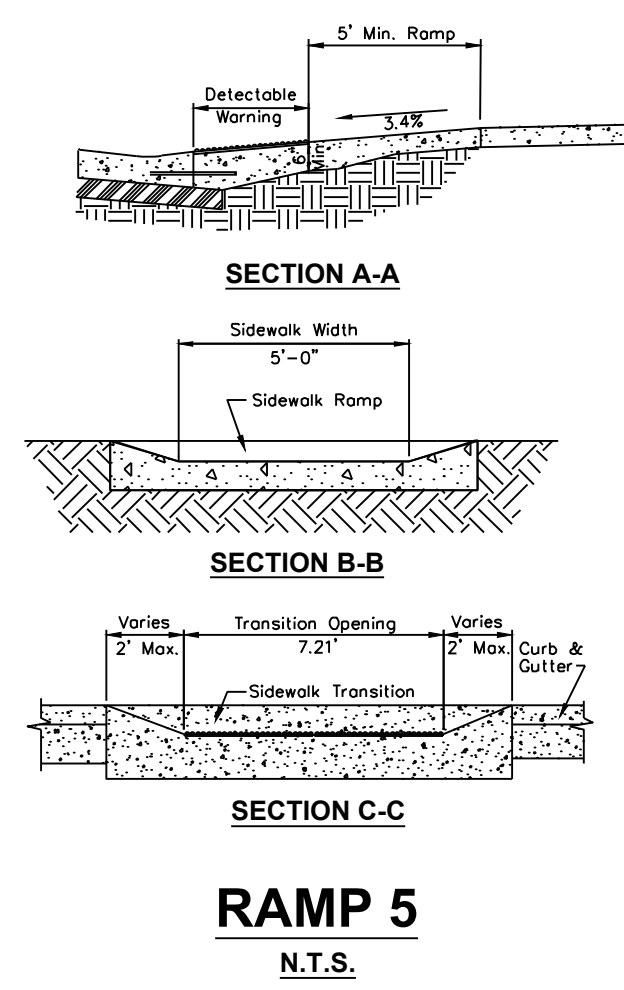
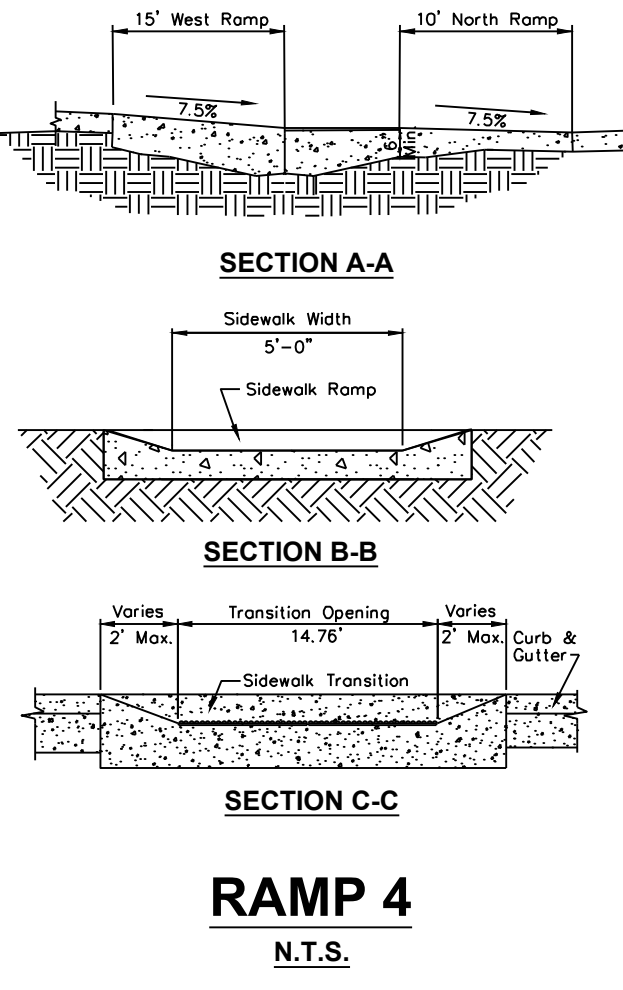
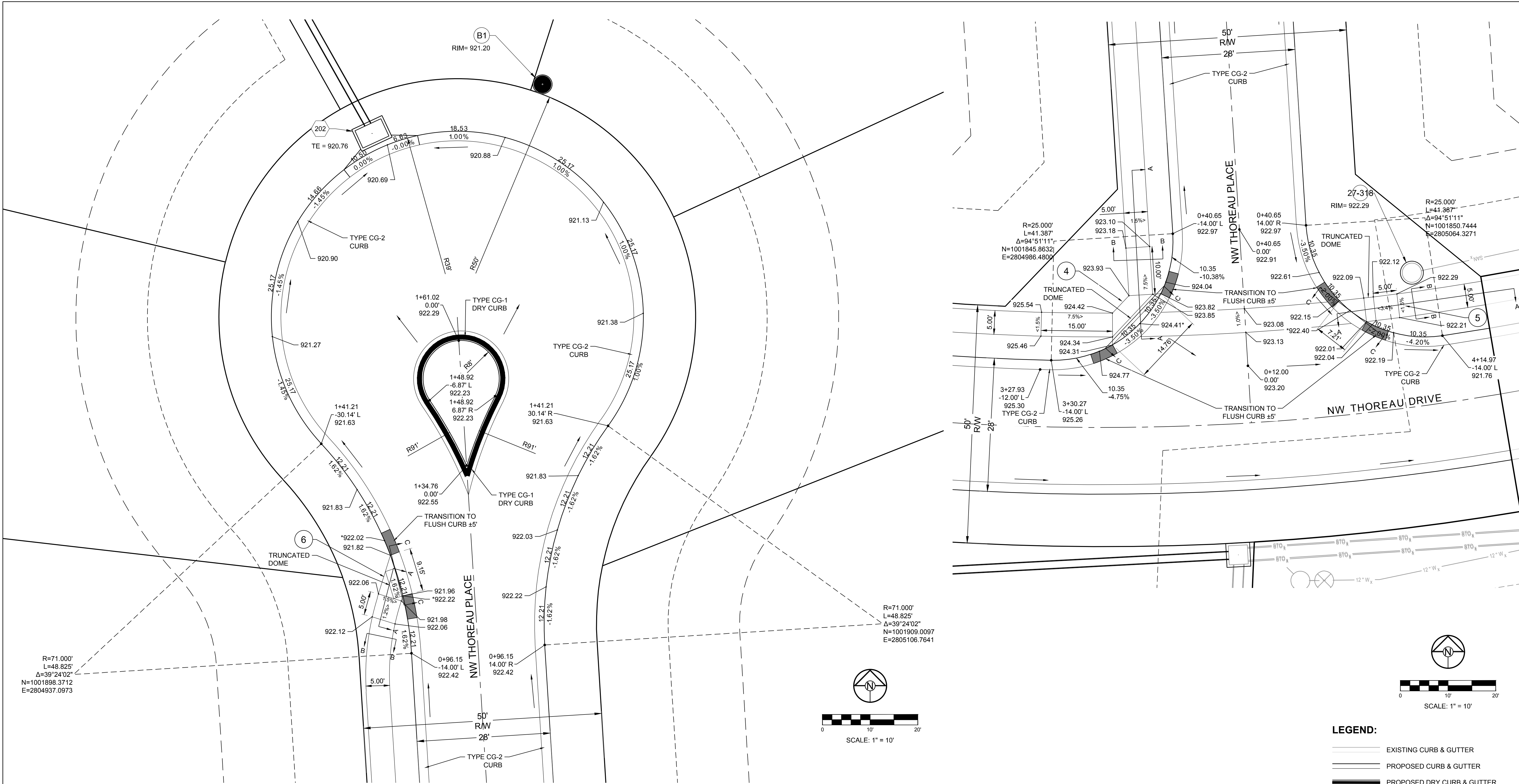
NOTE:
ALL SIDEWALKS ADJACENT TO TRACTS AND UNPLATTED AREAS, AS WELL AS ALL ADA RAMP SHALL BE CONSTRUCTED BY STREET CONTRACTOR. SIDEWALK ADJACENT TO LOTS SHALL BE CONSTRUCTED BY INDIVIDUAL HOME BUILDER.

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DRAWN BY:	KSC
CHECKED BY:	MAB
DATE PREPARED:	2-15-19
PROJ. NUMBER:	18-230

**INTERSECTION
DETAILS**

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LEGEND:

- EXISTING CURB & GUTTER
- PROPOSED CURB & GUTTER
- PROPOSED DRY CURB & GUTTER
- PROPOSED CURB TRANSITION
- DENOTES THEORETICAL BACK OF CURB ELEVATION
- DENOTES SIDEWALK TO BE BUILT BY STREET CONTRACTOR

NOTE:
ALL SIDEWALKS ADJACENT TO TRACTS AND UNPLATTED AREAS, AS WELL AS ALL ADA RAMP SHALL BE CONSTRUCTED BY STREET CONTRACTOR. SIDEWALK ADJACENT TO LOTS SHALL BE CONSTRUCTED BY INDIVIDUAL HOME BUILDER.

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WINTERSET VALLEY, 13TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT CONTROL
NW THOREAU DRIVE AND AUDUBON LANE
LEE'S SUMMIT, MISSOURI

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KSC	MAB	2-15-19	18-230

INTERSECTION
DETAILS

SHEET
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OF 24

MISSOURI GEOGRAPHIC REFERENCE SYSTEM
BENCH MARK:

BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

ELEV. 993.11'

PROJECT BENCH MARK:

SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.

ELEV. 935.45'

Storm Sewer Construction Notes	
Structure	Notes
101	STA 1+60.03, LINE 100 INSTALL 6 X 4 CURB INLET N 1001771.8893 E 2804865.3506
102	STA 1+95.03, LINE 100 INSTALL 6 X 4 CURB INLET N 1001776.5013 E 2804830.6558
103	STA 2+37.43, LINE 100 INSTALL 6 X 4 CURB INLET N 1001810.1882 E 2804804.9060
104	STA 2+72.43, LINE 100 INSTALL 6 X 4 CURB INLET N 1001844.8828 E 2804809.5179
200	STA -0+00.04, LINE 200 INSTALL 18 INCH HDPE END SECTION W/ TOEWALL AND 5 CY STONE RIP RAP N 1002174.0148 E 2805009.7732
201	STA 0+88.27, LINE 200 INSTALL 4 X 4 AREA INLET WITH OPENING TO SOUTHEAST F.F.B. S30°27'54"E N 1002129.2388 E 2804933.6522
202	STA 2+22.88, LINE 200 INSTALL 6 X 4 CURB INLET N 1002011.9194 E 2804999.6569
301	STA 1+02.91, LINE 300 INSTALL 4 X 4 AREA INLET WITH OPENING TO SOUTHEAST F.F.B. S41°03'59"E N 1002064.8666 E 2804853.3638
400	STA 0+00.00, LINE 400 INSTALL 42" HDPE END SECTION W/ TOEWALL AND 8 CY STONE RIP RAP N 1002306.4992 E 2805286.6945
401	STA 0+74.07, LINE 400 INSTALL 6 X 6 CURB INLET N 1002373.9490 E 2805317.2915
402	STA 1+10.07, LINE 400 INSTALL 6 X 4 CURB INLET N 1002409.3973 E 2805323.5696
500	STA 0+16.27, LINE 500 INSTALL 42" HDPE END SECTION W/ TOEWALL AND SCOUR BASIN N 1002503.0403 E 2805400.4139
501	STA 2+53.53, LINE 500 INSTALL 5 X 5 DETENTION STRUCTURE W/ ORIFICE TO SOUTHWEST F.F.B. S55°25'42"E N 1002307.7744 E 2805265.6422

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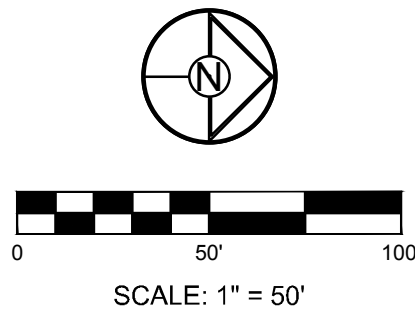
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			CITY COMMENTS	
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DATE PREPARED	2-15-19	3	8-21-19	CITY COMMENTS
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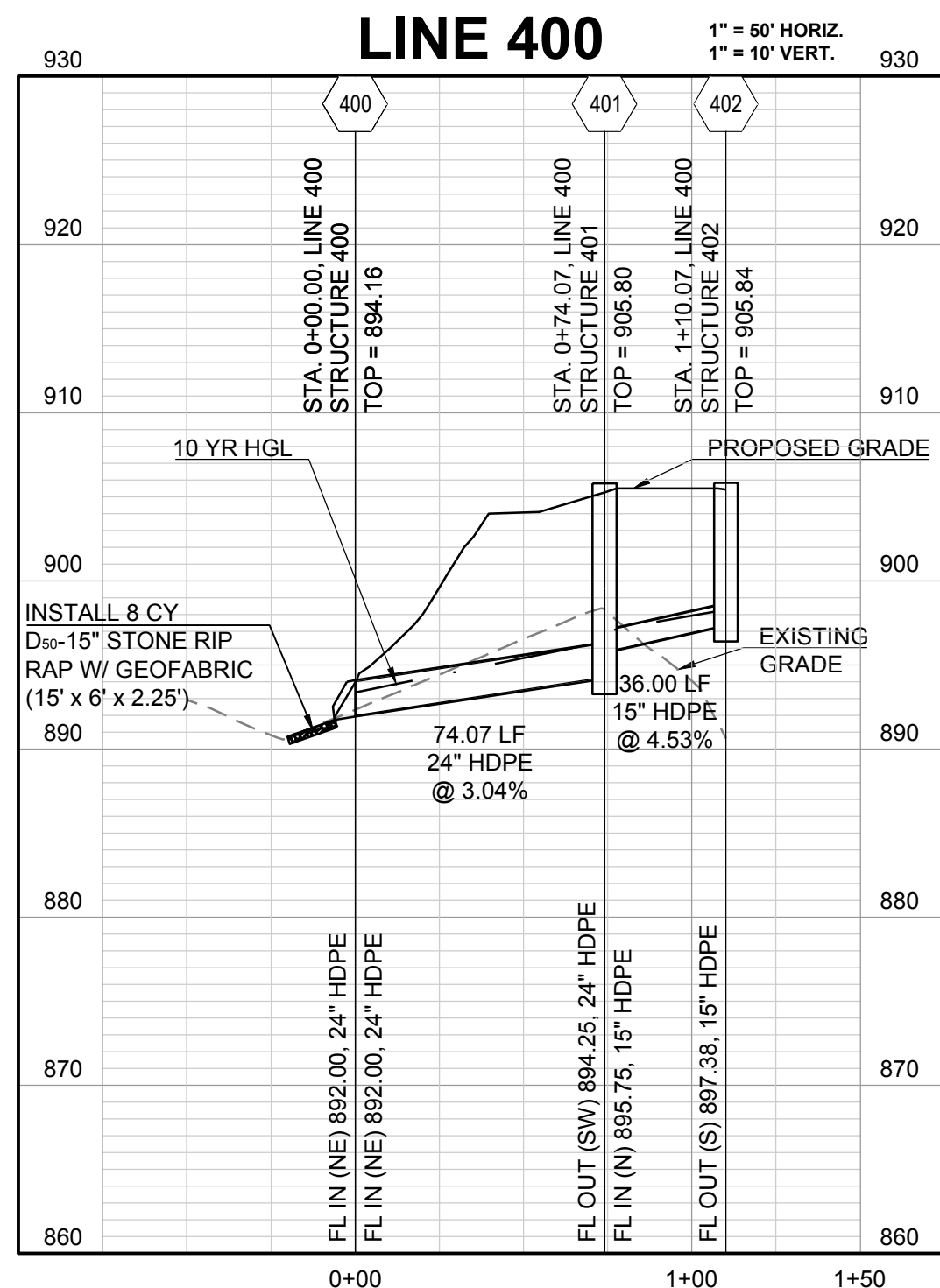
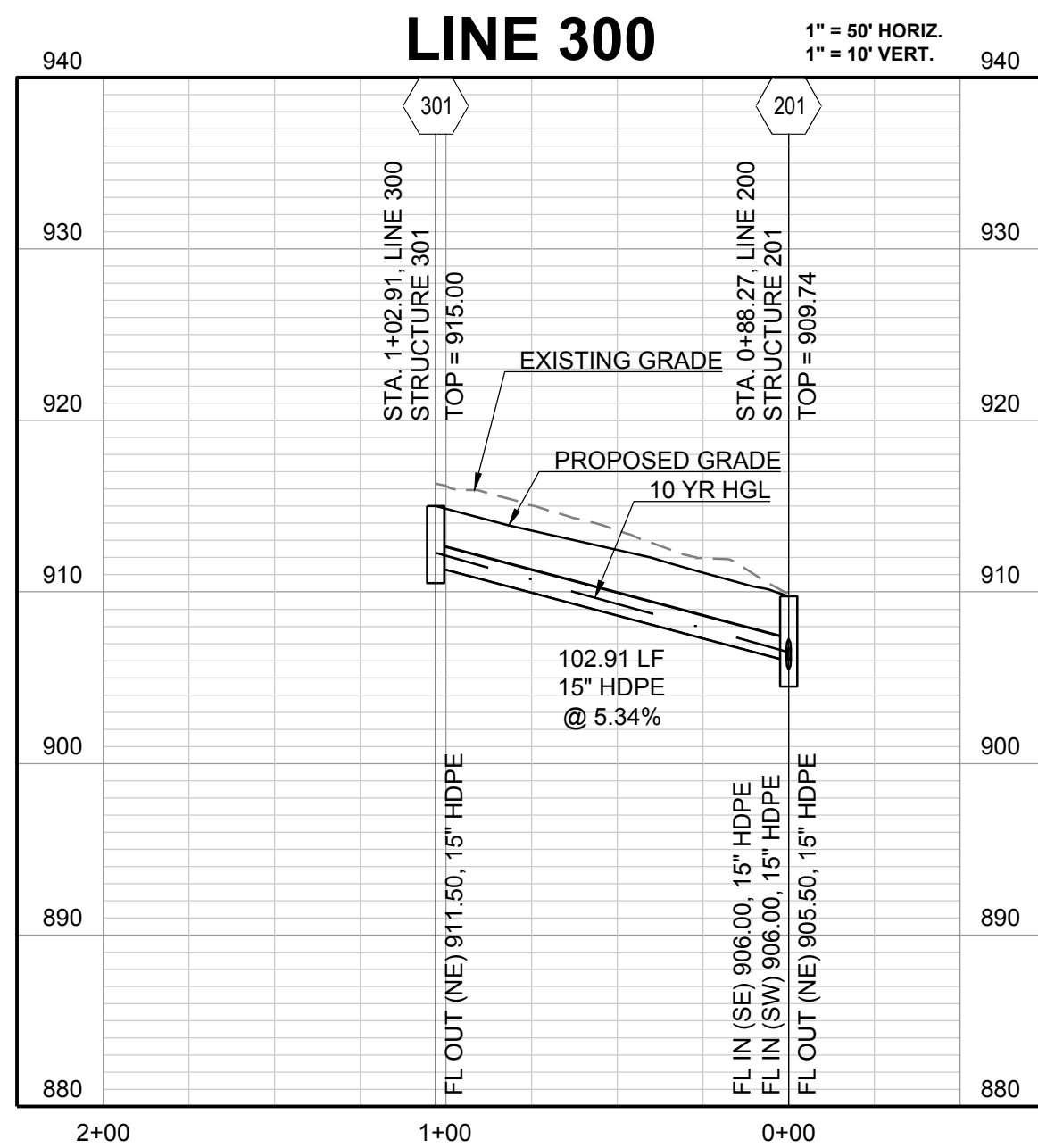
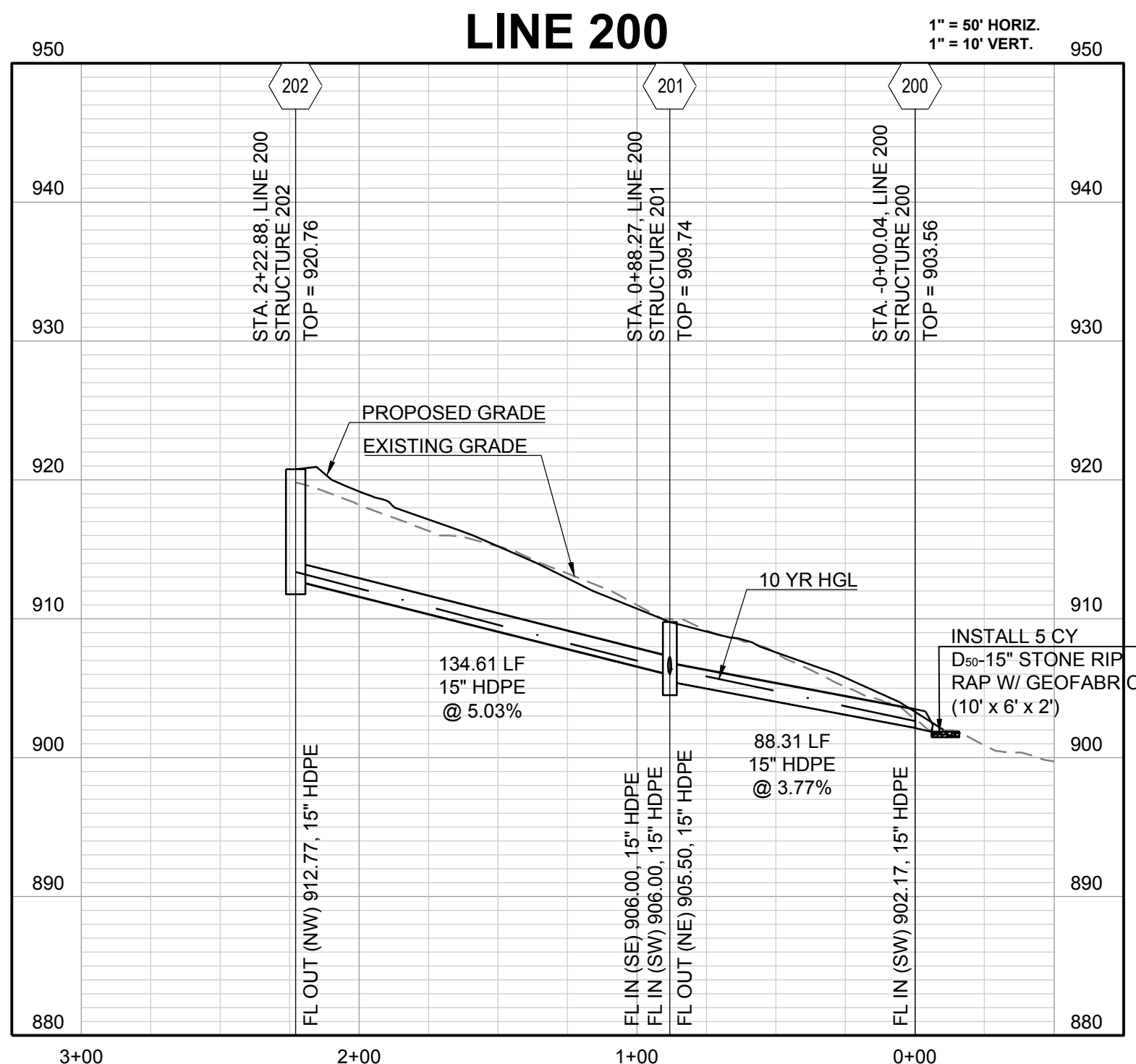
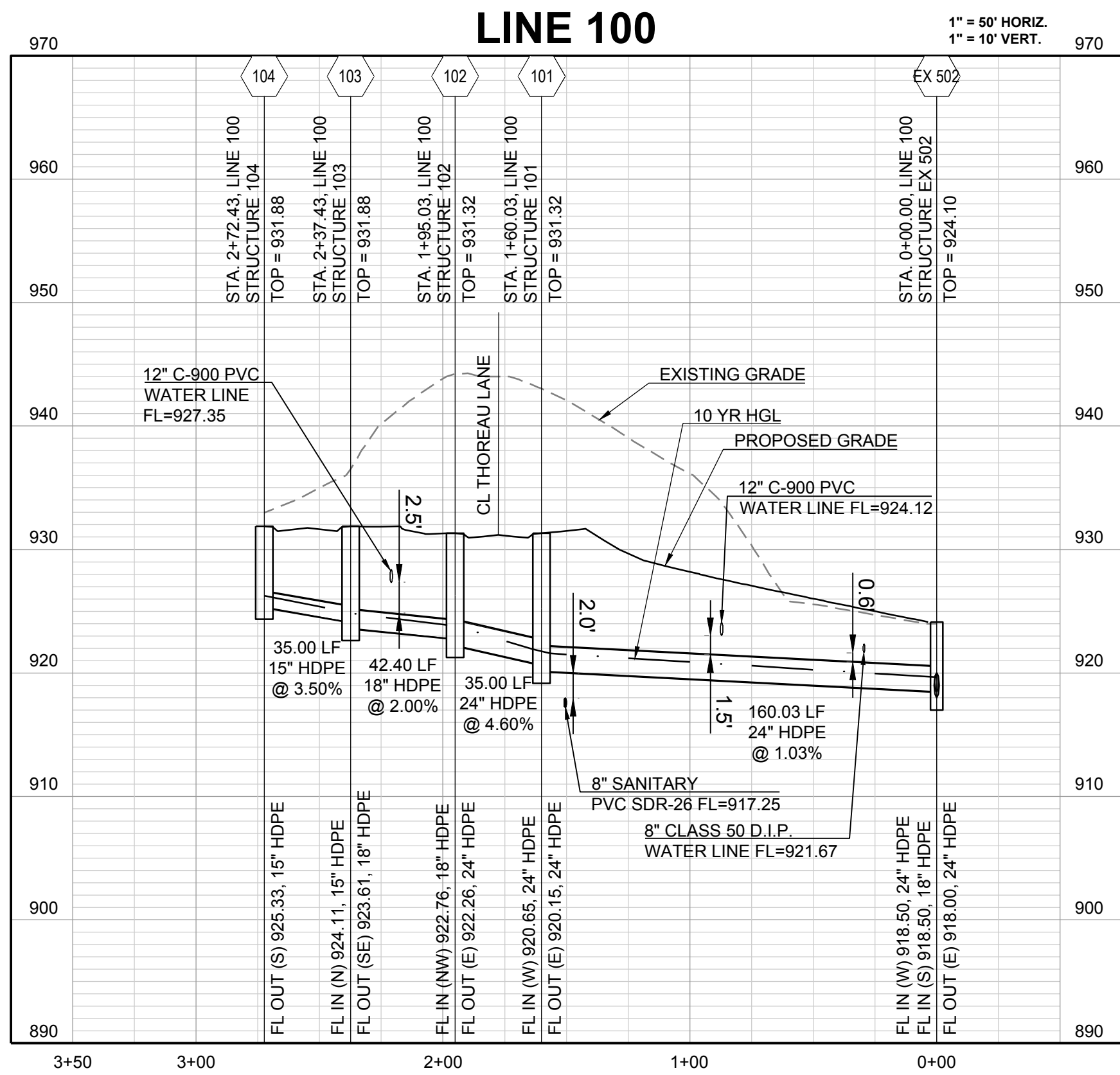
STORM PLAN

SHEET

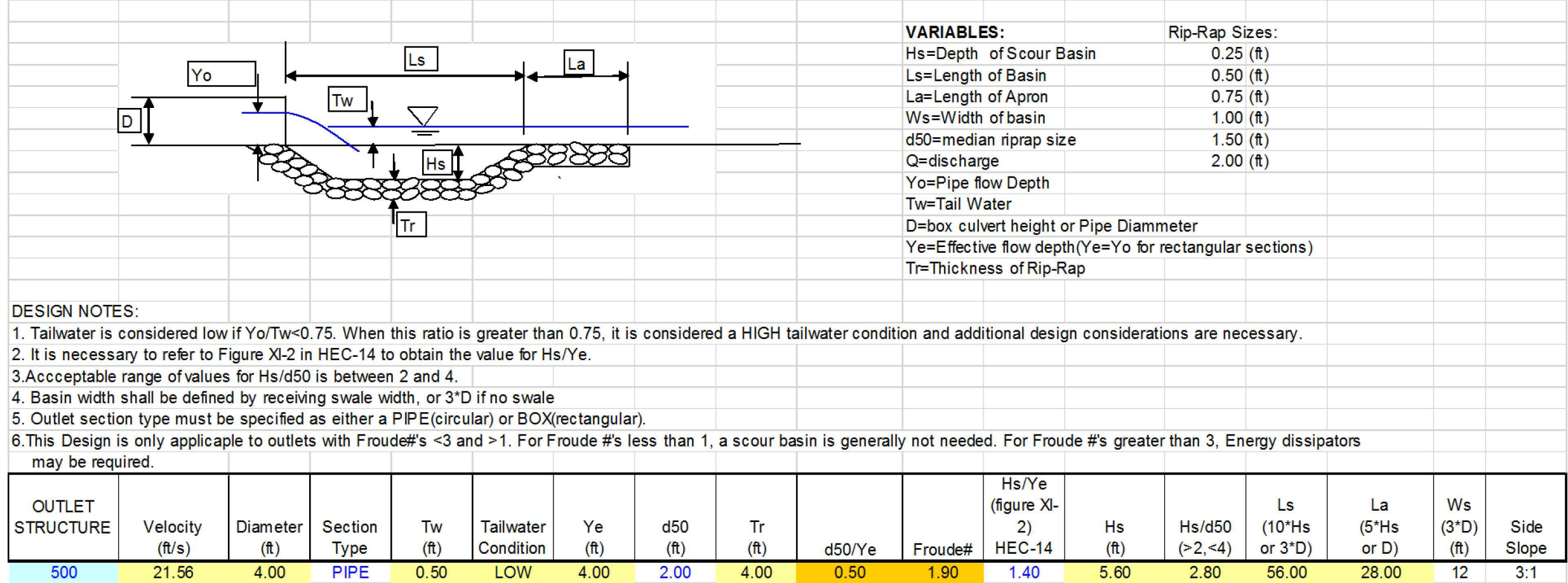
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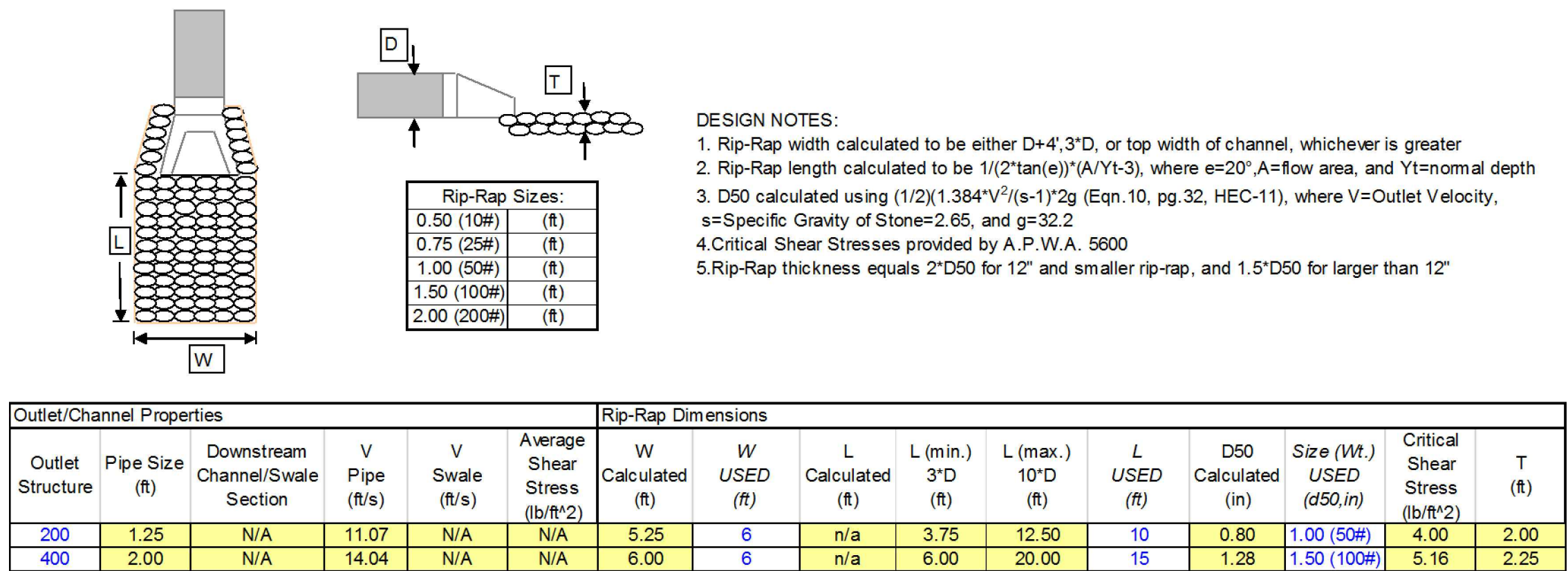
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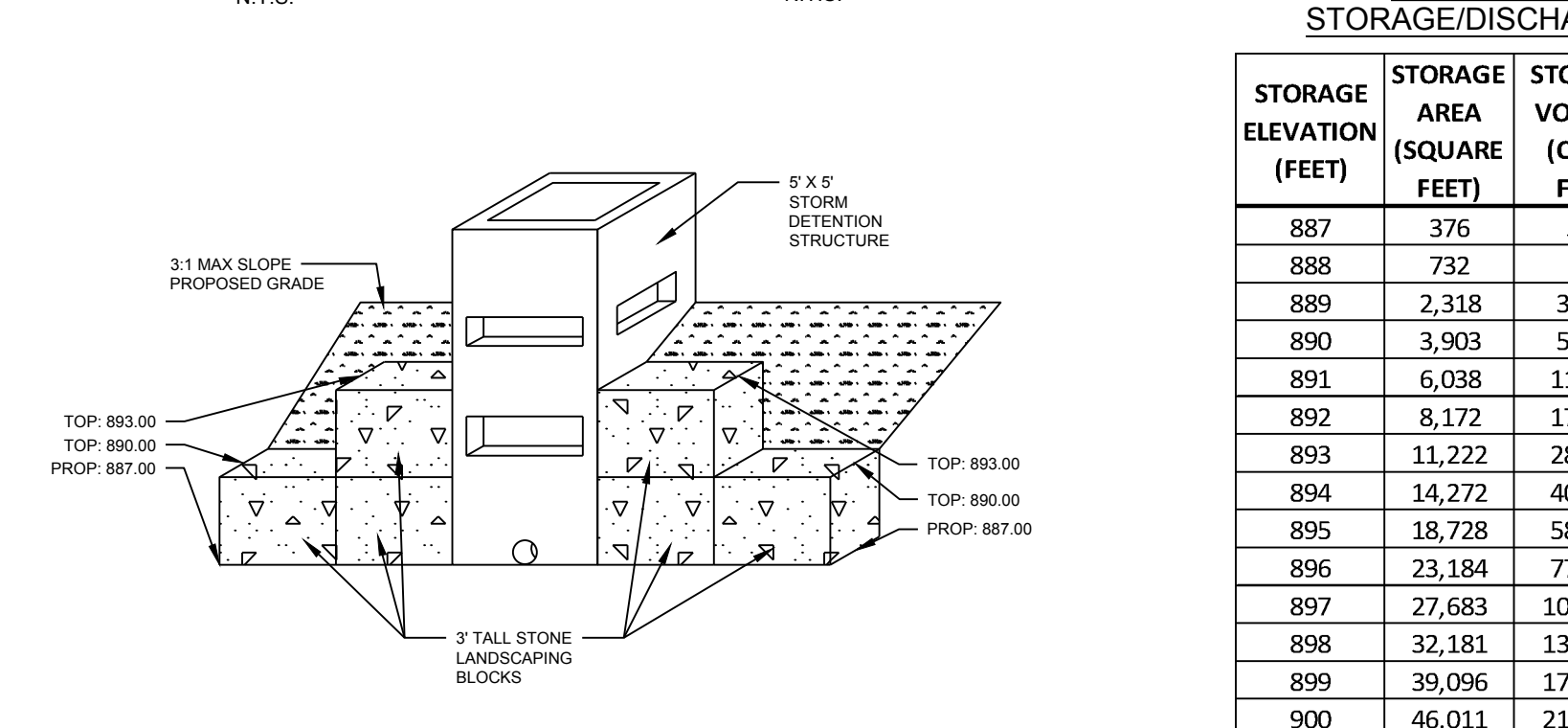
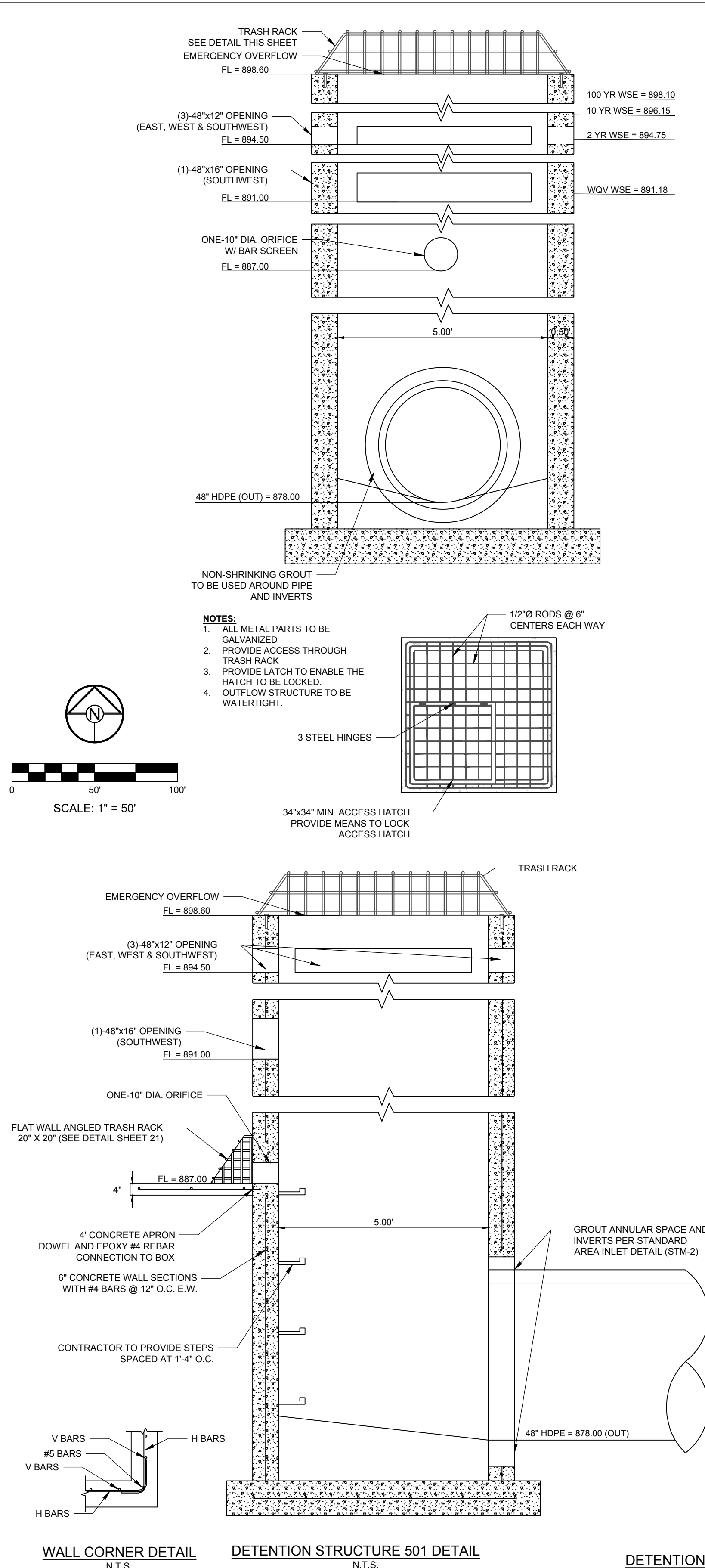
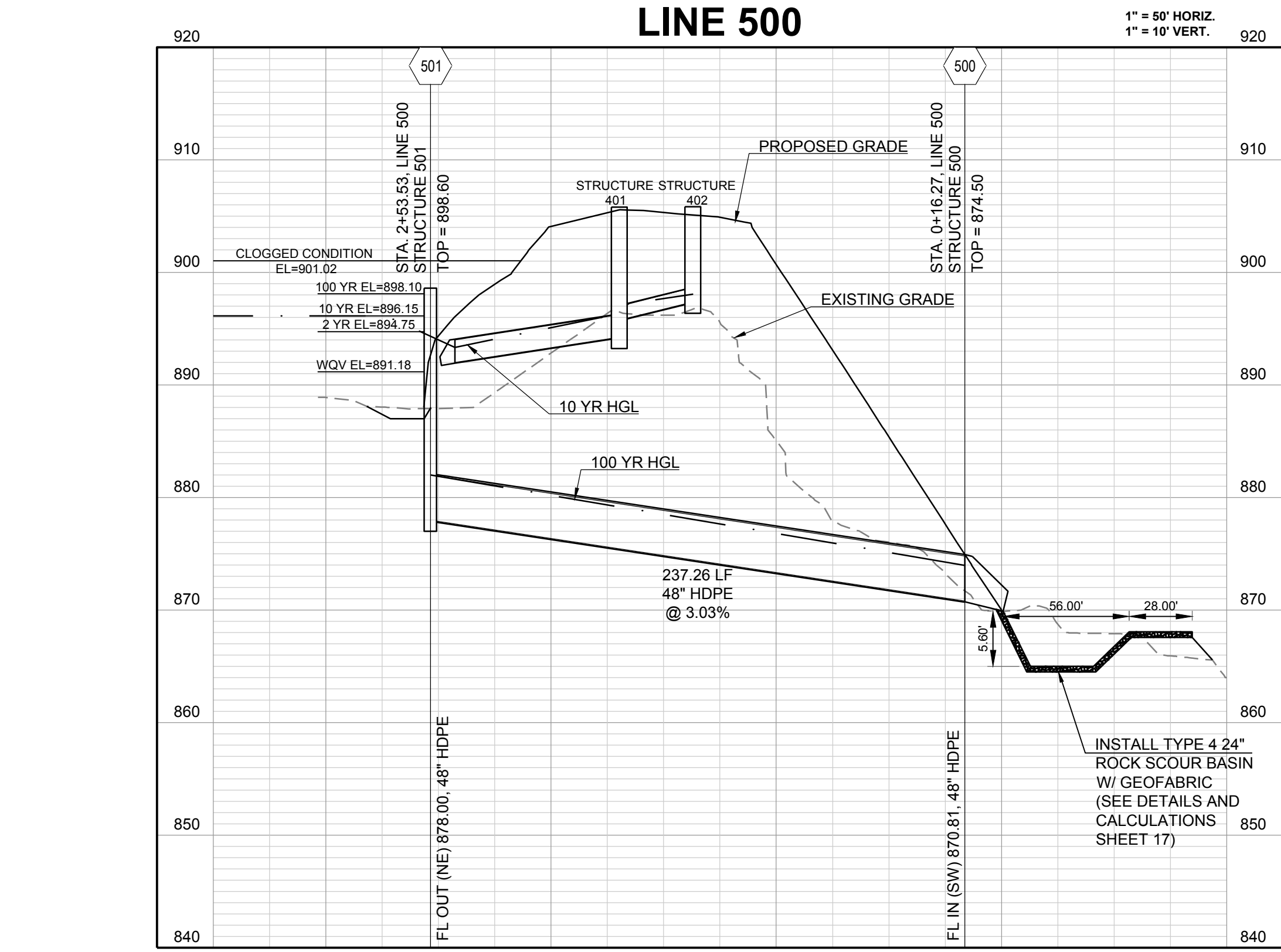
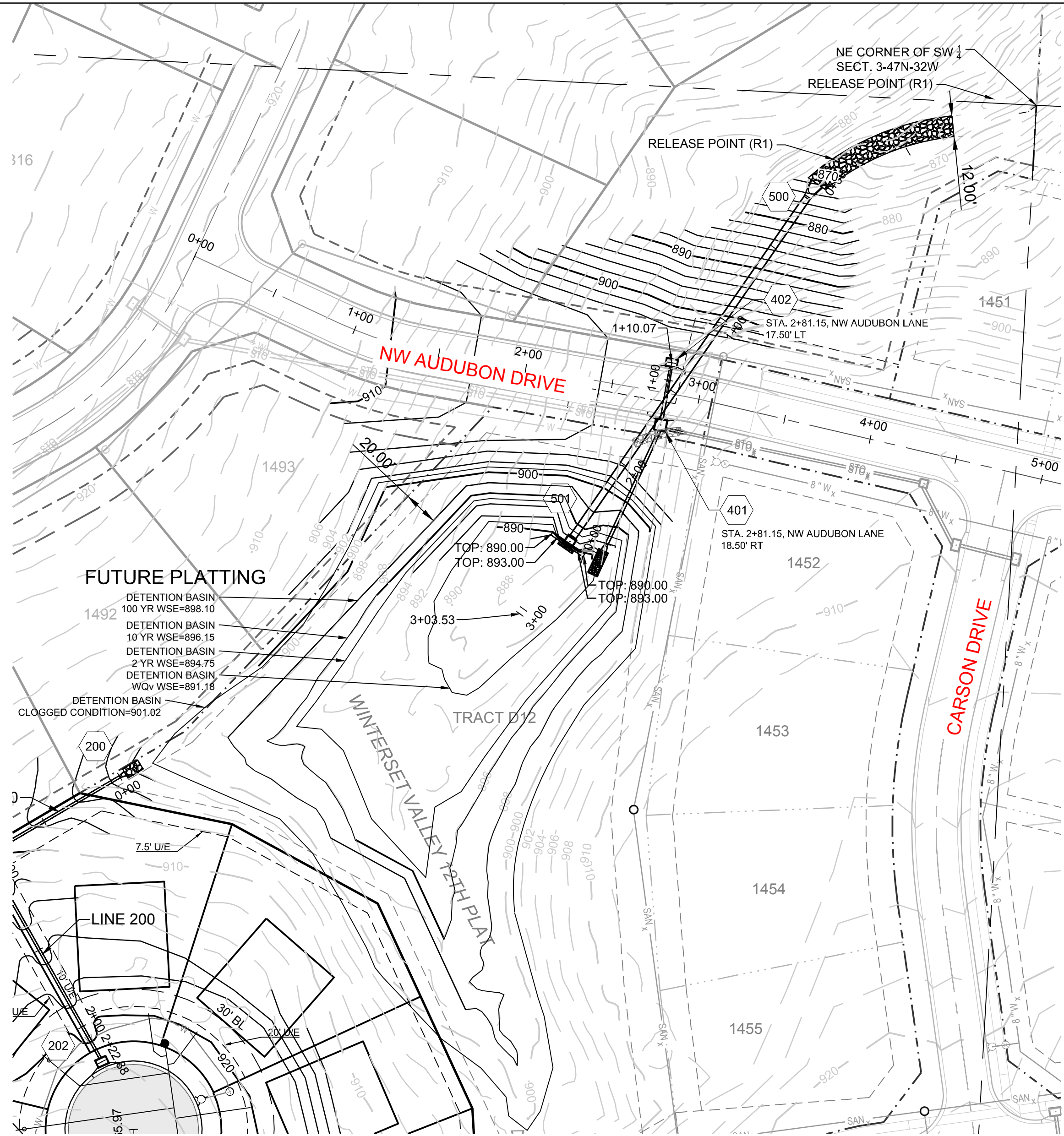


SCOUR BASIN DESIGN SHEET v1.1

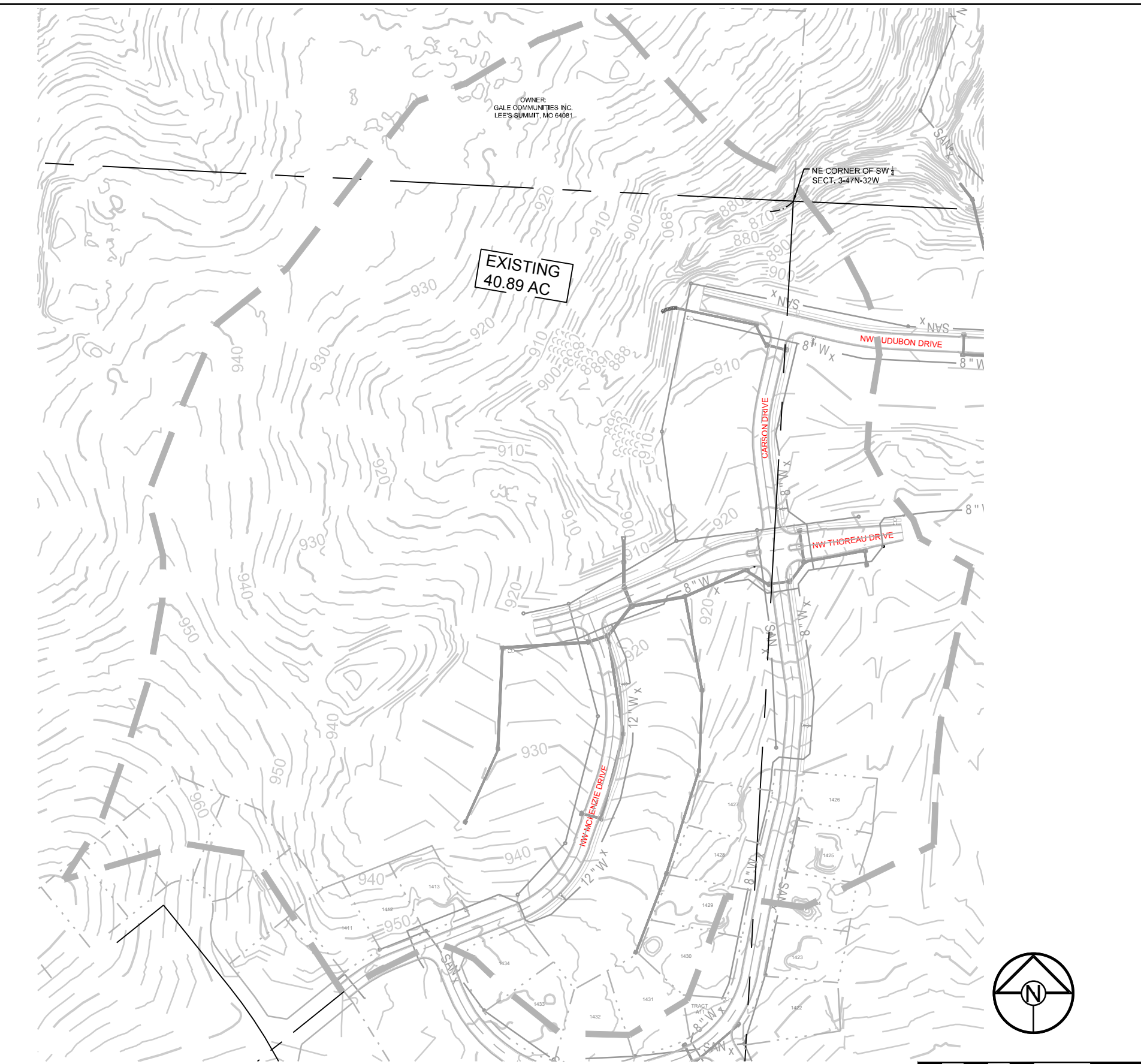


OUTLET RIP-RAP DESIGN WORKSHEET v1.0





DETENTION BASIN STORAGE/DISCHARGE TABLE			
STORAGE ELEVATION (FEET)	STORAGE AREA (SQUARE FEET)	STORAGE VOLUME (CUBIC FEET)	DISCHARGE (CFS)
887	376	536	0.00
888	732	912	2.01
889	2,318	3,230	3.30
890	3,903	5,547	4.22
891	6,038	11,585	4.97
892	8,172	17,622	18.46
893	11,222	28,844	35.53
894	14,272	40,066	45.83
895	18,728	58,794	50.11
896	23,184	77,522	96.20
897	27,683	105,205	148.89
898	32,181	132,887	173.10
899	39,096	171,983	210.48
900	46,011	211,079	270.59



DETENTION BASIN DESIGN INFORMATION				
	AREA (AC)	CN	Tc (MIN)	100 YR RUNOFF (CFS)
EXISTING DRAINAGE AREA	40.89	80	21.40	237.98
PROPOSED DRAINAGE AREA	35.42	86	16.10	262.19
PROPOSED ONSITE DETENTION BYPASS	4.34	86	12.90	35.42
DETENTION BASIN RELEASE RATE	---	---	---	175.19
FLOW AT RELEASE POINT	---	---	---	195.40

MAX. ALLOWABLE FLOW = EXISTING FLOW = 237.98 CFS
TOTAL DEVELOPED CONDITION 100 YR RELEASE RATE TO R1 = 195.40 CFS < 237.98 CFS
EXISTING WATER QUALITY = 7.09 CFS
PROPOSED WATER QUALITY = 6.71 CFS < 7.09 CFS

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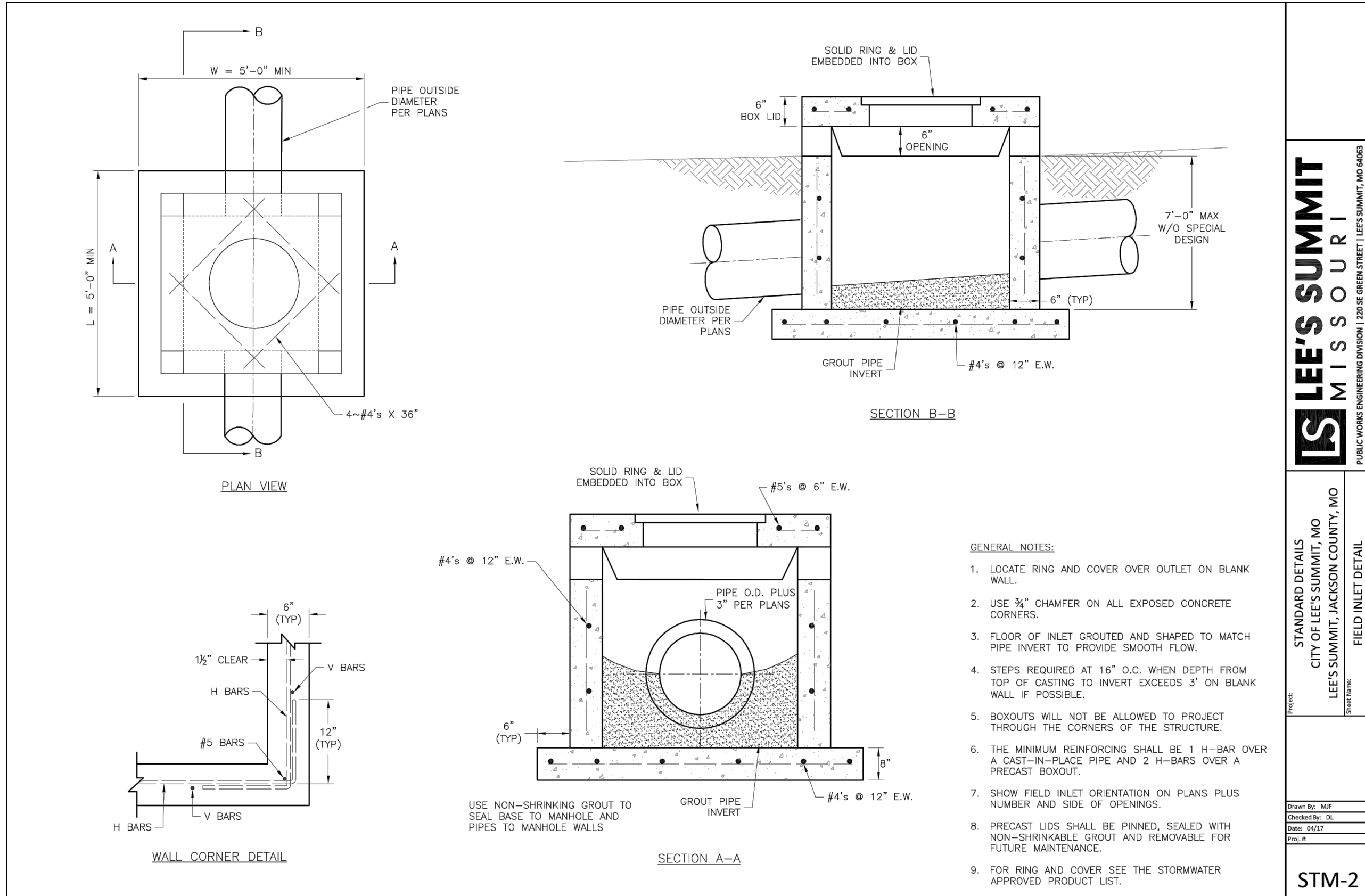
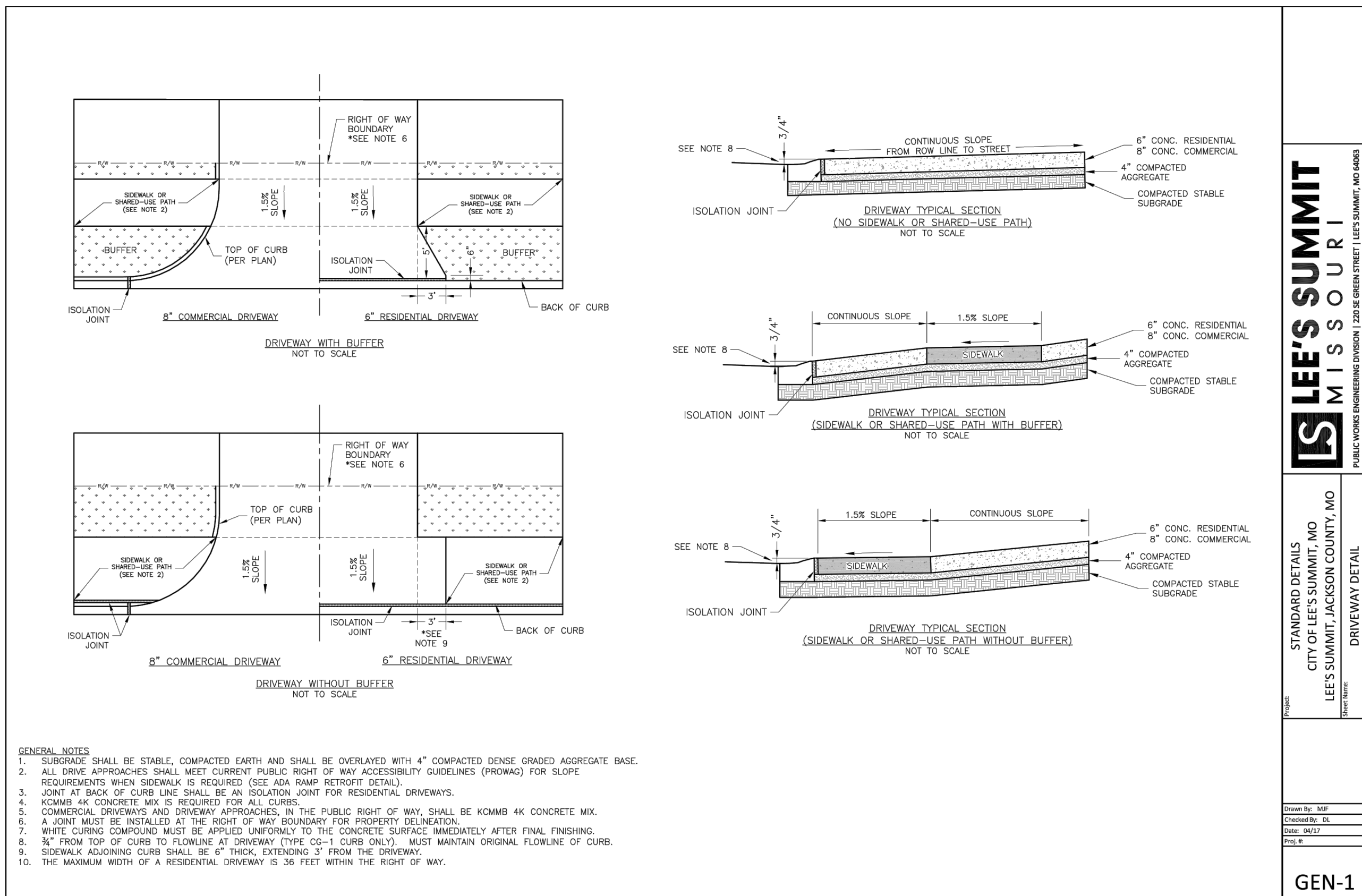
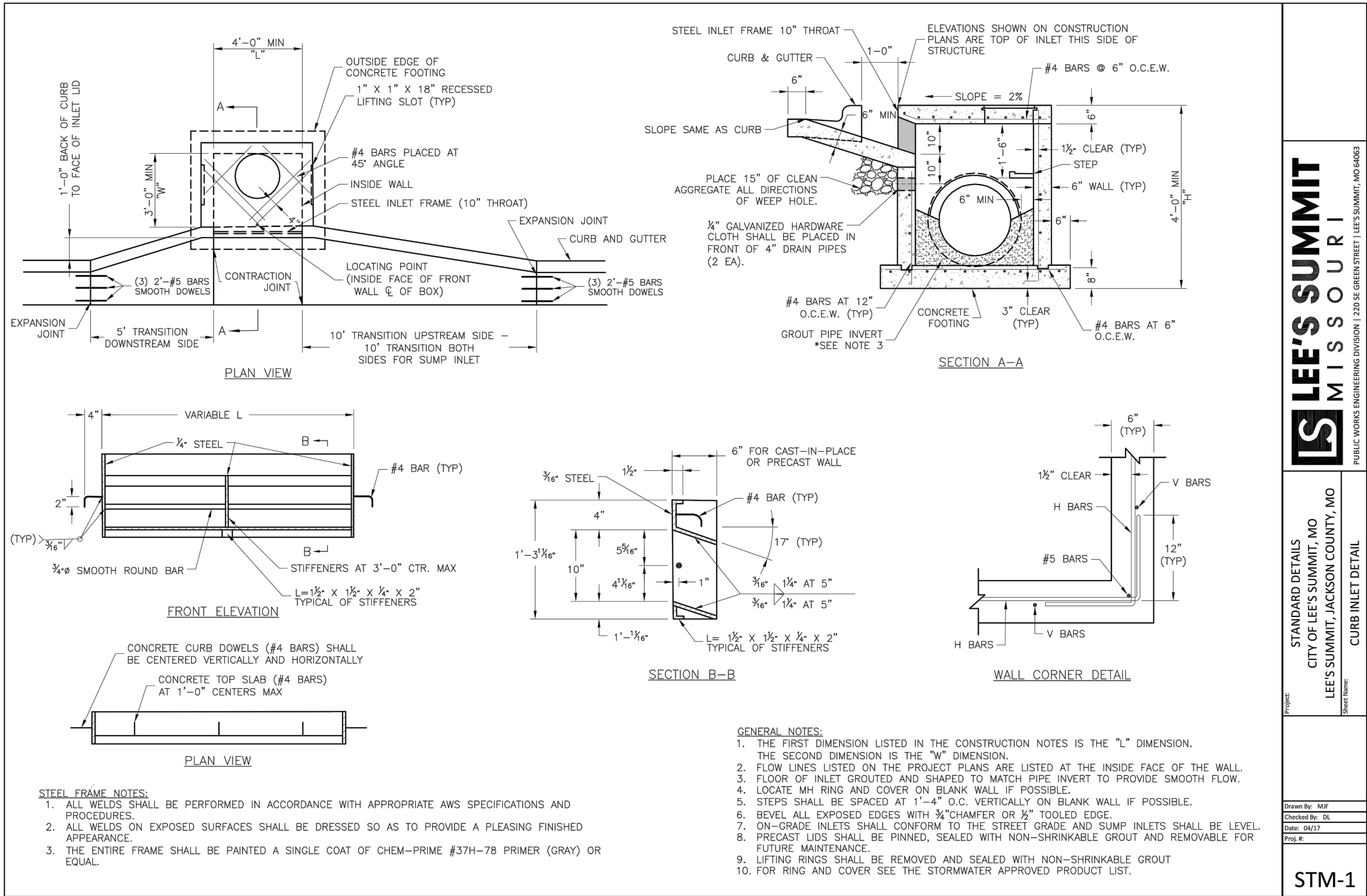
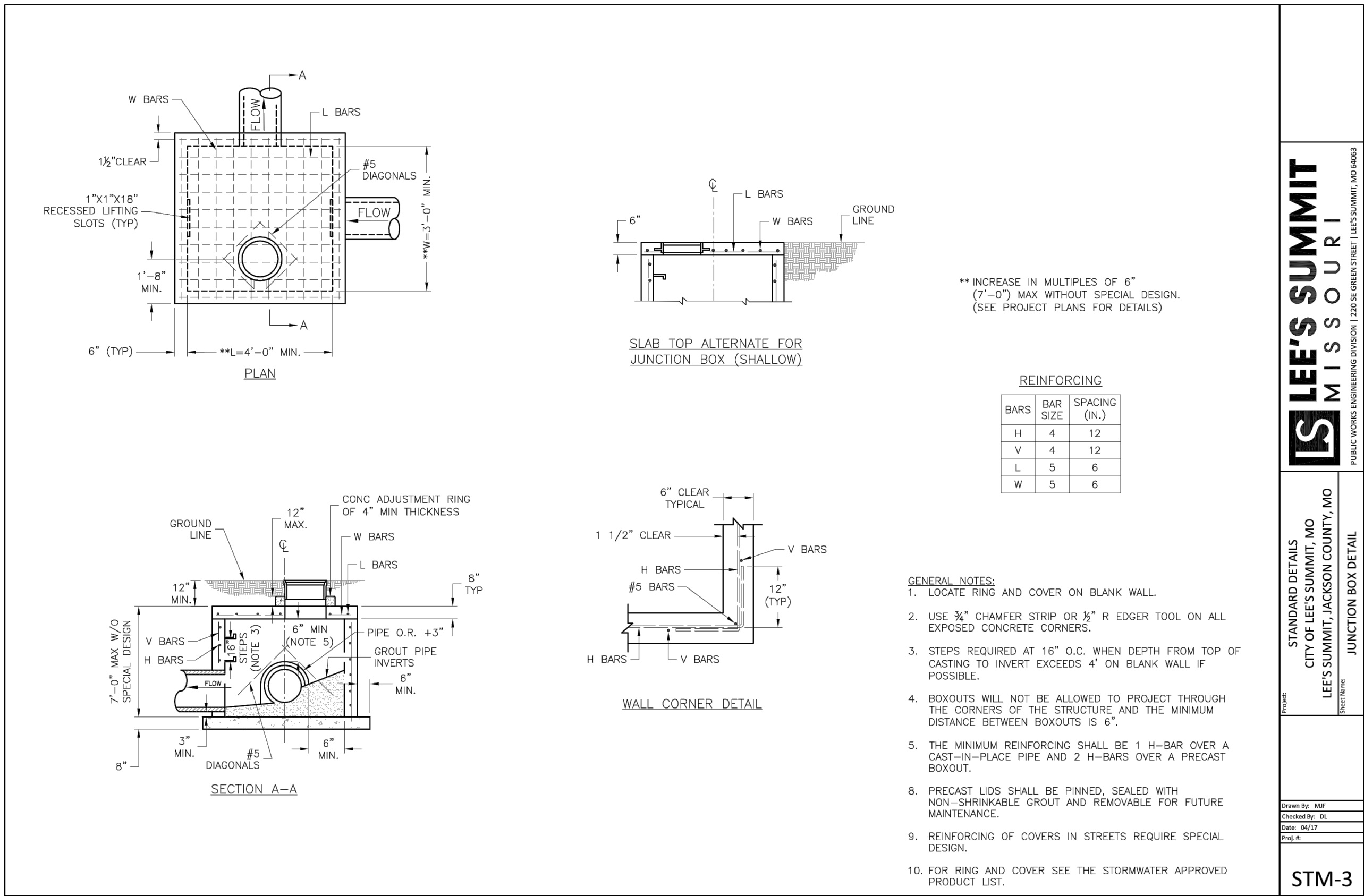
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DETENTION BASIN

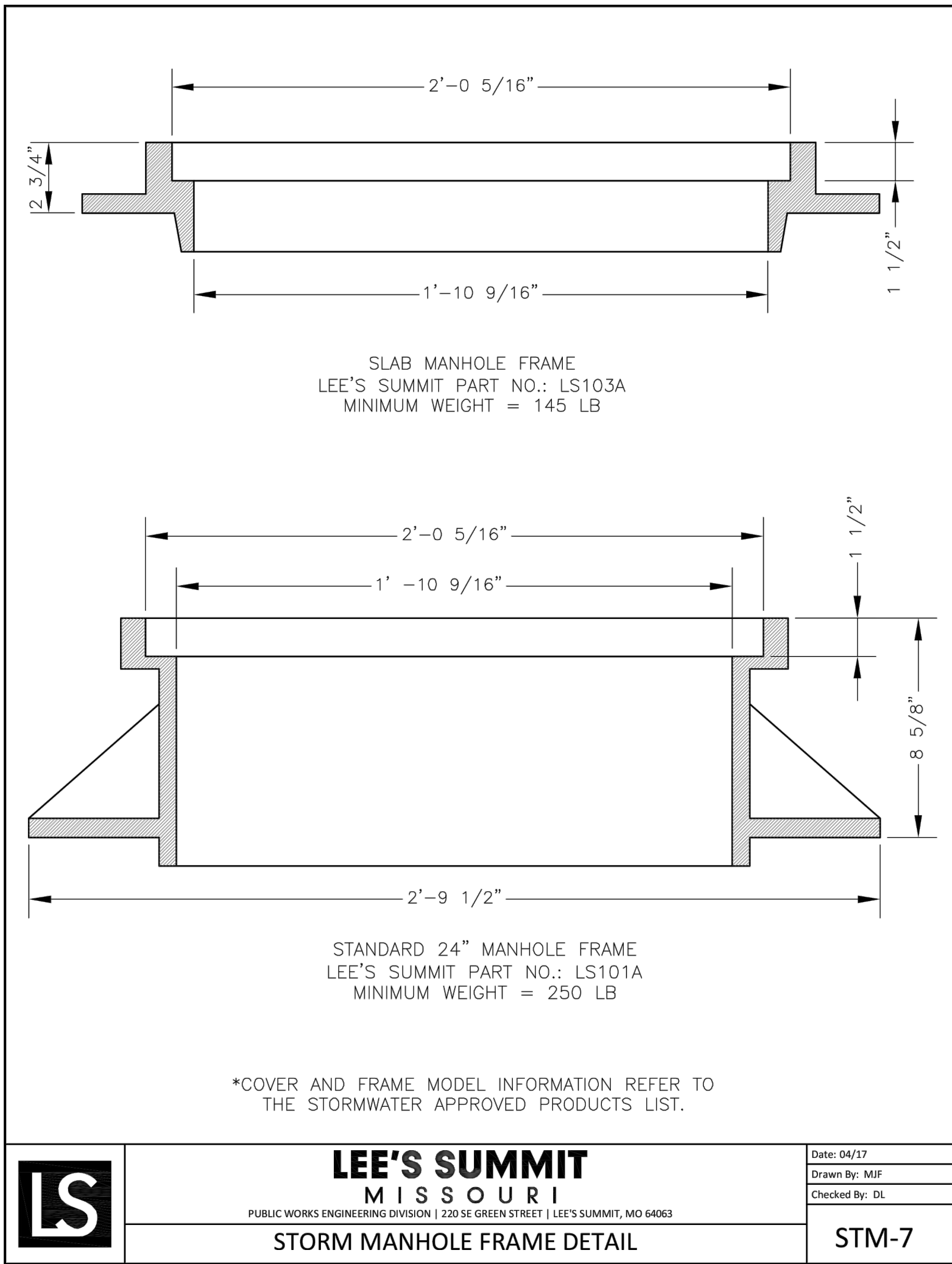
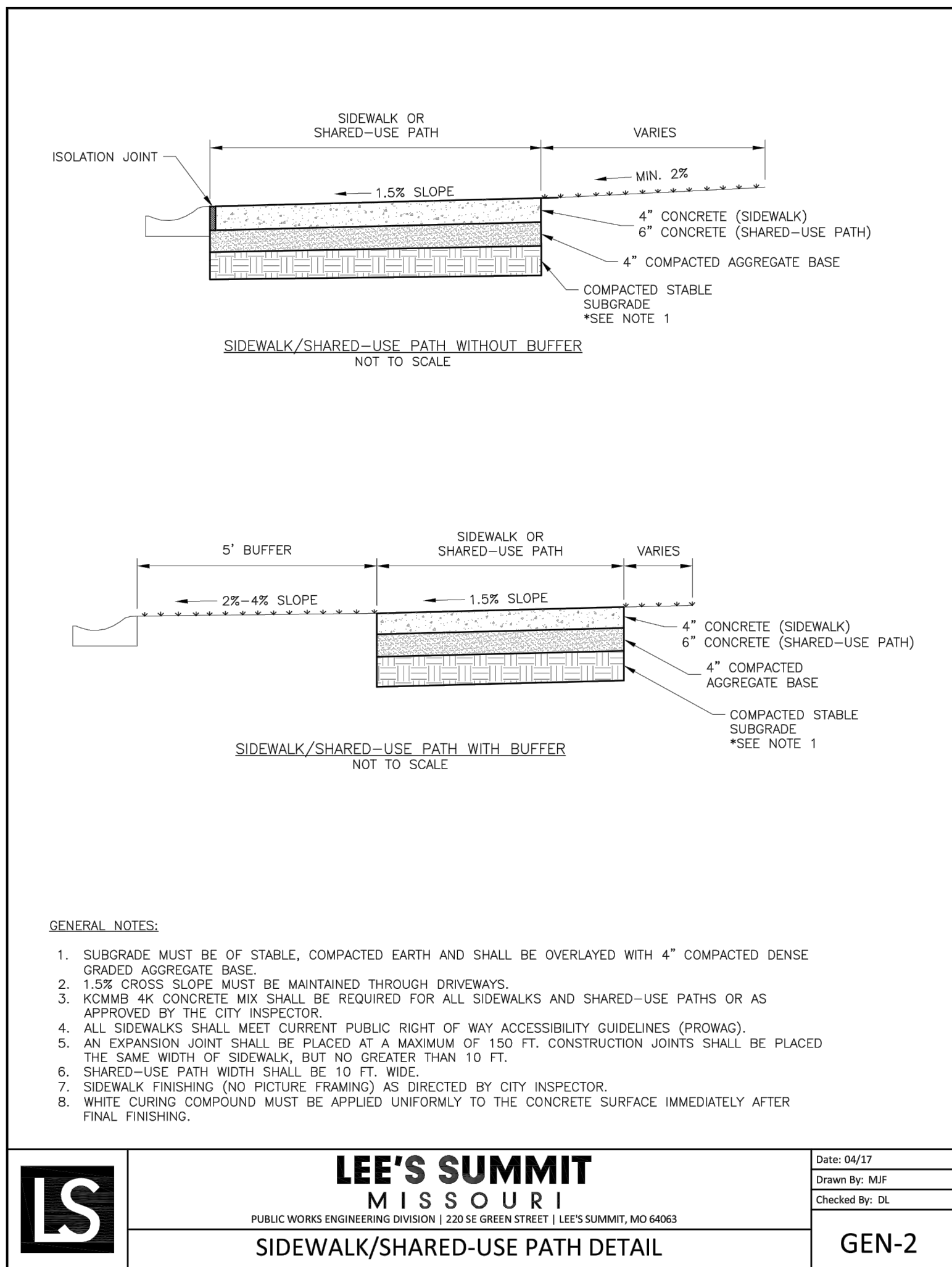
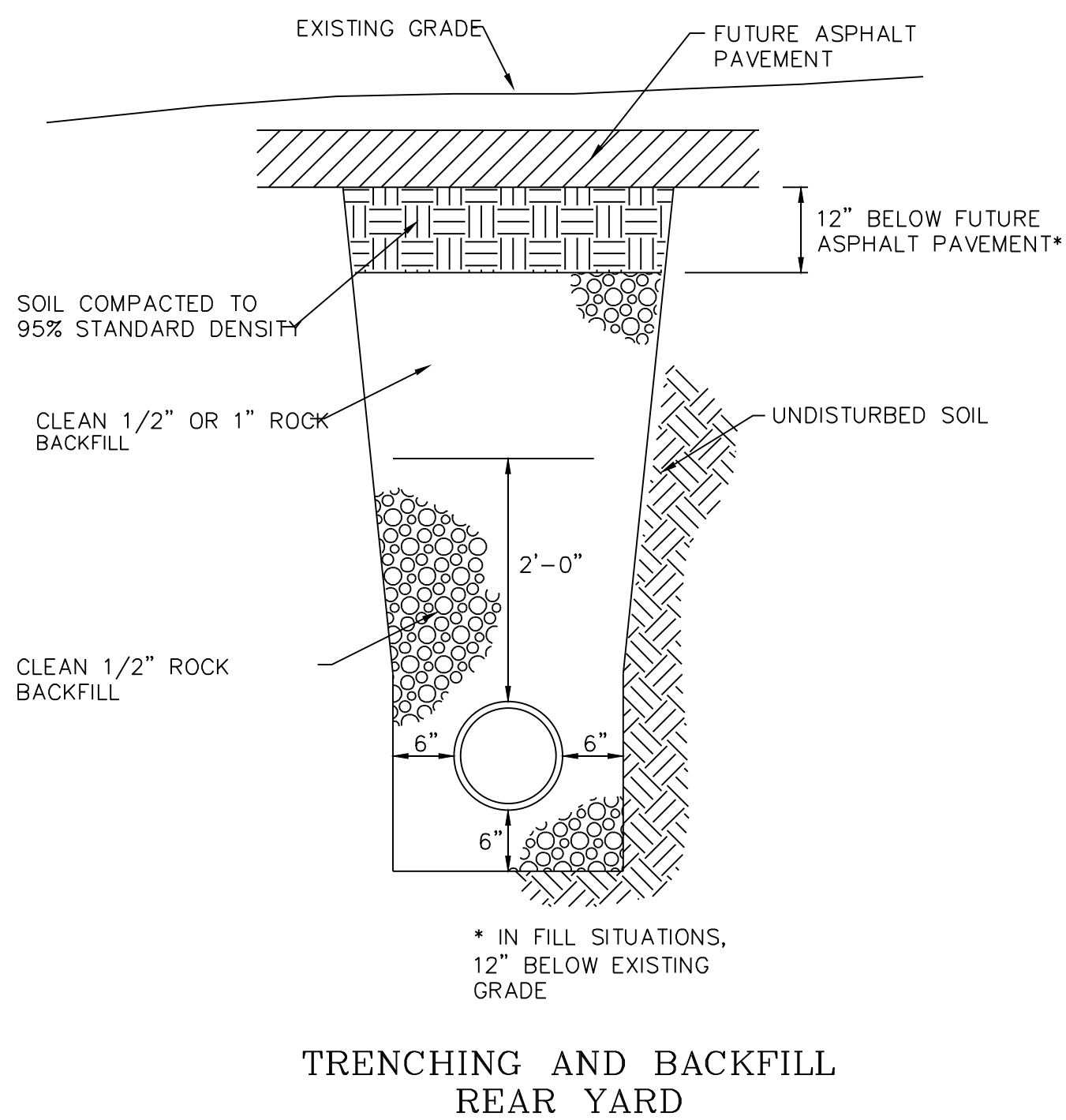
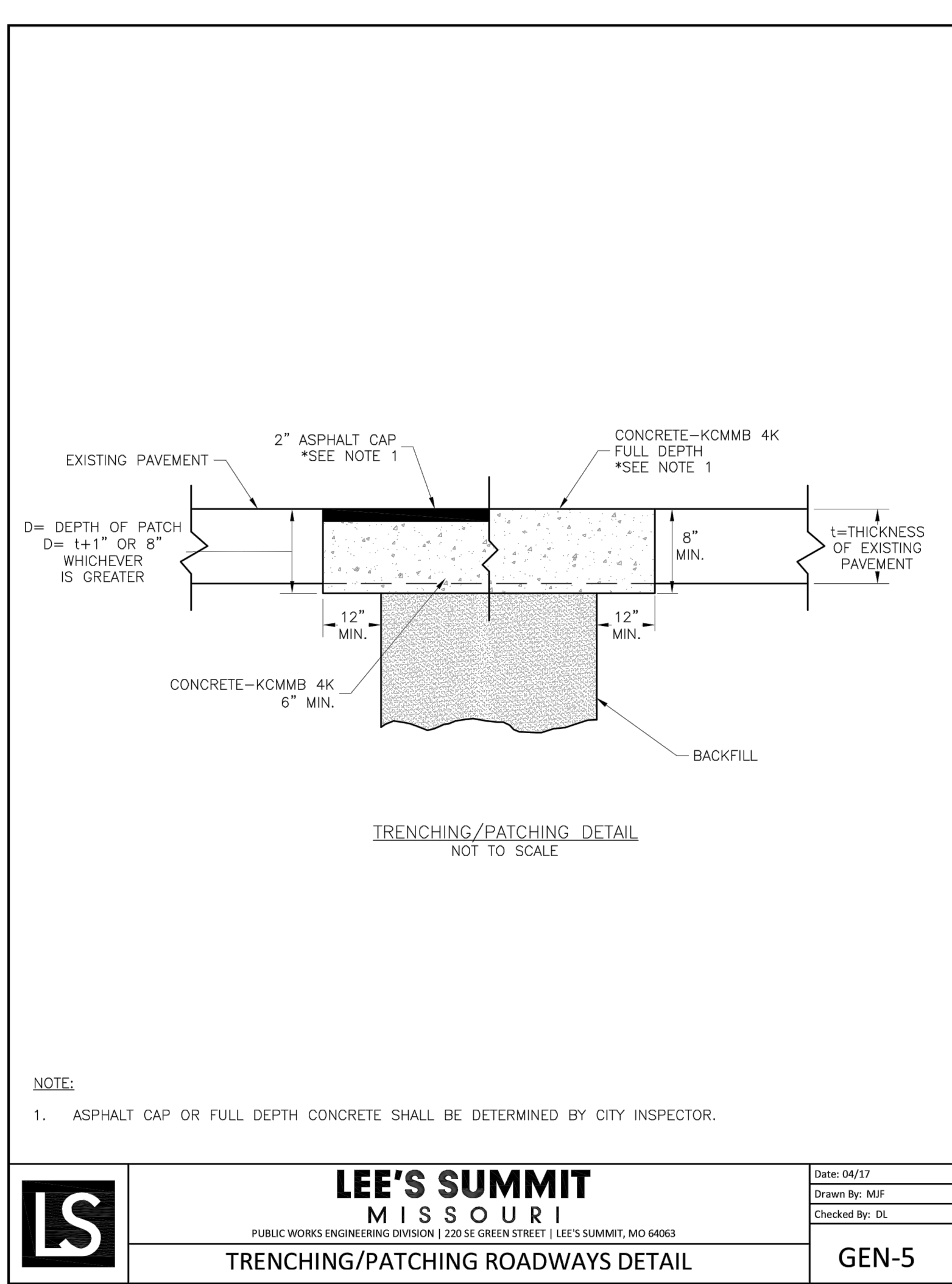
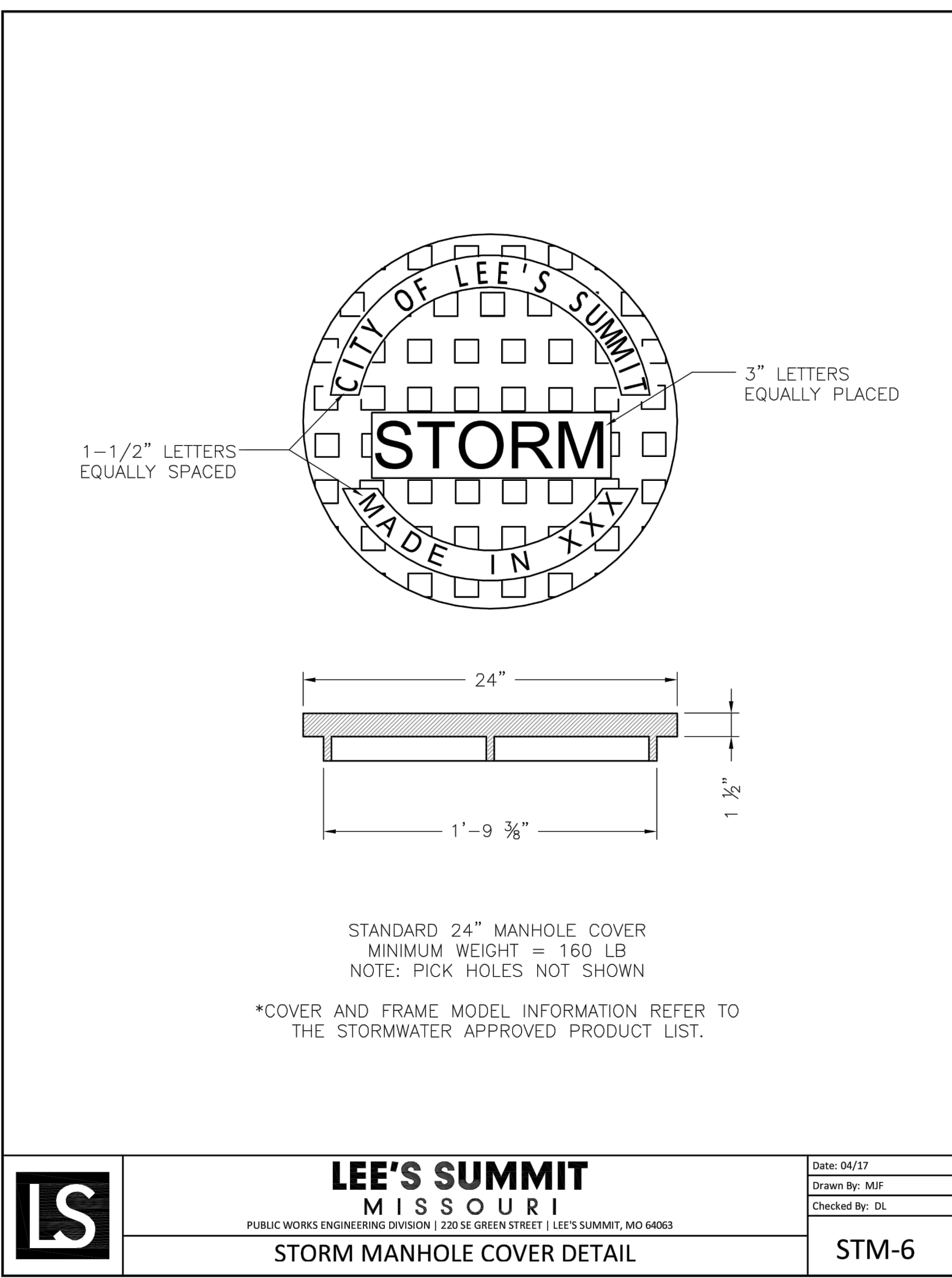
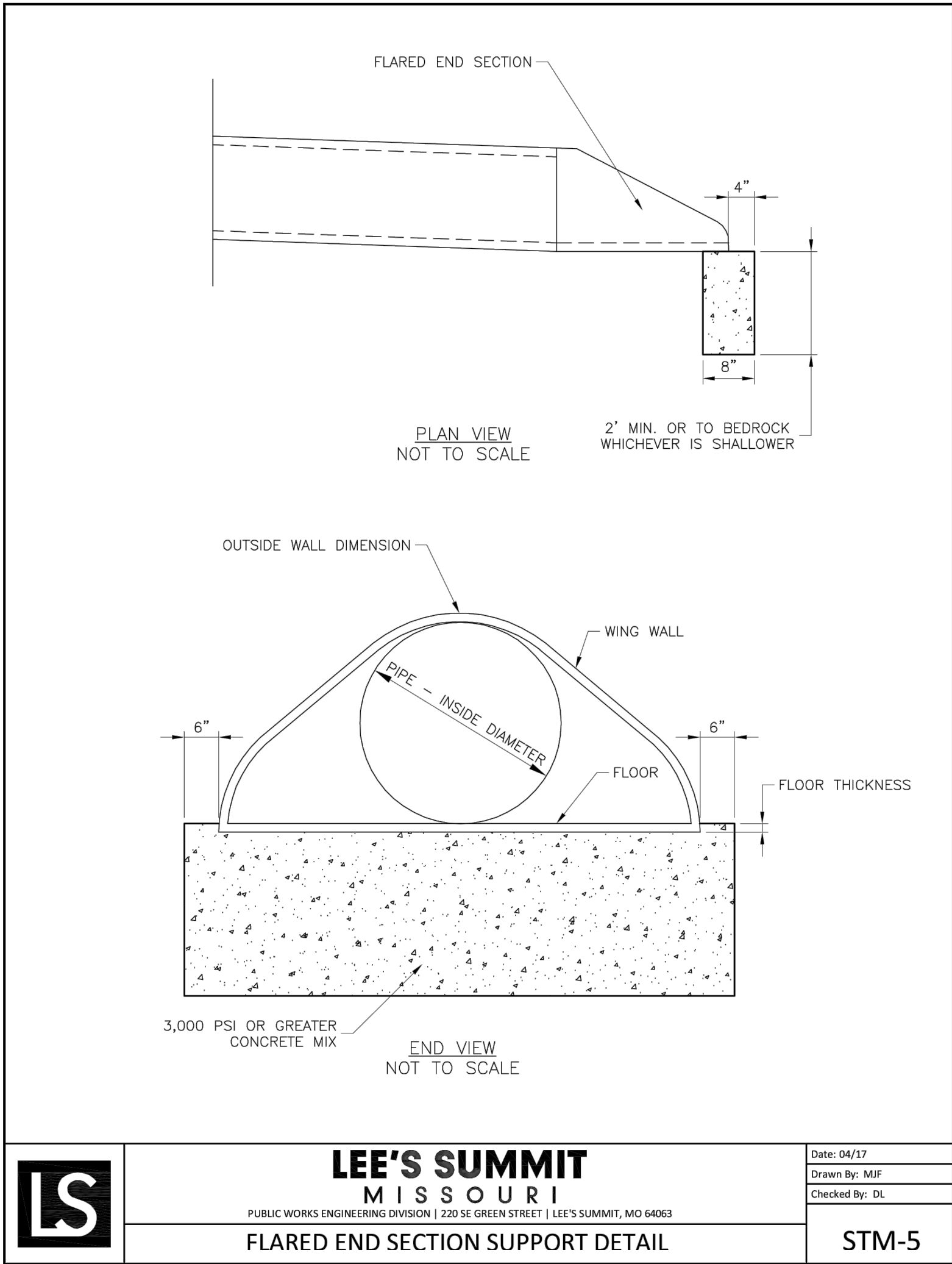
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OF 24



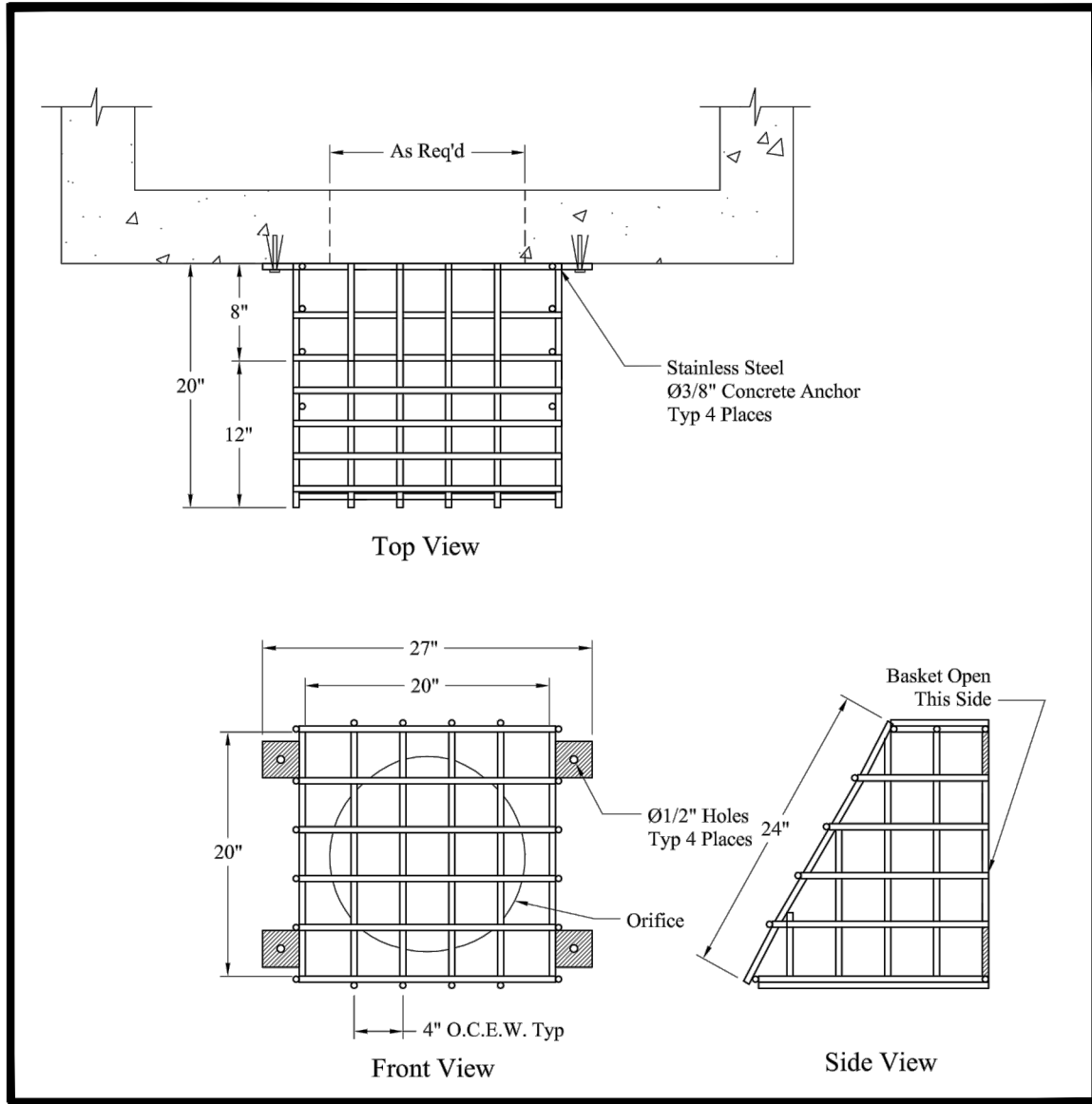
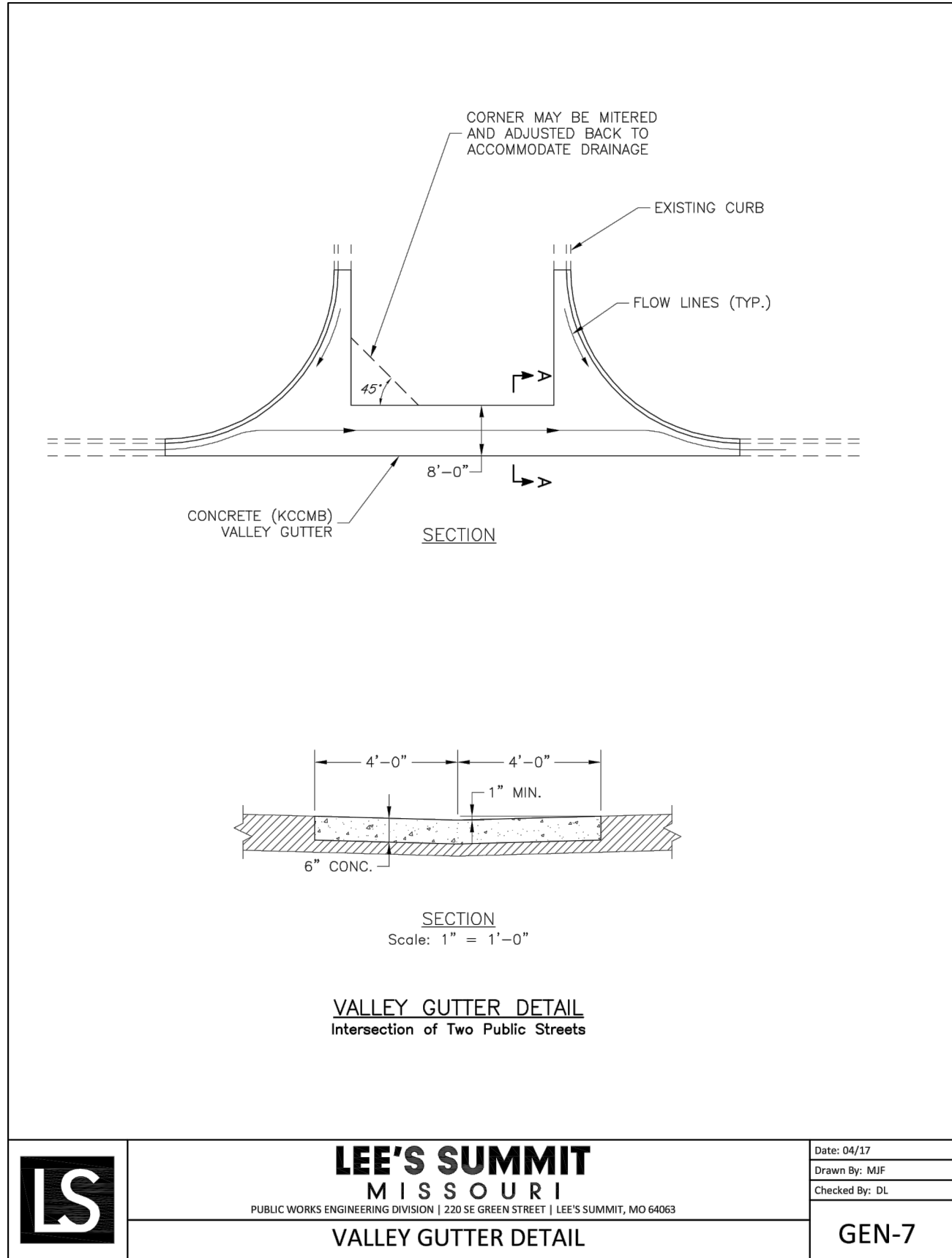
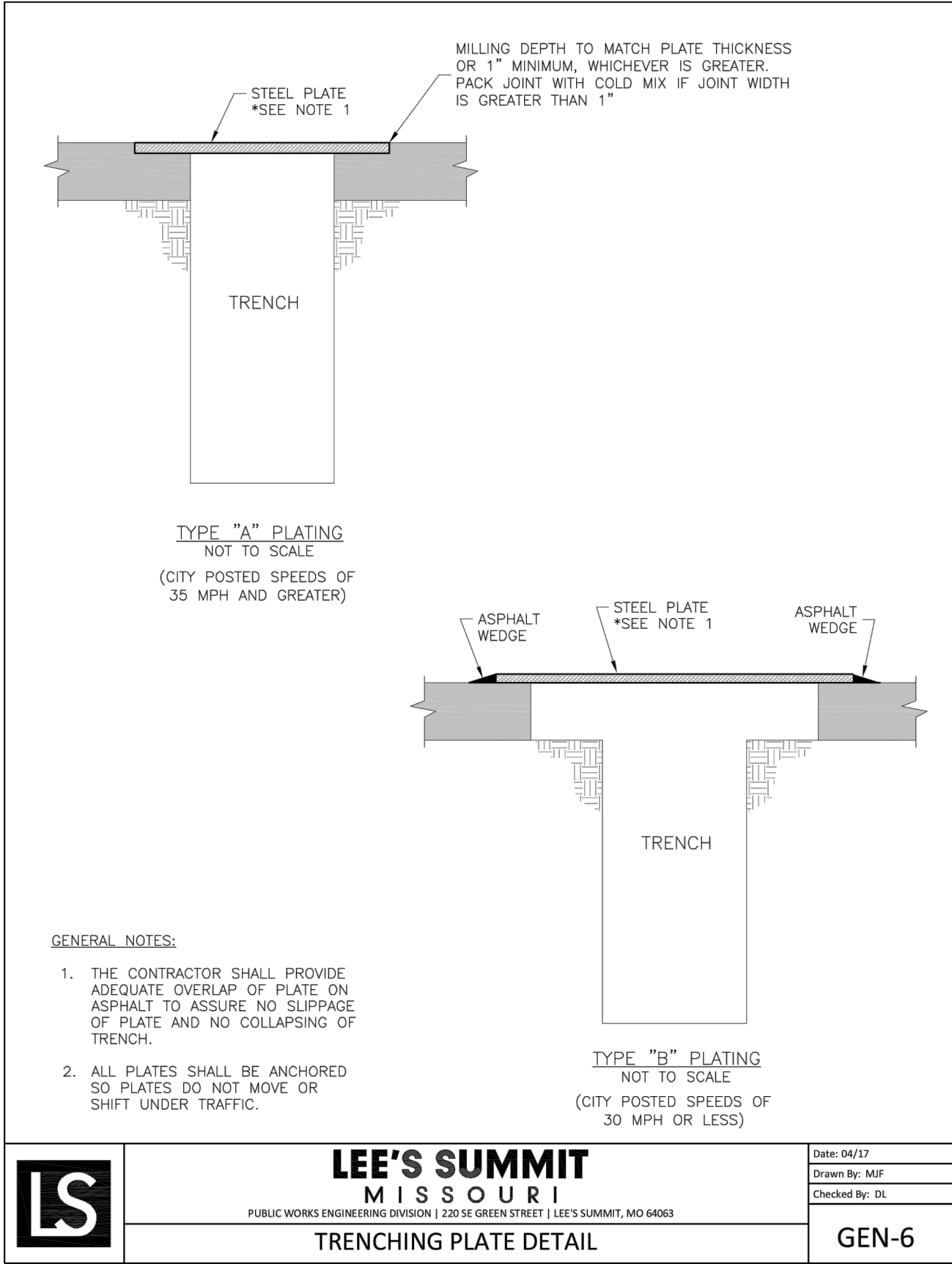
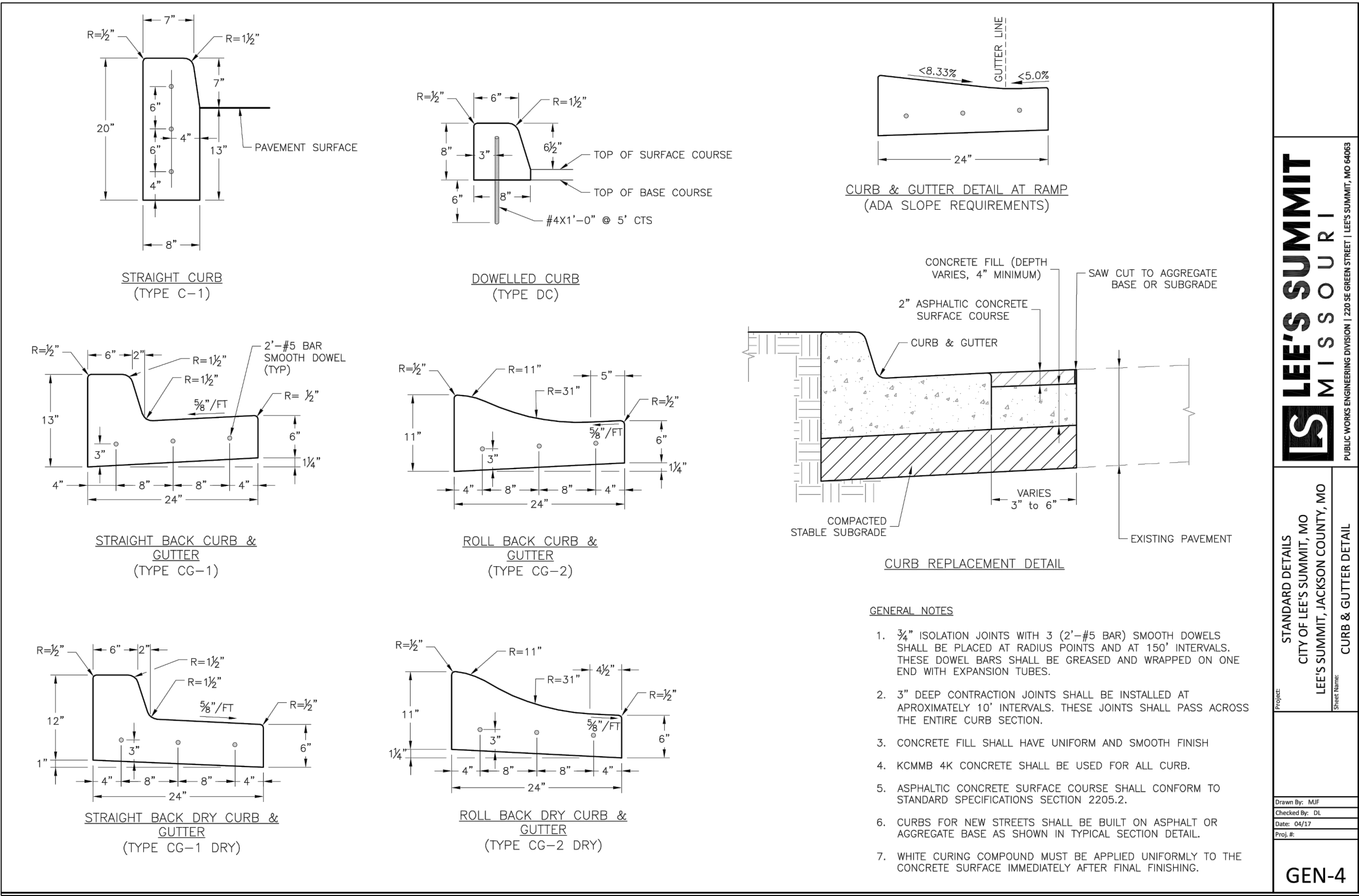
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STREET AND STORM DETAILS

TABLE LS-2: MINIMUM ASPHALT PAVEMENT THICKNESSES

Street Classification	Pavement Option	AC Surface (in.)	AC Base (in.)	MoDOT Type 5 Base (in.)	Geogrid(1)	Chemical Subgrade Stabilization(2) (in.)
Residential Local/Access	A	2	4	6	--	6
	B	2	4	10	Geogrid	--
Residential Collector	A	2	5.5	6	--	9
	B	2	5.5	12	Geogrid	--
Commercial Industrial Local/Collector	A	2	7.5	6	--	9
	B	2	7.5	12	Geogrid	--

TABLE LS-3: MINIMUM PCC PAVEMENT THICKNESSES

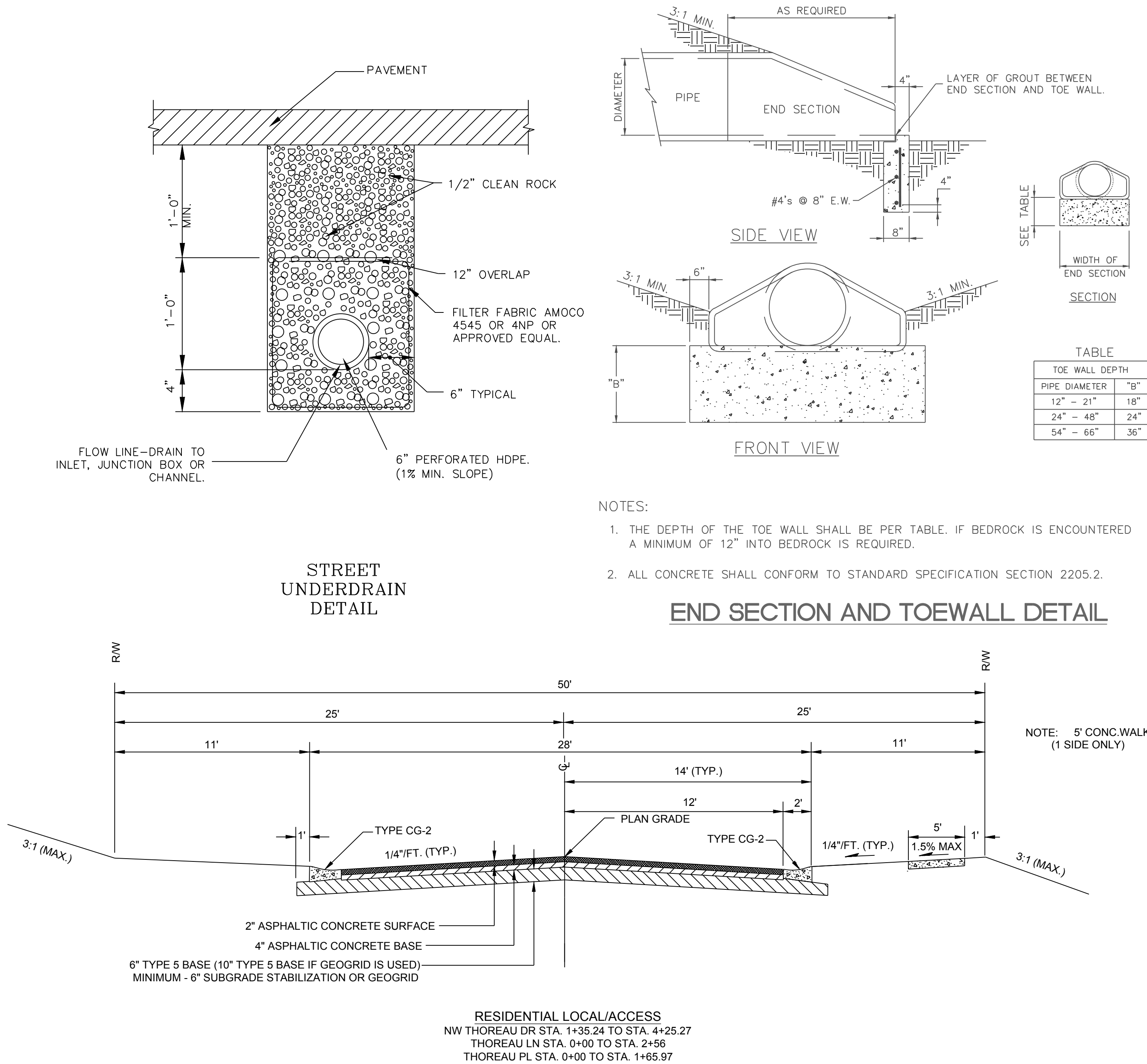
Street Classification	PCC (in.)	Aggregate Base (in.)	Subgrade Stabilization ⁽¹⁾ (in.)
Residential Local/Access	6	4	--
Residential Collector	6	4	6
Commercial Industrial Local/Collector	8	4	9

(1) Subgrade Stabilization and 4" aggregate base may be replaced by approved geogrid and 6" of aggregate base

LS5200

16

October 2016



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MARK ALLEN BREUER
NUMBER
#E-2005007268
09.04.19

WINTERSET VALLEY, 13TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND
EROSION AND SEDIMENT CONTROL
NW THOREAU DRIVE AND AUDUBON LANE
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STREET AND STORM DETAILS

SHEET

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MISSOURI GEOGRAPHIC REFERENCE SYSTEM
BENCH MARK:

BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

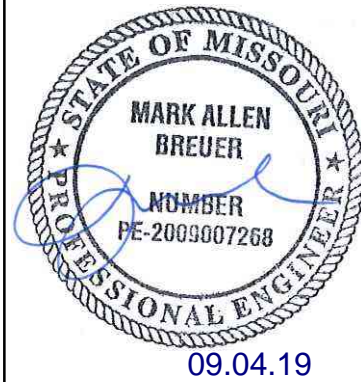
ELEV. 993.11'

PROJECT BENCH MARK:

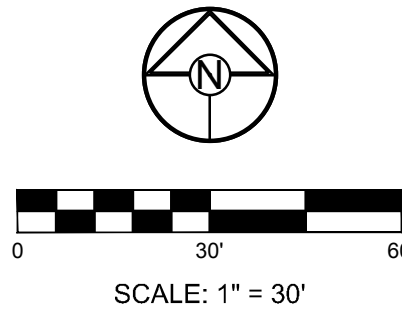
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SIGNING PLAN

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