

# WINTERSET VALLEY, 13TH PLAT

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

OF 24







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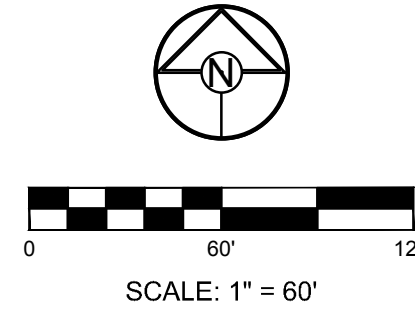
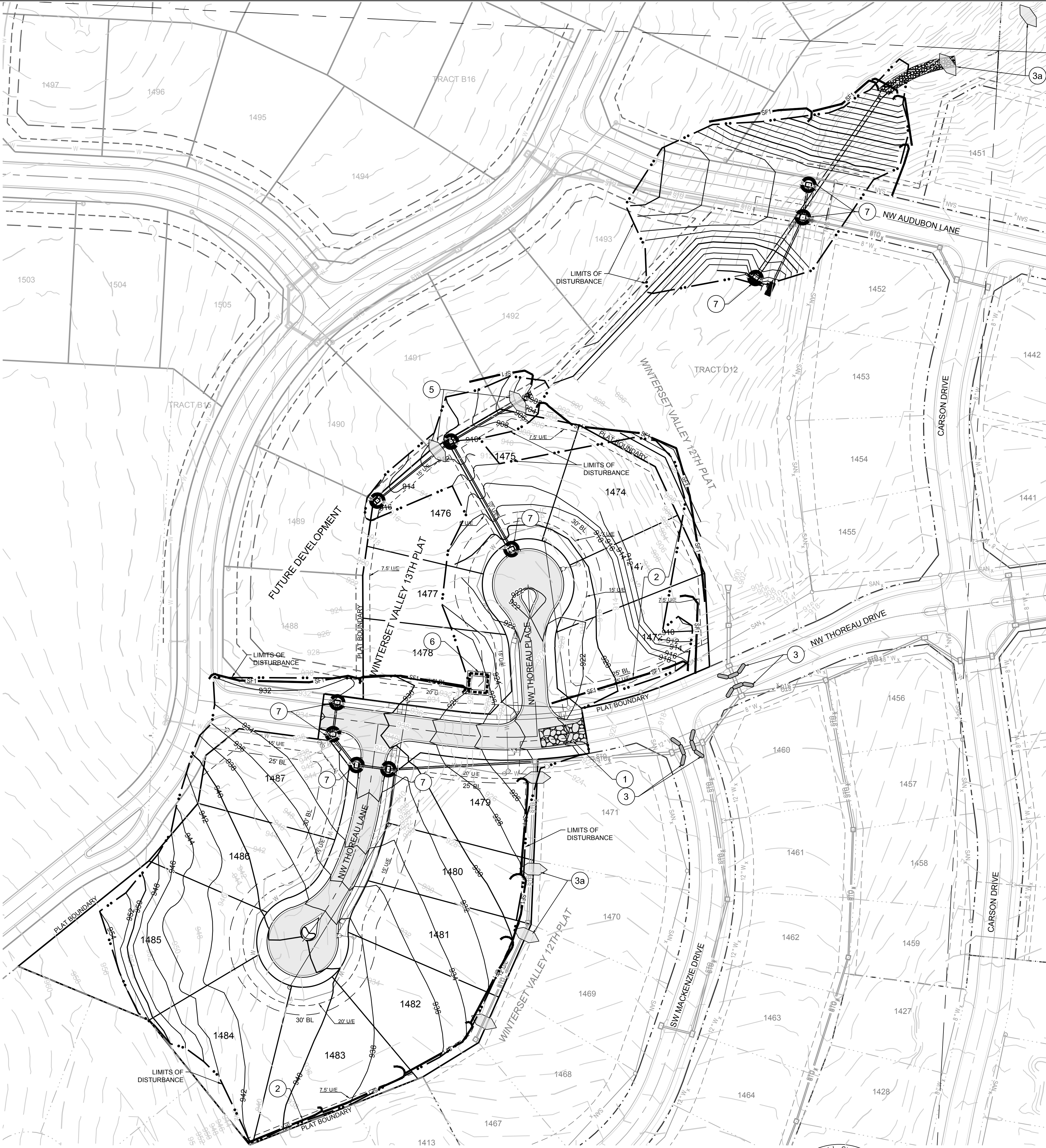
LEGEND			
	TEMPORARY STORAGE AREA FOR EXCESS MATERIAL		SILT FENCE (PRIOR TO LAND DISTURBANCE)
	TEMP. CONSTRUCTION ENTRANCE AND STAGING AREA		SILT FENCE (DURING CONSTRUCTION)
	CONCRETE WASHOUT AREA		SILT SOCK / ROCK SOCK / SOCK WATTLE
	SILT FOAM DIKE - STAKED & INSTALL PER MFR'S RECOMMENDATIONS		LIMITS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

PHASE	EROSION AND SEDIMENT CONTROL STAGING CHART				
	PROJECT STAGE	BMP PLAN REF. NO.	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
PRE-CLEARING PHASE	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
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
		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
FINAL STABILIZATION PHASE	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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Missouri State Certificates of Authority  
#E2002003600 F #LAC2001003237 #LS200200859 F

**STATE OF MISSOURI**  
**MARK ALLEN BREUER**  
REGISTERED PROFESSIONAL ENGINEER  
NUMBER  
PE-2003007268  
10.23.19

**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
4-10-19	CITY COMMENTS
8-11-19	CITY COMMENTS
8-21-19	CITY COMMENTS
9-18-19	CITY COMMENTS
10-24-19	CITY COMMENTS
2-15-19	
PROJ. NUMBER:	18-230

ECP-CONSTRUCTION



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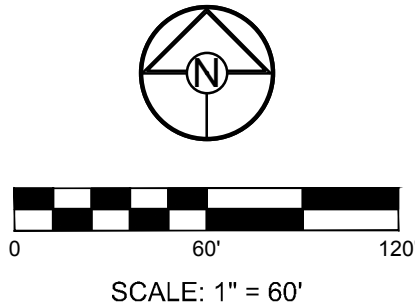
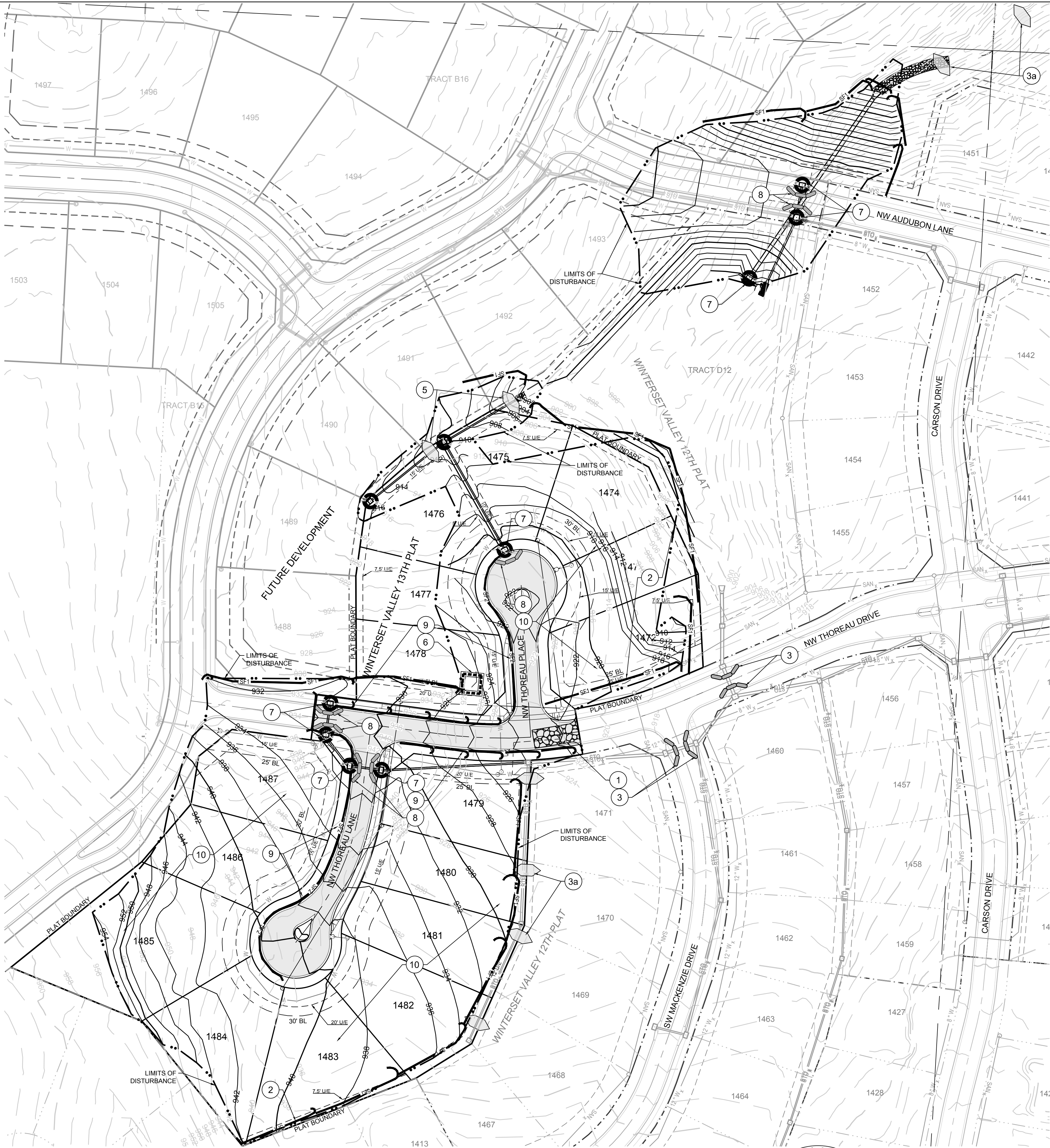
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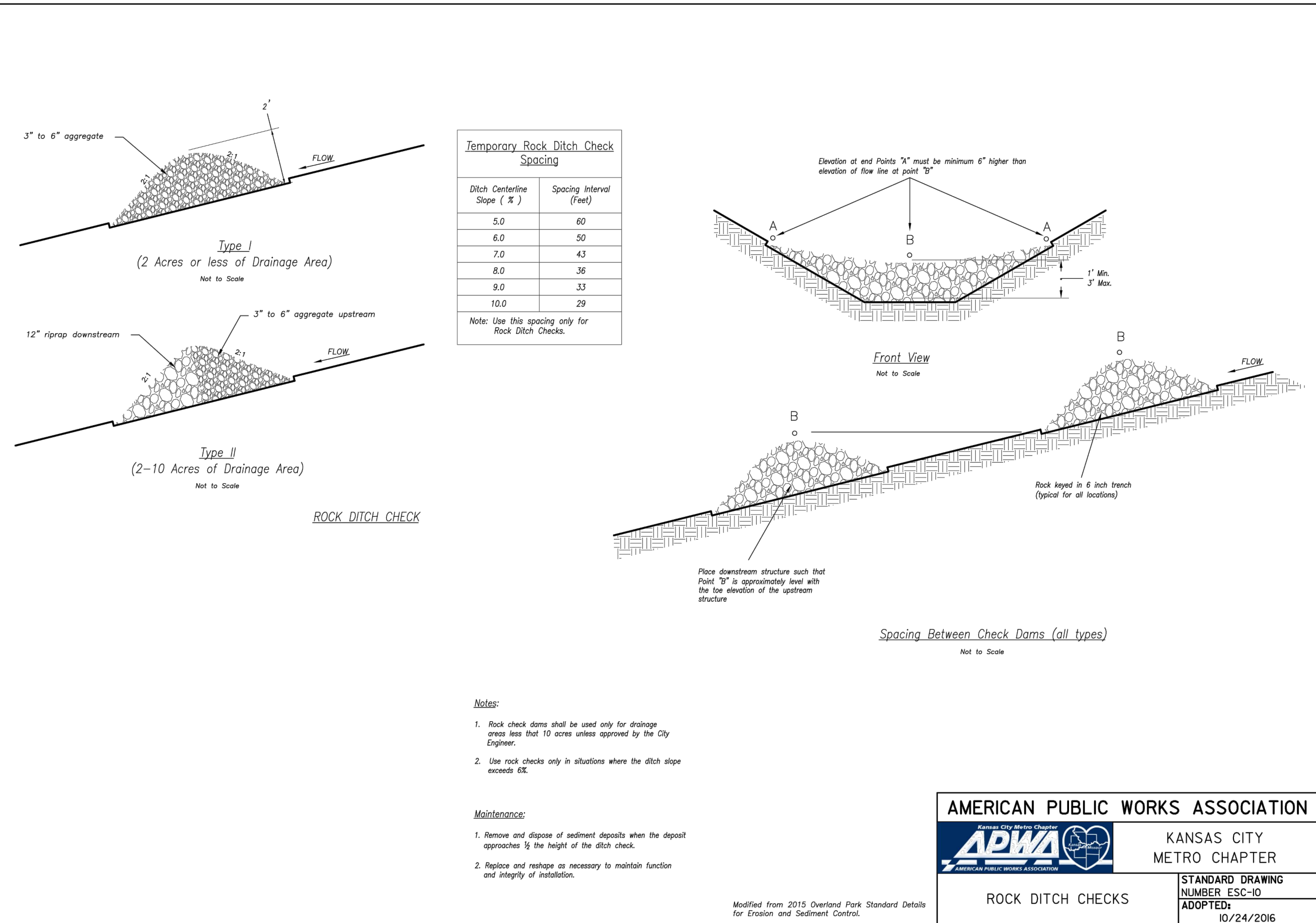
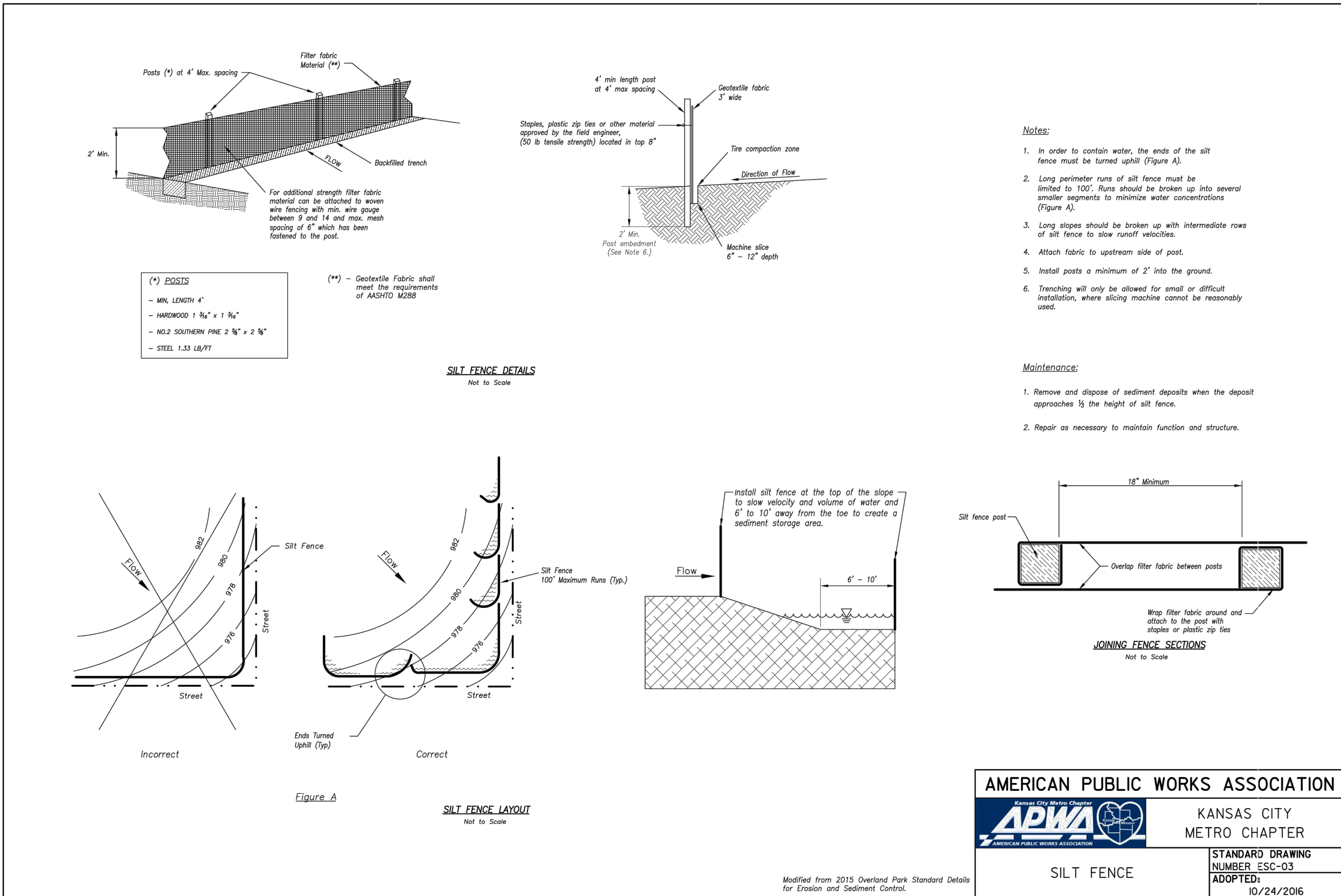
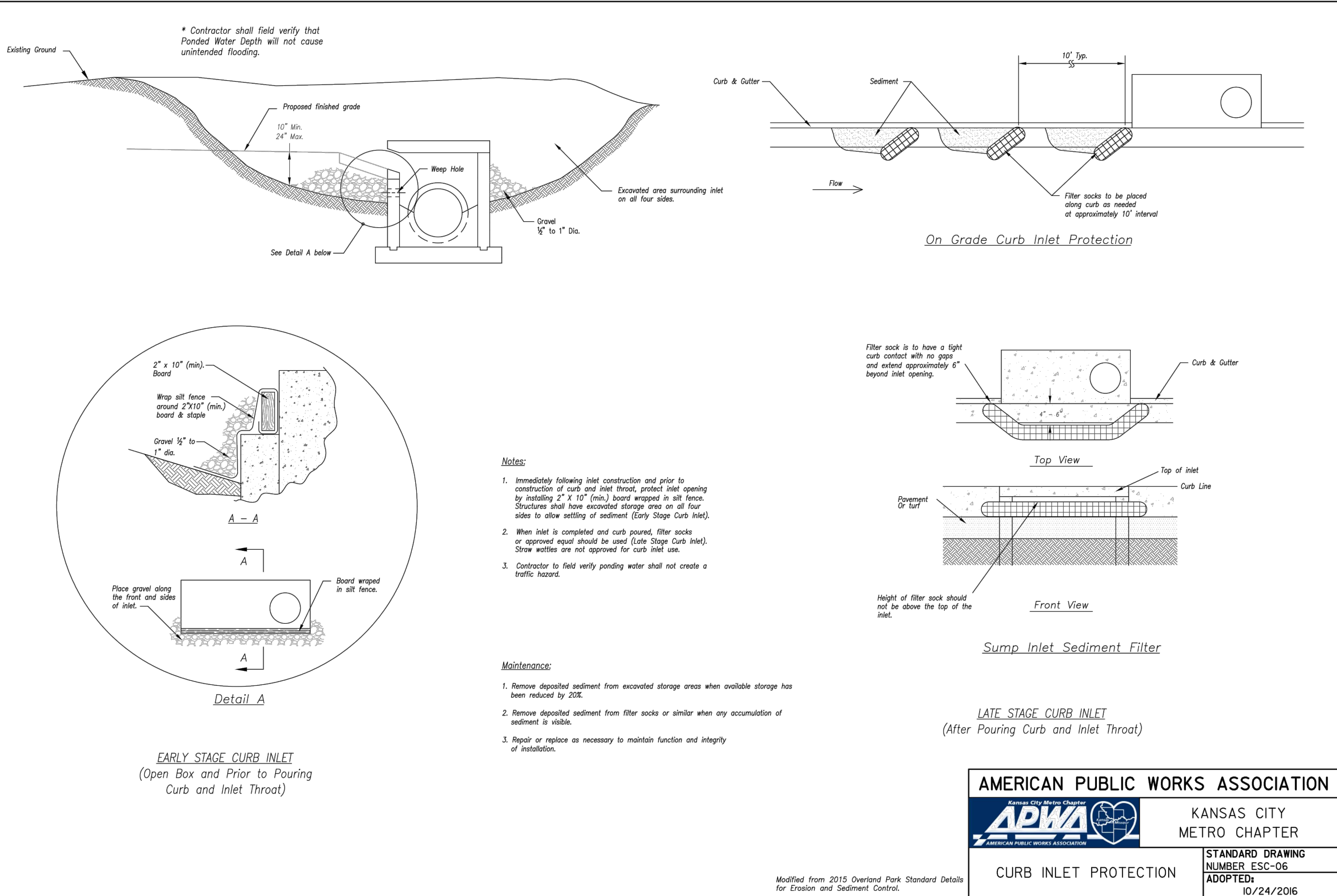
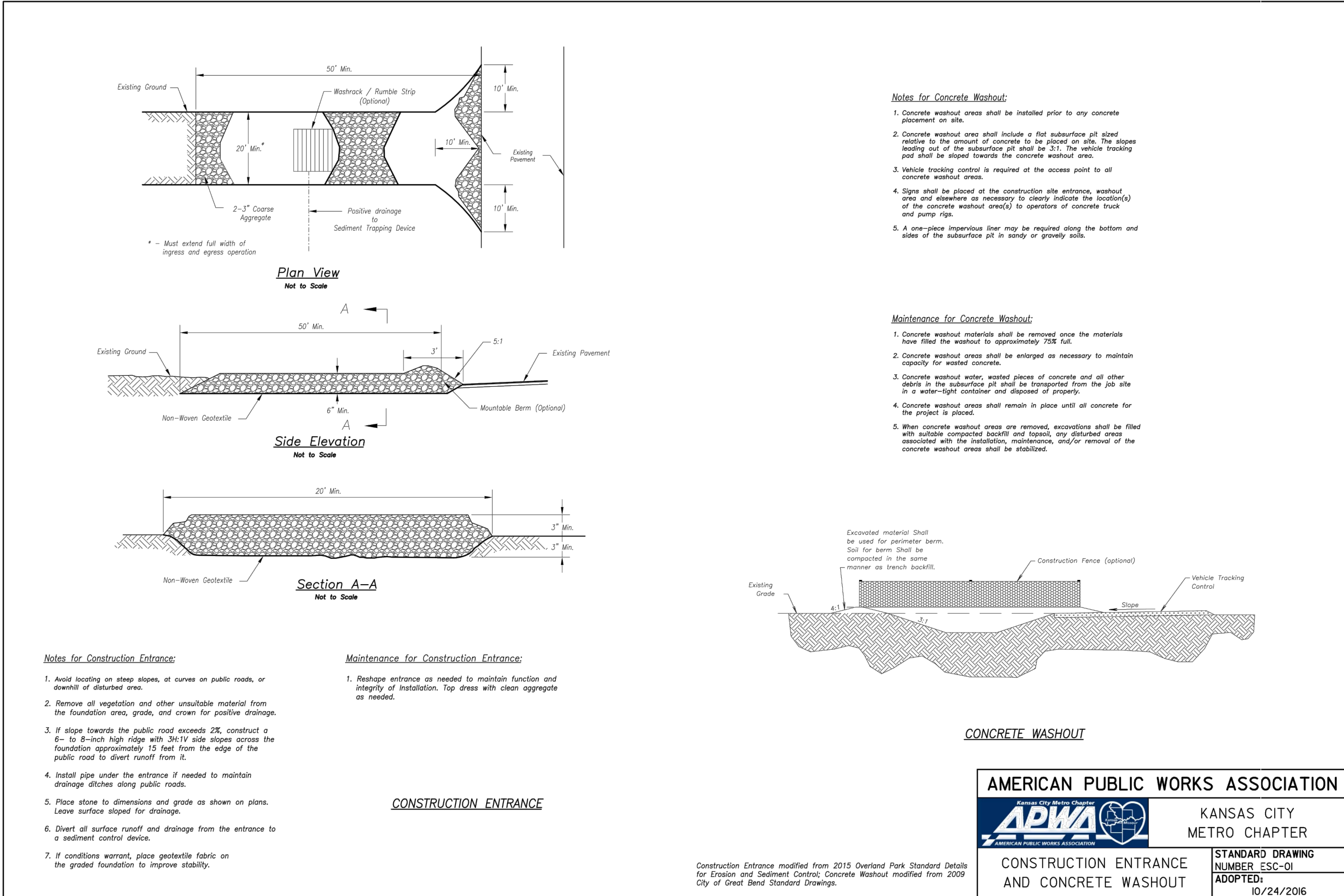
**STATE OF MISSOURI**  
**MARK ALLEN BREUER**  
NUMBER PE-2005007268  
10.23.19  
PROFESSIONAL ENGINEER

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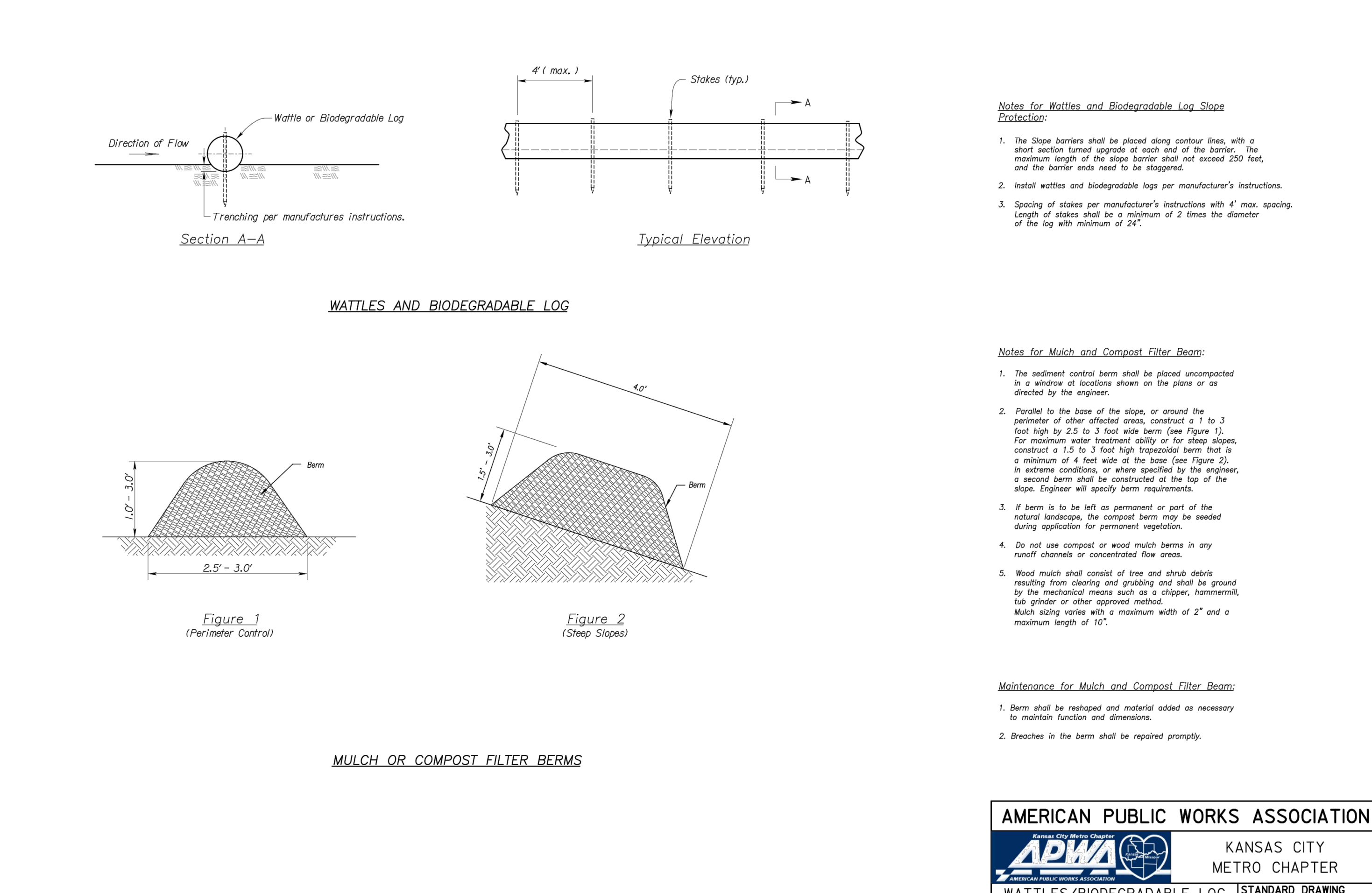
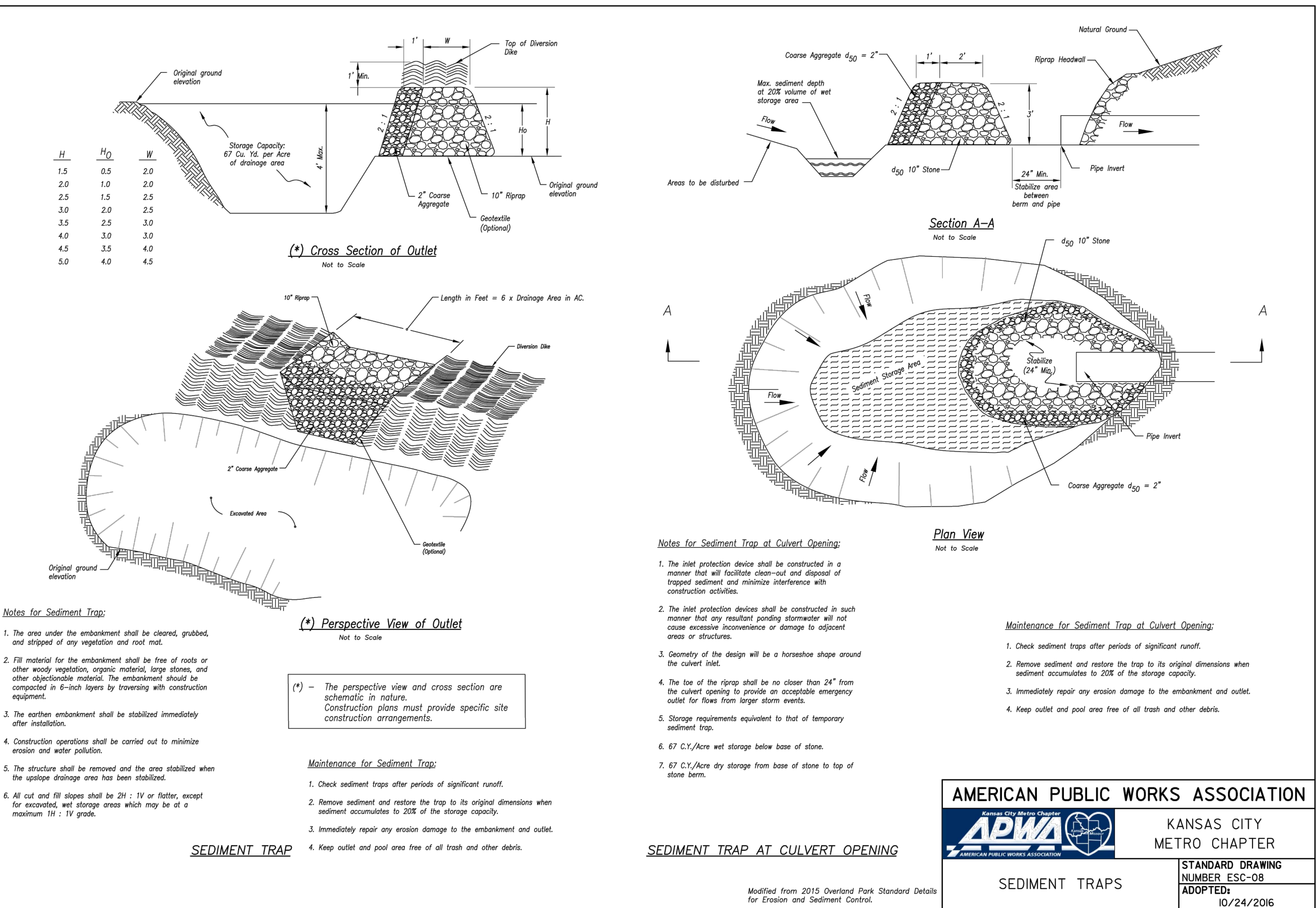
REVISION DATE	DESCRIPTION
1 4-10-19	CITY COMMENTS
2 8-1-19	CITY COMMENTS
3 8-21-19	CITY COMMENTS
4 9-18-19	CITY COMMENTS
5 10-24-19	CITY COMMENTS
6 2-15-19	
7 7-1-19	
8 10-23-19	

**FINAL STABILIZATION PLAN**



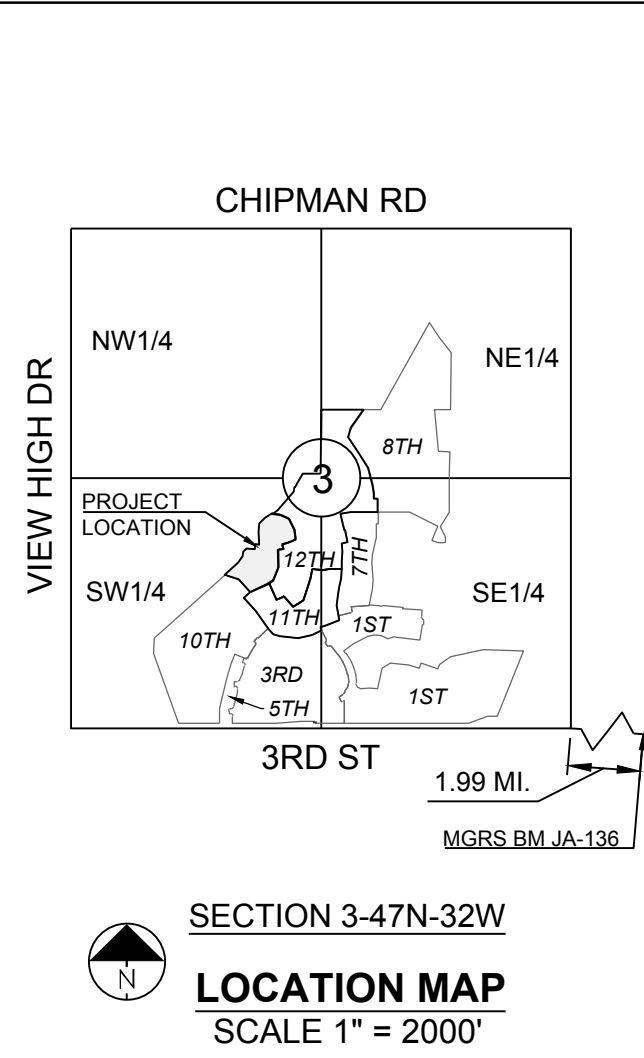
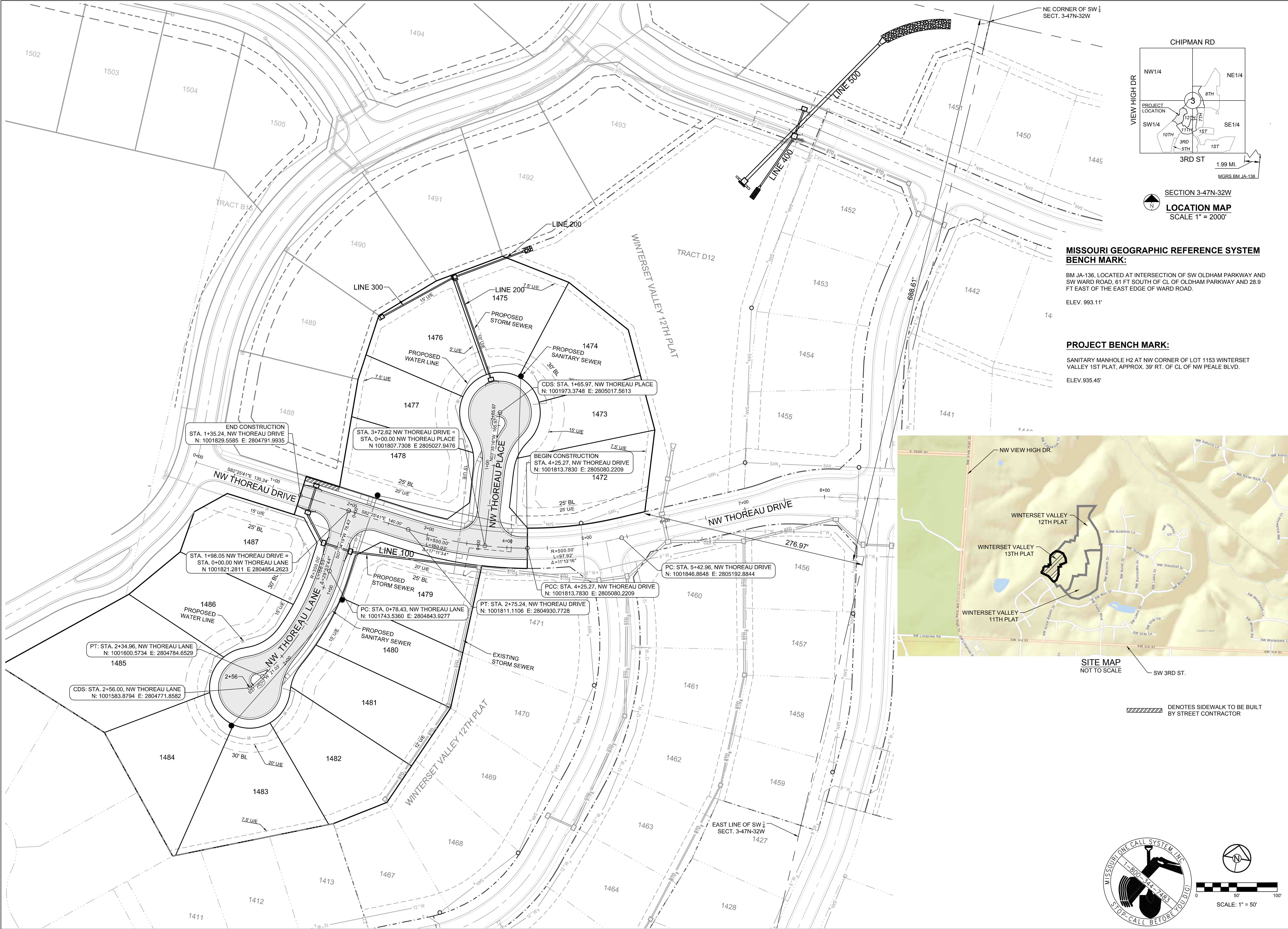






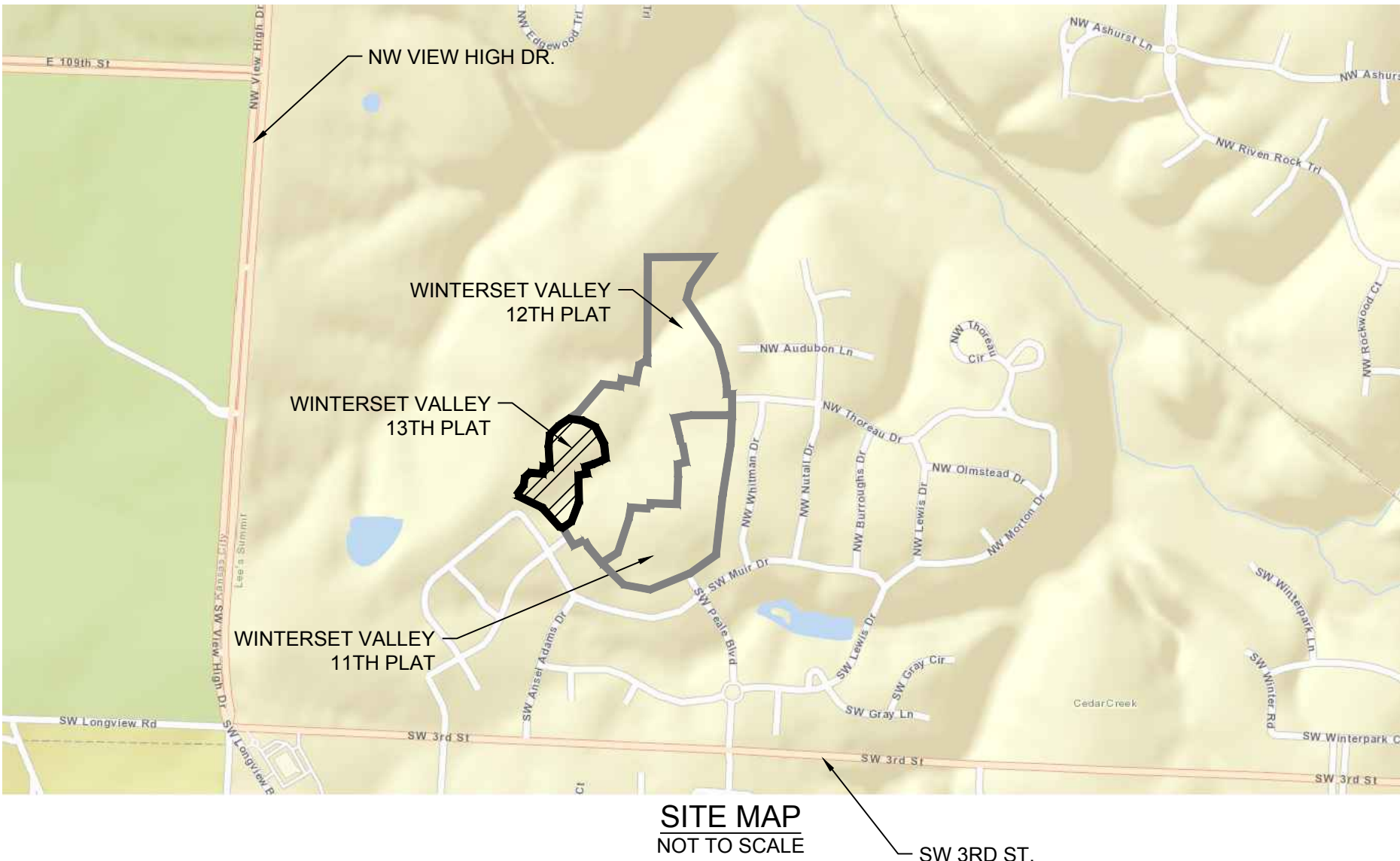


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**MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:**  
BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.  
ELEV. 993.11'

**PROJECT BENCH MARK:**  
SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.  
ELEV. 935.45'



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



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**STATE OF MISSOURI**  
**MARK ALLEN BREUER**  
Professional Engineer  
No. 2003007268  
10.23.19

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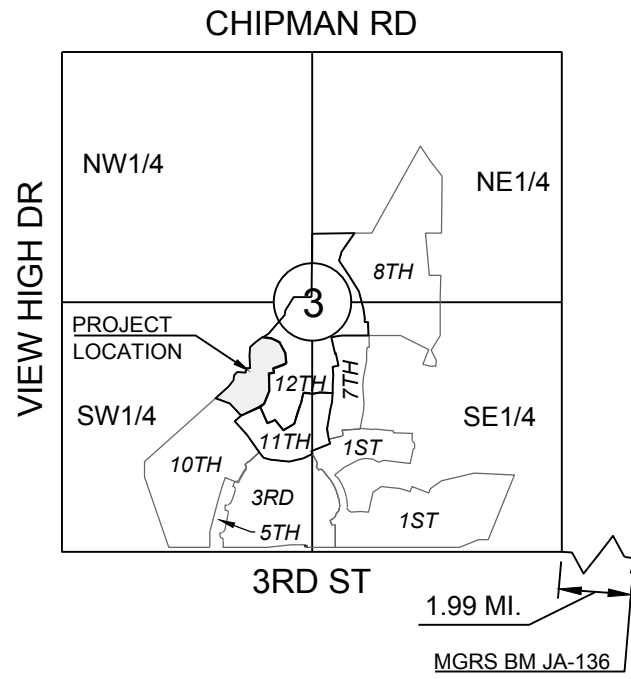
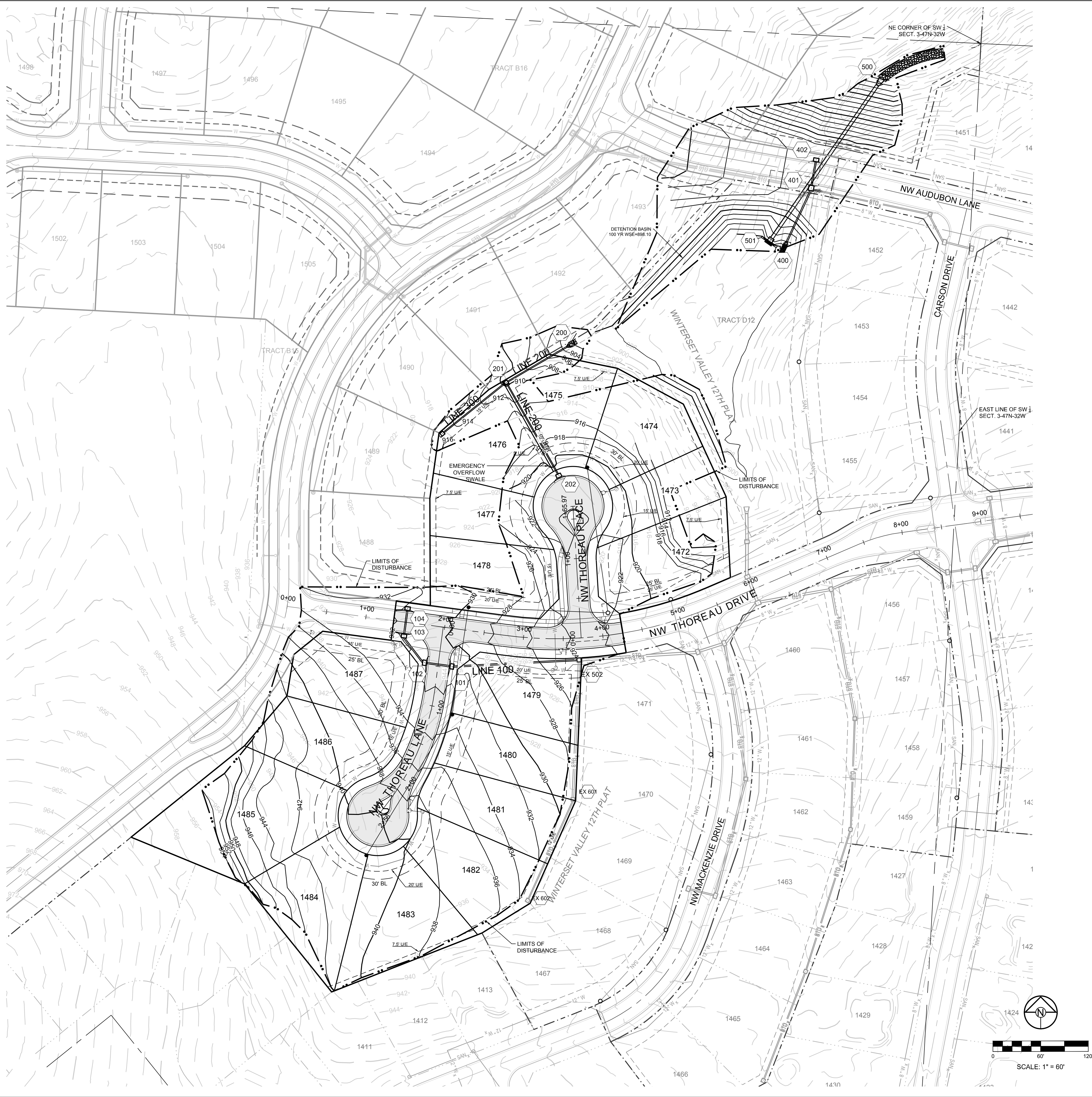
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10-24-19	CITY COMMENTS

**GENERAL LAYOUT**

SHEET  
**7**  
OF 24



I:\PROJECTS\2018\2303\0 DWG Plans\6 0 SS18-230 MASTER DRAINAGE PLAN.dwg, 10/24/2019 9:20:39 AM, 1:1



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

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STATE OF MISSOURI  
MARK ALLEN BREUER  
NUMBER  
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WINTERSET VALLEY, 13TH PLAT  
STREET, STORMWATER, MASTER DRAINAGE  
PLAN AND EROSION AND SEDIMENT CONTROL  
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11-15-19	CITY COMMENTS
12-10-19	CITY COMMENTS
12-20-19	CITY COMMENTS

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

MASTER DRAINAGE PLAN - GRADING PLAN
SHEET
8
OF 24





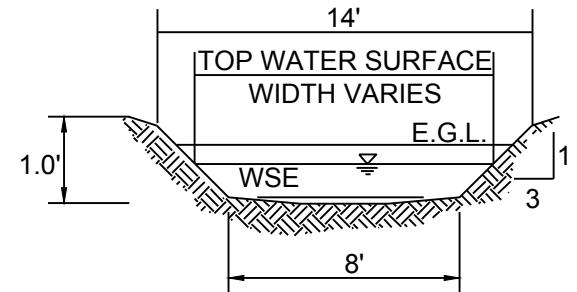
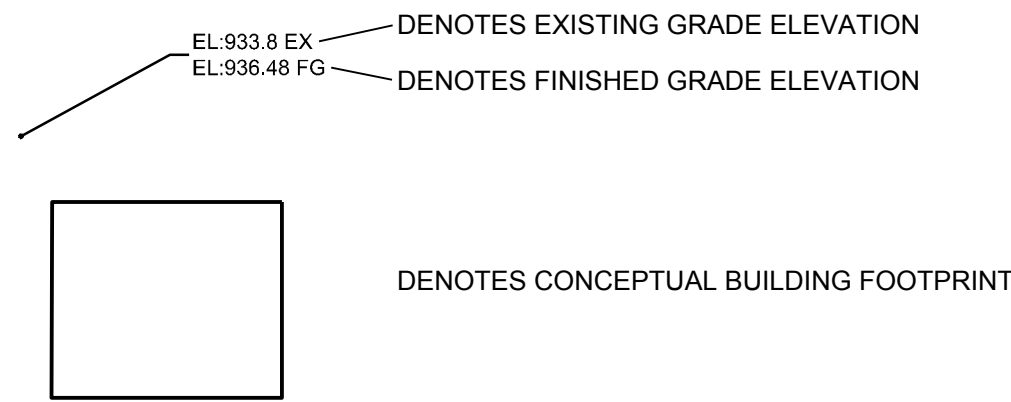
LOT TYPE TABLE	
LOT #	BASEMENT TYPE
1472	WALKOUT
1473	WALKOUT
1474	WALKOUT
1475	WALKOUT
1476	WALKOUT
1477	DAYLIGHT
1478	STANDARD
1479	DAYLIGHT
1480	DAYLIGHT
1481	DAYLIGHT
1482	DAYLIGHT
1483	DAYLIGHT
1484	STANDARD
1485	STANDARD
1486	STANDARD
1487	STANDARD

**NOTE:**

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

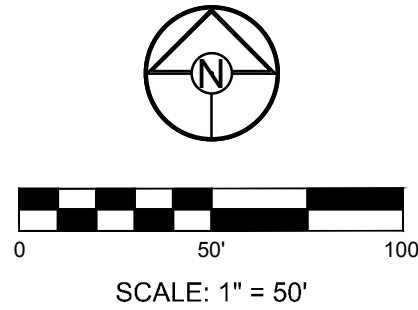
**NOTES:**

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



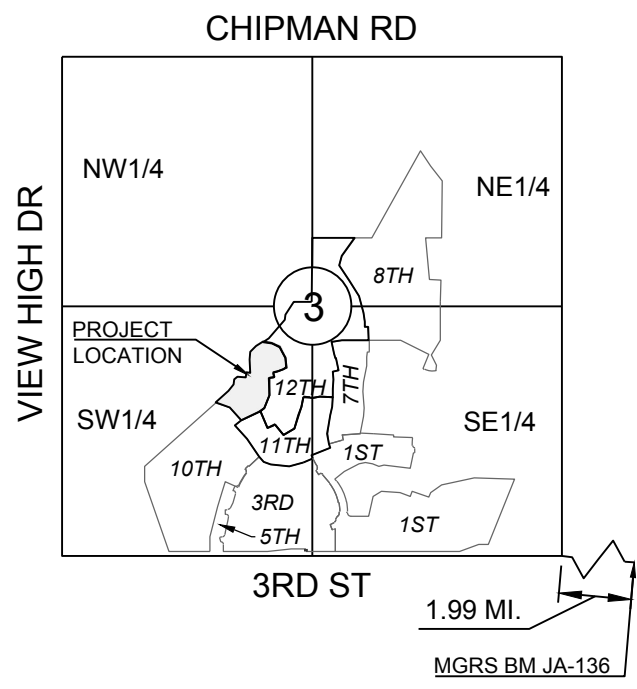
100 YR OVERFLOW SWALE SECTIONS

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



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:**

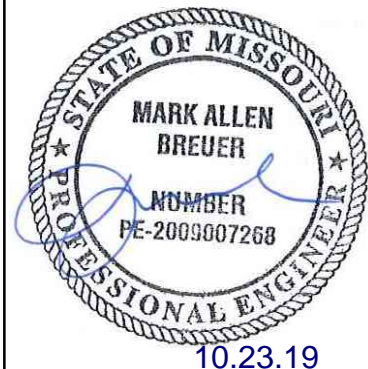
BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

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.

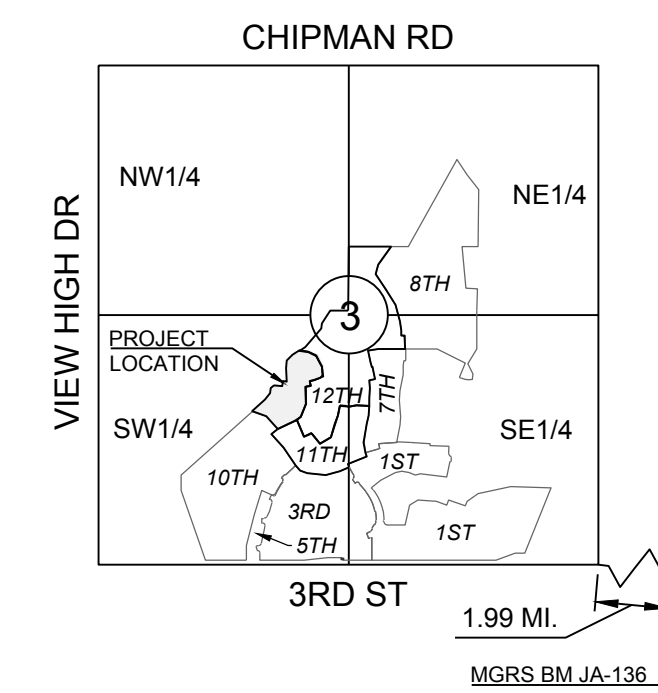
ELEV.935.45



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

[illegible]





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.

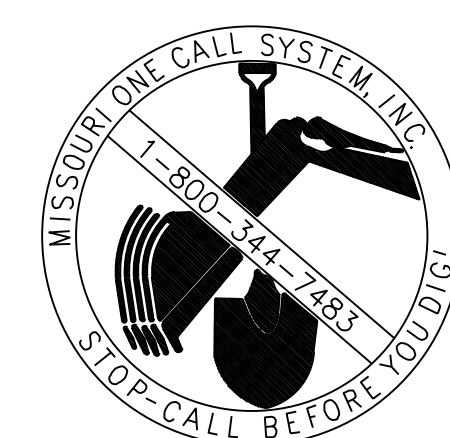
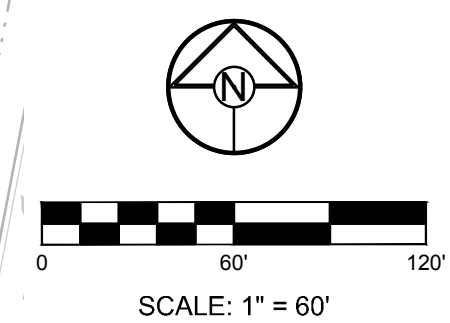
ELEV. 993.11

PROJECT BENCH MARK:

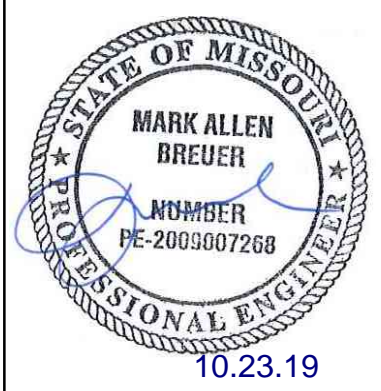
SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSET  
VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.  
ELEV. 935.45'

10 YR STORM SEWER CALCULATIONS																										
Runoff Calculations													Pipe Properties													
Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. Cx	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap	Pipe Vel	Up Piped Inlet 1	Up Piped Inlet 2	Up Area (acres)	Up Cx	Pipe Inlet	Down Inlet	Pipe Type	"n" Value	Pipe Size	Pipe Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Top	HGL Elev
LINE 100																										
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	EX 502	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	1.63	13.98	52.56	16.73			0.00	0.00	102	101	HDPE	0.012	24	35.00	4.60	0.50	922.26	920.65	931.32	923.90
103	0.91	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	42.00	2.00	0.50	923.61	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
LINE 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
LINE 300																										
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	0.50	911.50	906.00	915.00	912.44
LINE 400																										
401	8.09	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	0.96	0.51	0.96	0.49	5.0	7.35	3.60	3.60	14.89	12.14			0.00	0.00	402	401	HDPE	0.012	15	38.00	4.53	1.50	897.38	895.75	905.75	896.31
LINE 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	882.00

100 YR STORM SEWER CALCULATIONS																										
Runoff Calculations													Pipe Properties													
Line #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. Cx	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap	Pipe Vel	Up to Pipe Inlet 1	Up to Pipe Inlet 2	Up Area (acres)	Up Cx	Up Inlet	Down Inlet	Pipe Type	"n" Value	Pipe Size	Pipe Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Top	HGL Elev
DS TAILWATER @ STR #E5X02 FREE																										
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	1.51	5.1	10.27	9.98	24.55	52.50	16.73	0.00	0.00	102	101	HDPE	0.012	24	35.00	4.60	0.50	922.28	920.85	931.32	924.58		
103	0.91	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	42.00	2.00	0.50	923.61	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 FREE																										
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	83.61	3.77	0.50	905.50	902.87	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	138.31	5.03	N/A	912.77	906.00	920.76	913.70		
Drop in Inlet 201 0.50																										
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 FREE																										
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	892.05	905.75	901.13		
402	0.09	0.51	0.96	0.49	5.0	10.32	6.33	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 FREE																										
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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Missouri State Certificate of Authority  
#E20020038060-F #L200201005237-F #L200202008859-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	<u>A</u> 4-13-19	CITY COMMENTS
	<u>A</u> 8-1-19	CITY COMMENTS
CHECKED BY:	<u>A</u> 8-21-19	CITY COMMENTS
	<u>A</u> 9-18-19	CITY COMMENTS
MAB	<u>A</u> 10-24-19	CITY COMMENTS
	<u>B</u>	
DATE PREPARED:	2-15-19	<u>A</u>
		<u>B</u>
PROJ. NUMBER:		<u>B</u>
	18-230	<u>B</u>

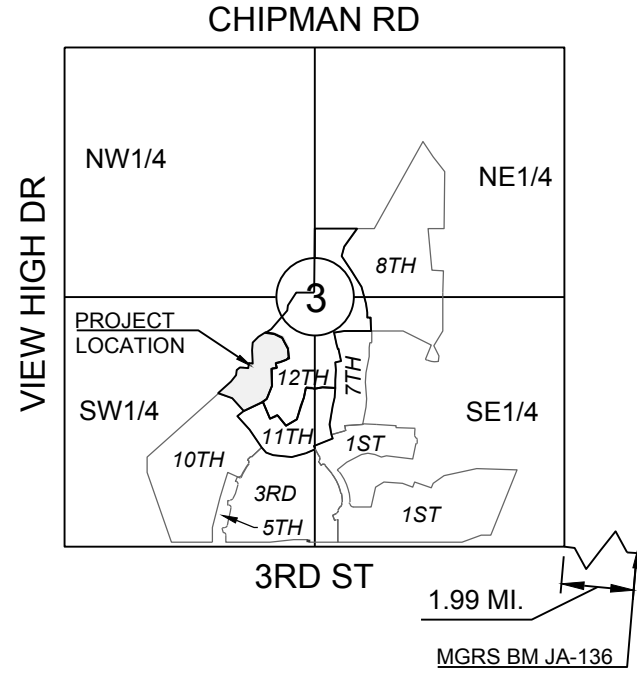
MASTER  
DRAINAGE PLAN  
- DRAINAGE MAP

SHEET

10

OF 24





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

**MISSOURI GEOGRAPHIC REFERENCE SYSTEM  
BENCH MARK:**

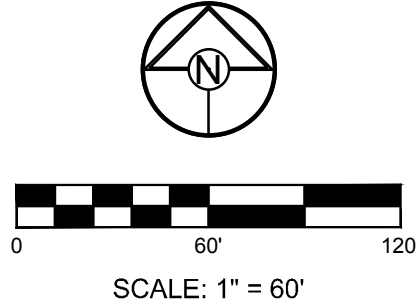
BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

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'



MATCHLINE



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#E2002003600-F #AC200100237 #LS200200859-F

STATE OF MISSOURI  
MARK ALLEN BREUER  
NUMBER  
PE-2005007268  
PROFESSIONAL ENGINEER  
10.23.19

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
4 9-18-19	CITY COMMENTS
5 10-24-19	CITY COMMENTS
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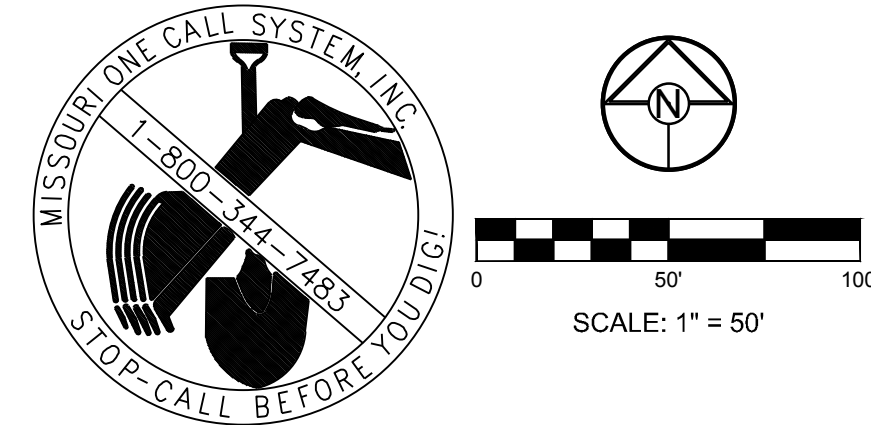
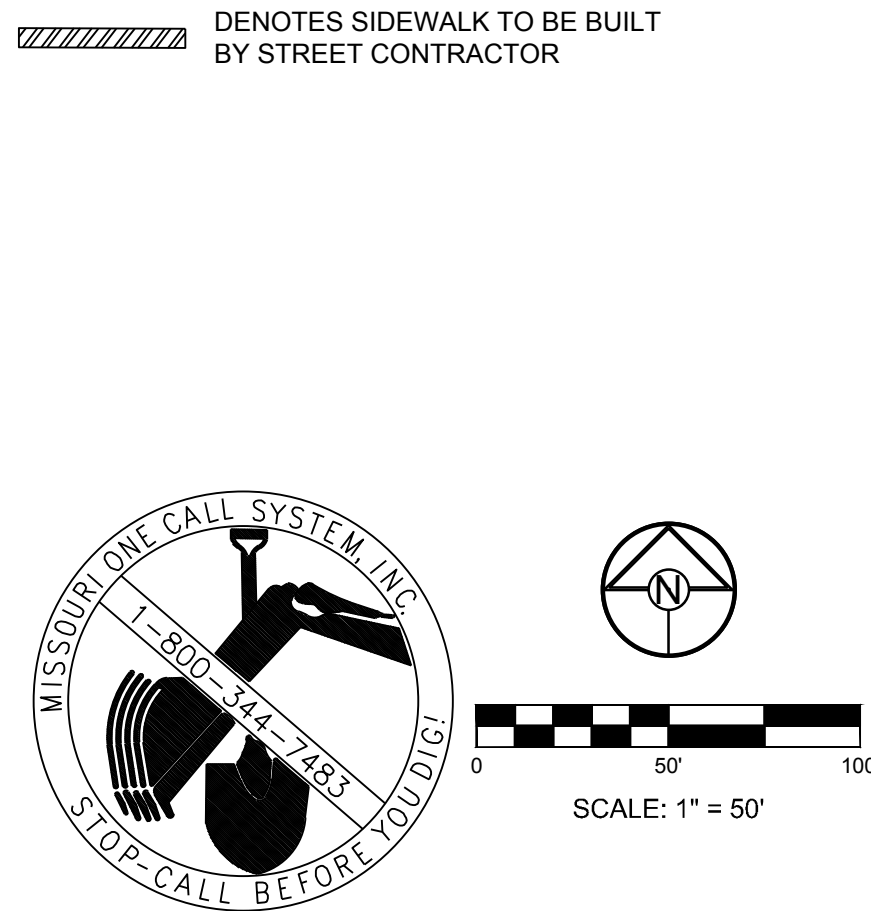
MASTER DRAINAGE  
PLAN-DRAINAGE  
MAP CONT'D

SHEET

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OF 24





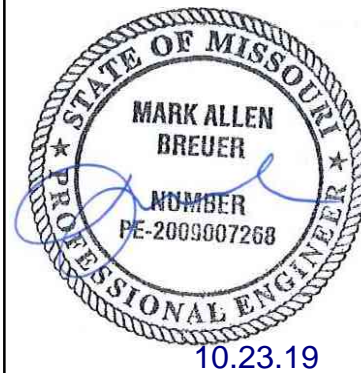
BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

### 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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10.23.19

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	1/4/10-19	CITY COMMENTS
	8-11-19	CITY COMMENTS
CHECKED BY:	8-21-19	CITY COMMENTS
	9-18-19	CITY COMMENTS
MAB	10-24-19	CITY COMMENTS
DATE PREPARED:		
2-15-19		
PROJ. NUMBER:		

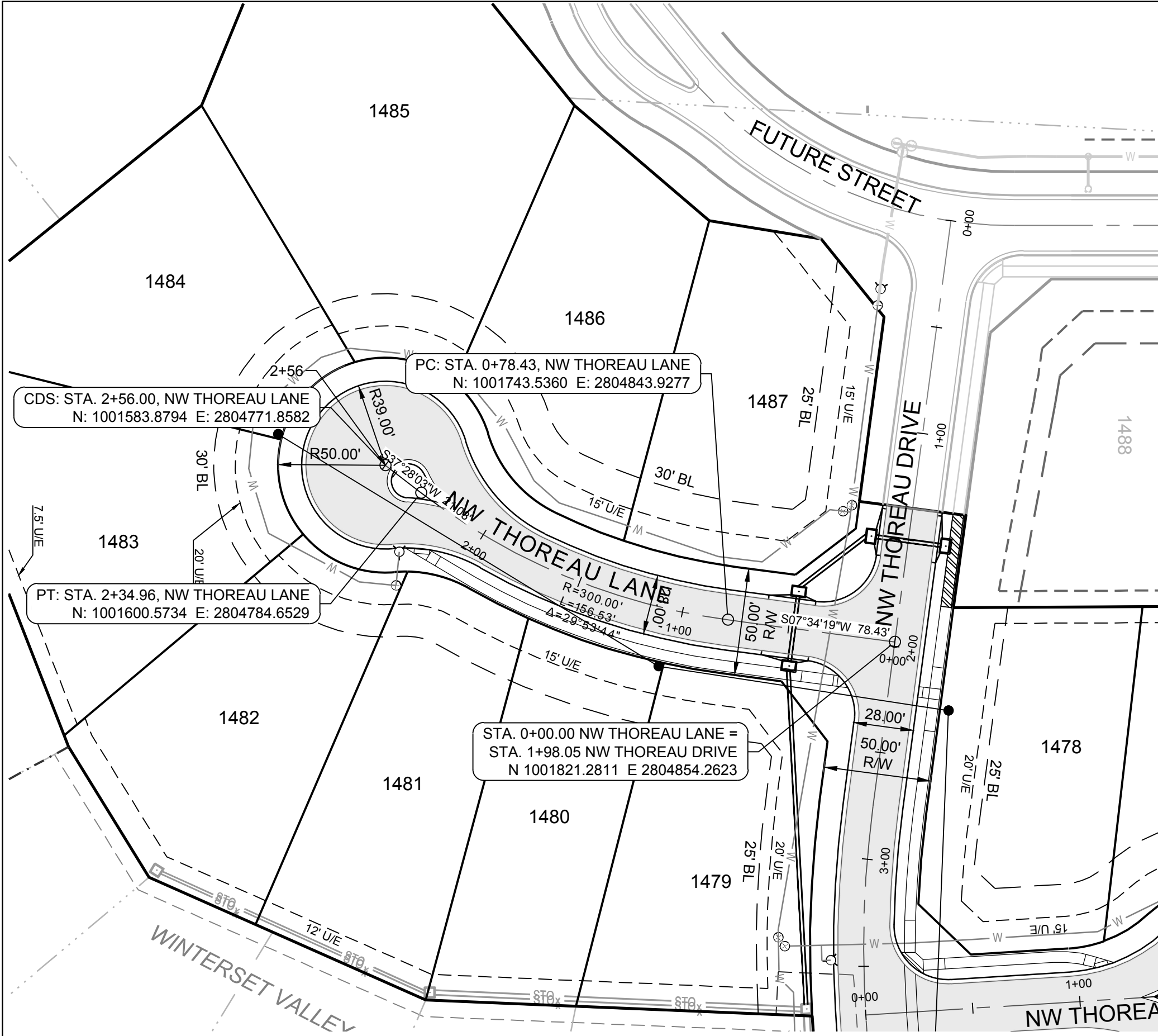
# NW THOREAU DRIVE PLAN AND PROFILE

SHEET

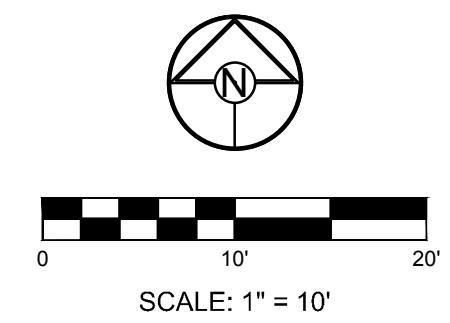
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OF 24



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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

INTERSECTION DETAILS		REVISION DATE	DESCRIPTION
DRAWN BY:	KSC	4-10-19	CITY COMMENTS
CHECKED BY:	8-1-19		CITY COMMENTS
DATE PREPARED:	8-21-19		CITY COMMENTS
	9-18-19		CITY COMMENTS
	10-24-19		CITY COMMENTS
	2-15-19		
PROJ. NUMBER:	18-230		

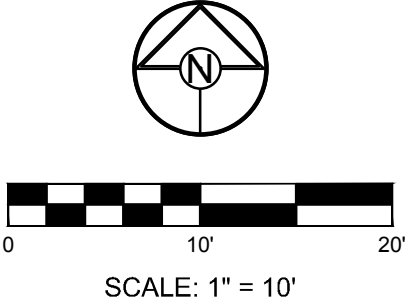
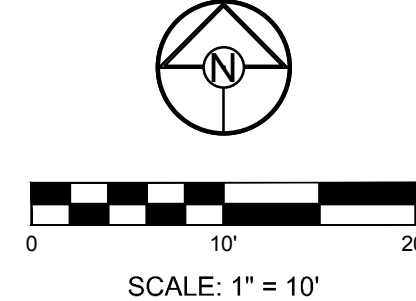
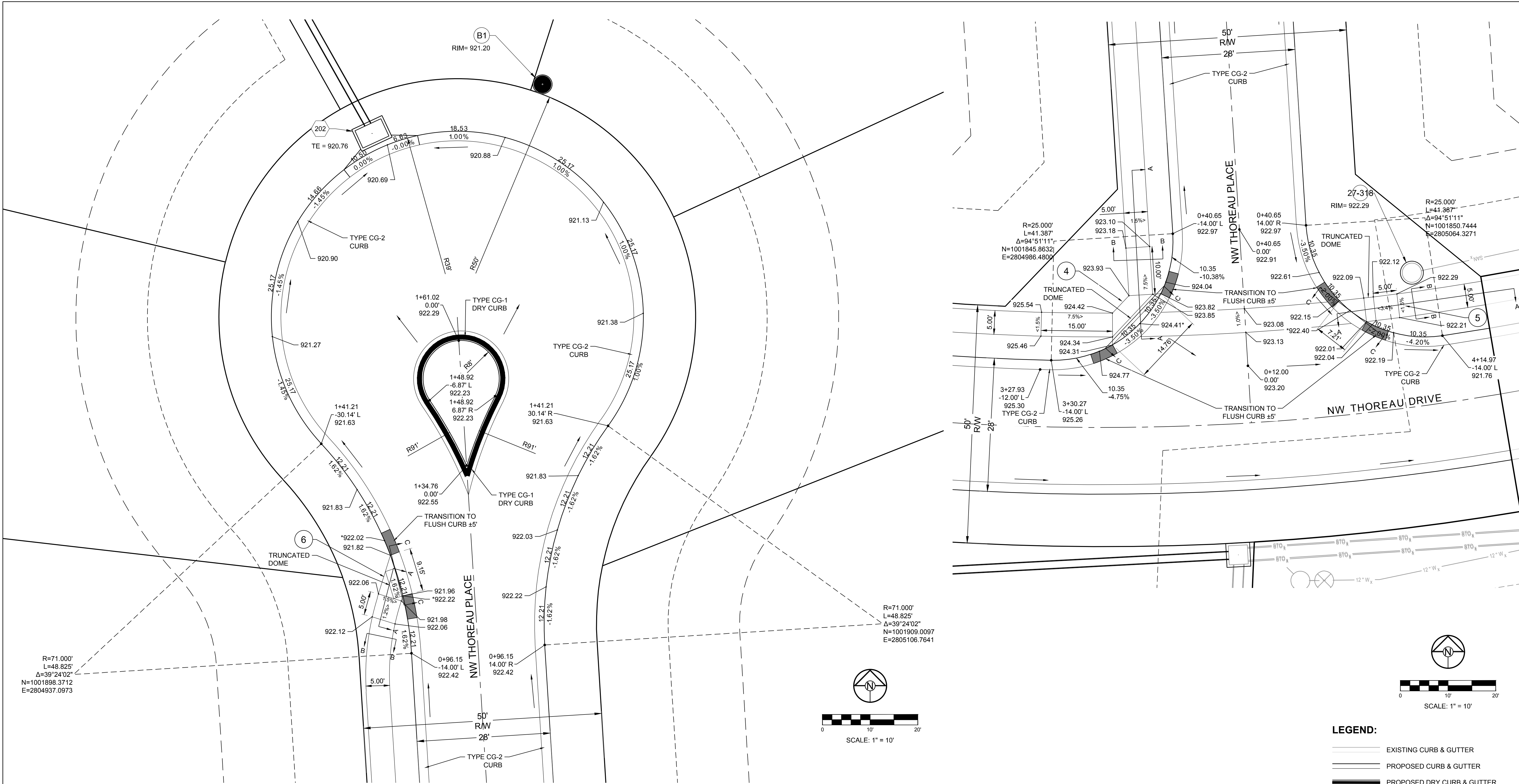
SHEET

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OF 24



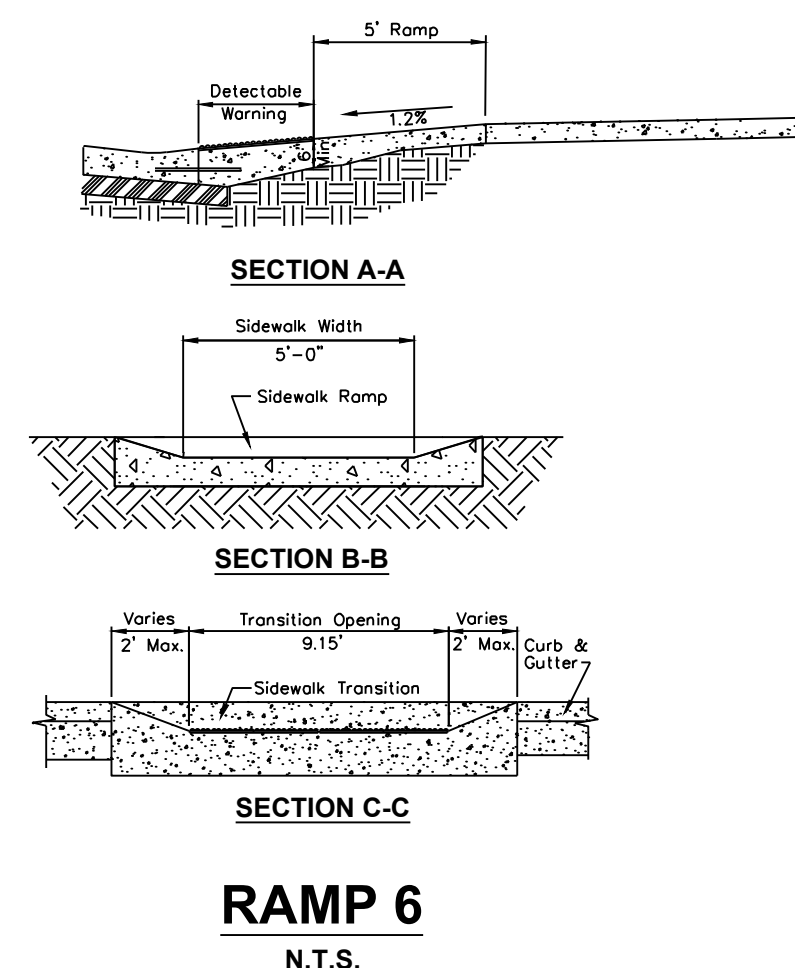
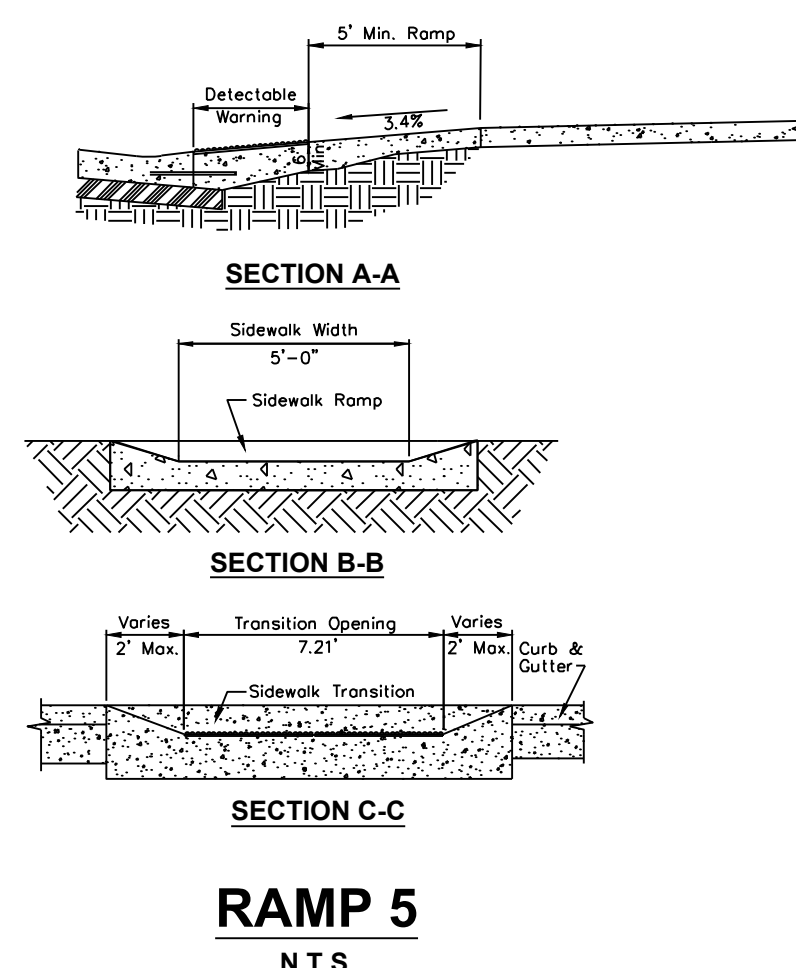
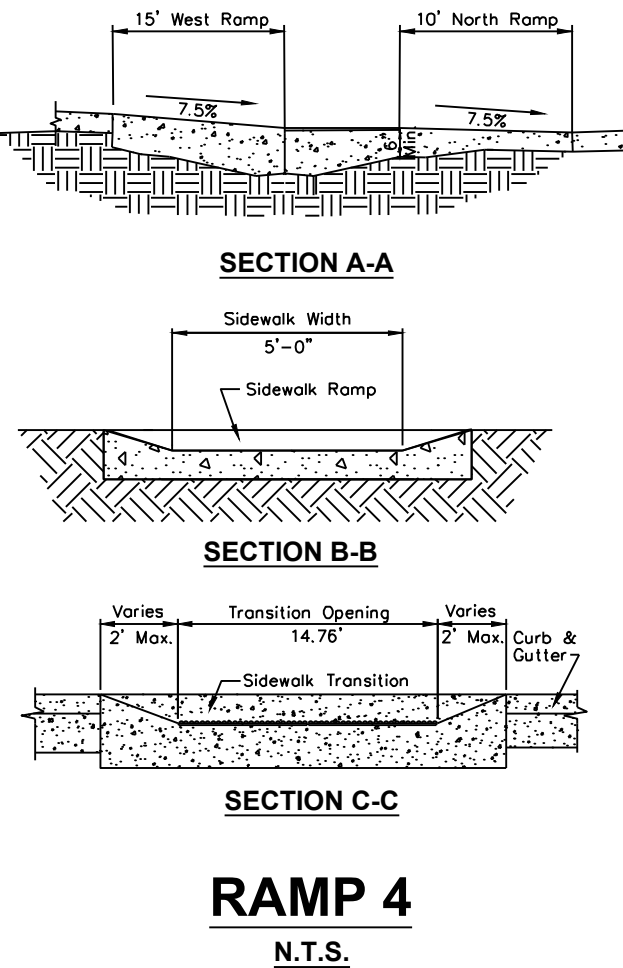
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**LEGEND:**

- 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

10.23.19

REVISION DATE	DESCRIPTION
4-10-19	CITY COMMENTS
8-1-19	CITY COMMENTS
8-21-19	CITY COMMENTS
9-18-19	CITY COMMENTS
10-24-19	CITY COMMENTS
2-15-19	DATE PREPARED
18-230	PROJ. NUMBER

INTERSECTION  
DETAILS

SHEET  
15  
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 48" 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+00.04, LINE 500 INSTALL 48" HDPE END SECTION W/ TOEWALL AND SCOUR BASIN N 1002503.0403 E 2805400.4139
501	STA 2+36.72, LINE 500 INSTALL 6 X 6 DETENTION STRUCTURE W/ OPENING TO SOUTHWEST F.F.B. S55°25'42"E N 1002308.1861 E 2805265.9260

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10.23.19

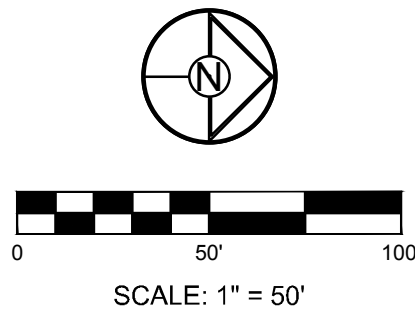
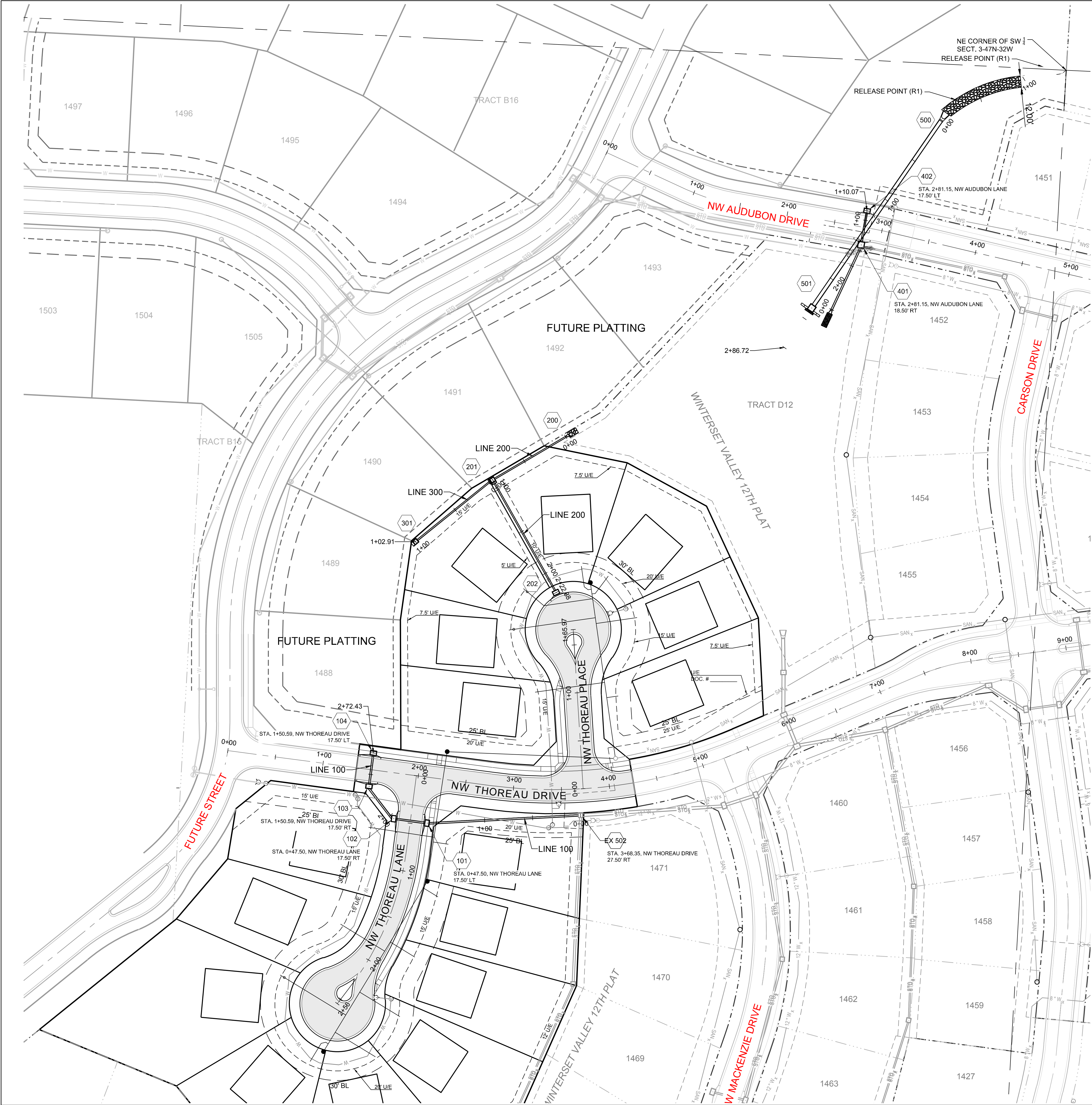
WINTERSET VALLEY, 13TH PLAT  
STREET, STORMWATER, MASTER DRAINAGE  
PLAN AND EROSION AND SEDIMENT CONTROL  
NW THOREAU DRIVE AND AUDUBON LANE  
LEE'S SUMMIT, MISSOURI

REVISION DATE		DESCRIPTION
1.	4-10-19	CITY COMMENTS
2.	8-1-19	CITY COMMENTS
3.	8-21-19	CITY COMMENTS
4.	9-18-19	CITY COMMENTS
5.	10-24-19	CITY COMMENTS
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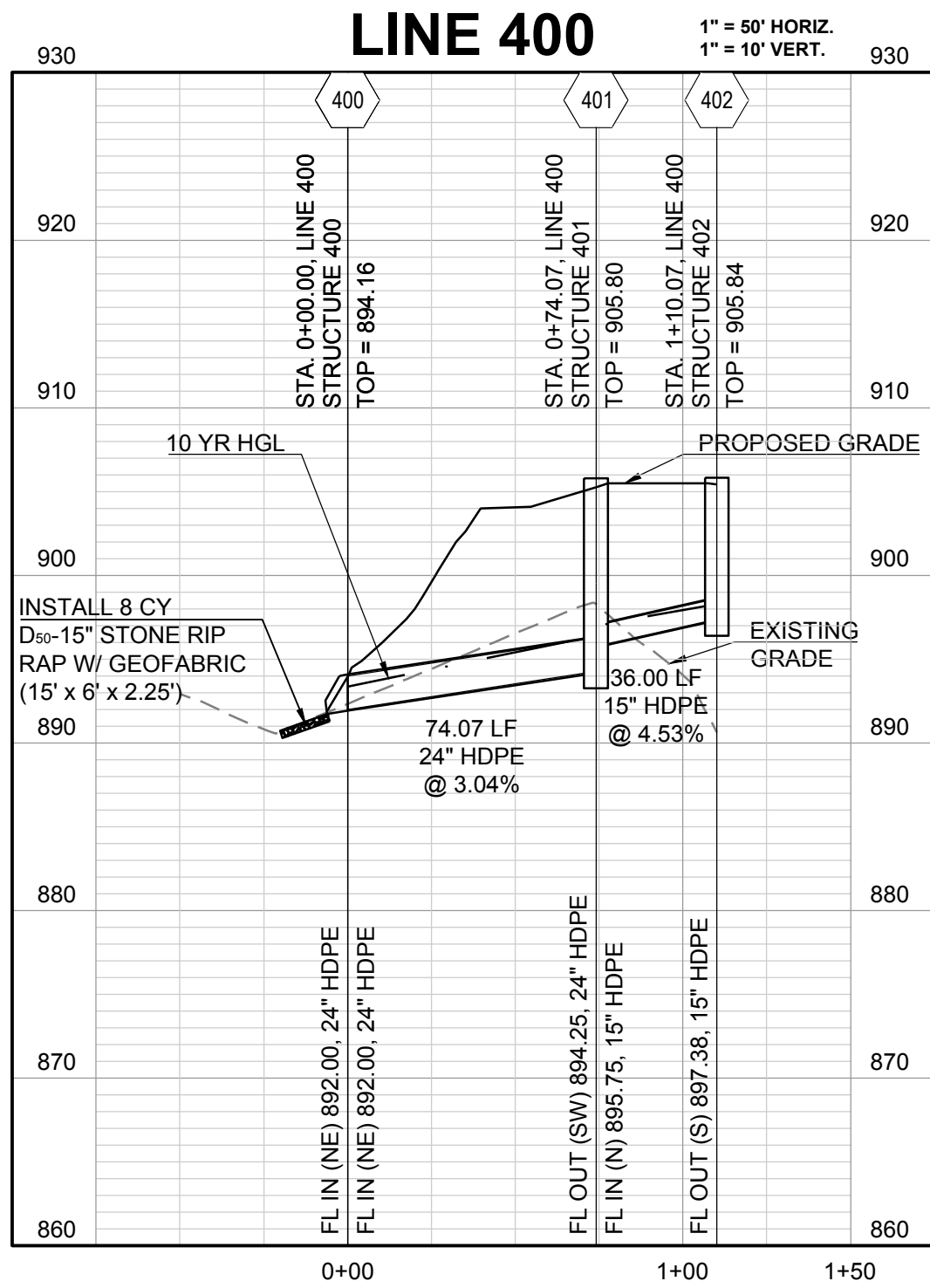
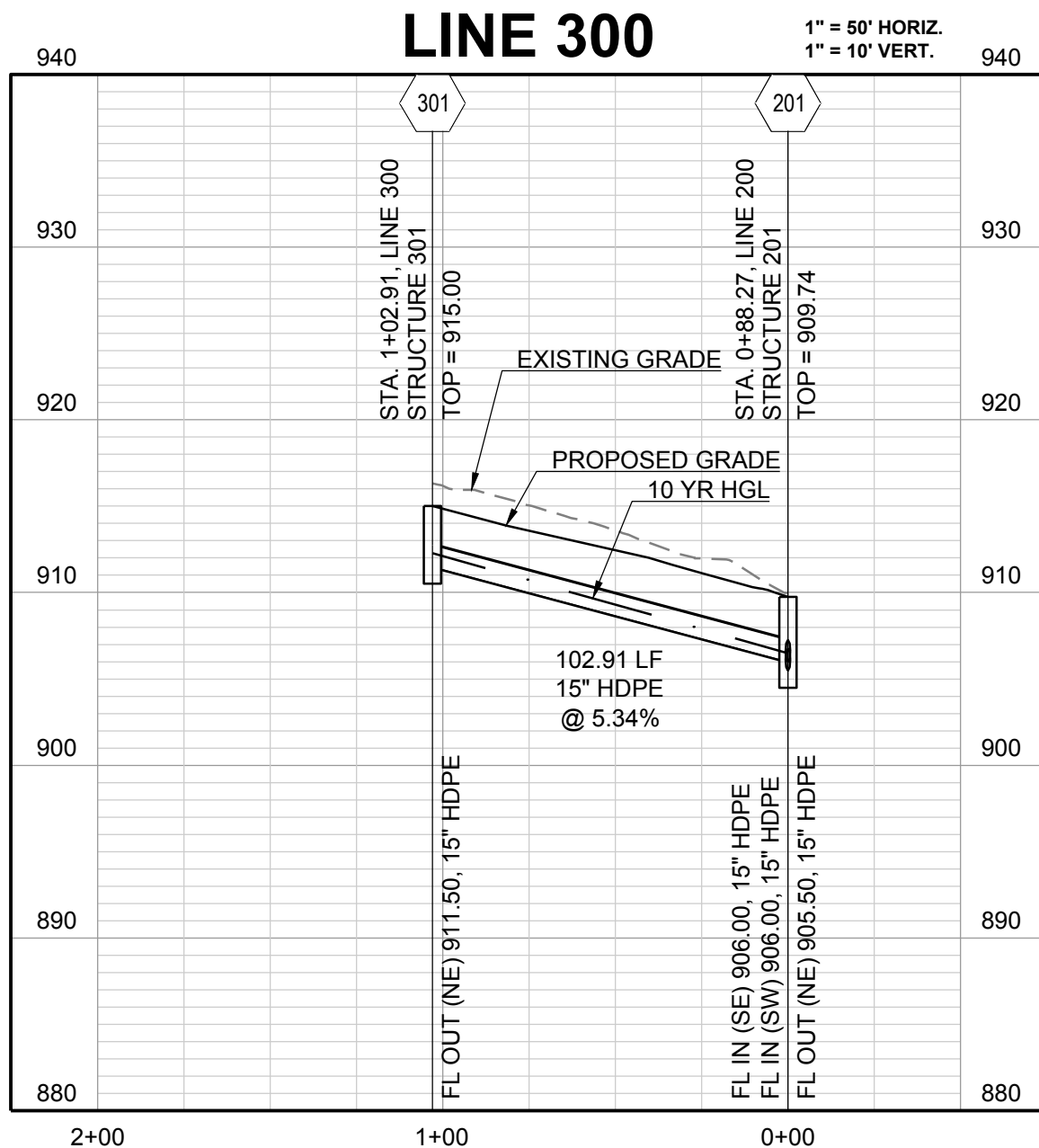
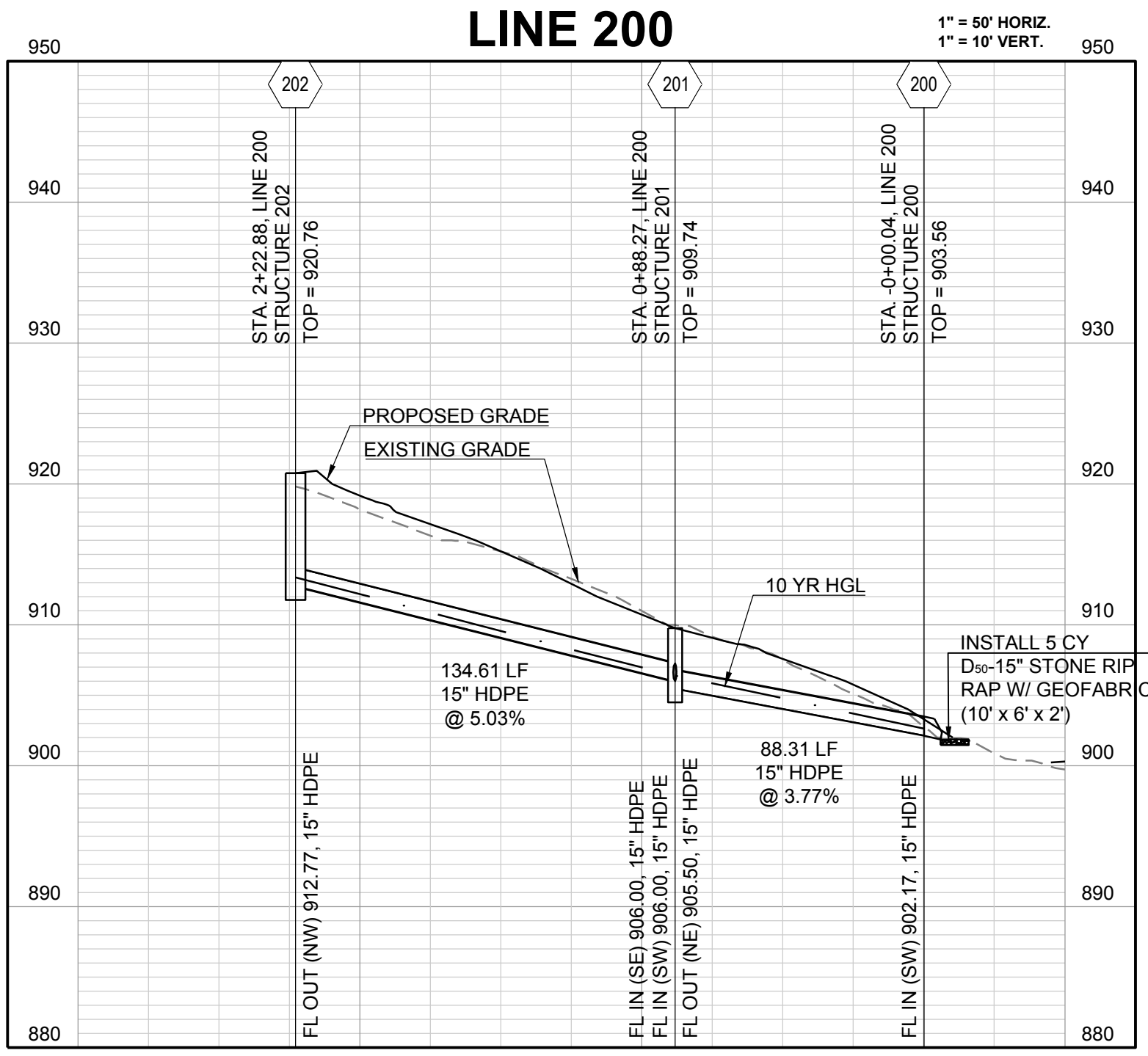
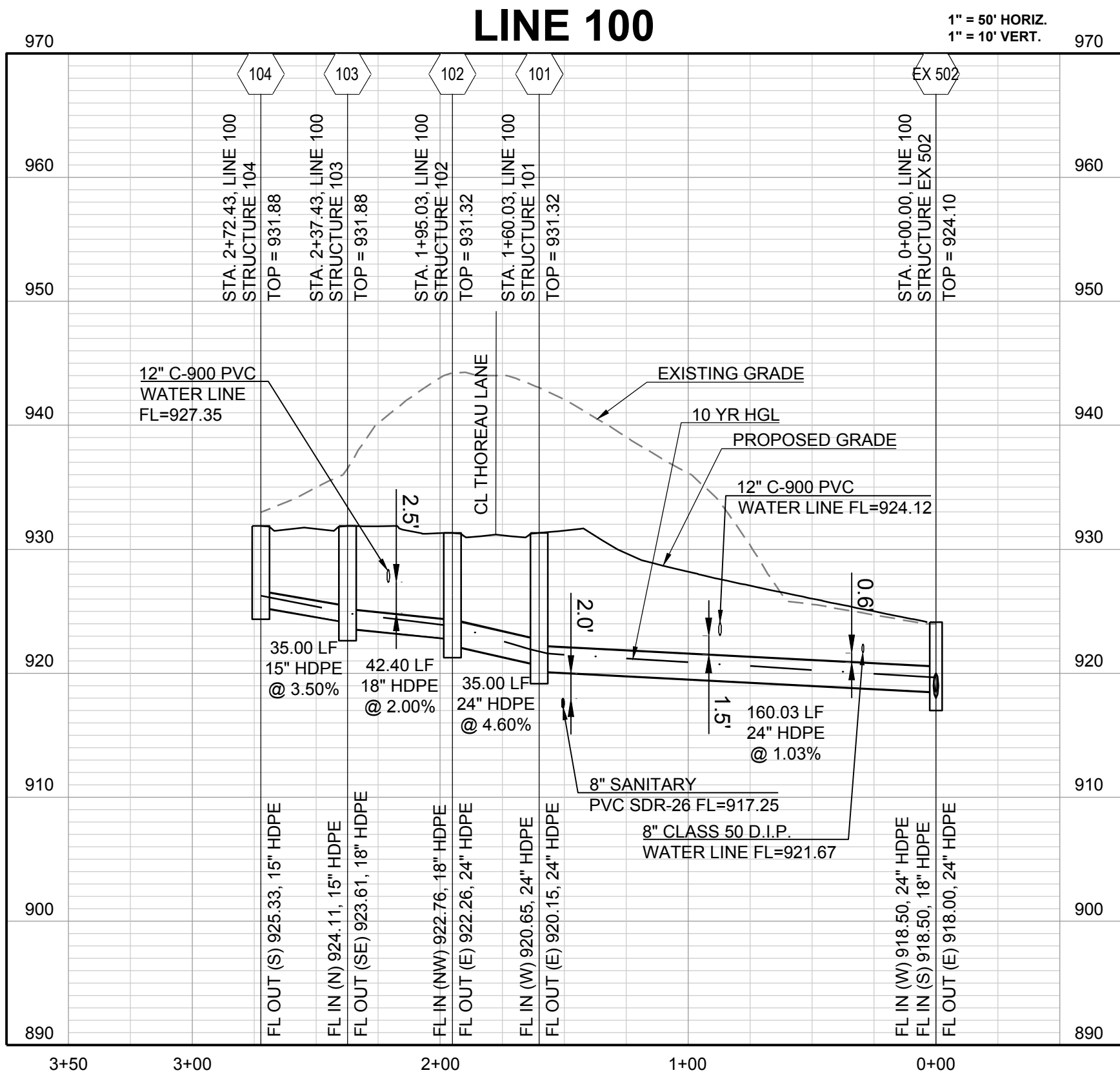
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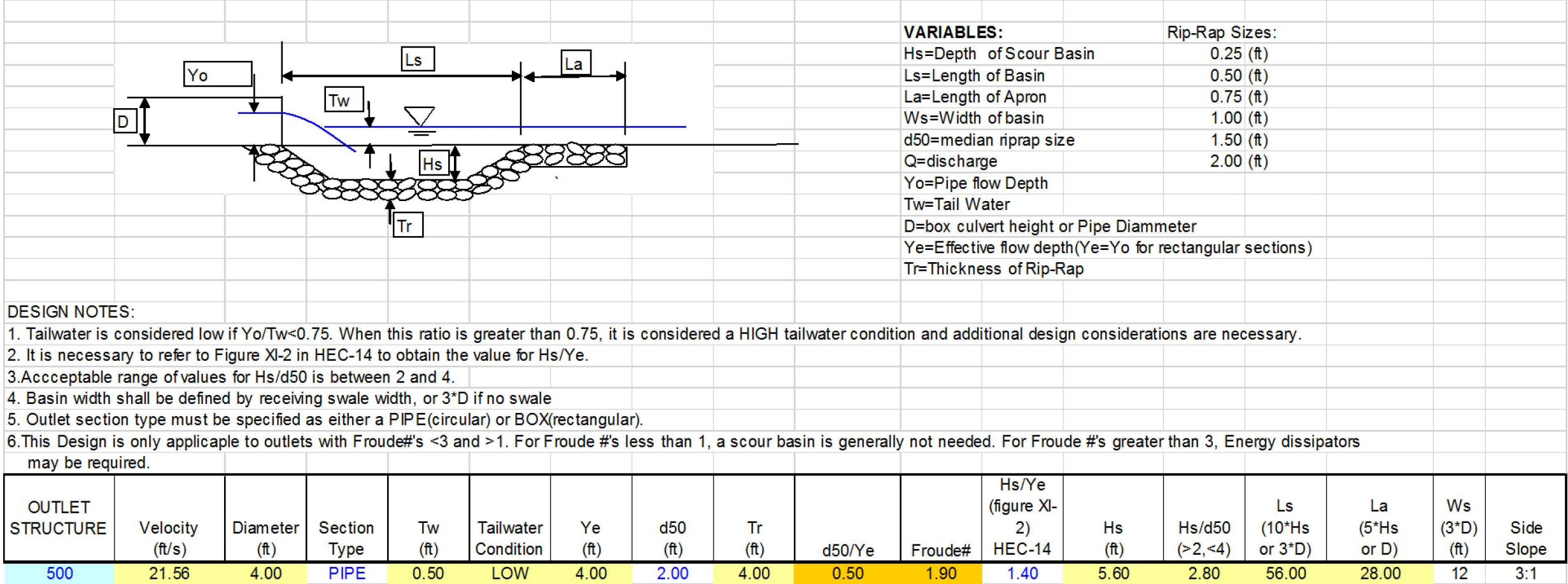
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OF 24



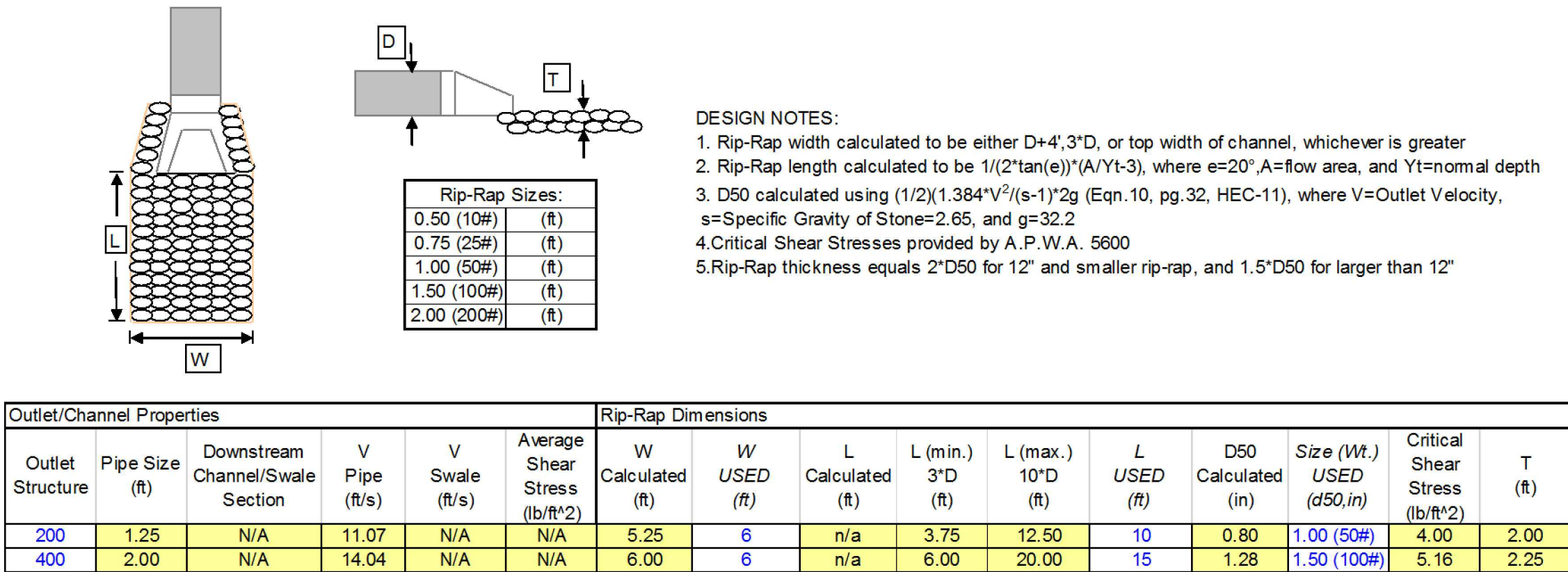




SCOUR BASIN DESIGN SHEET v1.1

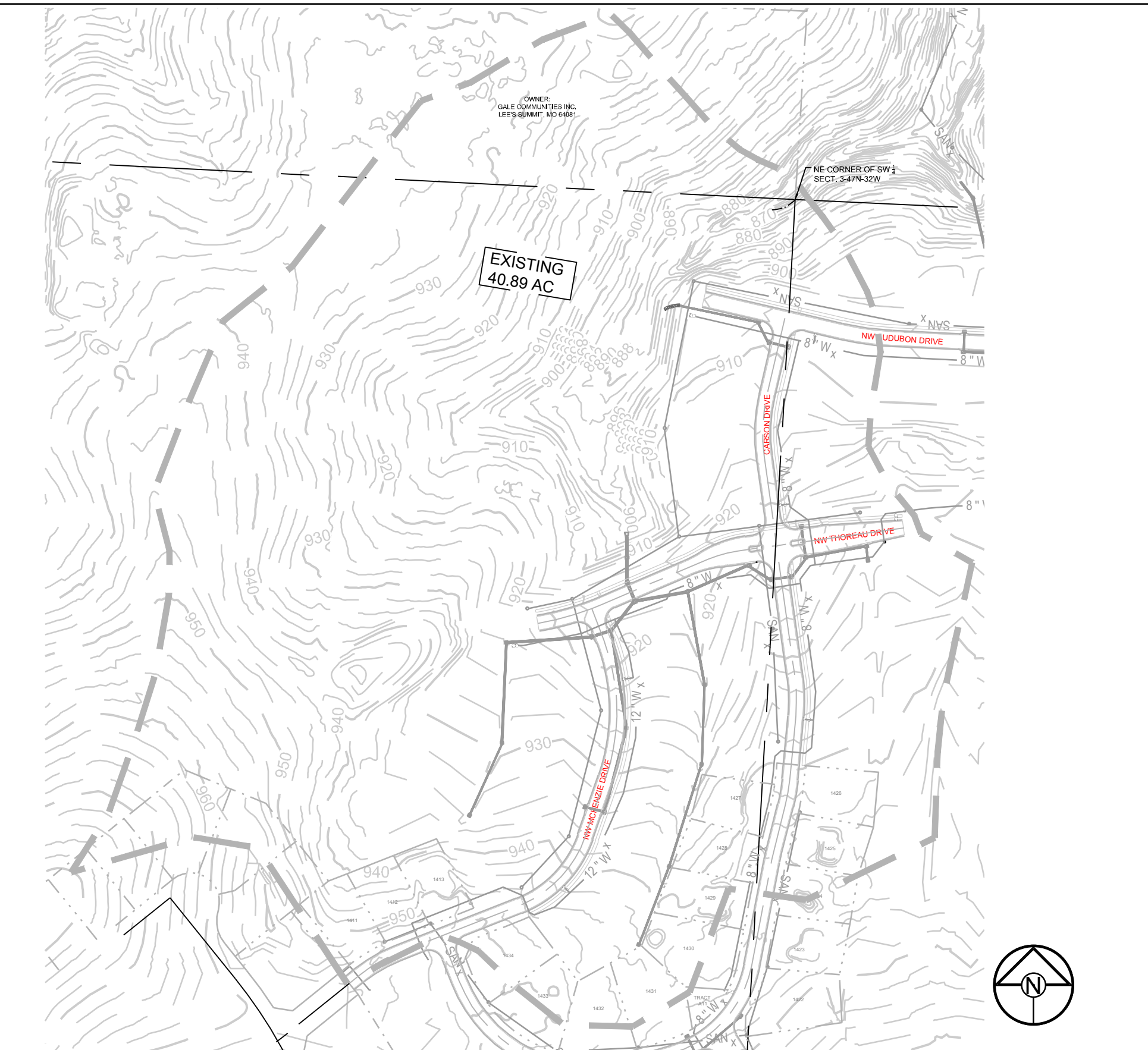
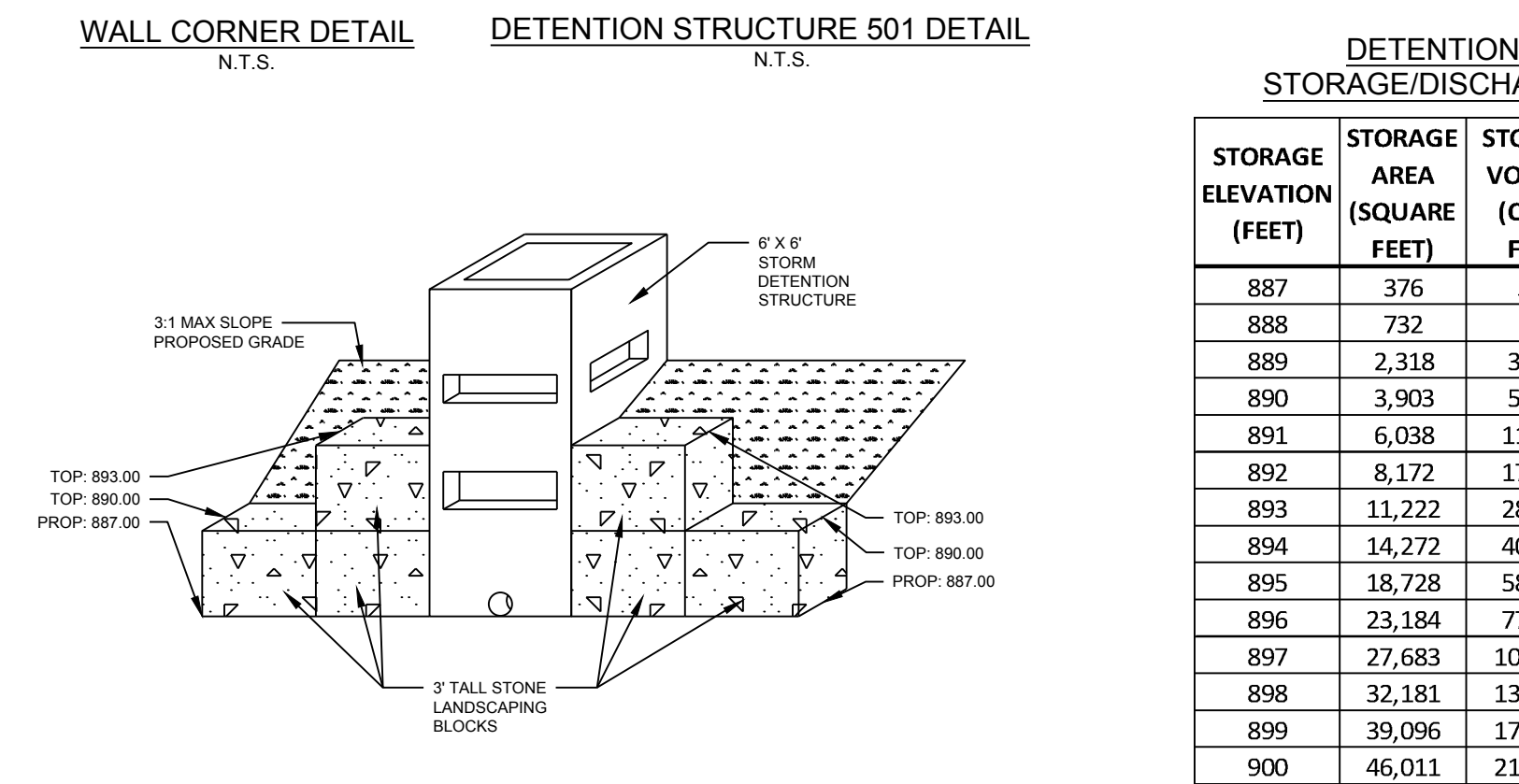
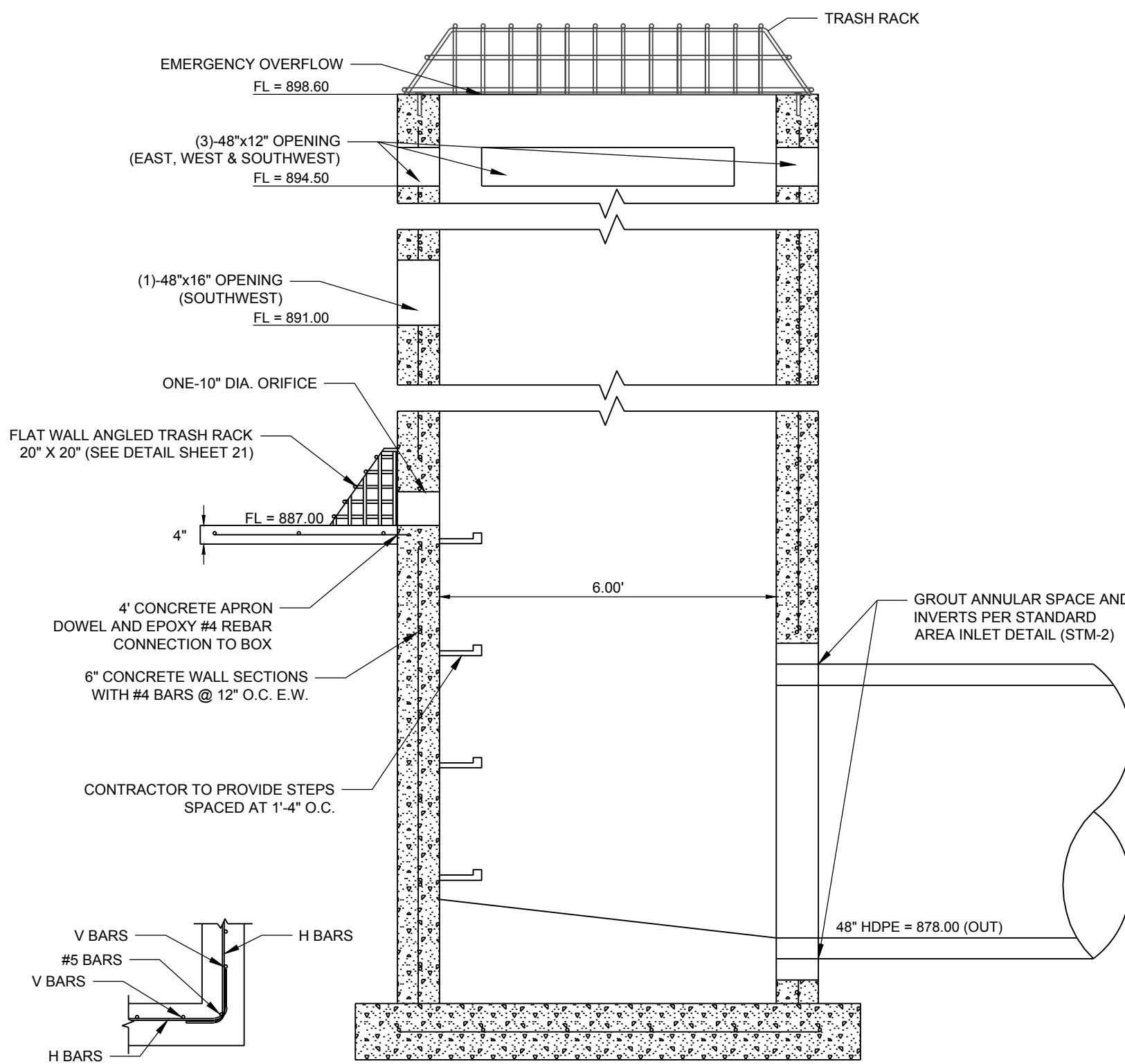
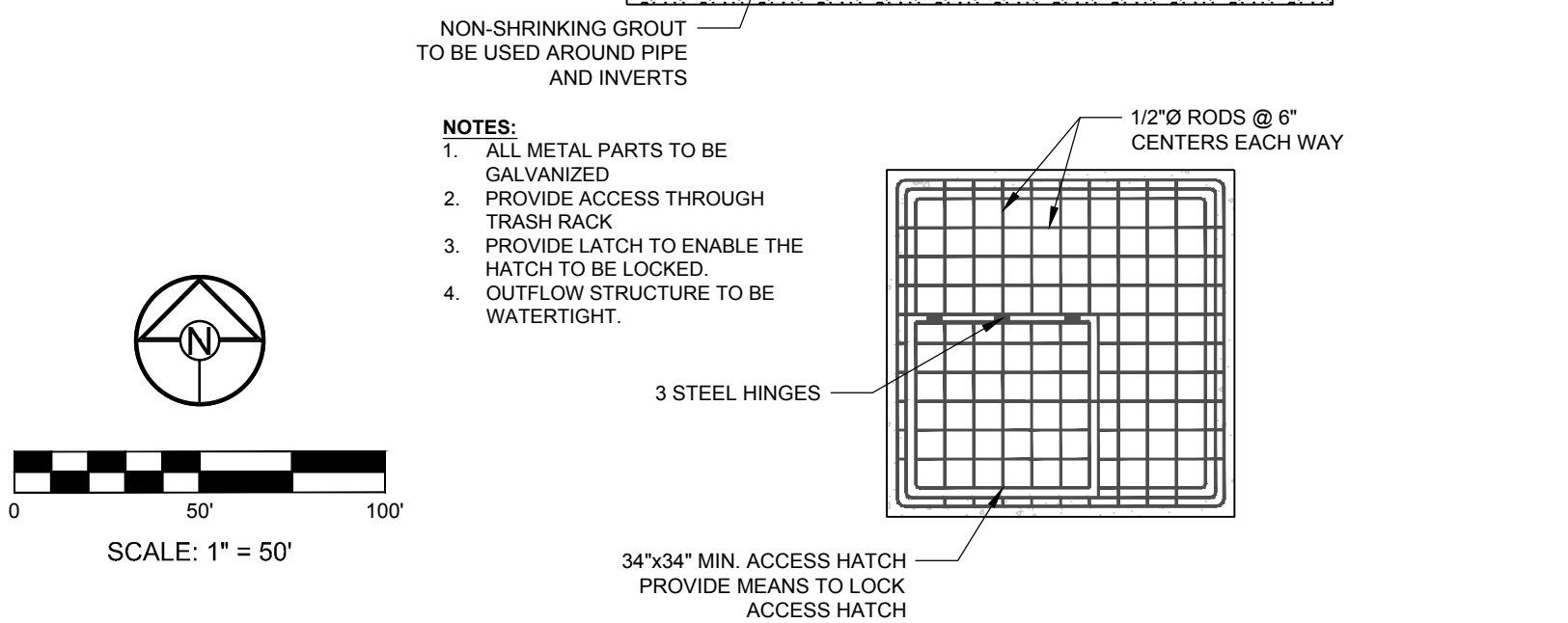
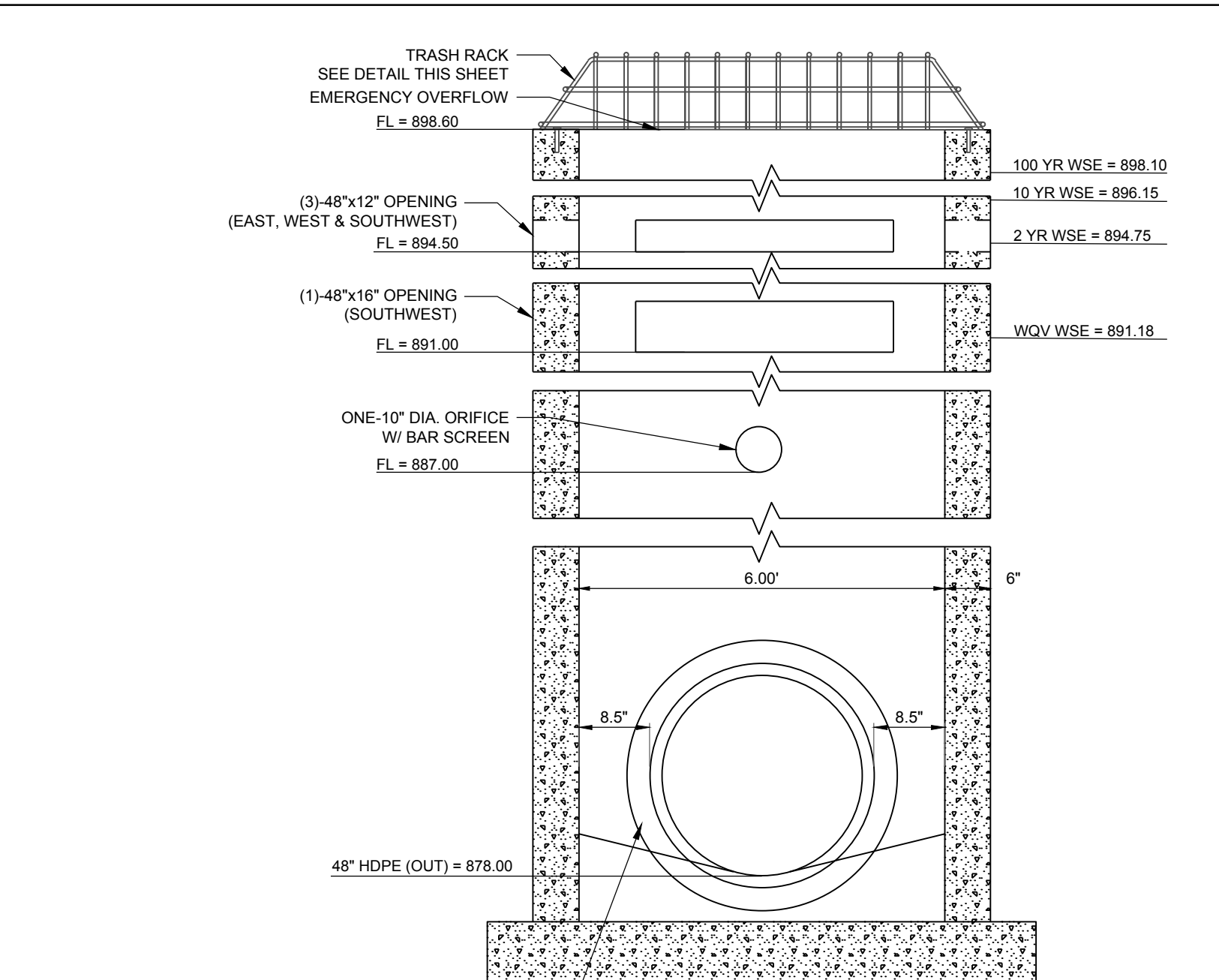
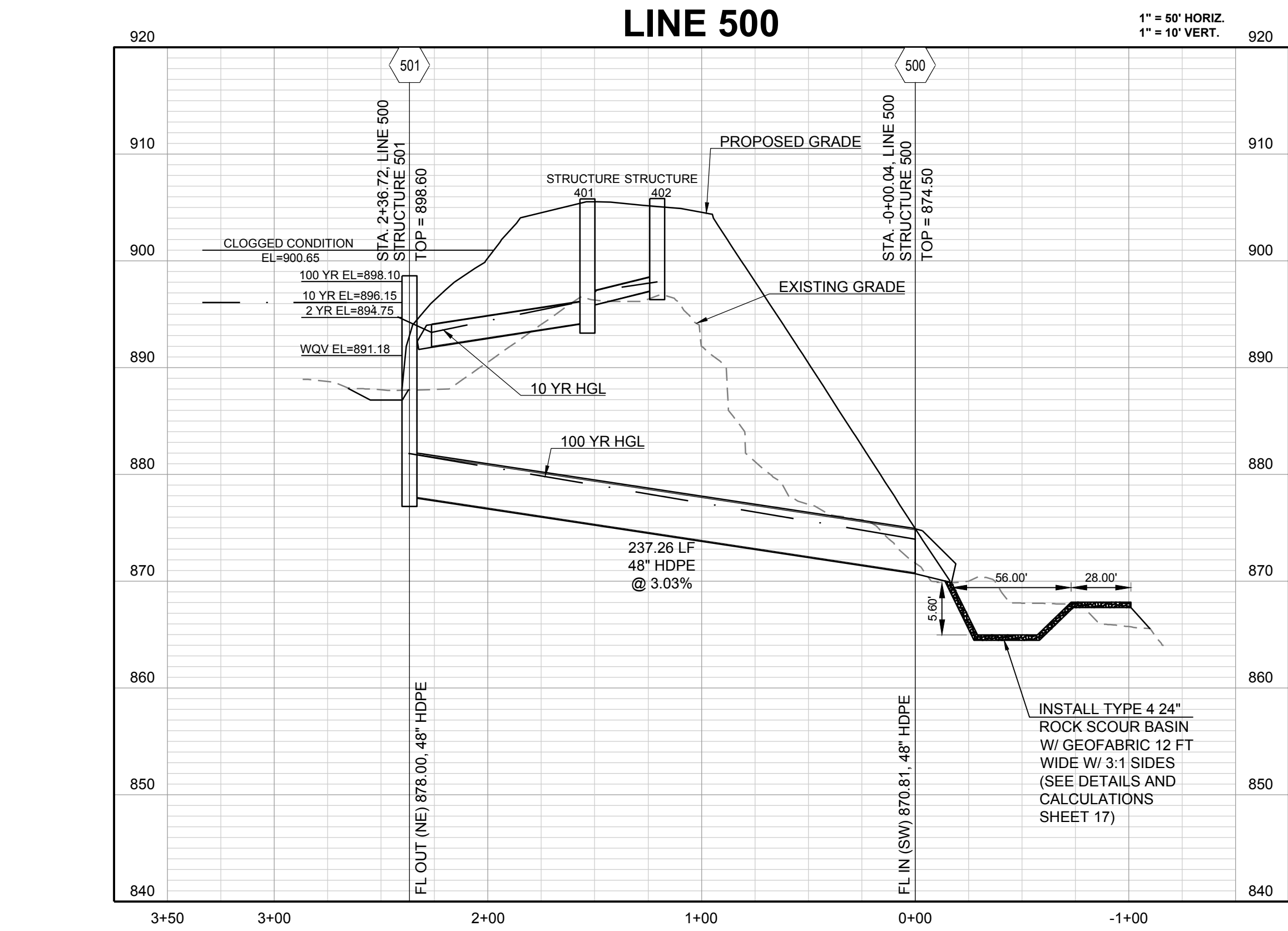
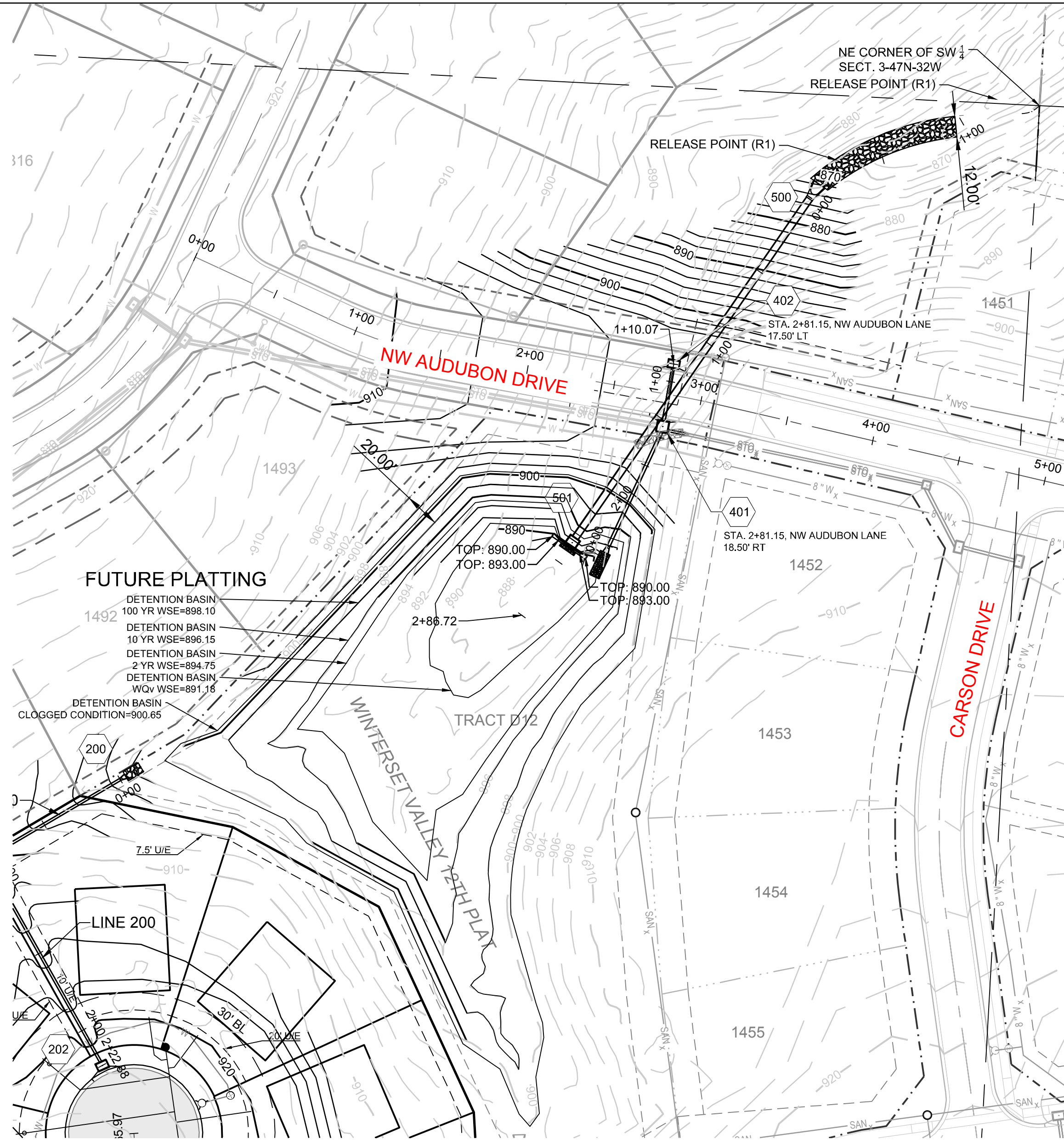


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REVISION DATE	DESCRIPTION
4-10-19	CITY COMMENTS
8-1-19	CITY COMMENTS
8-21-19	CITY COMMENTS
9-18-19	CITY COMMENTS
10-24-19	CITY COMMENTS
2-15-19	
PROJ. NUMBER:	18-230



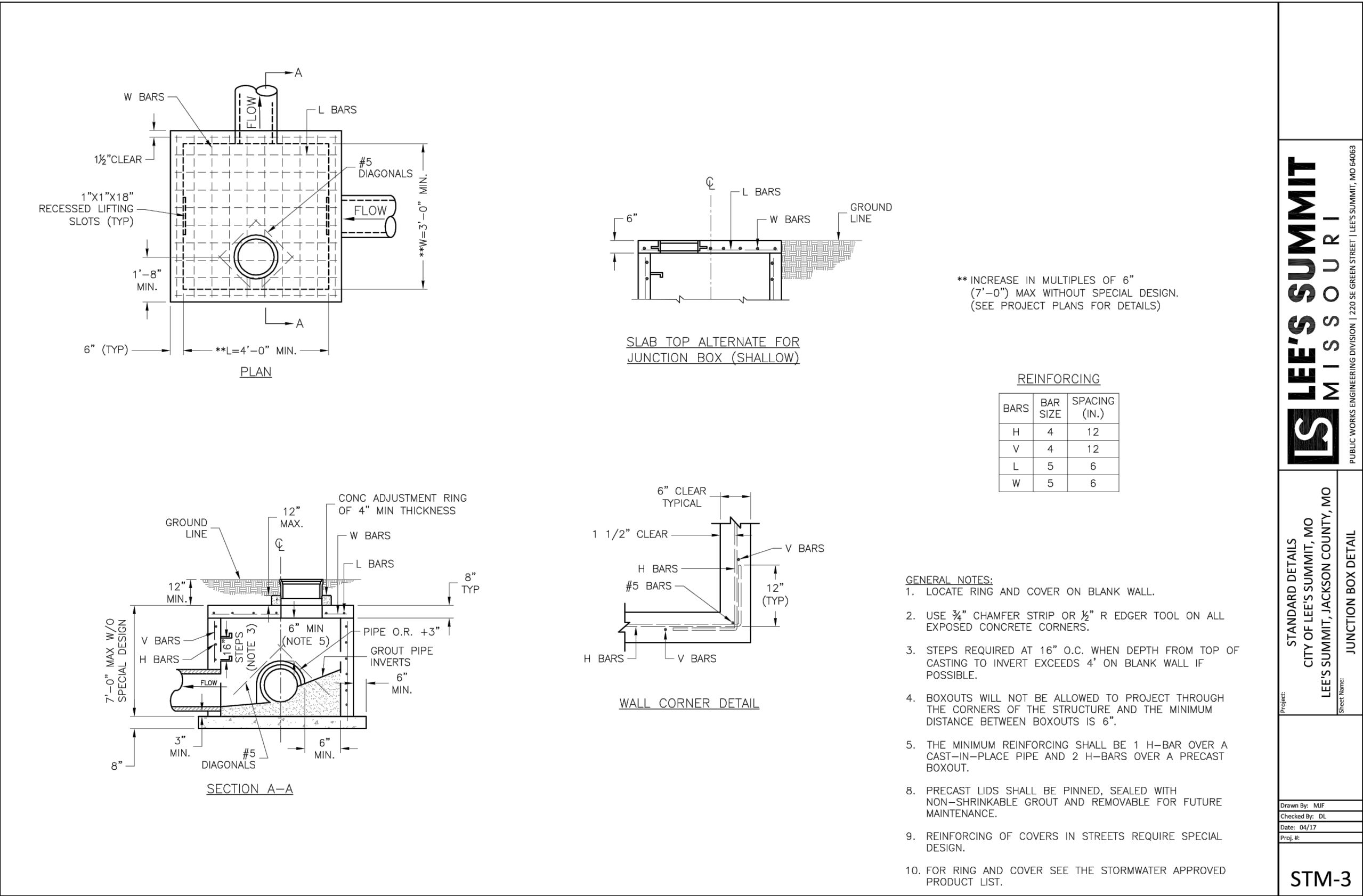


DETENTION BASIN DESIGN INFORMATION

	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



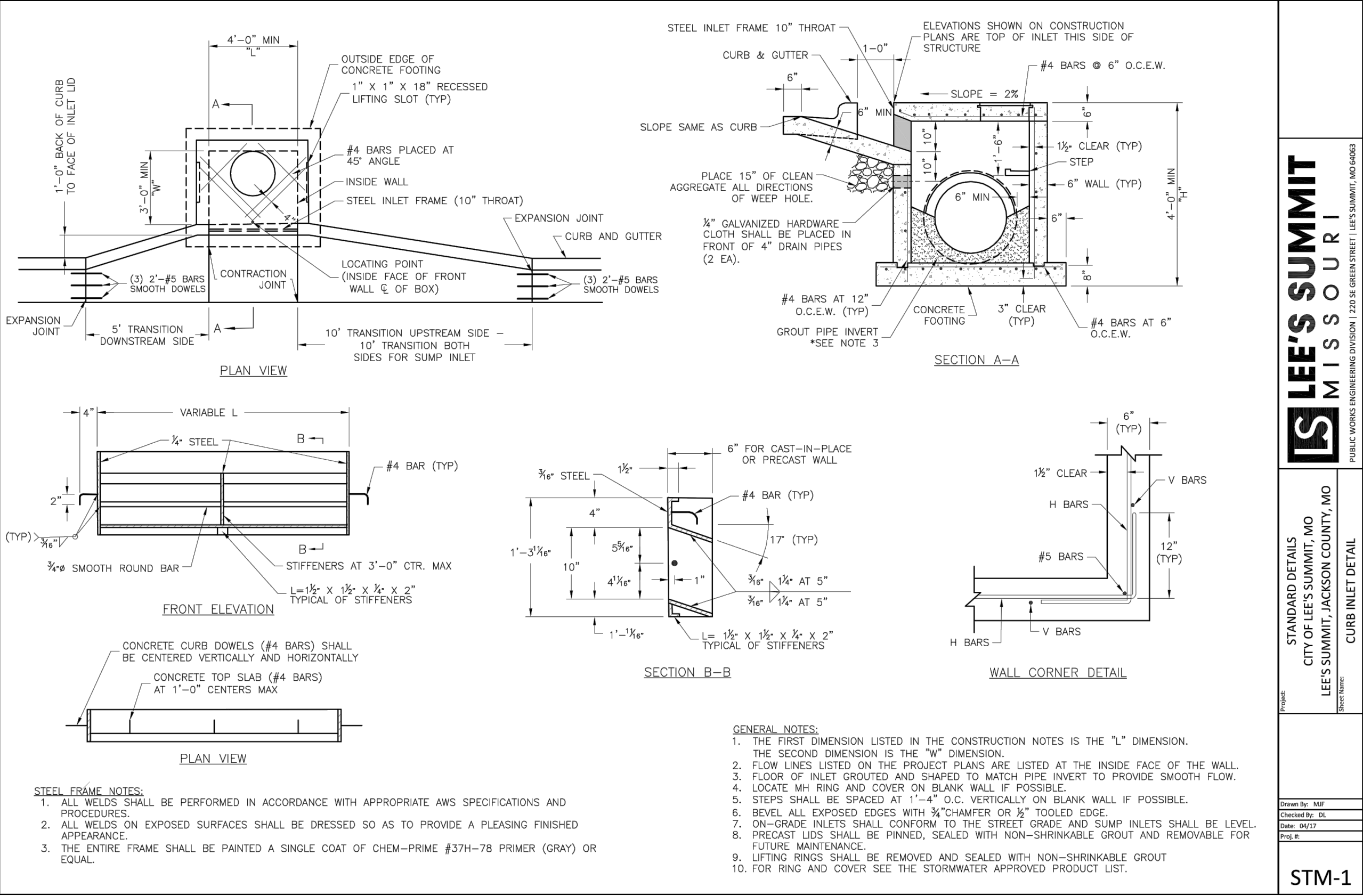


**LEE'S SUMMIT MISSOURI**

**STANDARD DETAILS**  
CITY OF LEE'S SUMMIT, MO  
LEE'S SUMMIT, JACKSON COUNTY, MO

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Checked By: DS  
Date: 06/17  
Title: STM-3

STM-3

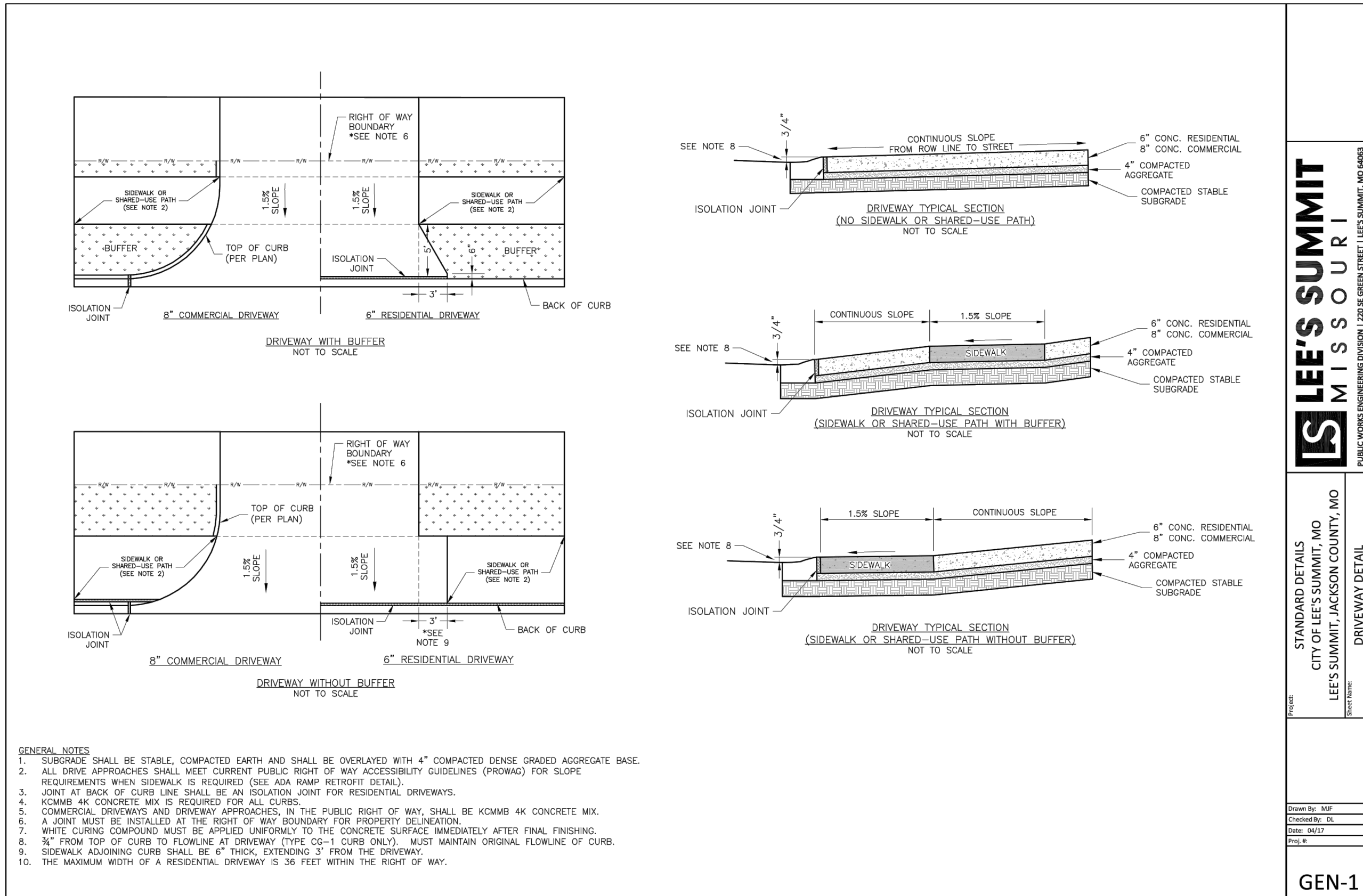


**LEE'S SUMMIT MISSOURI**

**STANDARD DETAILS**  
CITY OF LEE'S SUMMIT, MO  
LEE'S SUMMIT, JACKSON COUNTY, MO

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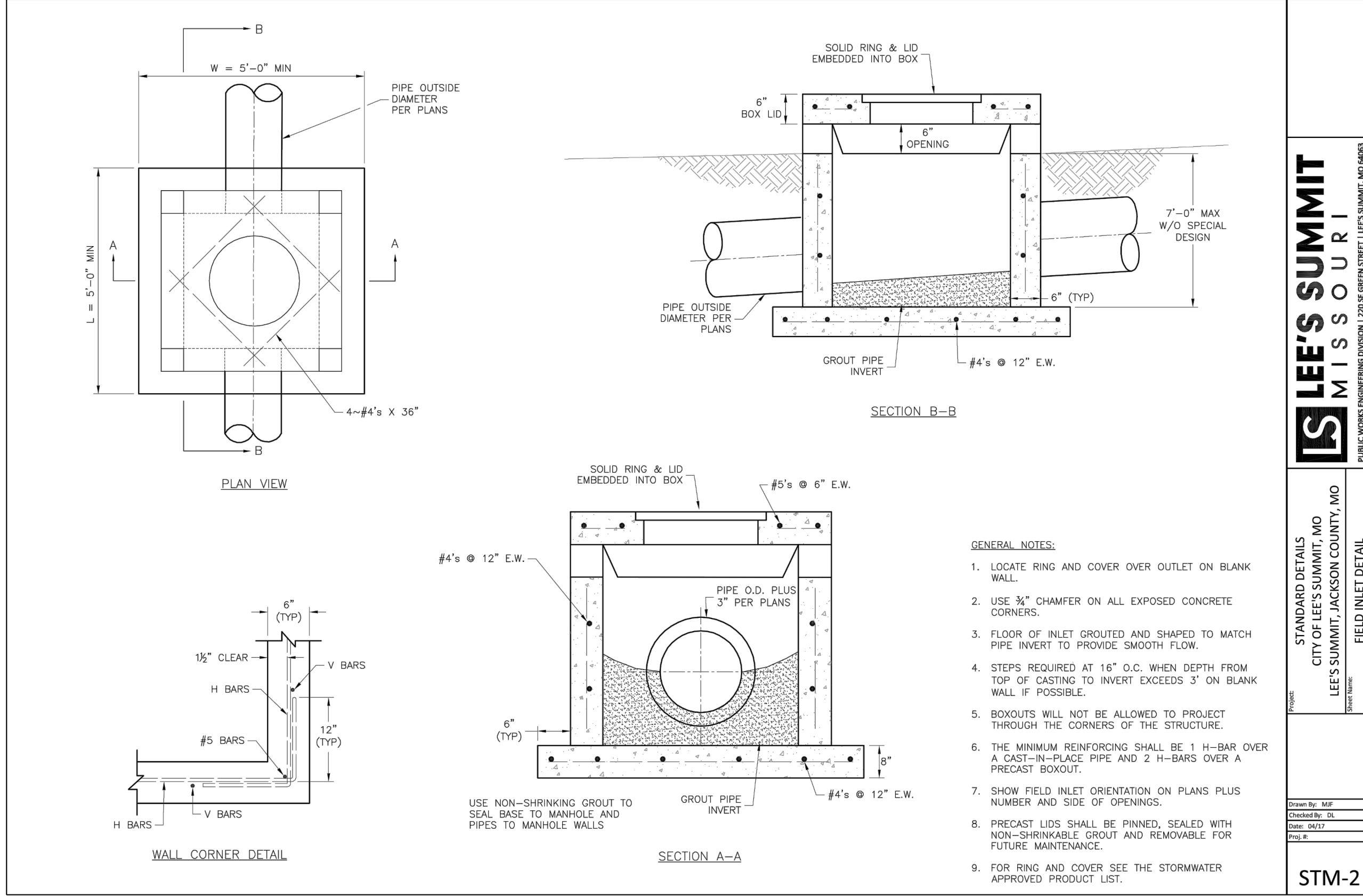


**LEE'S SUMMIT MISSOURI**

**STANDARD DETAILS**  
CITY OF LEE'S SUMMIT, MO  
LEE'S SUMMIT, JACKSON COUNTY, MO

Drawn By: MAF  
Checked By: DS  
Date: 06/17  
Title: GEN-1

GEN-1



**LEE'S SUMMIT MISSOURI**

**STANDARD DETAILS**  
CITY OF LEE'S SUMMIT, MO  
LEE'S SUMMIT, JACKSON COUNTY, MO

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Checked By: DS  
Date: 06/17  
Title: STM-2

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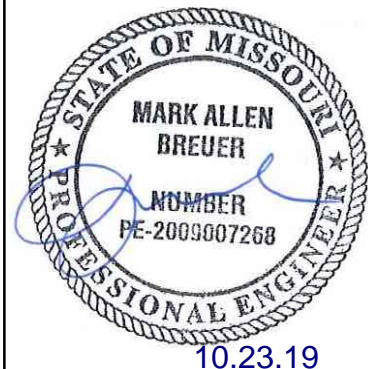
WINTERSET VALLEY, 13TH PLAT  
STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
EROSION AND SEDIMENT CONTROL  
NW THOREAU DRIVE AND AUDUBON LANE  
LEE'S SUMMIT, MO

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

STREET AND  
STORM DETAILS

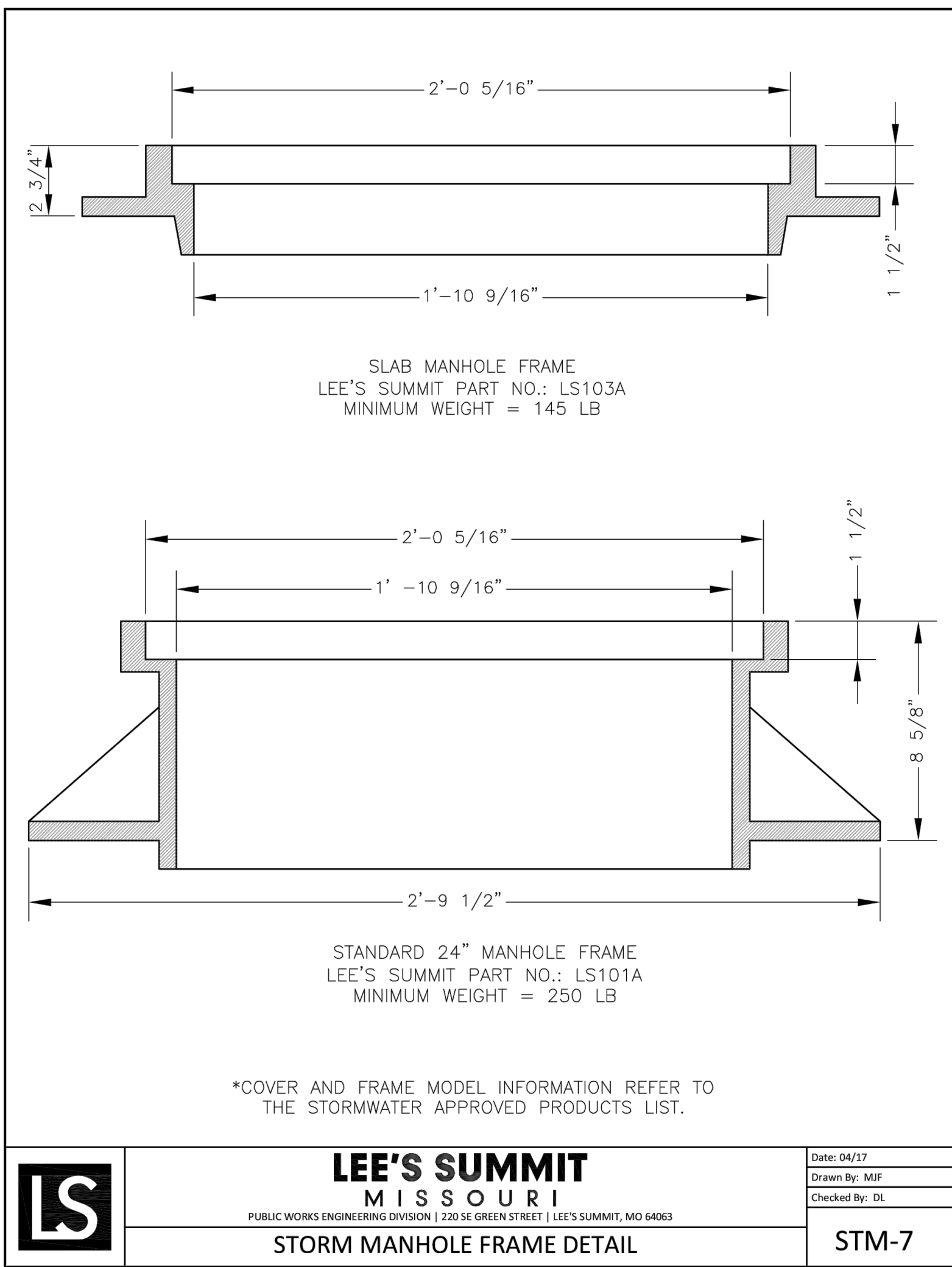
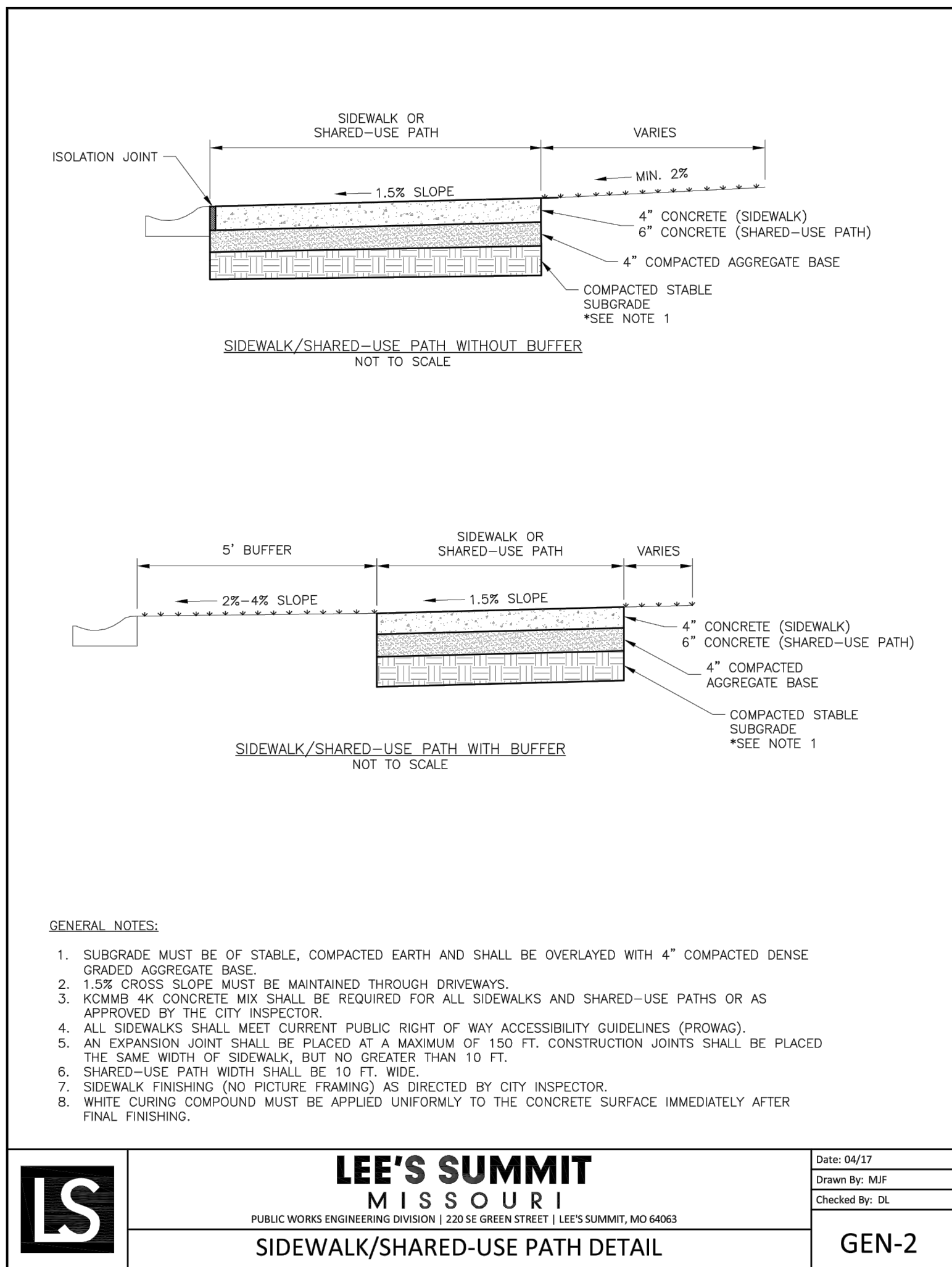
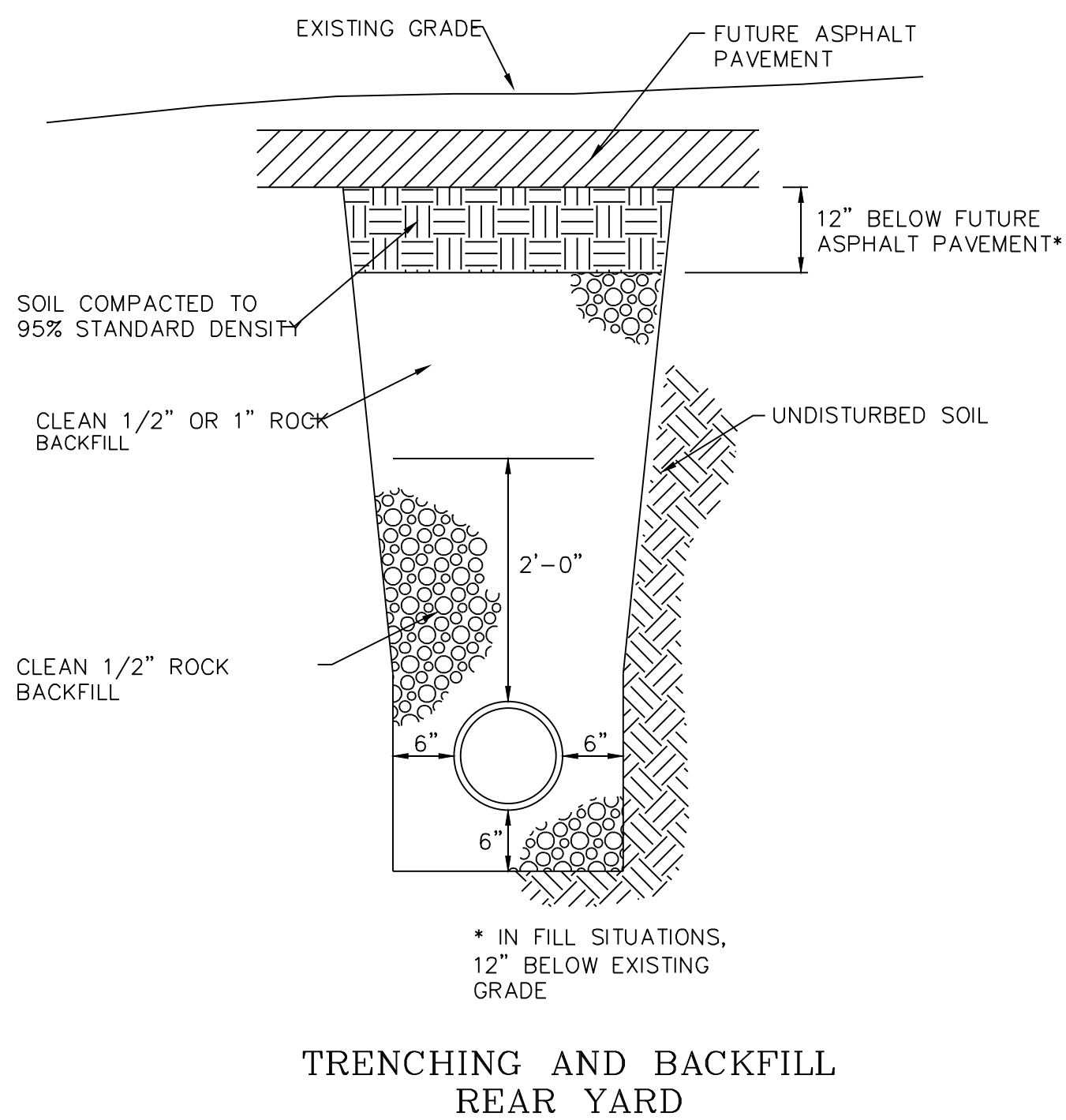
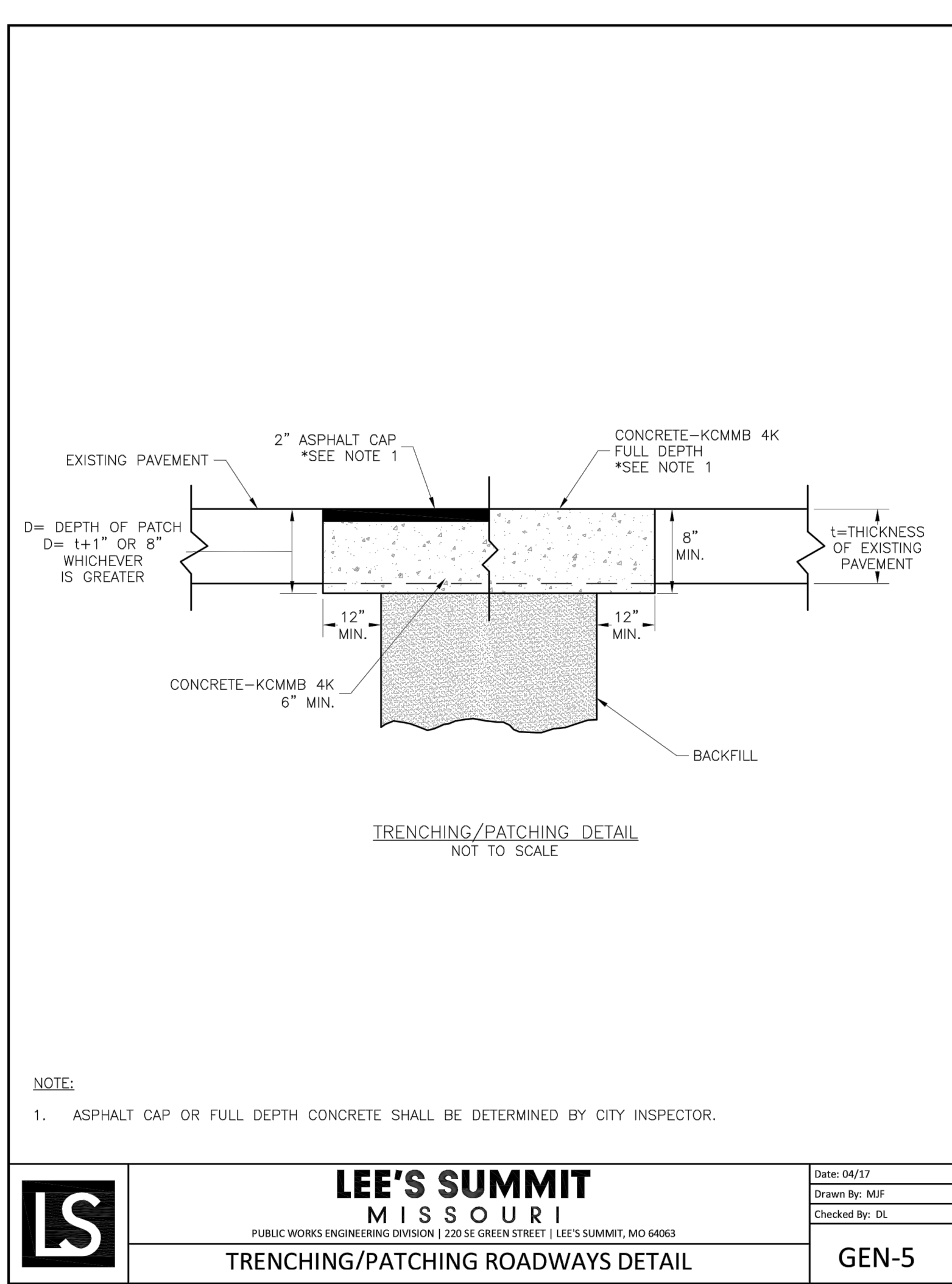
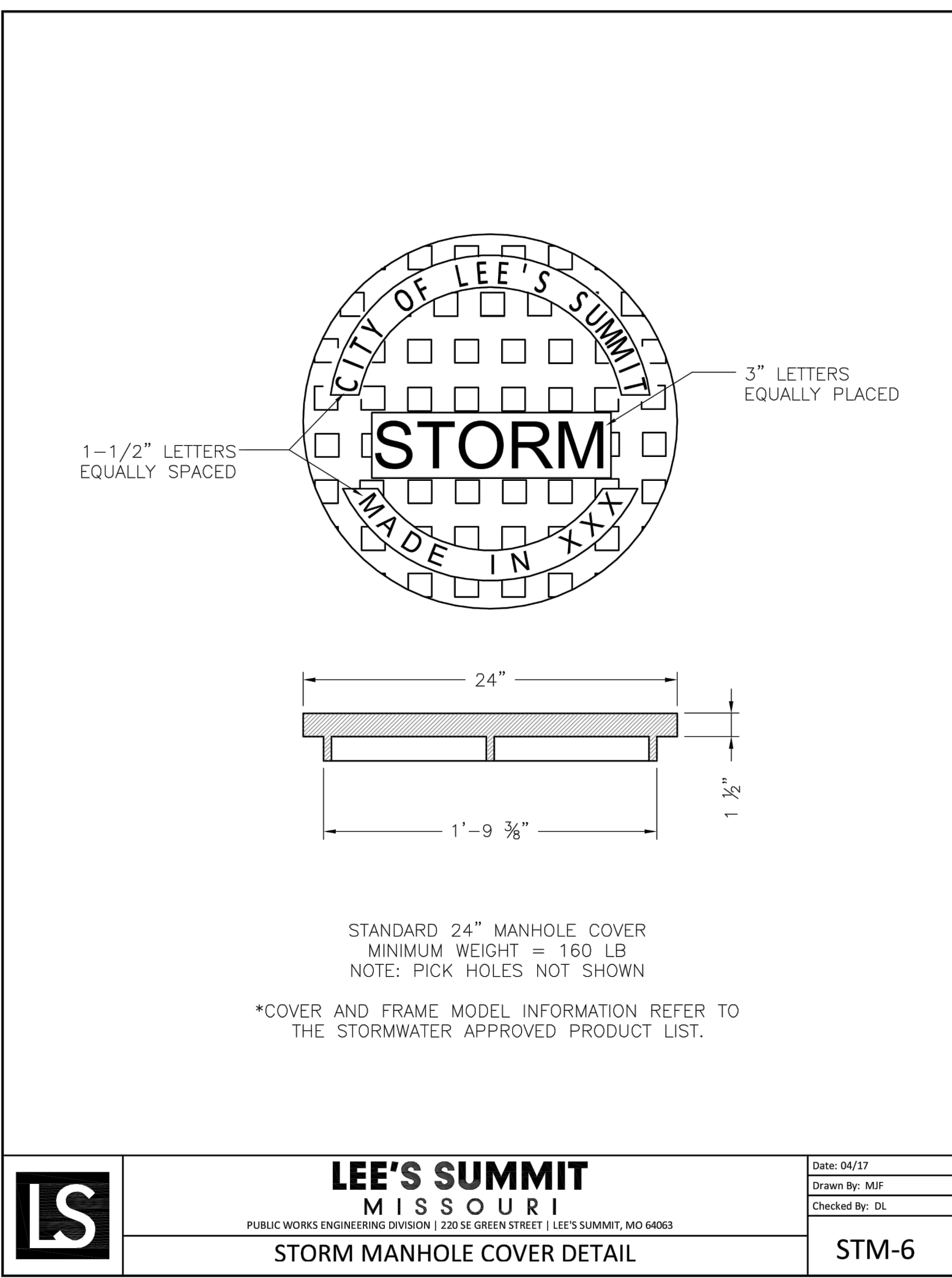
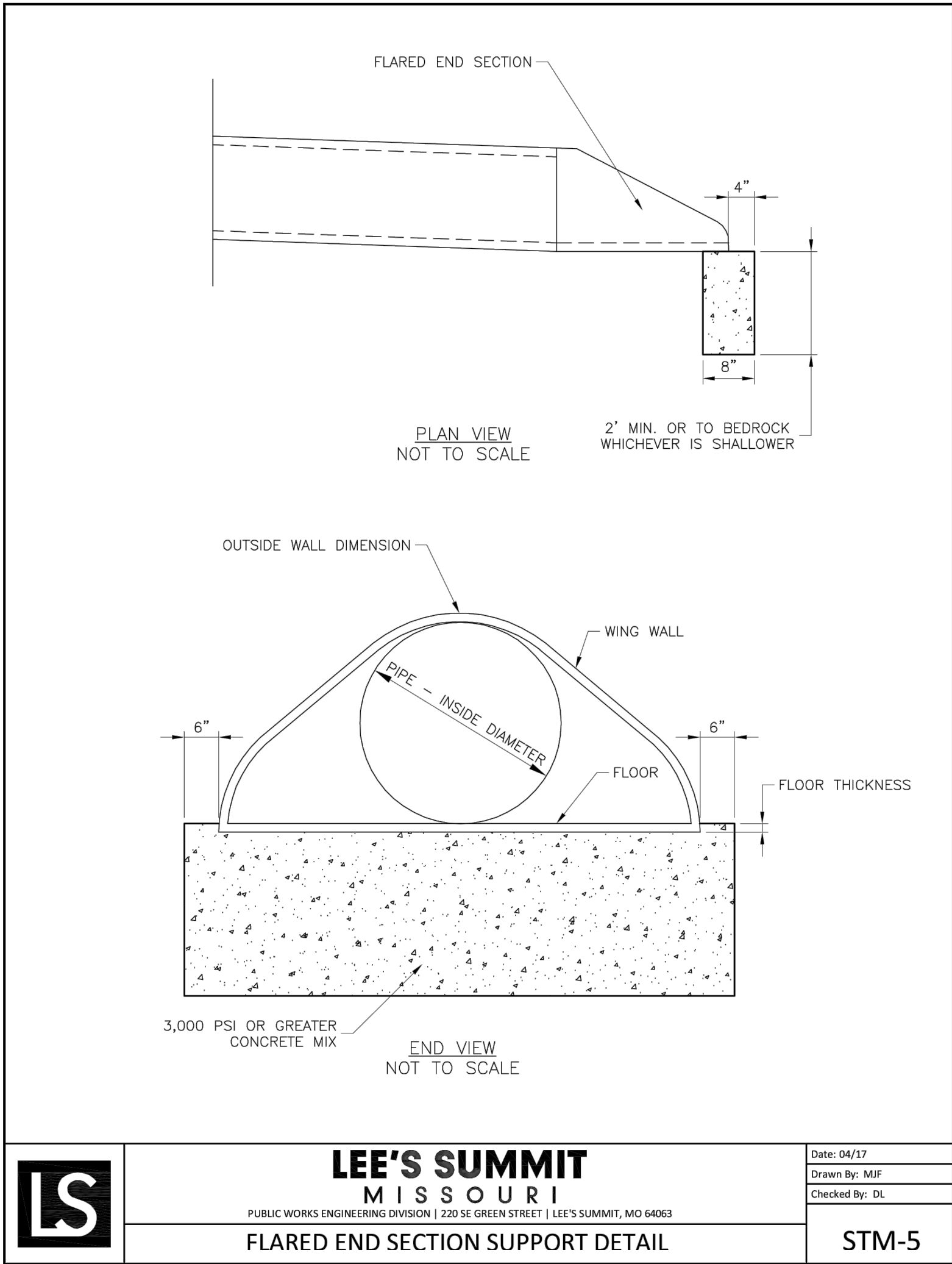
SHEET



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Engineers-Planners-Surveyors-Landscape Architects  
14920 West 107th Street • Lenexa, Kansas 66215  
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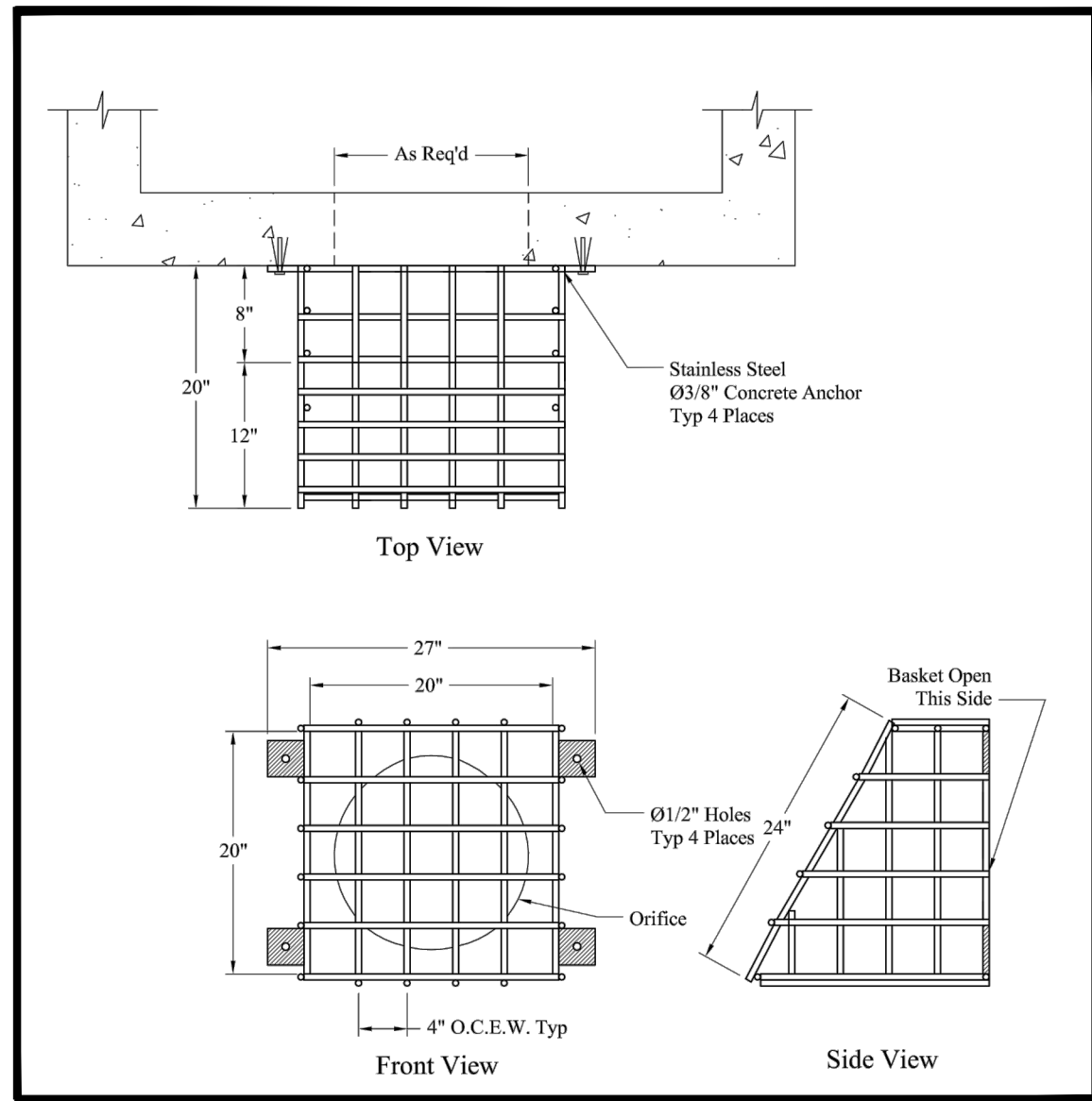
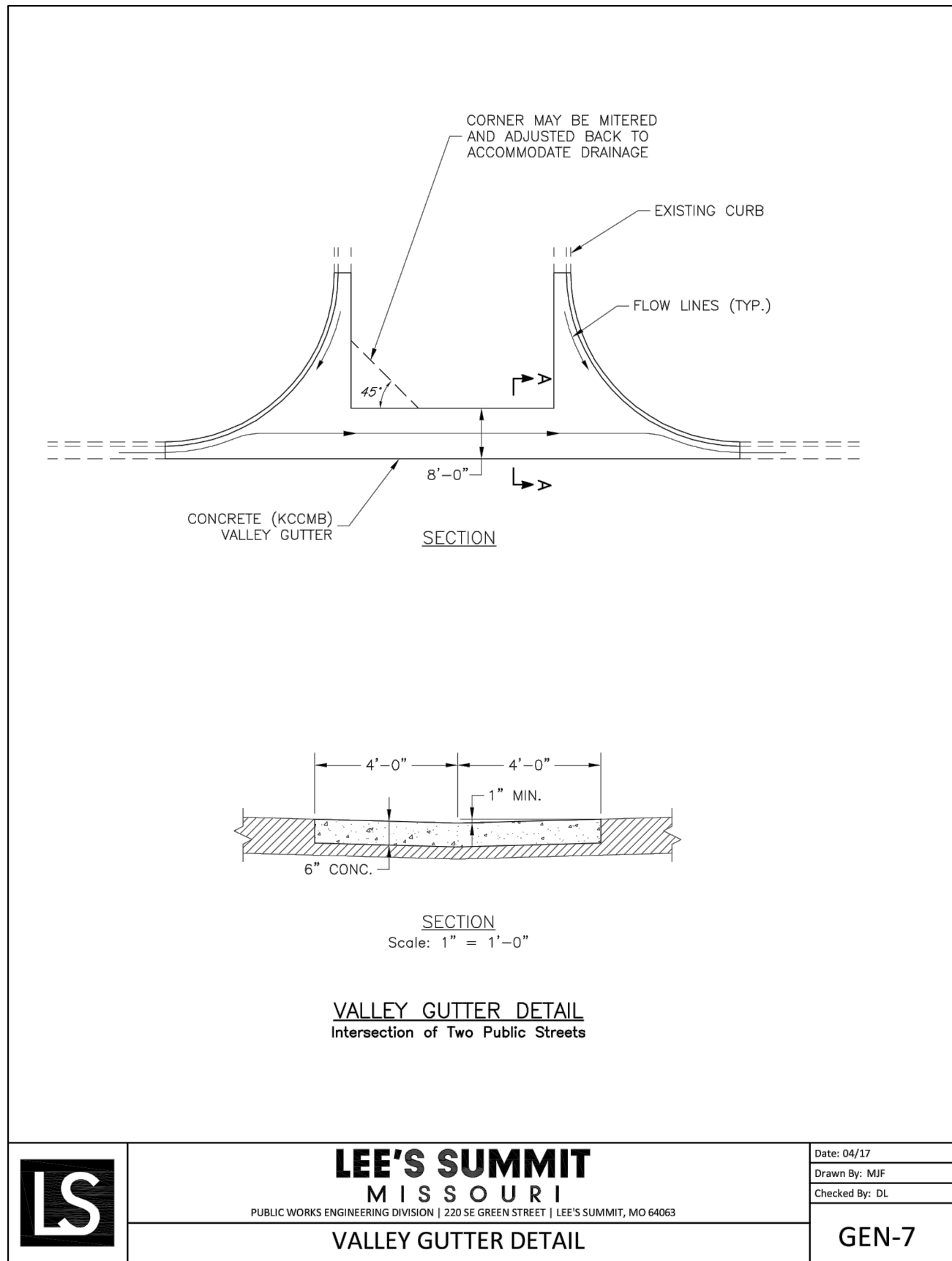
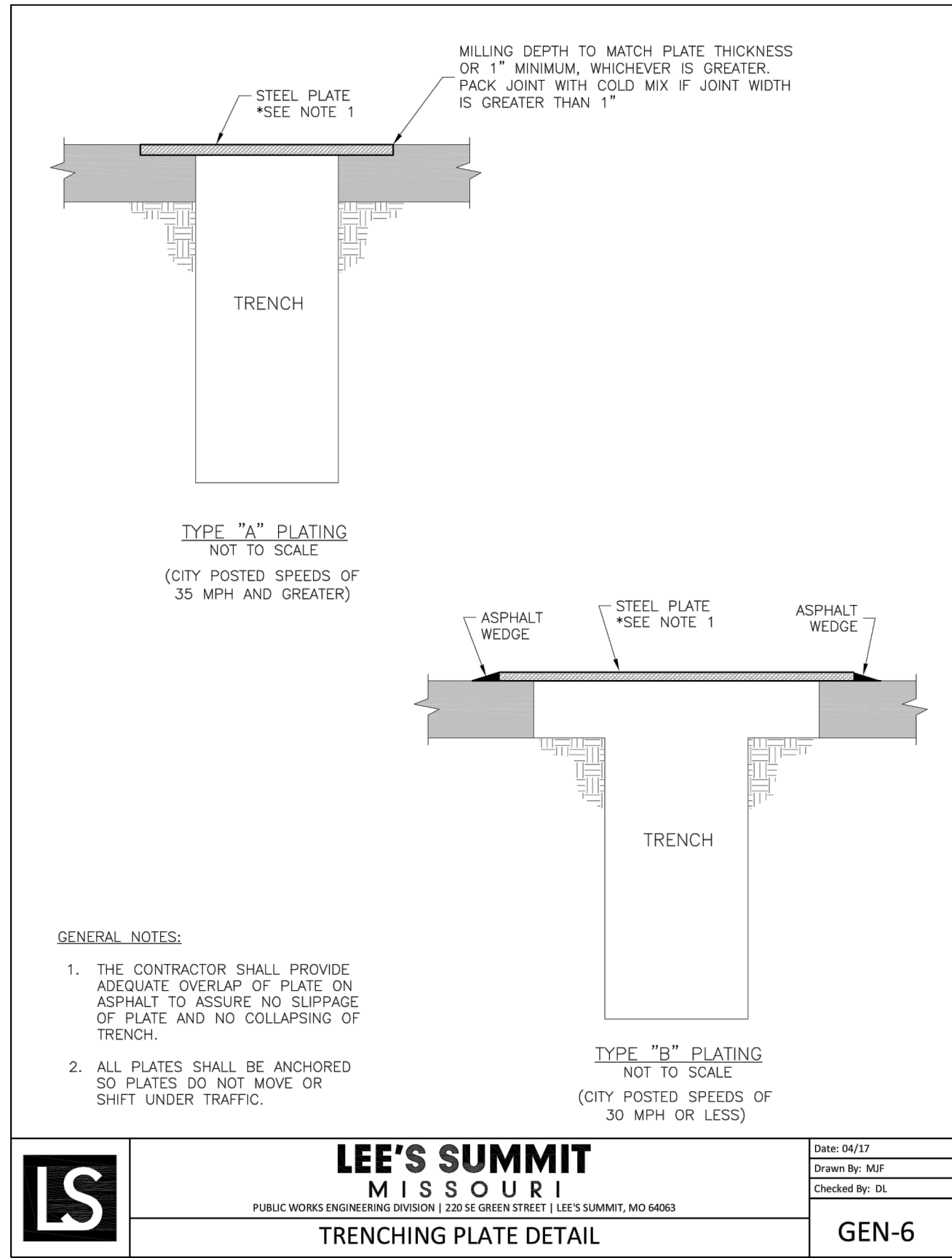
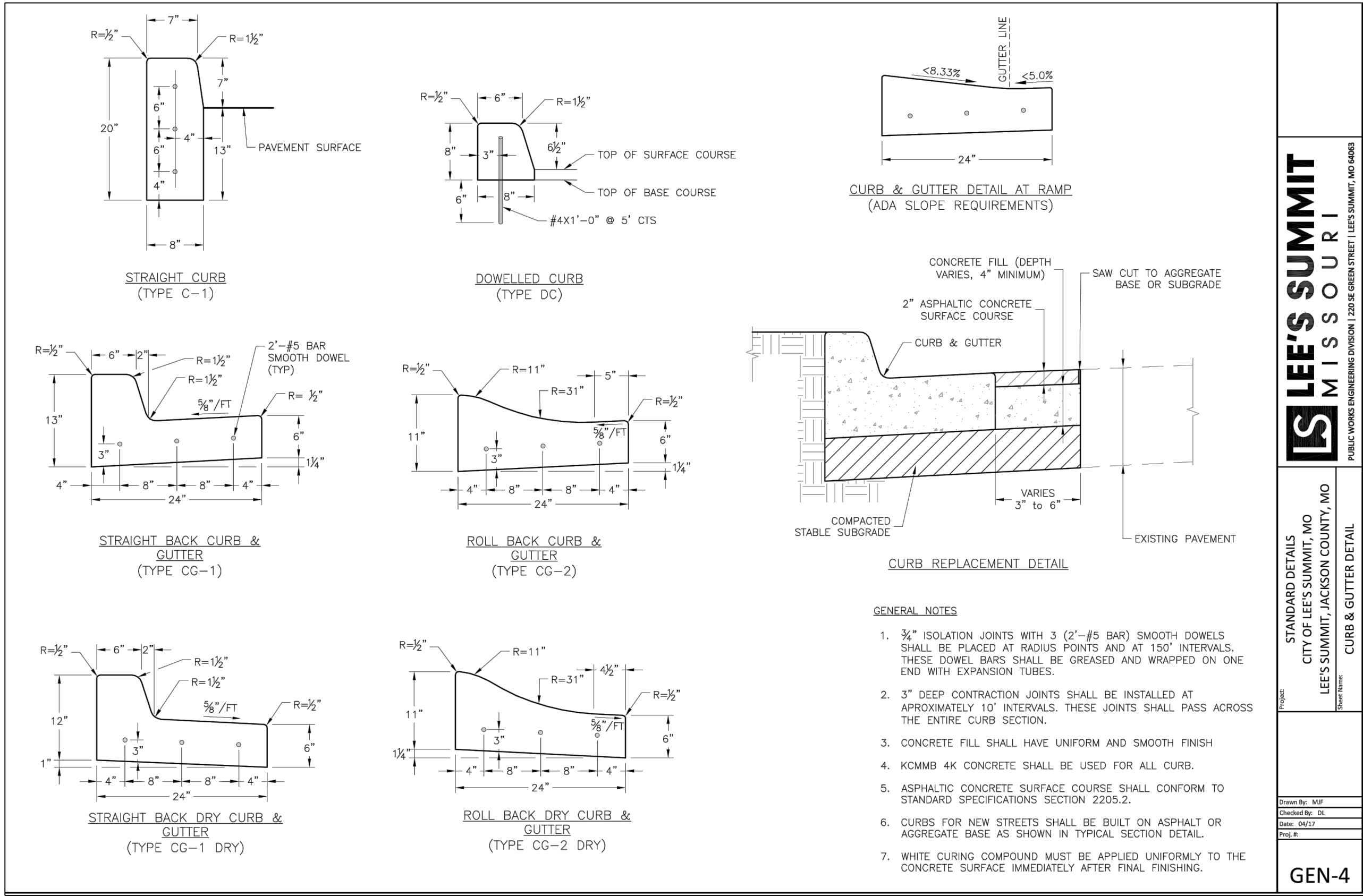
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REVISION	DATE	DESCRIPTION
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5	10-24-19	CITY COMMENTS
6		
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REVISION DATE	DESCRIPTION
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7	
8	

DRAWN BY:	KSC
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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

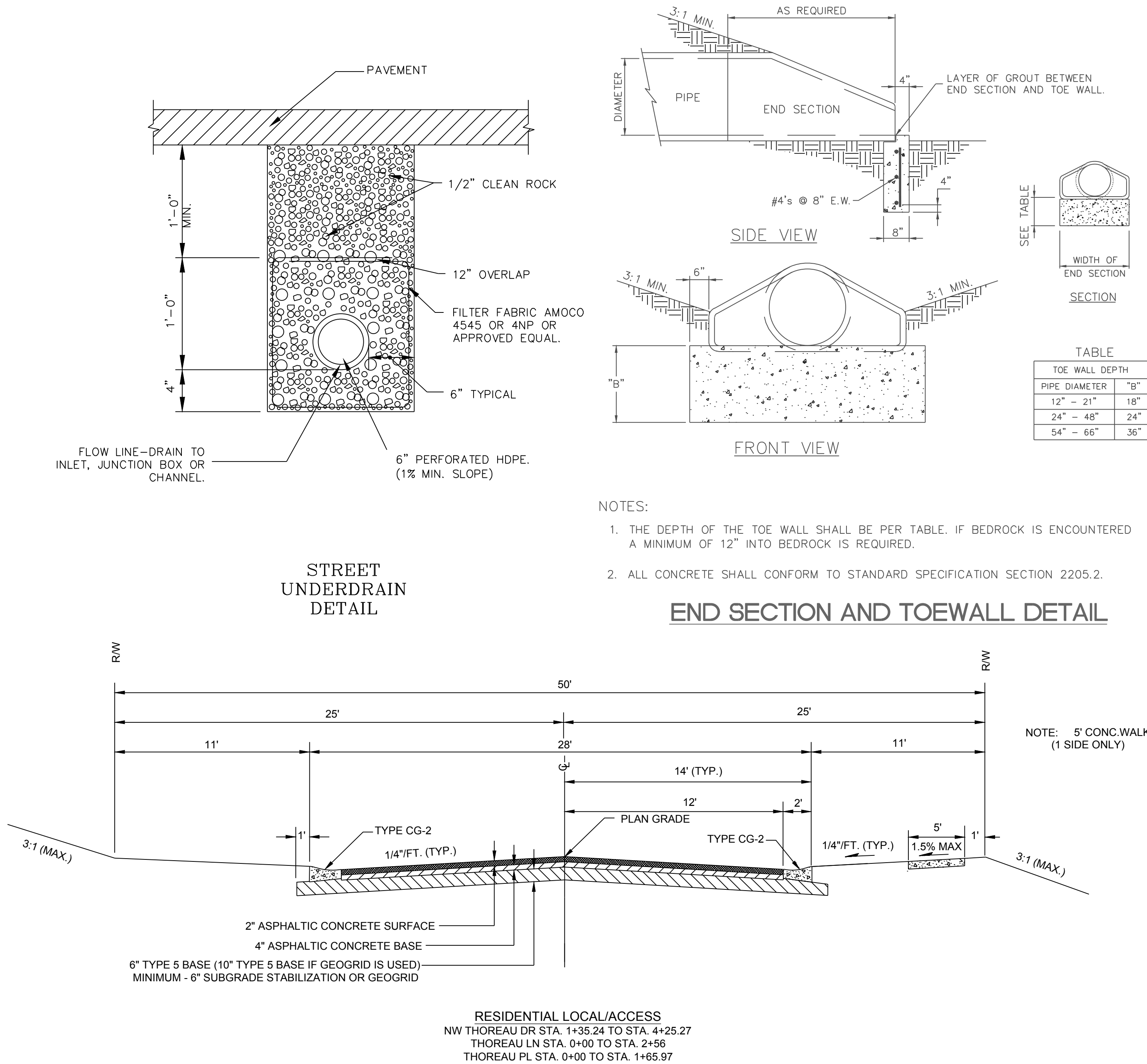
Street Classification	PCC (in.)	Aggregate Base (in.)	Subgrade Stabilization <sup>(1)</sup> (in.)
Residential Local/Access	6	4	--
Residential Collector	6	4	6
Commercial Industrial Local/Collector	8	4	9

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

LS5200

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October 2016



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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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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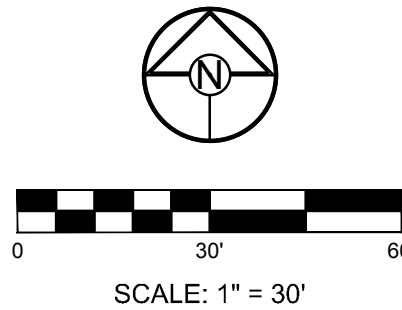
WINTERSET VALLEY, 13TH PLAT  
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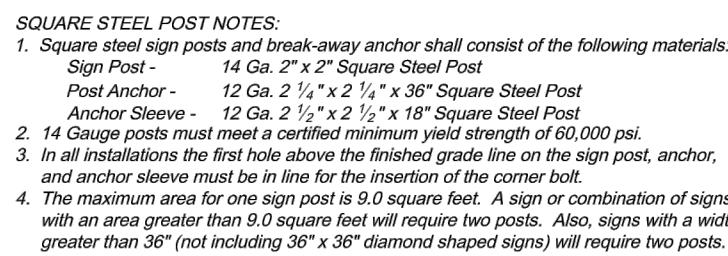
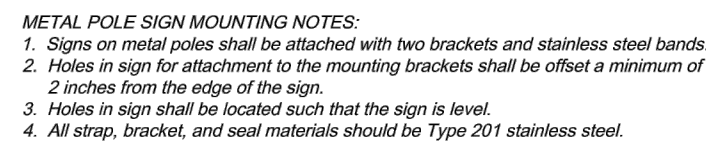
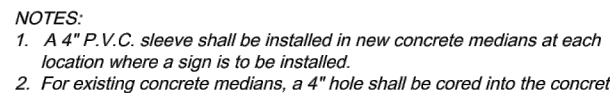
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SIGNING PLAN

SHEET  
23  
OF 24







### STREET NAME SIGN FACE DETAILS

