

LEGEND:

- A/E

BC

B/B

BM

BL or B.L.

CO

TJB

C&G

D/E

E/E

EL

FL

G/E

HDPE

L/E

MSFE

PVC

P/L

PUB/E

RCP

ROW or R/W

S/E

SL

S/W

TE

U/E

WSE

W/E
- ACCESS EASEMENT

- BACK OF CURB

- BACK TO BACK

- BENCHMARK

- BUILDING LINE

- CLEANOUT

- TELEPHONE JUNCTION BOX

- CURB AND GUTTER

- DRAINAGE EASEMENT

- ELECTRICAL EASEMENT

- ELEVATION

- FLOW LINE

- GAS LINE EASEMENT

- HIGH-DENSITY POLYETHYLENE

- LANDSCAPE EASEMENT

- MINIMUM SERVICEABLE FLOOR ELEVATION

- POLYVINYL CHLORIDE

- PROPERTY LINE

- PUBLIC EASEMENT

- REINFORCED CONCRETE PIPE

- RIGHT-OF-WAY

- SANITARY SEWER EASEMENT

- SERVICE LINE

- SIDEWALK

- TOP ELEVATION

- UTILITY EASEMENT

- WATER SURFACE ELEVATION

- WATERLINE EASEMENT
- ASPHALT PAVEMENT - EXISTING

ASPHALT PAVEMENT - PROPOSED

CONCRETE PAVEMENT - EXISTING

ASPHALT PAVEMENT - EXISTING

CONCRETE SIDEWALK - EXISTING

CONCRETE SIDEWALK - PROPOSED

CURB & GUTTER

CURB & GUTTER - EXISTING

TREELINE

EXISTING LOT AND R/W LINES

EXISTING PLAT LINES

P/L

PROPERTY LINES

RIGHT-OF-WAY

SANITARY SEWER MAIN

SANITARY SEWER MAIN - EXIST.

STO

STORM SEWER

STORM SEWER - EXISTING

CATV_x

FIBER OPTIC CABLE - EXISTING

TELEPHONE LINE - EXIST.

E_x

ELECTRIC LINE - EXISTING

OHP_x

OVERHEAD POWER LINE - EXIST.

UG_x

UNDERGROUND ELECTRIC - EX.

G_x

GAS LINE - EXISTING

W_x

WATERLINE - EXISTING

LIGHT - EXISTING

EXISTING MANHOLE

CLEANOUT

EXISTING SANITARY MANHOLE

PROPOSED SANITARY MANHOLE

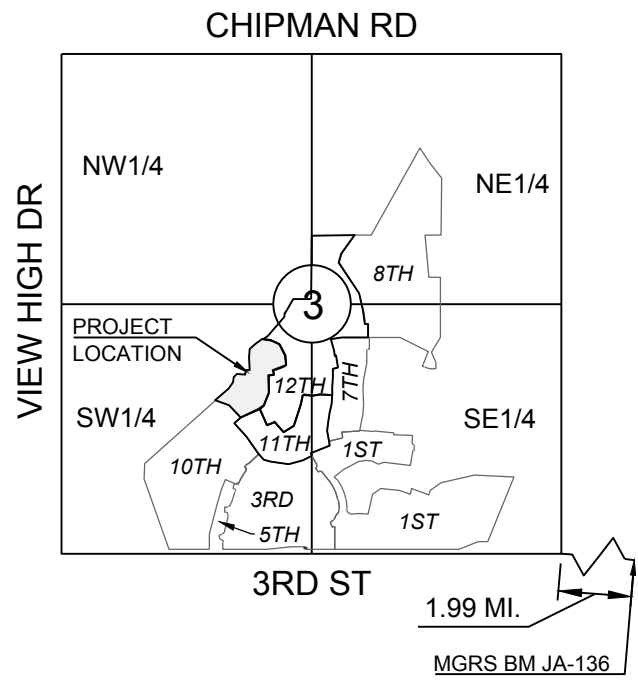
EXISTING AREA INLET

EXISTING CURB INLET

EXISTING GRATE INLET

EXISTING JUNCTION BOX

EXISTING STORM MANHOLE



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

UTILITY CONTACTS:

MISSOURI DEPARTMENT OF TRANSPORTATION (MODOT)

Steve Holloway
600 NE Colbern Road
Lee's Summit, MO 64086
(816) 607-2186

MISSOURI GAS ENERGY (MGE)

Brent Jones
3025 SE Clover Drive
Lee's Summit, MO 64082
(816) 399-9633
brent.jones@spireenergy.com

KANSAS CITY POWER & LIGHT COMPANY (KCP&L)

Ron Dejanette
1300 SE Hamblin Road
Lee's Summit, MO 64081
Office: (816) 347-4316
Cell: (816) 810-5234
ron.dejanette@kcpl.com

CITY OF LEES SUMMIT PUBLIC WORKS

Dena Mezger
220 SE Green Street
Lee's Summit, MO 64063
(816) 969-1800

AT&T

Mark Manion or Marty Loper
500 E. 8th Street, Room 370
Kansas City, MO 64106
(816) 275-2341 or (816) 275-1550

COMCAST CABLE

John Meadows
4700 Little Blue Parkway
Independence, MO 64057
(816) 795-2257

PUBLIC WATER SUPPLY DISTRICT

Mark Schautler
220 SE Green Street
Lee's Summit, MO 64063
(816) 969-1900

STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL FOR WINTERSET VALLEY, 13TH PLAT IN THE CITY OF LEE'S SUMMIT JACKSON COUNTY, MISSOURI

GENERAL NOTES:

- ALL CONSTRUCTION TO FOLLOW THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813.
- ALL WORKMANSHIP AND MATERIALS SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF THE ENGINEERING DEPARTMENT OF THE CITY OF LEE'S SUMMIT, MISSOURI.
- LINEAL FOOT MEASUREMENTS SHOWN ON THE PLANS ARE HORIZONTAL MEASUREMENTS, NOT SLOPE MEASUREMENTS. ALL PAYMENTS SHALL BE MADE ON HORIZONTAL MEASUREMENTS.
- NO GEOLOGICAL INVESTIGATION HAS BEEN PERFORMED ON THE SITE.
- THE UTILITY LOCATIONS SHOWN ON THESE PLANS ARE TAKEN FROM UTILITY COMPANY RECORDS AND APPARENT FIELD LOCATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL ADHERE TO THE PROVISIONS OF THE SENATE BILL NUMBER 583, 78TH GENERAL ASSEMBLY OF THE STATE OF MISSOURI. THE BILL REQUIRES THAT ANY PERSON OR FIRM DOING EXCAVATION ON PUBLIC RIGHT OF WAY DO SO ONLY AFTER GIVING NOTICE TO, AND OBTAINING INFORMATION FROM, UTILITY COMPANIES. STATE LAW REQUIRES 48 HOURS ADVANCE NOTICE. THE CONTRACTOR MAY ALSO UTILIZE THE FOLLOWING TOLL FREE PHONE NUMBER PROVIDED BY "MISSOURI ONE CALL SYSTEM, INC.": 1-800-DIG-RITE. THIS PHONE NUMBER IS APPLICABLE ANYWHERE WITHIN THE STATE OF MISSOURI. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL NOTIFY ALL THOSE COMPANIES WHICH HAVE FACILITIES IN THE NEAR VICINITY OF THE CONSTRUCTION TO BE PERFORMED.
- PRIOR TO ORDERING PRECAST STRUCTURES, SHOP DRAWING SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR APPROVAL. AFTER APPROVAL OF THE SHOP DRAWINGS, A COPY OF THE APPROVED AND SIGNED SHOP DRAWINGS SHALL BE PROVIDED TO THE CITY INSPECTOR UPON REQUEST.
- THE CONTRACTOR SHALL PROTECT ALL MAJOR TREES FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE.
- CLEARING AND GRUBBING OPERATIONS AND DISPOSAL OF ALL DEBRIS THEREFROM SHALL BE PERFORMED BY THE CONTRACTOR IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND ORDINANCES.
- ALL WASTE MATERIAL RESULTING FROM THE PROJECT SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR, OR AS DIRECTED BY THE OWNER.
- ALL EXCAVATIONS SHALL BE UNCLASSIFIED. NO SEPARATE PAYMENT WILL BE MADE FOR ROCK EXCAVATION.
- THE CONTRACTOR SHALL CONTROL THE EROSION AND SILTATION DURING ALL PHASED OF CONSTRUCTION, AND SHALL KEEP THE STREETS CLEAN OF MUD AND DEBRIS.
- ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED.
- THE CONTRACTOR SHALL CONTACT DEVELOPMENT SERVICES INSPECTIONS AT: 816-969-1800 TO OBTAIN A DEVELOPMENT SERVICES CONSTRUCTION PERMIT. A MINIMUM 48 HOUR NOTICE SHALL BE GIVEN PRIOR TO PERMIT ISSUANCE.
- THE CONTRACTOR SHALL CONTACT THE CITY'S EROSION CONTROL SPECIALIST AT: 816-969-1800 PRIOR TO ANY LAND DISTURBANCE.
- THE CONTRACTOR SHALL CONTACT THE RIGHT OF WAY INSPECTOR AT 816-969-1800 PRIOR TO ANY LAND DISTURBANCE ACTIVITIES WITHIN THE RIGHT OF WAY. THESE ACTIVITIES MAY REQUIRE A PERMIT.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL TRAFFIC HANDLING MEASURES NECESSARY TO ENSURE THAT THE GENERAL PUBLIC IS PROTECTED AT ALL TIMES. TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD-LATEST EDITION).

STREET NOTES:

- ALL STREET CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL. ALL APPLICABLE AASHTO STANDARDS HAVE BEEN MET.
- ALL INSPECTION OF STREET CONSTRUCTION TO BE PERFORMED BY THE CITY OF LEE'S SUMMIT PUBLIC WORKS DEPARTMENT.
- CURB RETURN RADII SHALL BE 25' AT BACK OF CURB UNLESS OTHERWISE NOTED.
- SUBGRADE TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
- ASSUMED DESIGN SPEED = 25 MPH (COLLECTOR).
- MINIMUM STOPPING SIGHT DISTANCE = 155 FEET.
- MINIMUM K, SAG CURVE = 26 (14 WITH LIGHTING), CREST CURVE = 12.
- GRADE INTERSECTIONS TO DRAIN AS SHOWN.
- SSD = STOPPING SIGHT DISTANCE.

EARTHWORK:

- IT IS RECOMMENDED THAT A GEOTECHNICAL ENGINEER OBSERVE AND DOCUMENT ALL EARTHWORK ACTIVITIES.
- CONTOURS HAVE BEEN SHOWN AT 1-FOOT OR 2-FOOT INTERVALS, AS INDICATED. GRADING SHALL CONSIST OF COMPLETING THE EARTHWORK REQUIRED TO BRING THE PHYSICAL GROUND ELEVATIONS OF THE EXISTING SITE TO THE FINISHED GRADE (OR SUB-GRADE) ELEVATIONS PROVIDED ON THE PLANS AS SPOT GRADES, CONTOURS OR OTHERS MEANS AS INDICATED ON THE PLANS.
- THE EXISTING SITE TOPOGRAPHY DEPICTED ON THE PLANS BY CONTOURING HAS BEEN ESTABLISHED BY AERIAL PHOTOGRAPHY AND FIELD VERIFIED BY G.P.S. OBSERVATION NEAR APRIL 2018. THE CONTOUR ELEVATIONS PROVIDED MAY NOT BE EXACT GROUND ELEVATIONS, BUT RATHER INTERPRETATIONS OF SUCH. ACCURACY SHALL BE CONSIDERED TO BE SUCH THAT NOT MORE THAN 10 PERCENT OF SPOT ELEVATION CHECKS SHALL BE IN ERROR BY MORE THAN ONE-HALF THE CONTOUR INTERVAL PROVIDED, AS DEFINED BY THE NATIONAL MAP ACCURACY STANDARDS. ANY QUANTITIES PROVIDED FOR EARTHWORK VOLUMES ARE ESTABLISHED USING THIS TOPOGRAPHY CONTOUR ACCURACY, AND THEREFORE THE INHERENT ACCURACY OF ANY EARTHWORK QUANTITY IS ASSUMED FROM THE TOPOGRAPHY ACCURACY.
- PROPOSED CONTOURS ARE TO APPROXIMATE FINISHED GRADE.
- UNLESS OTHERWISE NOTED, PAYMENT FOR EARTHWORK SHALL INCLUDE BACKFILLING OF THE CURB AND GUTTER, SIDEWALK AND FURTHER MANIPULATION OF UTILITY TRENCH SPOILS. THE SITE SHALL BE LEFT IN A MOWABLE CONDITION AND POSITIVE DRAINAGE MAINTAINED THROUGHOUT.
- UNLESS OTHERWISE NOTED, ALL EARTHWORK IS CONSIDERED UNCLASSIFIED. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR ROCK OR SHALE EXCAVATION, UNLESS SPECIFICALLY STATED OTHERWISE.
- PRIOR TO EARTHWORK ACTIVITIES, PRE-DISTURBANCE EROSION AND SEDIMENT CONTROL DEVICES SHALL BE IN PLACE PER THE STORM WATER POLLUTION PREVENTION PLAN AND/OR THE EROSION AND SEDIMENT CONTROL PLAN PREPARED FOR THIS SITE.
- ALL TOPSOIL SHALL BE STRIPPED FROM ALL AREAS TO BE GRADED AND STOCKPILED ADJACENT TO THE SITE AT AN AREA SPECIFIED BY THE PROJECT OWNER OR HIS APPOINTED REPRESENTATIVE. VEGETATION, TRASH, TREES, BRUSH, TREE ROOTS AND LIMBS, ROCK FRAGMENTS GREATER THEN 6-INCHES AND OTHER DELETERIOUS MATERIALS SHALL BE REMOVED AND PROPERLY DISPOSED OF OFFSITE OR AS DIRECTED BY THE OWNER OR HIS APPOINTED REPRESENTATIVE.
- UNLESS OTHERWISE SPECIFIED IN THE GEOTECHNICAL REPORT, ALL FILLS SHALL BE PLACED IN MAXIMUM 6-INCH LIFTS AND COMPACTED TO 95%-PERCENT OF MAXIMUM DENSITY AS DEFINED USING A STANDARD PROCTOR TEST (AASHTO T99/ASTM 698).
- FILL MATERIALS SHALL BE PER GEOTECHNICAL REPORT AND SHALL NOT INCLUDE ORGANIC MATTER, DEBRIS OR TOPSOIL. ALL FILLS PLACED ON SLOPES GREATER THAN 6:1 SHALL BE BENCHED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REDISTRIBUTING THE TOPSOIL OVER PROPOSED TURF AND LANDSCAPED AREAS TO A MINIMUM DEPTH OF 6-INCHES BELOW FINAL GRADE.
- ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE. UNLESS NOTED OTHERWISE THE FOLLOWING GRADES SHALL APPLY:
 - TURF AREAS - 2.5% MINIMUM, 4H:1V MAXIMUM
 - PAVED AREAS - 1.2% MINIMUM, 5% MAXIMUM
- ALL DISTURBED AREAS SHALL BE FERTILIZED, SEEDED AND MULCHED IMMEDIATELY AFTER EARTHWORK ACTIVITIES HAVE CEASED. SEEDING SHALL BE PER THE EROSION AND SEDIMENT CONTROL PLAN AND/OR LANDSCAPE PLAN. IF NOT SPECIFIED SEEDING SHALL BE PER APWA SECTION 2400, LATEST EDITION. UNLESS OTHERWISE NOTED, SEEDING SHALL BE SUBSIDIARY TO THE CONTRACT PRICE FOR EARTHWORK AND GRADING ACTIVITIES.
- ALL DISTURBED AREAS IN THE RIGHT-OF-WAY SHALL BE SODDED.
- UNDERDRAINS ARE RECOMMENDED FOR ALL PAVED AREAS ADJACENT TO IRRIGATED TURF AND LANDSCAPED BEDS.
- CONTRACTOR SHALL ADHERE TO THE REPORTING REQUIREMENTS OUTLINED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED FOR THIS PROJECT. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE PROPERLY MAINTAINED AND KEPT CLEAN OF SILT AND DEBRIS AND IN GOOD WORKING ORDER. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS REQUIRED.

UTILITIES:

- EXISTING UTILITIES HAVE BEEN SHOWN TO THE GREATEST EXTENT POSSIBLE BASED UPON INFORMATION PROVIDED TO THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE RESPECTIVE UTILITY COMPANIES AND FIELD LOCATING UTILITIES PRIOR TO CONSTRUCTION AND IDENTIFYING ANY POTENTIAL CONFLICTS. ALL CONFLICTS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ANY REQUIRED UTILITY RELOCATIONS. UTILITIES DAMAGED THROUGH THE NEGLIGENCE OF THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL VERIFY FLOW-LINES AND STRUCTURE TOPS PRIOR TO CONSTRUCTION, AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES. PROVIDE SHOP DRAWINGS FOR ALL PRECAST AND MANUFACTURED UTILITY STRUCTURES FOR REVIEW BY THE ENGINEER PRIOR TO CONSTRUCTION OF THE STRUCTURES.
- UTILITY SEPARATION: WATERLINES SHALL HAVE A MINIMUM OF 10 FEET HORIZONTAL AND 2 FEET VERTICAL SEPARATION FROM ALL SANITARY AND STORM SEWER LINES. IF MINIMUM SEPARATIONS CAN NOT BE OBTAINED, CONCRETE ENCASEMENT OF THE SANITARY OR STORM SEWER LINE SHALL BE REQUIRED 10 FEET IN EACH DIRECTION OF THE CONFLICT.
- PAYMENT FOR TRENCHING, BACKFILLING, PIPE EMBEDMENT, FLOWABLE FILL, BACKFILL MATERIALS, CLEAN UP, SEEDING, SODDING AND ANY OTHER ITEMS NECESSARY FOR THE CONSTRUCTION OF THE UTILITY LINE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE UTILITY INSTALLATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING RESPECTIVE UTILITY COMPANIES 48-HOURS IN ADVANCE FOR THE INSPECTION OF ANY PROPOSED UTILITY MAIN EXTENSION OR SERVICE LINE OR SERVICE CONNECTION TO ANY EXISTING MAIN.
- TRENCH SPOILS SHALL BE NEATLY PLACED ONSITE ADJACENT TO THE TRENCH, AND COMPACTED TO PREVENT SATURATION AND EXCESS SEDIMENT RUNOFF. UNSUITABLE MATERIALS, EXCESS ROCK AND SHALE, ASPHALT, CONCRETE, TREES, BRUSH ETC. SHALL BE PROPERLY DISPOSED OF OFFSITE. MATERIALS MAY BE WASTED ONSITE AT THE DIRECTION OF THE OWNER OR HIS APPOINTED REPRESENTATIVE.

Sheet List Table	
Sheet Number	Sheet Title
1	COVER SHEET
2	PRE-CLEARING PLAN
3	ECP-CONSTRUCTION
4	FINAL STABILIZATION PLANS
5	EROSION CONTROL DETAILS
6	EROSION CONTROL DETAILS
7	GENERAL LAYOUT
8	MASTER DRAINAGE PLAN - GRADING PLAN
9	MASTER DRAINAGE PLAN - SPOT ELEVATIONS
10	MASTER DRAINAGE PLAN - DRAINAGE MAP
11	MASTER DRAINAGE PLAN-DRAINAGE MAP CONT'D
12	NW THOREAU DRIVE PLAN AND PROFILE
13	THOREAU PLACE AND THOREAU LANE PLAN AND PROFILE
14	INTERSECTION DETAILS
15	STORM PLAN
16	STORM PROFILES
17	DETENTION BASIN
18	STREET AND STORM DETAILS
19	STREET AND STORM DETAILS
20	STREET AND STORM DETAILS
21	STREET AND STORM DETAILS
22	SIGNING PLAN
23	STREET SIGN DETAILS

PREPARED AND SUBMITTED BY:



SCHLAGEL & ASSOCIATES, P.A.

APPROVED BY:

CITY ENGINEER
APPROVED FOR ONE YEAR FROM THIS DATE

DATE

OWNER/DEVELOPER:

GALE COMMUNITIES, INC.
DAVID GALE
400 SW LONGVIEW BLVD, STE 109
LEE'S SUMMIT, MO 64081
p 816.645.2336 (CELL) 816.761.9292 (OFFICE)
f -
DGALE@GALECOMMUNITIES.COM



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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Missouri State Certificates of Authority
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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

DRAWN BY:

KSC

CHECKED BY:

MAB

DATE PREPARED:

2-15-19

PROJ. NUMBER:

18-230

COVER SHEET

SHEET

1

OF 23

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

PRE-CLEARING PHASE	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 (GRAVEL CURB INLET SEDIMENT TRAP)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
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	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
FINAL STABILIZATION PHASE	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.

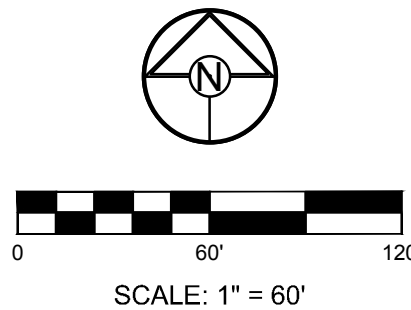
* NOTE:
MULCH BERMS ARE AN ACCEPTABLE ALTERNATIVE TO SILT FENCE REQUIRED PRIOR TO LAND DISTURBANCE AND ADJACENT TO WOODED/UNDEVELOPED AREAS.

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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STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER RE-2005007268
PROFESSIONAL ENGINEER
03.18.19

**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	3/15/2019	ISSUED FOR PERMIT
2	3/15/2019	REVISED FOR COMMENTS
3	3/15/2019	REVISED FOR COMMENTS
4	3/15/2019	REVISED FOR COMMENTS
5	3/15/2019	REVISED FOR COMMENTS
6	3/15/2019	REVISED FOR COMMENTS
7	3/15/2019	REVISED FOR COMMENTS
8	3/15/2019	REVISED FOR COMMENTS
9	3/15/2019	REVISED FOR COMMENTS
10	3/15/2019	REVISED FOR COMMENTS

PRE-CLEARING PLAN

SHEET
2
OF 23

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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.

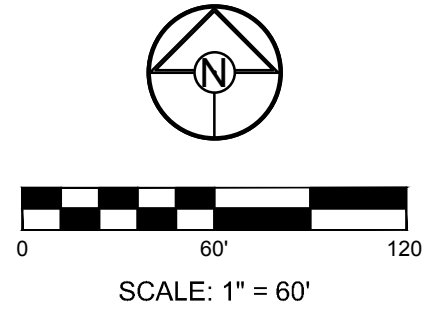
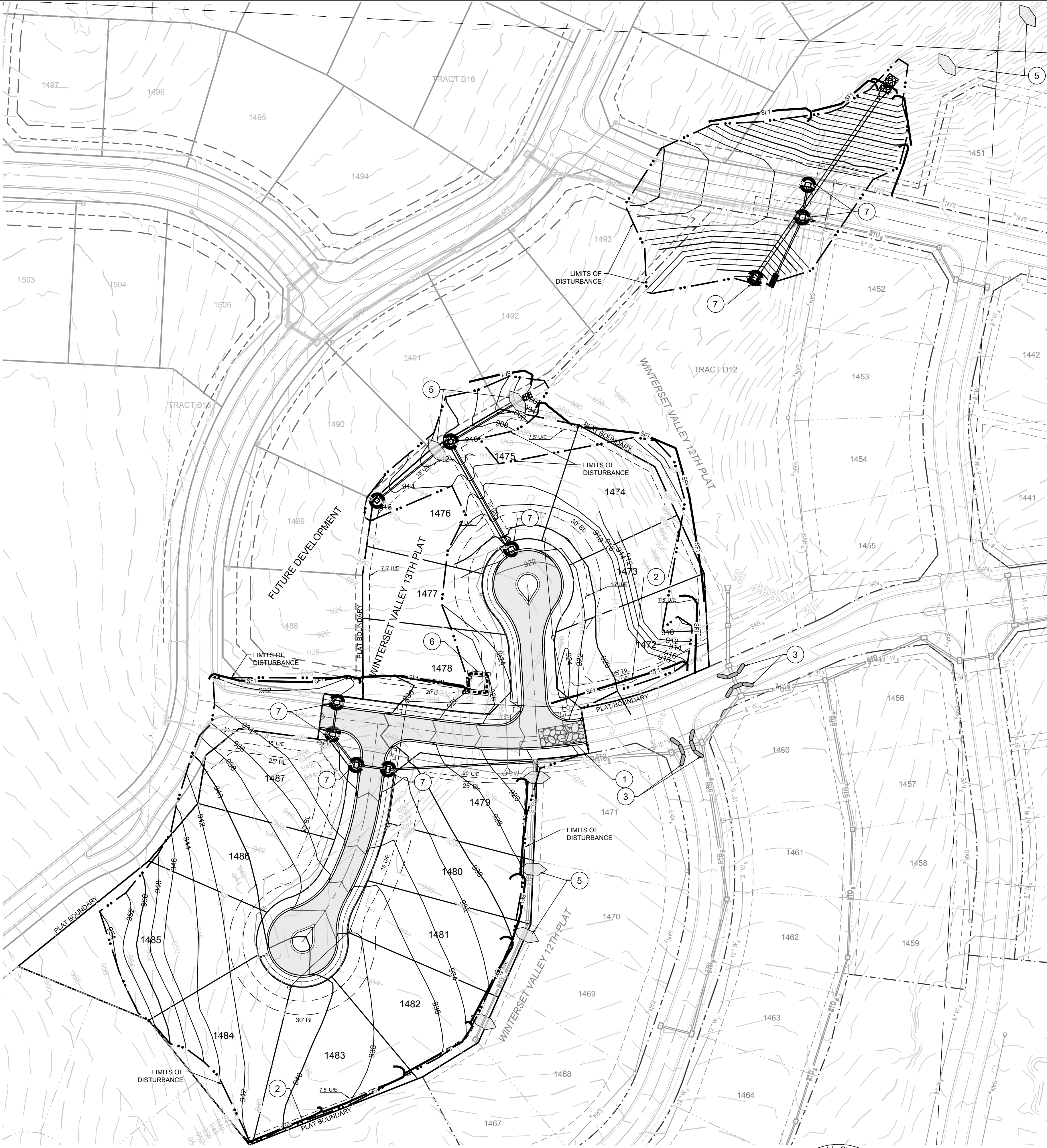
PHASE	EROSION AND SEDIMENT CONTROL STAGING CHART				
	PROJECT STAGE	BMP PLAN REF. NO	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
PRE-CLEARING PHASE	A - PRIOR TO LAND DISTURBANCE	1	CONSTRUCTION ENTRANCE & STAGING AREA	D	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		2	SILT FENCE 1 (PRIOR TO LAND DISTURBANCE)	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
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
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 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
	D - AFTER PAVING OPERATIONS	8	INLET PROTECTION (GRAVEL FILTER BAGS)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		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
FINAL STABILIZATION PHASE	E - UNTIL CLOSURE OF LAND DISTURBANCE PERMIT	10	SEEDING AND MULCHING	E	ALL DISTURBED AREAS AFTER 14 DAYS OF CONSTRUCTION INACTIVITY
					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.



REVISION DATE	DESCRIPTION
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CHECKED BY:	MAB
DATE PREPARED:	2-15-19
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ECP-CONSTRUCTION

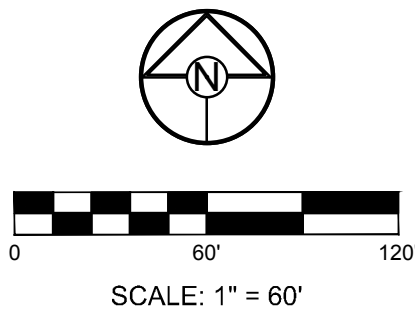
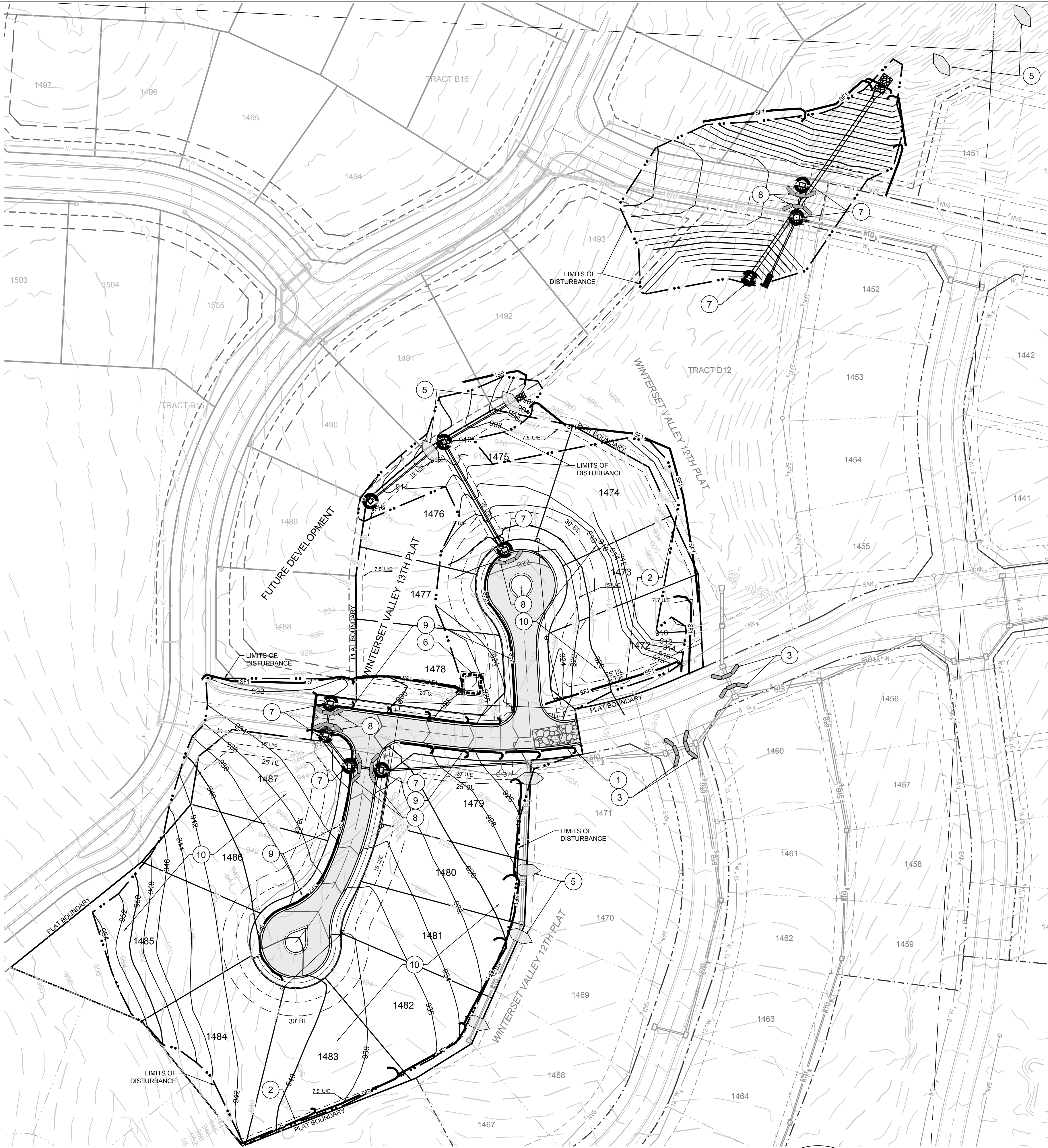
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	EROSION AND SEDIMENT CONTROL STAGING CHART				
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#E2002003600-F #LAC200100237 #LS200200859-F

STATE OF MISSOURI

MARK ALLEN BREUER

PROFESSIONAL ENGINEER

RE-2003007268

03.18.19

WINTERSET VALLEY, 13TH PLAT

STREET, STORMWATER, MASTER DRAINAGE PLAN AND

EROSION AND SEDIMENT CONTROL

NW THOREAU DRIVE AND AUDUBON LANE

LEE'S SUMMIT, MISSOURI

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DRAWN BY: KSC

CHECKED BY: MAB

DATE PREPARED: 2-15-19

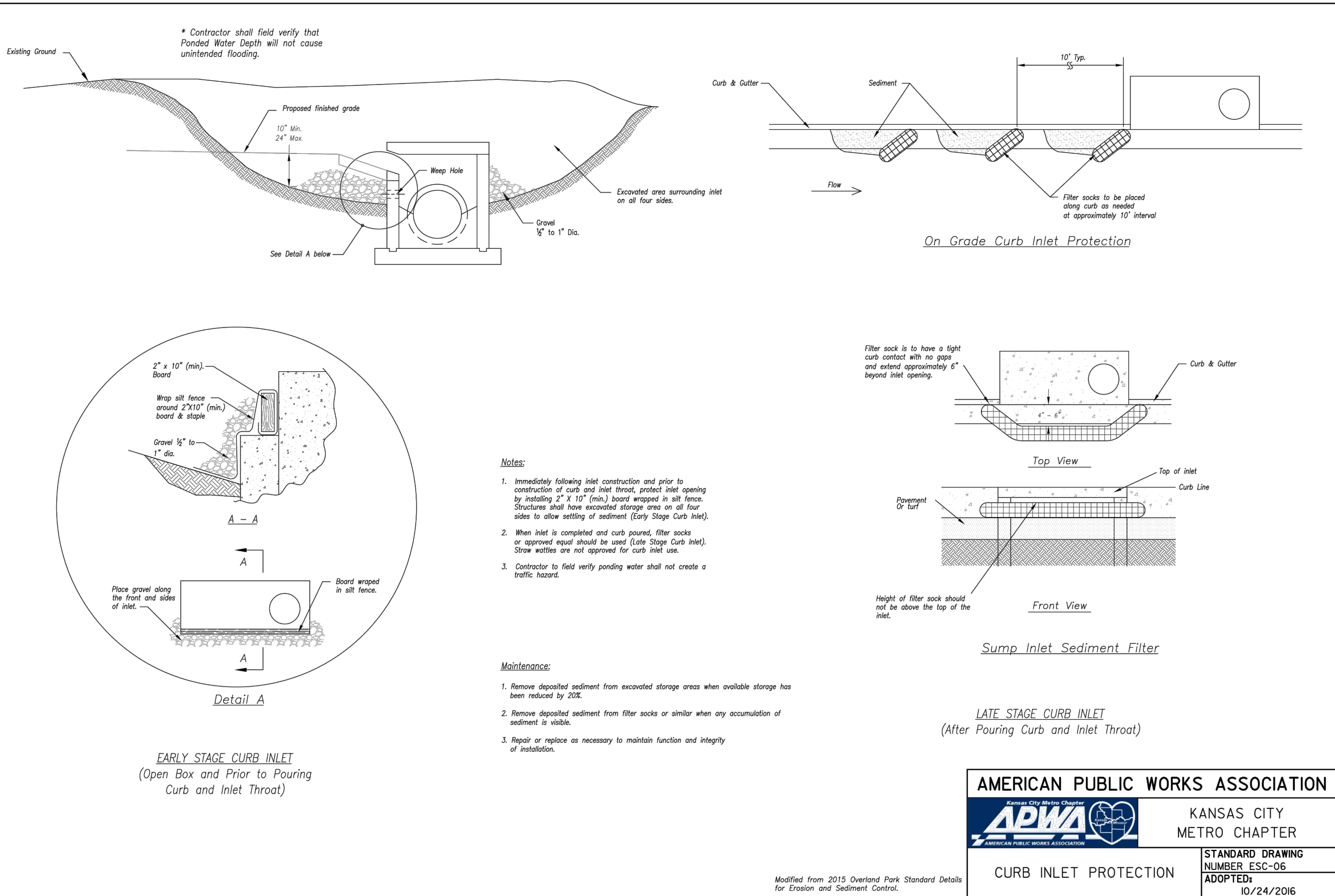
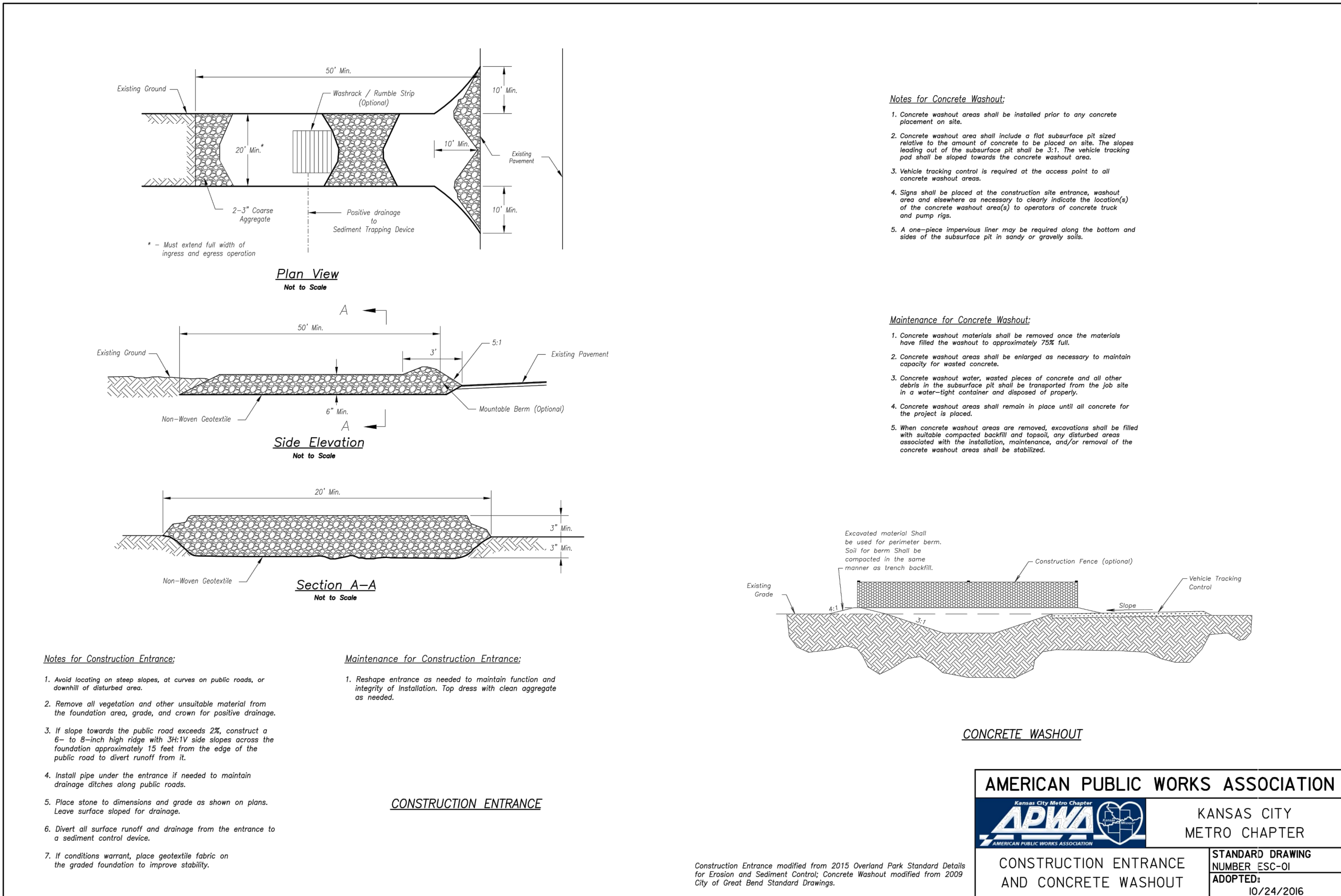
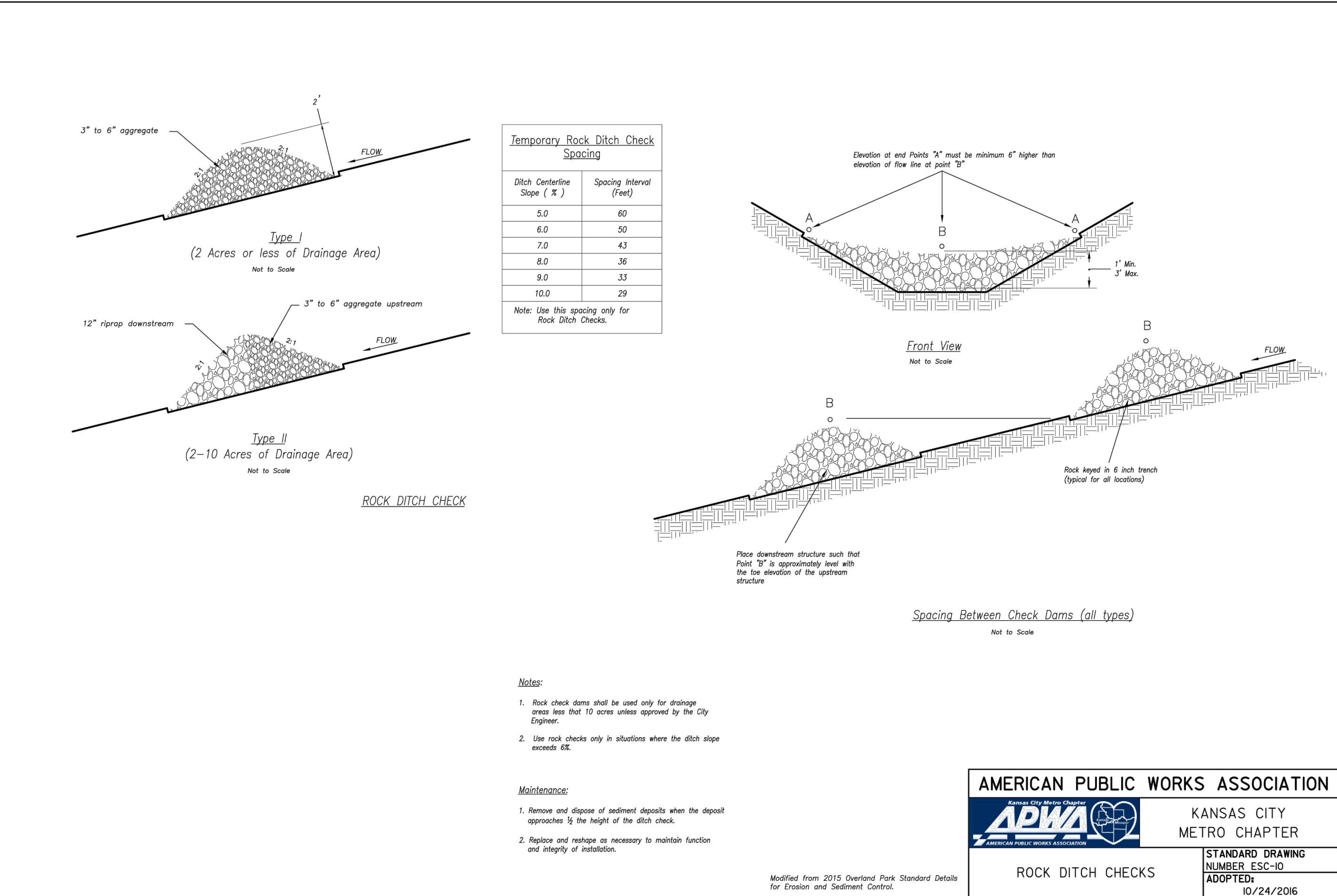
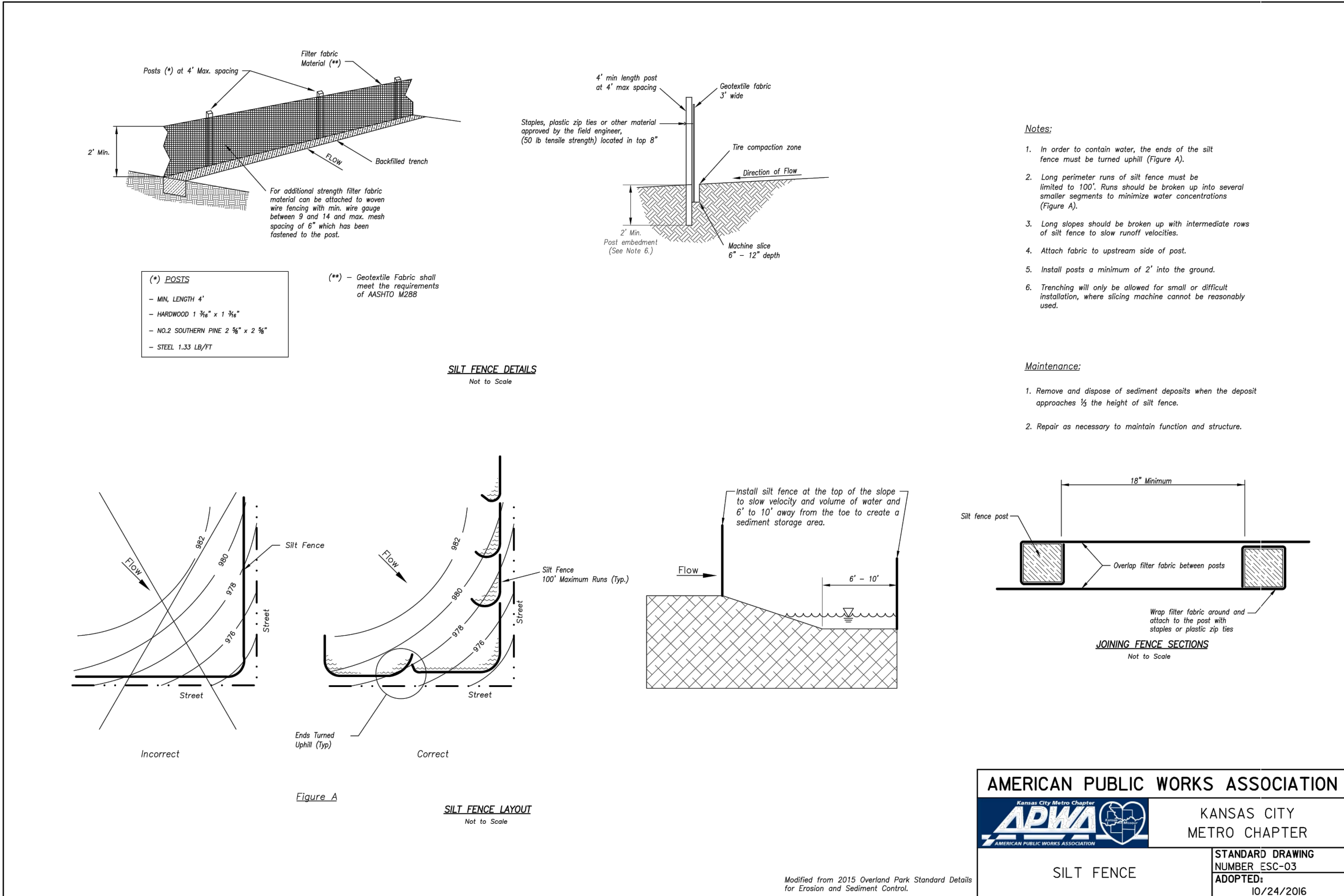
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FINAL STABILIZATION PLAN

SHEET

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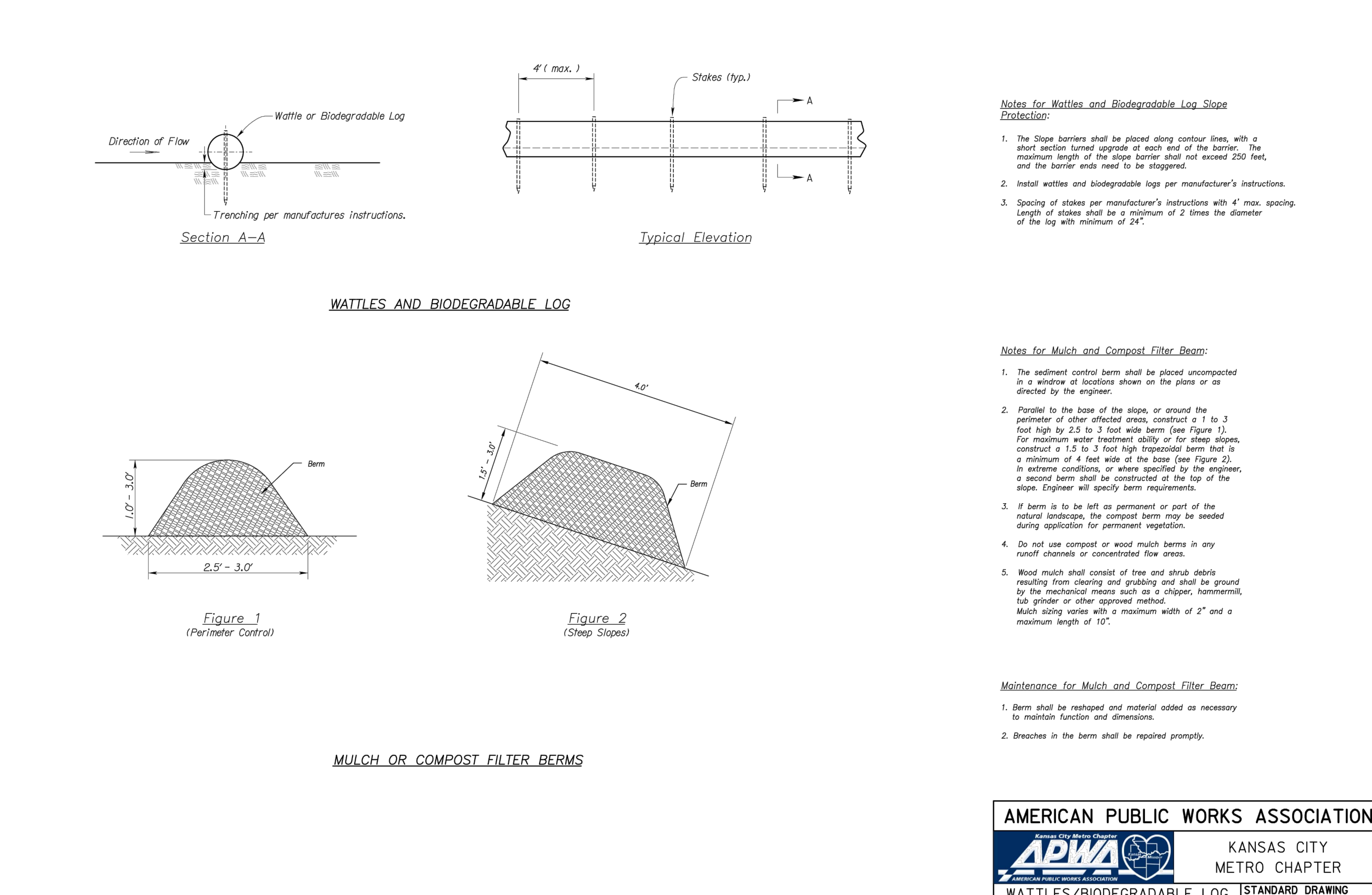
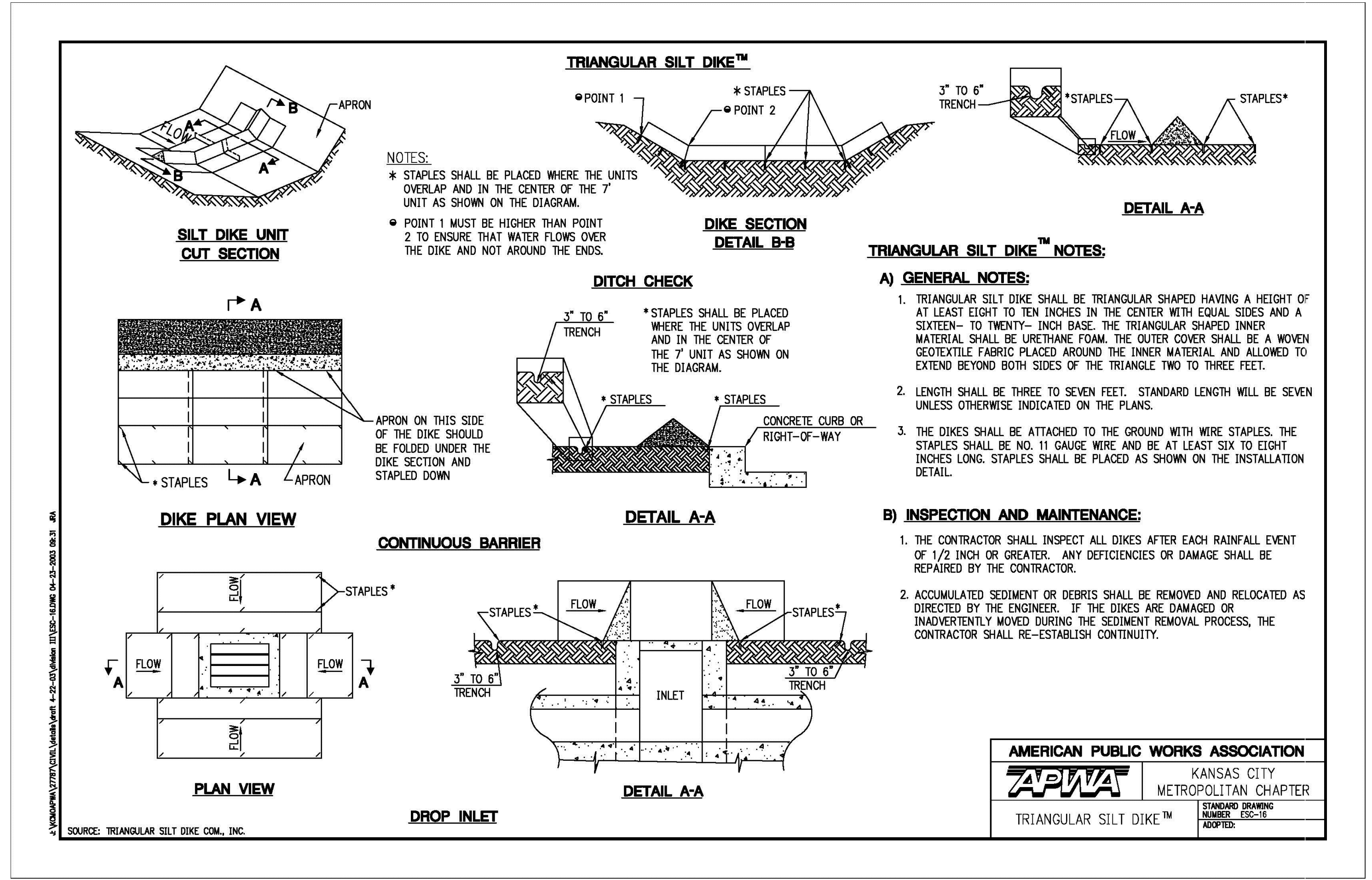
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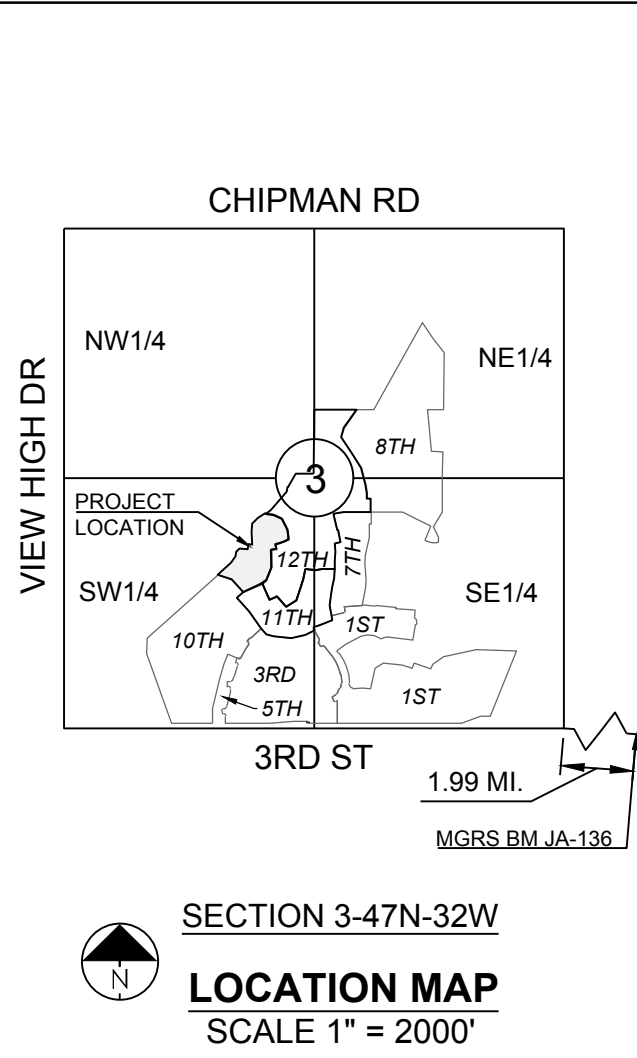
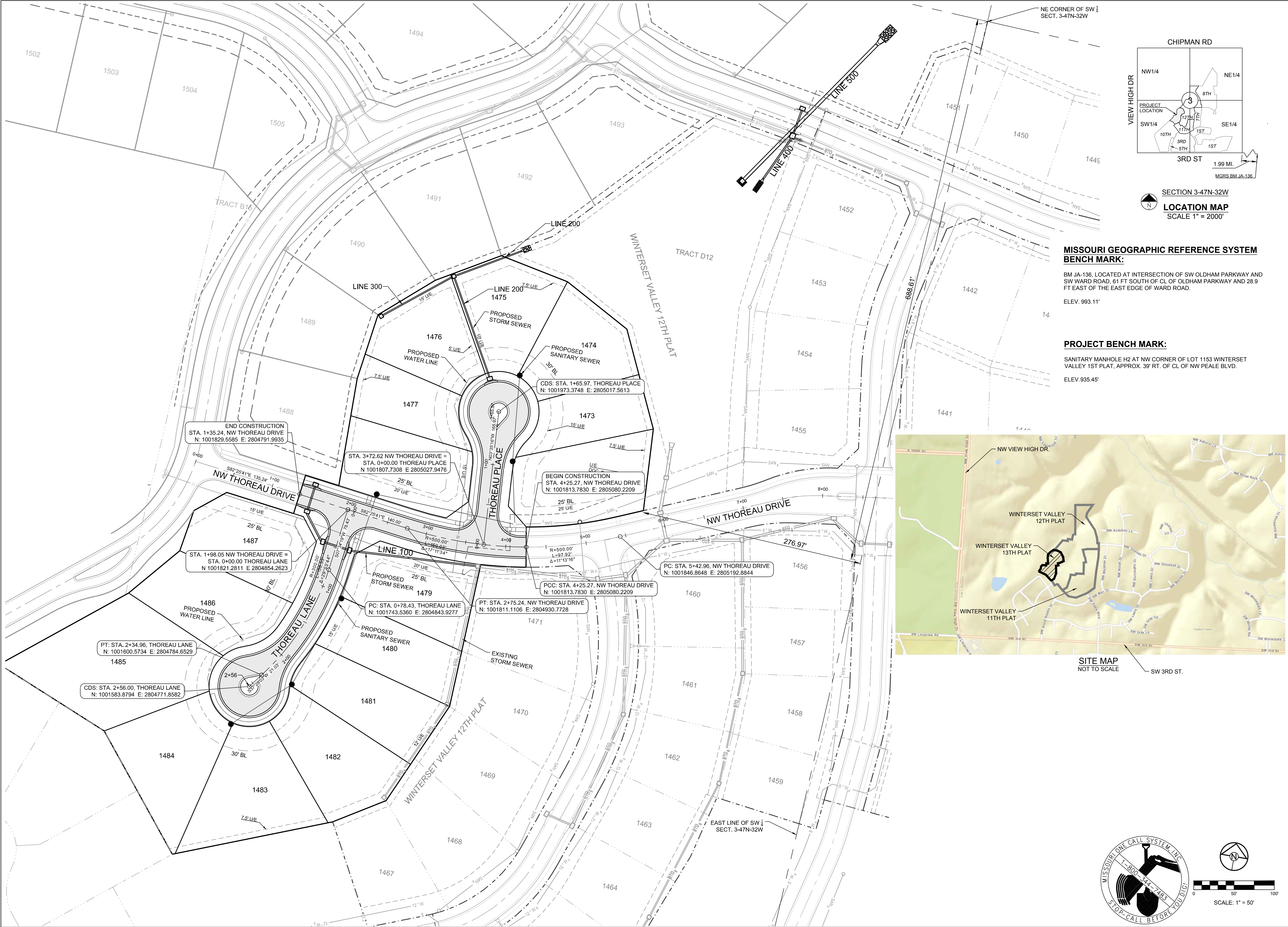
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EROSION CONTROL DETAILS

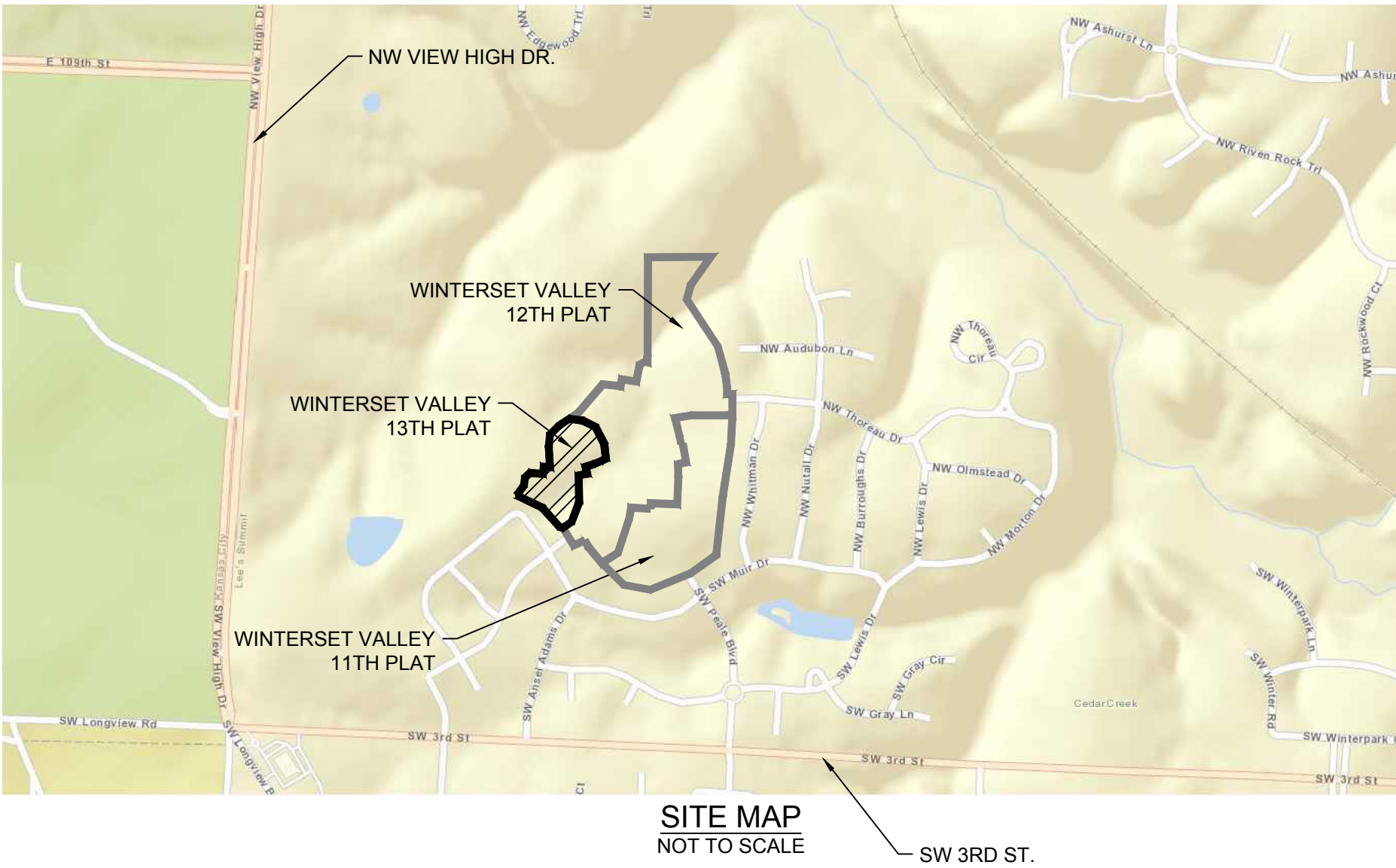


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MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:
BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.
ELEV. 993.11'

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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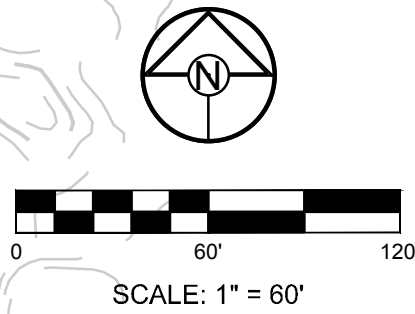
WINTERSET VALLEY, 13TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT CONTROL
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GENERAL LAYOUT

SHEET
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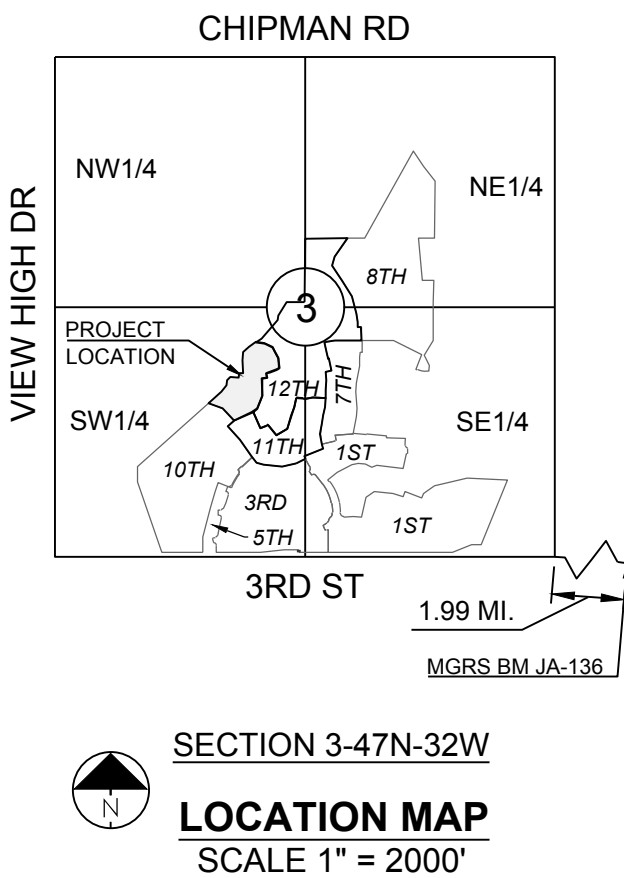


NOTE:
THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATIONS.

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

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MASTER DRAINAGE PLAN - GRADING PLAN	
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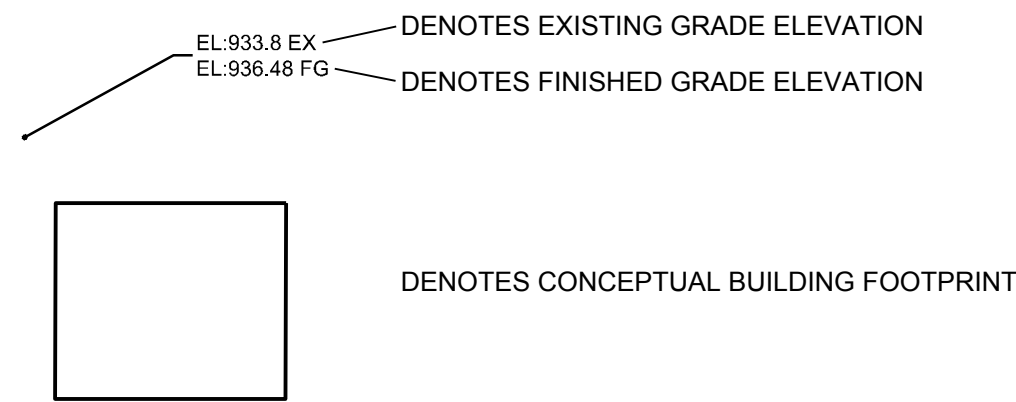
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LOT TYPE TABLE		
LOT #	BASEMENT TYPE	MBOE
1472	WALKOUT	N/A
1473	WALKOUT	N/A
1474	WALKOUT	N/A
1475	WALKOUT	905.73
1476	WALKOUT	913.30
1477	DAYLIGHT	N/A
1478	STANDARD	N/A
1479	DAYLIGHT	926.11
1480	DAYLIGHT	927.88
1481	DAYLIGHT	931.08
1482	DAYLIGHT	N/A
1483	DAYLIGHT	N/A
1484	STANDARD	N/A
1485	STANDARD	N/A
1486	STANDARD	N/A
1487	STANDARD	N/A

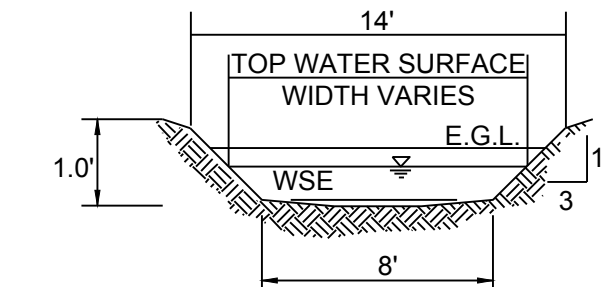
- NOTE:**
1. DAYLIGHT BASED ON ADJACENT GRADE 4 FT BELOW TOP OF FOUNDATION WHILE MAINTAINING 2.5% (MIN) GRADE TO LOT CORNERS.
 2. WALKOUT BASED ON ADJACENT GRADE AT BASEMENT FLOOR ELEVATION WHILE MAINTAINING 2.5% (MIN) GRADE TO LOT CORNERS.

- 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



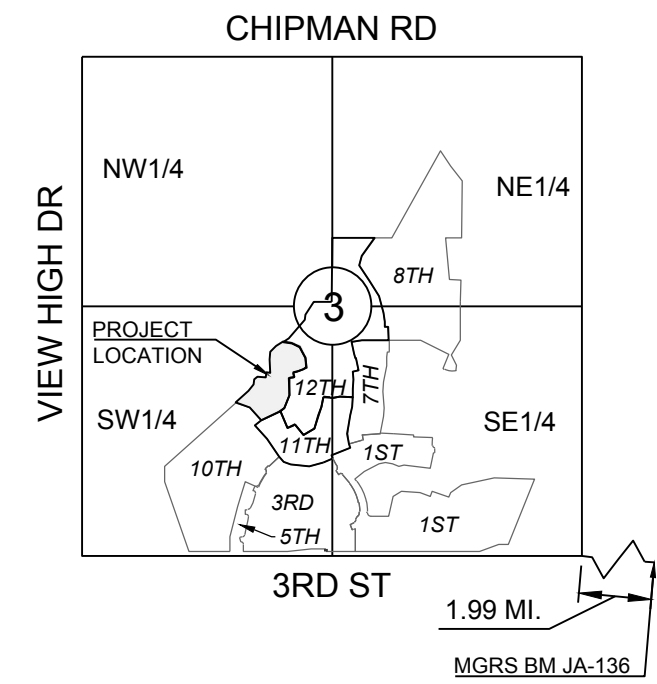
100 YEAR OVERFLOW SWALES												
SECTION	DRAINAGE AREA (AC.)	Q100 (CFS)	Q10 (CFS)	DESIGN OVERFLOW (CFS)	BED SLOPE (%)	BASE WIDTH (FT.)	SIDE SLOPE	TOP WATER SURFACE WIDTH (FT.)	NORMAL DEPTH (FT.)	VELOCITY (FPS)	VELOCITY HEAD (FT.)	EGL (FT.)
A-A	1.61	10.59	7.00	3.59	2.60	8	3:1	9.1	0.18	2.36	0.09	0.27
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	.21
D-D	0.51	3.62	2.39	1.23*	8.34	8	3:1	8.70	0.12	3.35	0.17	0.29
E-E	0.99	6.51	4.31	2.21	5.64	8	3:1	8.70	0.11	2.43	0.09	0.20
F-F	0.52	3.42	2.26	1.16	7.66	8	3:1	8.40	0.07	2.03	0.06	0.13

* SUMP INLET ASSUMED CLOGGED, Q_{DESIGN}=100YR



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

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



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.

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MARK ALLEN BREUER
MEMBER
PE-2003007268
03.18.19

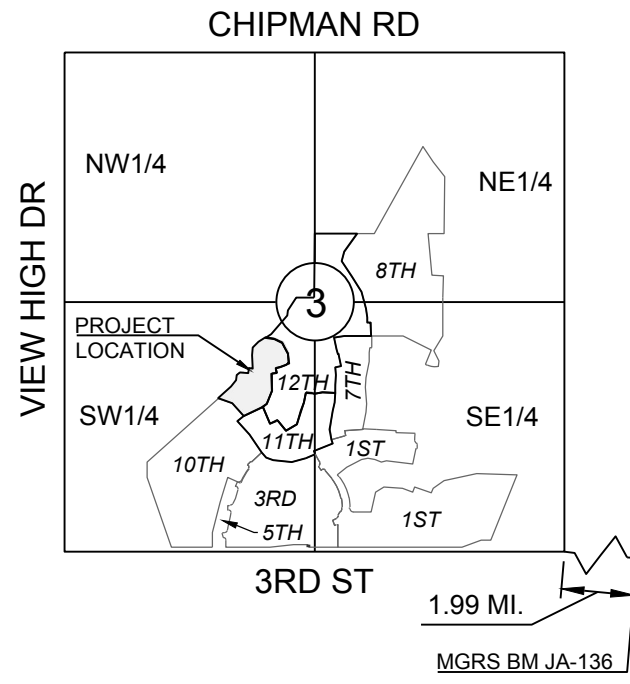
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MASTER DRAINAGE PLAN - SPOT ELEVATIONS		
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MATCHLINE



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

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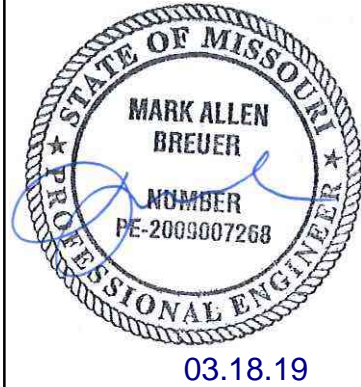
ELEV. 993.11'

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'

SCHLAGEL & ASSOCIATES, P.A.
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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
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DRAWN BY:	KSC
CHECKED BY:	MAB
DATE PREPARED:	2-15-19
PROJ. NUMBER:	18-230

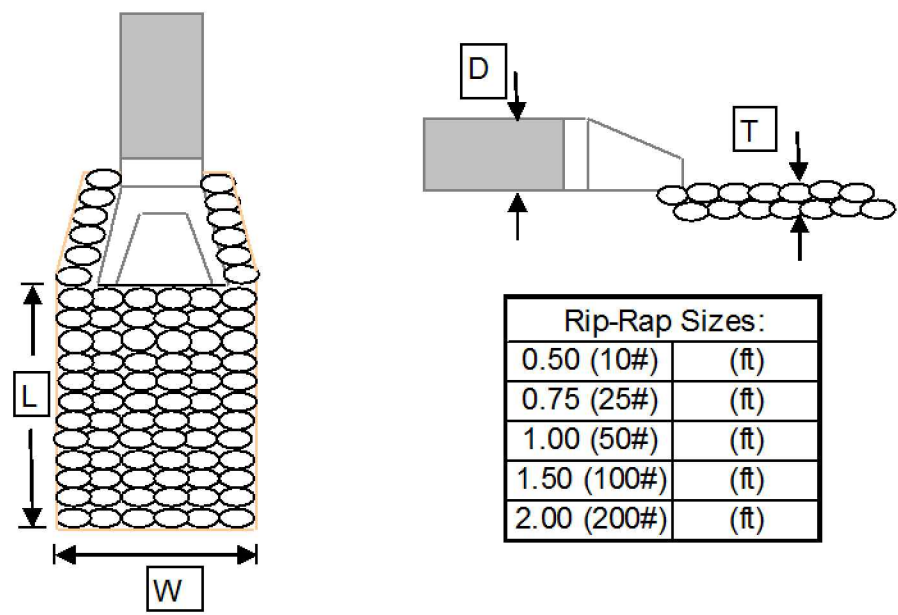
MASTER
DRAINAGE PLAN
- DRAINAGE MAP

SHEET

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OF 23

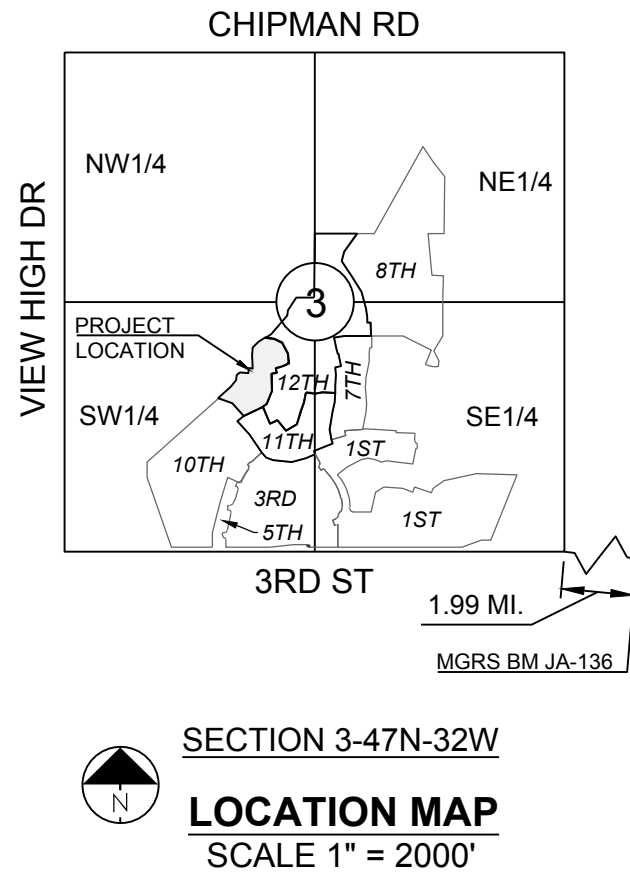
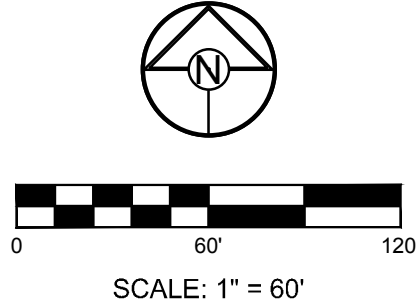


OUTLET RIP-RAP DESIGN WORKSHEET v1.0



- DESIGN NOTES:
1. Rip-Rap width calculated to be either D+4' 3"D, or top width of channel, whichever is greater
 2. Rip-Rap length calculated to be $1/(2 \cdot \tan(e)) \cdot (A/Yt - 3)$, where $e=20^\circ$, A=flow area, and Yt=normal depth
 3. D50 calculated using $(1/2)(1.384 \cdot V^2 / (s-1)) \cdot 2g$ (Eqn. 10, pg. 32, HEC-11), where V=Outlet Velocity, s=Specific Gravity of Stone=2.65, and g=32.2
 4. Critical Shear Stresses provided by A.P.W.A. 5600
 5. Rip-Rap thickness equals 2"D50 for 12" and smaller rip-rap, and 1.5"D50 for larger than 12"

Outlet/Channel Properties						Rip-Rap Dimensions									
Outlet Structure	Pipe Size (ft)	Downstream Channel/Swale Section	V Pipe (ft/s)	V Swale (ft/s)	Average Shear Stress (lb/ft^2)	W Calculated (ft)	W USED (ft)	L Calculated (ft)	L (min.) 3"D (ft)	L (max.) 10"D (ft)	L USED (ft)	D50 Calculated (in)	Size (Wt.) USED (d50, in)	Critical Shear Stress (lb/ft^2)	T (ft)
200	1.25	N/A	11.07	N/A	N/A	5.25	6	n/a	3.75	12.50	10	0.80	1.00 (50#)	4.00	2.00
400	2.00	N/A	14.04	N/A	N/A	6.00	6	n/a	6.00	20.00	15	1.28	1.50 (100#)	5.16	2.25
500	3.50	N/A	24.56	N/A	N/A	10.50	12	n/a	10.50	35.00	20	3.93	2.00 (200#)	6.91	3.00



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'

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STATE OF MISSOURI
MARK ALLEN BREUER
MEMBER
PE-2003007268
03.18.19

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
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MASTER DRAINAGE
PLAN-DRAINAGE
MAP CONT'D

SHEET

MISSOURI GEOGRAPHIC REFERENCE SYSTEM
BENCH MARK:

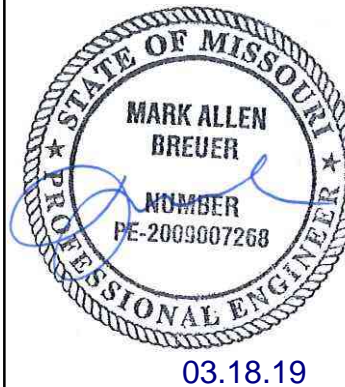
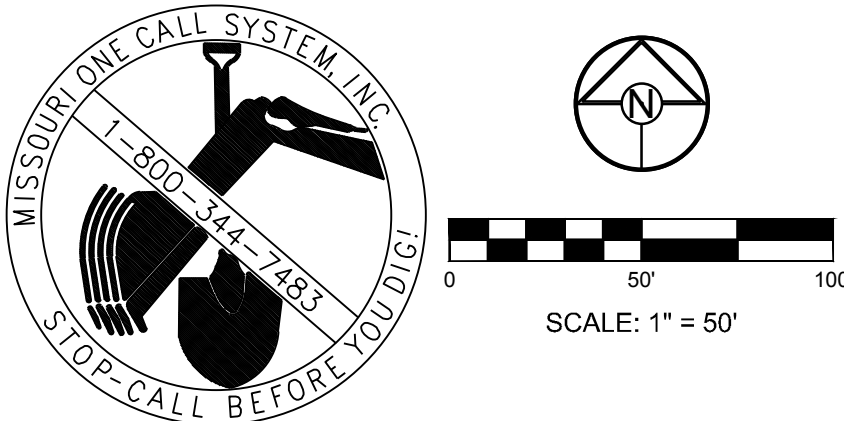
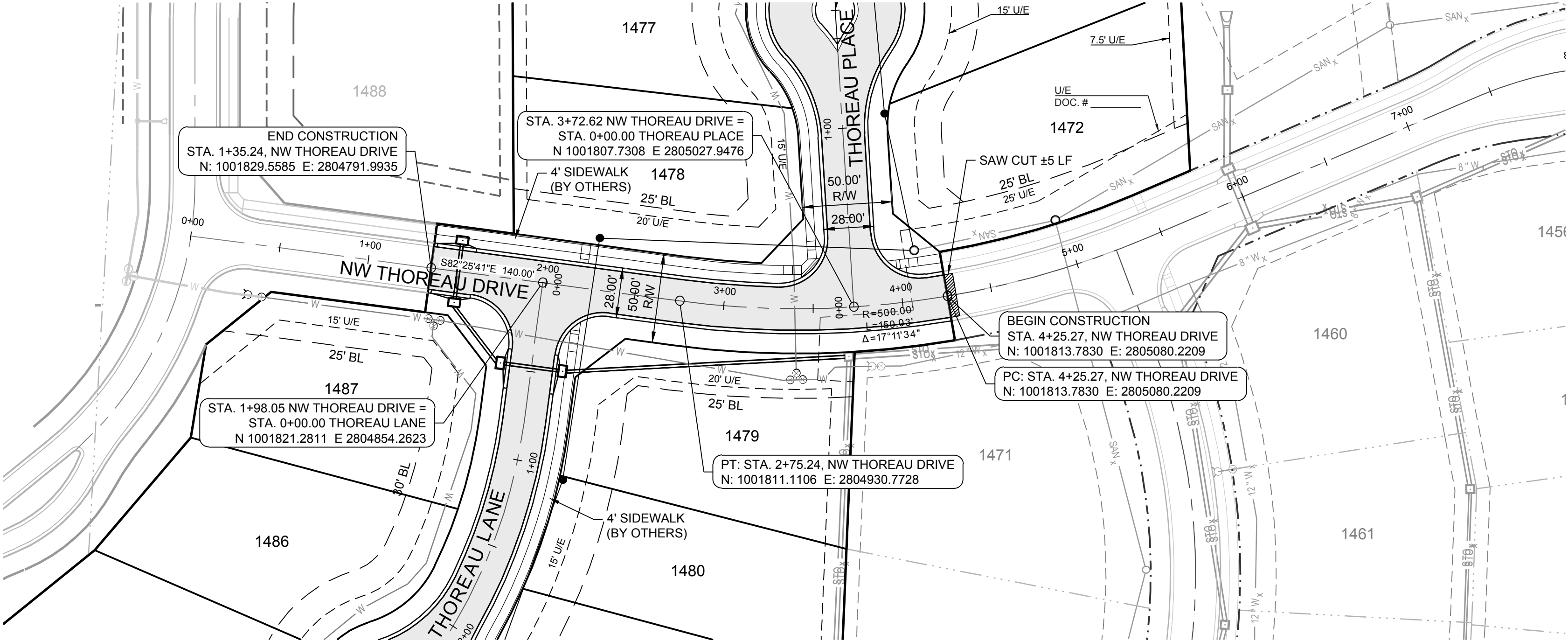
BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

ELEV. 993.11'

PROJECT BENCH MARK:

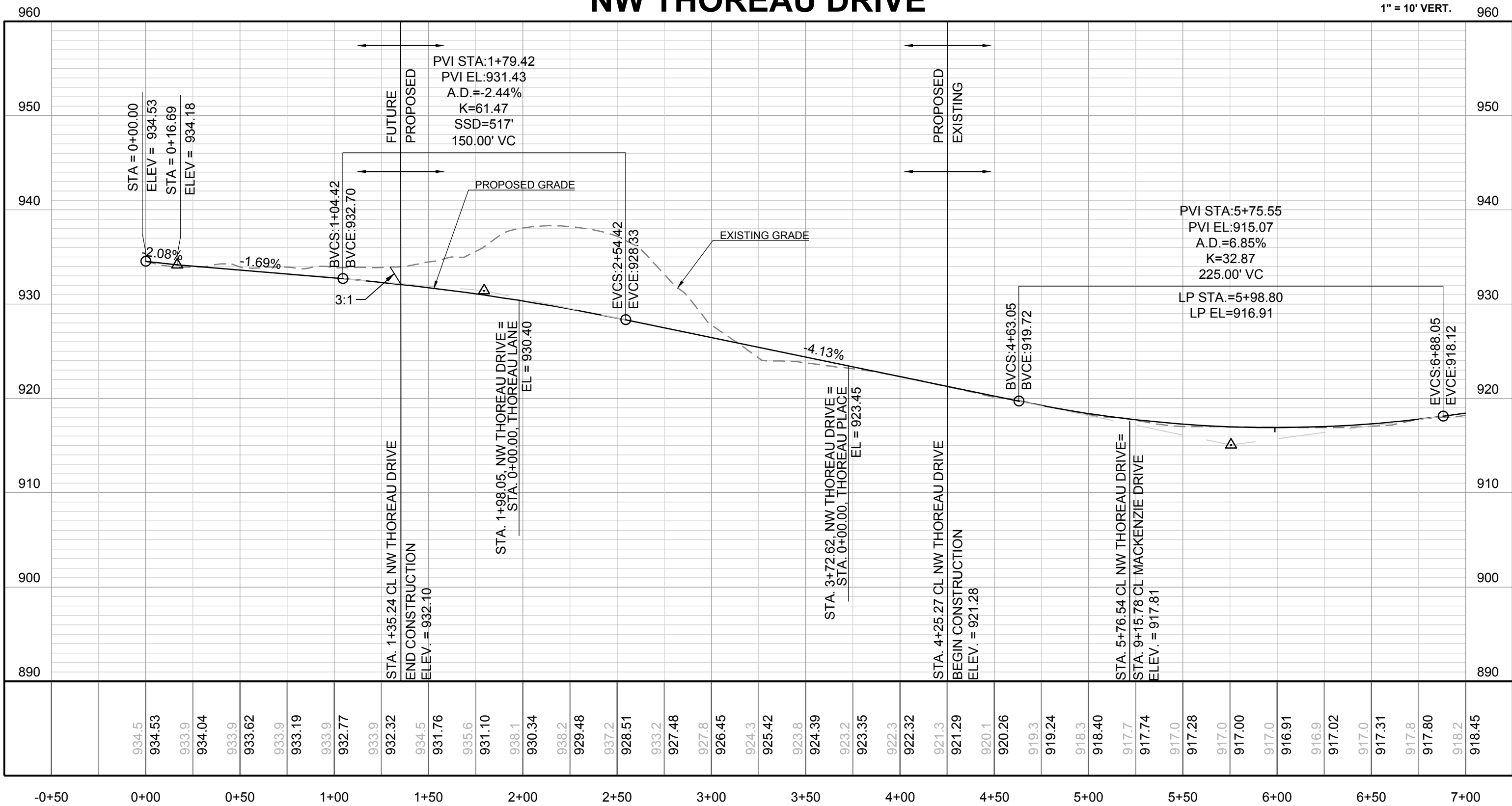
SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.

ELEV. 935.45'



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

NW THOREAU DRIVE



REVISION DATE

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KSC

CHECKED BY:
MAB

DATE PREPARED:
2-15-19

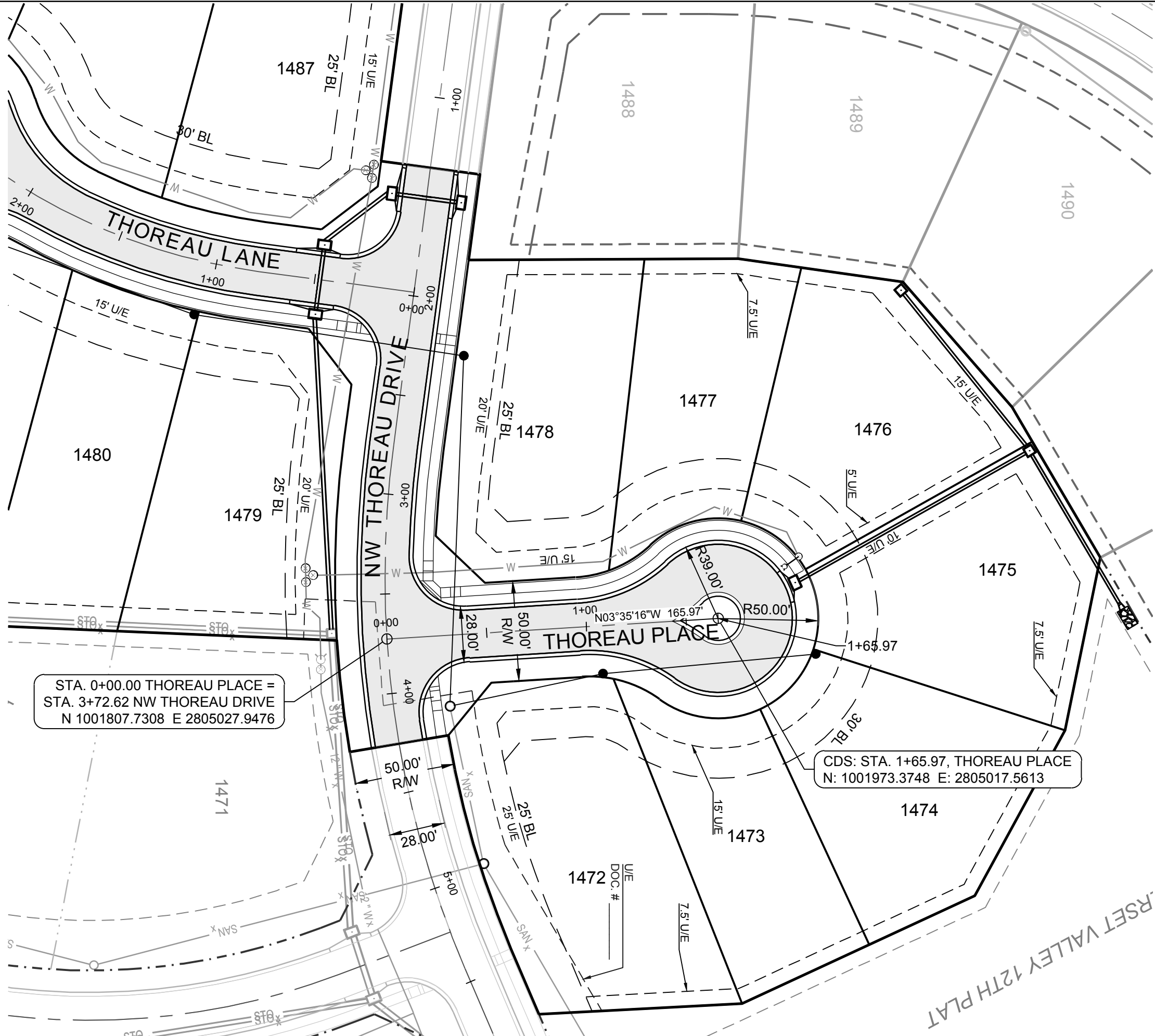
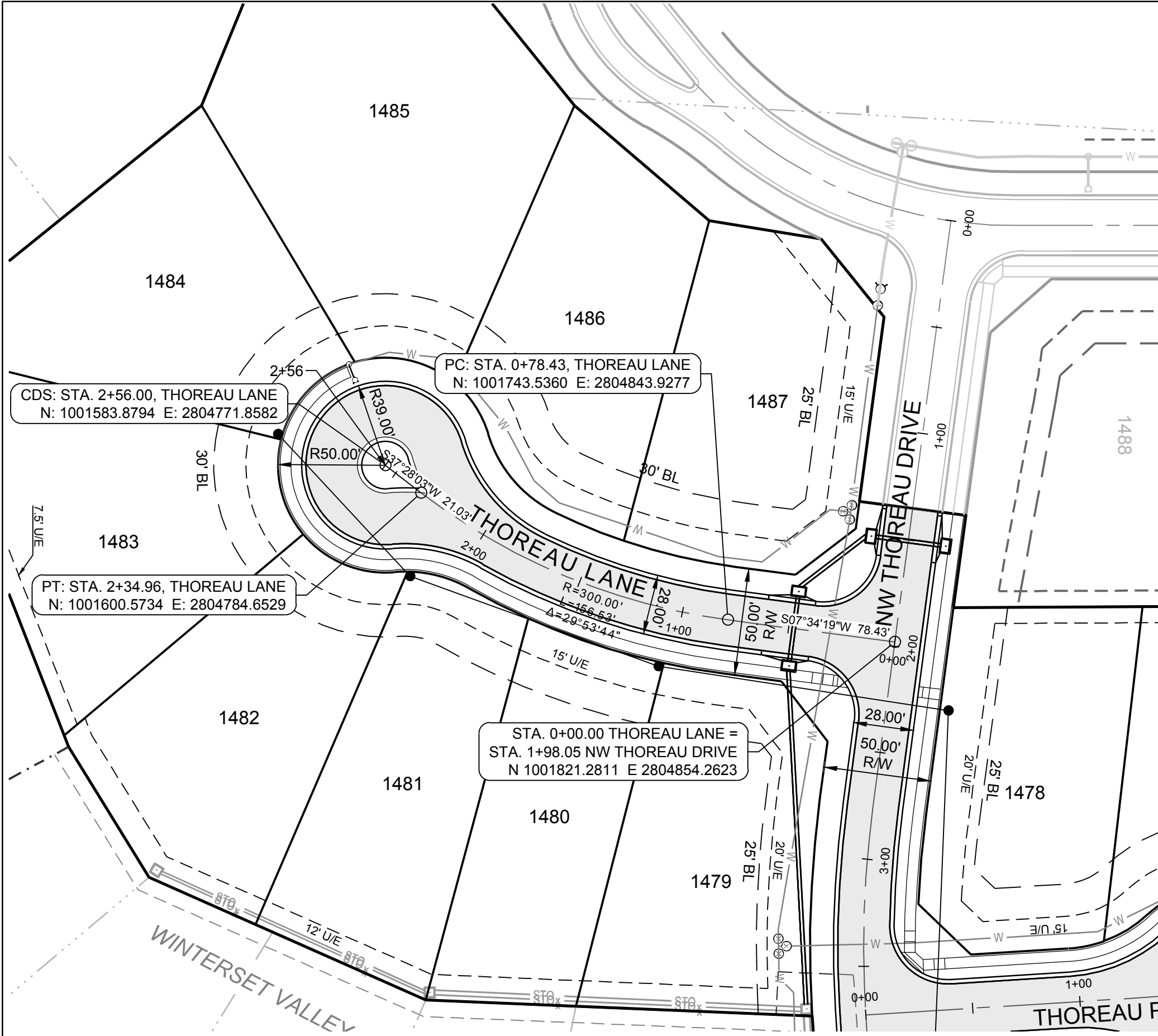
PROJ. NUMBER:
18-230

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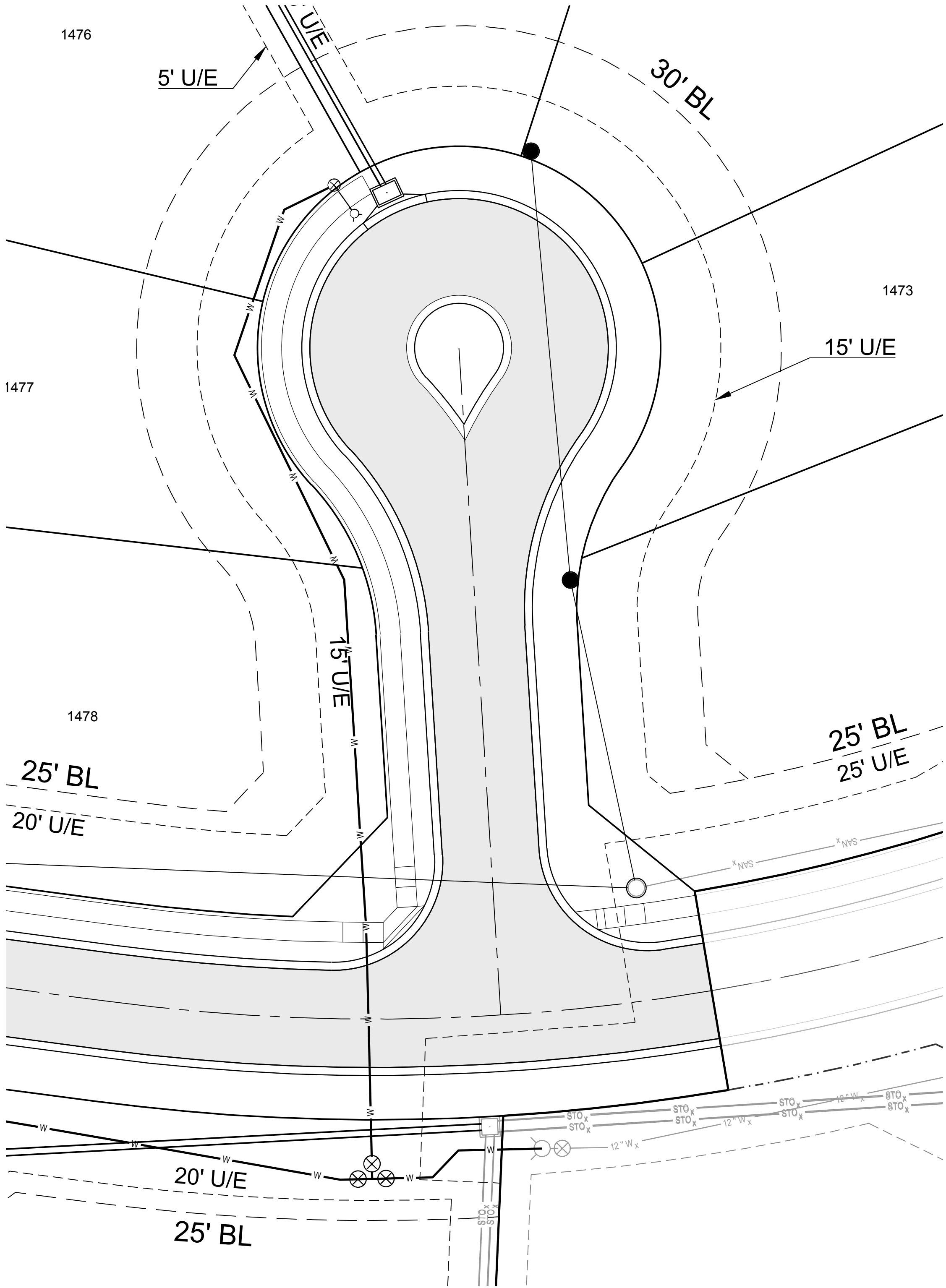
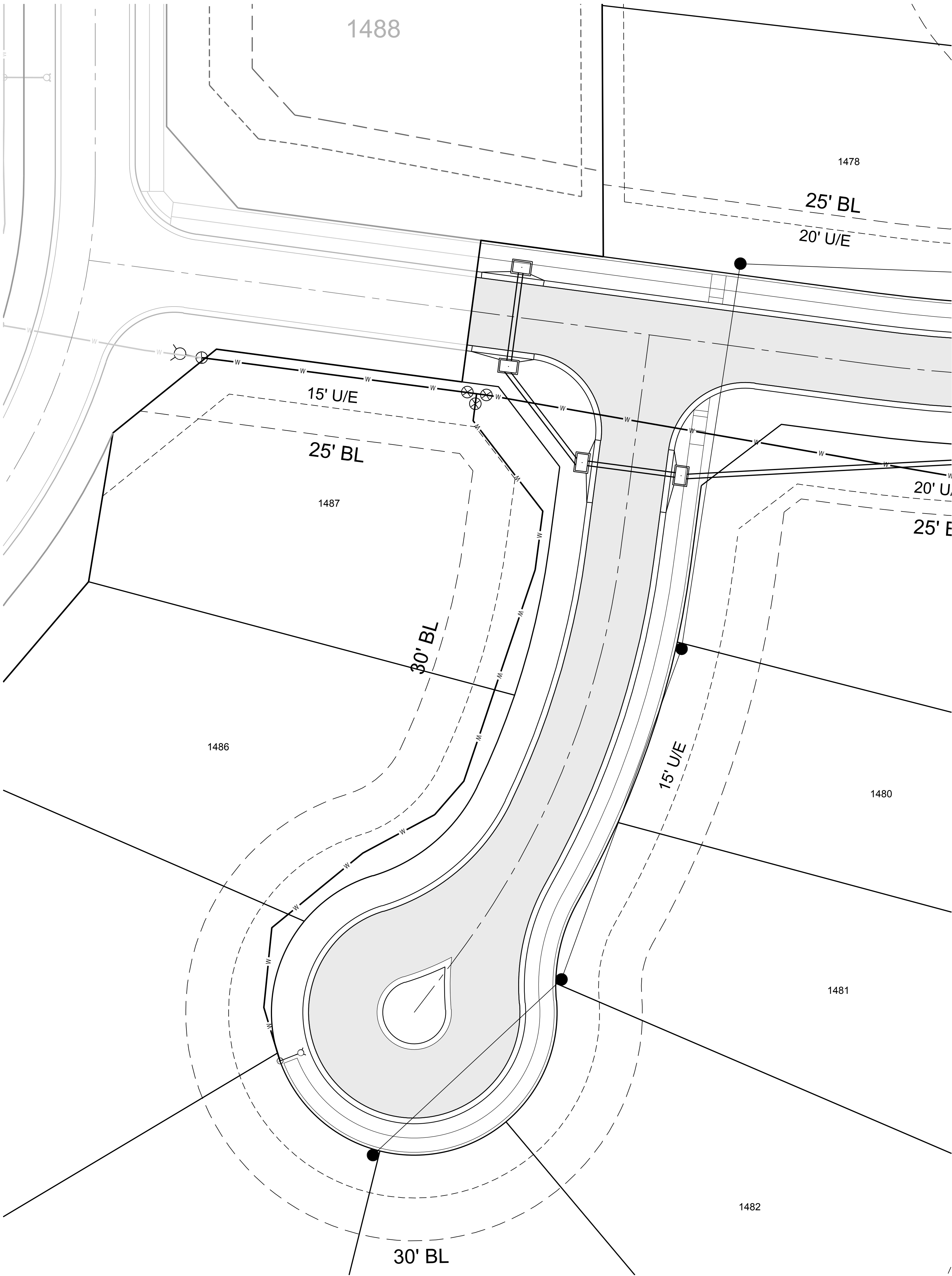
NW THOREAU
DRIVE PLAN AND
PROFILE

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OF 23

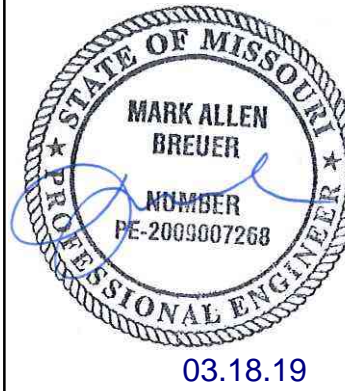
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NOTE: TO BE COMPLETED WITH 2ND SUBMITTAL





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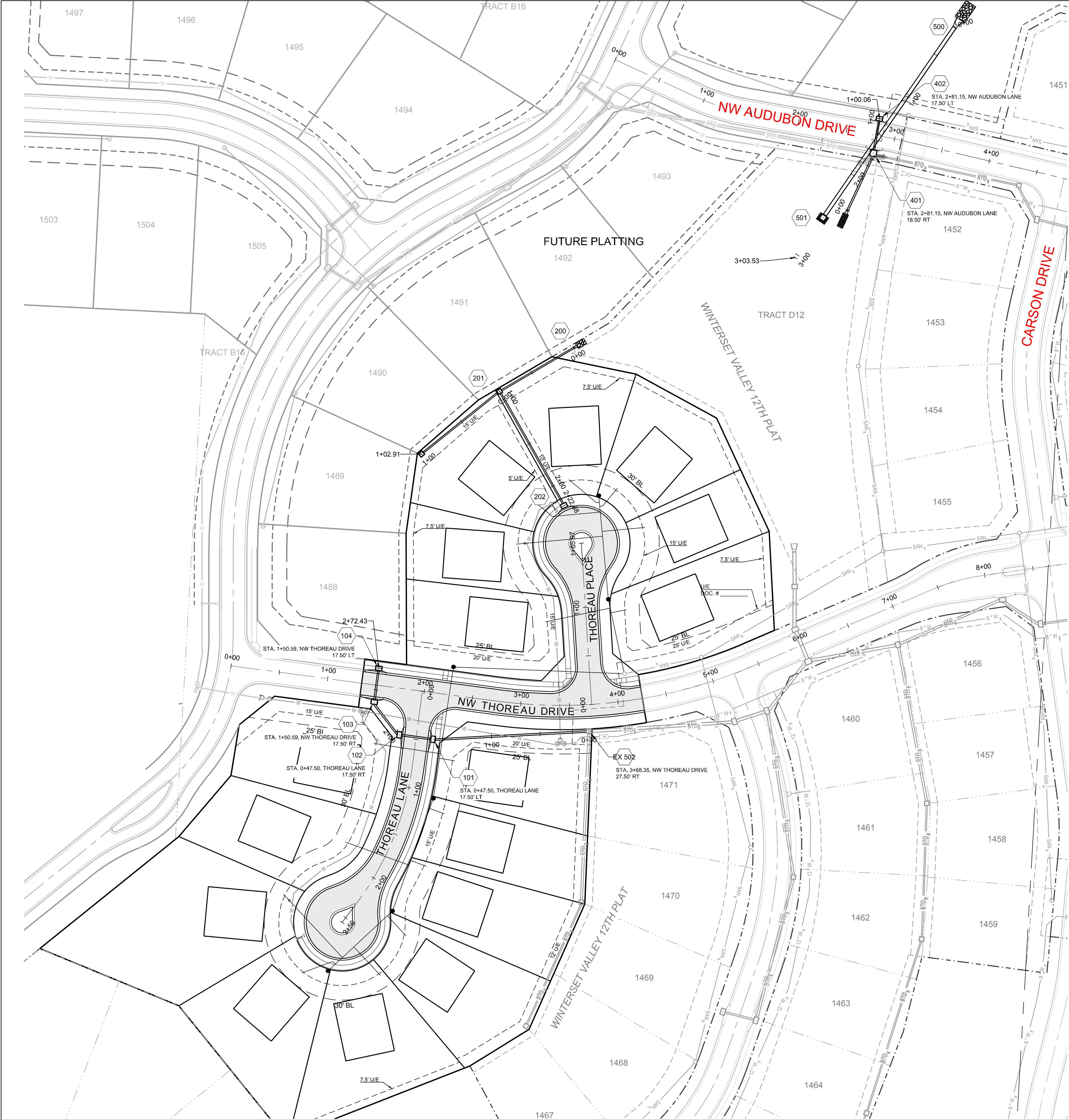
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DRAWN BY: KSC	CHECKED BY: MAB	DATE PREPARED: 2-15-19	PROJ. NUMBER: 18-230
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INTERSECTION
DETAILS

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**MISSOURI GEOGRAPHIC REFERENCE SYSTEM
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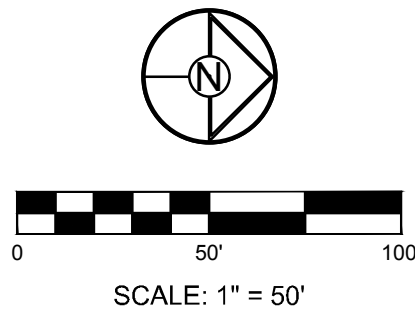
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ELEV. 935.45'

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 1002315.5560 E 2805290.9387
401	STA 0+64.06, LINE 400 INSTALL 6 X 6 CURB INLET N 1002373.9490 E 2805317.2915
402	STA 1+00.06, 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 AREA INLET W/ OPENING TO SOUTHWEST F.F.B. S55°25'42"E N 1002307.7744 E 2805265.6422



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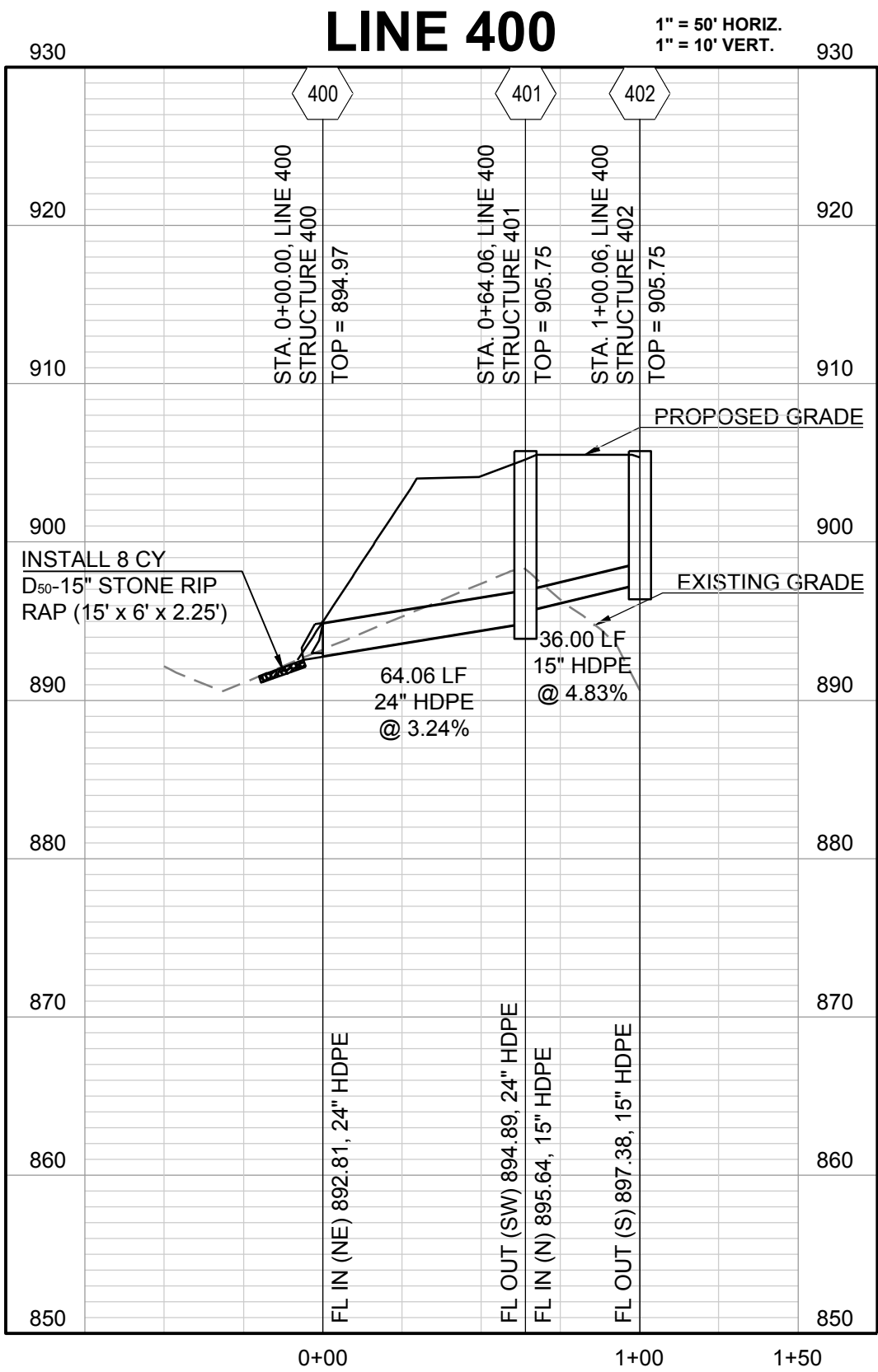
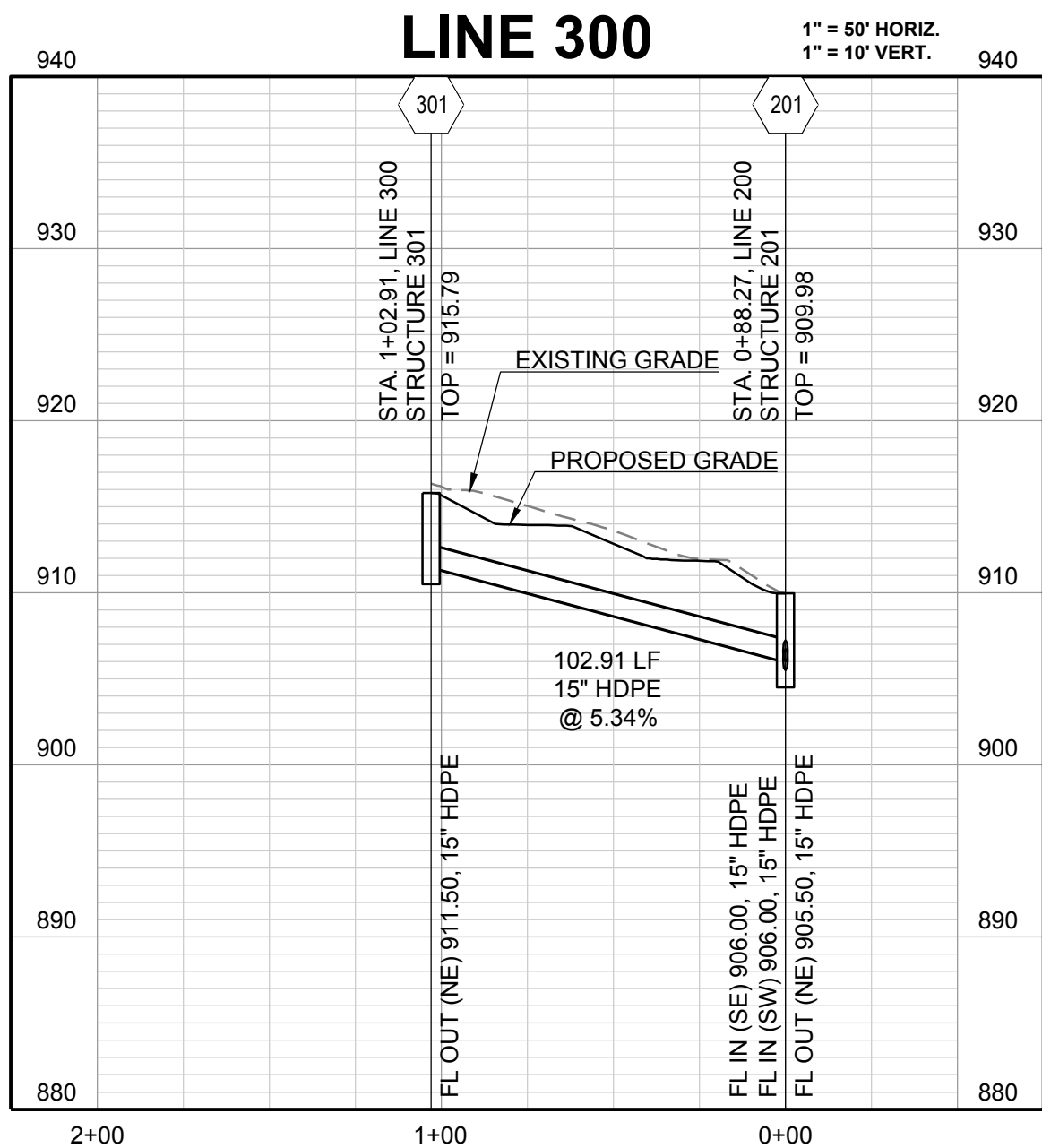
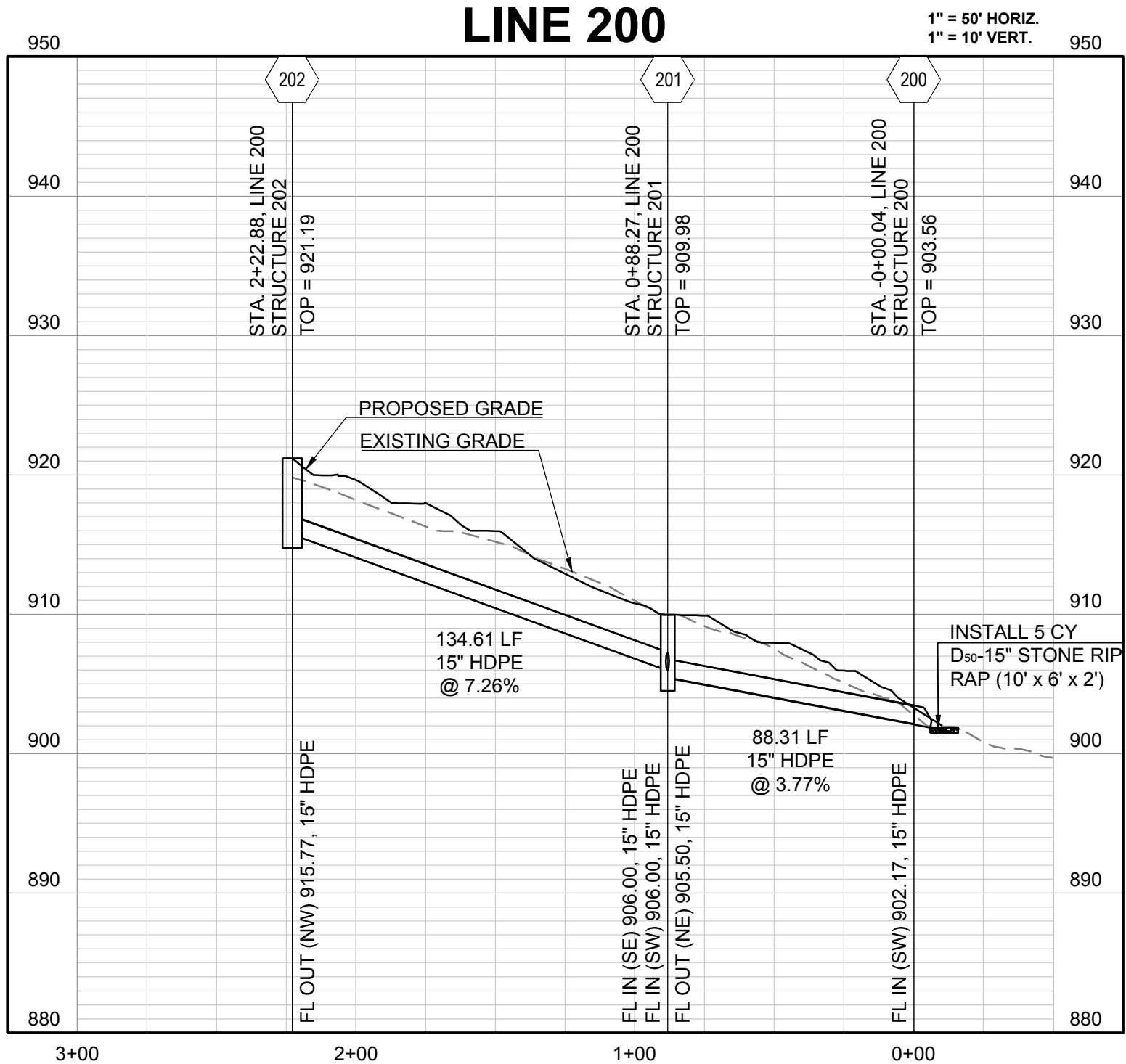
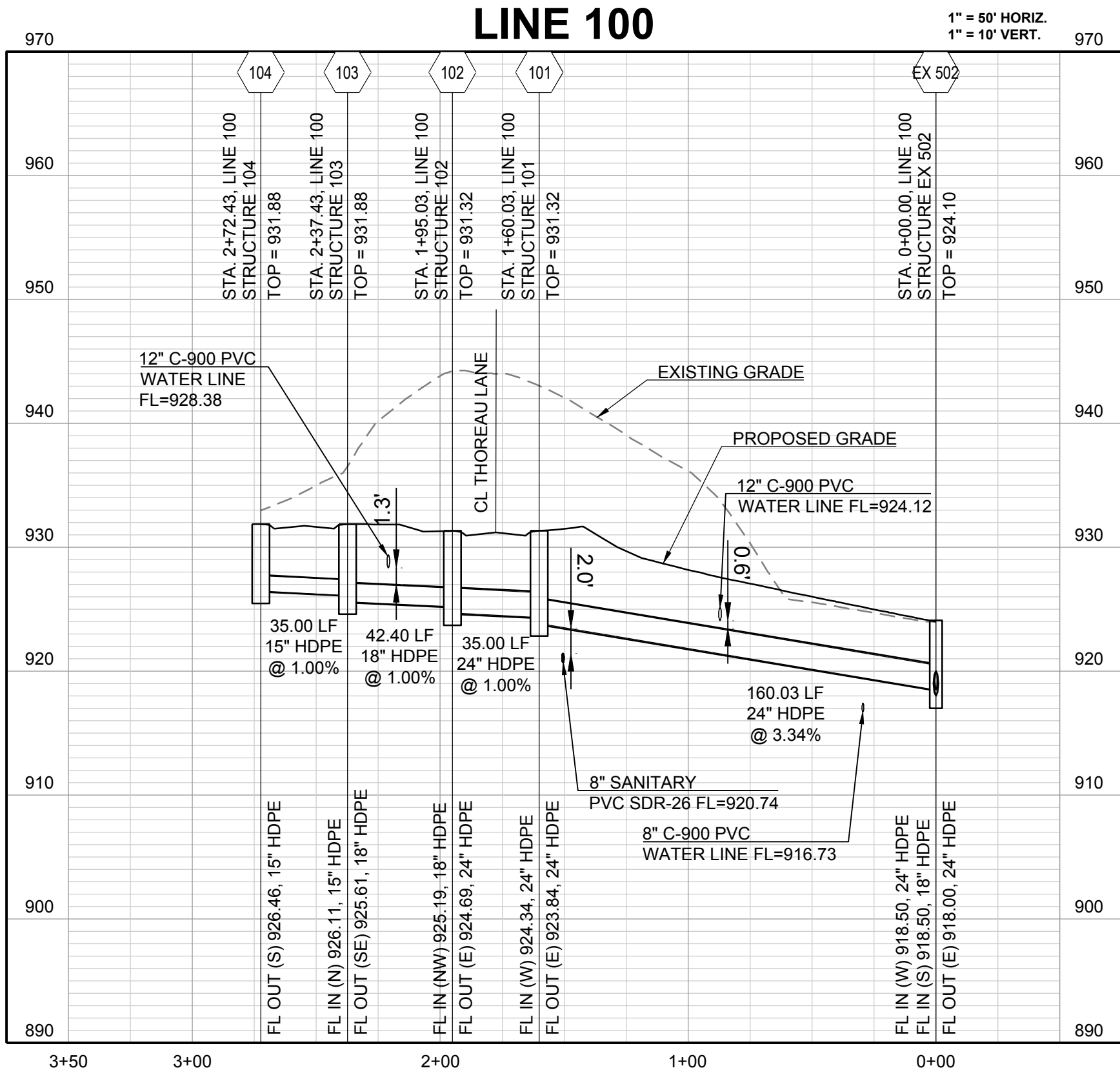
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DATE PREPARED:	2-15-19
PROJ. NUMBER:	18-230

STORM PLAN

SHEET

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OF 23

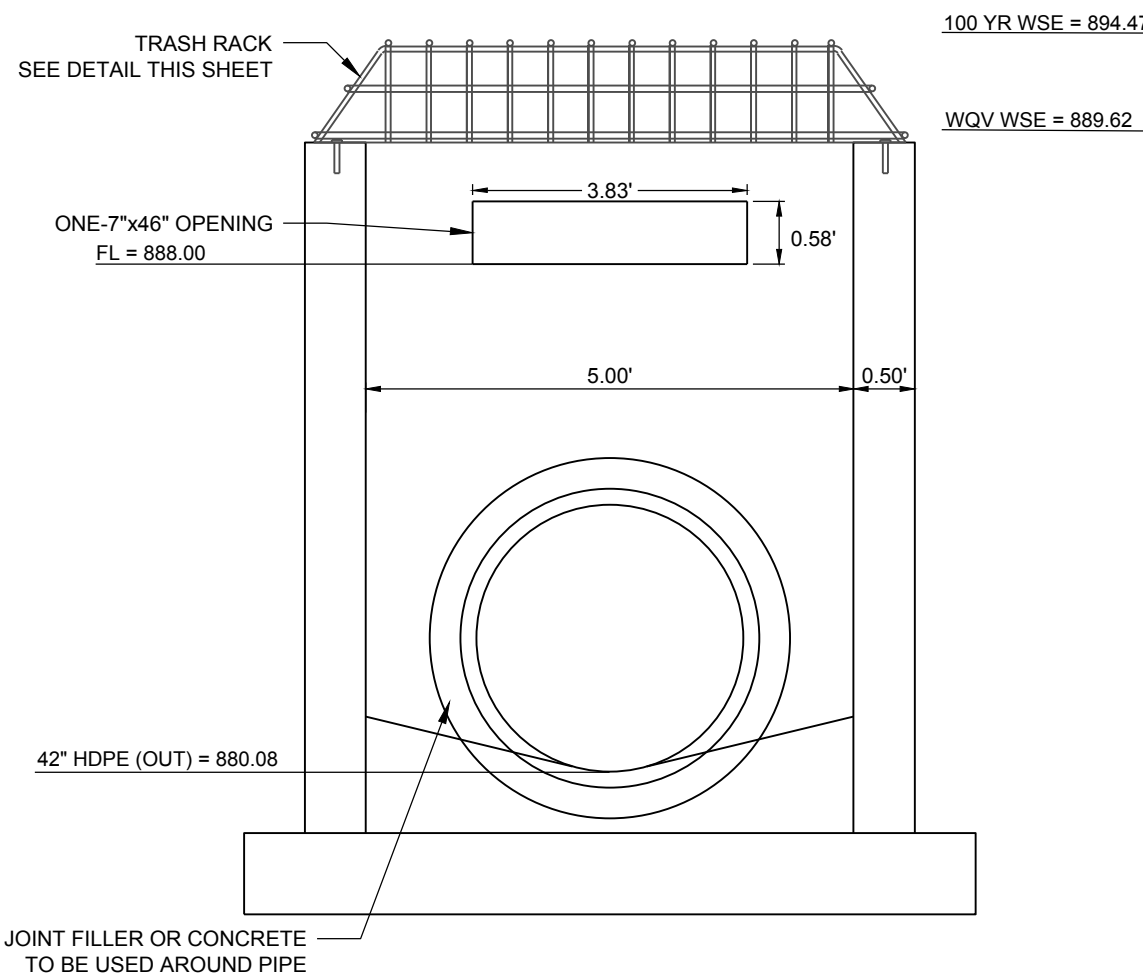
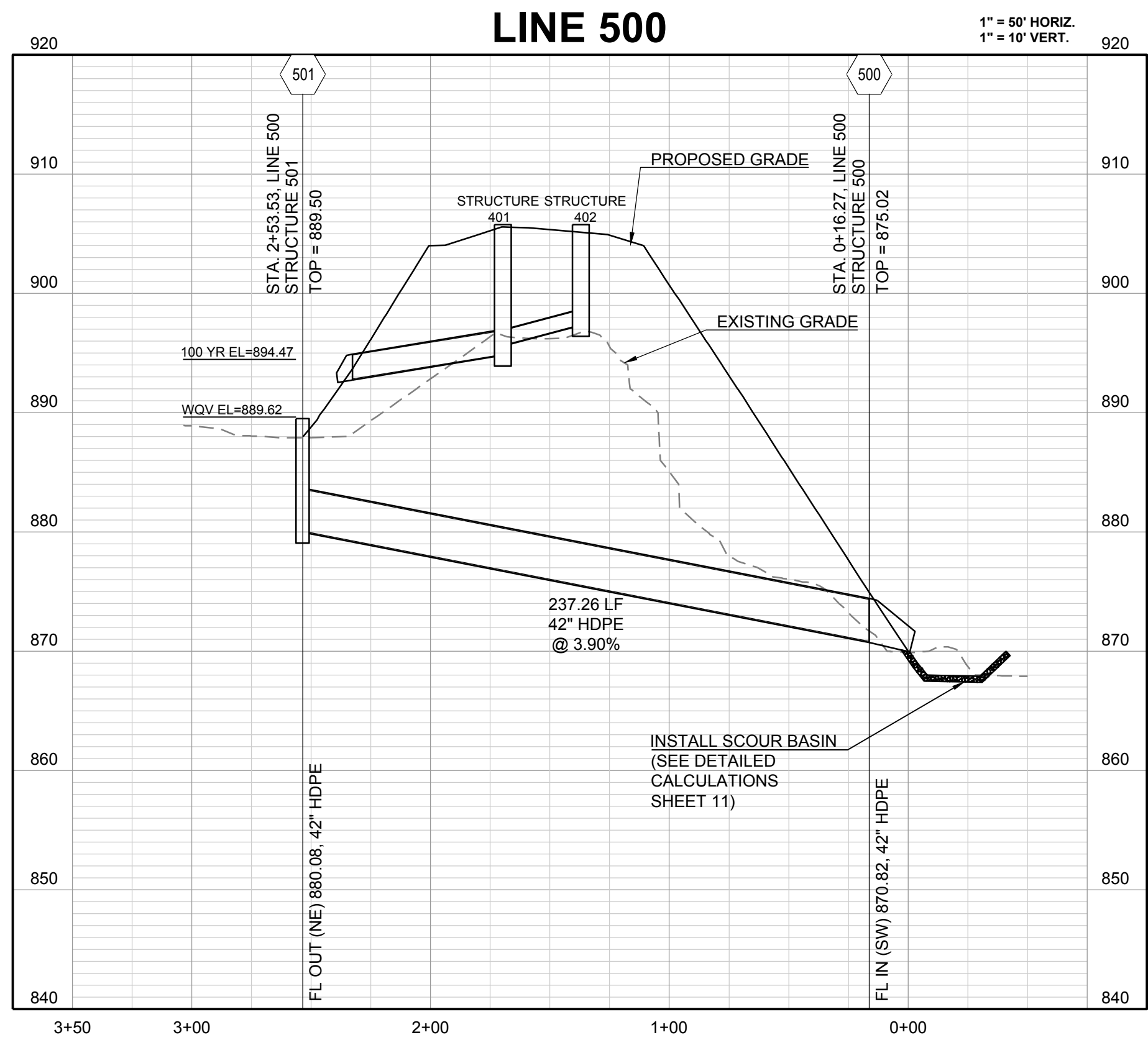
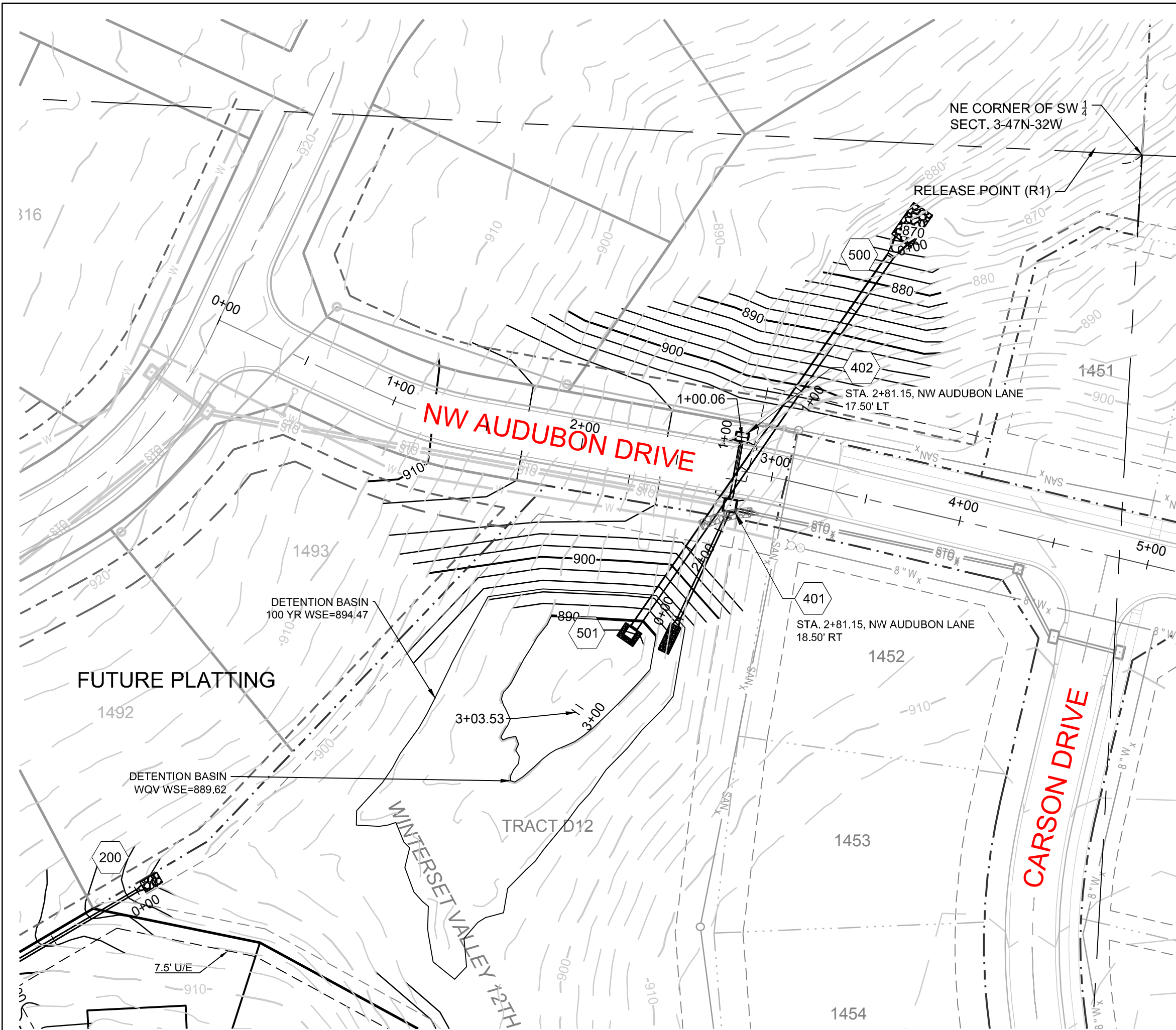
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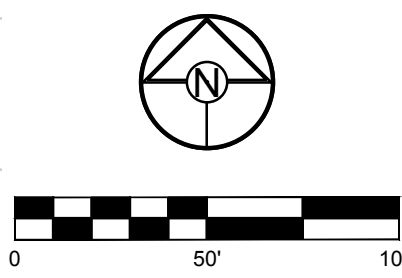
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- NOTES:
1. ALL METAL PARTS TO BE GALVANIZED
 2. PROVIDE ACCESS THROUGH TRASH RACK
 3. PROVIDE LATCH TO ENABLE THE HATCH TO BE LOCKED
 4. OUTFLOW STRUCTURE TO BE WATERTIGHT.
- 1/2"Ø RODS @ 6" CENTERS EACH WAY
- 3 STEEL HINGES
- 34"x34" MIN. ACCESS HATCH PROVIDE MEANS TO LOCK ACCESS HATCH



SCALE: 1" = 50'

ONE-7"x46" OPENING

4" CONCRETE APRON

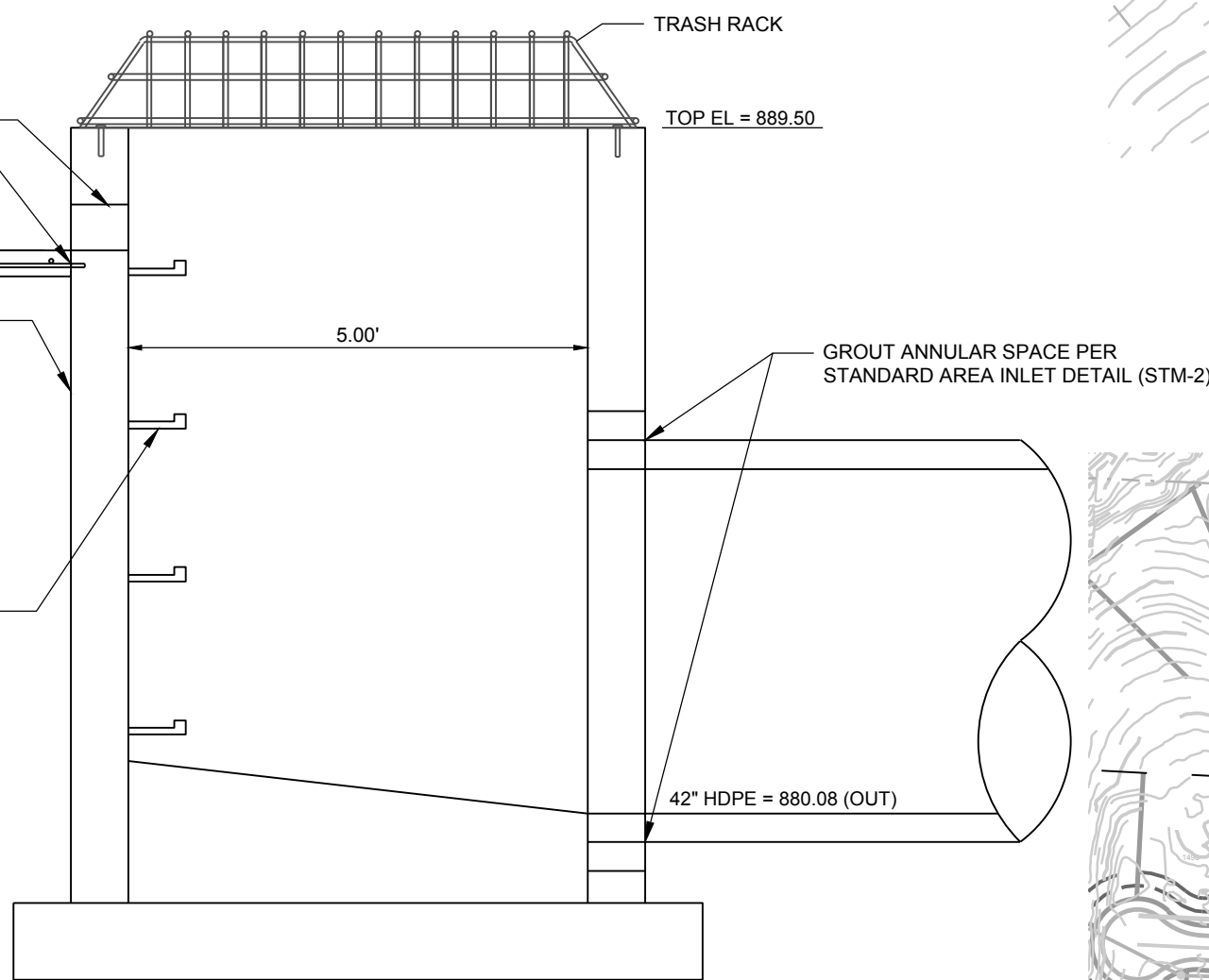
DOWEL AND EPOXY #4 REBAR CONNECTION TO BOX

4"

FL = 888.00

SEE CITY OF LEE'S SUMMIT STORM INLET STANDARD DETAIL (STM-2) FOR WALL SECTIONS, CONCRETE & REINFORCEMENT CONSTRUCTION

CONTRACTOR TO PROVIDE STEPS SPACED AT 1'-4" O.C.



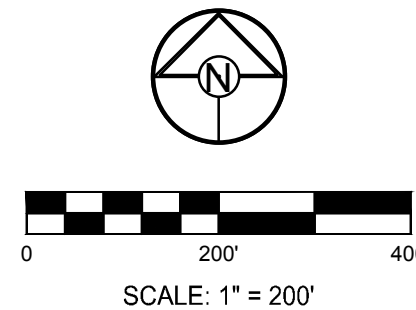
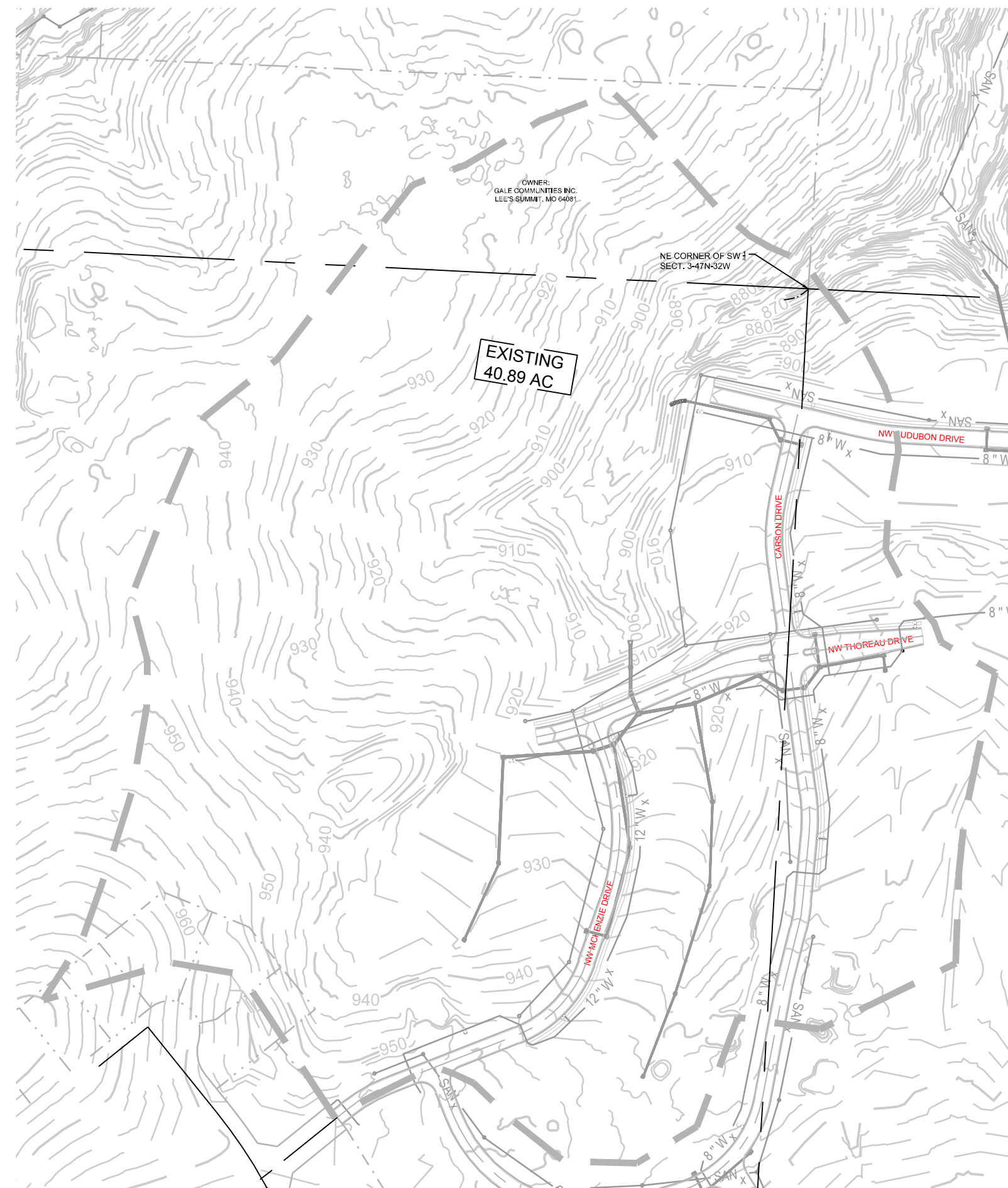
DETENTION STRUCTURE 501 DETAIL
N.T.S.

DETENTION BASIN STORAGE/DISCHARGE TABLE			
STORAGE ELEVATION (FEET)	STORAGE AREA (SQUARE FEET)	STORAGE VOLUME (CUBIC FEET)	DISCHARGE (CFS)
888	776	0	0.00
889	2,472	2,465	3.62
890	4,226	5,044	9.26
891	6,480	11,459	13.94
892	8,821	18,307	23.27
893	11,995	29,934	35.49
894	15,233	41,929	50.00
895	17,309	52,853	67.26
896	25,239	82,653	88.06
897	30,502	112,850	111.29
898	35,764	143,046	137.66
899	41,053	184,762	168.21
900	46,185	225,353	191.34

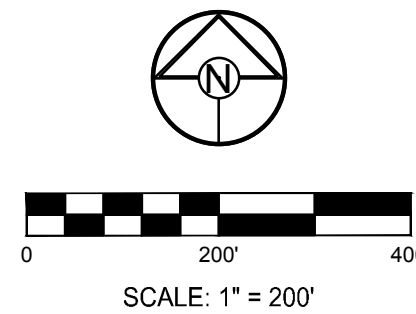
DETENTION BASIN DESIGN INFORMATION

	AREA (AC)	CN	Tc (MIN)	100 YR RUNOFF (CFS)
EXISTING DRAINAGE AREA	40.89	86	21.4	262.18
PROPOSED DRAINAGE AREA	35.42	86	16.8	251.93
PROPOSED ONSITE DETENTION BYPASS	4.34	86	12.3	34.19
DETENTION BASIN RELEASE RATE	---	---	---	199.77

MAX. ALLOWABLE FLOW = EXISTING FLOW = 262.18 CFS
TOTAL DEVELOPED CONDITION 100 YR RELEASE RATE TO R1 = 223.44 CFS < 262.18 CFS
EXISTING WATER QUALITY = 16.51 CFS
PROPOSED WATER QUALITY = 16.01 CFS < 16.51 CFS

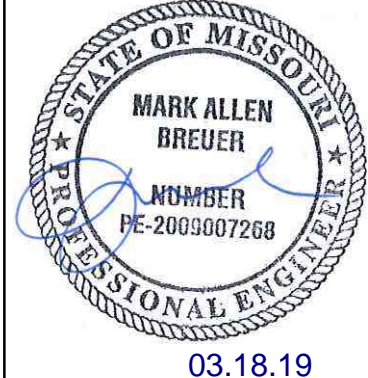
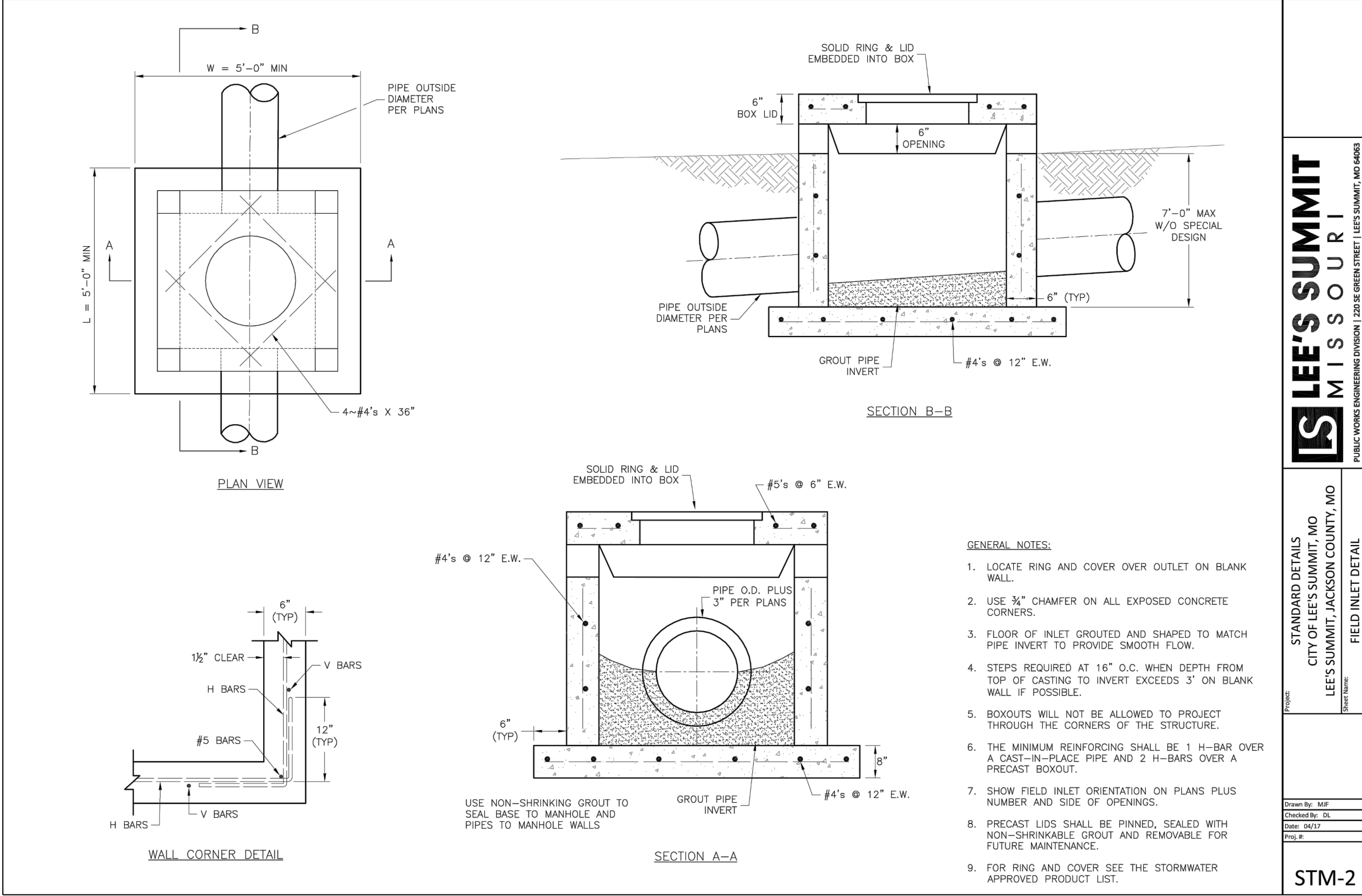
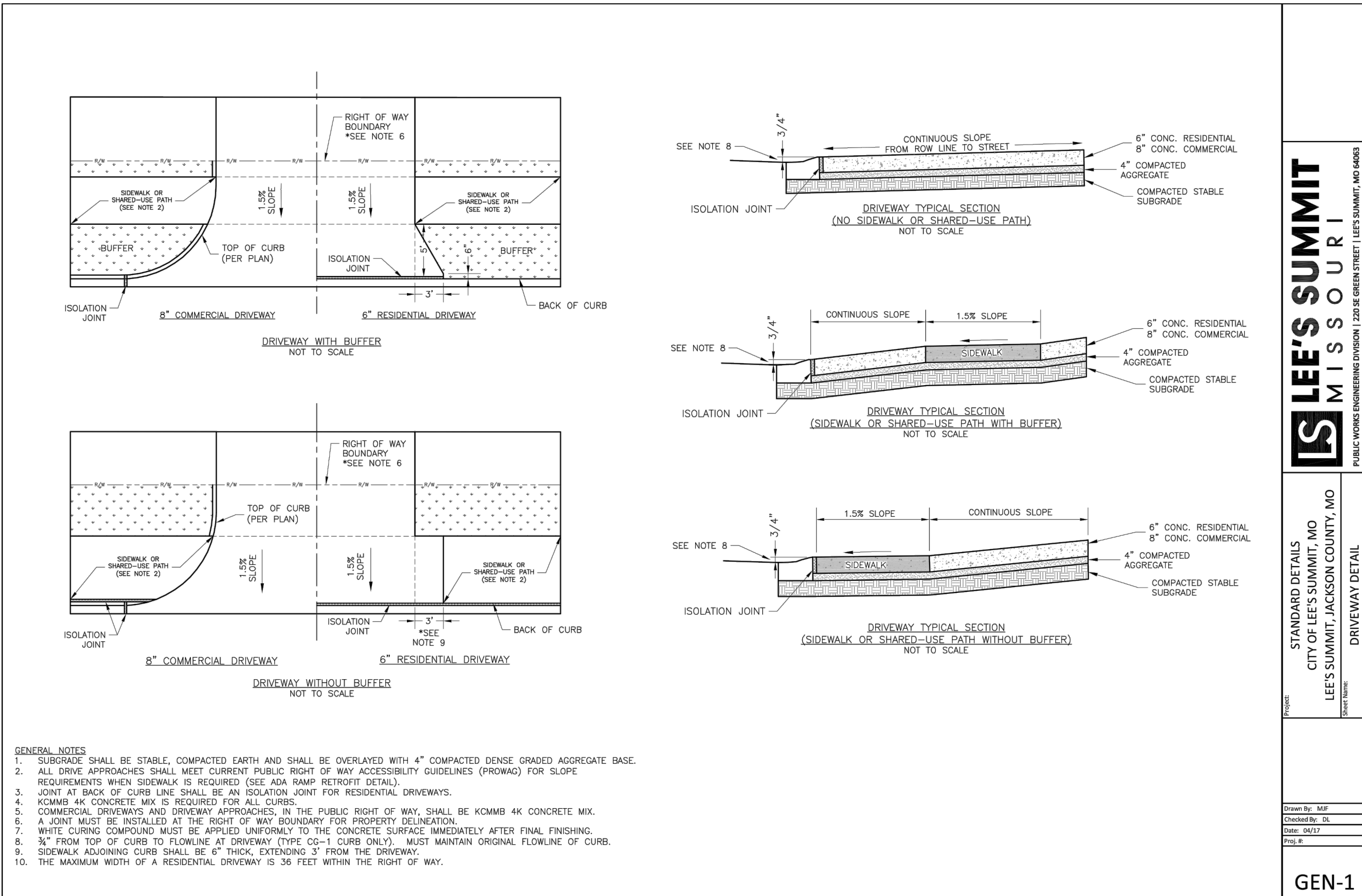
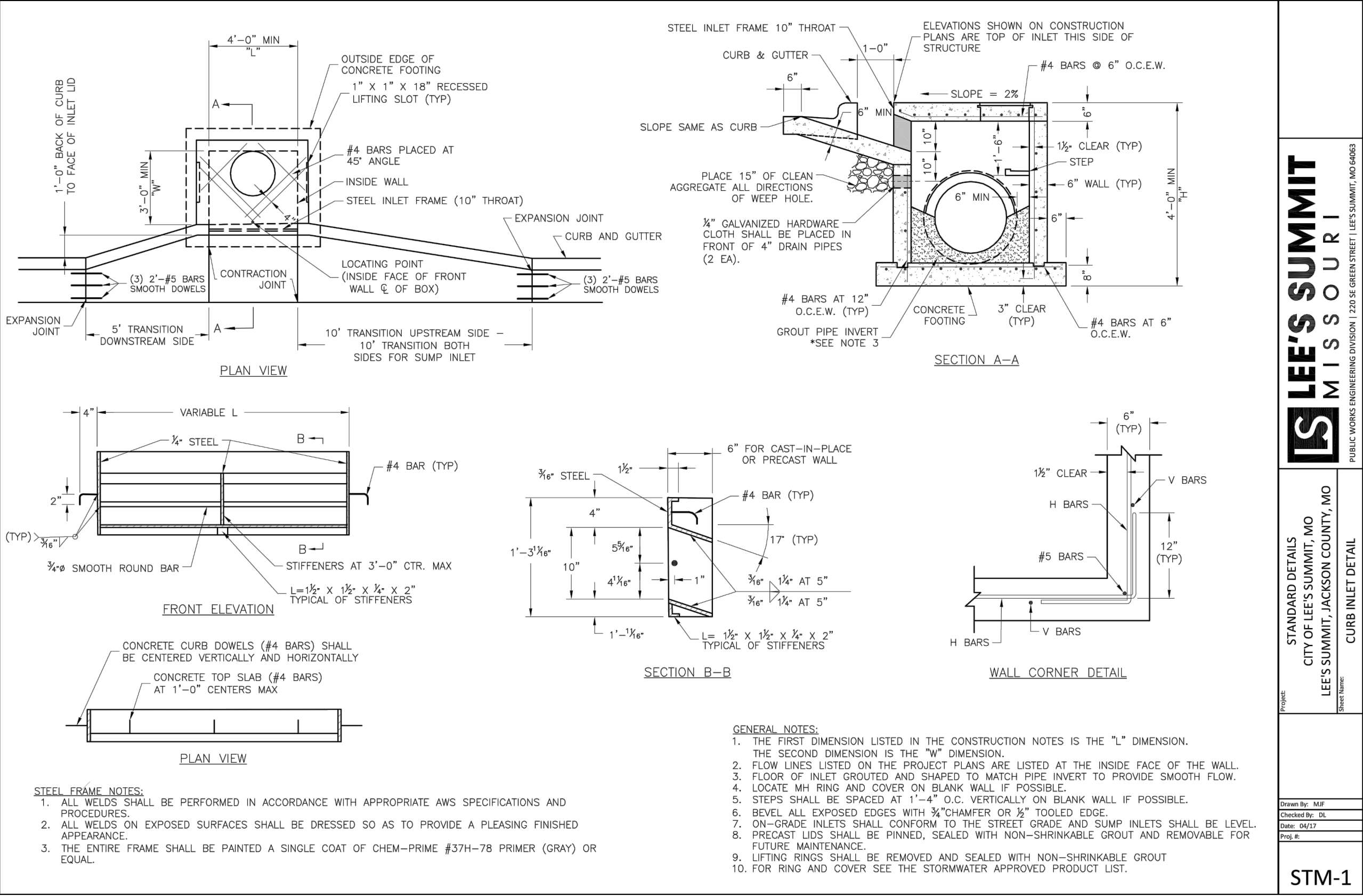
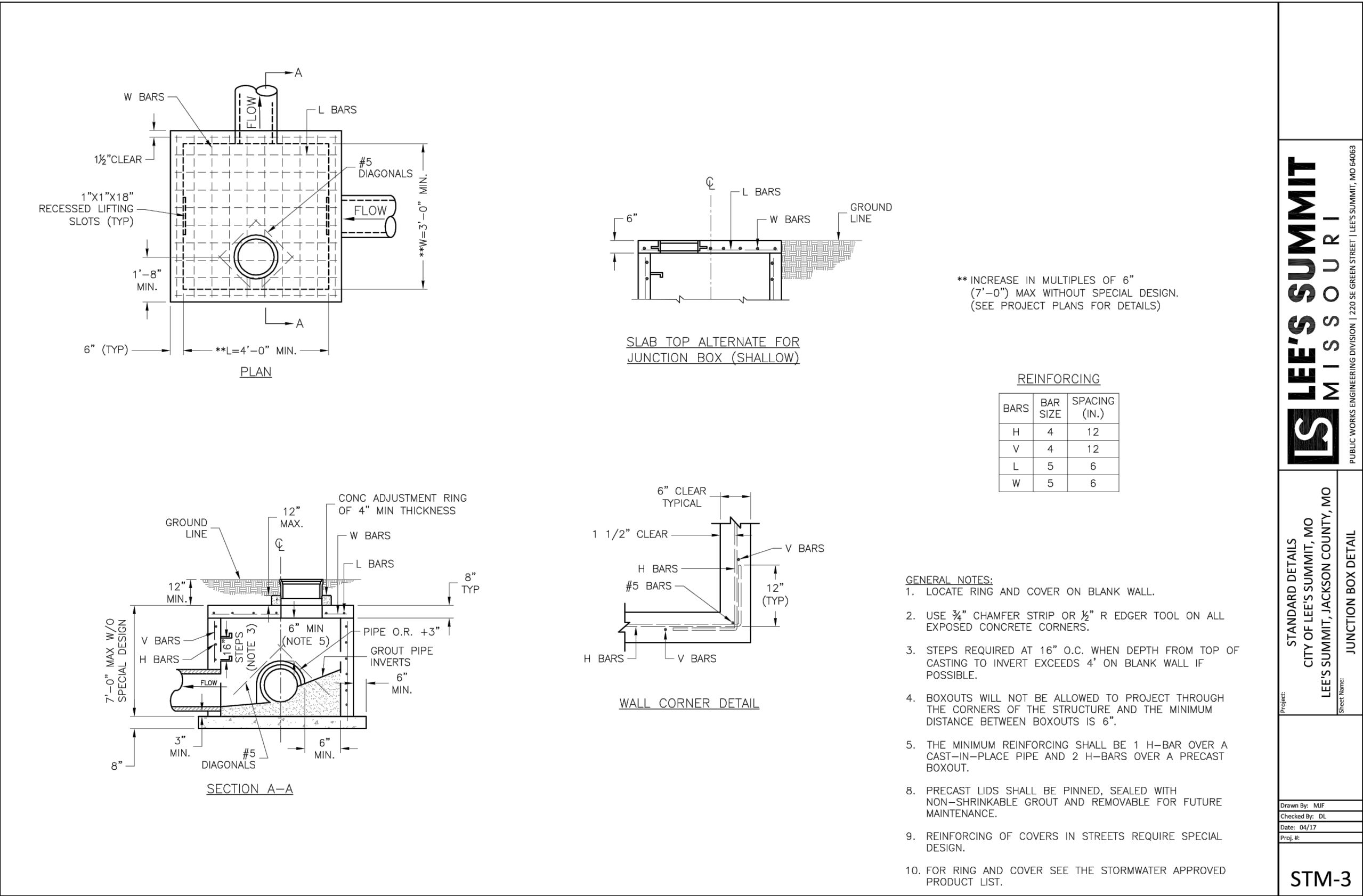


SCALE: 1" = 200'



SCALE: 1" = 200'

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MAB	2	
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18-230	6	

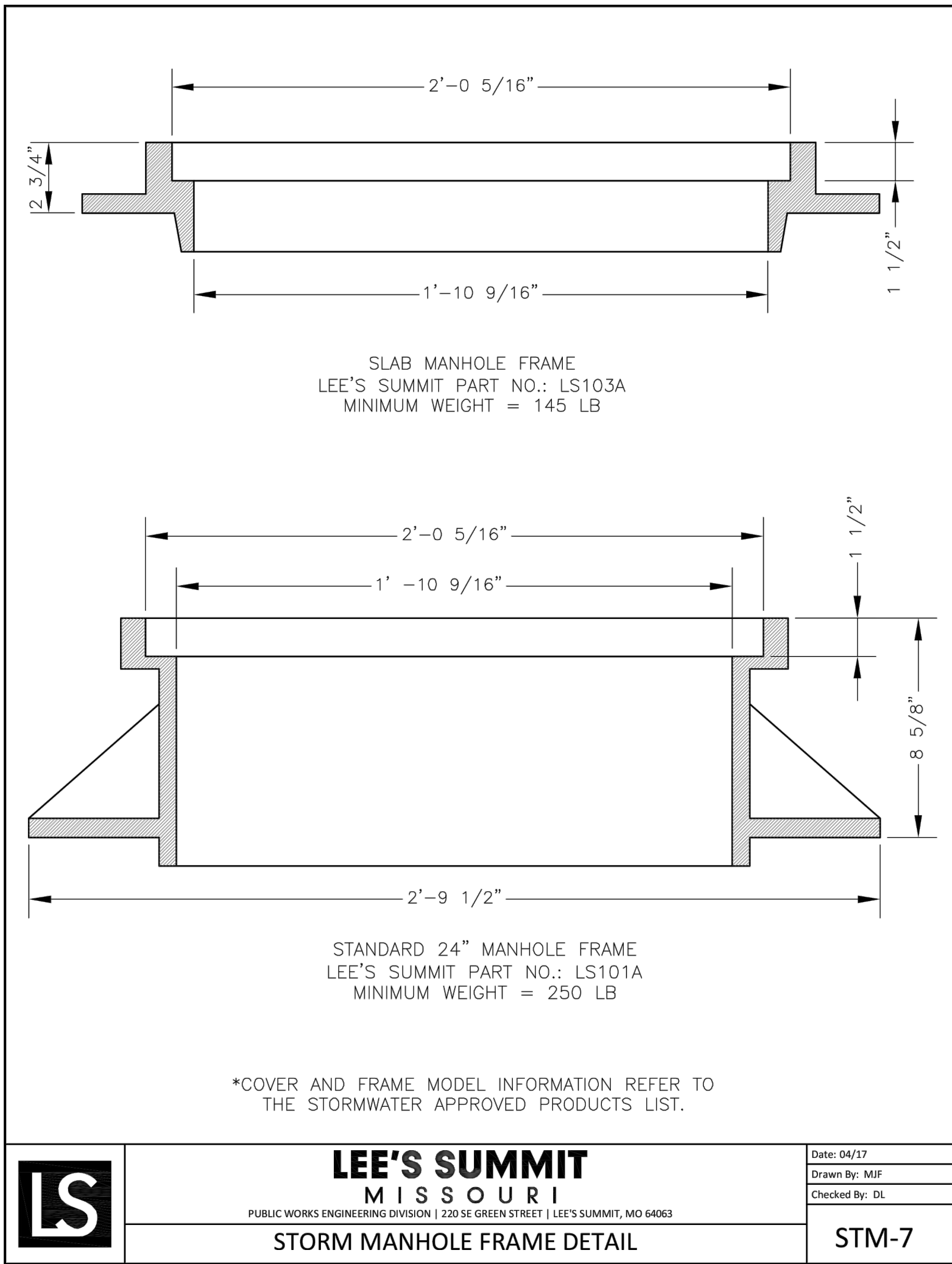
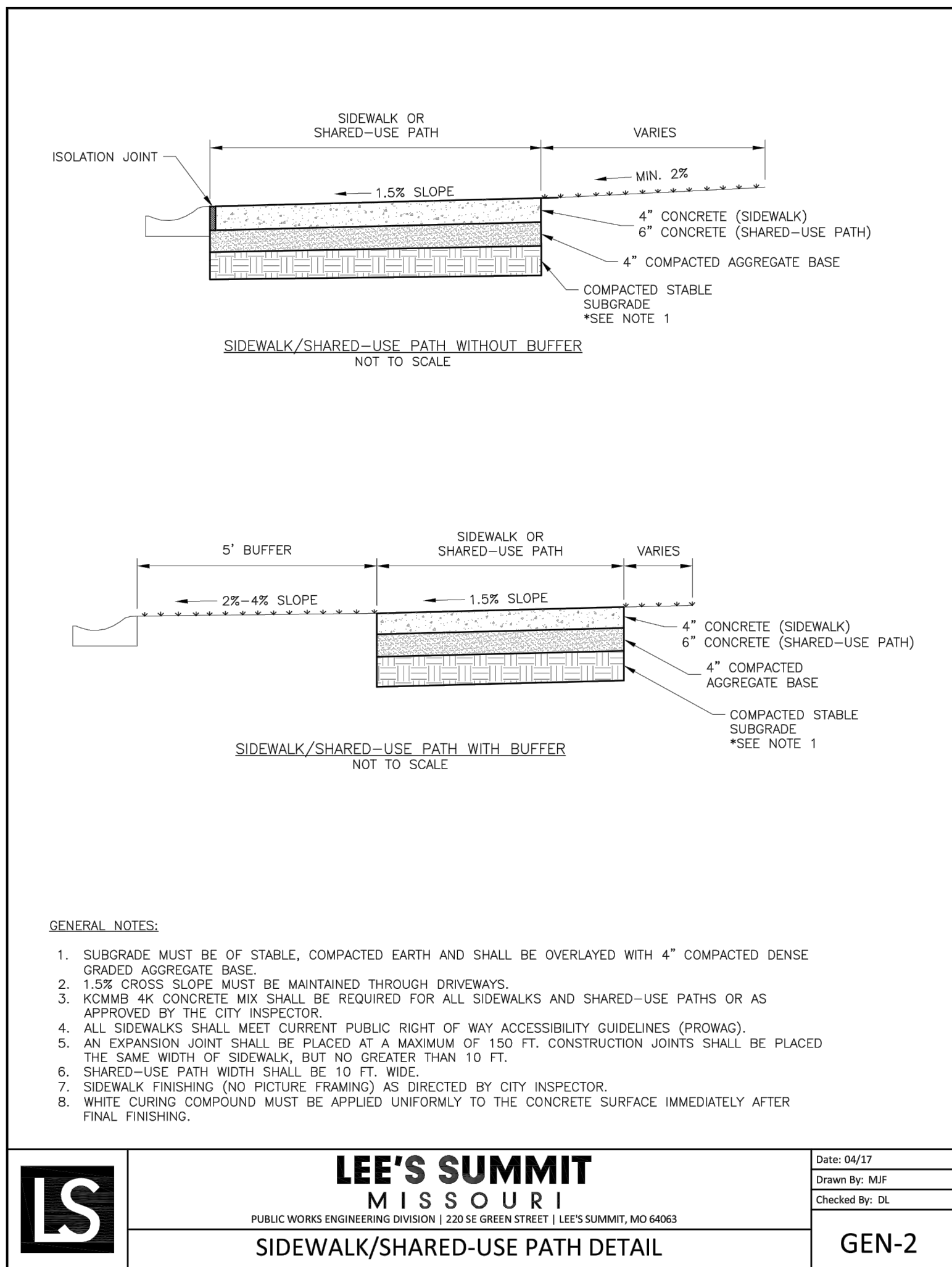
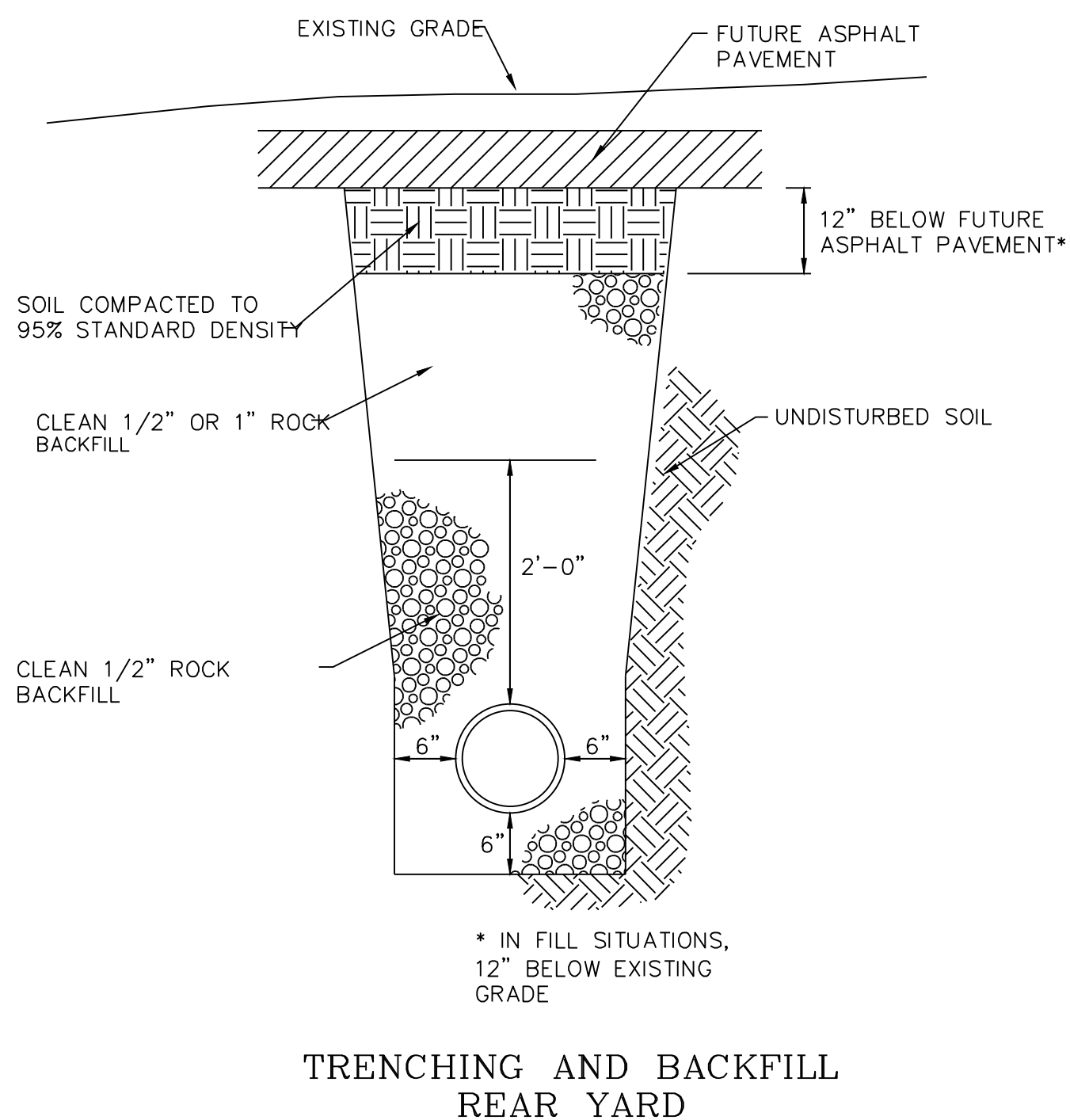
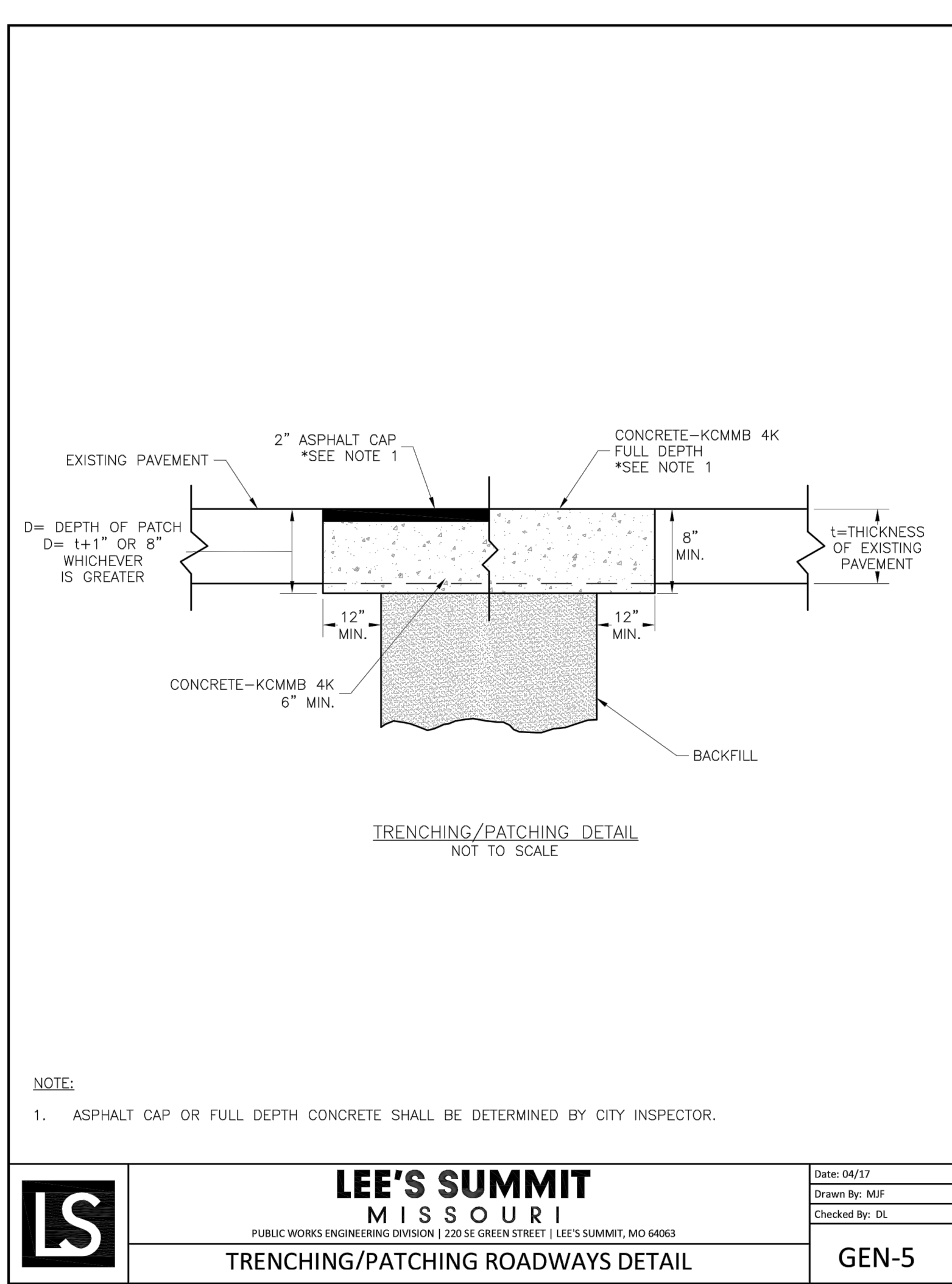
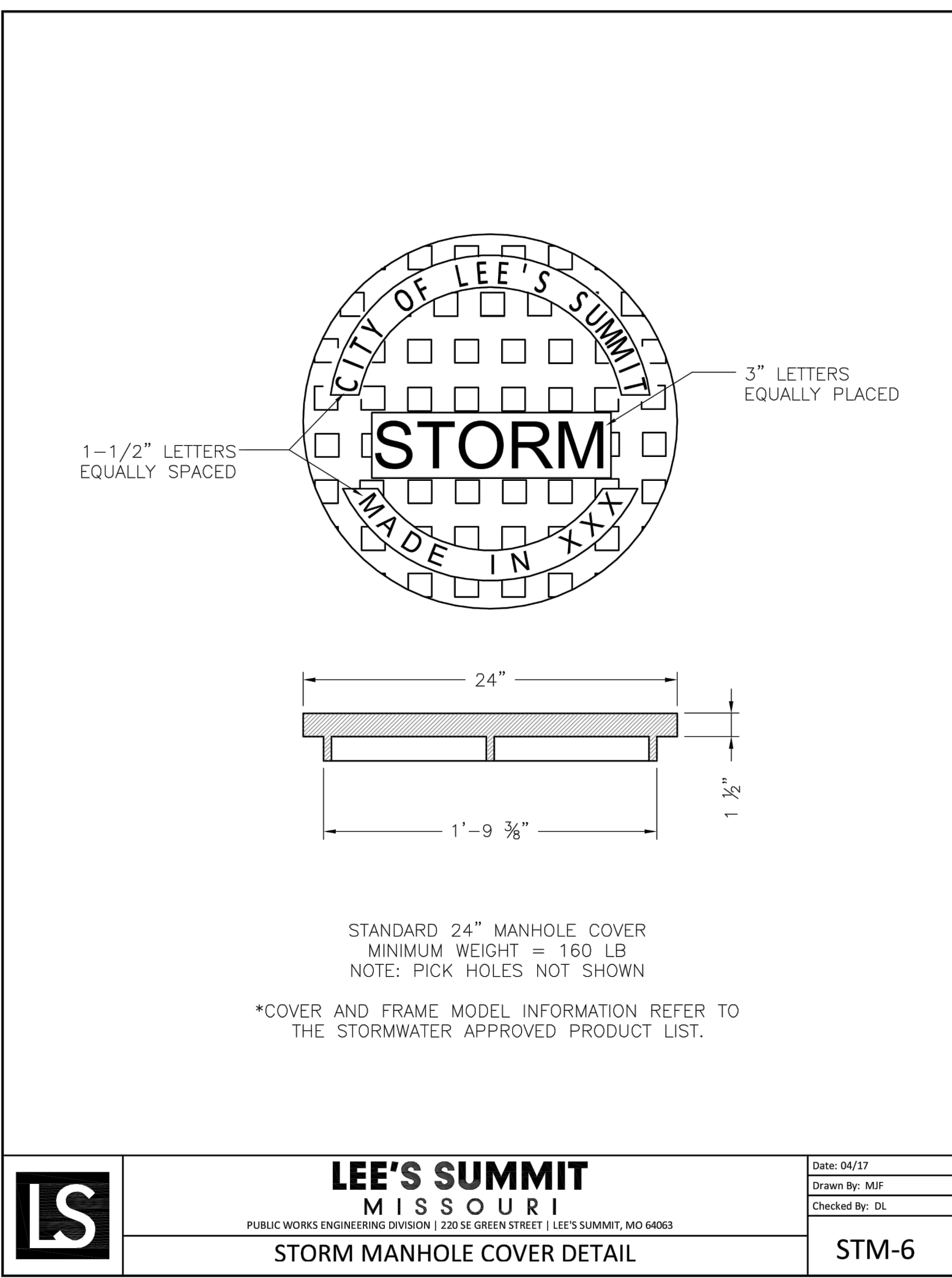
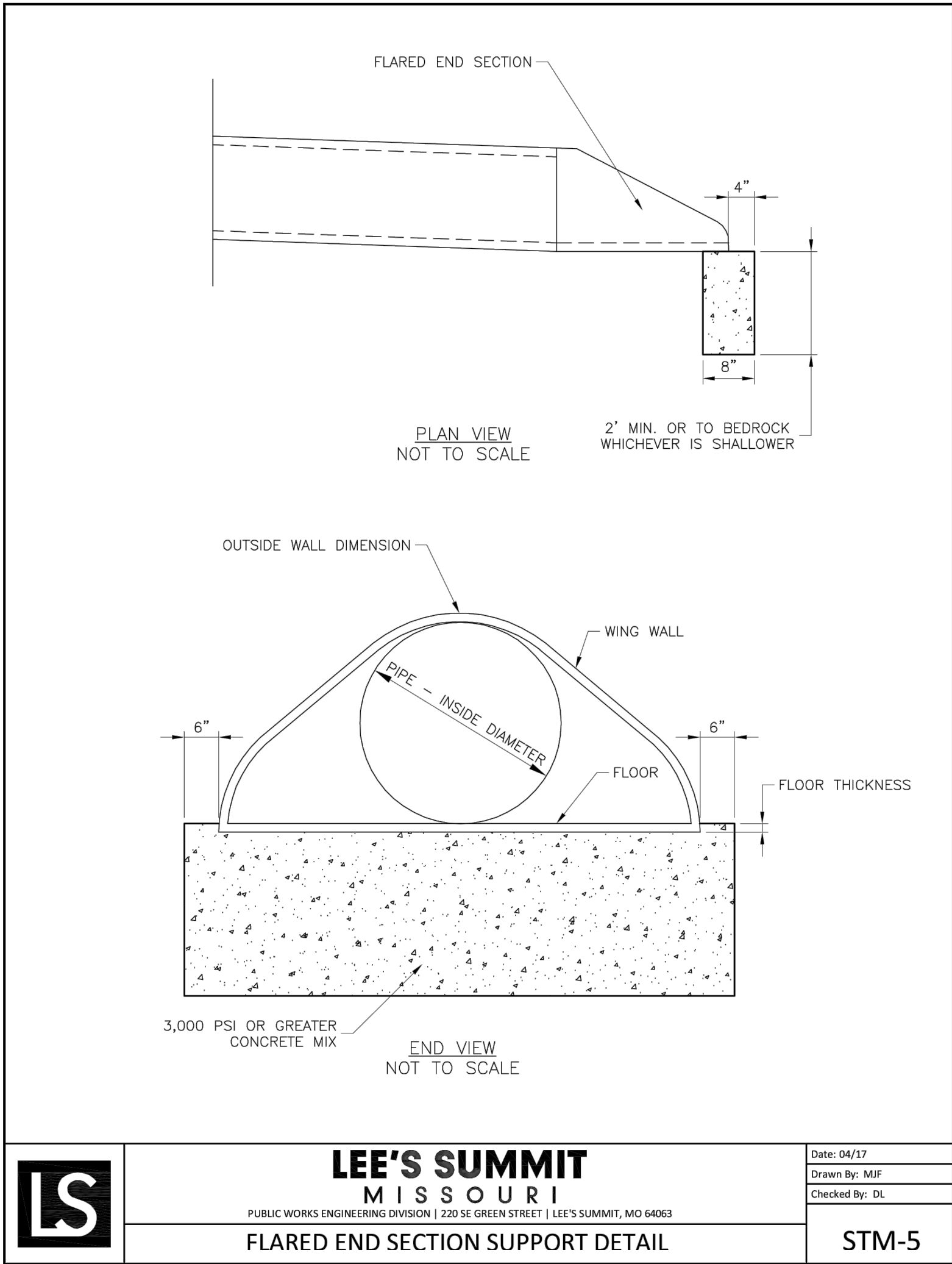


WINTERSET VALLEY, 13TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND
EROSION AND SEDIMENT CONTROL
NW THOREAU DRIVE AND AUDUBON LANE
LEE'S SUMMIT, MO

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KSC	1	
CHECKED BY:	2	
MAB	3	
DATE PREPARED:	4	
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18-230	7	

STREET AND
STORM DETAILS

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

REVISION	DATE	DESCRIPTION
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2	4/17	REVISED FOR COMMENTS
3	4/17	REVISED FOR COMMENTS
4	4/17	REVISED FOR COMMENTS
5	4/17	REVISED FOR COMMENTS
6	4/17	REVISED FOR COMMENTS
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8	4/17	REVISED FOR COMMENTS
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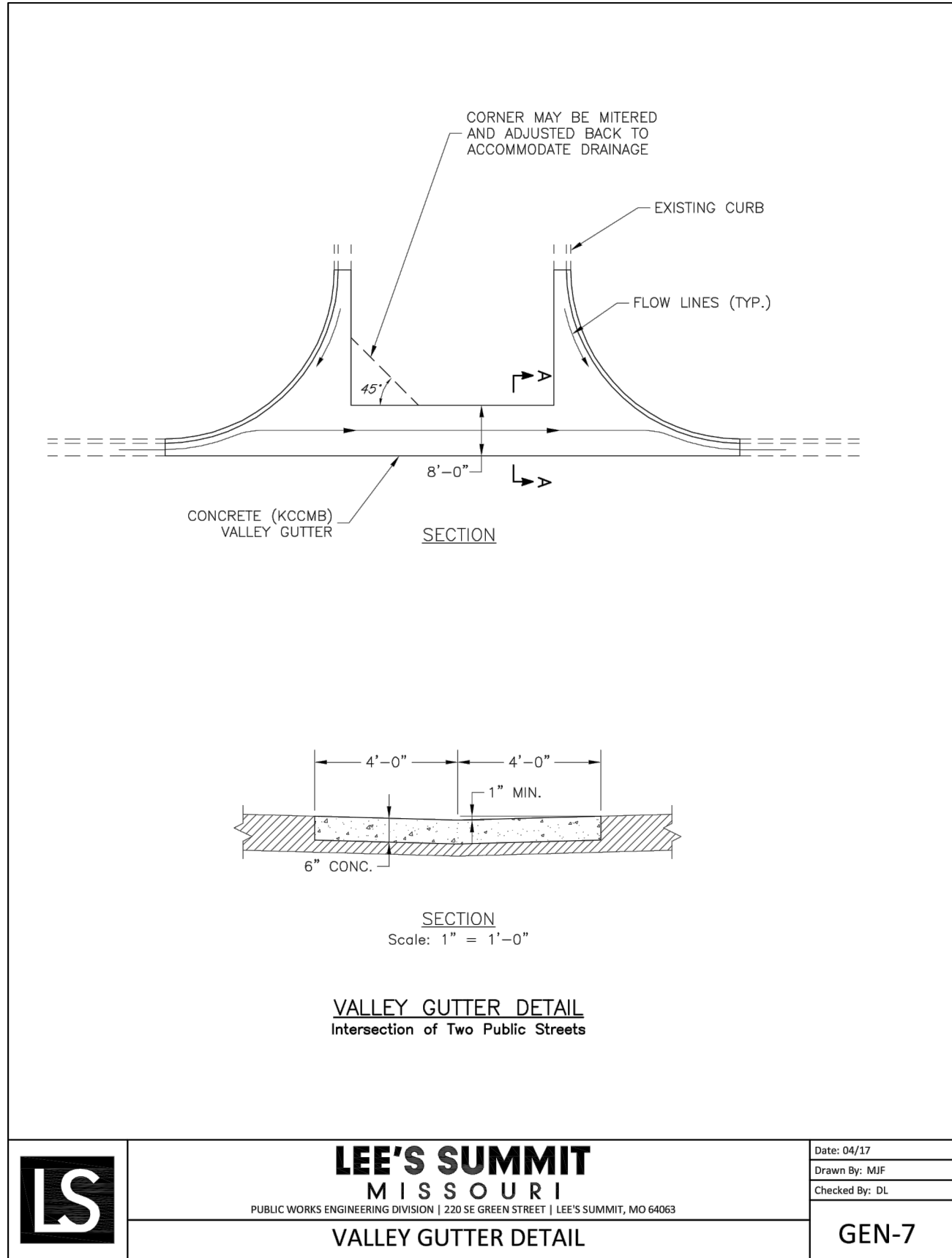
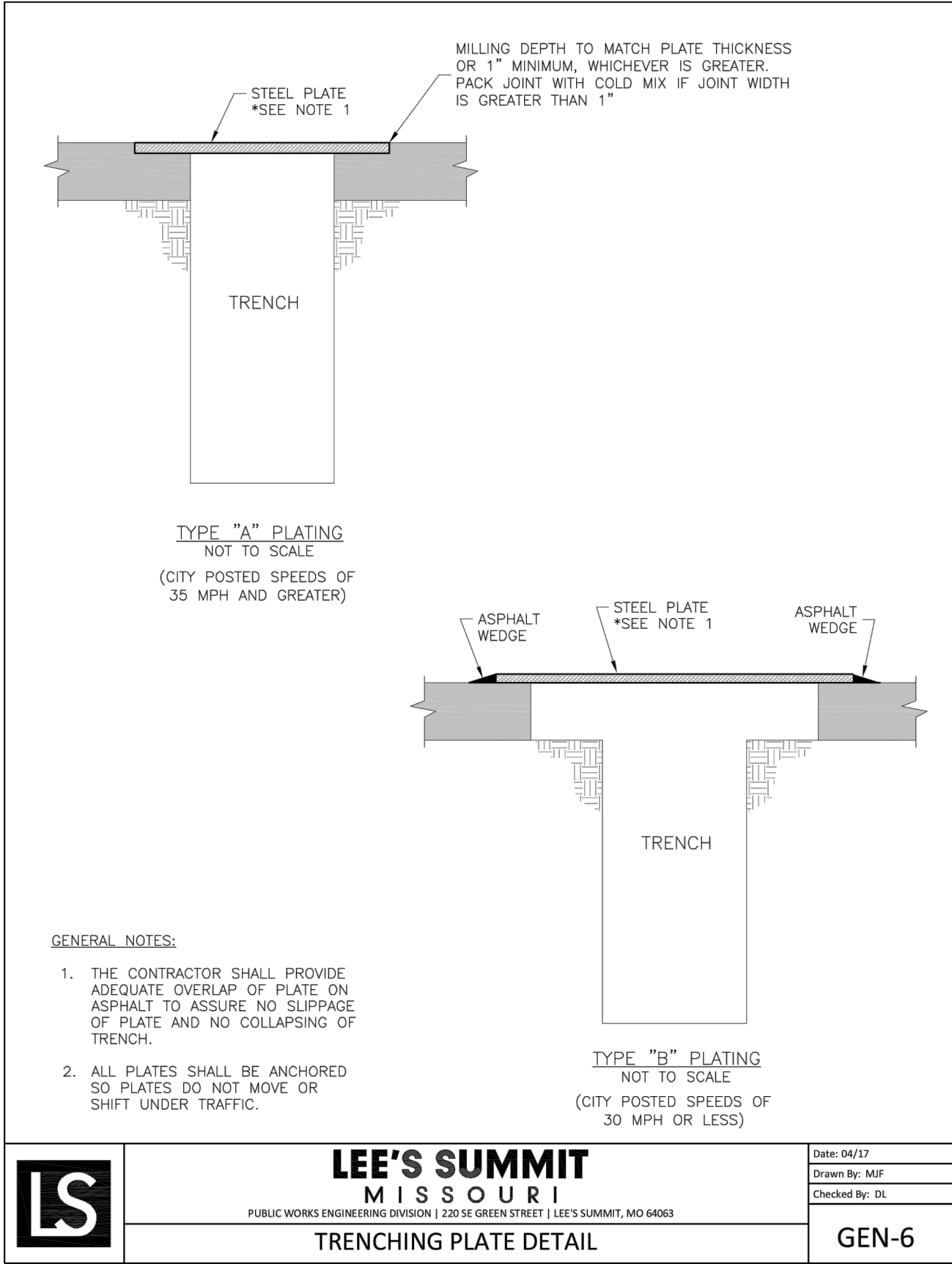
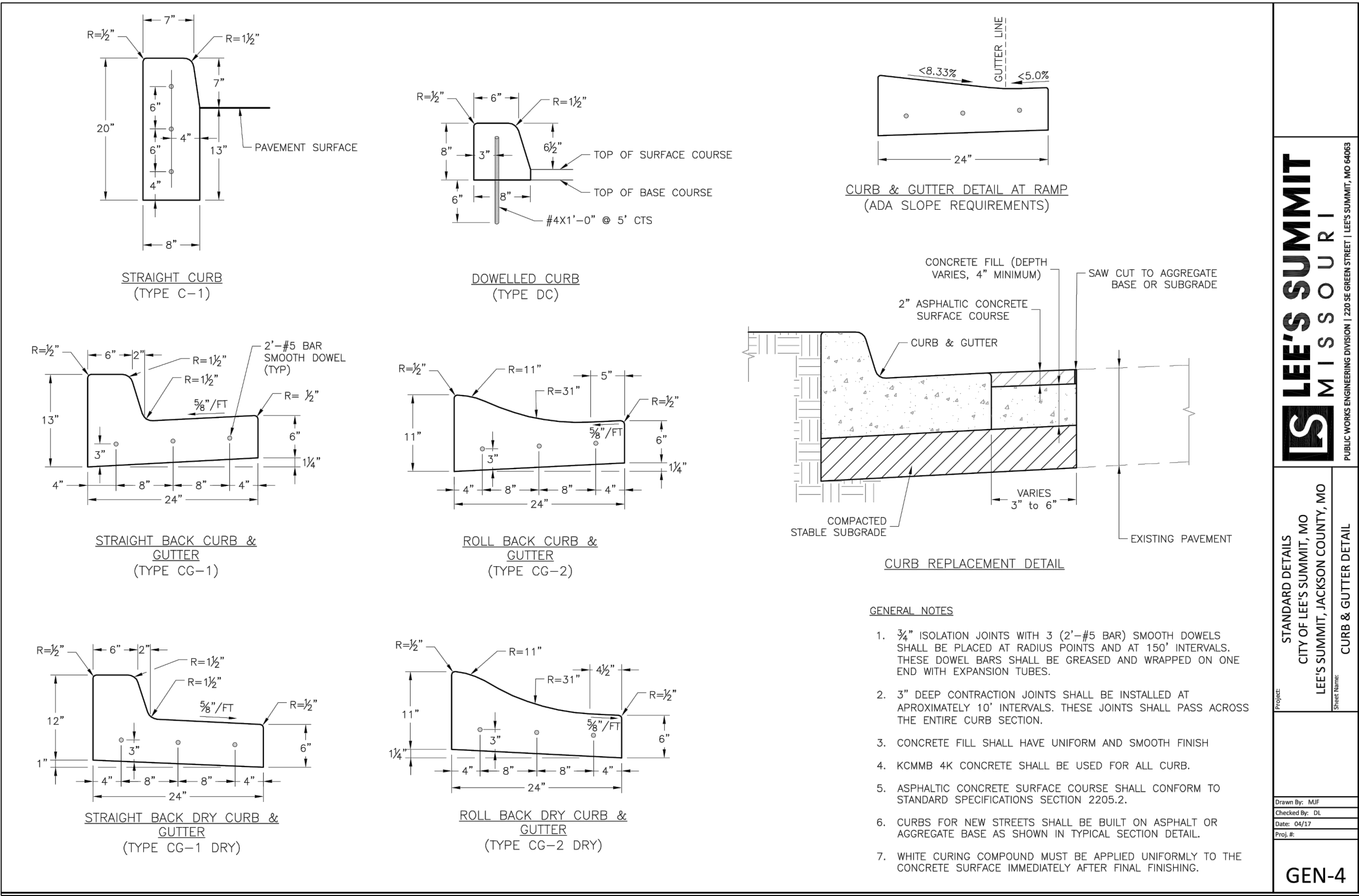
STREET AND STORM DETAILS

SHEET

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OF 23

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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

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

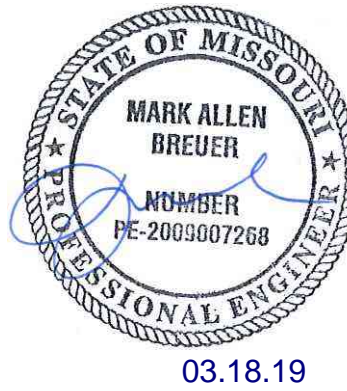
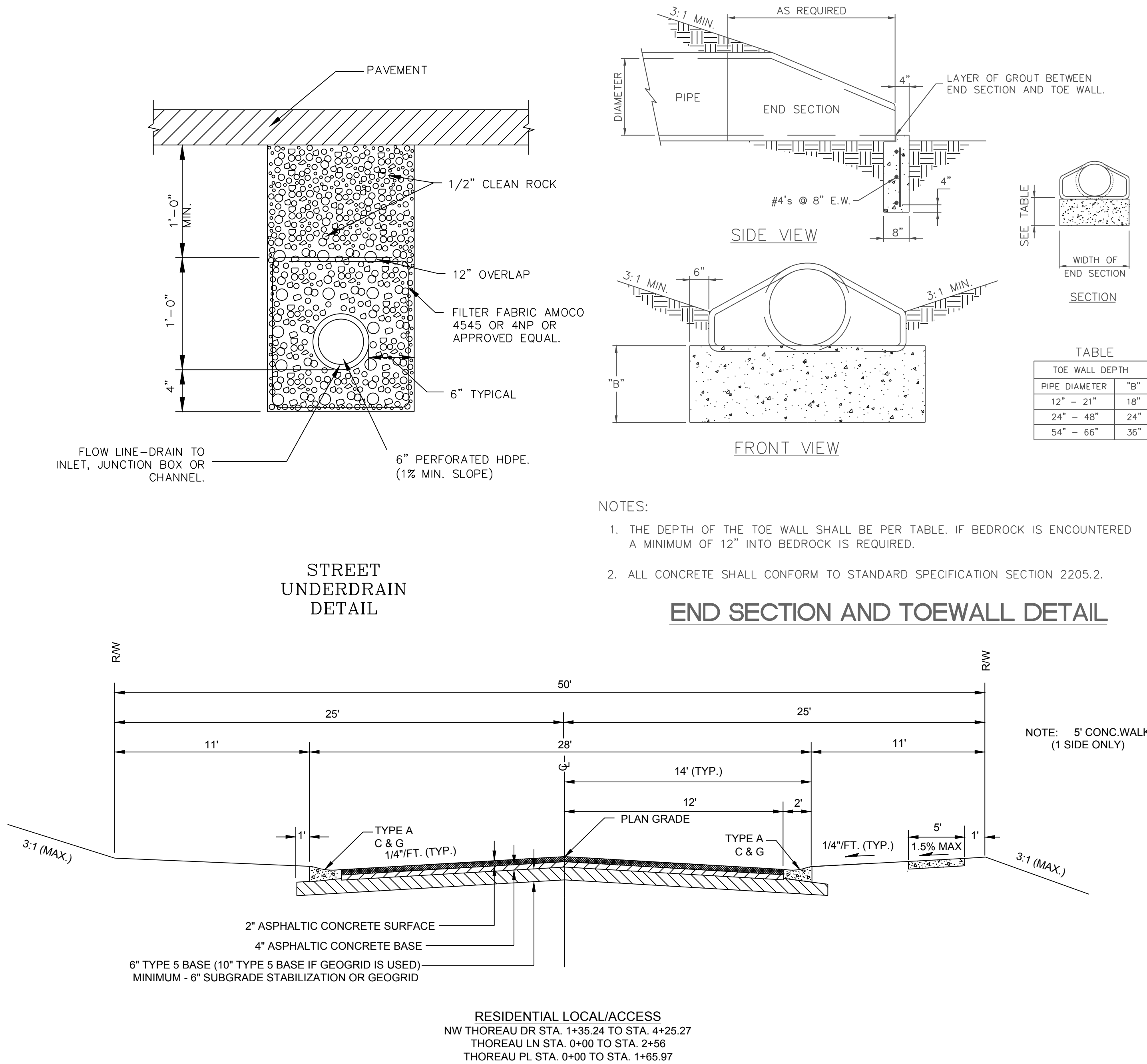
Street Classification	PCC (in.)	Aggregate Base (in.)	Subgrade Stabilization ⁽¹⁾ (in.)
Residential Local/Access	6	4	--
Residential Collector	6	4	6
Commercial Industrial Local/Collector	8	4	9

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

LS5200

16

October 2016



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

SCHLAGEL & ASSOCIATES, P.A.
Engineers • Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2002003600-F #AC200100237 #LS200200869-F

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.

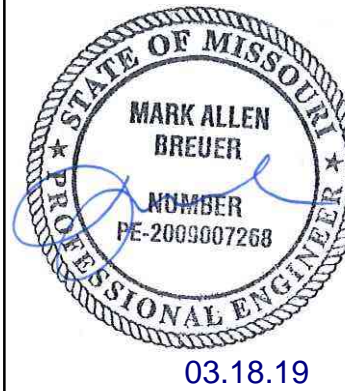
ELEV. 993.11'

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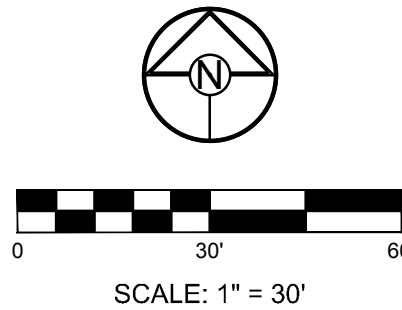
WINTERSET VALLEY, 13TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT CONTROL
NW THOREAU DRIVE AND AUDUBON LANE
LEE'S SUMMIT, MISSOURI

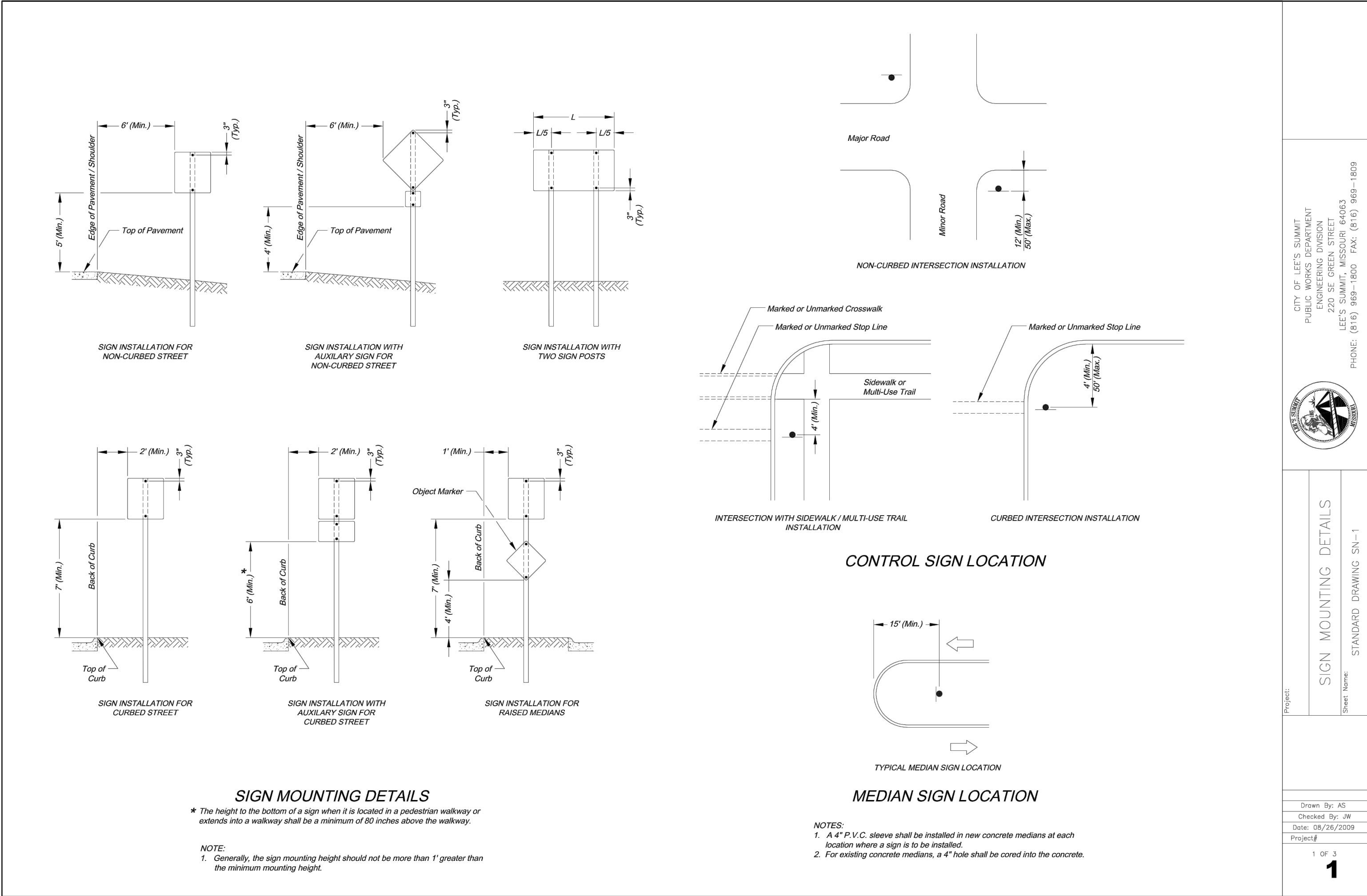
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DRAWN BY: KSC	CHECKED BY: MAB	DATE PREPARED: 2-15-19	PROJ. NUMBER: 18-230
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SIGNING PLAN

SHEET
22
OF 23

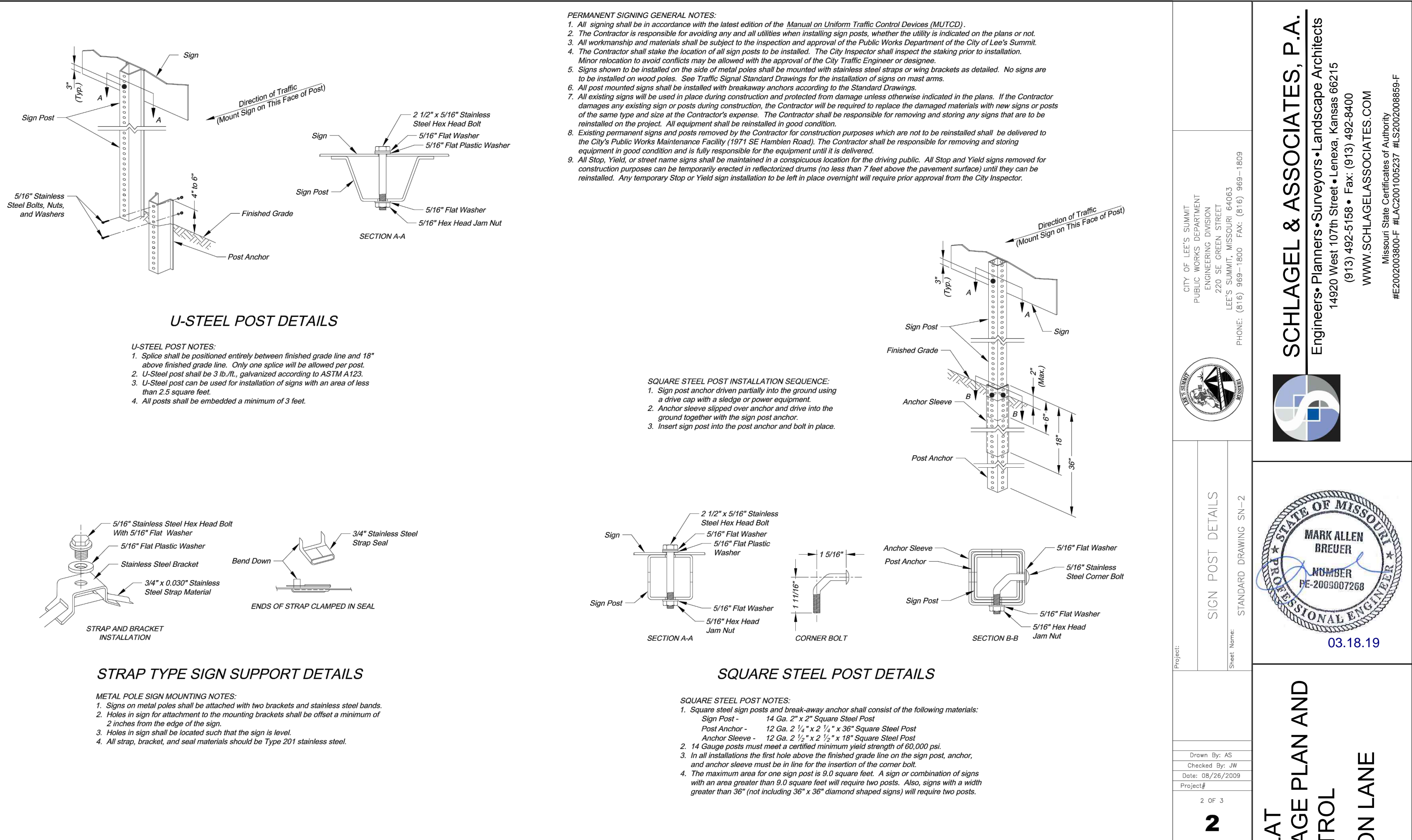





CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64083
PHONE: (816) 989-1800 FAX: (816) 989-1809

PROJECT: 
SHEET NAME: **SIGN MOUNTING DETAILS**
SHEET NUMBER: 1 OF 3
STANDARD DRAWING SN-1

Drawn By: AS
Checked By: JW
Date: 08/26/2009
Project: 18-230



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PUBLIC WORKS DEPARTMENT
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PROJECT: 
SHEET NAME: **STREET NAME SIGN DETAILS**
SHEET NUMBER: 3 OF 3
STANDARD DRAWING SN-3

Drawn By: AS
Checked By: JW
Date: 08/26/2009
Project: 18-230

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
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220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64083
PHONE: (816) 989-1800 FAX: (816) 989-1809

PROJECT: 
SHEET NAME: **SIGN POST DETAILS**
SHEET NUMBER: 2 OF 3
STANDARD DRAWING SN-2

Drawn By: AS
Checked By: JW
Date: 08/26/2009
Project: 18-230

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03.18.19

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