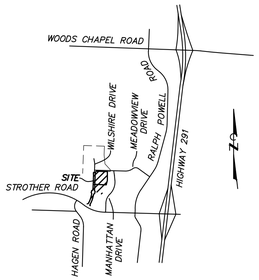
WILSHIRE HILLS - 4TH PLAT
STREET & STORM SEWER PLAN

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI
JUNE 27, 2023
REVISED: OCTOBER 12, 2023



VICINITY MAP

NOT TO SCALE

LEGEND

P	PROPERTY LINE
E	ELECTRIC LINE
T	TELECOMMUNICATIONS LINE
UE	UNDERGROUND ELECTRIC LINE
UT	UNDERGROUND TELECOMMUNICATIONS LINE
UFO	UNDERGROUND FIBER OPTIC LINE
S	SANITARY SEWER LINE
SS	STORM SEWER LINE
G	GAS LINE
W	WATER LINE
X	FENCE
	TREE & BRUSH LINE
	DRAINAGE SWALE
750	EXISTING CONTOUR
	ANCHOR
	TEST BORING
	IRON
CP#	CONTROL POINT
EM	ELECTRIC METER
FES	FLARED END SECTION
FH	FIRE HYDRANT
FL	FLOW LINE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PVC	POLYVINYL CHLORIDE PIPE
TW	TOP OF WALL
UP	UTILITY POLE
WM	WATER METER
WV	WATER VALVE
YL	YARD LIGHT
	SILT FENCE
	TEMPORARY DIVERSION DIKE
	TREE PRESERVATION BARRIER
750	FINISH CONTOUR
50.0	TOP OF CURB ELEVATION
49.5	TOP OF PAVEMENT ELEVATION
49.5	FINISH GRADE ELEVATION
S	PROPOSED SANITARY SEWER LINE
W	PROPOSED WATER LINE
UE	PROPOSED UNDERGROUND ELECTRIC
UT	PROPOSED UNDERGROUND TELECOMMUNICATIONS
	PROPOSED STORM SEWER
	PROPOSED WATER VALVE
	PROPOSED FIRE HYDRANT & VALVE
	THRUST BLOCK
	THRUST COLLAR
	STANDARD DUTY CONCRETE
	HEAVY DUTY CONCRETE

IMPERVIOUS AREA

PRE PROJECT

PERVIOUS	= 8.65 ACRE
IMPERVIOUS	= 0.00 ACRE
TOTAL	= 8.65 ACRE

POST PROJECT

PERVIOUS	= 7.87 ACRE
IMPERVIOUS	= 0.78 ACRE
TOTAL	= 8.65 ACRE

DESIGN REQUIREMENTS

WILSHIRE DRIVE
FUNCTIONAL CLASSIFICATION
COMMERCIAL LOCAL = STA. 4+62.67 – 8+57.76
RESIDENTIAL LOCAL = STA. 8+57.75 – 15+18.90
DESIGN SPEED = 25 MPH

FLOODPLAIN NOTE

THIS PROPERTY IS LOCATED IN ZONE X "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD" AS SHOWN BY FIRM COMMUNITY PANEL NUMBER 29095C0430G, DATED JANUARY 20, 2017.

ZONING NOTE

THIS PROPERTY IS ZONED "P–MIX" PLANNED MIXED USE DISTRICT

STORM WATER POLLUTION PREVENTION PLAN NOTES

1. CONTRACTOR SHALL FOLLOW THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES. A COPY OF THIS PLAN, SWPPP, AND ALL PERMITS SHALL REMAIN ON SITE THROUGHOUT CONSTRUCTION.
2. CONTRACTORS ARE REQUIRED TO SUBMIT TO CITY INSPECTION STAFF COPIES OF THEIR INSPECTION REPORTS REQUIRED BY THE SWPPP ON A MONTHLY BASIS.
3. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED AND APPROVAL HAS BEEN RECEIVED FROM ALL GOVERNING AUTHORITIES.
4. IMMEDIATELY UPON COMPLETION OF FINISH GRADING IN EACH AREA, ALL LANDSCAPING AREAS SHALL BE STABILIZED PER PLANS AND/OR SPECIFICATIONS.
5. SHOULD CONSTRUCTION STOP FOR LONGER THAN 14 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED IN THE SWPPP.
6. SITE INSPECTION SHOULD OCCUR ON A REGULAR SCHEDULE AND WITHIN 24 HOURS OF A STORM EVENT OF 0.25 INCHES OR GREATER. REGULARLY SCHEDULED INSPECTION SHALL BE A MINIMUM OF ONCE EVERY 7 CALENDAR DAYS. ANY DEFICIENCIES SHALL BE NOTED IN A WEEKLY REPORT OF THE INSPECTION AND CORRECTED WITHIN SEVEN CALENDAR DAYS OF THE REPORT.
7. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE AS THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
8. CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL ORDINANCES THAT APPLY.
9. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ON SITE INSPECTION.
10. CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
11. ALL SLOPES GREATER THAN 3:1 SHALL BE REINFORCED BY NORTH AMERICAN GREEN P300 PERMANENT TURF REINFORCEMENT MAT OR APPROVED EQUAL.
12. ALL ROLLED EROSION CONTROL MATS, BIONETS, BLANKETS, ETC. SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS. INSTALLATION SHALL RESULT IN A PRODUCT THAT IS TIGHTLY SECURED TO THE GROUND THAT FORCES RUNOFF TO DRAIN OVER, NOT UNDER, THE PRODUCT. GRASS SHALL BE PLANTED PRIOR TO PRODUCT PLACEMENT SO IT WILL GROW THRU THE BLANKET. ALL ASPECTS OF THE PRODUCT SHALL BE FIRMLY SECURED TO THE GROUND SO IT CAN BE MOWED OVER WITHOUT GETTING TANGLED IN THE MOWER.
13. CONTRACTOR SHALL REMOVE ALL TRASH, DEBRIS, TREES & BRUSH AND OTHER MATERIAL CREATED AS A RESULT OF THE CONSTRUCTION WORK AND THE SITE SHALL BE RETURNED TO ITS ORIGINAL CONDITION.
14. ALL PERIMETER LANDSCAPED AREAS SHALL BE GRASS COVERED.
15. IN ORDER TO TERMINATE A MISSOURI DEPARTMENT OF NATURAL RESOURCES (MDNR) STATE OPERATING PERMIT, THE CONTRACTOR SHALL SUBMIT A REQUEST FOR TERMINATION OF OPERATING PERMIT FORM TO MDNR. A PERMIT IS ELIGIBLE FOR TERMINATION WHEN EITHER PERENNIAL VEGETATION, PAVEMENT, BUILDINGS, OR STRUCTURES USING PERMANENT MATERIALS COVER ALL AREAS THAT HAVE BEEN DISTURBED. VEGETATIVE COVER SHOULD BE AT LEAST 70% OF FULLY ESTABLISHED PLANT DENSITY OVER 100% OF THE DISTURBED AREA. A COPY OF THE REQUEST FOR TERMINATION OF OPERATING PERMIT FORM SHALL BE SUBMITTED TO THE CITY OF LEE'S SUMMIT AT WHICH TIME THE CITY WILL REMOVE THE PROJECT FROM ITS INSPECTION SCHEDULE.
16. THE SITE CONTRACTOR SHALL INCLUDE MAINTENANCE OF ALL BMP'S AS PART OF THEIR CONTRACT AND SHALL BE RESPONSIBLE FOR THE PROJECT UNTIL THE NPDES PERMIT IS TERMINATED.
17. SOIL STOCKPILES SHALL COMPLY WITH THE CITY OF LEE'S SUMMIT ORDINANCE.

CONSTRUCTION NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL IDENTIFIED PROPERTY CORNERS, LAND SURVEY CORNERS, AND ACCESSORIES. THE CONTRACTOR SHALL CAUSE THE CORNERS AND ACCESSORIES TO BE REFERENCED BY A LICENSED LAND SURVEYOR, AND ANY SUCH CORNER OR ACCESSORIES DISTURBED OR DESTROYED DURING CONSTRUCTION SHALL BE RESET BY THE SURVEYOR AT THE ORIGINAL LOCATION, AND FILE THE RESTORATIONS AND MONUMENT DOCUMENTS AS THE LAW REQUIRES.
4. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEERING SURVEYS AND SERVICES FOR REVIEW AND APPROVAL FOR ALL MATERIALS BEFORE ORDERING.
5. ALL DIMENSIONS ARE TO BACK OF CURB, FACE OF SIDEWALK, OR EDGE OF PAVEMENT, UNLESS OTHERWISE NOTED.
6. CONCRETE DRIVEWAY APRONS SHALL BE CONSTRUCTED AS PER CITY OF LEE'S SUMMIT SPECIFICATIONS. CONTRACTOR SHALL OBTAIN PERMIT FROM CITY TO WORK WITHIN STREET RIGHT–OF–WAY.
7. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
8. STANDARD DUTY AND HEAVY DUTY PAVEMENT MAY BE CONCRETE OR ASPHALT UNLESS OTHERWISE NOTED. INTEGRAL CURB MAY BE USED FOR CONCRETE PAVEMENT.
9. ALL TRAFFIC CONTROL SHALL BE PER CURRENT MUTCD REQUIREMENTS AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. A TRAFFIC CONTROL PLAN WILL BE REQUIRED FOR ANY WORK WITHIN THE RIGHT–OF–WAY.
10. CONTRACTOR SHALL NOTIFY ADJACENT PROPERTY OWNERS IN WRITING 30 DAYS PRIOR TO CONSTRUCTION.
11. IF A CONFLICT EXISTS BETWEEN THE CIVIL PLANS AND CIVIL SPECIFICATIONS, THE CIVIL PLANS SHALL GOVERN.
12. ALL INCIDENTAL ITEMS INCLUDING BUT NOT LIMITED TO SIGNS, PAVEMENT MARKING, PAVEMENT, CURBS, TRUNCATED DOMES, FENCING, LANDSCAPING, IRRIGATION, ETC. EITHER DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE RETURNED TO ORIGINAL CONDITIONS BY THE CONTRACTOR.

NOTE

IT IS IMPORTANT TO NOTE THAT THIS PLAN IS A PART OF A LARGER PUBLIC IMPROVEMENT PLAN CONSTRUCTION DOCUMENT. ALL EROSION AND SEDIMENT CONTROL REQUIREMENTS ARE STILL APPLICABLE FOR ANY ONSITE CONSTRUCTION. PLEASE REFERENCE:

- ROAD & STORM SEWER PLAN COVER
- UTILITY EXTENSION PLAN COVER
- SANITARY SEWER EXTENSION PLAN COVER
- MASS GRADING & EROSION CONTROL PLAN COVER

GRADING AND STORM SEWER CONSTRUCTION NOTES

1. ALL STORM SEWER PIPES AND INLETS SHALL MEET HEAVY DUTY TRAFFIC (HS20) LOADING AND BE INSTALLED ACCORDINGLY.
2. CONCRETE STORM SEWER INLETS & JUNCTION BOXES SHALL BE INSTALLED PER THE CITY OF LEE'S SUMMIT SPECIFICATIONS AND AS DETAILED IN THESE PLANS.
3. REINFORCED CONCRETE PIPE (RCP) SHALL BE INSTALLED PER THE "EMBEDMENT OF RCP STORM SEWER PIPE" DETAIL. PIPE CLASS SHALL BE APPROPRIATE TO DEPTH AND BEDDING MATERIAL AS SHOWN IN SCHEDULE.
4. ALL RCP PIPE JOINTS SHALL BE SOIL TIGHT PER CURRENT MODOT SPECIFICATIONS SECTION 726.3.1.
5. ALL HDPE PIPE SHALL BE ADS N–12 ST SOIL TIGHT, SMOOTH INTERIOR PIPE OR APPROVED EQUAL. INSTALLATION SHALL FOLLOW THE "EMBEDMENT OF PLASTIC STORM SEWER PIPE" DETAIL.
6. CONTRACTOR SHALL ADJUST ALL GRATES, MANHOLES, VALVE BOXES, ETC. TO MATCH FINISH GRADES, AS REQUIRED.
7. ALL STRUCTURE CONNECTIONS SHALL BE WATERTIGHT.
8. ALL CONCRETE STORM STRUCTURES SHALL HAVE A SMOOTH UNIFORM POURED CONCRETE INVERT FROM INVERT IN TO INVERT OUT.
9. ALL STORM SEWER MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT, AND SHALL HAVE TRAFFIC BEARING RING & COVERS. MANHOLES IN UNPAVED AREAS SHALL BE FLUSH WITH FINISH GRADE. LIDS SHALL BE LABELED "STORM SEWER". TOP OF BOXES SHALL BE SLOPED TO MATCH PAVEMENT GRADE.
10. PIPE LENGTHS ARE GIVEN FROM CENTER OF STRUCTURE OR DOWNSTREAM END OF FLARED END SECTIONS.
11. ALL FLARED END SECTIONS FOR CONCRETE PIPE SHALL BE REINFORCED PRECAST CONCRETE. ALL FLARED END SECTIONS FOR PLASTIC PIPE SHALL BE GALVANIZED METAL UNLESS OTHERWISE NOTED.
12. ALL SITES USED FOR IMPORTING OR EXPORTING OF FILL MATERIAL SHALL HAVE AN ACTIVE MISSOURI DEPARTMENT OF NATURAL RESOURCES LAND DISTURBANCE PERMIT, AS REQUIRED.
13. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS, TREES AND BRUSH, AND OTHER MATERIAL CREATED AS A RESULT OF CONSTRUCTION. MATERIAL SHALL BE DISPOSED OF IN COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. BURNING ON SITE SHALL BE ALLOWED BY PERMIT ONLY.
14. CONTRACTOR SHALL REMOVE ALL STUMPS BY EXCAVATING TO INCLUDE REMOVAL OF ASSOCIATED ROOT SYSTEM.
15. CONTRACTOR SHALL NOT ADVANCE TRENCH EXCAVATION BEYOND AMOUNT THAT CAN ACCOMMODATE PIPE INSTALLATION AND BACKFILLING AT THE END OF EACH DAY.
16. ENGINEERED FILL SHOULD BE FREE OF FROZEN SOIL, ORGANICS, RUBBISH, LARGE ROCKS, WOOD, OR OTHER DELETERIOUS MATERIAL. COHESIVE FILLS SHOULD BE UNIFORMLY COMPACTED TO AT LEAST 95 PERCENT OF THE "STANDARD" MAXIMUM DRY DENSITY AND BE WITHIN –2 TO +4 PERCENT OF OPTIMUM MOISTURE CONTENT AS DESCRIBED BY ASTM D698. GRANULAR FILLS SHOULD BE UNIFORMLY COMPACTED TO AT LEAST 95 PERCENT OF THE "STANDARD" MAXIMUM DRY DENSITY. THE MOISTURE CONTENT SHOULD BE HIGH ENOUGH TO PROVIDE FOR PROPER COMPACTION BUT LOW ENOUGH TO PREVENT UNDUE PUMPING. PLACE FILL MATERIAL IN LOOSE LIFTS NOT TO EXCEED 8 INCHES IN THICKNESS.
17. ROCKS AND STONES THAT EXCEED THE THICKNESS OF THE LOOSE LIFT FILL LAYER SHOULD BE REMOVED AND DISPOSED OF OFF THE IMMEDIATE CONSTRUCTION AREA.
18. IMPORTED SOILS PROPOSED FOR USE AS FILL OR BACKFILL SHOULD BE REVIEWED AND ANALYZED BY THE GEOTECHNICAL ENGINEER PRIOR TO USE ON SITE. SOIL CLASSIFIED AS MH, OH, OL, OR PT (HIGH PLASTICITY SOILS AND ORGANIC SOILS) BY THE UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487) SHOULD NOT BE IMPORTED FOR USE AS ENGINEERED FILL. SUITABLE IMPORTED MATERIALS FOR GENERAL SITE FILL ARE THOSE THAT CLASSIFY AS GW, GM, GC, SC, AND CL IN ACCORDANCE WITH ASTM D 2487. MATERIALS CLASSIFIED AS CH SHOULD BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO THEIR IMPORTATION AND ONLY USED OUTSIDE THE BUILDING PAD AT DEPTHS BELOW THE UPPER 2 FEET OF SUBGRADE. SUBJECT TO FINAL DESIGN REQUIREMENTS FOR WALL BACKFILL, SUITABLE IMPORTED MATERIALS FOR WALL AND TRENCH BACKFILL ARE THOSE THAT CLASSIFY AS GW, GP, GM, GC, SM, SW, SP, SC, AND CL IN ACCORDANCE WITH ASTM D2487.
19. FILLS PLACED IN AREAS WHERE THE NATURAL SLOPE IS GREATER THAN 5H:1V (HORIZONTAL TO VERTICAL) SHOULD BE BENCHED INTO THE EXISTING GRADE TO REDUCE THE POTENTIAL FOR SLIPPAGE BETWEEN EXISTING SLOPES AND ENGINEERED FILL. BENCHES SHOULD BE LEVEL AND WIDE ENOUGH TO ACCOMMODATE COMPACTION AND EARTH MOVING EQUIPMENT.
20. FILL AND SUBGRADE CONSTRUCTION SHOULD NOT BE STARTED ON FOUNDATION SOIL, PARTIALLY COMPLETED FILL, OR SUBGRADES THAT CONTAIN FROST OR ICE. FILL SHOULD NOT BE CONSTRUCTED USING FROZEN SOIL. FROZEN SOIL SHOULD BE REMOVED PRIOR TO PLACING FILL MATERIAL.
21. AFTER STRIPPING AND GRUBBING OPERATIONS ARE COMPLETED AND PRIOR TO FILL PLACEMENT, AREAS TO BE FILLED SHALL BE PROOF ROLLED USING A LOADED TANDEM AXLE DUMP TRUCK TO IDENTIFY SOFT AND UNSUITABLE AREAS. SOFT MATERIAL MAY BE MOISTURE CONDITIONED AND REUSED AS ENGINEERED FILL, UNSUITABLE AND DELETERIOUS MATERIAL SHALL BE REMOVED FROM SITE.
22. ALL NEW UTILITY TRENCHES SHOULD BE BACKFILLED IN ACCORDANCE WITH APPROPRIATE CONTROLLED ENGINEERED FILL SPECIFICATIONS.
23. FIELD DENSITY TESTS SHOULD BE CONDUCTED IN ACCORDANCE WITH ASTM D6938 (NUCLEAR METHODS) OR ASTM D 1556 (SAND CONE METHOD). FIELD DENSITY TESTS SHOULD BE PERFORMED AT THE RATE OF ONE TEST PER 2,500 SQUARE FEET PER LIFT WITHIN THE BUILDING AND 10,000 SQUARE FEET PER LIFT BENEATH PAVEMENTS, SIDEWALKS, AND OTHER POTENTIAL STRUCTURAL AREAS WITH A MINIMUM OF 3 TESTS PER LIFT AND ONE TEST PER 150 LINEAL FEET PER LIFT FOR FOUNDATION, TRENCH AND WALL BACKFILL.
24. BUILDING PAD AND PARKING AREAS SHALL BE PROOF–ROLLED WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK TO IDENTIFY ANY SOFT OR UNSUITABLE AREAS, PRIOR TO BASE ROCK PLACEMENT. THE PROOF–ROLL SHALL BE OBSERVED BY THE PROJECT GEOTECHNICAL ENGINEER. AREAS IDENTIFIED AS UNSUITABLE SHALL BE OVER EXCAVATED AND RECONSTRUCTED WITH ENGINEERED FILL.
25. CONTRACTOR SHALL PLACE STOCKPILED TOPSOIL FROM SITE IN ALL LANDSCAPE AREAS TO A MINIMUM DEPTH OF OF 6", UNLESS NOTED OTHERWISE IN PROJECT SPECIFICATIONS. ANY EXCESS TOPSOIL SHALL BE DISPOSED OF ONSITE PER OWNER.

AS–BUILT SURVEY NOTES

1. AT THE COMPLETION OF CONSTRUCTION AND PRIOR TO THE FINAL FIELD INSPECTION, AN "AS–BUILT" SURVEY OF THE PUBLIC ROAD, STORM SEWER, AND STORM WATER DETENTION SYSTEM SHALL BE SUBMITTED TO THE ENGINEER IN DIGITAL CAD AND PDF FORMAT. PDF FORMAT SHALL INCLUDE THE SURVEYORS TITLE BLOCK. THIS SURVEY SHALL INCLUDE THE FOLLOWING:
   - 1.1. CROSS SECTIONS EVERY 50 FEET
   - 1.2. TOP OF CURB
   - 1.3. GUTTER PAN
   - 1.4. CENTER LINE
   - 1.5. EDGE OF SIDEWALK
2. AT THE COMPLETION OF CONSTRUCTION AND PRIOR TO THE FINAL FIELD INSPECTION, AN "AS–BUILT" SURVEY OF THE BIORETENTION BASIN SHALL BE SUBMITTED TO THE ENGINEER IN DIGITAL CAD AND PDF FORMAT. PDF FORMAT SHALL INCLUDE THE SURVEYOR'S TITLE BLOCK. THIS SURVEY SHALL INCLUDE THE FOLLOWING:
   - 2.1. ELEVATIONS OF INVERTS AND TOPS, TYPE, SIZE OF STRUCTURES.
   - 2.2. FIELD–MEASURED DISTANCE BETWEEN STRUCTURES.
   - 2.3. SIZE, TYPE, AND ACTUAL SLOPE OF PIPE.
   - 2.4. BASIN OUTLET WORKS.
   - 2.5. BASIN GRADING.
   - 2.6. EMERGENCY SPILLWAY
3. THE "AS–BUILT" PLANS SHALL BE IN THE SAME FORMAT AS THE ORIGINAL CONSTRUCTION PLANS, MUST BE CERTIFIED BY A PROFESSIONAL LAND SURVEYOR, AND SHALL MEET THE REQUIREMENTS OF CITY UTILITIES REGULATIONS. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW. UPON APPROVAL, THE ENGINEER WILL CERTIFY THE AS–BUILTS AND RETURN TO THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT A REPRODUCIBLE COPY OF THE FINAL PLAN, THREE (3) SETS OF AS–BUILTS PLANS, AND A DIGITAL COPY OF THE AS–BUILT PLANS TO HENRY COUNTY.

BENCH MARK

BM – MISSOURI DEPARTMENT OF TRANSPORTATION VRS NETWORK.

PROPERTY OWNER

JEFFREY E. SMITH INVESTMENT CO, LLC
206 PEACH WAY
COLUMBIA, MISSOURI 65203

UTILITY NOTES

THE LOCATIONS, SIZES, AND MATERIAL TYPES OF UNDERGROUND UTILITIES INDICATED ON THE PLAT, NOT VISIBLE OR APPARENT FROM THE SURFACE, ARE SHOWN IN THEIR APPROXIMATE LOCATIONS FROM A MISSOURI ONE CALL SYSTEM LOCATE, OR UTILITY COMPANY RECORDS AND WERE NOT VERIFIED IN THE FIELD.

WATER
JACKSON COUNTY PWSD #14
CITY OF LEE'S SUMMIT
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
CONTACT: PUBLIC WORKS DEPARTMENT 816–969–1800
12" DI ALONG THE NORTH SIDE OF MEADOWVIEW DRIVE.
30" PCCP ALONG THE WEST PROPERTY LINE.

SANITARY SEWER
CITY OF LEE'S SUMMIT
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
CONTACT: WES OWEN 816–969–1955
AS SHOWN

STORM SEWER
CITY OF LEE'S SUMMIT
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
CONTACT: SHAWN GRAFF 816–969–1800
AS SHOWN

ELECTRIC
EVERGY
1300 SE HAMBLEN ROAD
LEE'S SUMMIT, MISSOURI 64081
CONTACT: 888–471–5275

FIBER OPTIC
GOOGLE FIBER
2812 WEST 47TH STREET
KANSAS CITY, KS 66103
CONTACT: CRAIG YOUNG 870–219–5630

GAS
MISSOURI GAS ENERGY
3025 SE CLOVER ROAD
LEE'S SUMMIT, MISSOURI 64081
CONTACT: BECCA ORR 816–969–2230

TELECOM
AT&T
215 N. SPRING STREET, 2nd FLOOR
INDEPENDENCE, MO 64050
CONTACT: MARK MANION 816–275–2341
AS SHOWN

TIME WARNER CABLE
CONTACT: ROY BELLIS 913–643–1914
AS SHOWN

COMCAST CABLE COMMUNICATIONS
3400 NW DUNCAN ROAD
BLUE SPRINGS, MO 64015
CONTACT: BARBARA BROWN 816–795–2255
AS SHOWN

Call BEFORE you DIG
TOLL FREE
1-800-DIG-RITE
MISSOURI ONE-CALL SYSTEM, INC.

SHEET INDEX

WILSHIRE HILLS - 4TH PLAT
ROAD & STORM SEWER PLAN

Engineering Surveys & Services
DELIVERING YOUR VISION ™
1113 Fay Street, Columbia, MO 65201
573 - 449 - 2646
802 El Dorado Drive, Jefferson City, MO 65101
573-636-3303
1775 West Main Street, Sedalia, MO 65301
660-826-6618
www.ess-inc.com
MO Engineering Corp. # 2004005018

PUBLIC IMPROVEMENTS FOR WILSHIRE HILLS - 4TH PLAT
NE WILSHIRE DRIVE
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

10/12/2023
STATE OF MISSOURI
MATTHEW AARON KRIETE
NUMBER PE-2007002811
PROFESSIONAL ENGINEER

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

IF ORIGINAL SIGNATURE OR DIGITAL AUTHENTICATION IS NOT PRESENT THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

Date
JUNE 27, 2023

Revised	
1	JULY 26, 2023
2	OCTOBER 12, 2023

Design: ST Drawn: MJS

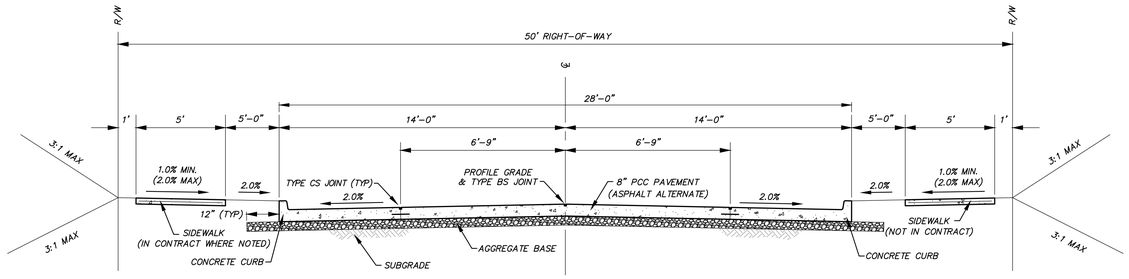
ROAD & STORM SEWER PLAN COVER

Sheet
C2.01

ES&S PROJECT NO. 15925

CONSTRUCTION DOCUMENTS

P:\GENERAL PROJECTS\15925E-JES-WILSHIRE-HILLS-3-ENG\CAD\15925 COVER & DETAILS.DWG 10/17/2023

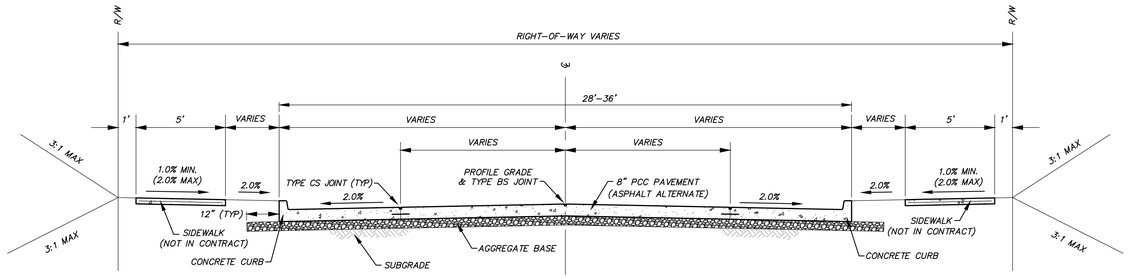


OPTION 1: 4" AGGREGATE BASE W/ 9" CHEMICAL SUBGRADE STABILIZATION.
OPTION 2: 6" AGGREGATE BASE W/ POLYPROPYLENE GEOGRID

TYPICAL WILSHIRE DRIVE RESIDENTIAL SECTION

STA. 9+74.60 – STA. 14+28.28

NOT TO SCALE



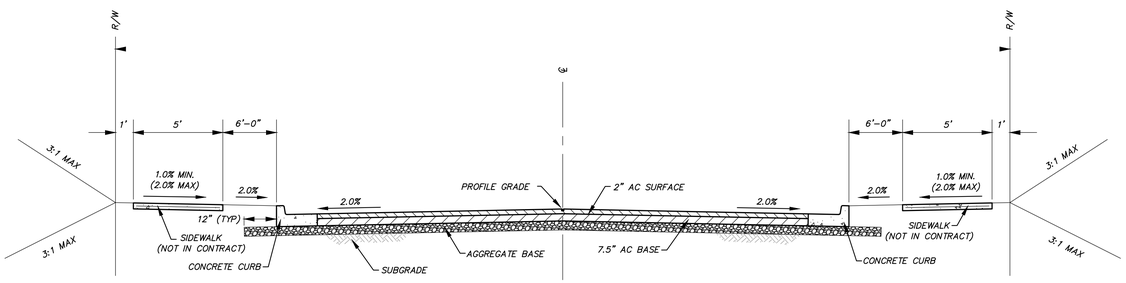
OPTION 1: 4" AGGREGATE BASE W/ 9" CHEMICAL SUBGRADE STABILIZATION.
OPTION 2: 6" AGGREGATE BASE W/ POLYPROPYLENE GEOGRID

TYPICAL WILSHIRE DRIVE TRANSITION SECTION

STA. 8+60.39 – STA. 9+74.60

STA. 14+41.20 – STA. 15+21.53

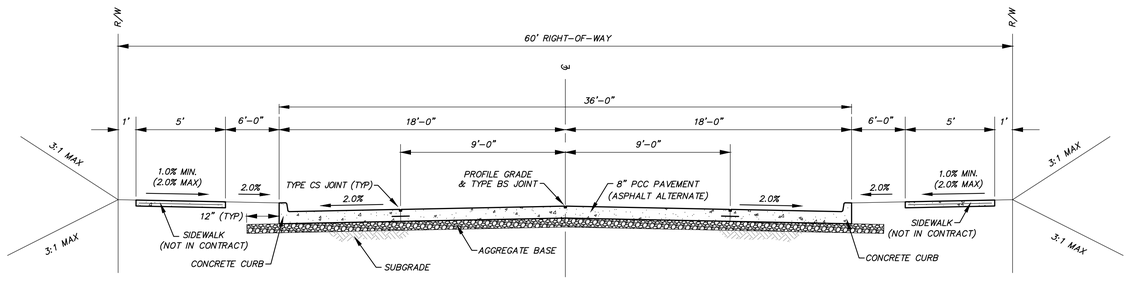
NOT TO SCALE



OPTION 1: 6" AGGREGATE BASE W/ 9" CHEMICAL SUBGRADE STABILIZATION.
OPTION 2: 12" AGGREGATE BASE W/ POLYPROPYLENE GEOGRID/ WOVEN GEOTEXTILE.

ASPHALT ALTERNATE

NOT TO SCALE



OPTION 1: 4" AGGREGATE BASE W/ 9" CHEMICAL SUBGRADE STABILIZATION.
OPTION 2: 6" AGGREGATE BASE W/ POLYPROPYLENE GEOGRID

TYPICAL WILSHIRE DRIVE COMMERCIAL SECTION

STA. 4+93.53 – STA. 8+60.39

NOT TO SCALE

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PUBLIC IMPROVEMENTS FOR WILSHIRE HILLS - 4TH PLAT

NE WILSHIRE DRIVE

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

10/12/2023

STATE OF MISSOURI
MATTHEW AARON KRIETE
NUMBER
PE-2007002811
PROFESSIONAL ENGINEER

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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Revised	
1	JULY 26, 2023
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TYPICAL ROAD SECTIONS

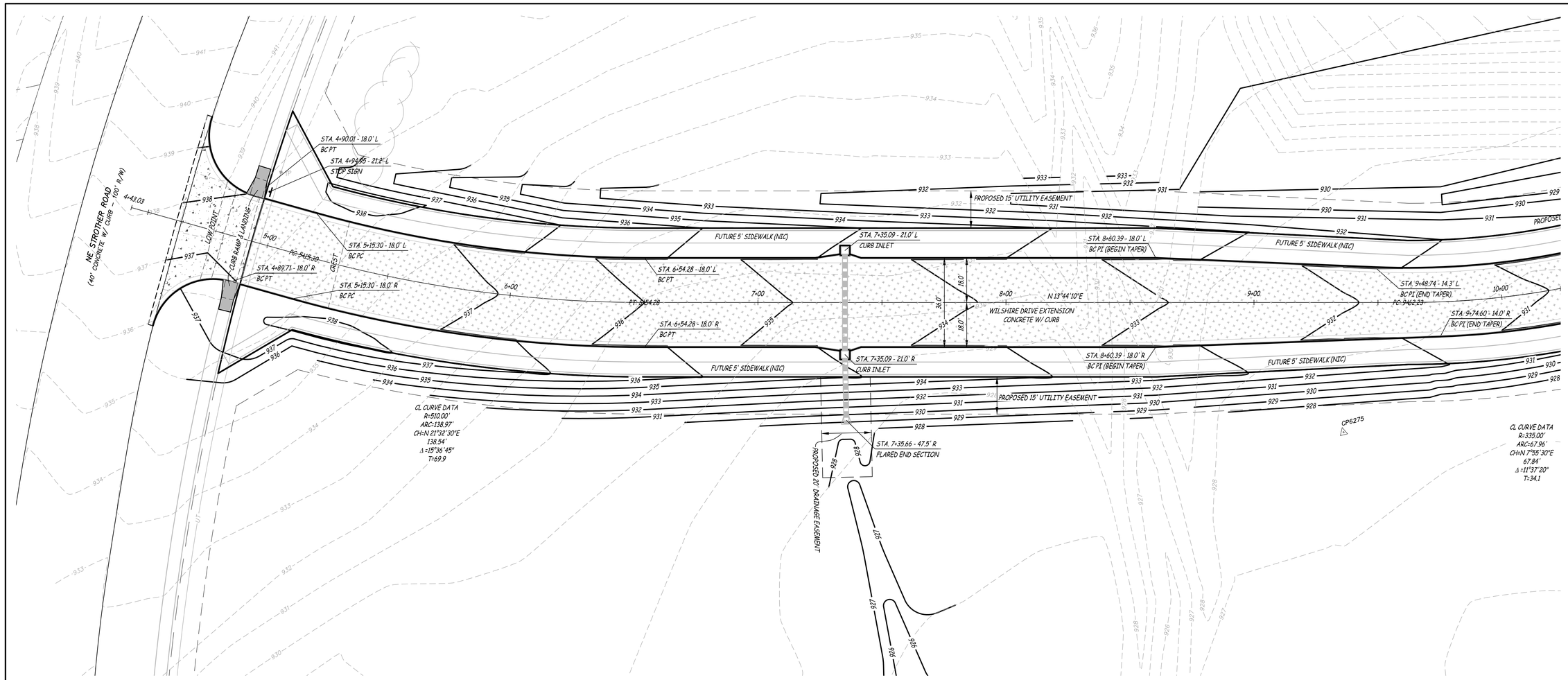
Sheet

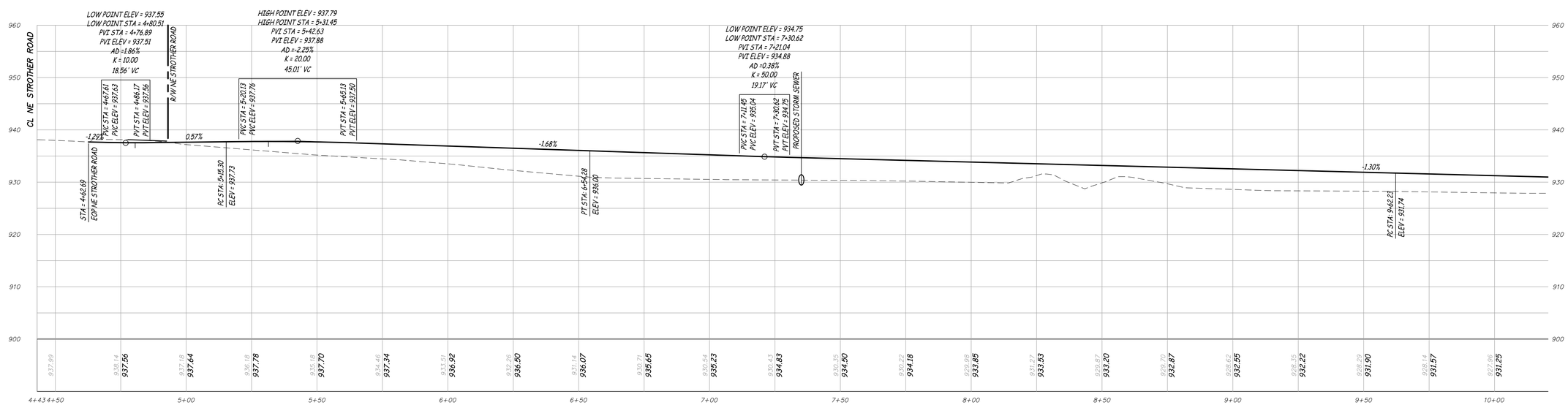
C2.02

CONSTRUCTION DOCUMENTS

ES&S PROJECT NO. 15925

P:\GENERAL PROJECTS\15925E-JES-WILSHIRE-HILLS-3-ENG\CAD\15925 COVER & DETAILS.DWG 10/17/2023





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MO Engineering Corp. # 2004005018

N

0 1"
SCALE: 1" = 20'

PUBLIC IMPROVEMENTS FOR WILSHIRE HILLS PHASE III

NE WILSHIRE DRIVE
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

10/12/2023

STATE OF MISSOURI
MATTHEW AARON KRIETE
NUMBER
PE-2007002811
PROFESSIONAL ENGINEER

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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ROAD PLAN & PROFILE

Sheet
C2.03

CONSTRUCTION DOCUMENTS

ES&S PROJECT NO. 15925

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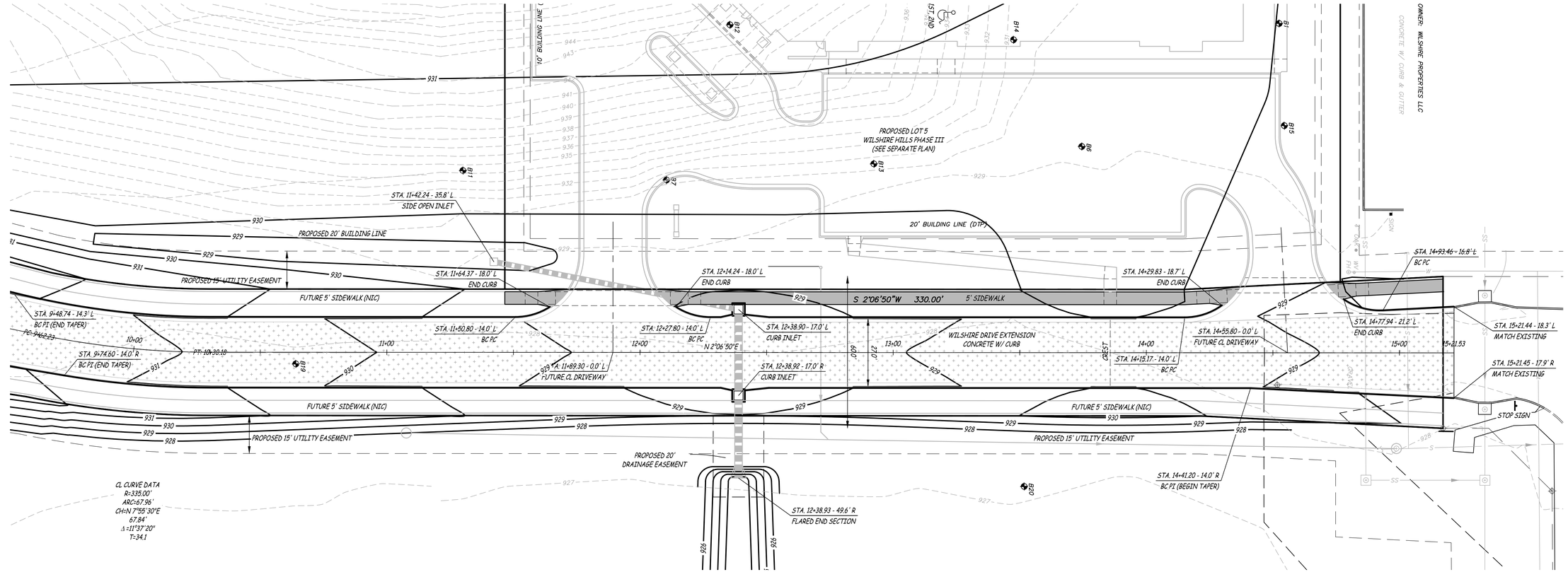

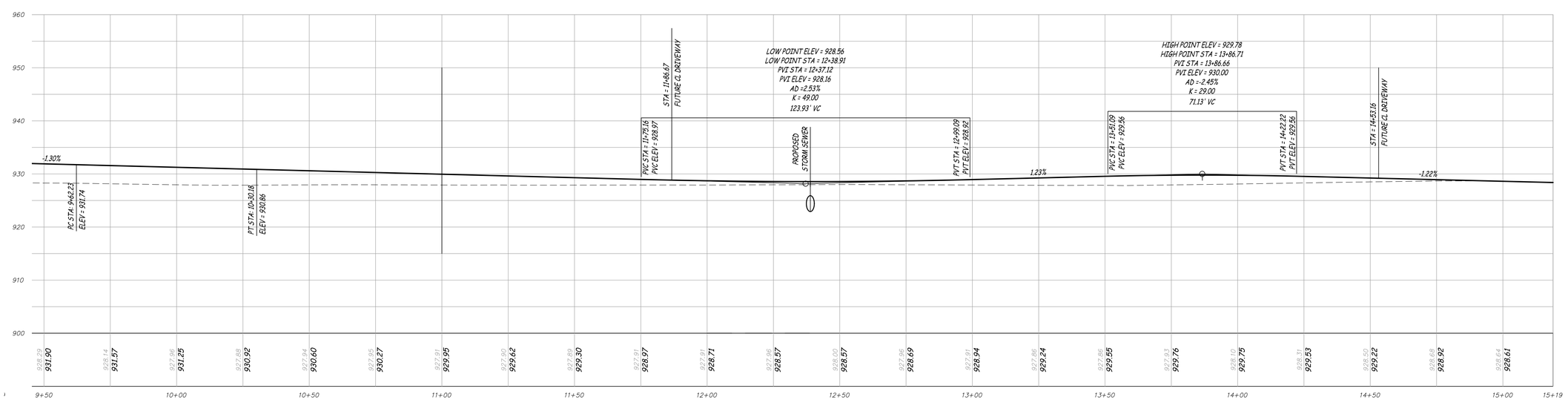

WILSHIRE DRIVE EXTENSION

SCALE – HORIZ. 1" = 20'
VERT. 1" = 10'

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N

0 1"
SCALE: 1" = 20'

PUBLIC IMPROVEMENTS FOR WILSHIRE HILLS PHASE III

NE WILSHIRE DRIVE
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

10/12/2023

STATE OF MISSOURI
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ROAD PLAN & PROFILE

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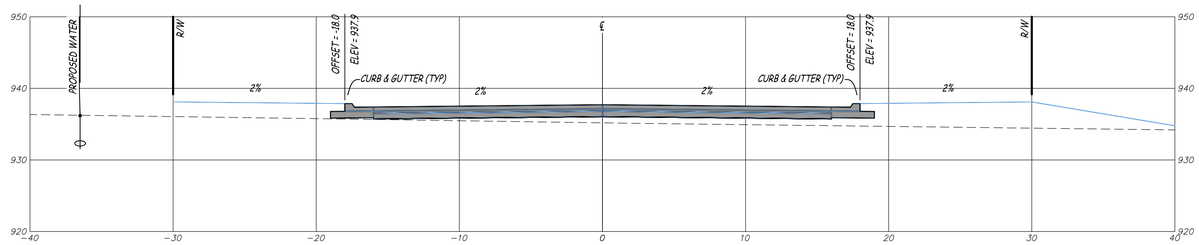

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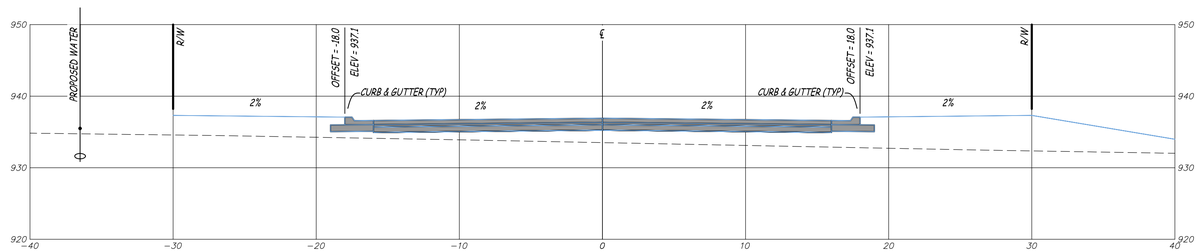

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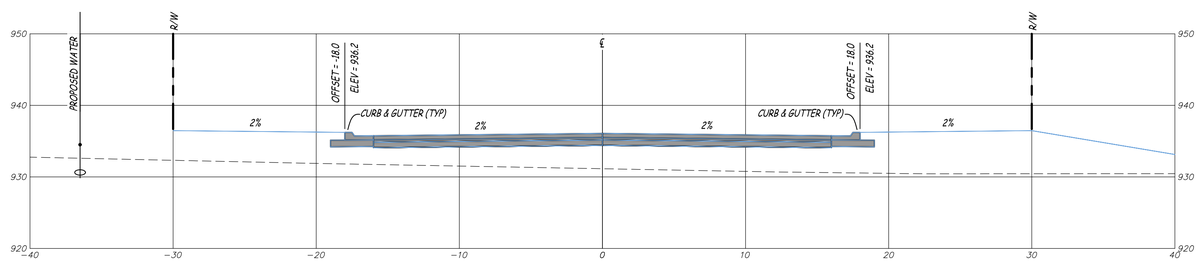

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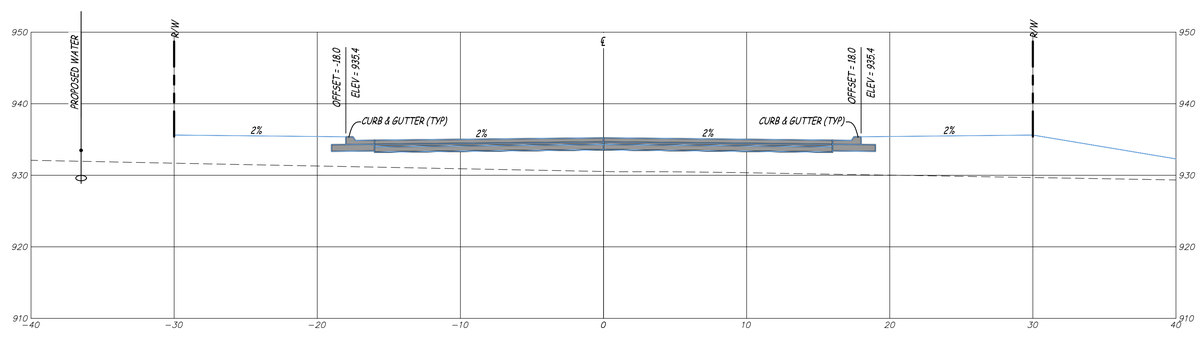

STA. 7+00
SCALE – HORIZ. 1" = 5'
VERT. 1" = 10'

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N

0 1"
SCALE: 1" = 20'

PUBLIC IMPROVEMENTS FOR WILSHIRE HILLS PHASE III

NE WILSHIRE DRIVE
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10/12/2023

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WILSHIRE DRIVE EXTENSION
CROSS SECTIONS

Sheet
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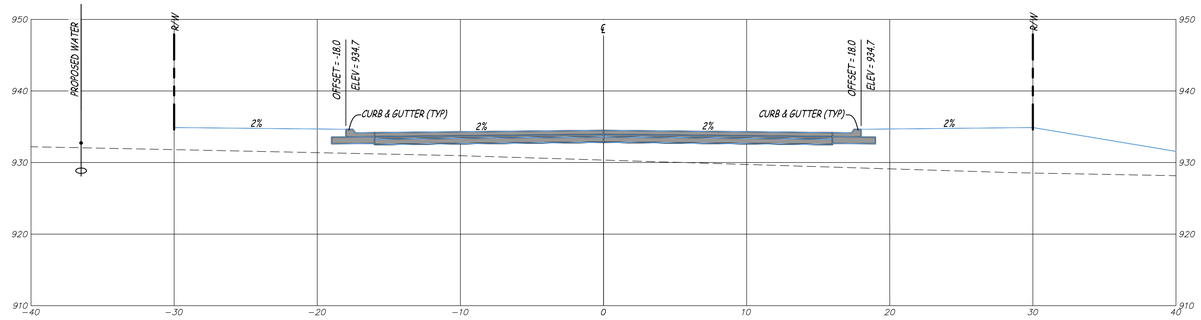

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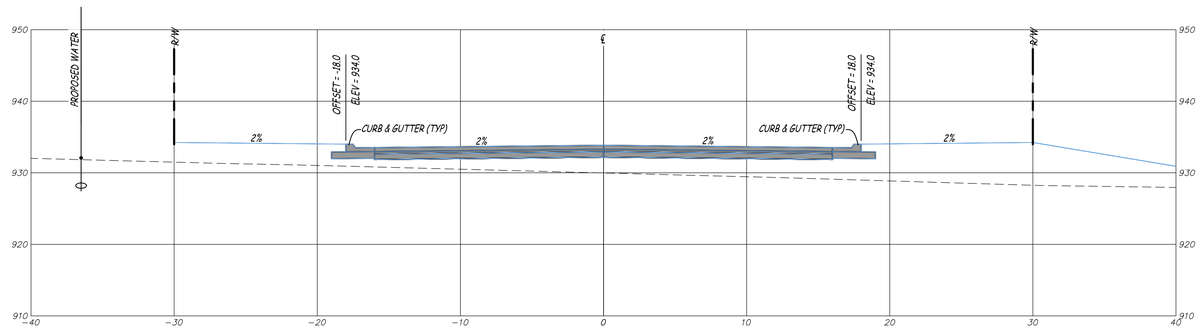
VERT. 1" = 10'



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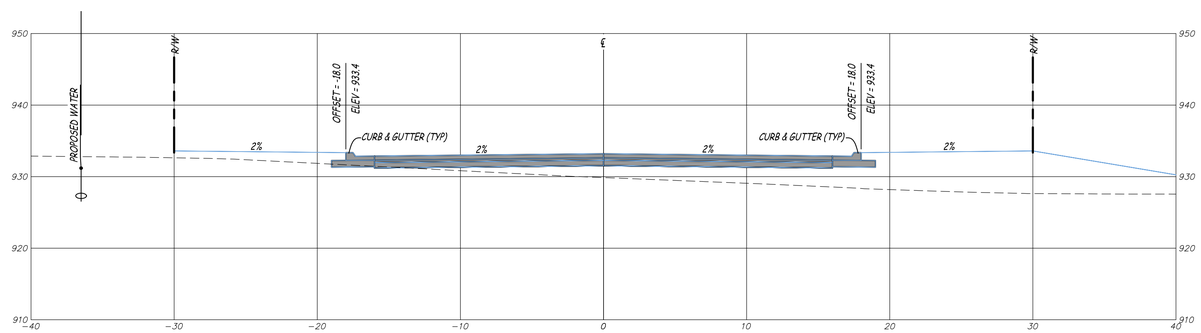
VERT. 1" = 10'



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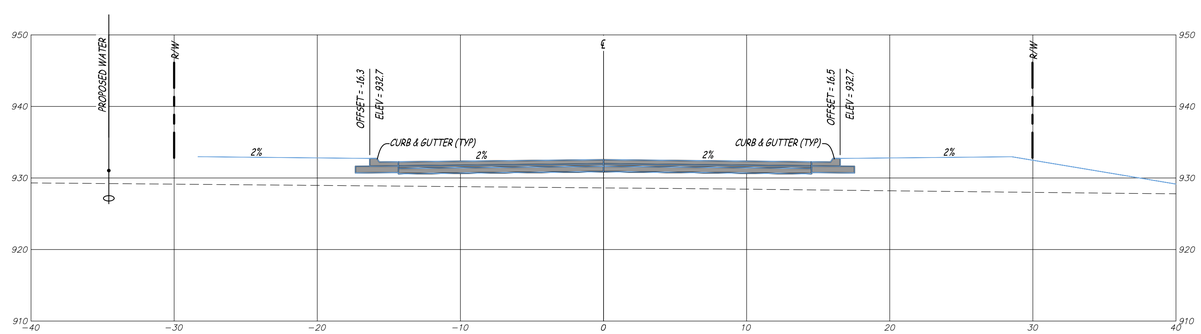

STA. 9+00
SCALE – HORIZ. 1" = 5'
VERT. 1" = 10'

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N

0 1"
SCALE: 1" = 20'

PUBLIC IMPROVEMENTS FOR WILSHIRE HILLS PHASE III

NE WILSHIRE DRIVE
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

10/12/2023

STATE OF MISSOURI
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WILSHIRE DRIVE EXTENSION
CROSS SECTIONS

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C2.06

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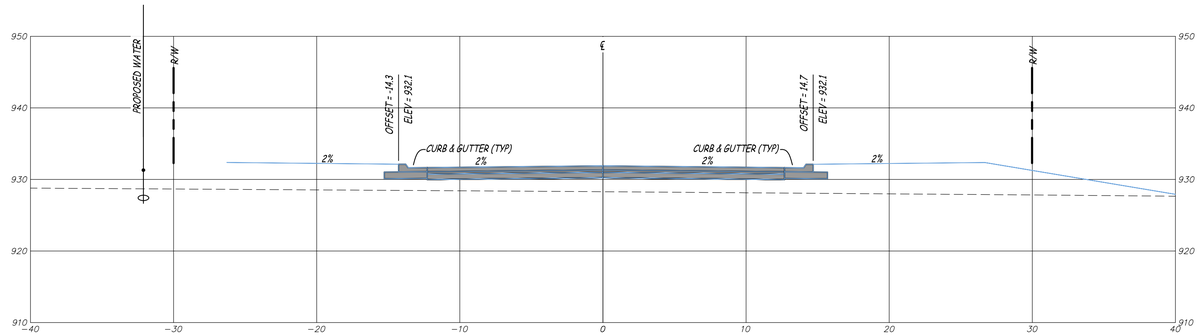

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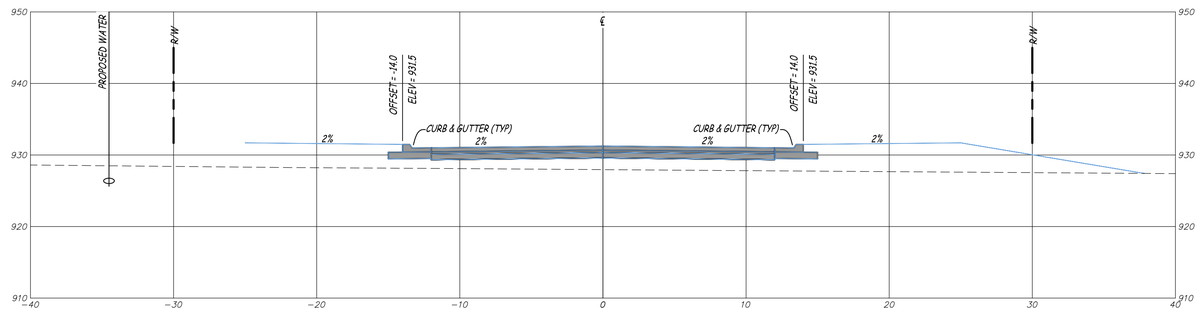
VERT. 1" = 10'



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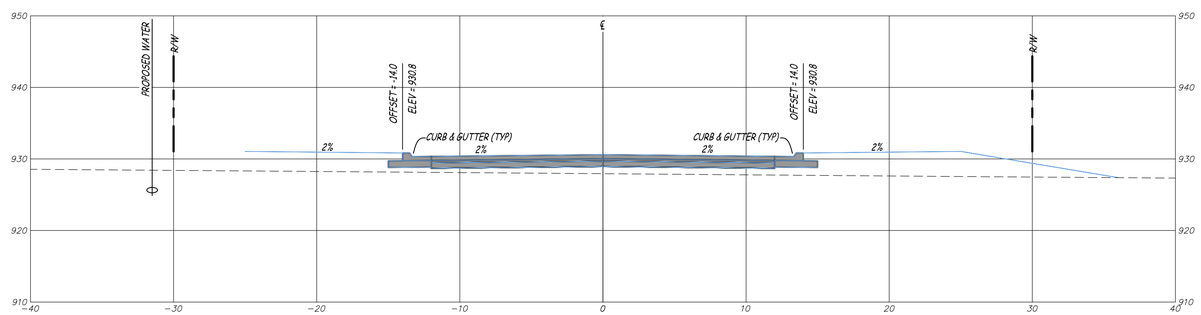
VERT. 1" = 10'



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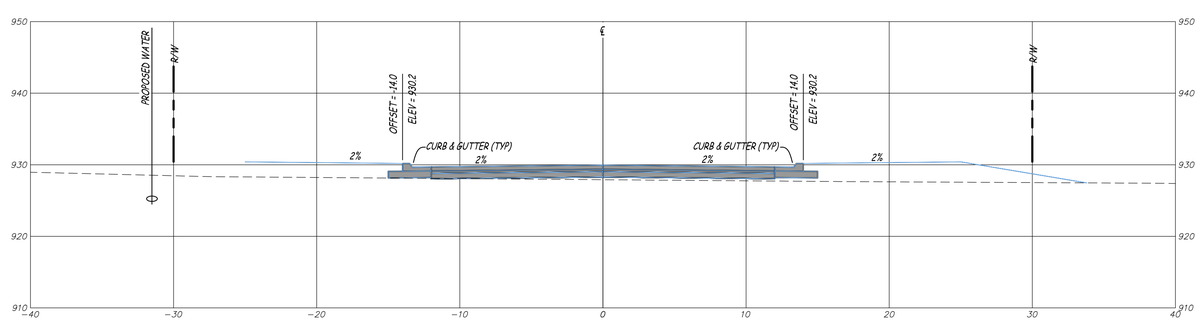

STA. 11+00
SCALE – HORIZ. 1" = 5'
VERT. 1" = 10'

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N

0 1"
SCALE: 1" = 20'

PUBLIC IMPROVEMENTS FOR WILSHIRE HILLS PHASE III

NE WILSHIRE DRIVE
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

10/12/2023
STATE OF MISSOURI
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WILSHIRE DRIVE EXTENSION
CROSS SECTIONS

Sheet
C2.07

ES&S PROJECT NO. 15925

CONSTRUCTION DOCUMENTS

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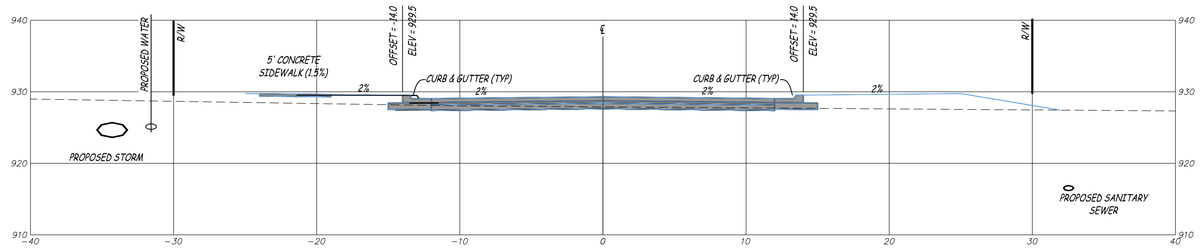

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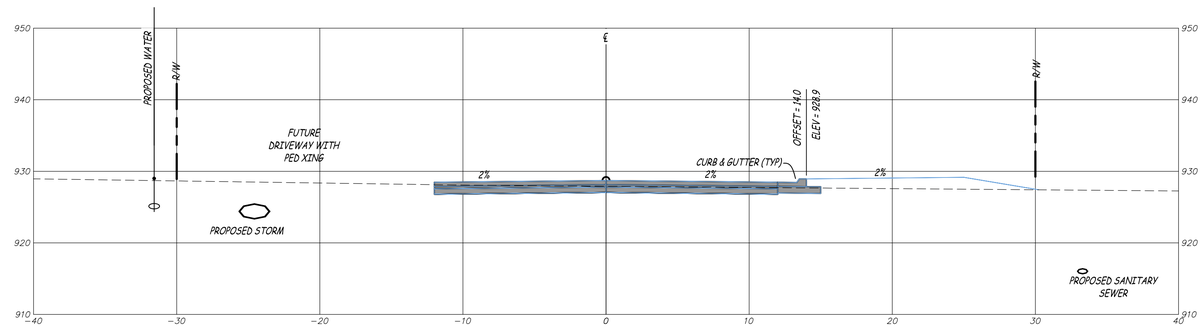

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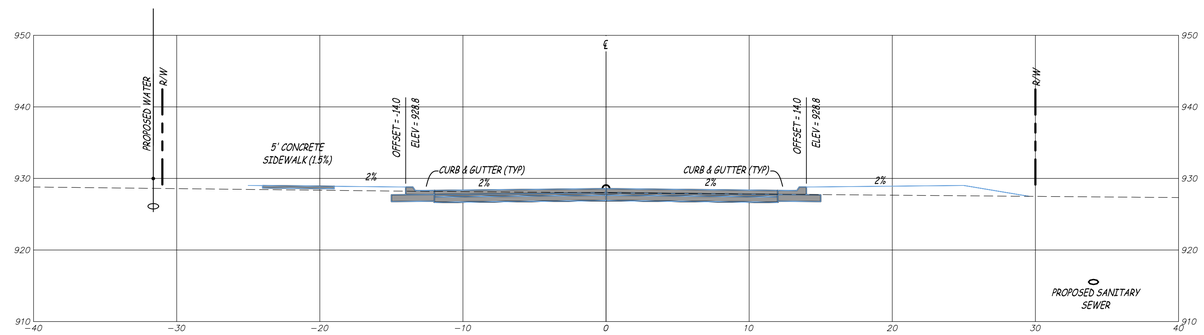

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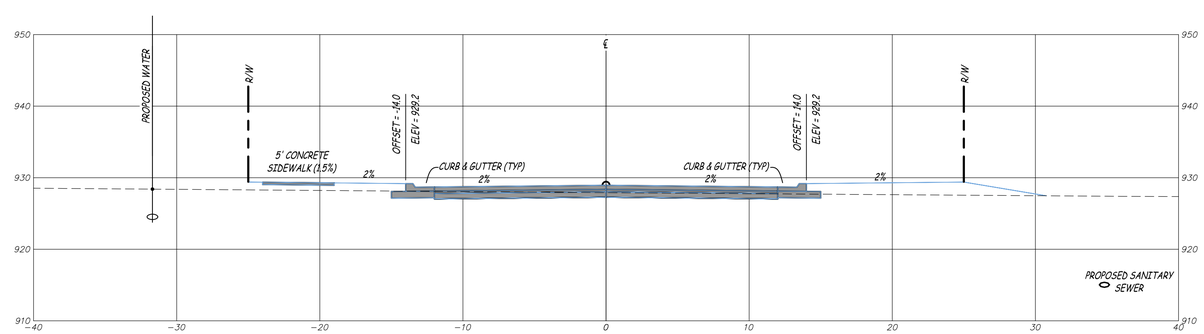

STA. 13+00
SCALE – HORIZ. 1" = 5'
VERT. 1" = 10'

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N

0 1"
SCALE: 1" = 20'

PUBLIC IMPROVEMENTS FOR WILSHIRE HILLS PHASE III

NE WILSHIRE DRIVE
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

10/12/2023
STATE OF MISSOURI
MATTHEW AARON KRIETE
NUMBER PE-2007002811
PROFESSIONAL ENGINEER

MATTHEW A. KRIETE
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PE-2007002811

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WILSHIRE DRIVE EXTENSION CROSS SECTIONS

Sheet
C2.08

CONSTRUCTION DOCUMENTS

ES&S PROJECT NO. 15925

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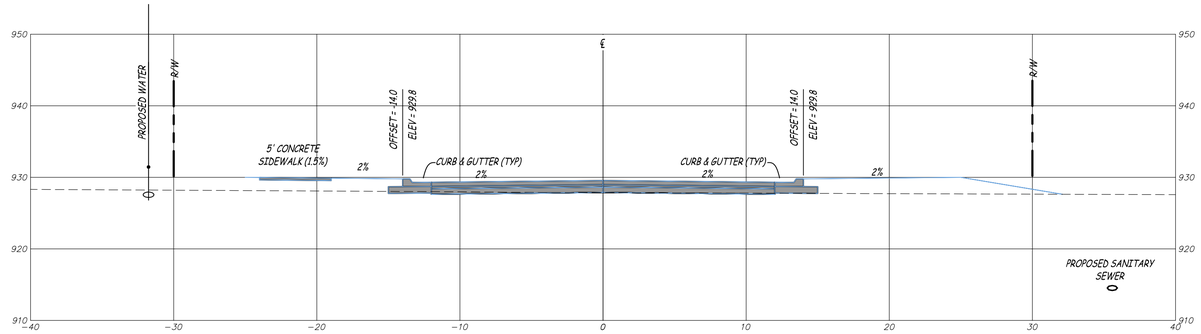

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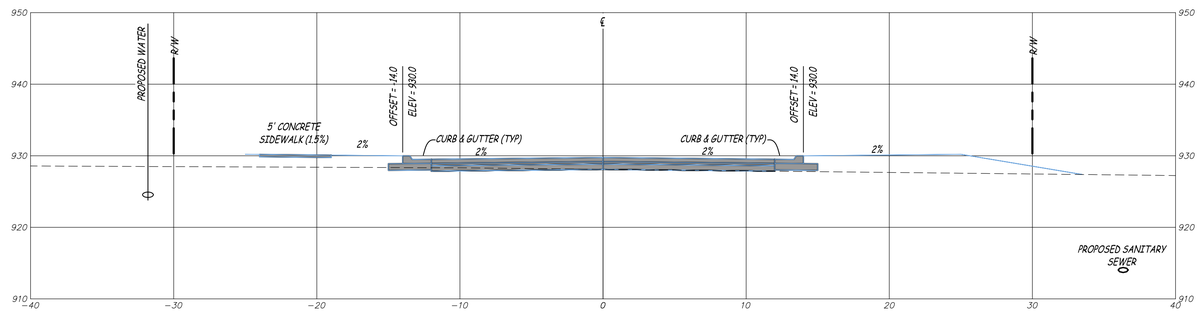

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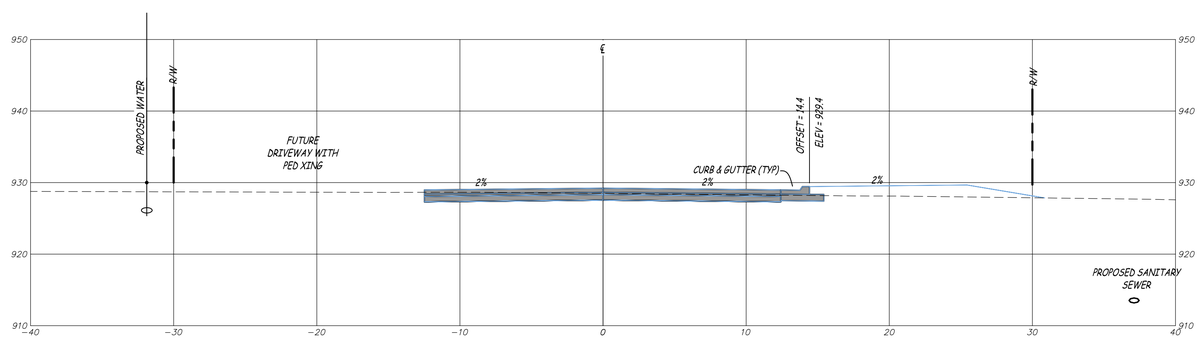

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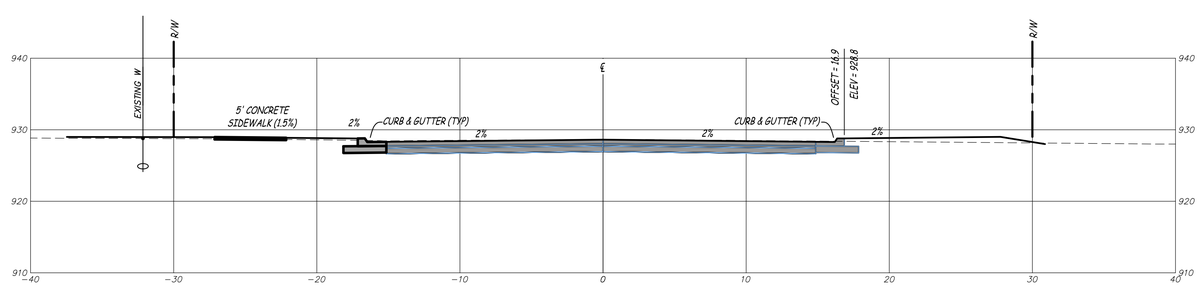

STA. 15+00
SCALE – HORIZ. 1" = 5'
VERT. 1" = 10'

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N

0 1"
SCALE: 1" = 20'

PUBLIC IMPROVEMENTS FOR WILSHIRE HILLS PHASE III

NE WILSHIRE DRIVE
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

10/12/2023

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WILSHIRE DRIVE EXTENSION
CROSS SECTIONS

Sheet
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ES&S PROJECT NO. 15925

CONSTRUCTION DOCUMENTS

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0 1"
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LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

10/12/2023

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CONSTRUCTION DOCUMENTS

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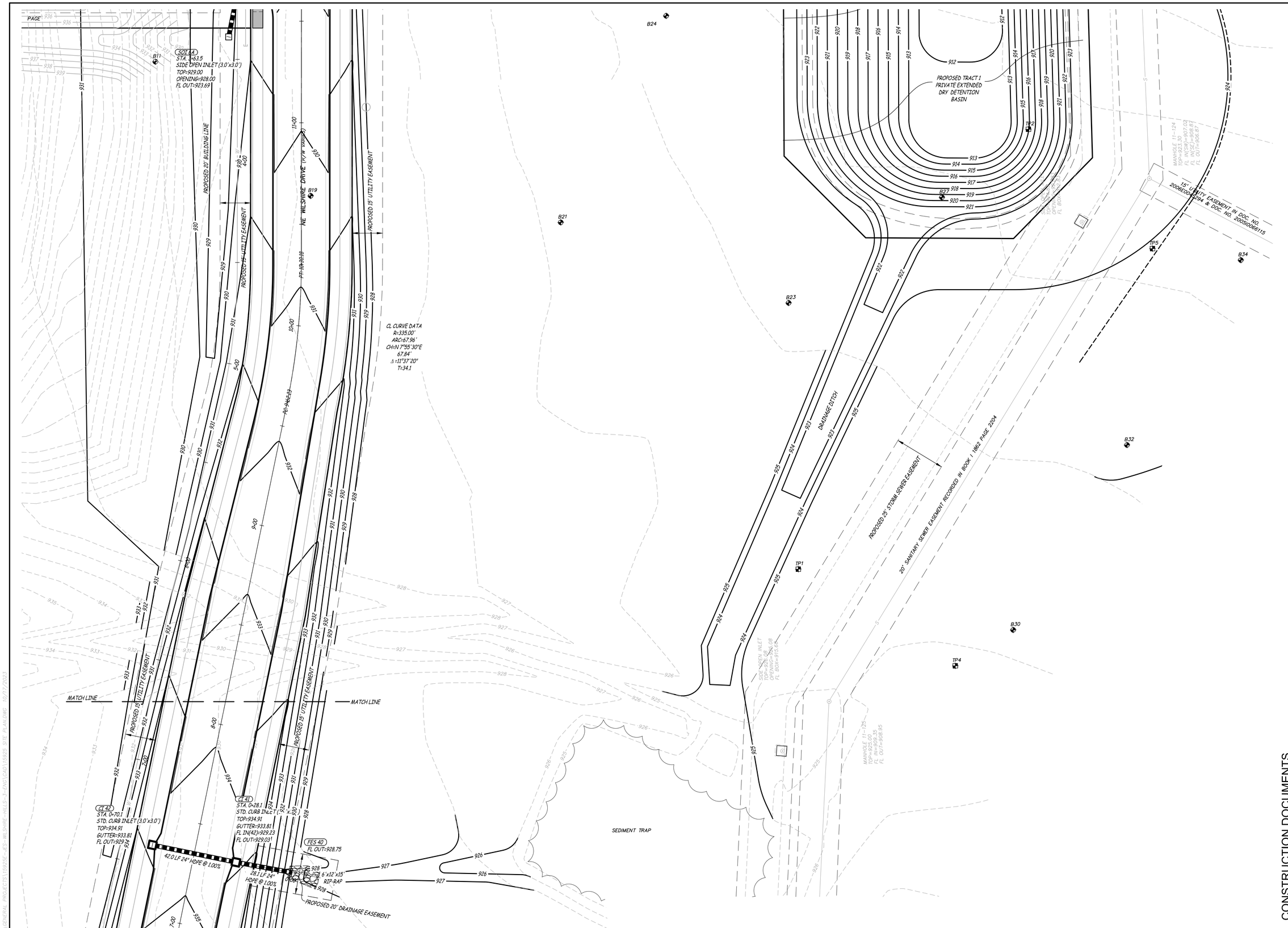

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N

0 1"
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10/12/2023

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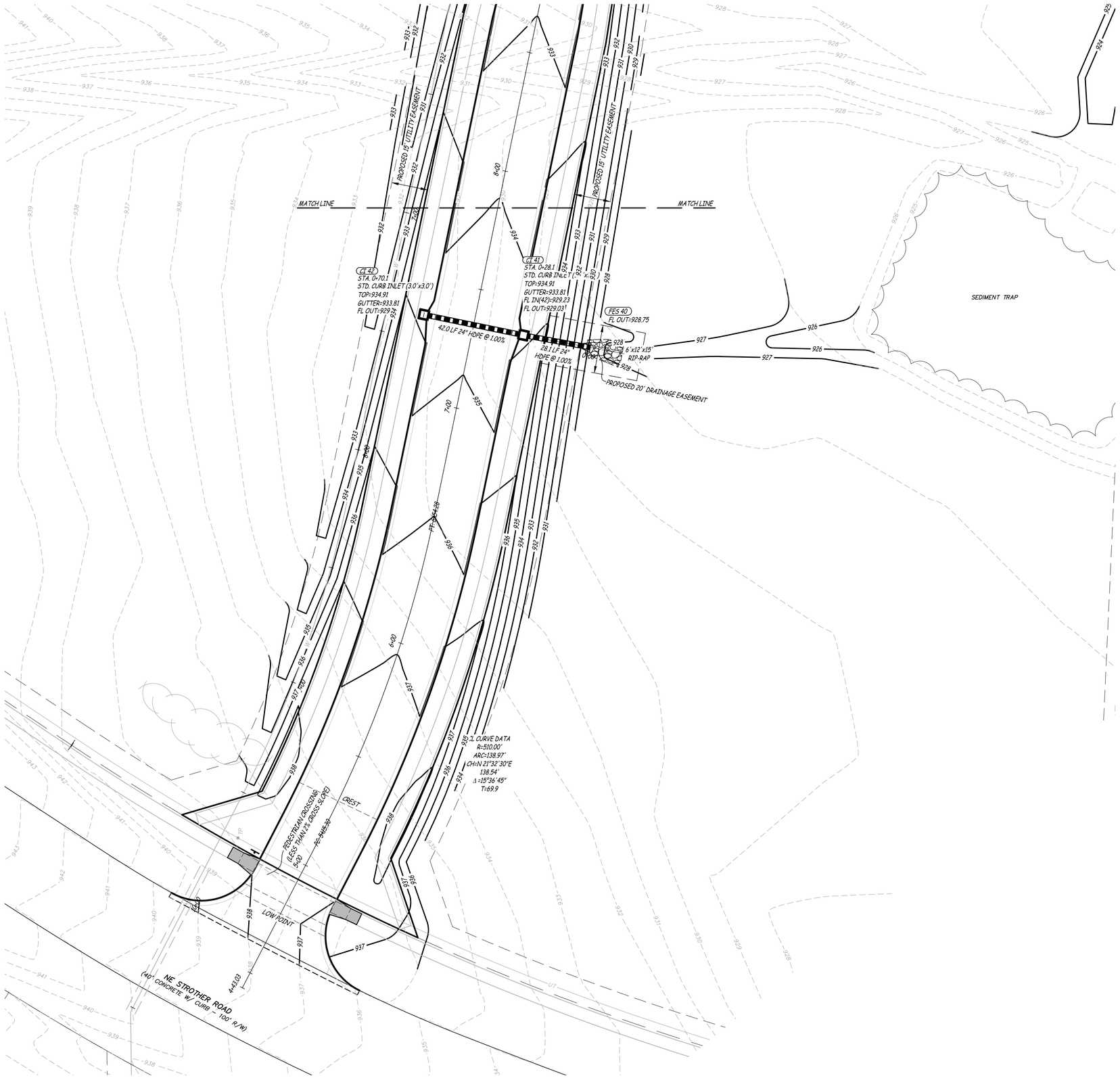

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N

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Revised	
1	JULY 26, 2023
2	OCTOBER 12, 2023

Design: ST Drawn: MJS

GRADING & STORM SEWER PLAN

Sheet
C2.13

ES&S PROJECT NO. 15925

CONSTRUCTION DOCUMENTS

P:\GENERAL PROJECTS\15925E-ES-WILSHIRE-HILLS-3-ENG\CAD\15925 SITE PLAN.DWG 10/17/2023

Storm Sewer Summary Report

Page 1

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	EX WALL	16.63	60	Cir	95.300	910.75	911.15	0.420	912.32	912.27	n/a	912.27 j	End	OpenHeadwall
2	FES 4	33.34	36	Cir	33.145	922.47	922.64	0.513	924.74	924.51	0.40	924.51	End	Curb-Horiz
3	6	32.85	36	Cir	33.000	922.83	923.00	0.515	924.56	924.86	n/a	924.86	2	Curb-Horiz
4	6A	31.80	24	Cir	99.000	923.20	923.69	0.495	925.20*	926.87*	1.59	928.46	3	DropCurb
5	FES 40	1.24	24	Cir	26.463	928.76	929.03	1.020	929.08	929.41	0.07	929.41	End	Curb-Horiz
6	42	0.62	24	Cir	42.000	929.23	929.65	1.000	929.45	929.92	0.09	929.92	5	Curb-Horiz

Project File: Storm Sewers-OFFSITE ONLY- 25 Year Storm.stm | Number of lines: 6 | Run Date: 10/4/2023

NOTES: Return period = 25 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewers v2023.00

Storm Sewer Summary Report

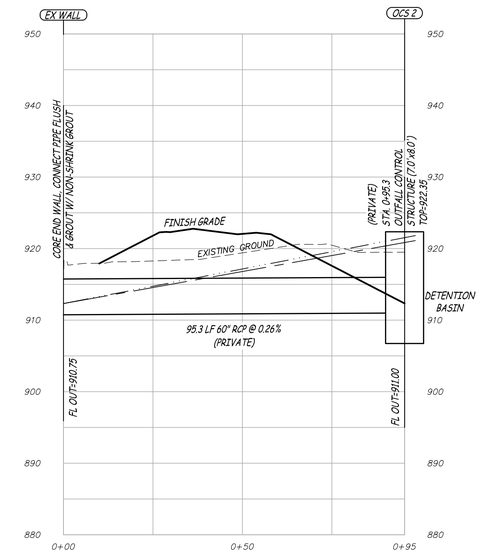
Page 1

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	EX WALL	42.41	60	Cir	98.333	910.75	911.15	0.407	912.40	912.97	n/a	912.97	End	OpenHeadwall
2	FES 4	40.58	36	Cir	33.145	922.47	922.64	0.513	924.74	924.71	n/a	924.71	End	Curb-Horiz
3	6	40.06	36	Cir	33.000	922.83	923.00	0.515	924.81	925.06	n/a	925.06	2	Curb-Horiz
4	6A	38.88	24	Cir	99.000	923.20	923.69	0.495	925.20*	927.69*	2.38	930.07	3	DropCurb
5	FES 40	1.34	24	Cir	26.463	928.76	929.03	1.020	929.08	929.43	0.07	929.43	End	Curb-Horiz
6	42	0.74	24	Cir	42.000	929.23	929.65	1.000	929.47	929.95	0.10	929.95	5	Curb-Horiz

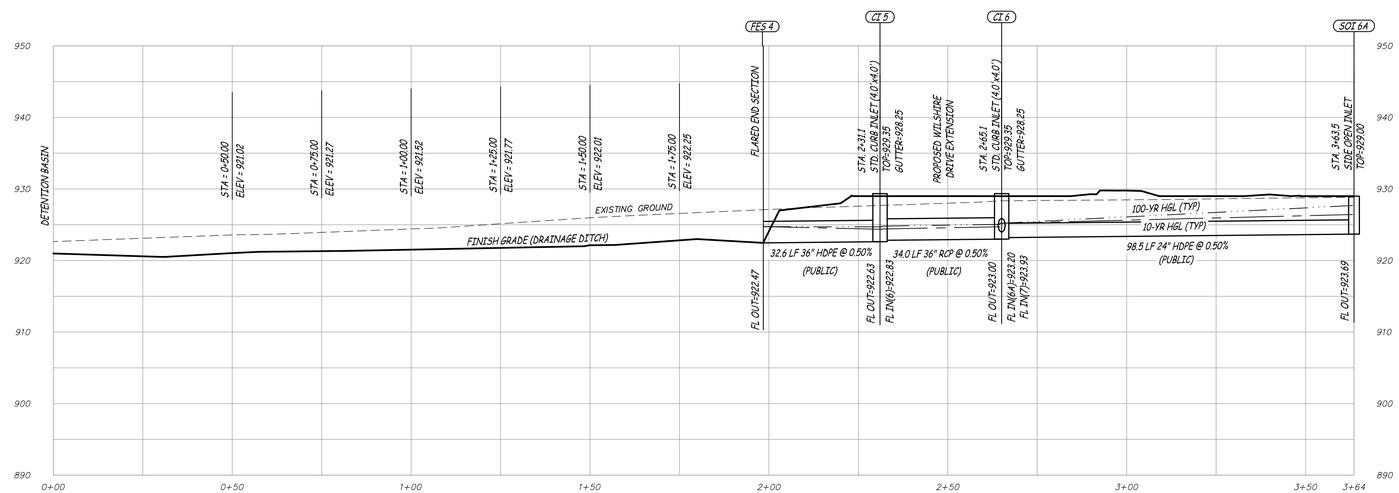
Project File: Storm Sewers-OFFSITE ONLY- 100 Year Storm.stm | Number of lines: 6 | Run Date: 10/4/2023

NOTES: Return period = 100 Yrs. ; *Surcharged (HGL above crown).

Storm Sewers v2023.00



EX WALL THRU OCS 2 (PRIVATE)
SCALE – HORIZ. 1" = 20'
VERT. 1" = 10'



BASIN THRU SOI 6A (PUBLIC)
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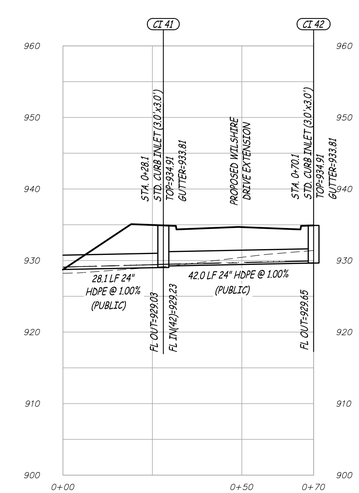

FES 40 THRU CI 42 (PUBLIC)
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PUBLIC IMPROVEMENTS FOR WILSHIRE HILLS PHASE III

NE WILSHIRE DRIVE
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

10/12/2023

STATE OF MISSOURI
MATTHEW AARON KRIETE
NUMBER PE-2007002811
PROFESSIONAL ENGINEER

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

IF ORIGINAL SIGNATURE OR DIGITAL AUTHENTICATION IS NOT PRESENT THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

Date
JUNE 27, 2023

Revised
1 JULY 26, 2023
2 OCTOBER 12, 2023

Design: ST Drawn: MJS

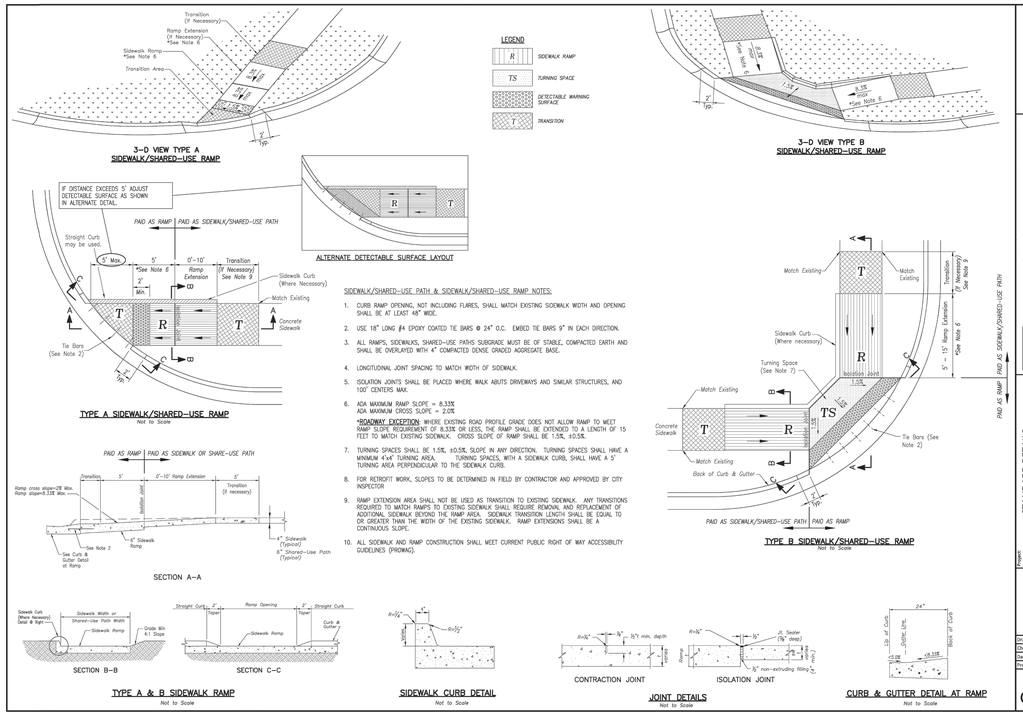
STORM SEWER PROFILES

Sheet
C2.13

ES&S PROJECT NO. 15925

CONSTRUCTION DOCUMENTS

P:\GENERAL PROJECTS\15925E-JES-WILSHIRE-HILLS-3-ENG\CAD\15925 SITE PLAN.DWG 10/17/2023



SIDEWALK/SHARED-USE PATH & SIDEWALK/SHARED-USE RAMP NOTES:

1. CURB RAMP OPENING, NOT INCLUDING FLARES, SHALL MATCH EXISTING SIDEWALK WIDTH AND OPENING SHALL BE AT LEAST 48" WIDE.
2. USE 18" LONG #4 EPOXY COATED TIE BARS @ 24" O.C. EMBED TIE BARS 9" IN EACH DIRECTION.
3. ALL RAMPS, SIDEWALKS, SHARED-USE PATHS SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
4. LONGITUDINAL JOINT SPACING TO MATCH WIDTH OF SIDEWALK.
5. ISOLATION JOINTS SHALL BE PLACED WHERE WALK ABUTS DRIVEWAYS AND SIMILAR STRUCTURES, AND 100' CENTERS MAX.
6. ADA MAXIMUM RAMP SLOPE = 8.33%
   ADA MAXIMUM CROSS SLOPE = 2.0%
   *ROADWAY EXCEPTION: WHERE EXISTING ROAD PROFILE GRADE DOES NOT ALLOW RAMP TO MEET RAMP SLOPE REQUIREMENT OF 8.33% OR LESS, THE RAMP SHALL BE EXTENDED TO A LENGTH OF 15 FEET TO MATCH EXISTING SIDEWALK. CROSS SLOPE OF RAMP SHALL BE 1.5%, ±0.5%.
7. TURNING SPACES SHALL BE 1.5%, ±0.5%, SLOPE IN ANY DIRECTION. TURNING SPACES SHALL HAVE A MINIMUM 4'x4' TURNING AREA. TURNING SPACES, WITH A SIDEWALK CURB, SHALL HAVE A 5' TURNING AREA PERPENDICULAR TO THE SIDEWALK CURB.
8. FOR RETROFIT WORK, SLOPES TO BE DETERMINED IN FIELD BY CONTRACTOR AND APPROVED BY CITY INSPECTOR
9. RAMP EXTENSION AREA SHALL NOT BE USED AS TRANSITION TO EXISTING SIDEWALK. ANY TRANSITIONS REQUIRED TO MATCH RAMPS TO EXISTING SIDEWALK SHALL REQUIRE REMOVAL AND REPLACEMENT OF ADDITIONAL SIDEWALK BEYOND THE RAMP AREA. SIDEWALK TRANSITION LENGTH SHALL BE EQUAL TO OR GREATER THAN THE WIDTH OF THE EXISTING SIDEWALK. RAMP EXTENSIONS SHALL BE A CONTINUOUS SLOPE.
10. ALL SIDEWALK AND RAMP CONSTRUCTION SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Project:
Sheet Name: ADA RAMP RETROFIT DETAIL

Drawn By: MJF
Checked By: DL
Date: 05/2021
Proj. #:

GEN-3A

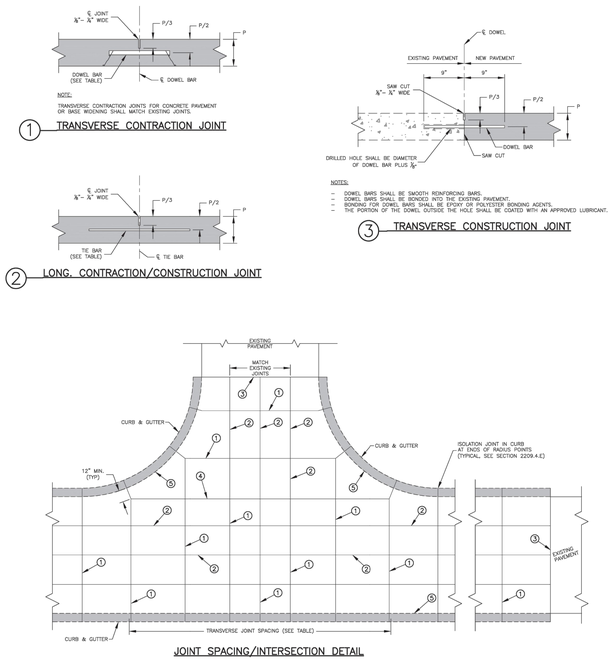


TABLE						
POUR THICKNESS (9")	DOWEL SIZE	TIE BAR SIZE	DOWEL SPACING	TIE BAR SPACING	MAX. TRANS. SPACING	MAX. LONG. SPACING
6"	N/A	#9 x 30"	N/A	30" CTRS.	12'	12'
7"	1" x 18"	#9 x 30"	12" CTRS.	30" CTRS.	14'	14'
8"	1 ¼" x 18"	#9 x 30"	12" CTRS.	30" CTRS.	15'	14'
≥9"	1 ½" x 18"	#9 x 30"	12" CTRS.	30" CTRS.	15'	15'

GENERAL NOTES:

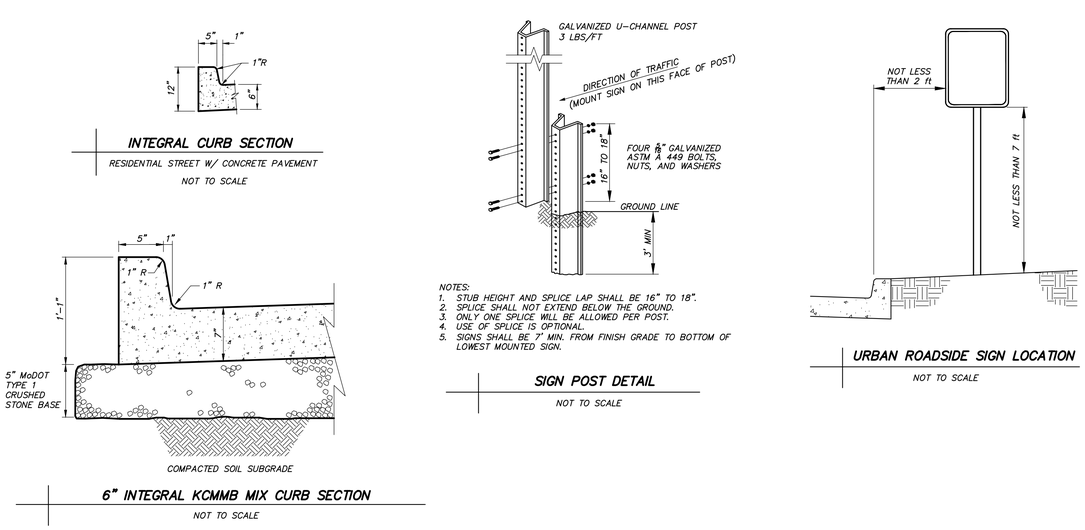
- THE FINAL POSITION OF ALL DOWELS AND TIE BARS SHALL BE PARALLEL TO THE CENTER LINE OF THE PAVEMENT AND PARALLEL TO THE SURFACE OF THE PAVEMENT AND PARALLEL TO EACH OTHER.
- ALL DOWELS & TIE BARS SHALL BE EPOXY COATED.
- DOWEL BARS SHALL BE PLACED AT 8 INCHES FROM LONGITUDINAL JOINTS.
- TIE BARS SHALL BE PLACED AT 12 INCHES FROM TRANSVERSE JOINTS.
- DOWEL BARS SHALL BE SPACED AT 12 INCHES, 1.5 TO 1.
- DOWEL BASKET SHIPPING WIRE SHALL NOT BE CUT.
- CONTRACTOR SHALL SUBMIT PROJECT SPECIFIC JOINTING PLAN AT LEAST TWO WEEKS BEFORE PAVING OPERATIONS.
- IN ACCORDANCE WITH 2208.4.D, ALL JOINTS SHALL BE SEALED, INCLUDING CURB & GUTTER.

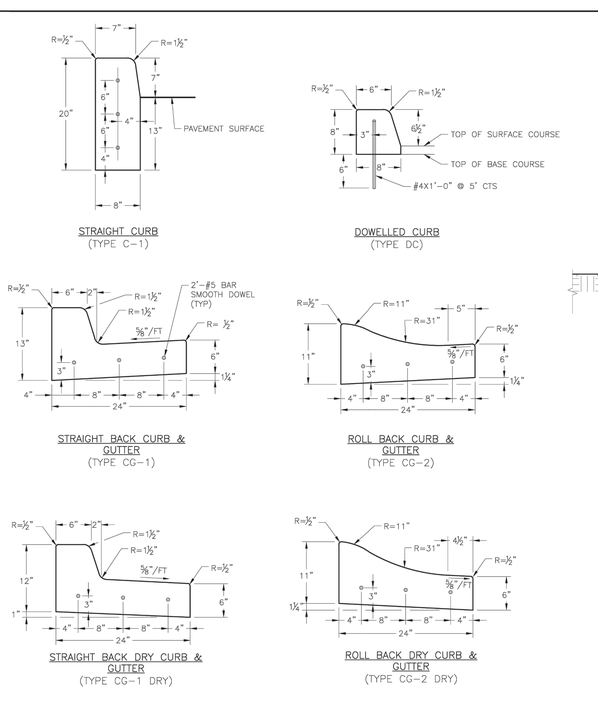
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Project:
Sheet Name: TYPICAL PAVEMENT JOINT DETAILS

Drawn By: MJF
Checked By: GMB
Date: 05/2021
Proj. #:

GEN-9





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PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Project:
Sheet Name: CURB & GUTTER DETAIL

Drawn By: MJF
Checked By: DL
Date: 05/2021
Proj. #:

GEN-4

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PUBLIC IMPROVEMENTS FOR WILSHIRE HILLS - 4TH PLAT

NE WILSHIRE DRIVE
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

10/12/2023
STATE OF MISSOURI
MATTHEW AARON KRIETE
NUMBER PE-2007002811
PROFESSIONAL ENGINEER

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IF ORIGINAL SIGNATURE OR DIGITAL AUTHENTICATION IS NOT PRESENT THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

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2	OCTOBER 12, 2023

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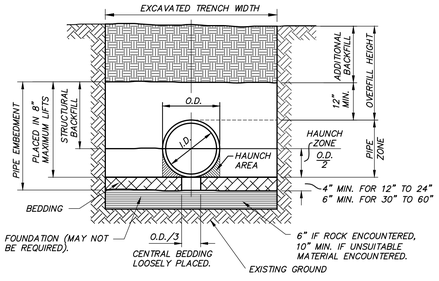
ROAD DETAILS

Sheet
C2.14

CONSTRUCTION DOCUMENTS

ES&S PROJECT NO. 15925

P:\GENERAL PROJECTS\15925E-JES-WILSHIRE-HILLS-3-ENG\CAD\15925 COVER & DETAILS.DWG 10/17/2023



TYPICAL TRENCH DETAIL

TABLE II
MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIA. (IN.)	MINIMUM COVER (FT) FOR INDICATED AXLE LOADS (THOUSANDS OF POUNDS)			
	18–50	50–75	75–110	110–150
12–36	2.0	2.5	3.0	3.0
42–48	3.0	3.0	3.5	4.0

THE CONTRACTOR SHALL PROVIDE MINIMUM COVER PLUS ANY ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. IN UNPAVED SITUATIONS, THE SURFACE MUST BE MAINTAINED TO A LEVEL AND NON–RUTTED CONDITION.

LEGEND

I.D. = NORMAL INSIDE DIAMETER OF PIPE.
O.D. = OUTSIDE DIAMETER OF PIPE.
H = FILL COVER HEIGHT OVER PIPE (FEET).
MIN. = MINIMUM
MAX = MAXIMUM
= UNDISTURBED SOIL

BACKFILL NOTES:

1. BEDDING, HAUNCH, AND STRUCTURAL BACKFILL SHALL BE IN CONFORMANCE WITH AASHTO M145 A1 OR A–3 COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS DEFINED BY ASTM D698.
2. ALL PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND ASTM D2321 LATEST ADDITION.
3. HAUNCH, STRUCTURAL, AND ADDITIONAL BACKFILL SHALL BE PLACED IN LIFTS NOT TO EXCEED 8 INCHES AND COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DEFINED BY ASTM D698.

CONSTRUCTION SEQUENCE:

1. PLACE BEDDING MATERIAL TO GRADE.
2. COMPACT BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
3. INSTALL PIPE TO GRADE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE SPRINGLINE.
5. COMPLETE BACKFILL ACCORDING TO SPECIFICATIONS.

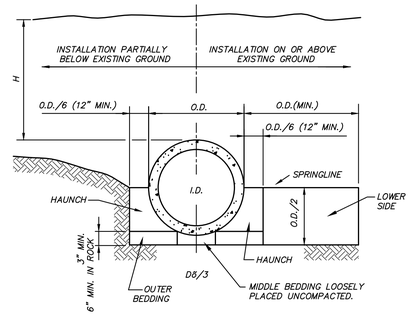
TABLE I
CORRUGATED HDPE AND POLYVINYL CHLORIDE CIRCULAR PIPE

SPECIFIED DIA OF PIPE (IN.)	MIN OVERFILL HEIGHT (FT)	HDPE MAX OVERFILL HEIGHT* (FT)	POLYVINYL CHLORIDE MAX OVERFILL HEIGHT* (FT)		VIRGIN RESIN (AASHTO M294) OVERFILL HEIGHT* (FT)			ENGINEERED COMPOUND (RECYCLED, ASTM F2648) OVERFILL HEIGHT* (FT)			TRENCH WIDTH (IN.)
			SDR 35#	SDR 26#	CLASS 1**	CLASS 2**	CLASS 3**	CLASS 1**	CLASS 2**	CLASS 3**	
12	2	26	15	30	43	29	21	27	19	12	34
15	2	28	15	30	45	30	22	27	20	13	39
18	2	24	15	30	40	27	19	25	18	11	44
24	2	20	15	30	36	25	17	22	16	12	55
30	2.5	17	N/A	N/A	29	21	15	16	12	6	67
36	2.5	19	N/A	N/A	34	23	16	21	15	10	76
42	2.5	19	N/A	N/A	31	23	16	17	13	7	84
48	2.5	17	N/A	N/A	30	20	14	18	13	10	95
54	2.5	9	N/A	N/A	33	22	15	N/A	N/A	N/A	104
60	2.5	9	N/A	N/A	33	22	15	20	15	10	113

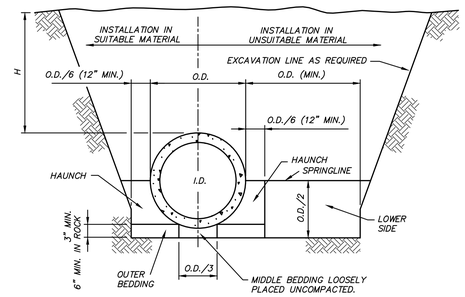
TABLE ASSUMES STANDARD PROCTOR DENSITY OF 95%
* MAXIMUM OVERFILL MEASURED FROM THE TOP OF PIPE TO SURFACE
** CLASS 1 – CRUSHED ROCK, ANGULAR; AASHTO M43 – 5, 6, 56, 57, 67
** CLASS 2 – CLEAN, COURSE GRAINED SOILS TO BORDERLINE CLEAN FINES; AASHTO M43 – 5, 6, 56, 57, 67; AASHTO M145 – A1, A3
** CLASS 3 – COURSE GRAINED SOILS WITH FINES AND INORGANIC FINE–GRAINED SOILS; AASHTO M43 – GRAVEL AND SAND WITH <10% FINES; AASHTO M145 – A–2–4, A–2–5, A–2–6, A–4, OR A–6 WITH >30% RETAINED ON #200 SIEVE
** REFER TO CURRENT ADS INC. DRAINAGE HANDBOOK FOR A COMPLETE LISTING OF SUITABLE MATERIALS
# PER ASTM D–3034 FOR PIPE UP TO 15" AND ASTM F679 OVER 15"

EMBEDMENT OF PLASTIC STORM SEWER PIPE

NOT TO SCALE



EMBANKMENT INSTALLATIONS



TRENCH INSTALLATION

MAXIMUM HEIGHT OF FILL OVER RCP CULVERTS

INSTALLATION TYPE	PIPE CLASS (FEET)				
	CLASS I	CLASS II	CLASS III	CLASS IV	CLASS V
TYPE 1	14	18	21	33	50
TYPE 2	9	12	16	25	38
TYPE 3	7	10	12	19	30
TYPE 4	5	7	8	13	19

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

CONSTRUCTION SEQUENCE:

1. PLACE BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE SPRINGLINE.
5. COMPLETE BACKFILL ACCORDING TO SPECIFICATIONS.

LEGEND

I.D.= NORMAL INSIDE DIAMETER OF PIPE.
O.D. = OUTSIDE DIAMETER OF PIPE.
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
= UNDISTURBED SOIL

GENERAL NOTES:

1. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE BETWEEN PIPES OF 1/2 O.D. OR 12", WHICHEVER IS GREATER, BUT NOT TO EXCEED 36".
2. USE MINIMUM CLASS III PIPE UNLESS NOTED OTHERWISE. CLASS IV & V SHALL BE USED AS REQUIRED BY BACKFILL DEPTH. CLASS I AND CLASS II REINFORCED CONCRETE PIPE SHALL ONLY BE USED FOR SEWERS IN TRENCHES OUTSIDE ROADBEDS, STREET LIMITS, PARKING LOTS AND INFLUENCE OF ANY STRUCTURE.

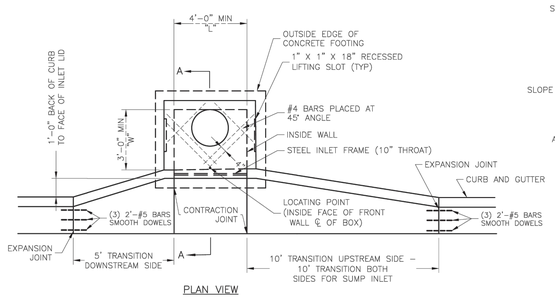
BEDDING AND COMPACTION REQUIREMENTS
(% MAX. DRY DENSITY PER ASTM D698)

INSTALLATION TYPE	BEDDING THICKNESS	HAUNCH AND OUTER BEDDING			LOWER SIDE BEDDING		
		CATEGORY 1 SOIL (A)	CATEGORY 2 SOIL (B)	CATEGORY 3 SOIL (C)	CATEGORY 1 SOIL (A)	CATEGORY 2 SOIL (B)	CATEGORY 3 SOIL (C)
1	O.D./24 MINIMUM, NOT LESS THAN 3". IF ROCK FOUNDATION, USE O.D./12 MINIMUM, NOT LESS THAN 6".	95	N/A	N/A	90	95	100
2	O.D./24 MINIMUM, NOT LESS THAN 3". IF ROCK FOUNDATION, USE O.D./12 MINIMUM, NOT LESS THAN 6".	90	95	N/A	85	90	95
3	O.D./24 MINIMUM, NOT LESS THAN 3". IF ROCK FOUNDATION, USE O.D./12 MINIMUM, NOT LESS THAN 6".	85	90	95	85	90	95
4	O.D./24 MINIMUM, NOT LESS THAN 3". IF ROCK FOUNDATION, USE O.D./12 MINIMUM, NOT LESS THAN 6".	NO COMPACTION REQUIRED	NO COMPACTION REQUIRED	85	NO COMPACTION REQUIRED	NO COMPACTION REQUIRED	85

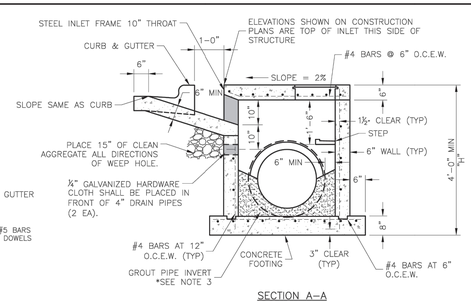
(A) WELL GRADED MIXTURE OF STONE FRAGMENTS, GRAVEL AND SAND IN ACCORANCE W/ AASHTO M 145 GROUP A–1 OR A–3
(B) LOW PLASTIC GRANULAR MATERIAL IN ACCORDANCE W/ AASHTO M145 GROUP A–2 OR A–4
(C) SILTY CLAYS IN ACCORDANCE W/ AASHTO M145 GROUP A–5, A–6, OR A–7

EMBEDMENT OF RCP STORM SEWER PIPE

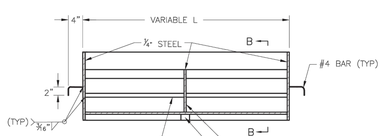
NOT TO SCALE



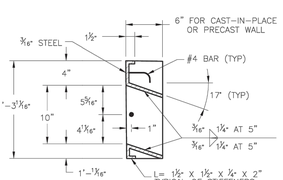
PLAN VIEW



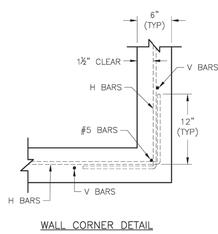
SECTION A–A



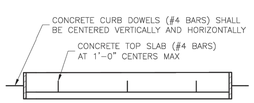
FRONT ELEVATION



SECTION B–B



WALL CORNER DETAIL



PLAN VIEW

STEEL FRAME NOTES:

1. ALL WELDS SHALL BE PERFORMED IN ACCORDANCE WITH APPROPRIATE AWS SPECIFICATIONS AND PROCEDURES.
2. ALL WELDS ON EXPOSED SURFACES SHALL BE DRESSED SO AS TO PROVIDE A PLEASING FINISHED APPEARANCE.
3. THE ENTIRE FRAME SHALL BE PAINTED A SINGLE COAT OF CHEM–PRIME #37H–78 PRIMER (GRAY) OR EQUAL.

GENERAL NOTES:

1. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION.
2. FLOW LINES LISTED ON THE PROJECT PLANS ARE LISTED AT THE INSIDE FACE OF THE WALL.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
4. LOCATE MH RING AND COVER ON BLANK WALL IF POSSIBLE.
5. STEPS SHALL BE SPACED AT 1'–4" O.C. VERTICALLY ON BLANK WALL IF POSSIBLE.
6. BEVEL ALL EXPOSED EDGES WITH ¾"CHAMFER OR ½" TOOLED EDGE.
7. ON–GRADE INLETS SHALL CONFORM TO THE STREET GRADE AND SUMP INLETS SHALL BE LEVEL.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. LIFTING RINGS SHALL BE REMOVED AND SEALED WITH NON–SHRINKABLE GROUT
10. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Project:
Sheet Name: CURB INLET DETAIL

Drawn By: MJF
Checked By: DL
Date: 05/2021
Proj. #:

STM-1

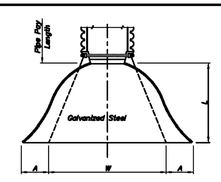
END SECTIONS FOR HDPE PIPE

Dia.	Gauge	Weight	* A	* H	* L	* W	Slope	Overall Width
6"	16	10	4	3	8	12	2	20"
8"	16	14	5 3/4	4	14 1/2	16	2 1/4	27 1/2"
10"	16	17	7 5/8	6	14 1/2	20	2 1/2	35 1/4"
12"	16	25	7	6	21	24	2 1/2	35"
15"	16	33	8	6	26	30	2 1/2	46"
18"	16	42	8	6	31	36	2 1/2	52"
21"	16	49	9	6	36	42	2 1/2	60"
24"	16	65	10	6	41	48	2 1/2	68"
30"	14	123	12	8	51	60	2 1/2	84"
36"	14	135	14	9	60	72	2 1/2	100"
42"	12	320	16	11	69	84	2 1/2	116"
48"	12	375	18	12	79	90	2 1/4	126"
54"	12	440	18	12	84	102	2 1/4	138"
60"	12/10	610	18	12	87	114	2	150"

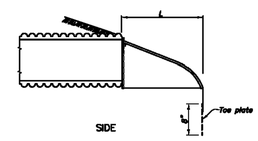
Toe plate extensions where specified, to be punched to match holes in apron lip. 3/8" bolts to be furnished. The length of toe plate to be as follows: W + 10" for 12" to 30" diameter pipes inclusive. W + 20" for 36" to 60" diameter pipes inclusive.

Multiple panel end sections shall have lap seams which are to be tightly jointed by bolts. Corner plate, and toe plate to be same gauge as end section.

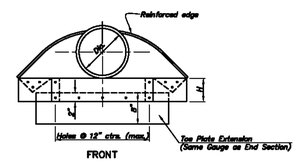
* – Dimensions in Inches Plus or Minus Standard Shop Tolerance.



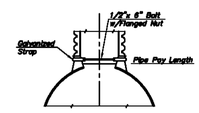
PLAN



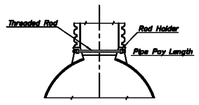
SIDE



FRONT

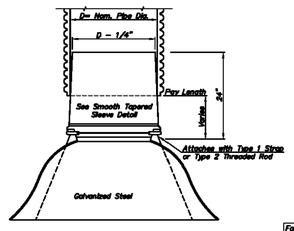


TYPE 1
(10" & Smaller)

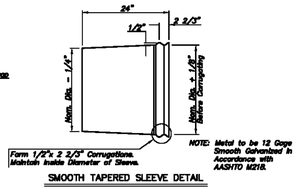


TYPE 2
(12" & Larger)

CONNECTIONS



TAPERED SLEEVE FOR ATTACHING STEEL END SECTIONS TO SMOOTH PIPE



SMOOTH TAPERED SLEEVE DETAIL

SHEET NO.	TOTAL SHEETS

No.	Date	Revisions

STANDARD END SECTION FOR HDPE PIPES

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PUBLIC IMPROVEMENTS FOR WILSHIRE HILLS - 4TH PLAT

NE WILSHIRE DRIVE
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

10/12/2023
STATE OF MISSOURI
MATTHEW AARON KRIETE
NUMBER PE-2007002811
PROFESSIONAL ENGINEER

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

IF ORIGINAL SIGNATURE OR DIGITAL AUTHENTICATION IS NOT PRESENT THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

Date
JUNE 27, 2023

Revised	
1	JULY 26, 2023
2	OCTOBER 12, 2023

Design: ST Drawn: MJS

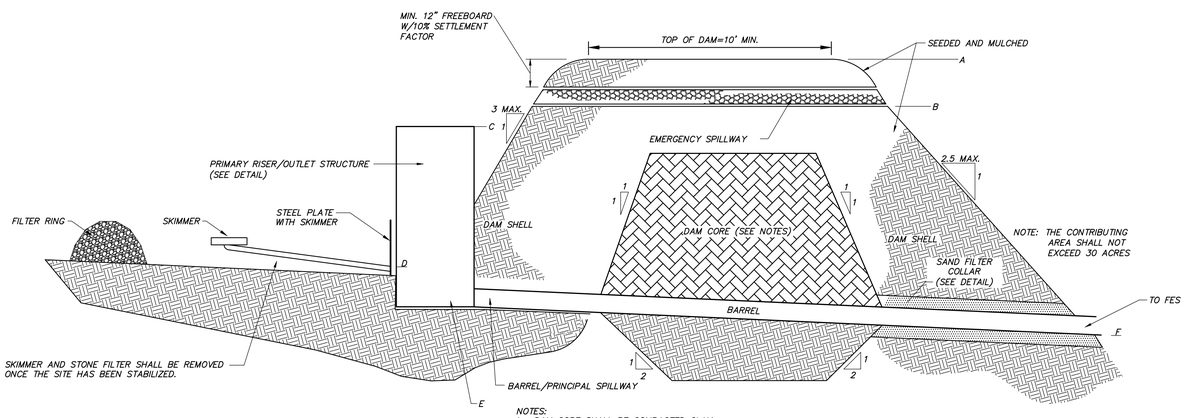
STORM SEWER DETAILS

Sheet
C2.15

CONSTRUCTION DOCUMENTS

ES&S PROJECT NO. 15925

P:\GENERAL PROJECTS\15925E-JES-WILSHIRE-HILLS-3-ENG\CAD\15925 COVER & DETAILS.DWG 10/17/2023



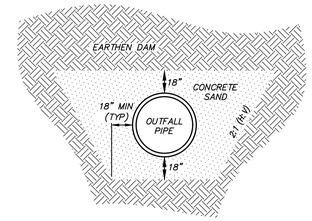
NOTES:
1. DAM CORE SHALL BE COMPACTED CLAY.
2. WATER PONDING ELEVATIONS REFLECT THE OUTFALL CONTROL STRUCTURE OPERATING UNDER NORMAL CONDITIONS AND THE 100-YEAR STORM WITH THE LOW FLOW ORIFICE BLOCKED IN THE OUTFALL CONTROL STRUCTURE.

DRY DETENTION BASIN WITH SKIMMER DETAIL (sk)

NOT TO SCALE

SEDIMENT BASIN	REQUIRED STORM WATER STORAGE (cy)	DISTURBED AREA (ac)	REQUIRED SEDIMENT STORAGE (cy)	TOTAL REQUIRED STORAGE (cy)	AVAILABLE STORAGE (cy)	CLEANOUT VOLUME (cy)	CLEANOUT ELEVATION	TOTAL DRAINAGE AREA (ac)	TOP OF DAM (A)	EMERGENCY SPILLWAY CREST (B)	SKIMMER FLOWLINE (D)	FL @ OUTLET STRUCTURE (E)	FL @ TOE OF DAM (F)	BARREL	EMERGENCY SPILLWAY WIDTH	EMERGENCY SPILLWAY SIDE SLOPES	PRINCIPAL SPILLWAY RISER	PRINCIPAL SPILLWAY VELOCITY	EMERGENCY SPILLWAY VELOCITY
1	2,137	6.54	439	2,575	8,740	144	911.75	19.0	924.3	922.95	911.15	911.00	910.75	60" RCP @ 0.25%	90 FEET	3:1	(SEE DETAILS)	6.86 FPS	1.48 FPS

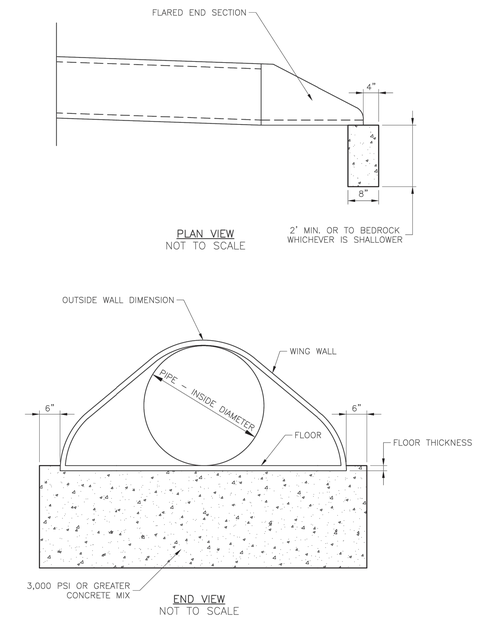
NOTE: ANY MECHANICAL DEWATERING OF THE BASIN SHALL BE PUMPED THROUGH A DIRTBAG® OR APPROVED EQUAL



NOTES:
1. COMPACT CONCRETE SAND WITH MULTIPLE PASSES OF VIBRATORY PLATE COMPACTOR.

SAND FILTER COLLAR

NOT TO SCALE

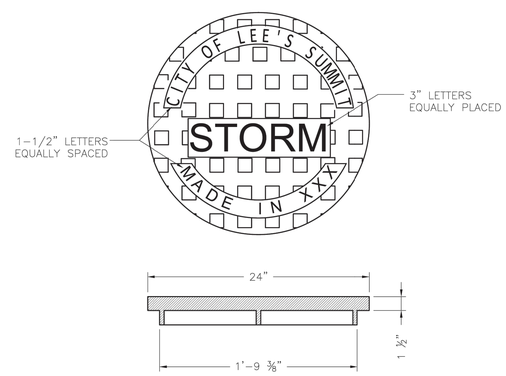


LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

FLARED END SECTION SUPPORT DETAIL

Date: 05/2021
Drawn By: MJF
Checked By: DL

STM-5



STANDARD 24" MANHOLE COVER
MINIMUM WEIGHT = 160 LB
NOTE: PICK HOLES NOT SHOWN

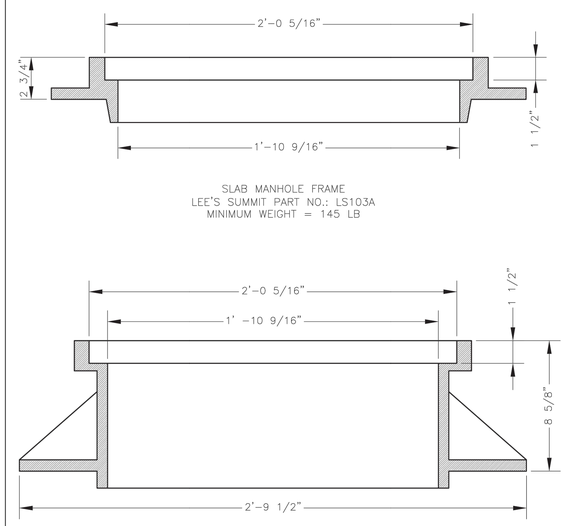
*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCT LIST.

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STORM MANHOLE COVER DETAIL

Date: 05/2021
Drawn By: MJF
Checked By: DL

STM-6



SLAB MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS103A
MINIMUM WEIGHT = 145 LB

STANDARD 24" MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS101A
MINIMUM WEIGHT = 250 LB

*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCTS LIST.

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STORM MANHOLE FRAME DETAIL

Date: 05/2021
Drawn By: MJF
Checked By: DL

DWG-7

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PUBLIC IMPROVEMENTS FOR WILSHIRE HILLS - 4TH PLAT

NE WILSHIRE DRIVE
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

10/12/2023
STATE OF MISSOURI
MATTHEW AARON KRIETE
NUMBER PE-2007002811
PROFESSIONAL ENGINEER

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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Date
JUNE 27, 2023

Revised
2 OCTOBER 12, 2023

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STORM SEWER DETAILS

Sheet
C2.16

CONSTRUCTION DOCUMENTS

ES&S PROJECT NO. 15925

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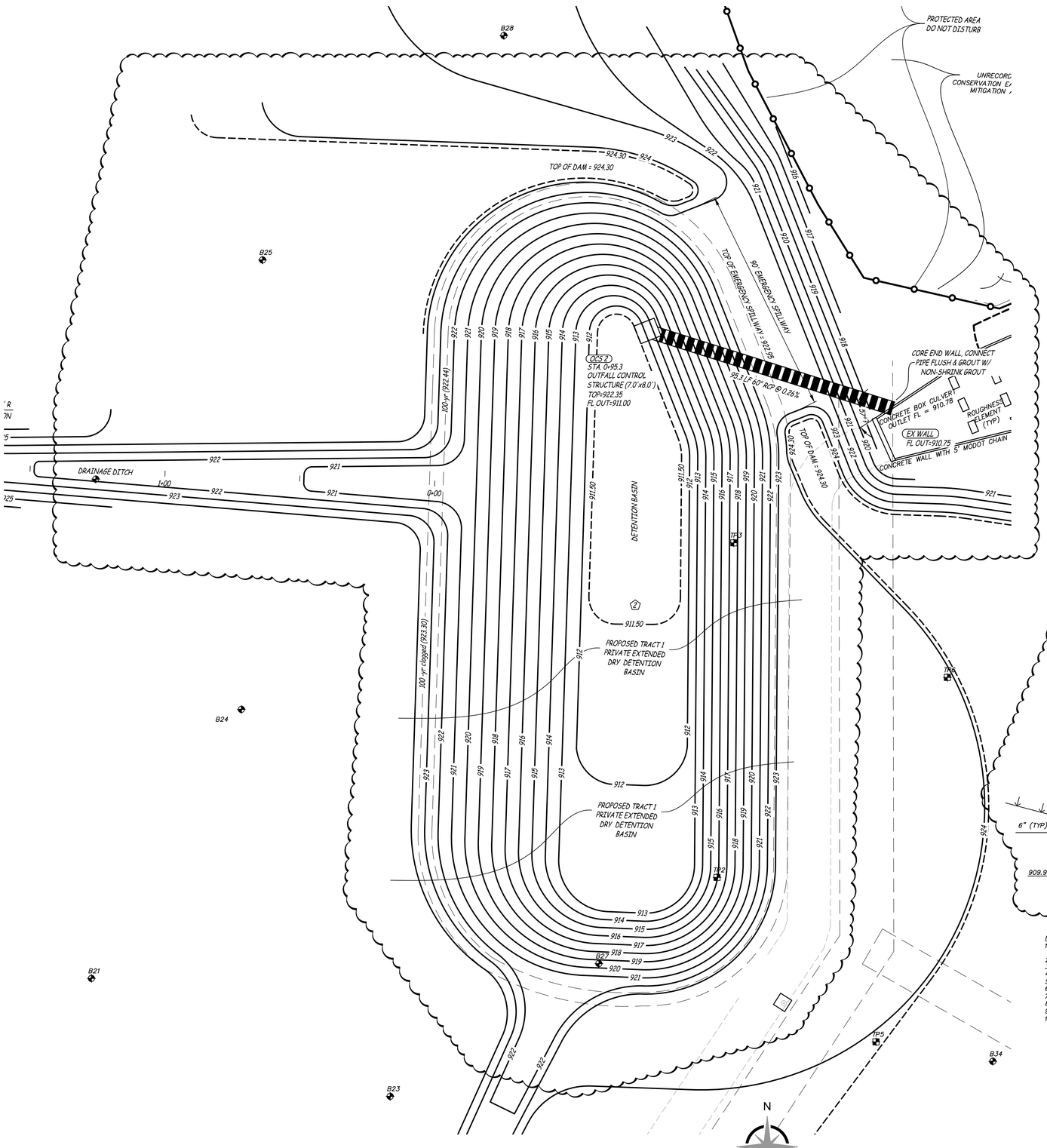
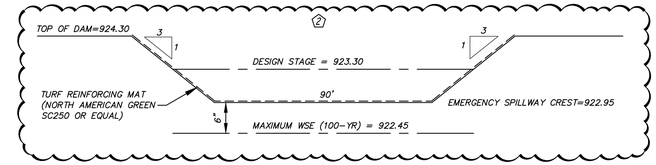


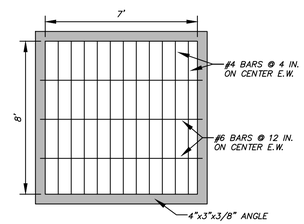
DETENTION BASIN DETAIL

SCALE: 1" = 20'



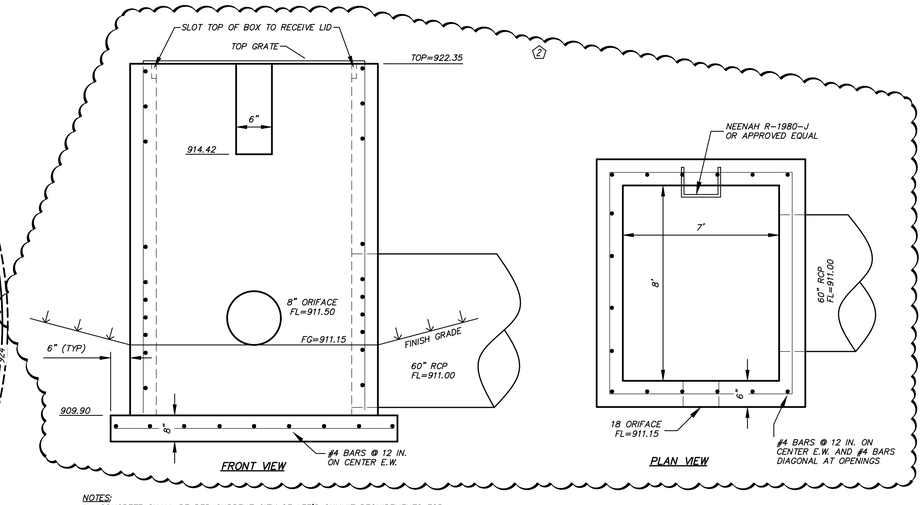
EMERGENCY SPILL-WAY CROSS SECTION

NOT TO SCALE



TOP GRATE

1. WELD ALL CONNECTIONS.
2. APPLY GALVANIZED COATING AFTER ASSEMBLY.
3. GRATE SHALL BE ANCHORED TO BOX.



NOTES:

1. CONCRETE SHALL BE PER CURRENT CITY OF LEE'S SUMMIT REQUIREMENTS FOR REINFORCED CONCRETE STORM SEWER STRUCTURES.
2. ALL REINFORCING STEEL SHALL BE GRADE 60.
3. KCMMB MIX SHALL BE USED.
4. INSTALL WEEP HOLES AS PER SEPARATE DETAIL.
5. THERE SHALL BE A MINIMUM 2" CLEARANCE BETWEEN ALL REBAR AND WALLS.
6. STEPS SHALL BE PLACED ON A VACANT WALL WHEN POSSIBLE.
7. STEP SPACING SHALL BE 16". STAGGER STEPS 2" EACH WAY FROM CENTERLINE.
8. FORM ALL INVERTS FOR SMOOTH FLOW THRU STRUCTURE.
9. PLACE STRUCTURE ON 8" GRANULAR BASE.
10. AFTER COMPLETION, COVER PERFORATED PIPE WITH 2" WASHED STONE. MOUND STONE AROUND PIPE UNTIL COVERED, MINIMUM 4" THICK.

OUTFALL STRUCTURE 2 (OCS 2)

NOT TO SCALE

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PUBLIC IMPROVEMENTS FOR WILSHIRE HILLS - 4TH PLAT

NE WILSHIRE DRIVE

LEE'S SUMMIT, JACKSON COUNTYMO

10/12/2023

STATE OF MISSOURI
MATTHEW AARON KRIETE
NUMBER
PE-2007002811
PROFESSIONAL ENGINEER

MATTHEW A. KRIETE
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Date

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2 OCTOBER 12, 2023

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STORM SEWER DETAILS

Sheet

C2.17

CONSTRUCTION DOCUMENTS

ES&S PROJECT NO. 15925

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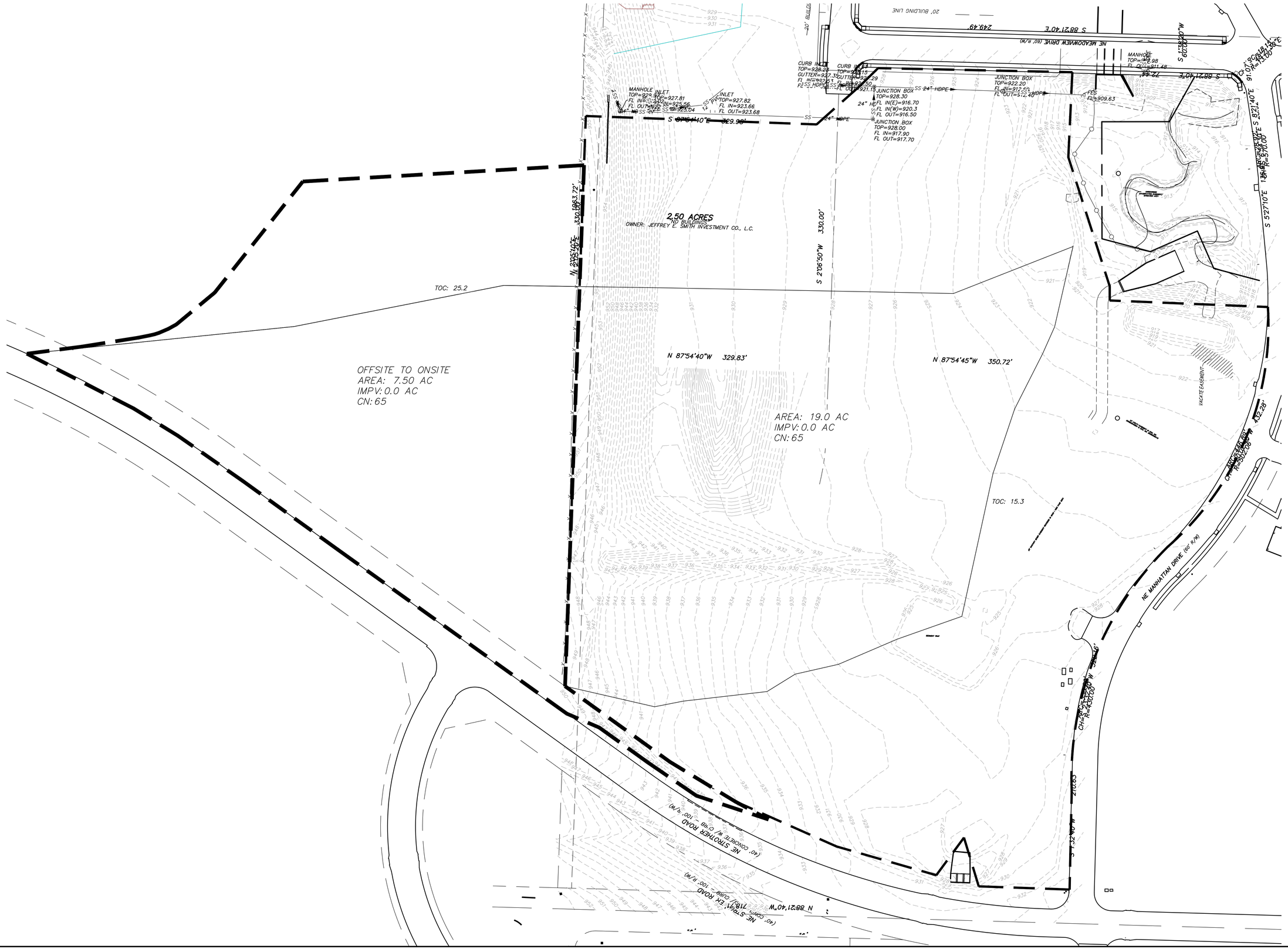

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N
0 1"
SCALE: 1" = 60'

WILSHIRE HILLS PHASE III
STREET ADDRESS
LEE'S SUMMIT JACKSON COUNTY, MISSOURI

10/12/2023
MATTHEW AARON KRIETE
NUMBER
PE-2007002811

MATTHEW A. KRIETE
PROFESSIONAL ENGINEER
PE-2007002811

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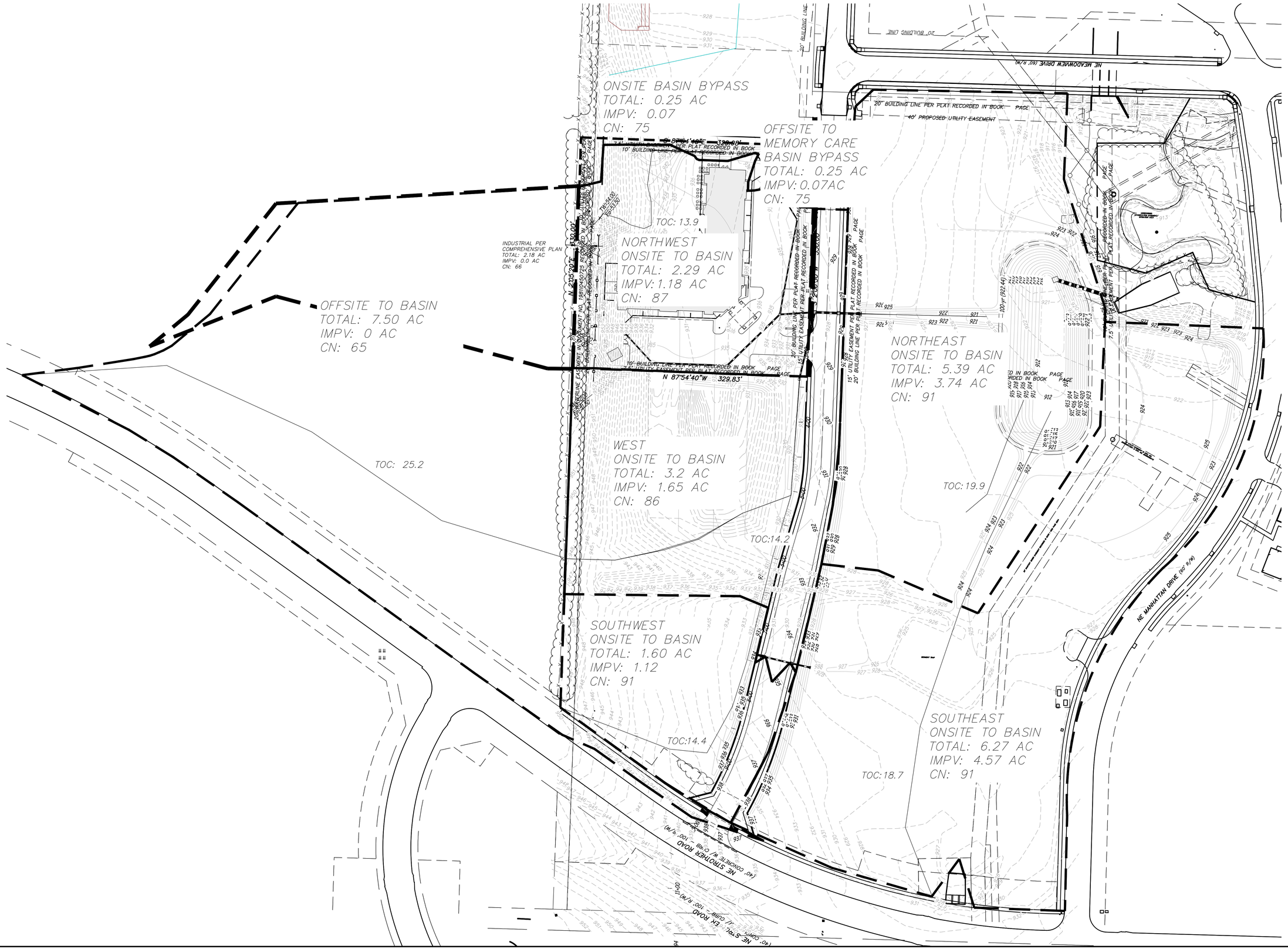
PRE-DRAINAGE AREA MAP

Sheet
C2.18

CONSTRUCTION DOCUMENTS

ES&S PROJECT NO. 15925



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N

0 1"
SCALE: 1" = 60'

WILSHIRE HILLS PHASE III

STREET ADDRESS
LEE'S SUMMIT JACKSON COUNTY, MISSOURI

10/12/2023
STATE OF MISSOURI
MATTHEW AARON KRIETE
NUMBER PE-2007002811
PROFESSIONAL ENGINEER

MATTHEW A. KRIETE
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2 OCTOBER 12, 2023

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POST-DRAINAGE AREA MAP

Sheet
C2.19

CONSTRUCTION DOCUMENTS

ES&S PROJECT NO. 15925

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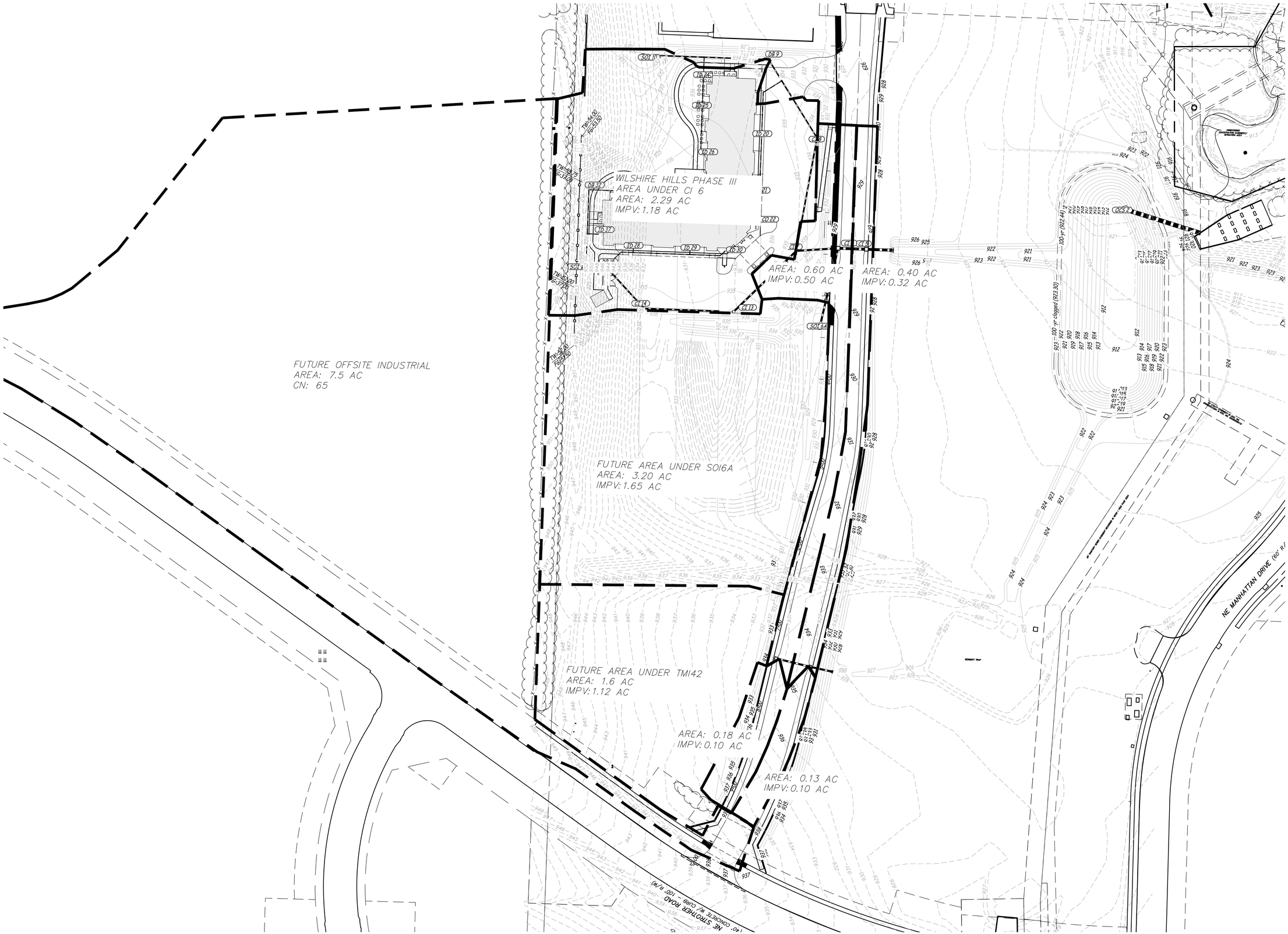

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WILSHIRE HILLS PHASE III

STREET ADDRESS

LEE'S SUMMIT JACKSON COUNTY, MISSOURI

10/12/2023

STATE OF MISSOURI
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STORM SEWER DRAINAGE AREA MAP

Sheet

C2.20

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CONSTRUCTION DOCUMENTS

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