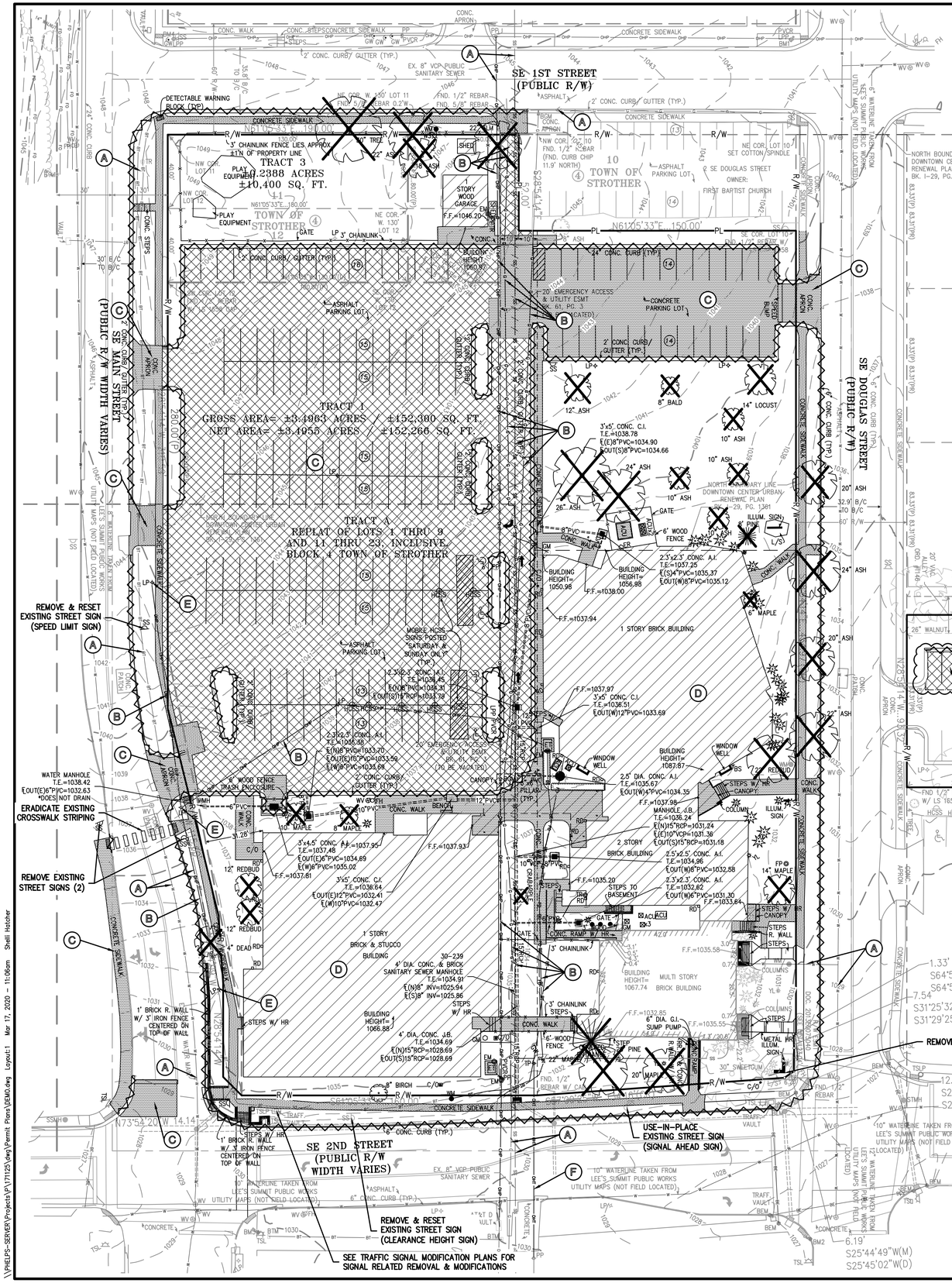


	INDEX
C1	DEMOLITION PLAN
C2	FINAL PLAT
C3	SITE PLAN
C3.1–C3.2	ENLARGED SITE PLANS
C4	GRADING PLAN
C4.1–C4.6	ENLARGED GRADING PLANS
C5	UTILITY PLAN
C5.1	BURIED ELECTRIC PLAN & PROFILE
C5.2	EVERGY ELECTRIC PLAN
C6	STORM SEWER PLAN & PROFILE
C7	DRAINAGE MAP
C7.1–C7.8	SECONDARY DRAINAGE MAP & CALCS.
C8	STORMWATER DETENTION PLAN
C9	EROSION CONTROL PLAN
C10	EROSION CONTROL DETAILS
C11–C13	PAVEMENT DETAILS
C14–C16	STORM SEWER DETAILS
C17	SANITARY & WATER DETAILS
C18	WALL & FENCE DETAILS
L1	LANDSCAPE PLAN
H1–H6	HARDSCAPE PLANS
E0.1	SITE PHOTOMETRIC PLAN
A1.1	ARCHITECTURAL SITE PLAN
A2.6	BUILDING PLAN–ROOF LEVEL
A3.1–A3.6	BUILDING ELEVATIONS

811
Know what's below.
Call before you dig.

UTILITY NOTES:
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

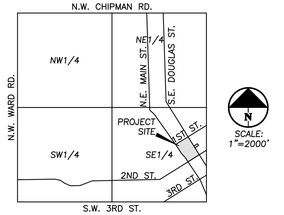
DEMOLITION NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR THE DEMOLITION, REMOVAL, AND DISPOSAL (IN A LOCATION APPROVED BY ALL GOVERNING AUTHORITIES) ALL CURBS, PARKING, DRIVES, DRAINAGE STRUCTURES, UTILITIES, ETC., SUCH THAT THE IMPROVEMENTS SHOWN ON THE REMAINING PLANS CAN BE CONSTRUCTED. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL.

2. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL DEBRIS FROM THE SITE AND DISPOSING THE DEBRIS IN A LAWFUL MANNER. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL.

3. DAMAGE TO ALL EXISTING CONDITIONS TO REMAIN WILL BE REPLACED AT CONTRACTOR'S EXPENSE.

4. CONTRACTOR MUST COORDINATE WITH OWNER PRIOR TO ANY CONSTRUCTION TO ESTABLISH CUSTOMER ACCESS AND TRAFFIC FLOW DURING ALL PHASES.



VICINITY MAP
SEC. 6–T47N–R31W

DEMOLITION KEY NOTES:

(A) ALL UTILITIES SERVING STRUCTURES IMMEDIATELY SURROUNDING THE DEMOLITION BOUNDARY SHALL REMAIN IN SERVICE THROUGHOUT THE PROJECT. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT ANY DAMAGE TO SUCH UTILITIES. TYPICAL LOCATION.

(B) THE CONTRACTOR SHALL REMOVE ALL UNDERGROUND GAS LINES, WATER LINES, SANITARY AND STORM SEWER SERVICE LINES AND THEIR APPURTENANCES. APPURTENANCES INCLUDE, BUT NOT LIMITED TO, ALL PIPES, MANHOLES, JUNCTION BOXES, CATCH BASINS, YARD INLETS, FLUMES AND METER PITS. THE UTILITY SERVICES SHALL BE DISCONNECTED ALONG THE PROJECT BOUNDARY LINE TO THE EXISTING BUILDING TO BE DEMOLISHED.

THE CONTRACTOR SHALL REMOVE ALL UNDERGROUND/OVERHEAD ELECTRICAL SERVICES, TELEPHONE AND CABLE SERVICE LINES AND THEIR APPURTENANCES WITHIN THE PROJECT BOUNDARY. THE UTILITY SERVICES SHALL BE DISCONNECTED ALONG THE PROJECT BOUNDARY. TYPICAL LOCATION.

(C) THE CONTRACTOR SHALL REMOVE EXISTING DRIVE ENTRANCE, EXISTING CONCRETE PARKING LOT, & EXISTING ASPHALT PARKING LOT. REMOVE EXISTING ASPHALT, CONCRETE, AND THE SUB–BASE GRAVEL TO THE NATURAL SOIL ELEVATION.

(D) THE CONTRACTOR SHALL REMOVE ALL PRE–EXISTING STRUCTURES, FOUNDATIONS, FOOTINGS, PIERS, WATER WELLS, SEPTIC TANKS, LATERAL LINES, BURIED DEBRIS, MISCELLANEOUS CONCRETE, ETC. WHICH MAY BE ENCOUNTERED DURING DEMOLITION ACTIVITIES. THE CONTRACTOR SHALL DISPOSE OF THESE MATERIALS IN A LOCATION APPROVED BY ALL GOVERNING AUTHORITIES.

SHADED AREAS INDICATE MAIN STRUCTURES AND OUTBUILDINGS TO BE DEMOLISHED. IN ADDITION TO SHADED DEMOLITION AREAS, ALL MISCELLANEOUS CONCRETE, STONE STRUCTURES, OUTBUILDINGS, PRIVATE SIDEWALKS, RETAINING WALLS, SIGNS, PATIOS, FOUNDATION WALLS AND FOOTINGS ASSOCIATED WITH THE STRUCTURES SHALL BE REMOVED UNLESS OTHERWISE NOTED ON THE PLANS. TYPICAL LOCATION.

THE CONTRACTOR SHALL BE REQUIRED TO BACKFILL ALL EXCAVATIONS/DEPRESSIONS CREATED BY THE REMOVAL OF STRUCTURES, FOUNDATIONS, FOOTINGS, PAVING, SEPTIC TANKS, WELLS, PIPES, TREE ROOTS, DEBRIS AND UTILITY STRUCTURES, ETC. ALL EXCAVATIONS SHALL BE BACKFILLED TO EXISTING GROUND ELEVATIONS ON ALL SIDES OF THE EXCAVATION.

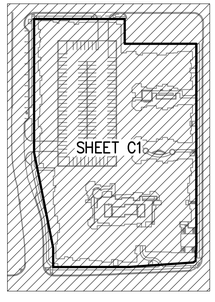
(E) REMOVE EXISTING LIGHT POLE AND FOUNDATION.

(F) CONTRACTOR TO COORDINATE WITH CABLE COMPANY TO REMOVE OVERHEAD CABLE ACROSS 2ND STREET.

OIL–GAS WELLS:

PER MISSOURI DNR RECORDS AN ABANDONED GAS WELL (API #095–00498) HAS BEEN IDENTIFIED IN THE AREA, BUT THE EXACT LOCATION IS UNKNOWN. IF THE ABANDONED GAS WELL IS FOUND DURING CONSTRUCTION THE CONTRACTOR SHALL HALT ALL WORK IMMEDIATELY AND THE DEVELOPER / CONTRACTOR MUST NOTIFY THE CITY OF LEE'S SUMMIT AND MISSOURI DNR. THE CITY AND MISSOURI DNR WILL HAVE TO PROVIDE PERMISSION FOR CONSTRUCTION TO RESUME AFTER EVALUATING THE WELL.

KEY PLAN



LEGEND

- PL — PROPERTY LINE
- LOT LINE
- R/W — RIGHT–OF–WAY
- REMOVE EXISTING CURB & GUTTER
- EXISTING BUILDING TO BE REMOVED
- EXISTING ASPHALT PAVEMENT TO BE REMOVED
- EXISTING CONCRETE PAVEMENT/SIDEWALK TO BE REMOVED
- EXISTING TREE TO REMAIN
- REMOVE TREE
- LP — EXISTING LIGHT POLE
- W — EXISTING WATER LINE
- G — EXISTING GAS LINE
- BE — EXISTING BURIED ELECTRIC
- BT — EXISTING BURIED TELEPHONE
- SS — EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING FIRE HYDRANT

SCALE: 1"=30'
0' 30' 60'

PREPARED & SUBMITTED BY:

PHELPS ENGINEERING, INC.
1270 N. WINCHESTER
OLATHE, KANSAS 66061

STATE OF MISSOURI
DOUGLAS EUGENE PHELPS, JR.
NUMBER PE-2011010998
3/16/20
PROFESSIONAL ENGINEER

PHELPS ENGINEERING, INC.
1270 N. Winchester
Olathe, Kansas 66061
(913) 393-1155
FAX (913) 393-1066
www.phelpsengineering.com

PLANNING
ENGINEERING
IMPLEMENTATION

DEMOLITION PLAN

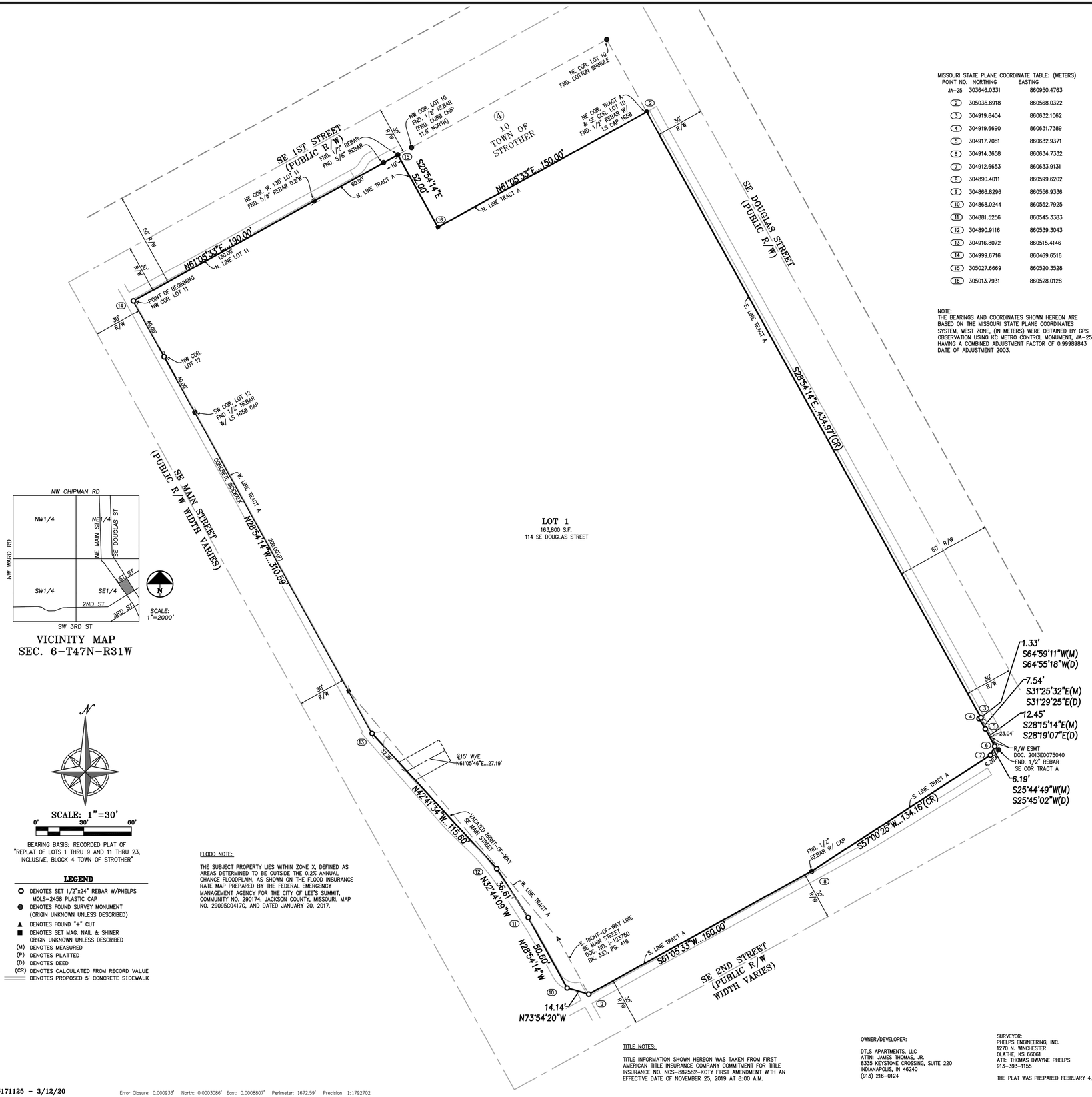
DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEJ

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DJF APPROVED: DEJ
CERTIFICATE OF AUTHORIZATION KANSAS ENGINEERING - LS-82
MISSOURI ENGINEERING - E-391
CERTIFICATE OF AUTHORIZATION LAND SURVEYING-2007001128
ENGINEERING-2007005358

SHEET
C1

\\PHELPS-SERVER\Projects\P\171125\dwg\Permit Plans\DEMO.dwg Layout:1 Mar 17, 2020 - 11:06am Shelli Hatcher



LEGEND

- ○ DENOTES SET 1/2"x24" REBAR W/PHELPS MOLS-2458 PLASTIC CAP
- ● DENOTES FOUND SURVEY MONUMENT (ORIGIN UNKNOWN UNLESS DESCRIBED)
- ▲ DENOTES FOUND "+" CUT
- ■ DENOTES SET MAG. NAIL & SHINER ORIGIN UNKNOWN UNLESS DESCRIBED
- (M) DENOTES MEASURED
- (P) DENOTES PLATTED
- (D) DENOTES DEED
- (CR) DENOTES CALCULATED FROM RECORD VALUE
- DENOTES PROPOSED 5' CONCRETE SIDEWALK

FLOOD NOTE:

THE SUBJECT PROPERTY LIES WITHIN ZONE X, DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS SHOWN ON THE FLOOD INSURANCE RATE MAP PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY FOR THE CITY OF LEE'S SUMMIT, COMMUNITY NO. 290174, JACKSON COUNTY, MISSOURI, MAP NO. 29095C0417G, AND DATED JANUARY 20, 2017.

MISSOURI STATE PLANE COORDINATE TABLE: (METERS)

POINT NO.	NORTHING	EASTING
JA-25	303646.0331	860950.4763
2	305035.8918	860568.0322
3	304919.8404	860632.1062
4	304919.6690	860631.7389
5	304917.7081	860632.9371
6	304914.3658	860634.7332
7	304912.6653	860633.9131
8	304890.4011	860599.6202
9	304866.8296	860556.9336
10	304868.0244	860552.7925
11	304881.5256	860545.3383
12	304890.9116	860539.3043
13	304916.8072	860515.4146
14	304999.6716	860469.6516
15	305027.6669	860520.3528
16	305013.7931	860528.0128

NOTE:
THE BEARINGS AND COORDINATES SHOWN HEREON ARE BASED ON THE MISSOURI STATE PLANE COORDINATES SYSTEM, WEST ZONE, (IN METERS) WERE OBTAINED BY GPS OBSERVATION USING KC METRO CONTROL MONUMENT, JA-25 HAVING A COMBINED ADJUSTMENT FACTOR OF 0.99989843 DATE OF ADJUSTMENT 2003.

TITLE NOTES:

TITLE INFORMATION SHOWN HEREON WAS TAKEN FROM FIRST AMERICAN TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE NO. NCS-882582-KCITY FIRST AMENDMENT WITH AN EFFECTIVE DATE OF NOVEMBER 25, 2019 AT 8:00 A.M.

OWNER/DEVELOPER:

DTLS APARTMENTS, LLC
ATTN: JAMES THOMAS, JR.
8335 KEYSTONE CROSSING, SUITE 220
INDIANAPOLIS, IN 46240
(913) 216-0124

SURVEYOR:
PHELPS ENGINEERING, INC.
1270 N. WINCHESTER
OLATHE, KS 66061
ATT: THOMAS DWAYNE PHELPS
913-393-1155

THE PLAT WAS PREPARED FEBRUARY 4, 2020.

PEI #171125 - 3/12/20

Error Closure: 0.000933' North: 0.0003086' East: 0.0008807' Perimeter: 1672.59' Precision 1: 1792702

FINAL PLAT OF

DOWNTOWN LEE'S SUMMIT APARTMENTS

RESURVEY AND REPLAT OF TRACT A, REPLAT OF LOTS 1 THRU 9 AND 11 THRU 23, INCLUSIVE, BLOCK 4 THE TOWN OF STROTHER, AND THE WEST 130 FEET OF LOTS 11 AND 12, BLOCK 4, CITY OF LEE'S SUMMIT, FORMERLY THE TOWN OF STROTHER, A SUBDIVISION OF LAND IN THE CITY OF LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

LEGAL DESCRIPTION

Resurvey and replat of Tract A, REPLAT OF LOTS 1 THRU 9 AND 11 THRU 23, INCLUSIVE, BLOCK 4 TOWN OF STROTHER and the West 130 feet of Lots 11 and 12, Block 4, CITY OF LEE'S SUMMIT, FORMERLY THE TOWN OF STROTHER, a platted subdivision of land and vacated right-of-way of Main Street, as now established lying adjacent to said Tract A, all in the City of Lee's Summit, Jackson County, Missouri, being more particularly described as follows:

Beginning at the Northwest corner of said Lot 11, said point also being on the Southerly right-of-way line of SE 1ST Street, as now established; thence N 61°05'33" E, thence along the Northerly line of said Lot 11 and said Tract A and the Southerly right-of-way line of said SE 1st Street, a distance of 190.00 feet to an angle point on the Northerly line of said Tract A; thence S 28°54'14" E, along the Northerly line of said Tract A, a distance of 52.00 feet; thence N 61°05'33" E, along the Northerly line of said Tract A, a distance of 150.00 feet to the Northeast corner of said Tract A, said point also being on the Westerly right-of-way line of SE Douglas Street, as now established; thence S 28°54'14" E, along the Easterly line of said Tract A and the Westerly right-of-way line of said SE Douglas Street, a distance of 434.97 feet; thence along the Westerly right-of-way line of SE Douglas Street, for the following four (4) courses; thence S 64°59'11" W, a distance of 1.33 feet; thence S 31°25'32" E, a distance of 7.54 feet; thence S 28°15'14" E, a distance of 12.45 feet; thence S 25°44'49" W, a distance of 6.19 feet to a point on the Southerly line of said Tract A, said point also being on the Northerly right-of-way line of SE 2nd Street, as now established; thence along the Southerly right-of-way line of said Tract A and the Northerly right-of-way line of said SE 2nd Street, for the following two (2) courses; thence S 61°05'33" W, a distance of 134.16 feet; thence S 61°05'33" W, a distance of 160.00 feet to a point on the Easterly right-of-way line of SE Main Street, as now established; thence along the Easterly right-of-way line of said SE Main Street, for the following five (5) courses; thence N 73°54'20" W, a distance of 14.14 feet; thence N 28°54'14" W, a distance of 50.60 feet; thence N 32°44'09" W, a distance of 36.61 feet; thence N 42°41'34" W, a distance of 115.60 feet; thence N 28°54'14" W, along the Westerly line of said Tract A and its Southeasterly extension, a distance of 310.59 feet to the point of beginning, containing 3.7603 acres, more or less, of replatted land.

DEDICATION

The undersigned proprietors of the above described tract of land have caused the same to be subdivided in the manner shown on the accompanying plat, which subdivision shall hereafter be known as: "DOWNTOWN LEE'S SUMMIT APARTMENTS".

EASEMENTS

An easement or license is hereby granted to the City of Lee's Summit, Missouri, to locate, construct and maintain or to authorize the location, construction and maintenance of poles. wires, anchors, conduits, and/or structures for water. gas. sanitary sewer, surface drainage channel, electricity. telephone, cable television, or any other necessary public utility or services, any of them, upon, over or under those areas outlined or designated upon this plat as "Utility Easement" (U/E) and "Sanitary Sewer Easement" (SS/E) or within any street or thoroughfares dedicated to public use on this plat. Grantor, on behalf of himself, his heirs, his assigns and successors in interest, hereby waives, to the fullest extent allowed by law, including. without limitation, Section 527.188. RSMo. (2006). any right to request restoration of rights previously transferred and vacation of the easement herein granted.

DRAINAGE NOTE

Individual lot owner(s) shall not change or obstruct the drainage flow lines on the lots, unless specific application is made and approved by the City Engineer.

EXECUTION

IN TESTIMONY WHEREOF, undersigned proprietors has caused this instrument to be executed on this _____ day of _____, 20____

DTLS Apartments, LLC

By: _____
James Thomas, Jr., Managing Member

ACKNOWLEDGEMENT

STATE OF MISSOURI)
) SS
COUNTY OF JACKSON)

BE IT REMEMBERED that on this _____ day of _____, 20_____, before me, the undersigned, a Notary Public in and for said County and State, came James Thomas, Jr., Managing Member of DTLS Apartments, LLC, who is personally known to me to be such person who executed, as such officer, the within instrument on behalf of said company, and such person duly acknowledged the execution of the same to be the act and deed of the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year last above written.

Notary Public: _____ My Appointment Expires: _____

Print Name: _____

APPROVALS

This is to certify that the plat of "DOWNTOWN LEE'S SUMMIT APARTMENTS" was submitted and duly approved by the City of Lee's Summit, pursuant to Chapter 33, the Unified Development Ordinance, of the City of Lee's Summit Code of Ordinances.

By _____ _____
Mayor: Bill Baird — Date

By _____ _____
Director of Planning and Codes Administration, Ryan A. Elam, P.E. — Date

By _____ _____
City Engineer, George M. Binger III, P.E. — Date

By _____ _____
City Clerk, Trisha Fowler Arcuri — Date

By _____ _____
Planning Commission Secretary, — Date

Approved by Jackson County Assessor:

By _____ _____
Date

Approved by GIS Department:

By _____ _____
Date

I hereby certify that the within plat of "DOWNTOWN LEE'S SUMMIT APARTMENTS" is based on an actual survey made by me or under my direct supervision and that said survey meets or exceeds the current MINIMUM STANDARD FOR PROPERTY BOUNDARY SURVEYS as adopted by the Missouri Board for Architects, Professional Engineers, and Land Surveyors and the Missouri Department of Natural Resources. I further certify that the Section and Sectional Subdivision corner monuments and survey boundary corner monuments were either found or set as indicated on this plat; that I have complied with all State and City of Lee's Summit statues, ordinances and regulations governing the practice of surveying and platting of subdivisions to the best of my knowledge and belief.

BY: _____
THOMAS DWAYNE PHELPS, LS-2458

DATE: _____

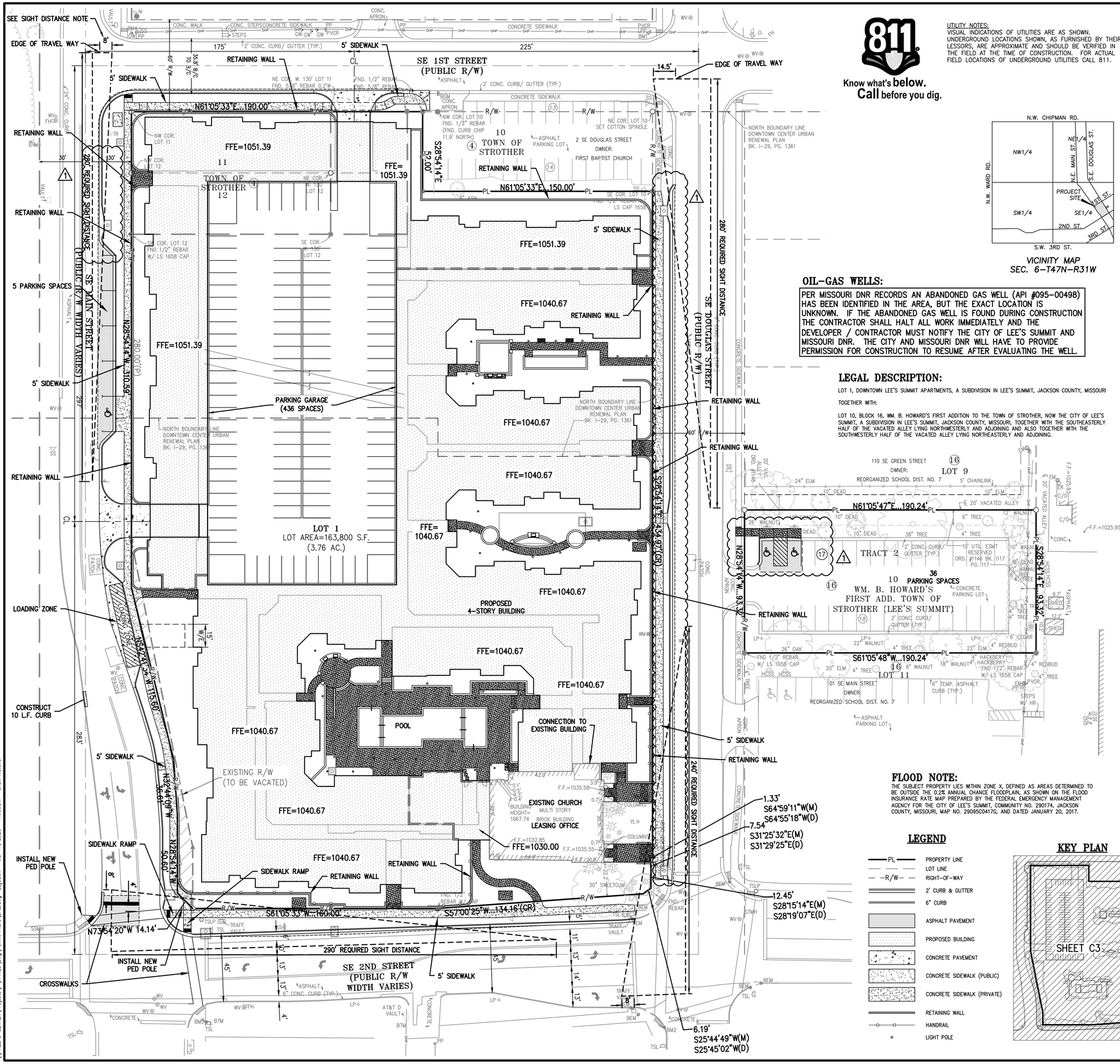
STATE OF MISSOURI
LS-2458
THOMAS DWAYNE PHELPS
REGISTERED LAND SURVEYOR

CERTIFICATE OF AUTHORIZATION
KANSAS
LAND SURVEYING - LS-82
ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION
MISSOURI
LAND SURVEYING-2007001128
ENGINEERING-2007005058

PEI
PLANNING
ENGINEERING
IMPLEMENTATION

PHELPS ENGINEERING, INC
1270 N. Winchester
Olathe, Kansas 66061
(913) 393-1155
Fax (913) 393-1166



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VICINITY MAP
SEC. 6-T47N-R31W

OIL-GAS WELLS:

PER MISSOURI DNR RECORDS AN ABANDONED GAS WELL (API #095-00498) HAS BEEN IDENTIFIED IN THE AREA, BUT THE EXACT LOCATION IS UNKNOWN. IF THE ABANDONED GAS WELL IS FOUND DURING CONSTRUCTION THE CONTRACTOR SHALL HALT ALL WORK IMMEDIATELY AND THE DEVELOPER / CONTRACTOR MUST NOTIFY THE CITY OF LEE'S SUMMIT AND MISSOURI DNR. THE CITY AND MISSOURI DNR WILL HAVE TO PROVIDE PERMISSION FOR CONSTRUCTION TO RESUME AFTER EVALUATING THE WELL.

LEGAL DESCRIPTION:

LOT 1, DOWNTOWN LEE'S SUMMIT APARTMENTS, A SUBDIVISION IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

TOGETHER WITH:

LOT 10, BLOCK 16, WM. B. HOWARD'S FIRST ADDITION TO THE TOWN OF STROTHER, NOW THE CITY OF LEE'S SUMMIT, A SUBDIVISION IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI, TOGETHER WITH THE SOUTHEASTERLY HALF OF THE VACATED ALLEY LYING NORTHWESTERLY AND ADJOINING AND ALSO TOGETHER WITH THE SOUTHWESTERLY HALF OF THE VACATED ALLEY LYING NORTHEASTERLY AND ADJOINING.

FLOOD NOTE:

THE SUBJECT PROPERTY LIES WITHIN ZONE X, DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS SHOWN ON THE FLOOD INSURANCE RATE MAP PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY FOR THE CITY OF LEE'S SUMMIT, COMMUNITY NO. 290174, JACKSON COUNTY, MISSOURI, MAP NO. 29095C0417G, AND DATED JANUARY 20, 2017.

LEGEND

- PL — PROPERTY LINE
- LOT LINE
- R/W — RIGHT-OF-WAY
- 2' CURB & GUTTER
- 6" CURB
- ASPHALT PAVEMENT
- PROPOSED BUILDING
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK (PUBLIC)
- CONCRETE SIDEWALK (PRIVATE)
- RETAINING WALL
- HANDRAIL
- LIGHT POLE

KEY PLAN

SITE PLAN NOTES:

1. All construction materials and procedures on this project shall conform to the latest revision of the following governing requirements, incorporated herein by reference:
   A) City ordinances & O.S.H.A. Regulations.
   B) The City of Lee's Summit Technical Specifications and Municipal Code.
   C) All construction shall follow the City of Lee's Summit Design and Construction Manual as adopted by Ordinance 5813. Where discrepancies exist between these plans and the Design and Construction Manual, the Design and Construction Manual shall prevail.
2. The contractor shall have one (1) signed copy of the plans (approved by the City) and one (1) copy of the appropriate Design and Construction Standards and Specifications at the job site at all times.
3. The contractor will be responsible for securing all permits, bonds and insurance required by the contract documents, City of Lee's Summit, Missouri, and all other governing agencies (including local, county, state and federal authorities) having jurisdiction over the work proposed by these construction documents. The cost for all permits, bonds and insurance shall be the contractors responsibility and shall be included in the bid for the work.
4. The contractor is responsible for coordination of his and his sub-contractor's work. The contractor shall assume all responsibility for protecting and maintaining his work during the construction period and between the various trades/sub-contractors constructing the work.
5. The demolition and removal(or relocation) of existing pavement, curbs, structures, utilities, and all other features necessary to construct the proposed improvements, shall be performed by the contractor. All waste material removed during construction shall be disposed off the project site. The contractor shall be responsible for all permits for hauling and disposing of waste material. The disposal of waste material shall be in accordance with all local, state and federal regulations.
6. Contractor shall be responsible for all relocations, including but not limited to, all utilities, storm drainage, sanitary sewer services, signs, traffic signals & poles, etc. as required. All work shall be in accordance with governing authorities specifications and shall be approved by such. All cost shall be included in base bid.
7. All existing utilities indicated on the drawings are according to the best information available to the Engineer; however, all utilities actually existing may not be shown. The contractor shall be responsible for contacting all utility companies for an exact field location of each utility prior to any construction. All underground utilities shall be protected at the contractor's expense. All utilities, shown and unshown, damaged through the negligence of the contractor shall be repaired or replaced by the contractor at his expense.
8. The contractor will be responsible for all damage to existing utilities, pavement, fences, structures and other features not designated for removal. The contractor shall repair all damages at his expense.
9. The contractor shall verify the flow lines of all existing storm or sanitary sewer connections and utility crossings prior to the start of construction. Notify the engineer of any discrepancies.
10. SAFETY NOTICE TO CONTRACTOR: In accordance with generally accepted construction practices, the contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours. Any construction observation by the engineer of the contractor's performance is not intended to include review of the adequacy of the contractor's safety measures, in, on or near the construction site.
11. All site concrete (curbs, pavements, sidewalks, etc.) shall meet kansas city materials metro board (kcmmb) mix design specifications for 4,000 p.s.i. air entrained concrete. APWA detail references are provided for all geometrical and other design information.

SITE DIMENSION NOTES:

1. BUILDING TIES SHOWN ARE TO THE OUTSIDE FACE OF PROPOSED WALLS. THE SUBCONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR SPECIFIC DIMENSIONS AND LAYOUT INFORMATION FOR THE BUILDINGS.
2. ALL DIMENSIONS SHOWN FOR THE PARKING LOT AND CURBS ARE MEASURED FORM BACK OF CURB TO BACK OF CURB.

PAVEMENT MARKING AND SIGNAGE NOTES:

1. ALL PAVEMENT MARKINGS AND SIGNAGE SHALL BE PER CITY OF LEE'S SUMMIT SPECIFICATIONS.

SIGHT DISTANCE NOTE:

1. ACCORDING TO SECTION 9.5.3 OF THE 2011 EDITION OF AASHTO'S A POLICY ON THE GEOMETRIC DESIGN OF HIGHWAYS AND STREETS THE TYPICAL DECISION POINT OF A VEHICLE STOPPED ON A MINOR STREET WHICH INTERSECTS A MAJOR STREET IS 14.5' (SEE INTERSECTION OF 1ST & DOUGLAS).
2. 14.5' IS DERIVED FROM FIELD OBSERVATIONS WHICH SHOW A DRIVER WILL INITIALLY STOP HIS/HER VEHICLE 6.5' FROM THE EDGE OF TRAVEL. OBSERVATIONS HAVE ALSO SHOWN HIS/HER EYE TYPICALLY SITS 8' BEHIND THE FRONT BUMPER. IF THE MAJOR ROAD IS A LOW VOLUME ROAD FIELD OBSERVATIONS HAVE SHOWN THE DRIVER WILL CREEP FORWARD SO THAT HIS/HER FRONT BUMPER IS FLUSH WITH THE EDGE OF TRAVEL, THUS MAKING THE DECISION POINT 8' FROM THE EDGE OF TRAVEL. DUE TO LOW VOLUME OF TRAFFIC AND LOW SPEEDS AN 8' SIGHT TRIANGLE HAS BEEN USED AT THE INTERSECTION OF 1ST AND MAIN TO INSURE THAT AT ALL TIMES THE PROPER SIGHT DISTANCE IS ACHIEVED WITHOUT THE DRIVER ENTERING THE ROADWAY.
3. WHEN STOP BARS ARE USED IT IS ASSUMED THE DRIVER WILL PULL UP TO THE BAR AND THE DECISION POINT WILL BE 8' FROM THE STOP BAR (SEE INTERSECTIONS OF 2ND & MAIN, 2ND & DOUGLAS)

SITE DATA

Site Area – Lot 1	163,800 S.F./3.76 Ac.
Site Area – Tract 2	17,752 S.F./0.408 Ac.
Zoning – Existing	Planned Central Business
Zoning – Proposed	Planned Central Business
Existing Land Use:	Church
Proposed Land Use:	Apartments
Impervious (Existing)	114,837 S.F. (70.13%)
Impervious (Proposed)	125,360 S.F. (76.5%)

BUILDING DATA

Existing Church/Leasing Office	12,207 S.F.
Proposed Multi-Family (4 Story)	319,206 S.F.
Total Building S.F.	331,233 S.F.
Studio Units	18
One Bedroom Units	160
Two Bedroom Units	95
Total Units	273
Lot 1 – Floor Area Ratio (FAR)	2.04
Lot 1 – Total Units / Acre	73.1

PARKING SUMMARY

City Parking Required:	
1 Space per Studio Unit	18 Spaces
1.5 Spaces per One Bedroom Unit	240 Spaces
1.5 Spaces per Two Bedroom Unit	143 Spaces
Total Parking without Visitors	401 Spaces
0.5 Spaces per Unit for Visitors	137 Spaces
Total Parking Required	538 Spaces
Parking Provided:	
Garage Parking *	436 Spaces
Street Parking	5 Spaces
Tract 2 Off-Site	35 Spaces
Total Parking Provided	476 Spaces

* 53 Compact Spaces (8'x18')
374 Standard Spaces (8.5'x18')
7 Handicap Spaces – Car
2 Handicap Spaces – Van

NOTE: ALL LIGHTING SHALL COMPLY WITH CITY OF LEE'S SUMMIT U.D.O. REQUIREMENTS.

SCALE: 1"=30'
0' 30' 60'

PHELPS ENGINEERING, INC.
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PLANNING
ENGINEERING
IMPLEMENTATION

STATE OF MISSOURI
DOUGLAS EUGENE SUMMERVILLE JR
NUMBER PE-2011010998
3/16/20
PROFESSIONAL ENGINEER

SITE PLAN

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEU

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEU

CERTIFICATE OF AUTHORIZATION
KANSAS ENGINEERING – LS-82
KANSAS SURVEYING – E-391

CERTIFICATE OF AUTHORIZATION
LAND SURVEYING-2007001128
ENGINEERING-2007005328

SHEET
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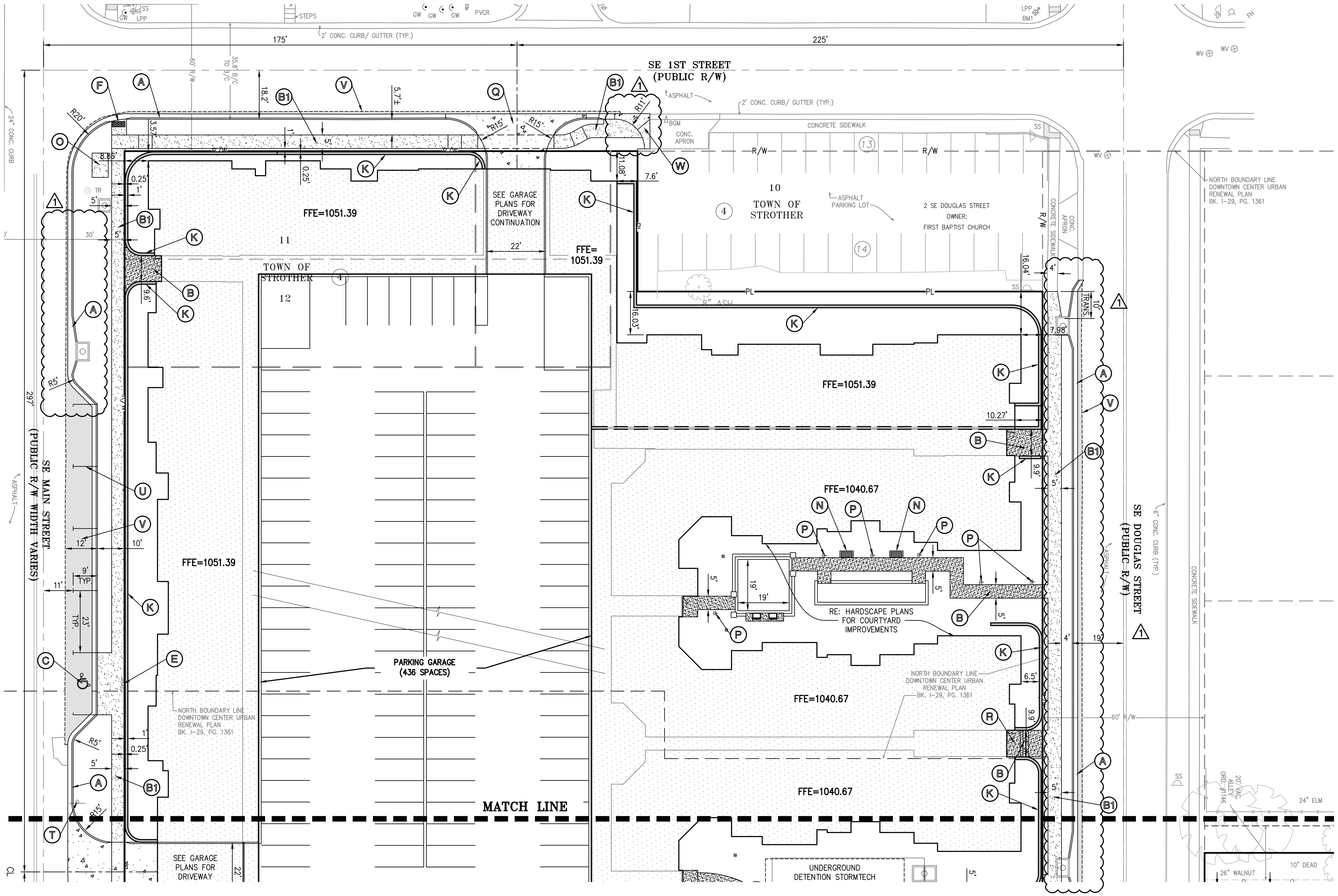
\\PHELPS-SERVER\Projects\P\171125\dwg\Permit Plans\SITE.dwg Layout:1 Mar 17, 2020 - 11:06am Shelli Hatcher



SITE PLAN NOTES:

1. All construction materials and procedures on this project shall conform to the latest revision of the following governing requirements, incorporated herein by reference:
   A) City ordinances & O.S.H.A. Regulations.
   B) The City of Lee's Summit Technical Specifications and Municipal Code.
   C) All construction shall follow the City of Lee's Summit Design and Construction Manual as adopted by Ordinance 5813. Where discrepancies exist between these plans and the Design and Construction Manual, the Design and Construction Manual shall prevail.

2. The contractor shall have one (1) signed copy of the plans (approved by the City) and one (1) copy of the appropriate Design and Construction Standards and Specifications at the job site at all times.

3. The contractor will be responsible for securing all permits, bonds and insurance required by the contract documents, City of Lee's Summit, Missouri, and all other governing agencies (including local, county, state and federal authorities) having jurisdiction over the work proposed by these construction documents. The cost for all permits, bonds and insurance shall be the contractors responsibility and shall be included in the bid for the work.

4. The contractor is responsible for coordination of his and his sub-contractor's work. The contractor shall assume all responsibility for protecting and maintaining his work during the construction period and between the various trades/sub-contractors constructing the work.

5. The demolition and removal(or relocation) of existing pavement, curbs, structures, utilities, and all other features necessary to construct the proposed improvements, shall be performed by the contractor. All waste material removed during construction shall be disposed off the project site. The contractor shall be responsible for all permits for hauling and disposing of waste material. The disposal of waste material shall be in accordance with all local, state and federal regulations.

6. Contractor shall be responsible for all relocations, including but not limited to, all utilities, storm drainage, sanitary sewer services, signs, traffic signals & poles, etc. as required. All work shall be in accordance with governing authorities specifications and shall be approved by such. All cost shall be included in base bid.

7. All existing utilities indicated on the drawings are according to the best information available to the Engineer; however, all utilities actually existing may not be shown. The contractor shall be responsible for contacting all utility companies for an exact field location of each utility prior to any construction. All underground utilities shall be protected at the contractor's expense. All utilities, shown and unshown, damaged through the negligence of the contractor shall be repaired or replaced by the contractor at his expense.

8. The contractor will be responsible for all damage to existing utilities, pavement, fences, structures and other features not designated for removal. The contractor shall repair all damages at his expense.

9. The contractor shall verify the flow lines of all existing storm or sanitary sewer connections and utility crossings prior to the start of construction. Notify the engineer of any discrepancies.

10. SAFETY NOTICE TO CONTRACTOR: In accordance with generally accepted construction practices, the contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours. Any construction observation by the engineer of the contractor's performance is not intended to include review of the adequacy of the contractor's safety measures, in, on or near the construction site.

11. All site concrete (curbs, pavements, sidewalks, etc.) shall meet kansas city materials metro board (kcmmb) mix design specifications for 4,000 p.s.i. air entrained concrete. APWA detail references are provided for all geometrical and other design information.

SITE DIMENSION NOTES:

1. BUILDING TIES SHOWN ARE TO THE OUTSIDE FACE OF PROPOSED WALLS. THE SUBCONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR SPECIFIC DIMENSIONS AND LAYOUT INFORMATION FOR THE BUILDINGS.

2. ALL DIMENSIONS SHOWN FOR THE PARKING LOT AND CURBS ARE MEASURED FORM BACK OF CURB TO BACK OF CURB.

PAVEMENT MARKING AND SIGNAGE NOTES:

1. ALL PAVEMENT MARKINGS AND SIGNAGE SHALL BE PER CITY OF LEE'S SUMMIT SPECIFICATIONS.

LEGAL DESCRIPTION:

LOT 1, DOWNTOWN LEE'S SUMMIT APARTMENTS, A SUBDIVISION IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

TOGETHER WITH:

LOT 10, BLOCK 16, WM. B. HOWARD'S FIRST ADDITION TO THE TOWN OF STROTHER, NOW THE CITY OF LEE'S SUMMIT, A SUBDIVISION IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI, TOGETHER WITH THE SOUTHEASTERLY HALF OF THE VACATED ALLEY LYING NORTHWESTERLY AND ADJOINING AND ALSO TOGETHER WITH THE SOUTHWESTERLY HALF OF THE VACATED ALLEY LYING NORTHEASTERLY AND ADJOINING.

SITE KEY NOTES:

- (A) CONSTRUCT CG-1 CURB & GUTTER (TYPICAL).
- (B) CONSTRUCT CONCRETE SIDEWALK (PRIVATE) (RE: HARDSCAPE PLAN FOR ANY SPECIALTY CONCRETE IN COURTYARD & POOL DECK).
- (B1) CONSTRUCT CONCRETE SIDEWALK (PUBLIC) PER CITY DETAIL GEN-4.
- (C) CONSTRUCT ACCESSIBLE PARKING SPACE. INSTALL MARKINGS PER ACCESSIBLE PARKING SPACE DETAIL (3 TOTAL). (1)
- (D) INSTALL 24" WHITE STOP BAR PER CITY DETAIL PM-1.
- (E) INSTALL VAN ACCESSIBLE PARKING SIGN (2 TOTAL). (1)
- (E1) INSTALL ACCESSIBLE PARKING SIGN (1 TOTAL).
- (F) CONSTRUCT TYPE A SIDEWALK RAMP WITH LAYDOWN CURB & GUTTER.
- (G) (DELETED) (1)
- (H) (DELETED)
- (I) INSTALL PED POLE (RE: SIGNAL MODIFICATION PLANS).
- (J) INSTALL CROSSWALK PAVEMENT MARKING 6" WHITE STRIPES PER CITY DETAIL PM-1.
- (K) CONSTRUCT RETAINING WALL (W/ HANDRAIL AT ANY LOCATION WALL EXCEEDS 30" IN HEIGHT).
- (L) CONSTRUCT UNDERGROUND STORMTECH CHAMBERS (RE: SHEETS C16 FOR DETAILS).
- (M) INSTALL HANDRAIL AT TOP OF RETAINING WALL.
- (N) INSTALL PUBLIC SEATING (RE: HARDSCAPE PLANS).
- (O) CONSTRUCT CONCRETE TRANSFORMER PAD (RE: SHEET C5 FOR UTILITY PLAN).
- (P) INSTALL LIGHT POLE (RE: HARDSCAPE & ELECTRICAL PLANS).
- (Q) CONSTRUCT CONCRETE COMMERCIAL DRIVEWAY PER CITY DETAIL GEN-1.
- (R) CONSTRUCT CONCRETE STAIRS WITH HANDRAIL.
- (S) CONSTRUCT LOADING ZONE STRIPING & SIGNAGE.
- (T) RESET EXISTING STREET SIGN (SPEED LIMIT).
- (U) 4" WHITE PARKING STRIPE (TYPICAL).
- (V) CONSTRUCT FULL DEPTH ASPHALT STREET WIDENING (RE: SHEET C11 FOR DETAIL).
- (W) CONSTRUCT CONCRETE DRIVE REPLACEMENT. (1)

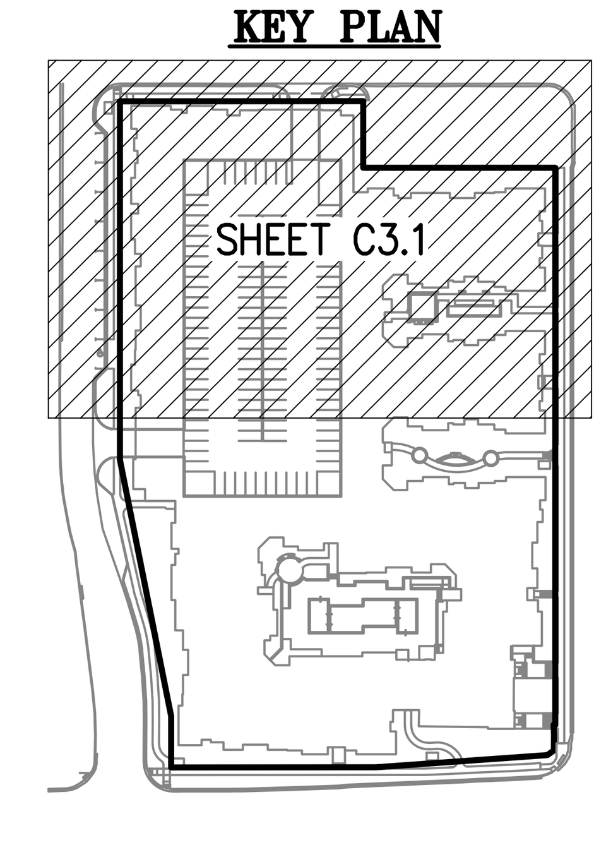
FLOOD NOTE:

THE SUBJECT PROPERTY LIES WITHIN ZONE X, DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS SHOWN ON THE FLOOD INSURANCE RATE MAP PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY FOR THE CITY OF LEE'S SUMMIT, COMMUNITY NO. 290174, JACKSON COUNTY, MISSOURI, MAP NO. 29095C0417G, AND DATED JANUARY 20, 2017.

LEGEND

- —PL— PROPERTY LINE
- LOT LINE
- —R/W— RIGHT-OF-WAY
- 2' CURB & GUTTER
- 6" CURB
- ASPHALT PAVEMENT
- PROPOSED BUILDING
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK (PUBLIC)
- CONCRETE SIDEWALK (PRIVATE)
- RETAINING WALL
- HANDRAIL
- LIGHT POLE

KEY PLAN



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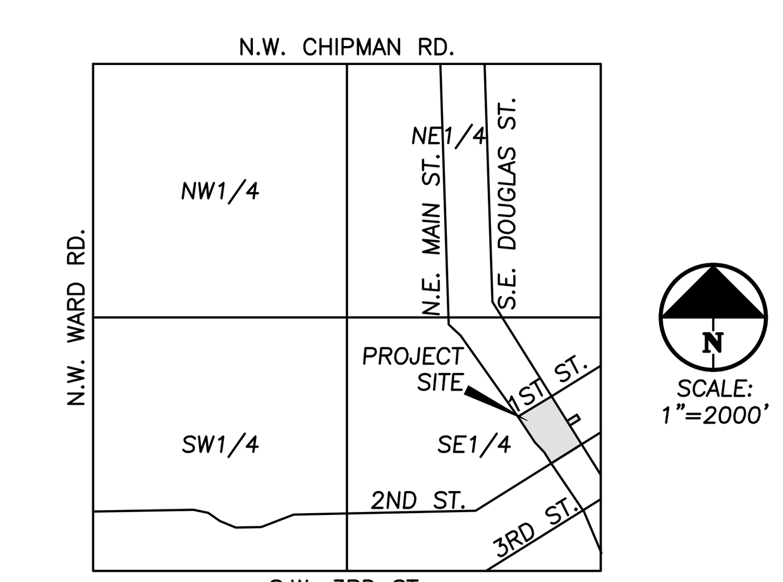

VICINITY MAP
SEC. 6-T47N-R31W

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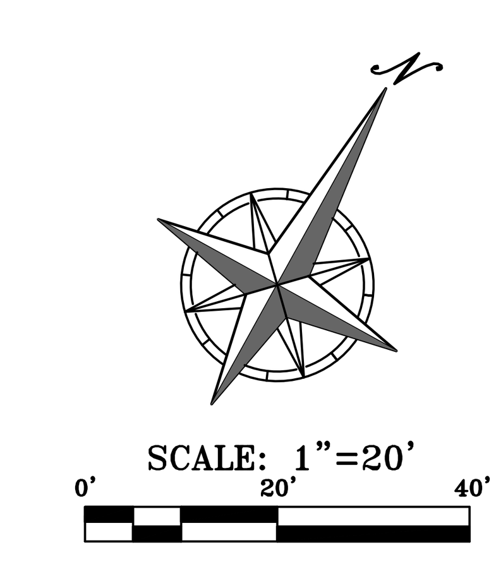

STATE OF MISSOURI
DOUGLAS EUGENE UBBEN, JR.
NUMBER PE-2011010998
3/16/20
PROFESSIONAL ENGINEER

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PEI PLANNING ENGINEERING IMPLEMENTATION

ENLARGED SITE PLAN

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Date	Revisions:	By	App.
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PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEU

CERTIFICATE OF AUTHORIZATION
KANSAS
LAND SURVEYING - LS-82
ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION
MISSOURI
LAND SURVEYING-2007001128
ENGINEERING-2007005058

SHEET
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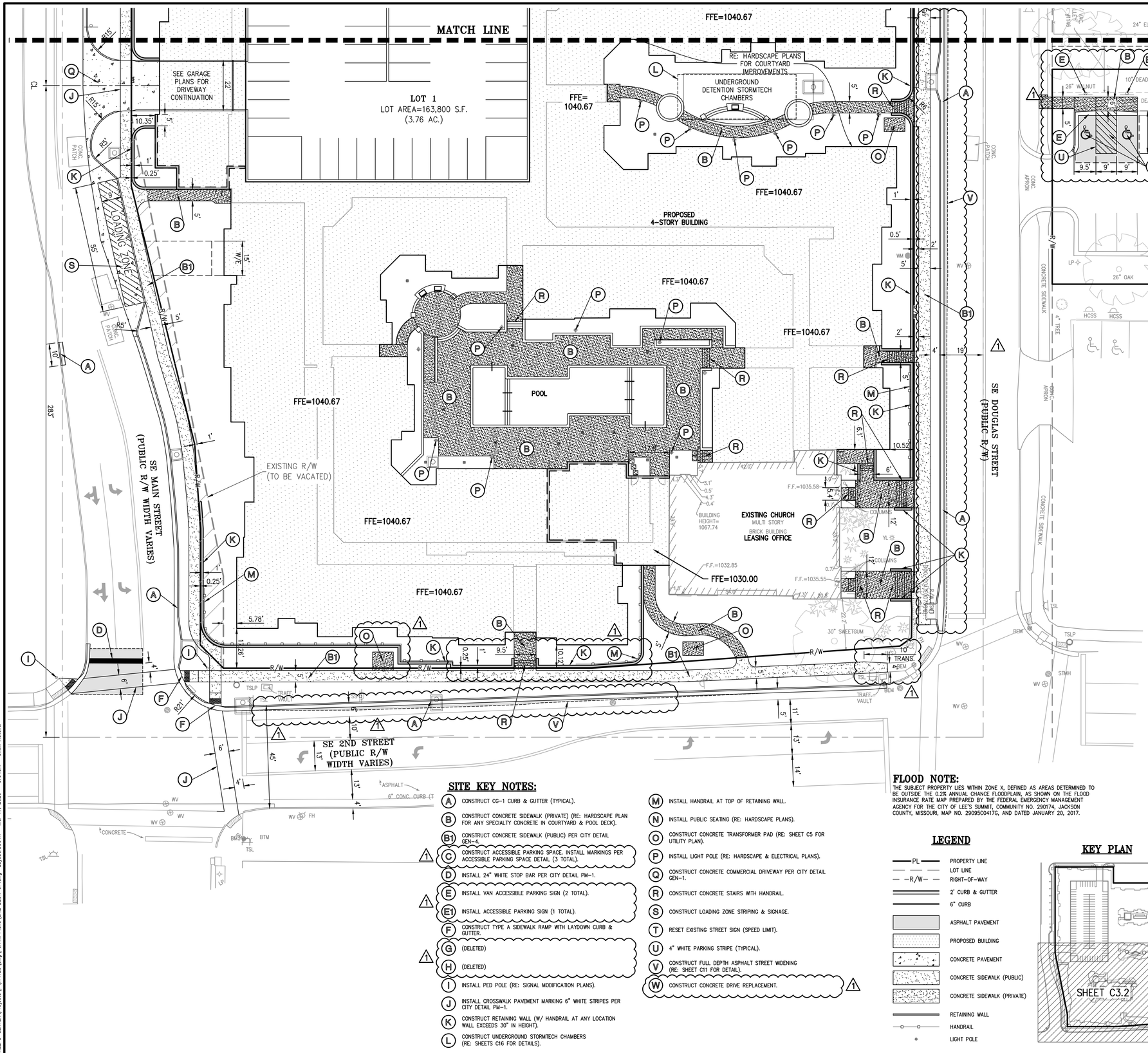

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LEGEND

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- R/W
- 2' CURB & GUTTER
- 6" CURB
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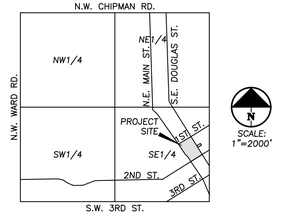
KEY PLAN



VICINITY MAP
SEC. 6-T47N-R31W

Know what's **below.**
Call before you dig.

UTILITY NOTES:
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SCALE: 1"=20'
0' 20' 40'

STATE OF MISSOURI
DOUGLAS EUGENE PHELPS
NUMBER PE-2011010998
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DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEU
CERTIFICATE OF AUTHORIZATION KANSAS ENGINEERING - LS-82
MISSOURI ENGINEERING - E-361
CERTIFICATE OF AUTHORIZATION LAND SURVEYING - 2007001218
ENGINEERING - 2007002508

SHEET
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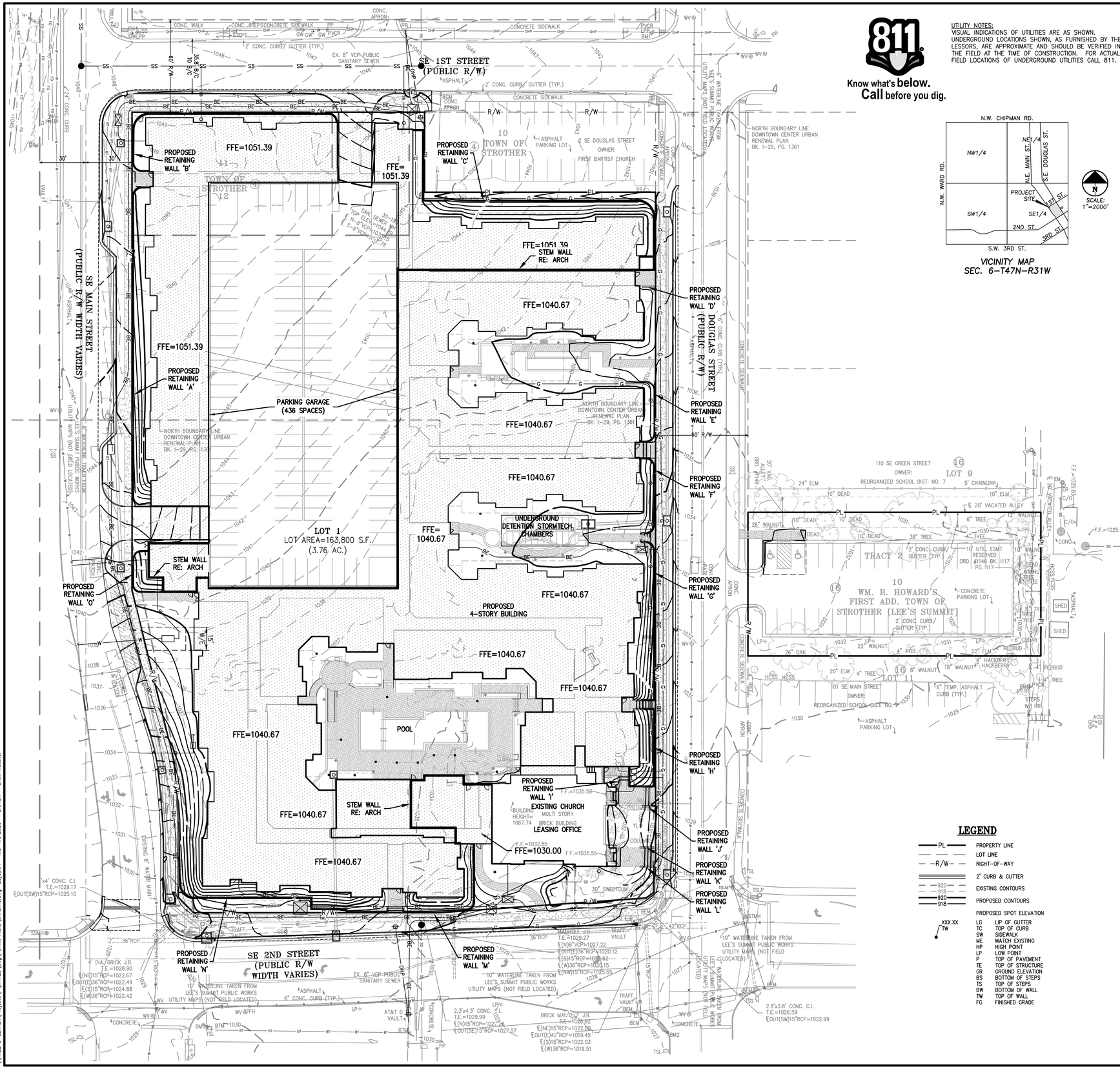

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VICINITY MAP
SEC. 6–T47N–R31W

SITE GRADING NOTES:

1. CONTOURS AND ELEVATIONS: Existing and proposed contours are shown on plans at one foot (1') contour intervals, unless otherwise noted, proposed contours and elevations shown represent approximate finish grade. Contractor shall hold down subgrades to allow for pavement and sub–base thicknesses.
2. If the contractor does not accept existing topography as shown on the plans, without exception, he shall have made at his expense, a topographic survey by a registered land surveyor and submit it to the owner for review.
3. CLEARING AND GRUBBING: Prior to beginning preparation of subgrade, all areas under pavements or building shall be stripped of all topsoil, vegetation, large rock fragments (greater than 6 inches in any dimension) and any other deleterious material. The actual stripping depth should be based on visual examination during construction and the results of proof–rolling operations. The root systems of all trees (not designated to remain) shall be removed in their entirety. Stripping materials shall not be incorporated into structural fills.
4. TOPSOIL STRIPPING: Prior to the start of site grading, the contractor shall strip all topsoil from areas to be graded, and stockpiled at a location on or adjacent to the site as directed by the owner. At completion of grading operations and related construction, the contractor will be responsible for redistribution of topsoil over all areas disturbed by the construction activities. Topsoil shall be placed to a minimum depth of six inches (6") and in accordance with specifications for landscaping. At that time, and prior to the installation of landscaping or irrigation, all topsoil graded areas shall be visually inspected and accepted by the owner and ITL.
5. Contractor shall adjust and/or cut existing pavement as necessary to assure a smooth fit and continuous grade. Contractor shall assure positive drainage away from buildings for all natural and paved areas.
6. SUBGRADE PREPARATION: Prior to placement of new fill material, the existing subgrade shall be proofrolled and approved under the direction of the Geotechnical Engineer or his representative.
7. PROOFROLLING: Subsequent to completion of stripping and over–excavation, all building and pavement areas to receive engineered fill should be systematically proof–rolled using a tandem axle dump truck loaded to approximately 20,000 pounds per axle. Also, any finished subgrade areas to receive paving shall be proof–rolled within 48 hours of paving. Unsuitable soils that are detected and that can not be recompacted should be over–excavated and replaced with controlled structural fill.
8. EARTHWORK:
   A) GEOTECHNICAL: All earthwork shall conform to the recommendations of the Geotechnical report. Said report and its recommendations are herein incorporated into the project requirements by reference. Prior to beginning construction, the contractor shall obtain a copy of and become familiar with the geotechnical report. Unless specifically noted on the plans, the recommendations in the geotechnical report are hereby incorporated into the project requirements and specifications.
   B) SURFACE WATER: Surface water shall be intercepted and diverted during the placement of fill.
   C) FILLS: All fills shall be considered controlled or structural fill and shall be free of vegetation, organic matter, topsoil and debris. In areas where the thickness of the engineered fill is greater than five, feet building and pavement construction should not commence until so authorized by the on–site geotechnical engineer to allow for consolidation.
   D) BUILDING SUBGRADE: As specified in the Geotechnical Engineering Report, the upper section of building subgrade shall consist of Low Volume Change (LVC) material defined as approved, compacted granular fill or low to moderate plasticity cohesive soil materials stabilized with Class C Flyash. Granular fill shall consist of compacted granular materials with a maximum particle size of two (2) inches or less, such as limestone screenings. Refer to geotechnical report for complete requirements.
   E) EXISTING SLOPES: Where fill material is to be placed on existing slopes greater than 5:1 (horizontal to vertical), existing slope shall be benched providing a minimum vertical face of twelve inches (12"). The benches should be cut wide enough to accommodate the compaction equipment. Fill material shall be placed and compacted in horizontal lifts not exceeding nine inches (9") (loose lift measurement), unless otherwise approved by the Geotechnical Engineer.
   F) COMPACTION REQUIREMENTS: The upper 9 inches of pavement subgrade areas shall be compacted to a minimum density of ninety five percent (95%) of the material's maximum dry density as determined by ASTM D698 (standard proctor compaction). The moisture content at the time of placement and compaction shall within a range of 0% below to 4% above optimum moisture content as defined by the standard proctor compaction procedure. The moisture contents shall be maintained within this range until completion of the work. Where compaction of earth fill by a large roller is impractical or undesirable, the earth fill shall be hand compacted with small vibrating rollers or mechanical tampers.
9. All cut or fill slopes shall be 3:1 or flatter. All asphalt parking areas shall be a minimum of 1% slope but not more than 5% slope unless otherwise noted. All pavements within ADA parking areas shall not exceed 2% total slope. All grades around building shall be held down 6" from finish floor and slope away another 6" in 10 feet. Contractor shall notify engineer prior to final subgrade construction of any areas not within this slope requirement.
10. TESTING AND INSPECTION: Owner's Independent Testing Laboratory (ITL) shall make tests of earthwork during construction and observe the placement of fills and other work performed on this project to verify that work has been completed in accordance with Geotechnical Engineering Report, Project Specifications and within industry standards. The ITL will be selected by the owner and the cost of testing will be the owner's responsibility.
11. CLASSIFICATION: All excavation shall be considered unclassified. No separate or additional payments shall be made for rock excavation.
12. PERMANENT RESTORATION: All areas disturbed by earthwork operations shall be sodded, unless shown otherwise by the landscaping plan or erosion control plan.
13. UTILITIES: 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 48 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.
14. LAND DISTURBANCE: The contractor shall adhere to all terms & conditions as outlined in the EPA or applicable state N.P.D.E.S. permit for storm water discharge associated with construction activities. Refer to project S.W.P.P.P. requirements.

FLOOD NOTE:

THE SUBJECT PROPERTY LIES WITHIN ZONE X, DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS SHOWN ON THE FLOOD INSURANCE RATE MAP PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY FOR THE CITY OF LEE'S SUMMIT, COMMUNITY NO. 290174, JACKSON COUNTY, MISSOURI, MAP NO. 29095C0417G, AND DATED JANUARY 20, 2017.

WATERSHED NOTE:

THIS PROPERTY IS PART OF THE LITTLE BLUE RIVER WATERSHED.

BENCHMARK:

VERTICAL DATUM = NAVD88 BASED ON GPS OBSERVATION USING MODOT VRS.

BM 1. RAILROAD SPIKE IN POWER POLE AT NORTHWEST QUADRANT OF 1ST STREET AND DOUGLAS STREET. ELEVATION =1043.06

BM 2. SQUARE CUT ON BACK OF CURB AT THE SOUTHWEST QUADRANT OF 2ND STREET AND DOUGLAS STREET. ELEVATION =1026.56

BM 3. SQUARE CUT ON THE NORTHWEST CORNER OF SIGNAL POLE BASE AT SOUTHEAST QUADRANT OF 2ND STREET AND MAIN STREET. ELEVATION =1029.82

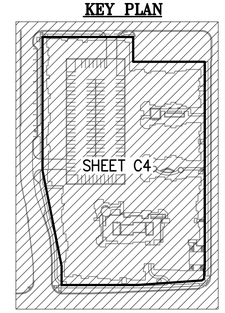
BM 4. RAILROAD SPIKE IN POWER POLE AT NORTHEAST QUADRANT OF 1ST STREET AND MAIN STREET. ELEVATION =1049.87

LEGEND

- PL — PROPERTY LINE
- LOT LINE
- R/W — RIGHT–OF–WAY
- 2' CURB & GUTTER
- 920 — EXISTING CONTOURS
- 918 — EXISTING CONTOURS
- 920 — PROPOSED CONTOURS
- 918 — PROPOSED CONTOURS
- XXX.XX TW — PROPOSED SPOT ELEVATION

LG	LIP OF GUTTER
TC	TOP OF CURB
SW	SIDEWALK
ME	MATCH EXISTING
HP	HIGH POINT
LP	LOW POINT
P	TOP OF PAVEMENT
TE	TOP OF STRUCTURE
GR	GROUND ELEVATION
BS	BOTTOM OF STEPS
TS	TOP OF STEPS
BW	BOTTOM OF WALL
TW	TOP OF WALL
FG	FINISHED GRADE

KEY PLAN



SCALE: 1"=30'
0' 30' 60'

PHELPS ENGINEERING, INC.
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IMPLEMENTATION

STATE OF MISSOURI
DOUGLAS EUGENE THOMPSON, JR.
NUMBER PE-2011010998
3/16/20
PROFESSIONAL ENGINEER

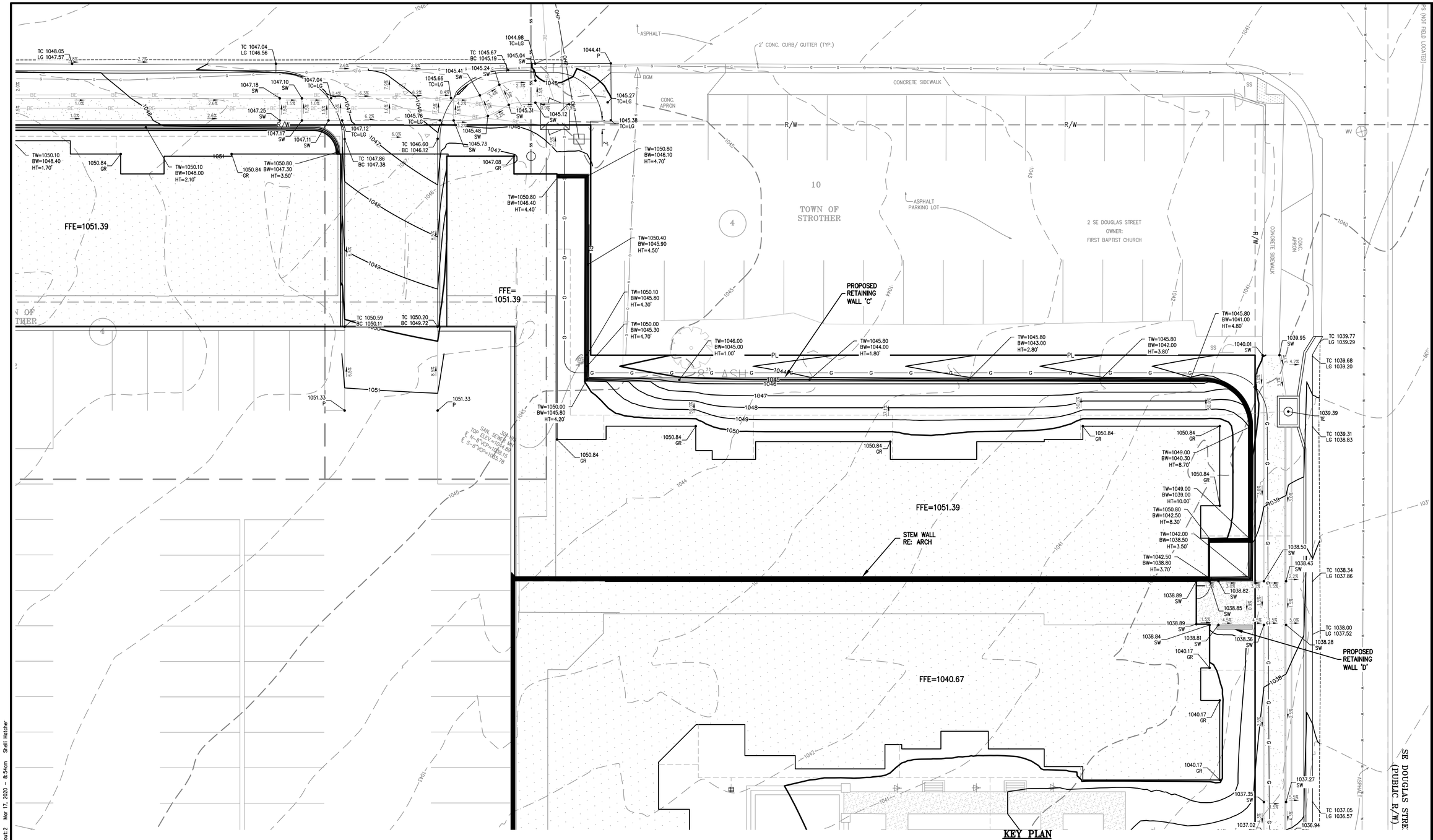
GRADING PLAN
DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Revisions:	No.	Date	By	App.
REVISED PER CITY COMMENTS	1.	3–16–20	SNH	DEJ

PROJECT NO. 171125
DATE: 01–28–20 DRAWN: SNH
CHECKED: DAF APPROVED: DEJ
CERTIFICATE OF AUTHORIZATION KANSAS ENGINEERING - LS–82 ENGINEERING E–361
CERTIFICATE OF AUTHORIZATION MISSOURI SURVEYING–2007001128 ENGINEERING–2007002598

SHEET
C4

\\PHELPS-SERVER\Projects\PV\171125\dwg\Permit Plans\GRADING.dwg Layout:1 Mar 17, 2020 - 8:54am Shelli Hatcher



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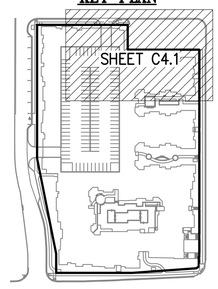

LEGEND

PL	PROPERTY LINE
	LOT LINE
R/W	RIGHT-OF-WAY
	2' CURB & GUTTER
920	EXISTING CONTOURS
918	
920	PROPOSED CONTOURS
918	
XXX.XX TW	PROPOSED SPOT ELEVATION

LG	LIP OF GUTTER
TC	TOP OF CURB
SW	SIDEWALK
ME	MATCH EXISTING
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LP	LOW POINT
P	TOP OF PAVEMENT
TE	TOP OF STRUCTURE
GR	GROUND ELEVATION
BS	BOTTOM OF STEPS
TS	TOP OF STEPS
BW	BOTTOM OF WALL
TW	TOP OF WALL
FG	FINISHED GRADE

SCALE: 1"=10'
0' 10' 20'

811 Know what's below. Call before you dig.

UTILITY NOTES:
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

STATE OF MISSOURI
DOUGLAS EUGENE HELPER JR.
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FAX (913) 393-1066
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ENLARGED GRADING PLAN

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEJ

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEJ

CERTIFICATE OF AUTHORIZATION KANSAS ENGINEERING - LS-82
CERTIFICATE OF AUTHORIZATION MISSOURI ENGINEERING - E-391
CERTIFICATE OF AUTHORIZATION MISSOURI LAND SURVEYING-2007001128
LAND SURVEYING-2007000239

SHEET
C4.1

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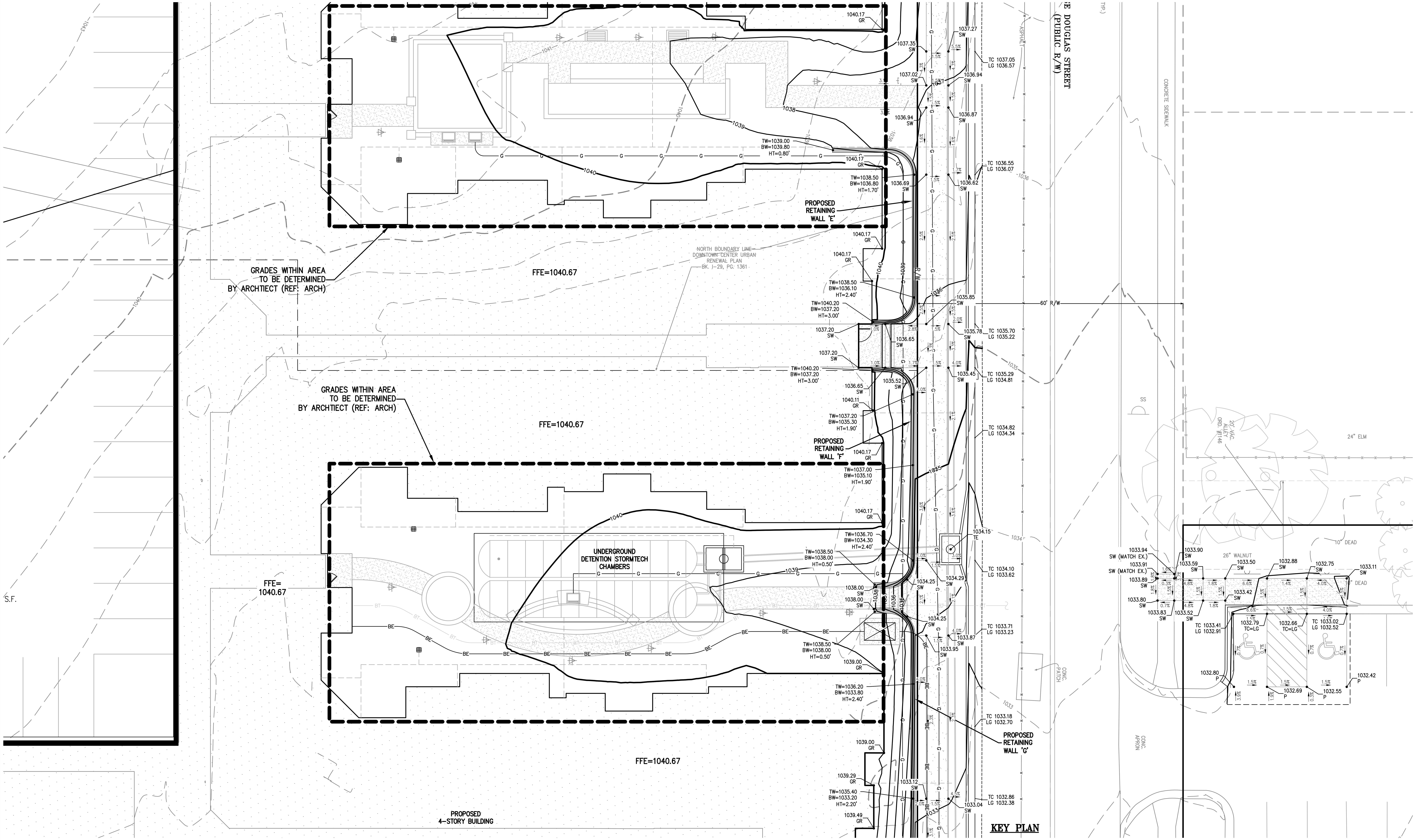
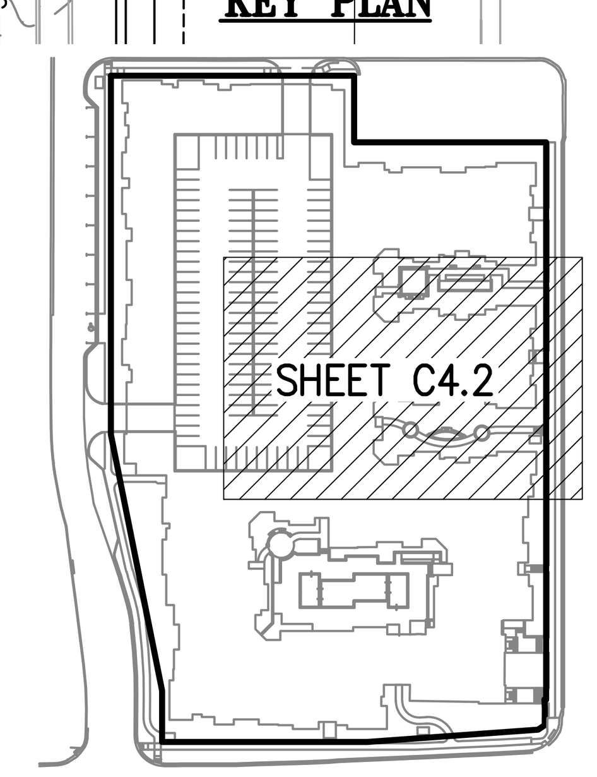


KEY PLAN



LEGEND

PL	PROPERTY LINE
	LOT LINE
R/W	RIGHT-OF-WAY
	2' CURB & GUTTER
920 / 918	EXISTING CONTOURS
920 / 918	PROPOSED CONTOURS
XXX.XX TW	PROPOSED SPOT ELEVATION

LG	LIP OF GUTTER
TC	TOP OF CURB
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TS	TOP OF STEPS
BW	BOTTOM OF WALL
TW	TOP OF WALL
FG	FINISHED GRADE

SCALE: 1"=10'

0' 10' 20'

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\\PHELPS-SERVER\Projects\P\171125\dwg\Permit Plans\GRADING.dwg Layout3 Mar 17, 2020 - 8:55am Shelli Hatcher

STATE OF MISSOURI
DOUGLAS EUGENE UBBEN, JR.
NUMBER PE-2011010998
3/16/20
PROFESSIONAL ENGINEER

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ENLARGED GRADING PLAN

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEU

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEU

CERTIFICATE OF AUTHORIZATION
KANSAS
LAND SURVEYING - LS-82
ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION
MISSOURI
LAND SURVEYING-2007001128
ENGINEERING-2007005058

SHEET
C4.2

Know what's below. Call before you dig.

UTILITY NOTES:
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

PROPOSED 4-STORY BUILDING

FFE=1040.67

POOL

FFE=1040.67

GRADES WITHIN AREA TO BE DETERMINED BY ARCHTIECT (REF: ARCH)

STEM WALL RE: ARCH

FFE=1040.67

FFE=1040.67

EXISTING CHURCH
MULTI STORY
BRICK BUILDING
LEASING OFFICE

BUILDING HEIGHT= 1067.74

F.F.=1032.85

FFE=1030.00

PROPOSED RETAINING WALL 'H'

PROPOSED RETAINING WALL 'I'

F.F.=1035.58

PROPOSED RETAINING WALL 'J'

PROPOSED RETAINING WALL 'K'

PROPOSED RETAINING WALL 'L'

PROPOSED RETAINING WALL 'M'

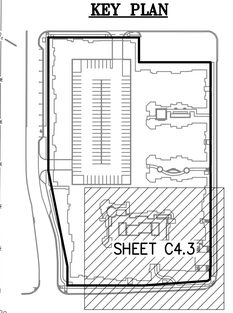
30" SWEETGUM

36"RCP

42"RCP

MANHOLE J.B.

KEY PLAN



LEGEND

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- LOT LINE
- R/W — RIGHT-OF-WAY
- 2' CURB & GUTTER
- 920 — EXISTING CONTOURS
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TW	TOP OF WALL
FG	FINISHED GRADE

SCALE: 1"=10'
0' 10' 20'

STATE OF MISSOURI
DOUGLAS EUGENE TURNAU JR
NUMBER PE-2011010998
PROFESSIONAL ENGINEER
3/16/20

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ENLARGED GRADING PLAN

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Revisions:	Date	By	App.
1.	REVISED PER CITY COMMENTS	3-16-20	SNH	DEL

PROJECT NO.: 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEL
CERTIFICATE OF AUTHORIZATION KANSAS ENGINEERING - LS-82 ENGINEERING - E-391
CERTIFICATE OF AUTHORIZATION LAND SURVEYING-2007001128 ENGINEERING-2007002628

SHEET
C4.3

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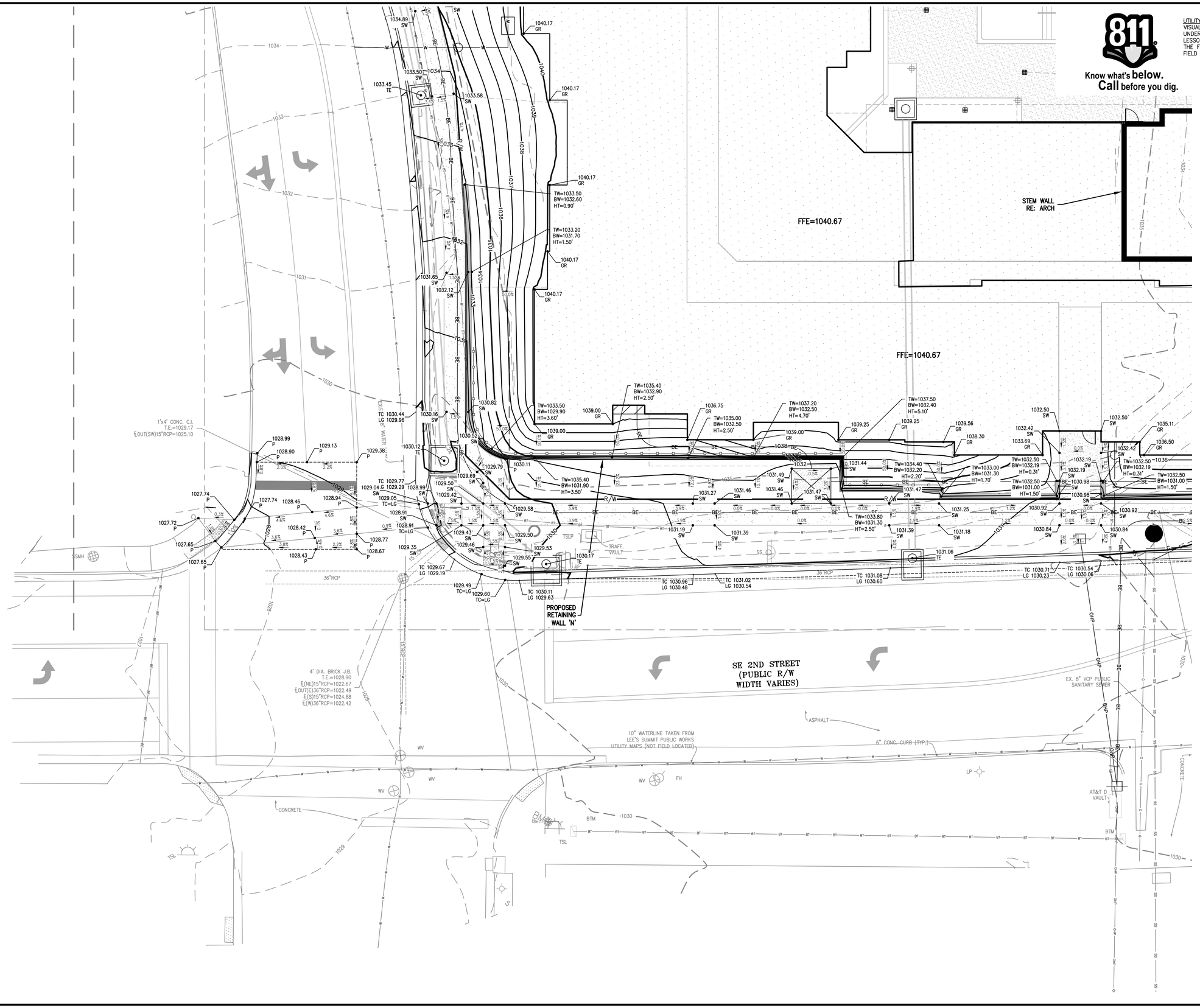

LEGEND

- PL — PROPERTY LINE
- LOT LINE
- R/W — RIGHT-OF-WAY
- 2' CURB & GUTTER
- 920 / 918 — EXISTING CONTOURS
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BW	BOTTOM OF WALL
TW	TOP OF WALL
FG	FINISHED GRADE

STATE OF MISSOURI
DOUGLAS EUGENE ELLISON, JR.
NUMBER PE-2011010998
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3/16/20

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DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEL

PROJECT NO. 171125
DATE: 01-29-20 | DRAWN: SNH
CHECKED: DAF | APPROVED: DEL

CERTIFICATE OF AUTHORIZATION KANSAS SURVEYING - LS-82 ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION LAND SURVEYING-2007001128 ENGINEERING-2007002308

SHEET
C4.4

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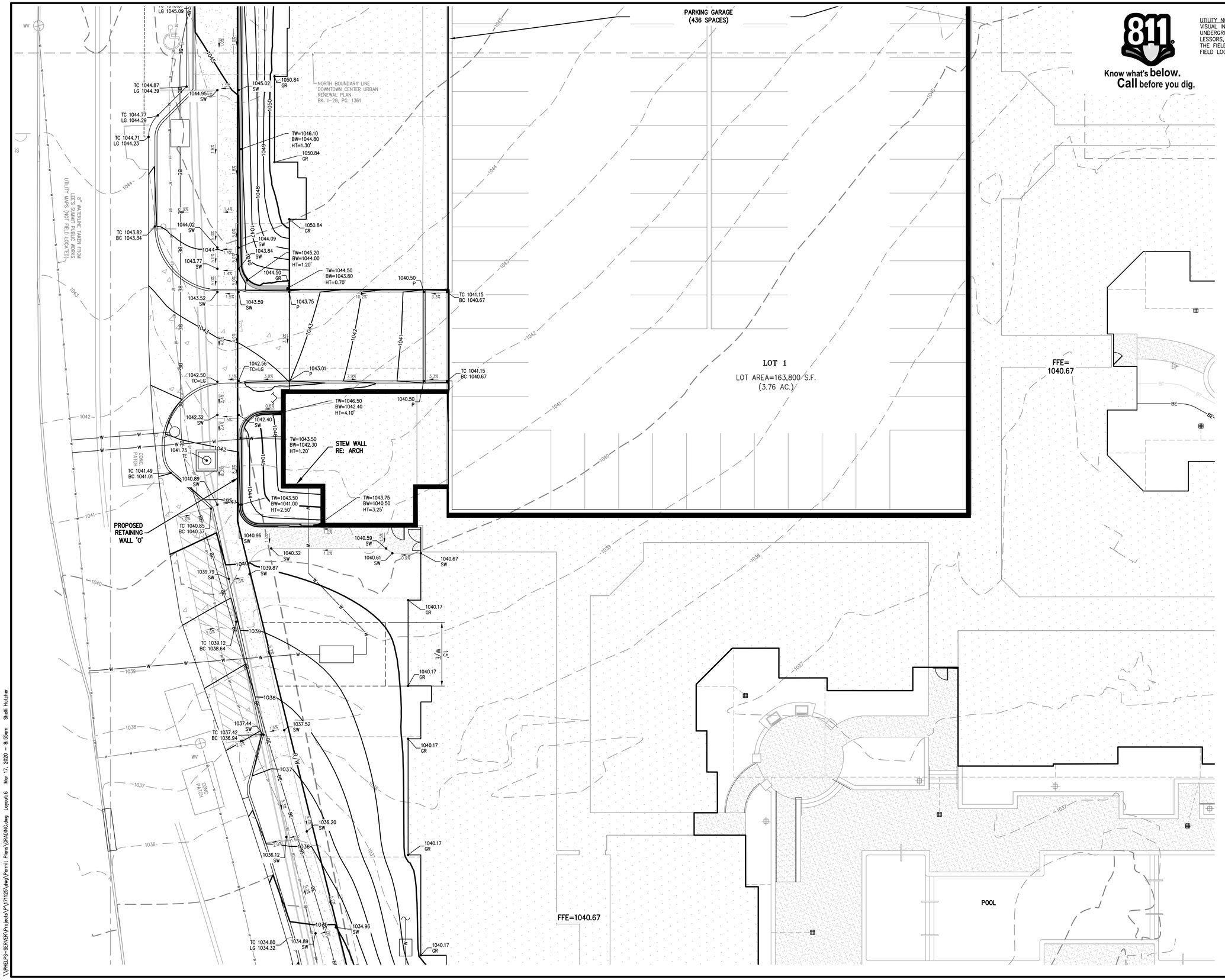

811
Know what's **below.**
Call before you dig.

UTILITY NOTES:
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STATE OF MISSOURI
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NUMBER PE-2011010998
3/16/20
PROFESSIONAL ENGINEER

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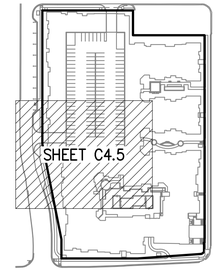
ENLARGED GRADING PLAN

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

KEY PLAN



LEGEND

PL	PROPERTY LINE
	LOT LINE
R/W	RIGHT-OF-WAY
	2' CURB & GUTTER
920	EXISTING CONTOURS
918	
920	PROPOSED CONTOURS
918	
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FG	FINISHED GRADE

SCALE: 1"=10'
0' 10' 20'

No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEL

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEL

CERTIFICATE OF AUTHORIZATION
KANSAS SURVEYING - LS-82
ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION
LAND SURVEYING-2007001128
ENGINEERING-2007035539

SHEET
C4.5

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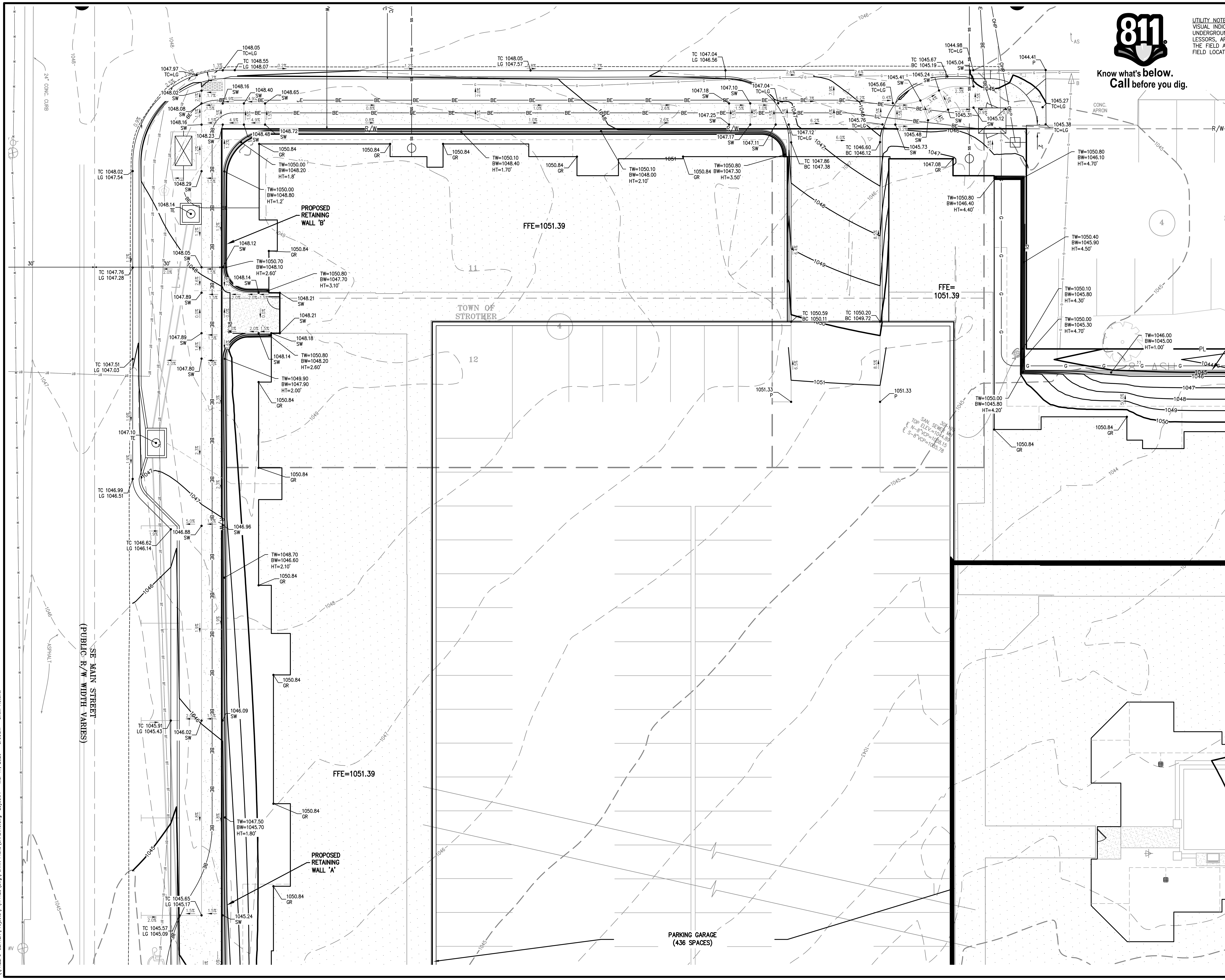

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LEGEND

Symbol	Description
—PL—	PROPERTY LINE
	LOT LINE
—R/W—	RIGHT-OF-WAY
	2' CURB & GUTTER
920 / 918	EXISTING CONTOURS
920 / 918	PROPOSED CONTOURS
XXX.XX TW	PROPOSED SPOT ELEVATION
LG	LIP OF GUTTER
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ENLARGED GRADING PLAN

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Date	Revisions:	By	App
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PROJECT NO. 171125
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SHEET C4.6

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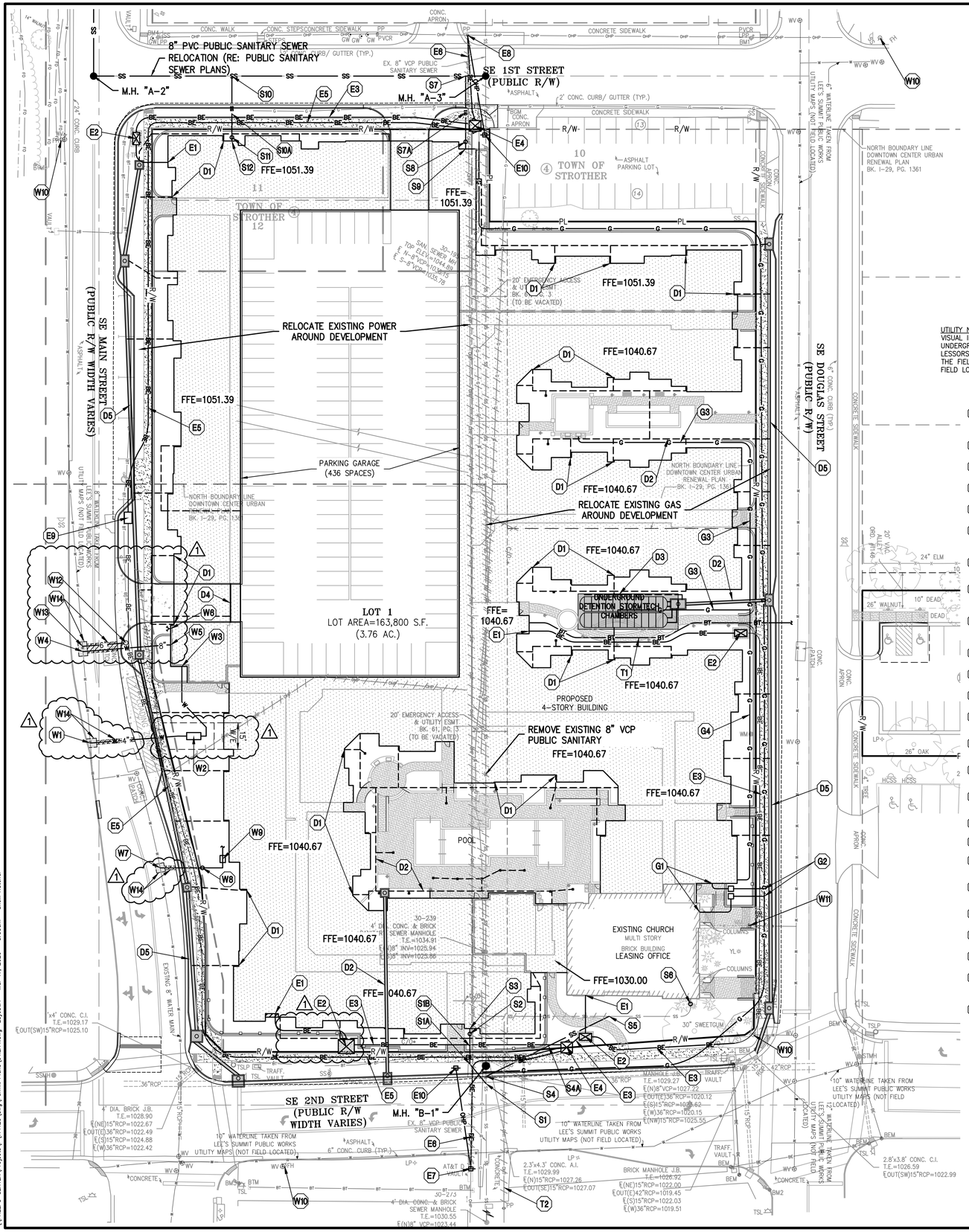

UTILITY COMPANIES:

MISSOURI GAS ENERGY (816) 969-2218
LUCAS WALLS (LUCAS.WALLS@SUG.COM)
3025 SOUTHEAST CLOVER DRIVE
LEE'S SUMMIT, MO 64082

KANSAS CITY POWER & LIGHT CO. (816) 347-4339
PHILLIP INGRAM (PHILLIP.INGRAM@KCPL.COM) (816) 347-4316
RON DEJARNETTE (RON.DEJARNETTE@KCPL.COM)
1300 HAMBLEN ROAD
LEE'S SUMMIT, MO 64081

SEWER & WATER (CITY OF LEE'S SUMMIT) (816) 969-1800
GENE WILLIAMS (PUBLICWORKS@CITYOFLS.NET)
220 SE GREEN STREET
LEE'S SUMMIT, MO 64063

WATER (CITY OF LEE'S SUMMIT) (816) 969-1240
MIKE WEISENBORN (PUBLICWORKS@CITYOFLS.NET)
220 SE GREEN STREET
LEE'S SUMMIT, MO 64063

AT&T (913) 383-4929
MR. CLAYTON ANSPAUGH (CA4089@ATT.COM) (913) 383-4849-FAX
9444 NALL AVENUE
OVERLAND PARK, KANSAS 66207

EVERGY (816) 347-4320
DOUG DAVIN (DOUG.DAVIN@EVERGY.COM

GOOGLE FIBER

BLUEBIRD

TIMEWARNER

UTILITY NOTES:
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811 Know what's **below.** **Call** before you dig.

UTILITY KEY NOTES:

D1 TYPICAL STORM WATER DRAIN LINE FROM ROOF OR FOUNDATION DRAIN. SEE ARCHITECT PLANS FOR BUILDING CONNECTION LOCATIONS. ROOF DRAIN LINES SHALL BE PVC SDR 35 OR HDPE (ST). MINIMUM SLOPE SHALL BE 1.0% UNLESS OTHERWISE NOTED. MINIMUM SIZE SHALL BE 6" UNLESS OTHERWISE NOTED.

D2 INSTALL PRIVATE STORM SYSTEM (RE: SHEETS C6-C7.8 FOR DETAILS).

D3 INSTALL UNDERGROUND DETENTION (RE: SHEET C16 FOR DETAILS).

D4 INSTALL TRENCH DRAIN ACO K200 WITH LONGITUDINAL IRON GRATE (RE: SHEET C14 FOR DETAIL).

D5 INSTALL PUBLIC STORM SYSTEM (RE: PUBLIC IMPROVEMENT PLANS).

E1 SECONDARY ELECTRIC ENTRY INTO BUILDING. FOLLOW EVERGY REQUIREMENTS (RE: BUILDING ELECTRIC PLAN).

E2 CONSTRUCT CONCRETE TRANSFORMER PAD. CONTRACTOR TO VERIFY EXACT LOCATION AND SIZE WITH EVERGY PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF CONCRETE PAD AND CONDUIT AS REQUIRED BY THE ELECTRIC COMPANY. CONTRACTOR SHALL COORDINATE SAID WORK WITH THE ELECTRIC COMPANY.

E3 INSTALL 4" PVC SCHEDULE 40 PRIMARY ELECTRICAL CONDUIT. FOLLOW EVERGY WORKORDER & SPECIFICATIONS FOR PRIMARY ELECTRICAL SERVICE.

E4 CONSTRUCT CONCRETE SWITCHGEAR PAD. CONTRACTOR TO VERIFY EXACT LOCATION AND SIZE WITH EVERGY PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF CONCRETE PAD AND CONDUIT AS REQUIRED BY THE ELECTRIC COMPANY. CONTRACTOR SHALL COORDINATE SAID WORK WITH THE ELECTRIC COMPANY.

E5 INSTALL 6" PVC SCHEDULE 40 PRIMARY ELECTRICAL CONDUIT. FOLLOW EVERGY WORKORDER & SPECIFICATIONS FOR PRIMARY ELECTRICAL SERVICE.

E6 INSTALL 6" PVC SCHEDULE 40 PRIMARY ELECTRICAL CONDUIT (BORED). FOLLOW ELECTRIC COMPANY WORKORDER AND SPECIFICATIONS FOR PRIMARY ELECTRICAL SERVICE.

E7 NEW POWER POLE W/ POLE DROP (BY EVERGY).

E8 EXISTING POWER POLE W/ POLE DROP (BY EVERGY).

E9 INSTALL EVERGY SECTIONALIZER BASE. CONTRACTOR TO VERIFY EXACT LOCATION WITH EVERGY PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF BASE AND CONDUIT AS REQUIRED BY THE ELECTRIC COMPANY, CONTRACTOR SHALL COORDINATE SAID WORK WITH THE ELECTRIC COMPANY.

E10 NEW STEEL POWER POLE (BY EVERGY).

G1 GAS ENTRY WITH GAS METER. CONTRACTOR SHALL COORDINATE WITH GAS COMPANY FOR TYING OF INDIVIDUAL METER. SIZE OF GAS MAIN SHALL BE AS DETERMINED BY UTILITY OR AS SHOWN ON BUILDING PLANS. CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH GAS COMPANY REGARDING THE SIZE & INSTALLATION OF GAS SERVICE LINE.

G2 COORDINATE WITH GAS COMPANY AND CONNECT TO EXISTING GAS MAIN.

G3 CONTRACTOR TO INSTALL 1" GAS LINE.

G4 CONTRACTOR TO INSTALL 1.5" GAS LINE.

S1 STA. 0+00, CONNECT TO EXISTING 8" VCP SANITARY MAIN WITH CUT-IN WYE CONNECTION.
EXISTING FL=1025.05 (±)
PROPOSED 6" PVC FL=1025.72

S1A STA. 0+14 INSTALL 6" PVC 45° BEND.

S1B INSTALL 6" PVC @ 1.00%

S2 STA. 0+30 INSTALL 6" SANITARY SEWER CLEANOUT.

S3 STA. 0+33, 6" PVC (SDR-26) SANITARY SEWER SERVICE (CONNECT TO BUILDING PLUMBING USING MISSION FLEX-SEAL ARC OR FERNCO STRONGBACK RC COUPLING).
FL=1026.05

S4 STA. 0+00, CONNECT TO EXISTING 8" VCP SANITARY MAIN WITH CUT-IN WYE CONNECTION.
EXISTING FL=1025.11 (±)
PROPOSED 6" PVC FL=1025.78

S4A INSTALL 6" PVC.

S5 STA. 0+46 6" PVC (SDR-26) SANITARY SEWER SERVICE (CONNECT TO EXISTING SANITARY SEWER SERVICE).

S6 INSTALL 6" SANITARY SEWER CLEANOUT.

S7 STA. 0+00, CONNECT TO EXISTING SANITARY MAIN WITH CUT-IN WYE CONNECTION.
EXISTING FL=1032.50 (±)
PROPOSED 8" PVC FL=1033.17

S7A INSTALL 8" PVC @ 1.00%

S8 STA. 0+37, INSTALL 8" SANITARY SEWER CLEANOUT

S9 STA. 0+41, 8" PVC (SDR-26) SANITARY SEWER SERVICE (CONNECT TO BUILDING PLUMBING USING MISSION FLEX-SEAL ARC OR FERNCO STRONGBACK RC COUPLING).
FL=1033.58

S10 STA. 0+00, CONNECT TO EXISTING SANITARY MAIN WITH CUT-IN WYE CONNECTION.
EXISTING FL=1031.71 (±)
PROPOSED 8" PVC FL=1032.38

S10A INSTALL 8" PVC @ 15.20%

S11 STA. 0+35, INSTALL 6" SANITARY SEWER CLEANOUT.

S12 STA. 0+37, 6" PVC (SDR-26) SANITARY SEWER SERVICE (CONNECT TO BUILDING PLUMBING USING MISSION FLEX-SEAL ARC OR FERNCO STRONGBACK RC COUPLING).
FL=1038.00

T1 CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE TELEPHONE COMPANY FOR THE INSTALLATION OF BURIED TELEPHONE LINES. CONTRACTOR TO PROVIDE TWO (2) – 4" PVC SCH. 40 CONDUIT WITH PULL STRING FROM BUILDING TO TELEPHONE FEED POINT. CONTRACTOR TO VERIFY EXACT ROUTING AND FEED POINT WITH TELEPHONE COMPANY.

T2 CONTRACTOR TO COORDINATE WITH CABLE COMPANY TO REMOVE OVERHEAD CABLE ACROSS S.E. 2ND STREET.

UTILITY 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 48 hours before any excavation to request exact field location of utilities. It shall be the responsibility of the contractor to coordinate with and relocate &/or remove all existing utilities which conflict with the proposed improvements shown on the plans.*
2. *The construction of storm sewers on this project shall conform to the requirements of the City's Technical Specifications and Design Criteria.*
3. *The contractor shall field verify the exact location and elevation of the existing storm sewer lines and the existing elevation at locations where the proposed storm sewer collects or releases to existing ground. If discrepancies are encountered from the information shown on the plans, the contractor shall contact the design engineer. No pipes shall be laid until direction is received from the design engineer.*
4. *It will be the contractors responsibility to field adjust the top of all manholes and boxes as necessary to match the grade of the adjacent area. Tops of existing manholes shall be raised as necessary to be flush with proposed pavement elevations, and to be 6-inches above finished ground elevations in non-paved areas. No separate or additional compensation will be made to the contractor for making final adjustments to the manholes and boxes.*
5. *Inlet locations, horizontal pipe information and vertical pipe information is shown to the center of the structure. Deflection angles shown for storm sewer pipes are measured from the center of curb inlets and manholes. The contractor shall adjust the horizontal location of the pipes to go to the face of the boxes. All roof drains shall be connected to storm sewer structures. Provide cleanouts on roof drain lines at 100' max. Spacing and at all bend points. Do not connect roof drains directly to storm sewer pipe.*
6. *The contractor shall be responsible for furnishing and installing all fire and domestic water lines, meters, backflow devices, pits, valves and all other incidentals required for a complete operable fire protection and domestic water system. All costs associated with the complete water system for the buildings shall be the responsibility of the contractor. All work shall conform to the requirements of City.*
7. *The contractor shall be responsible for furnishing and installing all sanitary sewer service lines from the buildings to the public line. All work shall conform to the requirements of the City.*
8. *The contractor will be responsible for securing all permits, bonds and insurance required by the contract documents, City, and all other governing agencies (including local, county, state and federal authorities) having jurisdiction over the work proposed by these construction documents. The cost for all permits bonds and insurance shall be the contractors responsibility and shall be included in the bid for the work.*
9. *By the use of these construction documents the contractor hereby agrees that he/she shall be solely responsible for the safety of the construction workers and the public. The contractor agrees to hold the engineer and owner harmless for any and all injuries, claims, losses or damages related to the project.*
10. *The Contractor shall be responsible for furnishing all materials, tools and equipment and installation of electrical power, telephone and gas service from a point of connection from the public utility lines to the building structures. This will include all conduits, service lines, meters, concrete pads and all other incidentals required for a complete and operational system as required by the owner and the public utilities. Refer to building plans for exact tie-in locations of all utilities. Contractor shall verify connection points prior to installation of utility line.*
11. *All fill material is to be in place, compacted, and consolidated before installation of proposed utilities. On-site geotechnical engineer shall provide written confirmation that this requirement has been met and that utilities may proceed in the fill areas. All utilities are to be placed in trench conditions.*
12. *Contractor shall notify the utility authorities inspectors 48 hours before connecting to any existing line.*
13. *Water lines shall be as follows (unless otherwise shown on plans):*

– *Pipe sizes less than 3-inches that are installed below grade and outside building shall comply with the following:*
1. Seamless Copper Tubing: Type "K" soft copper, ASTM B88.
2. Fittings: Wrought copper (95_5 Tin Antimony solder joint), ASME B 16.22.

14. *Minimum trench width shall be 2 feet.*
15. *Contractor shall maintain a minimum of 42" cover on all waterlines. All water line joints are to be mechanical joints with thrust blocking as called out in specifications and construction plans. Water mains and service lines shall be constructed in accordance to City's specifications for commercial services.*
16. *All waterlines shall be kept min. ten (10') apart (parallel) from sanitary sewer lines or manholes. Or when crossing, an 24" vertical clearance (outside edge of pipe to outside edge of pipe) of the water line above the sewer line is required.*
17. *Sanitary conflicts will be resolved prior to permit issuance.*
18. *All underground storm, sanitary, water and other utility lines shall be installed, inspected and approved before backfilling. Failure to have inspection approval prior to backfill will constitute rejection of work.*
19. *All necessary inspections and/or certifications required by codes and/or utility service companies shall be performed prior to announced building possession and the final connection of service. Contractor shall coordinate with all utility companies for installation requirements and specifications.*
20. *Refer to building plans for site lighting electrical plan, irrigation, parking lot security system and associated conduit requirements. Coordinate with Owner that all required conduits are in place & tested prior to paving.*
21. *When a building utility connection from site utilities leading up to the building cannot be made immediately, temporarily mark all such site utility terminations.*
22. *Refer to the building plans for site lighting electrical requirements, including conduits, pole bases, pull boxes, etc.*

⚠1

W1 CONTRACTOR TO PERFORM AND COORDINATE CUT IN 8"x8"x4" TEE ON EXISTING MAIN FOR PROPOSED DOMESTIC SERVICE LINE. CONTACT CITY OF LEE'S SUMMIT FOR TAPPING REQUIREMENTS. CONTRACTOR TO PAY ALL FEES FOR WATER MAIN TAP. OWNER WILL REIMBURSE CONTRACTOR FOR ACTUAL METER AND SYSTEM DEVELOPMENT FEES ASSESSED BY CITY OF LEE'S SUMMIT.

W2 PROVIDE AND INSTALL 3" WATER METER PIT PER CITY OF LEE'S SUMMIT REQUIREMENTS. COORDINATE WITH CITY OF LEE'S SUMMIT FOR MAIN TAP. CONTRACTOR TO COORDINATE AND PAY ALL FEES. ALL LABOR AND MATERIALS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR'S PLUMBER IN ACCORDANCE WITH LEE'S SUMMITS STANDARDS.

W3 4" DOMESTIC WATERLINE ENTRY TO BUILDING. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ANY APPURTENANCES ON THE DOMESTIC LINE SUCH AS BACKFLOW PREVENTION DEVICES (RE: BUILDING PLANS), GATE VALVES, REDUCERS, BENDS, TEES, ETC., WHICH MAY BE REQUIRED. CONTRACTOR TO COORDINATE WITH WATER UTILITY.

W4 CONTRACTOR TO PERFORM AND COORDINATE 8"x8" TAP ON EXISTING MAIN FOR PROPOSED 8" FIRE LINE. CONTACT CITY OF LEE'S SUMMIT FOR TAPPING REQUIREMENTS. CONTRACTOR TO PAY ALL FEES FOR WATER MAIN TAP. OWNER WILL REIMBURSE CONTRACTOR FOR ACTUAL METER AND SYSTEM DEVELOPMENT FEES ASSESSED BY CITY OF LEE'S SUMMIT.

W5 8" SPRINKLER ENTRY TO BUILDING. CONTRACTOR SHALL BE REQUIRED TO INSTALL ANY APPURTENANCES ON THE SPRINKLER LINE SUCH AS, BUT NOT LIMITED TO GATE VALVES, REDUCES, BENDS, TEES, ETC. (RE: BUILDING PLANS FOR BUILDING), WHICH MAY BE REQUIRED. CONTRACTOR TO COORDINATE WITH WATER UTILITY.

W6 INSTALL FIRE DEPARTMENT CONNECTION WITHIN MAXIMUM 100' FROM PROPOSED FIRE HYDRANT (RE: MEP PLANS).

W7 CONTRACTOR TO USE EXISTING TAP AND CONNECT IRRIGATION LINE. CONTRACTOR SHALL PROVIDE ANY FITTINGS, REDUCERS, ETC. TO CONNECT TO EXISTING TAP.

W8 PROVIDE AND INSTALL 1-1/2" WATER METER AND 1-1/2" IRRIGATION MAIN TO IRRIGATION SYSTEM. LANDSCAPE CONTRACTOR SHALL SUPPLY DEDUCT METER AND INSTALL BLOW OFF VALVES FOR WINTERIZATION.

W9 INSTALL 1-1/2" RPZ BACKFLOW FOR IRRIGATION SYSTEM (RE: SHEET C17 FOR DETAIL).

W10 EXISTING PUBLIC FIRE HYDRANT (TO REMAIN IN SERVICE).

W11 EXISTING WATER SERVICE AND 1" METER (TO REMAIN IN SERVICE). RELOCATE METER AS NECESSARY TO AVOID STAIRS.

W12 INSTALL PUBLIC FIRE HYDRANT.

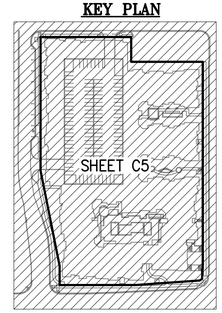
W13 CONTRACTOR TO CUT IN AND INSTALL 8"X8"X6" TEE FOR FIRE HYDRANT CONNECTION.

⚠1 W14 BORE WATER LINE UNDER EXISTING PAVEMENT. PATCH & REPAIR PAVEMENT PER LEE'S SUMMIT STANDARD DETAIL GEN-5 (RE: SHT. C14).

LEGEND

PL — PROPERTY LINE
LL — LOT LINE
R/W — RIGHT-OF-WAY
CATV — EXISTING CABLE TELEVISION LINE
FO — EXISTING FIBER OPTIC LINE
G — EXISTING GAS LINE
BE — EXISTING BURIED ELECTRIC LINE
OHP — EXISTING OVERHEAD POWER LINE
OHT — EXISTING OVERHEAD TELEPHONE LINE
SS — EXISTING SANITARY SEWER LINE
24"HDPE — EXISTING STORM SEWER LINE (& SIZE)
BT — EXISTING BURIED TELEPHONE LINE
W — 6" — EXISTING WATER LINE (& SIZE)
CATV — PROPOSED CABLE TELEVISION LINE
FO — PROPOSED FIBER OPTIC LINE
G — PROPOSED GAS LINE
BE — PROPOSED BURIED ELECTRIC LINE
SS — PROPOSED SANITARY SEWER LINE
OHP — PROPOSED OVERHEAD POWER LINE
24" — PROPOSED STORM SEWER LINE (& SIZE)
BT — PROPOSED BURIED TELEPHONE LINE
W — 6" — PROPOSED WATER LINE (& SIZE)
ST — 6" — PROPOSED ROOF DRAIN (& SIZE)

KEY PLAN



VICINITY MAP
SEC. 6-T47N-R31W

N
SCALE: 1"=2000'

SCALE: 1"=30'
0' 30' 60'

PHELPS ENGINEERING, INC.
1270 N. Winchester
Olathe, Kansas 66061
(913) 393-1155
Fax (913) 393-1066
www.phelpsengineering.com

PLANNING
ENGINEERING
IMPLEMENTATION

STATE OF MISSOURI
DOUGLAS EUGENE GUBSER, JR.
NUMBER PE-2011010998
PROFESSIONAL ENGINEER
3/16/20

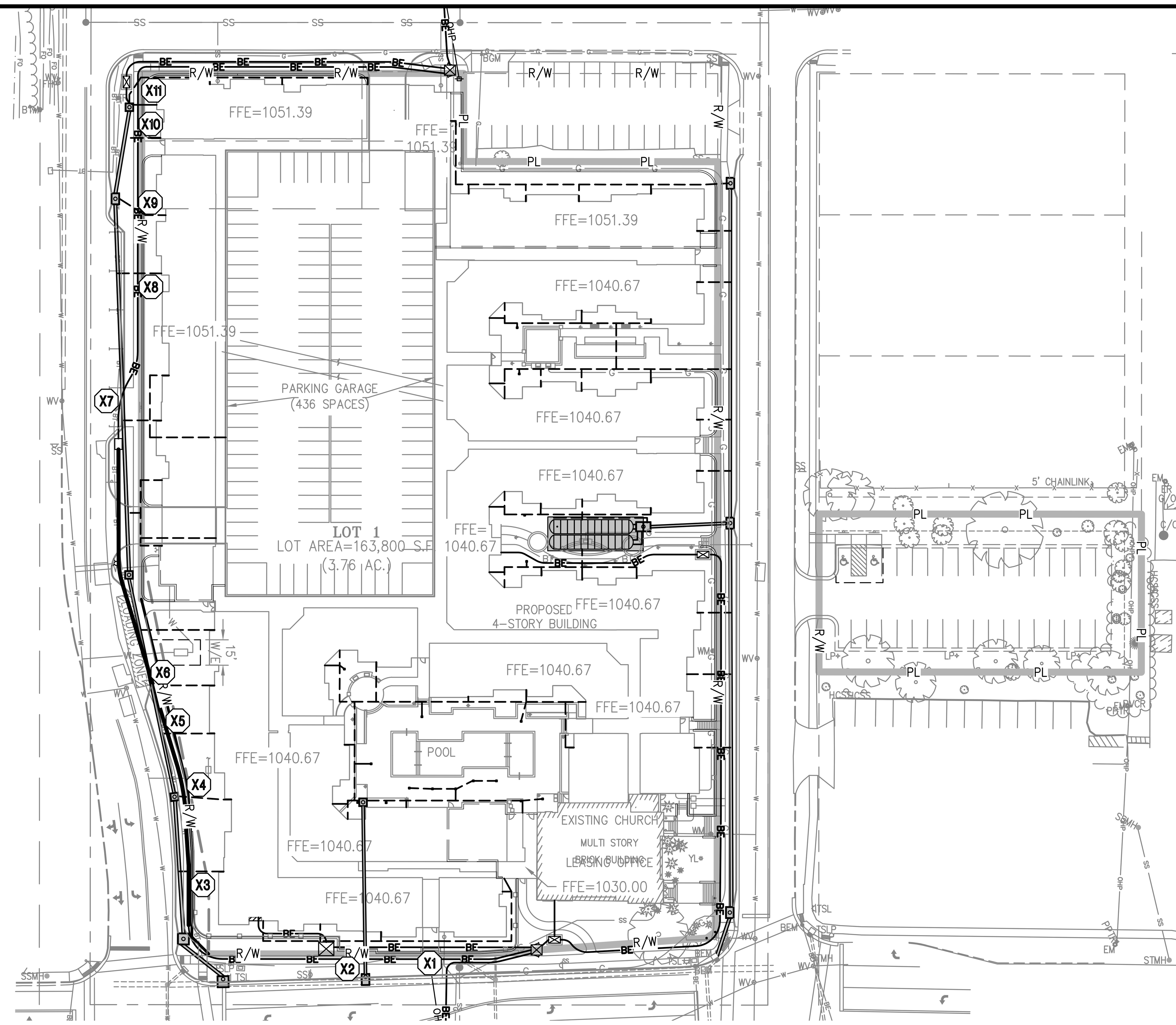
UTILITY PLAN

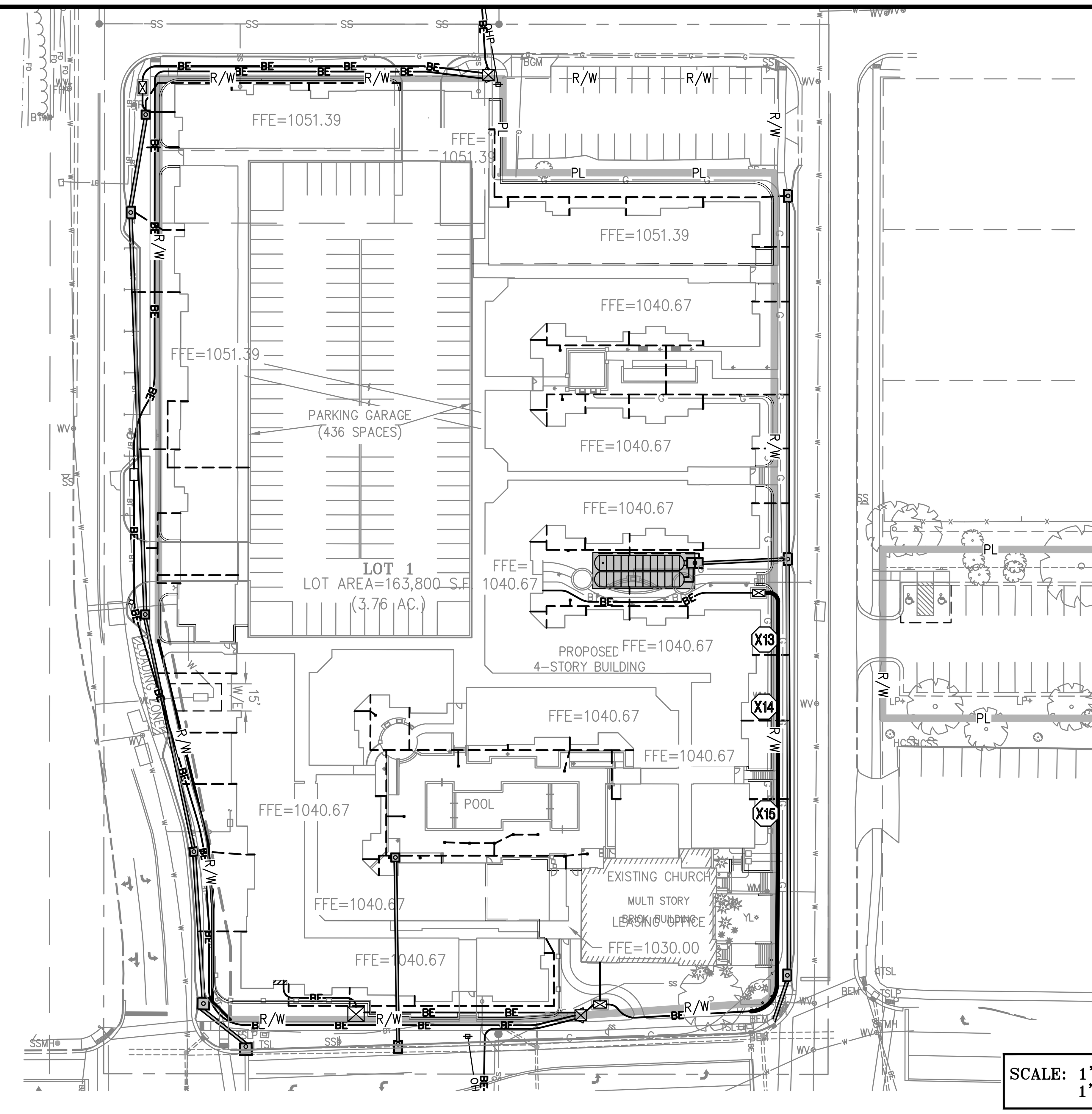
DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEJ

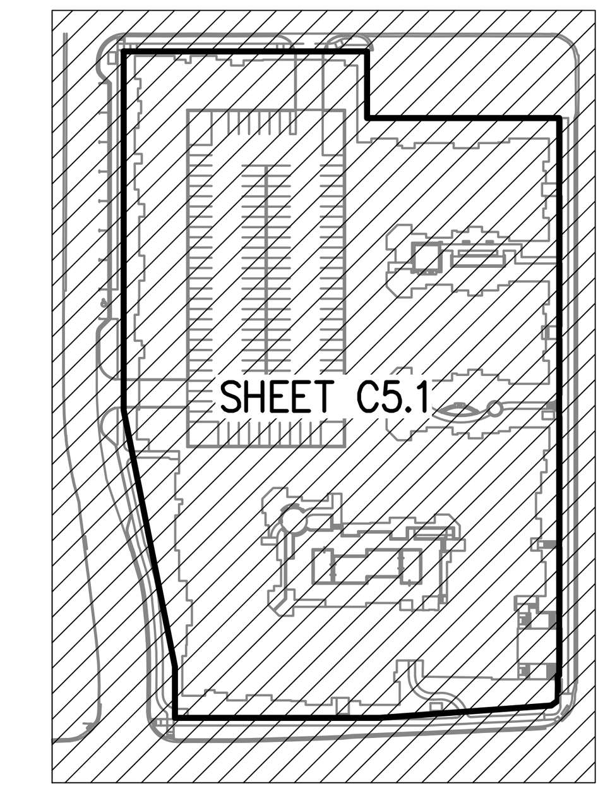
PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEJ
CERTIFICATE OF AUTHORIZATION KANSAS SURVEYING - LS-82 ENGINEERING - E-391
CERTIFICATE OF AUTHORIZATION MISSOURI SURVEYING-2007001128 ENGINEERING-2007002508

SHEET
C5





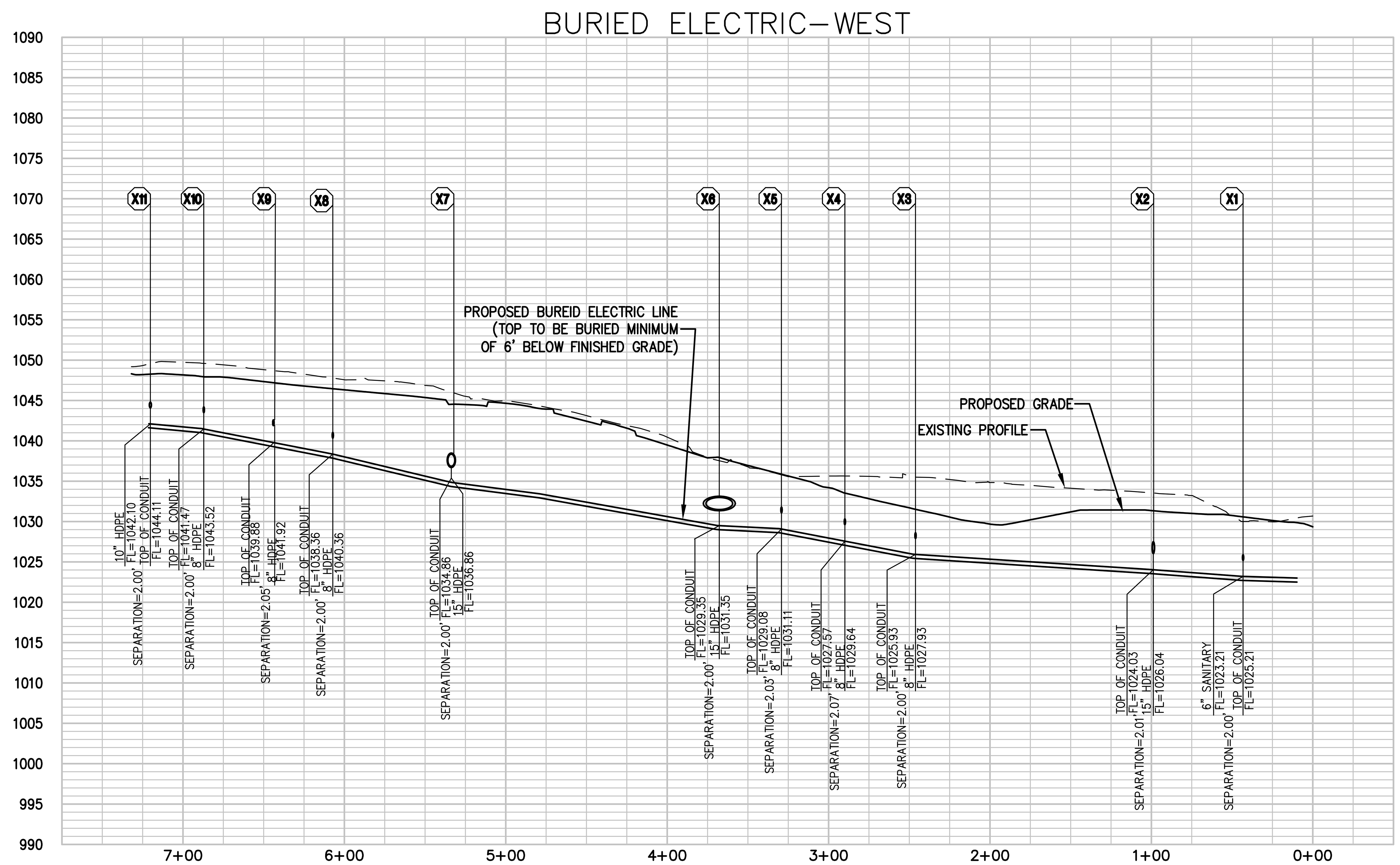
KEY PLAN



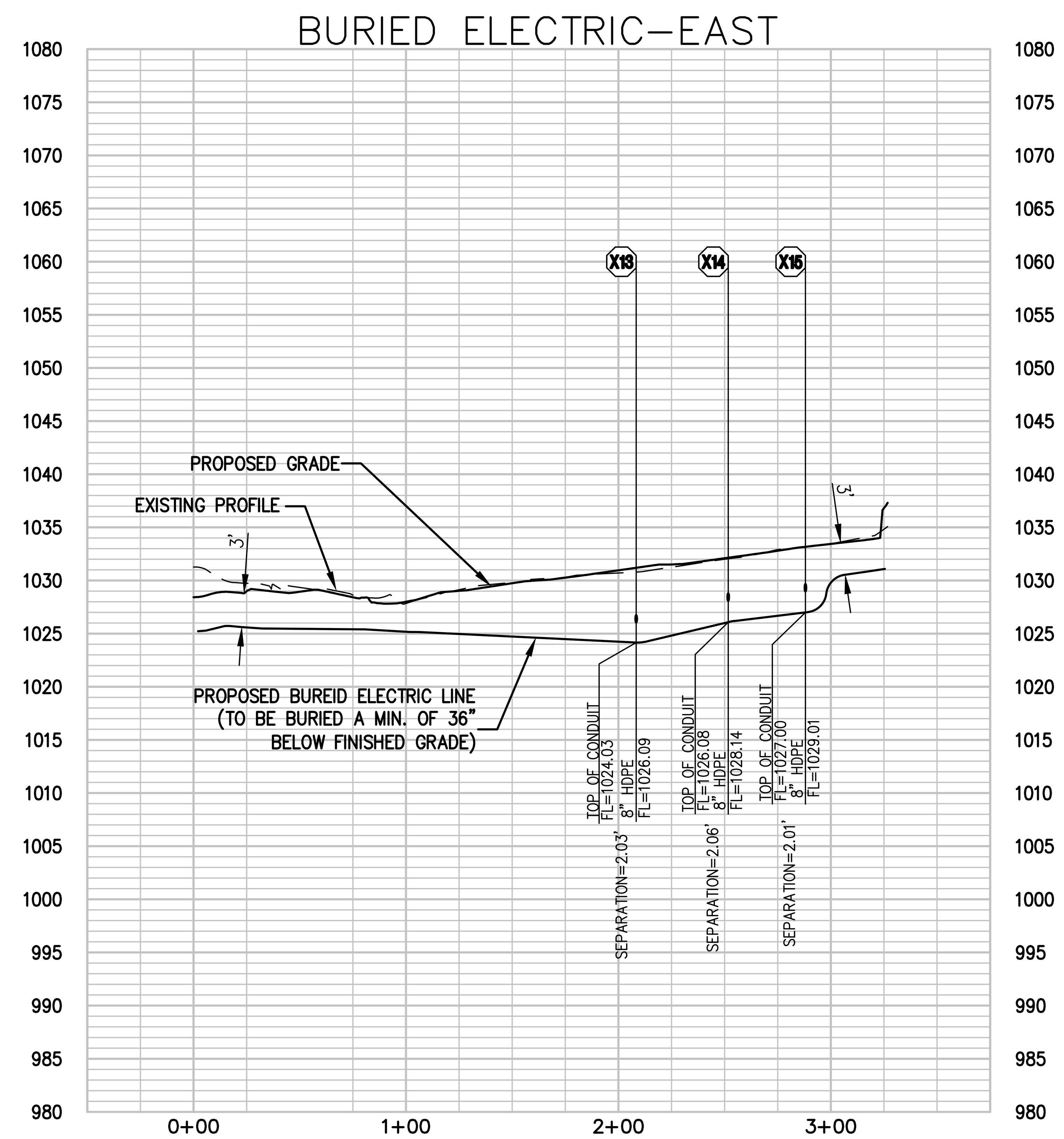
SCALE: 1"=50' HORIZ.
1"=10' VERT.

SCALE: 1"=50'

BURIED ELECTRIC-WEST



BURIED ELECTRIC-EAST



STATE OF MISSOURI
DOUGLAS EUGENE FURBECK, JR.
NUMBER PE-2011010998
3/16/20
PROFESSIONAL ENGINEER

PHELPS ENGINEERING, INC.
1270 N. Winchester
Olathe, Kansas 66061
(913) 393-1155
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www.phelpsengineering.com
PLANNING
ENGINEERING
IMPLEMENTATION

BURIED ELECTRIC PLAN & PROFILE

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEU

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEU

SHEET
C5.1

\\PHELPS-SERVER\Projects\P\171125\dwg\Permit Plans\BURIED ELECTRIC P&P.dwg Layout1 Mar 17, 2020 - 8:55am Shelli Hatcher

PRELIMINARY

SURVEY

CUSTOMER TO SUPPLY KCPL WITH SURVEY

SCALE 0 60

(1)
EXISTING
PW50-3
330-102
PDE-CL
INSTALL
PDE-CL
740-366
REMOVE
450-241
F-L100K-OL
FOREIGN ATT.
UNKNOWN
Lees Summit R-7 School District
Google Fiber

(2)
INSTALL
700-109
770-621
F-SM20/15-200E

(3)
INSTALL
700-104
XFP-7.2-120/208-1000
750-311

(4)
INSTALL
700-106
760-362

(5)
INSTALL
700-104
XFP-7.2-120/208-1000
750-311

(6)
INSTALL
700-109
770-621
F-SM20/15-200E
F-SM20/15-200E

(7)
INSTALL
700-102
XFP-7.2-120/208-75
750-323

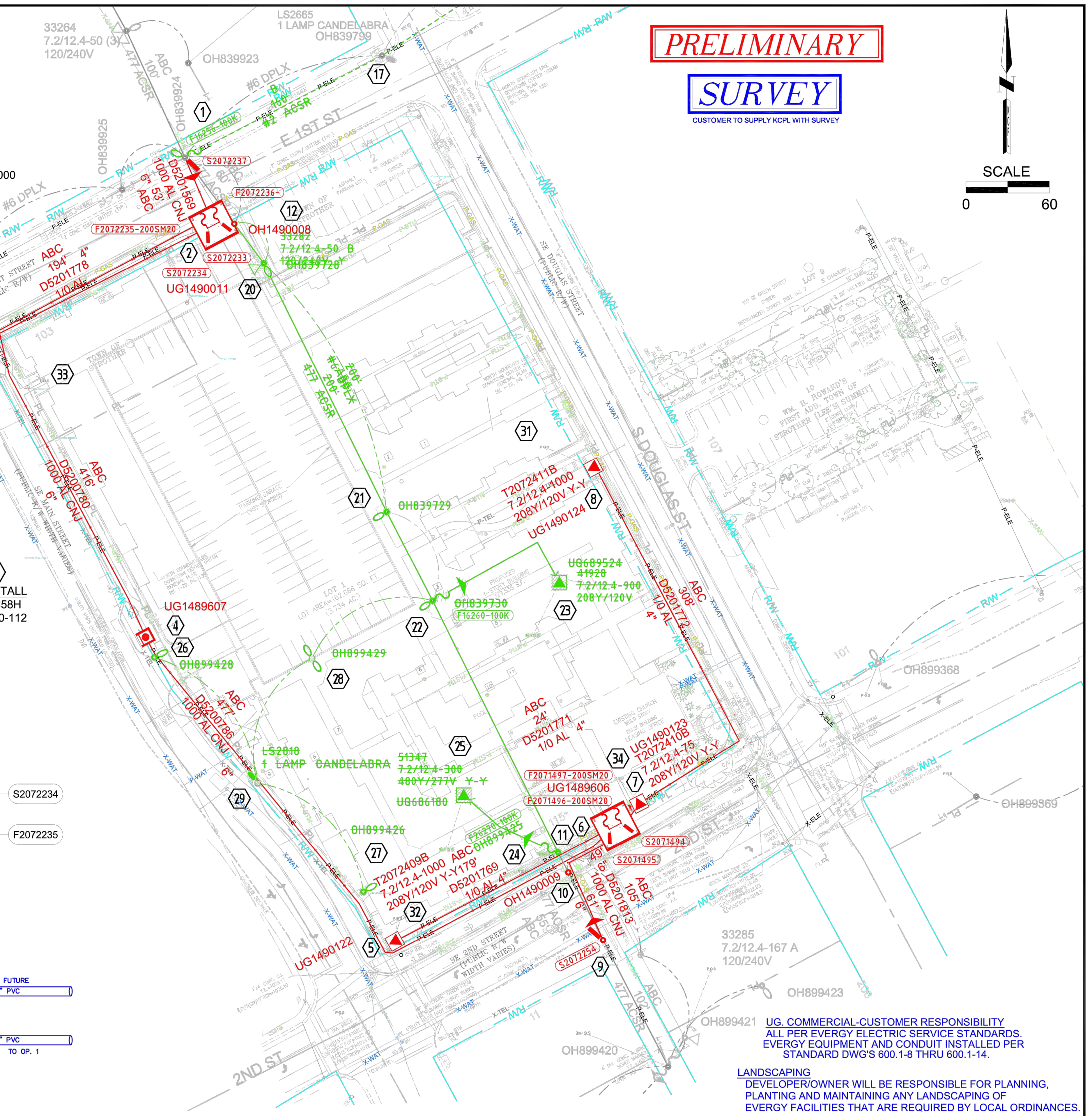
(8)
INSTALL
700-104
XFP-7.2-120/208-1000
750-311

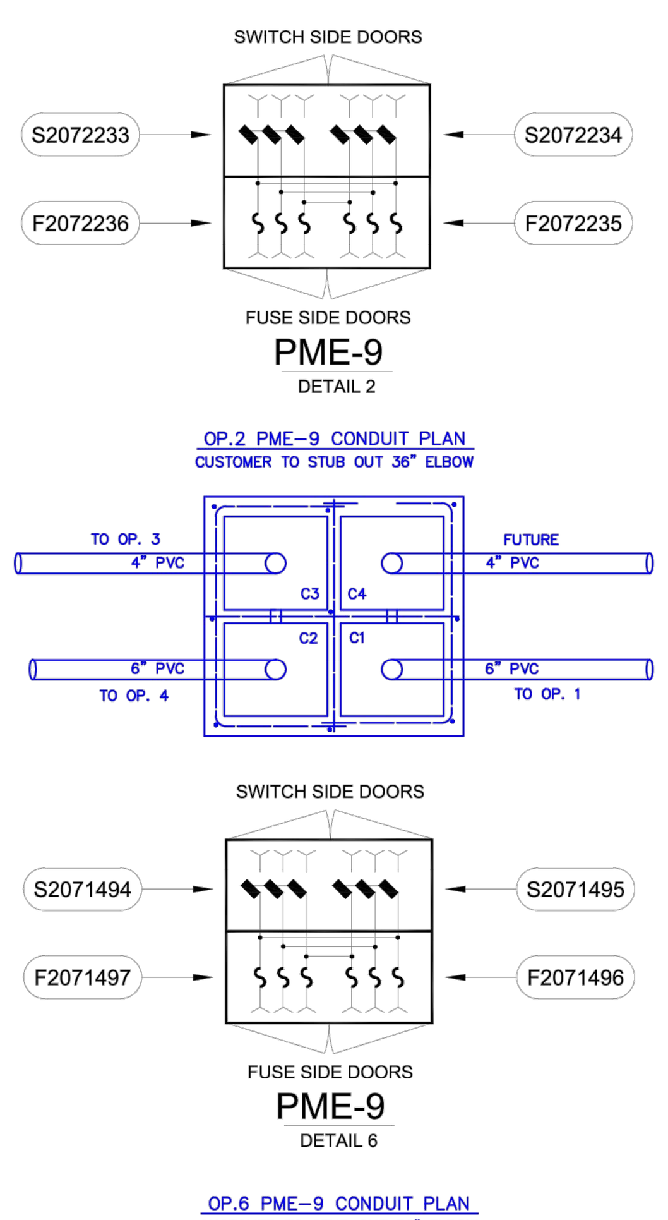
(9)
INSTALL
PW55-1
320-112
740-346

(10)
INSTALL
PS58H
320-112

(11)

(12)
INSTALL
PS58H
330-315
PDE-CL





(31) (32) (33) (34)

COMMERCIAL SERVICE IS NOT APPROVED AT THIS TIME. WE WILL NEED AN UPDATED ONE-LINE DRAWING WITH PROPOSED METER STACK AND DIMENSIONS OF THE METER ROOM TO VERIFY CLEARANCES.

COMMERCIAL SERVICE
XXXXA, XXX/XXXV, 3Ø, 4W
X SETS OF X-XXX KCM IN X" SCH 40 PVC.
3 C.T.'S XXXX:5 XXXXX (960-XXX) IN CUSTOMER CT CABINET.
METER SOCKET 261-XXX
METER XXXXT

C.T.'S AND METER SOCKET FURNISHED BY EVERGY AND INSTALLED BY CUSTOMER, 1-1/4" METALIC CONDUIT FOR C.T. CABLE NOT TO EXCEED 65' IN LENGTH PER SECTION III.B, B - C.T. RATED METERING (PAGE 77) AND PER STANDARD DWG. 900.1-56. METER LOCATION WILL BE PROVIDED BY EVERGY.

SECTION III.F, A - INFORMATION (PAGE 95). IT IS REQUIRED THAT THE CUSTOMER'S SERVICE LATERAL CONDUCTORS BE NO GREATER THAN EITHER 500-kcm COPPER OR 750-kcm AA-8000 SERIES ELECTRICAL GRADE ALUMINUM ALLOY.

UG. COMMERCIAL-CUSTOMER RESPONSIBILITY
ALL PER EVERGY ELECTRIC SERVICE STANDARDS. EVERGY EQUIPMENT AND CONDUIT INSTALLED PER STANDARD DWG'S 600.1-8 THRU 600.1-14.

LANDSCAPING
DEVELOPER/OWNER WILL BE RESPONSIBLE FOR PLANNING, PLANTING AND MAINTAINING ANY LANDSCAPING OF EVERGY FACILITIES THAT ARE REQUIRED BY LOCAL ORDINANCES.

PRIMARY CONDUIT —— 3Ø

AND 4" SCH. 40 PVC CONDUIT FOR 3Ø PRIMARY. ALL ELBOWS TO BE A MIN OF 36" RADIUS, MAXIMUM OF (3) 90'S

XF PAD
BASE FOR 3Ø PADMOUNT TRANSFORMER FURNISHED AND INSTALLED BY CUSTOMER PER STD. DWG. 700-103 OR 700-104.

600A SECTIONALIZER
CONCRETE BASE FURNISHED AND INSTALLED BY CUSTOMER PER STANDARD DWG. 700-106.

BASE PME-9 OR PME-11
CONCRETE BASE FURNISHED AND INSTALLED BY CUSTOMER PER STANDARD DWG. 700-109.

OTHER
CUSTOMER TO CONTACT EVERGY FOR OPEN TRENCH INSPECTION OF CONDUIT & EQUIPMENT. NEED TO CALL (816) 898-2214 48 HOURS IN ADVANCE.

EVERGY RESPONSIBILITY
UG PRIMARY
3 1/0-1C AL 15KV FOR THREE PHASE UNLESS NOTED OTHERWISE TERMINATE CUSTOMER'S CABLE IN TRANSFORMER CT CABLE

(20)
REMOVE
PW50-3
PDE-CL
330-103
XFO-7.2-120/240-50
FOREIGN ATT.
Lees Summit R-7 School District
UNKNOWN
Google Fiber

(21)
REMOVE
PW55-3
PDE-CL
320-102
FOREIGN ATT.
Lees Summit R-7 School District
Google Fiber

(22)
REMOVE
PW60-3
320-102
PDE-CL
740-331
(3) F-L100K-OL
FOREIGN ATT.
Lees Summit R-7 School District
Google Fiber

(23)
REMOVE
700-104

(24)
REMOVE
PW55-3
320-104
PDE-CL
740-331
(3) F-L100K-OL
FOREIGN ATT.
Lees Summit R-7 School District
Google Fiber

(25)
REMOVE
700-103
XFP-7.2-277/480-300

(26)
REMOVE
PW35-5
PDE-CL

(27)
REMOVE
PW35-5
PDE-CL

(28)
REMOVE
SL-PC30-1S
PDE-CL

(29)
REMOVE
SL-PC30-1S
PDE-CL

BUILT AS DESIGNED ☐
CHANGES AS NOTED ☐
LEADMAN ________ DATE ________
FCS ________ DATE ________

SEC. 6 TWP. 47N RANGE 31W TAX DIST.

REV.	DATE	BY	CHECKED	APPROVED

EXISTING ---------
INSTALL ---------
REMOVE ---///---
MODIFY ---------

811 Know what's below. Call before you dig.

CONTACTS
PROJECT DESIGNER: JENNY CASEY
PHONE #: 816-347-4334
CUSTOMER: KEVIN O'NEILL
PHONE #: 816-874-2769
EVERGY URD INSPECTOR: KEVIN JONES
PHONE #: 816-898-2214
ELECTRICIAN:
PHONE #:

TITLE DOWNTOWN LS APARTMENTS
ADDRESS 114 SE DOUGLAS
CITY LEES SUMMIT
COUNTY JA STATE MO
12.47 KV JOB TYPE: 1NBC

PRJ# 50022851
WR# 907401
SEC. DIST. ----
CIRCUIT 37623
SHEET 1 OF 2

evergy
LEE'S SUMMIT SERVICE CENTER
DESIGNED BY: JCASEY
REVIEWED BY: JLC
DATE: 11/13/2019
DWG FILE # 907401-1

(13)
INSTALL
PW60-1
PDE-CL
310-209
330-317
F-L100K-OL

(14)
INSTALL
PW40-3
310-201

(15)
INSTALL
PW40-3
310-201

(16)
EXISTING
PW35-5
INSTALL
450-211
310-209
F-L25K-OL
REMOVE
310-201
FOREIGN ATT.
Google Fiber

(17)
EXISTING
PW40-3
PDE-CL
SL-LC-LED-III
INSTALL
PDE-CL
REMOVE
310-201
FOREIGN ATT.
Lees Summit R-7 School District
Google Fiber

(18)
EXISTING
PW35-5
INSTALL
PDE-CL
420-101
REMOVE
310-201
FOREIGN ATT.
Lees Summit R-7 School District
Google Fiber

(19)
EXISTING
450-211
F-L50K-OL
INSTALL
310-207
420-960
REMOVE
310-201
FOREIGN ATT.
Lees Summit R-7 School District
UNKNOWN
Google Fiber

(30)
INSTALL
PW40-3
310-208
420-101

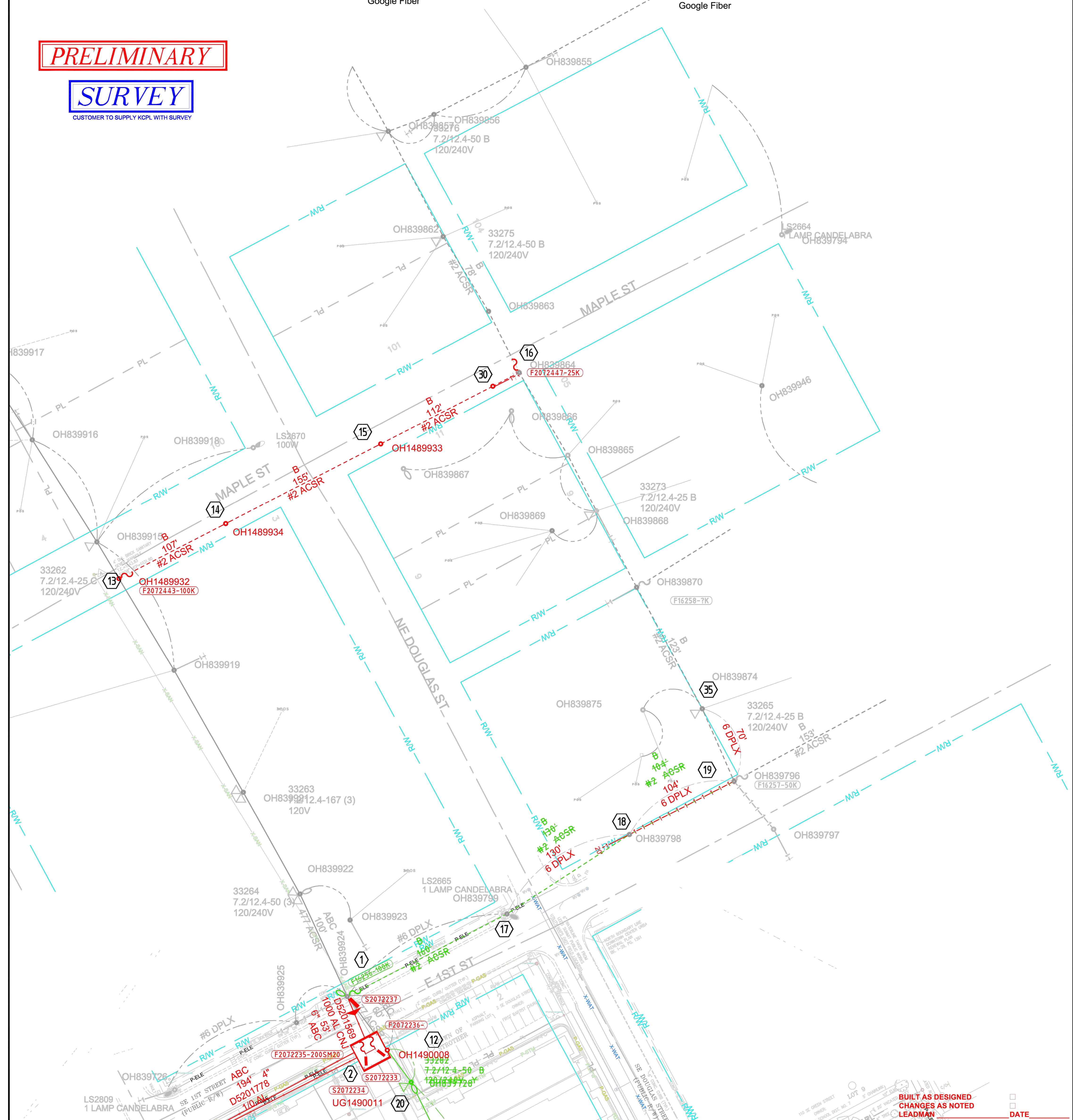
(35)
EXISTING
PW40-3
INSTALL
PDE-CL
FOREIGN ATT.
Google Fiber

SCALE 0 60

PRELIMINARY

SURVEY

CUSTOMER TO SUPPLY KCPL WITH SURVEY



BUILT AS DESIGNED ☐
CHANGES AS NOTED ☐
LEADMAN ________ DATE ________
FCS ________ DATE ________

SEC. 6 TWP. 47N RANGE 31W TAX DIST.

REV.	DATE	BY	CHECKED	APPROVED

EXISTING ---------
INSTALL ---------
REMOVE ---///---
MODIFY ---------

811 Know what's below. Call before you dig.

CONTACTS
PROJECT DESIGNER: JENNY CASEY
PHONE #: 816-347-4334
CUSTOMER: KEVIN O'NEILL
PHONE #: 816-874-2769
EVERGY URD INSPECTOR: KEVIN JONES
PHONE #: 816-898-2214
ELECTRICIAN:
PHONE #:

TITLE DOWNTOWN LS APARTMENTS
ADDRESS 114 SE DOUGLAS
CITY LEES SUMMIT
COUNTY JA STATE MO
12.47 KV JOB TYPE: 1NBC

PRJ# 50022851
WR# 907401
SEC. DIST. ----
CIRCUIT 37623
SHEET 2 OF 2

evergy
LEE'S SUMMIT SERVICE CENTER
DESIGNED BY: JCASEY
REVIEWED BY: JLC
DATE: 11/13/2019
DWG FILE # 907401-1

STATE OF MISSOURI
DOUGLAS EUGENE UBBEN, JR
NUMBER PE-2011010998
3/16/20
PROFESSIONAL ENGINEER

PHELPS ENGINEERING, INC.
1270 N. Winchester
Olathe, Kansas 66061
(913) 393-1155
Fax (913) 393-1166
www.phelpsengineering.com

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IMPLEMENTATION

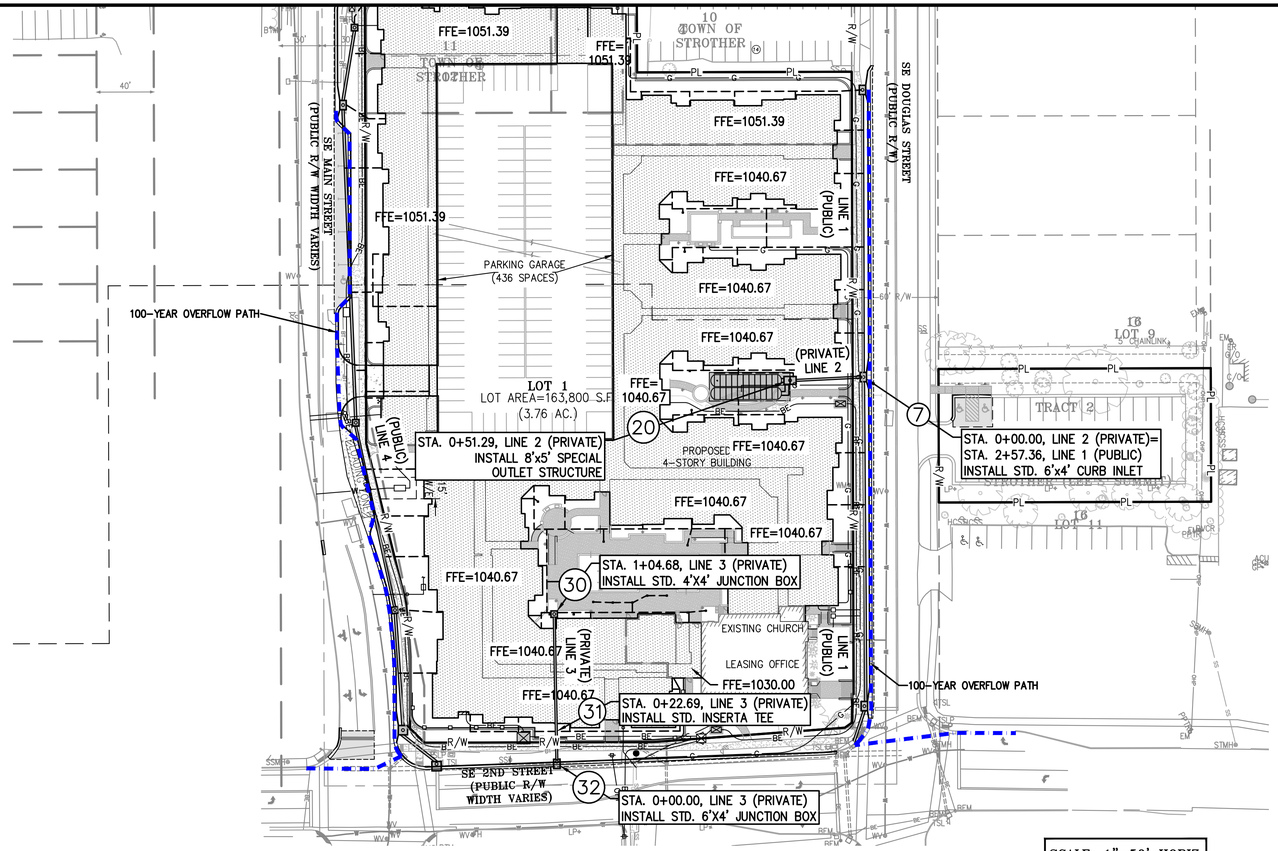
EVERGY ELECTRIC PLAN
DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEU

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEU
CERTIFICATE OF AUTHORIZATION KANSAS LAND SURVEYING - LS-82 ENGINEERING - E-391
CERTIFICATE OF AUTHORIZATION MISSOURI LAND SURVEYING-2007001128 ENGINEERING-2007005058

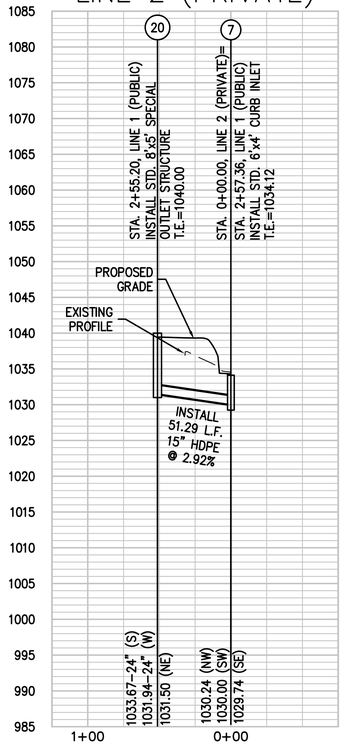
SHEET
C5.2

\\PHELPS-SERVER\Projects\P\171125\dwg\Permit Plans\BURIED ELECTRIC P&P.dwg Layout:2 Mar 17, 2020 - 8:55am Shelli Hatcher

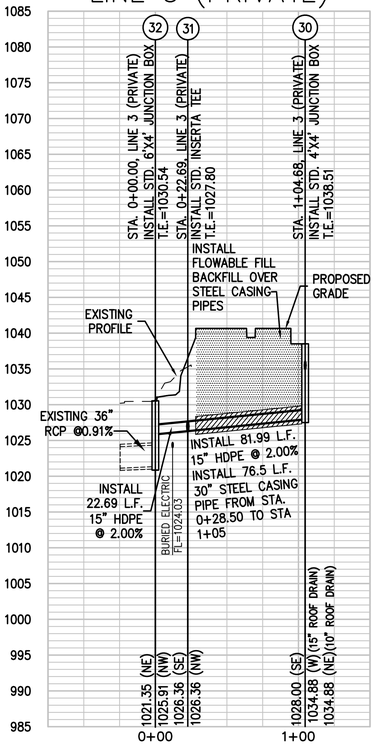


SCALE: 1"=50' HORIZ.
1"=10' VERT.

LINE 2 (PRIVATE)



LINE 3 (PRIVATE)

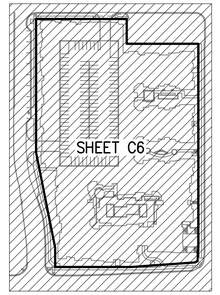


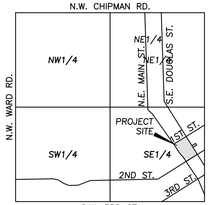
CONTRACTOR TO REFER TO SEPARATE SET OF STORM SEWER PLANS FOR PUBLIC STORM SEWER INSTALLATION.

LEGEND

100-YEAR OVERFLOW PATH

KEY PLAN





VICINITY MAP
SEC. 6-T47N-R31W

N
SCALE: 1"=2000'

FLOOD NOTE:

THE SUBJECT PROPERTY LIES WITHIN ZONE X, DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS SHOWN ON THE FLOOD INSURANCE RATE MAP PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY FOR THE CITY OF LEE'S SUMMIT, COMMUNITY NO. 290174, JACKSON COUNTY, MISSOURI, MAP NO. 29095C0417G, AND DATED JANUARY 20, 2017.

811 Know what's **below.** **Call** before you dig.

UTILITY NOTES:
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

SCALE: 1"=50'
0' 50' 100'

STATE OF MISSOURI
DOUGLAS EUGENE HELBERG
NUMBER PE-2011010998
PROFESSIONAL ENGINEER
3/16/20

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Olathe, Kansas 66061
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STORM SEWER PLAN & PROFILE

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

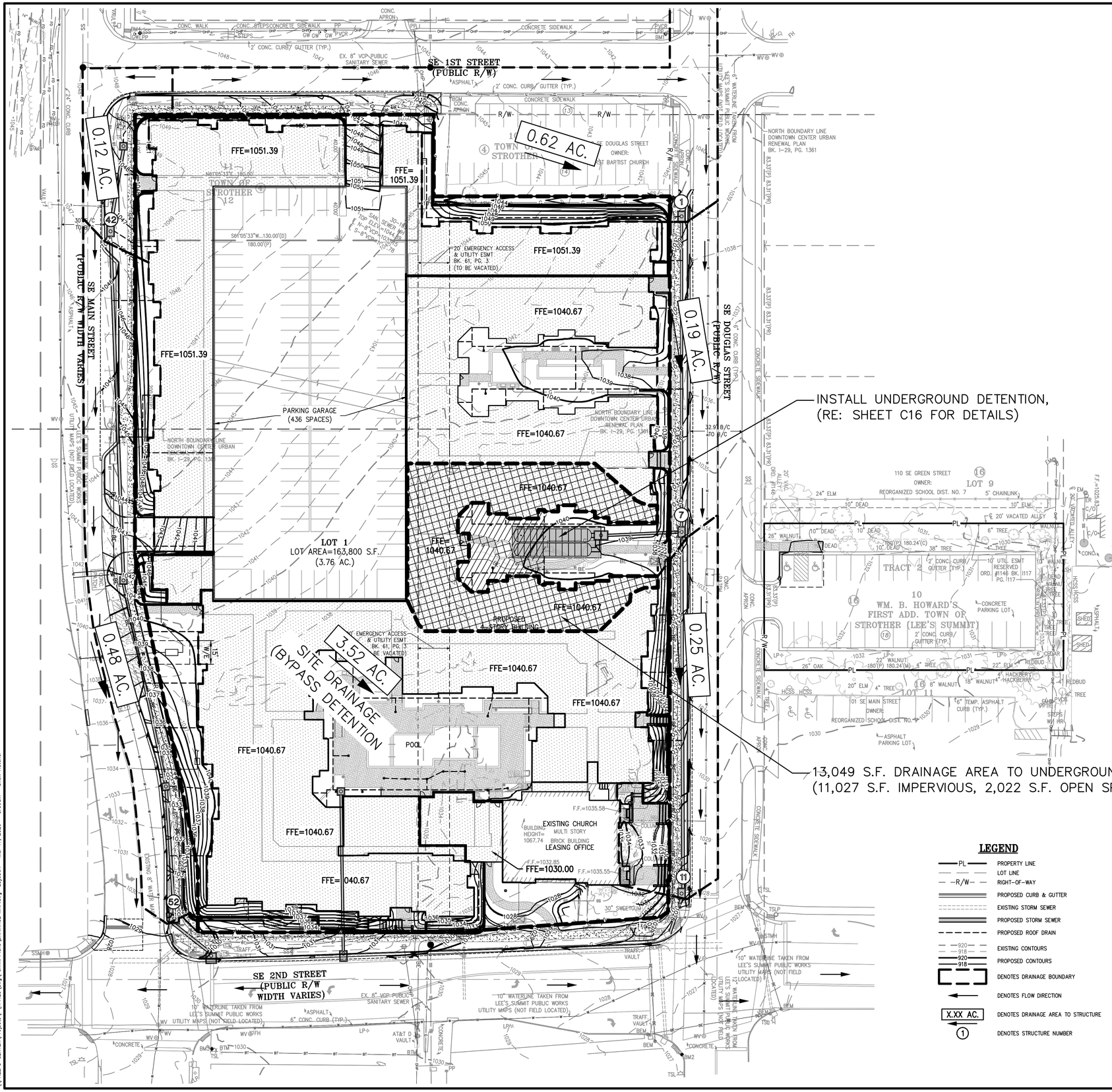
No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEL

PROJECT NO. 171125
DATE: 01-29-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEL

CERTIFICATE OF AUTHORIZATION
KANSAS SURVEYING - LS-82
ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION
MISSOURI
LAND SURVEYING-2007001128
ENGINEERING-2007005008

SHEET
C6



N.W. CHIPMAN RD.
N.W. WARD RD.
NW1/4
NE1/4
N.E. MAIN ST.
S.E. DOUGLAS ST.
PROJECT SITE
SW1/4
SE1/4
51ST ST.
2ND ST.
3RD ST.
S.W. 3RD ST.

VICINITY MAP
SEC. 6-T47N-R31W

SCALE: 1"=2000'

KEY PLAN

SHEET C7

FLOOD NOTE:
THE SUBJECT PROPERTY LIES WITHIN ZONE X, DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS SHOWN ON THE FLOOD INSURANCE RATE MAP PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY FOR THE CITY OF LEE'S SUMMIT, COMMUNITY NO. 290174, JACKSON COUNTY, MISSOURI, MAP NO. 29095C0417G, AND DATED JANUARY 20, 2017.

WATERSHED NOTE:
THIS PROPERTY IS PART OF THE LITTLE BLUE RIVER WATERSHED.

Know what's **below.**
Call before you dig.

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SCALE: 1"=30'
0' 30' 60'

STATE OF MISSOURI
DOUGLAS EUGENE PHELPS, JR.
NUMBER PE-2011010998
PROFESSIONAL ENGINEER
3/16/20

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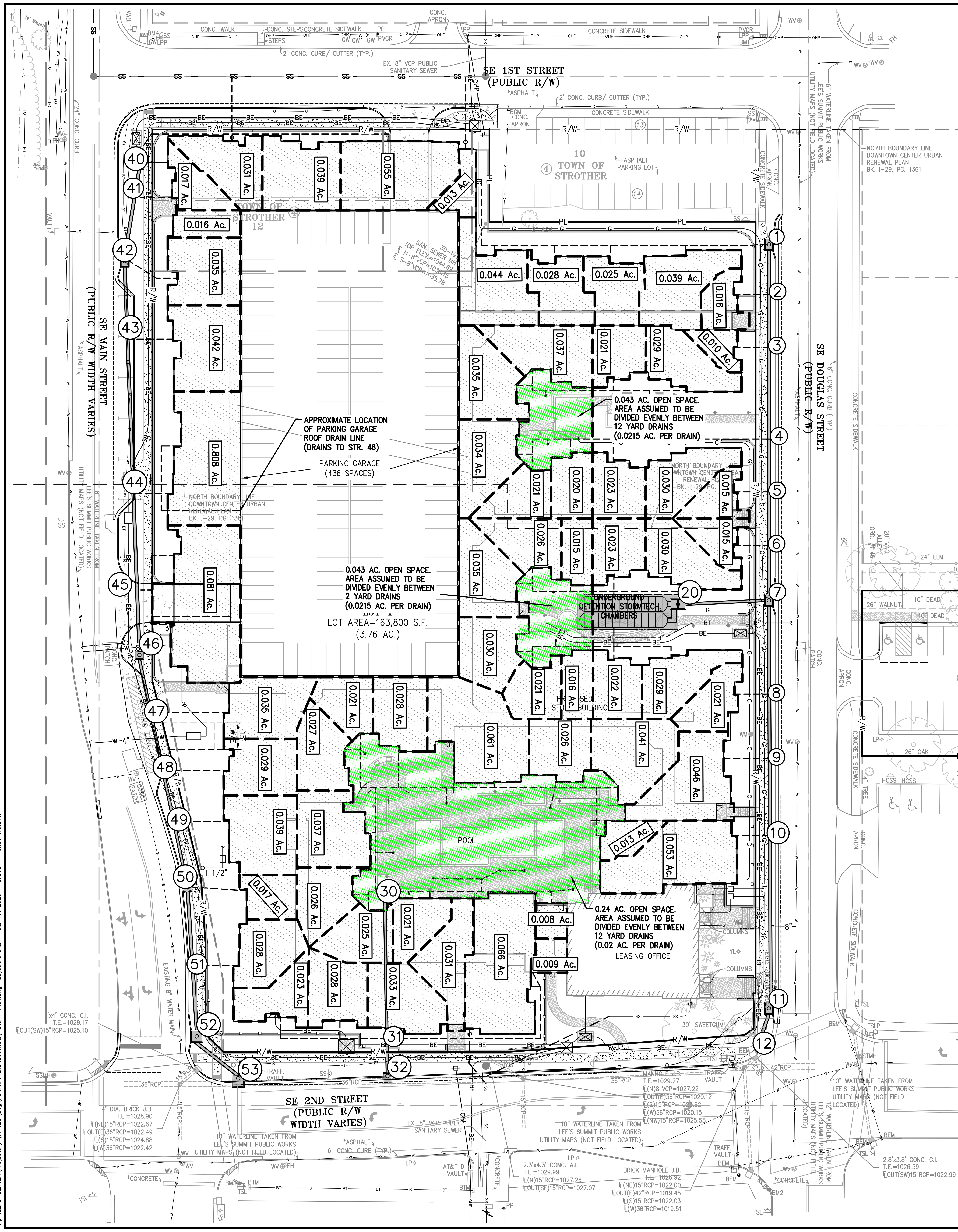
DRAINAGE MAP
DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

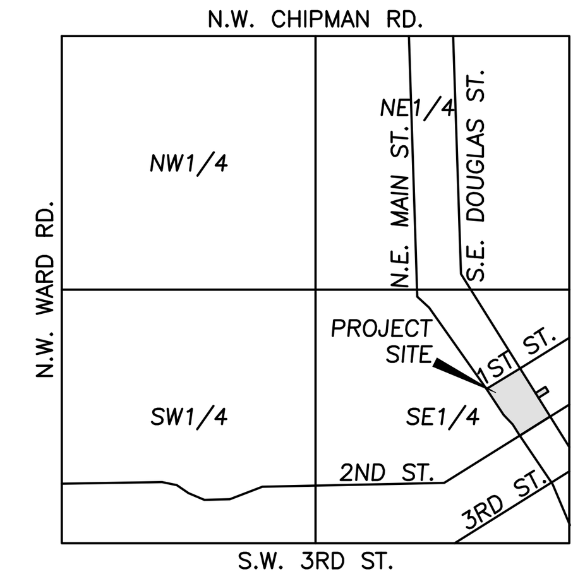
No.	Revisions:	Date	By	App.
1.	REVISED PER CITY COMMENTS	3-16-20	SNH	DEU

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEU
CERTIFICATE OF AUTHORIZATION KANSAS ENGINEERING - LS-82 ENGINEERING - E-361
CERTIFICATE OF AUTHORIZATION LAND SURVEYING-2007001128 ENGINEERING-2007002598

SHEET
C7

\\PHELPS-SERVER\Projects\PV\171125\dwg\Permit Plans\DRAINAGE MAP.dwg Layout:1 Mar 17, 2020 - 8:56am Shelli Hatcher

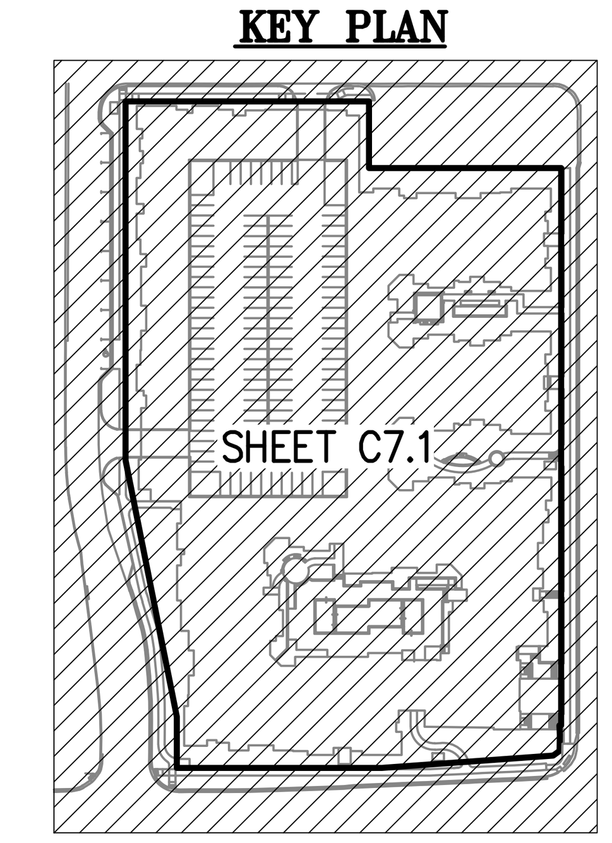




SCALE: 1"=2000'

VICINITY MAP
SEC. 6-T47N-R31W

KEY PLAN



LEGEND

—PL—	PROPERTY LINE
—LL—	LOT LINE
—R/W—	RIGHT-OF-WAY
CATV	EXISTING CABLE TELEVISION LINE
FO	EXISTING FIBER OPTIC LINE
G	EXISTING GAS LINE
BE	EXISTING BURIED ELECTRIC LINE
OHP	EXISTING OVERHEAD POWER LINE
OHT	EXISTING OVERHEAD TELEPHONE LINE
SS	EXISTING SANITARY SEWER LINE
24"HDPE	EXISTING STORM SEWER LINE (& SIZE)
BT	EXISTING BURIED TELEPHONE LINE
6"	EXISTING WATER LINE (& SIZE)
CATV	PROPOSED CABLE TELEVISION LINE
FO	PROPOSED FIBER OPTIC LINE
G	PROPOSED GAS LINE
BE	PROPOSED BURIED ELECTRIC LINE
SS	PROPOSED SANITARY SEWER LINE
OHP	PROPOSED OVERHEAD POWER LINE
	PROPOSED STORM SEWER LINE (& SIZE)
BT	PROPOSED BURIED TELEPHONE LINE
W—6"	PROPOSED WATER LINE (& SIZE)
ST—6"	PROPOSED ROOF DRAIN (& SIZE)

811
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SCALE: 1"=30'

0' 30' 60'

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3/16/20
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SECONDARY DRAINAGE MAP & CALCS.

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEU

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEU

SHEET
C7.1

\\PHELPS-SERVER\Projects\P\171125\dwg\Permit Plans\Secondary Storm Plan.dwg Layout:Overall Mar 17, 2020 – 8:56am Shelli Hotcher

DESIGN CRITERIA: $K_{10} = 1.0$; $K_{100} = 1.25$; n = 0.013 (RCP); STORM FREQUENCY = 10 YEAR; A.I.= AREA INLET; J.B.= JUNCTION BOX; C.I. = CURB INLET; C.C. = CURB CUT; G.I. = GRATE INLET; HEIGHT OF STRUCTURE=RIM ELEV MINUS FLOWLINE OUT.

I. RUNOFF											III. PIPE DESIGN													REMARKS
		INCREMENTAL			CUMULATIVE						STRUCTURE				PIPE									
LINE NUMBER	STRUCTURE	RUNOFF COEFFICIENT "C"	AREA "A" (ACRES)	C x A	AREA "A" (ACRES)	C x A	SYSTEM TIME OF CONCENTRATION "T_c" AT STRUCTURE (MIN)	RAINFALL INTENSITY "I_{10} / I_{100}" (IN/HR)	ANTECEDENT PRECIPITATION FACTOR "K_{10} / K_{100}"	RUNOFF "Q_{10} / Q_{100}" (CFS)	Upstream Structure Number	Downstream Structure Number	Upstream Structure Rim Elevation	Height of Structure (FT)	Diameter "D" (IN)	Length "L" (FT)	Upstream Invert Elevation	Downstream Invert Elevation	Slope "S" (FT/FT)	Travel Time in Pipe "TT" (min)	Velocity Full V_f (FPS)	Runoff Q_{10} (CFS)	Runoff Q_{100} (CFS)	Full Flow Q_f (CFS)	10-YEAR CHECK
1	1	0.90	0.619	0.560	0.768	0.695	5.00	7.35	1.00	5.1	1	2	1039.39	4.09	15	28.09	1035.30	1034.58	0.0256	0.06	8.5	5.1	9.0	10.3	OK
								10.32	1.25	9.0															
	2	0.90	0.016	0.014	0.784	0.709	5.06	7.34	1.00	5.2	2	3	-	-	15	30.29	1034.58	1033.82	0.0251	0.06	8.4	5.2	9.1	10.2	OK
								10.30	1.25	9.1															
	3	0.90	0.010	0.009	0.794	0.718	5.12	7.32	1.00	5.3	3	4	-	-	15	51.39	1033.82	1032.53	0.0251	0.10	8.4	5.3	9.2	10.2	OK
								10.27	1.25	9.2															
	4	0.90	0.000	0.000	1.066	0.963	5.22	7.29	1.00	7.0	4	5	-	-	15	29.79	1032.53	1031.78	0.0252	0.06	8.4	7.0	12.3	10.2	OK
								10.23	1.25	12.3															
	5	0.90	0.015	0.014	1.081	0.977	5.28	7.27	1.00	7.1	5	6	-	-	15	30.29	1031.78	1031.02	0.0251	0.06	8.4	7.1	12.5	10.2	OK
								10.21	1.25	12.5															
	6	0.90	0.015	0.014	1.096	0.991	5.34	7.25	1.00	7.2	6	7	-	-	15	30.83	1031.02	1030.24	0.0253	0.06	8.4	7.2	12.6	10.3	OK
								10.18	1.25	12.6															
	7	0.90	0.190	0.171	1.577	1.425	5.40	7.23	1.00	10.3	7	8	1034.12	4.38	18	52.85	1029.74	1028.47	0.0240	0.09	9.3	10.3	18.1	16.3	OK
								10.16	1.25	18.1															
	8	0.90	0.021	0.019	1.598	1.444	5.49	7.20	1.00	10.4	8	9	-	-	18	36.35	1028.47	1027.59	0.0242	0.07	9.3	10.4	18.3	16.3	OK
								10.12	1.25	18.3															
	9	0.9	0.046	0.041	1.644	1.485	5.56	7.18	1.00	10.7	9	10	-	-	18	43.31	1027.59	1026.54	0.0242	0.08	9.3	10.7	18.7	16.4	OK
								10.10	1.25	18.7															
	10	0.9	0.053	0.048	1.697	1.533	5.63	7.16	1.00	11.0	10	11	-	-	18	97.93	1026.54	1024.17	0.0242	0.18	9.3	11.0	19.3	16.3	OK
								10.07	1.25	19.3															
	11	0.90	0.251	0.226	1.948	1.759	5.81	7.11	1.00	12.5	11	12	1028.54	4.87	18	27.68	1023.67	1023.25	0.0152	0.06	7.4	12.5	22.0	12.9	OK
								10.00	1.25	22.0															
	12	0.9	0.000	0.000	1.948	1.759	5.87	7.09	1.00	12.5	12	20					-	-							
								9.97	1.25	21.9															
2	20	0.90	0.000	0.000	0.291	0.263	5.00	7.35	1.00	1.9	20	7	1040.00	8.50	15	53.26	1031.50	1030.00	0.0282	0.10	8.9	1.9	3.4	10.8	OK
								10.32	1.25	3.4															
	7	0.90	0.000	0.000	0.291	0.263	5.10	7.32	1.00	1.9	7	30	-	-			-	-							
								10.28	1.25	3.4															
3	30	0.90	0.020	0.018	0.559	0.504	5.00	7.35	1.00	3.7	30	31	1038.51	10.51	15	81.99	1028.00	1026.36	0.0200	0.18	7.5	3.7	6.5	9.1	OK
								10.32	1.25	6.5															
	31	0.90	0.000	0.000	0.707	0.638	5.18	7.30	1.00	4.7	31	32	-	-	15	22.69	1026.25	1025.80	0.0200	0.05	7.5	4.7	8.2	9.1	OK
								10.25	1.25	8.2															
	32	0.90	0.000	0.000	0.707	0.638	5.23	7.28	1.00	4.6	32	40	-	-			-	-							
								10.23	1.25	8.2															
4	40	0.90	0.017	0.015	0.142	0.128	5.00	7.35	1.00	0.9	40	41	1048.14	4.44	18	18.38	1043.70	1042.80	0.0490	0.02	13.2	0.9	1.7	23.2	OK
								10.32	1.25	1.7															
	41	0.90	0.016	0.014	0.158	0.142	5.02	7.35	1.00	1.0	41	42	-	-	18	39.36	1042.80	1040.88	0.0488	0.05	13.2	1.0	1.8	23.2	OK
								10.31	1.25	1.8															
	42	0.90	0.124	0.112	0.282	0.254	5.07	7.33	1.00	1.9	42	43	1047.10	6.72	18	41.14	1040.38	1039.09	0.0314	0.06	10.6	1.9	3.3	18.6	OK
								10.29	1.25	3.3															
	43	0.90	0.042	0.038	0.324	0.292	5.14	7.31	1.00	2.1	43	44	-	-	18	86.91	1039.09	1036.37	0.0313	0.14	10.6	2.1	3.7	18.6	OK
								10.27	1.25	3.7															
	44	0.90	0.808	0.727	1.132	1.019	5.27	7.27	1.00	7.4	44	45	-	-	18	54.65	1036.37	1034.66	0.0313	0.09	10.6	7.4	13.0	18.6	OK
								10.21	1.25	13.0															
	45	0.90	0.081	0.073	1.213	1.092	5.36	7.24	1.00	7.9	45	46	-	-	18	36.66	1034.66	1033.51	0.0314	0.06	10.6	7.9	13.9	18.6	OK
								10.17	1.25	13.9															
	46	0.90	0.000	0.000	1.213	1.092	5.42	7.23	1.00	7.9	46	47	1041.75	8.74	18	33.16	1033.01	1032.14	0.0262	0.06	9.7	7.9	13.9	17.0	OK
		.						10.15	1.25	13.9															
	47	0.90	0.035	0.032	1.248	1.124	5.48	7.21	1.00	8.1	47	48	-	-	18	33.44	1032.14	1031.27	0.0260	0.06	9.7	8.1	14.2	16.9	OK
								10.13	1.25	14.2															
	48	0.90	0.029	0.026	1.277	1.150	5.53	7.19	1.00	8.3	48	49	-	-	18	29.01	1031.27	1030.51	0.0262	0.05	9.7	8.3	14.5	17.0	OK
								10.11	1.25	14.5															
	49	0.90	0.039	0.035	1.316	1.185	5.58	7.18	1.00	8.5	49	50	-	-	18	38.16	1030.51	1029.51	0.0262	0.07	9.7	8.5	14.9	17.0	OK
								10.09	1.25	14.9															
	50	0.90	0.017	0.015	1.333	1.200	5.65	7.16	1.00	8.6	50	51	1033.46	4.45	18	44.09	1029.01	1027.26	0.0397	0.06	11.9	8.6	15.1	20.9	OK
								10.06	1.25	15.1															
	51	0.90	0.028	0.025	1.361	1.225	5.71	7.14	1.00	8.7	51	52	-	-	18	39.89	1027.26	1025.68	0.0396	0.06	11.9	8.7	15.4	20.9	OK
								10.04	1.25	15.4															
	52	0.90	0.476	0.428	1.837	1.653	5.77	7.12	1.00	11.8	52	53	1030.16	4.98	18	35.17	1025.18	1023.62	0.0444	0.05	12.6	11.8	20.7	22.1	OK
								10.01	1.25	20.7															
	53	0.90	0.000	0.000	1.837	1.653	5.81	7.11	1.00	11.8	53	60	-	-			-	-							
								10.00	1.25	20.7															
5	60	0.90	0.013	0.012	0.013	0.012	5.00	7.35	1.00	0.1	60	61	-	-	8	45.08	-	-	0.0100	0.21	3.5	0.1	0.2	1.2	OK
								10.32	1.25	0.2															
	61	0.90	0.044	0.040	0.057	0.052	5.21	7.29	1.00	0.4	61	62	-	-	8	33.75	-	-	0.0100	0.16	3.5	0.4	0.7	1.2	OK
								10.23	1.25	0.7															
	62	0.90	0.028	0.025	0.085	0.077	5.38	7.24	1.00	0.6	62	63	-	-	8	31.42	-	-	0.0100	0.15	3.5	0.6	1.0	1.2	OK
								10.17	1.25	1.0															
	63	0.90	0.025	0.023	0.110	0.100	5.52	7.19	1.00	0.7	63	20	-	-	10	42.46	-	-	0.0100	0.17	4.1	0.7	1.3	2.2	OK
								10.11	1.25	1.3															
	64	0.90	0.039	0.035	0.149	0.135	5.70	7.14	1.00	1.0	64	20	-	-	10	48.90	-	-	0.0200	0.14	5.7	1.0	1.7	3.1	OK
								10.04	1.25	1.7															
	1	0.90	0.000	0.000	0.149	0.135	5.84	7.10	1.00	1.0															
								9.98	1.25	1.7															
6	70	0.90	0.048	0.043	0.048	0.043	5.00	7.35	1.00	0.3	70	71	-	-	8	21.38	-	-	0.0125	0.09	3.9	0.3	0.6	1.4	OK
								10.32	1.25	0.6			-	-											
	71	0.90	0.048	0.043	0.096	0.086	5.09	7.32	1.00	0.6	71	72			8	18.23	-	-	0.0125	0.08	3.9	0.6	1.1	1.4	OK
								10.28	1.25	1.1			-	-											
	72	0.90	0.023	0.021	0.119	0.107	5.17	7.30	1.00	0.8	72	73			10	20.44	-	-	0.0125	0.08	4.5	0.8	1.4	2.4	OK
								10.25	1.25	1.4			-	-											
	73	0.90	0.000	0.000	0.242	0.218	5.24	7.28	1.00	1.6	73	74			12	20.44	-	-	0.0100	0.07	4.6	1.6	2.8	3.6	OK
								10.22	1.25	2.8			-	-											
	74	0.90	0.030	0.027	0.272	0.245	5.32	7.26	1.00	1.8	74	4			12	48.83	-	-	0.0697	0.07	12.1	1.8	3.1	9.4	OK
								10.19	1.25	3.1			-	-											
	4	0.90	0.000	0.000	0.272	0.245	5.39	7.24	1.00	1.8	4	80													
								10.16	1.25	3.1			-	-											

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PLANNING
ENGINEERING
IMPLEMENTATION

STATE OF MISSOURI
DOUGLAS EUGENE LUBBEN, JR.
NUMBER PE-2011010998
PROFESSIONAL ENGINEER
3/16/20

SECONDARY DRAINAGE MAP & CALCS.

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Revisions:	Date	By	App.
1.	REVISED PER CITY COMMENTS	3-16-20	SNH	DEL

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEL
CERTIFICATE OF AUTHORIZATION
KANSAS SURVEYING - LS-82
KANSAS ENGINEERING - E-391
CERTIFICATE OF AUTHORIZATION
MISSOURI
LAND SURVEYING-2007001128
ENGINEERING-2007035239

SHEET
C7.2

7	80	0.90	0.073	0.066	0.073	0.066	5.00	7.35	1.00	0.5	80	81			8	45.42	-	-	0.0100	0.22	3.5	0.5	0.9	1.2	OK
								10.32	1.25	0.9			-	-											
	81	0.90	0.021	0.019	0.094	0.085	5.22	7.29	1.00	0.6	81	82			8	20.44	-	-	0.0100	0.10	3.5	0.6	1.1	1.2	OK
								10.23	1.25	1.1			-	-											
	82	0.90	0.000	0.000	0.123	0.111	5.31	7.26	1.00	0.8	82	73	-	-	10	24.09	-	-	0.0100	0.10	4.1	0.8	1.4	2.2	OK
								10.19	1.25	1.4															
	73	0.90	0.000	0.000	0.123	0.111	5.41	7.23	1.00	0.8	73	90	-	-											
								10.15	1.25	1.4															
8	90	0.90	0.029	0.026	0.029	0.026	5.00	7.35	1.00	0.2	90	82	-	-	8	20.44	-	-	0.0337	0.05	6.4	0.2	0.3	2.2	OK
								10.32	1.25	0.3															
	82	0.90	0.000	0.000	0.029	0.026	5.05	7.34	1.00	0.2	82	100	-	-											
								10.30	1.25	0.3															
9	100	0.90	0.013	0.012	0.013	0.012	5.00	7.35	1.00	0.1	100	101	-	-	8	26.88	-	-	0.0100	0.13	3.5	0.1	0.2	1.2	OK
								10.32	1.25	0.2															
	101	0.90	0.041	0.037	0.054	0.049	5.13	7.31	1.00	0.4	101	102	-	-	8	23.17	-	-	0.0100	0.11	3.5	0.4	0.6	1.2	OK
								10.27	1.25	0.6															
	102	0.90	0.041	0.037	0.095	0.086	5.24	7.28	1.00	0.6	102	103	-	-	8	34.17	-	-	0.0100	0.16	3.5	0.6	1.1	1.2	OK
								10.22	1.25	1.1															
	103	0.90	0.061	0.055	0.156	0.141	5.40	7.23	1.00	1.0	103	104	-	-	10	27.39	-	-	0.0100	0.11	4.1	1.0	1.8	2.2	OK
								10.16	1.25	1.8															
	104	0.90	0.015	0.014	0.171	0.155	5.51	7.20	1.00	1.1	104	105	-	-	10	27.02	-	-	0.0100	0.11	4.1	1.1	2.0	2.2	OK
								10.11	1.25	2.0															
	105	0.90	0.028	0.025	0.199	0.180	5.62	7.17	1.00	1.3	105	106	-	-	12	12.72	-	-	0.0100	0.05	4.6	1.3	2.3	3.6	OK
								10.07	1.25	2.3															
	106	0.90	0.063	0.057	0.262	0.237	5.67	7.15	1.00	1.7	106	107	-	-	12	25.37	-	-	0.0100	0.09	4.6	1.7	3.0	3.6	OK
								10.05	1.25	3.0															
	107	0.90	0.037	0.033	0.299	0.270	5.76	7.12	1.00	1.9	107	108	-	-	12	11.29	-	-	0.0100	0.04	4.6	1.9	3.4	3.6	OK
								10.01	1.25	3.4															
	108	0.90	0.015	0.014	0.314	0.284	5.80	7.11	1.00	2.0	108	109	-	-	15	21.68	-	-	0.0100	0.07	5.3	2.0	3.5	6.5	OK
								10.00	1.25	3.5			-	-											
	109	0.90	0.066	0.059	0.380	0.343	5.87	7.09	1.00	2.4	109	30			15	3.00	-	-	0.0100	0.01	5.3	2.4	4.3	6.5	OK
								9.97	1.25	4.3			-	-											
	30	0.90	0.000	0.000	0.380	0.343	5.88	7.09	1.00	2.4	30	110													
								9.97	1.25	4.3			-	-											
10	110	0.90	0.047	0.042	0.047	0.042	5.00	7.35	1.00	0.3	110	111			8	39.48	-	-	0.0100	0.19	3.5	0.3	0.5	1.2	OK
								10.32	1.25	0.5			-	-											
	111	0.90	0.076	0.068	0.123	0.110	5.19	7.30	1.00	0.8	111	112			10	29.14	-	-	0.0100	0.12	4.1	0.8	1.4	2.2	OK
								10.24	1.25	1.4			-	-											
	112	0.90	0.021	0.019	0.144	0.129	5.31	7.26	1.00	0.9	112	113			10	11.88	-	-	0.0100	0.05	4.1	0.9	1.6	2.2	OK
								10.20	1.25	1.6			-	-											
	113	0.90	0.015	0.014	0.159	0.143	5.36	7.24	1.00	1.0	113	30			10	11.15	-	-	0.0100	0.05	4.1	1.0	1.8	2.2	OK
								10.18	1.25	1.8			-	-											
	30	0.90	0.000	0.000	0.159	0.143	5.40	7.23	1.00	1.0	30	120													
								10.16	1.25	1.8			-	-											
11	120	0.90	0.055	0.050	0.055	0.050	5.00	7.35	1.00	0.4	120	121			8	50.48	-	-	0.1000	0.08	11.1	0.4	0.6	3.8	OK
								10.32	1.25	0.6			-	-											
	121	0.90	0.039	0.035	0.094	0.085	5.08	7.33	1.00	0.6	121	122			8	42.63	-	-	0.1000	0.06	11.1	0.6	1.1	3.8	OK
								10.29	1.25	1.1			-	-											
	122	0.90	0.031	0.028	0.125	0.113	5.14	7.31	1.00	0.8	122	123			10	40.77	-	-	0.0100	0.17	4.1	0.8	1.4	2.2	OK
								10.26	1.25	1.4			-	-											
	123	0.90	0.000	0.000	0.125	0.113	5.31	7.26	1.00	0.8	123	40			10	17.60	-	-	0.0100	0.07	4.1	0.8	1.4	2.2	OK
								10.20	1.25	1.4			-	-											
	40	0.90	0.000	0.000	0.125	0.113	5.38	7.24	1.00	0.8															
								10.17	1.25	1.4			-	-											
12	130	0.90	0.033	0.030	0.033	0.030	5.00	7.35	1.00	0.2	130	131			8	8.87	-	-	0.1000	0.01	11.1	0.2	0.4	3.8	OK
								10.32	1.25	0.4			-	-											
	131	0.90	0.033	0.030	0.066	0.060	5.01	7.35	1.00	0.4	131	132			8	106.25	-	-	0.0100	0.51	3.5	0.4	0.8	1.2	OK
								10.32	1.25	0.8			-	-											
	132	0.90	0.031	0.028	0.097	0.088	5.52	7.20	1.00	0.6	132	31			8	8.65	-	-	0.0100	0.04	3.5	0.6	1.1	1.2	OK
								10.11	1.25	1.1			-	-											
	31	0.90	0.000	0.000	0.097	0.088	5.56	7.18	1.00	0.6	31														
								10.09	1.25	1.1			-	-											
13	140	0.90	0.023	0.021	0.023	0.021	5.00	7.35	1.00	0.2	140	141			8	33.71	-	-	0.0100	0.16	3.5	0.2	0.3	1.2	OK
								10.32	1.25	0.3			-	-											
	141	0.90	0.028	0.025	0.051	0.046	5.16	7.30	1.00	0.3	141	31			8	25.61	-	-	0.0100	0.12	3.5	0.3	0.6	1.2	OK
								10.26	1.25	0.6			-	-											
	31	0.90	0.000	0.000	0.051	0.046	5.28	7.27	1.00	0.3	31	150													
								10.21	1.25	0.6			-	-											
14	150	0.90	0.073	0.066	0.073	0.066	5.00	7.35	1.00	0.5	150	151			8	21.79	-	-	0.0100	0.10	3.5	0.5	0.9	1.2	OK
								10.32	1.25	0.9			-	-											
	151	0.90	0.016	0.014	0.089	0.106	5.10	7.32	1.00	0.8	151	152			10	24.06	-	-	0.0100	0.10	4.1	0.8	1.4	2.2	OK
								10.28	1.25	1.4			-	-											
	152	0.90	0.022	0.020	0.140	0.126	5.20	7.29	1.00	0.9	152	20			10	10.64	-	-	0.3872	0.01	25.3	0.9	1.6	13.6	OK
								10.24	1.25	1.6			-	-											
	20	0.90	0.000	0.000	0.140	0.126	5.21	7.29	1.00	0.9	20														
								10.24	1.25	1.6			-	-											
15	160	0.90	0.029	0.026	0.029	0.026	5.00	7.35	1.00	0.2	160	152			8	32.17	-	-	0.0143	0.13	4.2	0.2	0.3	1.4	OK
								10.32	1.25	0.3			-	-											
	152	0.90	0.000	0.000	0.029	0.026	5.13	7.31	1.00	0.2	152	20													
								10.27	1.25	0.3			-	-											
16	170	0.90	0.083	0.075	0.083	0.075	5.00	7.35	1.00	0.6	170	171			8	21.38	-	-	0.1000	0.03	11.1	0.6	1.0	3.8	OK
								10.32	1.25	1.0			-	-											
	171	0.90	0.015	0.014	0.098	0.089	5.03	7.34	1.00	0.7	171	172			8	24.47	-	-	0.0919	0.04	10.6	0.7	1.1	3.7	OK
								10.31	1.25	1.1			-	-											
	172	0.90	0.023	0.021	0.151	0.137	5.07	7.33	1.00	1.0	172	20			8	3.00	-	-	0.7070	0.00	29.5	1.0	1.8	10.2	OK
								10.29	1.25	1.8			-	-											
	20	0.90	0.000	0.000	0.151	0.137	5.07	7.33	1.00	1.0															
								10.29	1.25	1.8			-	-											
17	180	0.90	0.030	0.027	0.030	0.027	5.00	7.35	1.00	0.2	180	172			8	40.44	-	-	0.0608	0.08	8.6	0.2	0.3	3.0	OK
								10.32	1.25	0.3			-	-											
	172	0.90	0.000	0.000	0.030	0.027	5.08	7.33	1.00	0.2	172	20													
								10.29	1.25	0.3															

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PLANNING
ENGINEERING
IMPLEMENTATION

STATE OF MISSOURI
DOUGLAS EUGENE LUDWIG JR.
NUMBER PE-2011010998
PROFESSIONAL ENGINEER
3/16/20

SECONDARY DRAINAGE MAP & CALCS.

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

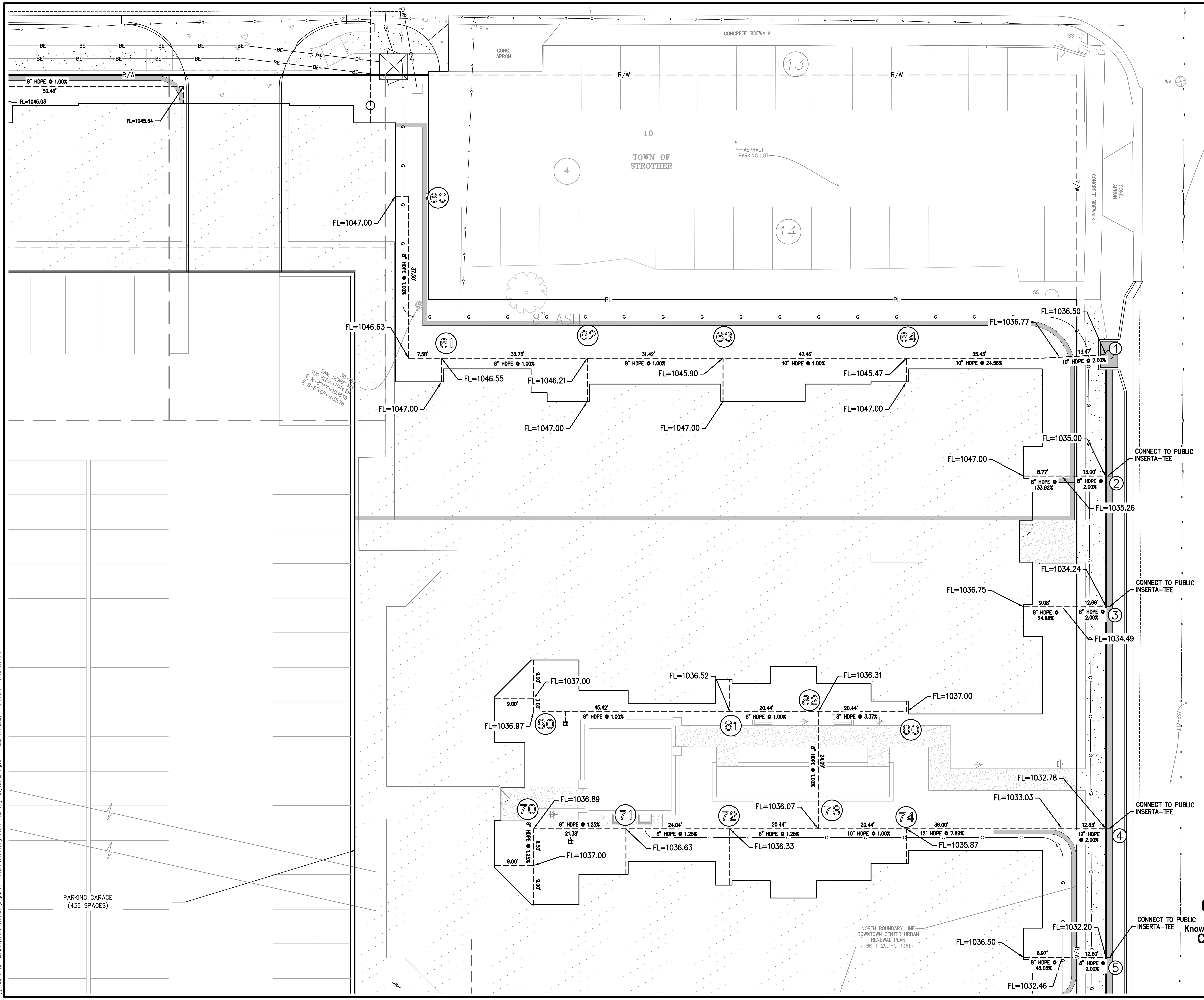
No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEL

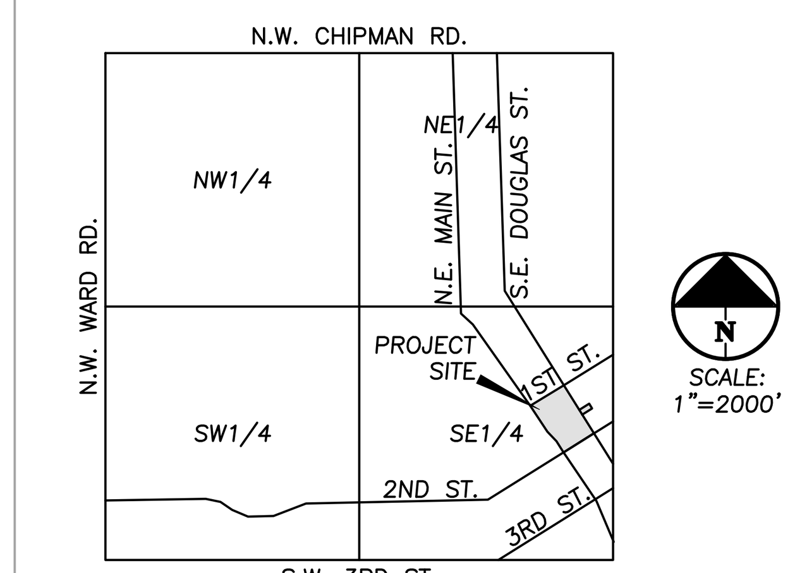
PROJECT NO. 171125
DATE 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEL

CERTIFICATE OF AUTHORIZATION
KANSAS SURVEYING - LS-82
ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION
MISSOURI
LAND SURVEYING-2007001128
ENGINEERING-2007002608

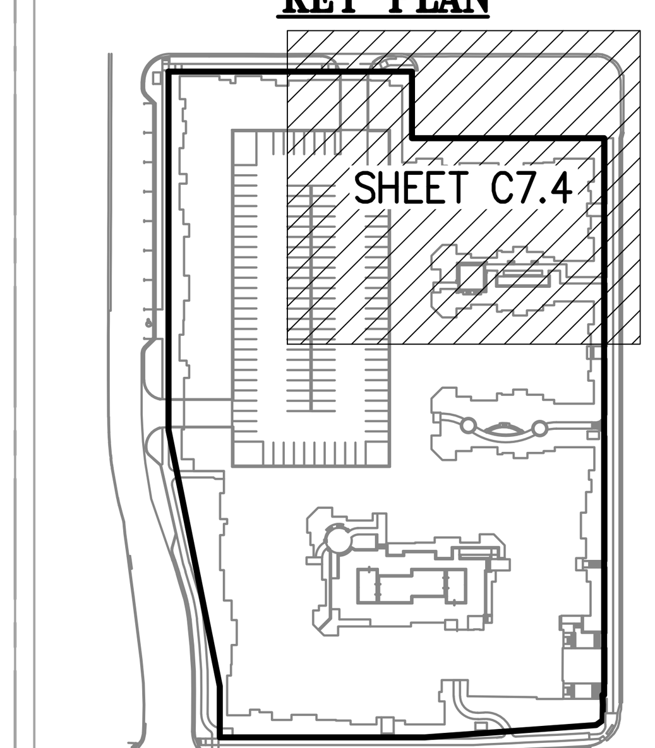
SHEET
C7.3





VICINITY MAP
SEC. 6-T47N-R31W

KEY PLAN



LEGEND

—PL—	PROPERTY LINE
—LL—	LOT LINE
—R/W—	RIGHT-OF-WAY
—CATV—	EXISTING CABLE TELEVISION LINE
—FO—	EXISTING FIBER OPTIC LINE
—G—	EXISTING GAS LINE
—BE—	EXISTING BURIED ELECTRIC LINE
—OHP—	EXISTING OVERHEAD POWER LINE
—OHT—	EXISTING OVERHEAD TELEPHONE LINE
—SS—	EXISTING SANITARY SEWER LINE
—24"HDPE—	EXISTING STORM SEWER LINE (& SIZE)
—BT—	EXISTING BURIED TELEPHONE LINE
—W—6"—	EXISTING WATER LINE (& SIZE)
—CATV—	PROPOSED CABLE TELEVISION LINE
—FO—	PROPOSED FIBER OPTIC LINE
—G—	PROPOSED GAS LINE
—BE—	PROPOSED BURIED ELECTRIC LINE
—SS—	PROPOSED SANITARY SEWER LINE
—OHP—	PROPOSED OVERHEAD POWER LINE
═══	PROPOSED STORM SEWER LINE (& SIZE)
—BT—	PROPOSED BURIED TELEPHONE LINE
—W—6"—	PROPOSED WATER LINE (& SIZE)
—ST—6"—	PROPOSED ROOF DRAIN (& SIZE)

UTILITY NOTES:
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

811 Know what's below. Call before you dig.

SCALE: 1"=10'
0' 10' 20'

STATE OF MISSOURI
DOUGLAS EUGENE UBBEN, JR.
NUMBER PE-2011010998
3/16/20
PROFESSIONAL ENGINEER

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SECONDARY DRAINAGE MAP & CALCS.

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEU

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEU
CERTIFICATE OF AUTHORIZATION: LAND SURVEYING – LS-82, ENGINEERING – E-391
CERTIFICATE OF AUTHORIZATION MISSOURI: LAND SURVEYING – 2007000128, ENGINEERING – 2007005089

SHEET
C7.4

\\PHELPS-SERVER\Projects\P\171125\dwg\Permit Plans\Secondary Storm Plan.dwg Layout:Enlarged-1 Mar 17, 2020 – 8:57am Shelli Hatcher

LOT 1

LOT AREA=163,800 S.F.
(3.76 AC.)

PROPOSED
4-STORY BUILDING

UNDERGROUND
DETENTION STORMTECH
CHAMBERS

POOL

EXISTING CHURCH

CONNECT TO PUBLIC
INSERTA-TEE

N.W. CHIPMAN RD.
N.W. WARD RD.
S.W. 3RD ST.
NW1/4
NE1/4
SW1/4
SE1/4
N.E. MAIN ST.
S.E. DOUGLAS ST.
2ND ST.
3RD ST.
PROJECT SITE

VICINITY MAP
SEC. 6-T47N-R31W

SCALE:
1"=2000'

KEY PLAN

SHEET C7.5

LEGEND

PL	PROPERTY LINE
LL	LOT LINE
R/W	RIGHT-OF-WAY
CATV	EXISTING CABLE TELEVISION LINE
FO	EXISTING FIBER OPTIC LINE
G	EXISTING GAS LINE
BE	EXISTING BURIED ELECTRIC LINE
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24"HDPE	EXISTING STORM SEWER LINE (& SIZE)
BT	EXISTING BURIED TELEPHONE LINE
W 6"	EXISTING WATER LINE (& SIZE)
CATV	PROPOSED CABLE TELEVISION LINE
FO	PROPOSED FIBER OPTIC LINE
G	PROPOSED GAS LINE
BE	PROPOSED BURIED ELECTRIC LINE
SS	PROPOSED SANITARY SEWER LINE
OHP	PROPOSED OVERHEAD POWER LINE
	PROPOSED STORM SEWER LINE (& SIZE)
BT	PROPOSED BURIED TELEPHONE LINE
W 6"	PROPOSED WATER LINE (& SIZE)
ST 6"	PROPOSED ROOF DRAIN (& SIZE)

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Call before you dig.

SCALE: 1"=10'
0' 10' 20'

STATE OF MISSOURI
DOUGLAS EUGENE HUDSON, IV
NUMBER PE-2011010998
PROFESSIONAL ENGINEER
3/16/20

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DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

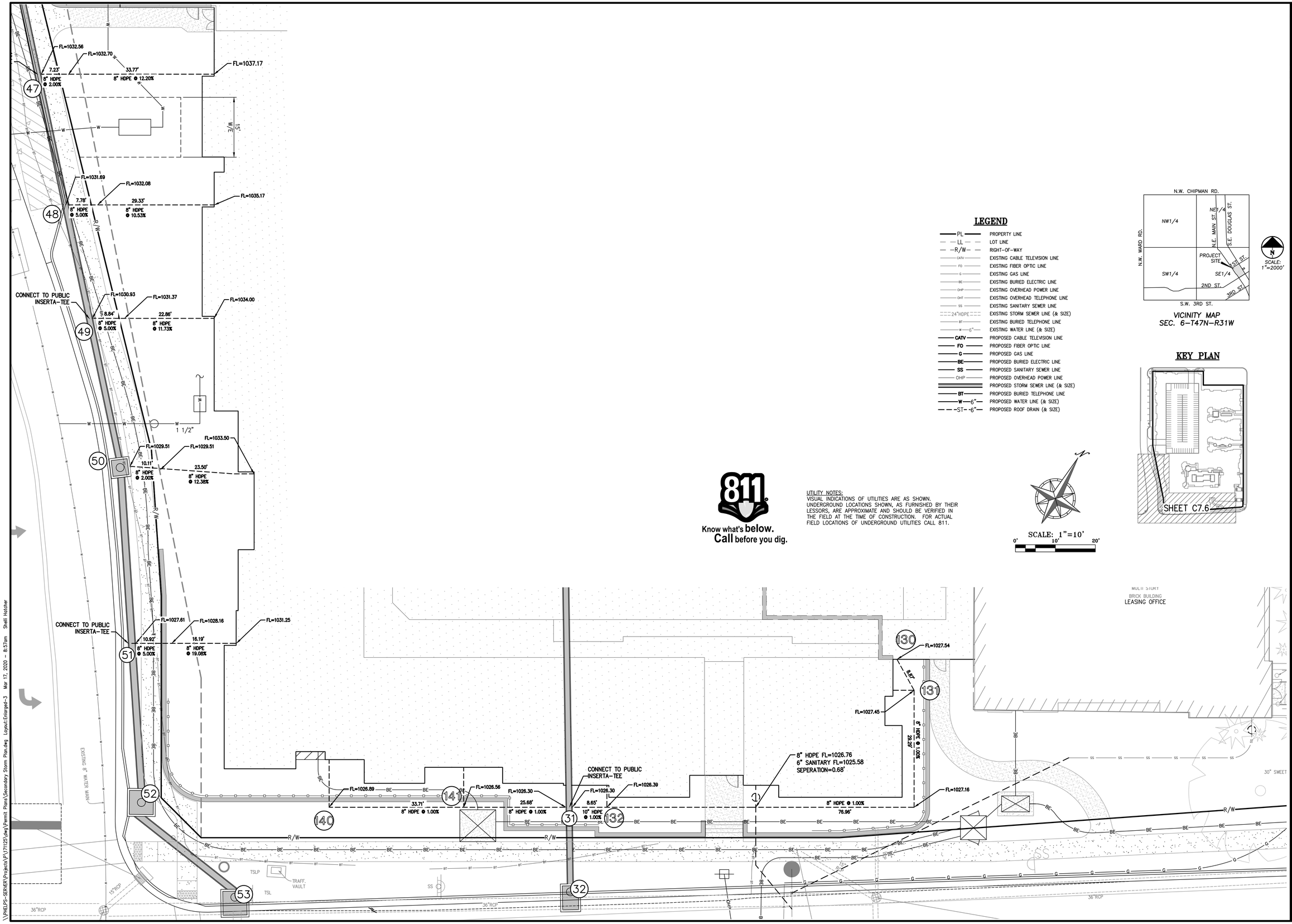
No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEU

PROJECT NO. 171125
DATE: 01-26-20 DRAWN: SNH
CHECKED: DJE APPROVED: DEU

CERTIFICATE OF AUTHORIZATION
KANSAS SURVEYING - LS-82
ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION
LAND SURVEYING-2007001128
ENGINEERING-2007003228

SHEET
C7.5



LEGEND

- PL — PROPERTY LINE
- LL — LOT LINE
- R/W — RIGHT-OF-WAY
- CATV — EXISTING CABLE TELEVISION LINE
- FO — EXISTING FIBER OPTIC LINE
- G — EXISTING GAS LINE
- BE — EXISTING BURIED ELECTRIC LINE
- OHP — EXISTING OVERHEAD POWER LINE
- OHT — EXISTING OVERHEAD TELEPHONE LINE
- SS — EXISTING SANITARY SEWER LINE
- 24"HDPE — EXISTING STORM SEWER LINE (& SIZE)
- BT — EXISTING BURIED TELEPHONE LINE
- W — 6" — EXISTING WATER LINE (& SIZE)
- **CATV** — PROPOSED CABLE TELEVISION LINE
- **FO** — PROPOSED FIBER OPTIC LINE
- **G** — PROPOSED GAS LINE
- **BE** — PROPOSED BURIED ELECTRIC LINE
- **SS** — PROPOSED SANITARY SEWER LINE
- OHP — PROPOSED OVERHEAD POWER LINE
- PROPOSED STORM SEWER LINE (& SIZE)
- **BT** — PROPOSED BURIED TELEPHONE LINE
- **W** — 6" — PROPOSED WATER LINE (& SIZE)
- ST — 6" — PROPOSED ROOF DRAIN (& SIZE)

VICINITY MAP
SEC. 6-T47N-R31W

N
SCALE: 1"=2000'

KEY PLAN

811 Know what's below. Call before you dig.

UTILITY NOTES:
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

STATE OF MISSOURI
DOUGLAS EUGENE PHELPS, JR.
NUMBER PE-2011010998
PROFESSIONAL ENGINEER
3/16/20

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Fax (913) 393-1156
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PLANNING
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IMPLEMENTATION

SECONDARY DRAINAGE MAP & CALCS.

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Revisions:	Date	By	App.
1.	REVISED PER CITY COMMENTS	3-16-20	SNH	DEU

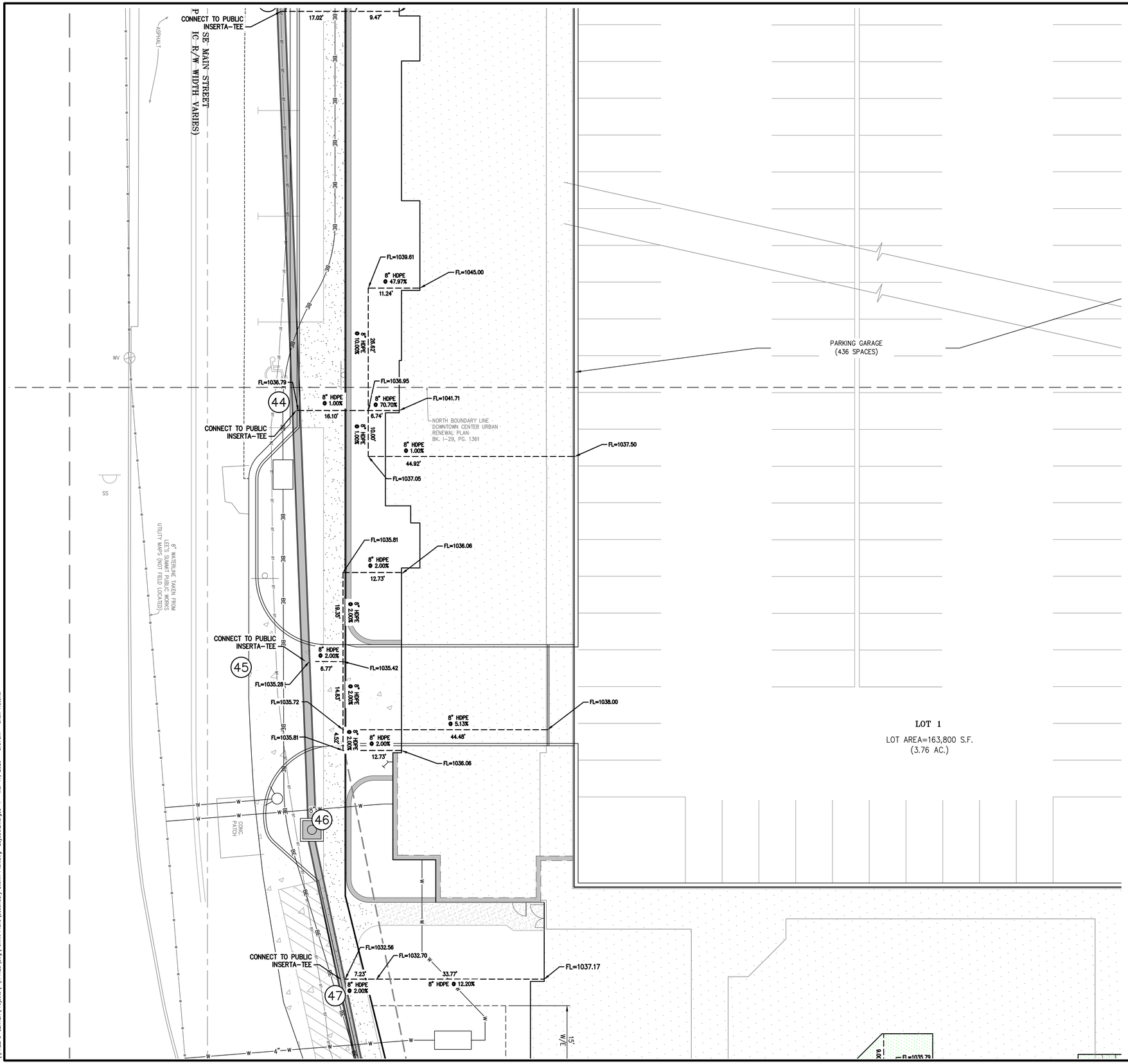
PROJECT NO. 171125
DATE: 01-26-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEU

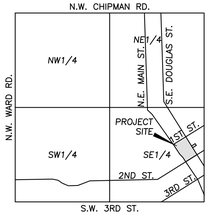
CERTIFICATE OF AUTHORIZATION
KANSAS SURVEYING - LS-82
MISSOURI ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION
LAND SURVEYING-2007001128
LAND ENGINEERING-2007005039

SHEET
C7.6

\\PHELPS-SERVER\Projects\P\171125\dwg\Permit Plans\Secondary Storm Plan.dwg Layout:Enlarged-3 Mar 17, 2020 - 8:57am Shelli Hatcher

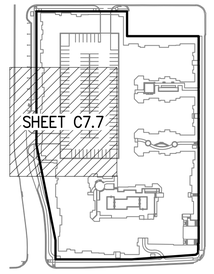




VICINITY MAP
SEC. 6-T47N-R31W

N
SCALE: 1"=2000'

KEY PLAN



LEGEND

PL	PROPERTY LINE
LL	LOT LINE
R/W	RIGHT-OF-WAY
CATV	EXISTING CABLE TELEVISION LINE
FO	EXISTING FIBER OPTIC LINE
G	EXISTING GAS LINE
BE	EXISTING BURIED ELECTRIC LINE
OHP	EXISTING OVERHEAD POWER LINE
OHT	EXISTING OVERHEAD TELEPHONE LINE
SS	EXISTING SANITARY SEWER LINE
24"HDPE	EXISTING STORM SEWER LINE (& SIZE)
BT	EXISTING BURIED TELEPHONE LINE
W 6"	EXISTING WATER LINE (& SIZE)
CATV	PROPOSED CABLE TELEVISION LINE
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811 Know what's **below.** **Call** before you dig.

SCALE: 1"=10'
0' 10' 20'

STATE OF MISSOURI
DOUGLAS EUGENE LUBEN JR.
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3/16/20

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PLANNING
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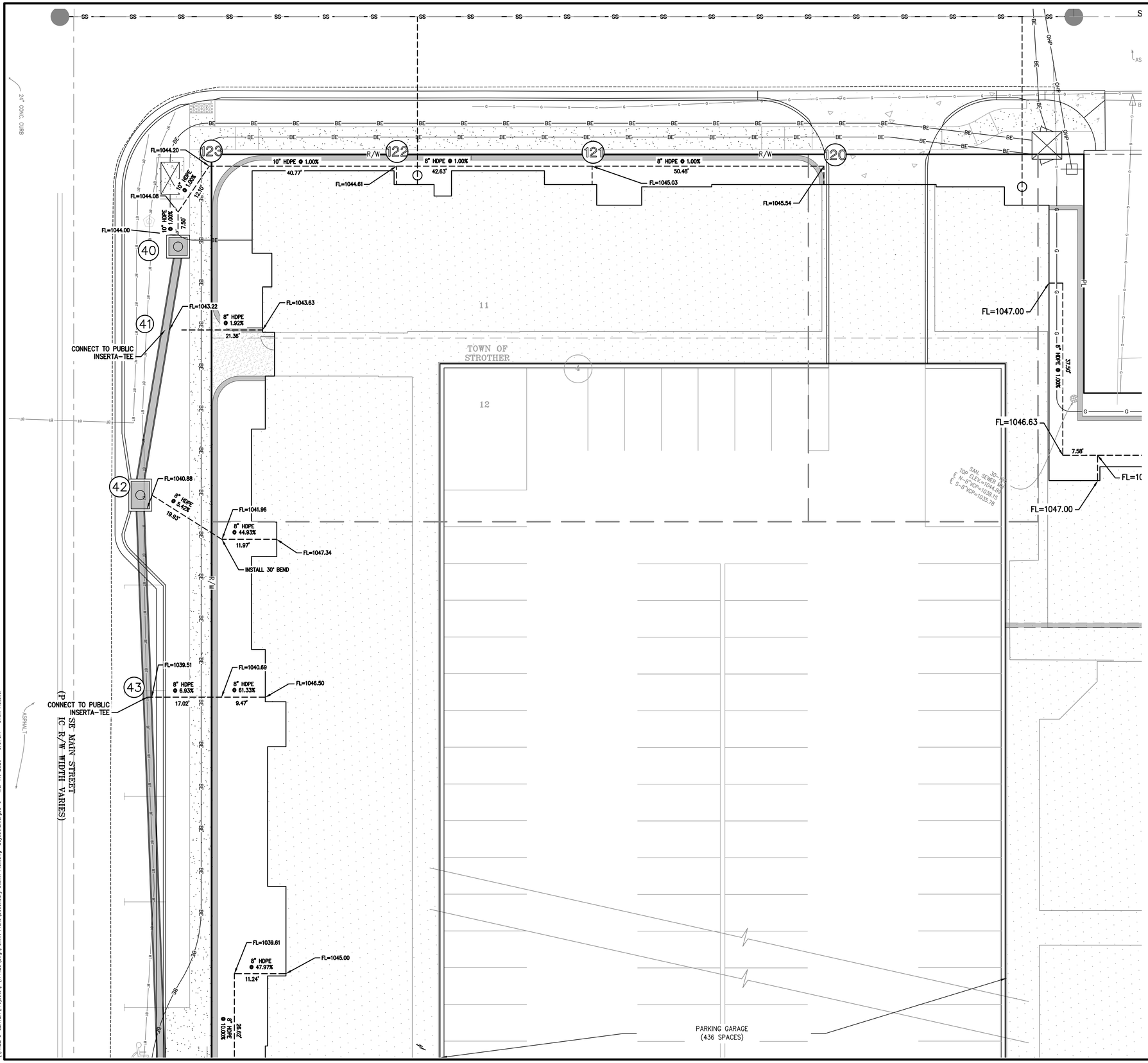
SECONDARY DRAINAGE MAP & CLACS.

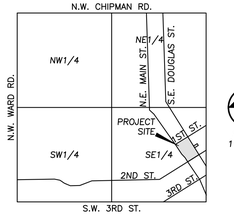
DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEL

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEL
CERTIFICATE OF AUTHORIZATION KANSAS SURVEYING - LS-82 ENGINEERING - E-391
CERTIFICATE OF AUTHORIZATION LAND SURVEYING-2007001128 ENGINEERING-2007002938

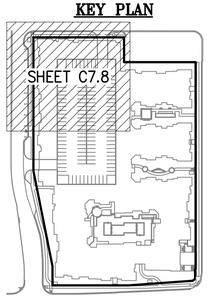
SHEET
C7.7





VICINITY MAP
SEC. 6-T47N-R31W

KEY PLAN



LEGEND

PL	PROPERTY LINE
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R/W	RIGHT-OF-WAY
CATV	EXISTING CABLE TELEVISION LINE
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0' 10' 20'

STATE OF MISSOURI
DOUGLAS EUGENE QUERTERMOUS
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PROFESSIONAL ENGINEER
3/16/20

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SECONDARY DRAINAGE MAP & CALCS.

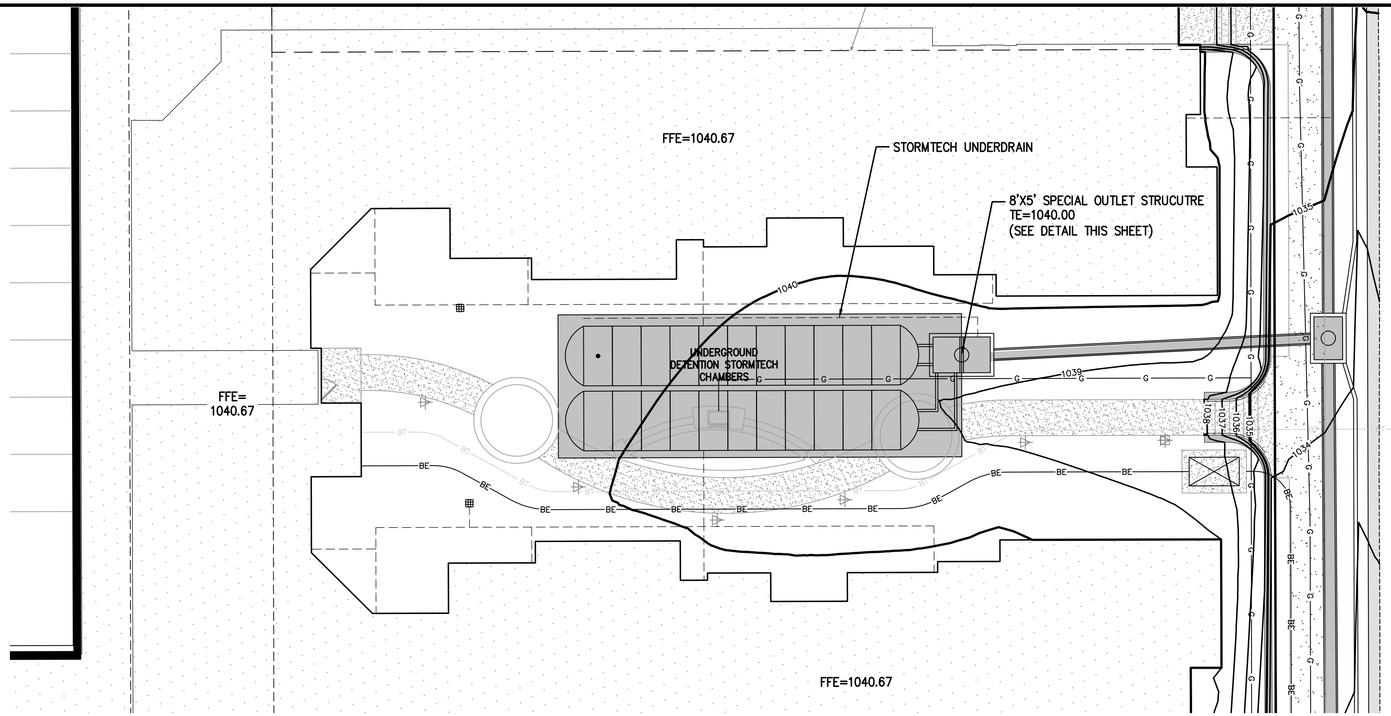
DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

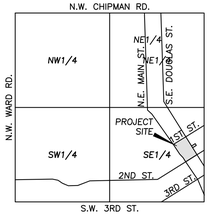
Revisions:	Date	No.	By	App.
REVISED PER CITY COMMENTS	3-16-20	1.	SNH	DEJ

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEJ
CERTIFICATE OF AUTHORIZATION
KANSAS ENGINEERING - LS-82
MISSOURI ENGINEERING - E-391
CERTIFICATE OF AUTHORIZATION
LAND SURVEYING-2007001128
ENGINEERING-2007035539

SHEET
C7.8

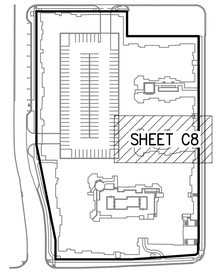
\\PHELPS-SERVER\Projects\P\171125\dwg\Permit Plans\Secondary Storm Plan.dwg Layout:Enlarged-5 Mar 17, 2020 - 8:57am Shelli Hatcher

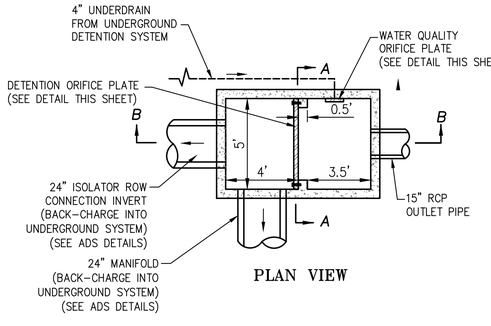




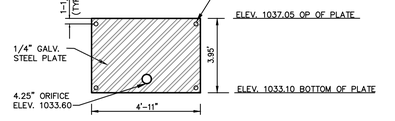
VICINITY MAP
SEC. 6-T47N-R31W

KEY PLAN

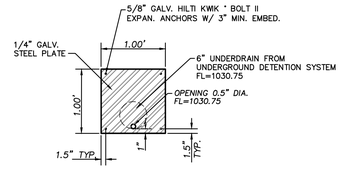




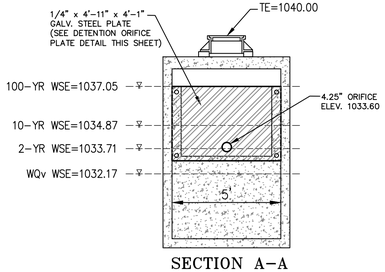
PLAN VIEW



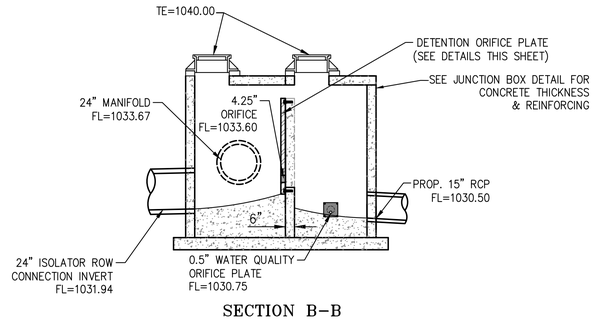
DETENTION ORIFICE PLATE
(Not to Scale)



WATER QUALITY (WQ) ORIFICE PLATE
(Not to Scale)



SECTION A-A



SECTION B-B

8'X5' SPECIAL OUTLET STRUCTURE DETAILS

(NOT TO SCALE)

FLOOD NOTE:

THE SUBJECT PROPERTY LIES WITHIN ZONE X, DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS SHOWN ON THE FLOOD INSURANCE RATE MAP PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY FOR THE CITY OF LEE'S SUMMIT, COMMUNITY NO. 290174, JACKSON COUNTY, MISSOURI, MAP NO. 29095C0417G, AND DATED JANUARY 20, 2017.

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UTILITY NOTES:
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STATE OF MISSOURI
DOUGLAS EUGENE HELPS IV
NUMBER PE-2011010998
3/16/20
PROFESSIONAL ENGINEER

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Olathe, Kansas 66061
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www.phelpsengineering.com

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STORMWATER DETENTION PLAN

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

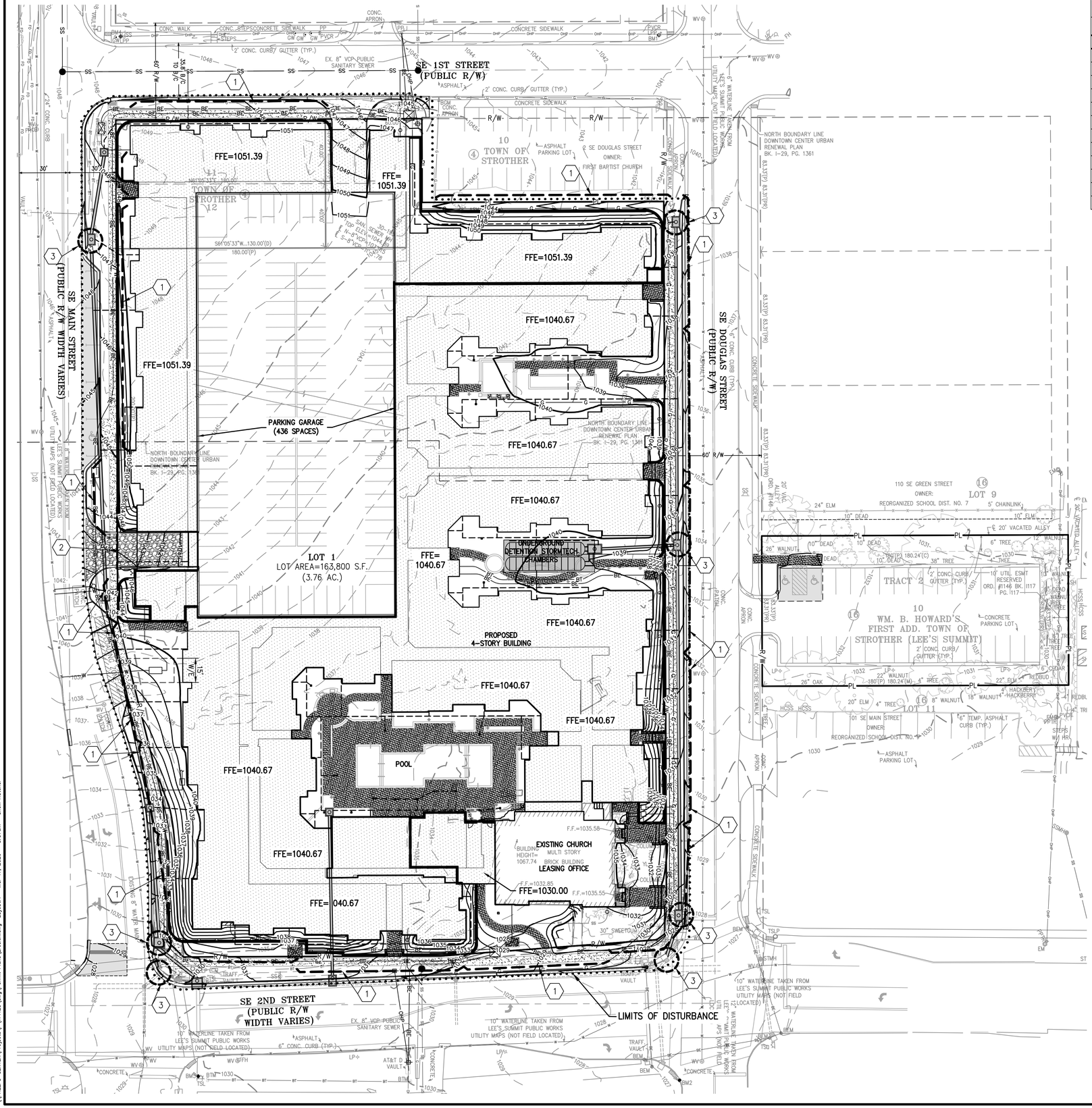
No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEU

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEU

CERTIFICATE OF AUTHORIZATION
KANSAS LAND SURVEYING - LS-82
KANSAS ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION
MISSOURI LAND SURVEYING-2007001128
ENGINEERING-2007003208

SHEET
C8



SOIL EROSION/SEDIMENTATION CONTROL OPERATION TIME SCHEDULE

NOTE: GENERAL CONTRACTOR TO COMPLETE TABLE WITH THEIR SPECIFIC PROJECT SCHEDULE

CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
ROUGH GRADE / SEDIMENT CONTROL																		
TEMPORARY CONTROL MEASURES																		
STRIP & STOCKPILE TOPSOIL																		
STORM FACILITIES																		
TEMPORARY CONSTRUCTION ROADS																		
FOUNDATION / BUILDING CONSTRUCTION																		
SITE CONSTRUCTION																		
PERMANENT CONTROL STRUCTURES																		
FINISH GRADING																		
LANDSCAPING/SEED/FINAL STABILIZATION																		

STAGING CHART

	Project Stage	BMP Plan Ref No.	BMP Description	Remove after Stage:	Notes:
PHASE 1	A. Prior to Land Disturbance/ Sanitary Sewer Installation	①	Sediment Fence	NA	Place downstream project site perimeter.
		②	Constr Entrance & Staging Area	NA	Include concrete washout pit.
	B. Storm Sewer Installation	③	Inlet Protection	NA	See sheet C10 for details.

LEGEND

- CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT PIT
- LIMITS OF DISTURBED AREAS
- SILT FENCE
- INLET PROTECTION
- ROCK CHECK DAM
- FLOW DIRECTION ARROW

Know what's below. Call before you dig.

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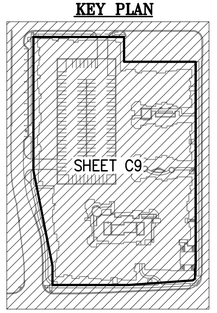
DISTURBED AREA = 4.35 ACRES

KEY PLAN



STATE OF MISSOURI
DOUGLAS EUGENE PHELPS, JR.
NUMBER PE-2011010998
PROFESSIONAL ENGINEER
3/16/20

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1270 N. Winchester
Olathe, Kansas 66061
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PLANNING
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EROSION CONTROL PLAN

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Revisions:	No.	Date	By	App.
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PROJECT NO. 171125
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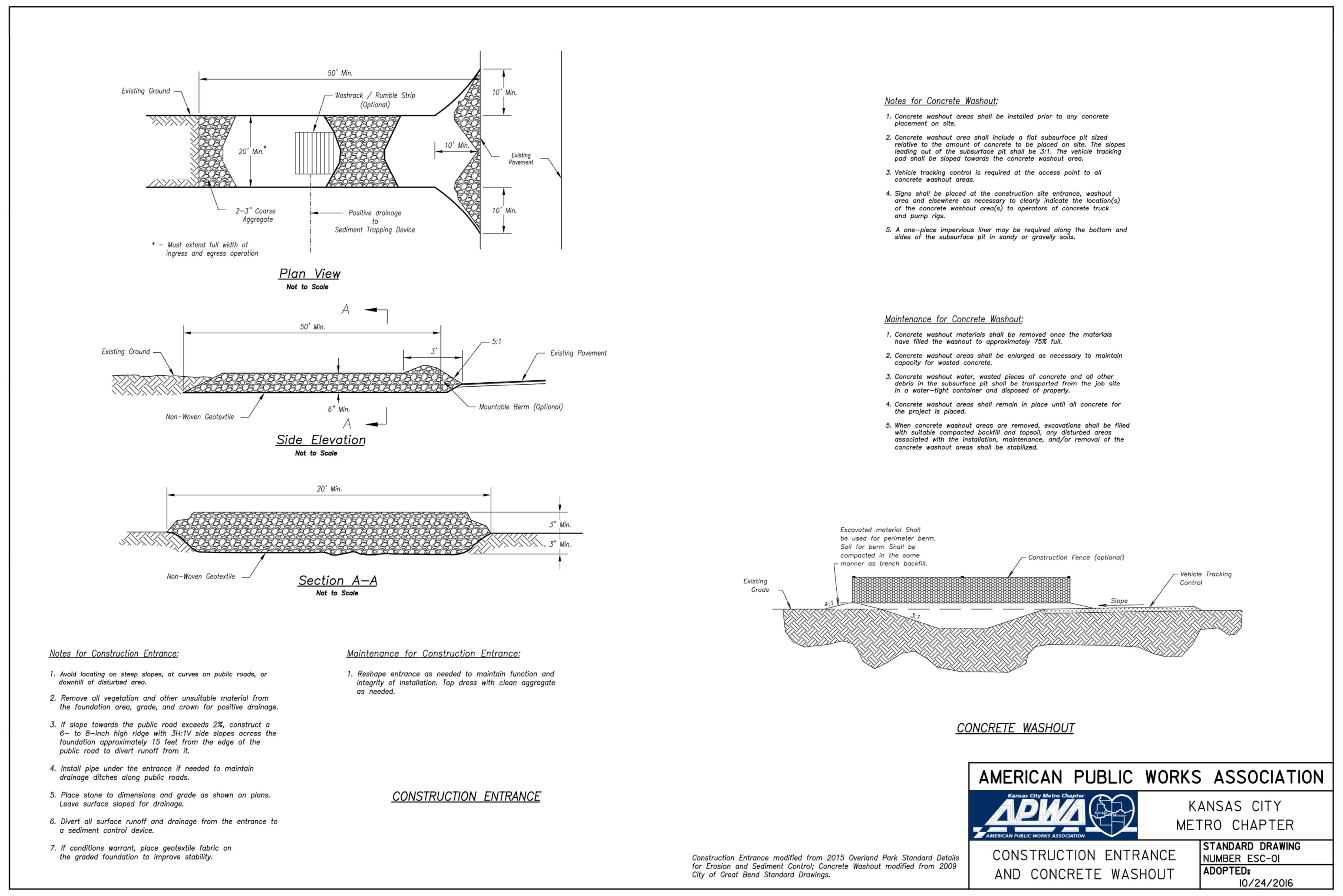
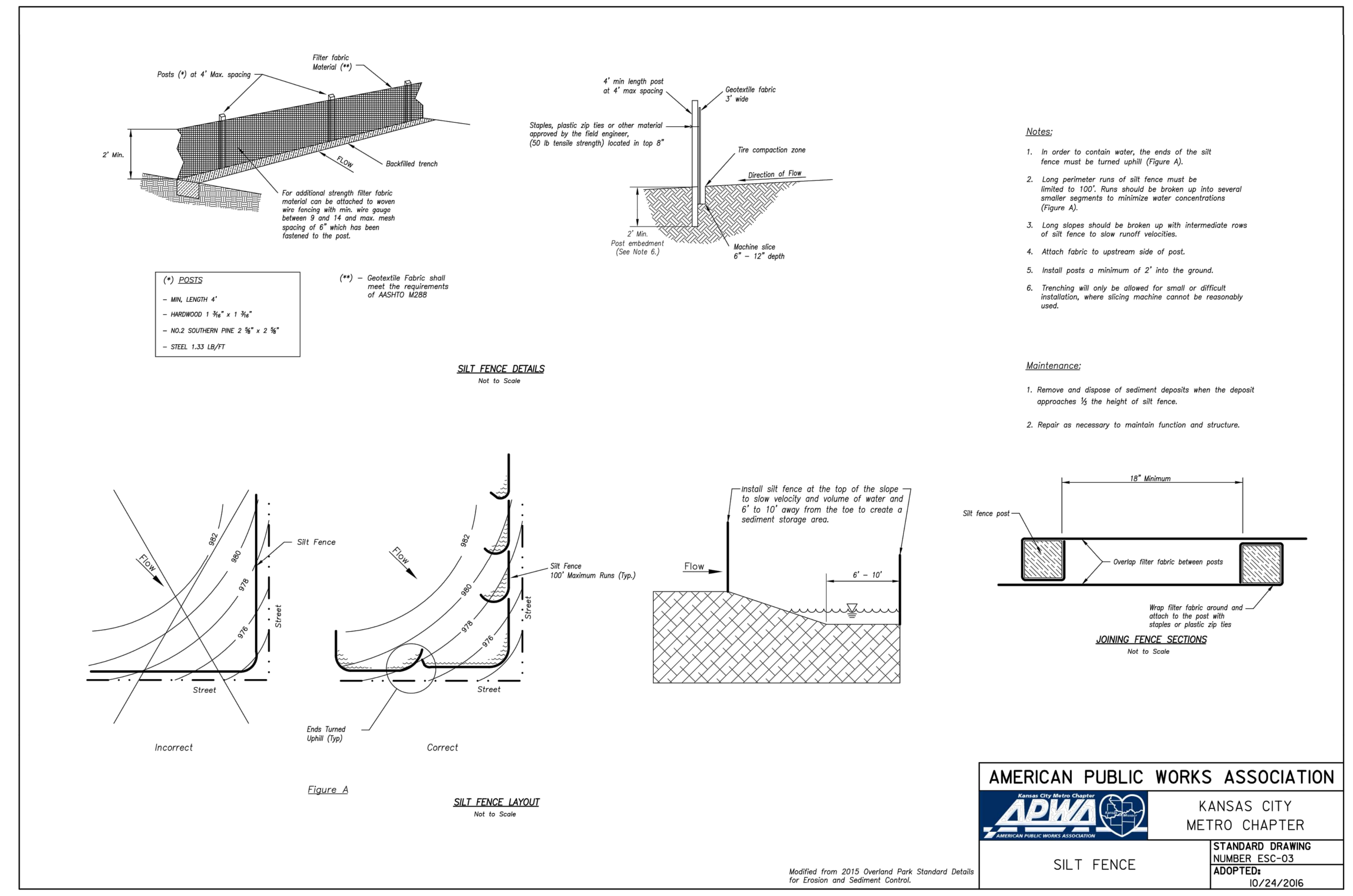
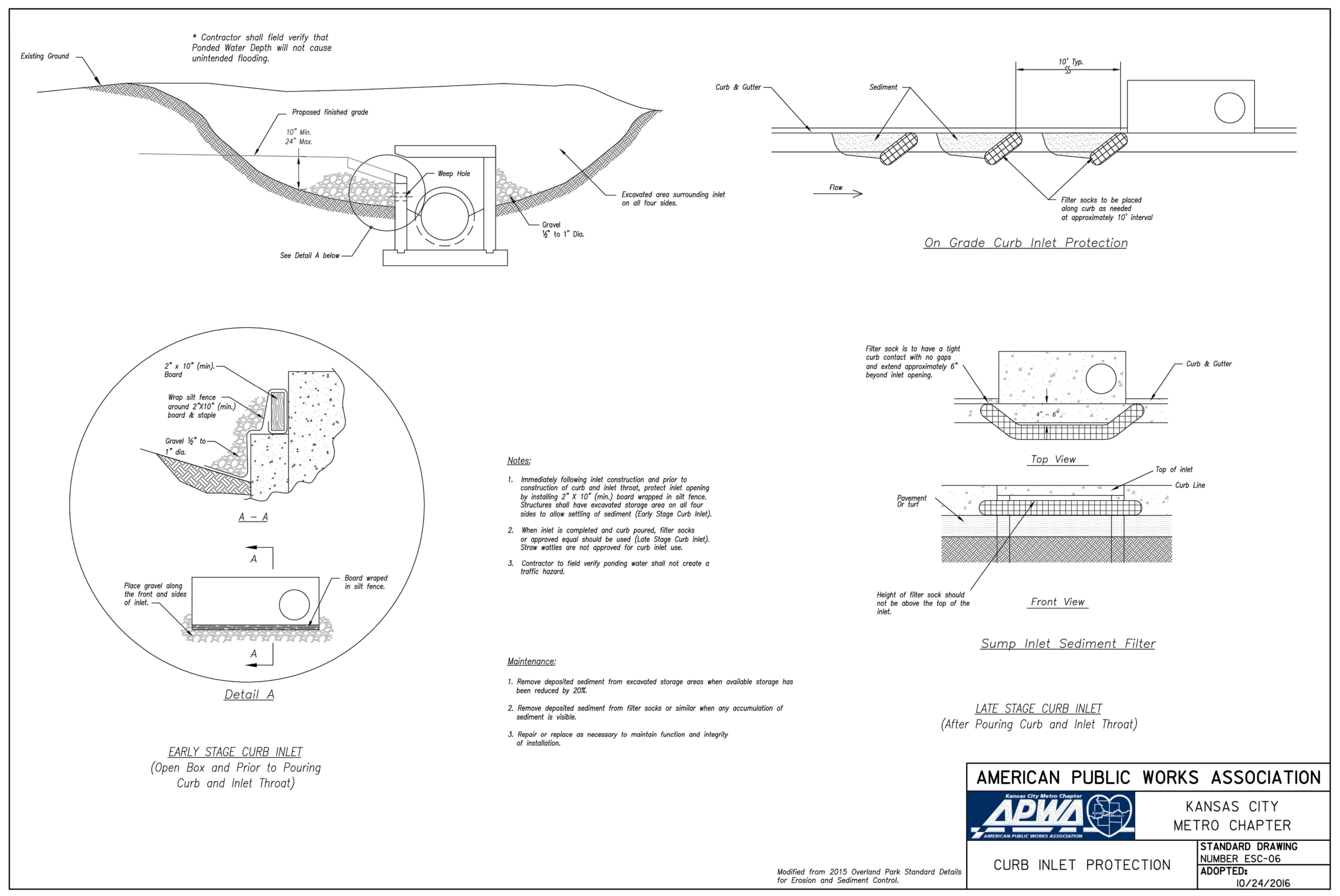
CERTIFICATE OF AUTHORIZATION KANSAS ENGINEERING - LS-82
MISSOURI ENGINEERING - E-361
CERTIFICATE OF AUTHORIZATION LAND SURVEYING - 2007001218
ENGINEERING - 2007002508

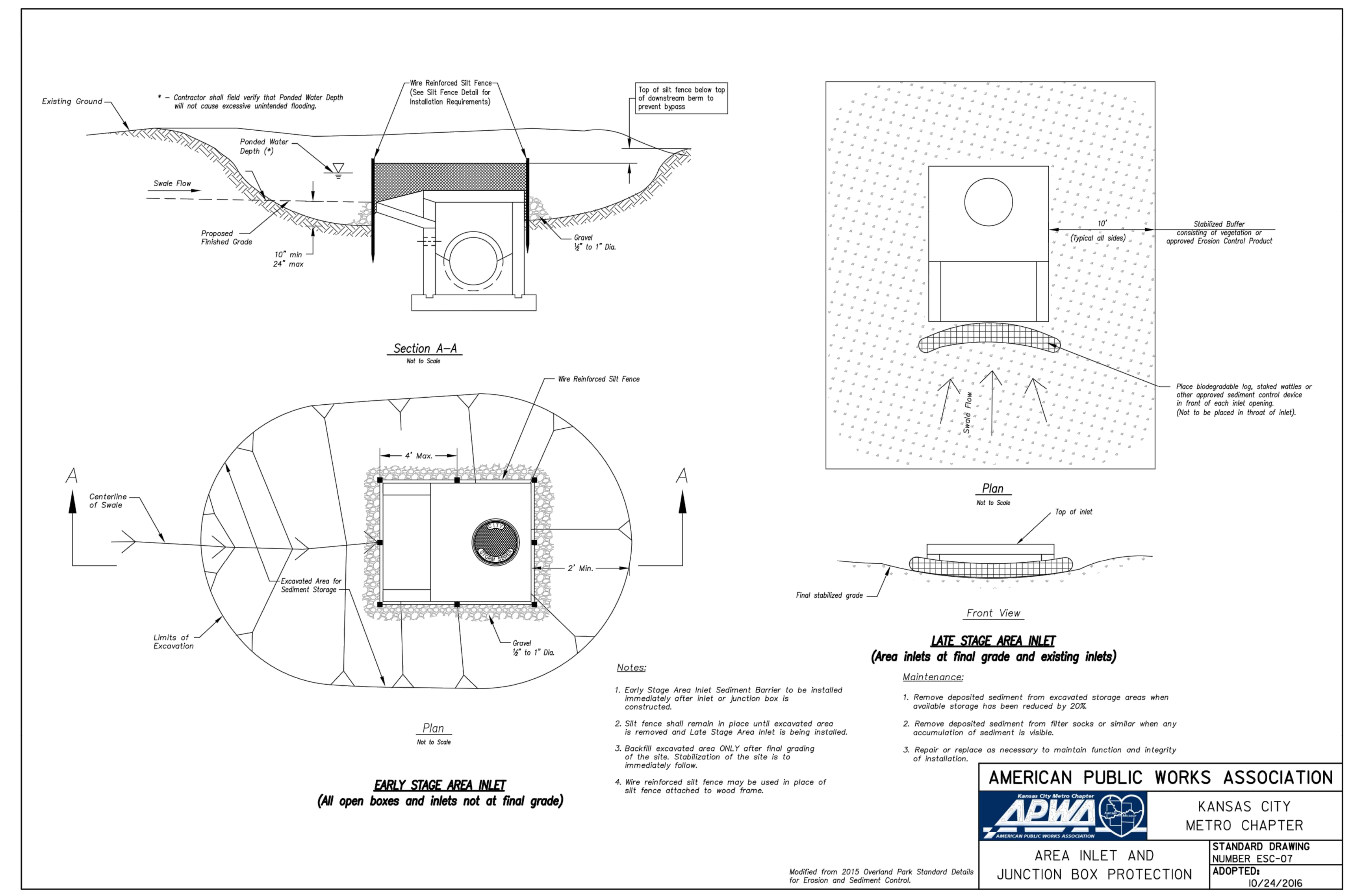
SHEET
C9

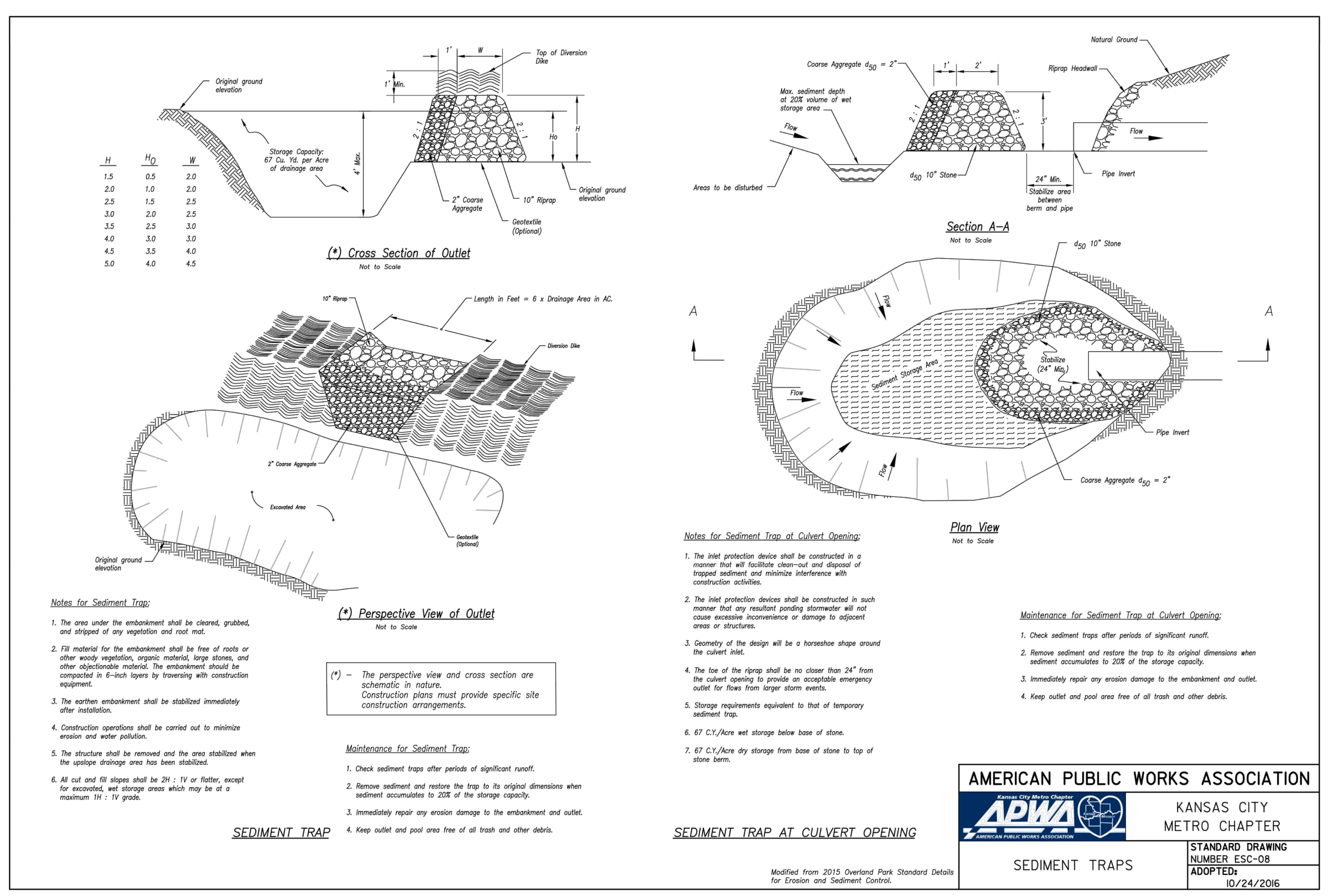
\\PHELPS-SERVER\Projects\PV\171125\dwg\Permit Plans\Erosion.dwg Layout:1 Mar 17, 2020 - 8:57am Shelli Hatcher

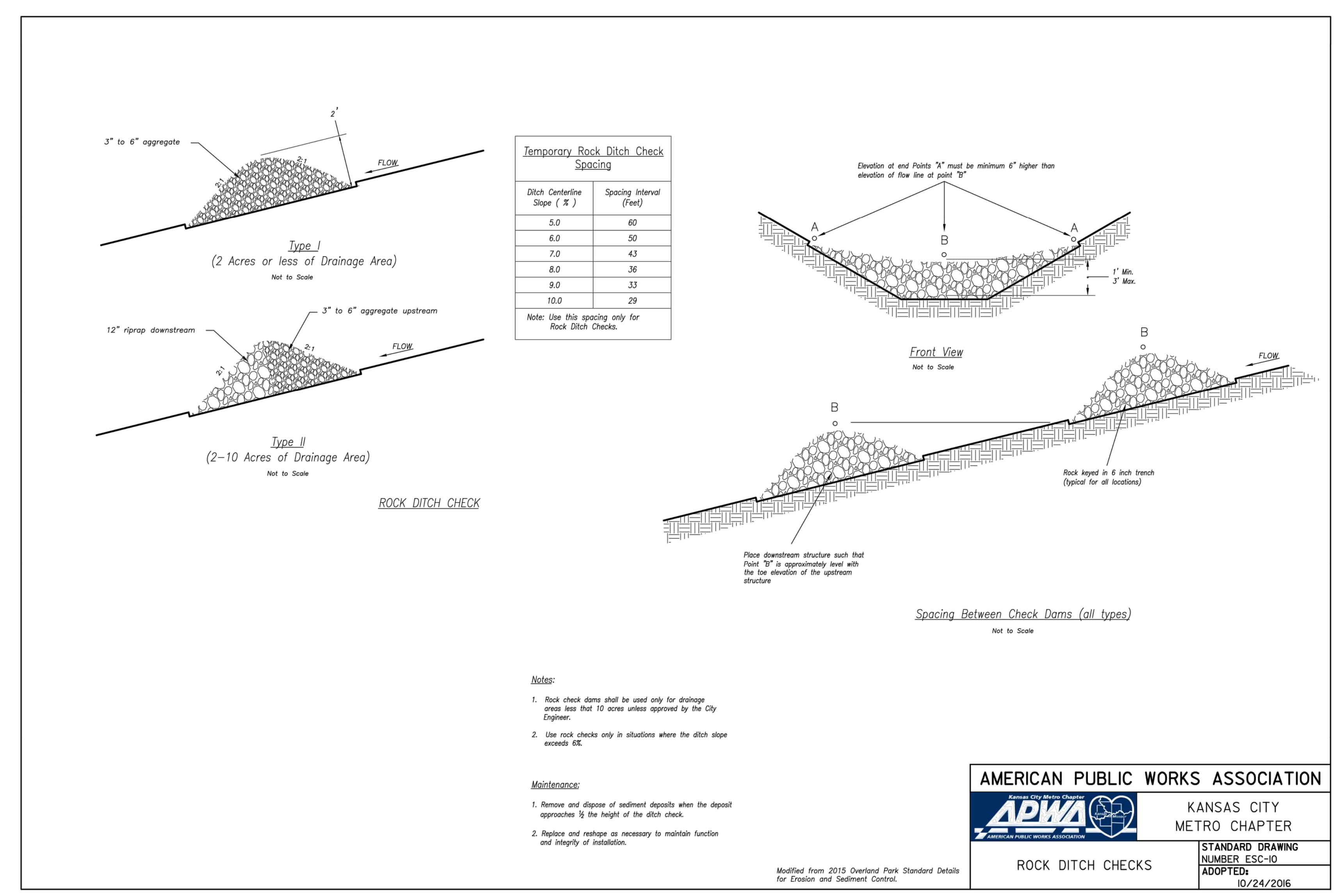












STATE OF MISSOURI
DOUGLAS EUGENE UBBEN, JR.
NUMBER PE-2011010998
3/16/20
PROFESSIONAL ENGINEER

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PLANNING
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EROSION CONTROL DETAILS

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEU

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
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CERTIFICATE OF AUTHORIZATION
KANSAS
LAND SURVEYING – LS-82
ENGINEERING – E-391
CERTIFICATE OF AUTHORIZATION
MISSOURI
LAND SURVEYING–2007001128
ENGINEERING–2007005058

SHEET
C10

\\PHELPS-SERVER\Projects\P\171125\dwg\Permit Plans\Erosion.dwg Layout:2 Mar 17, 2020 – 8:57am Shelli Hatcher

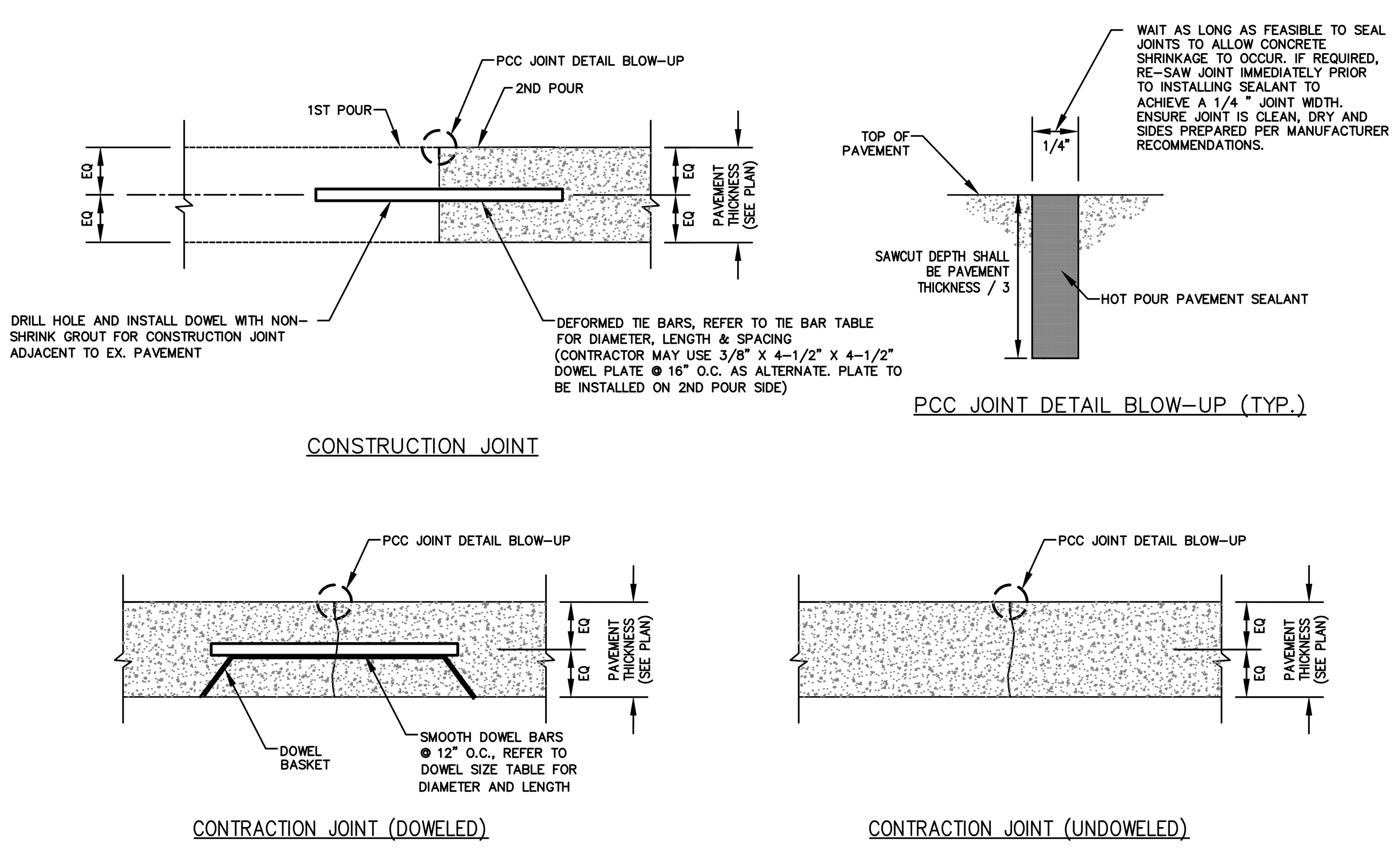
Dowel size*

Slab depth, in. (mm)	Dowel diameter, in. (mm)	Dowel embedment, in. (mm)†	Total dowel length, in. (mm)‡
5 (125)	5/8 (16)	5 (125)	12 (300)
6 (150)	3/4 (19)	6 (150)	14 (360)
7 (180)	7/8 (22)	6 (150)	14 (360)
8 (200)	1 (25)	6 (150)	14 (360)
9 (230)	1-1/8 (29)	7 (180)	16 (400)

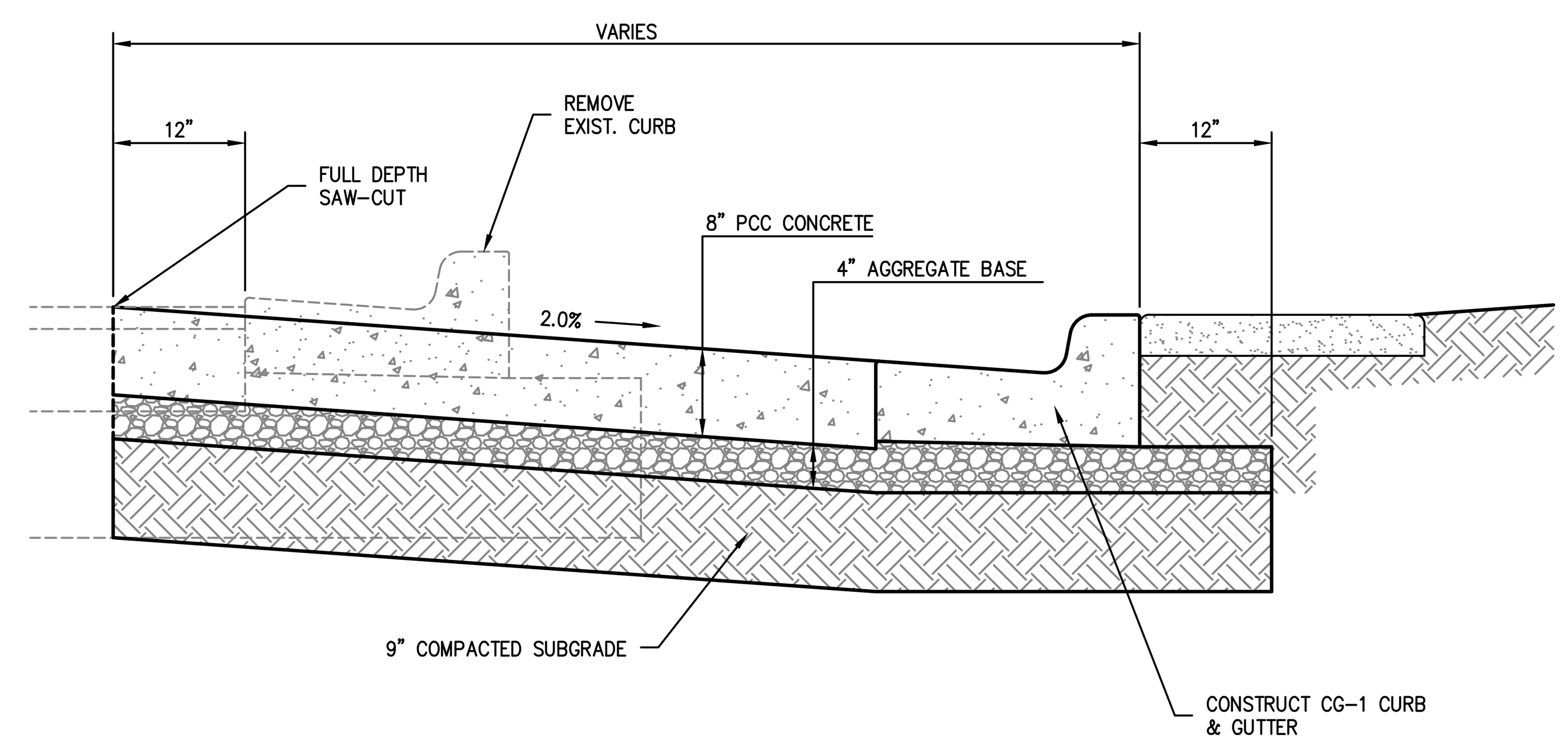
*All dowels spaced at 12 in. (300 mm) centers.
†On each side of joint.
‡Allowance made for joint openings and for minor errors in positioning dowels.

Tie bar dimensions

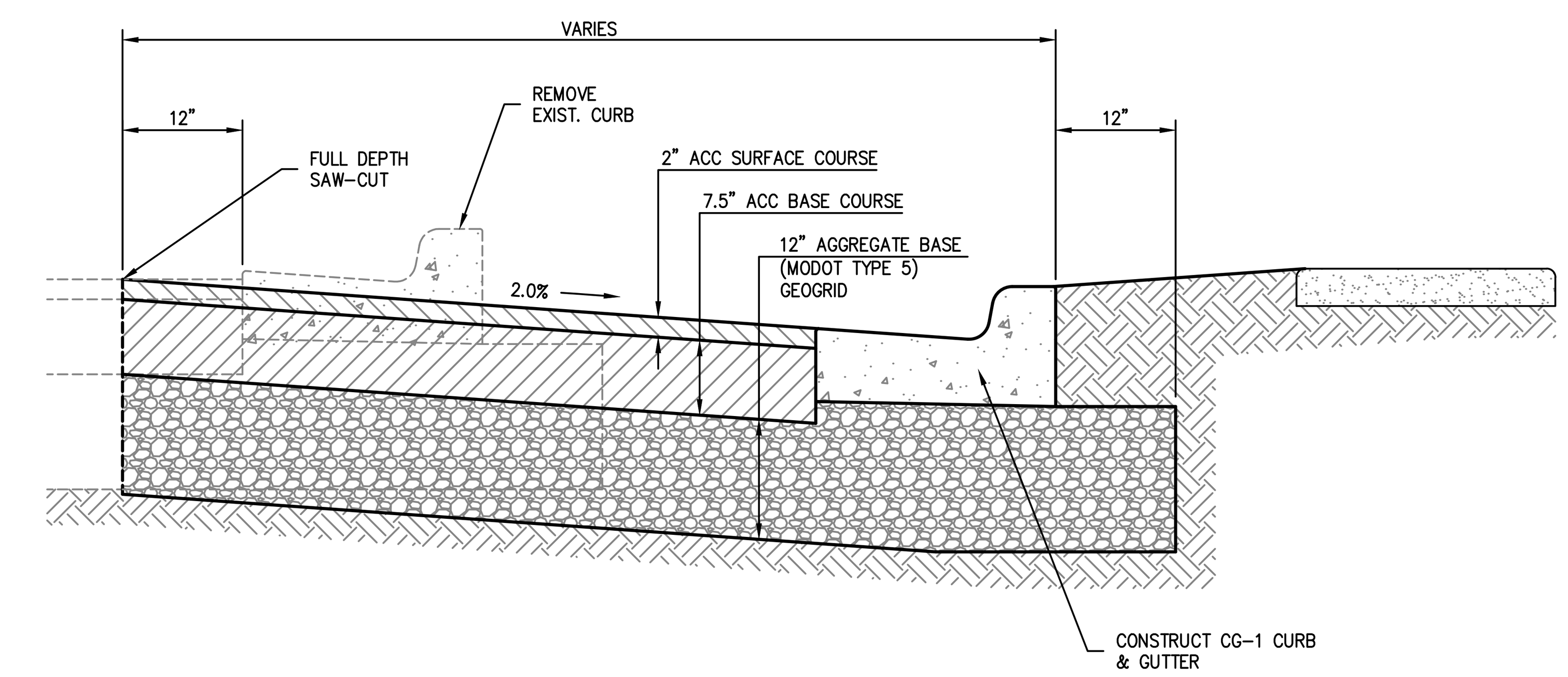
Slab depth, in. (mm)	Tiebar size, in. (mm)	Tiebar spacing — Distance to nearest free edge or to nearest joint where movement can occur			
		10 ft, in. (mm)	12 ft, in. (mm)	14 ft., in. (mm)	24 ft, in. (mm)
5 (125)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	30 (760)	28 (710)
5-1/2 (140)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	30 (760)	25 (630)
6 (150)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	30 (760)	23 (580)
6-1/2 (165)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	30 (760)	21 (530)
7 (180)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	30 (760)	20 (510)
7-1/2 (190)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	30 (760)	18 (460)
8 (200)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	28 (710)	17 (430)
8-1/2 (215)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	36 (910)	16 (410)
9 (230)	1/2 x 30 (13 x 760)	36 (910)	36 (910)	—	24 (610)



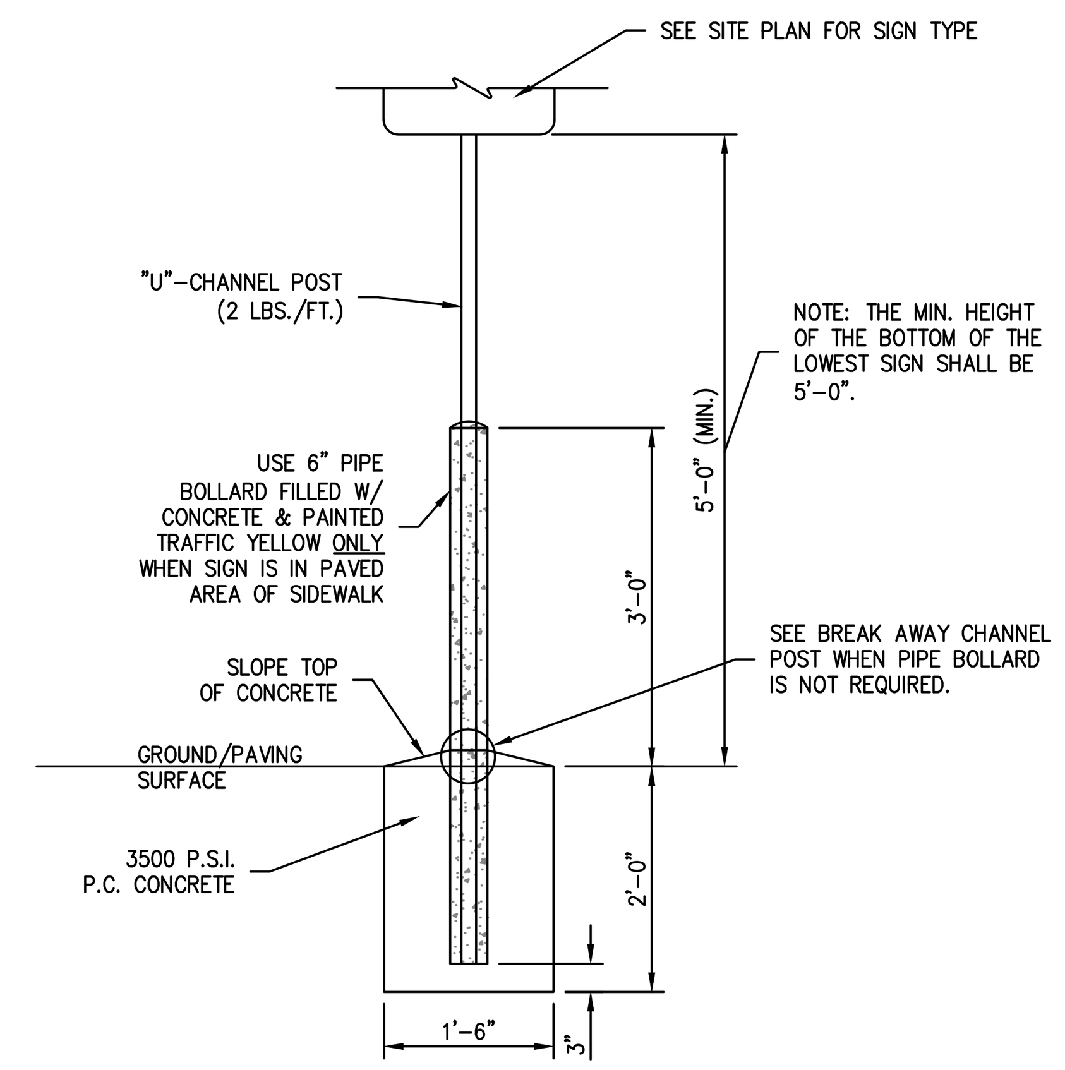
CONCRETE JOINT DETAILS
SCALE: N.T.S.



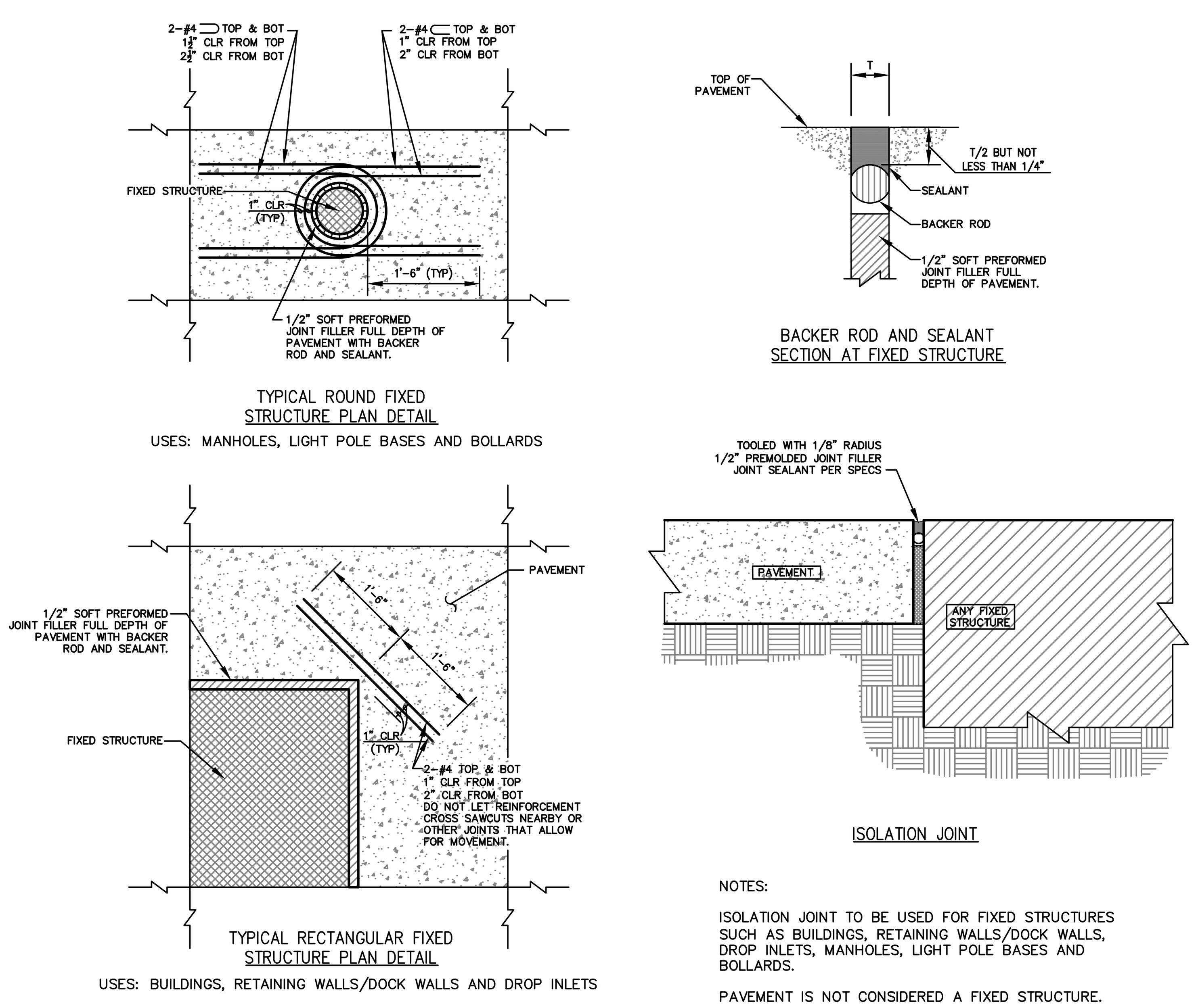
CONCRETE STREET WIDENING AT LOADING ZONE
SCALE: N.T.S.



FULL DEPTH ASPHALT STREET WIDENING
SCALE: N.T.S.



SIGN BASE DETAIL IN SIDEWALK & PAVED AREAS
SCALE: N.T.S.

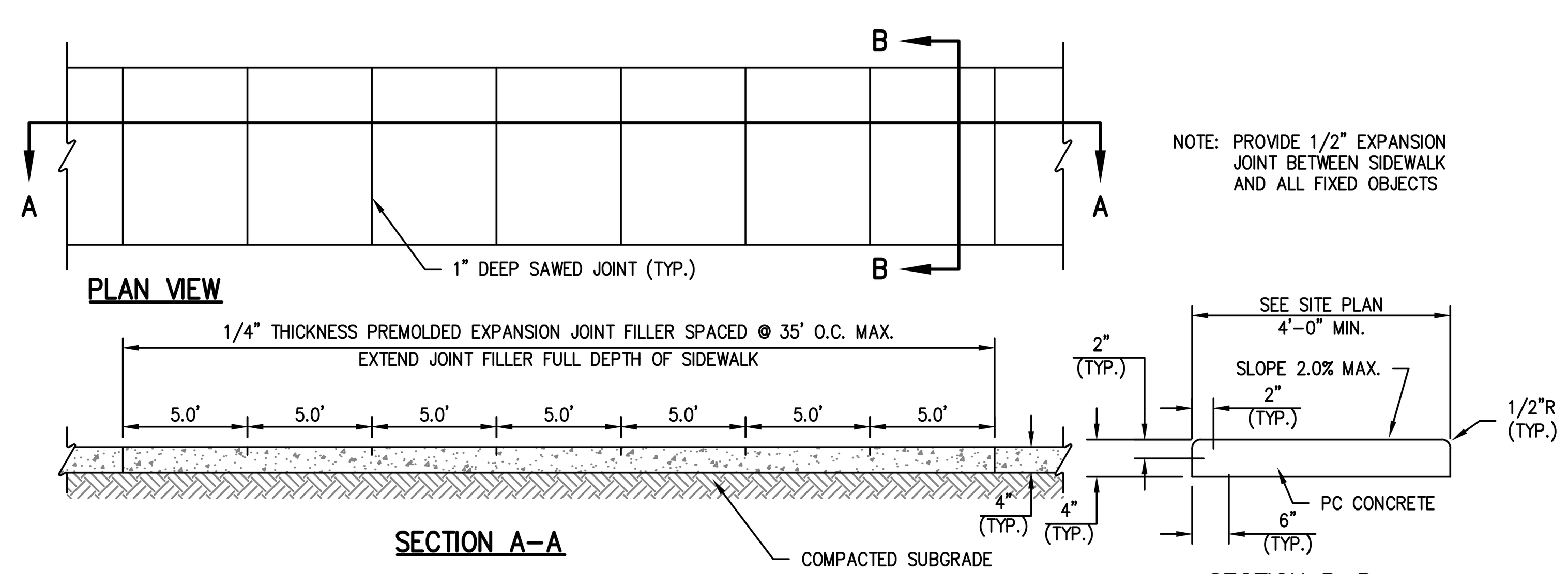


NOTES:

ISOLATION JOINT TO BE USED FOR FIXED STRUCTURES SUCH AS BUILDINGS, RETAINING WALLS/DOCK WALLS, DROP INLETS, MANHOLES, LIGHT POLE BASES AND BOLLARDS.

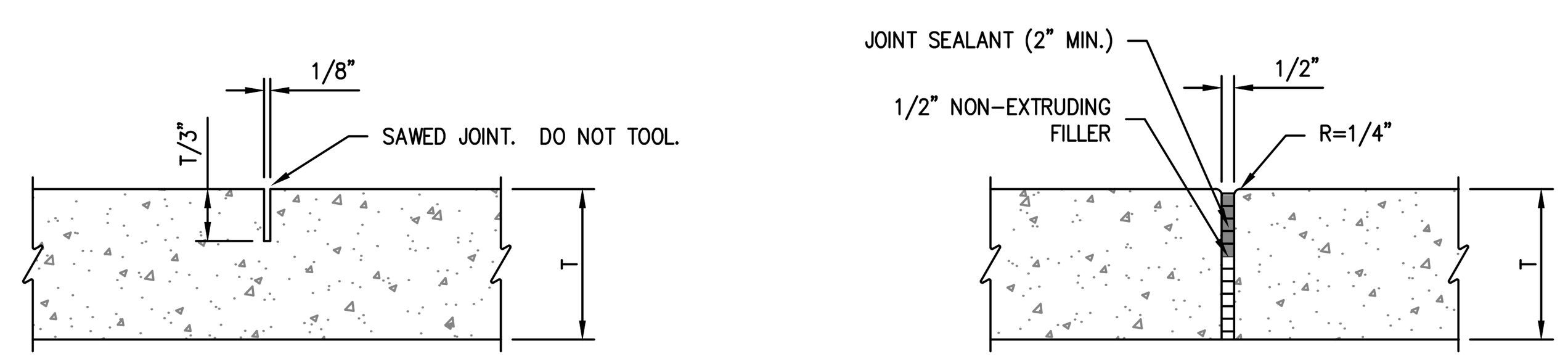
PAVEMENT IS NOT CONSIDERED A FIXED STRUCTURE.

ISOLATION JOINT DETAILS
SCALE: N.T.S.



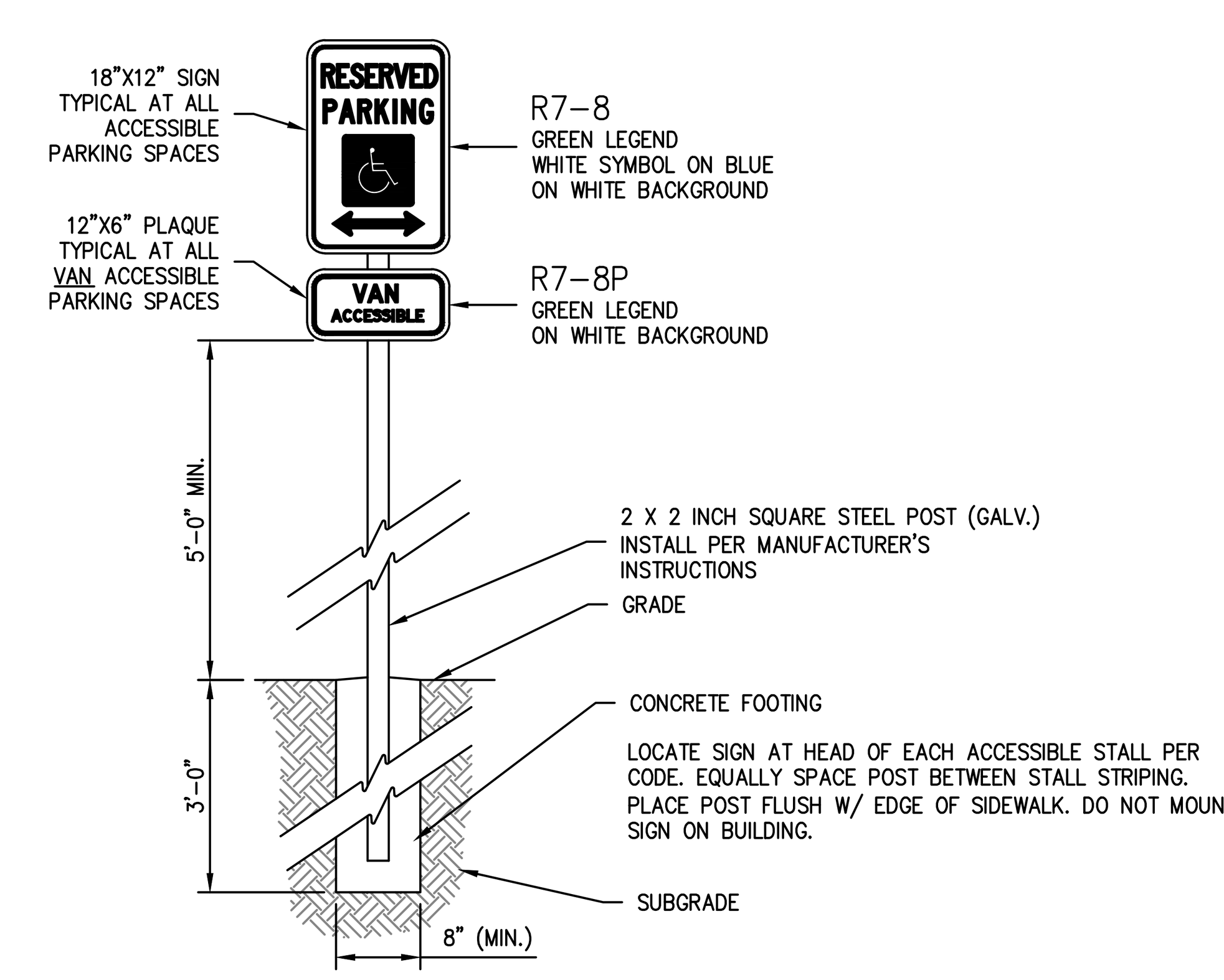
NOTE:
1. USE KANSAS CITY MATERIALS METRO BOARD (KCMMB) MIX DESIGN SPECIFICATIONS FOR 4,000 P.S.I. AIR ENTRAINED CONCRETE FOR ALL PRIVATE SIDEWALKS.

PRIVATE CONCRETE SIDEWALKS (NON REINFORCED)
SCALE: N.T.S.

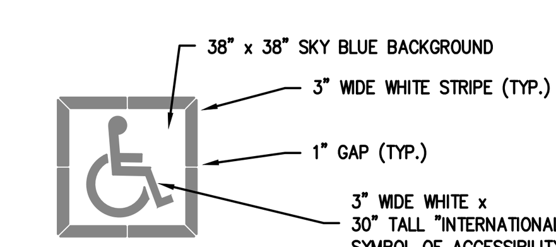


NOTE: TYPE A JOINTS SHALL NOT EXCEED 20 TIMES THE PAVEMENT THICKNESS (T).

CONCRETE SIDEWALK JOINT DETAILS
SCALE: N.T.S.



ACCESSIBLE SIGN DETAIL IN GRASS AREA
SCALE: N.T.S.



ACCESSIBLE SYMBOL MARKING DETAIL
SCALE: N.T.S.

GENERAL NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE APPLIED BY A QUALIFIED CONTRACTOR HAVING A MINIMUM 3 YEARS EXPERIENCE IN TRAFFIC GRADE PAVEMENT MARKING APPLICATIONS.
2. PAINT SHALL BE A NON-BLEEDING, QUICK-DRYING, ALKYD PETROLEUM BASE PAINT SUITABLE FOR TRAFFIC-BEARING SURFACE AND SHALL MEET FS TTP-85E & MIXED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS BEFORE APPLICATION.
3. SWEEP AND CLEAN SURFACE TO ELIMINATE LOOSE MATERIAL & DUST.
4. APPLY TWO (2) COATS OF PAINT AT MANUFACTURER RECOMMENDED RATE WITHOUT THE ADDITION OF THINNER, WITH A MAXIMUM OF 100 SQUARE FEET PER GALLON. APPLY WITH MECHANICAL EQUIPMENT TO PRODUCE UNIFORM STRAIGHT EDGES. AT SIDEWALK, CURBS, AND CROSSWALKS USE A STRAIGHTEDGE TO ENSURE A UNIFORM, CLEAN, & STRAIGHT STRIPE.
5. THE FOLLOWING ITEMS SHALL BE PAINTED WITH THE COLORS NOTED BELOW:
   A. HANDICAP SYMBOLS: SEE DETAIL THIS SHEET.
   B. PARKING STALL STRIPING: WHITE.
6. ACCESSIBLE PARKING SPACE DESIGN LAYOUT SHALL BE IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.
7. SEE SITE PLANS FOR COMPLETE PARKING LAYOUT.

ACCESSIBLE PARKING SPACE DETAIL
SCALE: N.T.S.

STATE OF MISSOURI
DOUGLAS EUGENE UBBEN, JR.
NUMBER PE-2011010998
3/16/20
PROFESSIONAL ENGINEER

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PLANNING
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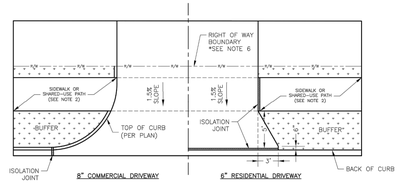
IMPLEMENTATION

PAVEMENT DETAILS
DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

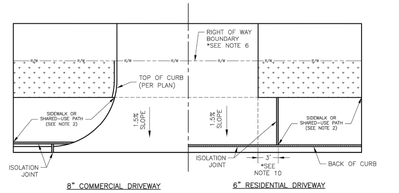
No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEU

PROJECT NO. 171125
DATE: 01-28-20 | DRAWN: SNH
CHECKED: DAF | APPROVED: DEU
CERTIFICATE OF AUTHORIZATION KANSAS LAND SURVEYING – LS-82 ENGINEERING – E-391
CERTIFICATE OF AUTHORIZATION MISSOURI LAND SURVEYING-2007001128 ENGINEERING-2007005058

SHEET
C11



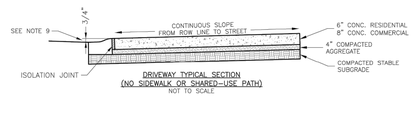
DRIVEWAY WITH BUFFER
NOT TO SCALE



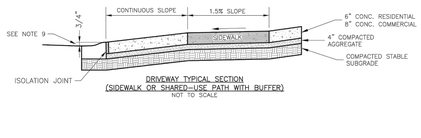
DRIVEWAY WITHOUT BUFFER
NOT TO SCALE

GENERAL NOTES

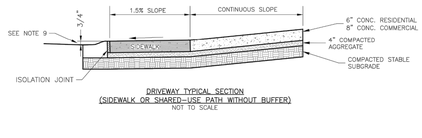
1. SUBGRADE SHALL BE STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
2. ALL DRIVE APPROACHES SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG) FOR SLOPE REQUIREMENTS WHEN SIDEWALK IS REQUIRED (SEE ADA RAMP RETROFIT DETAIL GEN-3B, SIDEWALK/SHARED USE PATH RAMP AT DRIVEWAY DETAIL).
3. JOINT AT BACK OF CURB LINE SHALL BE AN ISOLATION JOINT FOR RESIDENTIAL DRIVEWAYS.
4. KCMMB 4K CONCRETE MIX IS REQUIRED FOR ALL CURBS.
5. COMMERCIAL DRIVEWAYS, IN THE PUBLIC RIGHT OF WAY, SHALL BE KCMMB 4K CONCRETE MIX.
6. RESIDENTIAL DRIVEWAYS, IN THE PUBLIC RIGHT OF WAY, KCMMB 4K CONCRETE MIX IS RECOMMENDED. OTHER CONCRETE MIXES NEEDS TO BE APPROVED BY CITY INSPECTOR.
7. A JOINT MUST BE INSTALLED AT THE RIGHT OF WAY BOUNDARY FOR PROPERTY DELINEATION.
8. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.
9. ¾" FROM TOP OF CURB TO FLOWLINE AT DRIVEWAY (TYPE CG-1 CURB ONLY). MUST MAINTAIN ORIGINAL FLOWLINE OF CURB.
10. SIDEWALK ADJOINING CURB SHALL BE 6" THICK, EXTENDING 3' FROM THE DRIVEWAY.
11. THE MAXIMUM WIDTH OF A RESIDENTIAL DRIVEWAY IS 36 FEET WITHIN THE RIGHT OF WAY.



DRIVEWAY TYPICAL SECTION
(NO SIDEWALK OR SHARED-USE PATH)
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED-USE PATH WITH BUFFER)
NOT TO SCALE



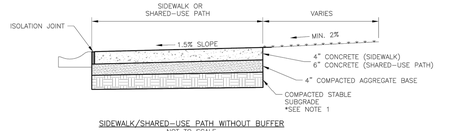
DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED-USE PATH WITHOUT BUFFER)
NOT TO SCALE

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

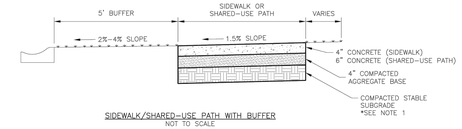
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

Drawn By: MJF
Checked By: DL
Date: 06/17
Proj. #:

GEN-1



SIDEWALK/SHARED-USE PATH WITHOUT BUFFER
NOT TO SCALE



SIDEWALK/SHARED-USE PATH WITH BUFFER
NOT TO SCALE

GENERAL NOTES:

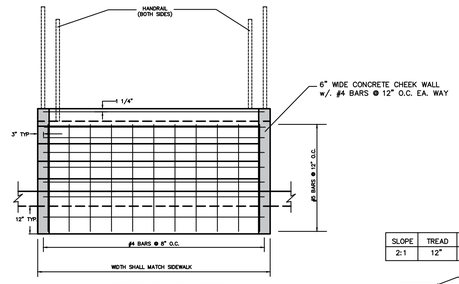
1. SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
2. 1.5% CROSS SLOPE MUST BE MAINTAINED THROUGH DRIVEWAYS.
3. KCMMB 4K CONCRETE MIX SHALL BE REQUIRED FOR ALL SIDEWALKS/SHARED-USE PATHS OR AS APPROVED BY THE CITY INSPECTOR.
4. ALL SIDEWALK/SHARED-USE PATHS SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
5. AN ISOLATION JOINT SHALL BE PLACED AT A MAXIMUM OF 150 FT. CONSTRUCTION JOINTS SHALL BE PLACED THE SAME WIDTH OF SIDEWALK/SHARED-USE PATHS, BUT NO GREATER THAN 10 FT.
6. AN ISOLATION JOINT SHALL BE PLACED WHERE THE SIDEWALK/SHARED-USE PATHS MEETS A RESIDENTIAL DRIVEWAY.
7. SHARED-USE PATHS WIDTH SHALL BE 10 FT. WIDE.
8. SIDEWALK/SHARED-USE PATHS FINISHING SHALL BE FULL BROOM FINISH OR AS DIRECTED BY CITY INSPECTOR.
9. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.

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

SIDEWALK/SHARED-USE PATH DETAIL

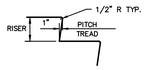
Date: 04/17
Drawn By: MJF
Checked By: DL

GEN-2

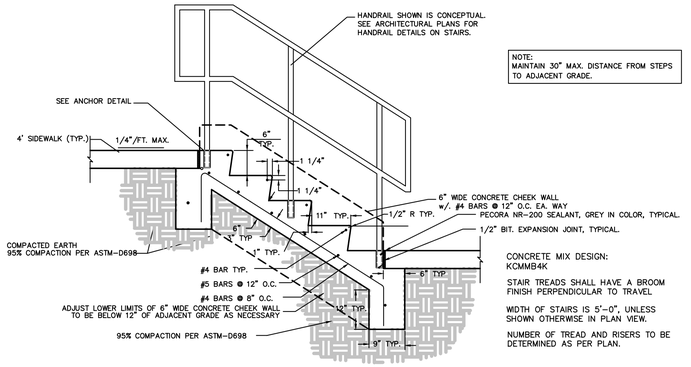


FRONT VIEW (TYP.)

SLOPE	TREAD	RISE
2:1	12"	6"



STEP DETAIL (TYP.)



STAIR SECTION DETAIL (TYP.)

CONCRETE STAIR WITH CHEEK WALL & HANDRAIL DETAILS
SCALE: N.T.S.

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PLANNING
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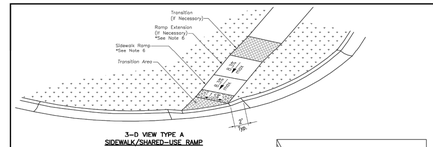
IMPLEMENTATION

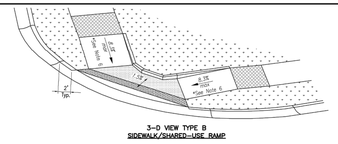
STATE OF MISSOURI
DOUGLAS EUGENE LUBKEMAN, JR.
NUMBER PE-2011010998
PROFESSIONAL ENGINEER
3/16/20

PAVEMENT DETAILS

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI



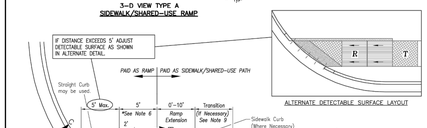
3-D VIEW TYPE A
SIDEWALK/SHARED-USE RAMP



3-D VIEW TYPE B
SIDEWALK/SHARED-USE RAMP

LEGEND

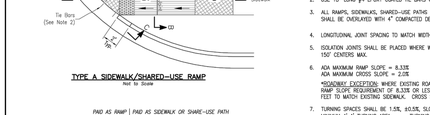
R	SIDEWALK RAMP
TS	TURNING SPACE
	DETECTABLE WARNING SURFACE
T	TRANSITION



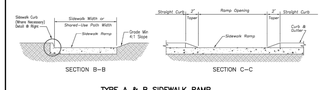
TYPE A SIDEWALK/SHARED-USE RAMP
Not to Scale

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 150' 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).



SECTION A-A

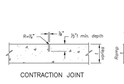


SECTION B-B

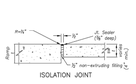
SECTION C-C

TYPE A & B SIDEWALK RAMP
Not to Scale

SIDEWALK CURB DETAIL
Not to Scale

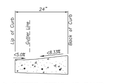


CONTRACTION JOINT



ISOLATION JOINT

JOINT DETAILS
Not to Scale



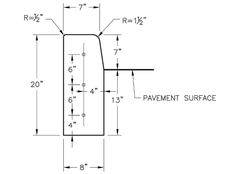
CURB & GUTTER DETAIL AT RAMP
Not to Scale

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

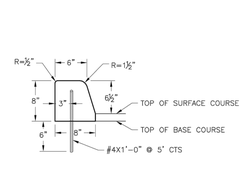
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

Drawn By: MJF
Checked By: DL
Date: 06/17
Proj. #:

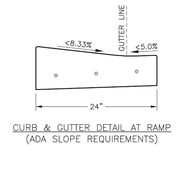
GEN-3A



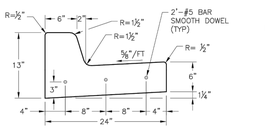
STRAIGHT CURB
(TYPE C-1)



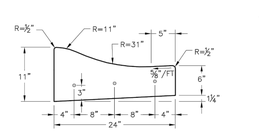
DOWELLED CURB
(TYPE DC)



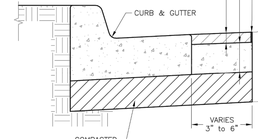
CURB & GUTTER DETAIL AT RAMP
(ADA SLOPE REQUIREMENTS)



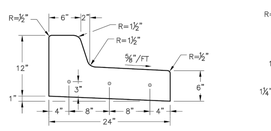
STRAIGHT BACK CURB & GUTTER
(TYPE CG-1)



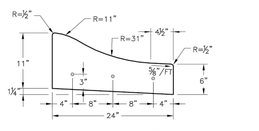
ROLL BACK CURB & GUTTER
(TYPE CG-2)



CURB REPLACEMENT DETAIL



STRAIGHT BACK DRY CURB & GUTTER
(TYPE CG-1 DRY)



ROLL BACK DRY CURB & GUTTER
(TYPE CG-2 DRY)

GENERAL NOTES

1. ¾" ISOLATION JOINTS WITH 3 (2'-#5 BAR) SMOOTH DOWELS SHALL BE PLACED AT RADIUS POINTS AND AT 150' INTERVALS. THESE DOWEL BARS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
2. 3" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APPROXIMATELY 10' INTERVALS. THESE JOINTS SHALL PASS ACROSS THE ENTIRE CURB SECTION.
3. CONCRETE FILL SHALL HAVE UNIFORM AND SMOOTH FINISH
4. KCMMB 4K CONCRETE SHALL BE USED FOR ALL CURB.
5. ASPHALTIC CONCRETE SURFACE COURSE SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 2205.2.
6. CURBS FOR NEW STREETS SHALL BE BUILT ON ASPHALT OR AGGREGATE BASE AS SHOWN IN TYPICAL SECTION DETAIL.
7. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.

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

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

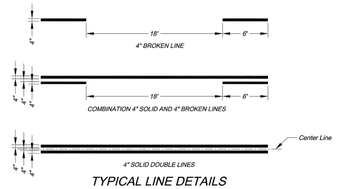
Drawn By: MJF
Checked By: DL
Date: 06/17
Proj. #:

GEN-4

No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEL

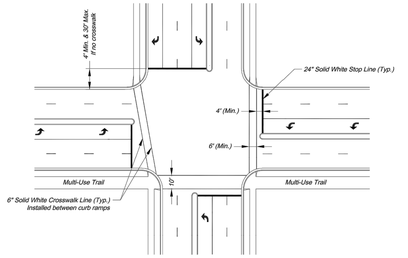
PROJECT NO. 171125
DATE: 01-28-20
DRAWN: SNH
CHECKED: DAF
APPROVED: DEL
CERTIFICATE OF AUTHORIZATION KANSAS ENGINEERING – LS-82
MISSOURI ENGINEERING – E-391
CERTIFICATE OF AUTHORIZATION LAND SURVEYING–2007001128
ENGINEERING–2007005208

SHEET
C12



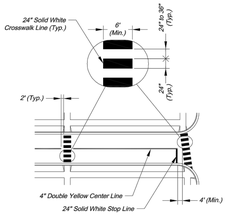
TYPICAL LINE DETAILS

NOTES:
1. All edge line, center line, and lane line pavement markings shall be 4" wide unless otherwise noted.
2. Edge lines shall be continuous solid white or yellow lines. Right side edge lines shall be solid white. Median or left side edge lines on divided roadways are to be solid yellow. Edge lines and center lines shall be continuous across driveways.

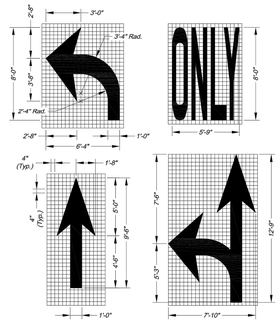


TYPICAL INTERSECTION MARKINGS

NOTES:
1. Transverse crosswalk lines shall be installed such that the distance between lines is at least 6 or 10 feet.
2. Stop lines are required at signalized intersections, on multi-lane stop controlled approaches, or in front of crosswalks at controlled intersections.

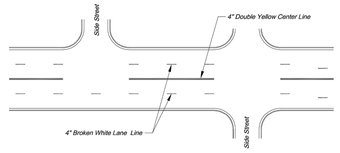


TYPICAL MIDBLOCK OR SCHOOL CROSS WALK

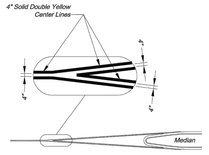


ARROW AND SYMBOL DETAILS

NOTES:
1. All arrow and symbol markings shall be white, and shall be centered in their respective traffic lanes.
2. Right-turn and combination right-turn/straight arrows are reverse of arrows shown.



TYPICAL MARKINGS FOR FOUR-LANE UNDIVIDED ROADWAY



TYPICAL MEDIAN NOSE CENTER LINE DETAIL

PAVEMENT MARKING GENERAL NOTES:
1. *All pavement markings shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).*
2. *All words and symbols shall conform to the latest edition of Standard Alphabets for Highway Signs and Pavement Markings printed by the U.S. Department of Transportation, Federal Highway Administration.*
3. *Pavement markings, either temporary or permanent are required at all times if the roadway is open to traffic.*
4. *All pavement markings that conflict with the desired markings shall be completely removed. Removals shall not leave the road surface scarred with an image that misleads traffic. Any excess damage or scarring of pavement shall be repaired at the Contractor's expense.*
5. *The proposed permanent markings shall be laid out by the Contractor in advance of the marking installation. Markings shall not be applied until the layout has been approved by the City Traffic Engineer.*
6. *Center lines shall be marked on all undivided arterial streets, and any other undivided street with more than two lanes and/or a speed limit of 30 mph or more.*
7. *Edge lines shall be marked on all non-curbed streets.*

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
DESIGN DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:

Sheet Name: ROADWAY MARKING DETAILS

STANDARD DRAWING PM-1

Drawn By: AS
Checked By: JW
Date: 09/09/2009
Project#

1 OF 3
1

PHELPS ENGINEERING, INC.
1270 N. Winchester
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(913) 393-1155
Fax (913) 393-1156
www.phelpsengineering.com

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ENGINEERING
IMPLEMENTATION

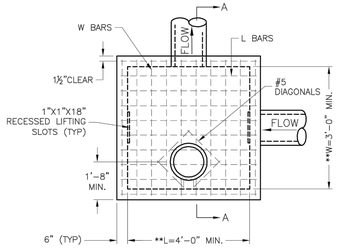
STATE OF MISSOURI
DOUGLAS EUGENE CARLSON, JR.
NUMBER PE-2011010998
PROFESSIONAL ENGINEER
5/16/20

PAVEMENT DETAILS

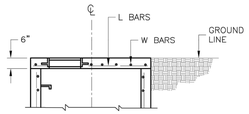
DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

PROJECT NO. 171125	No.	Date	Revisions:	By	App.
DATE:01-28-20 DRAWN: SNH	1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEJ
CHECKED: DAF APPROVED: DEJ					
CERTIFICATE OF AUTHORIZATION KANSAS ENGINEERING - LS-82					
CERTIFICATE OF AUTHORIZATION MISSOURI LAND SURVEYING-2007001128 ENGINEERING-2007002508					

SHEET
C13



PLAN

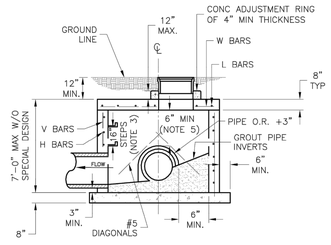


SLAB TOP ALTERNATE FOR JUNCTION BOX (SHALLOW)

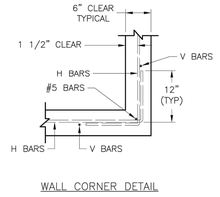
** INCREASE IN MULTIPLES OF 6" (7'-0") MAX WITHOUT SPECIAL DESIGN. (SEE PROJECT PLANS FOR DETAILS)

REINFORCING

BARS	BAR SIZE	SPACING (IN.)
H	4	12
V	4	12
L	5	6
W	5	6



SECTION A-A



WALL CORNER DETAIL

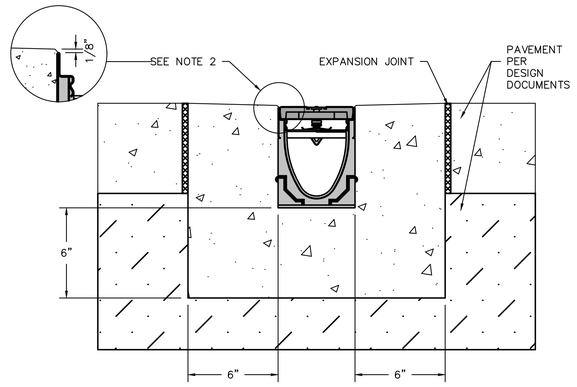
GENERAL NOTES:
1. LOCATE RING AND COVER ON BLANK WALL.
2. USE ¾" CHAMFER STRIP OR ½" R EDGER TOOL ON ALL EXPOSED CONCRETE CORNERS.
3. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 4' ON BLANK WALL IF POSSIBLE.
4. BOXOUTS WILL NOT BE ALLOWED TO PROJECT THROUGH THE CORNERS OF THE STRUCTURE AND THE MINIMUM DISTANCE BETWEEN BOXOUTS IS 6".
5. THE MINIMUM REINFORCING SHALL BE 1 H-BAR OVER A CAST-IN-PLACE PIPE AND 2 H-BARS OVER A PRECAST BOXOUT.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON-SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. REINFORCING OF COVERS IN STREETS REQUIRE SPECIAL DESIGN.
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

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

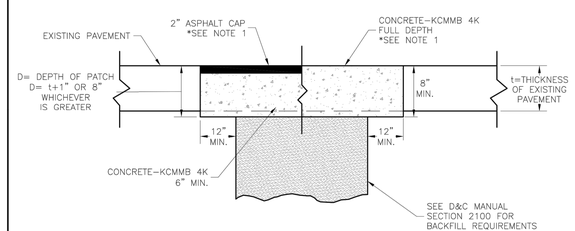
Drawn By: MJF
Checked By: DL
Date: 04/17
Proj. #:

STM-3



NOTES:
1. A minimum concrete strength of 4000 PSI shall be used. The concrete should be vibrated to eliminate air pockets.
2. The finished level of the concrete surround must be approx. 1/8" above the top of the channel edge.
3. Refer to ACO'S latest installation instructions for complete details.

TRENCH DRAIN INSTALLATION DETAIL



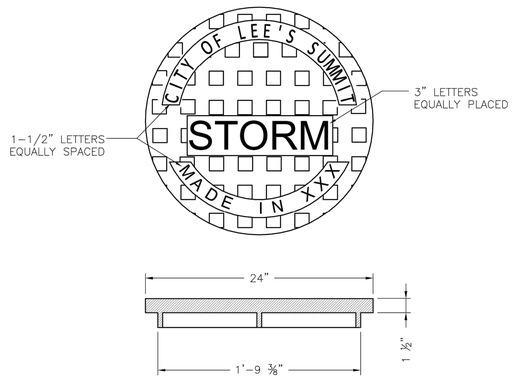
TRENCHING/PATCHING DETAIL
NOT TO SCALE

NOTE:
1. ASPHALT CAP OR FULL DEPTH CONCRETE SHALL BE DETERMINED BY CITY INSPECTOR.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
TRENCHING/PATCHING ROADWAYS DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

GEN-5



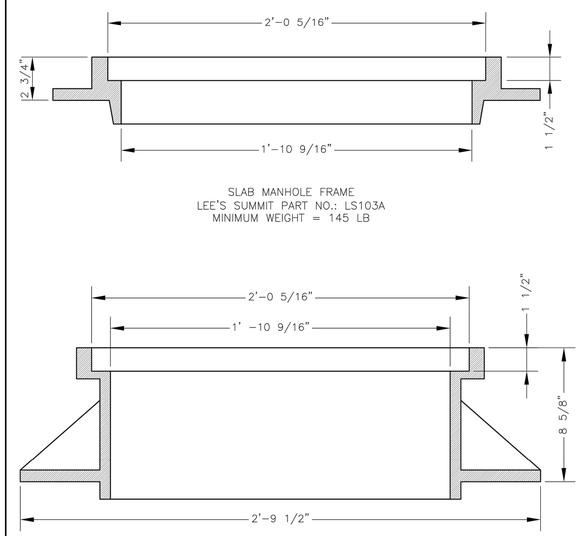
STANDARD 24" MANHOLE COVER
MINIMUM WEIGHT = 160 LB
NOTE: PICK HOLES NOT SHOWN

*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: 04/17
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: 04/17
Drawn By: MJF
Checked By: DL

STM-7

STATE OF MISSOURI
DOUGLAS EUGENE PHELPS, JR.
NUMBER PE-2011010998
PROFESSIONAL ENGINEER
5/16/20

PHELPS ENGINEERING, INC.
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FAX (913) 393-1066
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STORM SEWER DETAILS

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEU

PROJECT NO.: 171125
DATE: 01-29-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEU
CERTIFICATE OF AUTHORIZATION KANSAS SURVEYING - LS-82 ENGINEERING - E-391
CERTIFICATE OF AUTHORIZATION LAND SURVEYING-2007001128 ENGINEERING-2007005008

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Section 2723

Engineered Surface Drainage Products

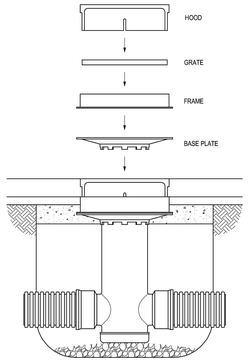
GENERAL
PVC surface drainage inlets shall be of the curb inlet structure type as indicated on the contract drawings and referenced within the contract specifications. The **ductile iron frame, grate and hood** for each of these structures are to be considered an integral part of the surface drainage inlet and shall be furnished by the same manufacturer. The curb inlet structure shall be as manufactured by Nyloplast a division of Advanced Drainage Systems, Inc. or prior approved equal.

MATERIALS
The curb inlet structure required for this contract shall be manufactured from PVC pipe stock, utilizing a thermo-molding process to reform the pipe stock to the specified configuration. The drainage pipe connection stubs shall be manufactured form PVC pipe stock and formed to provide a watertight connection with the specified pipe system. This joint tightness shall conform to ASTM D3212 for joints for drain and sewer plastic pipe using flexible elastomeric seals. The **flexible elastomeric seals shall conform to** ASTM F477. The pipe bell spigot shall be joined to the main body of the structure. The raw material used to manufacture the pipe stock that is used to manufacture the main body and pipe stubs of the surface drainage inlets shall conform to ASTM D1784 cell class 12454.

The grate, frame and hood for all curb inlet structures shall be ductile iron and shall be made specifically for each so as to provide a round bottom flange that closely matches the diameter of the PVC structure body. The grate, frame and hood shall be capable of supporting H-20 wheel loading for traffic areas. The hood section will have a solid back and be adjustable by use of three (3) locking hex head bolts. The metal used in the manufacture of the castings shall conform to ASTM A536 grade 70-50-05 for ductile iron.

INSTALLATION
The specified PVC surface drainage inlet shall be installed using conventional flexible pipe backfill materials and procedures. The backfill material shall be crushed stone or other granular material meeting the requirements of class 1, class 2, or class 3 material as defined in ASTM D2321. Bedding and backfill for the curb inlet structure shall be placed and compacted uniformly in accordance with ASTM D2321. The curb inlet structure body will be cut at the time of the final grade. No brick, stone or concrete block will be required to set the grate to the final grade height. For H-20 load rated installations, a concrete ring will be poured under the frame, grate, and hood. The concrete slab must be designed taking into consideration local soil conditions, traffic loading, and other applicable design factors. For other installation considerations such as migration of fines, ground water, and soft foundations refer to ASTM D2321 guidelines.

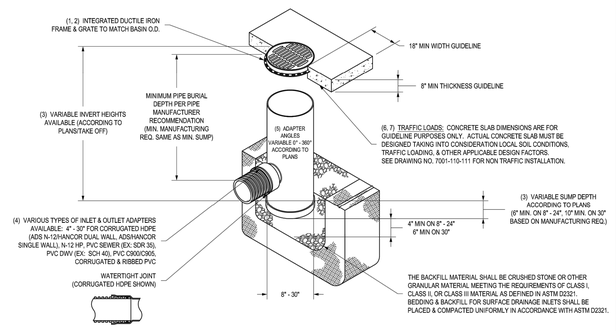
DRAWN BY CJA	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 03-10-00			
REVISED BY NMH	PROJECT NO./NAME	TITLE	2 FT X 2 FT & 2 FT X 3 FT CURB INLET STRUCTURE SPECIFICATIONS
DATE 03-10-16			
DWG SIZE A	SCALE 1:1 SHEET 1 OF 1	DWG NO.	7002-110-005 REV H



DRAWN BY CJA	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 01-03-05			
APPD BY CCA	PROJECT NO./NAME	TITLE	2 FT X 3 FT INSTALLATION - 4 PIECE ASSEMBLY DETAIL
DATE 09-03-13			
DWG SIZE A	SCALE 1:25 SHEET 1 OF 1	DWG NO.	7002-110-026 REV B

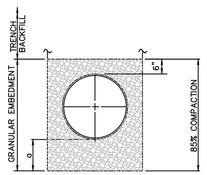
ALL ADS–N12 PIPE INSTALLATIONS SHALL CONFORM TO MANUFACTURER'S INSTALLATIONS REQUIREMENTS, WHICH MAY BE FOUND AT http://www.ads-pipe.com/en/documentlisting.aspdocumenttypeID=682

NYLOPLAST DRAIN BASIN WITH STANDARD GRATE

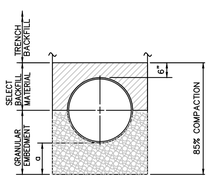


1 - 8" - 30" STANDARD GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2 - 12" - 30" FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05. 8" & 10" STANDARD GRATES FIT DIRECTLY ONTO DRAIN BASINS WITH THE USE OF A PVC BODY TOP. SEE DRAWING NO. 7001-110-045.
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065.
4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER (4" - 24").
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.
6 - 12" - 30" STANDARD GRATES SHALL MEET H-20 LOAD RATING.
7 - 8" & 10" STANDARD GRATES ARE RATED FOR LIGHT DUTY APPLICATIONS ONLY. NO CONCRETE COLLAR NEEDED FOR LIGHT DUTY RATING.

DRAWN BY EBC	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 1-23-06			
REVISED BY NMH	PROJECT NO./NAME	TITLE	DRAIN BASIN WITH STANDARD GRATE QUICK SPEC INSTALLATION DETAIL
DATE 03-11-16			
DWG SIZE A	SCALE 1:40 SHEET 1 OF 1	DWG NO.	7001-110-144 REV H



HDPE



RCP

TABLE OF EMBEDMENT DEPTH BELOW PIPE		
D	a MIN. SOIL	a MIN. ROCK
LESS THAN 60"	4"	6"
60" OR LARGER	6"	12"

NOTES:
1. GRANULAR EMBEDMENT SHALL BE KDOT STD. SPEC. SECT. 1100, PB–2 COURSE AGGREGATE FOR CONCRETE, WASHED STONE OR GRAVEL, MEETING THE FOLLOWING CONDITIONS:

SIEVE SIZE	PERCENT RETAINED
1–INCH	0
½–INCH	0–20
⅜–INCH	40–70
No. 8	95–100

GRANULAR EMBEDMENT FROM THE TOP OF PIPE DOWN SHALL BE COMPACTED TO 85% MAXIMUM DENSITY AS DETERMINED BY ASTM D 698.

GRANULAR EMBEDMENT ABOVE TOP OF PIPE SHALL BE AN UN–COMPACTED LAYER FOR ALL INSTALLATIONS.

2. TRENCH OUTLINES DO NOT INDICATE ACTUAL TRENCH EXCAVATION SHAPE, SOIL CONDITIONS, OR PRESENCE OF SHEETING LEFT IN PLACE. EMBEDMENT MATERIAL SHALL EXTEND THE FULL WIDTH OF THE ACTUAL TRENCH EXCAVATION.

3. TRENCH WIDTHS SHALL BE LIMITED BELOW AN ELEVATION OF ONE (1) FOOT ABOVE THE TOP OF THE INSTALLED PIPE AS FOLLOWS: NOT LESS THAN FIFTEEN (15) INCHES NOR MORE THAN TWENTY–FOUR (24) INCHES GREATER THAN THE NOMINAL OUTSIDE DIAMETER OF THE PIPE.

LEGEND

D NOMINAL PIPE SIZE
a EMBEDMENT BELOW PIPE

GRANULAR EMBEDMENT

SELECT BACKFILL MATERIAL

EMBEDMENTS FOR STORM SEWER PIPE

SCALE: N.T.S.

PHELPS ENGINEERING, INC.
1270 N. Winchester
Olathe, Kansas 66061
(913) 393-1155
Fax (913) 393-1066
www.phelpsengineering.com

PLANNING
ENGINEERING
IMPLEMENTATION

STATE OF MISSOURI
DOUGLAS EUGENE THOMPSON, II
NUMBER PE-2011010998
3/16/20
PROFESSIONAL ENGINEER

STORM SEWER DETAILS

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Revisions:	No.	Date	By	App.
REVISED PER CITY COMMENTS	1.	3-16-20	SNH	DEL

PROJECT NO. 171125
DATE: 01-29-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEL
CERTIFICATE OF AUTHORIZATION KANSAS SURVEYING – LS–82 ENGINEERING – E–391
CERTIFICATE OF AUTHORIZATION LAND SURVEYING–2007020128 ENGINEERING–2007025039

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PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER:	DIRK HUDSON 816-602-4201 DIRK.HUDSON@ADS-PIPE.COM
ADS SALES REP:	JOHN WHITWOOD 816-805-5570 JOHN.WHITWOOD@ADS-PIPE.COM
PROJECT NO:	S149291

ADVANCED DRAINAGE SYSTEMS, INC.

SiteASSIST by StormTech — FOR STORMTECH INSTRUCTIONS, DOWNLOAD THE INSTALLATION APP

DOWNTOWN LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, MO

MC-4500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-4500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-4500 CHAMBER SYSTEM

1. STORMTECH MC-4500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 12" (300 mm) BETWEEN ADJACENT CHAMBER ROWS.
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
11. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
12. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-4500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

PROPOSED LAYOUT

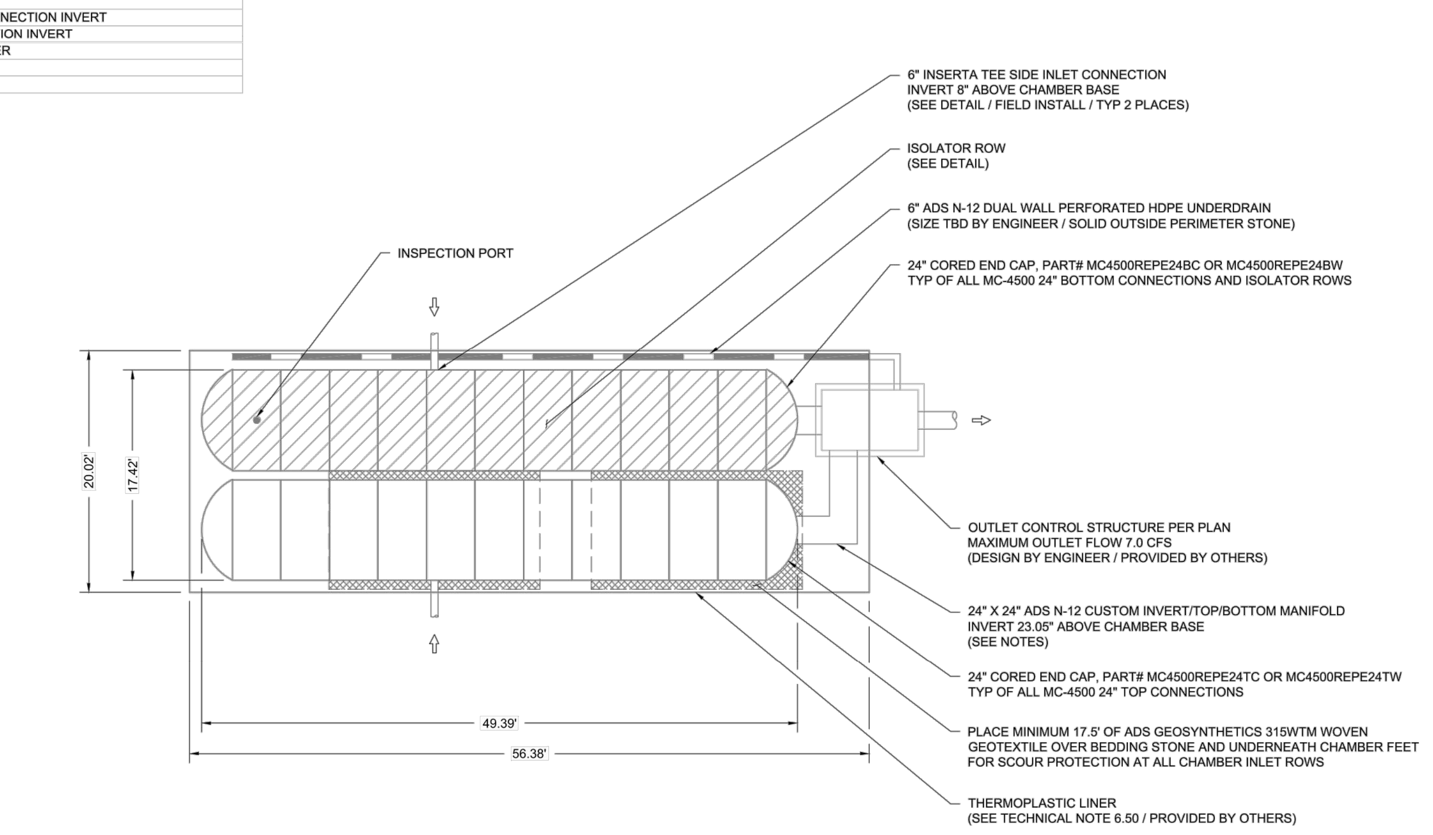
22	STORMTECH MC-4500 CHAMBERS
4	STORMTECH MC-4500 END CAPS
12	STONE ABOVE (in)
9	STONE BELOW (in)
40	% STONE VOID
4537	**INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED)**
1128	SYSTEM AREA (ft²)
153	SYSTEM PERIMETER (ft)

PROPOSED ELEVATIONS

1043.75	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
1039.25	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
1038.75	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
1038.75	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
1038.75	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
1037.75	TOP OF STONE
1036.75	TOP OF MC-4500 CHAMBER
1033.67	24" TOP MANIFOLD INVERT
1032.42	INSERTA TEE SIDE INLET CONNECTION INVERT
1031.94	24" ISOLATOR ROW CONNECTION INVERT
1031.75	BOTTOM OF MC-4500 CHAMBER
1031.00	UNDERDRAIN INVERT
1031.00	BOTTOM OF STONE

NOTES

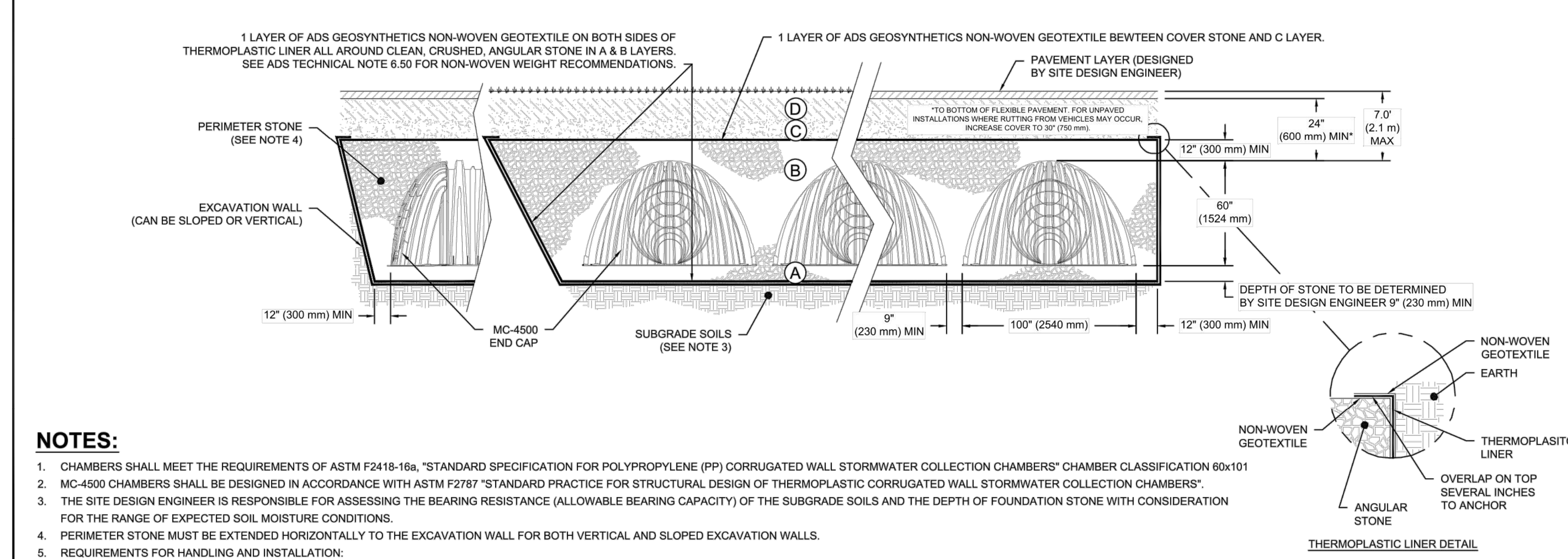
- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECHNICAL NOTE 6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE CHAMBERS TO THE BUILDING/STRUCTURE. NO FOUNDATION LOADS SHALL BE TRANSMITTED TO THE CHAMBERS. THE SITE DESIGN ENGINEER MUST CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON BEARING CAPACITY OF SOILS AND SEEPAGE INTO BASEMENTS.
- ADS DOES NOT DESIGN OR PROVIDE MEMBRANE LINER SYSTEMS. TO MINIMIZE THE LEAKAGE POTENTIAL OF LINER SYSTEMS, THE MEMBRANE LINER SYSTEM SHOULD BE DESIGNED BY A KNOWLEDGEABLE GEOTEXTILE PROFESSIONAL AND INSTALLED BY A QUALIFIED CONTRACTOR.



ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

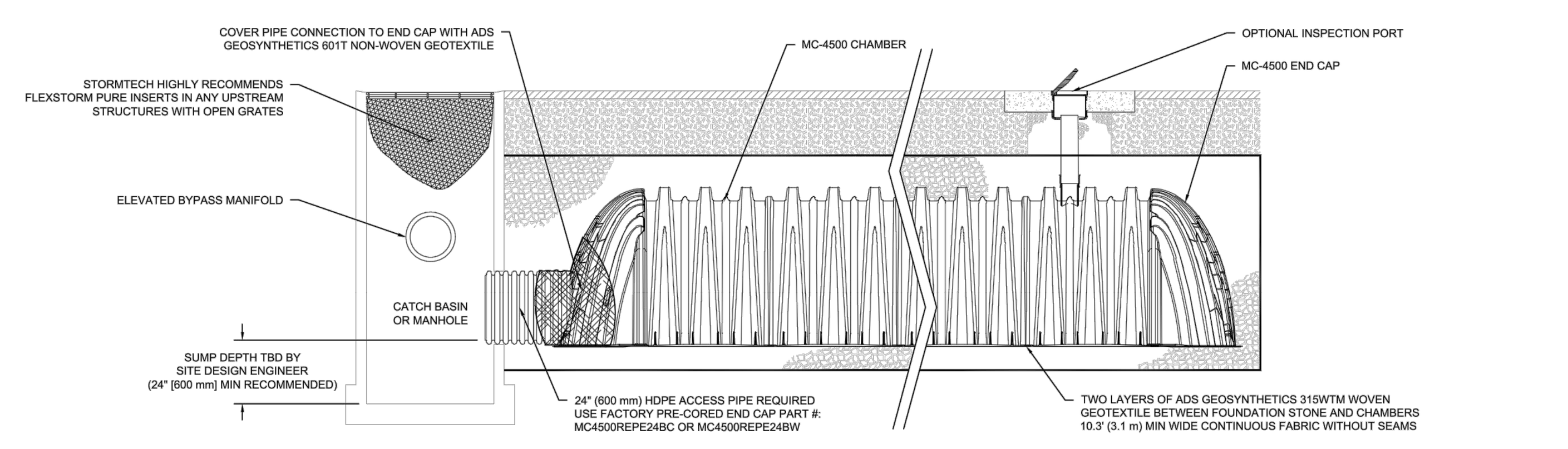
MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.



MC-4500 ISOLATOR ROW DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

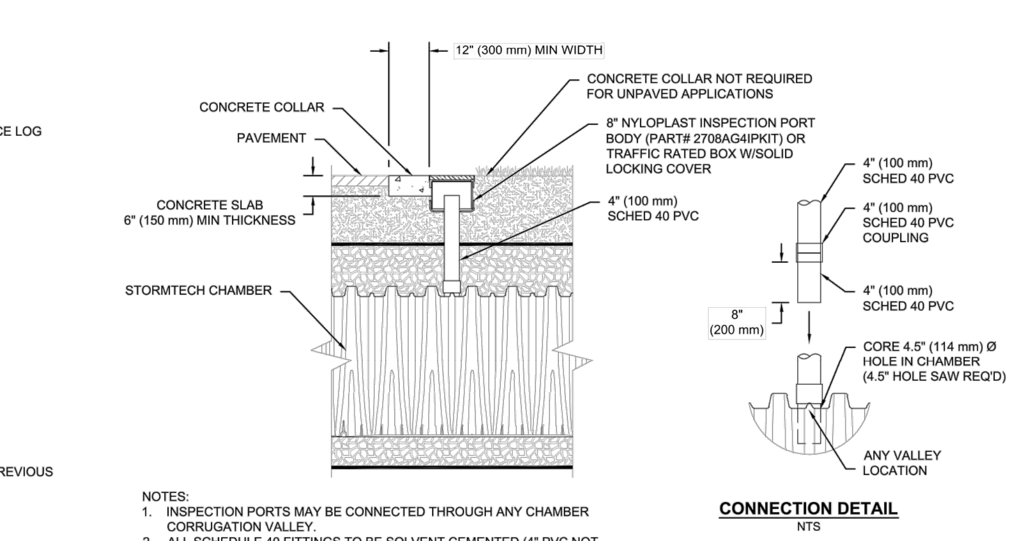
STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

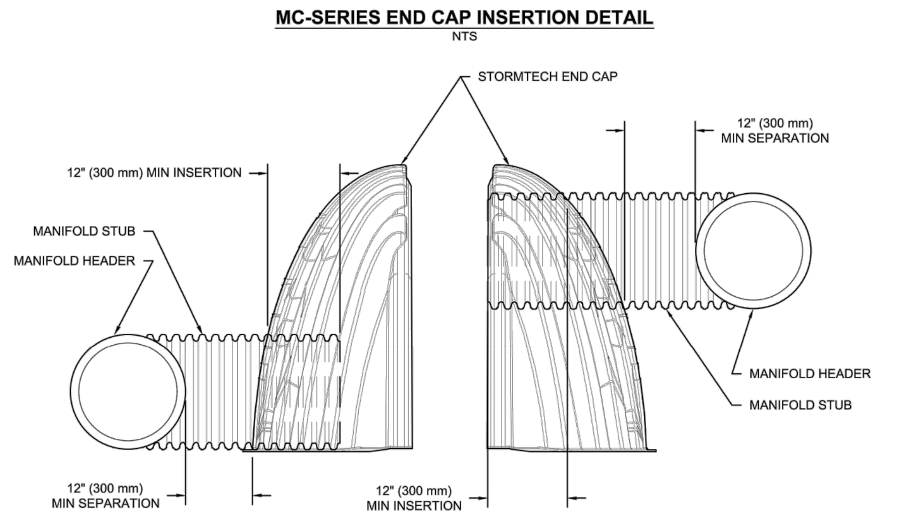


NOTES:
1. INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.
2. ALL SCHEDULE 40 FITTINGS TO BE SOLVENT CEMENTED (4" PVC NOT PROVIDED BY ADS).

CONNECTION DETAIL
NTS

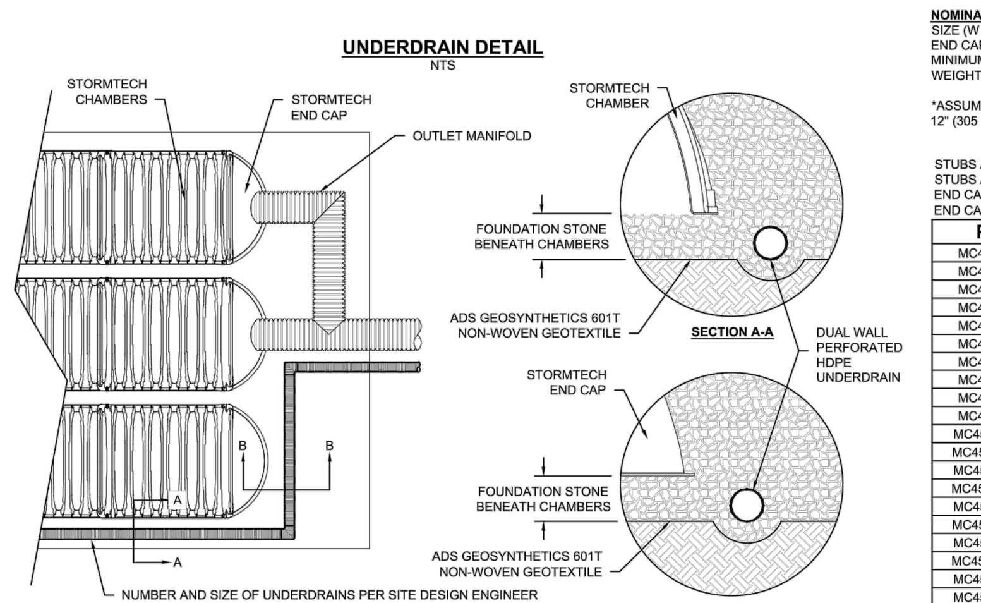
4" PVC INSPECTION PORT DETAIL
NTS

MC-SERIES END CAP INSERTION DETAIL
NTS



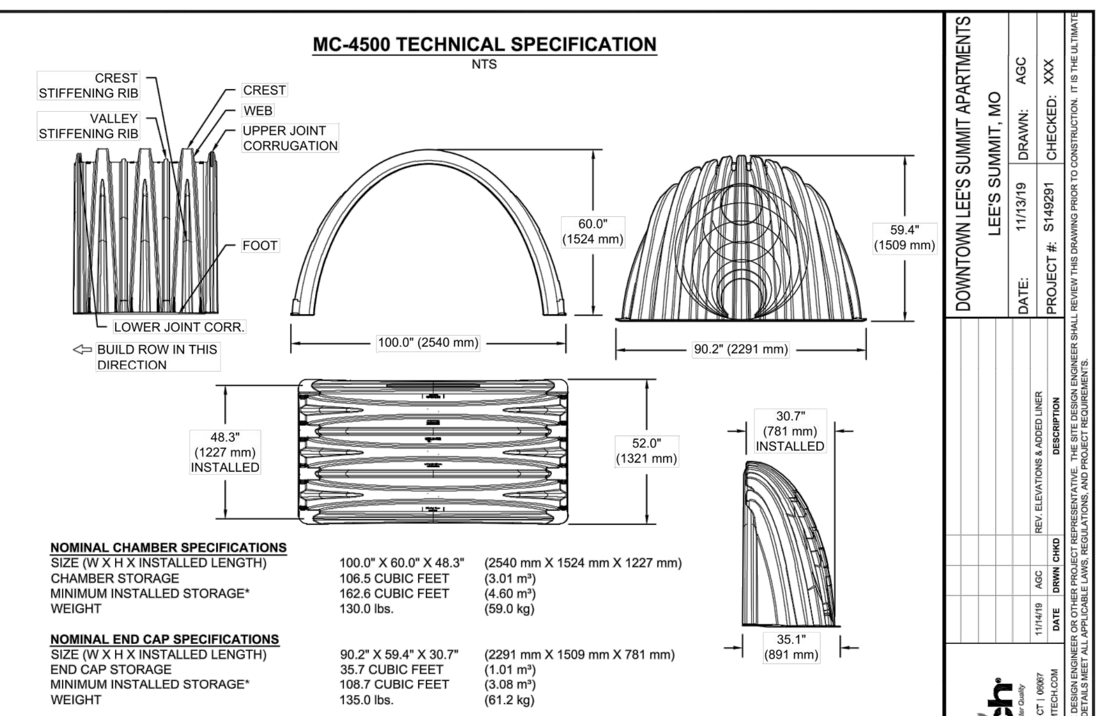
NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

UNDERDRAIN DETAIL
NTS



NUMBER AND SIZE OF UNDERDRAINS PER SITE DESIGN ENGINEER
4" (100 mm) TYP FOR SC-310 & SC-160LP SYSTEMS
6" (150 mm) TYP FOR SC-740, DC-780, MC-3500 & MC-4500 SYSTEMS

MC-4500 TECHNICAL SPECIFICATION
NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 48.3"	(2540 mm X 1524 mm X 1227 mm)
CHAMBER STORAGE	106.5 CUBIC FEET	(3.01 m³)
MINIMUM INSTALLED STORAGE*	162.6 CUBIC FEET	(4.60 m³)
WEIGHT	130.0 lbs.	(59.0 kg)

NOMINAL END CAP SPECIFICATIONS

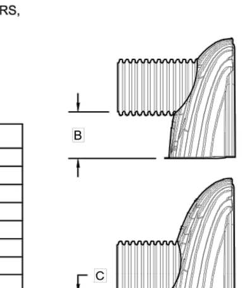
SIZE (W X H X INSTALLED LENGTH)	90.2" X 59.4" X 30.7"	(2291 mm X 1509 mm X 781 mm)
END CAP STORAGE	35.7 CUBIC FEET	(1.01 m³)
MINIMUM INSTALLED STORAGE*	108.7 CUBIC FEET	(3.08 m³)
WEIGHT	135.0 lbs.	(61.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

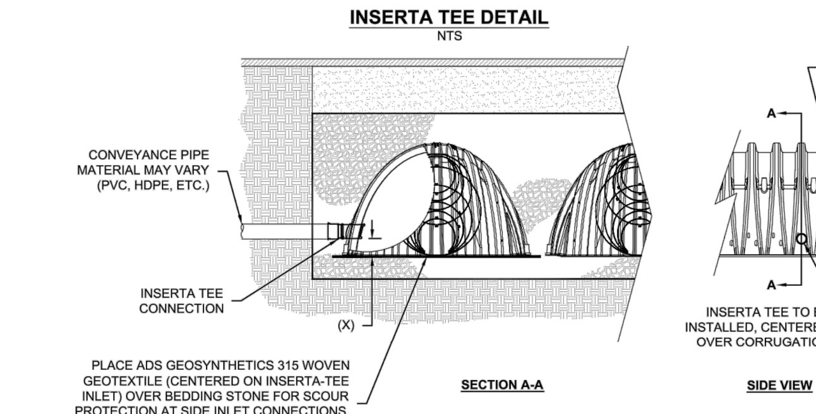
PART #	STUB	B	C
MC4500REPE06T	6" (150 mm)	42.54" (1.081 m)	---
MC4500REPE06B		---	0.86" (22 mm)
MC4500REPE08T	8" (200 mm)	40.50" (1.029 m)	---
MC4500REPE08B		---	1.01" (26 mm)
MC4500REPE10T	10" (250 mm)	38.37" (975 mm)	---
MC4500REPE10B		---	1.33" (34 mm)
MC4500REPE12T	12" (300 mm)	35.69" (907 mm)	---
MC4500REPE12B		---	1.55" (39 mm)
MC4500REPE15T	15" (375 mm)	32.72" (831 mm)	---
MC4500REPE15B		---	1.70" (43 mm)
MC4500REPE18TC	18" (450 mm)	29.36" (746 mm)	---
MC4500REPE18TW			
MC4500REPE18BC		---	1.97" (50 mm)
MC4500REPE18BW			
MC4500REPE24TC	24" (600 mm)	23.05" (585 mm)	---
MC4500REPE24TW			
MC4500REPE24BC		---	2.26" (57 mm)
MC4500REPE24BW			
MC4500REPE30BC	30" (750 mm)	---	2.95" (75 mm)
MC4500REPE36BC	36" (900 mm)	---	3.25" (83 mm)
MC4500REPE42BC	42" (1050 mm)	---	3.55" (90 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-4500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

INSERTA TEE DETAIL
NTS



CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

INSERTA TEE | PO BOX 714 CORNELIUS, OR 97113 PH:(503) 357-2110 FAX:(503) 359-5417 SALES@INSERTATEE.COM

Sheet title blocks (sheets 2–6): DOWNTOWN LEE'S SUMMIT APARTMENTS, LEE'S SUMMIT, MO — DATE: 11/13/19 — DRAWN: AGC — PROJECT #: S149291 — CHECKED: XXX — 11/14/19 AGC REV. ELEVATIONS & ADDED LINER (DATE / DRWN / CHKD / DESCRIPTION) — StormTech, Detention•Retention•Water Quality, 70 INWOOD ROAD, SUITE 3 | ROCKY HILL | CT | 06067, 860-529-8188 | 888-892-2694 | WWW.STORMTECH.COM — ADS, ADVANCED DRAINAGE SYSTEMS, INC., 4640 TRUEMAN BLVD, HILLIARD, OH 43026

SHEET 2 OF 6 · SHEET 3 OF 6 · SHEET 4 OF 6 · SHEET 5 OF 6 · SHEET 6 OF 6

STATE OF MISSOURI — DOUGLAS EUGENE UBBEN, JR. — NUMBER PE-2011010998 — 3/16/20 — PROFESSIONAL ENGINEER

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Olathe, Kansas 66061
(913) 393-1155
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PLANNING
ENGINEERING
IMPLEMENTATION

STORM SEWER DETAILS

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

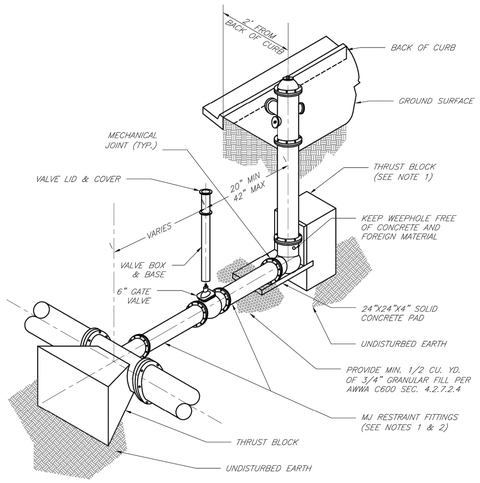
No.	Date	Revisions:	By	App.
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEU

PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEU

CERTIFICATE OF AUTHORIZATION KANSAS
LAND SURVEYING – LS-82
ENGINEERING – E-391

CERTIFICATE OF AUTHORIZATION MISSOURI
LAND SURVEYING-2007001128
ENGINEERING-2007005058

SHEET
C16



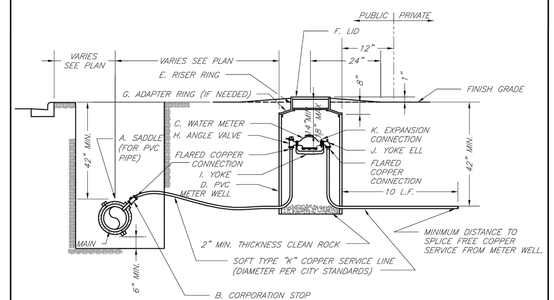
NOTES:

1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.
2. GATE VALVE MAY BE BOLTED DIRECTLY TO MJ RESTRAINT TEE.
3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.
4. BOTTOM HYDRANT FLANGE SHALL BE 2" TO 6" ABOVE FINISHED GRADE.
5. FOR STREETS WITHOUT CURBS FIRE HYDRANTS SHALL BE PLACED WITHIN 1 FOOT OF THE R/W LINE, BUT NOT MORE THAN 10' FROM EDGE OF PAVEMENT. FIRE HYDRANT SHALL NOT BE PLACED IN BOTTOM OF DITCH.
6. HYDRANT SHALL BE ROTATED AS DIRECTED BY INSPECTOR.

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

HYDRANT INSTALLATION – STRAIGHT SET

Date: 02/13
Drawn By: JN
Checked By: DL
FILE: WAT-7
Rev: 1/14
Rev:



TYPICAL METER INSTALLATION – 2" AND SMALLER
NOT TO SCALE

NOTES:

1. METER INSTALLATION SHALL NOT BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC OR IN CONCRETE PAVEMENT WITHOUT CITY APPROVAL.
2. IF METER IS TO BE LOCATED OTHER THAN IN FRONT OF PROPERTY LINE, CITY APPROVAL SHALL BE OBTAINED.
3. CITY TO FURNISH ITEMS A–K.
4. NO OTHER EQUIPMENT SHALL BE INSTALLED IN THIS PIT.
5. 42" MINIMUM BURY DEPTH FOR ALL SERVICE LINES.
6. EXCAVATION FOR TAP TO EXPOSE 4 LINEAR FEET OF MAIN.
7. NO SPLICES ALLOWED BETWEEN METER AND MAIN.
8. SERVICE CONNECTION TAP AT APPROXIMATELY 45 DEGREES.
9. LID AND RISER RING SHALL BE SET SO THAT GROUND WATER WILL DRAIN AWAY FROM THE WELL.
10. CONTACT WATER UTILITIES, 816-969-1900, FOR REQUIREMENTS OF A METER LARGER THAN 2"

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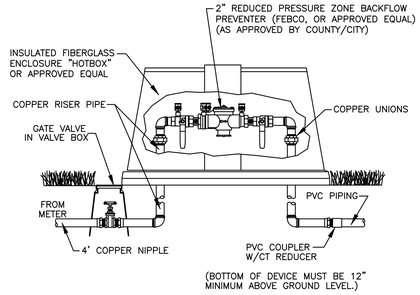
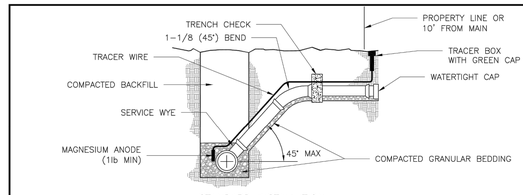
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

SERVICE CONNECTION/METER WELL

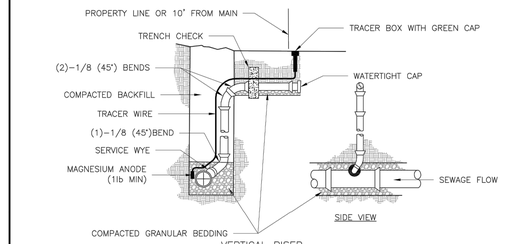
Date: 02/13
Drawn By: JN
Checked By: DL
FILE: WAT-11
Rev: 1/14
Rev:



IRRIGATION BACKFLOW PREVENTOR
N.T.S.



STANDARD INSTALLATION
NOT TO SCALE



VERTICAL RISER
NOT TO SCALE

NOTES:

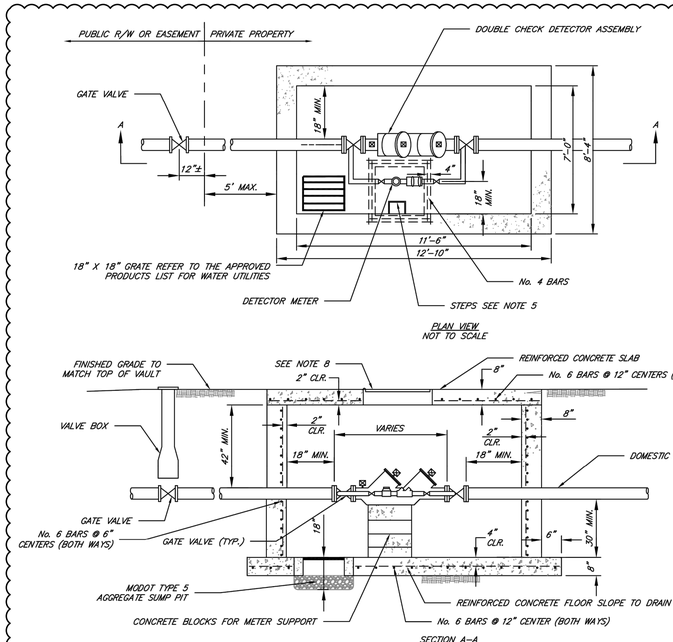
1. ALL SEWER STUBS SHALL BE CONSTRUCTED TO PROPERTY LINE OR 10' MINIMUM FROM THE MAIN. WHERE SIDEWALKS ARE PRESENT, CONTRACTOR SHALL EXTEND SERVICE LINE UNDER EXISTING SIDEWALK TO TWO FEET BEYOND.
2. ALL NEW CONSTRUCTION OFF SEWER STUBS SHALL BE TEMPORARILY MARKED WITH A MARKING STAKE, 36" ABOVE GROUND AND PAINTED GREEN.
3. IMPERVIOUS TRENCH CHECKS SHALL BE PLACED ON BUILDING SEWER STUBS (AT LEAST 5' AWAY FROM THE SANITARY SEWER MAIN).
4. TRENCH CHECKS ON THE BUILDING SEWER STUBS SHALL EXTEND 6" BELOW THE BOTTOM OF THE PIPE. LENGTH SHALL BE A MINIMUM OF 12". THE HEIGHT OF THE TRENCH CHECK SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE. THE WIDTH OF THE TRENCH CHECK SHALL BE THE WIDTH OF THE TRENCH.
5. SEE SPECIFICATION SECTION 2100 FOR SEWER MAIN BEDDING AND BACKFILL.
6. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER.
7. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP. WIRE SHALL BE TAPED OR TIED TO THE PIPE AT 5' INTERVALS.
8. TRACER WIRE BOX SHALL BE INSTALLED WITHIN 1.0' OF PROPERTY LINE.
9. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

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

BUILDING SEWER STUB AND RISER

Date: 04/17
Drawn By: MJF
Checked By: DL

SAN-1



VAULT FOR 3" WATER METER
SCALE: N.T.S.

GENERAL NOTES:

1. METER VAULT WALLS TO BE POURED OR PRECAST CONCRETE. METER VAULT ROOF TO BE REINFORCED CONCRETE WITH OPENING CENTERED OVER DETECTOR METER.
2. METER VAULT TO BE LOCATED, WHEN POSSIBLE, OUTSIDE TRAFFIC AREA AND WHERE SURFACE WATER WILL NOT DRAIN INTO IT.
3. ALL PIPE AND FITTINGS FROM THE CITY WATER MAIN THROUGH THE VAULT SHALL BE PROVIDED WITH RESTRAINED JOINT FITTINGS.
4. ALL FITTINGS FOR THE DETECTOR METER TO BE BRASS.
5. STEPS SHALL BE IN ACCORDANCE WITH THE APPROVED PRODUCTS LIST FOR WATER UTILITIES AND SHALL BE ON 16" CENTERS.
6. A DEPARTMENT OF NATURAL RESOURCES APPROVED DOUBLE CHECK DETECTOR ASSEMBLY BACKFLOW PREVENTER MUST BE USED. FOR A COPY OF THE MISSOURI DEPARTMENT OF NATURAL RESOURCES APPROVED BACKFLOW PREVENTION ASSEMBLIES, CONTACT WATER UTILITIES AT 816-969-1900.
7. ALL VALVES SHALL HAVE RISING STEMS.
8. MANHOLE COVER SHALL BE A BILCO K-1 MODEL UNLESS IN A VEHICLE TRAFFIC AREA. SEE THE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR TRAFFIC CONDITIONS. THE COVER SHALL HAVE A 1-3/4" ø HOLE DRILLED FOR A TOUCH/READ DEVICE.
9. A MINIMUM OF 18" CLEARANCE SHALL BE PROVIDED AROUND ALL PIPING, VALVES, APPURTENANCES, ETC.
10. CONTACT PUBLIC WORKS ENGINEERING FOR VAULTS THAT INCLUDE A FIRE DEPARTMENT CONNECTION OR A 3" OR LARGER METER.
11. AGGREGATES

    AGGREGATES SHALL CONFORM TO THE ASTM C-33 SPECIFICATIONS FOR CONCRETE AGGREGATES. FINE AGGREGATE SHALL CONFORM TO MODOT SPECIFICATION FA-A. COARSE AGGREGATE WILL CONFORM TO THE CA-5 SPECIFICATION. ALL AGGREGATE TO BE SOURCED FROM MODOT PER-APPROVED PRODUCERS.
12. CONCRETE

    CONCRETE SHALL YIELD A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF MIN. 5,000 psi, AND BE MADE WITH AN APPROVED MOBI MIX DESIGN.

    AIR ENTRAINED CONCRETE TO BE USED IN THE CONCRETE MIX, W/R. GRACE PRODUCT DARAVAIR AT6Q, (PRE-QUALIFIED BY MODOT) TO YIELD AN AIR CONTENT OF 6.5% ± 1.5%
13. REINFORCING STEEL

    REINFORCING RODS SHALL CONFORM TO ASTM A-615, GRADE 60 AS FURNISHED WITH CERTIFICATIONS FROM MODOT PRE-QUALIFIED MILLS.

    ALL REINFORCING STEEL SHALL BE CUT AND FORMED TO THE DIMENSIONAL TOLERANCES SPECIFIED IN ACI 318 OR ACI STANDARD 315 EXCEPT WHERE NOTED ON SHOP DRAWINGS.

    ALL REINFORCEMENT SHALL BE CLEAN AND FREE OF LOOSE RUST, SCALE, OIL AND OTHER MATTER WHICH MAY DESTROY OR REDUCE THE BOND.

1

STATE OF MISSOURI
DOUGLAS EUGENE CURTIN, JR.
NUMBER PE-2011010998
PROFESSIONAL ENGINEER
5/16/20

PHELPS ENGINEERING, INC.
1270 N. Winchester
Olathe, Kansas 66061
(913) 393-1155
Fax (913) 393-1066
www.phelpsengineering.com
PLANNING
ENGINEERING
IMPLEMENTATION

SANITARY & WATER DETAILS

DOWNTOWN LEE'S SUMMIT APARTMENTS
114 S.E. DOUGLAS STREET
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

No.	Revisions:	Date	By	App.
1.	REVISED PER CITY COMMENTS	3-16-20	SNH	DEL

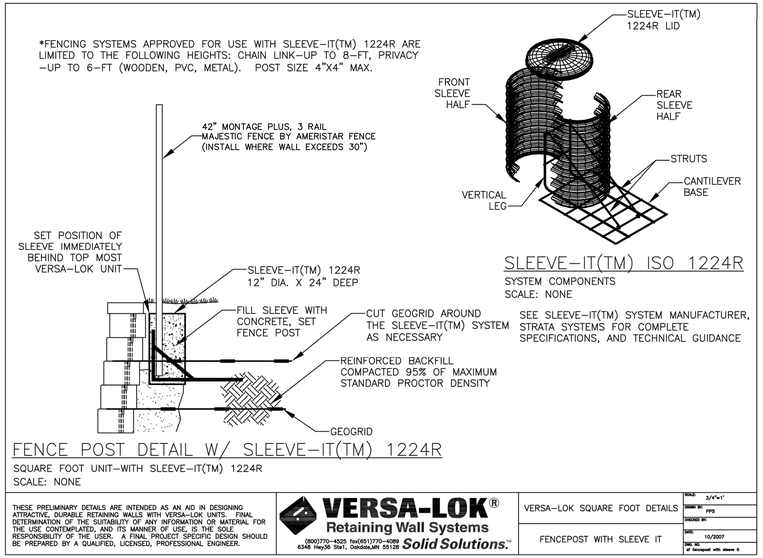
PROJECT NO. 171125
DATE: 01-28-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEL

CERTIFICATE OF AUTHORIZATION
KANSAS ENGINEERING – LS-82
MISSOURI ENGINEERING – E-391

CERTIFICATE OF AUTHORIZATION
LAND SURVEYING-2007001128
ENGINEERING-2007035539

SHEET
C17

\\PHELPS-SERVER\Projects\P\171125\dwg\Permit Plans\DETAILS – PRIVATE.dwg Layout:SWR-WTR 1 Mar 17, 2020 - 8:58am Shelli Hatcher



FENCE POST DETAIL W/ SLEEVE-IT(TM) 1224R

SQUARE FOOT UNIT-WITH SLEEVE-IT(TM) 1224R
SCALE: NONE

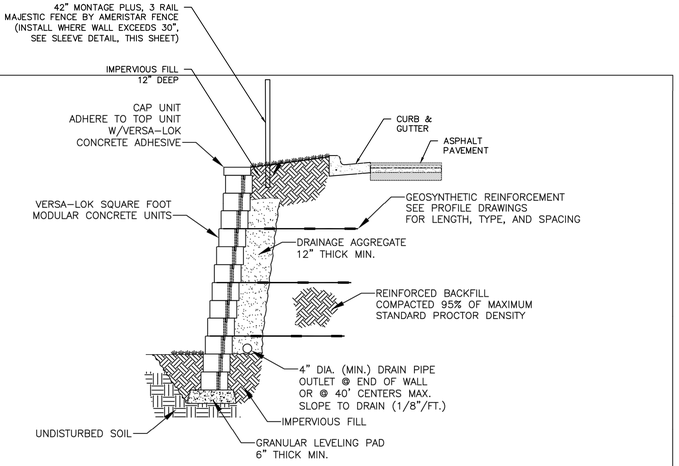
SLEEVE-IT(TM) ISO 1224R

SYSTEM COMPONENTS
SCALE: NONE

THESE PRELIMINARY DETAILS ARE INTENDED AS AN AID IN DESIGNING ATTRACTIVE, DURABLE RETAINING WALLS WITH VERSA-LOK UNITS. FINAL DETERMINATION OF THE SUITABILITY OF ANY INFORMATION OR MATERIAL FOR THE USE CONTEMPLATED, AND ITS MANNER OF USE, IS THE SOLE RESPONSIBILITY OF THE USER. A FINAL PROJECT SPECIFIC DESIGN SHOULD BE PREPARED BY A QUALIFIED, LICENSED, PROFESSIONAL ENGINEER.

VERSA-LOK® Retaining Wall Systems
(800)770-4525 fax(651)770-4089
6348 Hwy36 Stw1, Oakdale,MN 55128
Solid Solutions.™

VERSA-LOK SQUARE FOOT DETAILS	SCALE: 3/4"=1'
	DRAWN BY: PPS
FENCEPOST WITH SLEEVE IT	CHECKED BY:
	DATE: 10/2007
	DWG. NO. sf fencepost with sleeve it



TYPICAL SECTION-REINFORCED RETAINING WALL

SQUARE FOOT MODULAR CONCRETE UNIT
SCALE: NONE

THESE PRELIMINARY DETAILS ARE INTENDED AS AN AID IN DESIGNING ATTRACTIVE, DURABLE RETAINING WALLS WITH VERSA-LOK UNITS. FINAL DETERMINATION OF THE SUITABILITY OF ANY INFORMATION OR MATERIAL FOR THE USE CONTEMPLATED, AND ITS MANNER OF USE, IS THE SOLE RESPONSIBILITY OF THE USER. A FINAL PROJECT SPECIFIC DESIGN SHOULD BE PREPARED BY A QUALIFIED, LICENSED, PROFESSIONAL ENGINEER.

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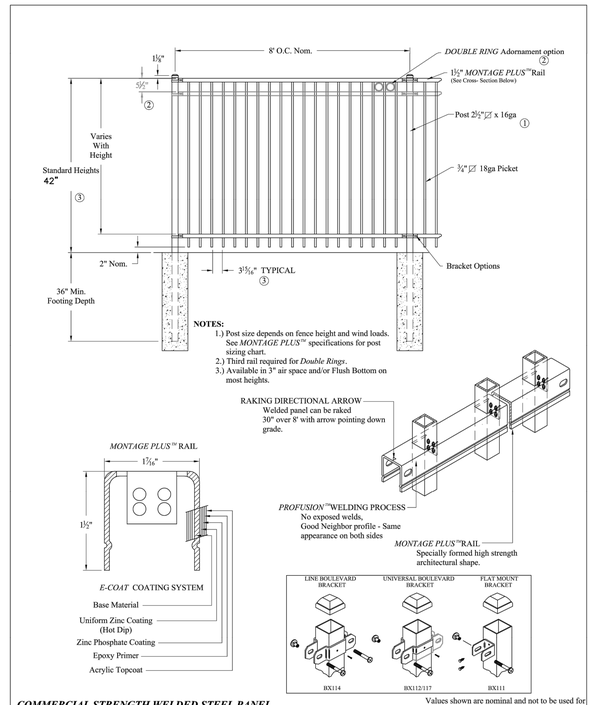
(800)770-4525 fax(651)770-4089
6348 Hwy36 Stw1, Oakdale,MN 55128
Solid Solutions.™

VERSA-LOK SQUARE FOOT DETAILS	SCALE: 3/8"=1'
	DRAWN BY: PPS
REINFORCED TYPICAL SECTION	CHECKED BY:
	DATE: 10/2007
	DWG. NO. sf reinforced section



COMMERCIAL STRENGTH WELDED STEEL PANEL
PRE-ASSEMBLED

Values shown are nominal and not to be used for installation purposes. See product specification for installation requirements.
1RMISO

MONTAGE PLUS MAJESTIC 2/3-RAIL			
DR: CI	SH . 1of 1	SCALE: DO NOT SCALE	
CK: ME	Date 6/28/10		REV: e

AMERISTAR®
1555 N. Mingo
Tulsa, OK 74116
1-888-333-3422
www.ameristarfence.com

HANDRAIL DETAIL AT TOP OF RETAINING WALL

SCALE: N.T.S.

STATE OF MISSOURI
DOUGLAS EUGENE PHELPS JR
NUMBER PE-2011010998
3/16/20
PROFESSIONAL ENGINEER

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PLANNING
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WALL & FENCE DETAILS

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114 S.E. DOUGLAS STREET
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No.	Date	Revisions:	By	App
1.	3-16-20	REVISED PER CITY COMMENTS	SNH	DEU

PROJECT NO. 171125
DATE: 04-26-20 DRAWN: SNH
CHECKED: DAF APPROVED: DEU

CERTIFICATE OF AUTHORIZATION
KANSAS
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MISSOURI
LAND SURVEYING-2007001128
ENGINEERING-2007005208

SHEET
C18